Armando Martinez
Operations Lead, Portfolio Operations Central

VIA ELECTRONIC MAIL

March 25, 2024

New Mexico Oil Conservation Division
1220 S. St. Francis Drive
Santa Fe, NM 88240

Re: Cooper Jal
2023 Stage 1 & 2 Abatement Plan
Incident ID: nAUTOfAB000105
Lea County, New Mexico

Dear whom it concerns,

Please find enclosed for your filed, copies of the following:

- Cooper Jal – 2023 Stage 1 & 2 Abatement Plan

The 2023 Stage 1& 2 Abatement Plan was prepared by Arcadis U.S., Inc. (Arcadis) on behalf of Chevron Environmental Management Company (CEMC).

Please do not hesitate to call Russell Grant with Arcadis at 432.217.2064 or myself at 575.586.7639, should you have any questions.

Sincerely,

Armando Martinez

Encl. Cooper Jal 2023 Stage 1 & 2 Abatement Plan

cc. Amy Barnhill, Chevron/MCBU

Armando Martinez
Operations Lead Central
Portfolio Operations - Central
354 State Highway 38, Questa, NM 87556-0469
Tel 575 586 7639 Mobile 505 690 5408 Fax 575 586 0811
amarti@chevron.com

Chevron Environmental Management Company

2023 STAGE 1 & 2 ABATEMENT PLAN

Cooper-Jal Unit South Injection Station
Section 24, Township 24 South, Range 36 East
Lea County, New Mexico

OGRID No. 4323
Incident ID: nAUTOfAB000105

January 2024

2023 STAGE 1 & 2 ABATEMENT PLAN

Cooper-Jal Unit South Injection Station
Section 24, Township 24 South, Range 36 East
Lea County, New Mexico

Sarah Johnson
Task Manager II

Russell Grant
Certified Project Manager

Prepared for:

Armando Martinez

Operations Lead, Central

Chevron Environmental Management Company

P.O. Box 469

Questa, New Mexico 87556

Prepared by:

Arcadis U.S., Inc.

10205 Westheimer Road

Suite 800

Houston

Texas 77042

Tel 713 953 4800

Fax 713 977 4620

Our Ref:

30183400

Date:

January 2024

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APPENDICES

1 INTRODUCTION TO STAGE 1 ABATEMENT PLAN

Arcadis U.S., Inc. (Arcadis) has prepared this Abatement Plan on behalf of Chevron Environmental Management Company (CEMC), summarizing investigation activities, analytical results and selection of an abatement option for the Cooper-Jal Unit South Injection Station (Site) for submittal to the New Mexico Oil Conservation District (NMOCD) as outlined in Rule 19E(3). The Site is located on Lea County Road J7, approximately five and a half miles northwest of Jal, New Mexico, in Section 24, Township 24 South, Range 36 East, Lea County, New Mexico. The latitude and longitude coordinates of the Site are 32° 12' 7.13" N and 103° 13' 4.36" W.

Land in the vicinity of the Site is utilized primarily for livestock ranching and oil and gas production and has areas of undeveloped rangeland, vegetated with indigenous grass. An injection well facility, operated by Resaca Resources, LLC (Resaca), is located adjacent to the Site. No active Chevron U.S.A. Inc. (Chevron) operations are present in the area. The topography slopes southeast toward Monument Draw located approximately 7.5 miles east and southeast of the Site. A Site Location Map is presented as **Figure 1**.

1.1 Site Background

Site assessment activities were initiated in 1993 when Environmental Spill Control, Inc. (ESCI) of Hobbs, New Mexico, performed a subsurface assessment of an unlined earthen produced water overflow pit, reportedly located adjacent to the western edge of the Site. During the investigation, five boreholes were advanced to depths ranging from 15 feet below ground surface (ft bgs) to 100 ft bgs. The investigation revealed the presence of hydrocarbon-impacted soil. In 1996, Texaco Exploration and Production, Inc. (Texaco) filed a notice of intent to close the pit with the NMOCD. Approximately 1,248 cubic yards (cy) of hydrocarbon-impacted soil were removed from the pit. During the closure activities, the excavation was lined with imported clay and backfilled with imported caliche. Texaco submitted a pit closure report to the NMOCD in December 1996.

In 1997, the NMOCD requested additional assessment activities to define the vertical extent of affected soil beneath the former pit. Assessment activities performed by Highlander Environmental Corporation revealed elevated chloride concentrations in the soil. In October 1997, monitoring well MW-1 was installed near the former pit. Groundwater samples collected from (MW-1) contained chloride concentrations above the New Mexico Water Quality Control Commission (NMWQCC) Human Health Standards for Groundwater (250 milligrams per liter [mg/L]). Assessment activities performed through May 1998 included the installation of 13 additional monitoring wells. In 1998, electromagnetic (EM 34) terrain conductivity surveys were completed to identify areas of elevated chloride concentrations in soil.

In June 1998, Texaco prepared a groundwater corrective action plan to mitigate chloride concentrations and to provide plume containment by extracting groundwater from the affected groundwater-bearing unit (GWBU). Between 1999 and 2013, assessment activities included the installation of wells MW-6R, MW-11 to MW-14, RW-1, RW-2, and RW-2R. Monitoring well MW-6 was plugged and abandoned in September 2013 due to a damaged well casing.

Due to on-site wells (MW-1, MW-2, MW-2A, MW-3, and MW-6R) fully delineating the northern boundary of the chloride plume, monitoring well MW-13, located approximately 1,000 feet up-gradient and off-site, was plugged and abandoned on July 11, 2017.

Historically, chloride concentrations show decreasing trends in upgradient monitoring wells MW-1, MW-2, and MW-5, as shown on concentration versus date graphs in Exhibit 1A, available in the *2018 Annual Groundwater Monitoring Report*. Increasing trends have been observed since 1997 in downgradient monitoring wells MW-7, MW-9, MW-9A, and MW-10, as indicated in Exhibit 1B (available in the *2018 Annual Groundwater Monitoring Report)*, although more recent data indicated that these concentrations are stabilizing with some variability, with the exception of monitor well MW-7. Similar trends are apparent in total dissolved solids (TDS) and sulfate concentrations. There are no significant variations in trends in the observed historical concentrations of fluoride. Based on current and historical concentration data, the groundwater plume at the Site is fully delineated.

1.2 Regulatory Framework

The NMOCD has regulatory jurisdiction over corrective actions conducted at the Site. Corrective actions follow guidance given by the NMOCD in Guidelines for Remediation of Leaks, Spills, and Releases (August 13, 1993). These guidelines require remediation of four constituents of concern (COCs) (chloride, TDS, sulfate, and fluoride) in groundwater to the human health standards of the NMWQCC set forth in New Mexico Administrative Code 20.6.2.3103B as follows:

Analyte	NMWQCC Standard for Groundwater (mg/L)
Chloride	250
TDS	1,000
Fluoride	1.6
Sulfate (SO4)	600

Note: mg/L = milligrams per liter

The original analyte list included carbonate alkalinity, bicarbonate alkalinity, total alkalinity, nitrate-N, calcium, magnesium, potassium, sodium, chloride, TDS, fluoride, and sulfate. In a letter to the NMOCD dated December 15, 2014, GHD (formerly Conestoga-Rovers & Associates, Inc. [CRA]), on behalf of CEMC, requested a reduction in the list of analytical parameters and a reduction in the wells included in the monitoring program. In a subsequent email dated May 19, 2015, the NMOCD approved the reduction of the list of analyses to chloride, TDS, fluoride, and sulfate only. No wells were eliminated from the monitoring program, **Appendix A**. During 2019, Arcadis began management of semi-annual sampling and annual reporting activities for the Site. Upon review of the Site's historical analytical data, Arcadis prepared the Proposed Groundwater Monitoring Reduction Work Plan, **Appendix B**, and submitted to NMOCD for approval in July 2020. NMOCD sent an email on February 13, 2023, approving the Proposed Groundwater Monitoring Reduction Plan, **Appendix C**.

1.3 Soil Boring and Monitor Well Installation

The New Mexico Office of the State Engineer (NMOSE) governs water usage in the State of New Mexico. Applications for Permits to Appropriate Groundwater were submitted by Texaco in October 1999 and were approved with specific conditions in June 2008. A total of 65 acre-feet (ac-ft) per annum from the two on-Site recovery wells (RW-1 and RW-2) was granted by the NMOSE for environmental remediation purposes. Usage of groundwater was granted by the NMOSE under well permits CP-884 (RW-2; 32.5 ac-ft per annum) and CP-885 (RW-1; 32.5 ac-ft per annum), **Appendix D**.

Due to apparent damage at RW-2 that would prevent the installation of a pump, RW-2R was installed under well permit CP-884-POD2 to replace RW-2 in 2013. An application to change the designation of RW-2 from a recovery well to a monitoring well was submitted on December 16, 2016. This was done to allow the well to remain in the monitoring well network instead of being plugged and abandoned. The change was conditionally approved, pending further assessment of the well integrity, by the NMOSE in a telephone conversation on January 9, 2017. On February 10, 2017, GHD further assessed RW-2 and found the annular seal to be compliant with New Mexico Administrative Code (NMAC) 19.27.4.30 Regulations and the well casing and well pad to be in good condition. These findings were documented in a letter sent to the NMOSE on February 16, 2017. Based on GHD's reported understanding of the January 9, 2017, conversation, RW-2 is now designated as a monitoring well.

To date, neither RW-1 nor RW-2R have been equipped for groundwater recovery. RW-2R was converted to a monitoring well per the WR-07 application that was approved on January 12, 2017 (**Appendix E**). Notifications to NMOSE will be submitted if these wells become equipped in the future. Until each well is permanently equipped, an Extension of Time (EOT) request will be sent to the NMOSE. An EOT was received by NMOSE on April 23, 2018. The request was approved in written correspondence and extended through April 30, 2020.

1.3.1 Regional Geologic Conditions

The region is characterized by a surface cover of up to 200 feet of unconsolidated to semi-lithified sediments of the Ogallala Formation consisting of sand, clay, and fluvial gravel. The upper portion of the Ogallala Formation has been heavily cemented by caliche. The Tertiary-aged sediments are underlain by the Triassic-aged Dockum Group shale ("red beds").

1.3.2 Site Geology

Site boring logs used to interpret the Site geology included the October 2013 GHD field work notes and boring logs from previous groundwater assessments. The locations of the soil borings and monitoring wells are shown on **Figure 2**. The subsurface stratigraphy typically included the following:

- A thick sand (approximately 163 ft thick) layer of unconsolidated fine to medium grained sand containing trace caliche nodules;
- A fine sand layer typically ranging from 3 ft to 30 ft thick;
- A sandy clay layer typically ranging from 2 ft to 11 ft thick directly above the upper Dockum "redbeds"; and

- Red and gray weathered shale and mudstone “redbeds” of the Triassic Dockum Group that form the underlying confining layer.

1.3.3 Site Hydrogeology

The uppermost GWBU underlying the Site is the Tertiary Ogallala Aquifer (Ogallala) formation. The depth to groundwater at the Site ranges from approximately 129.89 to 139.62 ft bgs, based on the groundwater monitoring event conducted in November 2023 (**Table 1**). The saturated thickness of the unconfined aquifer ranges from approximately 15 to 30 ft bgs. The saturated thickness varies in conjunction with the elevation of the top of the Dockum shale. The thickest saturated portion of the Ogallala is to the southwest where the bedrock surface of the Dockum is the lowest.

At the Site, the local groundwater flow direction trends to the southeast with an average horizontal hydraulic gradient of approximately 0.00534 feet per foot (ft/ft), as presented on **Figure 3** and **Table 1**. The southeast groundwater flow direction observed at the Site is consistent with the regional groundwater flow direction to the southeast in the Ogallala Aquifer. The deflection to the east at the eastern property boundary is likely related to the break of the slope of the land towards the Monument Draw to the east.

1.3.4 Water Well Inventory

A summary of the 15 registered water wells located inside and within one mile of the perimeter of the three-dimensional contaminate plume is included in **Table 2**. The closest registered water well is approximately 3,431 feet from the northern plume boundary.

1.3.5 Surface Water Hydrology

The Monument Draw is located approximately 7.5 miles east and southeast of the Site. The magnitude of contamination and impacts to the Monument Draw, defined by conducting a biological assessment of fish, benthic macroinvertebrates and other wildlife populations has not been investigated. No other surface water bodies were identified.

1.4 Site-Wide Groundwater Conditions

The stratification of chloride-affected groundwater is monitored with selectively screened wells within the GWBU. Shallow wells (MW-2A, MW-4A, MW-5A, and MW-9A) are screened across the upper portion of the water table. Deep wells (MW-1 through MW-5 and MW-7 through MW-10), along with off-site upgradient monitor well MW-12 are screened across the bottom 10-20 feet of the saturated zone. Fully penetrating wells (MW-6R, MW-11, MW-14, RW-1, RW-2, and RW-2R) are screened across the entire saturated zone.

Aquifer testing was performed on October 2, 2013, on recovery well RW-2R. To assess the radius of influence of the pumping from this well, water levels were measured in monitor well RW-2 and six other monitor wells (MW-14, MW-4A, MW-5, MW-5A, MW-7 and MW-10). A pumping rate of approximately 6 gallons per minute (gpm) [approximately 10 acre-ft/yr] and a drawdown of 19 feet were sustained for the duration of the test period (approximately eight hours). Evaluation of the data resulted in a calculated aquifer transmissivity of 25.62 ft^2/day (0.73 ft/day). Additional information about the aquifer testing can be found in the *2013 Annual Groundwater Monitoring Report*, submitted in February 2014.

On March 21 and 23, 2017, GHD performed single well response testing (slug testing) on 10 monitor wells at the Site. The results were then evaluated using AQTESOLV v4.5. The hydraulic conductivity values

observed ranged from 0.23 to 3.76 feet per day (ft/d), with a 1.79 ft/d geometric mean. The results were mostly within an order of magnitude of each other, suggesting a homogeneous aquifer, and were consistent with previous results.

1.5 Groundwater Monitoring Program

Groundwater at the Site was gauged and sampled semi-annually per the 2015 sampling analysis plan (SAP) (**Appendix A**) from a network of 18 monitoring wells and 2 recovery wells. A Site Details Map is presented as **Figure 2**. Cumulative summary tables of groundwater analytical results and potentiometric elevation data obtained for the Site from 1998 through 2023 are presented in **Tables 1** and **3**, respectively. Copies of the 2016 through 2023 certified analytical reports and chain-of-custody documentation from Xenco Laboratories, Eurofins TestAmerica and Pace Laboratories are provided in **Appendix F**. Analytical reports generated before 2016 can be found in annual groundwater monitoring reports submitted to the NMOCD prior to 2016.

Analytical isoconcentration maps showing the most recent interpretation of the chloride, and TDS plumes extrapolated from analytical data collected during 2023 are presented on **Figures 4** through **5.**

Prior to sampling, static fluid water levels are measured with an electronic interface probe to the nearest hundredth of a foot and recorded. In addition, a conductivity probe is used to record the down hole conductivity levels every 2 feet in each well to evaluate the vertical distribution of chloride-affected groundwater. After recording conductivity levels, discrete samples are collected at the interval of highest conductivity using a Hydrasleeve™. All non-disposable groundwater sampling equipment are thoroughly decontaminated between measurements to prevent possible cross-contamination between wells.

Laboratory-supplied sample containers are filled directly from the Hydrasleeve™. Groundwater samples were placed on ice in insulated coolers and chilled to a temperature of approximately 4°C (40°F). The coolers were sealed for shipment with proper chain-of-custody documentation and shipped to Pace Laboratories, located in Mt. Juliet, Tennessee for analysis of chloride and sulfate by Environmental Protection Agency (EPA) Method 300.0 and TDS by SM 2540C.

All excess purge water is collected onsite in a new 55-gallon steel drum. Excess purged groundwater is classified as Oil and Gas (O&G) exploratory waste and disposed of at a facility which meets both Chevron and State requirements. The O&G groundwater waste is disposed of after the completion of each year's second semi-annual monitoring event.

Upon the completion of both Site semi-annual groundwater monitoring events, the field and analytical data will be used to prepare an annual Site groundwater monitoring report. This report will be prepared and provided for submittal to NMOCD by the end of the following year's first quarter. Semiannual groundwater monitoring activities and annual reporting to the NMOCD for this Site have been performed by GHD from 2005 to 2018 and by Arcadis since 2019 and are currently on-going per the SAP.

In an effort to keep Arcadis employees, subcontractors safe from possible Site hazards, a site-specific health and safety plan (HASP) was created to identify Site hazards and instructions on how to mitigate these hazards when performing various Site activities. A copy of the HASP will be submitted upon request.

2 STAGE 2 ABATEMENT PLAN

2.1 Proposed Groundwater Reduction Plan

The reduced SAP was implemented during the second semiannual event in 2020. NMOCD approved the reduced SAP, with the addition of collecting annual sulfate analysis from MW-4A and RW-2R, in an email dated February 13, 2023. The first semiannual monitoring event includes sampling all Site wells, and the second semiannual sampling event was reduced to only sampling select monitoring and recovery wells. Details of the NMOCD approved 2023 Revised SAP are included in **Appendix C**.

2.2 Groundwater Model Development and Conclusions

A Site-specific, three-dimensional groundwater flow and solute transport model completed August 10, 2020 was used to assess potential remediation approaches to mitigate the chloride plume beneath the Site. Arcadis constructed the model to evaluate plume transport under three scenarios:

- Scenario 1 – Monitored Natural Attenuation (non-pumping condition). Chloride attenuation below 250 mg/L is not expected within 50-years,
- Scenario 2 – Five (5) recovery wells with time-varying strategic pumping conditions. Chloride attenuation below 250 mg/L is expected to be achieved in approximately 25 years, and
- Scenario 3 – Seven (7) recovery wells with time-varying strategic pumping conditions. Chloride attenuation below 250 mg/L is expected to be achieved in approximately 15 years.

The results to these scenarios and corresponding figures can be found in **Appendix G.** The preferred method of groundwater remediation on Site is to design a recovery system to achieve the target extraction flowrates and volumes that are detailed in **Appendix E**, under scenario 3.

Scenario 3 predicts that site groundwater attenuation below 250 mg/L can be achieved in a three phased approach spanning approximately 15 years. System operation target flowrates and duration required to meet scenario 3 can be seen in the table below:

Modeling Phase	Simulated Time Period (Years)	Total Pumping Rate (GPM)	Total Number of Operational Recovery Wells	Operating Recovery Wells
Phase 1	0 to 10	7.1	7	RW-1 through RW-7
Phase 2	10 to 13	5.9	5	RW-3 through RW-7
Phase 3	13 to 15	5.1	3	RW-3 through RW-5

2.3 Stage 2 Plans: Proposed Workplan

Arcadis will continue to sample the Site monitoring wells on a semiannual basis as outlined in the 2023 Revised SAP approved by NMOCD on February 13, 2023 (**Appendix C**). All Site wells will be gauged to determine depth to water and depth to LNAPL if present. Groundwater samples will be collected and analyzed for chloride, TDS, and Sulfate by a state approved laboratory.

2.3.1 Proposed Groundwater Remediation System

Based on the conclusions from the "Cooper-Jal Groundwater Model" attached as **Appendix G**, Arcadis proposes designing a groundwater recovery system to meet Scenario 3 detailed above in Section 2.2 to remediate chloride impacted groundwater. The proposed groundwater extraction system will consist of a network of seven total onsite extraction wells (two current onsite recovery wells [RW-1 and RW-2R] and five additional recovery wells). The seven extraction wells will be connected to a surface buried header line connected to an aboveground storage tank, or series of tanks with an anticipated storage capacity of 300 BBLs, **Appendix G**. The ASTs will be positioned within a lined secondary containment with a capacity of 110% or greater of the onsite AST capacity. The extracted chloride impacted groundwater will be pumped into an onsite AST for later transport and disposal in a saltwater disposal (SWD) well. Two options will be considered for SWD disposal methods; (1) extracted groundwater will be transported off-site for disposal down an off-site SWD, or (2) extracted groundwater will be hard lined to a nearby SWD injection facility.

The chloride impacted groundwater is expected to be attenuated below 250 mg/L in 15 years upon completion of the three-phase approach outlined in Scenario 3 of the Cooper Jal Model Memo (**Appendix G**). NMOSE has previously agreed to approve CP-884 and CP-885 upon proof of well completion for 32.5 ac-ft per annum each, **Appendix D**. Phase 1 of scenario 3 requires a total combined pumping rate from all

seven recovery wells of 7.1 gpm, which would not exceed the previously agreed approval of 32.5 ac-ft per annum. **Appendix H** includes the initial high-level proposed recovery system diagram. Phases 2 and 3 will decrease the total combined extraction flow rate to 5.9 gpm and 5.1 gpm respectively. Flowmeters will be installed on each system recovery well to measure flowrate and total gallons extracted. Additional flowmeters will be installed on the influent and effluent process piping of the 300 BBL AST.

Upon NMOCD's concurrence of the proposed chloride recovery system, Arcadis will complete the recovery system design and begin securing the required water usage permitting. Quarterly progress reports will be prepared and provided to NMOCD through the design completion, permitting and construction of the proposed groundwater recovery system. Additionally, prior to the recovery system start-up, an operation and maintenance plan will be developed and will outline frequency of site visit/inspections, data/sample collections, frequency of critical safety devices, and procedure for responding to system alarm notifications. Arcadis will work with NMOCD to determine which of this data will be prepared and included in quarterly progress reports throughout the life cycle of the remediation process.

2.4 Abatement Plan Implementation Schedule and Reporting

Upon receiving approval for the Stage 1 & 2 Abatement plans from the NMOCD, Arcadis will provide a remediation work plan detailing the proposed recovery well and ancillary remediation system construction design within six months of the approval notice. The proposed recovery system activities, including the installation of five additional recovery wells, will commence within one year of approval notice.

Arcadis will continue to sample the Site monitoring wells on a semiannual basis as outlined in the 2023 revised SAP, **Appendix C**. All Site wells will be gauged to determine depth to water and depth to LNAPL if present. Groundwater samples will be collected and analyzed at a state approved laboratory. Results from the semiannual monitoring events will be summarized in an annual report for submittal to the NMOCD. The report will include:

- A scaled Site plan showing locations of all on-Site wells with sampling results and other relevant Site features;
- Tabulated gauging and analytical results;
- Figures showing locations and results;
- Geotagged photographic documentation of field activities;
- Gradient maps and laboratory analytical data sheets; and
- Recovery well recovered volume reports submitted to the NMOSE in accordance with permit requirements.

Arcadis will work with NMOCD and NMOSE to determine additional reporting frequencies and information throughout the design, construction, system start-up, and remediation life cycle.

2.5 Public Notification

Once NMOCD has approved the Stage 1 and 2 Abatement Plan and the site-specific addendum is administratively complete, the draft written notification letter, **Appendix I**, will be sent to the following individuals and entities.

- Surface owners of record within one mile of the perimeter of the affected area;
- The local County Commissioners;

- Individuals or organizations requesting notification that are identified by the director; and
- All others as directed by the Director of the New Mexico Energy, Minerals and Natural Resources Department.

Within fifteen days after receiving notice from the NMOCD that the general Stage 1 and 2 Abatement Plan is administratively complete, CEMC will issue a public notice, **Appendix I**, in the newspapers with county and statewide circulation (such as the Jal Record, Hobbs News-Sun and the Albuquerque Journal).

The public notice will include the following:

- Name and address of the responsible party;
- Location of the proposed abatement;
- Description of the source, extent, and estimated volume of release and affected media;
- Description of the Stage 1 and 2 Abatement Plan;
- Description of the procedure required by the Director before making a final determination;
- Statement that the Abatement Plan can be viewed at the Division office in Hobbs, New Mexico or electronically from a Division maintained site;
- Statement that the Director will consider the following comments and requests if received within 30 days after publication of the public notice:
  - Written comments on the Abatement plan.
  - For Stage 2 Abatement plan, written requests for public hearing that includes reasons why a hearing should be held.
  - Address and telephone number at which interested persons may obtain further information.

3 CONCLUSION

This Stage 1 and 2 Abatement Plan pursuant to 19.15.30.9 NMAC is being submitted to the NMOCD to illustrate the abatement options available to CEMC for the remediation of chloride impacted groundwater associated with the release of nAUTOfAB000105 in Lea County, New Mexico. This document illustrates industry standard remediation options available to date that are suitable to current site conditions. Future technological advances, modifications to NMAC and/or changes in site conditions may require modifications of this document and the abatement options as illustrated.

With concurrence from NMOCD to move forward with the proposed Chloride Impacted Groundwater Recovery System, Arcadis will develop a complete system design to meet the flowrates exhibited in Scenario 3 of the Groundwater Model detailed in **Appendix G.**

TABLES

Table 1
Cumulative Summary of Potentiometric Elevation Data
Cooper-Jal Unit South Injection Station
Lea County, New Mexico

ARCADIS

Well ID TOC Elevation (ft MSL)	Collection Date	Depth to Groundwater (ft below TOC)	Groundwater Elevation (ft MSL)	Constructed Depth (ft below TOC)	Casing Diameter (in)	Well Screen Interval (ft bgs)
MW-1	05/18/98	135.05	3184.95	173.00	2.00	153-173
3320.00	05/25/99	134.93	3185.07	---	---	---
	02/08/01	134.80	3185.20	---	---	---
	05/10/02	134.77	3185.23	---	---	---
	10/22/02	134.89	3185.11	---	---	---
	05/20/03	135.17	3184.83	---	---	---
	11/24/03	134.70	3185.30	---	---	---
	05/11/04	134.75	3185.25	---	---	---
	11/15/04	134.76	3185.24	---	---	---
	05/17/05	134.29	3185.71	---	---	---
	11/15/05	134.93	3185.07	---	---	---
	05/08/06	134.68	3185.32	---	---	---
	11/13/06	134.62	3185.38	---	---	---
	05/29/07	134.71	3185.29	---	---	---
	11/16/07	134.70	3185.30	---	---	---
	05/14/08	134.73	3185.27	---	---	---
	11/03/08	134.69	3185.31	---	---	---
	05/19/09	134.64	3185.36	---	---	---
	11/02/09	134.71	3185.29	---	---	---
	05/05/10	134.90	3185.10	---	---	---
	11/08/10	134.50	3185.50	---	---	---
	05/11/11	134.60	3185.40	---	---	---
	11/08/11	134.64	3185.36	---	---	---
	05/16/12	134.60	3185.40	---	---	---
	10/10/12	134.73	3185.27	---	---	---
	05/16/13	134.58	3185.42	---	---	---
	10/08/13	134.53	3185.47	---	---	---
	05/01/14	134.70	3185.30	---	---	---
	10/05/14	134.49	3185.51	---	---	---
	05/21/15	134.56	3185.44	---	---	---
	10/19/15	134.80	3185.20	---	---	---
	05/25/16	134.69	3185.31	---	---	---
	10/17/16	134.35	3185.65	---	---	---
	05/10/17	134.44	3185.56	---	---	---
3321.94	10/24/17	134.63	3187.31	---	---	---
	05/22/18	134.45	3187.49	---	---	---
	10/17/18	134.54	3187.40	---	---	---
	06/20/19	134.56	3187.38	171.17	---	---
	04/13/20	134.56	3187.38	---	---	---
	10/12/20	134.72	3187.22	---	---	---
	06/21/21	134.58	3187.36	---	---	---
	12/06/21	134.57	3187.37	---	---	---
	08/22/22	134.47	3187.47	---	---	---
	12/21/22	134.38	3187.56	---	---	---
	07/20/23	134.52	3187.42	---	---	---
	11/13/23	134.45	3187.49	---	---	---

Table 1
Cumulative Summary of Potentiometric Elevation Data
Cooper-Jal Unit South Injection Station
Lea County, New Mexico

Well ID TOC Elevation (ft MSL)	Collection Date	Depth to Groundwater (ft below TOC)	Groundwater Elevation (ft MSL)	Constructed Depth (ft below TOC)	Casing Diameter (in)	Well Screen Interval (ft bgs)
MW-2	05/18/98	135.00	3184.86	173.00	2.00	163-173
3319.86	05/25/99	134.79	3185.07	---	---	---
	02/08/01	134.63	3185.23	---	---	---
	05/10/02	134.65	3185.21	---	---	---
	10/22/02	134.72	3185.14	---	---	---
	05/20/03	134.95	3184.91	---	---	---
	11/24/03	134.56	3185.30	---	---	---
	05/11/04	134.55	3185.31	---	---	---
	11/15/04	134.53	3185.33	---	---	---
	05/17/05	134.39	3185.47	---	---	---
	11/15/05	134.77	3185.09	---	---	---
	05/08/06	134.52	3185.34	---	---	---
	11/13/06	134.44	3185.42	---	---	---
	05/29/07	134.54	3185.32	---	---	---
	11/14/07	134.52	3185.34	---	---	---
	05/14/08	134.53	3185.33	---	---	---
	11/03/08	134.44	3185.42	---	---	---
	05/19/09	134.46	3185.40	---	---	---
	11/16/09	134.51	3185.35	---	---	---
	05/05/10	134.62	3185.24	---	---	---
	11/08/10	134.25	3185.61	---	---	---
	05/11/11	134.31	3185.55	---	---	---
	11/08/11	134.36	3185.50	---	---	---
	05/16/12	134.31	3185.55	---	---	---
	10/10/12	134.51	3185.35	---	---	---
	05/16/13	134.33	3185.53	---	---	---
	10/07/13	142.85	3177.01	---	---	---
	05/01/14	134.37	3185.49	---	---	---
	10/05/14	134.14	3185.72	---	---	---
	05/21/15	134.21	3185.65	---	---	---
	10/19/15	134.20	3185.66	---	---	---
	05/25/16	134.38	3185.48	---	---	---
	10/17/16	134.00	3185.86	---	---	---
	05/10/17	134.13	3185.73	---	---	---
3321.27	10/25/17	134.32	3186.95	---	---	---
	05/22/18	134.11	3187.16	---	---	---
	10/17/18	134.21	3187.06	---	---	---
	06/20/19	134.27	3187.00	168.39	---	---
	04/13/20	134.2	3187.07	---	---	---
	10/12/20	134.49	3186.78	---	---	---
	06/21/21	134.39	3186.88	---	---	---
	12/06/21	134.21	3187.06	---	---	---
	08/22/22	134.16	3187.11	---	---	---
	12/21/22	143.07	3178.20	---	---	---
	07/20/23	134.20	3187.07	---	---	---
	11/13/23	134.11	3187.16	---	---	---

Table 1
Cumulative Summary of Potentiometric Elevation Data
Cooper-Jal Unit South Injection Station
Lea County, New Mexico

Well ID TOC Elevation (ft MSL)	Collection Date	Depth to Groundwater (ft below TOC)	Groundwater Elevation (ft MSL)	Constructed Depth (ft below TOC)	Casing Diameter (in)	Well Screen Interval (ft bgs)
MW-2A	05/18/98	134.80	3185.06	145.00	2.00	130-145
3319.86	05/25/99	134.73	3185.13	---	---	---
	02/08/01	134.58	3185.28	---	---	---
	05/10/02	134.50	3185.36	---	---	---
	10/22/02	134.66	3185.20	---	---	---
	05/20/03	135.80	3184.06	---	---	---
	11/24/03	134.60	3185.26	---	---	---
	05/11/04	134.53	3185.33	---	---	---
	11/15/04	134.58	3185.28	---	---	---
	05/17/05	134.47	3185.39	---	---	---
	11/15/05	134.74	3185.12	---	---	---
	05/08/06	134.46	3185.40	---	---	---
	11/13/06	134.39	3185.47	---	---	---
	05/29/07	134.50	3185.36	---	---	---
	11/14/07	134.48	3185.38	---	---	---
	05/14/08	134.49	3185.37	---	---	---
	11/03/08	134.46	3185.40	---	---	---
	05/19/09	134.42	3185.44	---	---	---
	11/02/09	134.45	3185.41	---	---	---
	05/05/10	134.52	3185.34	---	---	---
	11/08/10	134.30	3185.56	---	---	---
	05/11/11	134.38	3185.48	---	---	---
	11/08/11	134.42	3185.44	---	---	---
	05/16/12	134.43	3185.43	---	---	---
	10/10/12	134.65	3185.21	---	---	---
	05/16/13	134.35	3185.51	---	---	---
	10/07/13	134.20	3185.66	---	---	---
	05/01/14	134.45	3185.41	---	---	---
	10/05/14	134.15	3185.71	---	---	---
	05/21/15	134.32	3185.54	---	---	---
	10/19/15	134.40	3185.46	---	---	---
	05/25/16	134.49	3185.37	---	---	---
	10/17/16	134.10	3185.76	---	---	---
	05/10/17	134.29	3185.57	---	---	---
3321.30	10/25/17	134.40	3186.90	---	---	---
	05/22/18	134.31	3186.99	---	---	---
	10/17/18	134.31	3186.99	---	---	---
	06/20/19	134.43	3186.87	142.47	---	---
	04/13/20	134.29	3187.01	---	---	---
	10/12/20	134.45	3186.85	---	---	---
	06/21/21	134.29	3187.01	---	---	---
	12/06/21	134.29	3187.01	---	---	---
	08/22/22	134.23	3187.07	---	---	---
	12/21/22	134.14	3187.16	---	---	---
	07/20/23	134.25	3187.05	---	---	---
	11/13/23	134.19	3187.11	---	---	---

Table 1
Cumulative Summary of Potentiometric Elevation Data
Cooper-Jal Unit South Injection Station
Lea County, New Mexico

Well ID TOC Elevation (ft MSL)	Collection Date	Depth to Groundwater (ft below TOC)	Groundwater Elevation (ft MSL)	Constructed Depth (ft below TOC)	Casing Diameter (in)	Well Screen Interval (ft bgs)
MW-3	05/18/98	132.65	3185.56	171.00	2.00	161-171
3318.21	05/25/99	132.52	3185.69	---	---	---
	02/08/01	132.40	3185.81	---	---	---
	05/10/02	132.40	3185.81	---	---	---
	10/22/02	132.49	3185.72	---	---	---
	05/20/03	132.75	3185.46	---	---	---
	11/24/03	132.29	3185.92	---	---	---
	05/11/04	132.38	3185.83	---	---	---
	11/15/04	132.46	3185.75	---	---	---
	05/17/05	132.32	3185.89	---	---	---
	11/15/05	132.55	3185.66	---	---	---
	05/08/06	132.32	3185.89	---	---	---
	11/13/06	132.27	3185.94	---	---	---
	05/29/07	132.36	3185.85	---	---	---
	11/16/07	132.34	3185.87	---	---	---
	05/14/08	132.36	3185.85	---	---	---
	11/03/08	132.31	3185.90	---	---	---
	05/19/09	132.25	3185.96	---	---	---
	11/02/09	132.37	3185.84	---	---	---
	05/05/10	132.48	3185.73	---	---	---
	11/08/10	132.14	3186.07	---	---	---
	05/11/11	132.24	3185.97	---	---	---
	11/08/11	132.30	3185.91	---	---	---
	05/16/12	132.25	3185.96	---	---	---
	10/10/12	132.54	3185.67	---	---	---
	05/16/13	132.25	3185.96	---	---	---
	10/08/13	132.14	3186.07	---	---	---
	05/01/14	132.10	3186.11	---	---	---
	10/05/14	132.58	3185.63	---	---	---
	05/21/15	132.25	3185.96	---	---	---
	10/19/15	132.25	3185.96	---	---	---
	05/25/16	132.34	3185.87	---	---	---
	10/17/16	132.00	3186.21	---	---	---
	05/10/17	132.21	3186.00	---	---	---
3320.08	10/24/17	132.30	3187.78	---	---	---
	05/22/18	132.15	3187.93	---	---	---
	10/17/18	132.21	3187.87	---	---	---
	06/20/19	132.24	3187.84	171.93	---	---
	04/13/20	132.32	3187.76	---	---	---
	10/12/20	132.36	3187.72	---	---	---
	06/22/21	132.12	3187.96	---	---	---
	12/06/21	132.16	3187.92	---	---	---
	08/22/22	132.03	3188.05	---	---	---
	12/21/22	132.00	3188.08	---	---	---
	07/21/23	132.21	3187.87	---	---	---
	11/13/23	132.07	3188.01	---	---	---

Table 1
Cumulative Summary of Potentiometric Elevation Data
Cooper-Jal Unit South Injection Station
Lea County, New Mexico

Well ID TOC Elevation (ft MSL)	Collection Date	Depth to Groundwater (ft below TOC)	Groundwater Elevation (ft MSL)	Constructed Depth (ft below TOC)	Casing Diameter (in)	Well Screen Interval (ft bgs)
MW-4	05/18/98	136.01	3183.73	171.00	2.00	161-171
3319.74	05/25/99	135.57	3184.17	---	---	---
	02/08/01	135.87	3183.87	---	---	---
	05/10/02	135.67	3184.07	---	---	---
	10/22/02	135.90	3183.84	---	---	---
	05/20/03	136.00	3183.74	---	---	---
	11/24/03	135.70	3184.04	---	---	---
	05/11/04	135.34	3184.40	---	---	---
	11/15/04	135.76	3183.98	---	---	---
	05/17/05	135.69	3184.05	---	---	---
	11/15/05	135.85	3183.89	---	---	---
	05/08/06	135.60	3184.14	---	---	---
	11/13/06	135.59	3184.15	---	---	---
	05/29/07	135.75	3183.99	---	---	---
	11/14/07	135.62	3184.12	---	---	---
	05/14/08	135.76	3183.98	---	---	---
	11/03/08	135.66	3184.08	---	---	---
	05/19/09	135.67	3184.07	---	---	---
	11/02/09	135.68	3184.06	---	---	---
	05/05/10	135.83	3183.91	---	---	---
	11/08/10	135.36	3184.38	---	---	---
	05/05/11	135.40	3184.34	---	---	---
	11/08/11	135.43	3184.31	---	---	---
	05/16/12	135.38	3184.36	---	---	---
	10/10/12	135.55	3184.19	---	---	---
	05/16/13	135.38	3184.36	---	---	---
	10/07/13	135.53	3184.21	---	---	---
	05/01/14	135.41	3184.33	---	---	---
	10/05/14	135.61	3184.13	---	---	---
	05/21/15	135.25	3184.49	---	---	---
	10/19/15	135.70	3184.04	---	---	---
	05/25/16	135.44	3184.30	---	---	---
	10/17/16	135.11	3184.63	---	---	---
	05/10/17	135.20	3184.54	---	---	---
3321.58	10/25/17	135.40	3186.18	---	---	---
	05/22/18	135.13	3186.45	---	---	---
	10/16/18	135.32	3186.26	---	---	---
	06/20/19	136.21	3185.37	171.81	---	---
	04/15/20	135.25	3186.33	---	---	---
	10/12/20	135.41	3186.17	---	---	---
	06/21/21	135.28	3186.30	---	---	---
	12/06/21	135.23	3186.35	---	---	---
	08/22/22	135.27	3186.31	---	---	---
	12/21/22	134.98	3186.60	---	---	---
	07/20/23	135.24	3186.34	---	---	---
	11/13/23	135.10	3186.48	---	---	---

Table 1
Cumulative Summary of Potentiometric Elevation Data
Cooper-Jal Unit South Injection Station
Lea County, New Mexico

Well ID TOC Elevation (ft MSL)	Collection Date	Depth to Groundwater (ft below TOC)	Groundwater Elevation (ft MSL)	Constructed Depth (ft below TOC)	Casing Diameter (in)	Well Screen Interval (ft bgs)
MW-4A	05/18/98	135.68	3183.90	143.00	2.00	128-143
3319.58	05/21/99	135.65	3183.93	---	---	---
	05/25/99	135.90	3183.68	---	---	---
	02/08/01	135.34	3184.24	---	---	---
	05/10/02	135.30	3184.28	---	---	---
	10/22/02	135.51	3184.07	---	---	---
	05/20/03	135.55	3184.03	---	---	---
	11/24/03	135.31	3184.27	---	---	---
	05/11/04	135.72	3183.86	---	---	---
	11/15/04	135.38	3184.20	---	---	---
	05/17/05	135.32	3184.26	---	---	---
	11/15/05	135.52	3184.06	---	---	---
	05/08/06	135.26	3184.32	---	---	---
	11/13/06	135.20	3184.38	---	---	---
	05/29/07	135.32	3184.26	---	---	---
	11/14/07	135.20	3184.38	---	---	---
	05/14/08	135.31	3184.27	---	---	---
	11/03/08	135.27	3184.31	---	---	---
	05/19/09	135.25	3184.33	---	---	---
	11/02/09	135.25	3184.33	---	---	---
	05/05/10	135.33	3184.25	---	---	---
	11/08/10	135.18	3184.40	---	---	---
	05/11/11	135.17	3184.41	---	---	---
	11/08/11	135.22	3184.36	---	---	---
	05/16/12	135.18	3184.40	---	---	---
	10/10/12	135.33	3184.25	---	---	---
	05/16/13	135.20	3184.38	---	---	---
	10/07/13	135.01	3184.57	---	---	---
	05/01/14	135.26	3184.32	---	---	---
	10/05/14	135.05	3184.53	---	---	---
	05/21/15	135.11	3184.47	---	---	---
	10/19/15	135.20	3184.38	---	---	---
	05/25/16	135.27	3184.31	---	---	---
	10/17/16	135.00	3184.58	---	---	---
	05/10/17	135.01	3184.57	---	---	---
3321.42	10/25/17	135.22	3186.20	---	---	---
	05/22/18	134.97	3186.45	---	---	---
	10/16/18	135.11	3186.31	---	---	---
	06/20/19	134.98	3186.44	145.55	---	---
	04/15/20	136.09	3185.33	---	---	---
	10/12/20	136.13	3185.29	---	---	---
	06/21/21	135.15	3186.27	---	---	---
	12/06/21	135.08	3186.34	---	---	---
	08/22/22	135.05	3186.37	---	---	---
	12/21/22	134.86	3186.56	---	---	---
	07/20/23	135.06	3186.36	---	---	---
	11/13/23	134.98	3186.44	---	---	---

Table 1
Cumulative Summary of Potentiometric Elevation Data
Cooper-Jal Unit South Injection Station
Lea County, New Mexico

Well ID TOC Elevation (ft MSL)	Collection Date	Depth to Groundwater (ft below TOC)	Groundwater Elevation (ft MSL)	Constructed Depth (ft below TOC)	Casing Diameter (in)	Well Screen Interval (ft bgs)
MW-5	05/18/98	137.42	3183.68	171.00	2.00	161-171
3321.10	05/25/99	137.28	3183.82	---	---	---
	02/08/01	137.18	3183.92	---	---	---
	05/10/02	137.10	3184.00	---	---	---
	10/22/02	137.04	3184.06	---	---	---
	05/20/03	137.45	3183.65	---	---	---
	11/24/03	137.01	3184.09	---	---	---
	05/11/04	137.01	3184.09	---	---	---
	11/15/04	137.08	3184.02	---	---	---
	05/17/05	137.00	3184.10	---	---	---
	11/15/05	137.18	3183.92	---	---	---
	05/08/06	136.90	3184.20	---	---	---
	11/13/06	136.81	3184.29	---	---	---
	05/29/07	136.92	3184.18	---	---	---
	11/14/07	136.85	3184.25	---	---	---
	05/14/08	136.97	3184.13	---	---	---
	11/03/08	136.89	3184.21	---	---	---
	05/19/09	136.90	3184.20	---	---	---
	11/02/09	136.90	3184.20	---	---	---
	05/05/10	137.02	3184.08	---	---	---
	11/08/10	136.93	3184.17	---	---	---
	05/11/11	136.92	3184.18	---	---	---
	11/08/11	136.84	3184.26	---	---	---
	05/16/12	136.80	3184.30	---	---	---
	10/10/12	136.98	3184.12	---	---	---
	05/16/13	136.80	3184.30	---	---	---
	10/07/13	136.79	3184.31	---	---	---
	05/01/14	136.83	3184.27	---	---	---
	10/05/14	136.63	3184.47	---	---	---
	05/21/15	130.60	3190.50	---	---	---
	10/19/15	136.70	3184.40	---	---	---
	05/25/16	136.79	3184.31	---	---	---
	10/17/16	136.51	3184.59	---	---	---
	05/10/17	136.53	3184.57	---	---	---
3322.98	10/25/17	136.80	3186.18	---	---	---
	05/22/18	136.51	3186.47	---	---	---
	10/16/18	136.58	3186.40	---	---	---
	06/20/19	136.65	3186.33	173.72	---	---
	04/15/20	136.48	3186.50	---	---	---
	10/12/20	136.78	3186.20	---	---	---
	06/21/21	136.64	3186.34	---	---	---
	12/06/21	136.58	3186.40	---	---	---
	08/22/22	136.52	3186.46	---	---	---
	12/21/22	136.38	3186.60	---	---	---
	07/20/23	136.56	3186.42	---	---	---
	11/13/23	136.45	3186.53	---	---	---

Table 1
Cumulative Summary of Potentiometric Elevation Data
Cooper-Jal Unit South Injection Station
Lea County, New Mexico

Well ID TOC Elevation (ft MSL)	Collection Date	Depth to Groundwater (ft below TOC)	Groundwater Elevation (ft MSL)	Constructed Depth (ft below TOC)	Casing Diameter (in)	Well Screen Interval (ft bgs)
MW-5A	05/18/98	137.20	3183.87	141.00	2.00	126-141
3321.07	05/25/99	137.11	3183.96	---	---	---
	02/08/01	136.99	3184.08	---	---	---
	05/10/02	136.90	3184.17	---	---	---
	10/22/02	137.17	3183.90	---	---	---
	05/20/03	137.24	3183.83	---	---	---
	11/24/03	136.91	3184.16	---	---	---
	05/11/04	136.88	3184.19	---	---	---
	11/15/04	136.92	3184.15	---	---	---
	05/17/05	136.83	3184.24	---	---	---
	11/15/05	137.06	3184.01	---	---	---
	05/08/06	136.80	3184.27	---	---	---
	11/13/06	136.74	3184.33	---	---	---
	05/29/07	136.82	3184.25	---	---	---
	11/14/07	136.88	3184.19	---	---	---
	05/14/08	136.83	3184.24	---	---	---
	11/03/08	136.81	3184.26	---	---	---
	05/19/09	136.78	3184.29	---	---	---
	11/02/09	136.80	3184.27	---	---	---
	05/05/10	136.91	3184.16	---	---	---
	11/08/10	136.69	3184.38	---	---	---
	05/11/11	136.87	3184.20	---	---	---
	11/08/11	136.77	3184.30	---	---	---
	05/16/12	136.74	3184.33	---	---	---
	10/10/12	136.85	3184.22	---	---	---
	05/16/13	136.72	3184.35	---	---	---
	10/07/13	137.45	3183.62	---	---	---
	05/01/14	136.81	3184.26	---	---	---
	10/05/14	136.61	3184.46	---	---	---
	05/21/15	136.68	3184.39	---	---	---
	10/19/15	136.55	3184.52	---	---	---
	05/25/16	136.84	3184.23	---	---	---
	10/17/16	136.43	3184.64	---	---	---
	05/10/17	136.66	3184.41	---	---	---
	10/25/17	136.80	3184.27	---	---	---
	05/22/18	136.55	3184.52	---	---	---
	10/16/18	136.64	3184.43	---	---	---
	06/20/19	144.05	3177.02	176.71	---	---
	04/15/20	136.60	3184.47	---	---	---
	10/12/20	136.80	3184.27	---	---	---
	06/21/21	136.71	3184.36	---	---	---
	12/06/21	136.56	3184.51	---	---	---
	08/22/22	136.55	3184.52	---	---	---
	12/21/22	136.49	3184.58	---	---	---
	07/20/23	136.66	3184.41	---	---	---
	11/13/23	136.52	3184.55	---	---	---

Table 1
Cumulative Summary of Potentiometric Elevation Data
Cooper-Jal Unit South Injection Station
Lea County, New Mexico

Well ID TOC Elevation (ft MSL)	Collection Date	Depth to Groundwater (ft below TOC)	Groundwater Elevation (ft MSL)	Constructed Depth (ft below TOC)	Casing Diameter (in)	Well Screen Interval (ft bgs)
MW-6	05/18/98	136.73	3184.42	170.00	2.00	120-170
3321.15	05/25/99	136.61	3184.54	---	---	---
	02/08/01	136.50	3184.65	---	---	---
	05/10/02	136.40	3184.75	---	---	---
	10/22/02	136.57	3184.58	---	---	---
	05/20/03	136.85	3184.30	---	---	---
	11/24/03	136.38	3184.77	---	---	---
	05/11/04	136.41	3184.74	---	---	---
	11/15/04	136.08	3185.07	---	---	---
	05/17/05	136.58	3184.57	---	---	---
	11/15/05	136.82	3184.33	---	---	---
	05/08/06	136.58	3184.57	---	---	---
	11/13/06	136.49	3184.66	---	---	---
	05/29/07	136.61	3184.54	---	---	---
	11/15/07	136.59	3184.56	---	---	---
	05/14/08	136.58	3184.57	---	---	---
	11/03/08	136.52	3184.63	---	---	---
	05/19/09	136.52	3184.63	---	---	---
	11/02/09	136.51	3184.64	---	---	---
	05/05/10	136.53	3184.62	---	---	---
	11/08/10	136.40	3184.75	---	---	---
	05/11/11	Well Casing Damaged				
	11/08/11	Well Casing Damaged				
	05/16/12	Well Casing Damaged				
	10/09/12	Well Casing Damaged				
	09/30/13	Well Plugged and Abandonded 9/30/2013				
MW-6R	05/01/14	136.25	3185.25	---	---	---
3321.50	10/05/14	136.40	3185.10	---	---	---
	05/21/15	136.13	3185.37	---	---	---
	10/19/15	136.20	3185.30	---	---	---
	05/25/16	136.27	3185.23	---	---	---
	10/17/16	135.96	3185.54	---	---	---
	05/10/17	136.07	3185.43	---	---	---
3323.04	10/25/17	136.20	3186.84	---	---	---
	05/22/18	136.03	3187.01	---	---	---
	10/17/18	136.09	3186.95	---	---	---
	06/20/19	---	---	---	---	---
	06/21/21	163.11	3159.93	---	---	---
	12/06/21	136.09	3186.95	---	---	---
	08/22/22	136.02	3187.02	---	---	---
	12/21/22	135.91	3187.13	---	---	---
	07/20/23	136.07	3186.97	---	---	---
	11/13/23	135.97	3187.07	---	---	---

Table 1
Cumulative Summary of Potentiometric Elevation Data
Cooper-Jal Unit South Injection Station
Lea County, New Mexico

ARCADIS

Well ID TOC Elevation (ft MSL)	Collection Date	Depth to Groundwater (ft below TOC)	Groundwater Elevation (ft MSL)	Constructed Depth (ft below TOC)	Casing Diameter (in)	Well Screen Interval (ft bgs)
MW-7	05/18/98	136.19	3182.20	166.00	2.00	151-166
3318.39	05/25/99	135.98	3182.41	---	---	---
	02/08/01	135.87	3182.52	---	---	---
	05/10/02	135.67	3182.72	---	---	---
	10/22/02	135.89	3182.50	---	---	---
	05/20/03	136.12	3182.27	---	---	---
	11/24/03	135.71	3182.68	---	---	---
	05/11/04	135.74	3182.65	---	---	---
	11/15/04	135.78	3182.61	---	---	---
	05/17/05	135.68	3182.71	---	---	---
	11/15/05	135.90	3182.49	---	---	---
	05/08/06	135.64	3182.75	---	---	---
	11/13/06	135.58	3182.81	---	---	---
	05/29/07	135.73	3182.66	---	---	---
	11/15/07	135.64	3182.75	---	---	---
	05/14/08	135.68	3182.71	---	---	---
	11/03/08	135.66	3182.73	---	---	---
	05/19/09	135.63	3182.76	---	---	---
	11/02/09	135.65	3182.74	---	---	---
	05/05/10	135.80	3182.59	---	---	---
	11/08/10	135.51	3182.88	---	---	---
	05/11/11	135.68	3182.71	---	---	---
	11/08/11	135.62	3182.77	---	---	---
	05/16/12	135.55	3182.84	---	---	---
	10/10/12	135.79	3182.60	---	---	---
	05/16/13	135.59	3182.80	---	---	---
	10/07/13	NS	NS	---	---	---
	05/01/14	135.65	3182.74	---	---	---
	10/05/14	135.58	3182.81	---	---	---
	05/21/15	135.52	3182.87	---	---	---
	10/19/15	135.54	3182.85	---	---	---
	05/25/16	135.75	3182.64	---	---	---
	10/17/16	135.35	3183.04	---	---	---
	05/10/17	135.39	3183.00	---	---	---
3320.19	10/24/17	135.38	3184.81	---	---	---
	05/22/18	135.39	3184.80	---	---	---
	10/15/18	135.59	3184.60	---	---	---
	06/20/19	135.48	3184.71	162.60	---	---
	04/15/20	135.59	3184.60	---	---	---
	10/12/20	135.64	3184.55	---	---	---
	06/22/21	135.50	3184.69	---	---	---
	12/06/21	135.44	3184.75	---	---	---
	08/22/22	135.4	3184.79	---	---	---
	12/21/22	135.26	3184.93	---	---	---
	07/20/23	135.50	3184.69	---	---	---
	11/13/23	135.37	3184.82	---	---	---

Table 1
Cumulative Summary of Potentiometric Elevation Data
Cooper-Jal Unit South Injection Station
Lea County, New Mexico

ARCADIS

Well ID TOC Elevation (ft MSL)	Collection Date	Depth to Groundwater (ft below TOC)	Groundwater Elevation (ft MSL)	Constructed Depth (ft below TOC)	Casing Diameter (in)	Well Screen Interval (ft bgs)
MW-8	05/18/98	134.36	3182.78	170.00	2.00	155-170
3317.14	05/25/99	134.21	3182.93	---	---	---
	02/08/01	134.08	3183.06	---	---	---
	05/10/02	133.95	3183.19	---	---	---
	10/22/02	134.18	3182.96	---	---	---
	05/20/03	134.38	3182.76	---	---	---
	11/24/03	133.99	3183.15	---	---	---
	05/11/04	134.02	3183.12	---	---	---
	11/15/04	134.11	3183.03	---	---	---
	05/17/05	133.97	3183.17	---	---	---
	11/15/05	134.21	3182.93	---	---	---
	05/08/06	133.94	3183.20	---	---	---
	11/13/06	133.90	3183.24	---	---	---
	05/29/07	134.02	3183.12	---	---	---
	11/15/07	133.76	3183.38	---	---	---
	05/15/08	133.98	3183.16	---	---	---
	11/03/08	134.01	3183.13	---	---	---
	05/19/09	133.97	3183.17	---	---	---
	11/02/09	134.00	3183.14	---	---	---
	05/05/10	134.08	3183.06	---	---	---
	11/08/10	134.03	3183.11	---	---	---
	05/11/11	133.98	3183.16	---	---	---
	11/08/11	133.96	3183.18	---	---	---
	05/16/12	133.84	3183.30	---	---	---
	10/10/12	134.15	3182.99	---	---	---
	05/16/13	133.94	3183.20	---	---	---
	10/07/13	133.90	3183.24	---	---	---
	05/01/14	133.91	3183.23	---	---	---
	10/05/14	133.75	3183.39	---	---	---
	05/21/15	133.88	3183.26	---	---	---
	10/19/15	133.88	3183.26	---	---	---
	05/25/16	133.86	3183.28	---	---	---
	10/17/16	133.68	3183.46	---	---	---
	05/10/17	133.84	3183.30	---	---	---
3319.06	10/24/17	133.72	3185.34	---	---	---
	05/22/18	133.77	3185.29	---	---	---
	10/17/18	133.87	3185.19	---	---	---
	06/20/19	133.87	3185.19	146.85	---	---
	04/15/20	133.81	3185.25	---	---	---
	10/12/20	133.96	3185.10	---	---	---
	06/22/21	133.74	3185.32	---	---	---
	12/06/21	133.74	3185.32	---	---	---
	08/22/22	133.68	3185.38	---	---	---
	12/21/22	133.64	3185.42	---	---	---
	07/20/23	133.81	3185.25	---	---	---
	11/13/23	133.72	3185.34	---	---	---

Table 1
Cumulative Summary of Potentiometric Elevation Data
Cooper-Jal Unit South Injection Station
Lea County, New Mexico

Well ID TOC Elevation (ft MSL)	Collection Date	Depth to Groundwater (ft below TOC)	Groundwater Elevation (ft MSL)	Constructed Depth (ft below TOC)	Casing Diameter (in)	Well Screen Interval (ft bgs)
MW-9	05/18/98	132.89	3179.90	164.00	2.00	149-164
3312.79	05/25/99	132.68	3180.11	---	---	---
	02/08/01	132.52	3180.27	---	---	---
	05/10/02	137.20	3175.59	---	---	---
	10/22/02	132.56	3180.23	---	---	---
	05/20/03	132.75	3180.04	---	---	---
	11/24/03	132.35	3180.44	---	---	---
	05/11/04	132.39	3180.40	---	---	---
	11/15/04	132.43	3180.36	---	---	---
	05/17/05	132.26	3180.53	---	---	---
	11/15/05	132.60	3180.19	---	---	---
	05/08/06	132.26	3180.53	---	---	---
	11/13/06	132.19	3180.60	---	---	---
	05/29/07	132.32	3180.47	---	---	---
	11/14/07	132.34	3180.45	---	---	---
	05/15/08	132.29	3180.50	---	---	---
	11/03/08	132.33	3180.46	---	---	---
	05/19/09	132.21	3180.58	---	---	---
	11/02/09	132.35	3180.44	---	---	---
	05/05/10	132.41	3180.38	---	---	---
	11/08/10	132.10	3180.69	---	---	---
	05/11/11	132.22	3180.57	---	---	---
	11/08/11	132.19	3180.60	---	---	---
	05/16/12	132.05	3180.74	---	---	---
	10/10/12	132.32	3180.47	---	---	---
	05/16/13	132.08	3180.71	---	---	---
	10/07/13	131.94	3180.85	---	---	---
	05/01/14	Not Measured - Obstruction In Well				
	10/05/14	131.95	3180.84	---	---	---
	05/21/15	132.05	3180.74	---	---	---
	10/19/15	132.01	3180.78	---	---	---
	05/25/16	131.98	3180.81	---	---	---
	10/17/16	131.91	3180.88	---	---	---
	05/10/17	131.95	3180.84	---	---	---
3314.68	10/24/17	131.92	3182.76	---	---	---
	05/22/18	131.90	3182.78	---	---	---
	10/17/18	131.98	3182.70	---	---	---
	06/20/19	131.95	3182.73	161.46	---	---
	04/15/20	139.92	3174.76	---	---	---
	10/12/20	132.09	3182.59	---	---	---
	06/22/21	131.94	3182.74	---	---	---
	12/06/21	131.87	3182.81	---	---	---
	08/22/22	131.86	3182.82	---	---	---
	12/21/22	131.68	3183.00	---	---	---
	07/20/23	131.90	3182.78	---	---	---
	11/13/23	131.76	3182.92	---	---	---

Table 1
Cumulative Summary of Potentiometric Elevation Data
Cooper-Jal Unit South Injection Station
Lea County, New Mexico

Well ID TOC Elevation (ft MSL)	Collection Date	Depth to Groundwater (ft below TOC)	Groundwater Elevation (ft MSL)	Constructed Depth (ft below TOC)	Casing Diameter (in)	Well Screen Interval (ft bgs)
MW-9A	05/18/98	132.65	3179.91	142.00	2.00	127-142
3312.56	05/25/99	132.43	3180.13	---	---	---
	02/08/01	132.37	3180.19	---	---	---
	05/10/02	137.20	3175.36	---	---	---
	10/22/02	132.35	3180.21	---	---	---
	05/20/03	132.55	3180.01	---	---	---
	11/24/03	132.10	3180.46	---	---	---
	05/11/04	132.14	3180.42	---	---	---
	11/15/04	132.19	3180.37	---	---	---
	05/17/05	132.06	3180.50	---	---	---
	11/15/05	132.35	3180.21	---	---	---
	05/08/06	132.02	3180.54	---	---	---
	11/13/06	131.09	3181.47	---	---	---
	05/29/07	132.08	3180.48	---	---	---
	11/14/07	132.06	3180.50	---	---	---
	05/15/08	132.03	3180.53	---	---	---
	11/03/08	131.98	3180.58	---	---	---
	05/19/09	132.00	3180.56	---	---	---
	11/02/09	131.90	3180.66	---	---	---
	05/05/10	131.96	3180.60	---	---	---
	11/08/10	131.85	3180.71	---	---	---
	05/11/11	132.06	3180.50	---	---	---
	11/08/11	131.95	3180.61	---	---	---
	05/16/12	131.81	3180.75	---	---	---
	10/10/12	132.09	3180.47	---	---	---
	05/16/13	131.88	3180.68	---	---	---
	10/07/13	131.90	3180.66	---	---	---
	05/01/14	Not Measured - Obstruction In Well				
	10/05/14	Not Measured - Obstruction In Well				
	05/21/15	Not Measured - Obstruction In Well				
	10/19/15	131.68	3180.88	---	---	---
	05/25/16	131.73	3180.83	---	---	---
	10/17/16	131.62	3180.94	---	---	---
	05/10/17	131.68	3180.88	---	---	---
3314.48	10/24/17	131.60	3182.88	---	---	---
	05/22/18	131.81	3182.67	---	---	---
	10/17/18	131.72	3182.76	---	---	---
	06/20/19	131.69	3182.79	141.72	---	---
	04/15/20	131.5	3182.98	---	---	---
	10/12/20	131.86	3182.62	---	---	---
	06/22/21	131.65	3182.83	---	---	---
	12/06/21	131.64	3182.84	---	---	---
	08/22/22	131.53	3182.95	---	---	---
	12/21/22	131.41	3183.07	---	---	---
	07/20/23	131.60	3182.88	---	---	---
	11/13/23	131.50	3182.98	---	---	---

Table 1
Cumulative Summary of Potentiometric Elevation Data
Cooper-Jal Unit South Injection Station
Lea County, New Mexico

Well ID TOC Elevation (ft MSL)	Collection Date	Depth to Groundwater (ft below TOC)	Groundwater Elevation (ft MSL)	Constructed Depth (ft below TOC)	Casing Diameter (in)	Well Screen Interval (ft bgs)
MW-10	05/18/98	137.18	3182.12	166.00	2.00	151-166
3319.30	05/25/99	137.04	3182.26	---	---	---
	02/08/01	136.88	3182.42	---	---	---
	05/10/02	136.80	3182.50	---	---	---
	10/22/02	136.91	3182.39	---	---	---
	05/20/03	137.13	3182.17	---	---	---
	11/24/03	136.71	3182.59	---	---	---
	05/11/04	136.77	3182.53	---	---	---
	11/15/04	136.82	3182.48	---	---	---
	05/17/05	136.34	3182.96	---	---	---
	11/15/05	136.95	3182.35	---	---	---
	05/08/06	136.65	3182.65	---	---	---
	11/13/06	136.59	3182.71	---	---	---
	05/29/07	136.68	3182.62	---	---	---
	11/15/07	136.61	3182.69	---	---	---
	05/15/08	136.65	3182.65	---	---	---
	11/03/08	136.60	3182.70	---	---	---
	05/19/09	136.60	3182.70	---	---	---
	11/02/09	136.60	3182.70	---	---	---
	05/05/10	136.44	3182.86	---	---	---
	11/08/10	136.58	3182.72	---	---	---
	05/11/11	136.62	3182.68	---	---	---
	11/08/11	136.57	3182.73	---	---	---
	05/16/12	136.44	3182.86	---	---	---
	10/10/12	136.91	3182.39	---	---	---
	05/16/13	136.51	3182.79	---	---	---
	10/07/13	136.55	3182.75	---	---	---
	05/01/14	136.37	3182.93	---	---	---
	10/05/14	136.42	3182.88	---	---	---
	05/21/15	136.40	3182.90	---	---	---
	10/19/15	136.41	3182.89	---	---	---
	05/25/16	136.40	3182.90	---	---	---
	10/17/16	136.33	3182.97	---	---	---
	05/10/17	136.34	3182.96	---	---	---
3321.12	10/24/17	136.28	3184.84	---	---	---
	05/22/18	130.07	3191.05	---	---	---
	10/15/18	136.34	3184.78	---	---	---
	06/20/19	136.28	3184.84	160.72	---	---
	04/15/20	136.23	3184.89	---	---	---
	10/12/20	136.56	3184.56	---	---	---
	06/22/21	136.37	3184.75	---	---	---
	12/06/21	136.29	3184.83	---	---	---
	08/22/22	136.25	3184.87	---	---	---
	12/21/22	136.11	3185.01	---	---	---
	07/20/23	136.31	3184.81	---	---	---
	11/13/23	136.22	3184.90	---	---	---

Table 1
Cumulative Summary of Potentiometric Elevation Data
Cooper-Jal Unit South Injection Station
Lea County, New Mexico

Well ID TOC Elevation (ft MSL)	Collection Date	Depth to Groundwater (ft below TOC)	Groundwater Elevation (ft MSL)	Constructed Depth (ft below TOC)	Casing Diameter (in)	Well Screen Interval (ft bgs)
MW-11	03/23/99	131.12	3178.57	140.00	4.00	125-140
3309.69	05/25/99	130.91	3178.78	---	---	---
	02/08/01	130.11	3179.58	---	---	---
	05/10/02	135.60	3174.09	---	---	---
	10/22/02	130.76	3178.93	---	---	---
	05/20/03	131.03	3178.66	---	---	---
	11/24/03	130.57	3179.12	---	---	---
	05/11/04	130.61	3179.08	---	---	---
	11/15/04	130.65	3179.04	---	---	---
	05/17/05	131.56	3178.13	---	---	---
	11/15/05	130.70	3178.99	---	---	---
	05/08/06	130.41	3179.28	---	---	---
	11/13/06	130.42	3179.27	---	---	---
	05/29/07	130.52	3179.17	---	---	---
	11/14/07	130.42	3179.27	---	---	---
	05/15/08	130.46	3179.23	---	---	---
	11/03/08	130.41	3179.28	---	---	---
	05/19/09	130.40	3179.29	---	---	---
	11/02/09	130.40	3179.29	---	---	---
	05/05/10	130.43	3179.26	---	---	---
	11/08/10	130.28	3179.41	---	---	---
	05/11/11	130.40	3179.29	---	---	---
	11/08/11	130.37	3179.32	---	---	---
	05/16/12	130.23	3179.46	---	---	---
	10/10/12	130.49	3179.20	---	---	---
	05/16/13	130.27	3179.42	---	---	---
	10/07/13	130.12	3179.57	---	---	---
	05/01/14	130.21	3179.48	---	---	---
	10/05/14	130.16	3179.53	---	---	---
	05/21/15	130.17	3179.52	---	---	---
	10/19/15	130.20	3179.49	---	---	---
	05/25/16	130.17	3179.52	---	---	---
	10/17/16	130.02	3179.67	---	---	---
	05/10/17	130.09	3179.60	---	---	---
3311.56	10/24/17	130.14	3181.42	---	---	---
	05/22/18	130.07	3181.49	---	---	---
	10/17/18	130.09	3181.47	---	---	---
	06/20/19	130.13	3181.43	165.71	---	---
	04/15/20	130.06	3181.50	---	---	---
	10/12/20	130.19	3181.37	---	---	---
	06/22/21	130.03	3181.53	---	---	---
	12/06/21	129.99	3181.57	---	---	---
	08/22/22	129.95	3181.61	---	---	---
	12/21/22	129.82	3181.74	---	---	---
	07/21/23	130.05	3181.51	---	---	---
	11/13/23	129.89	3181.67	---	---	---

Table 1
Cumulative Summary of Potentiometric Elevation Data
Cooper-Jal Unit South Injection Station
Lea County, New Mexico

Well ID TOC Elevation (ft MSL)	Collection Date	Depth to Groundwater (ft below TOC)	Groundwater Elevation (ft MSL)	Constructed Depth (ft below TOC)	Casing Diameter (in)	Well Screen Interval (ft bgs)
MW-12*	05/10/02	139.57	3188.86	171.65	4.00	157-172
3328.43	10/22/02	139.73	3188.70	---	---	---
	05/20/03	139.72	3188.71	---	---	---
	11/24/03	139.69	3188.74	---	---	---
	05/11/04	139.64	3188.79	---	---	---
	11/15/04	139.68	3188.75	---	---	---
	05/17/05	139.58	3188.85	---	---	---
	11/15/05	139.83	3188.60	---	---	---
	05/08/06	139.55	3188.88	---	---	---
	11/13/06	139.53	3188.90	---	---	---
	05/29/07	139.65	3188.78	---	---	---
	11/16/07	139.05	3189.38	---	---	---
	05/14/08	139.69	3188.74	---	---	---
	11/03/08	139.61	3188.82	---	---	---
	05/19/09	139.59	3188.84	---	---	---
	11/02/09	139.62	3188.81	---	---	---
	05/05/10	139.66	3188.77	---	---	---
	11/08/10	139.55	3188.88	---	---	---
	05/11/11	139.04	3189.39	---	---	---
	11/08/11	139.68	3188.75	---	---	---
	05/16/12	139.65	3188.78	---	---	---
	10/10/12	139.95	3188.48	---	---	---
	05/16/13	139.67	3188.76	---	---	---
	10/07/13	139.50	3188.93	---	---	---
	05/01/14	139.58	3188.85	---	---	---
	10/05/14	139.56	3188.87	---	---	---
	05/21/15	139.65	3188.78	---	---	---
	10/19/15	139.65	3188.78	---	---	---
	05/25/16	139.71	3188.72	---	---	---
	10/17/16	139.45	3188.98	---	---	---
	05/10/17	139.61	3188.82	---	---	---
3330.33	10/24/17	139.72	3190.61	---	---	---
	05/22/18	139.59	3190.74	---	---	---
	10/17/18	139.68	3190.65	---	---	---
	06/20/19	139.72	3190.61	171.02	---	---
	04/13/20	139.78	3190.55	---	---	---
	10/12/20	139.88	3190.45	---	---	---
	06/22/21	139.61	3190.72	---	---	---
	12/06/21	139.64	3190.69	---	---	---
	08/22/22	139.63	3190.70	---	---	---
	12/21/22	139.55	3190.78	---	---	---
	07/21/23	139.81	3190.52	---	---	---
	11/13/23	139.62	3190.71	---	---	---

