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March 24, 2020

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

**Re: Former Eunice South Gas Plant**
**2019 Annual Groundwater Monitoring Report**
**Eunice, Lea County, New Mexico**

Dear Mr. Billings,

Please find enclosed the 2019 Annual Groundwater Monitoring Report, prepared for the Former Eunice South Gas Plant, in Eunice, New Mexico.

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

Please do not hesitate to call Rebecca Andresen with Arcadis at 206-726-4717 or myself at 832-854-5601, should you have any questions.

Sincerely,

Jason Michelson

Jason Michelson

ARCADIS Design & Consultancy for natural and built assets

Chevron Environmental Management Company

# 2019 ANNUAL GROUNDWATER MONITORING REPORT

## Former Eunice South Gas Plant
## Eunice, Lea County, New Mexico

March 24, 2020

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# 2019 ANNUAL GROUNDWATER MONITORING REPORT

Former Eunice South Gas Plant
Eunice, Lea County, New Mexico

Prepared for:
Chevron Environmental Management Company

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Date:
March 24, 2020

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# ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| ac-ft | acre-foot |
| amsl | above mean sea level |
| Arcadis | Arcadis U.S., Inc. |
| BTEX | benzene, toluene, ethylbenzene, and xylenes |
| CEMC | Chevron Environmental Management Company |
| CV | coefficient of variation |
| DRO | diesel-range organics |
| ft | feet |
| ft/ft | foot per foot |
| GRO | gasoline-range organics |
| HS | HydraSleeve™ |
| ITRC | Interstate Technology & Regulatory Council |
| J | estimated concentration qualifier |
| LNAPL | light nonaqueous phase liquid |
| mg/L | milligrams per liter |
| NMWQCC | New Mexico Water Quality Control Commission |
| NSZD | natural source zone depletion |
| S | sum of trend |
| Site | former Eunice South Gas Plant, located in Eunice, Lea County, New Mexico |
| TDS | total dissolved solids |
| USEPA | United States Environmental Protection Agency |


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# 1 INTRODUCTION

Arcadis U.S., Inc. (Arcadis) has prepared this 2019 Annual Groundwater Monitoring Report on behalf of Chevron Environmental Management Company (CEMC). This report summarizes semiannual groundwater monitoring activities conducted in 2019 at the former Eunice South Gas Plant (Site). Data presented in this report were collected during two semiannual groundwater monitoring events, conducted during April and October 2019.

The Site is located approximately 4.5 miles south of Eunice, New Mexico in Lea County, in the northwest quarter of the southwest quarter of Section 27, Township 22 South, Range 37 East. The approximately 90-acre Site is bordered by State Highway 207 to the west and State Highway 18 to the east. The surrounding area is mostly flat, undeveloped grazing land with oil and gas production infrastructure. Current remedial infrastructure includes a groundwater extraction system and three bioventing units. A Site Location Map is presented as Figure 1. A Well Location Map and Monitoring Plan is presented as Figure 2 for more site details. Additional Site background information is compiled in Appendix A.

The Site and surrounding area are underlain by the Ogallala Formation, which is bounded by claystones, sandstones, and siltstones from the Triassic Chinle Formation. The base of the aquifer contains 5 to 10 feet of gravel, sand, and clay overlain by red and yellow sandstones. Geological cross sections are provided in Appendix B.


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# 2 GROUNDWATER MONITORING ACTIVITIES

Groundwater at the Site is monitored semiannually from a network of 64 wells (Arcadis 2017). Spring monitoring events include sampling and gauging 64 wells and fall events include a reduced set of 49 wells. Well locations and sampling frequency are shown on Figure 2 and Table 1 presents the Summary of 2019 Groundwater Monitoring. Arcadis performed semiannual groundwater sampling events on April 1 through April 5, 2019 and October 1 through October 4, 2019.

## 2.1 Groundwater Sampling Methodology

Representative groundwater samples were collected within the screened interval of each well under undisturbed conditions using the no-purge HydraSleeveTM (HS) method. After samples were collected, new HS samplers were deployed and remained in the wells until the next monitoring event.

Field parameters including temperature, pH, dissolved oxygen, oxidation-reduction potential, specific conductivity, and turbidity were recorded prior to sample collection using a downhole probe. Samples for dissolved metals and dissolved hexavalent chromium were filtered in the field using a 0.45-micron filter. April and October 2019 field parameter readings are summarized in Tables 3 and 4, respectively.

## 2.2 Groundwater Gauging

During both semiannual monitoring events, depth to groundwater and to light nonaqueous phase liquid (LNAPL), where present, were gauged from the top of casing in all accessible wells using a water level meter or an oil-water interface probe, where LNAPL was anticipated. A potentiometric surface map of the spring 2019 elevations is presented as Figure 3. During the spring event, six wells (MW-5, MW-18, MW-23, MWD-3, MWD-9, and TMW-3) were either not accessible for gauging, or the gauging data is not available. During the fall event, two wells (MWD-3 and MWD-9) were not accessible for gauging. Data collected during the semiannual monitoring events indicate the following:

- Groundwater elevations ranged from 3,279.44 feet above mean sea level (ft amsl) and 55.06 feet below ground surface (bgs) at RW-5 to 3,285.29 ft amsl and 51.02 feet bgs at MW-25 during the April 2019 semiannual gauging event and 3,278.95 ft amsl and 52.92 feet bgs (RW-7) to 3,285.10 ft amsl and 51.21 feet bgs (MW-25) during the October 2019 semiannual gauging event.
- The groundwater elevations during the 2019 period appear to be consistent with historical levels, with groundwater flow the southeast. Although the land topography across the Site is relatively flat, a consistent hydrologic low spot is indicated by the water elevation data at three wells (RW-4, RW-5, and MW-28) located in the western area of the Site, near the wells containing LNAPL in this area. Historical data indicate that these wells were part of a larger LNAPL recovery system in the western area of the Site and pumped in 2004, 2005, and 2006, therefore, groundwater conditions may still be affected by the historical system operation.
- Groundwater elevation data for the sampling events are presented in Table 2, with historical elevation data compiled in Appendix C. The annual groundwater potentiometric surface map for April 2019 is presented on Figure 3.


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- The calculated average gradient across the site is approximately 0.002 feet per foot (ft/ft).
- LNAPL was detected in 13 wells with thicknesses ranging from a sheen in RW-3 to 1.95 feet in RW-4 in April 2019 and in 11 wells with thicknesses ranging from 0.52 feet in MW-12 to 3.7 feet in MW-20 in October 2019. Further LNAPL discussion is provided in Section 4.
- Groundwater and LNAPL elevation data for the sampling events are presented in Table 2, with historical elevation data compiled in Appendix C. LNAPL thickness and distribution observed during the comprehensive spring 2019 event are presented on Figure 4. Groundwater elevations in wells containing LNAPL were corrected using an assumed LNAPL specific gravity ranging from 0.72 to 0.82 based on limited LNAPL characterization conducted during 2017.

## 2.3 Groundwater Analytical Results

In 2019, analytical groundwater samples were collected from 43 wells during the spring event and from 37 wells during the fall event. Additionally, five duplicate samples were collected during the spring event and four duplicate samples were collected during the fall event for quality control purposes. During the events, 13 wells were not sampled that were included in the sampling plan (Table 1), for the following reasons:

- MW-1, MW-2, MW-10, MW-24, MW-27, MW-28, RW-1 through RW-5, and TMW-2, LNAPL present
- MWD-3, faulty pump in spring

Samples were sent to Xenco Laboratories in Midland, Texas for analysis of benzene, toluene, ethylbenzene, and xylenes (BTEX); diesel-range organics (DRO); gasoline-range organics (GRO); chloride; total dissolved solids (TDS); and dissolved metals. Analytical results were compared to the New Mexico Water Quality Control Commission (NMWQCC) Groundwater Standards and are summarized in Tables 5 through 8. Laboratory reports and data validation results are provided in Appendix D. Cumulative summary tables of groundwater analytical results through 2017, and 2018 through present are presented in Appendices E and F, respectively.

### 2.3.1 Benzene, Toluene, Ethylbenzene, and Xylenes

Groundwater samples collected from 43 well locations in spring 2019 and 37 well locations in fall 2019 were analyzed by United States Environmental Protection Agency (USEPA) Methods 8021B for BTEX and 8015B for DRO and GRO. During these events, benzene was detected above the NMWQCC groundwater standard of 0.005 milligrams per liter (mg/L) at 15 of 43 locations with a maximum concentration of 14.1 mg/L (MW-25) in spring 2019. The NMWQCC standard was exceeded at 12 of 37 locations with a maximum concentration of 5.96 DJ mg/L (MW-32) in fall 2019. Analytical results for the samples collected for ethylbenzene, toluene, and xylenes were each below their respective standards. There are no NMQWCC groundwater standards established for DRO or GRO. Figures 5 and 6 present benzene isoconcentrations for the spring and fall 2019 monitoring events, respectively. 2019 BTEX results are summarized in Tables 5 and 6. Historical results are included in Appendices E and F.


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### 2.3.2 Chloride and Total Dissolved Solids

Groundwater samples from 43 well locations in spring 2019 and 37 well locations in fall 2019 were analyzed by USEPA Methods 300/300.1 and 2540C for chloride and TDS, respectively (Table 1). Figures 7 and 8 present chloride isoconcentrations for the spring and fall 2019 monitoring events, respectively. Results are summarized as follows:

- *Chloride.* The NMWQCC standard of 250 mg/L was exceeded at 33 of 43 locations with a maximum concentration of 17,000 mg/L (MWD-9) in spring 2019. The NMWQCC standard was exceeded at 27 of 37 locations with a maximum concentration of 44,800 mg/L (MWD-3) in fall 2019.
- *TDS.* The NMWQCC standard of 1,000 mg/L was exceeded at 37 of 43 locations with a maximum concentration of 28,800 mg/L (MWD-9) in spring 2019. The NMWQCC standard was exceeded at 33 of 37 locations with a maximum concentration of 57,700 mg/L (MWD-3) in fall 2019.

It should be noted that the maximum chloride and TDS values are typically detected at MWD-3 during sampling events. MWD-3 was not operational during spring sampling in 2019, therefore, MWD-9 displayed the maximum concentrations for that event. 2019 chloride and TDS results are summarized in Tables 7 and 8. Historical results are included in Appendices E and F.

### 2.3.3 Dissolved Metals

Groundwater samples from 43 well locations in spring 2019 and 37 well locations in fall 2019 were analyzed by USEPA Methods 6020A for dissolved arsenic, dissolved total chromium, and dissolved barium; and USEPA Method 7196A for dissolved hexavalent chromium. Results are summarized as follows:

- *Dissolved arsenic*. The NMWQCC standard of 0.1 mg/L was not exceeded at any location sampled during either event in 2019.
- *Dissolved total chromium*. The NMWQCC standard of 0.05 mg/L was exceeded in 2 of 43 locations with a maximum concentration of 0.157 mg/L (MW-14) in spring 2019. The NMWQCC standard was exceeded at 1 of 37 locations, with a concentration of 0.107 mg/L (MW-16) in fall 2019.
- *Dissolved hexavalent chromium*. The NMWQCC standard of 0.05 mg/L was exceeded in 1 of 43 locations with a concentration of 0.0976 mg/L (MW-16) in spring 2019. The NMWQCC standard was exceeded at 1 of 37 locations, with a concentration of 0.0982 mg/L (MW-16) in fall 2019.
- *Dissolved barium*. The NMWQCC standard of 2 mg/L was exceeded in 7 of 43 locations, with a maximum concentration of 9.21 mg/L (MW-29) in spring 2019. The NMWQCC standard was exceeded at 5 of 37 locations, with a maximum concentration of 9.06 mg/L (MW-9) in fall 2019.

2019 dissolved metals results are summarized in Tables 7 and 8. Historical results are included in Appendices E and F.


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## 2.4 Benzene and Chloride Trend Analysis

### 2.4.1 Mann-Kendall Test Methodology

Mann-Kendall analysis was used to evaluate concentration trends at select site wells. Wells were selected for trend analysis based on data completeness (i.e., at least five data points since the start of HS sampling in Spring 2016) and locations within the benzene and chloride plumes to serve as representatives of the conditions within the respective plume areas. Trends will be evaluated on an annual basis.

The Mann-Kendall trend test is a non-parametric test that determines trends based on ranked data. As such, it is relatively insensitive to outlier values and non-detect concentrations and does not require the data to fit a specific model. The basic Mann-Kendall trend test is performed by listing the concentrations of the constituent of interest in temporal order and computing the differences between a given measurement and earlier measurements (Gilbert 1987; USEPA 2009). The Mann-Kendall test statistic (sum of trend [S]) is the difference between the number of strictly positive differences and the number of strictly negative differences. If S is positive, an increasing trend is indicated; if S is negative, a decreasing trend is indicated; and if S is near zero, no trend is apparent. Trends with positive or negative S-statistics were accepted as statistically significant for p-values less than or equal to 0.1 (90% confidence level). The coefficient of variation (CV) is a quantitative measure that can be used to evaluate if concentrations are stable in cases where a statistically significant trend is not apparent. The CV is calculated as the standard deviation divided by the mean (average) concentration. CV values near or greater than 1 indicate variability in concentrations over time, while lower values indicate stability. Mann-Kendall analyses were performed on data collected after the sampling methodology change to HS that occurred site-wide in the spring of 2016.

### 2.4.2 Benzene Trend Analysis Results

A table summarizing Mann-Kendall analyses and individual trend charts are presented in Appendix G. Results from the Mann-Kendall analyses indicate the following:

Northern Plume Fringe (on-site):

- TMW-1 benzene concentrations were between non-detect <0.000408 mg/L (September 2016) and 0.108 mg/L (September 2018) and indicate a statistically significant increasing trend (Appendix G, Figure G-1). The most recent concentration of 0.00589 J (estimated) mg/L (October 2019) exceeds the benzene NMWQCC standard of 0.005 mg/L. A visual review of the trend graph indicates that the concentrations in this well have fluctuated and are currently near the NMWQCC standard for benzene.

Central Plume (on-site):

- MW-26 benzene concentrations range between 0.577 mg/L (April 2019) and 1.79 mg/L (September 2017) and indicate a statistically significant decreasing trend (Appendix G, Figure G-2). The most recent concentration of 0.797 J mg/L (October 2019) exceeds the benzene NMWQCC standard.

Eastern Plume (on-site):

- MWD-14 benzene concentrations range between 0.363 mg/L (March 2018) and 2.60 mg/L (September 2017) and do not indicate a statistically significant trend (Appendix G, Figure G-3).


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However, concentrations have been relatively stable to decreasing since reaching a maximum in September 2017. The most recent concentration of 1.18 J mg/L (October 2019) exceeds the benzene NMWQCC standard.

Southern Plume Fringe (on-site):

- MW-32 benzene concentrations were between 4.30 mg/L (April 2019) and 14.7 mg/L (September 2017) and do not indicate a statistically significant trend (Appendix G, Figure G-4). However, concentrations have been stable to decreasing since reaching a maximum concentration in September 2017. The most recent concentration of 5.96 J mg/L (October 2019) exceeds the benzene NMWQCC standard.
- MW-29 benzene concentrations were between 0.0624 mg/L (April 2019) and 1.60 mg/L (September 2017). The time period analysed at this location was adjusted to include data from September 2017 to present. The results of this adjusted Mann-Kendall analysis indicate a statistically significant decreasing trend (Appendix G, Figure G-5). The most recent concentration of 0.177 mg/L (October 2019) exceeds the benzene NMWQCC standard.

A significantly increasing trend indicated at the most upgradient fringe of the plume represented by TMW-1 could indicate that a residual source is potentially contributing to the overall plume to a very limited extent since concentrations at this well remain near to the NMWQCC benzene standard. Significantly decreasing trends seen downgradient and a stable trend seen in the eastern plume area (MWD-14), however, could indicate that the plume footprint and concentration is potentially naturally attenuating at the leading edges since active benzene treatment is not implemented at this time. A summary map of the benzene trend analyses is provided in Appendix G, Figure G-14.

### 2.4.3 Chloride Trend Analysis Results

A table summarizing Mann-Kendall analyses and individual trend charts are presented in Appendix G. Results from the Mann-Kendall analyses indicate the following:

Western Plume Fringe (off-site):

- MW-35 chloride concentrations were between 243 mg/L (October 2019) and 1,810 mg/L (April 2017; upon well installation) and indicate a statistically significant decreasing trend over the dataset collected since the well's installation in spring 2017 (Appendix G, Figure G-6). The concentration (October 2019) of chloride measured most recently was below the NMWQCC standard of 250 mg/L.

On-site Western Plume:

- TMW-1 chloride concentrations were between 450 mg/L (April 2019) and 761 mg/L (April 2016) and indicate a statistically significant decreasing trend (Appendix G, Figure G-7). The most recent concentration of 537 mg/L (October 2019) exceeds the chloride NMWQCC standard.
- MW-26 chloride concentrations were between 139 mg/L (March 2018) and 285 mg/L (April 2016) and indicate a statistically significant decreasing trend (Appendix G, Figure G-8). The NMWQCC standard for chloride has only been exceeded in 1 of the 8 HS sampling events analyzed.


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On-site Central Plume:

- MWD-14 chloride concentrations were between 595 mg/L (October 2019) and 8,000 mg/L (March 2018) and indicate a statistically significant decreasing trend (Appendix G, Figure G-9). The most recent concentration of 595 mg/L (October 2019) exceeds the chloride NMWQCC standard.
- MW-32 chloride concentrations were between 435 mg/L (October 2019) and 1,120 mg/L (March 2016) and indicate a statistically significant decreasing trend (Appendix G, Figure G-10). The most recent chloride concentration of 435 mg/L (October 2019) exceeds the NMWQCC standard.
- MW-29 chloride concentrations were between 101 mg/L (September 2016) and 232 mg/L (October 2019). Although no concentrations have exceeded the NMWQCC standard since the start of HS sampling, chloride concentrations indicate a statistically significant increasing trend (Appendix G, Figure G-11).

Eastern Plume Fringe (off-site):

- MWD-7 chloride concentrations were between 3,970 mg/L (April 2019) and 7,210 mg/L (September 2016) and do not indicate a statistically significant trend (Appendix G, Figure G-12). Chloride concentrations have a low coefficient of variation of 0.18 indicating a stable trend. The most recent concentration of 6,470 mg/L exceeds the chloride NMWQCC standard.
- MW-15 chloride concentrations were between 1,750 mg/L (March 2016) and 2,320 mg/L (September 2018) and do not indicate a statistically significant trend (Appendix G, Figure G-13). Results indicate an overall potentially increasing trend during the time period analysed since HS sampling began in the spring of 2016, however, the trend direction changed in September 2018 and recent concentrations appeared to be decreasing in 2019. The most recent chloride concentration of 1,890 mg/L (October 2019) exceeds the NMWQCC standard.

Decreasing chloride concentration trends seen across the upgradient portion of the plume (as represented by MW-35, TMW-1, MW-26, MWD-14 and MW-32) could indicate natural plume attenuation or migration within the existing plume footprint. Stable concentrations seen at the easternmost edge of the plume in the area of MWD-7 also support the stability of the upgradient to cross-gradient plume edges. A potentially increasing trend seen in the area of MW-15 and increasing trend seen in the area of MW-29 could indicate a natural concentration migration within the plume footprint towards the downgradient, leading edge of the chloride plume. Trend analysis at the furthest downgradient wells such as MW-36, -37, or -38 was not conducted due to the recent installation of these wells and limited dataset. A summary map of the chloride trend analyses is provided in Appendix G, Figure G-15.



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# 3 LIGHT NONAQUEOUS PHASE LIQUID INVESTIGATION ACTIVITIES

LNAPL transmissivity tests were conducted at 11 well locations in October 2019 to assess relative LNAPL recoverability compared to previous years (2016 through 2018). LNAPL transmissivity tests included the three wells at which bioventing systems are operating (MW-1, RW-2, and MW-28) to compare transmissivity values through time and with the influence of the bioventing application. Transmissivity testing procedures and results are detailed in Appendix H. The 2019 LNAPL transmissivity testing results, including the average results from 2016, 2017, and 2018 for comparison, are summarized in Table 9. Notable results observed at bioventing wells include:

- Results for bioventing well MW-1 indicate a decrease in LNAPL transmissivity from approximately 2.9 $ft^2/d$ in 2016 to below 0.8 $ft^2/d$ in October 2019. LNAPL recovery potential is now inferred to be limited at this well due to the LNAPL degradation enhanced by operation of the bioventing unit.
- Results for bioventing well MW-28 indicate a decrease in LNAPL transmissivity from approximately 6.3 $ft^2/d$ in 2018 to approximately 1.5 $ft^2/d$ in 2019.

While LNAPL transmissivity testing provides valuable insight to LNAPL recoverability at the Site and can guide relocations of bioventing units, the majority of LNAPL transmissivity values have remained relatively consistent over the five transmissivity testing events since August 2016. Therefore, continuing annual LNAPL transmissivity testing at bioventing wells and reducing testing frequency at other LNAPL wells to biennially is recommended.

LNAPL thicknesses stayed within the historical ranges in 2019 (Appendix C), however, two notable results were observed:

- MW-10 displayed a consistent increase in LNAPL thickness since a historical low in of 0.02 foot in 2015 to 1.83 feet in 2019. MW-10 displayed low recovery potential during transmissivity baildown testing in fall 2019 (Table 9 and Appendix H).
- RW-5 displayed a consistent increase in LNAPL thickness since a historical low of 0.04 foot in 2017 to 0.89 foot in 2019. However, during transmissivity baildown testing in fall 2019, LNAPL thickness was below the 0.50-ft thickness criteria to run a test at that time.

Temperature data was also collected at LNAPL wells in 2019 as a continuation of the temperature monitoring initiated in 2017. However, the methodology used to monitor temperature at the Site was determined to be ineffective in 2019. The temperature dataloggers that were deployed in wells MWD-11, MW-28, MW-5, and RW-1 frequently failed or were damaged due to the difficult subsurface environment, which led to an incomplete dataset. Temperature data collected from the revised well locations deployed in August 2019 were also inconsistent due to issues with the probes. In the datalogger data that were collected, there is no visible sharply increasing temperature signal. This indicates that either the environment was not conducive for measuring temperature or that the temperature loggers were


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malfunctioning, collecting inaccurate data, or were not at the exact location where biodegradation is occurring and that attempts to target heat increases were ineffective. Therefore, continuing to use the temperature data loggers is not considered an effective method to evaluate biodegradation of hydrocarbons in soil at the Site in 2020. Additional information on temperature data is provided in Appendix H.


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# 4 OPERATION AND MAINTENANCE ACTIVITIES

## 4.1 Chloride Groundwater Recovery System

As part of the chloride groundwater recovery system, two recovery wells (MWD-3 and MWD-9) operated in 2019 to extract chloride-impacted groundwater. A combined total of approximately 8.7 acre-ft (ac-ft; 2,826,675 gallons) of groundwater were recovered from MWD-3 (2.6 ac-ft) and MWD-9 (6.1 ac-ft). Groundwater usage approved by the NMOSE is 32 ac-ft per year from each well. MWD-3 was inoperable during the first and second quarters of 2019 and restarted on August 15, 2019 when the pump and flow meter were replaced. MWD-9 was inoperable July 31 through August 22, 2019, when the pump and flow meter were replaced, and October 7 through the end of 2019 due to additional well and pump issues. Recovered groundwater is pumped into two 18,430-gallon aboveground storage tanks, which are pumped three times per day, up to 7 days per week, and disposed of at the Key Energy Christmas salt water disposal well (API 30-025-10500). Chloride recovery estimates are provided in Table 10.

## 4.2 Bioventing

As part of the bioventing system, bioventing units operated at wells MW-1, RW-2, and MW-28 in 2019. Air emissions samples were collected on a quarterly basis and analyzed by Eurofins Air Toxics. Based on the bioventing air emissions data, reviewed and explained in Appendix H, bioventing is continuing to provide an observable positive impact on LNAPL degradation at the Site relative to ambient conditions, with approximately 1,389 gallons of LNAPL degraded during system operation through October 2019.

In 2019, oxygen generation decreased and carbon dioxide generation increased at MW-28 and RW-2, indicating continued LNAPL degradation. However, carbon dioxide generation was not observed at MW-1 in 2019, indicating minimal biological activity and minimal LNAPL degradation. Based on the change in emissions seen in addition to the decreased LNAPL transmissivity to the low recovery potential threshold reached in 2019, it is assumed that effective bioventing treatment is concluded at MW-1 and recommended that the bioventing unit at MW-1 be moved to another well in 2020.


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# 5 SUMMARY

The 2019 monitoring and investigation activities indicated the following:

- Groundwater analytical results are consistent with historical trends observed and suggest an overall stable plume.
- Air emissions and LNAPL transmissivity data indicate that bioventing is completed at MW-1 and it is recommended that the bioventing unit be moved to another LNAPL well in 2020.
- LNAPL transmissivity testing results indicate that testing at bioventing wells should remain on an annual frequency, while testing at other LNAPL wells can be reduced to a biennial frequency.
- Mann-Kendall results indicate that benzene concentrations are stable to decreasing across the site. The analysis suggests an increasing trend for benzene concentrations upgradient, at TMW-1, but visual review of the trend charts show concentrations that are most recently near the applicable standard. Chloride concentrations within the plume area appear to be stable to decreasing. Chloride concentrations at MW-29, located just outside the plume area to the south of the Site, are below the NMWQCC standard but appear to be increasing.


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ARCADIS Design & Consultancy for natural and built assets

Chevron Environmental Management Company

# 2019 ANNUAL GROUNDWATER MONITORING REPORT ATTACHMENTS

## Former Eunice South Gas Plant
## Eunice, Lea County, New Mexico

March 12, 2020

# TABLES

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**Table 1**
**Summary of 2019 Groundwater Monitoring**
**2019 Annual Groundwater Monitoring Report**
**Former Eunice South Gas Plant**
**Eunice, Lea County, New Mexico**

ARCADIS Design & Consultancy for natural and built assets

| Monitoring Well ID | Groundwater Elevation | Field Water Quality Parameters | BTEX (8021B) | GRO (8015B) | DRO (8015B) | Dissolved Metals (6020A) | Hexavalent Chromium (7196A) | Chloride (300.0) | TDS (2540C) | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| MW-1 | x/x | (x)/-- | (x)/-- | (x)/-- | (x)/-- | (x)/-- | (x)/-- | (x)/-- | (x)/-- | LNAPL |
| MW-2 | x/x | (x)/-- | (x)/-- | (x)/-- | (x)/-- | (x)/-- | (x)/-- | (x)/-- | (x)/-- | LNAPL |
| MW-3 | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | |
| MW-4 | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | |
| MW-5 | (x)/-- | --/-- | --/-- | --/-- | --/-- | --/-- | --/-- | --/-- | --/-- | LNAPL; Gauging value not available |
| MW-6 | x/-- | --/-- | --/-- | --/-- | --/-- | --/-- | --/-- | --/-- | --/-- | |
| MW-7 | x/-- | --/-- | --/-- | --/-- | --/-- | --/-- | --/-- | --/-- | --/-- | |
| MW-8 | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | |
| MW-9 | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | |
| MW-10 | x/x | (x)/-- | (x)/-- | (x)/-- | (x)/-- | (x)/-- | (x)/-- | (x)/-- | (x)/-- | LNAPL |
| MW-11 | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | |
| MW-12 | --/x | --/-- | --/-- | --/-- | --/-- | --/-- | --/-- | --/-- | --/-- | |
| MW-13 | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | |
| MW-14 | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | |
| MW-15 | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | |
| MW-16 | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | |
| MW-17 | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | |
| MW-18 | (x)/-- | --/-- | --/-- | --/-- | --/-- | --/-- | --/-- | --/-- | --/-- | Gauging value not available |
| MW-19 | x/-- | (x)/-- | (x)/-- | (x)/-- | (x)/-- | (x)/-- | (x)/-- | (x)/-- | (x)/-- | LNAPL |
| MW-20 | --/x | --/-- | --/-- | --/-- | --/-- | --/-- | --/-- | --/-- | --/-- | Gauged in October 2019/LNAPL |
| MW-21 | x/x | (x)/-- | (x)/-- | (x)/-- | (x)/-- | (x)/-- | (x)/-- | (x)/-- | (x)/-- | LNAPL |
| MW-22 | x/-- | x/-- | x/-- | x/-- | x/-- | x/-- | x/-- | x/-- | x/-- | |
| MW-23 | (x)/-- | --/-- | --/-- | --/-- | --/-- | --/-- | --/-- | --/-- | --/-- | Gauging value not available |
| MW-24 | x/x | (x)/(x) | (x)/(x) | (x)/(x) | (x)/(x) | (x)/(x) | (x)/(x) | (x)/(x) | (x)/(x) | LNAPL/Obstruction in well |
| MW-25 | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | |
| MW-26 | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | |
| MW-27 | x/x | (x)/-- | (x)/-- | (x)/-- | (x)/-- | (x)/-- | (x)/-- | (x)/-- | (x)/-- | LNAPL |
| MW-28 | x/x | (x)/-- | (x)/-- | (x)/-- | (x)/-- | (x)/-- | (x)/-- | (x)/-- | (x)/-- | LNAPL |
| MW-29 | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | |
| MW-30 | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | |
| MW-31 | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | |
| MW-32 | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | |
| MW-34 | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | |
| MW-35 | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | |
| MW-36 | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | |
| MW-37 | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | |
| MW-38 | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | |
| MWD-1 | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | |
| MWD-2 | x/-- | x/-- | x/-- | x/-- | x/-- | x/-- | x/-- | x/-- | x/-- | |
| MWD-3* | (x)/(x) | (x)/x | (x)/x | (x)/x | (x)/x | (x)/x | (x)/x | (x)/x | (x)/x | Faulty pump/Pump in well prevented gauging |

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**Table 1**
**Summary of 2019 Groundwater Monitoring**
**2019 Annual Groundwater Monitoring Report**
**Former Eunice South Gas Plant**
**Eunice, Lea County, New Mexico**

ARCADIS Design & Consultancy for natural and built assets

| Monitoring Well ID | Groundwater Elevation | Field Water Quality Parameters | BTEX (8021B) | GRO (8015B) | DRO (8015B) | Dissolved Metals (6020A) | Hexavalent Chromium (7196A) | Chloride (300.0) | TDS (2540C) | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| MWD-4 | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | |
| MWD-5 | x/-- | x/-- | x/-- | x/-- | x/-- | x/-- | x/-- | x/-- | x/-- | |
| MWD-6 | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | |
| MWD-7 | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | |
| MWD-8 | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | |
| MWD-9* | (x)/(x) | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | Pump in well prevented gauging |
| MWD-11 | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | |
| MWD-12 | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | |
| MWD-13 | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | |
| MWD-14 | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | |
| MWD-15 | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | |
| MWD-17 | x/-- | x/-- | x/-- | x/-- | x/-- | x/-- | x/-- | x/-- | x/-- | |
| RW-1 | x/x | (x)/-- | (x)/-- | (x)/-- | (x)/-- | (x)/-- | (x)/-- | (x)/-- | (x)/-- | LNAPL |
| RW-2 | x/x | (x)/-- | (x)/-- | (x)/-- | (x)/-- | (x)/-- | (x)/-- | (x)/-- | (x)/-- | LNAPL |
| RW-3 | x/x | (x)/-- | (x)/-- | (x)/-- | (x)/-- | (x)/-- | (x)/-- | (x)/-- | (x)/-- | LNAPL |
| RW-4 | x/x | (x)/-- | (x)/-- | (x)/-- | (x)/-- | (x)/-- | (x)/-- | (x)/-- | (x)/-- | LNAPL |
| RW-5 | x/x | (x)/-- | (x)/-- | (x)/-- | (x)/-- | (x)/-- | (x)/-- | (x)/-- | (x)/-- | LNAPL |
| RW-6 | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | |
| RW-7 | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | |
| RW-8 | x/-- | x/-- | x/-- | x/-- | x/-- | x/-- | x/-- | x/-- | x/-- | |
| TMW-1 | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | |
| TMW-2 | x/-- | (x)/-- | (x)/-- | (x)/-- | (x)/-- | (x)/-- | (x)/-- | (x)/-- | (x)/-- | LNAPL |
| TMW-3 | (x)/-- | --/-- | --/-- | --/-- | --/-- | --/-- | --/-- | --/-- | --/-- | Gauging value not available |
| TMW-6 | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | x/x | |
| WW-2 | x/-- | x/-- | x/-- | x/-- | x/-- | x/-- | x/-- | x/-- | x/-- | |
| WW-7 | x/-- | x/-- | x/-- | x/-- | x/-- | x/-- | x/-- | x/-- | x/-- | |

**Acronyms and Abbreviations:**

BTEX = benzene, toluene, ethylbenzene, and xylenes

DRO = diesel-range organics

GRO = gasoline-range organics

ID = identification

LNAPL = light nonaqueous phase liquid

TDS = total dissolved solids

* active recovery well

x / x = spring sampling event/fall sampling event

x = sample planned and collected

(x) = sample planned and not collected

-- = no sample planned during event



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**Table 2**
**2019 Groundwater Elevations**
**2019 Annual Groundwater Monitoring Report**
**Former Eunice South Gas Plant**
**Eunice, Lea County, New Mexico**

ARCADIS Design & Consultancy for natural and built assets

| Location ID | Date | Top of Casing (feet amsl) | Depth To Groundwater (feet btoc) | Depth to LNAPL (feet btoc) | LNAPL Thickness (feet) | LNAPL Specific Gravity | Uncorrected Groundwater Elevation (feet amsl) | Corrected Groundwater Elevation (feet amsl)[1] |
|---|---|---|---|---|---|---|---|---|
| MW-1 | 4/1/2019 | 3335.09 | 54.60 | 53.18 | 1.42 | 0.74 | 3280.49 | 3281.54 |
| MW-1 | 10/1/2019 | 3335.09 | 54.74 | 53.29 | 1.45 | 0.74 | 3280.35 | 3281.42 |
| MW-2 | 4/1/2019 | 3335.7 | 52.96 | 51.48 | 1.48 | 0.74 | 3282.74 | 3283.84 |
| MW-2 | 10/1/2019 | 3335.7 | 53.10 | 51.58 | 1.52 | 0.74 | 3282.60 | 3283.72 |
| MW-3 | 4/1/2019 | 3339.65 | 55.30 | NM | NA | NA | 3284.35 | 3284.35 |
| MW-3 | 10/1/2019 | 3339.65 | 55.40 | NM | NA | NA | 3284.25 | 3284.25 |
| MW-4 | 4/1/2019 | 3333.25 | 49.80 | NM | NA | NA | 3283.45 | 3283.45 |
| MW-4 | 10/1/2019 | 3333.25 | 50.01 | NM | NA | NA | 3283.24 | 3283.24 |
| MW-6 | 4/1/2019 | 3332.33 | 49.14 | NM | NA | NA | 3283.19 | 3283.19 |
| MW-7 | 4/1/2019 | 3330.43 | 47.99 | NM | NA | NA | 3282.44 | 3282.44 |
| MW-8 | 4/1/2019 | 3330.59 | 48.59 | NM | NA | NA | 3282.00 | 3282.00 |
| MW-8 | 10/1/2019 | 3330.59 | 48.76 | NM | NA | NA | 3281.83 | 3281.83 |
| MW-9 | 4/1/2019 | 3334.73 | 52.78 | NM | NA | NA | 3281.95 | 3281.95 |
| MW-9 | 10/1/2019 | 3334.73 | 52.86 | NM | NA | NA | 3281.87 | 3281.87 |
| MW-10 | 4/1/2019 | 3336.38 | 52.61 | 50.84 | 1.77 | 0.74 | 3283.77 | 3285.08 |
| MW-10 | 10/1/2019 | 3336.38 | 52.78 | 50.95 | 1.83 | 0.74 | 3283.60 | 3284.95 |
| MW-11 | 4/1/2019 | 3334.86 | 51.31 | NM | NA | 0.72 | 3283.55 | 3283.55 |
| MW-11 | 10/1/2019 | 3334.86 | 51.43 | NM | NA | 0.72 | 3283.43 | 3283.43 |
| MW-12 | 10/1/2019 | 3333.88 | 51.03 | 50.51 | 0.52 | 0.72 | 3282.85 | 3283.22 |
| MW-13 | 4/1/2019 | 3336.15 | 55.59 | NM | NA | NA | 3280.56 | 3280.56 |
| MW-13 | 10/1/2019 | 3336.15 | 55.61 | NM | NA | NA | 3280.54 | 3280.54 |
| MW-14 | 4/1/2019 | 3333.04 | 51.90 | NM | NA | NA | 3281.14 | 3281.14 |
| MW-14 | 10/1/2019 | 3333.04 | 51.99 | NM | NA | NA | 3281.05 | 3281.05 |
| MW-15 | 4/1/2019 | 3328.98 | 47.08 | NM | NA | NA | 3281.90 | 3281.90 |
| MW-15 | 10/1/2019 | 3328.98 | 47.16 | NM | NA | NA | 3281.82 | 3281.82 |
| MW-16 | 4/1/2019 | 3330.2 | 47.90 | NM | NA | NA | 3282.30 | 3282.30 |
| MW-16 | 10/1/2019 | 3330.2 | 47.99 | NM | NA | NA | 3282.21 | 3282.21 |
| MW-17 | 4/1/2019 | 3334.32 | 51.22 | NM | NA | NA | 3283.10 | 3283.10 |
| MW-17 | 10/1/2019 | 3334.32 | 51.41 | NM | NA | NA | 3282.91 | 3282.91 |
| MW-19 | 4/1/2019 | 3334.21 | 52.26 | 50.93 | 1.33 | 0.82 | 3281.95 | 3283.04 |
| MW-20 | 10/1/2019 | 3334.06 | 54.61 | 50.91 | 3.7 | 0.82 | 3279.45 | 3282.48 |
| MW-21 | 4/1/2019 | 3333.02 | 51.00 | 50.15 | 0.85 | 0.82 | 3282.02 | 3282.72 |
| MW-21 | 10/1/2019 | 3333.02 | 51.90 | 50.32 | 1.58 | 0.82 | 3281.12 | 3282.42 |
| MW-22 | 4/1/2019 | 3334.87 | 52.24 | NM | NA | NA | 3282.63 | 3282.63 |
| MW-24 | 4/1/2019 | 3336.97 | 53.28 | NM | NA | 0.74 | 3283.69 | 3283.69 |
| MW-24 | 10/1/2019 | 3336.97 | 53.38 | NM | NA | 0.74 | 3283.59 | 3283.59 |
| MW-25 | 4/1/2019 | 3336.31 | 51.02 | NM | NA | NA | 3285.29 | 3285.29 |
| MW-25 | 10/1/2019 | 3336.31 | 51.21 | NM | NA | NA | 3285.10 | 3285.10 |
| MW-26 | 4/1/2019 | 3334.93 | 51.59 | NM | NA | 0.72 | 3283.34 | 3283.34 |
| MW-26 | 10/1/2019 | 3334.93 | 51.73 | NM | NA | 0.72 | 3283.20 | 3283.20 |
| MW-27 | 4/1/2019 | 3334.96 | 50.71 | 49.50 | 1.21 | 0.72 | 3284.25 | 3285.12 |
| MW-27 | 10/1/2019 | 3334.96 | 50.86 | 49.61 | 1.25 | 0.72 | 3284.10 | 3285.00 |
| MW-28 | 4/1/2019 | 3333.04 | 54.94 | 53.05 | 1.89 | 0.72 | 3278.10 | 3279.46 |
| MW-28 | 10/1/2019 | 3333.04 | 55.09 | 53.25 | 1.84 | 0.72 | 3277.95 | 3279.27 |
| MW-29 | 4/1/2019 | 3334.01 | 51.82 | NM | NA | NA | 3282.19 | 3282.19 |
| MW-29 | 10/1/2019 | 3334.01 | 51.92 | NM | NA | NA | 3282.09 | 3282.09 |
| MW-30 | 4/1/2019 | 3336.49 | 54.54 | NM | NA | NA | 3281.95 | 3281.95 |
| MW-30 | 10/1/2019 | 3336.49 | 54.65 | NM | NA | NA | 3281.84 | 3281.84 |
| MW-31 | 4/1/2019 | 3334.52 | 53.06 | NM | NA | NA | 3281.46 | 3281.46 |
| MW-31 | 10/1/2019 | 3334.52 | 53.13 | NM | NA | NA | 3281.39 | 3281.39 |
| MW-32 | 4/1/2019 | 3333.01 | 50.42 | NM | NA | NA | 3282.59 | 3282.59 |
| MW-32 | 10/1/2019 | 3333.01 | 50.59 | NM | NA | NA | 3282.42 | 3282.42 |
| MW-34 | 4/1/2019 | 3335.77 | 52.71 | NM | NA | NA | 3283.06 | 3283.06 |
| MW-34 | 10/1/2019 | 3335.77 | 52.85 | NM | NA | NA | 3282.92 | 3282.92 |
| MW-35 | 4/1/2019 | NM | 56.46 | NM | NA | NA | NM | NM |
| MW-35 | 10/1/2019 | NM | 56.52 | NM | NA | NA | NM | NM |
| MW-36 | 4/1/2019 | NM | 60.25 | NM | NA | NA | NM | NM |
| MW-36 | 10/1/2019 | NM | 60.28 | NM | NA | NA | NM | NM |
| MW-37 | 4/1/2019 | NM | 55.80 | NM | NA | NA | NM | NM |
| MW-37 | 10/1/2019 | NM | 55.87 | NM | NA | NA | NM | NM |
| MW-38 | 4/1/2019 | NM | 50.11 | NM | NA | NA | NM | NM |
| MW-38 | 10/1/2019 | NM | 50.21 | NM | NA | NA | NM | NM |
| MWD-1 | 4/1/2019 | 3335.26 | 51.93 | NM | NA | NA | 3283.33 | 3283.33 |
| MWD-1 | 10/1/2019 | 3335.26 | 52.17 | NM | NA | NA | 3283.09 | 3283.09 |
| MWD-2 | 4/1/2019 | 3336.32 | 52.62 | NM | NA | NA | 3283.70 | 3283.70 |
| MWD-3* | 4/1/2019 | 3335.06 | NM | NM | NA | NA | NM | NM |
| MWD-3* | 10/1/2019 | 3335.06 | NM | NM | NA | NA | NM | NM |
| MWD-4 | 4/1/2019 | 3330.86 | 48.45 | NM | NA | NA | 3282.41 | 3282.41 |
| MWD-4 | 10/1/2019 | 3330.86 | 48.71 | NM | NA | NA | 3282.15 | 3282.15 |
| MWD-5 | 4/1/2019 | 3334.01 | 51.29 | NM | NA | NA | 3282.72 | 3282.72 |
| MWD-6 | 4/1/2019 | 3335.08 | 52.68 | NM | NA | NA | 3282.40 | 3282.40 |
| MWD-6 | 10/1/2019 | 3335.08 | 52.81 | NM | NA | NA | 3282.27 | 3282.27 |
| MWD-7 | 4/1/2019 | 3332.82 | 50.06 | NM | NA | NA | 3282.76 | 3282.76 |
| MWD-7 | 10/1/2019 | 3332.82 | 50.26 | NM | NA | NA | 3282.56 | 3282.56 |
| MWD-8 | 4/1/2019 | 3335.97 | 52.87 | NM | NA | NA | 3283.10 | 3283.10 |