Table 1
Cumulative Summary of Potentiometric Elevation Data
Cooper-Jal Unit South Injection Station
Lea County, New Mexico

Well ID TOC Elevation (ft MSL)	Collection Date	Depth to Groundwater (ft below TOC)	Groundwater Elevation (ft MSL)	Constructed Depth (ft below TOC)	Casing Diameter (in)	Well Screen Interval (ft bgs)
MW-13*	05/10/02	144.45	3194.04	171.65	4.00	157-172
3338.49	10/22/02	144.49	3194.00	---	---	---
	05/20/03	144.90	3193.59	---	---	---
	11/24/03	144.37	3194.12	---	---	---
	05/11/04	144.47	3194.02	---	---	---
	11/15/04	144.56	3193.93	---	---	---
	05/17/05	144.36	3194.13	---	---	---
	11/15/05	144.60	3193.89	---	---	---
	05/08/06	144.29	3194.20	---	---	---
	11/13/06	144.38	3194.11	---	---	---
	05/29/07	144.54	3193.95	---	---	---
	11/16/07	144.54	3193.95	---	---	---
	05/14/08	144.45	3194.04	---	---	---
	11/03/08	144.36	3194.13	---	---	---
	05/19/09	144.51	3193.98	---	---	---
	11/02/09	144.35	3194.14	---	---	---
	05/05/10	144.39	3194.10	---	---	---
	11/08/10	144.40	3194.09	---	---	---
	05/11/11	144.60	3193.89	---	---	---
	11/08/11	144.74	3193.75	---	---	---
	05/16/12	144.70	3193.79	---	---	---
	10/10/12	144.82	3193.67	---	---	---
	05/16/13	144.70	3193.79	---	---	---
	10/07/13	144.60	3193.89	---	---	---
	05/01/14	144.53	3193.96	---	---	---
	10/05/14	144.70	3193.79	---	---	---
	05/21/15	144.78	3193.71	---	---	---
	10/19/15	144.75	3193.74	---	---	---
	05/25/16	144.87	3193.62	---	---	---
	10/17/16	144.54	3193.95	---	---	---
	05/10/17	144.66	3193.83	---	---	---
	07/11/17	Well Plugged and Abandonded on 7/11/2017				
MW-14	10/07/13	134.60	3182.24	171.50	4.00	131-171
3316.84	05/01/14	134.51	3182.33	---	---	---
	10/05/14	134.44	3182.40	---	---	---
	05/21/15	134.31	3182.53	---	---	---
	10/19/15	134.49	3182.35	---	---	---
	05/25/16	134.42	3182.42	---	---	---
	10/17/16	134.30	3182.54	---	---	---
	05/10/17	134.35	3182.49	---	---	---
3318.36	10/24/17	134.30	3184.06			
	05/22/18	134.32	3184.04	---	---	---
	10/15/18	134.41	3183.95	---	---	---
	06/20/19	134.78	3183.58	178.74	---	---
	06/23/21	134.36	3184.00	---	---	---
	12/06/21	134.42	3183.94	---	---	---
	08/22/22	134.19	3184.17	---	---	---
	12/21/22	134.14	3184.22	---	---	---
	07/20/23	134.33	3184.03	---	---	---
	11/13/23	134.40	3183.96	---	---	---
RW-1	05/21/99	134.32	3184.18	175.00	5.00	130-174

Table 1
Cumulative Summary of Potentiometric Elevation Data
Cooper-Jal Unit South Injection Station
Lea County, New Mexico

Well ID TOC Elevation (ft MSL)	Collection Date	Depth to Groundwater (ft below TOC)	Groundwater Elevation (ft MSL)	Constructed Depth (ft below TOC)	Casing Diameter (in)	Well Screen Interval (ft bgs)
3318.50	05/25/99	134.24	3184.26	---	---	---
	02/08/01	134.15	3184.35	---	---	---
	05/10/02	134.00	3184.50	---	---	---
	10/22/02	134.17	3184.33	---	---	---
	05/20/03	134.40	3184.10	---	---	---
	11/24/03	134.02	3184.48	---	---	---
	05/11/04	134.01	3184.49	---	---	---
	11/15/04	134.06	3184.44	---	---	---
	05/17/05	133.97	3184.53	---	---	---
	11/15/05	134.20	3184.30	---	---	---
	05/08/06	133.93	3184.57	---	---	---
	11/13/06	133.92	3184.58	---	---	---
	05/29/07	134.00	3184.50	---	---	---
	11/15/07	133.88	3184.62	---	---	---
	05/14/08	133.98	3184.52	---	---	---
	11/03/08	133.99	3184.51	---	---	---
	05/19/09	133.92	3184.58	---	---	---
	11/02/09	134.00	3184.50	---	---	---
	05/05/10	134.03	3184.47	---	---	---
	11/08/10	133.81	3184.69	---	---	---
	05/11/11	133.83	3184.67	---	---	---
	11/08/11	133.88	3184.62	---	---	---
	05/16/12	133.84	3184.66	---	---	---
	10/10/12	135.01	3183.49	---	---	---
	05/16/13	133.85	3184.65	---	---	---
	10/07/13	133.68	3184.82	---	---	---
	05/01/14	133.91	3184.59	---	---	---
	10/05/14	133.64	3184.86	---	---	---
	05/21/15	133.73	3184.77	---	---	---
	10/19/15	133.73	3184.77	---	---	---
	05/25/16	133.73	3184.77	---	---	---
	10/17/16	133.80	3184.70	---	---	---
	05/10/17	133.67	3184.83	---	---	---
3320.31	10/25/17	133.80	3186.51	---	---	---
	05/22/18	133.61	3186.70	---	---	---
	10/16/18	133.76	3186.55	---	---	---
	06/20/19	133.64	3186.67	164.03	---	---
	04/15/20	133.68	3186.63	---	---	---
	10/12/20	133.95	3186.36	---	---	---
	06/21/21	133.84	3186.47	---	---	---
	12/06/21	133.74	3186.57	---	---	---
	08/22/22	133.69	3186.62	---	---	---
	12/21/22	133.52	3186.79	---	---	---
	07/20/23	133.71	3186.60	---	---	---
	11/13/23	133.64	3186.67	---	---	---

Table 1
Cumulative Summary of Potentiometric Elevation Data
Cooper-Jal Unit South Injection Station
Lea County, New Mexico

Well ID TOC Elevation (ft MSL)	Collection Date	Depth to Groundwater (ft below TOC)	Groundwater Elevation (ft MSL)	Constructed Depth (ft below TOC)	Casing Diameter (in)	Well Screen Interval (ft bgs)
RW-2	02/08/01	135.58	3183.04	160.00	5.00	134-173
3318.62	05/10/02	135.55	3183.07	---	---	---
	10/22/02	135.55	3183.07	---	---	---
	05/20/03	135.58	3183.04	---	---	---
	11/24/03	135.54	3183.08	---	---	---
	05/11/04	135.48	3183.14	---	---	---
	11/15/04	135.43	3183.19	---	---	---
	05/17/05	135.46	3183.16	---	---	---
	11/15/05	135.65	3182.97	---	---	---
	05/08/06	135.42	3183.20	---	---	---
	11/13/06	135.47	3183.15	---	---	---
	05/29/07	135.54	3183.08	---	---	---
	11/15/07	135.48	3183.14	---	---	---
	05/14/08	135.48	3183.14	---	---	---
	11/03/08	135.44	3183.18	---	---	---
	05/19/09	135.44	3183.18	---	---	---
	11/02/09	135.45	3183.17	---	---	---
	05/05/10	135.47	3183.15	---	---	---
	11/08/10	135.30	3183.32	---	---	---
	05/11/11	135.55	3183.07	---	---	---
	11/08/11	135.46	3183.16	---	---	---
	05/16/12	135.40	3183.22	---	---	---
	10/10/12	135.49	3183.13	---	---	---
	05/16/13	135.33	3183.29	---	---	---
	05/01/14	135.40	3183.22	---	---	---
	10/05/14	135.29	3183.33	---	---	---
	05/21/15	135.28	3183.34	---	---	---
	10/19/15	135.32	3183.30	---	---	---
	05/25/16	135.21	3183.41	---	---	---
	10/17/16	135.15	3183.47	---	---	---
	05/10/17	135.14	3183.48	---	---	---
3320.42	10/25/17	135.30	3185.12	---	---	---
	05/22/18	135.12	3185.30	---	---	---
	10/15/18	135.21	3185.21	---	---	---
	06/20/19	135.23	3185.19	156.50	---	---
	04/15/20	135.28	3185.14	---	---	---
	10/12/20	135.38	3185.04	---	---	---
	06/21/21	135.26	3185.16	---	---	---
	12/06/21	135.16	3185.26	---	---	---
	08/22/22	135.15	3185.27	---	---	---
	12/21/22	134.97	3185.45	---	---	---
	07/20/23	135.20	3185.22	---	---	---
	11/13/23	135.08	3185.34	---	---	---

Table 1
Cumulative Summary of Potentiometric Elevation Data
Cooper-Jal Unit South Injection Station
Lea County, New Mexico

Well ID TOC Elevation (ft MSL)	Collection Date	Depth to Groundwater (ft below TOC)	Groundwater Elevation (ft MSL)	Constructed Depth (ft below TOC)	Casing Diameter (in)	Well Screen Interval (ft bgs)
RW-2R	10/07/13	135.43	3183.19	173.00	6.00	133-173
3320.68	10/07/13	136.94	3183.74	---	---	---
	05/01/14	137.05	3183.63	---	---	---
	10/05/14	136.85	3183.83	---	---	---
	05/21/15	136.85	3183.83	---	---	---
	10/19/15	136.92	3183.76	---	---	---
	05/25/16	136.89	3183.79	---	---	---
	10/17/16	136.75	3183.93	---	---	---
	05/10/17	136.77	3183.91	---	---	---
3320.68	10/25/17	137.00	3183.68	---	---	---
	05/22/18	136.76	3183.92	---	---	---
	10/15/18	136.87	3183.81	---	---	---
	06/20/19	136.79	3183.89	176.82	---	---
	04/15/20	136.82	3183.86	---	---	---
	10/12/20	137.05	3183.63	---	---	---
	06/21/21	136.95	3183.73	---	---	---
	12/06/21	136.85	3183.83	---	---	---
	08/22/22	136.78	3183.90	---	---	---
	12/21/22	136.67	3184.01	---	---	---
	07/20/23	136.83	3183.85	---	---	---
	11/13/23	137.67	3183.01	---	---	---

Notes:
1. TOC - Top of Casing
2. ft bgs - feet below ground surface
3. in - inches
4. A - Indicates groundwater monitor well installed in shallow Uppermost Groundwater Bearing Unit.
5. MSL - Mean Sea Level
6. * - Indicates groundwater monitor well installed off-Site and upgradient of plume.

Table 2
Water Well Summary
Cooper Jal Unit Injection Station
Lea County, New Mexico

Water Well ID	Use
CP 01188 POD1 (MW-6R)	Monitoring Well
CP 01188 POD2 (MW-14)	Monitoring Well
CP 00884 POD1 (RW-2)	Pollution Control Well
CP 00884 POD2 (RW-2R)	Pollution Control Well
CP 00885 POD1 (RW-1)	Pollution Control Well
CP 00103 POD1	Non 72-12-1 Livestock Watering
CP 01174 POD1	Monitoring Well
CP 01174 POD2	Monitoring Well
CP 01174 POD3	Monitoring Well
CP 01174 POD4	Monitoring Well
CP 00521	72-12-1 Domestic and Livestock Watering
CP 00564	72-12-1 Domestic and Livestock Watering
CP 01132 POD1	Geothermal Boreholes
CP 01132 POD2	Geothermal Boreholes
CP 01132 POD3	Geothermal Boreholes
CP 00840 POD1	72-12-1 Prospecting or Development of Natural Resource
MW-1*	Monitoring Well
MW-2*	Monitoring Well
MW-2A*	Monitoring Well
MW-3*	Monitoring Well
MW-4*	Monitoring Well
MW-4A*	Monitoring Well
MW-5*	Monitoring Well
MW-5A*	Monitoring Well
MW-6*	Monitoring Well
MW-7*	Monitoring Well
MW-8*	Monitoring Well
MW-9*	Monitoring Well
MW-9A*	Monitoring Well
MW-10*	Monitoring Well
MW-11*	Monitoring Well
MW-12*	Monitoring Well
MW-13*	Monitoring Well

Notes
1. *Wells not available in New Mexico Office of the State Engineer database

Table 2
Water Well Summary
Cooper Jal Unit Injection Station
Lea County, New Mexico

Owner	Total Depth	Depth to Water	Latitude	Longitude
Chevron Enviro Mgmt Co	179	136	32.20221	-103.217082
Chevron Enviro Mgmt Co	174	134	32.20039	-103.214819
Chevron USA Inc	156	135	32.200526	-103.216284
Chevron USA Inc	181	137	32.200548	-103.216309
Chevron USA Inc	165	134	32.201374	-103.217478
Deep Wells Ranch Inc.	--	--	32.211034	-103.213529
Environmental Compliance Assoc	--	--	32.206083	-103.212028
Environmental Compliance Assoc	--	--	32.206083	-103.212028
Environmental Compliance Assoc	--	--	32.206083	-103.212028
Environmental Compliance Assoc	--	--	32.206083	-103.212028
Fred B. Cooper	--	--	32.208336	-103.229505
Fred B. Cooper	180	160	32.208336	-103.229505
Intercontinental Potash Corp	100	--	32.190139	-103.216944
Intercontinental Potash Corp	100	--	32.188222	-103.212861
Intercontinental Potash Corp	100	--	32.186223	-103.216722
Texaco Expl & Production Inc	--	--	32.199214	103.214523
Chevron Enviro Mgmt Co	170	135	32.201828	-103.21817
Chevron Enviro Mgmt Co	170	134	32.201856	-103.217386
Chevron Enviro Mgmt Co	142	134	32.201884	-103.217346
Chevron Enviro Mgmt Co	172	132	32.202234	-103.218607
Chevron Enviro Mgmt Co	172	135	32.20124	-103.217606
Chevron Enviro Mgmt Co	146	135	32.201213	-103.217567
Chevron Enviro Mgmt Co	174	137	32.201548	-103.216646
Chevron Enviro Mgmt Co	144	137	32.20152	-103.216621
Chevron Enviro Mgmt Co	169	136	32.20217	-103.21705
Chevron Enviro Mgmt Co	163	136	32.199964	-103.216383
Chevron Enviro Mgmt Co	147	134	32.199077	-103.218252
Chevron Enviro Mgmt Co	161	132	32.198937	-103.215188
Chevron Enviro Mgmt Co	142	132	32.198928	-103.215267
Chevron Enviro Mgmt Co	161	137	32.200834	-103.215492
Chevron Enviro Mgmt Co	167	130	32.197559	-103.21492
Chevron Enviro Mgmt Co	171	140	32.203786	-103.221784
Chevron Enviro Mgmt Co	172	134	32.20676	-103.22533

Table 3
Cumulative Summary of Groundwater Analytical Results
Cooper-Jal Unit Injection Station
Lea County, New Mexico

Sample ID	Sample Date	Carbonate Alkalinity	Bicarbonate Alkalinity	Total Alkalinity	Chloride[1]	Fluoride[2]	Nitrate - N[2]	Sulfate[1]	Calcium	Magnesium	Potassium	Sodium	TDS[1]
NMWQCC Groundwater Standard					***250***	***1.60***	***10***	***600.00***					***1,000***
MW-1	09/16/97	--	--	280.00	**8,500.00**	--	--	**1,100.00**	520.00	630.00	50.00	4,300.00	**15,000.00**
	02/25/98	--	--	280.00	**5,600.00**	--	--	570.00	285.00	520.00	116.00	2,900.00	**9,300.00**
	02/14/01	<1.00	306.00	306.00	**11,000.00**	**4.40**	7.70	**1,000.00**	374.00	780.00	236.00	5,236.00	**20,000.00**
	05/17/02	<1.00	208.00	208.00	237.00	**5.83**	3.28	86.90	45.70	20.10	11.90	184.00	784.00
	10/23/02	--	--	--	168.00	--	--	96.80	--	--	--	--	696.00
	05/21/03	<1.00	290.00	290.00	**6,600.00**	<8.00	**10.90**	**875.00**	238.00	475.00	96.50	3,410.00	**13,200.00**
	11/25/03	<1.00	250.00	250.00	**402.00**	**7.03**	2.72	125.00	19.20	22.00	18.50	294.00	**1,158.00**
	05/12/04	<1.00	264.00	264.00	**504.00**	**7.31**	2.70	136.00	17.20	23.10	22.40	355.00	**1,328.00**
	11/16/04	<1.00	232.00	232.00	**384.00**	**4.94**	3.30	103.00	29.20	22.70	25.40	373.00	952.00
	11/16/05	<10.00	262.00	262.00	**1,210.00**	**3.00**	2.40	215 D1	85.40	92.60	23.00	847.00	**2,640.00**
	11/14/06	<10.00	200.00	200.00	96.00	**4.20**	2.00	76.00	13.20	6.49	15.60	172.00	624.00
	11/16/07	<10.00	255.00	255.00	**4,250.00**	**3.70**	3.90 D1	602 D1	154.00	187.00	54.00	2,100 D1	**10,900.00**
	11/04/08	<5.00	190.00	190.00	110.00	**6.30**	1.60	83.00	10.00	5.80	7.90	180.00	590.00
	11/03/09	<10.00	270.00	270.00	**4,100.00**	**4.10**	2.80	**640.00**	190.00	250.00	61.00	2,300.00	**8,000.00**
	11/10/10	<10.00	223.00	223.00	**2,670.00**	**1.92**	2.62	373.00	138.00	196.00	21.50	1,480.00	**5,020.00**
	11/10/11	<5.00	209.00	209.00	**3,220.00**	1.02	2.37	275.00	169.00	176.00	22.50	1,340.00	**5,250.00**
Dup	11/10/11	<5.00	213.00	213.00	**2,930.00**	1.05	2.35	240.00	183.00	197.00	22.60	1,480.00	**4,640.00**
	10/11/12	<5.00	190.00	190.00	**2,190.00**	**6.74**	4.52	301.00	132.00	145.00	17.90	1,140.00	**1,880.00**
	10/08/13	<6.00	211.00	211.00	**1,890.00**	1.46	2.39	247.00	131.00	114.00	15.30	914.00	**2,380.00**
	10/07/14	<4.00	205.00	205.00	**1,700.00**	0.46	2.37	277.00	118.00	126.00	14.90	860.00	**3,690.00**
	10/21/15	--	--	--	182.00	<4.00	--	78.10	--	--	--	--	559.00
	10/18/16	--	--	--	**1,320.00**	0.83	--	221.00	--	--	--	--	**2,700.00**
	10/24/17	--	--	--	148.00	**2.57**	--	79.40	--	--	--	--	594.00
	10/18/18	--	--	--	**1,290.00**	0.79	--	215.00	--	--	--	--	**2,360.00**
	06/20/19	--	--	--	**1,110.00**	--	--	--	--	--	--	--	**2,510.00**
	4/20/20	--	--	--	**317.00**	--	--	--	--	--	--	--	826.00
	10/12/20	--	--	--	**285.00**	--	--	--	--	--	--	--	799.00
	06/25/21	--	--	--	**938.00**	--	--	--	--	--	--	--	**2,030.00**
	12/06/21	--	--	--	**656.00**	--	--	--	--	--	--	--	**1,800.00**
	08/23/22	--	--	--	**805**	--	--	--	--	--	--	--	**1,540**
	12/21/22	--	--	--	**960**	--	--	--	--	--	--	--	**1,240**
	07/20/23	--	--	--	**736**	--	--	--	--	--	--	--	**1,720**
	11/13/23	--	--	--	**857**	--	--	--	--	--	--	--	**1,840**
MW-2	02/25/98	--	--	210.00	**5,900.00**	--	--	**760.00**	840.00	380.00	30.00	2,650.00	**9,400.00**
	04/09/98	--	--	290.00	**8,200.00**	--	--	**990.00**	1,100.00	490.00	29.00	3,430.00	**15,000.00**
	02/14/01	<1.00	184.00	184.00	**7,400.00**	**2.30**	4.10	**870.00**	1,025.00	488.00	48.50	3,189.00	**15,000.00**
	05/17/02	<1.00	160.00	160.00	**3,200.00**	**1.72**	3.18	483.00	587.00	239.00	35.60	1,160.00	**6,040.00**
	10/23/02	--	--	--	**2,920.00**	--	--	451.00	--	--	--	--	**6,770.00**
	05/22/03	<1.00	158.00	158.00	**2,550.00**	**2.04**	3.87	386.00	448.00	176.00	20.00	1,020.00	**5,880.00**
	11/25/03	<1.00	160.00	160.00	**3,330.00**	<4.00	5.63	446.00	555.00	227.00	32.00	1,120.00	**6,760.00**
	05/12/04	<1.00	146.00	146.00	**1,750.00**	<2.00	2.78	246.00	308.00	112.00	29.70	549.00	**3,965.00**
	11/16/04	<1.00	120.00	120.00	**430.00**	<1.00	2.13	56.90	104.00	29.40	22.40	158.00	832.00
	11/16/05	<10.00	171.00	171.00	**4,720.00**	0.72	2.60	645 D1	594.00	209.00	20.80	3,290.00	**10,000.00**
	11/14/06	<10.00	160.00	160.00	**3,500.00**	0.78 N	2.10	470.00	535.00	212.00	21.00	15,400.00	**8,260.00**
	11/14/07	<10.00	178.00	178.00	**3,280.00**	0.76	1.93	462 D1	449.00	152.00	16.20	1310 D1	**9,110.00**
	11/04/08	<5.00	150.00	150.00	**2,900.00**	<1.0	1.10	430.00	380.00	160.00	26.00	1,200.00	**5,600.00**
	11/16/09	<10.00	150.00	150.00	**2,000.00**	1.10	1.60	340.00	290.00	120.00	20.00	750.00	**4,300.00**
	11/12/10	<10.00	186.00	186.00	**1,890.00**	0.73	1.86	327.00	326.00	120.00	9.80	795.00	**3,680.00**
	11/10/11	<5.00	175.00	175.00	**1,480.00**	0.81	1.31	150.00	227.00	83.20	9.75	668.00	**2,860.00**
	10/11/12	<5.00	149.00	149.00	**524.00**	0.55	1.92	231.00	119.00	31.70	8.78	286.00	**1,090.00**
	10/08/13	<6.00	269.00	269.00	**1,180.00**	1.20	<0.10	169.00	178.00	64.70	8.16	505.00	**2,520.00**
	10/07/14	<4.00	196.00	196.00	**695.00**	0.52	<0.023	147.00	143.00	47.50	7.30	343.00	**1,310.00**
	10/21/15	--	--	--	27.10	<2.00	--	58.60	--	--	--	--	388.00
	10/18/16	--	--	--	26.70	<0.50	--	34.40	--	--	--	--	352.00
	10/25/17	--	--	--	35.80	1.00	--	36.30	--	--	--	--	331.00
	10/18/18	--	--	--	65.90	0.66	--	48.50	--	--	--	--	384.00
	06/20/19	--	--	--	**283.00**	--	--	--	--	--	--	--	960.00
	04/20/20	--	--	--	**263.00**	--	--	--	--	--	--	--	624.00
	10/12/20	--	--	--	221.00	--	--	--	--	--	--	--	675.00
	06/25/21	--	--	--	205.00	--	--	--	--	--	--	--	685.00
	12/06/21	--	--	--	183.00	--	--	--	--	--	--	--	675.00
	08/23/22	--	--	--	**1,190**	--	--	--	--	--	--	--	**2,250**
	12/21/22	--	--	--	239	--	--	--	--	--	--	--	494
	07/20/23	--	--	--	137	--	--	--	--	--	--	--	437
	11/13/23	--	--	--	194	--	--	--	--	--	--	--	546
MW-2A	02/26/98	--	--	190.00	**280.00**	--	--	330.00	144.00	36.00	5.70	215.00	**1,200.00**
	02/14/01	<1.00	162.00	162.00	44.00	1.30	2.30	76.00	64.40	16.70	7.02	45.50	390.00
	05/15/02	<1.00	176.00	176.00	36.60	<1.00	2.34	79.10	57.60	13.90	4.35	43.80	435.00
	10/23/02	--	--	--	44.30	--	--	97.00	--	--	--	--	425.00
	05/22/03	<1.00	168.00	168.00	40.50	<1.00	2.18	75.50	67.20	14.30	3.76	47.90	418.00
	11/25/03	<1.00	166.00	166.00	43.10	1.00	2.23	77.40	51.70	14.40	3.98	43.80	452.00
	05/12/04	<1.00	176.00	176.00	44.80	<1.00	2.24	76.50	62.90	15.00	3.66	43.60	440.00

Table 3
Cumulative Summary of Groundwater Analytical Results
Cooper-Jal Unit Injection Station
Lea County, New Mexico

ARCADIS

Sample ID	Sample Date	Carbonate Alkalinity	Bicarbonate Alkalinity	Total Alkalinity	Chloride[1]	Fluoride[2]	Nitrate - N[2]	Sulfate[1]	Calcium	Magnesium	Potassium	Sodium	TDS[1]
NMWQCC Groundwater Standard					***250***	***1.60***	***10***	***600.00***					***1,000***
	11/16/04	<1.00	164.00	164.00	52.50	1.22	2.78	75.40	68.80	15.30	3.98	49.10	428.00
	11/16/05	<10.00	151.00	151.00	56.80	0.60	2.30	75.1 D1	157.00	18.00	4.20	49.80	630 N
	11/14/06	<10.00	180.00	180.00	49.00	0.55	1.60	76.00	69.80	15.60	3.47	49.90	488.00
	11/14/07	<10.00	170.00	170.00	74.60	0.58	1.51	66.8 D1	666.00	15.30	<5.00	45.40	504.00
	11/04/08	<5.00	220.00	220.00	68.00	0.49	1.40	74.00	67.00	15.00	3.20	42.00	470.00
	11/03/09	<10.00	230.00	230.00	62.00	0.59	1.60	81.00	66.00	15.00	3.40	50.00	480.00
	11/11/10	<10.00	158.00	158.00	86.10	0.45	1.73	74.00	53.90	14.90	2.86	42.80	474.00
	11/10/11	<5.00	175.00	175.00	129.00	0.28	1.25	101.00	92.50	23.30	4.17	64.70	614.00
	10/11/12	<5.00	173.00	173.00	76.50	0.46	1.60	79.40	69.20	15.70	3.62	45.30	500.00
	10/08/13	<6.00	248.00	248.00	78.60	0.41	0.62	75.40	92.60	18.70	4.06	51.20	496.00
	10/07/14	<4.00	188.00	188.00	72.50	0.20	1.55	79.40	77.10	17.20	3.00	44.30	496.00
	10/21/15	--	--	--	76.70	<4.00	--	77.50	--	--	--	--	441.00
	10/18/16	--	--	--	84.60	<0.50	--	83.40	--	--	--	--	455.00
	10/25/17	--	--	--	83.10	1.23	--	77.30	--	--	--	--	512.00
	10/18/18	--	--	--	103.00	0.67	--	88.30	--	--	--	--	491.00
	06/20/19	--	--	--	86.50	--	--	--	--	--	--	--	554.00
	04/20/20	--	--	--	126.00	--	--	--	--	--	--	--	526.00
	06/25/21	--	--	--	96.30	--	--	--	--	--	--	--	510.00
	12/06/21	--	--	--	--	--	--	--	--	--	--	--	--
	08/23/22	--	--	--	124.00	--	--	--	--	--	--	--	560.00
	07/20/23	--	--	--	102	--	--	--	--	--	--	--	551
	11/13/23	--	--	--	--	--	--	--	--	--	--	--	--
MW-3	02/27/98	--	--	190.00	**452.00**	--	--	406.00	200.00	50.00	11.00	237.00	**1,500.00**
	02/14/01	<1.00	158.00	158.00	34.00	**1.60**	2.40	100.00	54.50	19.00	7.61	48.60	440.00
	05/17/02	<1.00	158.00	158.00	30.60	1.56	2.35	102.00	55.60	18.40	5.04	50.00	433.00
	10/23/02	--	--	--	35.40	--	--	104.00	--	--	--	--	419.00
	05/22/03	<1.00	156.00	156.00	30.60	1.17	2.25	96.30	53.20	17.80	5.39	54.60	435.00
	11/25/03	<1.00	160.00	160.00	31.40	1.35	2.30	103.00	46.50	18.00	5.19	51.70	440.00
	05/12/04	<1.00	164.00	164.00	32.30	1.20	2.38	101.00	52.20	16.80	4.77	47.50	448.00
	11/16/04	<1.00	166.00	166.00	35.10	1.53	2.77	95.40	56.30	23.60	12.70	58.90	424.00
	11/17/05	<10.0	171.00	171.00	96.30	0.97	2.20	108 D1	89.20	22.10	8.87	93.40	840.00
	11/15/06	<10.00	170.00	170.00	30.00	0.92 N	1.70	96.00	51.30	17.30	4.30	57.20	505.00
	11/16/07	<10.00	170.00	170.00	39.70	0.93	1.58	88.2 D1	50.80	16.30	<5.00	50.60	570.00
	11/06/08	<5.00	150.00	150.00	36.00	1.10	1.40	97.00	50.00	17.00	4.00	48.00	430.00
	11/03/09	<10.00	160.00	160.00	35.00	1.10	1.60	110.00	49.00	17.00	4.20	56.00	410.00
	11/10/10	<10.00	164.00	164.00	35.40	0.84	1.77	99.90	48.80	15.20	3.42	45.10	380.00
	11/10/11	<5.00	165.00	165.00	36.40	0.83	1.35	87.90	57.90	18.00	3.79	53.00	404.00
	10/11/12	<5.00	162.00	162.00	36.60	1.01	1.74	100.00	51.20	16.90	4.11	51.00	438.00
	10/08/13	<6.00	194.00	194.00	38.40	1.02	1.17	98.70	56.50	18.30	4.08	54.90	450.00
	10/07/14	<4.00	187.00	187.00	19.50	0.37	1.39	62.80	44.30	9.82	22.40	38.80	332.00
	10/21/15	--	--	--	25.60	<2.00	--	74.80	--	--	--	--	307.00
	10/18/16	--	--	--	37.10	0.66	--	109.00	--	--	--	--	464.00
	10/24/17	--	--	--	35.90	1.50	--	98.70	--	--	--	--	442.00
	10/18/18	--	--	--	209.00	**5.35**	--	567.00	--	--	--	--	415.00
	06/20/19	--	--	--	40.00	--	--	--	--	--	--	--	448.00
	04/20/20	--	--	--	**68.5 F2 F1**	--	--	--	--	--	--	--	435.00
Dup	04/20/20	--	--	--	69.60	--	--	--	--	--	--	--	502.00
	06/25/21	--	--	--	42.20	--	--	--	--	--	--	--	424.00
	12/06/21	--	--	--	--	--	--	--	--	--	--	--	--
	08/24/22	--	--	--	43.10	--	--	--	--	--	--	--	417.00
	07/21/23	--	--	--	41.7	--	--	--	--	--	--	--	430 B
	11/13/23	--	--	--	--	--	--	--	--	--	--	--	--
MW-4	02/27/98	--	--	230.00	**12,000.00**	--	--	**1,300.00**	1,700.00	880.00	48.00	5,300.00	**22,000.00**
	04/09/98	--	--	240.00	**13,000.00**	--	--	**1,500.00**	1,740.00	840.00	42.00	5,400.00	**23,000.00**
	02/14/01	<1.00	232.00	232.00	**15,000.00**	**1.80**	6.80	**1,500.00**	--	--	--	--	**29,000.00**
	05/17/02	<1.00	232.00	232.00	**11,300.00**	**2.01**	6.09	**1,380.00**	1,610.00	814.00	60.90	4,310.00	**22,600.00**
	10/23/02	--	--	--	**11,300.00**	--	--	**1,320.00**	--	--	--	--	**23,200.00**
	05/22/03	<1.00	220.00	220.00	**11,300.00**	<10.00	**12.30**	**1,370.00**	1,450.00	659.00	47.30	4,140.00	**62,500.00**
	11/26/03	<1.00	218.00	218.00	**12,100.00**	<8.00	**12.30**	**1,400.00**	1,830.00	889.00	62.00	4,620.00	**54,450.00**
	05/11/04	<1.00	214.00	214.00	**14,200.00**	<8.00	8.97	**1,560.00**	1,800.00	829.00	60.70	4,850.00	**65,450.00**
	11/17/04	<1.00	222.00	222.00	**13,600.00**	<20.00	**31.50**	**1,410.00**	2,020.00	972.00	73.60	5,900.00	**25,200.00**
	11/17/05	<10.00	181.00	181.00	**9,440.00**	0.82	0.20	45.8 D1	849.00	387.00	28.10	3,880.00	**24,300.00**
	11/15/06	<10.00	260.00	260.00	**14,000.00**	<5.00 C	5.20	**1,400.00**	1,760.00	897.00	58.80	6,150.00	**28,700.00**
	11/14/07	<10.00	255.00	255.00	**14,800.00**	0.54	7.15 D1	1,410 D1	1,170.00	382.00	48.00	4,760 D1	**36,300.00**
	11/12/08	<5.00	200.00	200.00	**12,000.00**	1.20	0.33	**1,300.00**	1,500.00	840.00	82.00	4,800.00	**22,000.00**
	11/04/09	<5.00	250.00	250.00	**15,000.00**	1.10	5.30	**1,600.00**	1,500.00	1,000.00	65.00	5,800.00	**30,000.00**
	11/11/10	<5.00	294.00	294.00	**15,500.00**	<1.00	**10.20**	**1,270.00**	1,380.00	904.00	40.40	5,450.00	**25,500.00**
	11/10/11	<5.00	277.00	277.00	**16,900.00**	0.11	6.16	**1,060.00**	1,680.00	1,110.00	40.00	6,490.00	**28,900.00**
	10/11/12	<5.00	256.00	256.00	**5,850.00**	**2.10**	4.58	**629.00**	434.00	334.00	21.20	2,620.00	**12,000.00**
	10/08/13	<6.00	294.00	294.00	**16,200.00**	0.72	6.79	**1,460.00**	1,690.00	1,180.00	40.80	7,370.00	**36,300.00**
	10/07/14	<4.00	291.00	291.00	**15,000.00**	<100.00	7.15	**1,740.00**	1,350.00	1,060.00	44.10	4,250.00	**32,400.00**
	10/20/15	--	--	--	**3,200.00**	<40.00	--	402.00	--	--	--	--	**7,070.00**

Table 3
Cumulative Summary of Groundwater Analytical Results
Cooper-Jal Unit Injection Station
Lea County, New Mexico

Sample ID	Sample Date	Carbonate Alkalinity	Bicarbonate Alkalinity	Total Alkalinity	Chloride[1]	Fluoride[2]	Nitrate - N[2]	Sulfate[1]	Calcium	Magnesium	Potassium	Sodium	TDS[1]
NMWQCC Groundwater Standard					***250***	***1.60***	***10***	***600.00***					***1,000***
	10/18/16	--	--	--	**17,900.00**	<1.00	--	**1,890.00**	--	--	--	--	**35,300.00**
	10/25/17	--	--	--	**6,830.00**	<5.00	--	**754.00**	--	--	--	--	**12,300.00**
	10/18/18	--	--	--	**14,800.00**	<0.10	--	**1,510.00**	--	--	--	--	**24,700.00**
	04/20/20	--	--	--	**14,600.00**	--	--	--	--	--	--	--	**28,900.00**
	10/12/20	--	--	--	**14,200.00**	--	--	--	--	--	--	--	**25,600.00**
	06/25/21	--	--	--	**13,600.00**	--	--	--	--	--	--	--	**28,400.00**
	12/06/21	--	--	--	**8,700.00**	--	--	--	--	--	--	--	**24,000.00**
	08/23/22	--	--	--	73.6	--	--	--	--	--	--	--	465.00
	12/21/22	--	--	--	**13,600**	--	--	--	--	--	--	--	**16,400**
	07/21/23	--	--	--	**13,300**	--	--	--	--	--	--	--	**19,800**
	11/13/23	--	--	--	**13,700**	--	--	--	--	--	--	--	**23,800**
MW-4A	02/27/98	--	--	180.00	**1,600.00**	--	--	410.00	470.00	130.00	11.00	620.00	**3,300.00**
	02/14/01	<1.00	154.00	154.00	**1,600.00**	1.40	2.80	210.00	--	--	--	--	**4,000.00**
	05/15/02	<1.00	156.00	156.00	**577.00**	<1.00	2.23	121.00	200.00	49.50	10.30	125.00	**1,610.00**
	10/23/02	--	--	--	**478.00**	--	--	114.00	--	--	--	--	**1,430.00**
	05/22/03	<1.00	154.00	154.00	**844.00**	<1.00	2.43	160.00	279.00	58.90	10.10	248.00	**2,200.00**
	11/26/03	<1.00	158.00	158.00	**1,060.00**	<4.00	5.82	182.00	337.00	79.30	15.20	329.00	**2,585.00**
	05/11/04	<1.00	156.00	156.00	**984.00**	<2.00	3.30	179.00	297.00	66.50	11.50	279.00	**2,300.00**
	11/17/04	<1.00	164.00	164.00	**1,110.00**	<2.00	4.62	186.00	369.00	75.40	14.90	413.00	**2,235.00**
	11/16/05	<10.0	181.00	181.00	**827 D1**	<0.50	2.20	160 D1	335.00	64.40	9.23	382.00	**2,340 N**
	11/15/06	<10.00	620.00	620.00	**960.00**	<0.50	2.60	170.00	227.00	53.50	8.10	406.00	**2,870.00**
	11/14/07	<10.00	311.00	311.00	**845 D1**	0.35	3.60 D1	167 D1	205.00	44.90	7.33	334.00	**2,650.00**
	11/12/08	<5.00	640.00	640.00	**650.00**	0.32	2.20	170.00	160.00	37.00	9.90	290.00	**1,700.00**
	11/04/09	<5.00	670.00	670.00	**670.00**	0.56	2.60	150.00	110.00	27.00	7.40	300.00	**1,600.00**
	11/11/10	<5.00	217.00	217.00	**663.00**	0.51	2.58	125.00	65.90	15.60	4.42	317.00	**1,760.00**
	11/10/11	<5.00	171.00	171.00	**621.00**	0.78	2.02	134.00	78.80	18.70	4.71	389.00	**1,400.00**
	10/11/12	<5.00	169.00	169.00	**516.00**	1.12	2.60	100.00	48.70	11.30	4.45	359.00	**1,200.00**
	10/08/13	<6.00	199.00	199.00	**512.00**	**2.63**	2.47	100.00	47.70	9.93	3.64	410.00	**1,170.00**
	10/07/14	<4.00	186.00	186.00	**387.00**	**1.69**	2.54	102.00	37.10	7.78	3.17	276.00	962.00
	10/20/15	--	--	--	**328.00**	<4.00	--	83.30	--	--	--	--	819.00
	10/18/16	--	--	--	**440.00**	1.49	--	97.60	--	--	--	--	**1,150.00**
	10/25/17	--	--	--	**341.00**	**2.83**	--	93.40	--	--	--	--	960.00
	10/18/18	--	--	--	**366.00**	1.29	--	99.60	--	--	--	--	901.00
	06/20/19	--	--	--	**336.00**	--	--	--	--	--	--	--	**1,040.00**
	04/20/20	--	--	--	**311 F1**	--	--	--	--	--	--	--	808.00
	06/25/21	--	--	--	**409.00**	--	--	--	--	--	--	--	**1,030.00**
	12/06/21	--	--	--	**--**	--	--	--	--	--	--	--	**--**
	08/23/22	--	--	--	**424**	--	--	--	--	--	--	--	988
	07/20/23	--	--	--	**424**	--	--	101	--	--	--	--	**1,260**
	11/13/23	--	--	--	**--**	--	--	--	--	--	--	--	**--**
MW-5	02/26/98	--	--	180.00	**6,600.00**	--	--	**910.00**	1,400.00	470.00	31.00	2,400.00	**12,000.00**
	02/14/01	<1.00	166.00	166.00	**7,700.00**	**1.80**	4.10	**910.00**	--	--	--	--	**18,000.00**
	05/17/02	<1.00	156.00	156.00	**4,040.00**	1.53	4.56	586.00	757.00	319.00	60.90	1,260.00	**8,340.00**
	10/23/02	--	--	--	**3,900.00**	--	--	94.80	--	--	--	--	422.00
	05/22/03	<1.00	158.00	158.00	**3,170.00**	<4.00	6.52	550.00	644.00	215.00	49.90	1,240.00	**7,860.00**
	11/25/03	<1.00	168.00	168.00	**5,120.00**	<4.00	6.77	**739.00**	978.00	365.00	54.90	1,680.00	**11,940.00**
	05/11/04	<1.00	160.00	160.00	**6,760.00**	<3.00	4.65	**1,030.00**	1,180.00	417.00	40.30	2,120.00	**20,380.00**
	11/17/04	<1.00	172.00	172.00	**6,750.00**	<10.00	**16.60**	**786.00**	1,210.00	486.00	40.60	2,300.00	**11,980.00**
	11/17/05	<10.00	161.00	161.00	**2,140 D1**	0.79	0.16	334 D1	339.00	126.00	10.80	791.00	**7,120 N**
	11/14/06	<10.00	160.00	160.00	**2,000.00**	0.60	1.50	300.00	437.00	173.00	14.20	918.00	**4,420.00**
	11/14/07	<10.00	161.00	161.00	**5,790 D1**	0.37	4.01 D1	668 D1	812.00	240.00	23.30	1,850 D1	**16,300.00**
	11/06/08	<5.00	160.00	160.00	**4,900.00**	0.78	0.32	540.00	660.00	310.00	35.00	1,600.00	**9,700.00**
	11/03/09	<10.00	160.00	160.00	**5,100.00**	0.51	2.30	**710.00**	860.00	320.00	<13.00	1,800.00	**11,000.00**
	11/11/10	<5.00	176.00	176.00	**4,200.00**	0.16	2.37	554.00	687.00	250.00	17.30	1,400.00	**8,890.00**
	11/10/11	<5.00	172.00	172.00	**4,340.00**	0.24	0.55	411.00	944.00	326.00	19.70	1,780.00	**7,840.00**
	10/11/12	<5.00	164.00	164.00	**3,630.00**	0.38	2.26	474.00	671.00	239.00	17.00	1,360.00	**8,300.00**
	10/08/13	<6.00	176.00	176.00	**3,730.00**	0.37	1.56	425.00	659.00	253.00	15.40	1,440.00	**8,060.00**
	10/07/14	<4.00	172.00	172.00	**2,830.00**	<0.10	2.19	398.00	521.00	195.00	15.10	979.00	**5,280.00**
	10/21/15	--	--	--	**2,480.00**	<40.00	--	362.00	--	--	--	--	**5,510.00**
	10/18/16	--	--	--	**2,260.00**	<0.50	--	326.00	--	--	--	--	**5,380.00**
	10/25/17	--	--	--	**2,090.00**	<5.00	--	318.00	--	--	--	--	**3,780.00**
Dup	10/25/17	--	--	--	**2,010.00**	<5.00	--	300.00	--	--	--	--	**3,240.00**
	10/18/18	--	--	--	**1,890.00**	<0.10	--	323.00	--	--	--	--	**3,420.00**
	06/20/19	--	--	--	**1,700.00**	--	--	--	--	--	--	--	**4,280.00**
	04/20/20	--	--	--	**1,870.00**	--	--	--	--	--	--	--	**4,150.00**
	10/12/20	--	--	--	**1,460.00**	--	--	--	--	--	--	--	**2,960.00**
	06/25/21	--	--	--	**1,330.00**	--	--	--	--	--	--	--	**2,590.00**
	12/06/21	--	--	--	**1,190.00**	--	--	--	--	--	--	--	**2,630.00**
	08/23/22	--	--	--	101	--	--	--	--	--	--	--	493
	12/21/22	--	--	--	**1150**	--	--	--	--	--	--	--	**2,230**
	07/20/23	--	--	--	**1050**	--	--	--	--	--	--	--	**2,440**
	11/13/23	--	--	--	**991**	--	--	--	--	--	--	--	**2,420**

Table 3
Cumulative Summary of Groundwater Analytical Results
Cooper-Jal Unit Injection Station
Lea County, New Mexico

ARCADIS

Sample ID	Sample Date	Carbonate Alkalinity	Bicarbonate Alkalinity	Total Alkalinity	Chloride[1]	Fluoride[2]	Nitrate - N[2]	Sulfate[1]	Calcium	Magnesium	Potassium	Sodium	TDS[1]
NMWQCC Groundwater Standard					***250***	***1.60***	***10***	***600.00***					***1,000***
MW-5A	02/26/98	--	--	170.00	190.00	--	--	180.00	107.00	23.00	3.50	117.00	740.00
	02/15/01	<1.00	164.00	164.00	140.00	1.20	2.10	130.00	90.20	27.90	8.70	74.60	670.00
	05/15/02	<1.00	182.00	182.00	53.50	<1.00	2.23	84.40	63.20	16.10	4.69	43.60	475.00
	10/23/02	--	--	--	50.00	--	--	**616.00**	--	--	--	--	**8,670.00**
	05/22/03	<1.00	158.00	158.00	32.50	<1.00	2.10	69.90	55.50	13.80	3.41	41.50	416.00
	11/25/03	<1.00	332.00	332.00	34.10	1.05	2.20	75.50	60.90	14.60	4.08	45.00	422.00
	05/11/04	<1.00	164.00	164.00	38.80	<1.00	2.25	75.80	60.90	15.00	3.40	43.20	484.00
	11/17/04	<1.00	152.00	152.00	39.60	1.37	2.66	74.30	58.10	13.60	3.83	48.50	430.00
	11/16/05	<10.00	191.00	191.00	40.20	0.82	2.10	75.2 D1	176.00	17.80	4.22	45.30	570 N
	11/14/06	<10.00	240.00	240.00	47.00	0.64	1.50	79.00	90.40	16.10	3.58	51.40	588.00
	11/14/07	<10.00	227.00	227.00	54.40	0.66	1.45	68.7 D1	73.70	14.00	<5.00	44.20	528.00
	11/06/08	<5.00	350.00	350.00	53.00	0.70	1.30	72.00	76.00	15.00	3.40	43.00	450.00
	11/03/09	<10.00	710.00	710.00	47.00	0.72	1.50	79.00	65.00	14.00	3.30	50.00	440.00
	11/11/10	<5.00	182.00	182.00	49.60	0.57	1.61	73.60	55.70	12.90	2.79	42.00	606.00
	11/10/11	<5.00	170.00	170.00	131.00	0.49	1.15	116.00	83.80	29.90	5.16	85.70	594.00
	10/11/12	<5.00	163.00	163.00	68.00	0.63	1.57	69.80	60.60	15.30	3.96	49.20	534.00
	10/08/13	<6.00	182.00	182.00	80.20	0.57	1.60	67.50	69.30	16.20	3.29	53.40	462.00
	10/07/14	<4.00	168.00	168.00	73.60	0.29	1.56	64.90	66.20	15.70	2.76	45.20	432.00
	10/21/15	--	--	--	84.90	<4.00	--	65.60	--	--	--	--	499.00
	10/18/16	--	--	--	101.00	<0.50	--	65.40	--	--	--	--	466.00
	10/25/17	--	--	--	99.60	1.14	--	59.30	--	--	--	--	537.00
	10/18/18	--	--	--	132.00	0.79	--	67.50	--	--	--	--	477.00
	06/20/19	--	--	--	118.00	--	--	--	--	--	--	--	650.00
	04/20/20	--	--	--	120.00	--	--	--	--	--	--	--	571.00
	06/25/21	--	--	--	140.00	--	--	--	--	--	--	--	529.00
	12/06/21	--	--	--	**--**	**--**	--	**--**	--	--	--	--	**--**
	08/23/22	--	--	--	**15,000**	**--**	--	**--**	--	--	--	--	**18,500**
	07/20/23	--	--	--	146	--	--	--	--	--	--	--	552
	11/13/23	--	--	--	--	--	--	--	--	--	--	--	--
MW-6	02/26/98	--	--	200.00	**260.00**	--	--	400.00	180.00	44.00	6.20	205.00	**1,200.00**
	02/14/01	<1.00	158.00	158.00	59.00	**1.70**	2.20	99.00	67.50	22.10	7.67	52.30	470.00
	05/17/02	<1.00	162.00	162.00	37.80	**1.62**	2.14	99.30	63.10	19.60	5.12	48.60	427.00
	10/23/02	--	--	--	46.10	--	--	109.00	--	--	--	--	331.00
	05/22/03	<1.00	162.00	162.00	40.30	1.24	2.13	94.40	61.70	17.40	4.23	51.90	464.00
	11/25/03	<1.00	154.00	154.00	53.60	1.40	2.18	98.00	53.60	18.70	4.97	51.70	482.00
	05/11/04	<1.00	156.00	156.00	54.40	1.23	2.19	97.00	59.00	18.10	4.22	47.80	506.00
	11/16/04	<1.00	162.00	162.00	57.90	**1.64**	2.68	99.80	66.60	19.60	5.16	57.00	464.00
	11/17/05	<10.00	201.00	201.00	101.00	0.97	0.35	97.8 D1	103.00	20.20	4.10	59.10	730.00
	11/15/06	<10.00	750.00	750.00	68.00	0.99	1.50	93.00	64.60	20.40	4.23	57.10	507.00
	11/15/07	<10.00	284.00	284.00	162.00	**51.00**	1.35	96.3 D1	84.10	25.20	<5.00	62.10	630.00
	11/06/08	<5.00	220.00	220.00	84.00	1.20	1.20	95.00	67.00	21.00	4.30	53.00	490.00
	11/03/09	<10.00	190.00	190.00	81.00	1.20	1.40	100.00	66.00	20.00	4.50	59.00	550.00
	11/08/10	NS - Well Damaged											
	11/10/11	NS - Well Damaged											
	10/11/12	NS - Well Damaged											
	09/30/13	Well Plugged and Abandoned											
MW-6R	10/08/13	<6.00	225.00	225.00	110.00	**1.91**	<0.10	102.00	69.90	24.40	5.17	85.60	600.00
	10/07/14	<4.00	182.00	182.00	39.70	0.55	0.68	93.00	59.20	18.20	3.10	48.20	402.00
	10/21/15	--	--	--	40.70	<2.00	--	98.60	--	--	--	--	390.00
	10/18/16	--	--	--	42.30	0.63	--	105 J	--	--	--	--	442.00
	10/25/17	--	--	--	49.30	1.46	--	93.80	--	--	--	--	465.00
	10/18/18	--	--	--	69.10	1.05	--	107.00	--	--	--	--	442.00
	06/20/19	--	--	--	59.10	--	--	--	--	--	--	--	482.00
Dup	06/20/19	--	--	--	64.40	--	--	--	--	--	--	--	592.00
	11/23/19	--	--	--	69.40	--	--	95.20	--	--	--	--	384.00
	04/20/20	--	--	--	77.40	--	--	--	--	--	--	--	506.00
	06/25/21	--	--	--	71.70	--	--	--	--	--	--	--	487.00
	12/06/21	--	--	--	**--**	--	--	--	--	--	--	--	**--**
	08/23/22	--	--	--	145	--	--	--	--	--	--	--	514
	07/20/23	--	--	--	71.5	--	--	--	--	--	--	--	479
	11/13/23	--	--	--	--	--	--	--	--	--	--	--	--
MW-7	05/14/98	--	--	230.00	**430.00**	--	--	340.00	214.00	66.00	13.00	165.00	**1,200.00**
	02/14/01	<1.00	150.00	150.00	**510.00**	**1.70**	2.40	150.00	--	--	--	--	**1,500.00**
	05/16/02	<1.00	150.00	150.00	75.70	1.59	2.27	97.40	68.60	23.20	6.63	54.30	501.00
	10/22/02	--	--	--	88.60	--	--	109.00	--	--	--	--	490.00
	05/22/03	<1.00	140.00	140.00	173.00	1.17	2.14	88.90	85.50	28.20	6.18	64.60	631.00
	11/26/03	<1.00	136.00	136.00	189.00	1.29	2.23	93.50	95.70	31.00	7.91	63.60	704.00
	05/13/04	<1.00	130.00	130.00	**267.00**	1.11	2.18	94.70	107.00	34.70	6.59	62.90	914.00
	11/16/04	<1.00	130.00	130.00	**367.00**	1.49	2.72	97.30	142.00	49.30	8.61	87.90	870.00
	11/17/05	<10.0	121.00	121.00	**456 D1**	0.53	0.28	106 D1	412.00	64.70	12.10	100.00	**1,440.00**
	11/15/06	<10.00	240.00	240.00	**550.00**	0.63	1.50	110.00	202.00	70.30	7.40	102.00	**2,100.00**
	11/15/07	<10.00	189.00	189.00	**458 D1**	1.20	1.39	176 D1	144.00	59.50	9.95	148.00	**1,880.00**

Table 3
Cumulative Summary of Groundwater Analytical Results
Cooper-Jal Unit Injection Station
Lea County, New Mexico

Sample ID	Sample Date	Carbonate Alkalinity	Bicarbonate Alkalinity	Total Alkalinity	Chloride[1]	Fluoride[2]	Nitrate - N[2]	Sulfate[1]	Calcium	Magnesium	Potassium	Sodium	TDS[1]
NMWQCC Groundwater Standard					***250***	***1.60***	***10***	***600.00***					***1,000***
	11/12/08	<5.00	110.00	110.00	**650.00**	0.84	1.20	140.00	210.00	76.00	12.00	120.00	**1,600.00**
	11/04/09	<5.00	110.00	110.00	**1,100.00**	0.63	1.50	160.00	310.00	120.00	11.00	130.00	**2,800.00**
	11/10/10	<5.00	111.00	111.00	**1,310.00**	0.37	1.64	173.00	415.00	149.00	10.00	150.00	**3,130.00**
	11/10/11	<5.00	106.00	109.00	**1,710.00**	0.30	1.45	147.00	662.00	203.00	12.30	198.00	**3,660.00**
	10/11/12	<5.00	108.00	108.00	**2,020.00**	0.44	1.71	261.00	619.00	215.00	12.30	208.00	**5,580.00**
	10/08/13	<6.00	142.00	142.00	**2,840.00**	0.45	2.11	331.00	916.00	258.00	13.30	265.00	**7,530.00**
	10/07/14	<4.00	116.00	116.00	**2,190.00**	<0.10	2.03	317.00	682.00	238.00	12.20	227.00	**7,920.00**
	10/20/15	--	--	--	**1,420.00**	<20.00	--	231.00	--	--	--	--	**3,130.00**
	10/18/16	--	--	--	**2,920.00**	<0.50	--	385.00	--	--	--	--	**7,160.00**
	10/24/17	--	--	--	**1,670.00**	<2.00	--	249.00	--	--	--	--	**2,660.00**
	10/18/18	--	--	--	**4,000.00**	<0.10	--	482.00	--	--	--	--	**6,450.00**
	06/20/19	--	--	--	**4,210.00**	--	--	--	--	--	--	--	**15,500.00**
	04/20/20	--	--	--	**4,570.00**	--	--	--	--	--	--	--	**14,100.00**
	10/12/20	--	--	--	**4,560.00**	--	--	--	--	--	--	--	**8,090.00**
	06/25/21	--	--	--	**4,140.00**	--	--	--	--	--	--	--	298.00
	12/07/21	--	--	--	**3,780.00**	--	--	--	--	--	--	--	**8,540.00**
	08/23/22	--	--	--	**5,170**	--	--	--	--	--	--	--	**10,800**
	12/21/22	--	--	--	**5,280**	--	--	--	--	--	--	--	**11,700**
	07/20/23	--	--	--	**5,150**	--	--	--	--	--	--	--	**14,500**
	11/14/23	--	--	--	**5,350**	--	--	--	--	--	--	--	**11,600**
MW-8	05/13/98	--	--	200.00	**270.00**	--	--	390.00	190.00	60.00	12.00	170.00	**1,200.00**
	02/14/01	<1.00	156.00	156.00	49.00	**1.80**	2.50	100.00	59.90	21.50	7.84	52.90	400.00
	05/16/02	<1.00	158.00	158.00	32.90	1.57	2.33	101.00	56.60	19.20	5.20	49.50	432.00
	10/22/02	--	--	--	40.80	--	--	104.00	--	--	--	--	392.00
	05/22/03	8.00	160.00	168.00	33.20	1.40	2.32	98.30	53.90	18.30	9.31	46.40	410.00
	11/26/03	<1.00	142.00	142.00	31.70	1.59	2.38	95.60	55.30	18.20	5.31	50.20	443.00
	05/12/04	<1.00	154.00	154.00	36.30	1.39	2.38	101.00	53.00	17.30	4.56	48.10	435.00
	11/16/04	<1.00	170.00	170.00	39.80	**1.94**	2.94	103.00	57.80	18.60	5.63	56.40	435.00
	05/17/05	4.00	152.00	156.00	41.00	**1.64**	2.94	105.00	61.00	18.60	5.78	47.30	434.00
	11/17/05	<10.00	171.00	171.00	113.00	1.10	<0.05	115 D1	83.40	21.70	5.74	102.00	750.00
	05/09/06	<10.00	160.00	160.00	210.00	0.89	1.40	200.00	72.70	33.30	7.12	125.00	896.00
	11/14/06	<10.00	150.00	150.00	230.00	1.10	1.20	200.00	74.20	38.30	9.61	162.00	912.00
	05/30/07	<10.00	141.00	141.00	62.00	1.20	1.74	120.00	54.10	19.10	<5.00	59.30	500.00
	11/15/07	<10.00	159.00	159.00	43.10	1.33	1.56	94.2 D1	52.10	17.20	<5.000	49.80	540.00
	05/15/08	<1.53	151.00	151.00	40.70	1.40	1.78	99.6 D1	51.70	16.80	4.10	54.8 D1	427.00
	11/12/08	<5.00	140.00	140.00	39.00	1.40	1.50	97.00	52.00	17.00	<2.6	46.00	350.00
	05/20/09	<5.00	140.00	140.00	39.00	1.30	1.60	110.00	50.00	17.00	4.30	49.00	430.00
	11/04/09	<5.00	150.00	150.00	41.00	1.40	1.70	110.00	46.00	16.00	3.30	47.00	450.00
	05/07/10	<5.00	<5.00	172.00	34.90	1.09	1.70	97.80	49.50	15.70	3.52	45.50	426.00
Dup	05/07/10	<5.00	<5.00	157.00	34.90	1.09	1.71	98.00	51.00	14.50	3.21	43.60	466.00
	11/12/10	<5.00	172.00	172.00	38.70	1.10	1.77	98.20	48.90	15.70	3.40	45.40	410.00
Dup	11/12/10	<5.00	160.00	160.00	38.70	1.10	1.76	98.30	50.50	15.30	3.44	44.80	398.00
	05/11/11	<5.00	170.00	170.00	185.00	1.20	1.60	93.00	73.00	28.40	5.68	165.00	692.00
	11/10/11	<5.00	161.00	161.00	36.90	1.06	1.41	87.40	57.10	17.00	3.46	48.60	406.00
	05/17/12	<5.00	173.00	173.00	37.90	1.09	1.59	92.90	53.30	16.40	3.83	56.70	440.00
	10/11/12	<5.00	158.00	158.00	39.90	1.29	1.83	103.00	49.00	16.60	4.30	49.00	444.00
	05/17/13	<5.00	167.00	167.00	38.30	1.37	1.70	106.00	55.30	17.50	3.67	45.90	416.00
	10/08/13	<6.00	182.00	182.00	39.50	1.17	1.78	96.20	57.40	19.70	4.35	57.60	446.00
	05/01/14	<10.00	165.00	165.00	40.60	1.12 J	1.81	106.00	55.10	19.90	3.82	52.90	436.00
	10/07/14	<4.00	176.00	176.00	8.14	0.16	1.07	30.50	40.00	4.98	7.81	35.10	259.00
	05/22/15	--	--	--	10.00	<2.00	--	30.10	--	--	--	--	252.00
	10/20/15	--	--	--	8.03	<2.00	--	32.50	--	--	--	--	146.00
	05/25/16	--	--	--	30.00	0.85	--	88.70	--	--	--	--	434.00
	10/18/16	--	--	--	4.28	<0.50	--	32.80	--	--	--	--	261.00
	05/11/17	--	--	--	9.10	<0.02	--	32.20	--	--	--	--	214.00
Dup	05/11/17	--	--	--	8.62	<0.02	--	32.20	--	--	--	--	182.00
	10/24/17	--	--	--	3.69	0.23	--	18.30	--	--	--	--	286.00
	05/22/18	--	--	--	5.22	0.32	--	21.90	--	--	--	--	282.00
	10/18/18	--	--	--	5.41	0.61	--	19.10	--	--	--	--	258.00
	06/20/19	--	--	--	NS	--	--	--	--	--	--	--	NS
	04/20/20	--	--	--	49.00	--	--	--	--	--	--	--	305.00
	06/25/21	--	--	--	28.90	--	--	--	--	--	--	--	391.00
	12/06/21	--	--	--	--	--	--	--	--	--	--	--	--
	08/24/22	--	--	--	32.0	--	--	--	--	--	--	--	371
	07/20/23	--	--	--	36.9	--	--	--	--	--	--	--	432
	11/13/23	--	--	--	--	--	--	--	--	--	--	--	--
MW-9	05/14/98	--	--	190.00	**350.00**	--	--	470.00	207.00	61.00	12.00	200.00	**1,300.00**
	02/15/01	<1.00	156.00	156.00	35.00	**2.60**	2.40	110.00	60.40	19.80	7.47	47.00	430.00
	05/16/02	<1.00	160.00	160.00	31.70	**2.22**	2.28	99.40	60.80	17.60	5.32	50.10	440.00
	10/23/02	--	--	--	39.00	--	--	102.00	--	--	--	--	436.00
	05/22/03	<1.00	160.00	160.00	31.00	**1.75**	2.19	93.30	52.20	15.80	4.75	50.20	455.00
	11/26/03	<1.00	150.00	150.00	31.80	**1.99**	2.34	99.80	57.70	16.60	4.69	46.30	452.00

Table 3
Cumulative Summary of Groundwater Analytical Results
Cooper-Jal Unit Injection Station
Lea County, New Mexico

ARCADIS

Sample ID	Sample Date	Carbonate Alkalinity	Bicarbonate Alkalinity	Total Alkalinity	Chloride[1]	Fluoride[2]	Nitrate - N[2]	Sulfate[1]	Calcium	Magnesium	Potassium	Sodium	TDS[1]
NMWQCC Groundwater Standard					***250***	***1.60***	***10***	***600.00***					***1,000***
	05/12/04	<1.00	164.00	164.00	33.60	**1.79**	2.29	99.20	54.80	16.00	4.27	43.50	467.00
	11/16/04	8.00	154.00	162.00	**367.00**	1.49	2.72	97.30	63.20	17.80	5.59	55.50	433.00
	05/17/05	4.00	154.00	154.00	44.20	**2.43**	3.05	117.00	58.80	16.70	5.94	44.10	434.00
	11/17/05	<10.00	161.00	161.00	83.50	1.30	0.14	111 D1	149.00	26.20	7.43	80.40	790 N
	05/09/06	<10.00	170.00	170.00	37.00	**1.80**	1.80	99.00	52.70	15.00	3.21	45.50	428.00
	11/15/06	<10.00	150.00	150.00	210.00	1.10	1.20	190.00	70.50	35.80	8.64	152.00	905.00
	05/30/07	<10.00	153.00	153.00	35.00	**2.10**	1.69	110.00	52.20	15.80	<5.00	44.70	464.00
	11/14/07	<10.00	151.00	151.00	186.00	1.49	1.48	156 D1	74.10	39.40	8.73	141.00	808.00
	05/15/08	<1.53	174.00	174.00	42.50	**2.38**	1.72	105 D1	55.60	17.00	3.99	54.1 D1	467.00
	11/04/08	<5.00	160.00	160.00	39.00	**2.10**	1.40	98.00	54.00	16.00	3.70	47.00	440.00
	05/20/09	<5.00	320.00	320.00	69.00	**2.10**	1.50	120.00	58.00	19.00	4.60	58.00	520.00
	11/04/09	<5.00	160.00	160.00	42.00	**2.20**	1.60	110.00	50.00	15.00	3.00	43.00	460.00
	05/07/10	<5.00	<5.00	162.00	50.20	**2.02**	1.66	97.50	53.60	15.70	3.32	43.50	442.00
	11/09/10	<5.00	186.00	186.00	60.70	**1.97**	1.74	98.00	59.20	18.10	3.64	50.00	446.00
	05/11/11	<5.00	160.00	160.00	80.30	**1.71**	1.72	75.70	73.90	25.80	4.61	67.90	518.00
	11/10/11	<5.00	151.00	151.00	138.00	**1.66**	1.38	107.00	82.70	26.90	4.34	65.40	582.00
	05/16/12	<5.00	162.00	162.00	137.00	**1.75**	1.61	93.50	83.80	23.20	4.39	60.30	584.00
	10/11/12	<5.00	147.00	147.00	148.00	**1.90**	1.71	98.70	80.50	25.80	4.94	59.80	644.00
	05/17/13	<5.00	144.00	144.00	246.00	**1.86**	1.61	99.30	107.00	30.20	4.43	60.20	**1,010.00**
	10/08/13	<6.00	164.00	164.00	150.00	**1.88**	1.81	99.80	90.00	25.20	4.62	60.80	620.00
	05/02/14	<10.00	143.00	143.00	**382.00**	1.56	1.77	103.00	132.00	35.70	5.74	73.70	906.00
	10/07/14	<4.00	151.00	151.00	**292.00**	0.89	1.33	98.10	136.00	41.00	4.65	67.40	**1,110.00**
	05/22/15	--	--	--	**307.00**	<8.00	--	87.70	--	--	--	--	**1,170.00**
	10/20/15	--	--	--	202.00	<4.00	--	93.70	--	--	--	--	593.00
	05/25/16	--	--	--	**404.00**	**1.61**	--	108.00	--	--	--	--	**1,430.00**
Dup	05/26/16	--	--	--	**418.00**	1.60	--	111.00	--	--	--	--	**1,430.00**
	10/18/16	--	--	--	**445.00**	1.34	--	115.00	--	--	--	--	**1,490.00**
	05/11/17	--	--	--	**481.00**	<0.22	--	118.00	--	--	--	--	**1,090.00**
	10/24/17	--	--	--	**387.00**	**2.42**	--	102.00	--	--	--	--	**1,020.00**
	05/22/18	--	--	--	**460.00**	1.28	--	119.00	--	--	--	--	**1,010.00**
	10/18/18	--	--	--	**381.00**	1.41	--	117.00	--	--	--	--	903.00
	06/20/19	--	--	--	**621.00**	--	--	--	--	--	--	--	**2,930.00**
	11/24/19	--	--	--	**337.00**	--	--	80.60	--	--	--	--	**1,170.00**
	04/20/20	--	--	--	**1,070.00**	--	--	--	--	--	--	--	**3,090.00**
	10/12/20	--	--	--	**945.00**	--	--	--	--	--	--	--	**1,860.00**
		--	--	--	**340.00**	--	--	--	--	--	--	--	**1,173.00**
	06/25/21	--	--	--	**952.00**	--	--	--	--	--	--	--	**1,970.00**
	12/07/21	--	--	--	**856.00**	--	--	--	--	--	--	--	**1,960.00**
	08/24/22	--	--	--	**1,040**	--	--	--	--	--	--	--	**2,320**
	12/21/22	--	--	--	**1,040**	--	--	--	--	--	--	--	**2,530**
	07/21/23	--	--	--	**1,050**	--	--	--	--	--	--	--	**2,620**
	11/14/23	--	--	--	**1,100**	--	--	--	--	--	--	--	**2,930**
MW-9A	05/14/98	--	--	280.00	**600.00**	--	--	**770.00**	338.00	96.00	12.00	334.00	**2,200.00**
	02/15/01	<1.00	142.00	142.00	85.00	1.40	2.20	71.00	71.60	19.20	6.94	46.00	400.00
	05/15/02	<1.00	136.00	136.00	148.00	<1.00	2.18	65.30	62.90	16.10	4.62	46.80	445.00
	10/23/02	--	--	--	168.00	--	--	75.50	--	--	--	--	651.00
	05/22/03	<1.00	126.00	126.00	207.00	<1.00	2.09	62.10	102.00	25.20	4.80	55.70	672.00
	11/26/03	<1.00	118.00	118.00	216.00	1.14	2.26	62.70	107.00	25.10	5.31	53.20	648.00
	05/12/04	<1.00	122.00	122.00	242.00	<1.00	2.10	64.70	105.00	26.20	5.11	26.20	950.00
	11/16/04	<1.00	114.00	114.00	**296.00**	1.24	2.74	67.50	130.00	33.10	6.24	70.30	826.00
	05/17/05	<1.00	112.00	112.00	**354.00**	1.04	2.85	77.10	131.00	31.70	6.39	60.50	828.00
	11/17/05	<10.00	121.00	121.00	**310 D1**	0.82	0.31	74.7 D1	337.00	41.40	8.08	74.50	**1,520 N**
	05/09/06	<10.00	670.00	670.00	**270.00**	0.67	1.60	78.00	111.00	27.10	3.88	58.70	992.00
	11/15/06	<10.00	1,600.00	1,600.00	**290.00**	0.62	1.60	72.00	126.00	33.40	4.74	68.40	**1,280.00**
	05/30/07	<10.00	586.00	586.00	**400.00**	0.70	1.69	83.00	153.00	36.90	<5.00	71.80	**1,450.00**
	11/14/07	<10.00	605.00	605.00	**285 D1**	0.62	1.52	64.7 D1	153.00	35.40	5.03	70.70	**1,430.00**
	05/15/08	<1.53	738.00	738.00	**380 D1**	0.45	1.62	86.8 D1	146.00	35.50	5.45	77.2 D1	**1,390.00**
	11/04/08	<5.00	370.00	370.00	**330.00**	<1.00	1.20	84.00	130.00	32.00	5.10	66.00	1,000.00
	05/20/09	<5.00	600.00	600.00	**480.00**	0.49	1.50	86.00	170.00	43.00	6.40	76.00	**1,600.00**
	11/04/09	<5.00	110.00	110.00	**430.00**	0.49	1.60	82.00	160.00	41.00	5.30	71.00	**1,500.00**
	05/07/10	<5.00	<5.00	121.00	**510.00**	0.21	1.62	80.50	188.00	44.90	4.90	73.60	**1,680.00**
	11/09/10	<5.00	115.00	115.00	**529.00**	0.33	1.72	86.00	159.00	44.30	5.00	76.10	**1,660.00**
	05/11/11	<5.00	146.00	146.00	**587.00**	1.18	1.90	415.00	166.00	80.60	11.30	211.00	**1,850.00**
	11/10/11	<5.00	115.00	115.00	**841.00**	0.19	1.56	125.00	280.00	84.80	7.51	117.00	**2,160.00**
	05/16/12	<5.00	135.00	135.00	**958.00**	0.37	1.74	143.00	249.00	62.60	6.50	97.70	**3,450.00**
Dup	05/16/12	<5.00	128.00	128.00	**882.00**	0.31	1.70	134.00	270.00	65.70	6.72	92.30	**3,050.00**
	10/11/12	<5.00	125.00	125.00	**628.00**	0.37	1.70	121.00	235.00	60.40	6.72	94.00	**1,810.00**
	05/17/13	<5.00	137.00	137.00	**754.00**	0.34	1.67	145.00	224.00	53.90	5.49	86.80	**1,930.00**
	10/08/13	<6.00	153.00	153.00	**534.00**	0.37	1.69	118.00	185.00	43.10	5.23	81.30	**1,210.00**
	10/07/14	Not Sampled											
	10/20/2015	--	--	--	232.00	<4.00	--	95.40	--	--	--	--	599.00
	10/18/16	--	--	--	**337.00**	<0.50	--	113.00	--	--	--	--	**1,250.00**