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**Former Eunice South Gas Plant**
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| Location ID | Date | Top of Casing (feet amsl) | Depth To Groundwater (feet btoc) | Depth to LNAPL (feet btoc) | LNAPL Thickness (feet) | LNAPL Specific Gravity | Uncorrected Groundwater Elevation (feet amsl) | Corrected Groundwater Elevation (feet amsl)[1] |
|---|---|---|---|---|---|---|---|---|
| MWD-8 | 10/1/2019 | 3335.97 | 52.23 | NM | NA | NA | 3283.74 | 3283.74 |
| MWD-9* | 4/4/2019 | 3333.45 | NM | NM | NA | NA | NM | NM |
| MWD-9* | 10/1/2019 | 3333.45 | NM | NM | NA | NA | NM | NM |
| MWD-11 | 4/1/2019 | 3338.24 | 54.31 | NM | NA | NA | 3283.93 | 3283.93 |
| MWD-11 | 10/1/2019 | 3338.24 | 54.37 | NM | NA | NA | 3283.87 | 3283.87 |
| MWD-12 | 4/1/2019 | 3334.08 | 51.72 | NM | NA | NA | 3282.36 | 3282.36 |
| MWD-12 | 10/1/2019 | 3334.08 | 51.96 | NM | NA | NA | 3282.12 | 3282.12 |
| MWD-13 | 4/1/2019 | 3332.11 | 50.02 | NM | NA | NA | 3282.09 | 3282.09 |
| MWD-13 | 10/1/2019 | 3332.11 | 50.41 | NM | NA | NA | 3281.70 | 3281.70 |
| MWD-14 | 4/1/2019 | 3333.76 | 50.95 | NM | NA | NA | 3282.81 | 3282.81 |
| MWD-14 | 10/1/2019 | 3333.76 | 51.36 | NM | NA | NA | 3282.40 | 3282.40 |
| MWD-15 | 4/1/2019 | 3335.35 | 51.77 | NM | NA | NA | 3283.58 | 3283.58 |
| MWD-15 | 10/1/2019 | 3335.35 | 51.97 | NM | NA | NA | 3283.38 | 3283.38 |
| MWD-17 | 4/1/2019 | 3334.74 | 52.24 | NM | NA | NA | 3282.50 | 3282.50 |
| RW-1 | 4/1/2019 | 3335.19 | 52.72 | 51.09 | 1.63 | 0.74 | 3282.47 | 3283.68 |
| RW-1 | 10/1/2019 | 3335.19 | 52.85 | 51.29 | 1.56 | 0.74 | 3282.34 | 3283.49 |
| RW-2 | 4/1/2019 | 3337.84 | 56.47 | 54.95 | 1.52 | 0.74 | 3281.37 | 3282.49 |
| RW-2 | 10/1/2019 | 3337.84 | 56.60 | 55.13 | 1.47 | 0.74 | 3281.24 | 3282.33 |
| RW-3 | 4/4/2019 | 3338.06 | 55.55 | 55.55 | 0 | 0.72 | 3282.51 | 3282.51 |
| RW-3 | 10/1/2019 | 3338.06 | 55.72 | NM | NA | 0.72 | 3282.34 | 3282.34 |
| RW-4 | 4/1/2019 | 3334.14 | 55.65 | 53.70 | 1.95 | 0.72 | 3278.49 | 3279.89 |
| RW-4 | 10/1/2019 | 3334.14 | 53.89 | NM | NA | 0.72 | 3280.25 | 3280.25 |
| RW-5 | 4/1/2019 | 3334.2 | 55.06 | 54.64 | 0.42 | 0.72 | 3279.14 | 3279.44 |
| RW-5 | 10/1/2019 | 3334.2 | 55.34 | 54.45 | 0.89 | 0.72 | 3278.86 | 3279.50 |
| RW-6 | 4/1/2019 | 3332.37 | 49.70 | NM | NA | NA | 3282.67 | 3282.67 |
| RW-6 | 10/1/2019 | 3332.37 | 50.49 | NM | NA | NA | 3281.88 | 3281.88 |
| RW-7 | 4/1/2019 | 3331.23 | 51.76 | NM | NA | NA | 3279.47 | 3279.47 |
| RW-7 | 10/1/2019 | 3331.23 | 52.28 | NM | NA | NA | 3278.95 | 3278.95 |
| RW-8 | 4/1/2019 | 3333.39 | 52.92 | NM | NA | NA | 3280.47 | 3280.47 |
| TMW-1 | 4/1/2019 | 3337.7 | 54.52 | NM | NA | NA | 3283.18 | 3283.18 |
| TMW-1 | 10/1/2019 | 3337.7 | 53.65 | NM | NA | NA | 3284.05 | 3284.05 |
| TMW-2 | 4/1/2019 | 3338.3 | 54.66 | 54.16 | 0.50 | 0.82 | 3283.64 | 3284.05 |
| TMW-6 | 4/1/2019 | 3335.36 | 51.35 | NM | NA | NA | 3284.01 | 3284.01 |
| TMW-6 | 10/1/2019 | 3335.36 | 54.48** | NM | NA | NA | 3280.88** | 3280.88** |
| WW-2 | 4/4/2019 | 3331.46 | 49.14 | NM | NA | NA | 3282.32 | 3282.32 |
| WW-7 | 4/4/2019 | 3331.73 | 50.21 | NM | NA | NA | 3281.52 | 3281.52 |

**Note:**

[1] Groundwater elevations corrected using an assumed LNAPL specific gravity ranging from 0.72 to 0.82 based on limited LNAPL characterization conducted during 2017. The formula used to correct groundwater elevation is as follows

$$Corrected\ GW\ Elevation = TOC\ Elevation - (DTW - LNAPL\ Thickness * LNAPL\ Specific\ Gravity)$$

**Acronyms and Abbreviations:**

amsl = above mean sea level

btoc = below top of casing

DTW = depth to groundwater

GW = groundwater

ID = identification

LNAPL = light nonaqueous phase liquid

NA = not applicable

NM = not measured

TOC = top of casing

* active recovery well

** atypical measurement, not used in analysis





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ARCADIS Design & Consultancy for natural and built assets

**Table 3**
**Spring 2019 Field Parameters**
**2019 Annual Groundwater Monitoring Report**
**Former Eunice South Gas Plant**
**Eunice, Lea County, New Mexico**

| Location ID | Date | Dissolved Oxygen | Oxidation-Reduction Potential | pH | Specific Conductivity | Temperature | Turbidity |
|---|---|---|---|---|---|---|---|
| | | mg/L | mV | SU | µS/cm | °C | NTU |
| MW-3 | 4/5/2019 | 6.77 | 99.3 | 7.16 | 1,264 | 21.19 | 5.1 |
| MW-4 | 4/4/2019 | 3.71 | 136.5 | 7.22 | 8,000 | 24.70 | 1.6 |
| MW-8 | 4/3/2019 | 4.16 | -108 | 7.54 | 4,000 | 27.49 | 12.1 |
| MW-9 | 4/3/2019 | 3.59 | -106.7 | 7.33 | 3,000 | 19.40 | 34.5 |
| MW-11 | 4/4/2019 | 1.75 | -101 | 6.14 | 1,000 | 24.63 | 30.2 |
| MW-13 | 4/2/2019 | 3.53 | 59 | 7.10 | 1,260 | 24.45 | 15.5 |
| MW-14 | 4/3/2019 | 2.72 | 20 | 6.44 | 3,000 | 18.29 | 5.8 |
| MW-15 | 4/2/2019 | 3.26 | 87 | 6.44 | 6,750 | 17.01 | 14.6 |
| MW-16 | 4/2/2019 | 3.36 | 144 | 7.00 | 6,270 | 19.23 | 12.2 |
| MW-17 | 4/3/2019 | 1.9 | -44 | 6.45 | 4,000 | 24.33 | 1.5 |
| MW-22 | 4/3/2019 | 2.49 | -164 | 6.94 | 6,990 | 20.28 | 2.4 |
| MW-25 | 4/5/2019 | 3.35 | -22.9 | 7.07 | 8,000 | 20.28 | 8.1 |
| MW-26 | 4/4/2019 | 1.61 | -103 | 6.79 | 1,840 | 2.31 | 6.8 |
| MW-29 | 4/3/2019 | 5.44 | -128.2 | 7.13 | 2,000 | 22.39 | 19.2 |
| MW-30 | 4/3/2019 | 2.84 | -125.1 | 6.97 | 2,000 | 17.56 | 9.1 |
| MW-31 | 4/3/2019 | 2.68 | -62 | 6.56 | 3,000 | 17.13 | 3.7 |
| MW-32 | 4/3/2019 | 2.42 | -108.2 | 7.47 | 4,000 | 29.45 | 28.4 |
| MW-34 | 4/2/2019 | 3.12 | 8.2 | 6.64 | NM | 23.94 | 5.3 |
| MW-35 | 4/2/2019 | 3.26 | -173 | 7.14 | 1,730 | 21.36 | 2.5 |
| MW-36 | 4/2/2019 | 3.35 | 100 | 6.99 | 2,000 | 20.47 | 8.6 |
| MW-37 | 4/2/2019 | 1.73 | -144 | 6.91 | 1,760 | 26.66 | 0.6 |
| MW-38 | 4/2/2019 | 1.73 | -167 | 7.09 | 3,000 | 23.88 | 0.8 |
| MWD-1 | 4/3/2019 | 2.72 | 50 | 6.95 | 3,000 | 24.11 | 0.1 |
| MWD-2 | 4/4/2019 | 1.72 | 43 | 6.60 | 4,000 | 25.12 | 0.0 |
| MWD-4 | 4/3/2019 | 2.89 | -86 | 6.51 | 2,000 | 18.78 | 2.9 |
| MWD-5 | 4/3/2019 | 2.55 | -115 | 6.94 | 3,000 | 23.66 | 12.7 |
| MWD-6 | 4/2/2019 | 3.87 | 8.2 | 7.14 | NM | 24.33 | 3.1 |
| MWD-7 | 4/3/2019 | 1.80 | 83 | 6.53 | 16,000 | 23.04 | 5.0 |
| MWD-8 | 4/4/2019 | 5.19 | 91 | 7.01 | 1,140 | 18.43 | 8.0 |
| MWD-9* | 4/4/2019 | 5.09 | 132.5 | 9.64 | 46,000 | 22.19 | 0.0 |
| MWD-11 | 4/5/2019 | 0.00 | 123.1 | 7.34 | 1,000 | 21.64 | 1,540.8 |
| MWD-12 | 4/3/2019 | 3.35 | 67.9 | 7.71 | 5,000 | 25.33 | 10.6 |
| MWD-13 | 4/3/2019 | 1.82 | 56 | 6.69 | 6,000 | 20.74 | 0.2 |
| MWD-14 | 4/5/2019 | 3.45 | 119.4 | 7.44 | 4,000 | 19.76 | 2.4 |
| MWD-15 | 4/4/2019 | 1.80 | -101 | 6.14 | 5,000 | 25.95 | 1.9 |
| MWD-17 | 4/3/2019 | 1.98 | -135 | 6.97 | 17,000 | 23.90 | 2.8 |
| RW-6 | 4/4/2019 | 3.88 | -90.7 | 7.17 | 4,000 | 19.31 | 12.1 |
| RW-7 | 4/4/2019 | 5.93 | 66.4 | 7.38 | 9,000 | 20.92 | 4.19 |
| RW-8 | 4/4/2019 | 2.84 | -31 | 7.64 | 2,000 | 24.61 | 79.1 |
| TMW-1 | 4/5/2019 | 0.00 | 94.5 | 6.97 | 2,672 | 21.63 | 1,539.9 |
| TMW-6 | 4/5/2019 | 2.57 | -98.9 | 7.06 | 7,000 | 20.31 | 15.1 |
| WW-2 | 4/4/2019 | 5.19 | -156 | 7.11 | 1,000 | 21.79 | 1.9 |
| WW-7 | 4/4/2019 | 2.03 | -156 | 8.03 | 1,000 | 21.93 | 28.8 |

**Acronyms and Abbreviations:**
ID = identification
mg/L = milligrams per liter
mV = millivolts
NTU = nephelometric turbidity unit
SU = standard unit
µS/cm = microSiemens per centimeter
°C = degrees Celsius
* = active recovery well



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**Table 4**
**Fall 2019 Field Parameters**
**2019 Annual Groundwater Monitoring Report**
**Former Eunice South Gas Plant**
**Eunice, Lea County, New Mexico**

ARCADIS Design & Consultancy for natural and built assets

| Location ID | Date | Dissolved Oxygen | Oxidation-Reduction Potential | pH | Specific Conductivity | Temperature | Turbidity |
|---|---|---|---|---|---|---|---|
| | | mg/L | mV | SU | µS/cm | °C | NTU |
| MW-3 | 10/4/2019 | 4.01 | -20 | 7.55 | 1.3 | 18.27 | 14.1 |
| MW-4 | 10/3/2019 | 0.56 | 38 | 7.08 | 6.06 | 22.03 | 6 |
| MW-8 | 10/3/2019 | 0.21 | -109 | 7.51 | 3.14 | 22.36 | 2 |
| MW-9 | 10/3/2019 | 0.2 | -147 | 7.28 | 2.27 | 23.12 | 20.3 |
| MW-11 | 10/4/2019 | 0.3 | -77 | 6.59 | 1.1 | 22.9 | 76.4 |
| MW-13 | 10/1/2019 | 3 | -8 | 7.45 | 1.82 | 23.26 | 70 |
| MW-14 | 10/2/2019 | 0.02 | -44 | 7.03 | 2.65 | 20.6 | 76.4 |
| MW-15 | 10/2/2019 | 0.12 | -20 | 7.09 | 6.27 | 20.71 | 8.6 |
| MW-16 | 10/2/2019 | 0.4 | 29 | 7.26 | 6.28 | 23.66 | 18.6 |
| MW-17 | 10/3/2019 | 0 | -52 | 6.96 | 3.99 | 19.39 | 0.9 |
| MW-25 | 10/8/2019 | 1.83 | -159 | 7.73 | 6.86 | 23.1 | 5 |
| MW-26 | 10/4/2019 | 0.3 | -116 | 6.9 | 1.75 | 23.58 | 23.1 |
| MW-29 | 10/3/2019 | 0.88 | -149 | 7 | 2.19 | 23.12 | 5.4 |
| MW-30 | 10/3/2019 | 2.71 | -41 | 6.21 | 2.1 | 22.03 | 0 |
| MW-31 | 10/2/2019 | 0.88 | -113 | 7.12 | 2.64 | 20.09 | 2.4 |
| MW-32 | 10/3/2019 | 0.88 | -119 | 7.52 | 3.45 | 23.55 | 5.8 |
| MW-34 | 10/2/2019 | 0.67 | -143 | 7.1 | 2.02 | 23.72 | 6.8 |
| MW-35 | 10/1/2019 | 1.62 | -75 | 6.59 | 1.82 | 24.09 | 15.1 |
| MW-36 | 10/1/2019 | 0.87 | -67 | 7.08 | 2.2 | 23.68 | 4.3 |
| MW-37 | 10/2/2019 | 0.6 | -76 | 7.32 | 1.89 | 20.84 | 6.3 |
| MW-38 | 10/2/2019 | 0.36 | -140 | 7.17 | 3.47 | 20.47 | 4.4 |
| MWD-1 | 10/3/2019 | 1.71 | 23 | 7.22 | 2.61 | 21.25 | 2.6 |
| MWD-3* | 10/4/2019 | 2.32 | 13 | 7.11 | 79.2 | 21.09 | 4.4 |
| MWD-4 | 10/3/2019 | 0.92 | -22 | 7.25 | 1.57 | 23.77 | 4.3 |
| MWD-6 | 10/2/2019 | 0 | -143 | 7.18 | 2.02 | 23.72 | 6.8 |
| MWD-7 | 10/3/2019 | 0 | 128 | 6.74 | 16.3 | 19.45 | 6.4 |
| MWD-8 | 10/3/2019 | 4.08 | -46 | 7.64 | 1.3 | 22.91 | 12.3 |
| MWD-9* | 10/4/2019 | 3.96 | 28 | 7.12 | 39.5 | 20.88 | 0.4 |
| MWD-11 | 10/4/2019 | 4.2 | 4 | 7.42 | 1.24 | 19 | 14 |
| MWD-12 | 10/4/2019 | 4.4 | -81 | 7.67 | 4.37 | 17.31 | 4.4 |
| MWD-13 | 10/3/2019 | 0.31 | -2 | 7.36 | 6.55 | 23.77 | 0.8 |
| MWD-14 | 10/4/2019 | 0 | -38 | 7.96 | 5.71 | 23.04 | 1.9 |
| MWD-15 | 10/3/2019 | 0 | -125 | 7.22 | 5.54 | 22.2 | 2.6 |
| RW-6 | 10/4/2019 | 0.95 | -122 | 7.19 | 7.62 | 21.44 | 2.4 |
| RW-7 | 10/4/2019 | 1.48 | 2 | 6.98 | 9.7 | 19.82 | 3 |
| TMW-1 | 10/4/2019 | 0.79 | -92 | 6.97 | 2.31 | 19.67 | 1.3 |
| TMW-6 | 10/4/2019 | 1.75 | -130 | 7.7 | 2.39 | 23.24 | 171 |

**Acronyms and Abbreviations**

ID = identification
mg/L = milligrams per liter
mV = millivolts
NTU = nephelometric turbidity unit
SU = standard unit
µS/cm = microSiemens per centimeter
°C = degrees Celsius
* = active recovery well


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**Table 5**
**Spring 2019 BTEX Analytical Data**
**2019 Annual Groundwater Monitoring Report**
**Former Eunice South Gas Plant**
**Eunice, Lea County, New Mexico**

ARCADIS Design & Consultancy for natural and built assets

| Location ID | Date Sampled | Analyte | Benzene | | Toluene | | Ethylbenzene | | Total Xylenes | | DRO | | GRO | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Unit | mg/L | | | | | | | | | | | |
| | | NMWQCC Standard | 0.005 | | 1 | | 0.7 | | 0.62 | | NA | | NA | |
| MW-11 | 4/4/2019 | FD | **1.67** | D | **0.0019** | J | **0.00639** | | **0.0382** | | 1.5 | U | **6.99** | |
| MW-11 | 4/4/2019 | REG | **1.87** | | 0.02 | U | **0.0084** | J | **0.0542** | | 1.5 | U | **7.23** | |
| MW-13 | 4/2/2019 | REG | 0.002 | U | 0.002 | U | 0.002 | U | 0.002 | U | 1.5 | U | 1.5 | U |
| MW-14 | 4/3/2019 | REG | 0.002 | U | 0.002 | U | 0.002 | U | 0.002 | U | 1.5 | U | 1.5 | U |
| MW-15 | 4/2/2019 | REG | **0.00102** | J | 0.002 | U | 0.002 | U | 0.002 | U | 1.5 | U | 1.5 | U |
| MW-16 | 4/2/2019 | REG | 0.002 | U | 0.002 | U | 0.002 | U | 0.002 | U | 1.5 | U | 1.5 | U |
| MW-17 | 4/3/2019 | REG | 0.002 | U | 0.002 | U | 0.002 | U | 0.002 | U | 1.5 | U | 1.5 | U |
| MW-22 | 4/3/2019 | REG | **0.588** | | 0.02 | U | 0.02 | U | 0.02 | U | **1.01** | **J** | **5.66** | |
| MW-25 | 4/5/2019 | REG | **14.1** | D | **0.00325** | | **0.0232** | | **0.0144** | | **3.52** | | **5.95** | |
| MW-26 | 4/4/2019 | REG | **0.577** | D | **0.00071** | J | **0.00152** | J | **0.00421** | | **8.19** | | **3.41** | |
| MW-29 | 4/3/2019 | FD | **0.0462** | | 0.002 | U | 0.002 | U | 0.002 | U | **1.2** | **J** | **4.21** | |
| MW-29 | 4/3/2019 | REG | **0.0624** | | 0.002 | U | 0.002 | U | 0.002 | U | 1.5 | U | **4.32** | |
| MW-3 | 4/5/2019 | REG | 0.002 | U | 0.002 | U | 0.002 | U | 0.002 | U | 1.5 | U | 1.5 | U |
| MW-30 | 4/3/2019 | REG | **0.00872** | | 0.002 | U | 0.002 | U | **0.001** | **J** | 1.5 | U | 1.5 | U |
| MW-31 | 4/3/2019 | REG | 0.002 | U | 0.002 | U | 0.002 | U | 0.002 | U | 1.5 | U | 1.5 | U |
| MW-32 | 4/3/2019 | REG | **4.3** | D | **0.00051** | J | **0.00196** | J | **0.00311** | | 1.5 | U | **11.1** | |
| MW-34 | 4/2/2019 | REG | **0.0989** | | **0.00077** | J | 0.002 | U | 0.002 | U | **0.937** | **J** | **1.33** | J |
| MW-35 | 4/2/2019 | REG | 0.002 | U | **0.00044** | J | 0.002 | U | 0.002 | U | 1.5 | U | 1.5 | U |
| MW-36 | 4/2/2019 | REG | 0.002 | U | 0.002 | U | 0.002 | U | 0.002 | U | 1.5 | U | 1.5 | U |
| MW-37 | 4/2/2019 | REG | 0.002 | U | 0.002 | U | 0.002 | U | 0.002 | U | 1.5 | U | 1.5 | U |
| MW-38 | 4/2/2019 | REG | 0.002 | U | 0.002 | U | 0.002 | U | 0.002 | U | 1.5 | U | 1.5 | U |
| MW-4 | 4/4/2019 | REG | 0.002 | U | 0.002 | U | 0.002 | U | 0.002 | U | 1.5 | U | 1.5 | U |
| MW-8 | 4/3/2019 | REG | 0.002 | U | 0.002 | U | 0.002 | U | 0.002 | U | 1.5 | U | 1.5 | U |
| MW-9 | 4/3/2019 | REG | **0.00105** | J | 0.002 | U | 0.002 | U | 0.002 | U | 1.5 | U | 1.5 | U |
| MWD-1 | 4/3/2019 | REG | 0.002 | U | 0.002 | U | 0.002 | U | 0.002 | U | 1.5 | U | 1.5 | U |
| MWD-11 | 4/5/2019 | REG | 0.002 | U | 0.002 | U | 0.002 | U | 0.002 | U | 1.5 | U | 1.5 | U |
| MWD-12 | 4/3/2019 | REG | **0.00046** | J | 0.002 | U | **0.0109** | | 0.002 | U | **1.2** | **J** | 1.5 | U |

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**Table 5**
**Spring 2019 BTEX Analytical Data**
**2019 Annual Groundwater Monitoring Report**
**Former Eunice South Gas Plant**
**Eunice, Lea County, New Mexico**

ARCADIS Design & Consultancy for natural and built assets

| Location ID | Date Sampled | Analyte | Benzene | | Toluene | | Ethylbenzene | | Total Xylenes | | DRO | | GRO | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Unit | mg/L | | | | | | | | | | | |
| | | NMWQCC Standard | 0.005 | | 1 | | 0.7 | | 0.62 | | NA | | NA | |
| MWD-13 | 4/3/2019 | REG | 0.002 | U | 0.002 | U | 0.002 | U | 0.002 | U | 1.5 | U | 1.5 | U |
| MWD-14 | 4/5/2019 | REG | **0.981** | | 0.02 | U | **0.0709** | | 0.02 | U | **1.82** | | **4.01** | |
| MWD-15 | 4/4/2019 | REG | **0.0132** | **J** | 0.002 | U | **0.0179** | **J** | **0.0263** | **J** | 1.5 | U | **1.67** | |
| MWD-17 | 4/3/2019 | REG | **0.179** | | 0.002 | U | **0.0140** | | **0.0041** | | 1.5 | U | **1.1** | **J** |
| MWD-2 | 4/4/2019 | REG | 0.002 | U | 0.002 | U | 0.002 | U | 0.002 | U | 1.5 | U | 1.5 | U |
| MWD-4 | 4/3/2019 | FD | 0.002 | U | 0.002 | U | 0.002 | U | 0.002 | U | 1.5 | U | 1.5 | U |
| MWD-4 | 4/3/2019 | REG | 0.002 | U | 0.002 | U | 0.002 | U | 0.002 | U | 1.5 | U | 1.5 | U |
| MWD-5 | 4/3/2019 | REG | **3.46** | | 0.05 | U | 0.05 | U | 0.05 | U | **1.7** | | **12.9** | |
| MWD-6 | 4/2/2019 | REG | **0.00214** | | 0.002 | U | 0.002 | U | 0.002 | U | 1.5 | U | 1.5 | U |
| MWD-7 | 4/3/2019 | REG | **0.00041** | J | 0.002 | U | 0.002 | U | 0.002 | U | 1.5 | U | 1.5 | U |
| MWD-8 | 4/4/2019 | REG | 0.002 | U | 0.002 | U | 0.002 | U | 0.002 | U | 1.5 | U | 1.5 | U |
| MWD-9* | 4/4/2019 | REG | **0.0161** | | 0.002 | U | 0.002 | U | 0.002 | U | 1.5 | U | 1.5 | U |
| RW-6 | 4/4/2019 | REG | 0.002 | U | 0.002 | U | 0.002 | U | **0.00215** | | 1.5 | U | 1.5 | U |
| RW-7 | 4/4/2019 | FD | 0.002 | U | 0.002 | U | 0.002 | U | 0.002 | U | 1.5 | U | 1.5 | U |
| RW-7 | 4/4/2019 | REG | 0.002 | U | 0.002 | U | 0.002 | U | 0.002 | U | 1.5 | U | 1.5 | U |
| RW-8 | 4/4/2019 | REG | 0.002 | U | 0.002 | U | 0.002 | U | **0.00099** | **J** | 1.5 | U | 1.5 | U |
| TMW-1 | 4/5/2019 | FD | **0.0308** | | 0.002 | U | **0.00475** | | **0.0119** | | 1.5 | U | 1.5 | U |
| TMW-1 | 4/5/2019 | REG | **0.032** | | 0.002 | U | **0.00524** | | **0.0123** | | 1.5 | U | 1.5 | U |
| TMW-6 | 4/5/2019 | REG | **0.104** | | 0.02 | U | **0.0425** | | 0.02 | U | **2.5** | | **3.72** | |
| WW-2 | 4/4/2019 | REG | 0.002 | U | 0.002 | U | 0.002 | U | 0.002 | U | 1.5 | U | 1.5 | U |
| WW-7 | 4/4/2019 | REG | 0.002 | U | 0.002 | U | 0.002 | U | 0.002 | U | 1.5 | U | 1.5 | U |

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**Table 6**
**Fall 2019 BTEX Analytical Data**
**2019 Annual Groundwater Monitoring Report**
**Former Eunice South Gas Plant**
**Eunice, Lea County, New Mexico**

ARCADIS Design & Consultancy for natural and built assets

| Location ID | Date Sampled | Analyte | Benzene | | Toluene | | Ethylbenzene | | Total Xylenes | | DRO | | GRO | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Unit | mg/L | | | | | | | | | | | |
| | | NMWQCC Standard | 0.005 | | 1 | | 0.7 | | 0.62 | | NA | | NA | |
| MW-3 | 10/4/2019 | REG | 0.002 | U | 0.002 | U | 0.002 | U | 0.002 | U | 1.39 | U | 1.39 | U |
| MW-4 | 10/3/2019 | FD | 0.002 | U | 0.002 | U | 0.002 | U | 0.002 | U | 1.38 | U | 1.38 | U |
| MW-4 | 10/3/2019 | REG | 0.002 | U | 0.002 | U | 0.002 | U | 0.002 | U | 1.39 | U | **0.928** | J |
| MW-8 | 10/3/2019 | REG | 0.002 | U | 0.002 | U | 0.002 | U | 0.002 | U | 1.38 | U | 1.38 | U |
| MW-9 | 10/3/2019 | REG | 0.002 | U | 0.002 | U | 0.002 | U | 0.002 | U | 1.38 | U | **1.04** | J |
| MW-11 | 10/4/2019 | REG | **1.96** | DJ | **0.00752** | J | **0.0255** | J | **0.145** | J | 1.38 | U | **6.06** | |
| MW-13 | 10/1/2019 | REG | 0.002 | U | 0.002 | U | 0.002 | U | 0.002 | U | 1.38 | U | 1.38 | U |
| MW-14 | 10/2/2019 | REG | 0.002 | U | 0.002 | U | 0.002 | U | 0.002 | U | 1.4 | U | 1.4 | U |
| MW-15 | 10/2/2019 | FD | 0.002 | U | 0.002 | U | 0.002 | U | 0.002 | U | 1.41 | U | 1.41 | U |
| MW-15 | 10/2/2019 | REG | 0.002 | U | 0.002 | U | 0.002 | U | 0.002 | U | 1.4 | U | 1.4 | U |
| MW-16 | 10/2/2019 | REG | 0.002 | U | 0.002 | U | 0.002 | U | 0.002 | U | 1.38 | U | 1.38 | U |
| MW-17 | 10/3/2019 | REG | 0.002 | U | 0.002 | U | 0.002 | U | 0.002 | U | 1.38 | U | 1.38 | U |
| MW-25 | 10/4/2019 | REG | **2.99** | DJ | 0.002 | U | **0.0358** | J | **0.0157** | J | **3.98** | | **7.03** | |
| MW-26 | 10/4/2019 | REG | **0.797** | DJ | 0.002 | U | **0.00743** | J | **0.0177** | J | **4.73** | | **2.37** | |
| MW-29 | 10/3/2019 | REG | **0.177** | | 0.002 | U | 0.002 | U | 0.002 | U | 1.41 | U | **4.72** | |
| MW-30 | 10/3/2019 | REG | 0.002 | U | 0.002 | U | 0.002 | U | 0.002 | U | 1.38 | U | **0.969** | J |
| MW-31 | 10/2/2019 | REG | 0.002 | U | 0.002 | U | 0.002 | U | 0.002 | U | 1.41 | U | 1.41 | U |
| MW-32 | 10/3/2019 | REG | **5.96** | DJ | 0.002 | U | **0.00533** | | **0.00538** | | 1.36 | U | **11.9** | |
| MW-34 | 10/2/2019 | FD | **0.0609** | J | 0.002 | U | 0.002 | U | 0.002 | U | **1.29** | J | **2.33** | |
| MW-34 | 10/2/2019 | REG | **0.0642** | J | 0.002 | U | 0.002 | U | 0.002 | U | **1.18** | J | **2.17** | |
| MW-35 | 10/1/2019 | REG | 0.002 | U | 0.002 | U | 0.002 | U | 0.002 | U | 1.38 | U | 1.38 | U |
| MW-36 | 10/1/2019 | REG | 0.002 | U | 0.002 | U | 0.002 | U | 0.002 | U | 1.4 | U | 1.4 | U |
| MW-37 | 10/2/2019 | REG | 0.002 | U | 0.002 | U | 0.002 | U | 0.002 | U | 1.38 | U | 1.38 | U |
| MW-38 | 10/2/2019 | REG | 0.002 | U | 0.002 | U | 0.002 | U | 0.002 | U | 1.36 | U | 1.36 | U |
| MWD-1 | 10/3/2019 | FD | 0.002 | U | 0.002 | U | 0.002 | U | 0.002 | U | 1.38 | U | 1.38 | U |
| MWD-1 | 10/3/2019 | REG | 0.002 | U | 0.002 | U | 0.002 | U | 0.002 | U | 1.34 | U | 1.34 | U |
| MWD-3* | 10/4/2019 | REG | **1.97** | D | **0.00558** | | **0.0662** | J | **0.033** | | 1.34 | U | **5.55** | |
| MWD-4 | 10/3/2019 | REG | 0.002 | U | 0.002 | U | 0.002 | U | 0.002 | U | 1.38 | U | 1.38 | U |
| MWD-6 | 10/2/2019 | REG | 0.002 | U | 0.002 | U | 0.002 | U | 0.002 | U | 1.35 | U | **0.966** | J |
| MWD-7 | 10/3/2019 | REG | 0.002 | U | 0.002 | U | 0.002 | U | 0.002 | U | 1.38 | U | 1.38 | U |
| MWD-8 | 10/3/2019 | REG | 0.002 | U | 0.002 | U | 0.002 | U | 0.002 | U | 1.37 | U | 1.37 | U |

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**Table 6**
**Fall 2019 BTEX Analytical Data**
**2019 Annual Groundwater Monitoring Report**
**Former Eunice South Gas Plant**
**Eunice, Lea County, New Mexico**

ARCADIS Design & Consultancy for natural and built assets

| Location ID | Date Sampled | Analyte | Benzene | | Toluene | | Ethylbenzene | | Total Xylenes | | DRO | | GRO | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Unit | mg/L | | | | | | | | | | | |
| | | NMWQCC Standard | 0.005 | | 1 | | 0.7 | | 0.62 | | NA | | NA | |
| MWD-9* | 10/4/2019 | REG | **0.0119** | J | 0.002 | U | 0.002 | U | 0.002 | U | 1.33 | U | 1.33 | U |
| MWD-11 | 10/4/2019 | REG | 0.002 | U | 0.002 | U | 0.002 | U | 0.002 | U | 1.38 | U | 1.38 | U |
| MWD-12 | 10/4/2019 | REG | 0.002 | U | 0.002 | U | 0.002 | U | 0.002 | U | 1.38 | U | 1.38 | U |
| MWD-13 | 10/3/2019 | REG | 0.002 | U | 0.002 | U | 0.002 | U | 0.002 | U | 1.35 | U | 1.35 | U |
| MWD-14 | 10/4/2019 | REG | **1.18** | DJ | 0.002 | U | **0.136** | J | **0.00904** | J | 1.35 | U | **3.43** | |
| MWD-15 | 10/3/2019 | REG | **0.00443** | J | 0.002 | U | **0.0146** | J | **0.0342** | J | **1.6** | | **1.77** | |
| RW-6 | 10/4/2019 | REG | **0.00986** | J | 0.002 | U | 0.002 | U | 0.002 | U | 1.38 | U | **1.23** | J |
| RW-7 | 10/4/2019 | REG | 0.002 | U | 0.002 | U | 0.002 | U | 0.002 | U | 1.4 | U | 1.4 | U |
| TMW-1 | 10/4/2019 | REG | **0.00589** | J | 0.002 | U | 0.002 | U | **0.00557** | J | 1.41 | U | 1.41 | U |
| TMW-6 | 10/4/2019 | REG | **0.0381** | | 0.002 | U | **0.00828** | J | **0.0056** | | **2.05** | | **2.71** | |

**Acronyms and Abbreviations:**

**bold** = detected analytes
BTEX = benzene, toluene, ethylbenzene, and xylenes
DRO = diesel-range organics
FD = field duplicate sample
GRO = gasoline-range organics
ID = identification
mg/L = milligrams per liter
NMWQCC = New Mexico Water Quality Control Commission
NA = Not applicable- no standard available
REG = regular field sample
shading = analytes exceeding the NMWQCC Standard
* = active recovery well