Table 3
Cumulative Summary of Groundwater Analytical Results
Cooper-Jal Unit Injection Station
Lea County, New Mexico

ARCADIS

Sample ID	Sample Date	Carbonate Alkalinity	Bicarbonate Alkalinity	Total Alkalinity	Chloride[1]	Fluoride[2]	Nitrate - N[2]	Sulfate[1]	Calcium	Magnesium	Potassium	Sodium	TDS[1]
NMWQCC Groundwater Standard					***250***	***1.60***	***10***	***600.00***					***1,000***
	10/24/17	--	--	--	206.00	<0.50	--	96.60	--	--	--	--	681.00
	10/18/18	--	--	--	**276.00**	0.60	--	119.00	--	--	--	--	816.00
	06/20/19	--	--	--	**268.00**	--	--	--	--	--	--	--	**1,220.00**
	04/20/20	--	--	--	**352.00**	--	--	--	--	--	--	--	940.00
	06/25/21	--	--	--	**307.00**	--	--	--	--	--	--	--	857.00
	12/06/21	--	--	--	--	--	--	--	--	--	--	--	**--**
	08/24/22	--	--	--	**239**	--	--	--	--	--	--	--	773
	07/21/23	--	--	--	**260**	--	--	--	--	--	--	--	753 B
	11/13/23	--	--	--	**--**	--	--	--	--	--	--	--	--
MW-10	05/14/98	--	--	240.00	**360.00**	--	--	450.00	211.00	62.00	11.00	190.00	**1,400.00**
	02/15/01	<1.00	140.00	140.00	190.00	**2.00**	2.30	97.00	108.00	32.30	8.20	61.00	660.00
	05/17/02	<1.00	152.00	152.00	204.00	**1.93**	2.19	99.10	109.00	31.70	7.60	62.40	713.00
	10/22/02	--	--	--	213.00	--	--	108.00	--	--	--	--	758.00
	05/22/03	<1.00	152.00	152.00	213.00	1.45	2.17	96.60	109.00	29.90	8.65	74.20	764.00
	11/26/03	<1.00	152.00	152.00	220.00	1.54	2.26	103.00	120.00	35.70	6.96	64.00	752.00
	05/13/04	<1.00	158.00	158.00	232.00	1.39	2.23	102.00	114.00	31.60	5.95	57.20	802.00
	11/17/04	<1.00	170.00	170.00	245.00	**1.73**	2.78	104.00	121.00	35.70	7.07	70.30	764.00
	05/17/05	<1.00	150.00	150.00	233.00	**1.77**	2.80	106.00	113.00	32.30	6.83	60.20	776.00
	11/17/05	<10.00	151.00	151.00	205 D1	1.20	0.26	111 D1	482.00	47.40	13.10	82.40	970 N
	05/09/06	<10.00	190.00	190.00	180.00	1.40	1.60	98.00	93.30	27.10	4.31	60.40	724.00
	11/16/06	<10.00	320.00	320.00	190.00	1.20	1.60	92.00	101.00	30.00	4.75	64.10	900.00
	05/30/07	<10.00	340.00	340.00	200.00	1.40	1.68	110.00	101.00	28.60	<5.00	62.40	820.00
	11/15/07	<10.00	189.00	189.00	**251 D1**	1.44	1.44	152 D1	104.00	33.40	6.01	84.70	**1,010.00**
	05/15/08	<1.53	374.00	374.00	**342 D1**	1.47	1.28	257 D1	106.00	52.90	11.70	165 D1	**1,140.00**
	11/06/08	<5.00	150.00	150.00	210.00	1.50	1.30	89.00	110.00	32.00	5.40	64.00	730.00
	05/20/09	<5.00	240.00	240.00	**270.00**	1.30	1.50	120.00	110.00	35.00	6.20	72.00	960.00
	11/04/09	<5.00	150.00	150.00	240.00	1.50	1.30	130.00	100.00	35.00	5.40	78.00	1,000.00
	05/07/10	<5.00	<5.00	157.00	236.00	1.18	1.62	106.00	111.00	30.70	4.59	60.30	940.00
	11/10/10	<5.00	166.00	166.00	**280.00**	1.16	1.61	112.00	98.40	36.90	5.63	81.00	812.00
	05/11/11	<5.00	157.00	157.00	**274.00**	1.11	1.99	87.20	117.00	32.20	5.63	85.00	930.00
	11/15/11	<5.00	150.00	150.00	**266.00**	1.03	6.93	94.90	128.00	32.30	4.58	62.80	**1,450.00**
	05/16/12	<5.00	163.00	163.00	**284.00**	1.12	1.58	99.90	132.00	36.80	5.22	72.90	**1,120.00**
	10/11/12	<5.00	151.00	151.00	**255.00**	1.32	1.75	98.70	113.00	34.30	5.68	67.60	**1,010.00**
	05/17/13	<5.00	154.00	154.00	**299.00**	1.34	1.61	108.00	117.00	33.70	4.57	64.60	**1,180.00**
	10/08/13	<6.00	165.00	165.00	**324.00**	1.14	1.62	103.00	154.00	41.60	5.36	78.10	**1,240.00**
	05/01/14	<10.00	156.00	156.00	**298.00**	1.05 J	1.58	111.00	135.00	41.60	5.30	75.50	**1,050.00**
Dup	05/01/14	<10.00	158.00	158.00	**301.00**	<0.10 J	1.66	112.00	134.00	42.50	5.29	79.50	**1,080.00**
	10/07/14	<4.00	163.00	163.00	249.00	0.71	1.64	108.00	127.00	36.80	4.91	67.20	**1,050.00**
	05/22/15	--	--	--	**298.00**	<8.00	--	102.00	--	--	--	--	975.00
	10/20/15	--	--	--	250.00	<4.00	--	108.00	--	--	--	--	823.00
	05/25/16	--	--	--	**307.00**	1.44	--	107.00	--	--	--	--	**1,080.00**
	10/18/16	--	--	--	**330.00**	0.86	--	103.00	--	--	--	--	**1,350.00**
	05/11/17	--	--	--	**353.00**	<0.22	--	112.00	--	--	--	--	**1,080.00**
	10/24/17	--	--	--	240.00	1.60	--	97.00	--	--	--	--	742.00
	05/22/18	--	--	--	**346.00**	0.97	--	113.00	--	--	--	--	**1,070.00**
	10/18/18	--	--	--	**351.00**	1.10	--	118.00	--	--	--	--	892.00
	06/20/19	--	--	--	NS	--	--	--	--	--	--	--	NS
	04/20/20	--	--	--	372.00	--	--	--	--	--	--	--	**1,050.00**
	10/12/20	--	--	--	338.00	--	--	--	--	--	--	--	986.00
	06/25/21	--	--	--	**392.00**	--	--	--	--	--	--	--	**1,010.00**
	12/07/21	--	--	--	**339.00**	--	--	--	--	--	--	--	**1,020.00**
	08/23/22	--	--	--	***376***	--	--	--	--	--	--	--	***1,010***
	12/21/22	--	--	--	***406***	--	--	--	--	--	--	--	***1,120 J3***
Dup	12/21/22	--	--	--	218	--	--	--	--	--	--	--	*828*
	07/20/23	--	--	--	**364**	--	--	--	--	--	--	--	**1,210**
	11/14/23	--	--	--	**364**	--	--	--	--	--	--	--	**1,180**
MW-11	01/22/99	30.00	<1.00	30.00	46.00	**2.30**	4.20	94.00	33.00	7.00	9.10	58.00	370.00
	02/15/01	<1.00	156.00	156.00	37.00	**2.40**	2.40	120.00	64.00	19.10	7.83	50.10	360.00
	05/16/02	<1.00	160.00	160.00	31.90	**2.13**	2.33	98.80	63.50	17.20	4.83	47.00	444.00
	10/23/02	--	--	--	37.20	--	--	102.00	--	--	--	--	447.00
	05/22/03	12.00	154.00	166.00	32.30	**1.74**	2.28	96.70	62.30	0.00	4.63	47.60	437.00
	11/26/03	<1.00	160.00	160.00	32.40	**1.83**	2.23	96.40	59.20	16.60	4.67	48.60	448.00
	05/12/04	<1.00	164.00	164.00	34.60	**1.71**	2.38	97.70	54.80	15.70	4.28	46.20	457.00
	11/16/04	<1.00	160.00	160.00	39.00	**2.17**	2.81	100.00	65.20	16.80	5.14	54.30	454.00
	05/17/05	4.00	158.00	162.00	43.10	**1.87**	2.82	94.60	68.40	16.90	6.45	44.00	429.00
	11/17/05	<10.0	161.00	161.00	58.10	1.50	2.10	91.3 D1	75.00	17.70	4.55	64.70	700 N
	05/09/06	<10.00	180.00	180.00	37.00	**1.80**	1.70	100.00	54.10	16.20	3.26	46.90	456.00
	11/14/06	<10.00	170.00	170.00	34.00	**1.80**	1.80	110.00	58.00	18.20	4.13	53.40	532.00
	05/30/07	<10.00	142.00	142.00	36.00	**1.90**	1.79	120.00	54.00	16.70	<5.00	50.80	456.00
	11/14/07	<10.00	189.00	189.00	42.30	**1.98**	1.54	95.6 D1	57.20	17.40	<5.000	52.40	452.00
	05/15/08	<1.53	177.00	177.00	72.4 D1	**1.86**	1.71	141.00	58.00	19.40	4.93	66.5 D1	544.00
	11/04/08	<5.00	170.00	170.00	49.00	1.50	1.30	90.00	60.00	16.00	3.60	47.00	440.00

Table 3
Cumulative Summary of Groundwater Analytical Results
Cooper-Jal Unit Injection Station
Lea County, New Mexico

ARCADIS

Sample ID	Sample Date	Carbonate Alkalinity	Bicarbonate Alkalinity	Total Alkalinity	Chloride[1]	Fluoride[2]	Nitrate - N[2]	Sulfate[1]	Calcium	Magnesium	Potassium	Sodium	TDS[1]
NMWQCC Groundwater Standard					***250***	***1.60***	***10***	***600.00***					***1,000***
	05/20/09	<5.00	360.00	360.00	40.00	**2.20**	1.70	130.00	51.00	17.00	4.50	53.00	450.00
	11/04/09	<5.00	150.00	150.00	43.00	1.60	1.60	100.00	52.00	15.00	2.90	42.00	470.00
	05/07/10	<5.00	<5.00	167.00	36.50	**1.97**	1.78	117.00	49.70	14.90	3.42	44.70	494.00
	11/09/10	<5.00	269.00	269.00	52.50	1.45	1.79	95.40	61.00	16.70	3.56	50.00	438.00
	05/11/11	<5.00	161.00	161.00	133.00	1.43	2.08	140.00	78.10	37.00	6.32	103.00	664.00
Dup	05/11/11	<5.00	161.00	161.00	130.00	1.44	2.01	137.00	77.40	37.00	6.29	104.00	706.00
	11/10/11	<5.00	162.00	162.00	38.80	**1.86**	1.49	97.10	66.20	17.90	3.62	52.30	420.00
	05/17/12	<5.00	176.00	176.00	45.80	1.29	1.62	88.50	63.60	16.30	3.66	53.40	456.00
	10/11/12	<5.00	166.00	166.00	44.60	1.49	1.74	95.10	55.80	15.80	3.80	49.30	440.00
	05/17/13	<5.00	171.00	171.00	43.60	**1.87**	1.67	106.00	57.70	14.80	3.18	42.90	428.00
	10/08/13	<6.00	178.00	178.00	45.20	1.55	1.74	95.50	60.90	16.10	3.33	52.00	450.00
	05/01/14	<10.00	173.00	173.00	63.30	<0.10	2.06	93.30	64.40	17.60	3.38	51.50	434.00
	10/07/14	<4.00	176.00	176.00	34.70	1.10	1.71	101.00	59.20	16.70	3.06	46.50	399.00
	05/22/15	--	--	--	40.40	<4.00	--	87.20	--	--	--	--	428.00
	10/20/15	--	--	--	37.60	<2.00	--	89.30	--	--	--	--	356.00
	05/25/16	--	--	--	34.30	**1.87**	--	103.00	--	--	--	--	475.00
	10/18/16	--	--	--	39.30	0.87	--	96.40	--	--	--	--	418.00
	05/11/17	--	--	--	35.10	<0.11	--	110.00	--	--	--	--	416.00
	10/24/17	--	--	--	35.10	**1.87**	--	95.30	--	--	--	--	438.00
	05/22/18	--	--	--	34.60	1.58	--	110.00	--	--	--	--	421.00
Dup	05/22/18	--	--	--	34.50	**1.64**	--	110.00	--	--	--	--	415.00
	10/18/18	--	--	--	36.90	**1.69**	--	114.00	--	--	--	--	413.00
	06/20/19	--	--	--	34.40	--	--	--	--	--	--	--	407.00
	04/20/20	--	--	--	29.00	--	--	--	--	--	--	--	394.00
	06/25/21	--	--	--	37.30	--	--	--	--	--	--	--	431.00
	12/06/21	--	--	--	**--**	--	--	--	--	--	--	--	**--**
	08/24/22	--	--	--	35.70	--	--	--	--	--	--	--	410.00
	07/21/23	--	--	--	35.0	--	--	--	--	--	--	--	410 B
	11/13/23	--	--	--	--	--	--	--	--	--	--	--	--
MW-12*	05/15/02	<1.00	160.00	160.00	58.30	1.09	2.44	91.30	53.50	15.90	5.52	50.30	462.00
	10/23/02	--	--	--	65.00	--	--	102.00	--	--	--	--	477.00
	05/22/03	<1.00	148.00	148.00	91.10	1.04	2.30	87.70	74.20	21.00	4.89	57.60	516.00
	11/25/03	<1.00	142.00	142.00	93.10	1.18	2.36	90.90	74.70	20.90	5.41	52.50	548.00
	05/12/04	<1.00	458.00	458.00	72.90	1.04	2.35	86.70	58.10	19.00	5.92	51.80	489.00
	11/15/04	<1.00	184.00	184.00	79.80	1.39	2.83	88.80	59.70	21.50	16.50	77.40	512.00
	11/17/05	<10.00	151.00	151.00	109.00	0.93	0.12	94.6 D1	193.00	26.60	13.40	87.50	700.00
	11/16/06	<10.00	270.00	270.00	120.00	0.71	1.70	84.00	82.30	27.00	4.82	62.20	620.00
	11/16/07	<10.00	170.00	170.00	**258.00**	1.21	1.55	191 D1	77.20	42.70	11.00	154.00	**1,270.00**
	11/06/08	<5.00	130.00	130.00	110.00	0.89	1.40	79.00	61.00	20.00	4.50	52.00	460.00
	11/03/09	<25.00	2,000.00	2,000.00	120.00	0.87	1.60	98.00	68.00	24.00	6.00	79.00	600.00
	11/09/10	<5.00	144.00	144.00	211.00	0.57	1.76	89.80	75.60	27.80	4.60	60.60	712.00
	11/10/11	<5.00	134.00	134.00	179.00	0.46	1.37	92.80	93.80	27.80	4.53	64.00	594.00
	10/11/12	<5.00	145.00	145.00	179.00	0.71	0.79	86.50	80.40	25.40	5.44	62.90	724.00
	10/08/13	<6.00	160.00	160.00	246.00	0.62	1.64	84.50	110.00	30.40	4.92	67.80	944.00
	10/07/14	<4.00	145.00	145.00	200.00	0.29	1.70	86.80	93.10	29.30	5.06	65.00	765.00
	10/21/15	--	--	--	165.00	<4.00	--	72.60	--	--	--	--	487.00
	10/18/16	--	--	--	**270.00**	<0.50	--	95.00	--	--	--	--	888.00
	10/24/17	--	--	--	150.00	<0.50	--	64.90	--	--	--	--	579.00
Dup	10/24/17	--	--	--	149.00	<0.50	--	64.80	--	--	--	--	565.00
	10/18/18	--	--	--	**290.00**	0.74	--	106.00	--	--	--	--	790.00
	06/20/19	--	--	--	**254.00**	--	--	--	--	--	--	--	580.00
	04/20/20	--	--	--	245.00	--	--	--	--	--	--	--	902.00
	10/12/20	--	--	--	**254.00**	--	--	--	--	--	--	--	732.00
	06/25/21	--	--	--	**461.00**	--	--	--	--	--	--	--	984.00
	12/06/21	--	--	--	**361.00**	--	--	--	--	--	--	--	**1,130.00**
	08/24/22	--	--	--	**489**	--	--	--	--	--	--	--	**1,040**
	12/21/22	--	--	--	**482**	--	--	--	--	--	--	--	**1,280**
	07/21/23	--	--	--	**469**	--	--	--	--	--	--	--	**1,300**
	11/13/23	--	--	--	**447**	--	--	--	--	--	--	--	**1,470**
MW-13*	05/13/02	<1.00	100.00	100.00	**517.00**	<1.00	1.61	437.00	116.00	76.00	19.40	269.00	**1,596.00**
	10/23/02	--	--	--	**549.00**	--	--	370.00	--	--	--	--	**1,740.00**
	05/22/03	<1.00	186.00	186.00	**944.00**	<2.00	2.33	361.00	289.00	101.00	15.30	458.00	**3,060.00**
	11/25/03	<1.00	226.00	226.00	**1,460.00**	<2.00	2.22	372.00	369.00	117.00	20.00	478.00	**3,445.00**
	05/12/04	<1.00	234.00	234.00	**1,550.00**	<4.00	4.58	369.00	384.00	114.00	18.60	485.00	**4,240.00**
	11/15/04	<1.00	226.00	226.00	**1,870.00**	<2.00	4.92	384.00	510.00	164.00	16.50	627.00	**3,600.00**
	11/17/05	<10.00	201.00	201.00	**722.00**	1.00	2.50	206 D1	786.00	91.60	19.70	276.00	**2,350.00**
	11/16/06	<10.00	1,500.00	1,500.00	**2,000.00**	<0.50 N	2.70	500 N	529.00	176.00	14.20	493.00	**5,060.00**
	11/16/07	<10.00	236.00	236.00	**2,000.00**	0.33	3.05 D1	312 D1	361.00	105.00	11.40	553 D1	**6,320.00**
	11/06/08	<5.00	180.00	180.00	**970.00**	0.98	1.80	280.00	240.00	96.00	17.00	370.00	**2,400.00**
	11/03/09	<25.00	15,000.00	15,000.00	**2,200.00**	<0.50	2.60	440.00	490.00	180.00	22.00	490.00	**5,600.00**
	11/09/10	<5.00	267.00	267.00	**1,680.00**	0.22	2.82	405.00	400.00	120.00	10.40	540.00	**4,270.00**
	11/10/11	<5.00	206.00	206.00	**2,110.00**	0.18	<0.50	273.00	690.00	223.00	13.20	472.00	**4,870.00**

Table 3
Cumulative Summary of Groundwater Analytical Results
Cooper-Jal Unit Injection Station
Lea County, New Mexico

ARCADIS

Sample ID	Sample Date	Carbonate Alkalinity	Bicarbonate Alkalinity	Total Alkalinity	Chloride[1]	Fluoride[2]	Nitrate - N[2]	Sulfate[1]	Calcium	Magnesium	Potassium	Sodium	TDS[1]
NMWQCC Groundwater Standard					***250***	***1.60***	***10***	***600.00***					***1,000***
	10/11/12	<5.00	204.00	204.00	**2,360.00**	0.31	2.70	422.00	706.00	228.00	14.40	423.00	**6,290.00**
	10/08/13	<6.00	1,780.00	1,780.00	**2,710.00**	0.30	2.59	448.00	768.00	225.00	14.00	457.00	**7,320.00**
	10/07/14	<4.00	267.00	267.00	**1,430.00**	<0.10	1.91	379.00	355.00	109.00	11.30	612.00	**3,940.00**
	10/21/15	--	--	--	**1,400.00**	<40.0	--	353.00	--	--	--	--	**3,260.00**
	10/18/16	--	--	--	**1,940.00**	<0.50	--	440.00	--	--	--	--	**5,310.00**
	Well Plugged and Abandoned on 7/11/2017												
MW-14	10/08/13	<6.00	267.00	267.00	162.00	**3.69**	<0.10	127.00	74.40	32.30	8.42	145.00	854.00
Dup	10/08/13	<6.00	271.00	271.00	166.00	**3.74**	<0.10	130.00	60.70	26.30	7.97	145.00	848.00
	05/01/14	<10.00	199.00	199.00	64.00	1.19 J	<0.10	84.90	60.80	21.70	3.82	59.80	468.00
	10/07/14	<4.00	227.00	2,227.00	95.20	0.79	<0.023	22.90	71.30	24.90	3.99	61.80	460.00
Dup	10/07/14	<4.00	194.00	194.00	55.70	1.36	<0.023	88.80	59.30	19.10	3.21	49.50	490.00
	05/22/15	--	--	--	77.80	<4.00	--	45.40	--	--	--	--	468.00
Dup	05/22/15	--	--	--	77.40	<4.00	--	49.00	--	--	--	--	470.00
	10/20/15	--	--	--	29.1 J	<2.00	--	53.5 J	--	--	--	--	294.00
Dup	10/21/15	--	--	--	58.9 J	<2.00	--	101 J	--	--	--	--	407.00
	05/25/16	--	--	--	79.00	1.37	--	19.90	--	--	--	--	552.00
	10/18/16	--	--	--	51.80	1.07	--	104.00	--	--	--	--	422.00
Dup	10/18/16	--	--	--	61.20	1.25	--	108 J	--	--	--	--	459.00
	05/11/17	--	--	--	70.50	<0.11	--	17.70	--	--	--	--	412.00
	10/24/17	--	--	--	57.40	**1.77**	--	42.20	--	--	--	--	423.00
	05/22/18	--	--	--	54.90	1.20	--	47.80	--	--	--	--	390.00
	10/18/18	--	--	--	57.20	1.35	--	47.20	--	--	--	--	401.00
	06/20/19	--	--	--	42.10	--	--	--	--	--	--	--	481.00
	11/24/19	--	--	--	37.10	--	--	94.50	--	--	--	--	328.00
	04/20/20	--	--	--	46.00	--	--	--	--	--	--	--	400.00
	06/25/21	--	--	--	42.30	--	--	--	--	--	--	--	429.00
	12/06/21	--	--	--	--	--	--	--	--	--	--	--	--
	08/23/22	--	--	--	48.00	--	--	--	--	--	--	--	**1,090.00**
	07/20/23	--	--	--	57.5	--	--	--	--	--	--	--	471
	11/13/23	--	--	--	--	--	--	--	--	--	--	--	--
RW-1	05/27/99	0.00	224.00	224.00	**8,700.00**	**2.70**	7.00	**840.00**	679.00	521.00	34.00	3,290.00	**14,000.00**
	05/22/03	<1.00	190.00	190.00	**2,410.00**	**2.46**	4.23	345.00	162.00	145.00	25.40	1,180.00	**5,260.00**
	11/26/03	<1.00	184.00	184.00	**1,990.00**	<4.00	**20.00**	324.00	199.00	147.00	38.60	1,080.00	**5,050.00**
	05/11/04	<1.00	148.00	148.00	**491.00**	1.32	2.65	109.00	66.30	23.40	11.20	252.00	**1,224.00**
	11/17/04	<1.00	160.00	160.00	**633.00**	**1.65**	3.23	121.00	89.70	43.50	18.00	382.00	**1,314.00**
	11/17/05	<10.00	221.00	221.00	**895.00**	1.00	1.40	166 D1	122.00	70.90	8.40	493.00	**2,380.00**
	11/16/06	<10.00	380.00	380.00	**11,000.00**	<0.50	<20.00 HC	**1,100.00**	539.00	694.00	43.30	5,580.00	**22,000.00**
	11/15/07	<10.00	359.00	359.00	**2,380.00**	1.26	3.74 D1	252 D1	141.00	137.00	16.00	1,100 D1	**5,280.00**
Dup	11/15/07	<10.00	208.00	208.00	**2,620.00**	1.24	3.85 D1	316 D1	136.00	133.00	15.50	1,040 D1	**5,360.00**
	11/12/08	<5.00	210.00	210.00	**370.00**	0.82	1.90	97.00	66.00	34.00	5.00	190.00	920.00
	11/04/09	<5.00	170.00	170.00	**1,700.00**	1.10	2.60	250.00	110.00	120.00	22.00	750.00	**3,800.00**
	11/11/10	<5.00	192.00	192.00	**1,340.00**	0.72	2.72	204.00	95.50	104.00	12.60	792.00	**2,830.00**
	11/10/11	<5.00	396.00	396.00	**14,000.00**	**3.32**	9.16	**1,540.00**	942.00	1,260.00	44.60	8,720.00	**32,200.00**
	10/11/12	<5.00	263.00	263.00	**6,530.00**	**2.19**	4.75	**625.00**	314.00	445.00	28.00	3,490.00	**10,100.00**
Dup	10/11/12	<5.00	286.00	286.00	**2,440.00**	0.31	1.23	194.00	128.00	156.00	18.60	1,260.00	**17000****
	10/08/13	<6.00	285.00	285.00	**6,050.00**	0.95	4.29	546.00	760.00	919.00	39.00	6,370.00	**11,200.00**
Dup	10/08/13	<6.00	216.00	216.00	**10,500.00**	1.27	5.98	**926.00**	490.00	581.00	31.40	4,170.00	**1870****
	10/07/14	<4.00	207.00	207.00	**2,240.00**	1.36	3.62	338.00	69.60	106.00	24.00	1,130.00	**2,760.00**
Dup	10/07/14	<4.00	192.00	192.00	**2,570.00**	**2.51**	3.70	363.00	82.30	125.00	26.80	1,350.00	**1970****
	10/21/15	--	--	--	**9,110.00**	<80.00	--	**953 J**	--	--	--	--	**15,300.00**
Dup	10/20/15	--	--	--	**10,200.00**	<200.00	--	**1,120 J**	--	--	--	--	**21,600.00**
	12/15/15	--	--	--	**1,130.00**	--	--	--	--	--	--	--	**2,290.00**
	12/16/15	--	--	--	**1,190.00**	--	--	--	--	--	--	--	**2,580.00**
	12/17/15	--	--	--	**1,030.00**	--	--	--	--	--	--	--	**2,260.00**
	12/18/15	--	--	--	**988.00**	--	--	--	--	--	--	--	**2,350.00**
	01/04/16	--	--	--	**1,200.00**	--	--	--	--	--	--	--	**2,280.00**
	01/05/16	--	--	--	**1,080.00**	--	--	--	--	--	--	--	**2,190.00**
	01/06/16	--	--	--	**1,120.00**	--	--	--	--	--	--	--	**2,240.00**
	01/07/16	--	--	--	**1,080.00**	--	--	--	--	--	--	--	**2,200.00**
	01/08/16	--	--	--	**1,310.00**	--	--	--	--	--	--	--	**2,370.00**
	01/11/16	--	--	--	**1,030.00**	--	--	--	--	--	--	--	**2,210.00**
	01/12/16	--	--	--	**1,520.00**	--	--	--	--	--	--	--	**2,850.00**
	10/18/16	--	--	--	**277.00**	<0.50	--	87.50	--	--	--	--	715.00
Dup	10/18/16	--	--	--	**316.00**	<0.50	--	88.9 J	--	--	--	--	922.00
	10/25/17	--	--	--	**254.00**	1.02	--	75.50	--	--	--	--	**2,040.00**
	10/16/18***	--	--	--	**304.00**	0.61	--	93.40	--	--	--	--	757.00
	10/18/18	--	--	--	**7,870.00**	<0.10	--	**807.00**	--	--	--	--	**15,400.00**
Dup	10/18/18	--	--	--	**7,830.00**	<0.10	--	**873.00**	--	--	--	--	**12,700.00**
	06/20/19	--	--	--	**9,290.00**	--	--	--	--	--	--	--	**22,100.00**
Dup	06/20/19	--	--	--	**9,200.00**	--	--	--	--	--	--	--	**22,800.00**
	04/20/20	--	--	--	**9,640.00**	--	--	--	--	--	--	--	**12,700.00**
	10/12/20	--	--	--	**8,470.00**	--	--	--	--	--	--	--	**14,900.00**

Table 3
Cumulative Summary of Groundwater Analytical Results
Cooper-Jal Unit Injection Station
Lea County, New Mexico

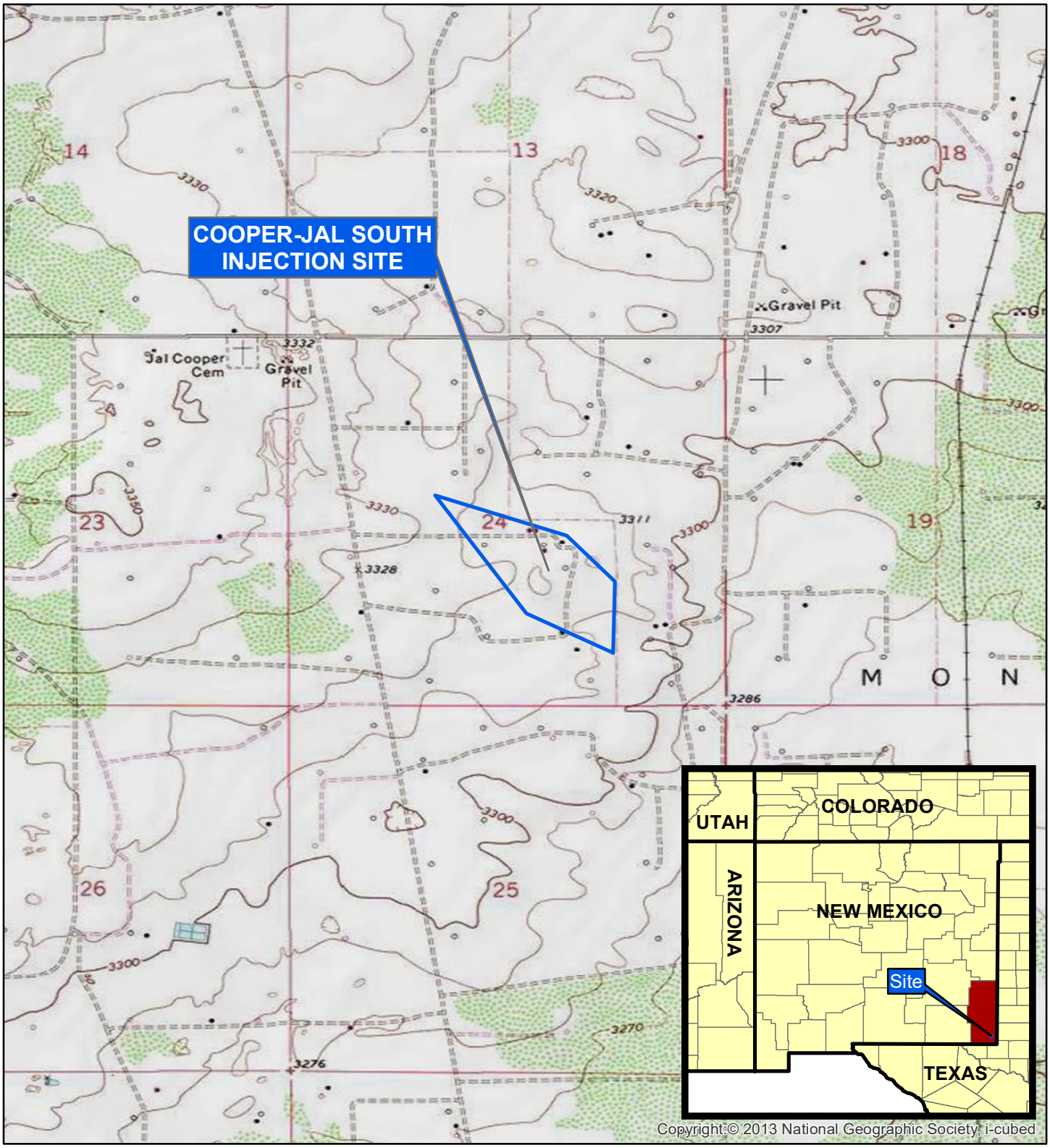
Sample ID	Sample Date	Carbonate Alkalinity	Bicarbonate Alkalinity	Total Alkalinity	Chloride[1]	Fluoride[2]	Nitrate - N[2]	Sulfate[1]	Calcium	Magnesium	Potassium	Sodium	TDS[1]
NMWQCC Groundwater Standard					***250***	***1.60***	***10***	***600.00***					***1,000***
	06/25/21	--	--	--	**7,370.00**	--	--	--	--	--	--	--	**13,500.00**
	12/06/21	--	--	--	**7,440.00**	--	--	--	--	--	--	--	**9,490.00**
	08/23/22	--	--	--	***8,180***	--	--	--	--	--	--	--	**6,920**
	12/21/22	--	--	--	**5,070**	--	--	--	--	--	--	--	**3,940**
	07/20/23	--	--	--	**3,440**	--	--	--	--	--	--	--	**2,790**
Dup	07/20/23	--	--	--	**4,340**	--	--	--	--	--	--	--	**3,190**
	11/13/23	--	--	--	**2,160**	--	--	--	--	--	--	--	**6,540**
Dup	11/13/23	--	--	--	**1,810**	--	--	--	--	--	--	--	**3,530**
RW-2	05/22/03	324.00	<4.00	780.00	**1,580.00**	<2.00	2.43	23.90	1,060.00	<0.500	20.20	258.00	**4,310.00**
	11/26/03	64.00	<4.00	704.00	**1,480.00**	<5.00	5.81	38.30	988.00	<0.500	23.80	240.00	**3,535.00**
	11/17/04	104.00	<4.00	692.00	**2,280.00**	<10.00	<10.00	116.00	1,180.00	<0.500	18.50	415.00	**3,915.00**
	11/17/05	281.00	<10.00	422.00	**1,770.00**	0.89	0.60	175 D1	861.00	16.60	13.10	361.00	**7,350.00**
	11/16/06	49.00	150.00	199.00	**2,500.00**	0.57	1.90	370.00	978.00	48.80	18.00	437.00	**5,270.00**
	11/15/07	170.00	37.80	208.00	**1,680.00**	0.49	1.52	166 D1	586.00	<5.000	11.20	245.00	**5,590.00**
	11/12/08	150.00	<5.00	390.00	**2,500.00**	<0.50	0.24	250.00	1,200.00	<0.38	6.00	400.00	**4,800.00**
	11/04/09	34.00	<5.00	220.00	**2,200.00**	<0.50	1.70	240.00	940.00	0.18	16.00	420.00	**6,300.00**
	11/11/10	113.00	<5.00	172.00	**2,100.00**	<0.50	2.03	233.00	967.00	4.06	8.86	426.00	**4,550.00**
	11/10/11	36.90	<5.00	384.00	**4,330.00**	<10.00	2.13	305.00	2,040.00	1.12	18.70	711.00	**8,300.00**
	10/11/12	27.10	<5.00	202.00	**1,920.00**	<0.50	1.93	223.00	842.00	0.46	9.30	385.00	**6,680.00**
Dup	10/11/12	31.90	<5.00	206.00	**2,310.00**	<0.50	1.98	228.00	1,090.00	2.42	10.50	430.00	**5,250.00**
	10/08/13	66.30	<6.00	117.00	**2,450.00**	0.14	2.36	309.00	1,570.00	2.15	15.30	639.00	**4,420.00**
	10/07/14	35.20	<4.00	35.20	**2,250.00**	<0.10	2.52	378.00	995.00	21.60	10.30	408.00	**3,090.00**
	10/20/15	--	--	--	**699.00**	<20.00	--	118.00	--	--	--	--	**2,190.00**
	12/15/15	--	--	--	**1,130.00**	--	--	--	--	--	--	--	**2,290.00**
	12/16/15	--	--	--	**1,190.00**	--	--	--	--	--	--	--	**2,580.00**
	12/17/15	--	--	--	**1,030.00**	--	--	--	--	--	--	--	**2,260.00**
	12/18/15	--	--	--	**988.00**	--	--	--	--	--	--	--	**2,350.00**
	01/04/16	--	--	--	**1,200.00**	--	--	--	--	--	--	--	**2,280.00**
	01/05/16	--	--	--	**1,080.00**	--	--	--	--	--	--	--	**2,190.00**
	01/06/16	--	--	--	**1,120.00**	--	--	--	--	--	--	--	**2,240.00**
	01/07/16	--	--	--	**1,080.00**	--	--	--	--	--	--	--	**2,200.00**
	01/08/16	--	--	--	**1,310.00**	--	--	--	--	--	--	--	**2,370.00**
	01/11/16	--	--	--	**1,030.00**	--	--	--	--	--	--	--	**2,210.00**
	01/12/16	--	--	--	**1,520.00**	--	--	--	--	--	--	--	**2,850.00**
	10/18/16	--	--	--	**1,450.00**	<0.50	--	270.00	--	--	--	--	**3,910.00**
	10/25/17	--	--	--	**1,760.00**	<5.00	--	288.00	--	--	--	--	**4,440.00**
	10/18/18	--	--	--	**3,640.00**	<0.10	--	534.00	--	--	--	--	**6,890.00**
	06/20/19	--	--	--	**3,180.00**	--	--	--	--	--	--	--	**10,200 H**
	04/20/20	--	--	--	**3,610.00**	--	--	--	--	--	--	--	**7,890.00**
	10/12/20	--	--	--	**3,070.00**	--	--	--	--	--	--	--	**5,140.00**
Dup	10/12/20	--	--	--	**2,990.00**	--	--	--	--	--	--	--	**5,460.00**
	06/25/21	--	--	--	**1,150.00**	--	--	--	--	--	--	--	**2,270.00**
Dup	06/25/21	--	--	--	**1,690.00**	--	--	--	--	--	--	--	**3,340.00**
	12/07/21	--	--	--	**582.00**	--	--	--	--	--	--	--	**1,040.00**
Dup	12/07/21	--	--	--	**567.00**	--	--	--	--	--	--	--	**1,250.00**
	08/23/22				**948**	--	--	--	--	--	--	--	***2,390***
Dup	08/23/22	--	--	--	**1,390**	--	--	--	--	--	--	--	***3,860***
	12/21/22	--	--	--	232	--	--	--	--	--	--	--	824 J3
	07/20/23	--	--	--	**2,910**	--	--	--	--	--	--	--	**4,950**
Dup	07/20/23	--	--	--	**2,840**	--	--	--	--	--	--	--	**4,310**
	11/14/23	--	--	--	**890**	--	--	--	--	--	--	--	**2,640**
RW-2R	10/08/13	<6.00	146.00	146.00	**6,550.00**	0.45	1.79	**762.00**	1,850.00	616.00	25.50	1,350.00	**14,600.00**
	10/07/14	<4.00	169.00	169.00	**5,400.00**	1.56	2.17	**707.00**	1,280.00	470.00	20.90	1,170.00	**13,200.00**
	10/20/15	--	--	--	**5,990.00**	<80.00	--	**806.00**	--	--	--	--	**16,200.00**
	10/18/16	--	--	--	**6,390.00**	<0.50	--	**797.00**	--	--	--	--	**15,200.00**
	10/25/17	--	--	--	**7,030.00**	<5.00	--	**872.00**	--	--	--	--	**12,300.00**
	10/16/18***	--	--	--	**1,960.00**	<0.10	--	467.00	--	--	--	--	**3,380.00**
	10/18/18	--	--	--	**7,920.00**	<0.10	--	**891.00**	--	--	--	--	**13,700.00**
Dup	10/18/18	--	--	--	**8,060.00**	<0.10	--	**815.00**	--	--	--	--	**13,300.00**
	06/20/19	--	--	--	**7,860.00**	--	--	--	--	--	--	--	**29,400.00**
	04/20/20	--	--	--	**9,210.00**	--	--	--	--	--	--	--	**21,500.00**
	10/12/20	--	--	--	**7,860.00**	--	--	--	--	--	--	--	**13,800.00**
	06/25/21	--	--	--	**7,250.00**	--	--	--	--	--	--	--	**12,400.00**
	12/07/21	--	--	--	**7,400.00**	--	--	--	--	--	--	--	**6,330.00**
	08/23/22	--	--	--	**8,070**	--	--	--	--	--	--	--	**10,100**
	12/21/22	--	--	--	**7,480**	--	--	--	--	--	--	--	**14,600**
	07/20/23	--	--	--	**8,290**	--	--	**904**	--	--	--	--	**17,100**
	11/14/23	--	--	--	**8,300**	--	--	--	--	--	--	--	**13,500**

Table 3
Cumulative Summary of Groundwater Analytical Results
Cooper-Jal Unit Injection Station
Lea County, New Mexico

Sample ID	Sample Date	Carbonate Alkalinity	Bicarbonate Alkalinity	Total Alkalinity	Chloride[1]	Fluoride[2]	Nitrate - N[2]	Sulfate[1]	Calcium	Magnesium	Potassium	Sodium	TDS[1]
NMWQCC Groundwater Standard					***250***	***1.60***	***10***	***600.00***					***1,000***

Notes:
1. Bold and Italics value indicates a laboratory detection and New Mexico Water Quality Control Commission (NMWQCC) exceedance.
2. Results shown in mg/L.
3. NS - Not Sampled.
4. D1 - The analysis was performed at a dilution due to the high analyte concentration.
5. B- The same anlayte is found in the associated blank.
6. H - The analysis was performed past holding time.
7. C - Elevated detection limit due to matrix effect.
8. J - Estimated Concentration.
9. J3 - The associated batch QC was outside the established quality control range for precision.
10. < - Analyte detected below quantitation limit.
11. [1] Human Health Standards for Groundwater.
12. [2] Other Standards for Domestic Water Supply.
13. * - Indicates groundwater monitor well installed off-Site and upgradient of plume.
14. ** - Reported TDS concentration includes a low bias. Not used in trend comparison.
15. *** - Indicates groundwater monitor well that was sampled prior to semiannual groundwater event via low-flow purge for internal use.

FIGURES



Legend

Site Boundary

Notes:
1. Datum: D_WGS_1984
2. Source: United States Geological Survey 7.5 Minute Quadrangle Map
3. Site Location: 32.19891, -103.21523

N

0 1,000 2,000 4,000 Feet

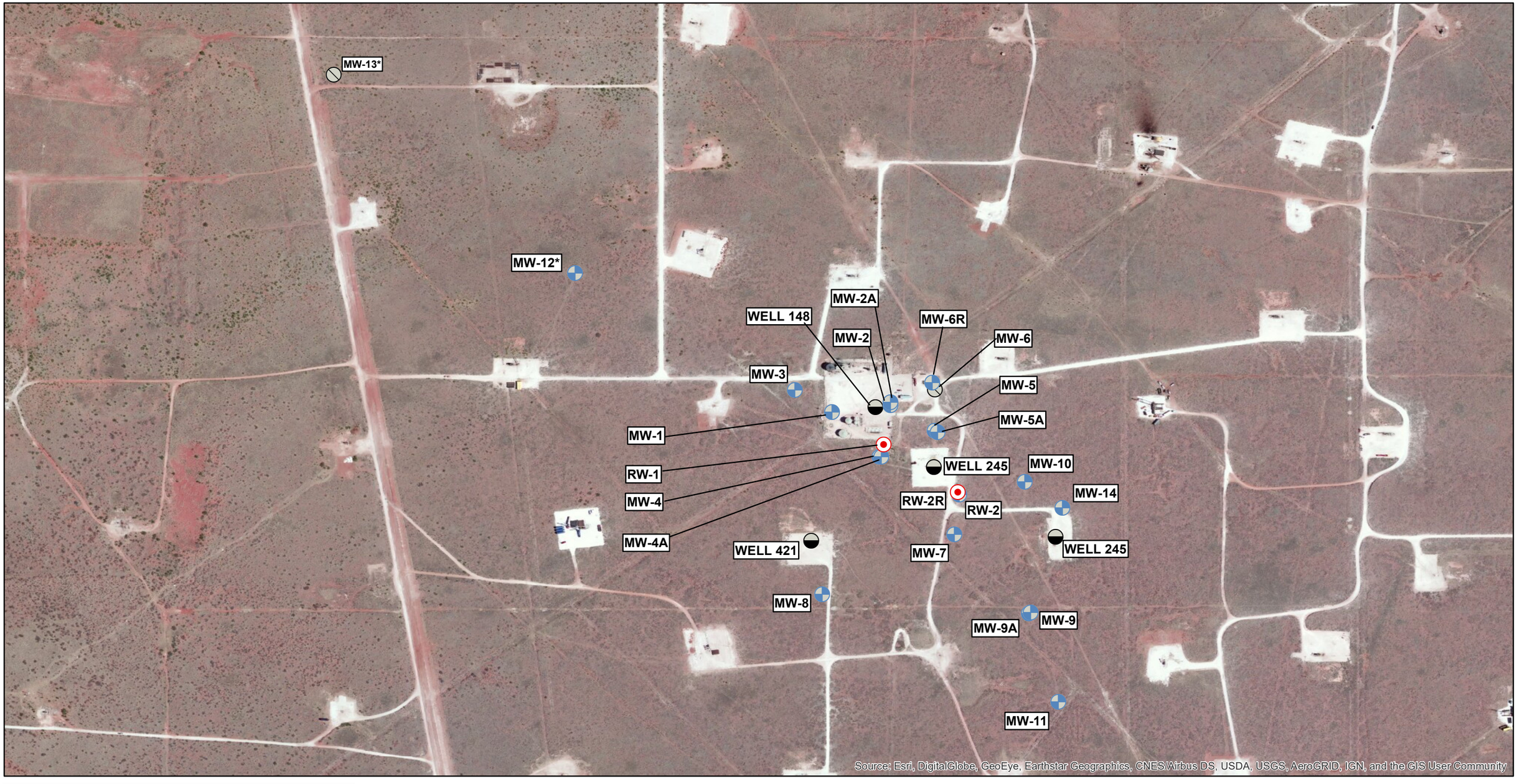
Chevron Environmental Management Company
Cooper-Jal Unit South Injection Site
Lea County, New Mexico

SITE LOCATION MAP

ARCADIS

FIGURE 1

Document Path:\\arcadis-us\officedata\Houston-TX\ENV\ChevronTexaco TX8\HES Transfer\04 Field Investigations\2019\6 - Annual GWMR\Cooper Jal\GIS - Cooper Jal\Figure 1 - Site Location Map 01.08.2020



Legend

- Monitoring Well Location
- Recovery Well
- Cooper Jal Oil Well
- Plugged & Abandoned Monitoring Well

Notes:
1. Datum: D_WGS_1984
2. Cooper Jal Oil Wells were not guaged
2. Site Location: 32.19891, -103.21523

N

0 250 500 1,000 Feet

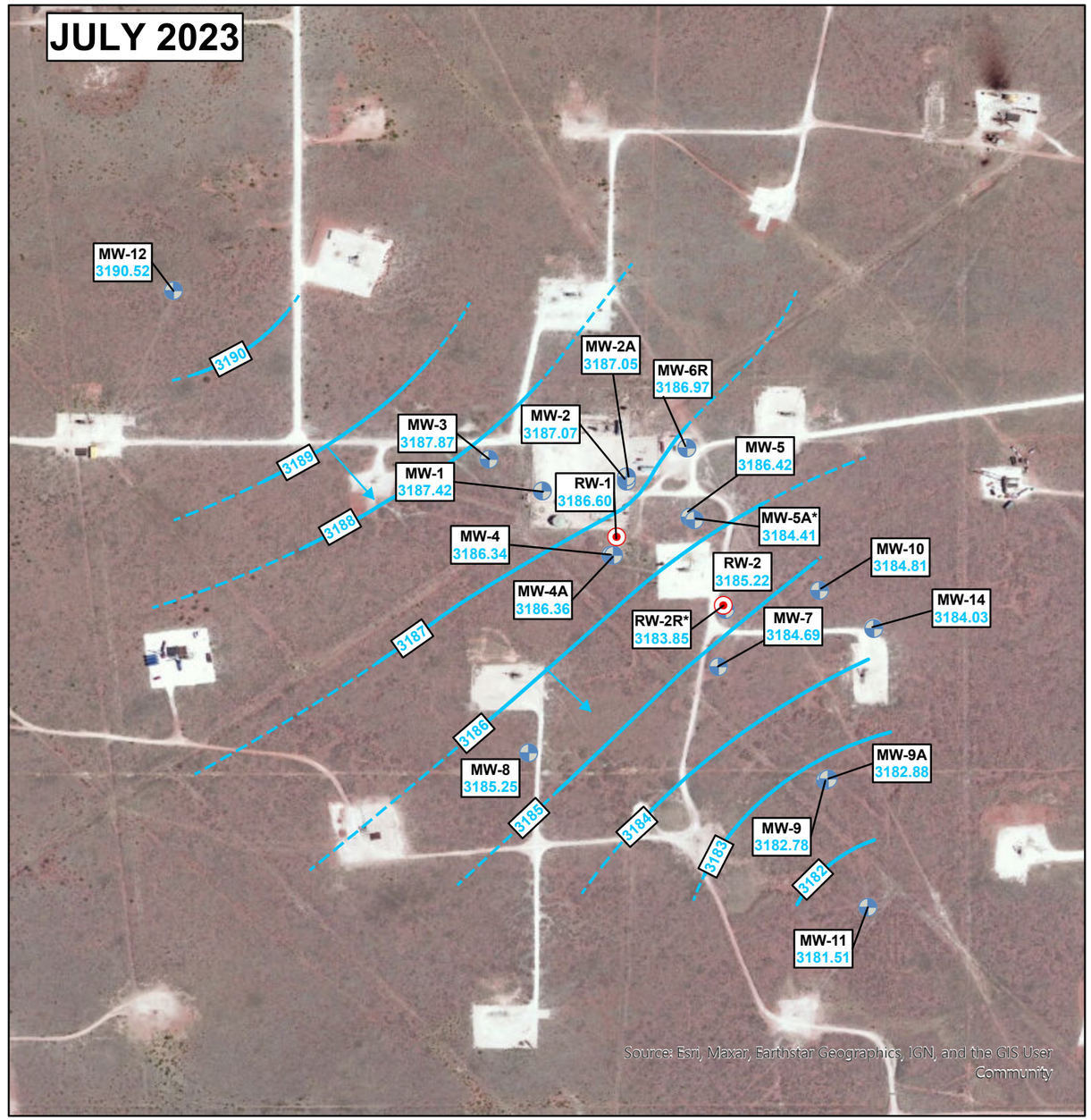
Chevron Environmental Management Company
Cooper-Jal Unit South Injection Site
Lea County, New Mexico

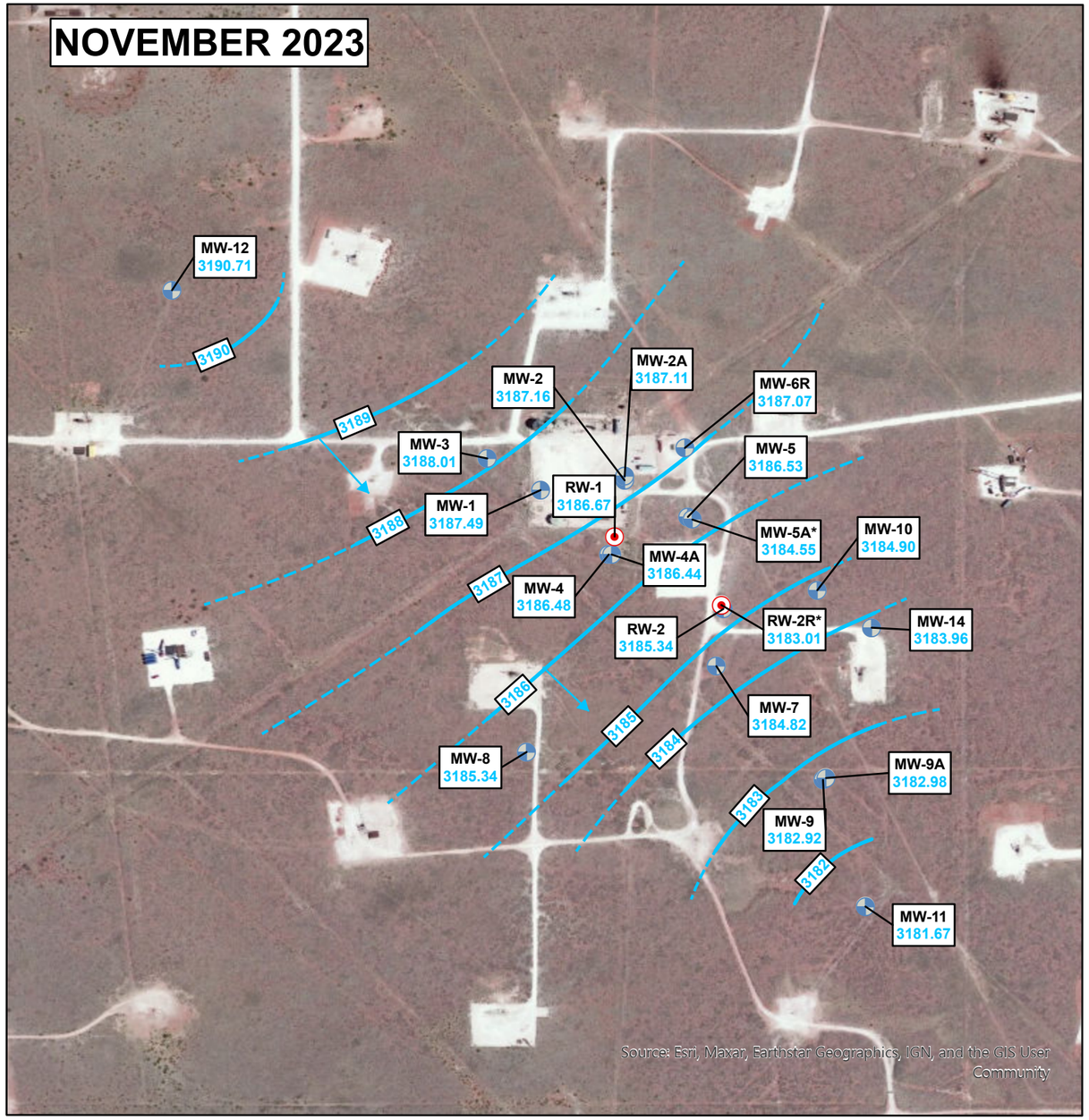
SITE DETAILS MAP

ARCADIS

FIGURE 2

Document Path: \\arcadis-usofficedata\Houston-TX\ENV\Chevron\Texaco TX8\HES Transfer\04 Field Investigations\2019\6 - Annual GWMR\Cooper Jal\GIS - Cooper Jal\Figure 2 Site Details Map 01.06.2020





Legend

- Monitoring Well Location
- Recovery Well
- 3184 — Potentiometric Contour and Elevation (Dashed where Inferred)
- 3181.51 — Groundwater Elevation (ft above mean sea level)
- Approximate Groundwater Flow

Notes:
1. Datum: D_WGS_1984
2. Cooper Jal Oil Wells were not guaged
3. Site Location: 32.19891, -103.21523
4. MW-12 was installed off-site and upgradient of plume.
5. * - Groundwater elevation not used for contouring

N

0 250 500 1,000 Feet

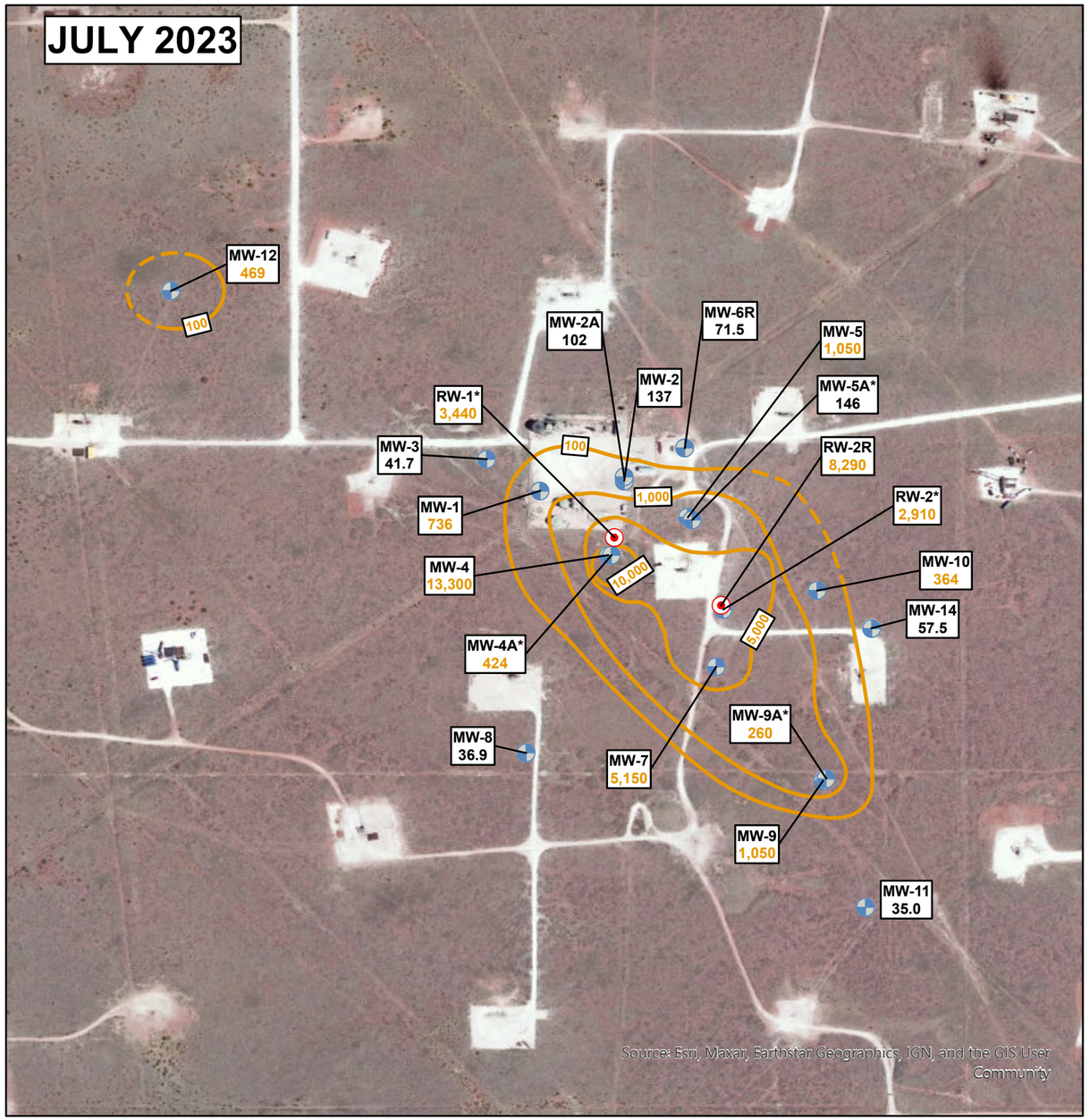
Chevron Environmental Management Company
Cooper-Jal Unit South Injection Site
Lea County, New Mexico

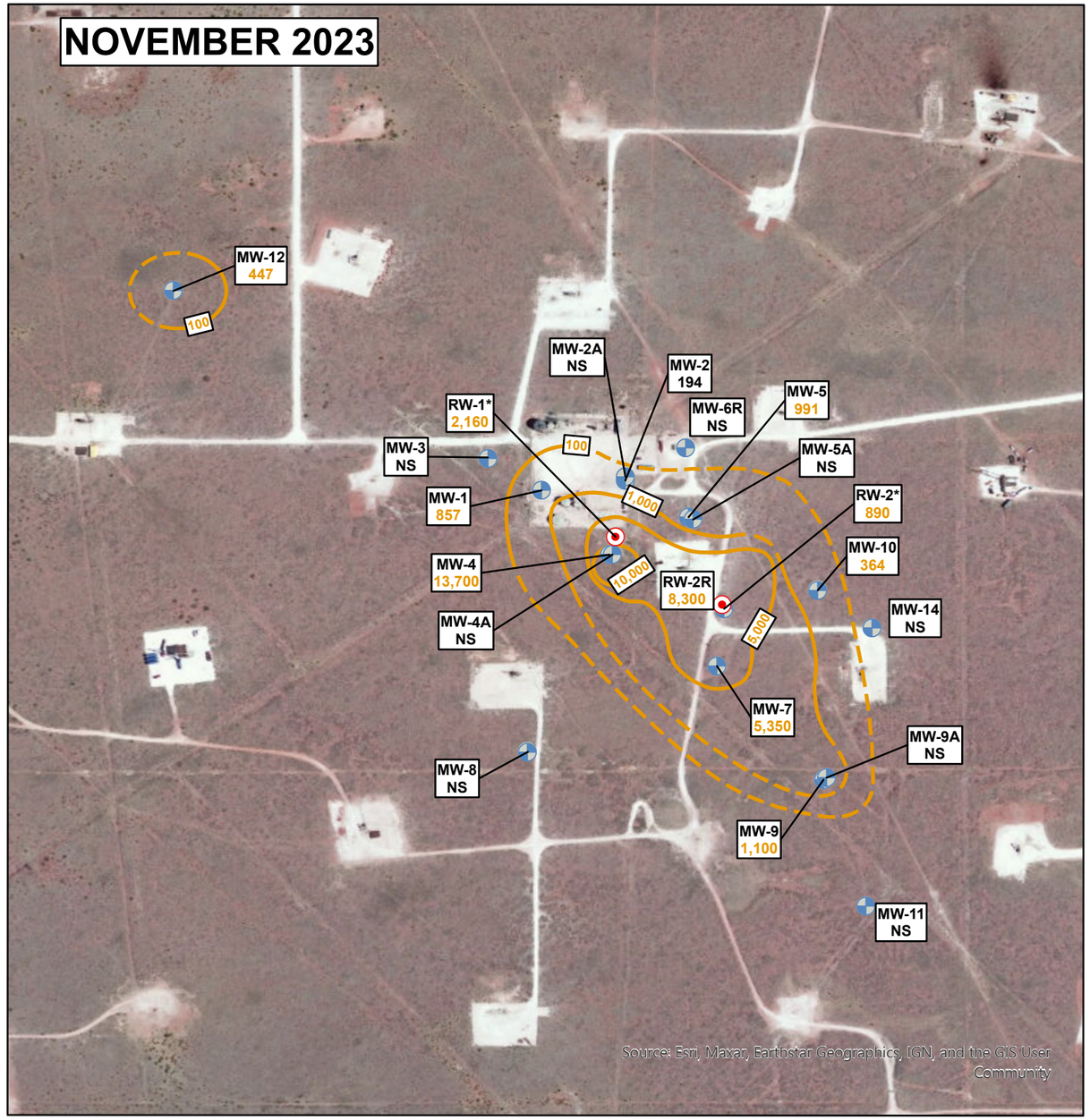
POTENTIOMETRIC SURFACE MAP 2023

ARCADIS

FIGURE 3

Document Path: T:_ENV\Chevron\Cooper JalID-ProjectWorking_IMXD\2023\Chevron_CooperJal_July2023.aprx, User Name: ski01076





Legend

- Monitoring Well Location
- Recovery Well
- 100 — Chloride Isoconcentration Contour (Dashed where Inferred)
- 137 — Chloride Concentration in milligrams per liter (mg/L)
- 424 — Chloride Concentration (mg/L) Exceeds New Mexico Water Quality Control Commission Other Standards for Domestic Water Supply

Notes:
1. Datum: D_WGS_1984
2. Cooper Jal Oil Wells were not guaged
3. Site Location: 32.19891, -103.21523
4. MW-12 was installed off-site and upgradient of plume.
5. *- Groundwater monitoring well not used for contouring
6. NS = Not Sampled.