**Qualifier:**

D = sample was diluted
J = estimated value
U = nondetect



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**Table 7**
**Spring 2019 Metals, Chloride, and Total Dissolved Solids Analytical Data**
**2019 Annual Groundwater Monitoring Report**
**Former Eunice South Gas Plant**
**Eunice, Lea County, New Mexico**

ARCADIS Design & Consultancy for natural and built assets

| Location ID | Date | Analyte | Dissolved Arsenic | | Dissolved Barium | | Dissolved Total Chromium | | Dissolved Hexavalent Chromium | | TDS | | Chloride | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Unit | mg/L | | | | | | | | | | | |
| | | NMWQCC Standard | 0.1 | | 2 | | 0.05 | | 0.05 | | 1000 | | 250 | |
| MW-11 | 4/4/2019 | FD | 0.0122 | | 0.631 | | 0.00543 | | 0.01 | U | 844 | | 93.1 | J |
| MW-11 | 4/4/2019 | REG | 0.0182 | | 0.614 | | 0.00989 | | 0.01 | U | 815 | | 78 | J |
| MW-13 | 4/2/2019 | REG | 0.0139 | | 0.0935 | | 0.004 | U | 0.01 | U | 1,060 | | 349 | |
| MW-14 | 4/3/2019 | REG | 0.00933 | | 0.0760 | | 0.157 | | 0.01 | U | 1,520 | | 496 | |
| MW-15 | 4/2/2019 | REG | 0.0142 | | 0.0452 | | 0.00109 | J | 0.01 | U | 3,840 | | 1,960 | |
| MW-16 | 4/2/2019 | REG | 0.0136 | | 0.0417 | | 0.111 | | 0.0976 | | 3,760 | | 1,780 | |
| MW-17 | 4/3/2019 | REG | 0.0113 | | 0.206 | | 0.00141 | J | 0.01 | U | 2,860 | | 1,190 | |
| MW-22 | 4/3/2019 | REG | 0.0554 | | 0.654 | | 0.00802 | | 0.01 | U | 4,900 | | 1,670 | |
| MW-25 | 4/5/2019 | REG | 0.00145 | J | 1.21 | | 0.00163 | J | 0.01 | U | 4,230 | | 1,240 | |
| MW-26 | 4/4/2019 | REG | 0.0630 | | 5.59 | | 0.000777 | J | 0.01 | U | 1,070 | | 140 | J |
| MW-29 | 4/3/2019 | FD | 0.00338 | J | 7.51 | | 0.000706 | J | 0.01 | U | 1,100 | | 165 | |
| MW-29 | 4/3/2019 | REG | 0.00389 | J | 9.21 | | 0.000856 | J | 0.01 | U | 1,170 | | 185 | |
| MW-3 | 4/5/2019 | REG | 0.016 | | 0.0562 | | 0.00111 | J | 0.01 | U | 344 | | 67.7 | |
| MW-30 | 4/3/2019 | REG | 0.0212 | | 0.370 | | 0.00146 | J | 0.01 | U | 1,240 | | 260 | |
| MW-31 | 4/3/2019 | REG | 0.0359 | | 0.440 | | 0.004 | U | 0.01 | U | 1,460 | | 533 | |
| MW-32 | 4/3/2019 | REG | 0.0361 | | 1.40 | | 0.000949 | J | 0.01 | U | 2,200 | | 583 | |
| MW-34 | 4/2/2019 | REG | 0.0018 | J | 5.3 | | 0.004 | U | 0.01 | U | 1,680 | | 286 | |
| MW-35 | 4/2/2019 | REG | 0.0166 | | 0.0775 | | 0.000714 | J | 0.01 | U | 1,100 | | 321 | |
| MW-36 | 4/2/2019 | REG | 0.0103 | | 0.107 | | 0.004 | U | 0.01 | U | 1,180 | | 406 | |
| MW-37 | 4/2/2019 | REG | 0.00678 | | 0.223 | | 0.004 | U | 0.01 | U | 1,100 | | 336 | |
| MW-38 | 4/2/2019 | REG | 0.0273 | | 0.102 | | 0.004 | U | 0.01 | U | 1,870 | | 614 | |
| MW-4 | 4/4/2019 | REG | 0.00818 | | 0.062 | | 0.00163 | J | 0.01 | U | 4,970 | | 1,830 | |
| MW-8 | 4/3/2019 | REG | 0.0519 | | 0.0496 | | 0.00112 | J | 0.01 | U | 2,240 | | 512 | |
| MW-9 | 4/3/2019 | REG | 0.0107 | | 4.79 | | 0.00113 | J | 0.01 | U | 1,410 | | 334 | |
| MWD-1 | 4/3/2019 | REG | 0.0544 | | 0.0503 | | 0.00612 | | 0.01 | U | 1,640 | | 501 | |
| MWD-11 | 4/5/2019 | REG | 0.0198 | | 0.0466 | | 0.00113 | J | 0.01 | U | 736 | | 80.2 | |
| MWD-12 | 4/3/2019 | REG | 0.0443 | | 0.380 | | 0.00087 | J | 0.01 | U | 3,120 | | 901 | |
| MWD-13 | 4/3/2019 | REG | 0.0349 | | 0.0781 | | 0.0102 | | 0.01 | U | 5,180 | | 1,880 | |
| MWD-14 | 4/5/2019 | REG | 0.000809 | J | 0.436 | | 0.000762 | J | 0.01 | U | 3,820 | | 974 | |
| MWD-15 | 4/4/2019 | REG | 0.00799 | | 1.83 | | 0.00207 | J | 0.01 | U | 3,210 | | 604 | J |
| MWD-17 | 4/3/2019 | REG | 0.0593 | | 1.89 | | 0.00396 | J | 0.01 | U | 12,500 | | 3,810 | |

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**Table 7**
**Spring 2019 Metals, Chloride, and Total Dissolved Solids Analytical Data**
**2019 Annual Groundwater Monitoring Report**
**Former Eunice South Gas Plant**
**Eunice, Lea County, New Mexico**

ARCADIS Design & Consultancy for natural and built assets

| Location ID | Date | Analyte | Dissolved Arsenic | | Dissolved Barium | | Dissolved Total Chromium | | Dissolved Hexavalent Chromium | | TDS | | Chloride | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Unit | mg/L | | | | | | | | | | | |
| | | NMWQCC Standard | 0.1 | | 2 | | 0.05 | | 0.05 | | 1000 | | 250 | |
| MWD-2 | 4/4/2019 | REG | **0.0088** | | **0.0500** | | **0.00119** | **J** | 0.01 | U | **2,730** | | **796** | **J** |
| MWD-4 | 4/3/2019 | FD | **0.00147** | **J** | **0.0655** | | 0.004 | U | 0.01 | U | **5,610** | **J** | **59.9** | |
| MWD-4 | 4/3/2019 | REG | **0.00154** | **J** | **0.0655** | | 0.004 | U | 0.01 | U | **1,360** | **J** | **57.1** | |
| MWD-5 | 4/3/2019 | REG | **0.0165** | | **7.71** | | **0.00105** | **J** | 0.01 | U | **2,090** | | **708** | |
| MWD-6 | 4/2/2019 | REG | **0.00474** | | **3.77** | | 0.004 | U | 0.01 | U | **1,220** | | **202** | |
| MWD-7 | 4/3/2019 | REG | **0.0150** | | **0.0442** | | **0.00339** | **J** | 0.01 | U | **9,440** | | **3,970** | |
| MWD-8 | 4/4/2019 | REG | **0.0171** | | **0.0470** | | **0.00173** | **J** | 0.01 | U | **933** | | **118** | **J** |
| MWD-9* | 4/4/2019 | REG | **0.0192** | | **0.0717** | | **0.00931** | | **0.0076** | **J** | **28,800** | | **17,000** | |
| RW-6 | 4/4/2019 | REG | **0.00211** | **J** | **0.927** | | **0.00216** | **J** | 0.01 | U | **2,470** | | **715** | |
| RW-7 | 4/4/2019 | FD | **0.00909** | | **0.0723** | | **0.00212** | **J** | 0.01 | U | **4,740** | **J** | **2,080** | |
| RW-7 | 4/4/2019 | REG | **0.0106** | | **0.0914** | | **0.00225** | **J** | 0.01 | U | **8,390** | **J** | **2,750** | |
| RW-8 | 4/4/2019 | REG | **0.0139** | | **0.0981** | | **0.00167** | **J** | 0.01 | U | **2,690** | | **756** | **J** |
| TMW-1 | 4/5/2019 | FD | **0.0169** | | **2.08** | | 0.004 | U | 0.01 | U | **1,310** | | **503** | |
| TMW-1 | 4/5/2019 | REG | **0.0167** | | **2.03** | | 0.004 | U | 0.01 | U | **1,320** | | **450** | |
| TMW-6 | 4/5/2019 | REG | **0.0647** | | **1.98** | | 0.004 | U | 0.01 | U | **1,430** | | **236** | |
| WW-2 | 4/4/2019 | REG | **0.00097** | **J** | **0.418** | | **0.000822** | **J** | 0.01 | U | **477** | | **125** | **J** |
| WW-7 | 4/4/2019 | REG | **0.00097** | **J** | **1.51** | | **0.00127** | **J** | 0.01 | U | **640** | | **332** | **J** |

**Acronyms and Abbreviations:**

**bold** = detected analytes
FD = field duplicate sample
ID = identification
mg/L = milligrams per liter
NMWQCC = New Mexico Water Quality Control Commission
REG = regular field sample
TDS = total dissolved solids
shading = analytes exceeding the NMWQCC Standard
* = active recovery well

**Qualifiers:**

J = estimated value
U = nondetect



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ARCADIS Design & Consultancy for natural and built assets

**Table 8**
**Fall 2019 Metals, Chloride, and Total Dissolved Solids Analytical Data**
**2019 Annual Groundwater Monitoring Report**
**Former Eunice South Gas Plant**
**Eunice, Lea County, New Mexico**

| Location ID | Date | Analyte | Dissolved Arsenic | | Dissolved Barium | | Dissolved Total Chromium | | Dissolved Hexavalent Chromium | | TDS | Chloride |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Unit | mg/L | | | | | | | | | |
| | | NMWQCC Standard | 0.1 | | 2 | | 0.05 | | 0.05 | | 1000 | 250 |
| MW-3 | 10/4/2019 | REG | **0.0164** | | **0.0512** | | **0.00113** | J | 0.01 | U | **723** | **84** |
| MW-4 | 10/3/2019 | FD | **0.00914** | | **0.0534** | | 0.004 | U | 0.01 | U | **4,240** | **2,130** |
| MW-4 | 10/3/2019 | REG | **0.00848** | | **0.0585** | | 0.004 | U | 0.01 | U | **4,390** | **2,150** |
| MW-8 | 10/3/2019 | REG | **0.034** | | **0.0426** | | 0.004 | U | 0.01 | U | **2,090** | **458** |
| MW-9 | 10/3/2019 | REG | **0.00387** | J | **9.06** | | 0.004 | U | 0.01 | U | **1,340** | **286** |
| MW-11 | 10/4/2019 | REG | **0.0143** | | **0.472** | | **0.0034** | J | 0.01 | U | **692** | **93** |
| MW-13 | 10/1/2019 | REG | **0.0161** | | **0.0981** | | **0.000672** | J | 0.01 | U | **1,130** | **332** |
| MW-14 | 10/2/2019 | REG | **0.00787** | | **0.0726** | | 0.004 | U | 0.01 | U | **1,630** | **512** |
| MW-15 | 10/2/2019 | FD | **0.0122** | | **0.0482** | | 0.004 | U | 0.01 | U | **3,920** | **1,850** |
| MW-15 | 10/2/2019 | REG | **0.0119** | | **0.0452** | | 0.004 | U | 0.01 | U | **3,930** | **1,890** |
| MW-16 | 10/2/2019 | REG | **0.0136** | | **0.0394** | | **0.107** | | **0.0982** | | **3,970** | **1,930** |
| MW-17 | 10/3/2019 | REG | **0.00838** | | **0.156** | | 0.004 | U | 0.01 | U | **2,700** | **1,300** |
| MW-25 | 10/4/2019 | REG | **0.00129** | J | **1.34** | | **0.00161** | J | 0.01 | U | **4,420** | **1,960** |
| MW-26 | 10/4/2019 | REG | **0.0599** | | **6.33** | | 0.004 | U | 0.01 | U | **1,090** | **157** |
| MW-29 | 10/3/2019 | REG | **0.00249** | J | **8.41** | | 0.004 | U | **0.0139** | | **1,250** | **232** |
| MW-30 | 10/3/2019 | REG | **0.0123** | | **0.298** | | 0.004 | U | 0.01 | U | **1,220** | **244** |
| MW-31 | 10/2/2019 | REG | **0.0392** | | **0.555** | | 0.004 | U | 0.01 | U | **1,440** | **462** |
| MW-32 | 10/3/2019 | REG | **0.0329** | | **1.32** | | 0.004 | U | 0.01 | U | **2,110** | **435** |
| MW-34 | 10/2/2019 | FD | **0.00107** | J | **4.7** | | 0.004 | U | 0.01 | U | **1,590** | **299** |
| MW-34 | 10/2/2019 | REG | **0.00108** | J | **4.84** | | 0.004 | U | 0.01 | U | **1,710** | **302** |
| MW-35 | 10/1/2019 | REG | **0.0108** | | **0.0875** | | 0.004 | U | 0.01 | U | **1,020** | **243** |
| MW-36 | 10/1/2019 | REG | **0.00948** | | **0.124** | | 0.004 | U | 0.01 | U | **1,280** | **434** |
| MW-37 | 10/2/2019 | REG | **0.00595** | | **0.192** | | 0.004 | U | 0.01 | U | **1,060** | **314** |
| MW-38 | 10/2/2019 | REG | **0.0126** | | **0.094** | | 0.004 | U | 0.01 | U | **1,960** | **655** |
| MWD-1 | 10/3/2019 | FD | **0.0507** | | **0.0482** | | **0.00404** | | 0.01 | U | **1,530** | **475** |
| MWD-1 | 10/3/2019 | REG | **0.0501** | | **0.0483** | | **0.00388** | J | 0.01 | U | **1,540** | **469** |
| MWD-3* | 10/4/2019 | REG | **0.0297** | | **0.753** | | **0.00194** | J | 0.01 | U | **57,700** | **44,800** |
| MWD-4 | 10/3/2019 | REG | **0.00139** | J | **0.0593** | | 0.004 | U | 0.01 | U | **1,220** | **50** |
| MWD-6 | 10/2/2019 | REG | **0.00234** | J | **2.87** | | 0.004 | U | 0.01 | U | **1,250** | **184** |
| MWD-7 | 10/3/2019 | REG | **0.0153** | | **0.0429** | | **0.00169** | J | 0.01 | U | **9,590** | **6,470** |
| MWD-8 | 10/3/2019 | REG | **0.0181** | | **0.0433** | | **0.00111** | J | 0.01 | U | **565** | **105** |
| MWD-9* | 10/4/2019 | REG | **0.0184** | | **0.0755** | | **0.00569** | | 0.01 | U | **26,800** | **15,000** |
| MWD-11 | 10/4/2019 | REG | **0.016** | | **0.0486** | | **0.00135** | J | **0.0055** | J | **801** | **112** |
| MWD-12 | 10/4/2019 | REG | **0.035** | | **0.371** | | 0.004 | U | 0.01 | U | **2,840** | **914** |
| MWD-13 | 10/3/2019 | REG | **0.062** | | **0.0726** | | **0.00285** | J | 0.01 | U | **4,610** | **1,290** |
| MWD-14 | 10/4/2019 | REG | **0.000588** | J | **0.808** | | **0.000883** | J | 0.01 | U | **2,900** | **595** |
| MWD-15 | 10/3/2019 | REG | **0.018** | | **1.19** | | 0.004 | U | 0.01 | U | **3,570** | **1,300** |
| RW-6 | 10/4/2019 | REG | **0.00266** | J | **1.53** | | **0.000681** | J | 0.01 | U | **2,360** | **876** |
| RW-7 | 10/4/2019 | REG | **0.00847** | | **0.083** | | **0.00105** | J | 0.01 | U | **5,270** | **4,400** |
| TMW-1 | 10/4/2019 | REG | **0.0184** | | **1.14** | | 0.004 | U | 0.01 | U | **1,430** | **537** |
| TMW-6 | 10/4/2019 | REG | **0.0671** | | **1.1** | | 0.004 | U | 0.01 | U | **1,450** | **312** |

**Acronyms and Abbreviations:**

**bold** = detected analytes

FD = field duplicate sample

ID = identification

mg/L = milligrams per liter

NMWQCC = New Mexico Water Quality Control Commission

TDS = total dissolved solids

* = active recovery well

** Hexavalent chromium concentration at this well is believed to be erroneous and this data has not been used for analysis

shading = analytes exceeding the NMWQCC Standard

**Qualifiers:**

J = estimated value

U = nondetect



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**Table 9**
**LNAPL Transmissivity Test**
**2019 Annual Groundwater Monitoring Report**
**Former Eunice South Gas Plant**
**Eunice, Lea County, New Mexico**

| Well ID | Test Date | Time Cut (minutes) | Initial LNAPL Thickness (feet) | Test Duration (minutes) | Final LNAPL Thickness (feet) | Percent Recovery | LNAPL Transmissivity ($ft^2$/day) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Bouwer and Rice | Cooper and Jacob/Jacob and Lohman | Cooper, Bredehoeft, and Papadopoulos | 2019 Geometric Mean | 2018 Geometric Mean | 2017 Geometric Mean | 2016 Geometric Mean |
| MW-1 | 10/3/2019 | 13 | 1.46 | 54 | 1.34 | 92% | 0.70 | 0.68 | **0.84** | 0.74 | 0.55 | **1.8** | **2.9** |
| | | | | | | | | | | | **1.8** | | |
| MW-2 | 10/3/2019 | 16 | 1.52 | 60 | 1.37 | 90% | **1.1** | **1.5** | **1.1** | **1.2** | **5.4** | **1.6** | --- |
| | | | | | | | | | | | **3.4** | | |
| MW-5 | ---[a] | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.35 | 0.16 | 0.30 |
| | | | | | | | | | | | 0.21 | | |
| MW-10 | 10/2/2019 | 90 | 2.33 | 12,737 | 1.66 | 71% | 0.03 | --- | --- | 0.03 | --- | --- | --- |
| MW-12 | ---[a] | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.04 | --- | --- |
| | | | | | | | | | | | 0.37 | | |
| MW-19 | 10/8/2019 | 24 | 1.56 | 2,877 | 0.46 | 29% | 0.07 | 0.16 | 0.21 | 0.13 | 0.01 | 0.01 | --- |
| | | | | | | | | | | | **3.5** | | |
| MW-20 | 10/8/2019 | 44 | 3.26 | 1,167 | 3.07 | 94% | **2.2** | **2.7** | **2.3** | **2.4** | **2.9** | **2.9** | **2.7** |
| | | | | | | | | | | | **1.7** | | |
| MW-21 | ---[a] | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.47 | 0.005 | --- |
| | | | | | | | | | | | 0.38 | | |
| MW-27 | 10/9/2019 | 21 | 0.94 | 57 | 0.82 | 87% | **1.3** | **2.2** | **2.0** | **1.8** | 0.57 | **1.0** | --- |
| MW-28 | 10/9/2019 | 28 | 1.96 | 260 | 1.77 | 90% | **1.3** | **1.7** | **1.7** | **1.5** | **6.2** | **4.5** | **5.9** |
| | | | | | | | | | | | **3.3** | | |
| RW-1 | 10/2/2019 | 15 | 1.56 | 254 | 1.56 | 100% | **1.1** | **1.1** | **1.3** | **1.2** | **1.7** | **2.2** | **1.2** |
| | | | | | | | | | | | **2.0** | | |
| RW-2 | 10/2/2019 | 11 | 1.47 | 129 | 1.36 | 93% | **2.8** | **4.9** | **5.4** | **4.2** | **8.1** | **5.3** | **4.7** |
| | | | | | | | | | | | **8.6** | | |
| RW-4 | 10/9/2019 | 45 | 2.05 | 592 | 1.85 | 90% | **2.8** | **3.9** | **4.2** | **3.6** | **3.1** | **3.1** | **2.4** |
| | | | | | | | | | | | **1.6** | | |
| RW-5 | 10/4/2019 | --- | 0.45[b] | --- | --- | --- | --- | --- | --- | --- | **4.1** | --- | --- |
| TMW-2 | 10/8/2019 | 20 | 0.52 | 100 | 0.32 | 62% | 0.31 | --- | --- | 0.31 | **1.9** | --- | --- |

**Notes:**

[a]LNAPL baildown testing was not continued in 2019 because hydraulic LNAPL recovery potential was historically low

[b]The initial LNAPL thickness did not meet the 0.50-foot thickness requirement to run a transmissivity test.

**Acronyms and Abbreviations:**

**bold** = values greater than the Interstate Technology & Regulatory Commission (ITRC [2009]) recommended threshold for practical recoverability of LNAPL (0.8 $ft^2$/day)

$ft^2$/day = square foot (feet) per day

LNAPL = light nonaqueous phase liquid

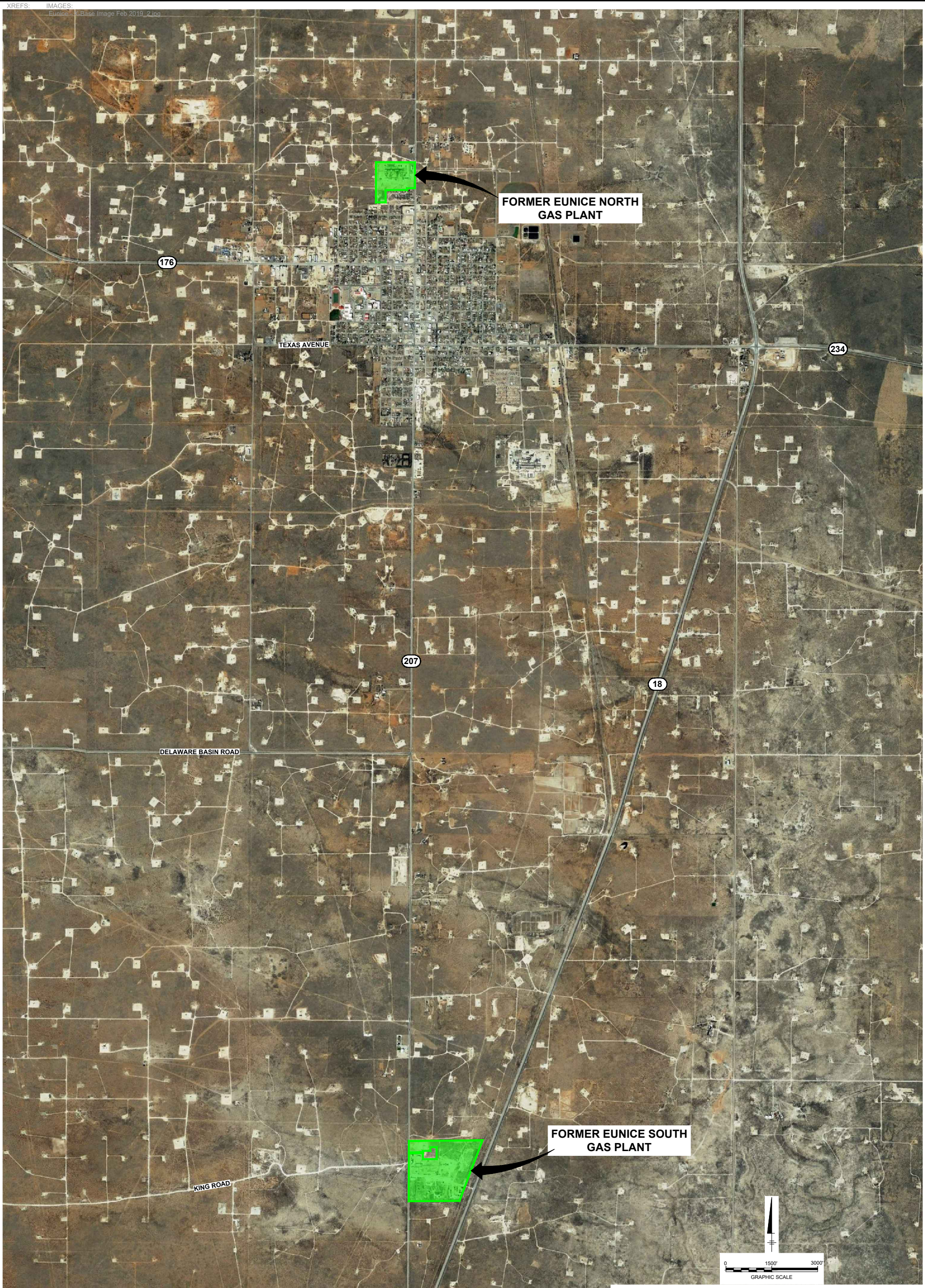
--- = data not available

% = percent

# FIGURES

DIV/GROUP: ENVCAD
C:\Users\nadigerc8191\BIM 360\Arcadis\ANA - CHEVRON CORPORATION\Project Files\Eunice South Gas Plant-Site O&M\2020\30006138\01-DWG\Figure 1 - SLM2.dwg LAYOUT: 1 SAVED: 12/20/2019 3:12 AM ACADVER: 23.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ARCADIS.CTB PLOTTED: 2/17/2020 4:43 PM BY: NADIGERA, CHIDAMBARA

XREFS: IMAGES:
Eunice - Base Image Feb 2019_2.jpg



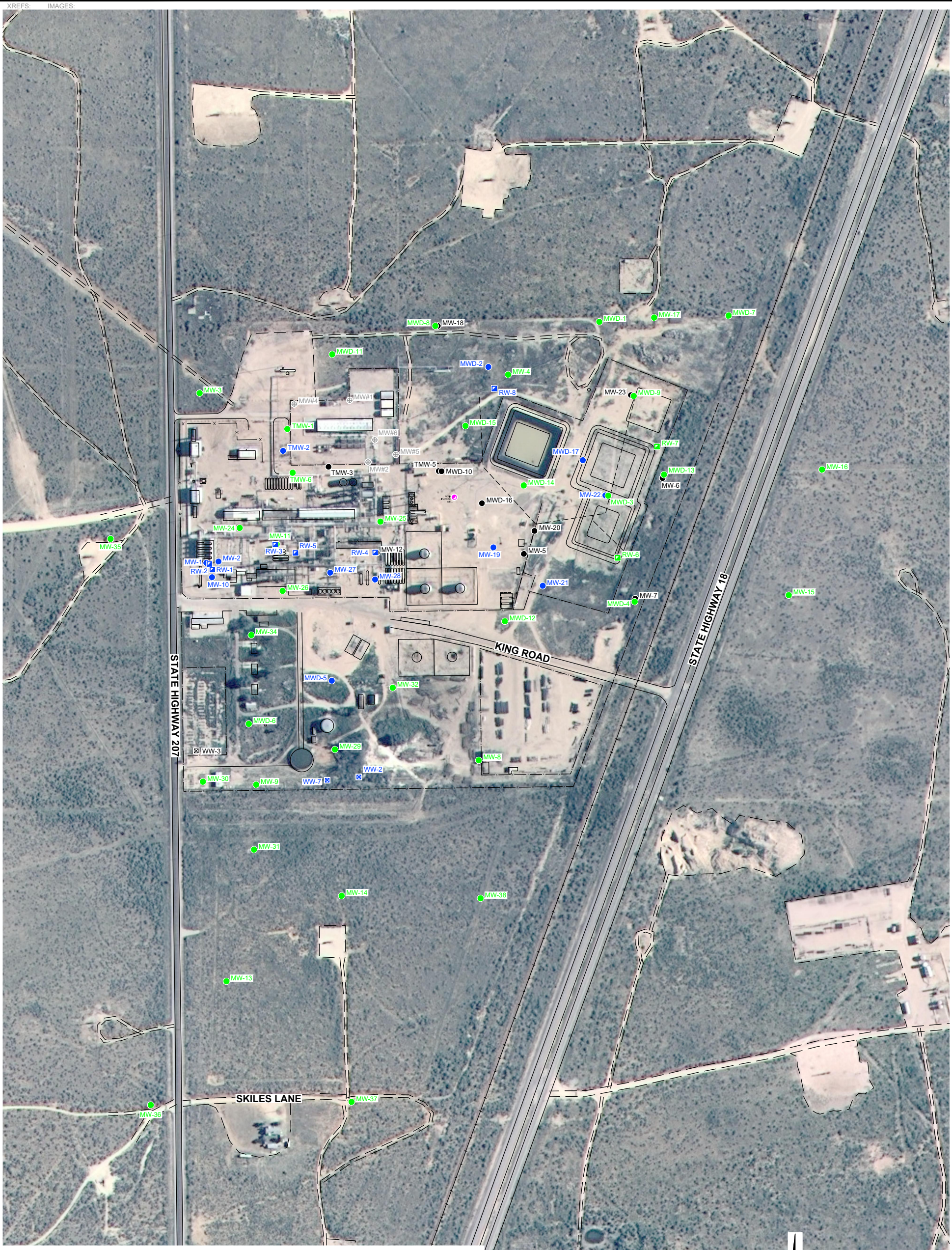

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER EUNICE SOUTH GAS PLANT
EUNICE, LEA COUNTY, NEW MEXICO

## SITE LOCATION MAP

ARCADIS Design & Consultancy for natural and built assets

FIGURE
1

CITY: SAN RAFAEL, CA DIV/GROUP: ENVCAD DB: J. HARRIS
C:\Users\Pai01041\BIM 360\Arcadis\ANA - CHEVRON CORPORATION\Project Files\Eunice South Gas Plant-Site O&M\2020\30006138\01-DWG\GMA-FIG2-SITE MAP.dwg LAYOUT: 2 SAVED: 2/21/2020 10:38 AM ACADVER: 23.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ---- PLOTTED: 3/9/2020 6:45 PM BY: ANJANEYAKUMAR, PAVAN KUMAR
XREFS: IMAGES:




LEGEND

- MONITORING WELLS
- TARGA'S ONSITE INJECTION WELL
- RECOVERY WELL
- INACTIVE WATER WELL
- OFFSITE PROPERTY WELL (NOT SAMPLED)
- LOCATIONS IN **BLUE** ARE SAMPLED ANNUALLY
- LOCATIONS IN **GREEN** ARE SAMPLED SEMIANNUALLY
- LOCATIONS IN **BLACK** ARE NOT SAMPLED AT THIS TIME

NOTES:

1. MAP PROJECTED TO NAD83 NEW MEXICO STATE PLANE COORDINATE SYSTEM, EAST ZONE, FEET.
2. AERIAL IMAGERY PROVIDED BY USGS EARTH EXPLORER, ACCESSED APRIL 2016.
3. WELLS SURVEYED 1998, 2000, 2001, 2002, AND 2006 BY PIPER SURVEYING COMPANY. NAD27 NM S.P. EAST, FEET.
4. SITE FEATURES PROVIDED BY CRA

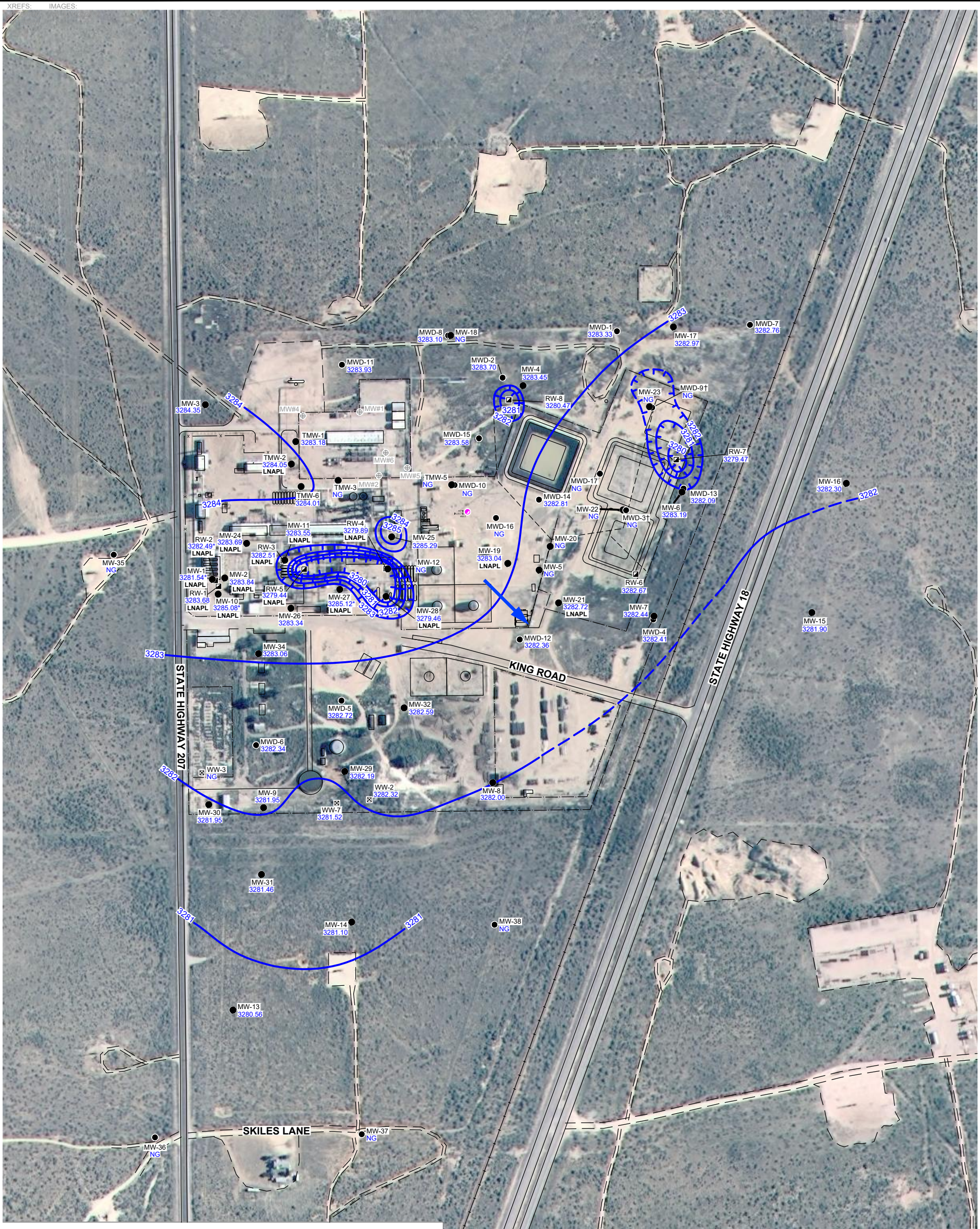
CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER EUNICE SOUTH GAS PLANT
EUNICE, LEA COUNTY, NEW MEXICO

# WELL LOCATION AND MONITORING PLAN MAP

ARCADIS Design & Consultancy for natural and built assets

FIGURE
2

CITY: SAN RAFAEL, CA DIV/GROUP: ENVCAD DB: J. HARRIS
C:\Users\Pai01041\BIM 360\Arcadis\ANA - CHEVRON CORPORATION\Project Files\Eunice South Gas Plant-Site O&M\2020\30006138\01-DWG\GWM-Fig3-Potentiometric Surface Map.dwg LAYOUT: 3 SAVED: 3/9/2020 6:53 PM ACADVER: 23.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ----
PLOTTED: 3/10/2020 10:37 AM BY: ANJANEYAKUMAR, PAVAN KUMAR
XREFS: IMAGES:




LEGEND

- MONITORING WELLS
- TARGA'S ONSITE INJECTION WELL
- RECOVERY WELL
- INACTIVE WATER WELL
- OFFSITE PROPERTY WELL (NOT SAMPLED)
- 3285.24 GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL (FT AMSL)
- 24 POTENTIOMETRIC CONTOUR (FT AMSL; DASHED WHERE INFERRED)
- NG NOT GAUGED THIS EVENT
- LNAPL LIGHT NON-AQUEOUS PHASE LIQUID PRESENT
- * NOT USED FOR CONTOURING
- † PUMPING WELL, DATA NOT USED
- GROUNDWATER FLOW DIRECTION

NOTES:

1. MAP PROJECTED TO NAD83 NEW MEXICO STATE PLANE COORDINATE SYSTEM, EAST ZONE, FEET.
2. AERIAL IMAGERY PROVIDED BY USGS EARTH EXPLORER, ACCESSED APRIL 2016.
3. WELLS SURVEYED 1998, 2000, 2001, 2002, AND 2006 BY PIPER SURVEYING COMPANY. NAD27 NG S.P. EAST, FEET.
4. SITE FEATURES PROVIDED BY CRA.
5. WELLS GAUGED APRIL 1-5, 2019.
6. WHERE LNAPL IS PRESENT, GROUNDWATER ELEVATION WAS CORRECTED BASED OFF ESTIMATED LNAPL SPECIFIC GRAVITY OF 0.72-0.82.
7. MWD-3 PUMP TEMPORARILY OFF AT TIME OF GAUGING EVENT.