N

0 250 500 1,000 Feet

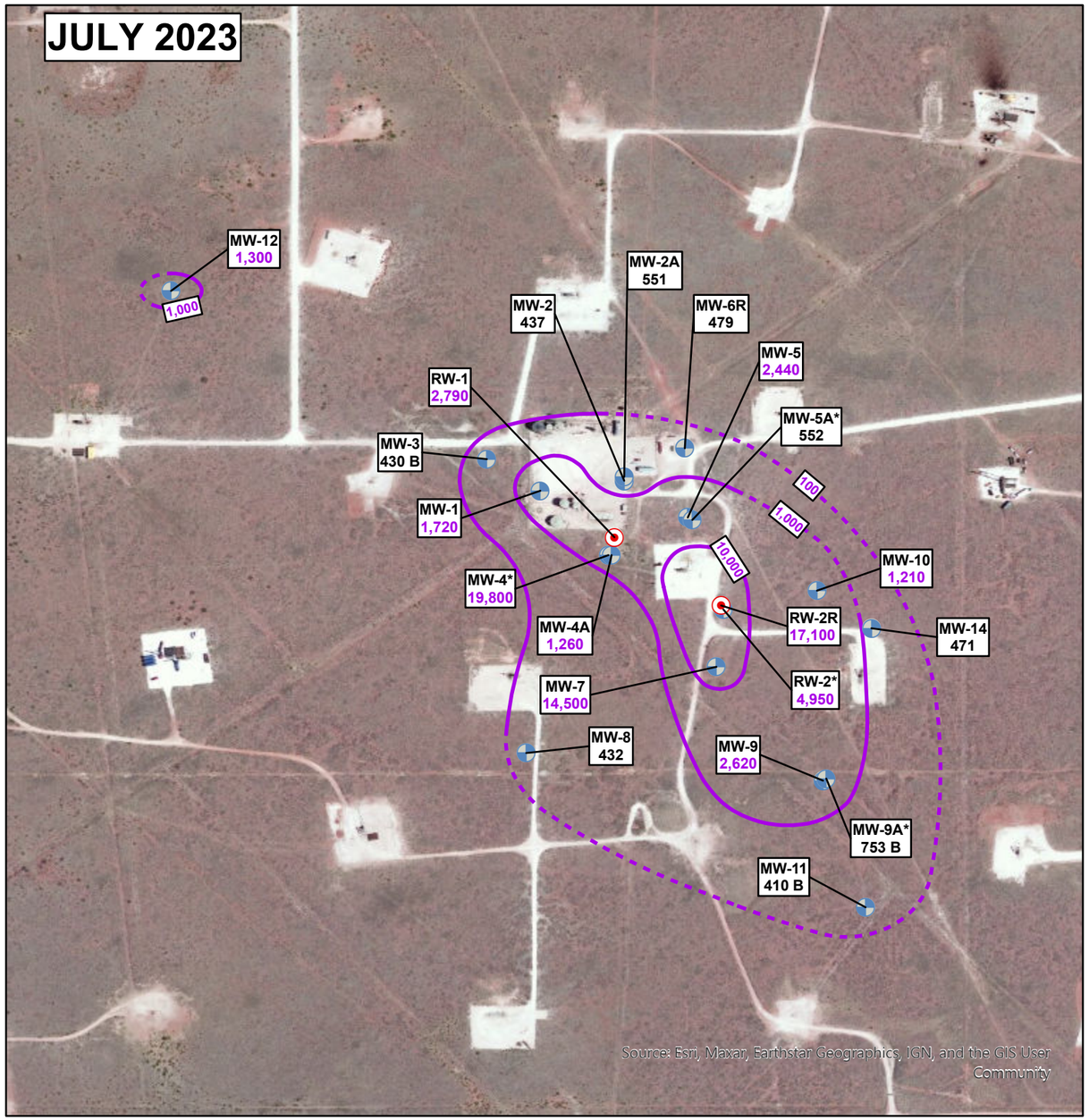
Chevron Environmental Management Company
Cooper-Jal Unit South Injection Site
Lea County, New Mexico

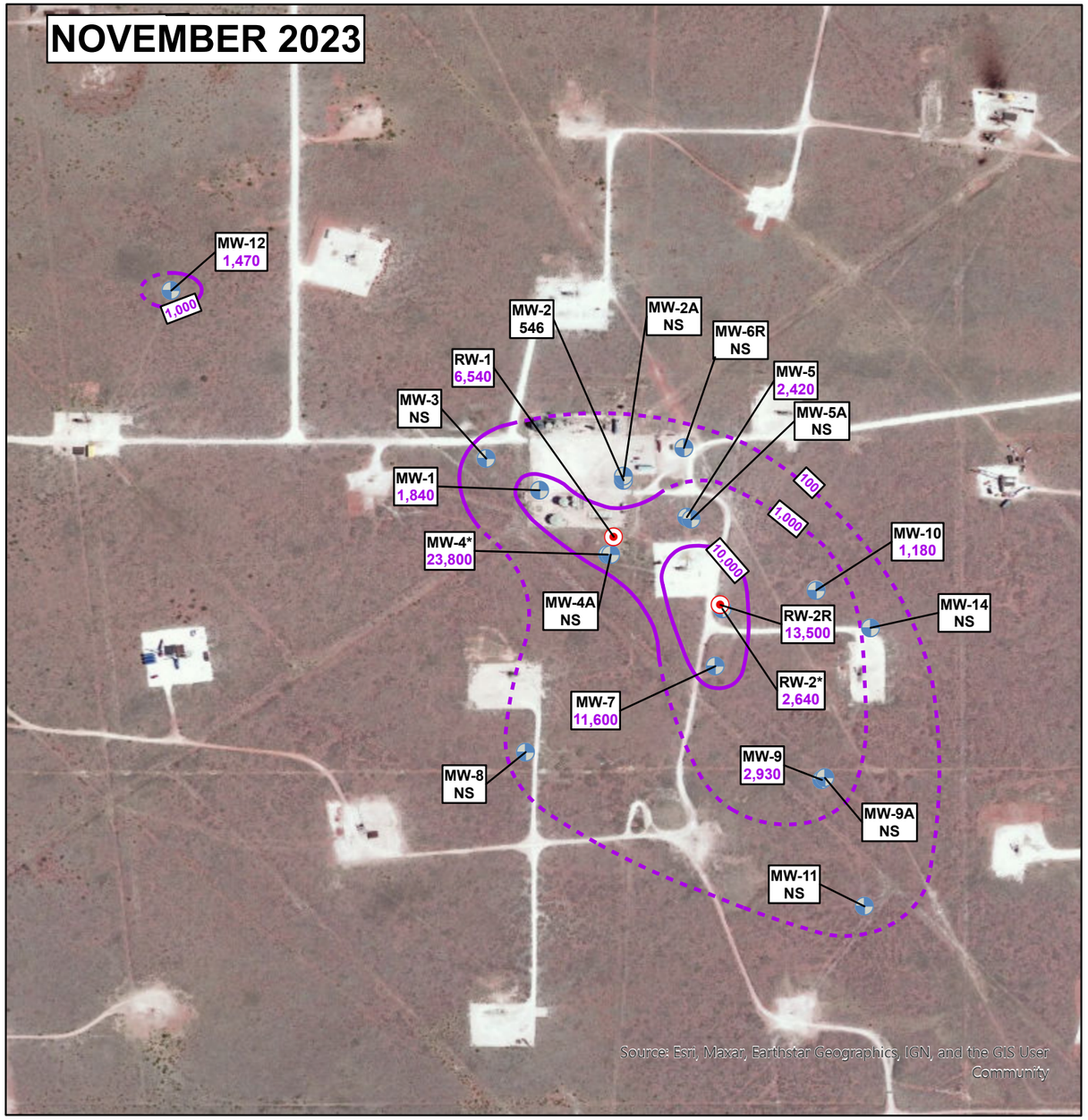
CHLORIDE ISOCONCENTRATION MAP 2023

ARCADIS

FIGURE 4

Document Path: T:_ENV\Chevron\Cooper Jal\D-ProjectWorking_\MXD\2023\Chevron_CooperJal_July2023.aprx, User Name: ski01076





Legend

- Monitoring Well Location
- Recovery Well
- 1,000 — Total Dissolved Solids (TDS) Isoconcentration Contour (Dashed where Inferred)
- 432 — TDS Concentration in milligrams per liter (mg/L)
- 2,620 — TDS Concentration (mg/L) Exceeds New Mexico Water Quality Control Commission Other Standards for Domestic Water Supply

Notes:
1. Datum: D_WGS_1984
2. Cooper Jal Oil Wells were not guaged
3. Site Location: 32.19891, -103.21523
4. MW-12 was installed off-site and upgrade of plume.
5. * - Groundwater monitoring well not used for contouring
6. NS - Not Sampled.

N

0 250 500 1,000 Feet

Chevron Environmental Management Company
Cooper-Jal Unit South Injection Site
Lea County, New Mexico

TDS ISOCONCENTRATION MAP 2023

ARCADIS

FIGURE 5

Document Path: T:_ENV\Chevron\Cooper Jal\D-ProjectWorking_IMXD\2023\Chevron_CooperJal_July2023.aprx, User Name: ski01076

MW-12 NS
MW-3 NS
MW-2 NS
MW-2A NS
MW-6R NS
MW-5 NS
MW-1 NS
MW-5A NS
RW-1 NS
100
MW-10 NS
MW-4 NS
RW-2R 904
MW-14 NS
MW-4A 101
RW-2 NS
MW-7 NS
MW-8 NS
MW-9 NS
MW-9A NS
MW-11 NS

Source: Esri, Maxar, Earthstar Geographics, IGN, and the GIS User Community

Legend

- Monitoring Well Location
- Recovery Well
- 100 — Sulfate Isoconcentration Contour (dashed where Inferred)
- 101 — Sulfate Concentration in milligrams per liter (mg/L)
- 904 — Sulfate Concentration (mg/L) Exceeds NMWQCC Other Standards for Domestic Water Supply

Notes:
1. Datum: D_WGS_1984
2. Cooper Jal Oil Wells were not guaged
2. Site Location: 32.19891, -103.21523
4. NS = Not Sampled

N

0 200 400 800 Feet

Chevron Environmental Management Company
Cooper-Jal Unit South Injection Site
Lea County, New Mexico

SULFATE ISOCONCENTRATION MAP 2023

ARCADIS

FIGURE 6

Document Path: T:_ENV\Chevron\Cooper Jal\D-ProjectWorking_\MXD\2023\Chevron_CooperJal_July2023.aprx, User Name: ski01076

APPENDIX A

2015 Sample Analysis Plan approved on May 19, 2015

Table 4
Groundwater Sampling and Analysis Plan
Cooper Jal
Lea County, NM

Monitoring Well ID	Gauge Depth to Groundwater and Total Depth	Collect Conductivity Level every two (2) feet	Total Dissolved Solids by State Method 2540C	Inorganic Anions by USEPA Method 300
MW-1		SA		
MW-2		SA		
MW-2A		SA		
MW-3		SA		
MW-4		SA		
MW-4A		SA		
MW-5		SA		
MW-5A		SA		
MW-6R		SA		
MW-7		SA		
MW-8		SA		
MW-9		SA		
MW-9A		SA		
MW-10		SA		
MW-11		SA		
MW-12		SA		
MW-14		SA		
RW-1		SA		
RW-2		SA		
RW-2R		SA		

Notes:
USEPA = United States Environmental Protection Agency
SA= Sample to be collected semi-annually

APPENDIX B

Proposed Groundwater Monitoring Reduction Plan submitted on July 20, 2020

ARCADIS Design & Consultancy for natural and built assets

Mr. Bradford Billings
Project Manager
EMNRD/OCD
5200 Oakland, NE, Suite 100
Albuquerque, NM 87113

Subject:
Proposed Groundwater Monitoring Reduction Workplan
Chevron Environmental Management Company
Cooper-Jal Unit South Injection Station (1R289)
Lea County, New Mexico

ENVIRONMENT

Date:
July 2, 2020

Contact:
Russell Grant
Phone:
432.217.2064
Email:
russell.grant@arcadis.com

Dear Mr. Billings:

At the request of Chevron Environmental Management Company (CEMC), Arcadis U.S., Inc. (Arcadis) is providing this Workplan to request a reduction of groundwater monitoring frequency on select monitoring wells for the Cooper-Jal Unit South Injection Station (Site).

The Site is located on Lea County Road J7, approximately five and a half miles northwest of Jal, New Mexico, in Section 24, Township 24 South, Range 36 East, Lea County, New Mexico. The latitude and longitude coordinates of the Site are N 32° 12’ 7.13” N and 103° 13’ 4.36” W.

Groundwater monitoring began at the Site in September 1997. The Site is currently monitored semi-annually from a network of 17 monitoring wells and three 3 recovery wells. No monitoring or recovery wells currently contain light non-aqueous phase liquid (LNAPL). All monitoring wells and the three (3) recovery wells are currently sampled during both semi-annual sampling events. The constituents of concern (COCs) in groundwater include chloride, total dissolved solids (TDS) and sulfate.

For additional Site-specific background information please refer to the Arcadis, 2019 Annual Groundwater Monitoring Report, dated March 25, 2020.

PROPOSED REDUCED SAMPLING PLAN

The following Workplan outlines the specifics of the proposed reduced sampling plan for select monitoring and recovery wells and the methodology for the selection of those monitoring and recovery wells. One semi-annual monitoring event will include sampling all Site wells as currently conducted with the exception of collecting Sulfate analysis. The second semi-annual sampling event will be

reduced to only sampling select monitoring and recovery wells based on the following proposed sampling methodology. The groundwater sampling frequency will be assessed yearly based on the results of the sampling events for the lifespan of the project. It is understood that a minimum of 8 consecutive Site wide sampling events will be required prior to closure request for the Site.

The following sections provide specifics for the proposed reduced groundwater monitoring plan:

Sampling Reduction for Non-impacted Monitoring Wells

Site monitoring and recovery wells with COC concentrations reported below New Mexico Water Quality Control Commission (NMWQCC) exceedance standards or monitoring and recovery wells with COC concentrations reported above the NMWQCC exceedance standards showing stable to decreasing trends for two consecutive years or longer will not be sampled during one semi-annual monitoring event per year.

The Site wells selected for removal from the second semi-annual sampling event include: MW-2A, MW-3, MW-4A, MW-5A, MW-6R, MW-8, MW-9A, MW-11, and MW-14

The previously referenced wells have been evaluated based on historical concentration trends, historical concentration trends of nearby monitoring wells, potential receptors, and groundwater gradient.

The Site monitoring/recovery wells that will be sampled during each semi-annual event are presented on attached **Table 1** (Sampling Analysis Plan).

The Site monitoring/recovery wells that will be sampled during the reduced event are presented on **Figure 1** (Potentiometric Surface Map), **Figure 2** (Reduced Sampling Plan – Chloride), and **Figure 3** (Reduced Sampling Plan – TDS), and **Figure 4** (Reduced Sampling Plan – Sulfate).

The Summary of Historical Groundwater Analytical Results is presented in **Table 2**.

Sampling Reduction for Non-Impacted Monitoring Wells

Sulfate is assigned a NMWQCC standard of 600 milligrams per liter (mg/L) and only 2 wells (MW-4, RW-2R) have consistently shown sulfate exceedances above the NMWQCC standard. These exceedances are likely attributable to natural groundwater chemistry or offsite encroachment of a neighboring contaminant plume. Data suggest that it is unlikely that the Site release contributed to elevated sulfate concentrations at the Site due to the proximity of the 2 monitoring wells from the location of the unlined earthen overflow pits southern border. Monitor

well MW-1 is located on the south eastern corner of the unlined earthen pit and historical data does not indicate that there has been any downgradient Sulfate migration from the location of the unlined pit. Additionally, monitoring wells located adjacent to MW-4 and RW-2R (MW-4A and RW-2 respectfully) have not shown similar detections of Sulfate concentrations. Thus, Arcadis is requesting approval from the New Mexico Oil Conservation Division (NMOCD) to remove sulfate from the sampling program.

Contact

Arcadis is prepared to initiate the scope of work immediately. If you have any questions or comments, please contact either Russell Grant by phone at 432 217 2064 or by e-mail at russell.grant@arcadis.com or Greg Cutshall by phone at 859 327 4626 or by email at greg.cutshall@arcadis.com.

Sincerely,

Arcadis U.S., Inc.

Russell Grant

Project Manager

Copies:
Robert Speer, CEMC Project Manager

Enclosures:

Tables

Table 1 – Sampling and Analysis Plan

Table 2 – Summary of Historical Groundwater Analytical Results

Figures

Figure 1 – 2020 Reduced Sampling Plan - Potentiometric Surface Map

Figure 2 – 2020 Reduced Sampling Plan – Chloride Isoconcentration Map

Figure 3 – 2020 Reduced Sampling Plan – TDS Isoconcentration Map

Figure 4 – 2020 Reduced Sampling Plan – Sulfate Isoconcentration Map

TABLES

Table 1 - Groundwater Sampling and Analysis Plan
Chevron Environmental Management Company
Cooper Jal Unit South Injection Station (1R-289)
Lea County, NM

First Semi-Annual Monitoring Event						Second Semi-Annual Monitoring Event					
Monitoring Well ID	Gauge Depth to Groundwater and Total Depth	Collect Conductivity Level every two (2) feet	Total Dissolved Solids by State Method 2540C	Inorganic Anions by USEPA Method 300		Gauge Depth to Groundwater and Total Depth	Collect Conductivity Level every two (2) feet	Total Dissolved Solids by State Method 2540C	Inorganic Anions by USEPA Method 300		Rationale for Reduction
				Chloride	Sulfate				Chloride	Sulfate	
MW-1	X	X	X	X	--	X	--	X	X	--	
MW-2	X	X	X	X	--	X	--	X	X	--	
MW-2A	X	X	X	X	--	X	--	--	--	--	Stable Trend
MW-3	X	X	X	X	--	X	--	--	--	--	Stable Trend
MW-4	X	X	X	X	--	X	--	X	X	--	
MW-4A	X	X	X	X	--	X	--	--	--	--	Stable Trend
MW-5	X	X	X	X	--	X	--	X	X	--	
MW-5A	X	X	X	X	--	X	--	--	--	--	Stable Trend
MW-6R	X	X	X	X	--	X	--	--	--	--	Stable Trend
MW-7	X	X	X	X	--	X	--	X	X	--	
MW-8	X	X	X	X	--	X	--	--	--	--	Stable Trend
MW-9	X	X	X	X	--	X	--	X	X	--	
MW-9A	X	X	X	X	--	X	--	--	--	--	Stable Trend
MW-10	X	X	X	X	--	X	--	X	X	--	
MW-11	X	X	X	X	--	X	--	--	--	--	Stable Trend
MW-12	X	X	X	X	--	X	--	X	X	--	
MW-14	X	X	X	X	--	X	--	--	--	--	Stable Trend
RW-1	X	X	X	X	--	X	--	X	X	--	
RW-2	X	X	X	X	--	X	--	X	X	--	
RW-2R	X	X	X	X	--	X	--	X	X	--	

Notes:
USEPA = United States Environmental Protection Agency
X = Data will be collected at monitoring well during respective event.
-- = Data will not be collected at monitoring well during semi-annual event

Table 2 - Summary of Historical Groundwater Analytical Results
Chevron Environmental Management Company
Cooper Jal Unit South Injection Station (1R-289)
Lea County, NM

ARCADIS Design & Consultancy for natural and built assets

Sample ID	Sample Date	Carbonate Alkalinity	Bicarbonate Alkalinity	Total Alkalinity	Chloride[1]	Fluoride[2]	Nitrate - N[2]	Sulfate[1]	Calcium	Magnesium	Potassium	Sodium	TDS[1]
NMWQCC Groundwater Standard					***250***	***1.6***	**10**	***600***					***1,000***
MW-1	9/16/97	--	--	280	**8,500**	--	--	**1,100**	520.0	630.0	50.00	4,300	**15,000**
	2/25/98	--	--	280	**5,600**	--	--	570	285.0	520.0	116.00	2,900	**9,300**
	2/14/01	<1.0	306	306	**11,000**	**4.40**	7.70	**1,000**	374.0	780.0	236.00	5,236	**20,000**
	5/17/02	<1.0	208	208	237	**5.83**	3.28	86.9	45.7	20.1	11.90	184	784
	10/23/02	--	--	--	168	--	--	96.8	--	--	--	--	696
	5/21/03	<1.0	290	290	**6,600**	<8.00	**10.90**	**875**	238.0	475.0	96.50	3,410	**13,200**
	11/25/03	<1.0	250	250	**402**	**7.03**	2.72	125	19.2	22.0	18.50	294	**1,158**
	5/12/04	<1.00	264	264	**504**	**7.31**	2.70	136	17.2	23.1	22.40	355	**1,328**
	11/16/04	<1.00	232	232	**384**	**4.94**	3.30	103	29.2	22.7	25.40	373	952
	11/16/05	<10.0	262	262	**1,210**	**3**	2.4	215 D1	85.4	92.6	23	847	**2,640**
	11/14/06	<10	200	200	96	**4.2**	2	76	13.2	6.49	15.6	172	624
	11/16/07	<10.0	255	255	**4,250**	**3.7**	**3.90 D1**	**602 D1**	154	187	54	2,100 D1	**10,900**
	11/4/08	<5.0	190	190	110	**6.3**	1.6	83	10	5.8	7.9	180	590
	11/3/09	<10	270	270	**4,100**	**4.1**	2.8	**640**	190	250	61	2,300	**8,000**
	11/10/10	<10	223	223	**2,670**	**1.92**	2.62	373	138	196	21.5	1,480	**5,020**
	11/10/11	<5.00	209	209	**3,220**	1.02	2.37	275	169	176	22.5	1,340	**5,250**
Dup	11/10/11	<5.00	213	213	**2,930**	1.05	2.35	240	183	197	22.6	1,480	**4,640**
	10/11/12	<5.00	190	190	**2,190**	**6.74**	4.52	301	132	145	17.9	1,140	**1,880**
	10/8/13	<6.00	211	211	**1,890**	1.46	2.39	247	131	114	15.3	914	**2,380**
	10/7/14	<4.00	205	205	**1,700**	0.46	2.37	277	118	126	14.9	860	**3,690**
	10/21/15	--	--	--	182	<4.00	--	78.1	--	--	--	--	559
	10/18/16	--	--	--	**1,320**	0.827	--	221	--	--	--	--	**2,700**
	10/24/17	--	--	--	148	**2.57**	--	79.4	--	--	--	--	594
	10/18/18	--	--	--	**1,290**	0.788	--	215	--	--	--	--	**2,360**
	6/20/19	--	--	--	**1,110**	--	--	--	--	--	--	--	**2,510**
	11/24/19	--	--	--	**1,110**	--	--	222	--	--	--	--	**2,190**
MW-2	2/25/98	--	--	210	**5,900**	--	--	**760**	840.0	380.0	30.00	2,650	**9,400**
	4/9/98	--	--	290	**8,200**	--	--	**990**	1,100.0	490.0	29.00	3,430	**15,000**
	2/14/01	<1.0	184	184	**7,400**	**2.30**	4.10	**870**	1,025.0	488.0	48.50	3,189	**15,000**
	5/17/02	<1.0	160	160	**3,200**	**1.72**	3.18	483	587.0	239.0	35.60	1,160	**6,040**
	10/23/02	--	--	--	**2,920**	--	--	451	--	--	--	--	**6,770**
	5/22/03	<1.0	158	158	**2,550**	**2.04**	3.87	386	448.0	176.0	20.00	1,020	**5,880**
	11/25/03	<1.0	160	160	**3,330**	<4.00	5.63	446	555.0	227.0	32.00	1,120	**6,760**
	5/12/04	<1.00	146	146	**1,750**	<2.00	2.78	246	308.0	112.0	29.70	549	**3,965**
	11/16/04	<1.00	120	120	**430**	<1.00	2.13	56.9	104.0	29.4	22.40	158	832
	11/16/05	<10.0	171	171	**4,720**	0.72	2.6	**645 D1**	594	209	20.8	3,290	**10,000**
	11/14/06	<10	160	160	**3,500**	0.78 N	2.1	470	535	212	21	15,400	**8,260**
	11/14/07	<10.0	178	178	**3,280**	0.76	1.93	462 D1	449	152	16.2	1310 D1	**9,110**
	11/4/08	<5.0	150	150	**2,900**	<1.0	1.1	430	380	160	26	1,200	**5,600**
	11/16/09	<10	150	150	**2,000**	1.1	1.6	340	290	120	20	750	**4,300**
	11/12/10	<10	186	186	**1,890**	0.726	1.86	327	326	120	9.8	795	**3,680**
	11/10/11	<5.00	175	175	**1,480**	0.814	1.31	150	227	83.2	9.75	668	**2,860**
	10/11/12	<5.00	149	149	**524**	0.546	1.92	231	119	31.7	8.78	286	**1,090**
	10/8/13	<6.00	269	269	**1,180**	1.2	<0.100	169	178	64.7	8.16	505	**2,520**
	10/7/14	<4.00	196	196	**695**	0.524	<0.0230	147	143	47.5	7.3	343	**1,310**
	10/21/15	--	--	--	27	<2.00	--	58.6	--	--	--	--	388
	10/18/16	--	--	--	26.7	<0.500	--	34.4	--	--	--	--	352
	10/25/17	--	--	--	35.8	0.995	--	36.3	--	--	--	--	331
	10/18/18	--	--	--	65.9	0.656	--	48.5	--	--	--	--	384
	6/20/19	--	--	--	**283**	--	--	--	--	--	--	--	960
	11/23/19	--	--	--	27.7	--	--	42	--	--	--	--	274
MW-2A	2/26/98	--	--	190	**280**	--	--	330	144.0	36.0	5.70	215.0	**1,200**
	2/14/01	<1.0	162	162	44	1.30	2.30	76	64.4	16.7	7.02	45.5	390
	5/15/02	<1.0	176	176	36.6	<1.00	2.34	79.1	57.6	13.9	4.35	43.8	435
	10/23/02	--	--	--	44.3	--	--	97	--	--	--	--	425
	5/22/03	<1.0	168	168	40.5	<1.00	2.18	75.5	67.2	14.3	3.76	47.9	418
	11/25/03	<1.0	166	166	43.1	1.00	2.23	77.4	51.7	14.4	3.98	43.8	452
	5/12/04	<1.00	176	176	44.8	<1.00	2.24	76.5	62.9	15.0	3.66	43.6	440
	11/16/04	<1.00	164	164	52.5	1.22	2.78	75.4	68.8	15.3	3.98	49.1	428
	11/16/05	<10.0	151	151	56.8	0.6	2.3	75.1 D1	157	18	4.2	49.8	630 N
	11/14/06	<10	180	180	49	0.55	1.6	76	69.8	15.6	3.47	49.9	488
	11/14/07	<10.0	170	170	74.6	0.58	1.51	66.8 D1	666	15.3	<5.000	45.4	504
	11/4/08	<5.0	220	220	68	0.49	1.4	74	67	15	3.2	42	470
	11/3/09	<10	230	230	62	0.59	1.6	81	66	15	3.4	50	480
	11/11/10	<10	158	158	86.1	0.453	1.73	74	53.9	14.9	2.86	42.8	474
	11/10/11	<5.00	175	175	129	0.28	1.25	101	92.5	23.3	4.17	64.7	614
	10/11/12	<5.00	173	173	76.5	0.455	1.6	79.4	69.2	15.7	3.62	45.3	500
	10/8/13	<6.00	248	248	78.6	0.412	0.622	75.4	92.6	18.7	4.06	51.2	496
	10/7/14	<4.00	188	188	72.5	0.202	1.55	79.4	77.1	17.2	3	44.3	496
	10/21/15	--	--	--	76.7	<4.00	--	77.5	--	--	--	--	441
	10/18/16	--	--	--	84.6	<0.500	--	83.4	--	--	--	--	455
	10/25/17	--	--	--	83.1	1.23	--	77.3	--	--	--	--	512
	10/18/18	--	--	--	103	0.667	--	88.3	--	--	--	--	491
	6/20/19	--	--	--	86.5	--	--	--	--	--	--	--	554
	11/23/19	--	--	--	88.0	--	--	76.5	--	--	--	--	414

Table 2 - Summary of Historical Groundwater Analytical Results
Chevron Environmental Management Company
Cooper Jal Unit South Injection Station (1R-289)
Lea County, NM

ARCADIS Design & Consultancy for natural and built assets

Sample ID	Sample Date	Carbonate Alkalinity	Bicarbonate Alkalinity	Total Alkalinity	Chloride[1]	Fluoride[2]	Nitrate - N[2]	Sulfate[1]	Calcium	Magnesium	Potassium	Sodium	TDS[1]
NMWQCC Groundwater Standard					***250***	***1.6***	**10**	***600***					***1,000***
MW-3	2/27/98	--	--	190	**452**	--	--	406	200.0	50.0	11.00	237.0	**1,500**
	2/14/01	<1.0	158	158	34	**1.60**	2.40	100	54.5	19.0	7.61	48.6	440
	5/17/02	<1.0	158	158	30.6	1.56	2.35	102	55.6	18.4	5.04	50.0	433
	10/23/02	--	--	--	35.4	--	--	104	--	--	--	--	419
	5/22/03	<1.0	156	156	30.6	1.17	2.25	96.3	53.2	17.8	5.39	54.6	435
	11/25/03	<1.0	160	160	31.4	1.35	2.30	103	46.5	18.0	5.19	51.7	440
	5/12/04	<1.00	164	164	32.3	1.20	2.38	101	52.2	16.8	4.77	47.5	448
	11/16/04	<1.00	166	166	35.1	1.53	2.77	95.4	56.3	23.6	12.70	58.9	424
	11/17/05	<10.0	171	171	96.3	0.97	2.2	108 D1	89.2	22.1	8.87	93.4	840
	11/15/06	<10	170	170	30	0.92 N	1.7	96	51.3	17.3	4.3	57.2	505
	11/16/07	<10.0	170	170	39.7	0.93	1.58	88.2 D1	50.8	16.3	<5.000	50.6	570
	11/6/08	<5.0	150	150	36	1.1	1.4	97	50	17	4	48	430
	11/3/09	<10	160	160	35	1.1	1.6	110	49	17	4.2	56	410
	11/10/10	<10	164	164	35.4	0.836	1.77	99.9	48.8	15.2	3.42	45.1	380
	11/10/11	<5.00	165	165	36.4	0.833	1.35	87.9	57.9	18	3.79	53	404
	10/11/12	<5.00	162	162	36.6	1.01	1.74	100	51.2	16.9	4.11	51	438
	10/8/13	<6.00	194	194	38.4	1.02	1.17	98.7	56.5	18.3	4.08	54.9	450
	10/7/14	<4.00	187	187	19.5	0.369	1.39	62.8	44.3	9.82	22.4	38.8	332
	10/21/15	--	--	--	25.6	<2.00	--	74.8	--	--	--	--	307
	10/18/16	--	--	--	37.1	0.66	--	109	--	--	--	--	464
	10/24/17	--	--	--	35.9	1.5	--	98.7	--	--	--	--	442
	10/18/18	--	--	--	209	**5.35**	--	567	--	--	--	--	415
	6/20/19	--	--	--	40	--	--	--	--	--	--	--	448
	11/23/19	--	--	--	60	--	--	96.6	--	--	--	--	352
MW-4	2/27/98	--	--	230	**12,000**	--	--	**1,300**	1,700.0	880.0	48.00	5,300	**22,000**
	4/9/98	--	--	240	**13,000**	--	--	**1,500**	1,740.0	840.0	42.00	5,400	**23,000**
	2/14/01	<1.0	232	232	**15,000**	**1.80**	6.80	**1,500**	--	--	--	--	**29,000**
	5/17/02	<1.0	232	232	**11,300**	**2.01**	6.09	**1,380**	1,610.0	814.0	60.90	4,310	**22,600**
	10/23/02	--	--	--	**11,300**	--	--	**1,320**	--	--	--	--	**23,200**
	5/22/03	<1.0	220	220	**11,300**	<10.00	**12.30**	**1,370**	1,450.0	659.0	47.30	4,140	**62,500**
	11/26/03	<1.0	218	218	**12,100**	<8.00	**12.30**	**1,400**	1830.0	889.0	62.00	4,620	**54,450**
	5/11/04	<1.00	214	214	**14,200**	<8.00	8.97	**1,560**	1800.0	829.0	60.70	4,850	**65,450**
	11/17/04	<1.00	222	222	**13,600**	<20.00	**31.50**	**1,410**	2020.0	972.0	73.60	5,900	**25,200**
	11/17/05	<10.0	181	181	**9,440**	0.82	0.2	45.8 D1	849	387	28.1	3,880	**24,300**
	11/15/06	<10	260	260	**14,000**	<5.0 C	5.2	**1,400**	1,760.00	897	58.8	6,150	**28,700**
	11/14/07	<10.0	255	255	**14,800**	0.54	7.15 D1	**1,410 D1**	1170	382	48	4,760 D1	**36,300**
	11/12/08	<5.0	200	200	**12,000**	1.2	0.33	**1,300**	1,500	840	82	4,800	**22,000**
	11/4/09	<5.0	250	250	**15,000**	1.1	5.3	**1,600**	1,500	1,000	65	5,800	**30,000**
	11/11/10	<5.0	294	294	**15,500**	<1.00	**10**	**1,270**	1,380	904	40	5,450	**25,500**
	11/10/11	<5.00	277	277	**16,900**	0.112	6.16	**1,060**	1,680	1,110	40.0	6,490	**28,900**
	10/11/12	<5.00	256	256	**5,850**	**2.10**	4.58	**629**	434	334	21.2	2,620	**12,000**
	10/8/13	<6.00	294	294	**16,200**	0.72	6.79	**1,460**	1,690	1,180	40.8	7,370	**36,300**
	10/7/14	<4.00	291	291	**15,000**	<100	7.15	**1,740**	1,350	1,060	44.1	4,250	**32,400**
	10/20/15	--	--	--	**3,200**	<40.0	--	402	--	--	--	--	**7,070**
	10/18/16	--	--	--	**17,900**	<1.00	--	**1,890**	--	--	--	--	**35,300**
	10/25/17	--	--	--	**6,830**	<5.00	--	**754**	--	--	--	--	**12,300**
	10/18/18	--	--	--	**14,800**	<0.100	--	**1510**	--	--	--	--	**24,700**
	6/20/19	--	--	--	**2,760**	--	--	--	--	--	--	--	**7,830**
	11/24/19	--	--	--	**3,050**	--	--	420	--	--	--	--	**5,960**
MW-4A	2/27/98	--	--	180	**1,600**	--	--	410	470.0	130.0	11.00	620.0	**3,300**
	2/14/01	<1.0	154	154	**1,600**	1.40	2.80	210	--	--	--	--	**4,000**
	5/15/02	<1.0	156	156	**577**	<1.00	2.23	121	200.0	49.5	10.30	125.0	**1,610**
	10/23/02	--	--	--	**478**	--	--	114	--	--	--	--	**1,430**
	5/22/03	<1.0	154	154	**844**	<1.00	2.43	160	279.0	58.9	10.10	248.0	**2,200**
	11/26/03	<1.0	158	158	**1,060**	<4.00	5.82	182	337.0	79.3	15.20	329.0	**2,585**
	5/11/04	<1.00	156	156	**984**	<2.00	3.30	179	297.0	66.5	11.50	279.0	**2,300**
	11/17/04	<1.00	164	164	**1,110**	<2.00	4.62	186	369.0	75.4	14.90	413.0	**2,235**
	11/16/05	<10.0	181	181	**827 D1**	<0.5	2.2	160 D1	335	64.4	9.23	382	**2,340 N**
	11/15/06	<10	620	620	**960**	<0.50	2.6	170	227	53.5	8.1	406	**2,870**
	11/14/07	<10.0	311	311	**845 D1**	0.35	3.60 D1	167 D1	205	44.9	7.33	334	**2,650**
	11/12/08	<5.0	640	640	**650**	0.32	2.2	170	160	37	9.9	290	**1,700**
	11/4/09	<5.0	670	670	**670**	0.56	2.6	150	110	27	7.4	300	**1,600**
	11/11/10	<5.0	217	217	**663**	0.505	2.58	125	65.9	15.6	4.42	317	**1,760**
	11/10/11	<5.00	171	171	**621**	0.775	2.02	134	78.8	18.7	4.71	389	**1,400**
	10/11/12	<5.00	169	169	**516**	1.12	2.6	100	48.7	11.3	4.45	359	**1,200**
	10/8/13	<6.00	199	199	**512**	**2.63**	2.47	100	47.7	9.9	3.64	410	**1,170**
	10/7/14	<4.00	186	186	**387**	**1.69**	2.54	102	37.1	7.8	3.17	276	962
	10/20/15	--	--	--	**328**	<4.00	--	83.3	--	--	--	--	819
	10/18/16	--	--	--	**440**	1.49	--	97.6	--	--	--	--	**1,150**
	10/25/17	--	--	--	**341**	**2.83**	--	93.4	--	--	--	--	960
	10/18/18	--	--	--	**366**	1.29	--	99.6	--	--	--	--	901
	6/20/19	--	--	--	**336**	--	--	--	--	--	--	--	**1,040**
	11/24/19	--	--	--	**321**	--	--	94.5	--	--	--	--	824

Table 2 - Summary of Historical Groundwater Analytical Results
Chevron Environmental Management Company
Cooper Jal Unit South Injection Station (1R-289)
Lea County, NM

Sample ID	Sample Date	Carbonate Alkalinity	Bicarbonate Alkalinity	Total Alkalinity	Chloride[1]	Fluoride[2]	Nitrate - N[2]	Sulfate[1]	Calcium	Magnesium	Potassium	Sodium	TDS[1]
NMWQCC Groundwater Standard					***250***	***1.6***	**10**	***600***					***1,000***
MW-5	2/26/98	--	--	180	**6,600**	--	--	**910**	1,400.0	470.0	31.00	2,400.0	**12,000**
	2/14/01	<1.0	166	166	**7,700**	**1.80**	4.10	**910**	--	--	--	--	**18,000**
	5/17/02	<1.0	156	156	**4,040**	1.53	4.56	586	757.0	319.0	60.90	1,260.0	**8,340**
	10/23/02	--	--	--	**3,900**	--	--	94.8	--	--	--	--	422
	5/22/03	<1.0	158	158	**3,170**	<4.00	6.52	550	644.0	215.0	49.90	1,240.0	**7,860**
	11/25/03	<1.0	168	168	**5,120**	<4.00	6.77	**739**	978.0	365.0	54.90	1,680.0	**11,940**
	5/11/04	<1.00	160	160	**6,760**	<3.00	4.65	**1,030**	1,180.0	417.0	40.30	2,120.0	**20,380**
	11/17/04	<1.00	172	172	**6,750**	<10	**16.60**	**786**	1,210.0	486.0	40.60	2,300.0	**11,980**
	11/17/05	<10.0	161	161	**2,140 D1**	0.79	0.16	334 D1	339	126	10.8	791	**7,120 N**
	11/14/06	<10	160	160	**2,000**	0.6	1.5	300	437	173	14.2	918	**4,420**
	11/14/07	<10.0	161	161	**5,790 D1**	0.37	4.01 D1	**668 D1**	812	240	23.3	1,850 D1	**16,300**
	11/6/08	<5.0	160	160	**4,900**	0.78	0.32	540	660	310	35	1,600	**9,700**
	11/3/09	<10	160	160	**5,100**	0.51	2.3	**710**	860	320	<13	1,800	**11,000**
	11/11/10	<5.0	176	176	**4,200**	0.159	2.37	554	687	250	17.3	1,400	**8,890**
	11/10/11	<5.00	172	172	**4,340**	0.243	0.549	411	944	326	19.7	1,780	**7,840**
	10/11/12	<5.00	164	164	**3,630**	0.376	2.26	474	671	239	17	1,360	**8,300**
	10/8/13	<6.00	176	176	**3,730**	0.369	1.56	425	659	253	15.4	1,440	**8,060**
	10/7/14	<4.00	172	172	**2,830**	<0.100	2.19	398	521	195	15.1	979	**5,280**
	10/21/15	--	--	--	**2,480**	<40.0	--	362	--	--	--	--	**5,510**
	10/18/16	--	--	--	**2,260**	<0.500	--	326	--	--	--	--	**5,380**
	10/25/17	--	--	--	**2,090**	<5.00	--	318	--	--	--	--	**3,780**
Dup	10/25/17	--	--	--	**2,010**	<5.00	--	300	--	--	--	--	**3,240**
	10/18/18	--	--	--	**1,890**	<0.100	--	323	--	--	--	--	**3,420**
	6/20/19	--	--	--	**1,700**	--	--	--	--	--	--	--	**4,280**
	11/23/19	--	--	--	**1,530**	--	--	250	--	--	--	--	**3,900**
MW-5A	2/26/98	--	--	170	190	--	--	180	107.0	23.0	3.50	117.0	740
	2/15/01	<1.0	164	164	140	1.20	2.10	130	90.2	27.9	8.70	74.6	670
	5/15/02	<1.0	182	182	53.5	<1.00	2.23	84.4	63.2	16.1	4.69	43.6	475
	10/23/02	--	--	--	50	--	--	**616**	--	--	--	--	**8,670**
	5/22/03	<1.0	158	158	32.5	<1.00	2.10	69.9	55.5	13.8	3.41	41.5	416
	11/25/03	<1.0	332	332	34.1	1.05	2.20	75.5	60.9	14.6	4.08	45.0	422
	5/11/04	<1.00	164	164	38.8	<1.00	2.25	75.8	60.9	15.0	3.40	43.2	484
	11/17/04	<1.00	152	152	39.6	1.37	2.66	74.3	58.1	13.6	3.83	48.5	430
	11/16/05	<10.0	191	191	40.2	0.82	2.1	75.2 D1	176	17.8	4.22	45.3	570 N
	11/14/06	<10	240	240	47	0.64	1.5	79	90.4	16.1	3.58	51.4	588
	11/14/07	<10.0	227	227	54.4	0.66	1.45	68.7 D1	73.7	14	<5.000	44.2	528
	11/6/08	<5.0	350	350	53	0.7	1.3	72	76	15	3.4	43	450
	11/3/09	<10	710	710	47	0.72	1.5	79	65	14	3.3	50	440
	11/11/10	<5.00	182	182	49.6	0.568	1.61	73.6	55.7	12.9	2.79	42	606
	11/10/11	<5.00	170	170	131	0.492	1.15	116	83.8	29.9	5.16	85.7	594
	10/11/12	<5.00	163	163	68	0.631	1.57	69.8	60.6	15.3	3.96	49.2	534
	10/8/13	<6.00	182	182	80.2	0.568	1.6	67.5	69.3	16.2	3.29	53.4	462
	10/7/14	<4.00	168	168	73.6	0.288	1.56	64.9	66.2	15.7	2.76	45.2	432
	10/21/15	--	--	--	84.9	<4.00	--	65.6	--	--	--	--	499
	10/18/16	--	--	--	101	<0.500	--	65.4	--	--	--	--	466
	10/25/17	--	--	--	99.6	1.14	--	59.3	--	--	--	--	537
	10/18/18	--	--	--	132	0.792	--	67.5	--	--	--	--	477
	6/20/19	--	--	--	118	--	--	--	--	--	--	--	650
	11/23/19	--	--	--	116	--	--	61.1	--	--	--	--	502
MW-6	2/26/98	--	--	200	**260**	--	--	400	180.0	44.0	6.20	205.0	**1,200**
	2/14/01	<1.0	158	158	59	**1.70**	2.20	99	67.5	22.1	7.67	52.3	470
	5/17/02	<1.0	162	162	37.8	**1.62**	2.14	99.3	63.1	19.6	5.12	48.6	427
	10/23/02	--	--	--	46.1	--	--	109	--	--	--	--	331
	5/22/03	<1.0	162	162	40.3	1.24	2.13	94.4	61.7	17.4	4.23	51.9	464
	11/25/03	<1.0	154	154	53.6	1.40	2.18	98	53.6	18.7	4.97	51.7	482
	5/11/04	<1.00	156	156	54.4	1.23	2.19	97	59.0	18.1	4.22	47.8	506
	11/16/04	<1.00	162	162	57.9	**1.64**	2.68	99.8	66.6	19.6	5.16	57.0	464
	11/17/05	<10.0	201	201	101	0.97	0.35	97.8 D1	103	20.2	4.1	59.1	730
	11/15/06	<10	750	750	68	0.99	1.5	93	64.6	20.4	4.23	57.1	507
	11/15/07	<10.0	284	284	162	**51.00**	1.35	96.3 D1	84.1	25.2	<5.000	62.1	630
	11/6/08	<5.0	220	220	84	1.20	1.2	95	67	21	4.3	53	490
	11/3/09	<10	190	190	81	1.20	1.4	100	66	20	4.5	59	550
	11/8/10	NS - Well Damaged											
	11/10/11	NS - Well Damaged											
	10/11/12	NS - Well Damaged											
	9/30/13	Well Plugged and Abandoned											

Table 2 - Summary of Historical Groundwater Analytical Results
Chevron Environmental Management Company
Cooper Jal Unit South Injection Station (1R-289)
Lea County, NM

ARCADIS Design & Consultancy for natural and built assets

Sample ID	Sample Date	Carbonate Alkalinity	Bicarbonate Alkalinity	Total Alkalinity	Chloride[1]	Fluoride[2]	Nitrate - N[2]	Sulfate[1]	Calcium	Magnesium	Potassium	Sodium	TDS[1]
NMWQCC Groundwater Standard					***250***	***1.6***	**10**	***600***					***1,000***
MW-6R	10/8/13	<6.00	225	225	110	**1.91**	<0.100	102	69.9	24.4	5.17	85.6	600
	10/7/14	<4.00	182	182	39.7	0.546	0.675	93	59.2	18.2	3.1	48.2	402
	10/21/15	--	--	--	40.7	<2.00	--	98.6	--	--	--	--	390
	10/18/16	--	--	--	42.3	0.63	--	105 J	--	--	--	--	442
	10/25/17	--	--	--	49.3	1.46	--	93.8	--	--	--	--	465
	10/18/18	--	--	--	69.1	1.05	--	107	--	--	--	--	442
	6/20/19	--	--	--	59.1	--	--	--	--	--	--	--	482
Dup	6/20/19	--	--	--	64.4	--	--	--	--	--	--	--	592
	11/23/19	--	--	--	69.4	--	--	95.2	--	--	--	--	384
MW-7	5/14/98	--	--	230	**430**	--	--	340	214.0	66.0	13.00	165.0	**1,200**
	2/14/01	<1.0	150	150	**510**	**1.70**	2.40	150	--	--	--	--	**1,500**
	5/16/02	<1.0	150	150	75.7	1.59	2.27	97.4	68.6	23.2	6.63	54.3	501
	10/22/02	--	--	--	88.6	--	--	109	--	--	--	--	490
	5/22/03	<1.0	140	140	173	1.17	2.14	88.9	85.5	28.2	6.18	64.6	631
	11/26/03	<1.0	136	136	189	1.29	2.23	93.5	95.7	31.0	7.91	63.6	704
	5/13/04	<1.00	130	130	**267**	1.11	2.18	94.7	107.0	34.7	6.59	62.9	914
	11/16/04	<1.00	130	130	**367**	1.49	2.72	97.3	142.0	49.3	8.61	87.9	870
	11/17/05	<10.0	121	121	**456 D1**	0.53	0.28	106 D1	412	64.7	12.1	100	**1,440**
	11/15/06	<10	240	240	**550**	0.63	1.5	110	202	70.3	7.4	102	**2,100**
	11/15/07	<10.0	189	189	**458 D1**	1.2	1.39	176 D1	144	59.5	9.95	148	**1,880**
	11/12/08	<5.0	110	110	**650.00**	0.84	1.2	140	210	76	12	120	**1,600**
	11/4/09	<5.0	110	110	**1100.00**	0.63	1.5	160	310	120	11	130	**2,800**
	11/10/10	<5.0	111	111	**1,310**	0.372	1.64	173	415	149	10	150	**3,130**
	11/10/11	<5.00	106	109	**1,710**	0.296	1.45	147	662	203	12.3	198	**3,660**
	10/11/12	<5.00	108	108	**2,020**	0.439	1.71	261	619	215	12.3	208	**5,580**
	10/8/13	<6.00	142	142	**2,840**	0.445	2.11	331	916	258	13.3	265	**7,530**
	10/7/14	<4.00	116	116	**2,190**	<0.100	2.03	317	682	238	12.2	227	**7,920**
	10/20/15	--	--	--	**1,420**	<20.0	--	231	--	--	--	--	**3,130**
	10/18/16	--	--	--	**2,920**	<0.500	--	385	--	--	--	--	**7,160**
	10/24/17	--	--	--	**1,670**	<2.00	--	249	--	--	--	--	**2,660**
	10/18/18	--	--	--	**4,000**	<0.100	--	482	--	--	--	--	**6,450**
	6/20/19	--	--	--	**4,210**	--	--	--	--	--	--	--	**15,500**
	11/24/19	--	--	--	**2,080**	--	--	272	--	--	--	--	**6,300**
MW-8	5/13/98	--	--	200	**270**	--	--	390	190.0	60.0	12.00	170.0	**1,200**
	2/14/01	<1.0	156	156	49	**1.80**	2.50	100	59.9	21.5	7.84	52.9	400
	5/16/02	<1.0	158	158	32.9	1.57	2.33	101	56.6	19.2	5.20	49.5	432
	10/22/02	--	--	--	40.8	--	--	104	--	--	--	--	392
	5/22/03	8	160	168	33.2	1.40	2.32	98.3	53.9	18.3	9.31	46.4	410
	11/26/03	<1.0	142	142	31.7	1.59	2.38	95.6	55.3	18.2	5.31	50.2	443
	5/12/04	<1.00	154	154	36.3	1.39	2.38	101	53.0	17.3	4.56	48.1	435
	11/16/04	<1.00	170	170	39.8	**1.94**	2.94	103	57.8	18.6	5.63	56.4	435
	5/17/05	4	152	156	41	**1.64**	2.94	105	61.0	18.6	5.78	47.3	434
	11/17/05	<10.0	171	171	113.0	1.1	<0.05	115 D1	83.4	21.7	5.74	102	750
	5/9/06	<10	160	160	210.0	0.89	1.4	200	72.7	33.3	7.12	125	896
	11/14/06	<10	150	150	230.0	1.1	1.2	200	74.2	38.3	9.61	162	912
	5/30/07	<10	141	141	62.0	1.2	1.74	120	54.1	19.1	<5	59.3	500
	11/15/07	<10.0	159	159	43.1	1.33	1.56	94.2 D1	52.1	17.2	<5.000	49.8	540
	5/15/08	<1.53	151	151	40.7	1.4	1.78	99.6 D1	51.7	16.8	4.1	54.8 D1	427
	11/12/08	<5.0	140	140	39	1.4	1.5	97	52	17	<2.6	46	350
	5/20/09	<5.0	140	140	39	1.3	1.6	110	50	17	4.3	49	430
	11/4/09	<5.0	150	150	41	1.4	1.7	110	46	16	3.3	47	450
	5/7/10	<5.0	<5.00	172	34.9	1.09	1.7	97.8	49.5	15.7	3.52	45.5	426
Dup	5/7/10	<5.0	<5.00	157	34.9	1.09	1.71	98	51	14.5	3.21	43.6	466
	11/12/10	<5.0	172	172	38.7	1.1	1.77	98.2	48.9	15.7	3.4	45.4	410
Dup	11/12/10	<5.0	160	160	38.7	1.1	1.76	98.3	50.5	15.3	3.44	44.8	398
	5/11/11	<5.0	170	170	185	1.2	1.6	93	73	28.4	5.68	165	692
	11/10/11	<5.0	161	161	36.9	1.06	1.41	87.4	57.1	17	3.46	48.6	406
	5/17/12	<5.0	173	173	37.9	1.09	1.59	92.9	53.3	16.4	3.83	56.7	440
	10/11/12	<5.0	158	158	39.9	1.29	1.83	103	49	16.6	4.3	49	444
	5/17/13	<5.0	167	167	38.3	1.37	1.7	106	55.3	17.5	3.67	45.9	416
	10/8/13	<6.00	182	182	39.5	1.17	1.78	96.2	57.4	19.7	4.35	57.6	446
	5/1/14	<10.0	165	165	40.6	1.12 J	1.81	106	55.1	19.9	3.82	52.9	436
	10/7/14	<4.00	176	176	8.1	0.159	1.07	30.5	40	4.98	7.81	35.1	259
	5/22/15	--	--	--	10	<2.00	--	30.1	--	--	--	--	252
	10/20/15	--	--	--	8.03	<2.00	--	32.5	--	--	--	--	146
	5/25/16	--	--	--	30.0	0.847	--	88.7	--	--	--	--	434
	10/18/16	--	--	--	4.28	<0.500	--	32.8	--	--	--	--	261
	05/11/17	--	--	--	9.1	<0.0222	--	32.2	--	--	--	--	214
Dup	05/11/17	--	--	--	8.62	<0.0222	--	32.2	--	--	--	--	182
	10/24/17	--	--	--	3.69	0.228	--	18.3	--	--	--	--	286
	05/22/18	--	--	--	5.22	0.317	--	21.9	--	--	--	--	282
	10/18/18	--	--	--	5.41	0.608	--	19.1	--	--	--	--	258
	6/20/19	--	--	--	NS	--	--	--	--	--	--	--	NS
	11/24/19	--	--	--	12.9	--	--	27.6	--	--	--	--	239

Table 2 - Summary of Historical Groundwater Analytical Results
Chevron Environmental Management Company
Cooper Jal Unit South Injection Station (1R-289)
Lea County, NM

ARCADIS Design & Consultancy for natural and built assets

Sample ID	Sample Date	Carbonate Alkalinity	Bicarbonate Alkalinity	Total Alkalinity	Chloride[1]	Fluoride[2]	Nitrate - N[2]	Sulfate[1]	Calcium	Magnesium	Potassium	Sodium	TDS[1]
NMWQCC Groundwater Standard					***250***	***1.6***	**10**	***600***					***1,000***
MW-9	5/14/98	--	--	190	**350**	--	--	470	207.0	61.0	12.00	200.0	**1,300**
	2/15/01	<1.0	156	156	35	**2.60**	2.40	110	60.4	19.8	7.47	47.0	430
	5/16/02	<1.0	160	160	31.7	**2.22**	2.28	99.4	60.8	17.6	5.32	50.1	440
	10/23/02	--	--	--	39	--	--	102	--	--	--	--	436
	5/22/03	<1.0	160	160	31	**1.75**	2.19	93.3	52.2	15.8	4.75	50.2	455
	11/26/03	<1.0	150	150	31.8	**1.99**	2.34	99.8	57.7	16.6	4.69	46.3	452
	5/12/04	<1.00	164	164	33.6	**1.79**	2.29	99.2	54.8	16.0	4.27	43.5	467
	11/16/04	8	154	162	**367**	1.49	2.72	97.3	63.2	17.8	5.59	55.5	433
	5/17/05	4	154	154	44.2	**2.43**	3.05	117	58.8	16.7	5.94	44.1	434
	11/17/05	<10.0	161	161	83.5	1.3	0.14	111 D1	149	26.2	7.43	80.4	790 N
	5/9/06	<10	170	170	37	**1.8**	1.8	99	52.7	15	3.21	45.5	428
	11/15/06	<10	150	150	210	1.1	1.2	190	70.5	35.8	8.64	152	905
	5/30/07	<10	153	153	35	**2.1**	1.69	110	52.2	15.8	<5	44.7	464
	11/14/07	<10.0	151	151	186	1.49	1.48	156 D1	74.1	39.4	8.73	141	808
	5/15/08	<1.53	174	174	42.5	**2.38**	1.72	105 D1	55.6	17	3.99	54.1 D1	467
	11/4/08	<5.0	160	160	39	**2.1**	1.4	98	54	16	3.7	47	440
	5/20/09	<5.0	320	320	69	**2.1**	1.5	120	58	19	4.6	58	520
	11/4/09	<5.0	160	160	42	**2.2**	1.6	110	50	15	3	43	460
	5/7/10	<5.0	<5.00	162	50.2	**2.02**	1.66	97.5	53.6	15.7	3.32	43.5	442
	11/9/10	<5.0	186	186	60.7	**1.97**	1.74	98	59.2	18.1	3.64	50	446
	5/11/11	<5.0	160	160	80.3	**1.71**	1.72	75.7	73.9	25.8	4.61	67.9	518
	11/10/11	<5.00	151	151	138	**1.66**	1.38	107	82.7	26.9	4.34	65.4	582
	5/16/12	<5.00	162	162	137	**1.75**	1.61	93.5	83.8	23.2	4.39	60.3	584
	10/11/12	<5.00	147	147	148	**1.9**	1.71	98.7	80.5	25.8	4.94	59.8	644
	5/17/13	<5.00	144	144	246	**1.86**	1.61	99.3	107	30.2	4.43	60.2	**1,010**
	10/8/13	<6.00	164	164	150	**1.88**	1.81	99.8	90	25.2	4.62	60.8	620
	5/2/14	<10.0	143	143	**382**	1.56	1.77	103	132	35.7	5.74	73.7	906
	10/7/14	<4.00	151	151	**292**	0.887	1.33	98.1	136	41	4.65	67.4	**1,110**
	5/22/15	--	--	--	**307**	<8.00	--	87.7	--	--	--	--	**1,170**
	10/20/15	--	--	--	202	<4.00	--	93.7	--	--	--	--	593
	5/25/16	--	--	--	**404**	**1.61**	--	108	--	--	--	--	**1,430**
Dup	5/26/16	--	--	--	**418**	**1.60**	--	111	--	--	--	--	**1,430**
	10/18/16	--	--	--	**445**	1.34	--	115	--	--	--	--	**1,490**
	05/11/17	--	--	--	**481**	<0.222	--	118	--	--	--	--	**1,090**
	10/24/17	--	--	--	**387**	**2.42**	--	102	--	--	--	--	**1,020**
	05/22/18	--	--	--	**460**	1.28	--	119	--	--	--	--	**1,010**
	10/18/18	--	--	--	**381**	1.41	--	117	--	--	--	--	903
	6/20/19	--	--	--	**621**	--	--	--	--	--	--	--	**2,930**
	11/24/19	--	--	--	**337**	--	--	80.6	--	--	--	--	**1,170**
MW-9A	5/14/98	--	--	280	**600**	--	--	**770**	338.0	96.0	12.00	334.0	**2,200**
	2/15/01	<1.0	142	142	85	1.40	2.20	71	71.6	19.2	6.94	46.0	400
	5/15/02	<1.0	136	136	148	<1.00	2.18	65.3	62.9	16.1	4.62	46.8	445
	10/23/02	--	--	--	168	--	--	75.5	--	--	--	--	651
	5/22/03	<1.0	126	126	207	<1.00	2.09	62.1	102.0	25.2	4.80	55.7	672
	11/26/03	<1.0	118	118	216	1.14	2.26	62.7	107.0	25.1	5.31	53.2	648
	5/12/04	<1.00	122	122	242	<1.00	2.10	64.7	105.0	26.2	5.11	26.2	950
	11/16/04	<1.00	114	114	**296**	1.24	2.74	67.5	130.0	33.1	6.24	70.3	826
	5/17/05	<1.00	112	112	**354**	1.04	2.85	77.1	131.0	31.7	6.39	60.5	828
	11/17/05	<10.0	121	121	**310 D1**	0.82	0.31	74.7 D1	337	41.4	8.08	74.5	**1,520 N**
	5/9/06	<10	670	670	**270**	0.67	1.6	78	111	27.1	3.88	58.7	992
	11/15/06	<10	1,600	1,600	**290**	0.62	1.6	72	126	33.4	4.74	68.4	**1,280**
	5/30/07	<10	586	586	**400**	0.7	1.69	83	153	36.9	<5	71.8	**1,450**
	11/14/07	<10.0	605	605	**285 D1**	0.62	1.52	64.7 D1	153	35.4	5.03	70.7	**1,430**
	5/15/08	<1.53	738	738	**380 D1**	0.45	1.62	86.8 D1	146	35.5	5.45	77.2 D1	**1,390**
	11/4/08	<5.0	370	370	**330**	<1.0	1.2	84	130	32	5.1	66	**1,000**
	5/20/09	<5.0	600	600	**480**	0.49	1.5	86	170	43	6.4	76	**1,600**
	11/4/09	<5.0	110	110	**430**	0.49	1.6	82	160	41	5.3	71	**1,500**
	5/7/10	<5.0	<5.00	121	**510**	0.21	1.62	80.5	188	44.9	4.9	73.6	**1,680**
	11/9/10	<5.0	115	115	**529**	0.328	1.72	86	159	44.3	5	76.1	**1,660**
	5/11/11	<5.0	146	146	**587**	1.18	1.9	415	166	80.6	11.3	211	**1,850**
	11/10/11	<5.0	115	115	**841**	0.189	1.56	125	280	84.8	7.51	117	**2,160**
	5/16/12	<5.0	135	135	**958**	0.366	1.74	143	249	62.6	6.5	97.7	**3,450**
Dup	5/16/12	<5.0	128	128	**882**	0.308	1.7	134	270	65.7	6.72	92.3	**3,050**
	10/11/12	<5.0	125	125	**628**	0.366	1.7	121	235	60.4	6.72	94	**1,810**
	5/17/13	<5.0	137	137	**754**	0.337	1.67	145	224	53.9	5.49	86.8	**1,930**
	10/8/13	<6.00	153	153	**534**	0.37	1.69	118	185	43.1	5.23	81.3	**1,210**
	10/7/14	Not Sampled											
	10/20/2015	--	--	--	232	<4.00	--	95.4	--	--	--	--	599
	10/18/16	--	--	--	**337**	<0.500	--	113	--	--	--	--	**1,250**
	10/24/17	--	--	--	206	<0.500	--	96.6	--	--	--	--	681
	10/18/18	--	--	--	**276**	0.596	--	119	--	--	--	--	816
	06/20/19	--	--	--	**268**	--	--	--	--	--	--	--	**1,220**
	11/24/19	--	--	--	231	--	--	83.2	--	--	--	--	838

Table 2 - Summary of Historical Groundwater Analytical Results
Chevron Environmental Management Company
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Lea County, NM

Sample ID	Sample Date	Carbonate Alkalinity	Bicarbonate Alkalinity	Total Alkalinity	Chloride[1]	Fluoride[2]	Nitrate - N[2]	Sulfate[1]	Calcium	Magnesium	Potassium	Sodium	TDS[1]
NMWQCC Groundwater Standard					***250***	***1.6***	**10**	***600***					***1,000***
MW-10	5/14/98	--	--	240	**360**	--	--	450	211.0	62.0	11.00	190.0	**1,400**
	2/15/01	<1.0	140	140	190	**2.00**	2.30	97	108.0	32.3	8.20	61.0	660
	5/17/02	<1.0	152	152	204	**1.93**	2.19	99.1	109.0	31.7	7.60	62.4	713
	10/22/02	--	--	--	213	--	--	108	--	--	--	--	758
	5/22/03	<1.0	152	152	213	1.45	2.17	96.6	109.0	29.9	8.65	74.2	764
	11/26/03	<1.0	152	152	220	1.54	2.26	103	120.0	35.7	6.96	64.0	752
	5/13/04	<1.00	158	158	232	1.39	2.23	102	114.0	31.6	5.95	57.2	802
	11/17/04	<1.00	170	170	245	**1.73**	2.78	104	121.0	35.7	7.07	70.3	764
	5/17/05	<1.00	150	150	233	**1.77**	2.80	106	113.0	32.3	6.83	60.2	776
	11/17/05	<10.0	151	151	205 D1	1.2	0.26	111 D1	482	47.4	13.1	82.4	970 N
	5/9/06	<10	190	190	180	1.4	1.6	98	93.3	27.1	4.31	60.4	724
	11/16/06	<10	320	320	190	1.2	1.6	92	101	30	4.75	64.1	900
	5/30/07	<10	340	340	200	1.4	1.68	110	101	28.6	<5	62.4	820
	11/15/07	<10.0	189	189	**251 D1**	1.44	1.44	152 D1	104	33.4	6.01	84.7	**1,010**
	5/15/08	<1.53	374	374	**342 D1**	1.47	1.28	257 D1	106	52.9	11.7	165 D1	**1,140**
	11/6/08	<5.0	150	150	210	1.5	1.3	89	110	32	5.4	64	730
	5/20/09	<5.0	240	240	**270**	1.3	1.5	120	110	35	6.2	72	960
	11/4/09	<5.0	150	150	240	1.5	1.3	130	100	35	5.4	78	**1,000**
	5/7/10	<5.0	<5.00	157	236	1.18	1.62	106	111	30.7	4.59	60.3	940
	11/10/10	<5.0	166	166	**280**	1.16	1.61	112	98.4	36.9	5.63	81	812
	5/11/11	<5.0	157	157	**274**	1.11	1.99	87.2	117	32.2	5.63	85	930
	11/15/11	<5.0	150	150	**266**	1.03	6.93	94.9	128	32.3	4.58	62.8	**1,450**
	5/16/12	<5.0	163	163	**284**	1.12	1.58	99.9	132	36.8	5.22	72.9	**1,120**
	10/11/12	<5.0	151	151	**255**	1.32	1.75	98.7	113	34.3	5.68	67.6	**1,010**
	5/17/13	<5.0	154	154	**299**	1.34	1.61	108	117	33.7	4.57	64.6	**1,180**
	10/8/13	<6.00	165	165	**324**	1.14	1.62	103	154	41.6	5.36	78.1	**1,240**
	5/1/14	<10.0	156	156	**298**	**1.05 J**	1.58	111	135	41.6	5.3	75.5	**1,050**
Dup	5/1/14	<10.0	158	158	**301**	<0.100 J	1.66	112	134	42.5	5.29	79.5	**1,080**
	10/7/14	<4.00	163	163	249	0.711	1.64	108	127	36.8	4.91	67.2	**1,050**
	5/22/15	--	--	--	**298**	<8.00	--	102	--	--	--	--	975
	10/20/15	--	--	--	**250**	<4.00	--	108	--	--	--	--	823
	5/25/16	--	--	--	**307**	1.44	--	107	--	--	--	--	**1,080**
	10/18/16	--	--	--	**330**	0.855	--	103	--	--	--	--	**1,350**
	05/11/17	--	--	--	**353**	<0.222	--	112	--	--	--	--	**1,080**
	10/24/17	--	--	--	240	**1.6**	--	97	--	--	--	--	742
	05/22/18	--	--	--	**346**	0.965	--	113	--	--	--	--	**1070**
	10/18/18	--	--	--	**351**	1.1	--	118	--	--	--	--	892
	6/20/19	--	--	--	NS	--	--	--	--	--	--	--	NS
	11/24/19	--	--	--	230.0	--	--	78	--	--	--	--	826
MW-11	1/22/99	30	<1.0	30	46	**2.30**	4.20	94	33.0	7.0	9.10	58.0	370
	2/15/01	<1.0	156	156	37	**2.40**	2.40	120	64.0	19.1	7.83	50.1	360
	5/16/02	<1.0	160	160	31.9	**2.13**	2.33	98.8	63.5	17.2	4.83	47.0	444
	10/23/02	--	--	--	37.2	--	--	102	--	--	--	--	447
	5/22/03	12	154	166	32.3	**1.74**	2.28	96.7	62.3	0.0	4.63	47.6	437
	11/26/03	<1.0	160	160	32.4	**1.83**	2.23	96.4	59.2	16.6	4.67	48.6	448
	5/12/04	<1.00	164	164	34.6	**1.71**	2.38	97.7	54.8	15.7	4.28	46.2	457
	11/16/04	<1.00	160	160	39	**2.17**	2.81	100	65.2	16.8	5.14	54.3	454
	5/17/05	4	158	162	43.1	**1.87**	2.82	94.6	68.4	16.9	6.45	44.0	429
	11/17/05	<10.0	161	161	58.1	1.5	2.1	91.3 D1	75	17.7	4.55	64.7	700 N
	5/9/06	<10	180	180	37	**1.8**	1.7	100	54.1	16.2	3.26	46.9	456
	11/14/06	<10	170	170	34	**1.8**	1.8	110	58	18.2	4.13	53.4	532
	5/30/07	<10	142	142	36	**1.9**	1.79	120	54	16.7	<5	50.8	456
	11/14/07	<10.0	189	189	42.3	**1.98**	1.54	95.6 D1	57.2	17.4	<5.000	52.4	452
	5/15/08	<1.53	177	177	72.4 D1	**1.86**	1.71	141	58	19.4	4.93	66.5 D1	544
	11/4/08	<5.0	170	170	49	1.5	1.3	90	60	16	3.6	47	440
	5/20/09	<5.0	360	360	40	**2.2**	1.7	130	51	17	4.5	53	450
	11/4/09	<5.0	150	150	43	**1.6**	1.6	100	52	15	2.9	42	470
	5/7/10	<5.0	<5.00	167	36.5	**1.97**	1.78	117	49.7	14.9	3.42	44.7	494
	11/9/10	<5.0	269	269	52.5	1.45	1.79	95.4	61	16.7	3.56	50	438
	5/11/11	<5.0	161	161	133	1.43	2.08	140	78.1	37	6.32	103	664
Dup	5/11/11	<5.0	161	161	130	1.44	2.01	137	77.4	37	6.29	104	706
	11/10/11	<5.0	162	162	38.8	**1.86**	1.49	97.1	66.2	17.9	3.62	52.3	420
	5/17/12	<5.0	176	176	45.8	1.29	1.62	88.5	63.6	16.3	3.66	53.4	456
	10/11/12	<5.0	166	166	44.6	1.49	1.74	95.1	55.8	15.8	3.8	49.3	440
	5/17/13	<5.0	171	171	43.6	**1.87**	1.67	106	57.7	14.8	3.18	42.9	428
	10/8/13	<6.00	178	178	45.2	1.55	1.74	95.5	60.9	16.1	3.33	52	450
	5/1/14	<10.0	173	173	63.3	<0.100	2.06	93.3	64.4	17.6	3.38	51.5	434
	10/7/14	<4.00	176	176	34.7	1.1	1.71	101	59.2	16.7	3.06	46.5	399
	5/22/15	--	--	--	40.4	<4.00	--	87.2	--	--	--	--	428
	10/20/15	--	--	--	37.6	<2.00	--	89.3	--	--	--	--	356
	5/25/16	--	--	--	34.3	**1.87**	--	103	--	--	--	--	475
	10/18/16	--	--	--	39.3	0.87	--	96.4	--	--	--	--	418
	05/11/17	--	--	--	35.1	<0.111	--	110	--	--	--	--	416
	10/24/17	--	--	--	35.1	**1.87**	--	95.3	--	--	--	--	438

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Lea County, NM

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Sample ID	Sample Date	Carbonate Alkalinity	Bicarbonate Alkalinity	Total Alkalinity	Chloride[1]	Fluoride[2]	Nitrate - N[2]	Sulfate[1]	Calcium	Magnesium	Potassium	Sodium	TDS[1]
NMWQCC Groundwater Standard					***250***	***1.6***	**10**	***600***					***1,000***
	05/22/18	--	--	--	34.6	1.58	--	110	--	--	--	--	421
Dup	05/22/18	--	--	--	34.5	**1.64**	--	110	--	--	--	--	415
	10/18/18	--	--	--	36.9	**1.69**	--	114	--	--	--	--	413
	06/20/19	--	--	--	34.4	--	--	--	--	--	--	--	407
	11/24/19	--	--	--	45.8	--	--	113	--	--	--	--	364
MW-12*	5/15/02	<1.0	160	160	58.3	1.09	2.44	91.3	53.5	15.9	5.52	50.3	462
	10/23/02	--	--	--	65	--	--	102	--	--	--	--	477
	5/22/03	<1.0	148	148	91.1	1.04	2.30	87.7	74.2	21.0	4.89	57.6	516
	11/25/03	<1.0	142	142	93.1	1.18	2.36	90.9	74.7	20.9	5.41	52.5	548
	5/12/04	<1.00	458	458	72.9	1.04	2.35	86.7	58.1	19.0	5.92	51.8	489
	11/15/04	<1.00	184	184	79.8	1.39	2.83	88.8	59.7	21.5	16.50	77.4	512
	11/17/05	<10.0	151	151	109	0.93	0.12	94.6 D1	193	26.6	13.4	87.5	700
	11/16/06	<10	270	270	120	0.71	1.7	84	82.3	27	4.82	62.2	620
	11/16/07	<10.0	170	170	**258**	1.21	1.55	191 D1	77.2	42.7	11	154	**1270**
	11/6/08	<5.0	130	130	110	0.89	1.4	79	61	20	4.5	52	460
	11/3/09	<25	2,000	2,000	120	0.87	1.6	98	68	24	6	79	600
	11/9/10	<5.0	144	144	211	0.566	1.76	89.8	75.6	27.8	4.6	60.6	712
	11/10/11	<5.00	134	134	179	0.464	1.37	92.8	93.8	27.8	4.53	64	594
	10/11/12	<5.00	145	145	179	0.705	0.791	86.5	80.4	25.4	5.44	62.9	724
	10/8/13	<6.00	160	160	246	0.621	1.64	84.5	110	30.4	4.92	67.8	944
	10/7/14	<4.00	145	145	200	0.292	1.7	86.8	93.1	29.3	5.06	65	765
	10/21/15	--	--	--	165	<4.00	--	72.6	--	--	--	--	487
	10/18/16	--	--	--	**270**	<0.500	--	95.0	--	--	--	--	888
	10/24/17	--	--	--	150	<0.500	--	64.9	--	--	--	--	579
Dup	10/24/17	--	--	--	149	<0.500	--	64.8	--	--	--	--	565
	10/18/18	--	--	--	**290**	0.738	--	106	--	--	--	--	790
	06/20/19	--	--	--	**254**	--	--	--	--	--	--	--	580
	11/23/19	--	--	--	**337**	--	--	140	--	--	--	--	**1010**
MW-13*	5/13/02	<1.0	100	100	**517**	<1.00	1.61	437	116.0	76.0	19.40	269.0	**1,596**
	10/23/02	--	--	--	**549**	--	--	370	--	--	--	--	**1,740**
	5/22/03	<1.0	186	186	**944**	<2.00	2.33	361	289.0	101.0	15.30	458.0	**3,060**
	11/25/03	<1.0	226	226	**1,460**	<2.00	2.22	372	369.0	117.0	20.00	478.0	**3,445**
	5/12/04	<1.00	234	234	**1,550**	<4.00	4.58	369	384.0	114.0	18.60	485.0	**4,240**
	11/15/04	<1.00	226	226	**1,870**	<2.00	4.92	384	510.0	164.0	16.50	627.0	**3,600**
	11/17/05	<10.0	201	201	**722**	1	2.5	206 D1	786	91.6	19.7	276	**2,350**
	11/16/06	<10	1,500	1,500	**2,000**	<0.50 N	2.7	500 N	529	176	14.2	493	**5,060**
	11/16/07	<10.0	236	236	**2,000**	0.33	3.05 D1	312 D1	361	105	11.4	553 D1	**6,320**
	11/6/08	<5.0	180	180	**970**	0.98	1.8	280	240	96	17	370	**2,400**
	11/3/09	<25	15,000	15,000	**2,200**	<0.50	2.6	440	490	180	22	490	**5,600**
	11/9/10	<5.0	267	267	**1,680**	0.217	2.82	405	400	120	10.4	540	**4,270**
	11/10/11	<5.00	206	206	**2,110**	0.177	<0.500	273	690	223	13.2	472	**4,870**
	10/11/12	<5.00	204	204	**2,360**	0.307	2.7	422	706	228	14.4	423	**6,290**
	10/8/13	<6.00	1780	1780	**2,710**	0.303	2.59	448	768	225	14	457	**7,320**
	10/7/14	<4.00	267	267	**1,430**	<0.100	1.91	379	355	109	11.3	612	**3,940**
	10/21/15	--	--	--	**1,400**	<40.0	--	353	--	--	--	--	**3,260**
	10/18/16	--	--	--	**1,940**	<0.500	--	440	--	--	--	--	**5,310**
	Well Plugged and Abandoned on 7/11/2017												
MW-14	10/8/13	<6.00	267	267	162	**3.69**	<0.100	127	74.4	32.3	8.42	145	854
Dup	10/8/13	<6.00	271	271	166	**3.74**	<0.100	130	60.7	26.3	7.97	145	848
	5/1/14	<10.0	199	199	64	1.19 J	<0.100	84.9	60.8	21.7	3.82	59.8	468
	10/7/14	<4.00	227	2227	95.2	0.794	<0.0230	22.9	71.3	24.9	3.99	61.8	460
Dup	10/7/14	<4.00	194	194	55.7	1.36	<0.0230	88.8	59.3	19.1	3.21	49.5	490
	5/22/15	--	--	--	77.8	<4.00	--	45.4	--	--	--	--	468
Dup	5/22/15	--	--	--	77.4	<4.00	--	49.0	--	--	--	--	470
	10/20/15	--	--	--	29.1 J	<2.00	--	53.5 J	--	--	--	--	294
Dup	10/21/15	--	--	--	58.9 J	<2.00	--	101 J	--	--	--	--	407
	5/25/16	--	--	--	79.0	1.37	--	19.9	--	--	--	--	552
	10/18/16	--	--	--	51.8	1.07	--	104	--	--	--	--	422
Dup	10/18/16	--	--	--	61.2	1.25	--	108 J	--	--	--	--	459
	05/11/17	--	--	--	70.5	<0.111	--	17.7	--	--	--	--	412
	10/24/17	--	--	--	57.4	**1.77**	--	42.2	--	--	--	--	423
	05/22/18	--	--	--	54.9	1.2	--	47.8	--	--	--	--	390
	10/18/18	--	--	--	57.2	1.35	--	47.2	--	--	--	--	401
	06/20/19	--	--	--	42.1	--	--	--	--	--	--	--	481
	11/24/19	--	--	--	37.1	--	--	94.5	--	--	--	--	328
Dup	11/24/19	--	--	--	40.4	--	--	95.9	--	--	--	--	324

Table 2 - Summary of Historical Groundwater Analytical Results
Chevron Environmental Management Company
Cooper Jal Unit South Injection Station (1R-289)
Lea County, NM

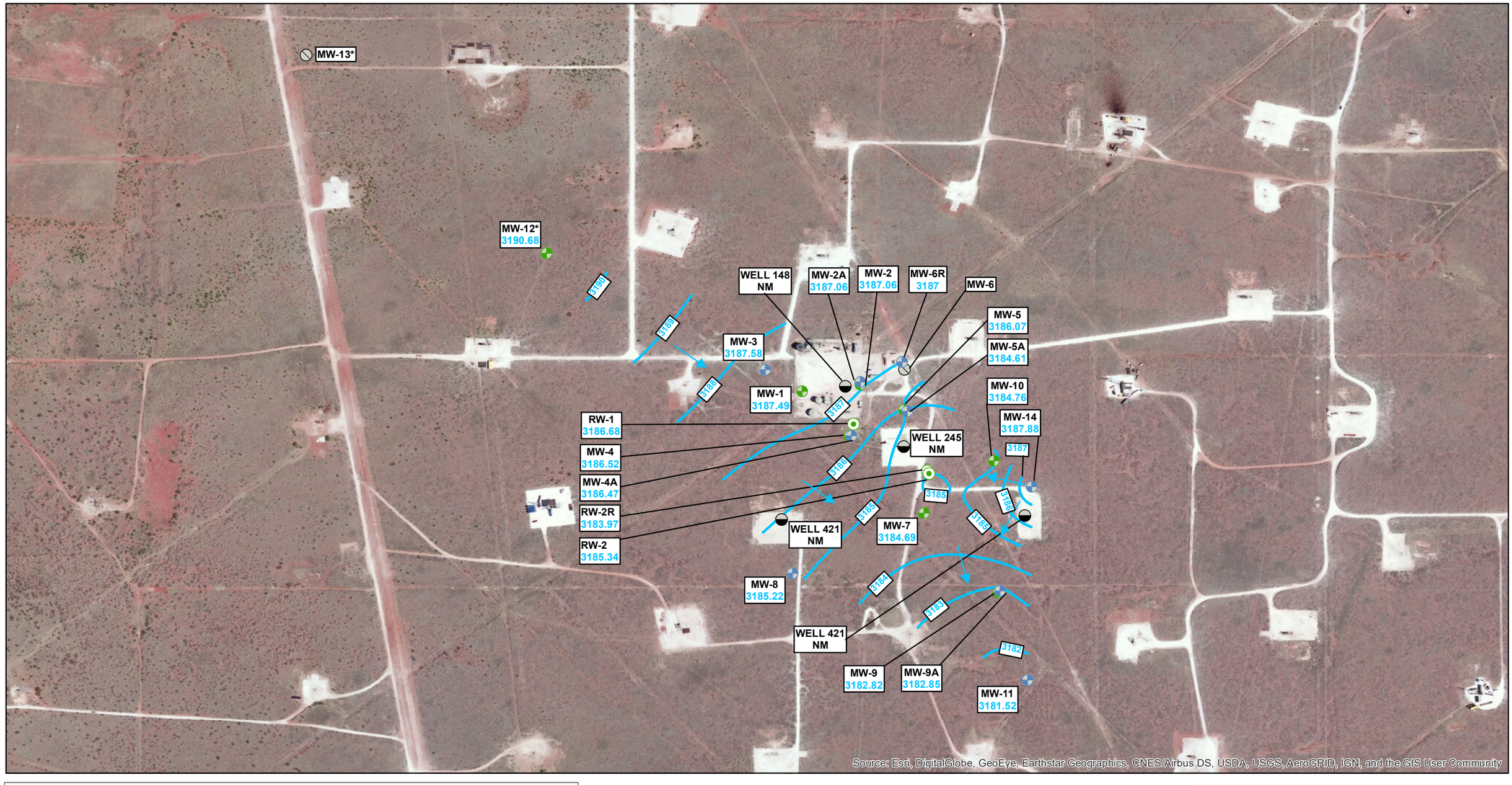
Sample ID	Sample Date	Carbonate Alkalinity	Bicarbonate Alkalinity	Total Alkalinity	Chloride[1]	Fluoride[2]	Nitrate - N[2]	Sulfate[1]	Calcium	Magnesium	Potassium	Sodium	TDS[1]
NMWQCC Groundwater Standard					***250***	***1.6***	**10**	***600***					***1,000***
RW-1	5/27/99	0	224	224	**8,700**	**2.70**	7.00	**840**	679.0	521.0	34.00	3,290	**14,000**
	5/22/03	<1.0	190	190	**2,410**	**2.46**	4.23	345	162.0	145.0	25.40	1,180.0	**5,260**
	11/26/03	<1.0	184	184	**1,990**	<4.00	**20.00**	324	199.0	147.0	38.60	1,080.0	**5,050**
	5/11/04	<1.00	148	148	**491**	1.32	2.65	109	66.3	23.4	11.20	252.0	**1,224**
	11/17/04	<1.00	160	160	**633**	**1.65**	3.23	121	89.7	43.5	18.00	382.0	**1,314**
	11/17/05	<10.0	221	221	**895**	1	1.4	166 D1	122	70.9	8.4	493	**2,380**
	11/16/06	<10	380	380	**11,000**	<0.50	<20 HC	**1,100**	539	694	43.3	5,580	**22,000**
	11/15/07	<10.0	359	359	**2,380**	1.26	3.74 D1	252 D1	141	137	16	1,100 D1	**5,280**
Dup	11/15/07	<10.0	208	208	**2,620**	1.24	3.85 D1	316 D1	136	133	15.5	1,040 D1	**5,360**
	11/12/08	<5.0	210	210	**370**	0.82	1.9	97	66	34	5	190	920
	11/4/09	<5.0	170	170	**1,700**	1.1	2.6	250	110	120	22	750	**3,800**
	11/11/10	<5.0	192	192	**1,340**	0.716	2.72	204	95.5	104	12.6	792	**2,830**
	11/10/11	<5.00	396	396	**14,000**	**3.32**	9.16	**1,540**	942	1,260	44.6	8,720	**32,200**
	10/11/12	<5.00	263	263	**6,530**	**2.19**	4.75	**625**	314	445	28	3,490	**10,100**
Dup	10/11/12	<5.00	286	286	**2,440**	0.308	1.23	194	128	156	18.6	1,260	**17000****
	10/8/13	<6.00	285	285	**6,050**	0.951	4.29	546	760	919	39	6,370	**11,200**
Dup	10/8/13	<6.00	216	216	**10,500**	1.270	5.98	**926**	490	581	31.4	4,170	**1870****
	10/7/14	<4.00	207	207	**2,240**	1.360	3.62	338	69.6	106	24	1,130	**2,760**
Dup	10/7/14	<4.00	192	192	**2,570**	**2.510**	3.7	363	82	125	26.8	1,350	**1970****
	10/21/15	--	--	--	**9,110**	<80.0	--	**953 J**	--	--	--	--	**15,300**
Dup	10/20/15	--	--	--	**10,200**	<200	--	**1120 J**	--	--	--	--	**21,600**
	12/15/15	--	--	--	**1,130**	--	--	--	--	--	--	--	**2,290**
	12/16/15	--	--	--	**1,190**	--	--	--	--	--	--	--	**2,580**
	12/17/15	--	--	--	**1,030**	--	--	--	--	--	--	--	**2,260**
	12/18/15	--	--	--	**988**	--	--	--	--	--	--	--	**2,350**
	1/4/16	--	--	--	**1,200**	--	--	--	--	--	--	--	**2,280**
	1/5/16	--	--	--	**1,080**	--	--	--	--	--	--	--	**2,190**
	1/6/16	--	--	--	**1,120**	--	--	--	--	--	--	--	**2,240**
	1/7/16	--	--	--	**1,080**	--	--	--	--	--	--	--	**2,200**
	1/8/16	--	--	--	**1,310**	--	--	--	--	--	--	--	**2,370**
	1/11/16	--	--	--	**1,030**	--	--	--	--	--	--	--	**2,210**
	1/12/16	--	--	--	**1,520**	--	--	--	--	--	--	--	**2,850**
	10/18/16	--	--	--	**277**	<0.500	--	87.5	--	--	--	--	715
Dup	10/18/16	--	--	--	**316**	<0.500	--	88.9 J	--	--	--	--	922
	10/25/17	--	--	--	**254**	1.02	--	75.5	--	--	--	--	**2,040**
	10/16/18***	--	--	--	**304**	0.612	--	93.4	--	--	--	--	757
	10/18/18	--	--	--	**7,870**	<0.100	--	**807**	--	--	--	--	**15,400**
Dup	10/18/18	--	--	--	**7,830**	<0.100	--	**873**	--	--	--	--	**12,700**
	6/20/19	--	--	--	**9,290**	--	--	--	--	--	--	--	**22,100**
Dup	6/20/19	--	--	--	**9,200**	--	--	--	--	--	--	--	**22,800**
	11/24/19	--	--	--	**5,780**	--	--	**722**	--	--	--	--	**12,200**
RW-2	5/22/03	324	<4.00	780	**1,580**	<2.00	2.43	23.9	1,060.0	<0.500	20.20	258.0	**4,310**
	11/26/03	64	<4.00	704	**1,480**	<5.00	5.81	38.3	988.0	<0.500	23.80	240.0	**3,535**
	11/17/04	104.0	<4.00	692	**2,280**	<10.0	<10.0	116	1180.0	<0.500	18.50	415.0	**3,915**
	11/17/05	281	<10.0	422	**1,770**	0.89	0.6	175 D1	861	16.6	13.1	361	**7,350**
	11/16/06	49	150	199	**2,500**	0.57	1.9	370	978	48.8	18	437	**5,270**
	11/15/07	170	37.8	208	**1,680**	0.49	1.52	166 D1	586	<5.000	11.2	245	**5,590**
	11/12/08	150	<5.0	390	**2,500**	<0.50	0.24	250	1,200	<0.38	6	400	**4,800**
	11/4/09	34	<5.0	220	**2,200**	<0.50	1.7	240	940	0.18	16	420	**6,300**
	11/11/10	113	<5.0	172	**2,100**	<0.50	2.03	233	967	4.06	8.86	426	**4,550**
	11/10/11	36.9	<5.00	384	**4,330**	<10.0	2.13	305	2,040	1.12	18.7	711	**8,300**
	10/11/12	27.1	<5.00	202	**1,920**	<0.50	1.93	223	842	0.464	9.3	385	**6,680**
Dup	10/11/12	31.9	<5.00	206	**2,310**	<0.50	1.98	228	1,090	2.42	10.5	430	**5,250**
	10/8/13	66.3	<6.00	117	**2,450**	0.14	2.36	309	1,570	2.15	15.3	639	**4,420**
	10/7/14	35.2	<4.00	35.2	**2,250**	<0.10	2.52	378	995	21.6	10.3	408	**3,090**
	10/20/15	--	--	--	**699**	<20.0	--	118	--	--	--	--	**2,190**
	12/15/15	--	--	--	**1,130**	--	--	--	--	--	--	--	**2,290**
	12/16/15	--	--	--	**1,190**	--	--	--	--	--	--	--	**2,580**
	12/17/15	--	--	--	**1,030**	--	--	--	--	--	--	--	**2,260**
	12/18/15	--	--	--	**988**	--	--	--	--	--	--	--	**2,350**
	1/4/16	--	--	--	**1,200**	--	--	--	--	--	--	--	**2,280**
	1/5/16	--	--	--	**1,080**	--	--	--	--	--	--	--	**2,190**
	1/6/16	--	--	--	**1,120**	--	--	--	--	--	--	--	**2,240**
	1/7/16	--	--	--	**1,080**	--	--	--	--	--	--	--	**2,200**
	1/8/16	--	--	--	**1,310**	--	--	--	--	--	--	--	**2,370**
	1/11/16	--	--	--	**1,030**	--	--	--	--	--	--	--	**2,210**
	1/12/16	--	--	--	**1,520**	--	--	--	--	--	--	--	**2,850**
	10/18/16	--	--	--	**1,450**	<0.500	--	270	--	--	--	--	**3,910**
	10/25/17	--	--	--	**1,760**	<5.00	--	288	--	--	--	--	**4,440**
	10/18/18	--	--	--	**3,640**	<0.100	--	534	--	--	--	--	**6,890**
	6/20/19	--	--	--	**3,180**	--	--	--	--	--	--	--	**10,200 H**
	11/24/19	--	--	--	**5,780**	--	--	464	--	--	--	--	**9,880**

Table 2 - Summary of Historical Groundwater Analytical Results
Chevron Environmental Management Company
Cooper Jal Unit South Injection Station (1R-289)
Lea County, NM

Sample ID	Sample Date	Carbonate Alkalinity	Bicarbonate Alkalinity	Total Alkalinity	Chloride[1]	Fluoride[2]	Nitrate - N[2]	Sulfate[1]	Calcium	Magnesium	Potassium	Sodium	TDS[1]
NMWQCC Groundwater Standard					***250***	***1.6***	**10**	***600***					***1,000***
RW-2R	10/8/13	<6.00	146	146	**6,550**	0.452	1.79	**762**	1,850	616	25.5	1350	**14,600**
	10/7/14	<4.00	169	169	**5,400**	1.56	2.17	**707**	1,280	470	20.9	1170	**13,200**
	10/20/15	--	--	--	**5,990**	<80.0	--	**806**	--	--	--	--	**16,200**
	10/18/16	--	--	--	**6,390**	<0.500	--	**797**	--	--	--	--	**15,200**
	10/25/17	--	--	--	**7,030**	<5.00	--	**872**	--	--	--	--	**12,300**
	10/16/18***	--	--	--	**1,960**	<0.100	--	467	--	--	--	--	**3,380**
	10/18/18	--	--	--	**7,920**	<0.100	--	**891**	--	--	--	--	**13,700**
Dup	10/18/18	--	--	--	**8,060**	<0.100	--	**815**	--	--	--	--	**13,300**
	6/20/19	--	--	--	**7,860**	--	--	--	--	--	--	--	**29,400**
	11/24/19	--	--	--	**7,720**	--	--	**943**	--	--	--	--	**21,000**

Notes:
1. Bold value indicates a laboratory detection.
2. Shaded cells indicate New Mexico Water Quality Control Commission (NMWQCC) exceedance.
3. Results shown in mg/L.
4. NS - Not Sampled
5. D1 - The analysis was performed at a dilution due to the high analyte concentration.
6. H - The analysis was performed past holding time.
7. C - Elevated detection limit due to matrix effect.
8. J - Estimated Concentration
9. < - Analyte detected below quantitation limit
10. [1] Human Health Standards for Groundwater.
11. [2] Other Standards for Domestic Water Supply.
12. * - Indicates groundwater monitor well installed off-Site and upgradient of plume.
13. ** - Reported TDS concentration includes a low bias. Not used in trend comparison.
14. *** - Indicates groundwater monitor well that was sampled prior to semiannual groundwater event via low-flow purge for internal use.

FIGURES



Legend

- Monitoring Well Location
- Monitoring Well Location to be Sampled During Reduced Event
- Recovery Well Location to be Sampled During Reduced Event
- Recovery Well
- Cooper Jal Oil Well
- Plugged & Abandoned Monitoring Well
- 3184 — Potentiometric Contour and Elevation
- 3182.82 — Groundwater Elevation (ft above mean sea level)
- Approximate Groundwater Flow

Notes:
1. Datum: D_WGS_1984
2. Cooper Jal Oil Wells were not guaged
3. Site Location: 32.19891, -103.21523
4. NM: Not Measured
5. * - Indicates groundwater monitor well installed off-Site and upgradient of plume.
6. Monitoring Wells Highlighted Green are Proposed to be Sampled During Reduced Sampling Event (One Semi-annual Event)

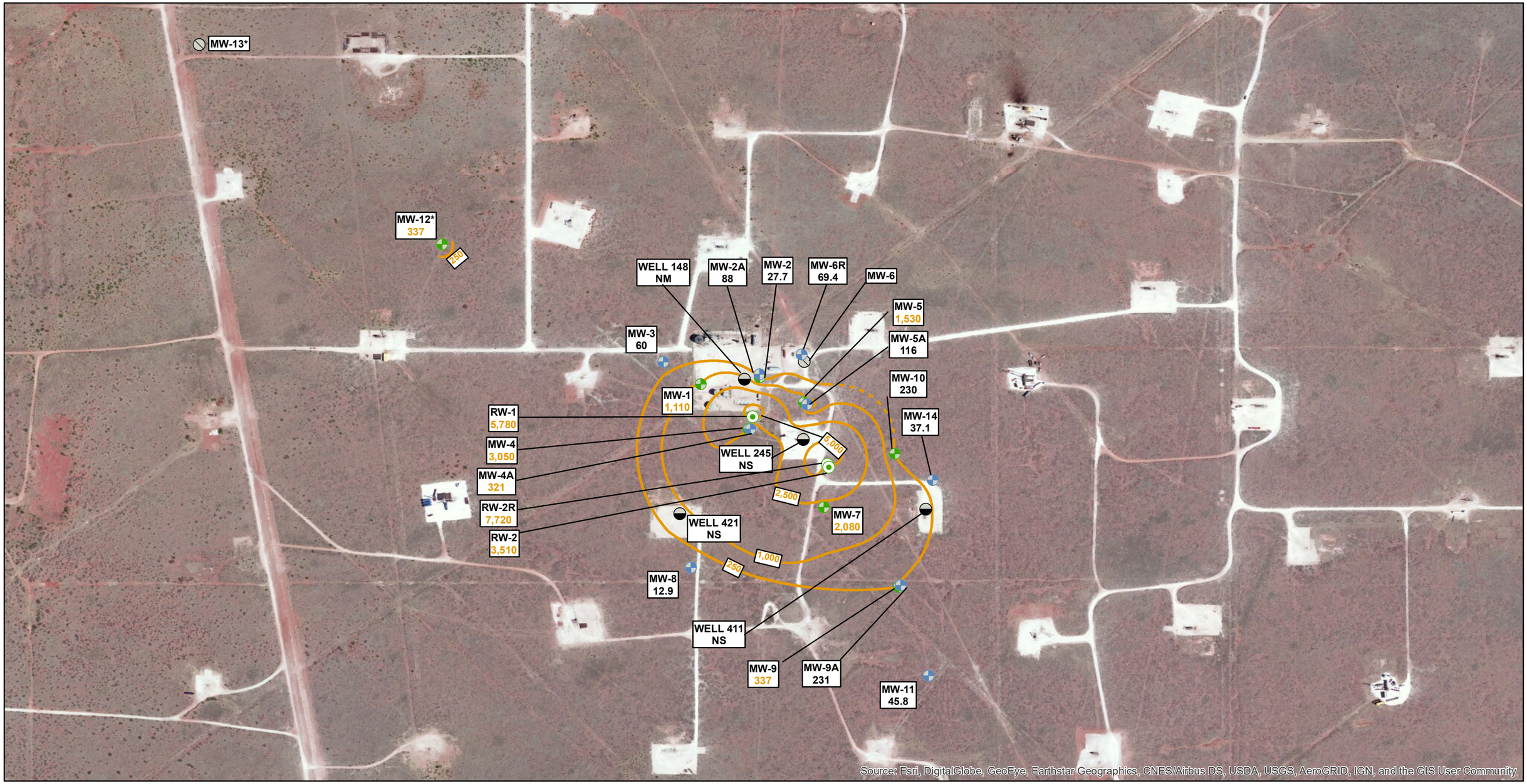
Chevron Environmental Management Company
Cooper-Jal Unit South Injection Site
Lea County, New Mexico

2020 REDUCED SAMPLING PLAN POTENTIOMETRIC SURFACE MAP NOVEMBER 2019

ARCADIS

FIGURE 1

Document Path: \\arcadis-us\officedata\Houston-TX\ENV\Chevron\Texaco TX8\HES Transfer\04 Field Investigations\2019\6 - Annual GWMR\Cooper Jal\GIS - Cooper Jal\Figure 3 GW Map Combined 01.07.2020



Legend

- Monitoring Well Location
- Monitoring Well Location to be Sampled During Reduced Event
- Recovery Well Location to be Sampled During Reduced Event
- Recovery Well
- Cooper Jal Oil Well
- Plugged & Abandoned Monitoring Well
- 250 — Chloride Isoconcentration Contour
- 118 — Chloride Concentration in milligrams per liter (mg/L)
- 268 — Chloride Concentration (mg/L) Exceeds NMWQCC Other Standards for Domestic Water Supply

Notes:
1. Datum: D_WGS_1984
2. Cooper Jal Oil Wells were not guaged
3. Site Location: 32.19891, -103.21523
4. NS: Not Sampled
5. * - Indicates groundwater monitor well installed off-Site and upgradient of plume.
6. Monitoring Wells Highlighted Green are Proposed to be Sampled During Reduced Sampling Event

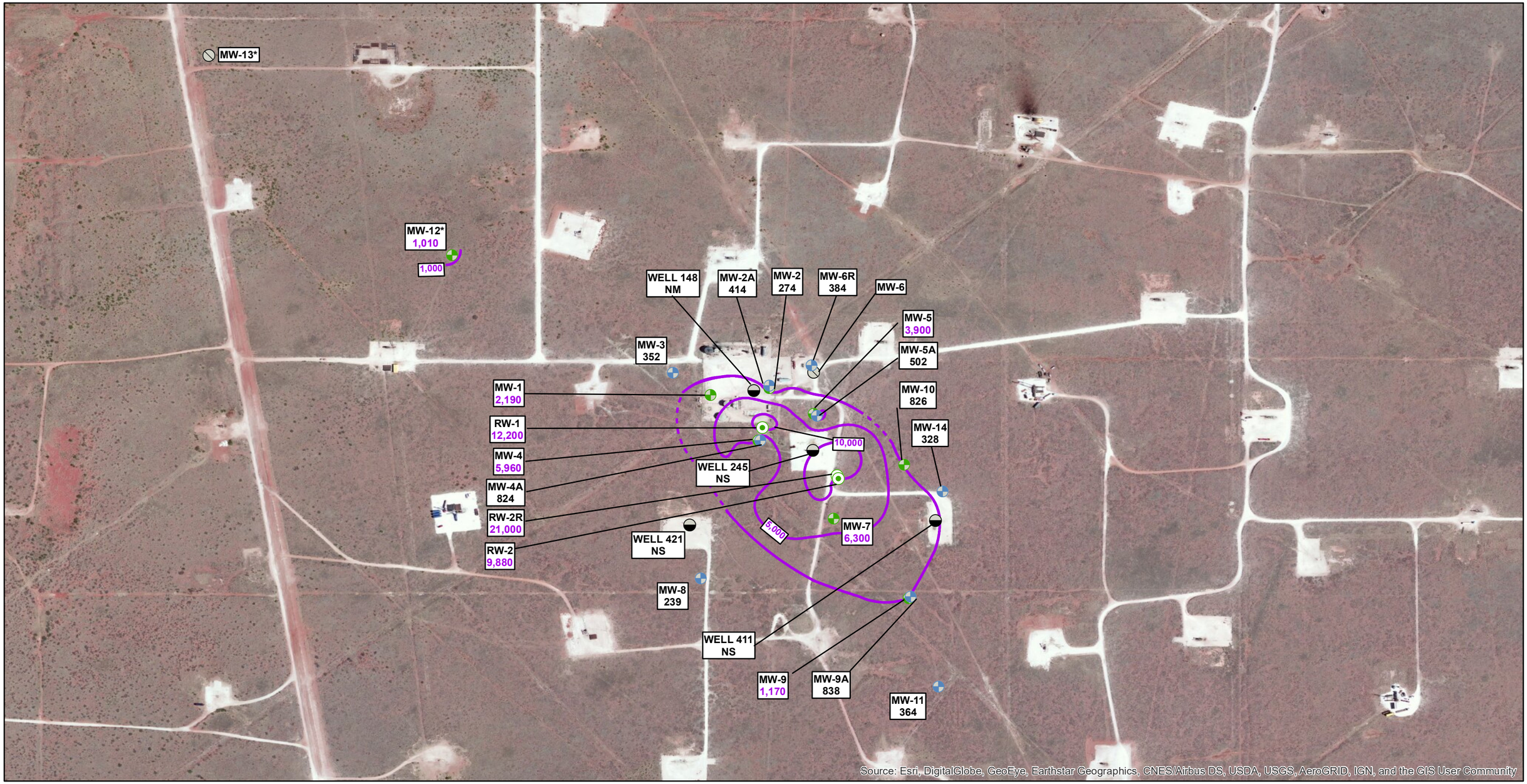
Chevron Environmental Management Company
Cooper-Jal Unit South Injection Site
Lea County, New Mexico

2020 REDUCED SAMPLING PLAN
CHLORIDE ISOCONCENTRATION MAP
NOVEMBER 2019

ARCADIS

FIGURE
2

Document Path: \\arcadis-us\officedata\Houston-TX\ENV\Chevron Texaco TX8\HES Transfer\04 Field Investigations\2019\6 - Annual GWMR\Cooper Jal\GIS - Cooper Jal\Figure 4 Chloride Map Combined 01.08.2020



Legend

- Monitoring Well Location
- Monitoring Well Location to be Sampled During Reduced Event
- Recovery Well Location to be Sampled During Reduced Event
- Recovery Well
- Cooper Jal Oil Well
- Plugged & Abandoned Monitoring Well
- 1,000 — Total Dissolved Solids (TDS) Isoconcentration Contour
- 407 — TDS Concentration in milligrams per liter (mg/L)
- 1,040 — TDS Concentration (mg/L) Exceeds NMWQCC Other Standards for Domestic Water Supply

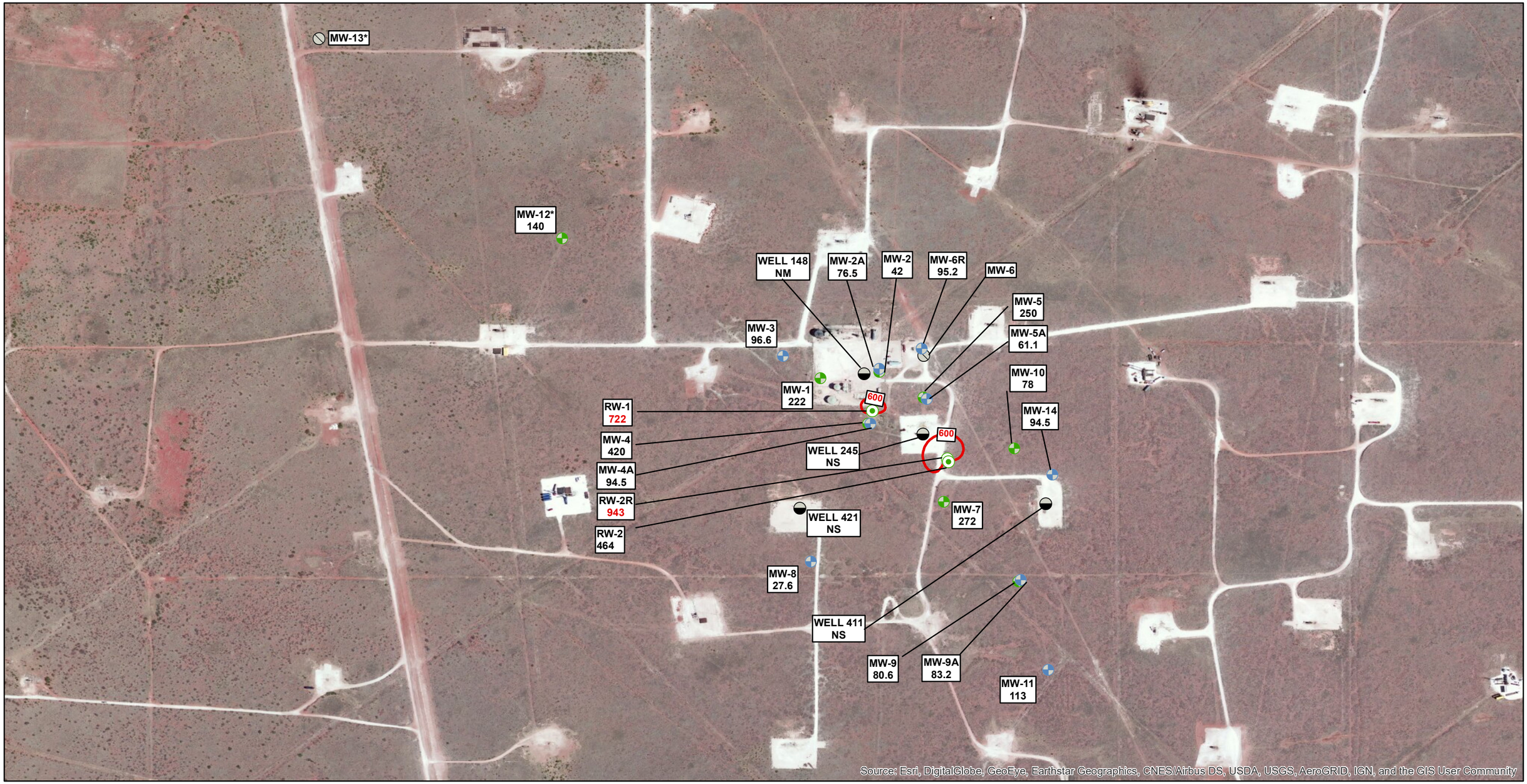
Notes:
1. Datum: D_WGS_1984
2. Cooper Jal Oil Wells were not guaged
3. Site Location: 32.19891, -103.21523
4. NS: Not Sampled
5. * - Indicates groundwater monitor well installed off-Site and upgradient of plume.
6. Monitoring Wells Highlighted Green are Proposed to be Sampled During Reduced Sampling Event

Chevron Environmental Management Company
Cooper-Jal Unit South Injection Site
Lea County, New Mexico

2020 REDUCED SAMPLING PLAN
TDS ISOCONCENTRATION MAP
NOVEMBER 2019

ARCADIS

FIGURE
3



Legend

- Monitoring Well Location
- Monitoring Well Location to be Sampled During Reduced Event
- Recovery Well Location to be Sampled During Reduced Event
- Recovery Well
- Cooper Jal Oil Well
- Plugged & Abandoned Monitoring Well

600 — Sulfate Isoconcentration Contour

464 — Sulfate Concentration in milligrams per liter (mg/L)

722 — Sulfate Concentration (mg/L) Exceeds NMWQCC Other Standards for Domestic Water Supply

Notes:
1. Datum: D_WGS_1984
2. Cooper Jal Oil Wells were not guaged
3. Site Location: 32.19891, -103.21523
4. * - Indicates groundwater monitor well installed off-Site and upgradient of plume.
5. Monitoring Wells Highlighted Green are Proposed to be Sampled During Reduced Sampling Event

Chevron Environmental Management Company
Cooper-Jal Unit South Injection Site
Lea County, New Mexico

2020 REDUCED SAMPLING PLAN SULFATE ISOCONCENTRATION MAP NOVEMBER 2019

ARCADIS

FIGURE 4

Document Path: \\arcadis-us\\officedata\Houston-TX\ENV\Chevron Texaco TX8\HES Transfer\04 Field Investigations\2019\6 - Annual GWMR\Cooper Jal\GIS - Cooper Jal\Figure 6 Sulfate Map Combined 01.08.2020

APPENDIX C

2023 Revised Sample Analysis Plan with NMOCD approval email

ARCADIS

First Semi-Annual Monitoring Event						Second Semi-Annual Monitoring Event					
Monitoring Well ID	Gauge Depth to Groundwater and Total Depth	Collect Conductivity Level every two (2) feet	Total Dissolved Solids by State Method 2540C	Inorganic Anions by USEPA Method 300		Gauge Depth to Groundwater and Total Depth	Collect Conductivity Level every two (2) feet	Total Dissolved Solids by State Method 2540C	Inorganic Anions by USEPA Method 300		Rationale for Reduction
				Chloride	Sulfate				Chloride	Sulfate	
MW-1	X	X	X	X	--	X	--	X	X	--	
MW-2	X	X	X	X	--	X	--	X	X	--	
MW-2A	X	X	X	X	--	X	--	--	--	--	Stable Trend
MW-3	X	X	X	X	--	X	--	--	--	--	Stable Trend
MW-4	X	X	X	X	--	X	--	X	X	--	
MW-4A	X	X	X	X	X	X	--	--	--	--	Stable Trend
MW-5	X	X	X	X	--	X	--	X	X	--	
MW-5A	X	X	X	X	--	X	--	--	--	--	Stable Trend
MW-6R	X	X	X	X	--	X	--	--	--	--	Stable Trend
MW-7	X	X	X	X	--	X	--	X	X	--	
MW-8	X	X	X	X	--	X	--	--	--	--	Stable Trend
MW-9	X	X	X	X	--	X	--	X	X	--	
MW-9A	X	X	X	X	--	X	--	--	--	--	Stable Trend
MW-10	X	X	X	X	--	X	--	X	X	--	
MW-11	X	X	X	X	--	X	--	--	--	--	Stable Trend
MW-12	X	X	X	X	--	X	--	X	X	--	
MW-14	X	X	X	X	--	X	--	--	--	--	Stable Trend
RW-1	X	X	X	X	--	X	--	X	X	--	
RW-2	X	X	X	X	--	X	--	X	X	--	
RW-2R	X	X	X	X	X	X	--	X	X	--	

Notes:
USEPA = United States Environmental Protection Agency
X = Data will be collected at monitoring well during respective event.
-- = Data will not be collected at monitoring well during semi-annual event

Grant, Russell

From: Velez, Nelson, EMNRD <Nelson.Velez@emnrd.nm.gov>
Sent: Friday, February 17, 2023 8:43 AM
To: Grant, Russell
Cc: Velez Gonzalez, Lydia
Subject: RE: [EXTERNAL] FW: The Oil Conservation Division (OCD) has approved the application, Application ID: 9290

Good morning Russell,

Thanks for your inquiries. The following addresses the request clarifications noted below;

Bullet #2 response: Both
Bullet #4 response: Annual sampling, so only once a yr.

Chevron may sample monitor wells more frequently if they choose to do so.

If you have any further questions, please reach out at your convenience.

Regards,

Nelson Velez ● Environmental Specialist - Adv
Environmental Bureau | EMNRD - Oil Conservation Division
1000 Rio Brazos Road | Aztec, NM 87410
(505) 469-6146 | nelson.velez@emnrd.nm.gov
http://www.emnrd.state.nm.us/OCD/

From: Grant, Russell <Russell.Grant@arcadis.com>
Sent: Thursday, February 16, 2023 2:03 PM
To: Velez, Nelson, EMNRD <Nelson.Velez@emnrd.nm.gov>
Cc: Velez Gonzalez, Lydia <Lydia.VelezGonzalez@arcadis.com>
Subject: [EXTERNAL] FW: The Oil Conservation Division (OCD) has approved the application, Application ID: 9290

Hello Nelson-

In review of the comments provided for the Cooper Jal Proposed Groundwater Monitoring Reduction Work Plan, I have a few questions to ensure we amend our sampling analysis plan correctly.

1. Understood – Sulfate analysis will be collected from MW-4A and RW-2R, during first semi-annual event.

2. **Request clarification** – Is the OCD approving the termination of future sampling from; **MW-2A, MW-3, MW-5A, MW-6R, MW-8, and MW-14;** from both semi-annual monitoring events, or only the second semi-annual monitoring event?
3. Understood – MW-11 will only be sampled during the first semi-annual monitoring event.
4. **Request clarification** – Arcadis understands that monitoring and recovery wells with COCs concentrations above NMWQCC exceedance standards for Chloride and TDS will be sampled during both site groundwater monitoring events. Arcadis would appreciate the OCD's confirmation of this understanding.

Thank you,

Russell Grant PMP
Project Manager
Arcadis U.S., Inc.
10205 Westheimer Road, Suite 800| Houston, TX | 77042 | USA
T +1 432 217 2064
M +1 432 214 1542
www.arcadis.com

ARCADIS

From: Johnson, Sarah <Sarah.Johnson@arcadis.com>
Sent: Monday, February 13, 2023 11:39 AM
To: Foord, Scott <William.Foord@arcadis.com>; Jordan, Morgan <Douglas.Jordan@arcadis.com>
Cc: Grant, Russell <Russell.Grant@arcadis.com>
Subject: RE: The Oil Conservation Division (OCD) has approved the application, Application ID: 9290

Cooper Jal actually

From: Foord, Scott <William.Foord@arcadis.com>
Sent: Monday, February 13, 2023 11:36 AM
To: Johnson, Sarah <Sarah.Johnson@arcadis.com>; Jordan, Morgan <Douglas.Jordan@arcadis.com>
Subject: FW: The Oil Conservation Division (OCD) has approved the application, Application ID: 9290

Which one is this? F-State maybe?

Thanks,
Scott
Direct 713-953-4853
Cell 281-725-7477

From: OCDOnline@state.nm.us <OCDOnline@state.nm.us>
Sent: Monday, February 13, 2023 11:26 AM
To: Foord, Scott <William.Foord@arcadis.com>
Subject: The Oil Conservation Division (OCD) has approved the application, Application ID: 9290

To whom it may concern (c/o William Foord for Arcadis U.S., Inc),

The OCD has approved the submitted *Application for administrative approval of a release notification and corrective action* (C-141), for incident ID (n#) nAUTOfAB000105,
with the following conditions:

- **Review of Proposed Groundwater Monitoring Reduction Workplan: Content satisfactory 1. OCD approves the sulfate analysis be discontinued from all site wells except MW-4A and RW-2R. These two identified wells will require only one annual sampling event for sulfate. 2. OCD approves the termination of future sampling from MW-2A, MW-3, MW-5A, MW-6R, MW-8, and MW-14. 3. OCD approves the second semi-annual sampling event elimination for MW-11. 4. OCD approves annual sampling for those monitoring and recovery wells with COC concentrations reported above the NMWQCC exceedance standards.**

The signed C-141 can be found in the OCD Online: Imaging under the incident ID (n#).

If you have any questions regarding this application, please contact me.

Thank you,
Nelson Velez
Environmental Specialist - Advanced
505-469-6146
Nelson.Velez@emnrd.nm.gov

New Mexico Energy, Minerals and Natural Resources Department
1220 South St. Francis Drive
Santa Fe, NM 87505

APPENDIX D

NMOSE Application to Divert Groundwater CP-884 and CP-885

STATE OF NEW MEXICO

OFFICE OF THE STATE ENGINEER

JOHN R. D'ANTONIO, JR. P.E.
State Engineer

ROSWELL

DISTRICT II
1900 West Second St.
Roswell, New Mexico 88201
(505) 622-6521

June 18, 2008

Texaco Exploration and Production, Inc.
% Mark Larson
P.O. Box 730
Hobbs, NM 88240-0730

REF: CP-884

Greetings:

Enclosed is your copy of the above numbered permit, which has been approved subject to the conditions set forth on the approval page thereof.

Proof of Completion of Well(s) will be filed in this office after completion and installation of equipment, but in no event later than 06/30/2010. Proof of Completion of Well forms shall be mailed upon request.

Your rights under this permit will expire on 06/30/2010, unless Proof of Completion of Well(s) is filed or an Application for Extension of Time is received in this office on or before that date.

Sincerely,

for Andy Morley
(575) 622-6521, ext 113

Enclosure

cc: Santa Fe Office

NEW MEXICO STATE ENGINEER
APPLICATION TO DIVERT (GROUND)

SPECIFIC CONDITIONS OF APPROVAL

PCW Proof of Completion of Works must be filed on or before 6/30/2010

1. This application is approved as follows:

Permit Number: CP-884

Water Source: Capitan Shallow Groundwater

Point(s) of Diversion:

Well No.	Subdivision	Section	Township	Range
CP-884	NW1/4NW1/4SE1/4	24	24 S.	36 E.

Purpose of Use: Environmental Remediation

Place of Use:

Subdivision	Section	Township	Range
NW1/4NW1/4SE1/4	24	24 S.	36 E.

Amount of Water: Up to 32.5 acre-feet per annum (consumptive use)

2. The diversion of water under this permit shall be limited to a maximum of 32.5 acre-feet per annum, consumptive use, for Environmental Remediation purposes measured at the well.

3. Depth of well shall not exceed the thickness of the Capitan Reef formation.

4. The proposed new well CP-884 shall be drilled at least 660 feet from all wells of other ownership.

5. A totalizing meter of a type approved by and installed in a manner and at a location acceptable to the Office of the State Engineer shall be installed before the first branch of the discharge line from well CP-884. The District II Office shall be advised of the make, model, serial number, installation date and initial reading of the meter prior to any appropriation of water under this permit.

6. Records of the total amount of water diverted from all wells shall be submitted to the State Engineer Office in Roswell on or before the 10th day of January, April, July and October of each year.

NEW MEXICO STATE ENGINEER
APPLICATION TO DIVERT (GROUND)

7. Upon completion of the remediation or monitoring operation purposes, the well shall be plugged (Article 4) or otherwise maintained so that no water may be diverted from said well unless a permit authorizing the use of the well is approved by the State Engineer in accordance with the other articles of these Rules and Regulations.

8. A driller's well record must be filed with the State Engineer within 20 days after the well is drilled or driven. Well record forms will be provided by the State Engineer upon Request.

9. The permittee shall utilize the highest technology available to ensure conservation of water to the maximum extent practical.

10. The diversion of water specified under this permit for pollution control shall not establish a water right or relieve the permittee of any liability for detriment to or impairment of existing water rights.

11. This permit shall not be exercised to the detriment of valid existing water rights, shall not be contrary to the conservation of water within the State of New Mexico, and shall not be detrimental to the public welfare of the State of New Mexico.

NEW MEXICO STATE ENGINEER
APPLICATION TO DIVERT (GROUND)

ACTION OF STATE ENGINEER

Notice of Intention Rcvd: Date Rcvd. Corrected:
Formal Application Rcvd: 11/09/1999 Pub. of Notice Ordered: 01/19/2000
Date Returned - Correction: Affidavit of Pub. Filed: 03/14/2000

This application is approved provided it is not exercised to the detriment of any others having existing rights, and is not contrary to the conservation of water in New Mexico nor detrimental to the public welfare of the state; and further subject to the specific conditions listed previously.

Witness my hand and seal this 18th day of Jun A.D., 2008

John R. D Antonio, Jr., P.E., State Engineer

By: Ken Fresquez, District II Supervisor

File Number: CP-884

Revised August 1967

IMPORTANT—READ INSTRUCTIONS ON BACK BEFORE FILLING OUT THIS FORM

2-09704
75.

APPLICATION FOR PERMIT

To ~~Appropriate~~ Divert the Underground Waters of the State of New Mexico

Date Received 11-9-99 File No. CP-884

1. Name of applicant Texaco Exploration and Production, Inc.
   Mailing address P. O. Box 730
   City and State Hobbs, NM 88240-0370
2. Source of water supply Shallow Water Aquifer, located in Capitan
   (artesian or shallow water aquifer) (name of underground basin)
3. The well is to be located in the NW ¼ NW ¼ SE ¼, Section 24 Township 24 South Range 36 East N.M.P.M., or Tract No. ____ of Map No. ____ of the ____ District, on land owned by ~~Exxon Company~~ Ludean Cantrell.
4. Description of well: name of driller RW-2, Scarborough Drilling, Inc., Lamesa, Texas; Outside Diameter of casing 5" inches; Approximate depth to be drilled 175' feet;
5. Quantity of water to be appropriated and beneficially used 32.5 acre feet, (consumptive use, diversion) for Environmental Remediation purposes.
6. Acreage to be irrigated or place of use ____ acres.

Subdivision	Section	Township	Range	Acres	Owner

7. Additional statements or explanations Pursuant to New Mexico Oil Conservation Division (NMOCD), Environmental Bureau direction, and after correspondence between applicant and the Bureau, a plan has been approved to initiate corrective action. The action will include recovering water from said well, equipped with pumping equipment, and disposal of produced water in applicant's disposal system.

I, Mark J. Larson (for Applicant), affirm that the foregoing statements are true to the best of my knowledge and belief and that development shall not commence until approval of the permit has been obtained.

Texaco Exploration and Production, ~~Inc~~, ~~Permittee~~,

By: Mark J. Larson.

VICKIE A. INMAN
Notary Public, State of Texas
My Comm. Expires 4-14-2002

Subscribed and sworn to before me this 26th day of October, A.D., 1999.

My commission expires 4-14-2002

Vickie A. Inman
Notary Public

T# 172258

Number of this permit _____

ACTION OF STATE ENGINEER

After notice pursuant to statute and by authority vested in me, this application is approved provided it is not exercised to the detriment of any others having existing rights; further provided that all rules and regulations of the State Engineer pertaining to the drilling of shallow wells be complied with; and further subject to the following conditions: _____

see attached conditions of approval

Proof of completion of well shall be filed on or before June 30, 2010 _____, XX

Proof of application of water to beneficial use shall be filed on or before N/A , XX

Witness my hand and seal this 18th day of June _____, A.D., XX 2008

John R. D'Antonio, Jr., P.E., State Engineer

By: _____.

Kenneth M. Fresquez, District II Manager

INSTRUCTIONS

This form shall be executed, preferably typewritten, in triplicate and shall be accompanied by a filing fee of $25.00. Each of triplicate copies must be properly signed and attested.

A separate application for permit must be filed for each well used.

Secs. 1–4—Fill out all blanks fully and accurately.

Sec. 5—Irrigation use shall be stated in acre feet of water per acre per annum to be applied on the land. If for municipal or other purposes, state total quantity in acre feet to be used annually.

Sec. 6—Describe only the lands to be irrigated or where water will be used. If on unsurveyed lands describe by legal subdivision "as projected" from the nearest government survey corners, or describe by metes and bounds and tie survey to some permanent, easily located natural object.

Sec. 7—If lands are irrigated from any other source, explain in this section. Give any other data necessary to fully describe water right sought.

STATE OF NEW MEXICO

OFFICE OF THE STATE ENGINEER

ROSWELL

JOHN R. D'ANTONIO, JR. P.E.
State Engineer

DISTRICT II
1900 West Second St.
Roswell, New Mexico 88201
(505) 622-6521

June 18, 2008

Texaco Exploration and Production, Inc.
% Mark Larson
P.O. Box 730
Hobbs, NM 88240-0730

REF: CP-885

Greetings:

Enclosed is your copy of the above numbered permit, which has been approved subject to the conditions set forth on the approval page thereof.

Proof of Completion of Well(s) will be filed in this office after completion and installation of equipment, but in no event later than 06/30/2010. Proof of Completion of Well forms shall be mailed upon request.

Your rights under this permit will expire on 06/30/2010, unless Proof of Completion of Well(s) is filed or an Application for Extension of Time is received in this office on or before that date.

Sincerely,

mjw

for Andy Morley
(575) 622-6521, ext 113

Enclosure

cc: Santa Fe Office

NEW MEXICO STATE ENGINEER
APPLICATION TO DIVERT (GROUND)

SPECIFIC CONDITIONS OF APPROVAL

PCW Proof of Completion of Works must be filed on or before 6/30/2010

1. This application is approved as follows:

Permit Number: CP-885

Water Source: Capitan Shallow Groundwater

Point(s) of Diversion:

Well No.	Subdivision	Section	Township	Range
CP-885	NW1/4NW1/4SE1/4	24	24 S.	36 E.

Purpose of Use: Environmental Remediation

Place of Use:

Subdivision	Section	Township	Range
NW1/4NW1/4SE1/4	24	24 S.	36 E.

Amount of Water: Up to 32.5 acre-feet per annum (consumptive use)

2. The diversion of water under this permit shall be limited to a maximum of 32.5 acre-feet per annum, consumptive use, for Environmental Remediation purposes measured at the well.

3. Depth of well shall not exceed the thickness of the Capitan Reef formation.

4. The proposed new well CP-885 shall be drilled at least 660 feet from all wells of other ownership.

5. A totalizing meter of a type approved by and installed in a manner and at a location acceptable to the Office of the State Engineer shall be installed before the first branch of the discharge line from well CP-885. The District II Office shall be advised of the make, model, serial number, installation date and initial reading of the meter prior to any appropriation of water under this permit.

6. Records of the total amount of water diverted from all wells shall be submitted to the State Engineer Office in Roswell on or before the 10th day of January, April, July and October of each year.

NEW MEXICO STATE ENGINEER
APPLICATION TO DIVERT (GROUND)

7. Upon completion of the remediation or monitoring operation purposes, the well shall be plugged (Article 4) or otherwise maintained so that no water may be diverted from said well unless a permit authorizing the use of the well is approved by the State Engineer in accordance with the other articles of these Rules and Regulations.

8. A driller's well record must be filed with the State Engineer within 20 days after the well is drilled or driven. Well record forms will be provided by the State Engineer upon Request.

9. The permittee shall utilize the highest technology available to ensure conservation of water to the maximum extent practical.

10. The diversion of water specified under this permit for pollution control shall not establish a water right or relieve the permittee of any liability for detriment to or impairment of existing water rights.

11. This permit shall not be exercised to the detriment of valid existing water rights, shall not be contrary to the conservation of water within the State of New Mexico, and shall not be detrimental to the public welfare of the State of New Mexico.

NEW MEXICO STATE ENGINEER
APPLICATION TO DIVERT (GROUND)

ACTION OF STATE ENGINEER

Notice of Intention Rcvd: Date Rcvd. Corrected:
Formal Application Rcvd: 11/09/1999 Pub. of Notice Ordered: 01/19/2000
Date Returned - Correction: Affidavit of Pub. Filed: 03/14/2000

This application is approved provided it is not exercised to the detriment of any others having existing rights, and is not contrary to the conservation of water in New Mexico nor detrimental to the public welfare of the state; and further subject to the specific conditions listed previously.

Witness my hand and seal this 16th day of Jun A.D., 2008

John R. D'Antonio, Jr., P.E., State Engineer

By: _____
Ken Fresquez, District II Supervisor

File Number: CP-885

Revised August 1967

IMPORTANT—READ INSTRUCTIONS ON BACK BEFORE FILLING OUT THIS FORM

2-09704
15.

APPLICATION FOR PERMIT

To ~~Appropriate~~ Divert the Underground Waters of the State of New Mexico

Date Received 11-9-99 File No. CP-885

1. Name of applicant Texaco Exploration and Production, Inc.
   Mailing address P. O. Box 730
   City and State Hobbs, NM 88240-0730
2. Source of water supply Shallow Water Aquifer, located in Capitan
   (artesian or shallow water aquifer) (name of underground basin)
3. The well is to be located in the NW ¼ NW ¼ SE ¼, Section 24 Township 24 South
   Range 36 East N.M.P.M., or Tract No. ____ of Map No. ____ of the ~~Capitan~~ District,
   on land owned by ~~XXXXXXXXXXXXXX~~ Ludean Cantrell.
4. Description of well: name of driller RW-1, Scarborough Drilling, Inc., Lamesa, Texas;
   Outside Diameter of casing 5" inches; Approximate depth to be drilled 175' feet;
5. Quantity of water to be appropriated and beneficially used 32.5 acre feet,
   (consumptive use, diversion)
   for Environmental Remediation purposes.
6. Acreage to be irrigated or place of use ____ acres.

Subdivision	Section	Township	Range	Acres	Owner

7. Additional statements or explanations Pursuant to New Mexico Oil Conservation Division (NMOCD), Environmental Bureau direction and after correspondence between applicant and the Bureau, a plan has been approved to initiate corrective action. The action will include recovering water from said well, equipped with pumping equipment, and disposal of produced water in applicant's injection system.

I, Mark J. Larson (for Applicant), affirm that the foregoing statements are true to the best of my knowledge and belief and that development shall not commence until approval of the permit has been obtained.

Texaco Exploration and Production, Inc., Permittee,

By: _____.

VICKIE A. INMAN
Notary Public, State of Texas
My Comm. Expires 4-14-2002

Subscribed and sworn to before me this 26th day of October, A.D., 19 99.

My commission expires 4-14-2002

Vickie A. Inman
Notary Public

T#172263

Number of this permit _____

ACTION OF STATE ENGINEER

After notice pursuant to statute and by authority vested in me, this application is approved provided it is not exercised to the detriment of any others having existing rights; further provided that all rules and regulations of the State Engineer pertaining to the drilling of shallow wells be complied with; and further subject to the following conditions: _____

see attached conditions of approval

Proof of completion of well shall be filed on or before June 30, 2010 , XX

Proof of application of water to beneficial use shall be filed on or before N/A , XX

Witness my hand and seal this 16 day of June , A.D., XX 2008 .

John R. D'Antonio, Jr., P.E., State Engineer

By: _____

Kenneth M. Fresquez, District II Manager

INSTRUCTIONS

This form shall be executed, preferably typewritten, in triplicate and shall be accompanied by a filing fee of $25.00. Each of triplicate copies must be properly signed and attested.

A separate application for permit must be filed for each well used.

Secs. 1–4—Fill out all blanks fully and accurately.

Sec. 5—Irrigation use shall be stated in acre feet of water per acre per annum to be applied on the land. If for municipal or other purposes, state total quantity in acre feet to be used annually.

Sec. 6—Describe only the lands to be irrigated or where water will be used. If on unsurveyed lands describe by legal subdivision "as projected" from the nearest government survey corners, or describe by metes and bounds and tie survey to some permanent, easily located natural object.

Sec. 7—If lands are irrigated from any other source, explain in this section. Give any other data necessary to fully describe water right sought.

APPENDIX E

WR-07 Application for Permit to Drill

File No. CP-884

NEW MEXICO OFFICE OF THE STATE ENGINEER

WR-07 APPLICATION FOR PERMIT TO DRILL

A WELL WITH NO WATER RIGHT

(check applicable box):

For fees, see State Engineer website: http://www.ose.state.nm.us/

Purpose:	☐ Pollution Control And/Or Recovery	☐ Ground Source Heat Pump
☐ Exploratory Well (Pump test)	☐ Construction Site/Public Works Dewatering	☐ Other(Describe):
☒ Monitoring Well	☐ Mine Dewatering	

A separate permit will be required to apply water to beneficial use regardless if use is consumptive or nonconsumptive.

☐ Temporary Request - Requested Start Date: Requested End Date:

Plugging Plan of Operations Submitted? ☐ Yes ☐ No

1. APPLICANT(S)

Name: Chevron Environmental Management Company	Name: GHD Services Inc.
Contact or Agent: check here if Agent ☐ Kegan Boyer	Contact or Agent: check here if Agent ☒ Janie Smith
Mailing Address: 1400 Smith Street, Room 07076	Mailing Address: 5551 Corporate Blvd, Ste 200
City: Houston	City: Baton Rouge
State: Zip Code: Texas 77002	State: Zip Code: Louisiana 70808
Phone: ☐ Home ☐ Cell Phone (Work): 713-372-7705	Phone: ☐ Home ☐ Cell Phone (Work): 225-292-9007
E-mail (optional): kegan.boyer@chevron.com	E-mail (optional): janie.smith@ghd.com

FOR OSE INTERNAL USE Application for Permit, Form WR-07, Rev 11/17/16

File No.: CP-884	Trn. No.:	Receipt No.: 2-37772
Trans Description (optional): POD2		
Sub-Basin: CP	PCW/LOG Due Date: 1-31-18	

2. **WELL(S)** Describe the well(s) applicable to this application.

Location Required: Coordinate location must be reported in NM State Plane (NAD 83), UTM (NAD 83), or Latitude/Longitude (Lat/Long - WGS84).
District II (Roswell) and District VII (Cimarron) customers, provide a PLSS location in addition to above.

☐ NM State Plane (NAD83) (Feet)
☐ NM West Zone
☐ NM East Zone
☐ NM Central Zone

☐ UTM (NAD83) (Meters)
☐ Zone 12N
☐ Zone 13N

■ Lat/Long (WGS84) (to the nearest 1/10th of second)

Well Number (if known):	X or Easting or Longitude:	Y or Northing or Latitude:	Provide if known: -Public Land Survey System (PLSS) (*Quarters or Halves , Section, Township, Range)* OR - Hydrographic Survey Map & Tract; OR - Lot, Block & Subdivision; OR - Land Grant Name
CP-884 POD2 RW-2	-103.216239	32.200676	NE1/4 SW1/4, Section 24, 24S 36E

STATE ENGR ROSWELL NM 2017 DEC 13 P 1:38

NOTE: If more well locations need to be described, complete form WR-08 (Attachment 1 – POD Descriptions)
Additional well descriptions are attached: ☐ Yes ■ No If yes, how many_____

Other description relating well to common landmarks, streets, or other:

Included in the Cooper Jal Unit South Injection Station

Well is on land owned by: James R. Pruett, et al.

Well Information: NOTE: If more than one (1) well needs to be described, provide attachment. Attached? ☐ Yes ■ No
If yes, how many_____

Approximate depth of well (feet): 174.0	Outside diameter of well casing (inches): 5.0
Driller Name:	Driller License Number:

3. ADDITIONAL STATEMENTS OR EXPLANATIONS

Currently, well RW-2 is registered under NMOSE Well Permit CP-884 as a Recovery Well. The well casing was damaged in circa 2013 to the extent that a pump can no longer be fitted in the well. However, the well still has utility as a monitoring location. We request that the well classification be changed from Recovery Well to Monitoring Well. This Monitoring Well will be utilized as a monitoring point for ongoing remedial activities at the Cooper Jal Unit South Injection Station. Monitoring will continue until closure for this site is granted by the NMOCD.

FOR OSE INTERNAL USE — Application for Permit, Form WR-07

File No.: CP-884	Trn No.:

4. SPECIFIC REQUIREMENTS: The applicant must include the following, as applicable to each well type. Please check the appropriate boxes, to indicate the information has been included and/or attached to this application:

Exploratory: ☐ Include a description of any proposed pump test, if applicable.	**Pollution Control and/or Recovery:** ☐ Include a plan for pollution control/recovery, that includes the following: ☐ A description of the need for the pollution control or recovery operation. ☐ The estimated maximum period of time for completion of the operation. ☐ The annual diversion amount. ☐ The annual consumptive use amount. ☐ The maximum amount of water to be diverted and injected for the duration of the operation. ☐ The method and place of discharge.	**Construction De-Watering:** ☐ Include a description of the proposed dewatering operation, ☐ The estimated duration of the operation, ☐ The maximum amount of water to be diverted, ☐ A description of the need for the dewatering operation, and, ☐ A description of how the diverted water will be disposed of.	**Mine De-Watering:** ☐ Include a plan for pollution control/recovery, that includes the following: ☐ A description of the need for mine dewatering. ☐ The estimated maximum period of time for completion of the operation. ☐ The source(s) of the water to be diverted. ☐ The geohydrologic characteristics of the aquifer(s). ☐ The maximum amount of water to be diverted per annum. ☐ The maximum amount of water to be diverted for the duration of the operation. ☐ The quality of the water. ☐ The method of measurement of water diverted. ☐ The recharge of water to the aquifer. ☐ Description of the estimated area of hydrologic effect of the project. ☐ The method and place of discharge. ☐ An estimation of the effects on surface water rights and underground water rights from the mine dewatering project. ☐ A description of the methods employed to estimate effects on surface water rights and underground water rights. ☐ Information on existing wells, rivers, springs, and wetlands within the area of hydrologic effect.
Monitoring: ■ Include the reason for the monitoring well, and, ■ The duration of the planned monitoring.	☐ The method of measurement of water produced and discharged. ☐ The source of water to be injected. ☐ The method of measurement of water injected. ☐ The characteristics of the aquifer. ☐ The method of determining the resulting annual consumptive use of water and depletion from any related stream system. ☐ Proof of any permit required from the New Mexico Environment Department. ☐ An access agreement if the applicant is not the owner of the land on which the pollution plume control or recovery well is to be located.	**Ground Source Heat Pump:** ☐ Include a description of the geothermal heat exchange project, ☐ The number of boreholes for the completed project and required depths. ☐ The time frame for constructing the geothermal heat exchange project, and, ☐ The duration of the project. ☐ Preliminary surveys, design data, and additional information shall be included to provide all essential facts relating to the request.	

ACKNOWLEDGEMENT

I, We (name of applicant(s)), Janie Smith (GHD), on behalf on Chevron Environmental Management Company
Print Name(s)

affirm that the foregoing statements are true to the best of (my, our) knowledge and belief.

Janie J Smith
Applicant Signature

Applicant Signature

ACTION OF THE STATE ENGINEER

This application is:

☒ approved ☐ partially approved ☐ denied

provided it is not exercised to the detriment of any others having existing rights, and is not contrary to the conservation of water in New Mexico nor detrimental to the public welfare and further subject to the attached conditions of approval.

Witness my hand and seal this 12th day of January 20 17, for the State Engineer,

Tom Blaine, P.E., State Engineer

By: Tim Williams
Signature

Print

Title: Tim Williams, Supervisor/Pecos River Watermaster
Print

FOR OSE INTERNAL USE

Application for Permit, Form WR-07

File No.: CP-884

Trn No.:

NEW MEXICO STATE ENGINEER OFFICE
PERMIT TO MONITOR

SPECIFIC CONDITIONS OF APPROVAL

1A Depth of the well shall not exceed the thickness of the valley fill.

4 No water shall be appropriated and beneficially used under this permit.

B The well shall be drilled by a driller licensed in the State of New Mexico in accordance with Section 72-12-12 New Mexico Statutes Annotated.

C Driller's well record must be filed with the State Engineer within 20 days after the well is drilled or driven. Well record forms will be provided by the State Engineer upon request.

C2 No water shall be diverted from this well except for testing purposes which shall not exceed ten (10) cumulative days, unless a permit to use water from this well is acquired from the Office of the State Engineer.

6 The well shall be plugged upon completion of the permitted use, and a plugging report shall be filed with the State Engineer within 10 days.

7 The Permittee shall utilize the highest and best technology available to ensure conservation of water to the maximum extent practical.

P The well shall be constructed, maintained, and operated to prevent inter-aquifer exchange of water and to prevent loss of hydraulic head between geologic zones.

Q The State Engineer retains jurisdiction over this permit.

R Pursuant to section 72-8-1 NMSA, the permittee shall allow the State Engineer and his representatives entry upon private property for the performance of their respective duties, including access to the ditch or acequia to measure flow and also to the well for meter reading and water level measurement.

IT IS THE PERMITTEES RESPONSIBILITY TO OBTAIN ALL AUTHORIZATIONS AND PERMISSIONS TO DRILL ON PROPERTY OF OTHER OWNERSHIP BEFORE COMMENCING ACTIVITIES UNDER THIS PERMIT.

SHOULD THE PERMITTEE CHANGE THE PURPOSE OF USE TO OTHER THAN MONITORING PURPOSES, AN APPLICATION SHALL BE ACQUIRED FROM THE OFFICE OF THE STATE ENGINEER.