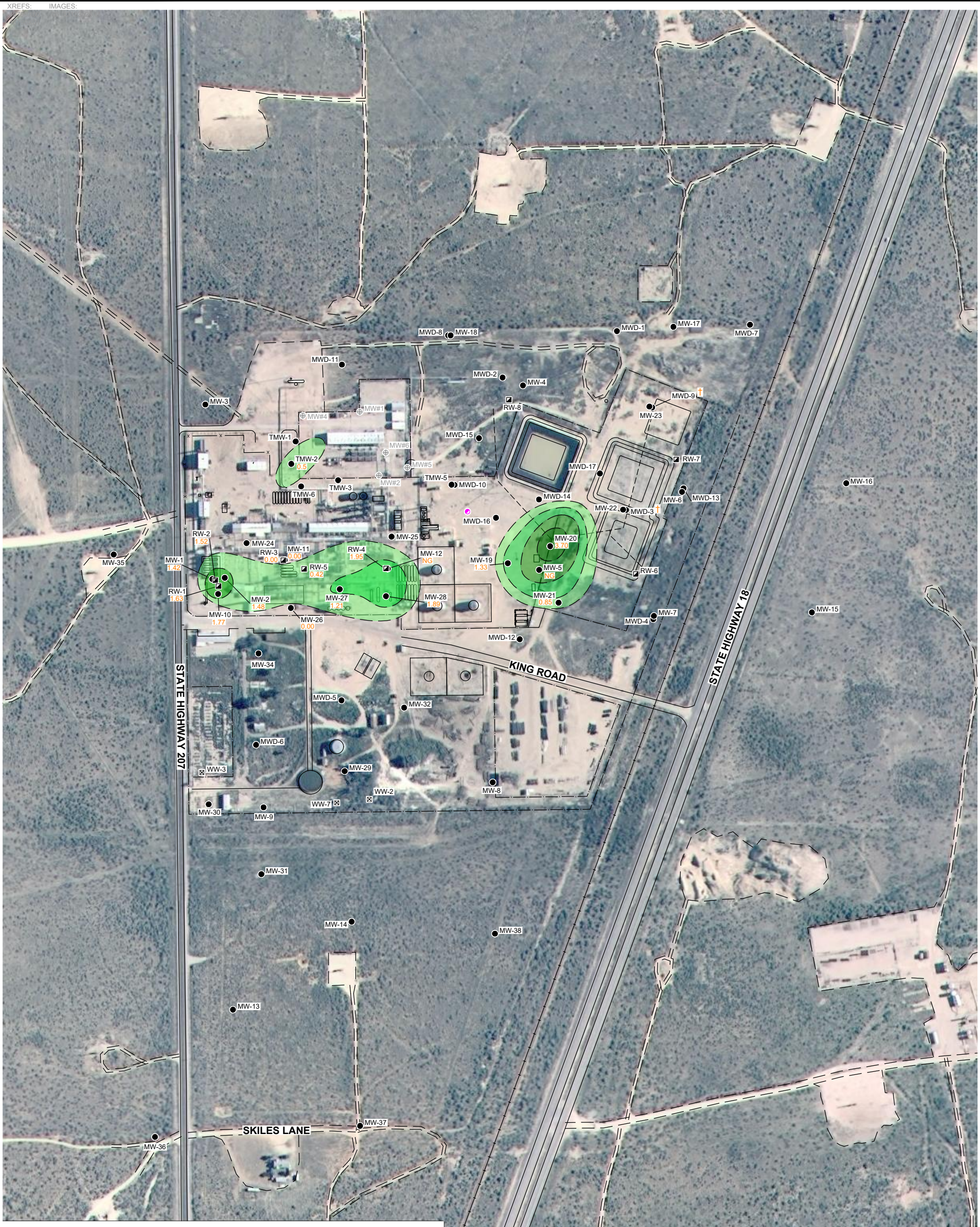
CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER EUNICE SOUTH GAS PLANT
EUNICE, LEA COUNTY, NEW MEXICO

# POTENTIOMETRIC SURFACE MAP SPRING 2019

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FIGURE 3

CITY: SAN RAFAEL, CA DIV/GROUP: ENVCAD DB: J. HARRIS
C:\Users\Pai01041\BIM 360\Arcadis\ANA - CHEVRON CORPORATION\Project Files\Eunice South Gas Plant-Site O&M\2020\30006138\01-DWG\GWM-Fig4-LNAPL Spring 2020.dwg LAYOUT: 4 SAVED: 3/9/2020 6:54 PM ACADVER: 23.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ---- PLOTTED: 3/10/2020 10:39 AM BY: ANJANEYAKUMAR, PAVAN KUMAR
XREFS: IMAGES:




LEGEND

- MONITORING WELL
- TARGA'S ONSITE INJECTION WELL
- RECOVERY WELL
- INACTIVE WATER WELL
- OFFSITE PROPERTY WELL (NOT SAMPLED)
- 1.88 LNAPL THICKNESS APRIL 2019 (FEET)
- † PUMPING WELL
- LNAPL LIGHT NON-AQUEOUS PHASE LIQUID
- NG WELL NOT GAUGED THIS EVENT

LNAPL THICKNESS CONTOUR (FEET; DASHED WHERE INFERRED)

- >0
- >1
- >2
- >3

NOTES:

1. MAP PROJECTED TO NAD83 NEW MEXICO STATE PLANE COORDINATE SYSTEM, EAST ZONE, FEET.
2. AERIAL IMAGERY PROVIDED BY USGS EARTH EXPLORER, ACCESSED APRIL 2016.
3. WELLS SURVEYED 1998, 2000, 2001, 2002, AND 2006 BY PIPER SURVEYING COMPANY. NAD27 NG S.P. EAST, FEET.
4. SITE FEATURES PROVIDED BY CRA
5. WELLS GAUGED APRIL 2019
6. ONLY DATA COLLECTED IN 2019 WERE POSTED. CONTOURS ARE BASED ON HISTORICAL DATA DATING BACK TO 2018 WHERE CURRENT DATA ARE NOT AVAILABLE.
7. LNAPL THICKNESS NOTED AT MW-20 IS FROM OCTOBER 2019, DATA NOT AVAILABLE FROM APRIL 2019.

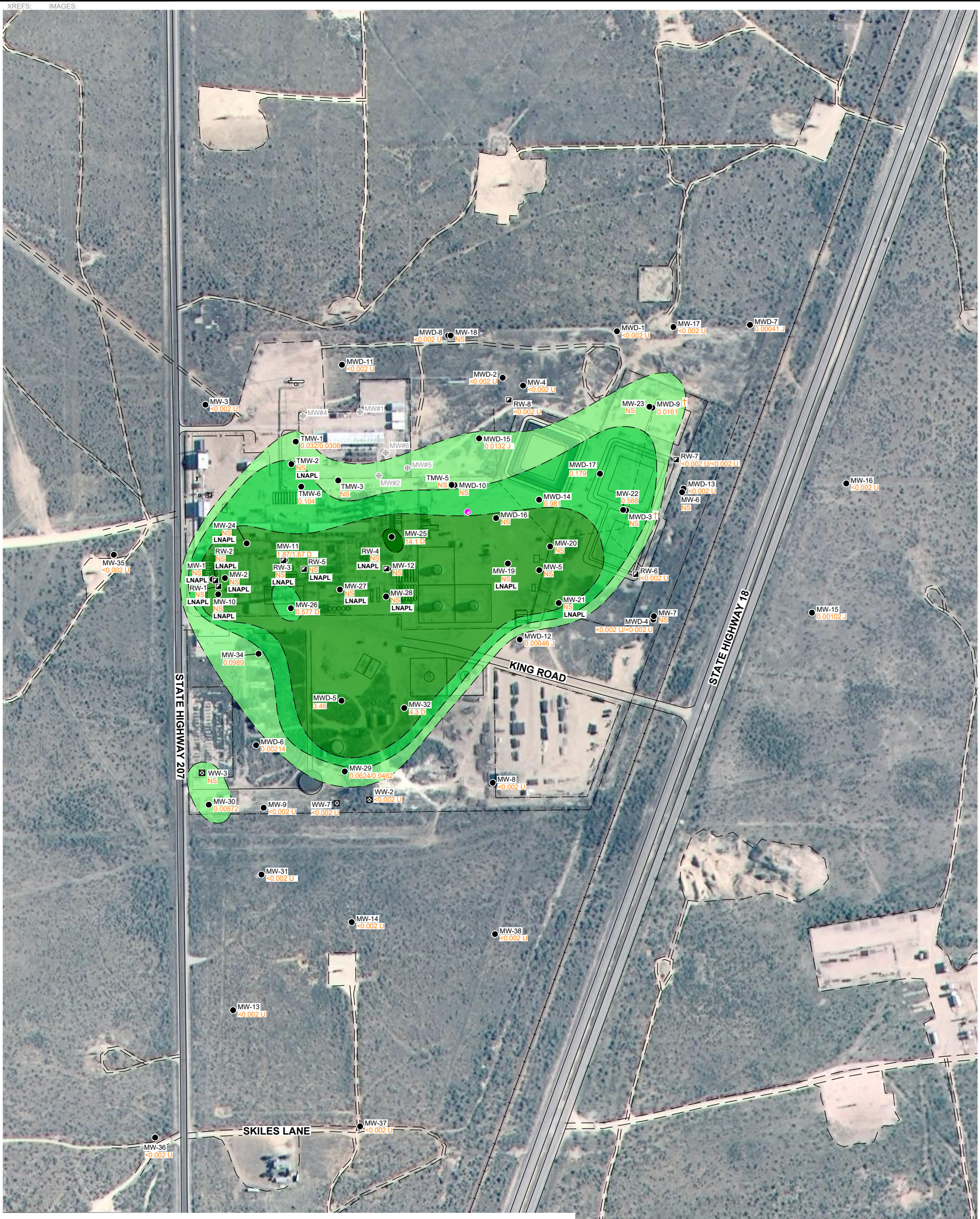
CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
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EUNICE, LEA COUNTY, NEW MEXICO

# LNAPL DISTRIBUTION MAP SPRING 2019

ARCADIS Design & Consultancy for natural and built assets

FIGURE 4

CITY: SAN RAFAEL, CA DIV/GROUP: ENVCAD DB: J. HARRIS
C:\Users\Pai01041\BIM 360\Arcadis\ANA - CHEVRON CORPORATION\Project Files\Eunice South Gas Plant-Site O&M\2020\30006138\01-DWG\GWM-Fig5-Benzene Spring 2020.dwg LAYOUT: 5 SAVED: 3/9/2020 6:56 PM ACADVER: 23.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ---- PLOTTED: 3/10/2020 10:40 AM BY: ANJANEYAKUMAR, PAVAN KUMAR
XREFS: IMAGES:




LEGEND

- MONITORING WELL
- TARGA'S ONSITE INJECTION WELL
- RECOVERY WELL
- INACTIVE WATER WELL
- OFFSITE PROPERTY WELL (NOT SAMPLED)
- 4.3 BENZENE CONCENTRATION/DUPLICATE RESULT IN MILLIGRAMS PER LITER (mg/L)
- NS NOT SAMPLED
- **LNAPL** LIGHT NON-AQUEOUS PHASE LIQUID PRESENT
- <0.002 U NOT DETECTED ABOVE REPORTING LIMIT
- J THE TARGET ANALYTE WAS POSITIVELY IDENTIFIED BELOW THE QUANTITATION LIMIT AND ABOVE THE DETECTION LIMIT
- D CONCENTRATION IS BASED ON A DILUTED SAMPLE ANALYSIS
- † PUMPING WELL

BENZENE ISOCONCENTRATION CONTOUR (mg/L; DASHED WHERE INFERRED)

- >0.005
- >0.1
- >1.0
- >10.0

NOTES:

1. MAP PROJECTED TO NAD83 NEW MEXICO STATE PLANE COORDINATE SYSTEM, EAST ZONE, FEET.
2. AERIAL IMAGERY PROVIDED BY USGS EARTH EXPLORER, ACCESSED APRIL 2016.
3. WELLS SURVEYED 1998, 2000, 2001, 2002, AND 2006 BY PIPER SURVEYING COMPANY. NAD27 NM S.P. EAST, FEET.
4. SITE FEATURES PROVIDED BY CRA
5. WELLS SAMPLED FEBRUARY AND APRIL 2019.
6. ONLY DATA COLLECTED IN 2019 WERE POSTED. CONTOURS ARE BASED ON HISTORICAL DATA DATING BACK TO 2018 WHERE CURRENT DATA ARE NOT AVAILABLE.

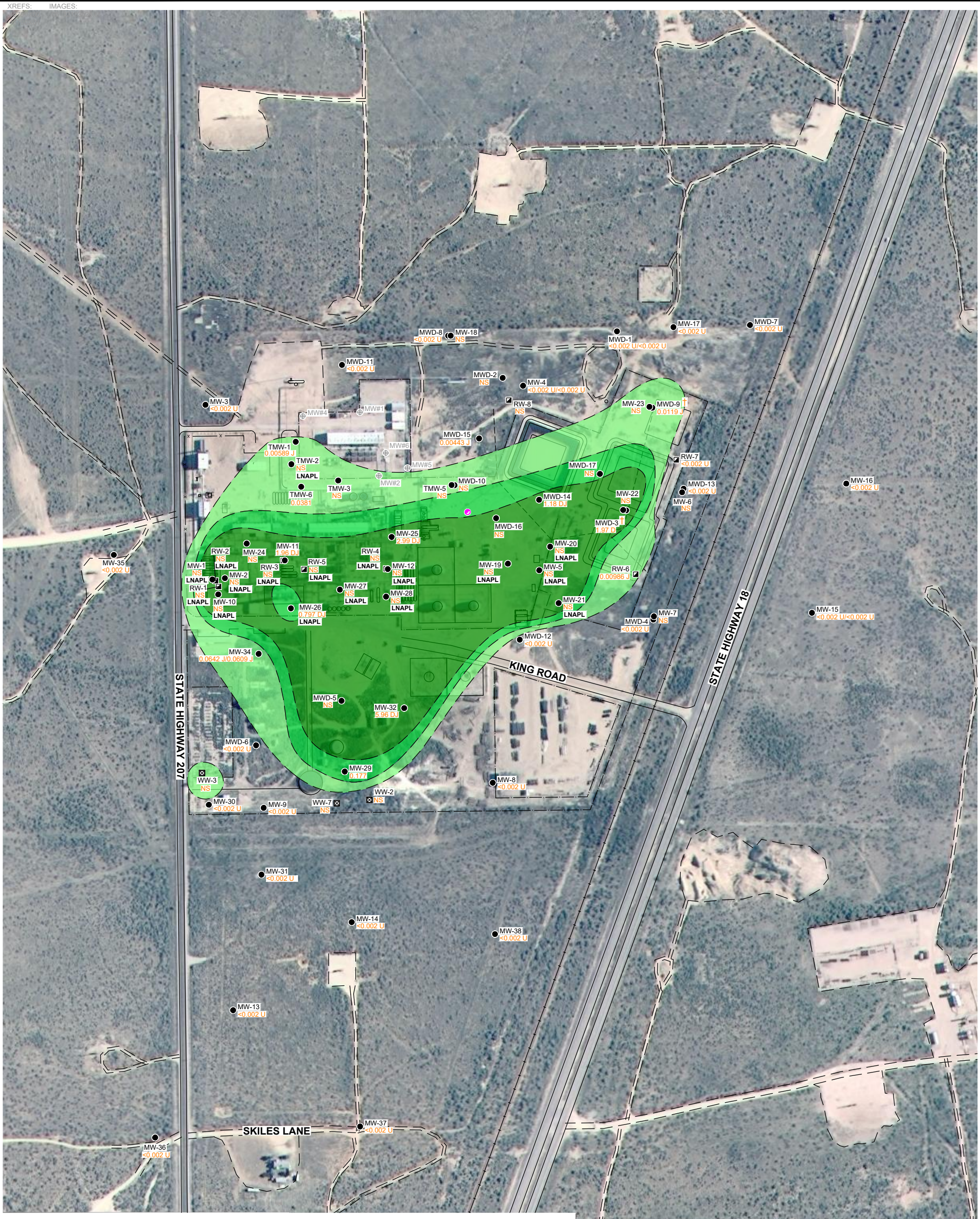
CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER EUNICE SOUTH GAS PLANT
EUNICE, LEA COUNTY, NEW MEXICO

# BENZENE ISOCONCENTRATION MAP SPRING 2019

ARCADIS Design & Consultancy for natural and built assets

FIGURE 5

CITY: SAN RAFAEL, CA DIV/GROUP: ENVCAD DB: J. HARRIS
C:\Users\Pai01041\BIM 360\Arcadis\ANA - CHEVRON CORPORATION\Project Files\Eunice South Gas Plant-Site O&M\2020\30006138\01-DWG\GWM-Fig6-Benzene Fall 2020.dwg LAYOUT: 6 SAVED: 3/9/2020 6:57 PM ACADVER: 23.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ---- PLOTTED: 3/10/2020 10:42 AM BY: ANJANEYAKUMAR, PAVAN KUMAR
XREFS: IMAGES:




LEGEND

- MONITORING WELL
- TARGA'S ONSITE INJECTION WELL
- RECOVERY WELL
- INACTIVE WATER WELL
- OFFSITE PROPERTY WELL (NOT SAMPLED)
- 5.96 BENZENE CONCENTRATION/DUPLICATE RESULT IN MILLIGRAMS PER LITER (mg/L)
- NS NOT SAMPLED
- **LNAPL** LIGHT NON-AQUEOUS PHASE LIQUID PRESENT
- <0.002 U NOT DETECTED ABOVE REPORTING LIMIT
- J THE TARGET ANALYTE WAS POSITIVELY IDENTIFIED BELOW THE QUANTITATION LIMIT AND ABOVE THE DETECTION LIMIT
- D CONCENTRATION IS BASED ON A DILUTED SAMPLE ANALYSIS
- † PUMPING WELL

BENZENE ISOCONCENTRATION CONTOUR (mg/L; DASHED WHERE INFERRED)

- >0.005
- >0.1
- >1.0

NOTES:

1. MAP PROJECTED TO NAD83 NEW MEXICO STATE PLANE COORDINATE SYSTEM, EAST ZONE, FEET.
2. AERIAL IMAGERY PROVIDED BY USGS EARTH EXPLORER, ACCESSED APRIL 2016.
3. WELLS SURVEYED 1998, 2000, 2001, 2002, AND 2006 BY PIPER SURVEYING COMPANY. NAD27 NM S.P. EAST, FEET.
4. SITE FEATURES PROVIDED BY CRA
5. WELLS SAMPLED OCTOBER 2019.
6. ONLY DATA COLLECTED IN 2019 WERE POSTED. CONTOURS ARE BASED ON HISTORICAL DATA DATING BACK TO 2018 WHERE CURRENT DATA ARE NOT AVAILABLE.

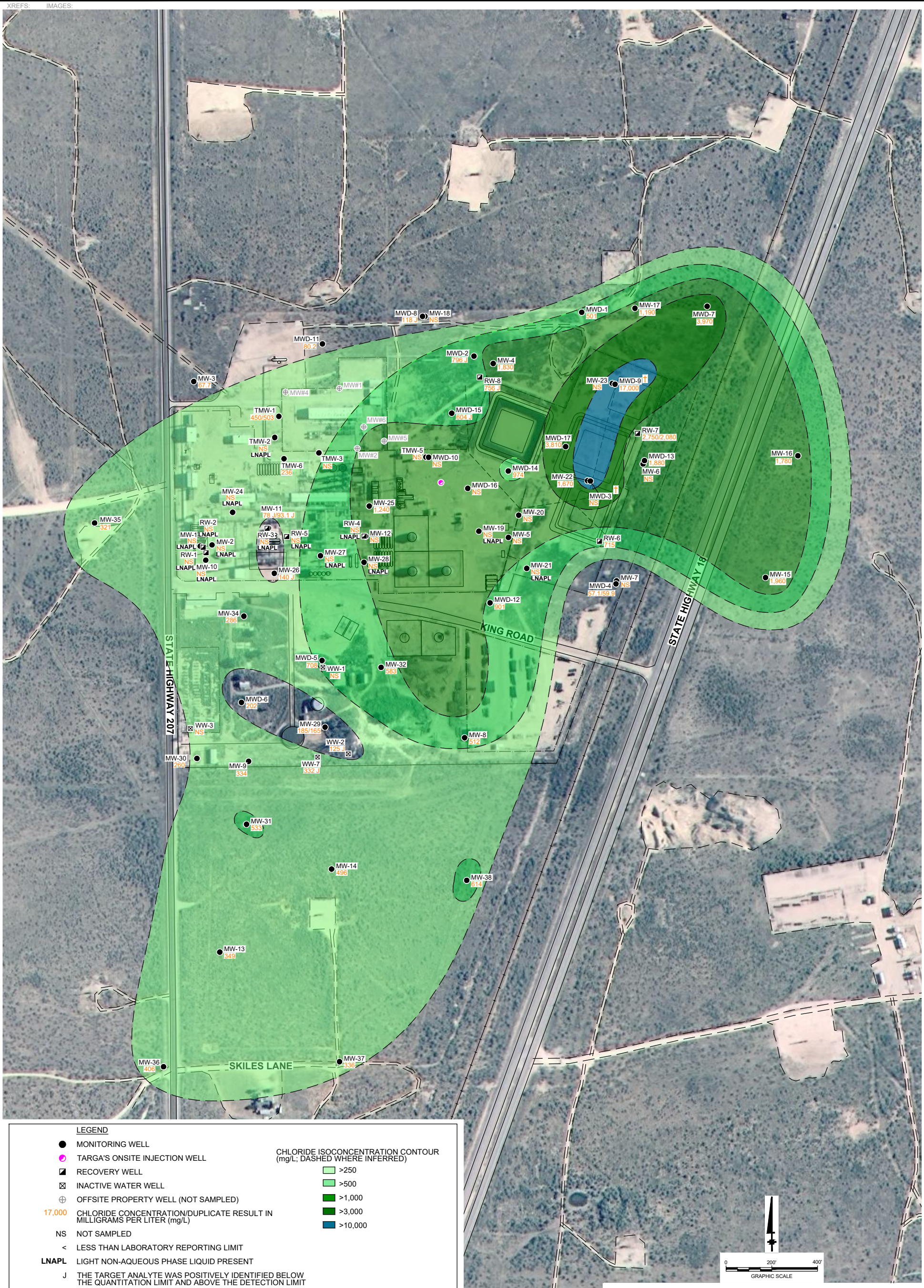
CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER EUNICE SOUTH GAS PLANT
EUNICE, LEA COUNTY, NEW MEXICO

# BENZENE ISOCONCENTRATION MAP FALL 2019

ARCADIS Design & Consultancy for natural and built assets

FIGURE 6

CITY: SAN RAFAEL, CA DIV/GROUP: ENVCAD DB: J. HARRIS
C:\Users\Pai01041\BIM 360\Arcadis\ANA - CHEVRON CORPORATION\Project Files\Eunice South Gas Plant-Site O&M\2020\30006138\01-DWG\GWM-Fig7-Chloride Spring 2020.dwg LAYOUT: 7 SAVED: 3/9/2020 6:58 PM ACADVER: 23.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ---- PLOTTED: 3/10/2020 10:45 AM BY: ANJANEYAKUMAR, PAVAN KUMAR
XREFS: IMAGES:




LEGEND

- MONITORING WELL
- TARGA'S ONSITE INJECTION WELL
- RECOVERY WELL
- INACTIVE WATER WELL
- OFFSITE PROPERTY WELL (NOT SAMPLED)
- 17,000 CHLORIDE CONCENTRATION/DUPLICATE RESULT IN MILLIGRAMS PER LITER (mg/L)
- NS NOT SAMPLED
- < LESS THAN LABORATORY REPORTING LIMIT
- **LNAPL** LIGHT NON-AQUEOUS PHASE LIQUID PRESENT
- J THE TARGET ANALYTE WAS POSITIVELY IDENTIFIED BELOW THE QUANTITATION LIMIT AND ABOVE THE DETECTION LIMIT
- D CONCENTRATION IS BASED ON A DILUTED SAMPLE ANALYSIS
- † PUMPING WELL

CHLORIDE ISOCONCENTRATION CONTOUR (mg/L; DASHED WHERE INFERRED)

- >250
- >500
- >1,000
- >3,000
- >10,000

NOTES:

1. MAP PROJECTED TO NAD83 NEW MEXICO STATE PLANE COORDINATE SYSTEM, EAST ZONE, FEET.
2. AERIAL IMAGERY PROVIDED BY USGS EARTH EXPLORER, ACCESSED APRIL 2016.
3. WELLS SURVEYED 1998, 2000, 2001, 2002, AND 2006 BY PIPER SURVEYING COMPANY. NAD27 NM S.P. EAST, FEET.
4. SITE FEATURES PROVIDED BY CRA.
5. WELLS SAMPLED FEBRUARY AND APRIL 2019
6. ONLY DATA COLLECTED IN 2019 WERE POSTED. CONTOURS ARE BASED ON HISTORICAL DATA DATING BACK TO 2018 WHERE CURRENT DATA ARE NOT AVAILABLE.

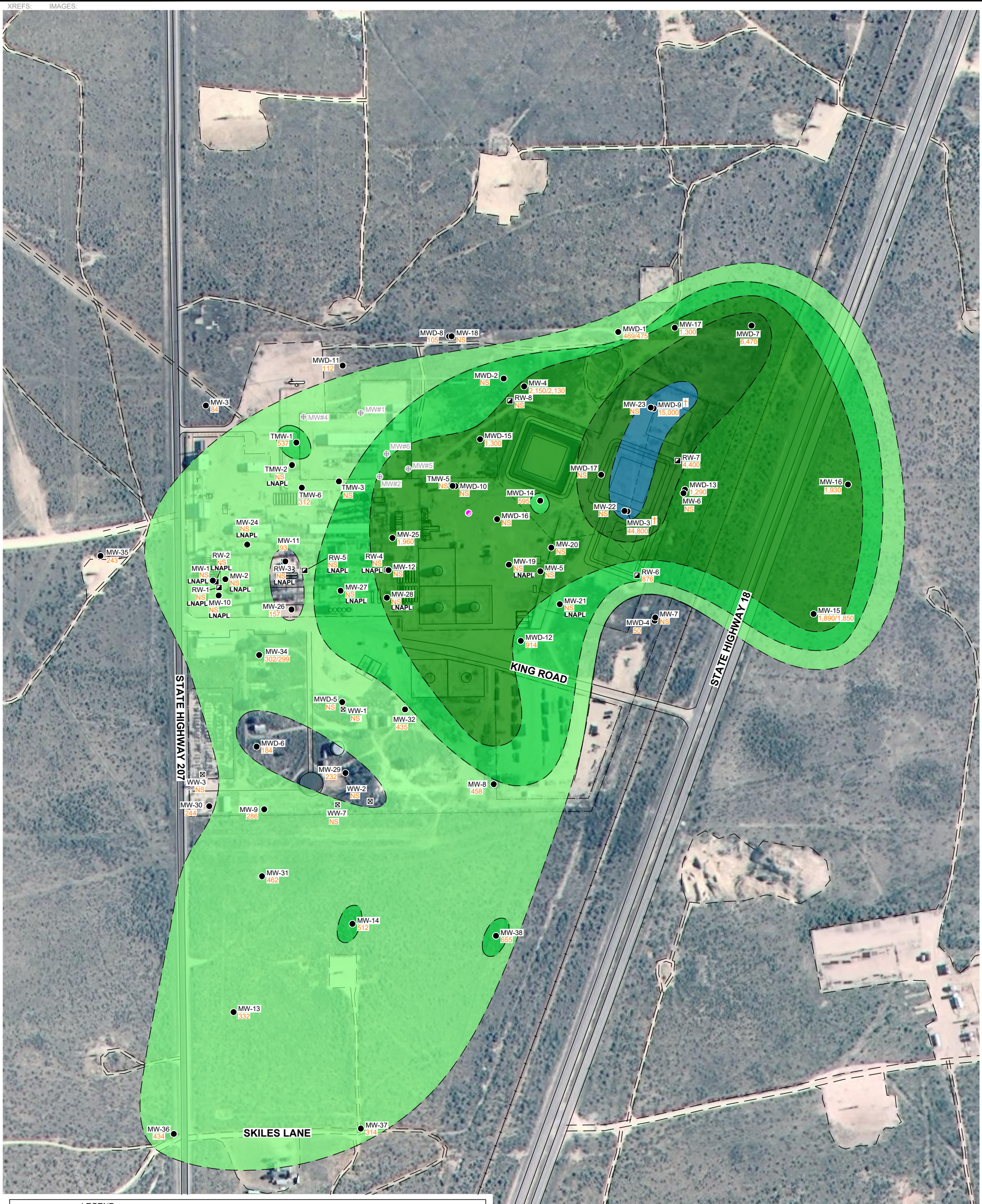
CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER EUNICE SOUTH GAS PLANT
EUNICE, LEA COUNTY, NEW MEXICO

# CHLORIDE ISOCONCENTRATION MAP SPRING 2019

ARCADIS Design & Consultancy for natural and built assets

FIGURE 7

CITY: SAN RAFAEL, CA DIV/GROUP: ENVCAD DB: J. HARRIS
C:\Users\Pai01041\BIM 360\Arcadis\ANA - CHEVRON CORPORATION\Project Files\Eunice South Gas Plant-Site O&M\2020\30006138\01-DWG\GWM-Fig8-Chloride Fall 2020.dwg LAYOUT: 8 SAVED: 3/9/2020 7:00 PM ACADVER: 23.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ---- PLOTTED: 3/10/2020 10:46 AM BY: ANJANEYAKUMAR, PAVAN KUMAR
XREFS: IMAGES:




LEGEND

- MONITORING WELL
- TARGA'S ONSITE INJECTION WELL
- RECOVERY WELL
- INACTIVE WATER WELL
- OFFSITE PROPERTY WELL (NOT SAMPLED)
- 17,000 — CHLORIDE CONCENTRATION/DUPLICATE RESULT IN MILLIGRAMS PER LITER (mg/L)
- NS — NOT SAMPLED
- <0.002 U — NOT DETECTED ABOVE REPORTING LIMIT
- **LNAPL** — LIGHT NON-AQUEOUS PHASE LIQUID PRESENT
- J — THE TARGET ANALYTE WAS POSITIVELY IDENTIFIED BELOW THE QUANTITATION LIMIT AND ABOVE THE DETECTION LIMIT
- D — CONCENTRATION IS BASED ON A DILUTED SAMPLE ANALYSIS
- † — PUMPING WELL

CHLORIDE ISOCONCENTRATION CONTOUR (mg/L; DASHED WHERE INFERRED)

- >250
- >500
- >1,000
- >3,000
- >10,000

NOTES:

1. MAP PROJECTED TO NAD83 NEW MEXICO STATE PLANE COORDINATE SYSTEM, EAST ZONE, FEET.
2. AERIAL IMAGERY PROVIDED BY USGS EARTH EXPLORER, ACCESSED APRIL 2016.
3. WELLS SURVEYED 1998, 2000, 2001, 2002, AND 2006 BY PIPER SURVEYING COMPANY. NAD27 NM S.P. EAST, FEET.
4. SITE FEATURES PROVIDED BY CRA.
5. WELLS SAMPLED OCTOBER 2019
6. ONLY DATA COLLECTED IN 2019 WERE POSTED. CONTOURS ARE BASED ON HISTORICAL DATA DATING BACK TO 2018 WHERE CURRENT DATA ARE NOT AVAILABLE.

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER EUNICE SOUTH GAS PLANT
EUNICE, LEA COUNTY, NEW MEXICO

# CHLORIDE ISOCONCENTRATION MAP FALL 2019

ARCADIS Design & Consultancy for natural and built assets

FIGURE 8

# APPENDIX A

## Site Background Information

## SITE AND REGULATORY BACKGROUND INFORMATION

The Site was originally constructed in the 1940s by Skelly Oil Company and attained by Texaco Exploration and Production, Inc. (Texaco, a legacy Chevron company). It was operated as a turbo expander-type natural gas processing plant for the extraction of natural gas liquids until the 1980s when operations were halted. Various structures remain on site including two compressors, a compressor building, a cooling tower, former office buildings, aboveground storage tanks, sumps, and piping. On July 1, 1998, operations were transferred to Versado Gas Processors, LLC, a limited liability partnership originally between Chevron and Dynegy Midstream Services (Dynegy). Dynegy was subsequently purchased by Targa, and Chevron divested its interest to Targa in 2016. The plant is currently owned and operated solely by Targa. Current site infrastructure associated with plant activities includes one hydrogen sulfide gas injection well. Current remedial infrastructure includes a groundwater extraction system and three bioventing units.

In April 1980, the New Mexico Energy and Minerals Department, Oil Conservation Division (NMOCD) requested a discharge plan to cover all effluent discharges at the Site. The original discharge plan (GW-003; Attachment 1) was approved by the NMOCD in March 1981 for 5 years and has been continuously renewed every 5 years. The most recent application was approved by the NMOCD on January 11, 2012. CEMC submitted a renewal application to the NMOCD on November 11, 2015; however, approval has not yet been received.

In April 1996, the NMOCD requested a work plan from Texaco to address specific areas of concern. The response resulted in a modification of the existing discharge plan along with a comprehensive Site investigation work plan. After the comprehensive site investigation was completed in 1996 and 1997, several areas of concern were identified. Constituents of concern (COCs) were identified to include light nonaqueous phase liquid (LNAPL) on the west and east sides of the plant, dissolved-phase hydrocarbons (on site and off site), chloride (on site and off site), total dissolved solids (TDS) across the site, and dissolved-phase metals (on site and off site). Specifically, dissolved metals listed in the discharge plan include arsenic, barium, and chromium (total and hexavalent).

In 2004, the Site was approved by the New Mexico Office of the State Engineer (NMOSE) for the appropriation of 208 acre-feet (ac-ft) per year from five on-site recovery wells. Groundwater usage was granted on a per-well basis under the following NMOSE well permits:

- CP-009-S: MWD-9, 32 ac-ft
- CP-231-S: RW-7, 48 ac-ft
- CP-233-S: RW-6, 48 ac-ft
- CP-243-S: MWD-3, 32 ac-ft
- CP-244-S: RW-8, 48 ac-ft.

CEMC provides quarterly volume totals to the NMOSE for wells MWD-3 and MWD-9, which are the only wells currently operating.

## SAMPLING METHODOLOGY

Prior to 2016, groundwater sampling at the Site was completed using low-flow methodology. In April 2016, CEMC submitted a request to change the method to no-purge sampling using a HydraSleeve™ (HS). This change was approved by the NMOCD via email on March 25, 2016.

Starting with the March 2016 monitoring event, HS samplers have been used at all wells sampled across the Site. A comparison of previous sampling method results (2014 and 2015) and HS results (2016 and 2017) was performed for the primary COCs at the Site (benzene and chloride) and is presented in Appendix G of the 2017 Annual Groundwater Monitoring Report (Arcadis 2018). The comparison showed results from HS sampling were comparable to low-flow results (within an acceptable range of +/- 30 percent) and the change in sample method would not negatively impact trend evaluation or system performance evaluation. One anomaly was observed as part of the sampling method comparison; HS results at well TMW-6 did not follow historical trends. Therefore, this well was vertically profiled at three discreet intervals (HS samples were taken from three different vertical locations to evaluate variability) during the spring 2018 event and the most conservative results for site COCs were used to determine the optimal HS sample interval going forward.

## HISTORICAL HYDROCARBON AND CHLORIDE REMEDIATION

Historical project information indicates that four remediation systems have operated at the Site since December 2000 including:

- Soil Vapor Extraction (SVE) system - West Side (April 2004-October 2006).
- LNAPL recovery - West Side (2004-October 2006, 2011 interim, August 2012 to date).
- LNAPL recovery - East Side (May 2003-January 2011).
- Chloride and total dissolved solids (TDS) groundwater recovery system – East Side (2004- 2010, September 2012 through 2013).

The following sections below summarize the installations, operations and recovery of each of the four remediation systems.

### Soil Extraction System (West Side)

A soil vapor extraction system (SVE) was installed on the west side of the Site in April 2004. The SVE consisted of a trailer-mounted thermal oxidizer which extracted hydrocarbon vapors from recovery wells RW-2, RW-3, MW-4, RW-5 and monitor well MW-28. In September 2005, seven additional wells (MW-1, MW-2, MW-10, MW-24, MW-25, MW-26 and MW-27) were connected to the SVE system. The operation of the SVE was suspended in mid-October 2006 due to Site demolition activities. Records indicate a total of 300,560 pounds of hydrocarbons were recovered and treated by the SVE system while in operation.

## LNAPL Recovery (West Side)

### LNAPL Recovery System 2004-2006

An LNAPL recovery system was installed in 2004 on the West Side of the Site. This LNAPL system consisted of five Xitech skimmer product recovery pumps installed in West Side wells RW-2, RW-3, RW-4, RW-5 and MW-28, solar panels, a nitrogen activation system, and storage tanks. The operation of the Xitech skimmer pumps was suspended in mid-October 2006 due to Site demolition activities. Records indicate a total of 5,327 gallons of hydrocarbons were recovered from the West Side wells while the system was in operation.

### Manual Recovery 2011, 2012-15

In April 2011, GHD initiated manual recovery efforts near the former West Side jet skid area as an interim measure. Weekly LNAPL abatement activities were performed in five accessible wells (MW- 1, MW-2, MW-10, RW-1 and RW-2) from April 13th through September 27th, 2011. Manual recovery remediation efforts ceased temporarily in September 2011 due to installation on Site of Targa's gas injection well. A total of 324 gallons of LNAPL and 23 gallons of water were manually recovered from the West Side wells during the six month period in 2011.

Biweekly LNAPL abatement activities were performed in seven accessible wells (West Side wells MW-1, MW-2, MW-10, RW-1 and RW-2; East Side wells MW-5 and MW-20,) from August 2012 through October 2013. Manual bailing was temporarily suspended due to LNAPL storage tank replacement by Targa in late October 2013, and was resumed in December 2013. In order to observe the effectiveness of LNAPL recovery from additional West Side LNAPL wells, manual LNAPL recovery was initiated at eight additional wells on October 27, 2014 (MW-12, MW-19, MW- 27, MW-28, TMW-2, RW-3, RW-4, RW-5). Manual bailing of wells was suspended in August 2015 as mobile dual phase extraction (MDPE) methods were initiated. A total of 135 gallons of LNAPL were recovered using manual bailing methods from the West Side wells during 2015.

A pilot test was performed in April 2015 of MDPE recovery methods of LNAPL, associated vapors and hydrocarbon and chloride impacted groundwater at West Side wells RW-1, MW-27 and MW-28. Based on evaluation of the results of this pilot test additional MDPE events were performed in August, October and December 2015. During the four 2015 MDPE events at these three wells an approximate total of 1,185 gallons of LNAPL and associated vapors (liquid equivalent) was recovered, and a total of 22,874 gallons of hydrocarbon and chloride impacted groundwater was also recovered for off-site disposal. Continuation of LNAPL recovery using MDPE methods at these wells in 2016 is currently under consideration.

Records indicate a total of 7,554 gallons of LNAPL and 22,898 gallons of affected groundwater have been recovered using skimmer pump, manual bailing and MDPE methods from the West Side LNAPL wells since 2004.

## LNAPL Recovery (East Side)

An LNAPL recovery system was installed in May 2003 on the East Side of the Site. This LNAPL system consisted of Ferret Separation Pumps in monitor wells MW-5 and MW-20. The operation of the Ferret pumps was suspended after December 2008. Records indicate a total of 5,054 gallons of LNAPL and 57,603 gallons of water were recovered while the Ferret pumps were operating.

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In April 2009, LNAPL recovery efforts on the East Side of the Site were re-evaluated and product recovery continued using a Xitech product recovery pump in MW-20 and hand-bailing LNAPL from MW-5 in an effort to increase LNAPL recovery and decrease water production. These LNAPL recovery methods were continued through January 2011 when efforts were suspended due to Targa's onsite construction activities. A total of 79 gallons of LNAPL and 2 gallons of water were recovered in January 2011. Suspension continued through 2011 into 2012 due to Targa's installation of an acid gas injection well. The remainder of 2012 and 2013 were utilized to evaluate remediation efforts on Site. Manual bailing and recovery of LNAPL from the East Side wells was performed in 2014, recovering 141 gallons of LNAPL and 0.5 gallons of water. Manual bailing of wells was suspended in August 2015 as MDPE recovery methods were initiated. A total of 58.3 gallons of LNAPL were recovered using manual bailing methods from the East Side wells during 2015.

A pilot test was performed in April 2015 of MDPE recovery methods of LNAPL, associated vapors and hydrocarbon and chloride impacted groundwater at East Side well MW-5. Based on evaluation of the results of this pilot test additional MDPE events were performed in August, October and December 2015. During the four 2015 MDPE events at well MW-5 a total of 258.62 gallons of LNAPL and associated vapors (liquid equivalent) were recovered, and a total of 8,022 gallons of hydrocarbon and chloride impacted groundwater was recovered for off-site disposal. Continuation of LNAPL recovery using MDPE methods at these wells in 2016 is currently under consideration.

Records indicate a total of 5,587 gallons of LNAPL and 65,626 gallons of affected groundwater have been recovered using skimmer pump, manual bailing and MDPE methods from the East Side wells from 2003 through 2015.

### Chloride and TDS Recovery System (East Side)

A chloride and TDS groundwater recovery system was installed in 2004 on the east side of the Site. This recovery system originally consisted of two recovery wells (MWD-3 and MWD-9). In 2006, the network of recovery wells was expanded to include wells RW-6, RW-7 and RW-8. A total of 1,044,619 barrels of groundwater were recovered from 2004 through 2010. The extracted groundwater was disposed of at an onsite deep injection well (injection well #5) operated by Targa. In February 2011, Chevron notified the NMOCD that they no longer had permission from Targa to use the injection well and the recovery system operations were temporarily suspended.

As part of the reevaluation and redesign of the current system and well components, limited groundwater recovery was performed at wells MWD-3 and MWD-9 from 2012 to October 2013. Installation of the redesigned groundwater recovery system began on October 28, 2013 but construction and prestart reviews were not completed until April 2014. Construction of the redesigned groundwater recovery system was completed on April 29, 2014 and groundwater recovery was resumed. A total of 76,125 barrels, or approximately 3,197,250 gallons, of chloride-impacted groundwater was recovered by this system from January through December 2015.

Groundwater pumping record reports for the five recovery wells (MWD-3, MWD-9, RW-6, RW-7 and RW-8) are submitted quarterly to the NMOSE in accordance with permit requirements.



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# ATTACHMENT 1

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# DISCHARGE PERMIT GW-003

## 1. GENERAL PROVISIONS:

**A. PERMITTEE AND PERMITTED FACILITY:** The Oil Conservation Division (OCD) of the Energy, Minerals and Natural Resources Department issues Discharge Permit GW-003 (Discharge Permit) to Chevron U.S.A., Inc. (Owner/Operator), located at 1400 Smith Street, Houston, Texas 77002 to abate ground water and vadose zone contamination at its Eunice South Gas Plant (Facility) located in the NW/4 of the SW/4 of Section 27, Township 22 South, Range 37 East, NMPM, Lea County, New Mexico. The facility is located approximately 4.5 miles south of Eunice, New Mexico between State Highway 207 (Eunice-Hobbs Highway) and State Highway 18.

Versado L.L.P. (Versado) is a limited partnership between Chevron and Targa Midstream Services (Targa). Versado is the current landowner of record for the land parcel where the Eunice South Gas Plant is located. The Facility is inactive; however, Targa on behalf of Versado presently operates a compressor station and operates a UIC Class II injection well.

When its ground water recovery system is operational, Chevron discharges approximately 180,000 barrels (7,560,000 gallons) per year of contaminated ground water. Ground water that may be affected by a spill, leak, or accidental discharge occurs at a depth of approximately 49 - 54 feet below ground surface, with a total dissolved solids concentration of approximately 1,000 - 1,300 mg/L.

**B. SCOPE OF PERMIT:** OCD has been granted authority to administer the Water Quality Act (Chapter 74, Article 6 NMSA 1978) as it applies to gas processing plants by statute and by delegation from the Water Quality Control Commission pursuant to Section 74-6-4(E) NMSA 1978.

The Water Quality Act and the rules issued under that Act protect ground water and surface water of the State of New Mexico by providing that, unless otherwise allowed by rule, no person shall cause or allow effluent or leachate to discharge so that it may move directly or indirectly into ground water unless such discharge is pursuant to an approved discharge plan. See 20.6.2.3104 NMAC and 20.6.2.3106 NMAC.

This Discharge Permit does not authorize any treatment of, or on-site disposal of, any materials, product, by-product, or oil field waste, including, but not limited to, the on-site disposal of lube oil, glycol, antifreeze, filters, elemental sulfur, washdown water, contaminated soil, and cooling tower blowdown water.

This Discharge Permit does not convey any property rights of any sort nor any exclusive privilege, and does not authorize any injury to persons or property, any invasion of other private rights, or any infringement of state, federal, or local laws, rules or regulations.



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The Owner/Operator shall operate in accordance with the Discharge Permit conditions to comply with the Water Quality Act and the rules issued pursuant to that Act, so that neither a hazard to public health nor undue risk to property will result (see 20.6.2.3109C NMAC); so that no discharge will cause or may cause any stream standard to be violated (see 20.6.2.3109H(2) NMAC); so that no discharge of any water contaminant will result in a hazard to public health, (see 20.6.2.3109H(3) NMAC); and so that the numerical standards specified of 20.6.2.3103 NMAC are not exceeded.

The Owner/Operator shall not allow or cause water pollution, discharge, or release of any water contaminant that exceeds the Water Quality Control Commission (WQCC) standards specified at 20.6.2.3101 NMAC and 20.6.2.3103 NMAC or 20.6.4 NMAC (Water Quality Standards for Interstate and Intrastate Streams).

**C. DISCHARGE PERMIT CONDITIONS:** By signing this Discharge Permit, the Owner/Operator agrees to the specific provisions set out in this document, and the commitments made in the approved Discharge Plan Application and the attachments to that application, which are incorporated into the Discharge Permit by reference.

If this Discharge Permit is a permit renewal, it replaces the permit being renewed. Replacement of a prior permit does not relieve the Owner/Operator of its responsibility to comply with the terms of that prior permit while that permit was in effect.

**D. DEFINITIONS:** Terms not specifically defined in this Discharge Permit shall have the same meanings as those in the Water Quality Act or the rules adopted pursuant to that Act, as the context requires.

**E. FILING FEES AND PERMIT FEES:** Pursuant to 20.6.2.3114 NMAC, every facility that submits a discharge permit application for initial approval or renewal shall pay the permit fees specified in Table 1 and the filing fee specified in Table 2 of 20.6.2.3114 NMAC. OCD has already received the required $100.00 filing fee for this application. The flat fee for "Abatement of Ground Water and Vadose Zone Contamination at Oil and Gas Sites" is $2,600.00. The Owner/Operator shall submit this amount along with the signed Discharge Permit. Checks should be payable to the **"New Mexico Water Quality Management Fund,"** not the Oil Conservation Division.

**F. EFFECTIVE DATE, EXPIRATION, RENEWAL CONDITIONS, AND PENALTIES FOR OPERATING WITHOUT A DISCHARGE PERMIT:** This Discharge Permit is effective when the Division's Environmental Bureau receives the signed Discharge Permit from the Owner/Operator and the $2,600.00 fee. This Discharge Permit will expire on March 16, 2016. The Owner/Operator shall submit an application for renewal no later than 120 calendar days before that expiration date, pursuant to 20.6.2.3106F NMAC. If an Owner/Operator submits a renewal application at least 120 calendar days before the Discharge Permit expires and is in compliance with the approved Discharge Permit, then the existing Discharge Permit will not expire until OCD has approved or disapproved the renewal application. Operating with an expired Discharge Permit may subject the Owner/Operator to



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civil and/or criminal penalties. See Section 74-6-10.1 NMSA 1978 and Section 74-6-10.2 NMSA 1978.

**G. MODIFICATIONS:** The Owner/Operator shall notify the Division's Environmental Bureau of any facility expansion, production increase, or process modification that would result in any significant modification in the discharge of water contaminants. See 20.6.2.3107C NMAC. The Division's Environmental Bureau may require the Owner/Operator to submit a permit modification pursuant to 20.6.2.3109E NMAC and may modify or terminate a permit pursuant to Section 74-6-5(M) through (N) NMSA 1978.

**H. TRANSFER OF DISCHARGE PERMIT:** Prior to any transfer of ownership, control, or possession (whether by lease, conveyance or otherwise) of the Facility, the transferor shall notify the transferee in writing of the existence of the Discharge Permit, and shall deliver or send by certified mail to the Division's Environmental Bureau a copy of such written notification, together with a certification or other proof that such notification has been received by the transferee pursuant to 20.6.2.3111 NMAC. Upon receipt of such notification, the transferee shall inquire into all of the provisions and requirements contained in the Discharge Permit, and the transferee shall be charged with notice of all such provisions and requirements as they appear of record in the Division's file or files concerning the Discharge Permit. Upon assuming either ownership or possession of the Facility the transferee shall have the same rights and responsibilities under the Discharge Permit as were applicable to the transferor. See 20.6.2.3111 NMAC.

Transfer of the ownership, control, or possession of the Facility does not relieve the transferor of responsibility or liability for any act or omission which occurred while the transferor owned, controlled, or was in possession of the Facility. See 20.6.2.3111E NMAC.

**I. CLOSURE PLAN AND FINANCIAL ASSURANCE:** The Owner/Operator shall notify the Division's Environmental Bureau in writing when any operations of its Facility are to be discontinued for a period in excess of six months. Upon review of the Owner/Operator's notice, the Division's Environmental Bureau will determine whether to modify this permit pursuant to 20.6.2.3107 NMAC and 20.6.2.3109E NMAC or to require the Owner/Operator to submit a closure plan and/or post-closure plan, including financial assurance.

**J. COMPLIANCE AND ENFORCEMENT:** If the Owner/Operator violates or is violating a condition of this Discharge Permit, the Division's Environmental Bureau may issue a compliance order requiring compliance immediately or within a specified time period, suspending or terminating this Discharge Permit, and/or assessing a civil penalty. See Section 74-6-10 NMSA 1978. The Division's Environmental Bureau may also commence a civil action in district court for appropriate relief, including injunctive relief. See Section 74-6-10(A)(2) NMSA 1978 and Section 74-6-11 NMSA 1978. The Owner/Operator may be subject to criminal penalties for discharging a water contaminant without a discharge permit or in violation of a condition of a discharge permit; making any false material statement, representation, certification or omission of material fact in an application, record, report, plan or other document filed, submitted or required to be maintained under the Water Quality Act; falsifying, tampering with

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or rendering inaccurate any monitoring device, method or record required to be maintained under the Water Quality Act; or failing to monitor, sample or report as required by a permit issued pursuant to a state or federal law or regulation. See Section 74-6-10.2 NMSA 1978.

**2. GENERAL FACILITY OPERATIONS:**

**A. OPERATIONAL MONITORING:** The Owner/Operator shall comply with its approved monitoring programs pursuant 20.6.2.3107 NMAC.

**1. Ground Water Monitoring System:** The Owner/Operator shall monitor and sample all ground water monitor wells in accordance with its approved ground water abatement program.

**2. Disposal of Chloride Contaminated Ground Water:**

a. The Owner/Operator shall monitor its ground water recovery wells in accordance with its approved ground water abatement program.

b. The Owner/Operator shall determine the monthly volume and Total Dissolved Solids concentration of the contaminated ground water that it disposes of in accordance with its approved ground water abatement program.

**B. CONTINGENCY PLANS:** The Owner/Operator shall implement its approved Contingency Plans to cope with failure of the discharge permit or system in accordance with Permit Condition 2.F.

**C. CLOSURE PLAN:** After completing abatement of all ground water and vadose contamination required under Permit Condition 2.G, the Owner/Operator shall perform the following closure measures:

1. Remove or plug all lines leading to and from ground water recovery or injection wells so that a discharge can no longer occur.

2. Remove all abatement system components from the site, if applicable.

3. After receiving notification from the Division's Environmental Bureau that post-closure monitoring may cease, the Owner/Operator shall plug and abandon its monitor well(s).

**D. RECORD KEEPING:** The Owner/Operator shall maintain records of all inspections required by this Discharge Permit at its local office located at 240 Avenue O, Eunice, NM 88231 for a minimum of five years and shall make those records available for inspection by the Division's Environmental Bureau.

**E. RELEASE REPORTING:** The Owner/Operator shall comply with the following permit conditions, pursuant to 20.6.2.1203 NMAC, if it determines that a release of oil or other water contaminant, in such quantity as may with reasonable probability injure or be detrimental



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to human health, animal or plant life, or property, or unreasonably interfere with the public welfare or the use of property, has occurred. The Owner/Operator shall report unauthorized releases of water contaminants in accordance with any additional commitments made in its approved Contingency Plan. If the Owner/Operator determines that any constituent exceeds the standards specified at 20.6.2.3103 NMAC, then it shall report a release to the Division's Environmental Bureau.

1. **Oral Notification:** As soon as possible after learning of such a discharge, but in no event more than twenty-four (24) hours thereafter, the Owner/Operator shall orally notify the Division's Environmental Bureau. The Owner/Operator shall provide the following:

- the name, address, and telephone number of the person or persons in charge of the facility, as well as of the Owner/Operator of the facility;
- the name and location of the facility;
- the date, time, location, and duration of the discharge;
- the source and cause of discharge;
- a description of the discharge, including its chemical composition;
- the estimated volume of the discharge; and,
- any actions taken to mitigate immediate damage from the discharge.

2. **Written Notification:** Within one week after the Owner/Operator has learned of the discharge, the Owner/Operator shall send written notification to the Division's Environmental Bureau verifying the prior oral notification as to each of the foregoing items and providing any appropriate additions or corrections to the information contained in the prior oral notification.

**F. ABATEMENT PLAN:** Pursuant to 20.6.2.4105A(6) NMAC, an Owner/Operator is exempt from the requirement to obtain and implement an Abatement Plan, as required in 20.6.2.4104 NMAC. However, an Owner/Operator's Discharge Permit must address abatement of contaminated ground water and be consistent with the requirements and provisions of Sections 20.6.2.4101, 20.6.2.4103, Subsections C and E of Section 20.6.2.4106, Sections 20.6.2.4107 and 20.6.2.4112 NMAC.

1. **Purpose of Abatement Plan:** The Owner/Operator shall abate polluted ground water so as to either remediate or protect the ground water for use as domestic and agricultural water supply.

2. **Abatement Standards and Requirements:** The Owner/Operator shall abate the vadose zone so that water contaminants in the vadose zone shall not contaminate ground water or surface water, through leaching, percolation or as the water table elevation fluctuates. The Owner/Operator, where the Total Dissolved Solids concentration is 10,000 mg/L or less, shall abate contaminated ground water so that toxic pollutant(s), as defined in 20.6.2.7WW NMAC, shall not be present and so that the standards of 20.6.2.3103 NMAC shall be met.

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3. **Ground Water Abatement:** The Owner/Operator shall implement its approved ground water abatement program until it has remediated the contaminated ground water to meet the standards and requirements set forth in 20.6.2.4103 NMAC.

4. **Completion and Termination:** Pursuant to 20.6.2.4112 NMAC, abatement shall be considered complete when the standards and requirements specified in 20.6.2.4103 NMAC are met. At that time, the Owner/Operator shall submit an abatement completion report, documenting compliance with the standards and requirements set forth in 20.6.2.4103 NMAC and this Discharge Permit, to Division's Environmental Bureau for approval. The abatement completion report also shall propose any changes to long term monitoring and site maintenance activities, if needed, to be performed after termination of the abatement plan.

**G. OTHER REQUIREMENTS:**

1. **Inspection and Entry:** Pursuant to 20.6.2.4107A NMAC, the Owner/Operator shall allow the Division's Environmental Bureau, upon the presentation of proper credentials, to:

- enter the facility at reasonable times;
- inspect and copy records required by this discharge permit;
- inspect any treatment works, monitoring, and analytical equipment;
- sample any wastes, ground water, surface water, stream sediment, plants, animals, or vadose-zone material including vadose-zone vapor;
- use the Owner/Operator's monitoring systems and wells in order to collect samples; and
- gain access to off-site property not owned or controlled by the Owner/Operator, but accessible to the Owner/Operator through a third-party access agreement, provided that it is allowed by the agreement.

2. **Advance Notice:** Pursuant to 20.6.2.4107B NMAC, The Owner/Operator shall provide the Division's Environmental Bureau with at least four (4) working days advance notice of any sampling to be performed pursuant to this Discharge Permit, or any well plugging, abandonment or destruction at the facility site.

3. **Plugging and Abandonment:** Pursuant to 20.6.2.4107C NMAC, the Owner/Operator shall request by certified mail, approval by the Division's Environmental Bureau to plug and abandon a monitor well, unless such approval is required from the State Engineer. The proposed action shall be designed to prevent water pollution that could result from water contaminants migrating through the well or borehole. The proposed action shall not take place without written approval from the Division's Environmental Bureau, unless written approval or disapproval is not received by the Owner/Operator within thirty (30) days of the date of receipt of the proposal.

**H. ANNUAL REPORT:** The Owner/Operator shall submit its annual report for each calendar year pursuant to 20.6.2.3107 NMAC to the Division's Environmental Bureau by March 15th of the following year . The annual report shall include the following:



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1. Results of its ground water monitoring program; including:

- summary tables listing laboratory analytic results of all ground water and soil samples. Any WQCC constituent found to exceed the groundwater standard shall be highlighted and noted in the annual report. Copies of the most recent year's laboratory analytical data sheets shall also be submitted.
- annual water table potentiometric maps. A corrected water table elevation shall be determined for all wells containing non-aqueous phase liquids. These maps shall show well locations, pertinent site features, and the direction and magnitude of the hydraulic gradient.
- semi-annual isopleth maps for the following constituents: non-aqueous phase liquids; chlorides; and, BTEX.
- semi-annual geologic cross-sections (both dip and strike), using the geologic/lithologic logs from the monitor, recovery, and injection wells, depicting the concentrations for the following constituents: non-aqueous phase liquids; chlorides; and, BTEX.
- estimate or measure of the volume of contaminated ground water discharged during each quarter and the total volume discharged to date.

2. Summary of any releases and corrective actions taken in accordance with its approved Contingency Plan.

3. **CLASS V WELLS:** Pursuant to 20.6.2.5002B NMAC, leach fields and other wastewater disposal systems at Division-regulated facilities that inject non-hazardous fluid into or above an underground source of drinking water are UIC Class V injection wells. This Discharge Permit does not authorize the use of a Class V injection well for the disposal of industrial waste at the Facility. Pursuant to 20.6.2.5005 NMAC, the Owner/Operator shall close any Class V industrial waste injection wells at its Facility that inject non-hazardous industrial wastes or a mixture of industrial wastes and domestic wastes (*e.g.,* septic systems, leach fields, dry wells, *etc.*) within 90 calendar days of the issuance of this Discharge Permit. The Owner/Operator shall document the closure of any Class V wells used for the disposal of non-hazardous industrial wastes or a mixture of industrial wastes and domestic wastes other than contaminated ground water in its Annual Report.

Other Class V wells, including wells used only for the injection of domestic wastes, must be permitted by the New Mexico Environment Department.

4. **SCHEDULE OF COMPLIANCE:**

**A. PERMIT CERTIFICATION:** The Owner/Operator shall sign and return this Permit to the Division's Environmental Bureau within 45 days of its receipt of this Permit.

**B. SUBMISSION OF THE PERMIT FEES:** As specified in Permit Condition 1.F, the Owner/Operator shall submit the fee of $2,600.00 along with the signed Discharge



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Permit within 45 days of the receipt of the Discharge Permit. Checks should be payable to the **"New Mexico Water Quality Management Fund,"** not the Oil Conservation Division.

**C. ANNUAL REPORT:** As specified in Permit Condition 2.H, the Owner/Operator shall submit its annual report to the Division's Environmental Bureau by March 15th of the following year.

**D. REQUIREMENT TO RESUME ABATEMENT PROGRAM:** In February 2011, Chevron notified OCD that Targa would no longer allow Chevron to discharge contaminated ground water to its on-site UIC Class II injection well. Consequently, Chevron temporarily ceased operating its ground water abatement program. Chevron shall propose an alternate method of disposing the contaminated ground water to OCD no later than ninety (90) days after the issuance of this discharge permit.

**5. CERTIFICATION: (OWNER/OPERATOR)** by the officer whose signature appears below, acknowledges receipt of this Discharge Permit, and has reviewed its terms and conditions.

Chevron U.S.A. INC.
Company Name - print name

Robert A. Guldner
Company Representative - print name

Company Representative - Signature

Title: Manager OE/HES

Date: 01/23/2012



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# APPENDIX B

## Geologic Cross Sections

CITY: SAN RAFAEL, CA DIV/GROUP: ENVCAD DB: J. HARRIS
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LEGEND

- SHALLOW MONITORING WELL
- DEEP MONITORING WELL
- TARGA'S ONSITE INJECTION WELL
- RECOVERY WELL
- INACTIVE WATER WELL
- OFFSITE PROPERTY WELL (NOT SAMPLED)
- A — A' CROSS SECTION LOCATION
- LOCATIONS IN **ORANGE** ARE SAMPLED SEMI-ANNUALLY
- LOCATIONS IN **BLUE** ARE SAMPLED ANNUALLY
- LOCATIONS IN **PURPLE** ARE ONLY GAUGED ANNUALLY
- LOCATIONS IN **BLACK** ARE NOT SAMPLED OR GAUGED

NOTES:

1. MAP PROJECTED TO NAD83 NEW MEXICO STATE PLANE COORDINATE SYSTEM, EAST ZONE, FEET.
2. AERIAL IMAGERY PROVIDED BY USGS EARTH EXPLORER, ACCESSED APRIL 2016.
3. WELLS SURVEYED 1998, 2000, 2001, 2002, AND 2006 BY PIPER SURVEYING COMPANY. NAD27 NM S.P. EAST, FEET.
4. SITE FEATURES PROVIDED BY CRA.

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER EUNICE SOUTH GAS PLANT
EUNICE, LEA COUNTY, NEW MEXICO

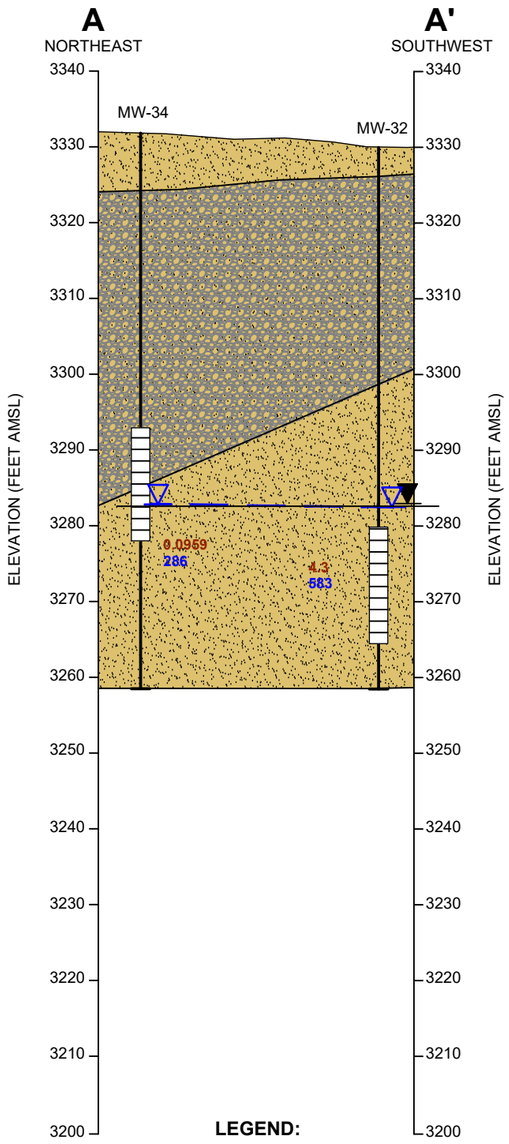
# CROSS SECTION LOCATION MAP

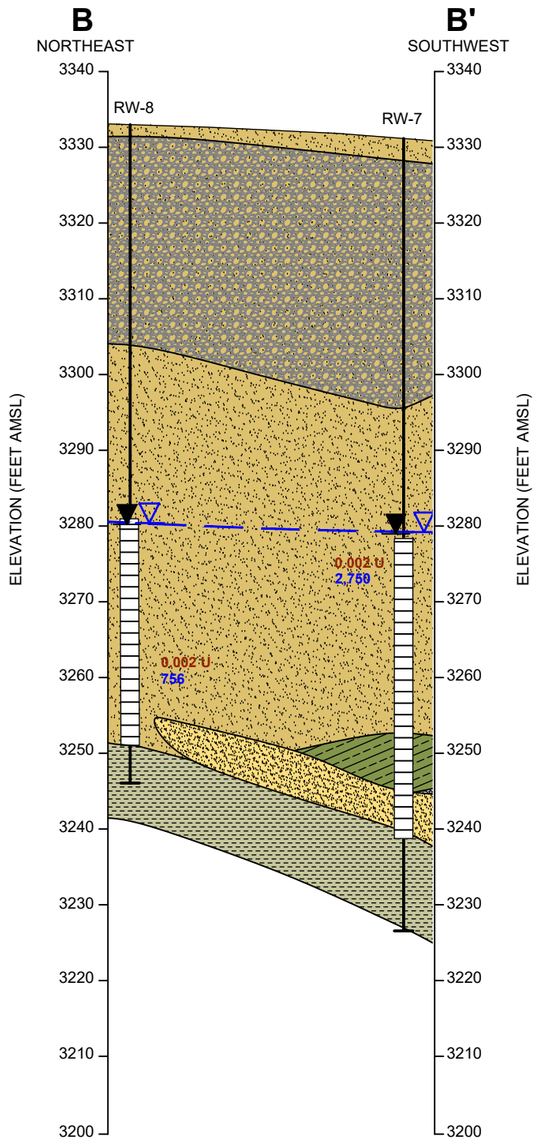
ARCADIS Design & Consultancy for natural and built assets

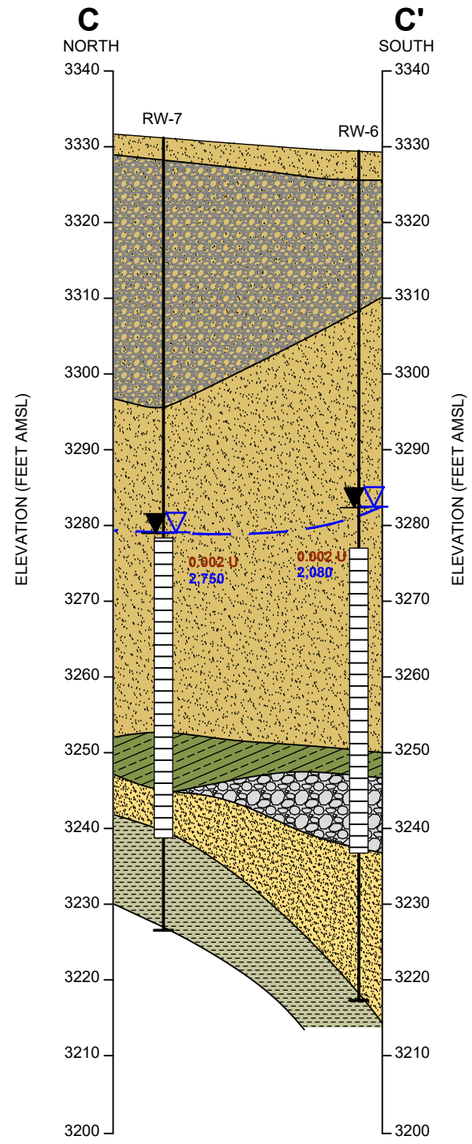
FIGURE
1

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CITY:(KNOXVILLE) DIV/GROUP:(ENV/GIS) DB:(B.ALTOM) LD:(C.SMITH) PIC:(M.FLEISCHNER) PM:(L.MINER) TM:(J.FRIZZELL)
C:\Users\wdberndg.ARCADIS-US\BIM 360\Arcadis\ANA - CHEVRON CORPORATION\Project Files\Eunice South Gas Plant-Site\2019\30061380\1-DWG\EUNICE SOUTH SECT V01.dwg LAYOUT: A-A' AND B-B' SAVED: 11/27/2019 1:57 PM ACADVER: 23.0S (LMS TECH) PAGESETUP: ----
PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 11/27/2019 4:21 PM BY: BERNDGEN, WENDY




**LEGEND:**

MW063A WELL/BORING ID

APPROXIMATE GROUND SURFACE

LITHOLOGIC CONTACT

WATER LEVEL (SPRING 2019)

WATER LEVEL ENCOUNTERED AFTER DRILLING

WELL SCREEN

WELL/BORING BOTTOM

CLAY

SAND

SANDSTONE

SILT

GRAVEL

SAND WITH CALICHE

1.59 SPRING 2019 BENZENE CONCENTRATION (mg/L)

10 U SPRING 2019 CHLORIDE CONCENTRATION (mg/L)

U NON-DETECT

0 20' 40'
APPROXIMATE VERTICAL SCALE

0 600' 1,200'
APPROXIMATE HORIZONTAL SCALE

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER EUNICE SOUTH GAS PLANT
EUNICE, LEA COUNTY, NEW MEXICO

# GEOLOGIC CROSS-SECTIONS

ARCADIS Design & Consultancy for natural and built assets

FIGURE
2

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Released to Imaging: 6/14/2022 10:17:42 AM

# APPENDIX C

## Historical Groundwater Elevations

**Appendix C**
**Historical Groundwater Elevations**
**2019 Annual Groundwater Monitoring Report**
**Former Eunice South Gas Plant**
**Eunice, Lea County, New Mexico**

ARCADIS Design & Consultancy for natural and built assets

| Location ID | Date | Top of Casing (feet amsl) | Depth To Groundwater (feet btoc) | Depth to LNAPL (feet btoc) | LNAPL Thickness (feet) | LNAPL Specific Gravity | Uncorrected Groundwater Elevation (feet amsl) | Corrected Groundwater Elevation (feet amsl)[1] |
|---|---|---|---|---|---|---|---|---|
| MW-1 | 2/18/2009 | 3335.09 | 54.27 | 51.96 | 2.31 | 0.74 | 3280.82 | 3282.53 |
| MW-1 | 8/5/2009 | 3335.09 | 54.30 | 52.03 | 2.27 | 0.74 | 3280.79 | 3282.47 |
| MW-1 | 2/2/2010 | 3335.09 | 54.65 | 52.10 | 2.55 | 0.74 | 3280.44 | 3282.33 |
| MW-1 | 8/2/2010 | 3335.09 | 54.69 | 52.18 | 2.51 | 0.74 | 3280.40 | 3282.26 |
| MW-1 | 4/4/2011 | 3335.09 | 54.50 | 51.97 | 2.53 | 0.74 | 3280.59 | 3282.46 |
| MW-1 | 8/8/2011 | 3335.09 | 54.40 | 51.95 | 2.45 | 0.74 | 3280.69 | 3282.50 |
| MW-1 | 2/6/2012 | 3335.09 | 54.73 | 52.18 | 2.55 | 0.74 | 3280.36 | 3282.25 |
| MW-1 | 8/7/2012 | 3335.09 | 54.53 | 51.88 | 2.65 | 0.74 | 3280.56 | 3282.52 |
| MW-1 | 2/5/2013 | 3335.09 | 54.39 | 52.01 | 2.38 | 0.74 | 3280.70 | 3282.46 |
| MW-1 | 8/5/2013 | 3335.09 | 54.42 | 51.85 | 2.57 | 0.74 | 3280.67 | 3282.57 |
| MW-1 | 2/3/2014 | 3335.09 | 54.35 | 51.85 | 2.5 | 0.74 | 3280.74 | 3282.59 |
| MW-1 | 8/5/2014 | 3335.09 | 54.40 | 51.85 | 2.55 | 0.74 | 3280.69 | 3282.58 |
| MW-1 | 2/2/2015 | 3335.09 | 53.38 | 51.62 | 1.76 | 0.74 | 3281.71 | 3283.01 |
| MW-1 | 8/3/2015 | 3335.09 | 53.47 | 51.54 | 1.93 | 0.74 | 3281.62 | 3283.05 |
| MW-1 | 3/29/2016 | 3335.09 | NM | 51.41 | NA | 0.74 | NM | NM |
| MW-1 | 9/13/2016 | 3335.09 | 53.11 | 51.41 | 1.7 | 0.74 | 3281.98 | 3283.24 |
| MW-1 | 4/3/2017 | 3335.09 | 52.96 | 51.31 | 1.65 | 0.74 | 3282.13 | 3283.35 |
| MW-1 | 3/13/2018 | 3335.09 | 54.81 | 53.06 | 1.75 | 0.74 | 3280.28 | 3281.58 |
| MW-1 | 9/24/2018 | 3335.09 | NM | 53.06 | NA | 0.74 | NM | NM |
| MW-1 | 4/1/2019 | 3335.09 | 54.60 | 53.18 | 1.42 | 0.74 | 3280.49 | 3281.54 |
| MW-1 | 10/1/2019 | 3335.09 | 54.74 | 53.29 | 1.45 | 0.74 | 3280.35 | 3281.42 |
| MW-2 | 2/18/2009 | 3335.7 | 56.44 | 53.85 | 2.59 | 0.74 | 3279.26 | 3281.18 |
| MW-2 | 8/5/2009 | 3335.7 | 54.90 | 52.21 | 2.69 | 0.74 | 3280.80 | 3282.79 |
| MW-2 | 2/2/2010 | 3335.7 | 54.93 | 52.25 | 2.68 | 0.74 | 3280.77 | 3282.75 |
| MW-2 | 8/2/2010 | 3335.7 | 54.85 | 52.34 | 2.51 | 0.74 | 3280.85 | 3282.71 |
| MW-2 | 4/4/2011 | 3335.7 | 54.90 | 52.15 | 2.75 | 0.74 | 3280.80 | 3282.84 |
| MW-2 | 8/8/2011 | 3335.7 | 54.52 | 52.21 | 2.31 | 0.74 | 3281.18 | 3282.89 |
| MW-2 | 2/6/2012 | 3335.7 | 54.97 | 52.22 | 2.75 | 0.74 | 3280.73 | 3282.77 |
| MW-2 | 8/7/2012 | 3335.7 | NM | 52.09 | NA | 0.74 | NM | NM |
| MW-2 | 2/5/2013 | 3335.7 | 54.61 | 52.06 | 2.55 | 0.74 | 3281.09 | 3282.98 |
| MW-2 | 8/5/2013 | 3335.7 | 49.50 | 52.03 | -2.53 | 0.74 | 3286.20 | 3284.33 |
| MW-2 | 2/3/2014 | 3335.7 | NM | 52.07 | NA | 0.74 | NM | NM |
| MW-2 | 8/5/2014 | 3335.7 | NM | 52.05 | NA | 0.74 | NM | NM |
| MW-2 | 2/2/2015 | 3335.7 | 53.65 | 51.80 | 1.85 | 0.74 | 3282.05 | 3283.42 |
| MW-2 | 8/3/2015 | 3335.7 | 53.81 | 51.80 | 2.01 | 0.74 | 3281.89 | 3283.38 |
| MW-2 | 3/29/2016 | 3335.7 | 53.36 | 51.60 | 1.76 | 0.74 | 3282.34 | 3283.64 |
| MW-2 | 9/13/2016 | 3335.7 | 53.41 | 51.61 | 1.8 | 0.74 | 3282.29 | 3283.62 |
| MW-2 | 4/3/2017 | 3335.7 | 53.15 | 51.49 | 1.66 | 0.74 | 3282.55 | 3283.78 |
| MW-2 | 3/13/2018 | 3335.7 | 53.00 | 51.48 | 1.52 | 0.74 | 3282.70 | 3283.82 |
| MW-2 | 9/24/2018 | 3335.7 | NM | 51.48 | NA | 0.74 | NM | NM |
| MW-2 | 4/1/2019 | 3335.7 | 52.96 | 51.48 | 1.48 | 0.74 | 3282.74 | 3283.84 |
| MW-2 | 10/1/2019 | 3335.7 | 53.10 | 51.58 | 1.52 | 0.74 | 3282.60 | 3283.72 |
| MW-3 | 2/9/2009 | 3339.65 | 56.24 | NM | NA | NA | 3283.41 | 3283.41 |
| MW-3 | 8/5/2009 | 3339.65 | 56.25 | NM | NA | NA | 3283.40 | 3283.40 |
| MW-3 | 2/2/2010 | 3339.65 | 56.30 | NM | NA | NA | 3283.35 | 3283.35 |
| MW-3 | 8/2/2010 | 3339.65 | 56.31 | NM | NA | NA | 3283.34 | 3283.34 |
| MW-3 | 4/4/2011 | 3339.65 | 56.20 | NM | NA | NA | 3283.45 | 3283.45 |
| MW-3 | 8/8/2011 | 3339.65 | 56.15 | NM | NA | NA | 3283.50 | 3283.50 |
| MW-3 | 2/6/2012 | 3339.65 | 56.12 | NM | NA | NA | 3283.53 | 3283.53 |
| MW-3 | 8/6/2012 | 3339.65 | 56.10 | NM | NA | NA | 3283.55 | 3283.55 |
| MW-3 | 2/5/2013 | 3339.65 | 56.10 | NM | NA | NA | 3283.55 | 3283.55 |
| MW-3 | 8/5/2013 | 3339.65 | 56.18 | NM | NA | NA | 3283.47 | 3283.47 |
| MW-3 | 2/3/2014 | 3339.65 | 56.06 | NM | NA | NA | 3283.59 | 3283.59 |
| MW-3 | 8/5/2014 | 3339.65 | 56.06 | NM | NA | NA | 3283.59 | 3283.59 |
| MW-3 | 2/2/2015 | 3339.65 | 55.80 | NM | NA | NA | 3283.85 | 3283.85 |
| MW-3 | 8/3/2015 | 3339.65 | 55.73 | NM | NA | NA | 3283.92 | 3283.92 |
| MW-3 | 3/29/2016 | 3339.65 | 55.60 | NM | NA | NA | 3284.05 | 3284.05 |
| MW-3 | 9/12/2016 | 3339.65 | 55.51 | NM | NA | NA | 3284.14 | 3284.14 |
| MW-3 | 4/3/2017 | 3339.65 | 55.49 | NM | NA | NA | 3284.16 | 3284.16 |
| MW-3 | 9/12/2017 | 3339.65 | 55.44 | NM | NA | NA | 3284.21 | 3284.21 |
| MW-3 | 3/13/2018 | 3339.65 | 55.33 | NM | NA | NA | 3284.32 | 3284.32 |
| MW-3 | 9/24/2018 | 3339.65 | 55.41 | NM | NA | NA | 3284.24 | 3284.24 |
| MW-3 | 4/1/2019 | 3339.65 | 55.30 | NM | NA | NA | 3284.35 | 3284.35 |
| MW-3 | 10/1/2019 | 3339.65 | 55.40 | NM | NA | NA | 3284.25 | 3284.25 |
| MW-4 | 2/11/2009 | 3333.25 | 51.99 | NM | NA | NA | 3281.26 | 3281.26 |
| MW-4 | 8/4/2009 | 3333.25 | 51.43 | NM | NA | NA | 3281.82 | 3281.82 |
| MW-4 | 2/2/2010 | 3333.25 | 51.91 | NM | NA | NA | 3281.34 | 3281.34 |
| MW-4 | 8/2/2010 | 3333.25 | 51.76 | NM | NA | NA | 3281.49 | 3281.49 |
| MW-4 | 4/4/2011 | 3333.25 | 50.98 | NM | NA | NA | 3282.27 | 3282.27 |
| MW-4 | 8/8/2011 | 3333.25 | 50.80 | NM | NA | NA | 3282.45 | 3282.45 |
| MW-4 | 2/6/2012 | 3333.25 | 50.72 | NM | NA | NA | 3282.53 | 3282.53 |
| MW-4 | 8/7/2012 | 3333.25 | 50.62 | NM | NA | NA | 3282.63 | 3282.63 |
| MW-4 | 2/5/2013 | 3333.25 | 50.55 | NM | NA | NA | 3282.70 | 3282.70 |
| MW-4 | 8/5/2013 | 3333.25 | 50.66 | NM | NA | NA | 3282.59 | 3282.59 |
| MW-4 | 2/5/2014 | 3333.25 | 50.51 | NM | NA | NA | 3282.74 | 3282.74 |
| MW-4 | 8/5/2014 | 3333.25 | 50.86 | NM | NA | NA | 3282.39 | 3282.39 |