THE PERMITTEE SHALL CONFIRM THE WELL ANNULAR SEAL CONFORMS TO N.M.A.C. 19.27.4.30 REGULATIONS BY ***MARCH 31, 2017.***

LOG The Point of Diversion **CP-884 POD2** must be completed and the Well Log filed on or before **01/31/18**.

File Nbr: CP-884 POD2

NEW MEXICO STATE ENGINEER OFFICE
PERMIT TO MONITOR

ACTION OF STATE ENGINEER

Notice of Intention Rcvd:		Date Rcvd. Corrected:	
Formal Application Rcvd:	12/19/16	Pub. Of Notice Ordered:	
Date Returned – Correction:		Affidavit of Pub. Filed:	

This application is approved provided it is not exercised to the detriment of any others having existing rights, and is not contrary to the conservation of water in New Mexico nor detrimental to the public welfare of the state; and further subject to the specific conditions listed previously.

Witness my hand and seal this 12th day of January A.D., 2017.

Tom Blaine, P.E., State Engineer

By: Tim Williams
Tim Williams, Supervisor/Pecos River Watermaster

File Nbr: CP-884 POD2

Tom Blaine, P.E.
State Engineer

1900 W Second Street
Roswell, NM 88201
575-622-6521
Fax: 575-623-8559

STATE OF NEW MEXICO
OFFICE OF THE STATE ENGINEER

File Nbr: CP-884 POD2

January 12, 2017

GHD SERVICES INC
JANIE SMITH
5551 CORPORATE BLVD STE 200
BATON ROUGE, LA 70808

RE: CHEVRON ENVIRO MGMT CO, KEGAN BOYER

Greetings:

Enclosed is your copy of the above numbered permit that has been approved subject to the conditions set forth on the approval page. In accordance with the conditions of approval, the well can only be tested for 10 cumulative days, and the well is to be plugged on or before **01/31/18**, unless a permit to use the water is acquired from this office.

A Well Record & Log (OSE Form wr-20) shall be filed in this office within twenty (20) days after completion of drilling, but no later than **01/31/18.**

Appropriate forms can be downloaded from the OSE website www.ose.state.nm.us or will be mailed upon request.

Sincerely,

Tim Williams
Supervisor/Pecos River Watermaster
575-622-6521

Enclosure
cc: Santa Fe Office

Goetz, Catherine, OSE

From: Smith, Janie [Janie.Smith@ghd.com]
Sent: Friday, January 06, 2017 4:05 PM
To: Goetz, Catherine, OSE
Cc: Gilliam, Stefanie
Subject: Cooper Jal Site - RW-2

Hi Catherine,

I'm sorry that I have not gotten back to you until now about RW-2 at the Cooper Jal Site in NM. I've been trying to track down someone who was involved in the project when the well got damaged to try to determine the nature of the damage. I have not had any luck. All I know is that in 2013, some of our field samplers put a sampling pump down it and the pump got stuck and took them quite a while to get out. They have been successful since then at sampling the well using a bailer or a hydrasleeve, but as far as the nature of the damage, no one that I've spoken to knows. I know there is no surficial damage – ie: the stick-up well was not hit by a truck, etc. Anyway, we would like to get one of our techs out there to take a closer look at some point, so let's hold off for now on the re-classification application if you don't mind. Thank you for your patience.

Have a great weekend!

Janie Tarman Smith
GHD
T: +1 225 292 9007 | M: +1 919 260 8553 | E: janie.smith@ghd.com
5551 Corporate Blvd. Baton Rouge, LA 70808 United States

Mendiola, Yolanda L., OSE

From: Lucero, Roxanne E., OSE
Sent: Tuesday, December 27, 2016 3:07 PM
To: Mendiola, Yolanda L., OSE
Subject: RE: CP-884

Hi Yolanda,
Sorry for the delay, but I had to sort through this file to see what was going on with it. So based on what we have here for CP-884, it looks like the current pod being used for this file would be CP-884 POD2. So this permit will keep the same file number of CP-884 and will be using pod CP-884 POD2. Thank you! Hope you have a great day too! :)

Thanks,
Roxanne Lucero

-----Original Message-----
From: Mendiola, Yolanda L., OSE
Sent: Tuesday, December 27, 2016 2:14 PM
To: Lucero, Roxanne E., OSE
Subject: RE: CP-884

Yes mam

-----Original Message-----
From: Lucero, Roxanne E., OSE
Sent: Tuesday, December 27, 2016 2:03 PM
To: Mendiola, Yolanda L., OSE
Subject: RE: CP-884

So are the applicant's ONLY wanting to change the use from a recovery well to monitoring use for a well that has already been drilled?

-----Original Message-----
From: Mendiola, Yolanda L., OSE
Sent: Tuesday, December 27, 2016 1:48 PM
To: Lucero, Roxanne E., OSE
Subject: CP-884

Hi Roxanne,

I have the attached app/pmt for a monitoring well. As stated in the explanations it was an recovery well. Do we want to give it the same file number and POD? I see that there was an app for APPRO and it is still in REC/AOP status. Please let me know how to proceed,

Thanks
Have a great day
Yolanda

-----Original Message-----
From: d2xerox7545@state.nm.us [mailto:d2xerox7545@state.nm.us]
Sent: Tuesday, December 27, 2016 2:15 PM
To: Mendiola, Yolanda L., OSE
Subject: Scanned from a Xerox multifunction device

APPENDIX F

Groundwater Analytical Reports (2016 through 2023)

Analytical Report 530715

for

GHD Services, INC- Midland

Project Manager: Chris Knight

CEMC Cooper-Jal

039123

02-JUN-16

Collected By: Client

1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab code: TX00122):
Texas (T104704215-15-19), 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 (T104704534-15-1)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona(AZ0757)
Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)
Xenco-Atlanta (EPA Lab Code: GA00046):
Florida (E87429), North Carolina (483), South Carolina (98015), Kentucky (85), DoD (L10-135)
Texas (T104704477), Louisiana (04176), USDA (P330-07-00105)

Xenco-Lakeland: Florida (E84098)

02-JUN-16

Project Manager: **Chris Knight**
GHD Services, INC- Midland
2135 S Loop 250 W
Midland, TX 79703

Reference: XENCO Report No(s): **530715**
CEMC Cooper-Jal
Project Address: Lea County, NM

Chris Knight:

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) 530715. 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. 530715 will be filed for 60 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

Kelsey Brooks
Project Manager

Sample Cross Reference 530715

GHD Services, INC- Midland, Midland, TX

CEMC Cooper-Jal

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
MW-08-052516	W	05-25-16 12:00		530715-001
MW-11-052516	W	05-25-16 11:00		530715-002
MW-09-052516	W	05-25-16 11:20		530715-003
MW-14-052516	W	05-25-16 12:55		530715-004
MW-10-052516	W	05-25-16 13:15		530715-005
DUP-01-052516	W	05-25-16 00:00		530715-006

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Batch: LBA-995405 Inorganic Anions by EPA 300/300.1
Lab Sample ID 530883-002 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Fluoride recovered below QC limits in the Matrix Spike and Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 530715-001, -002, -003, -004, -005, -006.
The Laboratory Control Sample for Chloride , Fluoride, Sulfate is within laboratory Control Limits, therefore the data was accepted.

Certificate of Analytical Results 530715

GHD Services, INC- Midland, Midland, TX

CEMC Cooper-Jal

Sample Id: **MW-08-052516** Matrix: Ground Water Date Received:05.25.16 16.20

Lab Sample Id: 530715-001 Date Collected: 05.25.16 12.00

Analytical Method: Inorganic Anions by EPA 300/300.1 Prep Method: E300P

Tech: DEP % Moisture:

Analyst: DHE Date Prep: 05.31.16 10.23

Seq Number: 995405 SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**30.0**	5.00	mg/L	05.31.16 12.11		10
Fluoride	16984-48-8	**0.847**	0.500	mg/L	05.31.16 14.45		1
Sulfate	14808-79-8	**88.7**	5.00	mg/L	05.31.16 12.11		10

Analytical Method: TDS by SM2540C

Tech: YAV % Moisture:

Analyst: YAV

Seq Number: 995176 SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	TDS	**434**	5.00	mg/L	05.27.16 11.46		1

Certificate of Analytical Results 530715

GHD Services, INC- Midland, Midland, TX

CEMC Cooper-Jal

Sample Id: **MW-11-052516** Matrix: Ground Water Date Received:05.25.16 16.20

Lab Sample Id: 530715-002 Date Collected: 05.25.16 11.00

Analytical Method: Inorganic Anions by EPA 300/300.1 Prep Method: E300P

Tech: DEP % Moisture:

Analyst: DHE Date Prep: 05.31.16 10.23

Seq Number: 995405 SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**34.3**	5.00	mg/L	05.31.16 13.27		10
Fluoride	16984-48-8	**1.87**	0.500	mg/L	05.31.16 15.00		1
Sulfate	14808-79-8	**103**	5.00	mg/L	05.31.16 13.27		10

Analytical Method: TDS by SM2540C

Tech: YAV % Moisture:

Analyst: YAV

Seq Number: 995176 SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	TDS	**475**	5.00	mg/L	05.27.16 11.46		1

Certificate of Analytical Results 530715

GHD Services, INC- Midland, Midland, TX

CEMC Cooper-Jal

Sample Id: **MW-09-052516** Matrix: Ground Water Date Received:05.25.16 16.20

Lab Sample Id: 530715-003 Date Collected: 05.25.16 11.20

Analytical Method: Inorganic Anions by EPA 300/300.1 Prep Method: E300P

Tech: DEP % Moisture:

Analyst: DHE Date Prep: 05.31.16 10.23

Seq Number: 995405 SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**404**	5.00	mg/L	05.31.16 13.43		10
Fluoride	16984-48-8	**1.61**	0.500	mg/L	05.31.16 15.15		1
Sulfate	14808-79-8	**108**	5.00	mg/L	05.31.16 13.43		10

Analytical Method: TDS by SM2540C

Tech: YAV % Moisture:

Analyst: YAV

Seq Number: 995176 SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	TDS	**1430**	5.00	mg/L	05.27.16 11.46		1

Certificate of Analytical Results 530715

GHD Services, INC- Midland, Midland, TX

CEMC Cooper-Jal

Sample Id:	**MW-14-052516**	Matrix:	Ground Water	Date Received:	05.25.16 16.20
Lab Sample Id:	530715-004	Date Collected:	05.25.16 12.55		

Analytical Method:	Inorganic Anions by EPA 300/300.1			Prep Method:	E300P
Tech:	DEP			% Moisture:	
Analyst:	DHE	Date Prep:	05.31.16 10.23		
Seq Number:	995405			SUB:	TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**79.0**	5.00	mg/L	05.31.16 13.59		10
Fluoride	16984-48-8	**1.37**	0.500	mg/L	05.31.16 15.31		1
Sulfate	14808-79-8	**19.9**	5.00	mg/L	05.31.16 13.59		10

Analytical Method:	TDS by SM2540C				
Tech:	YAV			% Moisture:	
Analyst:	YAV				
Seq Number:	995176			SUB:	TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	TDS	**552**	5.00	mg/L	05.27.16 11.46		1

GHD Services, INC- Midland, Midland, TX

CEMC Cooper-Jal

Sample Id: **MW-10-052516** Matrix: Ground Water Date Received:05.25.16 16.20

Lab Sample Id: 530715-005 Date Collected: 05.25.16 13.15

Analytical Method: Inorganic Anions by EPA 300/300.1 Prep Method: E300P

Tech: DEP % Moisture:

Analyst: DHE Date Prep: 05.31.16 10.23

Seq Number: 995405 SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**307**	5.00	mg/L	05.31.16 14.14		10
Fluoride	16984-48-8	**1.44**	0.500	mg/L	05.31.16 15.46		1
Sulfate	14808-79-8	**107**	5.00	mg/L	05.31.16 14.14		10

Analytical Method: TDS by SM2540C

Tech: YAV % Moisture:

Analyst: YAV

Seq Number: 995176 SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	TDS	**1080**	5.00	mg/L	05.27.16 11.46		1

GHD Services, INC- Midland, Midland, TX

CEMC Cooper-Jal

Sample Id: **DUP-01-052516** Matrix: Ground Water Date Received:05.25.16 16.20

Lab Sample Id: 530715-006 Date Collected: 05.25.16 00.00

Analytical Method: Inorganic Anions by EPA 300/300.1 Prep Method: E300P

Tech: DEP % Moisture:

Analyst: DHE Date Prep: 05.31.16 10.23

Seq Number: 995405 SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**418**	5.00	mg/L	05.31.16 14.29		10
Fluoride	16984-48-8	**1.60**	0.500	mg/L	05.31.16 16.32		1
Sulfate	14808-79-8	**111**	5.00	mg/L	05.31.16 14.29		10

Analytical Method: TDS by SM2540C

Tech: YAV % Moisture:

Analyst: YAV

Seq Number: 995176 SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	TDS	**1430**	5.00	mg/L	05.27.16 11.46		1

CHRONOLOGY OF HOLDING TIMES

Analytical Method : Inorganic Anions by EPA 300/300.1
Client : GHD Services, INC- Midland

Work Order #: **530715**
Project ID: 039123

Date Received: 05/25/16

Field Sample ID	Lab Sample ID	Date Collected	Date Extracted	Max Holding Time Extracted (Days)	Time Held Extracted (Days)	Date Analyzed	Max Holding Time Analyzed (Days)	Time Held Analyzed (Days)	Q
MW-08-052516	530715-001	05/25/16				05/31/16	28	6	P
MW-11-052516	530715-002	05/25/16				05/31/16	28	6	P
MW-09-052516	530715-003	05/25/16				05/31/16	28	6	P
MW-14-052516	530715-004	05/25/16				05/31/16	28	6	P
MW-10-052516	530715-005	05/25/16				05/31/16	28	6	P
DUP-01-052516	530715-006	05/25/16				05/31/16	28	6	P

CHRONOLOGY OF HOLDING TIMES

Analytical Method : TDS by SM2540C
Work Order #: **530715**
Date Received: 05/25/16

Client : GHD Services, INC- Midland
Project ID: 039123

Field Sample ID	Lab Sample ID	Date Collected	Date Extracted	Max Holding Time Extracted (Days)	Time Held Extracted (Days)	Date Analyzed	Max Holding Time Analyzed (Days)	Time Held Analyzed (Days)	Q
MW-08-052516	530715-001	05/25/16				05/27/16	7	2	P
MW-11-052516	530715-002	05/25/16				05/27/16	7	2	P
MW-09-052516	530715-003	05/25/16				05/27/16	7	2	P
MW-14-052516	530715-004	05/25/16				05/27/16	7	2	P
MW-10-052516	530715-005	05/25/16				05/27/16	7	2	P
DUP-01-052516	530715-006	05/25/16				05/27/16	7	2	P

F = These samples were analyzed outside the recommended holding time.
P = Samples analyzed within the recommended holding time.

Flagging Criteria

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

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

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

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

F RPD exceeded lab control limits.

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

U Analyte was not detected.

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

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

K Sample analyzed outside of recommended hold time.

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

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

+ NELAC certification not offered for this compound.

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

	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	

GHD Services, INC- Midland

CEMC Cooper-Jal

Analytical Method: **Inorganic Anions by EPA 300/300.1** Prep Method: E300P
Seq Number: 995405 Matrix: Water Date Prep: 05.31.16
MB Sample Id: 709466-1-BLK LCS Sample Id: 709466-1-BKS LCSD Sample Id: 709466-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.500	10.0	9.73	97	9.78	98	90-110	1	20	mg/L	05.31.16 10:39	
Fluoride	<0.500	10.0	10.2	102	10.1	101	90-110	1	20	mg/L	05.31.16 10:39	
Sulfate	<0.500	10.0	9.69	97	9.75	98	90-110	1	20	mg/L	05.31.16 10:39	

Analytical Method: **Inorganic Anions by EPA 300/300.1** Prep Method: E300P
Seq Number: 995405 Matrix: Ground Water Date Prep: 05.31.16
Parent Sample Id: 530715-001 MS Sample Id: 530715-001 S MSD Sample Id: 530715-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	31.8	100	131	99	131	99	80-120	0	20	mg/L	05.31.16 12:26	
Sulfate	90.8	100	189	98	188	97	80-120	1	20	mg/L	05.31.16 12:26	

Analytical Method: **Inorganic Anions by EPA 300/300.1** Prep Method: E300P
Seq Number: 995405 Matrix: Water Date Prep: 05.31.16
Parent Sample Id: 530883-002 MS Sample Id: 530883-002 S MSD Sample Id: 530883-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	120	50.0	128	16	128	16	80-120	0	20	mg/L	05.31.16 17:03	X
Fluoride	1.30	10.0	11.3	100	12.4	111	80-120	9	20	mg/L	05.31.16 17:03	
Sulfate	260	50.0	263	6	262	4	80-120	0	20	mg/L	05.31.16 17:03	X

Analytical Method: **TDS by SM2540C**
Seq Number: 995176 Matrix: Water
MB Sample Id: 995176-1-BLK LCS Sample Id: 995176-1-BKS LCSD Sample Id: 995176-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	<5.00	1000	1020	102	1060	106	80-120	4	10	mg/L	05.27.16 11:46	

Analytical Method: **TDS by SM2540C**
Seq Number: 995176 Matrix: Water
Parent Sample Id: 530576-001 MD Sample Id: 530576-001 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	477	448	6	10	mg/L	05.27.16 11:46	

CHAIN OF CUSTODY

Page 1 Of 1

XENCO LABORATORIES

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Norcross, Georgia (770-449-8800)
Lakeland, Florida (863-646-8526)
Tampa, Florida (813-620-2000)
www.xenco.com

Xenco Quote #: | Xenco Job #: 530715

Client / Reporting Information

Company Name / Branch: GHD-Midland
Company Address: 2135 S Loop 250 W, Midland, TX 79703
Email: christopher.knight@ghd.com | Phone No: 512-506-8803
Project Contact: Christopher Knight
Samplers's Name: James Berry

Project Information

Project Name/Number: CEMC Cooper-Jal
Project Location: Lea County, New M
Invoice To:
PO Number:

Analytical Information

Matrix Codes

S = Soil/Sed/Solid
GW =Ground Water
DW = Drinking Water
P = Product
SW = Surface water
SL = Sludge
OW =Ocean/Sea Water
W = Wipe
O = Oil
WW= Waste Water
A = Air

No.	Field ID / Point of Collection	Collection: Sample Depth	Date	Time	Matrix	# of bottles	Number of preserved bottles: HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	NONE	Chloride, F, SO4	TDS	Field Comments
1	MW-08-052516		5-25	1200	GW	1								X	X	X	
2	MW-11-052516			1100													
3	MW-09-052516			1120													
4	MW-14-052516			1255													
5	MW-10-052516			1315													
6	DUP-01-052516			—													
7																	
8																	
9																	
10																	

Turnaround Time (Business days)

- [ ] Same Day TAT
- [x] 5 Day TAT
- [ ] Next Day EMERGENCY
- [ ] 7 Day TAT
- [ ] 2 Day EMERGENCY
- [ ] Contract TAT
- [ ] 3 Day EMERGENCY

TAT Starts Day received by Lab, if received by 5:00 pm

Data Deliverable Information

- [ ] Level II Std QC
- [ ] Level III Std QC+ Forms
- [ ] Level 3 (CLP Forms)
- [ ] TRRP Checklist
- [ ] Level IV (Full Data Pkg /raw data)
- [ ] TRRP Level IV
- [ ] UST / RG -411

Notes:

FED-EX / UPS: Tracking #

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY

	Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1	James Berry	5-25-16 1620	1	2		2
3	Relinquished by:	Date Time:	Received By: 3	Relinquished By: 4	Date Time:	Received By: 4
5	Relinquished by:	Date Time:	Received By: 5	Custody Seal #	Preserved where applicable	On Ice: X

Cooler Temp. Thermo. Corr. Factor

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to XENCO Laboratories and its affiliates, subcontractors and assigns XENCO's standard terms and conditions of service unless previously negi

emp: 3.9°C IR ID:R-8
C/F:0
Corrected Temp: 3.9°C

Final 1.000

Page 16 of 17

XENCO Laboratories
Prelogin/Nonconformance Report- Sample Log-In

Client: GHD Services, INC- Midland

Date/ Time Received: 05/25/2016 04:20:00 PM

Work Order #: 530715

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

Temperature Measuring device used : R8

Sample Receipt Checklist		Comments
#1 *Temperature of cooler(s)?	3.9	
#2 *Shipping container in good condition?	**N/A**	
#3 *Samples received on ice?	**Yes**	
#4 *Custody Seal present on shipping container/ cooler?	**N/A**	
#5 *Custody Seals intact on shipping container/ cooler?	**N/A**	
#6 Custody Seals intact on sample bottles?	**N/A**	
#7 *Custody Seals Signed and dated?	**N/A**	
#8 *Chain of Custody present?	**Yes**	
#9 Sample instructions complete on Chain of Custody?	**Yes**	
#10 Any missing/extra samples?	**No**	
#11 Chain of Custody signed when relinquished/ received?	**Yes**	
#12 Chain of Custody agrees with sample label(s)?	**Yes**	
#13 Container label(s) legible and intact?	**Yes**	
#14 Sample matrix/ properties agree with Chain of Custody?	**Yes**	
#15 Samples in proper container/ bottle?	**Yes**	
#16 Samples properly preserved?	**Yes**	
#17 Sample container(s) intact?	**Yes**	
#18 Sufficient sample amount for indicated test(s)?	**Yes**	
#19 All samples received within hold time?	**Yes**	
#20 Subcontract of sample(s)?	**Yes**	Subcontract Houston
#21 VOC samples have zero headspace (less than 1/4 inch bubble)?	**N/A**	
#22 <2 for all samples preserved with HNO3,HCL, H2SO4? Except for samples for the analysis of HEM or HEM-SGT which are verified by the analysts.	**N/A**	
#23 >10 for all samples preserved with NaAsO2+NaOH, ZnAc+NaOH?	**N/A**	

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

Analyst: MAN

PH Device/Lot#: 225810

Checklist completed by: Mary Alexis Negron
Mary Negron
Date: 05/25/2016

Checklist reviewed by: Kelsey Brooks
Kelsey Brooks
Date: 05/26/2016

Analytical Report 552972

for

GHD Services, INC- Midland

Project Manager: Chris Knight

CEMC Cooper Jal

039123

22-MAY-17

Collected By: Client

1211 W. Florida Ave, Midland TX 79701

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

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

22-MAY-17

Project Manager: **Chris Knight**
GHD Services, INC- Midland
2135 S Loop 250 W
Midland, TX 79703

Reference: XENCO Report No(s): **552972**
CEMC Cooper Jal
Project Address: Lea County, New M

Chris Knight:

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) 552972. 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. 552972 will be filed for 60 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

Kelsey Brooks
Project Manager

Sample Cross Reference 552972

GHD Services, INC- Midland, Midland, TX

CEMC Cooper Jal

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
MW-9-W-171105	W	05-11-17 09:40		552972-001
MW-8-W-171105	W	05-11-17 10:05		552972-002
MW-11-W-171105	W	05-11-17 10:30		552972-003
MW-14-W-171105	W	05-11-17 10:50		552972-004
MW-10-W-171105	W	05-11-17 11:10		552972-005
DUP-1-W-171105	W	05-11-17 00:00		552972-006
Rblk-W-171105	W	05-11-17 00:00		552972-007

Client Name: GHD Services, INC- Midland

Project Name: CEMC Cooper Jal

Project ID: *039123*
Work Order Number(s): *552972*

Report Date: *22-MAY-17*
Date Received: *05/11/2017*

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3017798 Inorganic Anions by EPA 300/300.1

Lab Sample ID 552972-001 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride , Fluoride, Sulfate recovered below QC limits in the Matrix Spike and Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 552972-001, -002, -003, -004, -005, -006, -007.

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

Certificate of Analysis Summary 552972

GHD Services, INC- Midland, Midland, TX

Project Name: CEMC Cooper Jal

Project Id: 039123
Contact: Chris Knight
Project Location: Lea County, New M

Date Received in Lab: Thu May-11-17 04:20 pm
Report Date: 22-MAY-17
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	552972-001		552972-002		552972-003		552972-004		552972-005		552972-006	
	Field Id:	MW-9-W-171105		MW-8-W-171105		MW-11-W-171105		MW-14-W-171105		MW-10-W-171105		DUP-1-W-171105	
	Depth:												
	Matrix:	GROUND WATER		GROUND WATER		GROUND WATER		GROUND WATER		GROUND WATER		GROUND WATER	
	Sampled:	May-11-17 09:40		May-11-17 10:05		May-11-17 10:30		May-11-17 10:50		May-11-17 11:10		May-11-17 00:00	
Inorganic Anions by EPA 300/300.1	***Extracted:***	May-19-17 13:00		May-19-17 13:00		May-19-17 13:00		May-19-17 13:00		May-19-17 13:00		May-19-17 13:00	
	Analyzed:	May-19-17 15:09		May-19-17 15:32		May-19-17 15:40		May-19-17 15:47		May-19-17 15:55		May-19-17 16:18	
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL
Chloride		481	5.00	9.10	0.500	35.1	2.50	70.5	2.50	353	5.00	8.62	0.500
Fluoride		ND	1.00	ND	0.100	ND	0.500	ND	0.500	ND	1.00	ND	0.100
Sulfate		118	5.00	32.2	0.500	110	2.50	17.7	2.50	112	5.00	32.2	0.500
TDS by SM2540C	***Extracted:***												
	Analyzed:	May-17-17 09:00		May-17-17 09:00		May-17-17 09:00		May-17-17 09:00		May-17-17 09:00		May-17-17 09:00	
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL
Total Dissolved Solids		1090	5.00	214	5.00	416	5.00	412	5.00	1080	5.00	182	5.00

Kelsey Brooks
Project Manager

Certificate of Analysis Summary 552972

GHD Services, INC- Midland, Midland, TX

Project Name: CEMC Cooper Jal

Project Id: 039123
Contact: Chris Knight
Project Location: Lea County, New M

Date Received in Lab: Thu May-11-17 04:20 pm
Report Date: 22-MAY-17
Project Manager: Kelsey Brooks

Analysis Requested							
	Lab Id:	552972-007					
	Field Id:	Rblk-W-171105					
	Depth:						
	Matrix:	GROUND WATER					
	Sampled:	May-11-17 00:00					
Inorganic Anions by EPA 300/300.1	***Extracted:***	May-19-17 13:00					
	Analyzed:	May-19-17 16:25					
	Units/RL:	mg/L	RL				
Chloride		ND	0.500				
Fluoride		ND	0.100				
Sulfate		ND	0.500				
TDS by SM2540C	***Extracted:***						
	Analyzed:	May-17-17 09:00					
	Units/RL:	mg/L	RL				
Total Dissolved Solids		ND	5.00				

Kelsey Brooks
Project Manager

Flagging Criteria

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

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

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

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

F RPD exceeded lab control limits.

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

U Analyte was not detected.

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

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

K Sample analyzed outside of recommended hold time.

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

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

+ NELAC certification not offered for this compound.

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

	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	

Blank Spike Recovery

Project Name: CEMC Cooper Jal

Work Order #: 552972 **Project ID:** 039123

Lab Batch #: 3017564 **Sample:** 3017564-1-BKS **Matrix:** Water

Date Analyzed: 05/17/2017 **Date Prepared:** 05/17/2017 **Analyst:** MAN

Reporting Units: mg/L **Batch #:** 1

BLANK /BLANK SPIKE RECOVERY STUDY

TDS by SM2540C Analytes	Blank Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Control Limits %R	Flags
Total Dissolved Solids	<5.00	1000	980	98	80-120	

Blank Spike Recovery [D] = 100*[C]/[B]
All results are based on MDL and validated for QC purposes.

BRL - Below Reporting Limit

BS / BSD Recoveries

Project Name: CEMC Cooper Jal

Work Order #: 552972 **Project ID:** 039123

Analyst: MGO **Date Prepared:** 05/19/2017 **Date Analyzed:** 05/19/2017

Lab Batch ID: 3017798 **Sample:** 724914-1-BKS **Batch #:** 1 **Matrix:** Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	<0.500	25.0	25.5	102	25.0	25.7	103	1	90-110	20	
Fluoride	<0.100	5.00	5.39	108	5.00	5.50	110	2	90-110	20	
Sulfate	<0.500	25.0	26.1	104	25.0	26.2	105	0	90-110	20	

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

Form 3 - MS / MSD Recoveries

Project Name: CEMC Cooper Jal

Work Order # : 552972 **Project ID:** 039123

Lab Batch ID: 3017798 **QC- Sample ID:** 552972-001 S **Batch #:** 1 **Matrix:** Ground Water

Date Analyzed: 05/19/2017 **Date Prepared:** 05/19/2017 **Analyst:** MGO

Reporting Units: mg/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	481	250	602	48	250	601	48	0	90-110	20	X
Fluoride	<1.00	50.0	22.1	44	50.0	22.2	44	0	90-110	20	X
Sulfate	118	250	235	47	250	234	46	0	90-110	20	X

Matrix Spike Percent Recovery [D] = 100*(C-A)/B

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

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable

N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

Sample Duplicate Recovery

Project Name: CEMC Cooper Jal

Work Order #: 552972

Lab Batch #: 3017564 **Project ID:** 039123

Date Analyzed: 05/17/2017 09:00 **Date Prepared:** 05/17/2017 **Analyst:** MAN

QC- Sample ID: 552972-001 D **Batch #:** 1 **Matrix:** Ground Water

Reporting Units: mg/L

TDS by SM2540C Analyte	SAMPLE / SAMPLE DUPLICATE RECOVERY Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Total Dissolved Solids	1090	1190	9	10	

Spike Relative Difference RPD 200 * | (B-A)/(B+A) |
All Results are based on MDL and validated for QC purposes.

BRL - Below Reporting Limit

CHAIN OF CUSTODY

Page 1 Of 1

XENCO LABORATORIES

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Service Center - San Antonio, Texas (210-509-3334)

Odessa, Texas (432-563-1800)

Norcross, Georgia (770-449-8800)

Lakeland, Florida (863-646-8526)

Tampa, Florida (813-620-2000)

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Xenco Quote #

Xenco Job # 552972

Client / Reporting Information

Company Name / Branch: GHD-Midland

Company Address: 2135 S Loop 250 W, Midland, TX 79703

Email: stefanie.castracane@ghd.com, christopher.knight@ghd.com, janie.smith@ghd.com

Phone No: 512-506-8803, 225-292-9007

Project Contact: Christopher Knight, Janie Smith, Stefanie Castracane

Samplers's Name

Project Information

Project Name/Number: CEMC Cooper-Jal

Project Location: Lea County, New M

Invoice To:

PO Number:

Analytical Information

Matrix Codes

S = Soil/Sed/Solid
GW =Ground Water
DW = Drinking Water
P = Product
SW = Surface water
SL = Sludge
OW =Ocean/Sea Water
W = Wipe
O = Oil
WW= Waste Water
A = Air

No.	Field ID / Point of Collection	Collection: Sample Depth	Collection: Date	Collection: Time	Matrix	# of bottles	Number of preserved bottles: HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	NONE	Chloride, Fluoride, Sulfate	TDS	Field Comments
1	MW-9-W-171105	—	5/11	0940	GW	2								X	X	X	Please reference SSOW
2	MW-8-W-171105	—	5/11	1005	GW	2											
3	MW-11-W-171105	—	5/11	1030	GW	2											
4	MW-14-W-171105	—	5/11	1050	GW	2											
5	MW-10-W-171105	—	5/11	1110	GW	2											
6	DUP-1-W-171105	—	5/11	—	GW	2											
7	Rblk-W-171105	—	5/11	—	GW	2								X	X	X	
8																	
9																	
10																	

Turnaround Time (Business days)

- [ ] Same Day TAT
- [x] 5 Day TAT
- [ ] Next Day EMERGENCY
- [ ] 7 Day TAT
- [ ] 2 Day EMERGENCY
- [ ] Contract TAT
- [ ] 3 Day EMERGENCY

TAT Starts Day received by Lab, if received by 5:00 pm

Data Deliverable Information

- [ ] Level II Std QC
- [ ] Level IV (Full Data Pkg /raw data)
- [ ] Level III Std QC+ Forms
- [ ] TRRP Level IV
- [ ] Level 3 (CLP Forms)
- [ ] UST / RG -411
- [ ] TRRP Checklist

Notes:

FED-EX / UPS: Tracking #

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY

	Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1	Jennifer Stoffel	5/11/171620	1	2		2
3	Relinquished by:	Date Time:	Received By: 3	Relinquished By: 4	Date Time:	Received By: 4
5	Relinquished by:	Date Time:	Received By: 5	Custody Seal #	Preserved where applicable	On Ice: X

Temp: 3.3°C IR ID:R-9
CF:(0-6: 0.0°C) (6-23: +0.1°C)
Corrected Temp: 3.3°C

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to XENCO Laboratories and its affiliates, subcontractors and assigns XENCO's standard terms and conditions of service unless previous

Final 1.000

Page 12 of 13

XENCO Laboratories
Prelogin/Nonconformance Report- Sample Log-In

Client: GHD Services, INC- Midland

Date/ Time Received: 05/11/2017 04:20:00 PM

Work Order #: 552972

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

Temperature Measuring device used : R(

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

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

Analyst: ma

PH Device/Lot#: HC563720

Checklist completed by: Marithza Anaya Date: 05/12/2017

Checklist reviewed by: Kelsey Brooks Date: 05/12/2017

Memorandum

June 6, 2017

To:	Janie Tarman Smith	Ref. No.:	039123
From:	Chris G. Knight/eew/7-NF	Tel:	512-506-8803
cc:	Stefanie Gilliam		

Subject: **Analytical Results and Reduced Validation**
Semiannual Groundwater Monitoring Event
Chevron Environmental Management Company (CEMC) – Cooper Jal
Lea County, New Mexico
May 2017

1. Introduction

The following document details a reduced validation of analytical results for groundwater samples collected in support of the Semiannual Groundwater Monitoring Event at the Cooper Jal site in Lea County, New Mexico during May 2017. Samples were submitted to Xenco Laboratories in Midland, Texas. A sample collection and analysis summary is presented in Table 1. The validated analytical results are summarized in Table 2. A summary of the analytical methodology is presented in Table 3.

Standard GHD report deliverables were submitted by the laboratory. The final results and supporting quality assurance/quality control (QA/QC) data were assessed. Evaluation of the data was based on information obtained from the chain of custody form, finished report form, method blank data, duplicate data, recovery data from surrogate spikes/laboratory control samples (LCS)/matrix spikes (MS), and field QA/QC samples.

The QA/QC criteria by which these data have been assessed are outlined in the analytical methods referenced in Table 3 and applicable guidance from the document entitled:

i) "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review", USEPA 540-R-10-011, January 2010.

Item i) will subsequently be referred to as the "Guidelines" in this Memorandum.

2. Sample Holding Time and Preservation

The sample holding time criteria for the analyses are summarized in Table 3. Sample chain of custody documents and the analytical report were used to determine sample holding times. All samples were prepared and analyzed within the required holding times.

All samples were delivered on ice and stored by the laboratory at the required temperature (0-6°C).

3. Laboratory Method Blank Analyses

Method blanks are prepared from a purified matrix and analyzed with investigative samples to determine the existence and magnitude of sample contamination introduced during the analytical procedures.

For this study, laboratory method blanks were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

All method blank results were non-detect, indicating that laboratory contamination was not a factor for this investigation.

4. Blank Spike Sample (BS) Analyses

BS or BS/ blank spike sample duplicates (BSD) are prepared and analyzed as samples to assess the analytical efficiencies of the methods employed, independent of sample matrix effects. The relative percent difference (RPD) of the BS/BSD recoveries is used to evaluate analytical precision.

For this study, BS or BS/BSD were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

The BS or BS/BSD contained all analytes of interest. BS recoveries were assessed per the "Guidelines". All BS recoveries and/or RPDs were within the control limits, demonstrating acceptable analytical accuracy and/or precision.

5. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analyses

To evaluate the effects of sample matrices on the distillation process, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as MS/MSD samples. The RPD between the MS and MSD is used to assess analytical precision.

MS/MSD analyses were performed as specified in Table 1. The MS/MSD samples were spiked with the analytes of interest, and the results were evaluated using the "Guidelines". All percent recoveries and RPD values were within the control limits, demonstrating acceptable analytical accuracy and precision with the following exception (see Table 4):

i) One MS/MSD was reported with low recoveries for chloride, fluoride, and sulfate analyses due to matrix interferences and ~~were~~ was not assessed. No further action was required.

6. Duplicate Sample Analyses

Analytical precision is evaluated based on the analysis of laboratory duplicate samples. For this study, duplicate samples were prepared and analyzed by the laboratory as specified in Table 1.The duplicate

results were evaluated per the "Guidelines". All duplicate analyses performed were acceptable, demonstrating acceptable analytical precision.

7. Field QA/QC Samples

The field QA/QC consisted of one rinse blank sample and one field duplicate sample set~~s~~.

Rinse Blank Sample Analysis

To assess field decontamination procedures and cleanliness of sample containers, one rinse blank sample was submitted for analysis, as identified in Table 1. All results were non-detect for the analytes of interest.

Field Duplicate Sample Analysis

To assess the analytical and sampling protocol precision, ~~two~~ one field duplicate sample set was ~~were~~ collected and submitted to the laboratory, as specified in Table 1. The RPDs associated with these duplicate samples must be less than 50 percent for water samples. If the reported concentration in either the investigative sample or its duplicate is less than five times the reporting limit (RL), the evaluation criterion is one times the RL value.

All field duplicate results were within acceptable agreement, demonstrating acceptable sampling and analytical precision.

8. Analyte Reporting

The laboratory reported detected results down to the laboratory's RL for each analyte.

9. Conclusion

Based on the assessment detailed in the foregoing, the data summarized in Table 2 are acceptable without qualification.

Table 1

Sample Collection and Analysis Summary
Semiannual Groundwater Monitoring Event
Chevron Environmental Management Company (CEMC) - Cooper Jal
Lea County, New Mexico
May 2017

					Analysis/Parameters				
Sample Identification	**Location**	**Matrix**	**Collection Date (mm/dd/yyyy)**	**Collection Time (hr:min)**	**Chloride**	**Fluoride**	**Sulfate**	**TDS**	**Comments**
MW-9-W-171105	MW-9	Water	05/11/2017	09:40	X	X	X	X	MS/MSD; DUP
MW-8-W-171105	MW-8	Water	05/11/2017	10:05	X	X	X	X	
DUP-1-W-171105	MW-8	Water	05/11/2017	10:05	X	X	X	X	File duplicate of MW-8
MW-11-W-171105	MW-11	Water	05/11/2017	10:30	X	X	X	X	
MW-14-W-171105	MW-14	Water	05/11/2017	10:50	X	X	X	X	
MW-10-W-171105	MW-10	Water	05/11/2017	11:10	X	X	X	X	
Rblk-W-171105	-	Water	05/11/2017	-	X	X	X	X	Rinse Blank

Notes:

TDS - Total Dissolved Solids
MS/MSD - Matrix Spike/ Matrix Spike Duplicate
DUP - Laboratory Duplicate Sample
"-" - Not Applicable

Table 2

Analytical Results Summary
Semiannual Groundwater Monitoring Event
Chevron Environmental Management Company (CEMC) - Cooper Jal
Lea County, New Mexico
May 2017

Location ID:		MW-8	MW-8	MW-9	MW-10	MW-11	MW-14	RINSE BLANK
Sample Name:		MW-8-W-171105	DUP-1-W-171105	MW-9-W-171105	MW-10-W-171105	MW-11-W-171105	MW-14-W-171105	Rblk-W-171105
Sample Date:		05/11/2017	05/11/2017	05/11/2017	05/11/2017	05/11/2017	05/11/2017	05/11/2017
			Duplicate					
Parameters	**Unit**							
General Chemistry								
Chloride	mg/L	9.10	8.62	481	353	35.1	70.5	<0.500
Fluoride	mg/L	<0.100	<0.100	<1.00	<1.00	<0.500	<0.500	<0.100
Sulfate	mg/L	32.2	32.2	118	112	110	17.7	<0.500
TDS	mg/L	214	182	1090	1080	416	412	<5.00

Notes:

TDS - Total Dissolved Solids
< - Not detected at the associated reporting limit

Table 3

Analytical Methods
Semiannual Groundwater Monitoring Event
Chevron Environmental Management Company (CEMC) - Cooper Jal
Lea County, New Mexico
May 2017

Parameter	Method	Matrix	Holding Time Collection to Analysis (Days)
Chloride	EPA 300/300.1	Water	28
Fluoride	EPA 300	Water	28
Sulfate	EPA 300/300.1	Water	28
TDS	SM 2540C	Water	7

Notes:

TDS - Total Dissolved Solids

Method References:

EPA - "Methods for Chemical Analysis of Water and Wastes", USEPA-600/4-79-020, March 1983, with subsequent revisions

SM - "Standard Methods for the Examination of Water and Wastewater", 18th Edition, 1992, with subsequent revisions

Analytical Report 566441

for

GHD Services, INC- Midland

Project Manager: Chris Knight

CEMC Cooper Jal

039123

03-NOV-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)

03-NOV-17

Project Manager: **Chris Knight**
GHD Services, INC- Midland
2135 S Loop 250 W
Midland, TX 79703

Reference: XENCO Report No(s): **566441**
CEMC Cooper Jal
Project Address: Lea Co, NM

Chris Knight:

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) 566441. 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. 566441 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

Kelsey Brooks
Project Manager

Sample Cross Reference 566441

GHD Services, INC- Midland, Midland, TX

CEMC Cooper Jal

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
MW-14-W-20171024	W	10-24-17 13:25		566441-001
MW-9A-W-20171024	W	10-24-17 13:25		566441-002
MW-9-W-20171024	W	10-24-17 13:25		566441-003
MW-10-W-20171024	W	10-24-17 13:25		566441-004
MW-11-W-20171024	W	10-24-17 13:25		566441-005
MW-8-W-20171024	W	10-24-17 13:25		566441-006
MW-7-W-20171024	W	10-24-17 13:25		566441-007
MW-1-W-20171024	W	10-24-17 13:25		566441-008
MW-3-W-20171024	W	10-24-17 13:25		566441-009
MW-12-W-20171024	W	10-24-17 13:25		566441-010
MW-12-WD-20171024	W	10-24-17 13:25		566441-011

Client Name: GHD Services, INC- Midland

Project Name: CEMC Cooper Jal

Project ID: *039123*
Work Order Number(s): *566441*

Report Date: *03-NOV-17*
Date Received: *10/25/2017*

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3031948 Inorganic Anions by EPA 300/300.1

Lab Sample ID 566441-006 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride , Fluoride, Sulfate 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: 566441-001, -002, -003, -004, -005, -006, -007.

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

Certificate of Analysis Summary 566441

GHD Services, INC- Midland, Midland, TX

Project Name: CEMC Cooper Jal

Project Id: 039123
Contact: Chris Knight
Project Location: Lea Co, NM

Date Received in Lab: Wed Oct-25-17 08:09 am
Report Date: 03-NOV-17
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	566441-001		566441-002		566441-003		566441-004		566441-005		566441-006	
	Field Id:	MW-14-W-20171024		MW-9A-W-20171024		MW-9-W-20171024		MW-10-W-20171024		MW-11-W-20171024		MW-8-W-20171024	
	Depth:												
	Matrix:	GROUND WATER		GROUND WATER		GROUND WATER		GROUND WATER		GROUND WATER		GROUND WATER	
	Sampled:	Oct-24-17 13:25		Oct-24-17 13:25		Oct-24-17 13:25		Oct-24-17 13:25		Oct-24-17 13:25		Oct-24-17 13:25	
Inorganic Anions by EPA 300/300.1 SUB: E871002	***Extracted:***	Oct-30-17 15:05		Oct-30-17 15:05		Oct-30-17 15:05		Oct-30-17 15:05		Oct-30-17 15:05		Oct-30-17 15:05	
	Analyzed:	Oct-30-17 19:37		Oct-30-17 19:43		Oct-30-17 19:50		Oct-30-17 19:56		Oct-30-17 18:40		Oct-30-17 17:10	
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL
Chloride		57.4	2.50	206	2.50	387	5.00	240	2.50	35.1	2.50	3.69	0.500
Fluoride		1.77	0.500	ND	0.500	2.42	1.00	1.60	0.500	1.87	0.500	0.228	0.100
Sulfate		42.2	2.50	96.6	2.50	102	5.00	97.0	2.50	95.3	2.50	18.3	0.500
TDS by SM2540C	***Extracted:***												
	Analyzed:	Oct-26-17 14:00		Oct-26-17 14:00		Oct-26-17 14:00		Oct-26-17 14:00		Oct-26-17 14:00		Oct-26-17 14:00	
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL
Total Dissolved Solids		423	5.00	681	5.00	1020	5.00	742	5.00	438	5.00	286	5.00

Kelsey Brooks
Project Manager

Certificate of Analysis Summary 566441

GHD Services, INC- Midland, Midland, TX

Project Name: CEMC Cooper Jal

Project Id: 039123
Contact: Chris Knight
Project Location: Lea Co, NM

Date Received in Lab: Wed Oct-25-17 08:09 am
Report Date: 03-NOV-17
Project Manager: Kelsey Brooks

Analysis Requested											
	Lab Id:	566441-007		566441-008		566441-009		566441-010		566441-011	
	Field Id:	MW-7-W-20171024		MW-1-W-20171024		MW-3-W-20171024		MW-12-W-20171024		MW-12-WD-20171024	
	Depth:										
	Matrix:	GROUND WATER		GROUND WATER		GROUND WATER		GROUND WATER		GROUND WATER	
	Sampled:	Oct-24-17 13:25		Oct-24-17 13:25		Oct-24-17 13:25		Oct-24-17 13:25		Oct-24-17 13:25	
Inorganic Anions by EPA 300/300.1 SUB: E871002	***Extracted:***	Oct-30-17 15:05		Oct-30-17 17:05		Oct-30-17 17:05		Oct-30-17 17:05		Oct-30-17 17:05	
	Analyzed:	Oct-30-17 20:02		Oct-31-17 14:34		Oct-30-17 21:00		Oct-30-17 21:06		Oct-30-17 21:13	
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL
Chloride		1670	10.0	148	2.50	35.9	2.50	150	2.50	149	2.50
Fluoride		ND	2.00	2.57	0.500	1.50	0.500	ND	0.500	ND	0.500
Sulfate		249	10.0	79.4	2.50	98.7	2.50	64.9	2.50	64.8	2.50
TDS by SM2540C	***Extracted:***										
	Analyzed:	Oct-26-17 14:00		Oct-26-17 14:00		Oct-26-17 14:00		Oct-26-17 14:00		Oct-26-17 14:00	
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL
Total Dissolved Solids		2660	5.00	594	5.00	442	5.00	579	5.00	565	5.00

Kelsey Brooks
Project Manager

Flagging Criteria

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

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

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

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

F RPD exceeded lab control limits.

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

U Analyte was not detected.

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

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

K Sample analyzed outside of recommended hold time.

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

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

+ NELAC certification not offered for this compound.

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

	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	

Blank Spike Recovery

Project Name: CEMC Cooper Jal

Work Order #: 566441 **Project ID:** 039123

Lab Batch #: 3031652 **Sample:** 3031652-1-BKS **Matrix:** Water

Date Analyzed: 10/26/2017 **Date Prepared:** 10/26/2017 **Analyst:** LRI

Reporting Units: mg/L **Batch #:** 1

BLANK /BLANK SPIKE RECOVERY STUDY

TDS by SM2540C Analytes	Blank Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Control Limits %R	Flags
Total Dissolved Solids	<5.00	1000	957	96	80-120	

Blank Spike Recovery [D] = 100*[C]/[B]
All results are based on MDL and validated for QC purposes.

BRL - Below Reporting Limit

BS / BSD Recoveries

Project Name: CEMC Cooper Jal

Work Order #: 566441 **Project ID:** 039123

Analyst: MNV **Date Prepared:** 10/30/2017 **Date Analyzed:** 10/30/2017

Lab Batch ID: 3031948 **Sample:** 7633459-1-BKS **Batch #:** 1 **Matrix:** Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	<0.500	25.0	24.2	97	25.0	24.2	97	0	90-110	20	
Fluoride	<0.100	5.00	4.86	97	5.00	4.86	97	0	90-110	20	
Sulfate	<0.500	25.0	24.1	96	25.0	23.9	96	1	90-110	20	

Analyst: MNV **Date Prepared:** 10/30/2017 **Date Analyzed:** 10/30/2017

Lab Batch ID: 3031955 **Sample:** 7633464-1-BKS **Batch #:** 1 **Matrix:** Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	<0.500	25.0	25.5	102	25.0	24.8	99	3	90-110	20	
Fluoride	<0.100	5.00	5.11	102	5.00	5.02	100	2	90-110	20	
Sulfate	<0.500	25.0	25.3	101	25.0	24.7	99	2	90-110	20	

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

Form 3 - MS / MSD Recoveries

Project Name: CEMC Cooper Jal

Work Order # : 566441 **Project ID:** 039123

Lab Batch ID: 3031948 **QC- Sample ID:** 566441-005 S **Batch #:** 1 **Matrix:** Ground Water

Date Analyzed: 10/30/2017 **Date Prepared:** 10/30/2017 **Analyst:** MNV

Reporting Units: mg/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	35.1	125	280	196	125	278	194	1	90-110	20	X
Fluoride	1.87	25.0	31.9	120	25.0	31.9	120	0	90-110	20	X
Sulfate	95.3	125	539	355	125	539	355	0	90-110	20	X

Lab Batch ID: 3031948 **QC- Sample ID:** 566441-006 S **Batch #:** 1 **Matrix:** Ground Water

Date Analyzed: 10/30/2017 **Date Prepared:** 10/30/2017 **Analyst:** MNV

Reporting Units: mg/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	3.69	25.0	27.9	97	25.0	28.4	99	2	90-110	20	
Fluoride	0.228	5.00	5.18	99	5.00	5.31	102	2	90-110	20	
Sulfate	18.3	25.0	40.8	90	25.0	41.6	93	2	90-110	20	

Lab Batch ID: 3031955 **QC- Sample ID:** 566441-008 S **Batch #:** 1 **Matrix:** Ground Water

Date Analyzed: 10/31/2017 **Date Prepared:** 10/30/2017 **Analyst:** MNV

Reporting Units: mg/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	148	125	265	94	125	271	98	2	90-110	20	
Fluoride	2.57	25.0	26.4	95	25.0	27.0	98	2	90-110	20	
Sulfate	79.4	125	196	93	125	200	96	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.

Form 3 - MS / MSD Recoveries

Project Name: CEMC Cooper Jal

Work Order # : 566441 **Project ID:** 039123

Lab Batch ID: 3031955 **QC- Sample ID:** 566519-008 S **Batch #:** 1 **Matrix:** Ground Water

Date Analyzed: 10/31/2017 **Date Prepared:** 10/30/2017 **Analyst:** MNV

Reporting Units: mg/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	254	125	373	95	125	372	94	0	90-110	20	
Fluoride	1.02	25.0	24.5	94	25.0	24.5	94	0	90-110	20	
Sulfate	75.5	125	194	95	125	193	94	1	90-110	20	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B

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

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable

N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

Sample Duplicate Recovery

Project Name: CEMC Cooper Jal

Work Order #: 566441

Lab Batch #: 3031652 **Project ID:** 039123

Date Analyzed: 10/26/2017 14:00 **Date Prepared:** 10/26/2017 **Analyst:** LRI

QC- Sample ID: 566441-001 D **Batch #:** 1 **Matrix:** Ground Water

Reporting Units: mg/L

TDS by SM2540C Analyte	SAMPLE / SAMPLE DUPLICATE RECOVERY Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Total Dissolved Solids	423	466	10	10	

Spike Relative Difference RPD 200 * | (B-A)/(B+A) |
All Results are based on MDL and validated for QC purposes.

BRL - Below Reporting Limit

CHAIN OF CUSTODY

Page 1 Of 3

XENCO LABORATORIES

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Norcross, Georgia (770-449-8800)

Lakeland, Florida (863-646-8526)

Tampa, Florida (813-620-2000)

Xenco Quote #

Xenco Job # 566441

Client / Reporting Information

Company Name / Branch: GHD-Midland

Company Address: 2135 S Loop 250 W, Midland, TX 79703

Email: christopher.knight@ghd.com

Phone No: 512-506-8803

Project Contact: Christopher Knight

Samplers's Name: Justin Nixon / Matthew Laughlin

Project Information

Project Name/Number: CEMC Cooper-Jal / 039123

Project Location: Lea County, New Mexico

Invoice To:

PO Number:

Analytical Information

Matrix Codes

S = Soil/Sed/Solid
GW =Ground Water
DW = Drinking Water
P = Product
SW = Surface water
SL = Sludge
OW =Ocean/Sea Water
W = Wipe
O = Oil
WW= Waste Water
A = Air

No.	Field ID / Point of Collection	Collection: Sample Depth	Collection: Date	Collection: Time	Matrix	# of bottles	Number of preserved bottles: HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	NONE	Anions: Cl, F, SO4	TDS	Field Comments
1	MW-14-W-20171024	NA	10/24	1325	GW	2								X	X	X	
2	MW-9A-W-20171024	NA	10/24	1340	GW	2								X	X	X	
3	MW-9-W-20171024	NA	10/24	1355	GW	2								X	X	X	
4	MW-10-W-20171024	NA	10/24	1305	GW	2								X	X	X	
5	MW-11-W-20171024	NA	10/24	1415	GW	2								X	X	X	
6	MW-8-W-20171024	NA	10/24	1425	GW	2								X	X	X	
7	MW-7-W-20171024	NA	10/24	1440	GW	2								X	X	X	
8	MW-1-W-20171024	NA	10/24	1450	GW	2								X	X	X	
9	MW-3-W-20171024	NA	10/24	1500	GW	2								X	X	X	
10	MW-12-W-20171024	NA	10/24	1515	GW	2								X	X	X	

Turnaround Time (Business days)

- [ ] Same Day TAT
- [x] 5 Day TAT
- [ ] Next Day EMERGENCY
- [ ] 7 Day TAT
- [ ] 2 Day EMERGENCY
- [ ] Contract TAT
- [ ] 3 Day EMERGENCY

TAT Starts Day received by Lab, if received by 5:00 pm

Data Deliverable Information

- [ ] Level II Std QC
- [ ] Level IV (Full Data Pkg /raw data)
- [ ] Level III Std QC+ Forms
- [ ] TRRP Level IV
- [ ] Level 3 (CLP Forms)
- [ ] UST / RG -411
- [ ] TRRP Checklist

Temp: -0.3 IR ID:R-8
CF:(0-6: -0.2°C)
(6-23: +0.2°C)
Corrected Temp: -0.1

FED-EX / UPS: Tracking #

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY

	Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1		10/25/17 7:00	1	2 10/25/17 810		3 10.25.17 8:09 am
2	Relinquished by:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
	3		3	4		4
3	Relinquished by:	Date Time:	Received By:	Custody Seal #	Preserved where applicable	On Ice / Cooler Temp. / Thermo. Corr. Factor
	5		5			

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to XENCO Laboratories and its affiliates, subcontractors and assigns XENCO's standard terms and conditions of service unless previously negiotiated under a fully executed client contract.

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Page 13 of 15

CHAIN OF CUSTODY

Page 2 Of 2

XENCO LABORATORIES

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Odessa, Texas (432-563-1800)

Norcross, Georgia (770-449-8800)

Lakeland, Florida (863-646-8526)

Tampa, Florida (813-620-2000)

Xenco Quote #

Xenco Job #

Client / Reporting Information

Company Name / Branch: GHD-Midland

Company Address: 2135 S Loop 250 W, Midland, TX 79703

Email: christopher.knight@ghd.com

Phone No: 512-506-8803

Project Contact: Christopher Knight

Samplers's Name

Project Information

Project Name/Number: CEMC Cooper-Jal 1039123

Project Location: Lea County, New Mexico

Invoice To:

PO Number:

Analytical Information

Matrix Codes

S = Soil/Sed/Solid
GW =Ground Water
DW = Drinking Water
P = Product
SW = Surface water
SL = Sludge
OW =Ocean/Sea Water
W = Wipe
O = Oil
WW= Waste Water
A = Air

No.	Field ID / Point of Collection	Collection: Sample Depth	Collection: Date	Collection: Time	Matrix	# of bottles	Number of preserved bottles: HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	NONE	Anions: Cl, F, SO4	TDS								Field Comments
1	MW-12-WD-20171024	NA	10/24	—	GW	2								X	X	X								
2																								
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								

Turnaround Time (Business days)

- [ ] Same Day TAT
- [x] 5 Day TAT
- [ ] Next Day EMERGENCY
- [ ] 7 Day TAT
- [ ] 2 Day EMERGENCY
- [ ] Contract TAT
- [ ] 3 Day EMERGENCY

TAT Starts Day received by Lab, if received by 5:00 pm

Data Deliverable Information

- [ ] Level II Std QC
- [ ] Level IV (Full Data Pkg /raw data)
- [ ] Level III Std QC+ Forms
- [ ] TRRP Level IV
- [ ] Level 3 (CLP Forms)
- [ ] UST / RG -411
- [ ] TRRP Checklist

Notes:

Temp: -0.3 IR ID:R-8
CF:(0-6: -0.2°C)
(6-23: +0.2°C)
Corrected Temp: -0.1

FED-EX / UPS: Tracking #

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY

	Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1		10/25/17 3:10	1	2		2
3	Relinquished by:	Date Time:	Received By: 10/25/17 8:09am	Relinquished By: 4	Date Time:	Received By: 4
5	Relinquished by:	Date Time:	Received By: 5	Custody Seal #	Preserved where applicable	On Ice / Cooler Temp. / Thermo. Corr. Factor

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to XENCO Laboratories and its affiliates, subcontractors and assigns XENCO's standard terms and conditions of service unless previously negiotiated under a fully executed client contract.

Final 1.000

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XENCO Laboratories
Prelogin/Nonconformance Report- Sample Log-In

Client: GHD Services, INC- Midland

Date/ Time Received: 10/25/2017 08:09:00 AM

Work Order #: 566441

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

Temperature Measuring device used : R8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	-.1
#2 *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)?	**No**
#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: ch

PH Device/Lot#: 213315

Checklist completed by: Connie Hernandez Date: 10/25/2017

Checklist reviewed by: Kelsey Brooks Date: 10/25/2017

Analytical Report 566519

for

GHD Services, INC- Midland

Project Manager: Chris Knight

CEMC Cooper Jal

039123

01-NOV-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)

01-NOV-17

Project Manager: **Chris Knight**
GHD Services, INC- Midland
2135 S Loop 250 W
Midland, TX 79703

Reference: XENCO Report No(s): **566519**
CEMC Cooper Jal
Project Address: Lea Co, NM

Chris Knight:

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) 566519. 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. 566519 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

Kelsey Brooks
Project Manager

Sample Cross Reference 566519

GHD Services, INC- Midland, Midland, TX

CEMC Cooper Jal

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
MW-2-W-171025	W	10-25-17 11:05		566519-001
MW-2A-W-171025	W	10-25-17 11:20		566519-002
MW-6R-W-171025	W	10-25-17 11:50		566519-003
RW-2-W-171025	W	10-25-17 12:05		566519-004
RW-2R-W-171025	W	10-25-17 12:25		566519-005
MW-4-W-171025	W	10-25-17 12:35		566519-006
MW-4A-W-171025	W	10-25-17 12:45		566519-007
RW-1-W-171025	W	10-25-17 13:00		566519-008
MW-5-W-171025	W	10-25-17 13:10		566519-009
MW-5A-W-171025	W	10-25-17 13:20		566519-010
MW-5-WD-171025	W	10-25-17 00:00		566519-011

Client Name: GHD Services, INC- Midland

Project Name: CEMC Cooper Jal

Project ID: *039123*
Work Order Number(s): *566519*

Report Date: *01-NOV-17*
Date Received: *10/25/2017*

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Certificate of Analysis Summary 566519

GHD Services, INC- Midland, Midland, TX

Project Name: CEMC Cooper Jal

Project Id: 039123
Contact: Chris Knight
Project Location: Lea Co, NM

Date Received in Lab: Wed Oct-25-17 02:45 pm
Report Date: 01-NOV-17
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	566519-001		566519-002		566519-003		566519-004		566519-005		566519-006	
	Field Id:	MW-2-W-171025		MW-2A-W-171025		MW-6R-W-171025		RW-2-W-171025		RW-2R-W-171025		MW-4-W-171025	
	Depth:												
	Matrix:	GROUND WATER		GROUND WATER		GROUND WATER		GROUND WATER		GROUND WATER		GROUND WATER	
	Sampled:	Oct-25-17 11:05		Oct-25-17 11:20		Oct-25-17 11:50		Oct-25-17 12:05		Oct-25-17 12:25		Oct-25-17 12:35	
Inorganic Anions by EPA 300/300.1 SUB: E871002	***Extracted:***	Oct-30-17 17:05		Oct-30-17 17:05		Oct-30-17 17:05		Oct-30-17 17:05		Oct-30-17 17:05		Oct-30-17 17:05	
	Analyzed:	Oct-30-17 21:19		Oct-30-17 21:38		Oct-30-17 21:44		Oct-30-17 21:51		Oct-30-17 21:57		Oct-30-17 22:04	
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL
Chloride		35.8	2.50	83.1	2.50	49.3	2.50	1760	25.0	7030	25.0	6830	25.0
Fluoride		0.995	0.500	1.23	0.500	1.46	0.500	ND	5.00	ND	5.00	ND	5.00
Sulfate		36.3	2.50	77.3	2.50	93.8	2.50	288	25.0	872	25.0	754	25.0
TDS by SM2540C	***Extracted:***												
	Analyzed:	Oct-30-17 10:00		Oct-30-17 10:00		Oct-30-17 10:00		Oct-30-17 10:00		Oct-30-17 10:00		Oct-30-17 10:00	
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL
Total Dissolved Solids		331	5.00	512	5.00	465	5.00	4440	5.00	12300	5.00	12300	5.00

Certificate of Analysis Summary 566519

GHD Services, INC- Midland, Midland, TX

Project Name: CEMC Cooper Jal

Project Id: 039123
Contact: Chris Knight
Project Location: Lea Co, NM

Date Received in Lab: Wed Oct-25-17 02:45 pm
Report Date: 01-NOV-17
Project Manager: Kelsey Brooks

Analysis Requested											
	Lab Id:	566519-007		566519-008		566519-009		566519-010		566519-011	
	Field Id:	MW-4A-W-171025		RW-1-W-171025		MW-5-W-171025		MW-5A-W-171025		MW-5-WD-171025	
	Depth:										
	Matrix:	GROUND WATER		GROUND WATER		GROUND WATER		GROUND WATER		GROUND WATER	
	Sampled:	Oct-25-17 12:45		Oct-25-17 13:00		Oct-25-17 13:10		Oct-25-17 13:20		Oct-25-17 00:00	
Inorganic Anions by EPA 300/300.1 SUB: E871002	***Extracted:***	Oct-30-17 17:05		Oct-30-17 17:05		Oct-30-17 17:05		Oct-30-17 17:05		Oct-30-17 17:05	
	Analyzed:	Oct-30-17 22:29		Oct-31-17 14:53		Oct-30-17 22:35		Oct-30-17 22:55		Oct-30-17 23:01	
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL
Chloride		341	5.00	254	2.50	2090	25.0	99.6	2.50	2010	25.0
Fluoride		2.83	1.00	1.02	0.500	ND	5.00	1.14	0.500	ND	5.00
Sulfate		93.4	5.00	75.5	2.50	318	25.0	59.3	2.50	300	25.0
TDS by SM2540C	***Extracted:***										
	Analyzed:	Oct-30-17 10:00		Oct-30-17 10:00		Oct-30-17 10:00		Oct-30-17 10:00		Oct-30-17 10:00	
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL
Total Dissolved Solids		960	5.00	2040	5.00	3780	5.00	537	5.00	3240	5.00

Flagging Criteria

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

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

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

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

F RPD exceeded lab control limits.

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

U Analyte was not detected.

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

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

K Sample analyzed outside of recommended hold time.

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

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

+ NELAC certification not offered for this compound.

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

	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	

Blank Spike Recovery

Project Name: CEMC Cooper Jal

Work Order #: 566519 **Project ID:** 039123

Lab Batch #: 3031875 **Sample:** 3031875-1-BKS **Matrix:** Water

Date Analyzed: 10/30/2017 **Date Prepared:** 10/30/2017 **Analyst:** LRI

Reporting Units: mg/L **Batch #:** 1

BLANK /BLANK SPIKE RECOVERY STUDY

TDS by SM2540C Analytes	Blank Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Control Limits %R	Flags
Total Dissolved Solids	<5.00	1000	938	94	80-120	

Blank Spike Recovery [D] = 100*[C]/[B]
All results are based on MDL and validated for QC purposes.

BRL - Below Reporting Limit

BS / BSD Recoveries

Project Name: CEMC Cooper Jal

Work Order #: 566519 **Project ID:** 039123

Analyst: MNV **Date Prepared:** 10/30/2017 **Date Analyzed:** 10/30/2017

Lab Batch ID: 3031955 **Sample:** 7633464-1-BKS **Batch #:** 1 **Matrix:** Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	<0.500	25.0	25.5	102	25.0	24.8	99	3	90-110	20	
Fluoride	<0.100	5.00	5.11	102	5.00	5.02	100	2	90-110	20	
Sulfate	<0.500	25.0	25.3	101	25.0	24.7	99	2	90-110	20	

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

Version: 1.%

Form 3 - MS / MSD Recoveries

Project Name: CEMC Cooper Jal

Work Order # : 566519 **Project ID:** 039123

Lab Batch ID: 3031955 **QC- Sample ID:** 566441-008 S **Batch #:** 1 **Matrix:** Ground Water

Date Analyzed: 10/31/2017 **Date Prepared:** 10/30/2017 **Analyst:** MNV

Reporting Units: mg/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	148	125	265	94	125	271	98	2	90-110	20	
Fluoride	2.57	25.0	26.4	95	25.0	27.0	98	2	90-110	20	
Sulfate	79.4	125	196	93	125	200	96	2	90-110	20	

Lab Batch ID: 3031955 **QC- Sample ID:** 566519-008 S **Batch #:** 1 **Matrix:** Ground Water

Date Analyzed: 10/31/2017 **Date Prepared:** 10/30/2017 **Analyst:** MNV

Reporting Units: mg/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	254	125	373	95	125	372	94	0	90-110	20	
Fluoride	1.02	25.0	24.5	94	25.0	24.5	94	0	90-110	20	
Sulfate	75.5	125	194	95	125	193	94	1	90-110	20	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B

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

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable

N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

Sample Duplicate Recovery

Project Name: CEMC Cooper Jal

Work Order #: 566519

Lab Batch #: 3031875 **Project ID:** 039123

Date Analyzed: 10/30/2017 10:00 **Date Prepared:** 10/30/2017 **Analyst:** LRI

QC- Sample ID: 566519-001 D **Batch #:** 1 **Matrix:** Ground Water

Reporting Units: mg/L

TDS by SM2540C	SAMPLE / SAMPLE DUPLICATE RECOVERY				
Analyte	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Total Dissolved Solids	331	356	7	10	

Spike Relative Difference RPD 200 * | (B-A)/(B+A) |
All Results are based on MDL and validated for QC purposes.

BRL - Below Reporting Limit

Version: 1.%

CHAIN OF CUSTODY

Page 1 Of 2

XENCO LABORATORIES

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Norcross, Georgia (770-449-8800)
Lakeland, Florida (863-646-8526)
Tampa, Florida (813-620-2000)
www.xenco.com

Xenco Quote # | Xenco Job # 566519

Client / Reporting Information

Company Name / Branch: GHD-Midland
Company Address: 2135 S Loop 250 W, Midland, TX 79703
Email: christopher.knight@ghd.com
Phone No: 512-506-8803
Project Contact: Christopher Knight
Samplers's Name: Justin Nixon Matt Loughlin

Project Information

Project Name/Number: CEMC Cooper-Jal 039123
Project Location: Lea County, New Mexico
Invoice To:
PO Number:

Analytical Information

Matrix Codes

S = Soil/Sed/Solid
GW =Ground Water
DW = Drinking Water
P = Product
SW = Surface water
SL = Sludge
OW =Ocean/Sea Water
W = Wipe
O = Oil
WW= Waste Water
A = Air

No.	Field ID / Point of Collection	Collection: Sample Depth	Date	Time	Matrix	# of bottles	Number of preserved bottles: HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	NONE	Anions: Cl, F, SO4	TDS	Field Comments
1	MW-2 - W - ~~102517~~ 171025		10-25-17	1105	GW	2								X	X	X	
2	MW-2A - W - ~~102517~~ 171025			1120													
3	MW-6R - W - ~~102517~~ 171025			1150													
4	RW-2 - W - ~~102517~~ 171025			1205													
5	RW-2R - W - ~~102517~~ 171025			1225													
6	MW-4 - W - ~~102517~~ 171025			1235													
7	MW-4A - W - ~~102517~~ 171025			1245													
8	RW-1 - W - ~~102517~~ 171025			1300													
9	MW-5 - W - ~~102517~~ 171025			1310													
10	MW-5A - W - ~~102517~~ 171025			1320													

Turnaround Time (Business days)

- [ ] Same Day TAT
- [x] 5 Day TAT
- [ ] Next Day EMERGENCY
- [ ] 7 Day TAT
- [ ] 2 Day EMERGENCY
- [ ] Contract TAT
- [ ] 3 Day EMERGENCY

TAT Starts Day received by Lab, if received by 5:00 pm

Data Deliverable Information

- [ ] Level II Std QC
- [ ] Level IV (Full Data Pkg /raw data)
- [ ] Level III Std QC+ Forms
- [ ] TRRP Level IV
- [ ] Level 3 (CLP Forms)
- [ ] UST / RG -411
- [ ] TRRP Checklist

Notes:

Temp: 8.1 IR ID:R-8
CF:(0-6: -0.2°C)
(6-23: +0.2°C)
Corrected Temp: 8.3

FED-EX / UPS: Tracking #

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY

Relinquished by Sampler: 1	Date Time: 10-25-17 1445	Received By: 1	Relinquished By: 2	Date Time:	Received By: 2
Relinquished by: 3	Date Time:	Received By: 3	Relinquished By: 4	Date Time:	Received By: 4
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal #	Preserved where applicable	On Ice / Cooler Temp. / Thermo. Corr. Factor

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to XENCO Laboratories and its affiliates, subcontractors and assigns XENCO's standard terms and conditions of service unless previously negiotiated under a fully executed client contract.