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Appendix C
Historical Groundwater Elevations
2019 Annual Groundwater Monitoring Report
Former Eunice South Gas Plant
Eunice, Lea County, New Mexico

ARCADIS Design & Consultancy for natural and built assets

| Location ID | Date | Top of Casing (feet amsl) | Depth To Groundwater (feet btoc) | Depth to LNAPL (feet btoc) | LNAPL Thickness (feet) | LNAPL Specific Gravity | Uncorrected Groundwater Elevation (feet amsl) | Corrected Groundwater Elevation (feet amsl)[1] |
|---|---|---|---|---|---|---|---|---|
| MW-4 | 2/2/2015 | 3333.25 | 50.47 | NM | NA | NA | 3282.78 | 3282.78 |
| MW-4 | 8/3/2015 | 3333.25 | 50.40 | NM | NA | NA | 3282.85 | 3282.85 |
| MW-4 | 3/29/2016 | 3333.25 | 50.27 | NM | NA | NA | 3282.98 | 3282.98 |
| MW-4 | 9/12/2016 | 3333.25 | 50.23 | NM | NA | NA | 3283.02 | 3283.02 |
| MW-4 | 4/3/2017 | 3333.25 | 50.18 | NM | NA | NA | 3283.07 | 3283.07 |
| MW-4 | 9/12/2017 | 3333.25 | 50.10 | NM | NA | NA | 3283.15 | 3283.15 |
| MW-4 | 3/12/2018 | 3333.25 | 49.94 | NM | NA | NA | 3283.31 | 3283.31 |
| MW-4 | 9/24/2018 | 3333.25 | 50.02 | NM | NA | NA | 3283.23 | 3283.23 |
| MW-4 | 4/1/2019 | 3333.25 | 49.80 | NM | NA | NA | 3283.45 | 3283.45 |
| MW-4 | 10/1/2019 | 3333.25 | 50.01 | NM | NA | NA | 3283.24 | 3283.24 |
| MW-5 | 2/4/2009 | 3333.85 | 52.62 | 52.60 | 0.02 | 0.82 | 3281.23 | 3281.25 |
| MW-5 | 3/18/2009 | 3333.85 | 52.93 | 52.56 | 0.37 | 0.82 | 3280.92 | 3281.22 |
| MW-5 | 8/5/2009 | 3333.85 | 53.04 | 52.64 | 0.4 | 0.82 | 3280.81 | 3281.14 |
| MW-5 | 2/2/2010 | 3333.85 | 53.80 | 52.86 | 0.94 | 0.82 | 3280.05 | 3280.82 |
| MW-5 | 8/2/2010 | 3333.85 | 53.32 | 53.31 | 0.01 | 0.82 | 3280.53 | 3280.54 |
| MW-5 | 4/4/2011 | 3333.85 | NM | NM | NA | 0.82 | NM | NM |
| MW-5 | 8/8/2011 | 3333.85 | 58.07 | 55.20 | 2.87 | 0.82 | 3275.78 | 3278.13 |
| MW-5 | 2/6/2012 | 3333.85 | 53.23 | 52.80 | 0.43 | 0.82 | 3280.62 | 3280.97 |
| MW-5 | 8/7/2012 | 3333.85 | 55.10 | 51.66 | 3.44 | 0.82 | 3278.75 | 3281.57 |
| MW-5 | 2/5/2013 | 3333.85 | 56.10 | 51.35 | 4.75 | 0.82 | 3277.75 | 3281.65 |
| MW-5 | 8/5/2013 | 3333.85 | 56.15 | 51.43 | 4.72 | 0.82 | 3277.70 | 3281.57 |
| MW-5 | 2/3/2014 | 3333.85 | 55.80 | 51.56 | 4.24 | 0.82 | 3278.05 | 3281.53 |
| MW-5 | 8/5/2014 | 3333.85 | 56.19 | 51.60 | 4.59 | 0.82 | 3277.66 | 3281.42 |
| MW-5 | 2/2/2015 | 3333.85 | 53.40 | 50.80 | 2.6 | 0.82 | 3280.45 | 3282.58 |
| MW-5 | 8/3/2015 | 3333.85 | 54.33 | 50.86 | 3.47 | 0.82 | 3279.52 | 3282.37 |
| MW-5 | 3/29/2016 | 3333.85 | 53.21 | 50.70 | 2.51 | 0.82 | 3280.64 | 3282.70 |
| MW-5 | 9/13/2016 | 3333.85 | 53.21 | 50.66 | 2.55 | 0.82 | 3280.64 | 3282.73 |
| MW-5 | 4/3/2017 | 3333.85 | 53.62 | 50.51 | 3.11 | 0.82 | 3280.23 | 3282.78 |
| MW-5 | 3/15/2018 | 3333.85 | 53.30 | 50.47 | 2.83 | 0.82 | 3280.55 | 3282.87 |
| MW-5 | 9/24/2018 | 3333.85 | NM | 50.47 | NA | 0.82 | NM | NM |
| MW-6 | 2/5/2009 | 3332.33 | 52.14 | NM | NA | NA | 3280.19 | 3280.19 |
| MW-6 | 8/4/2009 | 3332.33 | 52.20 | NM | NA | NA | 3280.13 | 3280.13 |
| MW-6 | 2/2/2010 | 3332.33 | 52.53 | NM | NA | NA | 3279.80 | 3279.80 |
| MW-6 | 8/2/2010 | 3332.33 | 52.95 | NM | NA | NA | 3279.38 | 3279.38 |
| MW-6 | 4/4/2011 | 3332.33 | 51.23 | NM | NA | NA | 3281.10 | 3281.10 |
| MW-6 | 8/8/2011 | 3332.33 | 50.94 | NM | NA | NA | 3281.39 | 3281.39 |
| MW-6 | 2/6/2012 | 3332.33 | 50.87 | NM | NA | NA | 3281.46 | 3281.46 |
| MW-6 | 8/17/2012 | 3332.33 | 60.68 | NM | NA | NA | 3271.65 | 3271.65 |
| MW-6 | 2/5/2013 | 3332.33 | 50.61 | NM | NA | NA | 3281.72 | 3281.72 |
| MW-6 | 8/5/2013 | 3332.33 | 50.70 | NM | NA | NA | 3281.63 | 3281.63 |
| MW-6 | 2/3/2014 | 3332.33 | 50.52 | NM | NA | NA | 3281.81 | 3281.81 |
| MW-6 | 8/5/2014 | 3332.33 | 51.22 | NM | NA | NA | 3281.11 | 3281.11 |
| MW-6 | 2/2/2015 | 3332.33 | 50.40 | NM | NA | NA | 3281.93 | 3281.93 |
| MW-6 | 8/3/2015 | 3332.33 | 50.40 | NM | NA | NA | 3281.93 | 3281.93 |
| MW-6 | 3/28/2016 | 3332.33 | 50.23 | NM | NA | NA | 3282.10 | 3282.10 |
| MW-6 | 9/7/2016 | 3332.33 | 50.11 | NM | NA | NA | 3282.22 | 3282.22 |
| MW-6 | 4/3/2017 | 3332.33 | 50.20 | NM | NA | NA | 3282.13 | 3282.13 |
| MW-6 | 3/12/2018 | 3332.33 | 50.01 | NM | NA | NA | 3282.32 | 3282.32 |
| MW-6 | 4/1/2019 | 3332.33 | 49.14 | NM | NA | NA | 3283.19 | 3283.19 |
| MW-7 | 2/5/2009 | 3330.43 | 49.86 | NM | NA | NA | 3280.57 | 3280.57 |
| MW-7 | 8/4/2009 | 3330.43 | 50.08 | NM | NA | NA | 3280.35 | 3280.35 |
| MW-7 | 2/2/2010 | 3330.43 | 50.25 | NM | NA | NA | 3280.18 | 3280.18 |
| MW-7 | 8/2/2010 | 3330.43 | 50.91 | NM | NA | NA | 3279.52 | 3279.52 |
| MW-7 | 4/4/2011 | 3330.43 | 49.48 | NM | NA | NA | 3280.95 | 3280.95 |
| MW-7 | 8/8/2011 | 3330.43 | 49.28 | NM | NA | NA | 3281.15 | 3281.15 |
| MW-7 | 2/6/2012 | 3330.43 | 49.19 | NM | NA | NA | 3281.24 | 3281.24 |
| MW-7 | 8/17/2012 | 3330.43 | 49.12 | NM | NA | NA | 3281.31 | 3281.31 |
| MW-7 | 2/5/2013 | 3330.43 | 49.08 | NM | NA | NA | 3281.35 | 3281.35 |
| MW-7 | 8/5/2013 | 3330.43 | 49.15 | NM | NA | NA | 3281.28 | 3281.28 |
| MW-7 | 2/3/2014 | 3330.43 | 49.00 | NM | NA | NA | 3281.43 | 3281.43 |
| MW-7 | 8/5/2014 | 3330.43 | 49.30 | NM | NA | NA | 3281.13 | 3281.13 |
| MW-7 | 2/2/2015 | 3330.43 | 47.80 | NM | NA | NA | 3282.63 | 3282.63 |
| MW-7 | 8/3/2015 | 3330.43 | 48.05 | NM | NA | NA | 3282.38 | 3282.38 |
| MW-7 | 3/28/2016 | 3330.43 | 47.79 | NM | NA | NA | 3282.64 | 3282.64 |
| MW-7 | 9/9/2016 | 3330.43 | 47.79 | NM | NA | NA | 3282.64 | 3282.64 |
| MW-7 | 4/3/2017 | 3330.43 | 47.78 | NM | NA | NA | 3282.65 | 3282.65 |
| MW-7 | 3/12/2018 | 3330.43 | 47.88 | NM | NA | NA | 3282.55 | 3282.55 |
| MW-7 | 9/24/2018 | 3330.43 | NM | NM | NA | NA | NM | NM |
| MW-7 | 4/1/2019 | 3330.43 | 47.99 | NM | NA | NA | 3282.44 | 3282.44 |
| MW-8 | 2/2/2009 | 3330.59 | 49.48 | NM | NA | NA | 3281.11 | 3281.11 |
| MW-8 | 8/4/2009 | 3330.59 | 49.66 | NM | NA | NA | 3280.93 | 3280.93 |
| MW-8 | 2/2/2010 | 3330.59 | 49.86 | NM | NA | NA | 3280.73 | 3280.73 |
| MW-8 | 8/2/2010 | 3330.59 | 49.83 | NM | NA | NA | 3280.76 | 3280.76 |
| MW-8 | 4/4/2011 | 3330.59 | 49.82 | NM | NA | NA | 3280.77 | 3280.77 |
| MW-8 | 8/8/2011 | 3330.59 | 49.80 | NM | NA | NA | 3280.79 | 3280.79 |
| MW-8 | 2/6/2012 | 3330.59 | 49.84 | NM | NA | NA | 3280.75 | 3280.75 |





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Eunice, Lea County, New Mexico

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| Location ID | Date | Top of Casing (feet amsl) | Depth To Groundwater (feet btoc) | Depth to LNAPL (feet btoc) | LNAPL Thickness (feet) | LNAPL Specific Gravity | Uncorrected Groundwater Elevation (feet amsl) | Corrected Groundwater Elevation (feet amsl)[1] |
|---|---|---|---|---|---|---|---|---|
| MW-8 | 8/7/2012 | 3330.59 | 53.30 | NM | NA | NA | 3277.29 | 3277.29 |
| MW-8 | 2/5/2013 | 3330.59 | 49.77 | NM | NA | NA | 3280.82 | 3280.82 |
| MW-8 | 8/5/2013 | 3330.59 | 49.74 | NM | NA | NA | 3280.85 | 3280.85 |
| MW-8 | 2/3/2014 | 3330.59 | 49.70 | NM | NA | NA | 3280.89 | 3280.89 |
| MW-8 | 2/2/2015 | 3330.59 | 48.55 | NM | NA | NA | 3282.04 | 3282.04 |
| MW-8 | 8/3/2015 | 3330.59 | 48.64 | NM | NA | NA | 3281.95 | 3281.95 |
| MW-8 | 3/29/2016 | 3330.59 | 48.49 | NM | NA | NA | 3282.10 | 3282.10 |
| MW-8 | 9/6/2016 | 3330.59 | 48.52 | NM | NA | NA | 3282.07 | 3282.07 |
| MW-8 | 3/12/2018 | 3330.59 | 48.43 | NM | NA | NA | 3282.16 | 3282.16 |
| MW-8 | 8/5/2014 | 3330.59 | 49.74 | NM | NA | NA | 3280.85 | 3280.85 |
| MW-8 | 4/3/2017 | 3330.59 | 48.41 | NM | NA | NA | 3282.18 | 3282.18 |
| MW-8 | 9/11/2017 | 3330.59 | 48.37 | NM | NA | NA | 3282.22 | 3282.22 |
| MW-8 | 9/24/2018 | 3330.59 | 48.66 | NM | NA | NA | 3281.93 | 3281.93 |
| MW-8 | 4/1/2019 | 3330.59 | 48.59 | NM | NA | NA | 3282.00 | 3282.00 |
| MW-8 | 10/1/2019 | 3330.59 | 48.76 | NM | NA | NA | 3281.83 | 3281.83 |
| MW-9 | 2/12/2009 | 3334.73 | 53.46 | NM | NA | NA | 3281.27 | 3281.27 |
| MW-9 | 8/5/2009 | 3334.73 | 53.56 | NM | NA | NA | 3281.17 | 3281.17 |
| MW-9 | 2/2/2010 | 3334.73 | 53.66 | NM | NA | NA | 3281.07 | 3281.07 |
| MW-9 | 8/2/2010 | 3334.73 | 53.75 | NM | NA | NA | 3280.98 | 3280.98 |
| MW-9 | 4/4/2011 | 3334.73 | 53.71 | NM | NA | NA | 3281.02 | 3281.02 |
| MW-9 | 8/8/2011 | 3334.73 | 53.66 | NM | NA | NA | 3281.07 | 3281.07 |
| MW-9 | 2/6/2012 | 3334.73 | 53.66 | NM | NA | NA | 3281.07 | 3281.07 |
| MW-9 | 8/6/2012 | 3334.73 | 53.71 | NM | NA | NA | 3281.02 | 3281.02 |
| MW-9 | 2/5/2013 | 3334.73 | 53.59 | NM | NA | NA | 3281.14 | 3281.14 |
| MW-9 | 8/5/2013 | 3334.73 | 53.60 | NM | NA | NA | 3281.13 | 3281.13 |
| MW-9 | 2/3/2014 | 3334.73 | 53.50 | NM | NA | NA | 3281.23 | 3281.23 |
| MW-9 | 8/5/2014 | 3334.73 | 53.58 | NM | NA | NA | 3281.15 | 3281.15 |
| MW-9 | 2/2/2015 | 3334.73 | 53.05 | NM | NA | NA | 3281.68 | 3281.68 |
| MW-9 | 8/3/2015 | 3334.73 | 53.03 | NM | NA | NA | 3281.70 | 3281.70 |
| MW-9 | 3/29/2016 | 3334.73 | 52.96 | NM | NA | NA | 3281.77 | 3281.77 |
| MW-9 | 9/6/2016 | 3334.73 | 52.90 | NM | NA | NA | 3281.83 | 3281.83 |
| MW-9 | 4/3/2017 | 3334.73 | 52.84 | NM | NA | NA | 3281.89 | 3281.89 |
| MW-9 | 9/11/2017 | 3334.73 | 52.80 | NM | NA | NA | 3281.93 | 3281.93 |
| MW-9 | 3/12/2018 | 3334.73 | 52.54 | NM | NA | NA | 3282.19 | 3282.19 |
| MW-9 | 9/24/2018 | 3334.73 | 52.84 | NM | NA | NA | 3281.89 | 3281.89 |
| MW-9 | 4/1/2019 | 3334.73 | 52.78 | NM | NA | NA | 3281.95 | 3281.95 |
| MW-9 | 10/1/2019 | 3334.73 | 52.86 | NM | NA | NA | 3281.87 | 3281.87 |
| MW-10 | 2/18/2009 | 3336.38 | 53.84 | 53.83 | 0.01 | 0.74 | 3282.54 | 3282.55 |
| MW-10 | 8/5/2009 | 3336.38 | 53.95 | NM | NA | 0.74 | 3282.43 | 3282.43 |
| MW-10 | 2/2/2010 | 3336.38 | 54.02 | NM | NA | 0.74 | 3282.36 | 3282.36 |
| MW-10 | 8/2/2010 | 3336.38 | 54.28 | 54.05 | 0.23 | 0.74 | 3282.10 | 3282.27 |
| MW-10 | 4/4/2011 | 3336.38 | 54.60 | 53.80 | 0.8 | 0.74 | 3281.78 | 3282.37 |
| MW-10 | 8/8/2011 | 3336.38 | 54.22 | 53.85 | 0.37 | 0.74 | 3282.16 | 3282.43 |
| MW-10 | 2/6/2012 | 3336.38 | 54.29 | 54.23 | 0.06 | 0.74 | 3282.09 | 3282.13 |
| MW-10 | 8/7/2012 | 3336.38 | 56.40 | 53.33 | 3.07 | 0.74 | 3279.98 | 3282.25 |
| MW-10 | 2/5/2013 | 3336.38 | 56.34 | 53.28 | 3.06 | 0.74 | 3280.04 | 3282.30 |
| MW-10 | 8/5/2013 | 3336.38 | 56.33 | 53.24 | 3.09 | 0.74 | 3280.05 | 3282.34 |
| MW-10 | 2/3/2014 | 3336.38 | 54.41 | 51.46 | 2.95 | 0.74 | 3281.97 | 3284.15 |
| MW-10 | 8/5/2014 | 3336.38 | 54.43 | 51.47 | 2.96 | 0.74 | 3281.95 | 3284.14 |
| MW-10 | 2/2/2015 | 3336.38 | 51.83 | 51.61 | 0.22 | 0.74 | 3284.55 | 3284.71 |
| MW-10 | 8/3/2015 | 3336.38 | 51.63 | 51.61 | 0.02 | 0.74 | 3284.75 | 3284.76 |
| MW-10 | 3/29/2016 | 3336.38 | 52.06 | 52.03 | 0.03 | 0.74 | 3284.32 | 3284.34 |
| MW-10 | 9/13/2016 | 3336.38 | 51.59 | 51.45 | 0.14 | 0.74 | 3284.79 | 3284.89 |
| MW-10 | 4/3/2017 | 3336.38 | 51.41 | 51.28 | 0.13 | 0.74 | 3284.97 | 3285.07 |
| MW-10 | 3/13/2018 | 3336.38 | 51.40 | 51.30 | 0.1 | 0.74 | 3284.98 | 3285.05 |
| MW-10 | 9/24/2018 | 3336.38 | NM | 51.30 | NA | 0.74 | NM | NM |
| MW-10 | 4/1/2019 | 3336.38 | 52.61 | 50.84 | 1.77 | 0.74 | 3283.77 | 3285.08 |
| MW-10 | 10/1/2019 | 3336.38 | 52.78 | 50.95 | 1.83 | 0.74 | 3283.60 | 3284.95 |
| MW-11 | 2/18/2009 | 3334.86 | 52.21 | NM | NA | 0.72 | 3282.65 | 3282.65 |
| MW-11 | 8/5/2009 | 3334.86 | 52.37 | 52.35 | 0.02 | 0.72 | 3282.49 | 3282.50 |
| MW-11 | 2/2/2010 | 3334.86 | 52.46 | NM | NA | 0.72 | 3282.40 | 3282.40 |
| MW-11 | 8/2/2010 | 3334.86 | 52.48 | NM | NA | 0.72 | 3282.38 | 3282.38 |
| MW-11 | 4/4/2011 | 3334.86 | 52.32 | NM | NA | 0.72 | 3282.54 | 3282.54 |
| MW-11 | 8/8/2011 | 3334.86 | 52.30 | NM | NA | 0.72 | 3282.56 | 3282.56 |
| MW-11 | 2/6/2012 | 3334.86 | 52.36 | NM | NA | 0.72 | 3282.50 | 3282.50 |
| MW-11 | 8/7/2012 | 3334.86 | 52.32 | NM | NA | 0.72 | 3282.54 | 3282.54 |
| MW-11 | 2/5/2013 | 3334.86 | 52.30 | NM | NA | 0.72 | 3282.56 | 3282.56 |
| MW-11 | 8/5/2013 | 3334.86 | 52.21 | NM | NA | 0.72 | 3282.65 | 3282.65 |
| MW-11 | 2/3/2014 | 3334.86 | 52.18 | NM | NA | 0.72 | 3282.68 | 3282.68 |
| MW-11 | 8/5/2014 | 3334.86 | 52.24 | NM | NA | 0.72 | 3282.62 | 3282.62 |
| MW-11 | 2/2/2015 | 3334.86 | 51.84 | NM | NA | 0.72 | 3283.02 | 3283.02 |
| MW-11 | 8/3/2015 | 3334.86 | 51.70 | NM | NA | 0.72 | 3283.16 | 3283.16 |
| MW-11 | 3/29/2016 | 3334.86 | 51.43 | NM | NA | 0.72 | 3283.43 | 3283.43 |
| MW-11 | 9/12/2016 | 3334.86 | 51.48 | NM | NA | 0.72 | 3283.38 | 3283.38 |
| MW-11 | 4/3/2017 | 3334.86 | 51.34 | NM | NA | 0.72 | 3283.52 | 3283.52 |
| MW-11 | 9/12/2017 | 3334.86 | 51.20 | NM | NA | 0.72 | 3283.66 | 3283.66 |



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Appendix C
Historical Groundwater Elevations
2019 Annual Groundwater Monitoring Report
Former Eunice South Gas Plant
Eunice, Lea County, New Mexico

ARCADIS Design & Consultancy for natural and built assets

| Location ID | Date | Top of Casing (feet amsl) | Depth To Groundwater (feet btoc) | Depth to LNAPL (feet btoc) | LNAPL Thickness (feet) | LNAPL Specific Gravity | Uncorrected Groundwater Elevation (feet amsl) | Corrected Groundwater Elevation (feet amsl)[1] |
|---|---|---|---|---|---|---|---|---|
| MW-11 | 3/13/2018 | 3334.86 | 51.34 | NM | NA | 0.72 | 3283.52 | 3283.52 |
| MW-11 | 9/24/2018 | 3334.86 | 51.45 | NM | NA | 0.72 | 3283.41 | 3283.41 |
| MW-11 | 4/1/2019 | 3334.86 | 51.31 | NM | NA | 0.72 | 3283.55 | 3283.55 |
| MW-11 | 10/1/2019 | 3334.86 | 51.43 | NM | NA | 0.72 | 3283.43 | 3283.43 |
| MW-12 | 2/18/2009 | 3333.88 | 52.14 | 51.42 | 0.72 | 0.72 | 3281.74 | 3282.26 |
| MW-12 | 8/5/2009 | 3333.88 | 52.27 | 51.55 | 0.72 | 0.72 | 3281.61 | 3282.13 |
| MW-12 | 2/2/2010 | 3333.88 | 52.20 | 51.75 | 0.45 | 0.72 | 3281.68 | 3282.00 |
| MW-12 | 8/2/2010 | 3333.88 | 52.43 | 51.81 | 0.62 | 0.72 | 3281.45 | 3281.90 |
| MW-12 | 4/4/2011 | 3333.88 | 52.10 | 51.50 | 0.6 | 0.72 | 3281.78 | 3282.21 |
| MW-12 | 8/8/2011 | 3333.88 | 52.05 | 51.40 | 0.65 | 0.72 | 3281.83 | 3282.30 |
| MW-12 | 2/6/2012 | 3333.88 | 52.28 | 51.73 | 0.55 | 0.72 | 3281.60 | 3282.00 |
| MW-12 | 8/7/2012 | 3333.88 | 52.19 | 51.38 | 0.81 | 0.72 | 3281.69 | 3282.27 |
| MW-12 | 2/5/2013 | 3333.88 | 52.05 | 51.35 | 0.7 | 0.72 | 3281.83 | 3282.33 |
| MW-12 | 8/5/2013 | 3333.88 | 52.01 | 51.30 | 0.71 | 0.72 | 3281.87 | 3282.38 |
| MW-12 | 2/3/2014 | 3333.88 | 51.99 | 51.29 | 0.7 | 0.72 | 3281.89 | 3282.39 |
| MW-12 | 8/5/2014 | 3333.88 | 52.12 | 51.43 | 0.69 | 0.72 | 3281.76 | 3282.26 |
| MW-12 | 2/2/2015 | 3333.88 | 56.11 | 54.03 | 2.08 | 0.72 | 3277.77 | 3279.27 |
| MW-12 | 8/3/2015 | 3333.88 | 51.01 | 50.78 | 0.23 | 0.72 | 3282.87 | 3283.04 |
| MW-12 | 3/29/2016 | 3333.88 | 51.00 | 50.44 | 0.56 | 0.72 | 3282.88 | 3283.28 |
| MW-12 | 9/13/2016 | 3333.88 | 50.97 | 50.58 | 0.39 | 0.72 | 3282.91 | 3283.19 |
| MW-12 | 4/3/2017 | 3333.88 | 51.14 | 50.30 | 0.84 | 0.72 | 3282.74 | 3283.34 |
| MW-12 | 3/13/2018 | 3333.88 | 50.86 | 50.29 | 0.57 | 0.72 | 3283.02 | 3283.43 |
| MW-12 | 9/24/2018 | 3333.88 | NM | 50.29 | NA | 0.72 | NM | NM |
| MW-12 | 10/1/2019 | 3333.88 | 51.03 | 50.51 | 0.52 | 0.72 | 3282.85 | 3283.22 |
| MW-13 | 2/9/2009 | 3336.15 | 56.30 | NM | NA | NA | 3279.85 | 3279.85 |
| MW-13 | 8/4/2009 | 3336.15 | 56.30 | NM | NA | NA | 3279.85 | 3279.85 |
| MW-13 | 2/2/2010 | 3336.15 | 56.31 | NM | NA | NA | 3279.84 | 3279.84 |
| MW-13 | 8/2/2010 | 3336.15 | 56.47 | NM | NA | NA | 3279.68 | 3279.68 |
| MW-13 | 4/4/2011 | 3336.15 | 56.47 | NM | NA | NA | 3279.68 | 3279.68 |
| MW-13 | 8/8/2011 | 3336.15 | NM | NM | NA | NA | NM | NM |
| MW-13 | 2/6/2012 | 3336.15 | 56.36 | NM | NA | NA | 3279.79 | 3279.79 |
| MW-13 | 8/6/2012 | 3336.15 | 56.42 | NM | NA | NA | 3279.73 | 3279.73 |
| MW-13 | 2/5/2013 | 3336.15 | 56.37 | NM | NA | NA | 3279.78 | 3279.78 |
| MW-13 | 8/5/2013 | 3336.15 | 56.34 | NM | NA | NA | 3279.81 | 3279.81 |
| MW-13 | 2/3/2014 | 3336.15 | 56.27 | NM | NA | NA | 3279.88 | 3279.88 |
| MW-13 | 8/5/2014 | 3336.15 | 56.36 | NM | NA | NA | 3279.79 | 3279.79 |
| MW-13 | 2/2/2015 | 3336.15 | 56.13 | NM | NA | NA | 3280.02 | 3280.02 |
| MW-13 | 8/3/2015 | 3336.15 | 55.95 | NM | NA | NA | 3280.20 | 3280.20 |
| MW-13 | 3/29/2016 | 3336.15 | 55.85 | NM | NA | NA | 3280.30 | 3280.30 |
| MW-13 | 9/6/2016 | 3336.15 | 58.80 | NM | NA | NA | 3277.35 | 3277.35 |
| MW-13 | 4/3/2017 | 3336.15 | 55.66 | NM | NA | NA | 3280.49 | 3280.49 |
| MW-13 | 9/11/2017 | 3336.15 | 55.44 | NM | NA | NA | 3280.71 | 3280.71 |
| MW-13 | 3/13/2018 | 3336.15 | 55.66 | NM | NA | NA | 3280.49 | 3280.49 |
| MW-13 | 9/24/2018 | 3336.15 | 55.80 | NM | NA | NA | 3280.35 | 3280.35 |
| MW-13 | 4/1/2019 | 3336.15 | 55.59 | NM | NA | NA | 3280.56 | 3280.56 |
| MW-13 | 10/1/2019 | 3336.15 | 55.61 | NM | NA | NA | 3280.54 | 3280.54 |
| MW-14 | 2/9/2009 | 3333.04 | 52.63 | NM | NA | NA | 3280.41 | 3280.41 |
| MW-14 | 8/4/2009 | 3333.04 | 52.72 | NM | NA | NA | 3280.32 | 3280.32 |
| MW-14 | 2/2/2010 | 3333.04 | 52.77 | NM | NA | NA | 3280.27 | 3280.27 |
| MW-14 | 8/2/2010 | 3333.04 | 52.90 | NM | NA | NA | 3280.14 | 3280.14 |
| MW-14 | 4/4/2011 | 3333.04 | 52.91 | NM | NA | NA | 3280.13 | 3280.13 |
| MW-14 | 8/8/2011 | 3333.04 | 52.85 | NM | NA | NA | 3280.19 | 3280.19 |
| MW-14 | 2/6/2012 | 3333.04 | 52.82 | NM | NA | NA | 3280.22 | 3280.22 |
| MW-14 | 8/7/2012 | 3333.04 | 51.97 | NM | NA | NA | 3281.07 | 3281.07 |
| MW-14 | 2/5/2013 | 3333.04 | 52.82 | NM | NA | NA | 3280.22 | 3280.22 |
| MW-14 | 8/5/2013 | 3333.04 | 52.79 | NM | NA | NA | 3280.25 | 3280.25 |
| MW-14 | 2/3/2014 | 3333.04 | 52.71 | NM | NA | NA | 3280.33 | 3280.33 |
| MW-14 | 8/5/2014 | 3333.04 | 52.77 | NM | NA | NA | 3280.27 | 3280.27 |
| MW-14 | 2/2/2015 | 3333.04 | 52.33 | NM | NA | NA | 3280.71 | 3280.71 |
| MW-14 | 8/3/2015 | 3333.04 | 52.18 | NM | NA | NA | 3280.86 | 3280.86 |
| MW-14 | 3/29/2016 | 3333.04 | 52.05 | NM | NA | NA | 3280.99 | 3280.99 |
| MW-14 | 9/6/2016 | 3333.04 | 52.03 | NM | NA | NA | 3281.01 | 3281.01 |
| MW-14 | 4/3/2017 | 3333.04 | 51.93 | NM | NA | NA | 3281.11 | 3281.11 |
| MW-14 | 9/11/2017 | 3333.04 | 51.89 | NM | NA | NA | 3281.15 | 3281.15 |
| MW-14 | 3/14/2018 | 3333.04 | 51.86 | NM | NA | NA | 3281.18 | 3281.18 |
| MW-14 | 9/24/2018 | 3333.04 | 51.94 | NM | NA | NA | 3281.10 | 3281.10 |
| MW-14 | 4/1/2019 | 3333.04 | 51.90 | NM | NA | NA | 3281.14 | 3281.14 |
| MW-14 | 10/1/2019 | 3333.04 | 51.99 | NM | NA | NA | 3281.05 | 3281.05 |
| MW-15 | 2/9/2009 | 3328.98 | 49.60 | NM | NA | NA | 3279.38 | 3279.38 |
| MW-15 | 8/4/2009 | 3328.98 | 48.75 | NM | NA | NA | 3280.23 | 3280.23 |
| MW-15 | 2/2/2010 | 3328.98 | 48.89 | NM | NA | NA | 3280.09 | 3280.09 |
| MW-15 | 8/2/2010 | 3328.98 | 49.19 | NM | NA | NA | 3279.79 | 3279.79 |
| MW-15 | 4/4/2011 | 3328.98 | 48.62 | NM | NA | NA | 3280.36 | 3280.36 |
| MW-15 | 8/8/2011 | 3328.98 | 48.44 | NM | NA | NA | 3280.54 | 3280.54 |
| MW-15 | 2/6/2012 | 3328.98 | 48.28 | NM | NA | NA | 3280.70 | 3280.70 |
| MW-15 | 8/7/2012 | 3328.98 | 48.29 | NM | NA | NA | 3280.69 | 3280.69 |



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Appendix C
Historical Groundwater Elevations
2019 Annual Groundwater Monitoring Report
Former Eunice South Gas Plant
Eunice, Lea County, New Mexico

ARCADIS Design & Consultancy for natural and built assets

| Location ID | Date | Top of Casing (feet amsl) | Depth To Groundwater (feet btoc) | Depth to LNAPL (feet btoc) | LNAPL Thickness (feet) | LNAPL Specific Gravity | Uncorrected Groundwater Elevation (feet amsl) | Corrected Groundwater Elevation (feet amsl)[1] |
|---|---|---|---|---|---|---|---|---|
| MW-15 | 2/5/2013 | 3328.98 | 48.18 | NM | NA | NA | 3280.80 | 3280.80 |
| MW-15 | 8/5/2013 | 3328.98 | 48.12 | NM | NA | NA | 3280.86 | 3280.86 |
| MW-15 | 2/3/2014 | 3328.98 | 48.08 | NM | NA | NA | 3280.90 | 3280.90 |
| MW-15 | 8/5/2014 | 3328.98 | 48.22 | NM | NA | NA | 3280.76 | 3280.76 |
| MW-15 | 2/2/2015 | 3328.98 | 47.30 | NM | NA | NA | 3281.68 | 3281.68 |
| MW-15 | 8/3/2015 | 3328.98 | 47.31 | NM | NA | NA | 3281.67 | 3281.67 |
| MW-15 | 3/28/2016 | 3328.98 | 47.17 | NM | NA | NA | 3281.81 | 3281.81 |
| MW-15 | 9/6/2016 | 3328.98 | 47.17 | NM | NA | NA | 3281.81 | 3281.81 |
| MW-15 | 4/3/2017 | 3328.98 | 47.02 | NM | NA | NA | 3281.96 | 3281.96 |
| MW-15 | 9/11/2017 | 3328.98 | 47.02 | NM | NA | NA | 3281.96 | 3281.96 |
| MW-15 | 3/12/2018 | 3328.98 | 47.00 | NM | NA | NA | 3281.98 | 3281.98 |
| MW-15 | 9/24/2018 | 3328.98 | 47.14 | NM | NA | NA | 3281.84 | 3281.84 |
| MW-15 | 4/1/2019 | 3328.98 | 47.08 | NM | NA | NA | 3281.90 | 3281.90 |
| MW-15 | 10/1/2019 | 3328.98 | 47.16 | NM | NA | NA | 3281.82 | 3281.82 |
| MW-16 | 2/9/2009 | 3330.2 | 49.45 | NM | NA | NA | 3280.75 | 3280.75 |
| MW-16 | 8/4/2009 | 3330.2 | 49.58 | NM | NA | NA | 3280.62 | 3280.62 |
| MW-16 | 2/2/2010 | 3330.2 | 49.68 | NM | NA | NA | 3280.52 | 3280.52 |
| MW-16 | 8/2/2010 | 3330.2 | 49.87 | NM | NA | NA | 3280.33 | 3280.33 |
| MW-16 | 4/4/2011 | 3330.2 | 49.34 | NM | NA | NA | 3280.86 | 3280.86 |
| MW-16 | 8/8/2011 | 3330.2 | 49.81 | NM | NA | NA | 3280.39 | 3280.39 |
| MW-16 | 2/6/2012 | 3330.2 | 46.45 | NM | NA | NA | 3283.75 | 3283.75 |
| MW-16 | 8/17/2012 | 3330.2 | 48.96 | NM | NA | NA | 3281.24 | 3281.24 |
| MW-16 | 2/5/2013 | 3330.2 | 48.90 | NM | NA | NA | 3281.30 | 3281.30 |
| MW-16 | 8/5/2013 | 3330.2 | 48.82 | NM | NA | NA | 3281.38 | 3281.38 |
| MW-16 | 2/3/2014 | 3330.2 | 48.77 | NM | NA | NA | 3281.43 | 3281.43 |
| MW-16 | 8/5/2014 | 3330.2 | 48.97 | NM | NA | NA | 3281.23 | 3281.23 |
| MW-16 | 2/2/2015 | 3330.2 | 48.60 | NM | NA | NA | 3281.60 | 3281.60 |
| MW-16 | 8/3/2015 | 3330.2 | 47.58 | NM | NA | NA | 3282.62 | 3282.62 |
| MW-16 | 3/28/2016 | 3330.2 | 48.30 | NM | NA | NA | 3281.90 | 3281.90 |
| MW-16 | 9/6/2016 | 3330.2 | 48.20 | NM | NA | NA | 3282.00 | 3282.00 |
| MW-16 | 4/3/2017 | 3330.2 | 48.15 | NM | NA | NA | 3282.05 | 3282.05 |
| MW-16 | 9/11/2017 | 3330.2 | 48.05 | NM | NA | NA | 3282.15 | 3282.15 |
| MW-16 | 3/12/2018 | 3330.2 | 47.97 | NM | NA | NA | 3282.23 | 3282.23 |
| MW-16 | 9/24/2018 | 3330.2 | 46.00 | NM | NA | NA | 3284.20 | 3284.20 |
| MW-16 | 4/1/2019 | 3330.2 | 47.90 | NM | NA | NA | 3282.30 | 3282.30 |
| MW-16 | 10/1/2019 | 3330.2 | 47.99 | NM | NA | NA | 3282.21 | 3282.21 |
| MW-17 | 2/11/2009 | 3334.32 | 52.75 | NM | NA | NA | 3281.57 | 3281.57 |
| MW-17 | 8/4/2009 | 3334.32 | 52.88 | NM | NA | NA | 3281.44 | 3281.44 |
| MW-17 | 2/2/2010 | 3334.32 | 52.98 | NM | NA | NA | 3281.34 | 3281.34 |
| MW-17 | 8/2/2010 | 3334.32 | 53.10 | NM | NA | NA | 3281.22 | 3281.22 |
| MW-17 | 4/4/2011 | 3334.32 | 52.29 | NM | NA | NA | 3282.03 | 3282.03 |
| MW-17 | 8/8/2011 | 3334.32 | 52.11 | NM | NA | NA | 3282.21 | 3282.21 |
| MW-17 | 2/6/2012 | 3334.32 | 52.00 | NM | NA | NA | 3282.32 | 3282.32 |
| MW-17 | 8/7/2012 | 3334.32 | 51.89 | NM | NA | NA | 3282.43 | 3282.43 |
| MW-17 | 2/5/2013 | 3334.32 | 51.81 | NM | NA | NA | 3282.51 | 3282.51 |
| MW-17 | 8/5/2013 | 3334.32 | 51.90 | NM | NA | NA | 3282.42 | 3282.42 |
| MW-17 | 2/3/2014 | 3334.32 | 51.72 | NM | NA | NA | 3282.60 | 3282.60 |
| MW-17 | 8/5/2014 | 3334.32 | 52.26 | NM | NA | NA | 3282.06 | 3282.06 |
| MW-17 | 2/2/2015 | 3334.32 | 51.92 | NM | NA | NA | 3282.40 | 3282.40 |
| MW-17 | 8/3/2015 | 3334.32 | 51.90 | NM | NA | NA | 3282.42 | 3282.42 |
| MW-17 | 3/28/2016 | 3334.32 | 51.71 | NM | NA | NA | 3282.61 | 3282.61 |
| MW-17 | 9/9/2016 | 3334.32 | 51.65 | NM | NA | NA | 3282.67 | 3282.67 |
| MW-17 | 4/3/2017 | 3334.32 | 51.67 | NM | NA | NA | 3282.65 | 3282.65 |
| MW-17 | 9/12/2017 | 3334.32 | 51.61 | NM | NA | NA | 3282.71 | 3282.71 |
| MW-17 | 3/12/2018 | 3334.32 | 51.35 | NM | NA | NA | 3282.97 | 3282.97 |
| MW-17 | 9/24/2018 | 3334.32 | 51.35 | NM | NA | NA | 3282.97 | 3282.97 |
| MW-17 | 4/1/2019 | 3334.32 | 51.22 | NM | NA | NA | 3283.10 | 3283.10 |
| MW-17 | 10/1/2019 | 3334.32 | 51.41 | NM | NA | NA | 3282.91 | 3282.91 |
| MW-18 | 2/10/2009 | 3336.1 | 53.38 | NM | NA | NA | 3282.72 | 3282.72 |
| MW-18 | 8/4/2009 | 3336.1 | 53.27 | NM | NA | NA | 3282.83 | 3282.83 |
| MW-18 | 2/2/2010 | 3336.1 | 53.47 | NM | NA | NA | 3282.63 | 3282.63 |
| MW-18 | 8/2/2010 | 3336.1 | 53.43 | NM | NA | NA | 3282.67 | 3282.67 |
| MW-18 | 4/4/2011 | 3336.1 | 53.07 | NM | NA | NA | 3283.03 | 3283.03 |
| MW-18 | 8/8/2011 | 3336.1 | 52.93 | NM | NA | NA | 3283.17 | 3283.17 |
| MW-18 | 2/6/2012 | 3336.1 | 52.89 | NM | NA | NA | 3283.21 | 3283.21 |
| MW-18 | 8/7/2012 | 3336.1 | 52.81 | NM | NA | NA | 3283.29 | 3283.29 |
| MW-18 | 2/5/2013 | 3336.1 | 52.80 | NM | NA | NA | 3283.30 | 3283.30 |
| MW-18 | 8/5/2013 | 3336.1 | 52.86 | NM | NA | NA | 3283.24 | 3283.24 |
| MW-18 | 2/3/2014 | 3336.1 | 52.69 | NM | NA | NA | 3283.41 | 3283.41 |
| MW-18 | 8/5/2014 | 3336.1 | 52.82 | NM | NA | NA | 3283.28 | 3283.28 |
| MW-18 | 8/3/2015 | 3336.1 | 52.50 | NM | NA | NA | 3283.60 | 3283.60 |
| MW-18 | 3/29/2016 | 3336.1 | 52.37 | NM | NA | NA | 3283.73 | 3283.73 |
| MW-18 | 9/12/2016 | 3336.1 | 52.38 | NM | NA | NA | 3283.72 | 3283.72 |
| MW-18 | 4/3/2017 | 3336.1 | 52.23 | NM | NA | NA | 3283.87 | 3283.87 |
| MW-18 | 3/12/2018 | 3336.1 | 52.08 | NM | NA | NA | 3284.02 | 3284.02 |
| MW-18 | 9/24/2018 | 3336.1 | NM | NM | NA | NA | NM | NM |

Appendix C
Historical Groundwater Elevations
2019 Annual Groundwater Monitoring Report
Former Eunice South Gas Plant
Eunice, Lea County, New Mexico

ARCADIS Design & Consultancy for natural and built assets

| Location ID | Date | Top of Casing (feet amsl) | Depth To Groundwater (feet btoc) | Depth to LNAPL (feet btoc) | LNAPL Thickness (feet) | LNAPL Specific Gravity | Uncorrected Groundwater Elevation (feet amsl) | Corrected Groundwater Elevation (feet amsl)[1] |
|---|---|---|---|---|---|---|---|---|
| MW-19 | 2/18/2009 | 3334.21 | 53.42 | 52.44 | 0.98 | 0.82 | 3280.79 | 3281.59 |
| MW-19 | 3/18/2009 | 3334.21 | 53.51 | 52.51 | 1 | 0.82 | 3280.70 | 3281.52 |
| MW-19 | 8/5/2009 | 3334.21 | 52.81 | NM | NA | 0.82 | 3281.40 | 3281.40 |
| MW-19 | 2/2/2010 | 3334.21 | 53.02 | 53.00 | 0.02 | 0.82 | 3281.19 | 3281.21 |
| MW-19 | 8/2/2010 | 3334.21 | 53.19 | NM | NA | 0.82 | 3281.02 | 3281.02 |
| MW-19 | 4/4/2011 | 3334.21 | 52.57 | NM | NA | 0.82 | 3281.64 | 3281.64 |
| MW-19 | 8/8/2011 | 3334.21 | NM | NM | NA | 0.82 | NM | NM |
| MW-19 | 2/6/2012 | 3334.21 | 53.09 | 53.07 | 0.02 | 0.82 | 3281.12 | 3281.14 |
| MW-19 | 8/7/2012 | 3334.21 | 52.42 | NM | NA | 0.82 | 3281.79 | 3281.79 |
| MW-19 | 2/5/2013 | 3334.21 | 52.50 | NM | NA | 0.82 | 3281.71 | 3281.71 |
| MW-19 | 8/5/2013 | 3334.21 | 52.48 | NM | NA | 0.82 | 3281.73 | 3281.73 |
| MW-19 | 2/3/2014 | 3334.21 | 52.48 | NM | NA | 0.82 | 3281.73 | 3281.73 |
| MW-19 | 8/5/2014 | 3334.21 | 52.71 | NM | NA | 0.82 | 3281.50 | 3281.50 |
| MW-19 | 2/2/2015 | 3334.21 | 51.41 | 51.40 | 0.01 | 0.82 | 3282.80 | 3282.81 |
| MW-19 | 8/3/2015 | 3334.21 | 52.26 | 51.36 | 0.9 | 0.82 | 3281.95 | 3282.69 |
| MW-19 | 3/29/2016 | 3334.21 | 52.64 | 51.06 | 1.58 | 0.82 | 3281.57 | 3282.87 |
| MW-19 | 9/13/2016 | 3334.21 | 51.99 | 51.19 | 0.8 | 0.82 | 3282.22 | 3282.88 |
| MW-19 | 4/3/2017 | 3334.21 | 52.51 | 50.94 | 1.57 | 0.82 | 3281.70 | 3282.99 |
| MW-19 | 3/15/2018 | 3334.21 | 52.04 | 50.82 | 1.22 | 0.82 | 3282.17 | 3283.17 |
| MW-19 | 9/24/2018 | 3334.21 | NM | 50.82 | NA | 0.82 | NM | NM |
| MW-19 | 4/1/2019 | 3334.21 | 52.26 | 50.93 | 1.33 | 0.82 | 3281.95 | 3283.04 |
| MW-20 | 2/4/2009 | 3334.06 | 54.37 | 52.44 | 1.93 | 0.82 | 3279.69 | 3281.27 |
| MW-20 | 3/18/2009 | 3334.06 | 56.92 | 52.25 | 4.67 | 0.82 | 3277.14 | 3280.97 |
| MW-20 | 3/25/2009 | 3334.06 | 57.44 | 52.19 | 5.25 | 0.82 | 3276.62 | 3280.93 |
| MW-20 | 8/5/2009 | 3334.06 | 55.82 | 52.65 | 3.17 | 0.82 | 3278.24 | 3280.84 |
| MW-20 | 2/2/2010 | 3334.06 | 56.91 | 52.75 | 4.16 | 0.82 | 3277.15 | 3280.56 |
| MW-20 | 8/2/2010 | 3334.06 | 53.84 | 53.69 | 0.15 | 0.82 | 3280.22 | 3280.34 |
| MW-20 | 4/4/2011 | 3334.06 | 55.80 | 52.84 | 2.96 | 0.82 | 3278.26 | 3280.69 |
| MW-20 | 8/8/2011 | 3334.06 | NM | NM | NA | 0.82 | NM | NM |
| MW-20 | 2/6/2012 | 3334.06 | 56.97 | 52.87 | 4.1 | 0.82 | 3277.09 | 3280.45 |
| MW-20 | 8/7/2012 | 3334.06 | 55.27 | 51.63 | 3.64 | 0.82 | 3278.79 | 3281.77 |
| MW-20 | 2/5/2013 | 3334.06 | 55.84 | 51.25 | 4.59 | 0.82 | 3278.22 | 3281.98 |
| MW-20 | 8/5/2013 | 3334.06 | 55.87 | 51.61 | 4.26 | 0.82 | 3278.19 | 3281.68 |
| MW-20 | 2/3/2014 | 3334.06 | 55.64 | 51.52 | 4.12 | 0.82 | 3278.42 | 3281.80 |
| MW-20 | 8/5/2014 | 3334.06 | 56.14 | 51.86 | 4.28 | 0.82 | 3277.92 | 3281.43 |
| MW-20 | 2/12/2015 | 3334.06 | 54.48 | 50.98 | 3.5 | 0.82 | 3279.58 | 3282.45 |
| MW-20 | 8/3/2015 | 3334.06 | 54.58 | 50.98 | 3.6 | 0.82 | 3279.48 | 3282.43 |
| MW-20 | 3/29/2016 | 3334.06 | 54.37 | 50.80 | 3.57 | 0.82 | 3279.69 | 3282.62 |
| MW-20 | 9/13/2016 | 3334.06 | 53.87 | 50.70 | 3.17 | 0.82 | 3280.19 | 3282.79 |
| MW-20 | 4/3/2017 | 3334.06 | 54.18 | 50.69 | 3.49 | 0.82 | 3279.88 | 3282.74 |
| MW-20 | 3/15/2018 | 3334.06 | 53.90 | 50.60 | 3.3 | 0.82 | 3280.16 | 3282.87 |
| MW-20 | 9/24/2018 | 3334.06 | NM | 50.60 | NA | 0.82 | NM | NM |
| MW-20 | 10/1/2019 | 3334.06 | 54.61 | 50.91 | 3.7 | 0.82 | 3279.45 | 3282.48 |
| MW-21 | 2/18/2009 | 3333.02 | 51.89 | 51.86 | 0.03 | 0.82 | 3281.13 | 3281.15 |
| MW-21 | 8/5/2009 | 3333.02 | 52.13 | 52.12 | 0.01 | 0.82 | 3280.89 | 3280.90 |
| MW-21 | 2/2/2010 | 3333.02 | 52.33 | NM | NA | 0.82 | 3280.69 | 3280.69 |
| MW-21 | 8/2/2010 | 3333.02 | 52.75 | NM | NA | 0.82 | 3280.27 | 3280.27 |
| MW-21 | 4/4/2011 | 3333.02 | 51.23 | NM | NA | 0.82 | 3281.79 | 3281.79 |
| MW-21 | 8/8/2011 | 3333.02 | NM | NM | NA | 0.82 | NM | NM |
| MW-21 | 2/6/2012 | 3333.02 | 52.42 | 52.38 | 0.04 | 0.82 | 3280.60 | 3280.63 |
| MW-21 | 8/7/2012 | 3333.02 | 51.41 | NM | NA | 0.82 | 3281.61 | 3281.61 |
| MW-21 | 2/5/2013 | 3333.02 | 51.50 | NM | NA | 0.82 | 3281.52 | 3281.52 |
| MW-21 | 8/15/2013 | 3333.02 | 51.53 | NM | NA | 0.82 | 3281.49 | 3281.49 |
| MW-21 | 2/3/2014 | 3333.02 | 51.31 | NM | NA | 0.82 | 3281.71 | 3281.71 |
| MW-21 | 8/5/2014 | 3333.02 | 51.70 | 51.64 | 0.06 | 0.82 | 3281.32 | 3281.37 |
| MW-21 | 2/2/2015 | 3333.02 | 50.39 | 50.36 | 0.03 | 0.82 | 3282.63 | 3282.65 |
| MW-21 | 8/3/2015 | 3333.02 | 50.40 | 50.38 | 0.02 | 0.82 | 3282.62 | 3282.64 |
| MW-21 | 3/29/2016 | 3333.02 | 51.07 | 50.39 | 0.68 | 0.82 | 3281.95 | 3282.51 |
| MW-21 | 9/13/2016 | 3333.02 | 50.88 | 50.21 | 0.67 | 0.82 | 3282.14 | 3282.69 |
| MW-21 | 4/3/2017 | 3333.02 | 51.67 | 50.00 | 1.67 | 0.82 | 3281.35 | 3282.72 |
| MW-21 | 3/15/2018 | 3333.02 | 50.92 | 50.04 | 0.88 | 0.82 | 3282.10 | 3282.82 |
| MW-21 | 9/24/2018 | 3333.02 | NM | 50.04 | NA | 0.82 | NM | NM |
| MW-21 | 4/1/2019 | 3333.02 | 51.00 | 50.15 | 0.85 | 0.82 | 3282.02 | 3282.72 |
| MW-21 | 10/1/2019 | 3333.02 | 51.90 | 50.32 | 1.58 | 0.82 | 3281.12 | 3282.42 |
| MW-22 | 2/11/2009 | 3334.87 | 55.04 | NM | NA | NA | 3279.83 | 3279.83 |
| MW-22 | 8/5/2009 | 3334.87 | 54.55 | NM | NA | NA | 3280.32 | 3280.32 |
| MW-22 | 2/2/2010 | 3334.87 | 55.45 | NM | NA | NA | 3279.42 | 3279.42 |
| MW-22 | 8/2/2010 | 3334.87 | 55.77 | NM | NA | NA | 3279.10 | 3279.10 |
| MW-22 | 4/4/2011 | 3334.87 | 53.60 | NM | NA | NA | 3281.27 | 3281.27 |
| MW-22 | 8/8/2011 | 3334.87 | 53.38 | NM | NA | NA | 3281.49 | 3281.49 |
| MW-22 | 2/6/2012 | 3334.87 | 53.30 | NM | NA | NA | 3281.57 | 3281.57 |
| MW-22 | 8/7/2012 | 3334.87 | 53.15 | NM | NA | NA | 3281.72 | 3281.72 |
| MW-22 | 2/5/2013 | 3334.87 | 53.11 | NM | NA | NA | 3281.76 | 3281.76 |
| MW-22 | 8/5/2013 | 3334.87 | 53.20 | NM | NA | NA | 3281.67 | 3281.67 |
| MW-22 | 2/3/2014 | 3334.87 | 53.05 | NM | NA | NA | 3281.82 | 3281.82 |
| MW-22 | 8/5/2014 | 3334.87 | 54.30 | NM | NA | NA | 3280.57 | 3280.57 |



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Appendix C
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2019 Annual Groundwater Monitoring Report
Former Eunice South Gas Plant
Eunice, Lea County, New Mexico

ARCADIS Design & Consultancy for natural and built assets

| Location ID | Date | Top of Casing (feet amsl) | Depth To Groundwater (feet btoc) | Depth to LNAPL (feet btoc) | LNAPL Thickness (feet) | LNAPL Specific Gravity | Uncorrected Groundwater Elevation (feet amsl) | Corrected Groundwater Elevation (feet amsl)[1] |
|---|---|---|---|---|---|---|---|---|
| MW-22 | 2/2/2015 | 3334.87 | 52.85 | NM | NA | NA | 3282.02 | 3282.02 |
| MW-22 | 8/3/2015 | 3334.87 | 52.80 | NM | NA | NA | 3282.07 | 3282.07 |
| MW-22 | 3/28/2016 | 3334.87 | 53.06 | NM | NA | NA | 3281.81 | 3281.81 |
| MW-22 | 9/9/2016 | 3334.87 | 52.48 | NM | NA | NA | 3282.39 | 3282.39 |
| MW-22 | 4/3/2017 | 3334.87 | 52.65 | NM | NA | NA | 3282.22 | 3282.22 |
| MW-22 | 3/12/2018 | 3334.87 | 52.44 | NM | NA | NA | 3282.43 | 3282.43 |
| MW-22 | 9/24/2018 | 3334.87 | NM | NM | NA | NA | NM | NM |
| MW-22 | 4/1/2019 | 3334.87 | 52.24 | NM | NA | NA | 3282.63 | 3282.63 |
| MW-23 | 2/11/2009 | 3334.45 | 54.39 | NM | NA | NA | 3280.06 | 3280.06 |
| MW-23 | 8/4/2009 | 3334.45 | 54.25 | NM | NA | NA | 3280.20 | 3280.20 |
| MW-23 | 2/2/2010 | 3334.45 | 55.04 | NM | NA | NA | 3279.41 | 3279.41 |
| MW-23 | 8/2/2010 | 3334.45 | 55.16 | NM | NA | NA | 3279.29 | 3279.29 |
| MW-23 | 4/4/2011 | 3334.45 | 52.86 | NM | NA | NA | 3281.59 | 3281.59 |
| MW-23 | 8/8/2011 | 3334.45 | 52.62 | NM | NA | NA | 3281.83 | 3281.83 |
| MW-23 | 2/6/2012 | 3334.45 | 52.50 | NM | NA | NA | 3281.95 | 3281.95 |
| MW-23 | 8/17/2012 | 3334.45 | 53.25 | NM | NA | NA | 3281.20 | 3281.20 |
| MW-23 | 2/5/2013 | 3334.45 | 52.31 | NM | NA | NA | 3282.14 | 3282.14 |
| MW-23 | 8/5/2013 | 3334.45 | 52.38 | NM | NA | NA | 3282.07 | 3282.07 |
| MW-23 | 2/3/2014 | 3334.45 | 52.21 | NM | NA | NA | 3282.24 | 3282.24 |
| MW-23 | 8/5/2014 | 3334.45 | 54.41 | NM | NA | NA | 3280.04 | 3280.04 |
| MW-23 | 2/2/2015 | 3334.45 | 52.82 | NM | NA | NA | 3281.63 | 3281.63 |
| MW-23 | 8/3/2015 | 3334.45 | 53.90 | NM | NA | NA | 3280.55 | 3280.55 |
| MW-23 | 3/28/2016 | 3334.45 | 53.21 | NM | NA | NA | 3281.24 | 3281.24 |
| MW-23 | 9/9/2016 | 3334.45 | 52.92 | NM | NA | NA | 3281.53 | 3281.53 |
| MW-23 | 4/3/2017 | 3334.45 | 53.24 | NM | NA | NA | 3281.21 | 3281.21 |
| MW-23 | 3/12/2018 | 3334.45 | 52.01 | NM | NA | NA | 3282.44 | 3282.44 |
| MW-23 | 9/24/2018 | 3334.45 | NM | NM | NA | NA | NM | NM |
| MW-24 | 2/18/2009 | 3336.97 | 54.16 | NM | NA | 0.74 | 3282.81 | 3282.81 |
| MW-24 | 8/4/2009 | 3336.97 | 54.26 | 54.25 | 0.01 | 0.74 | 3282.71 | 3282.72 |
| MW-24 | 2/2/2010 | 3336.97 | 54.38 | NM | NA | 0.74 | 3282.59 | 3282.59 |
| MW-24 | 8/2/2010 | 3336.97 | 54.38 | NM | NA | 0.74 | 3282.59 | 3282.59 |
| MW-24 | 4/4/2011 | 3336.97 | 54.23 | NM | NA | 0.74 | 3282.74 | 3282.74 |
| MW-24 | 8/8/2011 | 3336.97 | 54.20 | NM | NA | 0.74 | 3282.77 | 3282.77 |
| MW-24 | 2/6/2012 | 3336.97 | 54.25 | NM | NA | 0.74 | 3282.72 | 3282.72 |
| MW-24 | 8/27/2012 | 3336.97 | 54.22 | NM | NA | 0.74 | 3282.75 | 3282.75 |
| MW-24 | 2/5/2013 | 3336.97 | 54.20 | NM | NA | 0.74 | 3282.77 | 3282.77 |
| MW-24 | 8/5/2013 | 3336.97 | 54.15 | NM | NA | 0.74 | 3282.82 | 3282.82 |
| MW-24 | 2/3/2014 | 3336.97 | 54.12 | NM | NA | 0.74 | 3282.85 | 3282.85 |
| MW-24 | 8/5/2014 | 3336.97 | 54.18 | NM | NA | 0.74 | 3282.79 | 3282.79 |
| MW-24 | 2/2/2015 | 3336.97 | 53.71 | NM | NA | 0.74 | 3283.26 | 3283.26 |
| MW-24 | 8/3/2015 | 3336.97 | 53.68 | NM | NA | 0.74 | 3283.29 | 3283.29 |
| MW-24 | 3/29/2016 | 3336.97 | 53.45 | NM | NA | 0.74 | 3283.52 | 3283.52 |
| MW-24 | 9/12/2016 | 3336.97 | 53.43 | NM | NA | 0.74 | 3283.54 | 3283.54 |
| MW-24 | 4/3/2017 | 3336.97 | 53.32 | NM | NA | 0.74 | 3283.65 | 3283.65 |
| MW-24 | 9/12/2017 | 3336.97 | 53.33 | NM | NA | 0.74 | 3283.64 | 3283.64 |
| MW-24 | 3/13/2018 | 3336.97 | 53.29 | NM | NA | 0.74 | 3283.68 | 3283.68 |
| MW-24 | 9/24/2018 | 3336.97 | 53.46 | NM | NA | 0.74 | 3283.51 | 3283.51 |
| MW-24 | 4/1/2019 | 3336.97 | 53.28 | NM | NA | 0.74 | 3283.69 | 3283.69 |
| MW-24 | 10/1/2019 | 3336.97 | 53.38 | NM | NA | 0.74 | 3283.59 | 3283.59 |
| MW-25 | 2/12/2009 | 3336.31 | 52.16 | NM | NA | NA | 3284.15 | 3284.15 |
| MW-25 | 8/5/2009 | 3336.31 | 52.00 | NM | NA | NA | 3284.31 | 3284.31 |
| MW-25 | 2/2/2010 | 3336.31 | 52.48 | NM | NA | NA | 3283.83 | 3283.83 |
| MW-25 | 8/2/2010 | 3336.31 | 52.49 | NM | NA | NA | 3283.82 | 3283.82 |
| MW-25 | 4/4/2011 | 3336.31 | 52.15 | NM | NA | NA | 3284.16 | 3284.16 |
| MW-25 | 8/8/2011 | 3336.31 | 52.08 | NM | NA | NA | 3284.23 | 3284.23 |
| MW-25 | 2/6/2012 | 3336.31 | 52.15 | NM | NA | NA | 3284.16 | 3284.16 |
| MW-25 | 2/5/2013 | 3336.31 | 52.08 | NM | NA | NA | 3284.23 | 3284.23 |
| MW-25 | 8/5/2013 | 3336.31 | 51.97 | NM | NA | NA | 3284.34 | 3284.34 |
| MW-25 | 2/3/2014 | 3336.31 | 51.97 | NM | NA | NA | 3284.34 | 3284.34 |
| MW-25 | 8/5/2014 | 3336.31 | 52.04 | NM | NA | NA | 3284.27 | 3284.27 |
| MW-25 | 2/2/2015 | 3336.31 | 51.40 | NM | NA | NA | 3284.91 | 3284.91 |
| MW-25 | 8/3/2015 | 3336.31 | 51.40 | NM | NA | NA | 3284.91 | 3284.91 |
| MW-25 | 3/29/2016 | 3336.31 | 51.15 | NM | NA | NA | 3285.16 | 3285.16 |
| MW-25 | 9/12/2016 | 3336.31 | 51.23 | NM | NA | NA | 3285.08 | 3285.08 |
| MW-25 | 4/3/2017 | 3336.31 | 51.01 | NM | NA | NA | 3285.30 | 3285.30 |
| MW-25 | 9/12/2017 | 3336.31 | 51.01 | NM | NA | NA | 3285.30 | 3285.30 |
| MW-25 | 3/13/2018 | 3336.31 | 51.07 | NM | NA | NA | 3285.24 | 3285.24 |
| MW-25 | 9/24/2018 | 3336.31 | 51.18 | NM | NA | NA | 3285.13 | 3285.13 |
| MW-25 | 4/1/2019 | 3336.31 | 51.02 | NM | NA | NA | 3285.29 | 3285.29 |
| MW-25 | 10/1/2019 | 3336.31 | 51.21 | NM | NA | NA | 3285.10 | 3285.10 |
| MW-26 | 2/17/2009 | 3334.93 | 52.47 | NM | NA | 0.72 | 3282.46 | 3282.46 |
| MW-26 | 8/4/2009 | 3334.93 | 52.61 | 52.60 | 0.01 | 0.72 | 3282.32 | 3282.33 |
| MW-26 | 2/2/2010 | 3334.93 | 52.75 | NM | NA | 0.72 | 3282.18 | 3282.18 |
| MW-26 | 8/2/2010 | 3334.93 | 52.76 | NM | NA | 0.72 | 3282.17 | 3282.17 |
| MW-26 | 4/4/2011 | 3334.93 | 52.60 | NM | NA | 0.72 | 3282.33 | 3282.33 |
| MW-26 | 8/8/2011 | 3334.93 | 52.56 | NM | NA | 0.72 | 3282.37 | 3282.37 |



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Eunice, Lea County, New Mexico

ARCADIS Design & Consultancy for natural and built assets

| Location ID | Date | Top of Casing (feet amsl) | Depth To Groundwater (feet btoc) | Depth to LNAPL (feet btoc) | LNAPL Thickness (feet) | LNAPL Specific Gravity | Uncorrected Groundwater Elevation (feet amsl) | Corrected Groundwater Elevation (feet amsl)[1] |
|---|---|---|---|---|---|---|---|---|
| MW-26 | 2/6/2012 | 3334.93 | 52.65 | NM | NA | 0.72 | 3282.28 | 3282.28 |
| MW-26 | 8/17/2012 | 3334.93 | 52.58 | NM | NA | 0.72 | 3282.35 | 3282.35 |
| MW-26 | 2/5/2013 | 3334.93 | 52.55 | NM | NA | 0.72 | 3282.38 | 3282.38 |
| MW-26 | 8/5/2013 | 3334.93 | 52.49 | NM | NA | 0.72 | 3282.44 | 3282.44 |
| MW-26 | 2/3/2014 | 3334.93 | 52.46 | NM | NA | 0.72 | 3282.47 | 3282.47 |
| MW-26 | 8/5/2014 | 3334.93 | 52.52 | NM | NA | 0.72 | 3282.41 | 3282.41 |
| MW-26 | 2/2/2015 | 3334.93 | 51.95 | NM | NA | 0.72 | 3282.98 | 3282.98 |
| MW-26 | 8/3/2015 | 3334.93 | 51.95 | NM | NA | 0.72 | 3282.98 | 3282.98 |
| MW-26 | 3/29/2016 | 3334.93 | 51.69 | NM | NA | 0.72 | 3283.24 | 3283.24 |
| MW-26 | 9/12/2016 | 3334.93 | 51.93 | NM | NA | 0.72 | 3283.00 | 3283.00 |
| MW-26 | 4/3/2017 | 3334.93 | 52.58 | NM | NA | 0.72 | 3282.35 | 3282.35 |
| MW-26 | 9/12/2017 | 3334.93 | 51.62 | NM | NA | 0.72 | 3283.31 | 3283.31 |
| MW-26 | 3/13/2018 | 3334.93 | 51.60 | 51.58 | 0.02 | 0.72 | 3283.33 | 3283.34 |
| MW-26 | 9/24/2018 | 3334.93 | 51.72 | 51.58 | 0.14 | 0.72 | 3283.21 | 3283.31 |
| MW-26 | 4/1/2019 | 3334.93 | 51.59 | NM | NA | 0.72 | 3283.34 | 3283.34 |
| MW-26 | 10/1/2019 | 3334.93 | 51.73 | NM | NA | 0.72 | 3283.20 | 3283.20 |
| MW-27 | 2/17/2009 | 3334.96 | 52.51 | NM | NA | 0.72 | 3282.45 | 3282.45 |
| MW-27 | 8/4/2009 | 3334.96 | 52.65 | 52.63 | 0.02 | 0.72 | 3282.31 | 3282.32 |
| MW-27 | 2/2/2010 | 3334.96 | 52.84 | 52.81 | 0.03 | 0.72 | 3282.12 | 3282.14 |
| MW-27 | 8/2/2010 | 3334.96 | 53.05 | 52.82 | 0.23 | 0.72 | 3281.91 | 3282.08 |
| MW-27 | 4/4/2011 | 3334.96 | 54.90 | 52.18 | 2.72 | 0.72 | 3280.06 | 3282.02 |
| MW-27 | 8/8/2011 | 3334.96 | 54.98 | 52.08 | 2.9 | 0.72 | 3279.98 | 3282.07 |
| MW-27 | 2/6/2012 | 3334.96 | 58.15 | 53.87 | 4.28 | 0.72 | 3276.81 | 3279.89 |
| MW-27 | 8/7/2012 | 3334.96 | 55.40 | 52.30 | 3.1 | 0.72 | 3279.56 | 3281.79 |
| MW-27 | 2/5/2013 | 3334.96 | 55.05 | 52.01 | 3.04 | 0.72 | 3279.91 | 3282.10 |
| MW-27 | 8/5/2013 | 3334.96 | 55.01 | 52.01 | 3 | 0.72 | 3279.95 | 3282.11 |
| MW-27 | 2/3/2014 | 3334.96 | 54.88 | 51.94 | 2.94 | 0.72 | 3280.08 | 3282.20 |
| MW-27 | 8/5/2014 | 3334.96 | 54.96 | 52.00 | 2.96 | 0.72 | 3280.00 | 3282.13 |
| MW-27 | 2/2/2015 | 3334.96 | 52.42 | 51.78 | 0.64 | 0.72 | 3282.54 | 3283.00 |
| MW-27 | 8/3/2015 | 3334.96 | 52.49 | 51.74 | 0.75 | 0.72 | 3282.47 | 3283.01 |
| MW-27 | 3/29/2016 | 3334.96 | 51.50 | NM | NA | 0.72 | 3283.46 | 3283.46 |
| MW-27 | 9/12/2016 | 3334.96 | 52.67 | 51.52 | 1.15 | 0.72 | 3282.29 | 3283.12 |
| MW-27 | 4/3/2017 | 3334.96 | 52.33 | 51.4 | 0.93 | 0.72 | 3282.63 | 3283.30 |
| MW-27 | 3/13/2018 | 3334.96 | 52.33 | 51.34 | 0.99 | 0.72 | 3282.63 | 3283.34 |
| MW-27 | 9/24/2018 | 3334.96 | NM | 51.34 | NA | 0.72 | NM | NM |
| MW-27 | 4/1/2019 | 3334.96 | 50.71 | 49.50 | 1.21 | 0.72 | 3284.25 | 3285.12 |
| MW-27 | 10/1/2019 | 3334.96 | 50.86 | 49.61 | 1.25 | 0.72 | 3284.10 | 3285.00 |
| MW-28 | 3/9/2009 | 3333.04 | 57.65 | 53.6 | 4.05 | 0.72 | 3275.39 | 3278.31 |
| MW-28 | 8/5/2009 | 3333.04 | 57.94 | 53.68 | 4.26 | 0.72 | 3275.10 | 3278.17 |
| MW-28 | 2/2/2010 | 3333.04 | 58.13 | 53.85 | 4.28 | 0.72 | 3274.91 | 3277.99 |
| MW-28 | 8/2/2010 | 3333.04 | 58.15 | 53.97 | 4.18 | 0.72 | 3274.89 | 3277.90 |
| MW-28 | 4/4/2011 | 3333.04 | 57.44 | 53.78 | 3.66 | 0.72 | 3275.60 | 3278.24 |
| MW-28 | 8/8/2011 | 3333.04 | 57.37 | 53.66 | 3.71 | 0.72 | 3275.67 | 3278.34 |
| MW-28 | 2/6/2012 | 3333.04 | 58.22 | 53.84 | 4.38 | 0.72 | 3274.82 | 3277.97 |
| MW-28 | 8/14/2012 | 3333.04 | 57.54 | 53.63 | 3.91 | 0.72 | 3275.50 | 3278.32 |
| MW-28 | 2/5/2013 | 3333.04 | 57.42 | 53.61 | 3.81 | 0.72 | 3275.62 | 3278.36 |
| MW-28 | 8/5/2013 | 3333.04 | 57.15 | 53.63 | 3.52 | 0.72 | 3275.89 | 3278.42 |
| MW-28 | 2/3/2014 | 3333.04 | 56.86 | 53.67 | 3.19 | 0.72 | 3276.18 | 3278.48 |
| MW-28 | 8/5/2014 | 3333.04 | 56.86 | 53.80 | 3.06 | 0.72 | 3276.18 | 3278.38 |
| MW-28 | 2/2/2015 | 3333.04 | 55.65 | 53.80 | 1.85 | 0.72 | 3277.39 | 3278.72 |
| MW-28 | 8/3/2015 | 3333.04 | 55.54 | 53.27 | 2.27 | 0.72 | 3277.50 | 3279.13 |
| MW-28 | 3/29/2016 | 3333.04 | NM | 53.15 | NA | 0.72 | NM | NM |
| MW-28 | 9/13/2016 | 3333.04 | 55.27 | 53.17 | 2.1 | 0.72 | 3277.77 | 3279.28 |
| MW-28 | 4/3/2017 | 3333.04 | 55.02 | 53.00 | 2.02 | 0.72 | 3278.02 | 3279.47 |
| MW-28 | 3/13/2018 | 3333.04 | 54.88 | 53.00 | 1.88 | 0.72 | 3278.16 | 3279.51 |
| MW-28 | 9/24/2018 | 3333.04 | NM | NM | NA | 0.72 | NM | NM |
| MW-28 | 4/1/2019 | 3333.04 | 54.94 | 53.05 | 1.89 | 0.72 | 3278.10 | 3279.46 |
| MW-28 | 10/1/2019 | 3333.04 | 55.09 | 53.25 | 1.84 | 0.72 | 3277.95 | 3279.27 |
| MW-29 | 2/4/2009 | 3334.01 | 52.56 | NM | NA | NA | 3281.45 | 3281.45 |
| MW-29 | 8/5/2009 | 3334.01 | 52.65 | NM | NA | NA | 3281.36 | 3281.36 |
| MW-29 | 2/2/2010 | 3334.01 | 52.84 | NM | NA | NA | 3281.17 | 3281.17 |
| MW-29 | 8/2/2010 | 3334.01 | 52.95 | NM | NA | NA | 3281.06 | 3281.06 |
| MW-29 | 4/4/2011 | 3334.01 | 52.87 | NM | NA | NA | 3281.14 | 3281.14 |
| MW-29 | 8/8/2011 | 3334.01 | 52.80 | NM | NA | NA | 3281.21 | 3281.21 |
| MW-29 | 2/6/2012 | 3334.01 | 52.83 | NM | NA | NA | 3281.18 | 3281.18 |
| MW-29 | 8/6/2012 | 3334.01 | 52.85 | NM | NA | NA | 3281.16 | 3281.16 |
| MW-29 | 2/5/2013 | 3334.01 | 52.70 | NM | NA | NA | 3281.31 | 3281.31 |
| MW-29 | 8/5/2013 | 3334.01 | 52.73 | NM | NA | NA | 3281.28 | 3281.28 |
| MW-29 | 2/3/2014 | 3334.01 | 52.67 | NM | NA | NA | 3281.34 | 3281.34 |
| MW-29 | 8/5/2014 | 3334.01 | 52.76 | NM | NA | NA | 3281.25 | 3281.25 |
| MW-29 | 2/2/2015 | 3334.01 | 52.03 | NM | NA | NA | 3281.98 | 3281.98 |
| MW-29 | 8/3/2015 | 3334.01 | 52.02 | NM | NA | NA | 3281.99 | 3281.99 |
| MW-29 | 3/29/2016 | 3334.01 | 51.90 | NM | NA | NA | 3282.11 | 3282.11 |
| MW-29 | 9/7/2016 | 3334.01 | 51.93 | NM | NA | NA | 3282.08 | 3282.08 |
| MW-29 | 4/3/2017 | 3334.01 | 51.77 | NM | NA | NA | 3282.24 | 3282.24 |
| MW-29 | 9/11/2017 | 3334.01 | 51.81 | NM | NA | NA | 3282.20 | 3282.20 |



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Appendix C
Historical Groundwater Elevations
2019 Annual Groundwater Monitoring Report
Former Eunice South Gas Plant
Eunice, Lea County, New Mexico