Final 1.000

Page 12 of 14

CHAIN OF CUSTODY

Page 1 Of 2

XENCO LABORATORIES

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Norcross, Georgia (770-449-8800)
Lakeland, Florida (863-646-8526)
Tampa, Florida (813-620-2000)
www.xenco.com

Xenco Quote #
Xenco Job # 566519

Client / Reporting Information

Company Name / Branch: GHD-Midland
Company Address: 2135 S Loop 250 W, Midland, TX 79703
Email: christopher.knight@ghd.com
Phone No: 512-506-8803
Project Contact: Christopher Knight
Samplers's Name: Justin Nixon

Project Information

Project Name/Number: CEMC Cooper-Jal 039123
Project Location: Lea County, New Mexico
Invoice To:
PO Number:

Analytical Information

Matrix Codes

S = Soil/Sed/Solid
GW =Ground Water
DW = Drinking Water
P = Product
SW = Surface water
SL = Sludge
OW =Ocean/Sea Water
W = Wipe
O = Oil
WW= Waste Water
A = Air

No.	Field ID / Point of Collection	Collection: Sample Depth	Collection: Date	Collection: Time	Matrix	# of bottles	Number of preserved bottles: HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	NONE	Anions: Cl, F, SO4	TDS	Field Comments
1	MW-5-WD-171025		10-25-17	—	GW	2								X	X	X	
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Turnaround Time (Business days)

- [ ] Same Day TAT
- [x] 5 Day TAT
- [ ] Next Day EMERGENCY
- [ ] 7 Day TAT
- [ ] 2 Day EMERGENCY
- [ ] Contract TAT
- [ ] 3 Day EMERGENCY

TAT Starts Day received by Lab, if received by 5:00 pm

Data Deliverable Information

- [ ] Level II Std QC
- [ ] Level IV (Full Data Pkg /raw data)
- [ ] Level III Std QC+ Forms
- [ ] TRRP Level IV
- [ ] Level 3 (CLP Forms)
- [ ] UST / RG -411
- [ ] TRRP Checklist

Temp: 8.1 IR ID:R-8
CF:(0-6: -0.2°C)
(6-23: +0.2°C)
Corrected Temp: 8.3

FED-EX / UPS: Tracking #

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY

	Relinquished by/Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1		10-25-17 1400	1	2		2
3	Relinquished by:	Date Time:	Received By: 3	Relinquished By: 4	Date Time:	Received By: 4
5	Relinquished by:	Date Time:	Received By: 5	Custody Seal #	Preserved where applicable	On Ice / Cooler Temp. / Thermo. Corr. Factor

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to XENCO Laboratories and its affiliates, subcontractors and assigns XENCO's standard terms and conditions of service unless previously negiotiated under a fully executed client contract.

XENCO Laboratories
Prelogin/Nonconformance Report- Sample Log-In

Client: GHD Services, INC- Midland

Date/ Time Received: 10/25/2017 02:45:00 PM

Work Order #: 566519

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

Temperature Measuring device used : R8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	8.3
#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)?	**No**
#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: ch

PH Device/Lot#: 213315

Checklist completed by: Connie Hernandez Date: 10/25/2017

Checklist reviewed by: Kelsey Brooks Date: 10/26/2017

Analytical Report 586876

for

GHD Services, INC- Midland

Project Manager: Chris Knight

CEMC Cooper Jal

039123

30-MAY-18

Collected By: Client

1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-18-25), 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 (T104704400-18-14)
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)

30-MAY-18

Project Manager: **Chris Knight**
GHD Services, INC- Midland
2135 S Loop 250 W
Midland, TX 79703

Reference: XENCO Report No(s): **586876**
CEMC Cooper Jal
Project Address: Lea County, NM

Chris Knight:

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) 586876. 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. 586876 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

Kelsey Brooks
Project Manager

Sample Cross Reference 586876

GHD Services, INC- Midland, Midland, TX

CEMC Cooper Jal

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
MW-8-W-182205	W	05-22-18 14:15		586876-001
MW-11-W-182205	W	05-22-18 14:25		586876-002
MW-9-W-182205	W	05-22-18 14:40		586876-003
MW-14-W-182205	W	05-22-18 14:50		586876-004
MW-10-W-182205	W	05-22-18 14:55		586876-005
MW-11-WD-182205	W	05-22-18 00:00		586876-006

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Certificate of Analysis Summary 586876

GHD Services, INC- Midland, Midland, TX

Project Name: CEMC Cooper Jal

Project Id: 039123
Contact: Chris Knight
Project Location: Lea County, NM

Date Received in Lab: Tue May-22-18 04:57 pm
Report Date: 30-MAY-18
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	586876-001		586876-002		586876-003		586876-004		586876-005		586876-006	
	Field Id:	MW-8-W-182205		MW-11-W-182205		MW-9-W-182205		MW-14-W-182205		MW-10-W-182205		MW-11-WD-182205	
	Depth:												
	Matrix:	GROUND WATER		GROUND WATER		GROUND WATER		GROUND WATER		GROUND WATER		GROUND WATER	
	Sampled:	May-22-18 14:15		May-22-18 14:25		May-22-18 14:40		May-22-18 14:50		May-22-18 14:55		May-22-18 00:00	
Inorganic Anions by EPA 300/300.1	***Extracted:***	May-23-18 16:00		May-23-18 16:00		May-23-18 16:00		May-23-18 16:00		May-23-18 16:00		May-24-18 15:00	
	Analyzed:	May-23-18 21:02		May-23-18 21:13		May-23-18 21:23		May-23-18 21:33		May-23-18 21:44		May-24-18 18:08	
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL
Chloride		5.22	0.500	34.6	0.500	460 D	5.00	54.9	0.500	346 D	5.00	34.5	0.500
Fluoride		0.317	0.100	1.58	0.100	1.28	0.100	1.20	0.100	0.965	0.100	1.64	0.100
Sulfate		21.9	0.500	110	0.500	119	0.500	47.8	0.500	113	0.500	110	0.500
TDS by SM2540C	***Extracted:***												
	Analyzed:	May-24-18 07:30		May-24-18 07:30		May-24-18 07:30		May-24-18 07:30		May-24-18 07:30		May-24-18 07:30	
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL
Total Dissolved Solids		282	5.00	421	5.00	1010	5.00	390	5.00	1070	5.00	415	5.00

Kelsey Brooks
Project Manager

Flagging Criteria

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

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

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

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

F RPD exceeded lab control limits.

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

U Analyte was not detected.

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

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

K Sample analyzed outside of recommended hold time.

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

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample **BKSD/LCSD** Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate **MS** Matrix Spike **MSD:** Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

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

Blank Spike Recovery

Project Name: CEMC Cooper Jal

Work Order #: 586876 **Project ID:** 039123

Lab Batch #: 3051379 **Sample:** 3051379-1-BKS **Matrix:** Water

Date Analyzed: 05/24/2018 **Date Prepared:** 05/24/2018 **Analyst:** OJS

Reporting Units: mg/L **Batch #:** 1

BLANK /BLANK SPIKE RECOVERY STUDY

TDS by SM2540C Analytes	Blank Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Control Limits %R	Flags
Total Dissolved Solids	<5.00	1000	991	99	80-120	

Blank Spike Recovery [D] = 100*[C]/[B]
All results are based on MDL and validated for QC purposes.

BRL - Below Reporting Limit

BS / BSD Recoveries

Project Name: CEMC Cooper Jal

Work Order #: 586876 **Project ID:** 039123

Analyst: SCM **Date Prepared:** 05/23/2018 **Date Analyzed:** 05/23/2018

Lab Batch ID: 3051204 **Sample:** 7645333-1-BKS **Batch #:** 1 **Matrix:** Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	<0.500	25.0	25.0	100	25.0	25.1	100	0	90-110	20	
Fluoride	<0.100	5.00	5.08	102	5.00	5.09	102	0	90-110	20	
Sulfate	<0.500	25.0	25.7	103	25.0	25.7	103	0	90-110	20	

Analyst: SCM **Date Prepared:** 05/24/2018 **Date Analyzed:** 05/24/2018

Lab Batch ID: 3051386 **Sample:** 7655438-1-BKS **Batch #:** 1 **Matrix:** Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	<0.500	25.0	25.0	100	25.0	25.1	100	0	90-110	20	
Fluoride	<0.100	5.00	4.93	99	5.00	4.92	98	0	90-110	20	
Sulfate	<0.500	25.0	25.6	102	25.0	25.8	103	1	90-110	20	

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

Form 3 - MS / MSD Recoveries

Project Name: CEMC Cooper Jal

Work Order # : 586876 **Project ID:** 039123

Lab Batch ID: 3051204 **QC- Sample ID:** 586805-001 S **Batch #:** 1 **Matrix:** Drinking Water

Date Analyzed: 05/23/2018 **Date Prepared:** 05/23/2018 **Analyst:** SCM

Reporting Units: mg/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	27.7	25.0	54.4	107	25.0	54.4	107	0	90-110	20	
Fluoride	<0.100	5.00	5.12	102	5.00	5.12	102	0	90-110	20	
Sulfate	0.698	25.0	26.9	105	25.0	26.9	105	0	90-110	20	

Lab Batch ID: 3051204 **QC- Sample ID:** 586806-001 S **Batch #:** 1 **Matrix:** Drinking Water

Date Analyzed: 05/23/2018 **Date Prepared:** 05/23/2018 **Analyst:** SCM

Reporting Units: mg/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	38.2	25.0	64.2	104	25.0	64.4	105	0	90-110	20	
Fluoride	0.110	5.00	4.98	97	5.00	5.01	98	1	90-110	20	
Sulfate	0.677	25.0	26.7	104	25.0	26.7	104	0	90-110	20	

Lab Batch ID: 3051386 **QC- Sample ID:** 587048-001 S **Batch #:** 1 **Matrix:** Drinking Water

Date Analyzed: 05/24/2018 **Date Prepared:** 05/24/2018 **Analyst:** SCM

Reporting Units: mg/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	13.1	25.0	39.6	106	25.0	39.7	106	0	90-110	20	
Fluoride	0.207	5.00	5.32	102	5.00	5.34	103	0	90-110	20	
Sulfate	3.99	25.0	30.8	107	25.0	30.9	108	0	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.

Form 3 - MS / MSD Recoveries

Project Name: CEMC Cooper Jal

Work Order # : 586876 **Project ID:** 039123

Lab Batch ID: 3051386 **QC- Sample ID:** 587050-001 S **Batch #:** 1 **Matrix:** Drinking Water

Date Analyzed: 05/24/2018 **Date Prepared:** 05/24/2018 **Analyst:** SCM

Reporting Units: mg/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	9.24	25.0	35.3	104	25.0	35.2	104	0	90-110	20	
Fluoride	<0.100	5.00	5.10	102	5.00	5.11	102	0	90-110	20	
Sulfate	0.632	25.0	26.1	102	25.0	26.1	102	0	90-110	20	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B

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

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable

N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

Smaple Duplicate Recovery

Project Name: CEMC Cooper Jal

Work Order #: 586876

Lab Batch #: 3051379 **Project ID:** 039123

Date Analyzed: 05/24/2018 07:30 **Date Prepared:** 05/24/2018 **Analyst:** OJS

QC- Sample ID: 586876-001 D **Batch #:** 1 **Matrix:** Ground Water

Reporting Units: mg/L

TDS by SM2540C	SAMPLE / SAMPLE DUPLICATE RECOVERY				
Analyte	Parent Sample Result [A]	Sample Duplicate Result [B]	%RPD	RPD Limit	Flag
Total Dissolved Solids	282	274	3	10	

Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

Spike Relative Difference RPD 200 * | (B-A)/(B+A) |

All Results are based on MDL and validated for QC purposes.

BRL - Below Reporting Limit

CHAIN OF CUSTODY

Page 1 Of 1

XENCO LABORATORIES

Setting the Standard since 1990

Stafford,Texas (281-240-4200) | Odessa, Texas (432-563-1800) | Lakeland, Florida (863-646-8526)

Dallas Texas (214-902-0300) | Norcross, Georgia (770-449-8800) | Tampa, Florida (813-620-2000)

Service Center - San Antonio, Texas (210-509-3334) www.xenco.com

Xenco Quote # | Xenco Job # 586876

Client / Reporting Information

Company Name / Branch: GHD-Midland

Company Address: 2135 S Loop 250 W, Midland, TX 79703

Email: christopher.knight@ghd.com | Phone No: 512-506-8803

Project Contact: Christopher Knight

Samplers's Name Joshua Sharkey Joe Mireles

Project Information

Project Name/Number: CEMC Cooper-Jal

Project Location: Lea County, New Mexico

Invoice To:

PO Number:

Matrix Codes

S = Soil/Sed/Solid
GW =Ground Water
DW = Drinking Water
P = Product
SW = Surface water
SL = Sludge
OW =Ocean/Sea Water
W = Wipe
O = Oil
WW= Waste Water
A = Air

No.	Field ID / Point of Collection	Collection: Sample Depth	Collection: Date	Collection: Time	Matrix	# of bottles	Number of preserved bottles: HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	NONE	Analytical Information: Anions: Cl, F, SO4	TDS	Field Comments
1	MW-8-W-182205	—	5/22	1415	GW	1								X	X	X	
2	MW-11-W-182205	—	5/22	1425	GW	1								X	X	X	
3	MW-9-W-182205	—	5/22	1440	GW	1								X	X	X	
4	MW-14-W-182205	—	5/22	1450	GW	1								X	X	X	
5	MW-10-W-182205	—	5/22	1455	GW	1								X	X	X	
6	MW-11-WD-182205	—	5/22	—	GW	1								X	X	X	
7																	
8																	
9																	
10																	

Turnaround Time (Business days)

- [ ] Same Day TAT
- [x] 5 Day TAT
- [ ] Next Day EMERGENCY
- [ ] 7 Day TAT
- [ ] 2 Day EMERGENCY
- [ ] Contract TAT
- [ ] 3 Day EMERGENCY

TAT Starts Day received by Lab, if received by 5:00 pm

Data Deliverable Information

- [ ] Level II Std QC
- [ ] Level III Std QC+ Forms
- [ ] Level 3 (CLP Forms)
- [ ] TRRP Checklist
- [ ] Level IV (Full Data Pkg /raw data)
- [ ] TRRP Level IV
- [ ] UST / RG -411

Notes:

FED-EX / UPS: Tracking #

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY

	Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1	Joe Mireles	5-22-18 1657		2		2
3	Relinquished by:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
			3	4		4
5	Relinquished by:	Date Time:	Received By:	Custody Seal #	Preserved where applicable	On Ice / Cooler Temp. / Thermo. Corr. Factor
			5			-0.4 0.0

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to XENCO Laboratories and its affiliates, subcontractors and assigns XENCO's standard terms and conditions of service unless previously negiotiated under a fully executed client contract.

XENCO Laboratories
Prelogin/Nonconformance Report- Sample Log-In

Client: GHD Services, INC- Midland

Date/ Time Received: 05/22/2018 04:57:00 PM

Work Order #: 586876

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

Temperature Measuring device used : R8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	-.4
#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: BT

PH Device/Lot#: 213315

Checklist completed by: Brianna Teel Date: 05/22/2018

Brianna Teel

Checklist reviewed by: Kelsey Brooks Date: 05/24/2018

Kelsey Brooks

Analytical Report 602865

for

GHD Services, INC- Midland

Project Manager: Janie Smith

Cooper Jal

039123-2018-001

25-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)

25-OCT-18

Project Manager: **Janie Smith**
GHD Services, INC- Midland
2135 S Loop 250 W
Midland, TX 79703

Reference: XENCO Report No(s): **602865**
Cooper Jal
Project Address: Jal,NM

Janie Smith:

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) 602865. 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. 602865 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,

Debbie Simmons

Debbie Simmons
Project Manager

Sample Cross Reference 602865

GHD Services, INC- Midland, Midland, TX

Cooper Jal

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
MW-12-W-181810	W	10-18-18 09:50		602865-001
MW-3-W-181810	W	10-18-18 10:00		602865-002
MW-1-W-181810	W	10-18-18 10:15		602865-003
MW-2A-W-181810	W	10-18-18 10:20		602865-004
MW-2-W-181810	W	10-18-18 10:25		602865-005
MW-6R-W-181810	W	10-18-18 10:45		602865-006
MW-5A-W-181810	W	10-18-18 10:55		602865-007
MW-5-W-181810	W	10-18-18 11:00		602865-008
RW-1-W-181810	W	10-18-18 11:10		602865-009
MW-4A-W-181810	W	10-18-18 11:25		602865-010
MW-4-W-181810	W	10-18-18 11:30		602865-011
RW-2-W-181810	W	10-18-18 11:40		602865-012
RW-2R-W-181810	W	10-18-18 11:45		602865-013
MW-7-W-181810	W	10-18-18 11:55		602865-014
MW-8-W-181810	W	10-18-18 12:10		602865-015
MW-11-W-181810	W	10-18-18 12:30		602865-016
MW-9A-W-181810	W	10-18-18 12:40		602865-017
MW-9-W-181810	W	10-18-18 12:45		602865-018
RW-1-WD-181810	W	10-18-18 00:00		602865-019
RW-2R-WD-181810	W	10-18-18 00:00		602865-020
MW-14-W-181810	W	10-18-18 12:50		602865-021
MW-10-W-181810	W	10-18-18 13:00		602865-022

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Certificate of Analysis Summary 602865

GHD Services, INC- Midland, Midland, TX

Project Name: Cooper Jal

Project Id: 039123-2018-001
Contact: Janie Smith
Project Location: Jal,NM

Date Received in Lab: Fri Oct-19-18 09:35 am
Report Date: 25-OCT-18
Project Manager: Debbie Simmons

Analysis Requested													
	Lab Id:	602865-001		602865-002		602865-003		602865-004		602865-005		602865-006	
	Field Id:	MW-12-W-181810		MW-3-W-181810		MW-1-W-181810		MW-2A-W-181810		MW-2-W-181810		MW-6R-W-181810	
	Depth:												
	Matrix:	GROUND WATER		GROUND WATER		GROUND WATER		GROUND WATER		GROUND WATER		GROUND WATER	
	Sampled:	Oct-18-18 09:50		Oct-18-18 10:00		Oct-18-18 10:15		Oct-18-18 10:20		Oct-18-18 10:25		Oct-18-18 10:45	
Inorganic Anions by EPA 300/300.1	***Extracted:***	Oct-19-18 15:30		Oct-19-18 15:30		Oct-19-18 15:30		Oct-19-18 15:30		Oct-19-18 15:30		Oct-19-18 15:30	
	Analyzed:	Oct-19-18 17:37		Oct-20-18 21:35		Oct-19-18 18:19		Oct-19-18 18:29		Oct-19-18 18:40		Oct-19-18 18:50	
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL
Chloride		290 D	2.50	209	2.50	1290 D	10.0	103	0.500	65.9	0.500	69.1	0.500
Fluoride		0.738	0.100	5.35	0.500	0.788	0.100	0.667	0.100	0.656	0.100	1.05	0.100
Sulfate		106	0.500	567	2.50	215 D	10.0	88.3	0.500	48.5	0.500	107	0.500
TDS by SM2540C	***Extracted:***												
	Analyzed:	Oct-22-18 15:25		Oct-22-18 15:25		Oct-22-18 15:25		Oct-22-18 15:25		Oct-22-18 15:25		Oct-22-18 15:25	
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL
Total Dissolved Solids		790	5.00	415	5.00	2360	5.00	491	5.00	384	5.00	442	5.00

Debbie Simmons
Project Manager

Certificate of Analysis Summary 602865

GHD Services, INC- Midland, Midland, TX

Project Name: Cooper Jal

Project Id: 039123-2018-001
Contact: Janie Smith
Project Location: Jal,NM

Date Received in Lab: Fri Oct-19-18 09:35 am
Report Date: 25-OCT-18
Project Manager: Debbie Simmons

Analysis Requested													
	Lab Id:	602865-007		602865-008		602865-009		602865-010		602865-011		602865-012	
	Field Id:	MW-5A-W-181810		MW-5-W-181810		RW-1-W-181810		MW-4A-W-181810		MW-4-W-181810		RW-2-W-181810	
	Depth:												
	Matrix:	GROUND WATER		GROUND WATER		GROUND WATER		GROUND WATER		GROUND WATER		GROUND WATER	
	Sampled:	Oct-18-18 10:55		Oct-18-18 11:00		Oct-18-18 11:10		Oct-18-18 11:25		Oct-18-18 11:30		Oct-18-18 11:40	
Inorganic Anions by EPA 300/300.1	***Extracted:***	Oct-19-18 15:30		Oct-19-18 15:30		Oct-19-18 15:30		Oct-19-18 15:30		Oct-19-18 15:30		Oct-19-18 15:30	
	Analyzed:	Oct-19-18 19:31		Oct-19-18 19:42		Oct-19-18 20:13		Oct-19-18 20:23		Oct-19-18 20:33		Oct-19-18 20:44	
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL
Chloride		132	0.500	1890 D	25.0	7870 D	50.0	366 D	5.00	14800 D	100	3640 D	25.0
Fluoride		0.792	0.100	ND	0.100	ND	0.100	1.29	0.100	ND	0.100	ND	0.100
Sulfate		67.5	0.500	323 D	25.0	807 D	50.0	99.6	0.500	1510 D	100	534 D	25.0
TDS by SM2540C	***Extracted:***												
	Analyzed:	Oct-22-18 15:25		Oct-22-18 15:25		Oct-22-18 15:25		Oct-22-18 15:25		Oct-22-18 15:25		Oct-22-18 15:25	
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL
Total Dissolved Solids		477	5.00	3420	5.00	15400	5.00	901	5.00	24700	5.00	6890	5.00

Debbie Simmons
Project Manager

Certificate of Analysis Summary 602865

GHD Services, INC- Midland, Midland, TX

Project Name: Cooper Jal

Project Id: 039123-2018-001
Contact: Janie Smith
Project Location: Jal,NM

Date Received in Lab: Fri Oct-19-18 09:35 am
Report Date: 25-OCT-18
Project Manager: Debbie Simmons

Analysis Requested													
	Lab Id:	602865-013		602865-014		602865-015		602865-016		602865-017		602865-018	
	Field Id:	RW-2R-W-181810		MW-7-W-181810		MW-8-W-181810		MW-11-W-181810		MW-9A-W-181810		MW-9-W-181810	
	Depth:												
	Matrix:	GROUND WATER		GROUND WATER		GROUND WATER		GROUND WATER		GROUND WATER		GROUND WATER	
	Sampled:	Oct-18-18 11:45		Oct-18-18 11:55		Oct-18-18 12:10		Oct-18-18 12:30		Oct-18-18 12:40		Oct-18-18 12:45	
Inorganic Anions by EPA 300/300.1	***Extracted:***	Oct-19-18 15:30		Oct-19-18 15:30		Oct-19-18 15:30		Oct-19-18 17:15		Oct-19-18 17:15		Oct-19-18 17:15	
	Analyzed:	Oct-19-18 20:54		Oct-19-18 21:04		Oct-19-18 21:15		Oct-20-18 17:16		Oct-20-18 17:26		Oct-20-18 17:37	
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL
Chloride		7920 D	50.0	4000 D	25.0	5.41	0.500	36.9	0.500	276 D	2.50	381 D	5.00
Fluoride		ND	0.100	ND	0.100	0.608	0.100	1.69	0.100	0.596	0.100	1.41	0.100
Sulfate		891 D	50.0	482 D	25.0	19.1	0.500	114	0.500	119	0.500	117	0.500
TDS by SM2540C	***Extracted:***												
	Analyzed:	Oct-22-18 15:25		Oct-22-18 15:50		Oct-22-18 15:50		Oct-22-18 15:50		Oct-22-18 15:50		Oct-22-18 15:50	
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL
Total Dissolved Solids		13700	5.00	6450	5.00	258	5.00	413	5.00	816	5.00	903	5.00

Debbie Simmons
Project Manager

Certificate of Analysis Summary 602865

GHD Services, INC- Midland, Midland, TX

Project Name: Cooper Jal

Project Id: 039123-2018-001
Contact: Janie Smith
Project Location: Jal,NM

Date Received in Lab: Fri Oct-19-18 09:35 am
Report Date: 25-OCT-18
Project Manager: Debbie Simmons

Analysis Requested											
	Lab Id:	602865-019		602865-020		602865-021		602865-022			
	Field Id:	RW-1-WD-181810		RW-2R-WD-181810		MW-14-W-181810		MW-10-W-181810			
	Depth:										
	Matrix:	GROUND WATER		GROUND WATER		GROUND WATER		GROUND WATER			
	Sampled:	Oct-18-18 00:00		Oct-18-18 00:00		Oct-18-18 12:50		Oct-18-18 13:00			
Inorganic Anions by EPA 300/300.1	***Extracted:***	Oct-19-18 17:15		Oct-19-18 17:15		Oct-19-18 17:15		Oct-19-18 17:15			
	Analyzed:	Oct-20-18 17:47		Oct-20-18 17:57		Oct-20-18 18:08		Oct-20-18 18:18			
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL		
Chloride		7830 D	50.0	8060 D	50.0	57.2	0.500	351 D	5.00		
Fluoride		ND	0.100	ND	0.100	1.35	0.100	1.10	0.100		
Sulfate		873 D	50.0	815 D	50.0	47.2	0.500	118	0.500		
TDS by SM2540C	***Extracted:***										
	Analyzed:	Oct-22-18 15:50		Oct-22-18 15:50		Oct-22-18 15:50		Oct-22-18 15:50			
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL		
Total Dissolved Solids		12700	5.00	13300	5.00	401	5.00	892	5.00		

Debbie Simmons
Project Manager

Flagging Criteria

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

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

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

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

F RPD exceeded lab control limits.

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

U Analyte was not detected.

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

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

K Sample analyzed outside of recommended hold time.

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

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample **BKSD/LCSD** Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate **MS** Matrix Spike **MSD:** Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

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

BS / BSD Recoveries

Project Name: Cooper Jal

Work Order #: 602865 **Project ID:** 039123-2018-001

Analyst: SCM **Date Prepared:** 10/19/2018 **Date Analyzed:** 10/19/2018

Lab Batch ID: 3067058 **Sample:** 7664557-1-BKS **Batch #:** 1 **Matrix:** Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	<0.500	25.0	26.6	106	25.0	26.6	106	0	90-110	20	
Fluoride	<0.100	5.00	5.22	104	5.00	5.25	105	1	90-110	20	
Sulfate	<0.500	25.0	25.1	100	25.0	25.1	100	0	90-110	20	

Analyst: CHE **Date Prepared:** 10/19/2018 **Date Analyzed:** 10/20/2018

Lab Batch ID: 3067066 **Sample:** 7664558-1-BKS **Batch #:** 1 **Matrix:** Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	<0.500	25.0	26.5	106	25.0	26.6	106	0	90-110	20	
Fluoride	<0.100	5.00	5.49	110	5.00	5.44	109	1	90-110	20	
Sulfate	<0.500	25.0	24.8	99	25.0	24.9	100	0	90-110	20	

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

BS / BSD Recoveries

Project Name: Cooper Jal

Work Order #: 602865 **Project ID:** 039123-2018-001

Analyst: OJS **Date Prepared:** 10/22/2018 **Date Analyzed:** 10/22/2018

Lab Batch ID: 3067244 **Sample:** 3067244-1-BKS **Batch #:** 1 **Matrix:** Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TDS by SM2540C 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
Total Dissolved Solids	<5.00	1000	961	96	1000	955	96	1	80-120	10	

Analyst: OJS **Date Prepared:** 10/22/2018 **Date Analyzed:** 10/22/2018

Lab Batch ID: 3067246 **Sample:** 3067246-1-BKS **Batch #:** 1 **Matrix:** Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TDS by SM2540C 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
Total Dissolved Solids	<5.00	1000	930	93	1000	948	95	2	80-120	10	

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

Form 3 - MS / MSD Recoveries

Project Name: Cooper Jal

Work Order # : 602865 **Project ID:** 039123-2018-001

Lab Batch ID: 3067058 **QC- Sample ID:** 602822-001 S **Batch #:** 1 **Matrix:** Drinking Water

Date Analyzed: 10/19/2018 **Date Prepared:** 10/19/2018 **Analyst:** SCM

Reporting Units: mg/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	9.53	25.0	38.8	117	25.0	37.4	111	4	90-110	20	X
Fluoride	<0.100	5.00	5.35	107	5.00	5.47	109	2	90-110	20	
Sulfate	3.02	25.0	26.3	93	25.0	25.1	88	5	90-110	20	X

Lab Batch ID: 3067058 **QC- Sample ID:** 602825-001 S **Batch #:** 1 **Matrix:** Drinking Water

Date Analyzed: 10/19/2018 **Date Prepared:** 10/19/2018 **Analyst:** SCM

Reporting Units: mg/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	2.52	25.0	27.8	101	25.0	28.1	102	1	90-110	20	
Fluoride	<0.100	5.00	5.36	107	5.00	5.34	107	0	90-110	20	
Sulfate	2.11	25.0	25.0	92	25.0	25.1	92	0	90-110	20	

Lab Batch ID: 3067066 **QC- Sample ID:** 602823-001 S **Batch #:** 1 **Matrix:** Drinking Water

Date Analyzed: 10/20/2018 **Date Prepared:** 10/19/2018 **Analyst:** CHE

Reporting Units: mg/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	3.72	25.0	29.0	101	25.0	29.1	102	0	90-110	20	
Fluoride	<0.100	5.00	5.36	107	5.00	5.43	109	1	90-110	20	
Sulfate	2.48	25.0	24.3	87	25.0	24.5	88	1	90-110	20	X

Matrix Spike Percent Recovery [D] = 100*(C-A)/B

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

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable

N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

Form 3 - MS / MSD Recoveries

Project Name: Cooper Jal

Work Order # : 602865 **Project ID:** 039123-2018-001

Lab Batch ID: 3067066 **QC- Sample ID:** 602826-001 S **Batch #:** 1 **Matrix:** Drinking Water

Date Analyzed: 10/20/2018 **Date Prepared:** 10/19/2018 **Analyst:** SCM

Reporting Units: mg/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	8.64	25.0	35.2	106	25.0	35.3	107	0	90-110	20	
Fluoride	<0.100	5.00	5.39	108	5.00	5.45	109	1	90-110	20	
Sulfate	2.24	25.0	24.2	88	25.0	24.3	88	0	90-110	20	X

Matrix Spike Percent Recovery [D] = 100*(C-A)/B

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

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable

N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

Sample Duplicate Recovery

Project Name: Cooper Jal

Work Order #: 602865

Lab Batch #: 3067244 **Project ID:** 039123-2018-001

Date Analyzed: 10/22/2018 15:25 **Date Prepared:** 10/22/2018 **Analyst:** OJS

QC- Sample ID: 602681-001 D **Batch #:** 1 **Matrix:** Water

Reporting Units: mg/L

TDS by SM2540C	SAMPLE / SAMPLE DUPLICATE RECOVERY				
Analyte	Parent Sample Result [A]	Sample Duplicate Result [B]	%RPD	RPD Limit	Flag
Total Dissolved Solids	3080	3270	6	10	

Lab Batch #: 3067244

Date Analyzed: 10/22/2018 15:25 **Date Prepared:** 10/22/2018 **Analyst:** OJS

QC- Sample ID: 602865-013 D **Batch #:** 1 **Matrix:** Ground Water

Reporting Units: mg/L

TDS by SM2540C	SAMPLE / SAMPLE DUPLICATE RECOVERY				
Analyte	Parent Sample Result [A]	Sample Duplicate Result [B]	%RPD	RPD Limit	Flag
Total Dissolved Solids	13700	13800	1	10	

Lab Batch #: 3067246

Date Analyzed: 10/22/2018 15:50 **Date Prepared:** 10/22/2018 **Analyst:** OJS

QC- Sample ID: 602865-014 D **Batch #:** 1 **Matrix:** Ground Water

Reporting Units: mg/L

TDS by SM2540C	SAMPLE / SAMPLE DUPLICATE RECOVERY				
Analyte	Parent Sample Result [A]	Sample Duplicate Result [B]	%RPD	RPD Limit	Flag
Total Dissolved Solids	6450	6240	3	10	

Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

Spike Relative Difference RPD 200 * | (B-A)/(B+A) |

All Results are based on MDL and validated for QC purposes.

BRL - Below Reporting Limit

Chain of Custody

Work Order No: 1802165

Houston,TX (281) 240-4200 Dallas,TX (214) 902-0300 San Antonio,TX (210) 509-3334
Midland,TX (432-704-5440) EL Paso,TX (915)585-3443 Lubbock,TX (806)794-1296
Hobbs,NM (575-392-7550) Phoenix,AZ (480-355-0900) Atlanta,GA (770-449-8800) Tampa,FL (813-620-2000)
www.xenco.com

Project Manager:	Janie Smith	Bill to: (if different)	Kegan Boyer
Company Name:	GHD	Company Name:	Upstream Business Unit (CEMC)
Address:	2135 S. Loop 250 West	Address:	1400 Smith Street, Room 07076
City, State ZIP:	Midland, TX. 79703	City, State ZIP:	Houston, TX. 77002
Phone:	225-292-9007	Email:	Janie.Smith@ghd.com & Christopher.Knight@ghd.com

Work Order Comments

Program: UST/PST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐

State of Project:

Reporting: Level II ☑ Level III ☐ PST/UST ☐ TRRP ☐ Level IV ☐

Deliverables: EDD ☐ ADaPT ☐ Other:

Project Name:	CEMC Cooper Jal	Turn Around	
Project Number:	SSOW: 039123-2018-001	Routine ☑	
P.O. Number:		Rush:	
Sampler's Name:	Joshua Shankley Joe Miceli	Due Date:	

SAMPLE RECEIPT				
Temp Blank:	Yes (No)	Wet Ice:	Yes (No)	
Temperature (°C):	0.3	Thermometer ID		
Received Intact:	(Yes) No			
Cooler Custody Seals:	Yes (No) N/A	Correction Factor:	0.0	
Sample Custody Seals:	Yes (No) N/A	Total Containers:		

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	TDS	Anions: F, SO4, Cl	Sample Comments
MW-12-W-181810	GW	10-18	0950	—	1	X	X	
MW-3-W-181810	GW	10-18	1000	—	1	X	X	
MW-1-W-181810	GW	10-18	1015	—	1	X	X	
MW-2A-W-181810	GW	10-18	1020	—	1	X	X	
MW-2-W-181810	GW	10-18	1025	—	1	X	X	
MW-6R-W-181810	GW	10-18	1045	—	1	X	X	
MW-5A-W-181810	GW	10-18	1055	—	1	X	X	
MW-5-W-181810	GW	10-18	1100	—	1	X	X	
RW-1-W-181810	GW	10-18	1110		1	X	X	
MW-4A-W-181810	GW	10-18	1125	—	1	X	X	

ANALYSIS REQUEST

Work Order Notes

TAT starts the day recevied by the lab, if received by 4:30pm

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Tl Sn U V Zn

Circle Method(s) and Metal(s) to be analyzed **TCLP / SPLP 6010**: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U **1631 / 245.1 / 7470 / 7471** : Hg

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1 Joshua Shankley		10-19-18 0935	2		
3			4		
5			6		

Chain of Custody

Work Order No: 6C29645

Houston,TX (281) 240-4200 Dallas,TX (214) 902-0300 San Antonio,TX (210) 509-3334
Midland,TX (432-704-5440) EL Paso,TX (915)585-3443 Lubbock,TX (806)794-1296
Hobbs,NM (575-392-7550) Phoenix,AZ (480-355-0900) Atlanta,GA (770-449-8800) Tampa,FL (813-620-2000) www.xenco.com

Project Manager:	Janie Smith	Bill to: (if different)	Kegan Boyer
Company Name:	GHD	Company Name:	Upstream Business Unit (CEMC)
Address:	2135 S. Loop 250 West	Address:	1400 Smith Street, Room 07076
City, State ZIP:	Midland, TX. 79703	City, State ZIP:	Houston, TX. 77002
Phone:	225-292-9007 Email:	Janie.Smith@ghd.com & Christopher.Knight@ghd.com	

Work Order Comments

Program: UST/PST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐
State of Project:
Reporting: Level II ☑ Level III ☐ PST/UST ☐ TRRP ☐ Level IV ☐
Deliverables: EDD ☐ ADaPT ☐ Other:

Project Name:	CEMC Cooper Jal	Turn Around	
Project Number:	SSOW: 039123-2018-001	Routine ☑	
P.O. Number:		Rush:	
Sampler's Name:	Joshua Shankey Joe Mireles	Due Date:	

SAMPLE RECEIPT				
Temp Blank:	Yes No	Wet Ice:	Yes No	
Temperature (°C):	0.3	Thermometer ID:	IR8	
Received Intact:	Yes No			
Cooler Custody Seals:	Yes No N/A	Correction Factor:	0.0	
Sample Custody Seals:	Yes No N/A	Total Containers:		

ANALYSIS REQUEST

Work Order Notes

TAT starts the day recevied by the lab, if received by 4:30pm

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	TDS	Anions: F, SO4, Cl	Sample Comments
MW-4-W-181810	GW	10-18	1130	-	1	X	X	
RW-2-W-181810	GW	10-18	1140	-	1	X	X	
RW-2R-W-181810	GW	10-18	1145	-	1	X	X	
MW-7-W-181810	GW	10-18	1155	-	1	X	X	
MW-8-W-181810	GW	10-18	1210	-	1	X	X	
MW-11-W-181810	GW	10-18	1230	-	1	X	X	
MW-9A-W-181810	GW	10-18	1240	-	1	X	X	
MW-9-W-181810	GW	10-18	1245	-	1	X	X	
RW-1-WD-181810	GW	10-18		-	1	X	X	
RW-2R-WD-181810	GW	10-18	-	-	1	X	X	

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Tl Sn U V Zn

Circle Method(s) and Metal(s) to be analyzed **TCLP / SPLP 6010**: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U **1631 / 245.1 / 7470 / 7471** : Hg

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1 Joshua Shankey		10-19-18 0935	2		
3			4		
5			6		

Chain of Custody

Work Order No: 402865

XENCO LABORATORIES

Houston,TX (281) 240-4200 Dallas,TX (214) 902-0300 San Antonio,TX (210) 509-3334
Midland,TX (432-704-5440) EL Paso,TX (915)585-3443 Lubbock,TX (806)794-1296
Hobbs,NM (575-392-7550) Phoenix,AZ (480-355-0900) Atlanta,GA (770-449-8800) Tampa,FL (813-620-2000) www.xenco.com Page 3 of 3

Project Manager:	Janie Smith	Bill to: (if different)	Kegan Boyer
Company Name:	GHD	Company Name:	Upstream Business Unit (CEMC)
Address:	2135 S. Loop 250 West	Address:	1400 Smith Street, Room 07076
City, State ZIP:	Midland, TX. 79703	City, State ZIP:	Houston, TX. 77002
Phone:	225-292-9007 Email:	Janie.Smith@ghd.com & Christopher.Knight@ghd.com	

Work Order Comments

Program: UST/PST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐
State of Project:
Reporting:Level II ☑ Level III ☐ PST/UST ☐ TRRP ☐ Level IV ☐
Deliverables: EDD ☐ ADaPT ☐ Other:

Project Name:	CEMC Cooper Jal	Turn Around	
Project Number:	SSOW: 039123-2018-001	Routine	☑
P.O. Number:		Rush:	
Sampler's Name:		Due Date:	

SAMPLE RECEIPT				
Temp Blank:	Yes No	Wet Ice:	Yes No	
Temperature (°C):	0.3	Thermometer ID		
Received Intact:	Yes No			
Cooler Custody Seals:	Yes No N/A	Correction Factor:	0.0	
Sample Custody Seals:	Yes No N/A	Total Containers:		

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	TDS	Anions: F, SO4, Cl
MW-4-GW-181810	GW	10-18	1250	—	1	X	X
MW-10-GW-181810	GW	10-18	13	—	1	X	X

ANALYSIS REQUEST

Work Order Notes

TAT starts the day recevied by the lab, if received by 4:30pm

Sample Comments

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Tl Sn U V Zn

Circle Method(s) and Metal(s) to be analyzed **TCLP / SPLP 6010**: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U **1631 / 245.1 / 7470 / 7471** : Hg

	Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1	Norma Sharkey		10-19-18 0935	2		
3				4		
5				6		

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: GHD Services, INC- Midland

Date/ Time Received: 10/19/2018 09:35:00 AM

Work Order #: 602865

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

Temperature Measuring device used : R8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	.3
#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: BT

PH Device/Lot#: A032690

Checklist completed by: Katie Lowe Date: 10/19/2018

Checklist reviewed by: Debbie Simmons Date: 10/19/2018

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

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

Laboratory Job ID: 600-187419-1
Client Project/Site: Midland - Cooper Jal
Revision: 1

For:
ARCADIS U.S., Inc.
1004 North Big Spring
Suite 121
Midland, Texas 79701

Attn: Mr. Brett Krehbiel

Authorized for release by:
1/9/2020 6:00:05 PM

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

Table of Contents

Job ID: 600-187419-1

Laboratory: Eurofins TestAmerica, Houston

Narrative

Job Narrative
600-187419-1

Comments
The report was revised on 01/09/20 to correct the sample ID for sample 600-189419-14 per the COC.

Receipt
The samples were received on 6/21/2019 10:19 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 1.5º C and 1.7º C.

General Chemistry
Method SM 2540C: Reanalysis of the following sample was performed outside of the analytical holding time due to constant weight for method criteria. : RW - 2 (600-187419-15).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Lab Admin
sample ID changed per client request

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Midland - Cooper Jal

Job ID: 600-187419-1

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	MCAWW	TAL HOU
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL HOU

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

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

Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Midland - Cooper Jal

Job ID: 600-187419-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
600-187419-1	MW - 12	Water	06/20/19 08:52	06/21/19 10:19	
600-187419-2	MW - 3	Water	06/20/19 09:32	06/21/19 10:19	
600-187419-3	MW - 1	Water	06/20/19 09:38	06/21/19 10:19	
600-187419-4	MW - 2A	Water	06/20/19 09:44	06/21/19 10:19	
600-187419-5	MW - 2	Water	06/20/19 09:47	06/21/19 10:19	
600-187419-6	MW - 6R	Water	06/20/19 09:53	06/21/19 10:19	
600-187419-7	DUP - 1	Water	06/20/19 00:00	06/21/19 10:19	
600-187419-8	MW - 5	Water	06/20/19 10:05	06/21/19 10:19	
600-187419-9	MW - 5A	Water	06/20/19 10:08	06/21/19 10:19	
600-187419-10	RW - 1	Water	06/20/19 10:14	06/21/19 10:19	
600-187419-11	DUP -2	Water	06/20/19 00:00	06/21/19 10:19	
600-187419-12	MW - 4	Water	06/20/19 10:22	06/21/19 10:19	
600-187419-13	MW - 4A	Water	06/20/19 10:24	06/21/19 10:19	
600-187419-14	RW - 2R	Water	06/20/19 10:49	06/21/19 10:19	
600-187419-15	RW - 2	Water	06/20/19 10:51	06/21/19 10:19	
600-187419-16	MW - 14	Water	06/20/19 11:05	06/21/19 10:19	
600-187419-17	MW - 7	Water	06/20/19 11:20	06/21/19 10:19	
600-187419-18	MW - 9	Water	06/20/19 11:30	06/21/19 10:19	
600-187419-19	MW - 9A	Water	06/20/19 11:34	06/21/19 10:19	
600-187419-20	MW - 11	Water	06/20/19 11:41	06/21/19 10:19	
600-187419-21	EB - 1	Water	06/20/19 12:50	06/21/19 10:19	

Client Sample ID: MW - 12
Lab Sample ID: 600-187419-1
Date Collected: 06/20/19 08:52
Matrix: Water
Date Received: 06/21/19 10:19

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	254		0.400	0.0534	mg/L			06/28/19 22:18	20

General Chemistry

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	580		10.0	10.0	mg/L			06/26/19 15:14	1

Client Sample ID: MW - 3
Lab Sample ID: 600-187419-2
Date Collected: 06/20/19 09:32
Matrix: Water
Date Received: 06/21/19 10:19

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	40.0		0.400	0.0534	mg/L			06/28/19 22:38	5

General Chemistry

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	448		10.0	10.0	mg/L			06/26/19 15:14	1

Client Sample ID: MW - 1
Lab Sample ID: 600-187419-3
Date Collected: 06/20/19 09:38
Matrix: Water
Date Received: 06/21/19 10:19

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1110		0.400	0.0534	mg/L			06/28/19 22:58	100

General Chemistry

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	2510		10.0	10.0	mg/L			06/26/19 15:14	1

Client Sample ID: MW - 2A
Lab Sample ID: 600-187419-4
Date Collected: 06/20/19 09:44
Matrix: Water
Date Received: 06/21/19 10:19

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	86.5		0.400	0.0534	mg/L			06/28/19 23:58	10

General Chemistry

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	554		10.0	10.0	mg/L			06/26/19 15:14	1

Client Sample ID: MW - 2
Lab Sample ID: 600-187419-5
Date Collected: 06/20/19 09:47
Matrix: Water
Date Received: 06/21/19 10:19

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	283		0.400	0.0534	mg/L			06/29/19 00:58	20

General Chemistry

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	960		10.0	10.0	mg/L			06/26/19 15:14	1

Client Sample ID: MW - 6R

Lab Sample ID: 600-187419-6
Date Collected: 06/20/19 09:53
Matrix: Water
Date Received: 06/21/19 10:19

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	59.1		0.400	0.0534	mg/L			06/29/19 01:58	10

General Chemistry

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	482		10.0	10.0	mg/L			06/26/19 15:14	1

Client Sample ID: DUP - 1

Lab Sample ID: 600-187419-7
Date Collected: 06/20/19 00:00
Matrix: Water
Date Received: 06/21/19 10:19

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	64.4		0.400	0.0534	mg/L			06/29/19 02:18	2

General Chemistry

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	592		10.0	10.0	mg/L			06/27/19 12:49	1

Client Sample ID: MW - 5

Lab Sample ID: 600-187419-8
Date Collected: 06/20/19 10:05
Matrix: Water
Date Received: 06/21/19 10:19

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1700		0.400	0.0534	mg/L			06/29/19 02:38	100

General Chemistry

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	4280		10.0	10.0	mg/L			06/27/19 12:49	1

Client Sample ID: MW - 5A

Lab Sample ID: 600-187419-9
Date Collected: 06/20/19 10:08
Matrix: Water
Date Received: 06/21/19 10:19

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	118		0.400	0.0534	mg/L			06/29/19 02:58	5

General Chemistry

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	650		10.0	10.0	mg/L			06/27/19 12:49	1

Client Sample ID: RW - 1

Lab Sample ID: 600-187419-10
Date Collected: 06/20/19 10:14
Matrix: Water
Date Received: 06/21/19 10:19

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	9290		0.400	0.0534	mg/L			06/29/19 03:18	500

General Chemistry

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	22100		10.0	10.0	mg/L			06/27/19 12:49	1

Client Sample ID: DUP -2

Lab Sample ID: 600-187419-11
Date Collected: 06/20/19 00:00
Matrix: Water
Date Received: 06/21/19 10:19

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	9200		0.400	0.0534	mg/L			06/29/19 03:38	500

General Chemistry

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	22800		10.0	10.0	mg/L			06/27/19 12:49	1

Client Sample ID: MW - 4

Lab Sample ID: 600-187419-12
Date Collected: 06/20/19 10:22
Matrix: Water
Date Received: 06/21/19 10:19

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	2760		0.400	0.0534	mg/L			06/29/19 03:58	200

General Chemistry

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	7830		10.0	10.0	mg/L			06/27/19 12:49	1

Client Sample ID: MW - 4A

Lab Sample ID: 600-187419-13
Date Collected: 06/20/19 10:24
Matrix: Water
Date Received: 06/21/19 10:19

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	336		0.400	0.0534	mg/L			06/29/19 04:58	10

General Chemistry

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1040		10.0	10.0	mg/L			06/27/19 12:49	1

Client Sample ID: RW - 2R

Lab Sample ID: 600-187419-14
Date Collected: 06/20/19 10:49
Matrix: Water
Date Received: 06/21/19 10:19

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	7860		0.400	0.0534	mg/L			06/29/19 05:18	500

General Chemistry

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	29400		10.0	10.0	mg/L			06/27/19 12:49	1

Client Sample ID: RW - 2

Lab Sample ID: 600-187419-15
Date Collected: 06/20/19 10:51
Matrix: Water
Date Received: 06/21/19 10:19

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	3180		0.400	0.0534	mg/L			06/29/19 06:18	200

General Chemistry

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	10200	H	10.0	10.0	mg/L			07/01/19 11:28	1

Client Sample ID: MW - 14

Lab Sample ID: 600-187419-16

Date Collected: 06/20/19 11:05
Matrix: Water
Date Received: 06/21/19 10:19

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	42.1		0.400	0.0534	mg/L			06/29/19 06:38	2

General Chemistry

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	481		10.0	10.0	mg/L			06/27/19 12:49	1

Client Sample ID: MW - 7

Lab Sample ID: 600-187419-17

Date Collected: 06/20/19 11:20
Matrix: Water
Date Received: 06/21/19 10:19

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	4210		0.400	0.0534	mg/L			06/29/19 06:58	200

General Chemistry

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	15500		10.0	10.0	mg/L			06/27/19 12:49	1

Client Sample ID: MW - 9

Lab Sample ID: 600-187419-18

Date Collected: 06/20/19 11:30
Matrix: Water
Date Received: 06/21/19 10:19

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	621		0.400	0.0534	mg/L			06/29/19 07:18	50

General Chemistry

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	2930		10.0	10.0	mg/L			06/27/19 12:49	1

Client Sample ID: MW - 9A

Lab Sample ID: 600-187419-19

Date Collected: 06/20/19 11:34
Matrix: Water
Date Received: 06/21/19 10:19

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	268		0.400	0.0534	mg/L			06/29/19 07:38	10

General Chemistry

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1220		10.0	10.0	mg/L			06/27/19 12:49	1

Client Sample ID: MW - 11

Lab Sample ID: 600-187419-20

Date Collected: 06/20/19 11:41
Matrix: Water
Date Received: 06/21/19 10:19

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	34.4		0.400	0.0534	mg/L			06/29/19 07:58	2

General Chemistry

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	407		10.0	10.0	mg/L			06/27/19 12:49	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Midland - Cooper Jal

Job ID: 600-187419-1

Client Sample ID: EB - 1

Date Collected: 06/20/19 12:50
Date Received: 06/21/19 10:19

Lab Sample ID: 600-187419-21

Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.0534	U	0.400	0.0534	mg/L			07/01/19 16:21	1

General Chemistry

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**70.0**		10.0	10.0	mg/L			06/27/19 12:49	1

Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: Midland - Cooper Jal

Job ID: 600-187419-1

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
N1	MS, MSD: Spike recovery exceeds upper or lower control limits.
U	Analyte was not detected at or above the SDL.

General Chemistry

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time
U	Analyte was not detected at or above the SDL.

Glossary

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
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
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
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 600-268268/35
Matrix: Water
Analysis Batch: 268268

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.0534	U	0.400	0.0534	mg/L			06/28/19 23:18	1

Lab Sample ID: MB 600-268268/4
Matrix: Water
Analysis Batch: 268268

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.0534	U	0.400	0.0534	mg/L			06/28/19 12:57	1

Lab Sample ID: LCS 600-268268/36
Matrix: Water
Analysis Batch: 268268

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	20.0	19.05		mg/L		95	90 - 110

Lab Sample ID: LCS 600-268268/5
Matrix: Water
Analysis Batch: 268268

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	20.0	19.60		mg/L		98	90 - 110

Lab Sample ID: 600-187419-5 MS
Matrix: Water
Analysis Batch: 268268

Client Sample ID: MW - 2
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	283		200	439.7	N1	mg/L		79	80 - 120

Lab Sample ID: 600-187419-5 MSD
Matrix: Water
Analysis Batch: 268268

Client Sample ID: MW - 2
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	283		200	444.5		mg/L		81	80 - 120	1	20

Lab Sample ID: 600-187419-14 MS
Matrix: Water
Analysis Batch: 268268

Client Sample ID: RW - 2R
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	7860		5000	11760	N1	mg/L		78	80 - 120

Lab Sample ID: 600-187419-14 MSD
Matrix: Water
Analysis Batch: 268268

Client Sample ID: RW - 2R
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	7860		5000	11760	N1	mg/L		78	80 - 120	0	20

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 600-268404/4
Matrix: Water
Analysis Batch: 268404

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.0534	U	0.400	0.0534	mg/L			07/01/19 14:01	1

Lab Sample ID: LCS 600-268404/5
Matrix: Water
Analysis Batch: 268404

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	20.0	19.30		mg/L		96	90 - 110

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 600-268092/1
Matrix: Water
Analysis Batch: 268092

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	10.0	U	10.0	10.0	mg/L			06/26/19 15:14	1

Lab Sample ID: LCS 600-268092/2
Matrix: Water
Analysis Batch: 268092

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	1800	1789		mg/L		99	90 - 110

Lab Sample ID: 600-187419-5 DU
Matrix: Water
Analysis Batch: 268092

Client Sample ID: MW - 2
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	960		934.0		mg/L		3	10

Lab Sample ID: MB 600-268191/1
Matrix: Water
Analysis Batch: 268191

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	10.0	U	10.0	10.0	mg/L			06/27/19 12:49	1

Lab Sample ID: LCS 600-268191/2
Matrix: Water
Analysis Batch: 268191

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	1800	1834		mg/L		102	90 - 110

Method: SM 2540C - Solids, Total Dissolved (TDS) (Continued)

Lab Sample ID: 600-187419-13 DU
Matrix: Water
Analysis Batch: 268191

Client Sample ID: MW - 4A
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids	1040			1072		mg/L				3	10

Lab Sample ID: 600-187419-18 DU
Matrix: Water
Analysis Batch: 268191

Client Sample ID: MW - 9
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids	2930			2976		mg/L				2	10

Lab Sample ID: MB 600-268421/1
Matrix: Water
Analysis Batch: 268421

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	10.0	U	10.0	10.0	mg/L			07/01/19 11:28	1

Lab Sample ID: LCS 600-268421/2
Matrix: Water
Analysis Batch: 268421

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Dissolved Solids			1800	1721		mg/L		96	90 - 110		

Default Detection Limits

Client: ARCADIS U.S., Inc.
Job ID: 600-187419-1
Project/Site: Midland - Cooper Jal

Method: 300.0 - Anions, Ion Chromatography

Analyte	MQL	MDL	Units
Chloride	0.400	0.0534	mg/L

General Chemistry

Analyte	MQL	MDL	Units
Total Dissolved Solids	10.0	10.0	mg/L

HPLC/IC

Analysis Batch: 268268

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-187419-1	MW - 12	Total/NA	Water	300.0	
600-187419-2	MW - 3	Total/NA	Water	300.0	
600-187419-3	MW - 1	Total/NA	Water	300.0	
600-187419-4	MW - 2A	Total/NA	Water	300.0	
600-187419-5	MW - 2	Total/NA	Water	300.0	
600-187419-6	MW - 6R	Total/NA	Water	300.0	
600-187419-7	DUP - 1	Total/NA	Water	300.0	
600-187419-8	MW - 5	Total/NA	Water	300.0	
600-187419-9	MW - 5A	Total/NA	Water	300.0	
600-187419-10	RW - 1	Total/NA	Water	300.0	
600-187419-11	DUP -2	Total/NA	Water	300.0	
600-187419-12	MW - 4	Total/NA	Water	300.0	
600-187419-13	MW - 4A	Total/NA	Water	300.0	
600-187419-14	RW - 2R	Total/NA	Water	300.0	
600-187419-15	RW - 2	Total/NA	Water	300.0	
600-187419-16	MW - 14	Total/NA	Water	300.0	
600-187419-17	MW - 7	Total/NA	Water	300.0	
600-187419-18	MW - 9	Total/NA	Water	300.0	
600-187419-19	MW - 9A	Total/NA	Water	300.0	
600-187419-20	MW - 11	Total/NA	Water	300.0	
MB 600-268268/35	Method Blank	Total/NA	Water	300.0	
MB 600-268268/4	Method Blank	Total/NA	Water	300.0	
LCS 600-268268/36	Lab Control Sample	Total/NA	Water	300.0	
LCS 600-268268/5	Lab Control Sample	Total/NA	Water	300.0	
600-187419-5 MS	MW - 2	Total/NA	Water	300.0	
600-187419-5 MSD	MW - 2	Total/NA	Water	300.0	
600-187419-14 MS	RW - 2R	Total/NA	Water	300.0	
600-187419-14 MSD	RW - 2R	Total/NA	Water	300.0	

Analysis Batch: 268404

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-187419-21	EB - 1	Total/NA	Water	300.0	
MB 600-268404/4	Method Blank	Total/NA	Water	300.0	
LCS 600-268404/5	Lab Control Sample	Total/NA	Water	300.0	

General Chemistry

Analysis Batch: 268092

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-187419-1	MW - 12	Total/NA	Water	SM 2540C	
600-187419-2	MW - 3	Total/NA	Water	SM 2540C	
600-187419-3	MW - 1	Total/NA	Water	SM 2540C	
600-187419-4	MW - 2A	Total/NA	Water	SM 2540C	
600-187419-5	MW - 2	Total/NA	Water	SM 2540C	
600-187419-6	MW - 6R	Total/NA	Water	SM 2540C	
MB 600-268092/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 600-268092/2	Lab Control Sample	Total/NA	Water	SM 2540C	
600-187419-5 DU	MW - 2	Total/NA	Water	SM 2540C	

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Midland - Cooper Jal

Job ID: 600-187419-1

General Chemistry

Analysis Batch: 268191

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-187419-7	DUP - 1	Total/NA	Water	SM 2540C	
600-187419-8	MW - 5	Total/NA	Water	SM 2540C	
600-187419-9	MW - 5A	Total/NA	Water	SM 2540C	
600-187419-10	RW - 1	Total/NA	Water	SM 2540C	
600-187419-11	DUP -2	Total/NA	Water	SM 2540C	
600-187419-12	MW - 4	Total/NA	Water	SM 2540C	
600-187419-13	MW - 4A	Total/NA	Water	SM 2540C	
600-187419-14	RW - 2R	Total/NA	Water	SM 2540C	
600-187419-16	MW - 14	Total/NA	Water	SM 2540C	
600-187419-17	MW - 7	Total/NA	Water	SM 2540C	
600-187419-18	MW - 9	Total/NA	Water	SM 2540C	
600-187419-19	MW - 9A	Total/NA	Water	SM 2540C	
600-187419-20	MW - 11	Total/NA	Water	SM 2540C	
600-187419-21	EB - 1	Total/NA	Water	SM 2540C	
MB 600-268191/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 600-268191/2	Lab Control Sample	Total/NA	Water	SM 2540C	
600-187419-13 DU	MW - 4A	Total/NA	Water	SM 2540C	
600-187419-18 DU	MW - 9	Total/NA	Water	SM 2540C	

Analysis Batch: 268421

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-187419-15	RW - 2	Total/NA	Water	SM 2540C	
MB 600-268421/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 600-268421/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Midland - Cooper Jal

Job ID: 600-187419-1

Client Sample ID: MW - 12
Date Collected: 06/20/19 08:52
Date Received: 06/21/19 10:19

Lab Sample ID: 600-187419-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		20			268268	06/28/19 22:18	SKR	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	268092	06/26/19 15:14	DTN	TAL HOU

Client Sample ID: MW - 3
Date Collected: 06/20/19 09:32
Date Received: 06/21/19 10:19

Lab Sample ID: 600-187419-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		5			268268	06/28/19 22:38	SKR	TAL HOU
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	268092	06/26/19 15:14	DTN	TAL HOU

Client Sample ID: MW - 1
Date Collected: 06/20/19 09:38
Date Received: 06/21/19 10:19

Lab Sample ID: 600-187419-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		100			268268	06/28/19 22:58	SKR	TAL HOU
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	268092	06/26/19 15:14	DTN	TAL HOU

Client Sample ID: MW - 2A
Date Collected: 06/20/19 09:44
Date Received: 06/21/19 10:19

Lab Sample ID: 600-187419-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		10			268268	06/28/19 23:58	SKR	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	268092	06/26/19 15:14	DTN	TAL HOU

Client Sample ID: MW - 2
Date Collected: 06/20/19 09:47
Date Received: 06/21/19 10:19

Lab Sample ID: 600-187419-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		20			268268	06/29/19 00:58	SKR	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	268092	06/26/19 15:14	DTN	TAL HOU

Client Sample ID: MW - 6R
Date Collected: 06/20/19 09:53
Date Received: 06/21/19 10:19

Lab Sample ID: 600-187419-6
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		10			268268	06/29/19 01:58	SKR	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	268092	06/26/19 15:14	DTN	TAL HOU

Lab Chronicle

Client: ARCADIS U.S., Inc.
Job ID: 600-187419-1
Project/Site: Midland - Cooper Jal

Client Sample ID: DUP - 1
Lab Sample ID: 600-187419-7
Date Collected: 06/20/19 00:00
Matrix: Water
Date Received: 06/21/19 10:19

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		2			268268	06/29/19 02:18	SKR	TAL HOU
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	268191	06/27/19 12:49	DTN	TAL HOU

Client Sample ID: MW - 5
Lab Sample ID: 600-187419-8
Date Collected: 06/20/19 10:05
Matrix: Water
Date Received: 06/21/19 10:19

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		100			268268	06/29/19 02:38	SKR	TAL HOU
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	268191	06/27/19 12:49	DTN	TAL HOU

Client Sample ID: MW - 5A
Lab Sample ID: 600-187419-9
Date Collected: 06/20/19 10:08
Matrix: Water
Date Received: 06/21/19 10:19

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		5			268268	06/29/19 02:58	SKR	TAL HOU
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	268191	06/27/19 12:49	DTN	TAL HOU

Client Sample ID: RW - 1
Lab Sample ID: 600-187419-10
Date Collected: 06/20/19 10:14
Matrix: Water
Date Received: 06/21/19 10:19

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		500			268268	06/29/19 03:18	SKR	TAL HOU
Total/NA	Analysis	SM 2540C		1	5 mL	100 mL	268191	06/27/19 12:49	DTN	TAL HOU

Client Sample ID: DUP -2
Lab Sample ID: 600-187419-11
Date Collected: 06/20/19 00:00
Matrix: Water
Date Received: 06/21/19 10:19

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		500			268268	06/29/19 03:38	SKR	TAL HOU
Total/NA	Analysis	SM 2540C		1	5 mL	100 mL	268191	06/27/19 12:49	DTN	TAL HOU

Client Sample ID: MW - 4
Lab Sample ID: 600-187419-12
Date Collected: 06/20/19 10:22
Matrix: Water
Date Received: 06/21/19 10:19

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		200			268268	06/29/19 03:58	SKR	TAL HOU
Total/NA	Analysis	SM 2540C		1	10 mL	100 mL	268191	06/27/19 12:49	DTN	TAL HOU

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Midland - Cooper Jal

Job ID: 600-187419-1

Client Sample ID: MW - 4A
Date Collected: 06/20/19 10:24
Date Received: 06/21/19 10:19

Lab Sample ID: 600-187419-13
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		10			268268	06/29/19 04:58	SKR	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	268191	06/27/19 12:49	DTN	TAL HOU

Client Sample ID: RW - 2R
Date Collected: 06/20/19 10:49
Date Received: 06/21/19 10:19

Lab Sample ID: 600-187419-14
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		500			268268	06/29/19 05:18	SKR	TAL HOU
Total/NA	Analysis	SM 2540C		1	5 mL	100 mL	268191	06/27/19 12:49	DTN	TAL HOU

Client Sample ID: RW - 2
Date Collected: 06/20/19 10:51
Date Received: 06/21/19 10:19

Lab Sample ID: 600-187419-15
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		200			268268	06/29/19 06:18	SKR	TAL HOU
Total/NA	Analysis	SM 2540C		1	10 mL	100 mL	268421	07/01/19 11:28	DTN	TAL HOU

Client Sample ID: MW - 14
Date Collected: 06/20/19 11:05
Date Received: 06/21/19 10:19

Lab Sample ID: 600-187419-16
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		2			268268	06/29/19 06:38	SKR	TAL HOU
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	268191	06/27/19 12:49	DTN	TAL HOU

Client Sample ID: MW - 7
Date Collected: 06/20/19 11:20
Date Received: 06/21/19 10:19

Lab Sample ID: 600-187419-17
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		200			268268	06/29/19 06:58	SKR	TAL HOU
Total/NA	Analysis	SM 2540C		1	10 mL	100 mL	268191	06/27/19 12:49	DTN	TAL HOU

Client Sample ID: MW - 9
Date Collected: 06/20/19 11:30
Date Received: 06/21/19 10:19

Lab Sample ID: 600-187419-18
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		50			268268	06/29/19 07:18	SKR	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	268191	06/27/19 12:49	DTN	TAL HOU

Lab Chronicle

Client: ARCADIS U.S., Inc.
Job ID: 600-187419-1
Project/Site: Midland - Cooper Jal

Client Sample ID: MW - 9A
Lab Sample ID: 600-187419-19
Date Collected: 06/20/19 11:34
Matrix: Water
Date Received: 06/21/19 10:19

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		10			268268	06/29/19 07:38	SKR	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	268191	06/27/19 12:49	DTN	TAL HOU

Client Sample ID: MW - 11
Lab Sample ID: 600-187419-20
Date Collected: 06/20/19 11:41
Matrix: Water
Date Received: 06/21/19 10:19

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		2			268268	06/29/19 07:58	SKR	TAL HOU
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	268191	06/27/19 12:49	DTN	TAL HOU

Client Sample ID: EB - 1
Lab Sample ID: 600-187419-21
Date Collected: 06/20/19 12:50
Matrix: Water
Date Received: 06/21/19 10:19

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1			268404	07/01/19 16:21	SKR	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	268191	06/27/19 12:49	DTN	TAL HOU

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

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
Job ID: 600-187419-1
Project/Site: Midland - Cooper Jal

Laboratory: Eurofins TestAmerica, Houston

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

Authority	Program	Identification Number	Expiration Date
Louisiana	NELAP	01967	06-30-20
Texas	NELAP	T104704223-19-25	10-31-19 *
USDA	US Federal Programs	P330-18-00130	04-30-21

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Eurofins TestAmerica, Houston
6310 Rothway Street
Houston, TX 77040
Phone (713) 690-4444 Fax (713) 690-5646

Chain of Custody Record

Midland #264

Client Information	Sampler: JJL / LRB	Lab PM: Kudchadkar, Sachin G	Carrier Tracking No(s):	COC No: 600-68943-18804.1
Client Contact: Mr. Brett Krehbiel	Phone:	E-Mail: sachin.kudchadkar@testamericainc.com		Page: Page 1 of 3
Company: ARCADIS U.S., Inc.				Job #:
Address: 1004 North Big Spring Suite 121	Due Date Requested:			
City: Midland	TAT Requested (days):			
State, Zip: TX, 79701				
Phone: 916-786-5382(Tel)	PO #: Purchase Order not required			
Email: brett.krehbiel@arcadis.com	WO #:			
Project Name: Midland - Chevron Keijan Boyer	Project #: 60003622			
Site: Cooper Jal	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	2540C_Calcd, 300_ORGFM_28D	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N		
MW-12	06/20/19	0852	G	Water			1		
MW-3	06/20/19	0932	G	Water			1		
MW-1	06/20/19	0938	G	Water			1		
MW-2A	06/20/19	0944	G	Water			1		
MW-2	06/20/19	0947	G	Water			1		
MW-4R	06/20/19	0953	G	Water			1		
DUP-1	06/20/19	—	G	Water			1		
MW-5	06/20/19	1005	G	Water			1		
MW-5A	06/20/19	1008	G	Water			1		
RW-1	06/20/19	1014	G	Water			1		
DUP-2	06/20/19	—	G	Water			1		

600-187419 Chain of Custody

Possible Hazard Identification
Non-Hazard Flammable Skin Irritant Poison B Unknown Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Return To Client Disposal By Lab Archive For ____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Jacy J. Longwell	06/20/19 1311	ARCADIS			
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Eurofins TestAmerica, Houston
6310 Rothway Street
Houston, TX 77040
Phone (713) 690-4444 Fax (713) 690-5646

Chain of Custody Record

Midland #264

Client Information	Sampler: JOL / LR	Lab PM: Kudchadkar, Sachin G	Carrier Tracking No(s):	COC No: 600-68943-18804.1
Client Contact: Mr. Brett Krehbiel	Phone:	E-Mail: sachin.kudchadkar@testamericainc.com		Page: Page 2 of 3
Company: ARCADIS U.S., Inc.				Job #:

Address: 1004 North Big Spring Suite 121	Due Date Requested:
City: Midland	TAT Requested (days):
State, Zip: TX, 79701	
Phone: 916-786-5382(Tel)	PO #: Purchase Order not required
Email: brett.krehbiel@arcadis.com	WO #:
Project Name: Midland - Chevron Regan Boyer	Project #: 60003622
Site: Cooper Jal	SSOW#:

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	2540C_Calcd, 300_ORGFM_28D	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N		
MW-4	08/20/19	1022	G	Water			1		
MW-4A	08/20/19	1024	G	Water			1		
RW-LOR	08/20/19	1049	G	Water			1		
RW-2	08/20/19	1051	G	Water			1		
MW-14	08/20/19	1105	G	Water			1		
MW-7	08/20/19	1120	G	Water			1		
MW-9	08/20/19	1130	G	Water			1		
MW-9A	08/20/19	1134	G	Water			1		
MW-11	08/20/19	1141	G	Water			1		
EB-1	08/20/19	1250	G	Water			1		
	8-8			Water					

Possible Hazard Identification
Non-Hazard Flammable Skin Irritant Poison B Unknown Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Return To Client Disposal By Lab Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

After printing this label:

1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.
Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com. FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim. Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental, consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss. Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

TestAmerica Houston

Loc: 600
187419

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Sample Receipt Checklist

Date/Time Received: '19 JUN 21 10:19

JOB NUMBER: _____ CLIENT: Arcadis

UNPACKED BY: YR CARRIER/DRIVER: FG

Custody Seal Present: ☒ YES ☐ NO Number of Coolers Received: 2

Cooler ID	Temp Blank	Trip Blank	Observed Temp (°C)	Therm ID	Them CF	Corrected Temp (°C)
Gray	Y / N	Y / N	1.9	606	-.2	1.7
Gray	Y / N	Y / N	1.7			1.5
	Y / N	Y / N				
	Y / N	Y / N				
	Y / N	Y / N				
	Y / N	Y / N				
	Y / N	Y / N				
	Y / N	Y / N				
	Y / N	Y / N				

YR 6/21/19

CF = correction factor

Samples received on ice? ☒ YES ☐ NO

LABORATORY PRESERVATION OF SAMPLES REQUIRED: ☒ NO ☐ YES

Base samples are>pH 12: ☐ YES ☐ NO Acid preserved are<pH 2: ☐ YES ☐ NO

pH paper Lot #_____

VOA headspace acceptable (5-6mm): ☐ YES ☐ NO ☒ NA

	YES	NO
Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	/	

COMMENTS:

YR 6/21/19

HS-SA-WI-013 Rev. 3; 07/01/2014

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 600-187419-1

Login Number: 187419
List Number: 1
Creator: Rubio, Yuri

List Source: Eurofins TestAmerica, Houston

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
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	1.7,1.5
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 (excluding tests with immediate HTs)	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	Check done at department level as required.

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

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

Laboratory Job ID: 600-196675-1
Client Project/Site: Cooper Jal

For:
ARCADIS U.S., Inc.
1004 North Big Spring
Suite 121
Midland, Texas 79701

Attn: Mr. Russell Grant

Authorized for release by:
12/19/2019 4:18:13 PM
Jasmine Turner, Project Management Assistant I
(713)690-4444
jasmine.turner@testamericainc.com

Designee for

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

Table of Contents

Appendix A
Laboratory Data Package Cover Page - Page 1 of 4

This data package is for Eurofins TestAmerica, Houston job number 600-196675-1 and consists of:

- ☑ R1 - Field chain-of-custody documentation;
- ☑ R2 - Sample identification cross-reference;
- ☑ R3 - Test reports (analytical data sheets) for each environmental sample that includes:
  a. Items consistent with NELAC Chapter 5,
  b. dilution factors,
  c. preparation methods,
  d. cleanup methods, and
  e. if required for the project, tentatively identified compounds (TICs).
- ☐ R4 - Surrogate recovery data including:
  a. Calculated recovery (%R), and
  b. The laboratory's surrogate QC limits.
- ☑ R5 - Test reports/summary forms for blank samples;
- ☑ R6 - Test reports/summary forms for laboratory control samples (LCSs) including:
  a. LCS spiking amounts,
  b. Calculated %R for each analyte, and
  c. The laboratory's LCS QC limits.
- ☑ R7 - Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  a. Samples associated with the MS/MSD clearly identified,
  b. MS/MSD spiking amounts,
  c. Concentration of each MS/MSD analyte measured in the parent and spiked samples,
  d. Calculated %Rs and relative percent differences (RPDs), and
  e. The laboratory's MS/MSD QC limits
- ☑ R8 - Laboratory analytical duplicate (if applicable) recovery and precision:
  a. The amount of analyte measured in the duplicate,
  b. The calculated RPD, and
  c. The laboratory's QC limits for analytical duplicates.
- ☑ R9 - List of method quantitation limits (MQLs) and detectability check sample results for each analyte for each method and matrix.
- ☑ R10 - Other problems or anomalies.

The Exception Report for each "No" or "Not Reviewed (NR)" item in Laboratory Review Checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm to the best of my knowledge all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

Jasmine Turner, for Sachin Kudchadkar		12/19/2019
Name (printed)	Signature	Date

Senior Project Manager
Official Title (printed)

Laboratory Review Checklist: Reportable Data - Page 2 of 4

Laboratory Name:	Eurofins TestAmerica, Houston	LRC Date:	12/19/2019
Project Name:	Cooper Jal	Laboratory Job Number:	600-196675-1
Reviewer Name:	Jasmine Turner, for Sachin Kudchadkar		

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
R1	OI	**Chain-of-custody (C-O-C)**					
		Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
		Were all departures from standard conditions described in an exception report?	X				
R2	OI	**Sample and quality control (QC) identification**					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	**Test reports**					
		Were all samples prepared and analyzed within holding times?		X			R03A
		Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?			X		
		Were % moisture (or solids) reported for all soil and sediment samples?			X		
		Were bulk soils/solids samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
		If required for the project, are TICs reported?			X		
R4	O	**Surrogate recovery data**					
		Were surrogates added prior to extraction?			X		
		Were surrogate percent recoveries in all samples within the laboratory QC limits?			X		
R5	OI	**Test reports/summary forms for blank samples**					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency?	X				
		Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?	X				R05D
R6	OI	**Laboratory control samples (LCS):**					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		Was the LCSD RPD within QC limits?			X		
R7	OI	**Matrix spike (MS) and matrix spike duplicate (MSD) data**					
		Were the project/method specified analytes included in the MS and MSD?	X				
		Were MS/MSD analyzed at the appropriate frequency?	X				
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	X				
		Were MS/MSD RPDs within laboratory QC limits?	X				
R8	OI	**Analytical duplicate data**					
		Were appropriate analytical duplicates analyzed for each matrix?	X				
		Were analytical duplicates analyzed at the appropriate frequency?	X				
		Were RPDs or relative standard deviations within the laboratory QC limits?	X				
R9	OI	**Method quantitation limits (MQLs):**					
		Are the MQLs for each method analyte included in the laboratory data package?	X				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	**Other problems/anomalies**					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference effects on the sample results?	X				
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Laboratory Review checklist: Supporting Data - Page 3 of 4

Laboratory Name:	Eurofins TestAmerica, Houston	LRC Date:	12/19/2019
Project Name:	Cooper Jal	Laboratory Job Number:	600-196675-1
Reviewer Name:	Jasmine Turner, for Sachin Kudchadkar		

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial calibration (ICAL)**					
		Were response factors and/or relative response factors for each analyte within QC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	**Initial and continuing calibration verification (ICV and CCV) and continuing calibration blank (CCB):**					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	X				
S3	O	**Mass spectral tuning**					
		Was the appropriate compound for the method used for tuning?			X		
		Were ion abundance data within the method-required QC limits?			X		
S4	O	**Internal standards (IS)**					
		Were IS area counts and retention times within the method-required QC limits?			X		
S5	OI	**Raw data (NELAC Section 5.5.10)**					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	**Dual column confirmation**					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	**Tentatively identified compounds (TICs)**					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	**Interference Check Sample (ICS) results**					
		Were percent recoveries within method QC limits?			X		
S9	I	**Serial dilutions, post digestion spikes, and method of standard additions**					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
S10	OI	**Method detection limit (MDL) studies**					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	**Proficiency test reports**					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	**Standards documentation**					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	**Compound/analyte identification procedures**					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	**Demonstration of analyst competency (DOC)**					
		Was DOC conducted consistent with NELAC Chapter 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	**Verification/validation documentation for methods (NELAC Chapter 5)**					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	**Laboratory standard operating procedures (SOPs)**					
		Are laboratory SOPs current and on file for each method performed?	X				

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Laboratory Review Checklist: Exceptions Reports - Page 4 of 4

Laboratory Name:	Eurofins TestAmerica, Houston	LRC Date:	12/19/2019
Project Name:	Cooper Jal	Laboratory Job Number:	600-196675-1
Reviewer Name:	Jasmine Turner, for Sachin Kudchadkar		

ER #[1]	Description
R03A	Method SM 2540C: The following samples were received with less than 2 days remaining on the holding time or less than one shift (8 hours) remaining on a test with a holding time of 48 hours or less. As such, the laboratory had insufficient time remaining to perform the analysis within holding time: MW-12 (600-196675-1), MW-3 (600-196675-2), MW-2 (600-196675-3), MW-2A (600-196675-4), MW-6R (600-196675-5), MW-5 (600-196675-6), MW-5A (600-196675-7), MW-1 (600-196675-8), MW-4 (600-196675-9), MW-4A (600-196675-10), RW-1 (600-196675-11), RW-2R (600-196675-12), RW-2 (600-196675-13), MW-14 (600-196675-14), DUP-1 (600-196675-15), MW-10 (600-196675-16), MW-7 (600-196675-17), MW-8 (600-196675-18), MW-9 (600-196675-19), MW-9A (600-196675-20) and MW-11 (600-196675-21).
R05D	Method 300.0: The method blank for analytical batch 600-283030 contained Chloride above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed. Method 300.0: The method blank for analytical batch 600-283045 contained Chloride above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed. Method 300.0: The method blank for analytical batch 600-283211 contained chloride above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

1. Items identified by the letter “R” must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter “S” should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if “NR” or “No” is checked).

Matrix: Water
Method: SW-846 9056 / EPA 300
Date Analyzed: 8/23/2019
Job #: 600-188237
TALS Batch: 272774
Units: mg/L

Analyte	Instrument #	MDL	DCS Spike	Measured Result	MQL
Bromide	CHWC16	0.101	0.200	0.306	0.4
Chloride	CHWC16	0.053	0.200	0.305	0.4
Fluoride	CHWC16	0.060	0.200	0.296	0.2
Nitrate as N	CHWC16	0.025	0.200	0.306	0.2
Nitrite as N	CHWC16	0.030	0.400	0.384	0.2
Sulfate	CHWC16	0.096	0.400	0.482	0.5

DCS = Detection Check Standard
MQL = Method Quantitation Limit

Matrix:	Water
Method:	SM 2540C
Date Analyzed:	8/20/2019
Job #:	600-188237
TALS Batch:	272376
Units:	mg/L

Analyte	Instrument #	MDL	DCS Spike	Measured Result	MQL
Total Dissolved Solids	NOEQUIP	10.000	29.880	86.000	10

DCS = Detection Check Standard
MQL = Method Quantitation Limit

Job ID: 600-196675-1

Laboratory: Eurofins TestAmerica, Houston

Narrative

Job Narrative
600-196675-1

Comments
No additional comments.

Receipt
The samples were received on 11/27/2019 10:15 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.2º C.

All applicable analytical narratives can be found in the TRRP Checklist section of this report.

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Cooper Jal

Job ID: 600-196675-1

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	MCAWW	TAL HOU
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL HOU

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

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

Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Cooper Jal

Job ID: 600-196675-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
600-196675-1	MW-12	Water	11/23/19 15:10	11/27/19 10:15	
600-196675-2	MW-3	Water	11/23/19 15:22	11/27/19 10:15	
600-196675-3	MW-2	Water	11/23/19 15:32	11/27/19 10:15	
600-196675-4	MW-2A	Water	11/23/19 15:37	11/27/19 10:15	
600-196675-5	MW-6R	Water	11/23/19 15:46	11/27/19 10:15	
600-196675-6	MW-5	Water	11/23/19 15:54	11/27/19 10:15	
600-196675-7	MW-5A	Water	11/23/19 16:04	11/27/19 10:15	
600-196675-8	MW-1	Water	11/24/19 08:26	11/27/19 10:15	
600-196675-9	MW-4	Water	11/24/19 08:44	11/27/19 10:15	
600-196675-10	MW-4A	Water	11/24/19 08:49	11/27/19 10:15	
600-196675-11	RW-1	Water	11/24/19 09:08	11/27/19 10:15	
600-196675-12	RW-2R	Water	11/24/19 09:21	11/27/19 10:15	
600-196675-13	RW-2	Water	11/24/19 09:25	11/27/19 10:15	
600-196675-14	MW-14	Water	11/24/19 09:31	11/27/19 10:15	
600-196675-15	DUP-1	Water	11/24/19 00:00	11/27/19 10:15	
600-196675-16	MW-10	Water	11/24/19 09:52	11/27/19 10:15	
600-196675-17	MW-7	Water	11/24/19 10:11	11/27/19 10:15	
600-196675-18	MW-8	Water	11/24/19 10:22	11/27/19 10:15	
600-196675-19	MW-9	Water	11/24/19 10:32	11/27/19 10:15	
600-196675-20	MW-9A	Water	11/24/19 10:41	11/27/19 10:15	
600-196675-21	MW-11	Water	11/24/19 10:51	11/27/19 10:15	

Client Sample ID: MW-12

Lab Sample ID: 600-196675-1

Date Collected: 11/23/19 15:10

Matrix: Water

Date Received: 11/27/19 10:15

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	337	b	100	13.4	mg/L			12/14/19 06:51	250
Sulfate	140		125	23.9	mg/L			12/14/19 06:51	250

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1010	H	20.0	20.0	mg/L			12/04/19 15:38	1

Client Sample ID: MW-3

Lab Sample ID: 600-196675-2

Date Collected: 11/23/19 15:22

Matrix: Water

Date Received: 11/27/19 10:15

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	60.0	b	20.0	2.67	mg/L			12/14/19 07:02	50
Sulfate	96.6		25.0	4.79	mg/L			12/14/19 07:02	50

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	352	H	20.0	20.0	mg/L			12/04/19 13:21	1

Client Sample ID: MW-2

Lab Sample ID: 600-196675-3

Date Collected: 11/23/19 15:32

Matrix: Water

Date Received: 11/27/19 10:15

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	27.7	b	8.00	1.07	mg/L			12/14/19 07:13	20
Sulfate	42.0		10.0	1.91	mg/L			12/14/19 07:13	20

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	274	H	10.0	10.0	mg/L			12/04/19 13:21	1

Client Sample ID: MW-2A

Lab Sample ID: 600-196675-4

Date Collected: 11/23/19 15:37

Matrix: Water

Date Received: 11/27/19 10:15

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	88.0	b	20.0	2.67	mg/L			12/14/19 07:23	50
Sulfate	76.5		25.0	4.79	mg/L			12/14/19 07:23	50

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	414	H	20.0	20.0	mg/L			12/04/19 13:21	1

Client Sample ID: MW-6R

Lab Sample ID: 600-196675-5

Date Collected: 11/23/19 15:46
Matrix: Water
Date Received: 11/27/19 10:15

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	69.4	b	20.0	2.67	mg/L			12/14/19 07:34	50
Sulfate	95.2		25.0	4.79	mg/L			12/14/19 07:34	50

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	384	H	20.0	20.0	mg/L			12/04/19 13:21	1

Client Sample ID: MW-5

Lab Sample ID: 600-196675-6

Date Collected: 11/23/19 15:54
Matrix: Water
Date Received: 11/27/19 10:15

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1530	b	80.0	10.7	mg/L			12/14/19 08:06	200
Sulfate	250		100	19.1	mg/L			12/14/19 08:06	200

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	3900	H	100	100	mg/L			12/04/19 13:21	1

Client Sample ID: MW-5A

Lab Sample ID: 600-196675-7

Date Collected: 11/23/19 16:04
Matrix: Water
Date Received: 11/27/19 10:15

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	116	b	20.0	2.67	mg/L			12/14/19 08:17	50
Sulfate	61.1		25.0	4.79	mg/L			12/14/19 08:17	50

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	502	H	20.0	20.0	mg/L			12/04/19 13:21	1

Client Sample ID: MW-1

Lab Sample ID: 600-196675-8

Date Collected: 11/24/19 08:26
Matrix: Water
Date Received: 11/27/19 10:15

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1110	b	80.0	10.7	mg/L			12/14/19 08:28	200
Sulfate	222		100	19.1	mg/L			12/14/19 08:28	200

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	2190	H	40.0	40.0	mg/L			12/04/19 13:21	1

Client Sample ID: MW-4

Lab Sample ID: 600-196675-9

Date Collected: 11/24/19 08:44
Matrix: Water
Date Received: 11/27/19 10:15

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	3050	b	200	26.7	mg/L			12/14/19 09:00	500
Sulfate	420		250	47.9	mg/L			12/14/19 09:00	500

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	5960	H	100	100	mg/L			12/04/19 13:21	1

Client Sample ID: MW-4A

Lab Sample ID: 600-196675-10

Date Collected: 11/24/19 08:49
Matrix: Water
Date Received: 11/27/19 10:15

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	321	b	40.0	5.34	mg/L			12/14/19 09:11	100
Sulfate	94.5		50.0	9.57	mg/L			12/14/19 09:11	100

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	824	H	20.0	20.0	mg/L			12/04/19 13:21	1

Client Sample ID: RW-1

Lab Sample ID: 600-196675-11

Date Collected: 11/24/19 09:08
Matrix: Water
Date Received: 11/27/19 10:15

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	5780	b	400	53.4	mg/L			12/14/19 09:43	1000
Sulfate	722		500	95.7	mg/L			12/14/19 09:43	1000

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	12200	H	200	200	mg/L			12/04/19 13:21	1

Client Sample ID: RW-2R

Lab Sample ID: 600-196675-12

Date Collected: 11/24/19 09:21
Matrix: Water
Date Received: 11/27/19 10:15

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	7720	b	400	53.4	mg/L			12/14/19 09:54	1000
Sulfate	943		500	95.7	mg/L			12/14/19 09:54	1000

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	21000	H	200	200	mg/L			12/04/19 13:21	1

Client Sample ID: RW-2

Lab Sample ID: 600-196675-13

Date Collected: 11/24/19 09:25

Matrix: Water

Date Received: 11/27/19 10:15

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	3510	b	200	26.7	mg/L			12/18/19 01:23	500
Sulfate	464		250	47.9	mg/L			12/18/19 01:23	500

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	9880	H	200	200	mg/L			12/04/19 13:21	1

Client Sample ID: MW-14

Lab Sample ID: 600-196675-14

Date Collected: 11/24/19 09:31

Matrix: Water

Date Received: 11/27/19 10:15

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	37.1	b	8.00	1.07	mg/L			12/14/19 10:24	20
Sulfate	94.5		10.0	1.91	mg/L			12/14/19 10:24	20

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	328	H	20.0	20.0	mg/L			12/04/19 13:21	1

Client Sample ID: DUP-1

Lab Sample ID: 600-196675-15

Date Collected: 11/24/19 00:00

Matrix: Water

Date Received: 11/27/19 10:15

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	40.4	b	8.00	1.07	mg/L			12/14/19 11:25	20
Sulfate	95.9		10.0	1.91	mg/L			12/14/19 11:25	20

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	324	H	20.0	20.0	mg/L			12/04/19 13:21	1

Client Sample ID: MW-10

Lab Sample ID: 600-196675-16

Date Collected: 11/24/19 09:52

Matrix: Water

Date Received: 11/27/19 10:15

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	230	b	40.0	5.34	mg/L			12/14/19 11:46	100
Sulfate	78.0		50.0	9.57	mg/L			12/14/19 11:46	100

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	826	H	20.0	20.0	mg/L			12/04/19 13:21	1

Client Sample ID: MW-7

Lab Sample ID: 600-196675-17

Date Collected: 11/24/19 10:11

Matrix: Water

Date Received: 11/27/19 10:15

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	2080	b	200	26.7	mg/L			12/14/19 12:06	500
Sulfate	272		250	47.9	mg/L			12/14/19 12:06	500

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	6300	H	100	100	mg/L			12/04/19 13:21	1

Client Sample ID: MW-8

Lab Sample ID: 600-196675-18

Date Collected: 11/24/19 10:22

Matrix: Water

Date Received: 11/27/19 10:15

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	12.9	b	10.0	1.34	mg/L			12/14/19 12:27	25
Sulfate	27.6		12.5	2.39	mg/L			12/14/19 12:27	25

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	239	H	10.0	10.0	mg/L			12/04/19 13:21	1

Client Sample ID: MW-9

Lab Sample ID: 600-196675-19

Date Collected: 11/24/19 10:32

Matrix: Water

Date Received: 11/27/19 10:15

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	337	b	40.0	5.34	mg/L			12/14/19 12:47	100
Sulfate	80.6		50.0	9.57	mg/L			12/14/19 12:47	100

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1170	H	20.0	20.0	mg/L			12/04/19 13:21	1

Client Sample ID: MW-9A

Lab Sample ID: 600-196675-20

Date Collected: 11/24/19 10:41

Matrix: Water

Date Received: 11/27/19 10:15

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	231	b	40.0	5.34	mg/L			12/14/19 13:48	100
Sulfate	83.2		50.0	9.57	mg/L			12/14/19 13:48	100

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	838	H	20.0	20.0	mg/L			12/04/19 13:21	1

Client: ARCADIS U.S., Inc.
Project/Site: Cooper Jal

Job ID: 600-196675-1

Client Sample ID: MW-11
Date Collected: 11/24/19 10:51
Date Received: 11/27/19 10:15

Lab Sample ID: 600-196675-21
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	45.8	b	20.0	2.67	mg/L			12/14/19 14:50	50
Sulfate	113		25.0	4.79	mg/L			12/14/19 14:50	50

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	364	H	20.0	20.0	mg/L			12/04/19 13:21	1

Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: Cooper Jal

Job ID: 600-196675-1

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
b	The compound was found in the blank and sample
J	Result is less than the MQL but greater than or equal to the SDL and the concentration is an estimated value.
U	Analyte was not detected at or above the SDL.

General Chemistry

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time
U	Analyte was not detected at or above the SDL.

Glossary

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
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
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
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 600-283030/34
Matrix: Water
Analysis Batch: 283030

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.3130	J	0.400	0.0534	mg/L			12/14/19 07:45	1
Sulfate	0.0957	U	0.500	0.0957	mg/L			12/14/19 07:45	1

Lab Sample ID: MB 600-283030/6
Matrix: Water
Analysis Batch: 283030

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.3105	J	0.400	0.0534	mg/L			12/14/19 02:43	1
Sulfate	0.0957	U	0.500	0.0957	mg/L			12/14/19 02:43	1

Lab Sample ID: LCS 600-283030/35
Matrix: Water
Analysis Batch: 283030

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	20.0	19.45		mg/L		97	90 - 110
Sulfate	20.0	19.18		mg/L		96	90 - 110

Lab Sample ID: LCS 600-283030/7
Matrix: Water
Analysis Batch: 283030

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	20.0	19.37		mg/L		97	90 - 110
Sulfate	20.0	19.14		mg/L		96	90 - 110

Lab Sample ID: 600-196675-10 MS
Matrix: Water
Analysis Batch: 283030

Client Sample ID: MW-4A
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	321	b	1000	1285		mg/L		96	80 - 120
Sulfate	94.5		1000	1026		mg/L		93	80 - 120

Lab Sample ID: 600-196675-10 MSD
Matrix: Water
Analysis Batch: 283030

Client Sample ID: MW-4A
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	321	b	1000	1296		mg/L		97	80 - 120	1	20
Sulfate	94.5		1000	1046		mg/L		95	80 - 120	2	20

Lab Sample ID: MB 600-283045/4
Matrix: Water
Analysis Batch: 283045

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.1909	J	0.400	0.0534	mg/L			12/14/19 09:43	1
Sulfate	0.0957	U	0.500	0.0957	mg/L			12/14/19 09:43	1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: LCS 600-283045/5
Matrix: Water
Analysis Batch: 283045

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			20.0	20.20		mg/L		101	90 - 110		
Sulfate			20.0	19.48		mg/L		97	90 - 110		

Lab Sample ID: 600-196675-14 MS
Matrix: Water
Analysis Batch: 283045

Client Sample ID: MW-14
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride	37.1	b	200	243.4		mg/L		103	80 - 120		
Sulfate	94.5		200	294.4		mg/L		100	80 - 120		

Lab Sample ID: 600-196675-14 MSD
Matrix: Water
Analysis Batch: 283045

Client Sample ID: MW-14
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	37.1	b	200	243.4		mg/L		103	80 - 120	0	20
Sulfate	94.5		200	293.7		mg/L		100	80 - 120	0	20

Lab Sample ID: 600-196675-20 MS
Matrix: Water
Analysis Batch: 283045

Client Sample ID: MW-9A
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride	231	b	1000	1255		mg/L		102	80 - 120		
Sulfate	83.2		1000	1041		mg/L		96	80 - 120		

Lab Sample ID: 600-196675-20 MSD
Matrix: Water
Analysis Batch: 283045

Client Sample ID: MW-9A
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	231	b	1000	1261		mg/L		103	80 - 120	1	20
Sulfate	83.2		1000	1045		mg/L		96	80 - 120	0	20

Lab Sample ID: MB 600-283211/35
Matrix: Water
Analysis Batch: 283211

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.1862	J	0.400	0.0534	mg/L			12/17/19 22:19	1
Sulfate	0.0957	U	0.500	0.0957	mg/L			12/17/19 22:19	1

Lab Sample ID: MB 600-283211/4
Matrix: Water
Analysis Batch: 283211

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.1863	J	0.400	0.0534	mg/L			12/17/19 11:46	1
Sulfate	0.0957	U	0.500	0.0957	mg/L			12/17/19 11:46	1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: LCS 600-283211/36
Matrix: Water
Analysis Batch: 283211

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	1000	1017		mg/L		102	90 - 110
Sulfate	1000	980.3		mg/L		98	90 - 110

Lab Sample ID: LCS 600-283211/5
Matrix: Water
Analysis Batch: 283211

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	20.0	20.14		mg/L		101	90 - 110
Sulfate	20.0	19.34		mg/L		97	90 - 110

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 600-282061/1
Matrix: Water
Analysis Batch: 282061

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	10.0	U	10.0	10.0	mg/L			12/04/19 13:21	1

Lab Sample ID: LCS 600-282061/2
Matrix: Water
Analysis Batch: 282061

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	1800	1726		mg/L		96	90 - 110

Lab Sample ID: 600-196675-10 DU
Matrix: Water
Analysis Batch: 282061

Client Sample ID: MW-4A
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	824	H	806.0		mg/L		2	10

Lab Sample ID: 600-196675-21 DU
Matrix: Water
Analysis Batch: 282061

Client Sample ID: MW-11
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	364	H	340.0		mg/L		7	10

Lab Sample ID: MB 600-282105/1
Matrix: Water
Analysis Batch: 282105

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	10.0	U	10.0	10.0	mg/L			12/04/19 15:38	1

Method: SM 2540C - Solids, Total Dissolved (TDS) (Continued)

Lab Sample ID: LCS 600-282105/2
Matrix: Water
Analysis Batch: 282105

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Dissolved Solids			1800	1726		mg/L		96	90 - 110		

Lab Sample ID: 600-196675-1 DU
Matrix: Water
Analysis Batch: 282105

Client Sample ID: MW-12
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids	1010	H		1032		mg/L				2	10

Unadjusted Detection Limits

Client: ARCADIS U.S., Inc.
Project/Site: Cooper Jal

Job ID: 600-196675-1

Method: 300.0 - Anions, Ion Chromatography

Analyte	MQL	MDL	Units
Chloride	0.400	0.0534	mg/L
Sulfate	0.500	0.0957	mg/L

General Chemistry

Analyte	MQL	MDL	Units
Total Dissolved Solids	10.0	10.0	mg/L

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Cooper Jal

Job ID: 600-196675-1

HPLC/IC

Analysis Batch: 283030

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-196675-1	MW-12	Total/NA	Water	300.0	
600-196675-2	MW-3	Total/NA	Water	300.0	
600-196675-3	MW-2	Total/NA	Water	300.0	
600-196675-4	MW-2A	Total/NA	Water	300.0	
600-196675-5	MW-6R	Total/NA	Water	300.0	
600-196675-6	MW-5	Total/NA	Water	300.0	
600-196675-7	MW-5A	Total/NA	Water	300.0	
600-196675-8	MW-1	Total/NA	Water	300.0	
600-196675-9	MW-4	Total/NA	Water	300.0	
600-196675-10	MW-4A	Total/NA	Water	300.0	
600-196675-11	RW-1	Total/NA	Water	300.0	
600-196675-12	RW-2R	Total/NA	Water	300.0	
MB 600-283030/34	Method Blank	Total/NA	Water	300.0	
MB 600-283030/6	Method Blank	Total/NA	Water	300.0	
LCS 600-283030/35	Lab Control Sample	Total/NA	Water	300.0	
LCS 600-283030/7	Lab Control Sample	Total/NA	Water	300.0	
600-196675-10 MS	MW-4A	Total/NA	Water	300.0	
600-196675-10 MSD	MW-4A	Total/NA	Water	300.0	

Analysis Batch: 283045

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-196675-14	MW-14	Total/NA	Water	300.0	
600-196675-15	DUP-1	Total/NA	Water	300.0	
600-196675-16	MW-10	Total/NA	Water	300.0	
600-196675-17	MW-7	Total/NA	Water	300.0	
600-196675-18	MW-8	Total/NA	Water	300.0	
600-196675-19	MW-9	Total/NA	Water	300.0	
600-196675-20	MW-9A	Total/NA	Water	300.0	
600-196675-21	MW-11	Total/NA	Water	300.0	
MB 600-283045/4	Method Blank	Total/NA	Water	300.0	
LCS 600-283045/5	Lab Control Sample	Total/NA	Water	300.0	
600-196675-14 MS	MW-14	Total/NA	Water	300.0	
600-196675-14 MSD	MW-14	Total/NA	Water	300.0	
600-196675-20 MS	MW-9A	Total/NA	Water	300.0	
600-196675-20 MSD	MW-9A	Total/NA	Water	300.0	

Analysis Batch: 283211

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-196675-13	RW-2	Total/NA	Water	300.0	
MB 600-283211/35	Method Blank	Total/NA	Water	300.0	
MB 600-283211/4	Method Blank	Total/NA	Water	300.0	
LCS 600-283211/36	Lab Control Sample	Total/NA	Water	300.0	
LCS 600-283211/5	Lab Control Sample	Total/NA	Water	300.0	

General Chemistry

Analysis Batch: 282061

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-196675-2	MW-3	Total/NA	Water	SM 2540C	
600-196675-3	MW-2	Total/NA	Water	SM 2540C	
600-196675-4	MW-2A	Total/NA	Water	SM 2540C	

General Chemistry (Continued)

Analysis Batch: 282061 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-196675-5	MW-6R	Total/NA	Water	SM 2540C	
600-196675-6	MW-5	Total/NA	Water	SM 2540C	
600-196675-7	MW-5A	Total/NA	Water	SM 2540C	
600-196675-8	MW-1	Total/NA	Water	SM 2540C	
600-196675-9	MW-4	Total/NA	Water	SM 2540C	
600-196675-10	MW-4A	Total/NA	Water	SM 2540C	
600-196675-11	RW-1	Total/NA	Water	SM 2540C	
600-196675-12	RW-2R	Total/NA	Water	SM 2540C	
600-196675-13	RW-2	Total/NA	Water	SM 2540C	
600-196675-14	MW-14	Total/NA	Water	SM 2540C	
600-196675-15	DUP-1	Total/NA	Water	SM 2540C	
600-196675-16	MW-10	Total/NA	Water	SM 2540C	
600-196675-17	MW-7	Total/NA	Water	SM 2540C	
600-196675-18	MW-8	Total/NA	Water	SM 2540C	
600-196675-19	MW-9	Total/NA	Water	SM 2540C	
600-196675-20	MW-9A	Total/NA	Water	SM 2540C	
600-196675-21	MW-11	Total/NA	Water	SM 2540C	
MB 600-282061/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 600-282061/2	Lab Control Sample	Total/NA	Water	SM 2540C	
600-196675-10 DU	MW-4A	Total/NA	Water	SM 2540C	
600-196675-21 DU	MW-11	Total/NA	Water	SM 2540C	

Analysis Batch: 282105

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-196675-1	MW-12	Total/NA	Water	SM 2540C	
MB 600-282105/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 600-282105/2	Lab Control Sample	Total/NA	Water	SM 2540C	
600-196675-1 DU	MW-12	Total/NA	Water	SM 2540C	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Cooper Jal

Job ID: 600-196675-1

Client Sample ID: MW-12
Date Collected: 11/23/19 15:10
Date Received: 11/27/19 10:15

Lab Sample ID: 600-196675-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		250			283030	12/14/19 06:51	W1N	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	282105	12/04/19 15:38	TNL	TAL HOU

Client Sample ID: MW-3
Date Collected: 11/23/19 15:22
Date Received: 11/27/19 10:15

Lab Sample ID: 600-196675-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		50			283030	12/14/19 07:02	W1N	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	282061	12/04/19 13:21	TNL	TAL HOU

Client Sample ID: MW-2
Date Collected: 11/23/19 15:32
Date Received: 11/27/19 10:15

Lab Sample ID: 600-196675-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		20			283030	12/14/19 07:13	W1N	TAL HOU
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	282061	12/04/19 13:21	TNL	TAL HOU

Client Sample ID: MW-2A
Date Collected: 11/23/19 15:37
Date Received: 11/27/19 10:15

Lab Sample ID: 600-196675-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		50			283030	12/14/19 07:23	W1N	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	282061	12/04/19 13:21	TNL	TAL HOU

Client Sample ID: MW-6R
Date Collected: 11/23/19 15:46
Date Received: 11/27/19 10:15

Lab Sample ID: 600-196675-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		50			283030	12/14/19 07:34	W1N	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	282061	12/04/19 13:21	TNL	TAL HOU

Client Sample ID: MW-5
Date Collected: 11/23/19 15:54
Date Received: 11/27/19 10:15

Lab Sample ID: 600-196675-6
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		200			283030	12/14/19 08:06	W1N	TAL HOU
Total/NA	Analysis	SM 2540C		1	10 mL	100 mL	282061	12/04/19 13:21	TNL	TAL HOU

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Cooper Jal

Job ID: 600-196675-1

Client Sample ID: MW-5A
Date Collected: 11/23/19 16:04
Date Received: 11/27/19 10:15

Lab Sample ID: 600-196675-7
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		50			283030	12/14/19 08:17	W1N	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	282061	12/04/19 13:21	TNL	TAL HOU

Client Sample ID: MW-1
Date Collected: 11/24/19 08:26
Date Received: 11/27/19 10:15

Lab Sample ID: 600-196675-8
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		200			283030	12/14/19 08:28	W1N	TAL HOU
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	282061	12/04/19 13:21	TNL	TAL HOU

Client Sample ID: MW-4
Date Collected: 11/24/19 08:44
Date Received: 11/27/19 10:15

Lab Sample ID: 600-196675-9
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		500			283030	12/14/19 09:00	W1N	TAL HOU
Total/NA	Analysis	SM 2540C		1	10 mL	100 mL	282061	12/04/19 13:21	TNL	TAL HOU

Client Sample ID: MW-4A
Date Collected: 11/24/19 08:49
Date Received: 11/27/19 10:15

Lab Sample ID: 600-196675-10
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		100			283030	12/14/19 09:11	W1N	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	282061	12/04/19 13:21	TNL	TAL HOU

Client Sample ID: RW-1
Date Collected: 11/24/19 09:08
Date Received: 11/27/19 10:15

Lab Sample ID: 600-196675-11
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1000			283030	12/14/19 09:43	W1N	TAL HOU
Total/NA	Analysis	SM 2540C		1	5 mL	100 mL	282061	12/04/19 13:21	TNL	TAL HOU

Client Sample ID: RW-2R
Date Collected: 11/24/19 09:21
Date Received: 11/27/19 10:15

Lab Sample ID: 600-196675-12
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1000			283030	12/14/19 09:54	W1N	TAL HOU
Total/NA	Analysis	SM 2540C		1	5 mL	100 mL	282061	12/04/19 13:21	TNL	TAL HOU

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Cooper Jal

Job ID: 600-196675-1

Client Sample ID: RW-2
Date Collected: 11/24/19 09:25
Date Received: 11/27/19 10:15

Lab Sample ID: 600-196675-13
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		500			283211	12/18/19 01:23	SKR	TAL HOU
Total/NA	Analysis	SM 2540C		1	5 mL	100 mL	282061	12/04/19 13:21	TNL	TAL HOU

Client Sample ID: MW-14
Date Collected: 11/24/19 09:31
Date Received: 11/27/19 10:15

Lab Sample ID: 600-196675-14
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		20			283045	12/14/19 10:24	W1N	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	282061	12/04/19 13:21	TNL	TAL HOU

Client Sample ID: DUP-1
Date Collected: 11/24/19 00:00
Date Received: 11/27/19 10:15

Lab Sample ID: 600-196675-15
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		20			283045	12/14/19 11:25	W1N	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	282061	12/04/19 13:21	TNL	TAL HOU

Client Sample ID: MW-10
Date Collected: 11/24/19 09:52
Date Received: 11/27/19 10:15

Lab Sample ID: 600-196675-16
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		100			283045	12/14/19 11:46	W1N	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	282061	12/04/19 13:21	TNL	TAL HOU

Client Sample ID: MW-7
Date Collected: 11/24/19 10:11
Date Received: 11/27/19 10:15

Lab Sample ID: 600-196675-17
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		500			283045	12/14/19 12:06	W1N	TAL HOU
Total/NA	Analysis	SM 2540C		1	10 mL	100 mL	282061	12/04/19 13:21	TNL	TAL HOU

Client Sample ID: MW-8
Date Collected: 11/24/19 10:22
Date Received: 11/27/19 10:15

Lab Sample ID: 600-196675-18
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		25			283045	12/14/19 12:27	W1N	TAL HOU
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	282061	12/04/19 13:21	TNL	TAL HOU

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Cooper Jal

Job ID: 600-196675-1

Client Sample ID: MW-9

Lab Sample ID: 600-196675-19

Date Collected: 11/24/19 10:32

Matrix: Water

Date Received: 11/27/19 10:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		100			283045	12/14/19 12:47	W1N	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	282061	12/04/19 13:21	TNL	TAL HOU

Client Sample ID: MW-9A

Lab Sample ID: 600-196675-20

Date Collected: 11/24/19 10:41

Matrix: Water

Date Received: 11/27/19 10:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		100			283045	12/14/19 13:48	W1N	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	282061	12/04/19 13:21	TNL	TAL HOU

Client Sample ID: MW-11

Lab Sample ID: 600-196675-21

Date Collected: 11/24/19 10:51

Matrix: Water

Date Received: 11/27/19 10:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		50			283045	12/14/19 14:50	W1N	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	282061	12/04/19 13:21	TNL	TAL HOU

Laboratory References:

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

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: Cooper Jal

Job ID: 600-196675-1

Laboratory: Eurofins TestAmerica, Houston

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

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	88-0759	08-04-20
Louisiana	NELAP	01967	06-30-20
Oklahoma	State	2019-073	08-31-20
Texas	NELAP	T104704223-19-25	10-31-19 *
Texas	NELAP	T104704223-19-25	10-31-20
USDA	US Federal Programs	P330-18-00130	04-30-21
Utah	NELAP	TX000832019-5	07-31-20

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Eurofins TestAmerica, Houston
6310 Rothway Street
Houston, TX 77040
Phone (713) 690-4444 Fax (713) 690-5646

Chain of Custody Record

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Client Information	Sampler: Carlos Martinez	Lab PM: Kudchadkar, Sachin G	Carrier Tracking No(s):	COC No: 600-72356-19860.3
Client Contact: Mr. Russell Grant	Phone: 361-701-0369	E-Mail: sachin.kudchadkar@testamericainc.com		Page: Page
Company: ARCADIS U.S., Inc.				Job #:
Address: 1004 North Big Spring Suite 121	Due Date Requested:			
City: Midland	TAT Requested (days):			
State, Zip: TX, 79701				
Phone: 916-786-5382(Tel)	PO #: 30006543 Mark Owen			
Email: russell.grant@arcadis-us.com	WO #:			
Project Name: ~~MARK OWEN~~ Cooper Jr1	Project #: 60003622			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	2540C - TDS	300-Cl, SO4	Total Number of containers	Special Instructions/Note:
			Preservation Code:			N				
MW-12	11/23/19	1510	G	Water			X	X	1	
~~MW-3~~ MW-3	11/23/19	1522	G	Water			X	X	1	
MW-2	11/23/19	1532	G	Water			X	X	1	
MW-2A	11/23/19	1537	G	Water			X	X	1	
MW-6R	11/23/19	1546	G	Water			X	X	1	
MW-5	11/23/19	1554	G	Water			X	X	1	
MW-5A	11/23/19	1604	G	Water			X	X	1	
MW-1	11/24/19	0826	G	Water			X	X	1	
MW-4	11/24/19	0844	G	Water			X	X	1	
MW-4A	11/24/19	0849	G	Water			X	X	1	
RW-1	11/24/19	0903	G	Water			X	X	1	

600-196675 Chain of Custody

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Date/Time	Company	Received by	Date/Time	Company
Relinquished by: Carlos Martinez	11/26/19 1800	ARCADIS	[signature]	11/27/19 1015	TAH
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

12/19/2019

Eurofins TestAmerica, Houston
6310 Rothway Street
Houston, TX 77040
Phone (713) 690-4444 Fax (713) 690-5646

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information	Sampler: Carlos Martinez	Lab PM: Kudchadkar, Sachin G	Carrier Tracking No(s):	COC No: 600-72356-19860.3
Client Contact: Mr. Russell Grant	Phone: 361-701-0361	E-Mail: sachin.kudchadkar@testamericainc.com		Page: Page
Company: ARCADIS U.S., Inc.				Job #:

Address: 1004 North Big Spring Suite 121	Due Date Requested:	Analysis Requested
City: Midland	TAT Requested (days):	
State, Zip: TX, 79701		
Phone: 916-786-5382(Tel)	PO #: 30006543 Mark Owen	
Email: russell.grant@arcadis-us.com	WO #:	
Project Name: ~~MARK OWEN~~ Cooper Jal	Project #: 60003622	
Site:	SSOW#:	

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	~~2320B, Alkalinity~~	2540C - TDS	300-Cl, SO4	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N				
RW-2R	11/24/19	0921	G	Water				X	X	1	
RW-2	11/24/19	0925	G	Water				X	X	1	
MW-14	11 24 19	0931	G	Water				X	X	1	
DUP-1	11 24 19	—	G	Water				X	X	1	
MW-10	11 24 19	0952	G	Water				X	X	1	
MW-7	11/24/19	1011	G	Water				X	X	2	
MW-8	11/24/19	1022	G	Water				X	X	1	
MW-9	11/24/19	1032	G	Water				X	X	1	
MW-9A	11/24/19	1041	G	Water				X	X	1	
MW-11	11/24/19	1051	G	Water				X	X	1	
				Water							

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Carlos Martinez	11/26/19 / 1800	ARCADIS	[signature]	11/27/19 1015	TAH
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

12/19/2019

Loc: 600
196675

Eurofins TestAmerica Houston

eurofins | Environment Testing TestAmerica

Sample Receipt Checklist

'19NOV27 10:15

Date/Time Received: _____

JOB NUMBER: _____ CLIENT: Arcadis

UNPACKED BY: JR CARRIER/DRIVER: FedEX

Custody Seal Present: ☑YES ☐NO Number of Coolers Received: 1

Cooler ID	Temp Blank	Trip Blank	Observed Temp (°C)	Therm ID	Therm CF	Corrected Temp (°C)
1337	Y / N	Y / N	2.1	676	+0.1	2.2
	Y / N	Y / N				
	Y / N	Y / N				
	Y / N	Y / N				
	Y / N	Y / N			JR 11/27/19	
	Y / N	Y / N				

CF = correction factor

Samples received on ice? ☑YES ☐NO

LABORATORY PRESERVATION OF SAMPLES REQUIRED: ☑NO ☐YES

Base samples are>pH 12: ☐YES ☐NO Acid preserved are<pH 2: ☐YES ☐NO

TX1005 samples frozen upon receipt: ☐ YES DATE & TIME PUT IN FREEZER: _____

pH paper Lot #_____ VOA headspace acceptable (5-6mm): ☐YES ☐NO ☑NA

Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	☑YES	☐ NO

COMMENTS:

JR 11/29/19

HS-SA-WI-013 Rev. 4A; 08/26/2019

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 600-196675-1

Login Number: 196675
List Number: 1
Creator: Rubio, Yuri

List Source: Eurofins TestAmerica, Houston

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
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	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 (excluding tests with immediate HTs)	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	Check done at department level as required.

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ANALYTICAL REPORT

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

Laboratory Job ID: 600-204022-1
Client Project/Site: Chevron-Cooper Jal Groundwaters 2020

For:
ARCADIS U.S., Inc.
1004 North Big Spring
Suite 121
Midland, Texas 79701

Attn: Ryan Nanny

Authorized for release by:
5/12/2020 2:57:08 PM

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

Table of Contents

Method Summary

Client: ARCADIS U.S., Inc.
Job ID: 600-204022-1
Project/Site: Chevron-Cooper Jal Groundwaters 2020

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	MCAWW	TAL HOU
2540 C-1997	Total Dissolved Solids (Dried at 180 °C)	SM	TAL HOU

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

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

Sample Summary

Client: ARCADIS U.S., Inc.
Job ID: 600-204022-1
Project/Site: Chevron-Cooper Jal Groundwaters 2020

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
600-204022-1	MW-11-W-200420	Water	04/20/20 09:00	04/21/20 10:08	
600-204022-2	MW-9-W-200420	Water	04/20/20 09:30	04/21/20 10:08	
600-204022-3	MW-9A-W-200420	Water	04/20/20 09:40	04/21/20 10:08	
600-204022-4	MW-8-W-200420	Water	04/20/20 09:46	04/21/20 10:08	
600-204022-5	MW-7-W-200420	Water	04/20/20 10:02	04/21/20 10:08	
600-204022-6	MW-14-W-200420	Water	04/20/20 10:09	04/21/20 10:08	
600-204022-7	MW-10-W-200420	Water	04/20/20 10:12	04/21/20 10:08	
600-204022-8	RW-2-W-200420	Water	04/20/20 10:26	04/21/20 10:08	
600-204022-9	RW-2R-W-200420	Water	04/20/20 10:30	04/21/20 10:08	
600-204022-10	MW-4A-W-200420	Water	04/20/20 10:45	04/21/20 10:08	
600-204022-11	MW-4-W-200420	Water	04/20/20 10:52	04/21/20 10:08	

Client Sample ID: MW-11-W-200420 — Lab Sample ID: 600-204022-1

Date Collected: 04/20/20 09:00 — **Matrix: Water**
Date Received: 04/21/20 10:08

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	29.0		4.00	0.534	mg/L			05/08/20 12:28	10
Fluoride	0.601	U	2.00	0.601	mg/L			05/08/20 12:28	10
Sulfate	91.7		5.00	0.957	mg/L			05/08/20 12:28	10

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	394		10.0	10.0	mg/L			04/24/20 08:37	1

Client Sample ID: MW-9-W-200420 — Lab Sample ID: 600-204022-2

Date Collected: 04/20/20 09:30 — **Matrix: Water**
Date Received: 04/21/20 10:08

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1070		40.0	5.34	mg/L			05/08/20 12:39	100
Fluoride	6.01	U	20.0	6.01	mg/L			05/08/20 12:39	100
Sulfate	181		50.0	9.57	mg/L			05/08/20 12:39	100

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	3090		20.0	20.0	mg/L			04/24/20 08:37	1

Client Sample ID: MW-9A-W-200420 — Lab Sample ID: 600-204022-3

Date Collected: 04/20/20 09:40 — **Matrix: Water**
Date Received: 04/21/20 10:08

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	352		10.0	1.34	mg/L			05/08/20 12:50	25
Fluoride	1.50	U	5.00	1.50	mg/L			05/08/20 12:50	25
Sulfate	93.3		12.5	2.39	mg/L			05/08/20 12:50	25

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	940		20.0	20.0	mg/L			04/24/20 08:37	1

Client Sample ID: MW-8-W-200420 — Lab Sample ID: 600-204022-4

Date Collected: 04/20/20 09:46 — **Matrix: Water**
Date Received: 04/21/20 10:08

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	49.4		4.00	0.534	mg/L			05/08/20 13:00	10
Fluoride	0.601	U	2.00	0.601	mg/L			05/08/20 13:00	10
Sulfate	51.0		5.00	0.957	mg/L			05/08/20 13:00	10

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	305		10.0	10.0	mg/L			04/24/20 08:37	1

Client Sample ID: MW-7-W-200420 — Lab Sample ID: 600-204022-5

Date Collected: 04/20/20 10:02 — **Matrix: Water**
Date Received: 04/21/20 10:08

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	4570		100	13.4	mg/L			05/08/20 13:11	250
Fluoride	15.0	U	50.0	15.0	mg/L			05/08/20 13:11	250
Sulfate	457		125	23.9	mg/L			05/08/20 13:11	250

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	14100		100	100	mg/L			04/24/20 08:37	1

Client Sample ID: MW-14-W-200420 — Lab Sample ID: 600-204022-6

Date Collected: 04/20/20 10:09 — **Matrix: Water**
Date Received: 04/21/20 10:08

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	46.0		4.00	0.534	mg/L			05/08/20 14:26	10
Fluoride	0.601	U F1	2.00	0.601	mg/L			05/08/20 14:26	10
Sulfate	86.1		5.00	0.957	mg/L			05/08/20 14:26	10

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	400		10.0	10.0	mg/L			04/24/20 08:37	1

Client Sample ID: MW-10-W-200420 — Lab Sample ID: 600-204022-7

Date Collected: 04/20/20 10:12 — **Matrix: Water**
Date Received: 04/21/20 10:08

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	372		10.0	1.34	mg/L			05/08/20 14:59	25
Fluoride	1.50	U	5.00	1.50	mg/L			05/08/20 14:59	25
Sulfate	96.0		12.5	2.39	mg/L			05/08/20 14:59	25

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1050		20.0	20.0	mg/L			04/24/20 08:37	1

Client Sample ID: RW-2-W-200420 — Lab Sample ID: 600-204022-8

Date Collected: 04/20/20 10:26 — **Matrix: Water**
Date Received: 04/21/20 10:08

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	3610		100	13.4	mg/L			05/08/20 13:43	250
Fluoride	15.0	U	50.0	15.0	mg/L			05/08/20 13:43	250
Sulfate	618		125	23.9	mg/L			05/08/20 13:43	250

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	7890		40.0	40.0	mg/L			04/24/20 08:37	1

Client: ARCADIS U.S., Inc.
Job ID: 600-204022-1
Project/Site: Chevron-Cooper Jal Groundwaters 2020

Client Sample ID: RW-2R-W-200420
Lab Sample ID: 600-204022-9
Date Collected: 04/20/20 10:30
Matrix: Water
Date Received: 04/21/20 10:08

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**9210**		200	26.7	mg/L			05/08/20 13:54	500
Fluoride	30.1	U	100	30.1	mg/L			05/08/20 13:54	500
Sulfate	**815**		250	47.9	mg/L			05/08/20 13:54	500

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**21500**		200	200	mg/L			04/24/20 08:37	1

Client Sample ID: MW-4A-W-200420
Lab Sample ID: 600-204022-10
Date Collected: 04/20/20 10:45
Matrix: Water
Date Received: 04/21/20 10:08

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**311**	**F1**	20.0	2.67	mg/L			05/08/20 16:54	50
Fluoride	**6.38**	**J F1**	10.0	3.01	mg/L			05/08/20 16:54	50
Sulfate	**174**	**F1**	25.0	4.79	mg/L			05/08/20 16:54	50

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**808**		20.0	20.0	mg/L			04/24/20 08:37	1

Client Sample ID: MW-4-W-200420
Lab Sample ID: 600-204022-11
Date Collected: 04/20/20 10:52
Matrix: Water
Date Received: 04/21/20 10:08

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**14600**		400	53.4	mg/L			05/08/20 17:55	1000
Fluoride	60.1	U	200	60.1	mg/L			05/08/20 17:55	1000
Sulfate	**2410**		500	95.7	mg/L			05/08/20 17:55	1000

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**28900**		200	200	mg/L			04/24/20 08:37	1

Definitions/Glossary

Client: ARCADIS U.S., Inc. Job ID: 600-204022-1
Project/Site: Chevron-Cooper Jal Groundwaters 2020

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

General Chemistry

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

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
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 600-294111/11
Client Sample ID: Method Blank
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 294111

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.0534	U	0.400	0.0534	mg/L			05/08/20 16:13	1
Fluoride	0.0601	U	0.200	0.0601	mg/L			05/08/20 16:13	1
Sulfate	0.0957	U	0.500	0.0957	mg/L			05/08/20 16:13	1

Lab Sample ID: LCS 600-294111/12
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 294111

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	20.0	18.58		mg/L		93	90 - 110
Fluoride	7.50	7.338		mg/L		98	90 - 110
Sulfate	20.0	20.36		mg/L		102	90 - 110

Lab Sample ID: 600-204022-10 MS
Client Sample ID: MW-4A-W-200420
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 294111

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	311	F1	500	921.1	F1	mg/L		122	80 - 120
Fluoride	6.38	J F1	100	352.5	F1	mg/L		346	80 - 120
Sulfate	174	F1	500	759.2		mg/L		117	80 - 120

Lab Sample ID: 600-204022-10 MSD
Client Sample ID: MW-4A-W-200420
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 294111

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	311	F1	500	957.7	F1	mg/L		129	80 - 120	4	20
Fluoride	6.38	J F1	100	324.4	F1	mg/L		318	80 - 120	8	20
Sulfate	174	F1	500	846.6	F1	mg/L		134	80 - 120	11	20

Lab Sample ID: MB 600-294114/36
Client Sample ID: Method Blank
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 294114

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.0534	U	0.400	0.0534	mg/L			05/08/20 13:22	1
Fluoride	0.0601	U	0.200	0.0601	mg/L			05/08/20 13:22	1
Sulfate	0.0957	U	0.500	0.0957	mg/L			05/08/20 13:22	1

Lab Sample ID: MB 600-294114/6
Client Sample ID: Method Blank
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 294114

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.0534	U	0.400	0.0534	mg/L			05/08/20 04:14	1
Fluoride	0.0601	U	0.200	0.0601	mg/L			05/08/20 04:14	1
Sulfate	0.0957	U	0.500	0.0957	mg/L			05/08/20 04:14	1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 600-294114/37
Matrix: Water
Analysis Batch: 294114

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			20.0	19.59		mg/L		98	90 - 110		
Fluoride			7.50	7.965		mg/L		106	90 - 110		
Sulfate			20.0	19.63		mg/L		98	90 - 110		

Lab Sample ID: LCS 600-294114/7
Matrix: Water
Analysis Batch: 294114

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			20.0	19.87		mg/L		99	90 - 110		
Fluoride			7.50	7.821		mg/L		104	90 - 110		
Sulfate			20.0	20.10		mg/L		101	90 - 110		

Lab Sample ID: 600-204022-6 MS
Matrix: Water
Analysis Batch: 294114

Client Sample ID: MW-14-W-200420
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride	46.0		100	133.3		mg/L		87	80 - 120		
Fluoride	0.601	U F1	20.0	53.71	F1	mg/L		269	80 - 120		
Sulfate	86.1		100	192.4		mg/L		106	80 - 120		

Lab Sample ID: 600-204022-6 MSD
Matrix: Water
Analysis Batch: 294114

Client Sample ID: MW-14-W-200420
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	46.0		100	132.8		mg/L		87	80 - 120	0	20
Fluoride	0.601	U F1	20.0	53.59	F1	mg/L		268	80 - 120	0	20
Sulfate	86.1		100	190.7		mg/L		105	80 - 120	1	20

Method: 2540 C-1997 - Total Dissolved Solids (Dried at 180 °C)

Lab Sample ID: MB 600-293202/1
Matrix: Water
Analysis Batch: 293202

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	10.0	U	10.0	10.0	mg/L			04/24/20 08:37	1

Lab Sample ID: LCS 600-293202/2
Matrix: Water
Analysis Batch: 293202

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Dissolved Solids			1800	1773		mg/L		99	90 - 110		

Client: ARCADIS U.S., Inc.
Job ID: 600-204022-1
Project/Site: Chevron-Cooper Jal Groundwaters 2020

Method: 2540 C-1997 - Total Dissolved Solids (Dried at 180 °C) (Continued)

Lab Sample ID: 600-204022-10 DU
Client Sample ID: MW-4A-W-200420
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 293202

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids	808			850.0		mg/L				5	10

Unadjusted Detection Limits

Client: ARCADIS U.S., Inc.
Job ID: 600-204022-1
Project/Site: Chevron-Cooper Jal Groundwaters 2020

Method: 300.0 - Anions, Ion Chromatography

Analyte	MQL	MDL	Units
Chloride	0.400	0.0534	mg/L
Fluoride	0.200	0.0601	mg/L
Sulfate	0.500	0.0957	mg/L

General Chemistry

Analyte	MQL	MDL	Units
Total Dissolved Solids	10.0	10.0	mg/L

HPLC/IC

Analysis Batch: 294111

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-204022-10	MW-4A-W-200420	Total/NA	Water	300.0	
600-204022-11	MW-4-W-200420	Total/NA	Water	300.0	
MB 600-294111/11	Method Blank	Total/NA	Water	300.0	
LCS 600-294111/12	Lab Control Sample	Total/NA	Water	300.0	
600-204022-10 MS	MW-4A-W-200420	Total/NA	Water	300.0	
600-204022-10 MSD	MW-4A-W-200420	Total/NA	Water	300.0	

Analysis Batch: 294114

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-204022-1	MW-11-W-200420	Total/NA	Water	300.0	
600-204022-2	MW-9-W-200420	Total/NA	Water	300.0	
600-204022-3	MW-9A-W-200420	Total/NA	Water	300.0	
600-204022-4	MW-8-W-200420	Total/NA	Water	300.0	
600-204022-5	MW-7-W-200420	Total/NA	Water	300.0	
600-204022-6	MW-14-W-200420	Total/NA	Water	300.0	
600-204022-7	MW-10-W-200420	Total/NA	Water	300.0	
600-204022-8	RW-2-W-200420	Total/NA	Water	300.0	
600-204022-9	RW-2R-W-200420	Total/NA	Water	300.0	
MB 600-294114/36	Method Blank	Total/NA	Water	300.0	
MB 600-294114/6	Method Blank	Total/NA	Water	300.0	
LCS 600-294114/37	Lab Control Sample	Total/NA	Water	300.0	
LCS 600-294114/7	Lab Control Sample	Total/NA	Water	300.0	
600-204022-6 MS	MW-14-W-200420	Total/NA	Water	300.0	
600-204022-6 MSD	MW-14-W-200420	Total/NA	Water	300.0	

General Chemistry

Analysis Batch: 293202

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-204022-1	MW-11-W-200420	Total/NA	Water	2540 C-1997	
600-204022-2	MW-9-W-200420	Total/NA	Water	2540 C-1997	
600-204022-3	MW-9A-W-200420	Total/NA	Water	2540 C-1997	
600-204022-4	MW-8-W-200420	Total/NA	Water	2540 C-1997	
600-204022-5	MW-7-W-200420	Total/NA	Water	2540 C-1997	
600-204022-6	MW-14-W-200420	Total/NA	Water	2540 C-1997	
600-204022-7	MW-10-W-200420	Total/NA	Water	2540 C-1997	
600-204022-8	RW-2-W-200420	Total/NA	Water	2540 C-1997	
600-204022-9	RW-2R-W-200420	Total/NA	Water	2540 C-1997	
600-204022-10	MW-4A-W-200420	Total/NA	Water	2540 C-1997	
600-204022-11	MW-4-W-200420	Total/NA	Water	2540 C-1997	
MB 600-293202/1	Method Blank	Total/NA	Water	2540 C-1997	
LCS 600-293202/2	Lab Control Sample	Total/NA	Water	2540 C-1997	
600-204022-10 DU	MW-4A-W-200420	Total/NA	Water	2540 C-1997	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Job ID: 600-204022-1
Project/Site: Chevron-Cooper Jal Groundwaters 2020

Client Sample ID: MW-11-W-200420
Lab Sample ID: 600-204022-1
Date Collected: 04/20/20 09:00
Matrix: Water
Date Received: 04/21/20 10:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		10	294114	05/08/20 12:28	W1N	TAL HOU
Total/NA	Analysis	2540 C-1997		1	293202	04/24/20 08:37	TNL	TAL HOU

Client Sample ID: MW-9-W-200420
Lab Sample ID: 600-204022-2
Date Collected: 04/20/20 09:30
Matrix: Water
Date Received: 04/21/20 10:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		100	294114	05/08/20 12:39	W1N	TAL HOU
Total/NA	Analysis	2540 C-1997		1	293202	04/24/20 08:37	TNL	TAL HOU

Client Sample ID: MW-9A-W-200420
Lab Sample ID: 600-204022-3
Date Collected: 04/20/20 09:40
Matrix: Water
Date Received: 04/21/20 10:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		25	294114	05/08/20 12:50	W1N	TAL HOU
Total/NA	Analysis	2540 C-1997		1	293202	04/24/20 08:37	TNL	TAL HOU

Client Sample ID: MW-8-W-200420
Lab Sample ID: 600-204022-4
Date Collected: 04/20/20 09:46
Matrix: Water
Date Received: 04/21/20 10:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		10	294114	05/08/20 13:00	W1N	TAL HOU
Total/NA	Analysis	2540 C-1997		1	293202	04/24/20 08:37	TNL	TAL HOU

Client Sample ID: MW-7-W-200420
Lab Sample ID: 600-204022-5
Date Collected: 04/20/20 10:02
Matrix: Water
Date Received: 04/21/20 10:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		250	294114	05/08/20 13:11	W1N	TAL HOU
Total/NA	Analysis	2540 C-1997		1	293202	04/24/20 08:37	TNL	TAL HOU

Client Sample ID: MW-14-W-200420
Lab Sample ID: 600-204022-6
Date Collected: 04/20/20 10:09
Matrix: Water
Date Received: 04/21/20 10:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		10	294114	05/08/20 14:26	W1N	TAL HOU
Total/NA	Analysis	2540 C-1997		1	293202	04/24/20 08:37	TNL	TAL HOU

Lab Chronicle

Client: ARCADIS U.S., Inc.
Job ID: 600-204022-1
Project/Site: Chevron-Cooper Jal Groundwaters 2020

Client Sample ID: MW-10-W-200420
Lab Sample ID: 600-204022-7
Date Collected: 04/20/20 10:12
Matrix: Water
Date Received: 04/21/20 10:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		25	294114	05/08/20 14:59	W1N	TAL HOU
Total/NA	Analysis	2540 C-1997		1	293202	04/24/20 08:37	TNL	TAL HOU

Client Sample ID: RW-2-W-200420
Lab Sample ID: 600-204022-8
Date Collected: 04/20/20 10:26
Matrix: Water
Date Received: 04/21/20 10:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		250	294114	05/08/20 13:43	W1N	TAL HOU
Total/NA	Analysis	2540 C-1997		1	293202	04/24/20 08:37	TNL	TAL HOU

Client Sample ID: RW-2R-W-200420
Lab Sample ID: 600-204022-9
Date Collected: 04/20/20 10:30
Matrix: Water
Date Received: 04/21/20 10:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		500	294114	05/08/20 13:54	W1N	TAL HOU
Total/NA	Analysis	2540 C-1997		1	293202	04/24/20 08:37	TNL	TAL HOU

Client Sample ID: MW-4A-W-200420
Lab Sample ID: 600-204022-10
Date Collected: 04/20/20 10:45
Matrix: Water
Date Received: 04/21/20 10:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		50	294111	05/08/20 16:54	W1N	TAL HOU
Total/NA	Analysis	2540 C-1997		1	293202	04/24/20 08:37	TNL	TAL HOU

Client Sample ID: MW-4-W-200420
Lab Sample ID: 600-204022-11
Date Collected: 04/20/20 10:52
Matrix: Water
Date Received: 04/21/20 10:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1000	294111	05/08/20 17:55	W1N	TAL HOU
Total/NA	Analysis	2540 C-1997		1	293202	04/24/20 08:37	TNL	TAL HOU

Laboratory References:

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

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc. Job ID: 600-204022-1
Project/Site: Chevron-Cooper Jal Groundwaters 2020

Laboratory: Eurofins TestAmerica, Houston

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704223-19-25	10-31-20

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
2540 C-1997		Water	Total Dissolved Solids
300.0		Water	Chloride
300.0		Water	Fluoride
300.0		Water	Sulfate

Eurofins TestAmerica, Houston
6310 Rothway Street
Houston, TX 77040
Phone (713) 690-4444 Fax (713) 690-5646

Chain of Custody Record

eurofins Environment Testing TestAmerica

Client Information	Sampler: Justin Steinmann	Lab PM: Kudchadkar, Sachin G	Carrier Tracking No(s):	COC No: 600-75469-20396.3
Client Contact: Ryan Nanny	Phone: 619 8518792	E-Mail: sachin.kudchadkar@testamericainc.com		Page: Page 1 of 1
Company: ARCADIS U.S., Inc.		Analysis Requested		Job #:
Address: 1004 North Big Spring Suite 121	Due Date Requested:			Preservation Codes:
City: Midland	TAT Requested (days): Standard			A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
State, Zip: TX, 79701				
Phone: 432-684-5400(Tel) 432-687-5401(Fax)	PO #: 30006540.0003B			Other:
Email: Ryan.Nanny@Arcadis-us.com	WO #:			
Project Name: Chevron-Cooper Jal Groundwaters 2020	Project #: 60012118			
Site: New Mexico	SSOW#:			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	2540C_Calcd TDS	300- Chloride, Fluoride & Sulfate	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	N		
MW-11-W-200420	4/20/20	0900	G	Water					1	
MW-9-W-200420	4/20/20	0930	G	Water					1	
MW-9A-W-200420	4/20/20	0940	G	Water					1	
MW-8-W-200420	4/20/20	0946	G	Water					1	
MW-7-W-200420	4/20/20	1002	G	Water					1	
MW-14-W-200420	4/20/20	1009	G	Water					1	
MW-10-W-200420	4/20/20	1012	G	Water					1	
RW-2-W-200420	4/20/20	1026	G	Water					1	
RW-2R-W-200420	4/20/20	1030	G	Water					1	
MW-4A-W-200420	4/20/20	1045	G	Water					1	
MW-4-W-200420	4/20/20	1052	G	Water					1	

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	Justin Steinmann	4/20/20 1600	Arcadis	YCRS	4/21/20 1008	ETA
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

Loc: 600
204022

eurofins | Environment Testing TestAmerica

Eurofins TestAmerica Houston

Sample Receipt Checklist

'20 APR 21 10:03

Date/Time Received: _____

JOB NUMBER: _____ CLIENT: Arcadis

UNPACKED BY: FF CARRIER/DRIVER: Fedex

Custody Seal Present: ☑YES ☐NO Number of Coolers Received: 1

Cooler ID	Temp Blank	Trip Blank	Observed Temp (°C)	Therm ID	Therm CF	Corrected Temp (°C)
6836	Y / N	Y / N	0.7	678	-0.1	0.6
	Y / N	Y / N				
	Y / N	Y / N				
	Y / N	Y / N				
	Y / N	Y / N				4/21/20
	Y / N	Y / N				

CF = correction factor

Samples received on ice? ☑YES ☐NO

LABORATORY PRESERVATION OF SAMPLES REQUIRED: ☑NO ☐YES

Base samples are>pH 12: ☐YES ☐NO Acid preserved are<pH 2: ☐YES ☐NO

TX1005 samples frozen upon receipt: ☐ YES DATE & TIME PUT IN FREEZER: _____

pH paper Lot #_____ VOA headspace acceptable (5-6mm): ☐YES ☐NO ☑NA

Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	☑YES	☐ NO

COMMENTS:

4/21/20

HS-SA-WI-013 Rev. 4A; 08/26/2019

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 600-204022-1

Login Number: 204022

List Source: Eurofins TestAmerica, Houston

List Number: 1

Creator: Rubio, Yuri

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
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	0.6
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 (excluding tests with immediate HTs)	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	Check done at department level as required.