ARCADIS Design & Consultancy for natural and built assets

| Location ID | Date | Top of Casing (feet amsl) | Depth To Groundwater (feet btoc) | Depth to LNAPL (feet btoc) | LNAPL Thickness (feet) | LNAPL Specific Gravity | Uncorrected Groundwater Elevation (feet amsl) | Corrected Groundwater Elevation (feet amsl)[1] |
|---|---|---|---|---|---|---|---|---|
| MW-29 | 3/15/2018 | 3334.01 | 51.79 | NM | NA | NA | 3282.22 | 3282.22 |
| MW-29 | 9/24/2018 | 3334.01 | 51.92 | NM | NA | NA | 3282.09 | 3282.09 |
| MW-29 | 4/1/2019 | 3334.01 | 51.82 | NM | NA | NA | 3282.19 | 3282.19 |
| MW-29 | 10/1/2019 | 3334.01 | 51.92 | NM | NA | NA | 3282.09 | 3282.09 |
| MW-30 | 2/4/2009 | 3336.49 | 55.26 | NM | NA | NA | 3281.23 | 3281.23 |
| MW-30 | 8/4/2009 | 3336.49 | 55.31 | NM | NA | NA | 3281.18 | 3281.18 |
| MW-30 | 2/2/2010 | 3336.49 | 55.43 | NM | NA | NA | 3281.06 | 3281.06 |
| MW-30 | 8/2/2010 | 3336.49 | 55.51 | NM | NA | NA | 3280.98 | 3280.98 |
| MW-30 | 4/4/2011 | 3336.49 | 55.47 | NM | NA | NA | 3281.02 | 3281.02 |
| MW-30 | 8/8/2011 | 3336.49 | 55.40 | NM | NA | NA | 3281.09 | 3281.09 |
| MW-30 | 2/6/2012 | 3336.49 | 55.41 | NM | NA | NA | 3281.08 | 3281.08 |
| MW-30 | 8/6/2012 | 3336.49 | 55.45 | NM | NA | NA | 3281.04 | 3281.04 |
| MW-30 | 2/5/2013 | 3336.49 | 55.35 | NM | NA | NA | 3281.14 | 3281.14 |
| MW-30 | 8/5/2013 | 3336.49 | 55.37 | NM | NA | NA | 3281.12 | 3281.12 |
| MW-30 | 2/3/2014 | 3336.49 | 55.29 | NM | NA | NA | 3281.20 | 3281.20 |
| MW-30 | 8/5/2014 | 3336.49 | 55.34 | NM | NA | NA | 3281.15 | 3281.15 |
| MW-30 | 2/2/2015 | 3336.49 | 54.90 | NM | NA | NA | 3281.59 | 3281.59 |
| MW-30 | 8/3/2015 | 3336.49 | 54.85 | NM | NA | NA | 3281.64 | 3281.64 |
| MW-30 | 3/29/2016 | 3336.49 | 54.76 | NM | NA | NA | 3281.73 | 3281.73 |
| MW-30 | 9/6/2016 | 3336.49 | 54.69 | NM | NA | NA | 3281.80 | 3281.80 |
| MW-30 | 4/3/2017 | 3336.49 | 54.62 | NM | NA | NA | 3281.87 | 3281.87 |
| MW-30 | 9/11/2017 | 3336.49 | 54.59 | NM | NA | NA | 3281.90 | 3281.90 |
| MW-30 | 3/12/2018 | 3336.49 | 54.54 | NM | NA | NA | 3281.95 | 3281.95 |
| MW-30 | 9/24/2018 | 3336.49 | 54.63 | NM | NA | NA | 3281.86 | 3281.86 |
| MW-30 | 4/1/2019 | 3336.49 | 54.54 | NM | NA | NA | 3281.95 | 3281.95 |
| MW-30 | 10/1/2019 | 3336.49 | 54.65 | NM | NA | NA | 3281.84 | 3281.84 |
| MW-31 | 2/9/2009 | 3334.52 | 53.78 | NM | NA | NA | 3280.74 | 3280.74 |
| MW-31 | 8/5/2009 | 3334.52 | 53.83 | NM | NA | NA | 3280.69 | 3280.69 |
| MW-31 | 2/2/2010 | 3334.52 | 53.91 | NM | NA | NA | 3280.61 | 3280.61 |
| MW-31 | 8/2/2010 | 3334.52 | 54.05 | NM | NA | NA | 3280.47 | 3280.47 |
| MW-31 | 4/4/2011 | 3334.52 | 54.00 | NM | NA | NA | 3280.52 | 3280.52 |
| MW-31 | 8/8/2011 | 3334.52 | 53.94 | NM | NA | NA | 3280.58 | 3280.58 |
| MW-31 | 2/6/2012 | 3334.52 | 53.95 | NM | NA | NA | 3280.57 | 3280.57 |
| MW-31 | 8/6/2012 | 3334.52 | 53.99 | NM | NA | NA | 3280.53 | 3280.53 |
| MW-31 | 2/5/2013 | 3334.52 | 53.90 | NM | NA | NA | 3280.62 | 3280.62 |
| MW-31 | 8/5/2013 | 3334.52 | 53.88 | NM | NA | NA | 3280.64 | 3280.64 |
| MW-31 | 2/3/2014 | 3334.52 | 53.83 | NM | NA | NA | 3280.69 | 3280.69 |
| MW-31 | 8/5/2014 | 3334.52 | 53.88 | NM | NA | NA | 3280.64 | 3280.64 |
| MW-31 | 2/2/2015 | 3334.52 | 53.48 | NM | NA | NA | 3281.04 | 3281.04 |
| MW-31 | 8/3/2015 | 3334.52 | 53.35 | NM | NA | NA | 3281.17 | 3281.17 |
| MW-31 | 3/29/2016 | 3334.52 | 53.27 | NM | NA | NA | 3281.25 | 3281.25 |
| MW-31 | 9/6/2016 | 3334.52 | 53.23 | NM | NA | NA | 3281.29 | 3281.29 |
| MW-31 | 4/3/2017 | 3334.52 | 53.12 | NM | NA | NA | 3281.40 | 3281.40 |
| MW-31 | 9/11/2017 | 3334.52 | 53.11 | NM | NA | NA | 3281.41 | 3281.41 |
| MW-31 | 3/13/2018 | 3334.52 | 53.08 | NM | NA | NA | 3281.44 | 3281.44 |
| MW-31 | 9/24/2018 | 3334.52 | 51.12 | NM | NA | NA | 3283.40 | 3283.40 |
| MW-31 | 4/1/2019 | 3334.52 | 53.06 | NM | NA | NA | 3281.46 | 3281.46 |
| MW-31 | 10/1/2019 | 3334.52 | 53.13 | NM | NA | NA | 3281.39 | 3281.39 |
| MW-32 | 2/4/2009 | 3333.01 | 51.28 | NM | NA | NA | 3281.73 | 3281.73 |
| MW-32 | 8/4/2009 | 3333.01 | 51.44 | NM | NA | NA | 3281.57 | 3281.57 |
| MW-32 | 2/2/2010 | 3333.01 | 51.64 | NM | NA | NA | 3281.37 | 3281.37 |
| MW-32 | 8/2/2010 | 3333.01 | 51.74 | NM | NA | NA | 3281.27 | 3281.27 |
| MW-32 | 4/4/2011 | 3333.01 | 51.59 | NM | NA | NA | 3281.42 | 3281.42 |
| MW-32 | 8/8/2011 | 3333.01 | 51.53 | NM | NA | NA | 3281.48 | 3281.48 |
| MW-32 | 2/6/2012 | 3333.01 | 51.55 | NM | NA | NA | 3281.46 | 3281.46 |
| MW-32 | 8/6/2012 | 3333.01 | 51.53 | NM | NA | NA | 3281.48 | 3281.48 |
| MW-32 | 2/5/2013 | 3333.01 | 51.48 | NM | NA | NA | 3281.53 | 3281.53 |
| MW-32 | 8/5/2013 | 3333.01 | 51.45 | NM | NA | NA | 3281.56 | 3281.56 |
| MW-32 | 2/3/2014 | 3333.01 | 51.40 | NM | NA | NA | 3281.61 | 3281.61 |
| MW-32 | 8/5/2014 | 3333.01 | 51.48 | NM | NA | NA | 3281.53 | 3281.53 |
| MW-32 | 2/2/2015 | 3333.01 | 50.52 | NM | NA | NA | 3282.49 | 3282.49 |
| MW-32 | 8/3/2015 | 3333.01 | 50.60 | NM | NA | NA | 3282.41 | 3282.41 |
| MW-32 | 3/29/2016 | 3333.01 | 50.42 | NM | NA | NA | 3282.59 | 3282.59 |
| MW-32 | 9/7/2016 | 3333.01 | 50.49 | NM | NA | NA | 3282.52 | 3282.52 |
| MW-32 | 4/3/2017 | 3333.01 | 50.31 | NM | NA | NA | 3282.70 | 3282.70 |
| MW-32 | 9/12/2017 | 3333.01 | 50.34 | NM | NA | NA | 3282.67 | 3282.67 |
| MW-32 | 3/12/2018 | 3333.01 | 50.31 | NM | NA | NA | 3282.70 | 3282.70 |
| MW-32 | 9/24/2018 | 3333.01 | 50.54 | NM | NA | NA | 3282.47 | 3282.47 |
| MW-32 | 4/1/2019 | 3333.01 | 50.42 | NM | NA | NA | 3282.59 | 3282.59 |
| MW-32 | 10/1/2019 | 3333.01 | 50.59 | NM | NA | NA | 3282.42 | 3282.42 |
| MW-34 | 2/4/2009 | 3335.77 | 53.51 | NM | NA | NA | 3282.26 | 3282.26 |
| MW-34 | 8/5/2009 | 3335.77 | 53.62 | NM | NA | NA | 3282.15 | 3282.15 |
| MW-34 | 2/2/2010 | 3335.77 | 53.73 | NM | NA | NA | 3282.04 | 3282.04 |
| MW-34 | 8/2/2010 | 3335.77 | 53.77 | NM | NA | NA | 3282.00 | 3282.00 |
| MW-34 | 4/4/2011 | 3335.77 | 53.60 | NM | NA | NA | 3282.17 | 3282.17 |
| MW-34 | 8/8/2011 | 3335.77 | 53.64 | NM | NA | NA | 3282.13 | 3282.13 |



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Appendix C
Historical Groundwater Elevations
2019 Annual Groundwater Monitoring Report
Former Eunice South Gas Plant
Eunice, Lea County, New Mexico

ARCADIS Design & Consultancy for natural and built assets

| Location ID | Date | Top of Casing (feet amsl) | Depth To Groundwater (feet btoc) | Depth to LNAPL (feet btoc) | LNAPL Thickness (feet) | LNAPL Specific Gravity | Uncorrected Groundwater Elevation (feet amsl) | Corrected Groundwater Elevation (feet amsl)[1] |
|---|---|---|---|---|---|---|---|---|
| MW-34 | 2/6/2012 | 3335.77 | 53.70 | NM | NA | NA | 3282.07 | 3282.07 |
| MW-34 | 8/6/2012 | 3335.77 | 53.69 | NM | NA | NA | 3282.08 | 3282.08 |
| MW-34 | 2/5/2013 | 3335.77 | 53.60 | NM | NA | NA | 3282.17 | 3282.17 |
| MW-34 | 8/5/2013 | 3335.77 | 53.61 | NM | NA | NA | 3282.16 | 3282.16 |
| MW-34 | 2/3/2014 | 3335.77 | 53.55 | NM | NA | NA | 3282.22 | 3282.22 |
| MW-34 | 8/5/2014 | 3335.77 | 53.62 | NM | NA | NA | 3282.15 | 3282.15 |
| MW-34 | 2/2/2015 | 3335.77 | 53.03 | NM | NA | NA | 3282.74 | 3282.74 |
| MW-34 | 8/3/2015 | 3335.77 | 53.02 | NM | NA | NA | 3282.75 | 3282.75 |
| MW-34 | 3/29/2016 | 3335.77 | 52.85 | NM | NA | NA | 3282.92 | 3282.92 |
| MW-34 | 9/7/2016 | 3335.77 | 52.91 | NM | NA | NA | 3282.86 | 3282.86 |
| MW-34 | 4/3/2017 | 3335.77 | 52.75 | NM | NA | NA | 3283.02 | 3283.02 |
| MW-34 | 9/11/2017 | 3335.77 | 52.77 | NM | NA | NA | 3283.00 | 3283.00 |
| MW-34 | 3/12/2018 | 3335.77 | 52.69 | NM | NA | NA | 3283.08 | 3283.08 |
| MW-34 | 9/24/2018 | 3335.77 | 52.83 | NM | NA | NA | 3282.94 | 3282.94 |
| MW-34 | 4/1/2019 | 3335.77 | 52.71 | NM | NA | NA | 3283.06 | 3283.06 |
| MW-34 | 10/1/2019 | 3335.77 | 52.85 | NM | NA | NA | 3282.92 | 3282.92 |
| MW-35 | 4/12/2017 | NM | 56.52 | NM | NA | NA | NM | NM |
| MW-35 | 9/11/2017 | NM | 56.60 | NM | NA | NA | NM | NM |
| MW-35 | 3/13/2018 | NM | 56.54 | NM | NA | NA | NM | NM |
| MW-35 | 9/24/2018 | NM | 56.63 | NM | NA | NA | NM | NM |
| MW-35 | 4/1/2019 | NM | 56.46 | NM | NA | NA | NM | NM |
| MW-35 | 10/1/2019 | NM | 56.52 | NM | NA | NA | NM | NM |
| MW-36 | 4/12/2017 | NM | 65.68 | NM | NA | NA | NM | NM |
| MW-36 | 9/11/2017 | NM | 60.37 | NM | NA | NA | NM | NM |
| MW-36 | 3/13/2018 | NM | 60.36 | NM | NA | NA | NM | NM |
| MW-36 | 9/24/2018 | NM | 60.39 | NM | NA | NA | NM | NM |
| MW-36 | 4/1/2019 | NM | 60.25 | NM | NA | NA | NM | NM |
| MW-36 | 10/1/2019 | NM | 60.28 | NM | NA | NA | NM | NM |
| MW-37 | 3/13/2018 | NM | 55.88 | NM | NA | NA | NM | NM |
| MW-37 | 9/24/2018 | NM | 55.94 | NM | NA | NA | NM | NM |
| MW-37 | 4/1/2019 | NM | 55.80 | NM | NA | NA | NM | NM |
| MW-37 | 10/1/2019 | NM | 55.87 | NM | NA | NA | NM | NM |
| MW-38 | 3/13/2018 | NM | 50.01 | NM | NA | NA | NM | NM |
| MW-38 | 9/24/2018 | NM | 50.24 | NM | NA | NA | NM | NM |
| MW-38 | 4/1/2019 | NM | 50.11 | NM | NA | NA | NM | NM |
| MW-38 | 10/1/2019 | NM | 50.21 | NM | NA | NA | NM | NM |
| MWD-1 | 2/11/2009 | 3335.26 | 53.37 | NM | NA | NA | 3281.89 | 3281.89 |
| MWD-1 | 8/4/2009 | 3335.26 | 53.65 | NM | NA | NA | 3281.61 | 3281.61 |
| MWD-1 | 2/2/2010 | 3335.26 | 53.80 | NM | NA | NA | 3281.46 | 3281.46 |
| MWD-1 | 8/2/2010 | 3335.26 | 53.84 | NM | NA | NA | 3281.42 | 3281.42 |
| MWD-1 | 4/11/2011 | 3335.26 | 52.98 | NM | NA | NA | 3282.28 | 3282.28 |
| MWD-1 | 8/8/2011 | 3335.26 | 52.88 | NM | NA | NA | 3282.38 | 3282.38 |
| MWD-1 | 2/6/2012 | 3335.26 | 52.73 | NM | NA | NA | 3282.53 | 3282.53 |
| MWD-1 | 8/7/2012 | 3335.26 | 52.61 | NM | NA | NA | 3282.65 | 3282.65 |
| MWD-1 | 8/5/2013 | 3335.26 | 52.62 | NM | NA | NA | 3282.64 | 3282.64 |
| MWD-1 | 2/3/2014 | 3335.26 | 52.44 | NM | NA | NA | 3282.82 | 3282.82 |
| MWD-1 | 8/5/2014 | 3335.26 | 53.00 | NM | NA | NA | 3282.26 | 3282.26 |
| MWD-1 | 2/2/2015 | 3335.26 | 52.65 | NM | NA | NA | 3282.61 | 3282.61 |
| MWD-1 | 8/3/2015 | 3335.26 | 52.60 | NM | NA | NA | 3282.66 | 3282.66 |
| MWD-1 | 3/28/2016 | 3335.26 | 52.45 | NM | NA | NA | 3282.81 | 3282.81 |
| MWD-1 | 9/9/2016 | 3335.26 | 52.40 | NM | NA | NA | 3282.86 | 3282.86 |
| MWD-1 | 4/3/2017 | 3335.26 | 52.41 | NM | NA | NA | 3282.85 | 3282.85 |
| MWD-1 | 3/12/2018 | 3335.26 | 52.10 | NM | NA | NA | 3283.16 | 3283.16 |
| MWD-1 | 2/5/2013 | 3335.26 | 52.55 | NM | NA | NA | 3282.71 | 3282.71 |
| MWD-1 | 9/12/2017 | 3335.26 | 52.37 | NM | NA | NA | 3282.89 | 3282.89 |
| MWD-1 | 9/24/2018 | 3335.26 | 52.11 | NM | NA | NA | 3283.15 | 3283.15 |
| MWD-1 | 4/1/2019 | 3335.26 | 51.93 | NM | NA | NA | 3283.33 | 3283.33 |
| MWD-1 | 10/1/2019 | 3335.26 | 52.17 | NM | NA | NA | 3283.09 | 3283.09 |
| MWD-2 | 2/10/2009 | 3336.32 | 54.75 | NM | NA | NA | 3281.57 | 3281.57 |
| MWD-2 | 8/4/2009 | 3336.32 | 54.22 | NM | NA | NA | 3282.10 | 3282.10 |
| MWD-2 | 2/2/2010 | 3336.32 | 54.68 | NM | NA | NA | 3281.64 | 3281.64 |
| MWD-2 | 8/2/2010 | 3336.32 | 54.43 | NM | NA | NA | 3281.89 | 3281.89 |
| MWD-2 | 4/11/2011 | 3336.32 | 53.78 | NM | NA | NA | 3282.54 | 3282.54 |
| MWD-2 | 8/8/2011 | 3336.32 | 53.69 | NM | NA | NA | 3282.63 | 3282.63 |
| MWD-2 | 2/6/2012 | 3336.32 | 53.26 | NM | NA | NA | 3283.06 | 3283.06 |
| MWD-2 | 8/7/2012 | 3336.32 | 53.48 | NM | NA | NA | 3282.84 | 3282.84 |
| MWD-2 | 2/5/2013 | 3336.32 | 53.40 | NM | NA | NA | 3282.92 | 3282.92 |
| MWD-2 | 8/5/2013 | 3336.32 | 53.52 | NM | NA | NA | 3282.80 | 3282.80 |
| MWD-2 | 2/3/2014 | 3336.32 | 53.38 | NM | NA | NA | 3282.94 | 3282.94 |
| MWD-2 | 8/5/2014 | 3336.32 | 53.65 | NM | NA | NA | 3282.67 | 3282.67 |
| MWD-2 | 2/2/2015 | 3336.32 | 53.32 | NM | NA | NA | 3283.00 | 3283.00 |
| MWD-2 | 8/3/2015 | 3336.32 | 53.20 | NM | NA | NA | 3283.12 | 3283.12 |
| MWD-2 | 3/29/2016 | 3336.32 | 53.08 | NM | NA | NA | 3283.24 | 3283.24 |
| MWD-2 | 9/9/2016 | 3336.32 | 53.08 | NM | NA | NA | 3283.24 | 3283.24 |
| MWD-2 | 4/3/2017 | 3336.32 | 52.95 | NM | NA | NA | 3283.37 | 3283.37 |
| MWD-2 | 3/12/2018 | 3336.32 | 52.76 | NM | NA | NA | 3283.56 | 3283.56 |

Appendix C
Historical Groundwater Elevations
2019 Annual Groundwater Monitoring Report
Former Eunice South Gas Plant
Eunice, Lea County, New Mexico

ARCADIS Design & Consultancy for natural and built assets

| Location ID | Date | Top of Casing (feet amsl) | Depth To Groundwater (feet btoc) | Depth to LNAPL (feet btoc) | LNAPL Thickness (feet) | LNAPL Specific Gravity | Uncorrected Groundwater Elevation (feet amsl) | Corrected Groundwater Elevation (feet amsl)[1] |
|---|---|---|---|---|---|---|---|---|
| MWD-2 | 9/24/2018 | 3336.32 | NM | NM | NA | NA | NM | NM |
| MWD-2 | 4/1/2019 | 3336.32 | 52.62 | NM | NA | NA | 3283.70 | 3283.70 |
| MWD-3 | 2/11/2009 | 3335.06 | NM | NM | NA | NA | NM | NM |
| MWD-3 | 8/18/2009 | 3335.06 | NM | NM | NA | NA | NM | NM |
| MWD-3 | 2/2/2010 | 3335.06 | NM | NM | NA | NA | NM | NM |
| MWD-3 | 8/2/2010 | 3335.06 | NM | NM | NA | NA | NM | NM |
| MWD-3 | 4/11/2011 | 3335.06 | NM | NM | NA | NA | NM | NM |
| MWD-3 | 8/8/2011 | 3335.06 | NM | NM | NA | NA | NM | NM |
| MWD-3 | 2/6/2012 | 3335.06 | NM | NM | NA | NA | NM | NM |
| MWD-3 | 8/7/2012 | 3335.06 | NM | NM | NA | NA | NM | NM |
| MWD-3 | 2/5/2013 | 3335.06 | NM | NM | NA | NA | NM | NM |
| MWD-3 | 8/5/2013 | 3335.06 | NM | NM | NA | NA | NM | NM |
| MWD-3 | 2/3/2014 | 3335.06 | NM | NM | NA | NA | NM | NM |
| MWD-3 | 8/5/2014 | 3335.06 | NM | NM | NA | NA | NM | NM |
| MWD-3 | 3/13/2018 | 3335.06 | NM | NM | NA | NA | NM | NM |
| MWD-3* | 3/28/2016 | 3335.06 | NM | NM | NA | NA | NM | NM |
| MWD-3* | 9/9/2016 | 3335.06 | 52.70 | NM | NA | NA | 3282.36 | 3282.36 |
| MWD-3* | 4/3/2017 | 3335.06 | 52.97 | NM | NA | NA | 3282.09 | 3282.09 |
| MWD-3* | 9/12/2017 | 3335.06 | 52.62 | NM | NA | NA | 3282.44 | 3282.44 |
| MWD-3* | 9/24/2018 | 3335.06 | NM | NM | NA | NA | NM | NM |
| MWD-3* | 4/1/2019 | 3335.06 | NM | NM | NA | NA | NM | NM |
| MWD-3* | 10/1/2019 | 3335.06 | 48.71 | NM | NA | NA | 3286.35 | 3286.35 |
| MWD-4 | 2/5/2009 | 3330.86 | 50.32 | NM | NA | NA | 3280.54 | 3280.54 |
| MWD-4 | 8/4/2009 | 3330.86 | 50.52 | NM | NA | NA | 3280.34 | 3280.34 |
| MWD-4 | 2/2/2010 | 3330.86 | 50.74 | NM | NA | NA | 3280.12 | 3280.12 |
| MWD-4 | 8/2/2010 | 3330.86 | 51.45 | NM | NA | NA | 3279.41 | 3279.41 |
| MWD-4 | 4/11/2011 | 3330.86 | 49.89 | NM | NA | NA | 3280.97 | 3280.97 |
| MWD-4 | 8/8/2011 | 3330.86 | 49.79 | NM | NA | NA | 3281.07 | 3281.07 |
| MWD-4 | 2/6/2012 | 3330.86 | 49.67 | NM | NA | NA | 3281.19 | 3281.19 |
| MWD-4 | 8/7/2012 | 3330.86 | 49.58 | NM | NA | NA | 3281.28 | 3281.28 |
| MWD-4 | 2/5/2013 | 3330.86 | 49.55 | NM | NA | NA | 3281.31 | 3281.31 |
| MWD-4 | 8/5/2013 | 3330.86 | 49.63 | NM | NA | NA | 3281.23 | 3281.23 |
| MWD-4 | 2/3/2014 | 3330.86 | 49.46 | NM | NA | NA | 3281.40 | 3281.40 |
| MWD-4 | 8/5/2014 | 3330.86 | 49.76 | NM | NA | NA | 3281.10 | 3281.10 |
| MWD-4 | 2/2/2015 | 3330.86 | 48.25 | NM | NA | NA | 3282.61 | 3282.61 |
| MWD-4 | 8/3/2015 | 3330.86 | 48.35 | NM | NA | NA | 3282.51 | 3282.51 |
| MWD-4 | 3/28/2016 | 3330.86 | 48.27 | NM | NA | NA | 3282.59 | 3282.59 |
| MWD-4 | 9/7/2016 | 3330.86 | 48.25 | NM | NA | NA | 3282.61 | 3282.61 |
| MWD-4 | 4/3/2017 | 3330.86 | 47.78 | NM | NA | NA | 3283.08 | 3283.08 |
| MWD-4 | 9/11/2017 | 3330.86 | 48.29 | NM | NA | NA | 3282.57 | 3282.57 |
| MWD-4 | 3/12/2018 | 3330.86 | 48.35 | NM | NA | NA | 3282.51 | 3282.51 |
| MWD-4 | 9/24/2018 | 3330.86 | 48.64 | NM | NA | NA | 3282.22 | 3282.22 |
| MWD-4 | 4/1/2019 | 3330.86 | 48.45 | NM | NA | NA | 3282.41 | 3282.41 |
| MWD-4 | 10/1/2019 | 3330.86 | 48.71 | NM | NA | NA | 3282.15 | 3282.15 |
| MWD-5 | 2/12/2009 | 3334.01 | 52.11 | NM | NA | NA | 3281.90 | 3281.90 |
| MWD-5 | 8/5/2009 | 3334.01 | 52.23 | NM | NA | NA | 3281.78 | 3281.78 |
| MWD-5 | 2/2/2010 | 3334.01 | 53.44 | NM | NA | NA | 3280.57 | 3280.57 |
| MWD-5 | 8/2/2010 | 3334.01 | 52.50 | NM | NA | NA | 3281.51 | 3281.51 |
| MWD-5 | 4/11/2011 | 3334.01 | 52.30 | NM | NA | NA | 3281.71 | 3281.71 |
| MWD-5 | 8/8/2011 | 3334.01 | 52.38 | NM | NA | NA | 3281.63 | 3281.63 |
| MWD-5 | 2/6/2012 | 3334.01 | 52.35 | NM | NA | NA | 3281.66 | 3281.66 |
| MWD-5 | 8/6/2012 | 3334.01 | 52.33 | NM | NA | NA | 3281.68 | 3281.68 |
| MWD-5 | 2/5/2013 | 3334.01 | 52.30 | NM | NA | NA | 3281.71 | 3281.71 |
| MWD-5 | 2/3/2014 | 3334.01 | 52.20 | NM | NA | NA | 3281.81 | 3281.81 |
| MWD-5 | 8/5/2014 | 3334.01 | 52.32 | NM | NA | NA | 3281.69 | 3281.69 |
| MWD-5 | 2/2/2015 | 3334.01 | 51.50 | NM | NA | NA | 3282.51 | 3282.51 |
| MWD-5 | 8/3/2015 | 3334.01 | 51.15 | NM | NA | NA | 3282.86 | 3282.86 |
| MWD-5 | 3/29/2016 | 3334.01 | 51.35 | NM | NA | NA | 3282.66 | 3282.66 |
| MWD-5 | 9/7/2016 | 3334.01 | 51.45 | NM | NA | NA | 3282.56 | 3282.56 |
| MWD-5 | 4/3/2017 | 3334.01 | 51.27 | NM | NA | NA | 3282.74 | 3282.74 |
| MWD-5 | 3/12/2018 | 3334.01 | 51.20 | NM | NA | NA | 3282.81 | 3282.81 |
| MWD-5 | 9/24/2018 | 3334.01 | NM | NM | NA | NA | NM | NM |
| MWD-5 | 4/1/2019 | 3334.01 | 51.29 | NM | NA | NA | 3282.72 | 3282.72 |
| MWD-6 | 2/12/2009 | 3335.08 | 53.44 | NM | NA | NA | 3281.64 | 3281.64 |
| MWD-6 | 8/4/2009 | 3335.08 | 53.56 | NM | NA | NA | 3281.52 | 3281.52 |
| MWD-6 | 2/2/2010 | 3335.08 | 53.67 | NM | NA | NA | 3281.41 | 3281.41 |
| MWD-6 | 8/2/2010 | 3335.08 | 53.70 | NM | NA | NA | 3281.38 | 3281.38 |
| MWD-6 | 4/11/2011 | 3335.08 | 53.61 | NM | NA | NA | 3281.47 | 3281.47 |
| MWD-6 | 8/8/2011 | 3335.08 | 53.63 | NM | NA | NA | 3281.45 | 3281.45 |
| MWD-6 | 2/6/2012 | 3335.08 | 53.62 | NM | NA | NA | 3281.46 | 3281.46 |
| MWD-6 | 8/6/2012 | 3335.08 | 53.65 | NM | NA | NA | 3281.43 | 3281.43 |
| MWD-6 | 2/5/2013 | 3335.08 | 53.42 | NM | NA | NA | 3281.66 | 3281.66 |
| MWD-6 | 2/3/2014 | 3335.08 | 53.39 | NM | NA | NA | 3281.69 | 3281.69 |
| MWD-6 | 8/5/2014 | 3335.08 | 53.53 | NM | NA | NA | 3281.55 | 3281.55 |
| MWD-6 | 2/2/2015 | 3335.08 | 52.82 | NM | NA | NA | 3282.26 | 3282.26 |
| MWD-6 | 8/3/2015 | 3335.08 | 52.98 | NM | NA | NA | 3282.10 | 3282.10 |



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Appendix C
Historical Groundwater Elevations
2019 Annual Groundwater Monitoring Report
Former Eunice South Gas Plant
Eunice, Lea County, New Mexico

ARCADIS Design & Consultancy for natural and built assets

| Location ID | Date | Top of Casing (feet amsl) | Depth To Groundwater (feet btoc) | Depth to LNAPL (feet btoc) | LNAPL Thickness (feet) | LNAPL Specific Gravity | Uncorrected Groundwater Elevation (feet amsl) | Corrected Groundwater Elevation (feet amsl)[1] |
|---|---|---|---|---|---|---|---|---|
| MWD-6 | 3/29/2016 | 3335.08 | 52.85 | NM | NA | NA | 3282.23 | 3282.23 |
| MWD-6 | 9/7/2016 | 3335.08 | 52.88 | NM | NA | NA | 3282.20 | 3282.20 |
| MWD-6 | 4/3/2017 | 3335.08 | 52.74 | NM | NA | NA | 3282.34 | 3282.34 |
| MWD-6 | 9/11/2017 | 3335.08 | 52.75 | NM | NA | NA | 3282.33 | 3282.33 |
| MWD-6 | 3/12/2018 | 3335.08 | 52.67 | NM | NA | NA | 3282.41 | 3282.41 |
| MWD-6 | 9/24/2018 | 3335.08 | 52.74 | NM | NA | NA | 3282.34 | 3282.34 |
| MWD-6 | 4/1/2019 | 3335.08 | 52.68 | NM | NA | NA | 3282.40 | 3282.40 |
| MWD-6 | 10/1/2019 | 3335.08 | 52.81 | NM | NA | NA | 3282.27 | 3282.27 |
| MWD-7 | 2/11/2009 | 3332.82 | 51.54 | NM | NA | NA | 3281.28 | 3281.28 |
| MWD-7 | 8/5/2009 | 3332.82 | 51.68 | NM | NA | NA | 3281.14 | 3281.14 |
| MWD-7 | 2/2/2010 | 3332.82 | 51.78 | NM | NA | NA | 3281.04 | 3281.04 |
| MWD-7 | 8/2/2010 | 3332.82 | 51.83 | NM | NA | NA | 3280.99 | 3280.99 |
| MWD-7 | 4/11/2011 | 3332.82 | 51.22 | NM | NA | NA | 3281.60 | 3281.60 |
| MWD-7 | 8/8/2011 | 3332.82 | 52.13 | NM | NA | NA | 3280.69 | 3280.69 |
| MWD-7 | 2/6/2012 | 3332.82 | 51.03 | NM | NA | NA | 3281.79 | 3281.79 |
| MWD-7 | 8/7/2012 | 3332.82 | 50.92 | NM | NA | NA | 3281.90 | 3281.90 |
| MWD-7 | 2/5/2013 | 3332.82 | 50.85 | NM | NA | NA | 3281.97 | 3281.97 |
| MWD-7 | 8/5/2013 | 3332.82 | 50.95 | NM | NA | NA | 3281.87 | 3281.87 |
| MWD-7 | 2/3/2014 | 3332.82 | 50.25 | NM | NA | NA | 3282.57 | 3282.57 |
| MWD-7 | 8/5/2014 | 3332.82 | 51.08 | NM | NA | NA | 3281.74 | 3281.74 |
| MWD-7 | 2/2/2015 | 3332.82 | 50.75 | NM | NA | NA | 3282.07 | 3282.07 |
| MWD-7 | 8/3/2015 | 3332.82 | 50.67 | NM | NA | NA | 3282.15 | 3282.15 |
| MWD-7 | 3/28/2016 | 3332.82 | 50.55 | NM | NA | NA | 3282.27 | 3282.27 |
| MWD-7 | 9/9/2016 | 3332.82 | 50.52 | NM | NA | NA | 3282.30 | 3282.30 |
| MWD-7 | 4/3/2017 | 3332.82 | 50.43 | NM | NA | NA | 3282.39 | 3282.39 |
| MWD-7 | 9/12/2017 | 3332.82 | 50.35 | NM | NA | NA | 3282.47 | 3282.47 |
| MWD-7 | 3/12/2018 | 3332.82 | 50.19 | NM | NA | NA | 3282.63 | 3282.63 |
| MWD-7 | 9/24/2018 | 3332.82 | 50.19 | NM | NA | NA | 3282.63 | 3282.63 |
| MWD-7 | 4/1/2019 | 3332.82 | 50.06 | NM | NA | NA | 3282.76 | 3282.76 |
| MWD-7 | 10/1/2019 | 3332.82 | 50.26 | NM | NA | NA | 3282.56 | 3282.56 |
| MWD-8 | 2/10/2009 | 3335.97 | 53.58 | NM | NA | NA | 3282.39 | 3282.39 |
| MWD-8 | 8/5/2009 | 3335.97 | 53.50 | NM | NA | NA | 3282.47 | 3282.47 |
| MWD-8 | 2/2/2010 | 3335.97 | 53.67 | NM | NA | NA | 3282.30 | 3282.30 |
| MWD-8 | 8/2/2010 | 3335.97 | 53.58 | NM | NA | NA | 3282.39 | 3282.39 |
| MWD-8 | 4/11/2011 | 3335.97 | 53.24 | NM | NA | NA | 3282.73 | 3282.73 |
| MWD-8 | 8/8/2011 | 3335.97 | 53.27 | NM | NA | NA | 3282.70 | 3282.70 |
| MWD-8 | 2/6/2012 | 3335.97 | 53.10 | NM | NA | NA | 3282.87 | 3282.87 |
| MWD-8 | 8/7/2012 | 3335.97 | 53.30 | NM | NA | NA | 3282.67 | 3282.67 |
| MWD-8 | 2/5/2013 | 3335.97 | 52.95 | NM | NA | NA | 3283.02 | 3283.02 |
| MWD-8 | 8/5/2013 | 3335.97 | 53.08 | NM | NA | NA | 3282.89 | 3282.89 |
| MWD-8 | 2/3/2014 | 3335.97 | 52.91 | NM | NA | NA | 3283.06 | 3283.06 |
| MWD-8 | 8/5/2014 | 3335.97 | 53.04 | NM | NA | NA | 3282.93 | 3282.93 |
| MWD-8 | 2/2/2015 | 3335.97 | 52.79 | NM | NA | NA | 3283.18 | 3283.18 |
| MWD-8 | 8/3/2015 | 3335.97 | 52.70 | NM | NA | NA | 3283.27 | 3283.27 |
| MWD-8 | 3/29/2016 | 3335.97 | 52.57 | NM | NA | NA | 3283.40 | 3283.40 |
| MWD-8 | 9/12/2016 | 3335.97 | 52.57 | NM | NA | NA | 3283.40 | 3283.40 |
| MWD-8 | 4/3/2017 | 3335.97 | 52.43 | NM | NA | NA | 3283.54 | 3283.54 |
| MWD-8 | 9/12/2017 | 3335.97 | 52.42 | NM | NA | NA | 3283.55 | 3283.55 |
| MWD-8 | 3/12/2018 | 3335.97 | 52.28 | NM | NA | NA | 3283.69 | 3283.69 |
| MWD-8 | 9/24/2018 | 3335.97 | 52.30 | NM | NA | NA | 3283.67 | 3283.67 |
| MWD-8 | 4/1/2019 | 3335.97 | 52.87 | NM | NA | NA | 3283.10 | 3283.10 |
| MWD-8 | 10/1/2019 | 3335.97 | 52.23 | NM | NA | NA | 3283.74 | 3283.74 |
| MWD-9 | 2/11/2009 | 3333.45 | NM | NM | NA | NA | NM | NM |
| MWD-9 | 8/17/2009 | 3333.45 | NM | NM | NA | NA | NM | NM |
| MWD-9 | 2/2/2010 | 3333.45 | NM | NM | NA | NA | NM | NM |
| MWD-9 | 8/2/2010 | 3333.45 | NM | NM | NA | NA | NM | NM |
| MWD-9 | 4/11/2011 | 3333.45 | NM | NM | NA | NA | NM | NM |
| MWD-9 | 8/8/2011 | 3333.45 | NM | NM | NA | NA | NM | NM |
| MWD-9 | 2/6/2012 | 3333.45 | NM | NM | NA | NA | NM | NM |
| MWD-9 | 8/7/2012 | 3333.45 | NM | NM | NA | NA | NM | NM |
| MWD-9 | 2/5/2013 | 3333.45 | NM | NM | NA | NA | NM | NM |
| MWD-9 | 8/5/2013 | 3333.45 | NM | NM | NA | NA | NM | NM |
| MWD-9 | 2/3/2014 | 3333.45 | NM | NM | NA | NA | NM | NM |
| MWD-9 | 8/5/2014 | 3333.45 | NM | NM | NA | NA | NM | NM |
| MWD-9* | 3/28/2016 | 3333.45 | 74.50 | NM | NA | NA | 3258.95 | 3258.95 |
| MWD-9* | 9/9/2016 | 3333.45 | 70.40 | NM | NA | NA | 3263.05 | 3263.05 |
| MWD-9* | 4/3/2017 | 3333.45 | 72.19 | NM | NA | NA | 3261.26 | 3261.26 |
| MWD-9* | 9/12/2017 | 3333.45 | 70.31 | NM | NA | NA | 3263.14 | 3263.14 |
| MWD-9* | 3/12/2018 | 3333.45 | NM | NM | NA | NA | NM | NM |
| MWD-9* | 9/24/2018 | 3333.45 | NM | NM | NA | NA | NM | NM |
| MWD-9* | 4/4/2019 | 3333.45 | NM | NM | NA | NA | NM | NM |
| MWD-9* | 10/1/2019 | 3333.45 | NM | NM | NA | NA | NM | NM |
| MWD-10 | 2/12/2009 | 3334.92 | 53.19 | NM | NA | 0.74 | 3281.73 | 3281.73 |
| MWD-10 | 8/4/2009 | 3334.92 | 53.21 | NM | NA | 0.74 | 3281.71 | 3281.71 |
| MWD-10 | 2/2/2010 | 3334.92 | 53.49 | NM | NA | 0.74 | 3281.43 | 3281.43 |
| MWD-10 | 8/2/2010 | 3334.92 | 53.49 | 53.47 | 0.02 | 0.74 | 3281.43 | 3281.44 |



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| Location ID | Date | Top of Casing (feet amsl) | Depth To Groundwater (feet btoc) | Depth to LNAPL (feet btoc) | LNAPL Thickness (feet) | LNAPL Specific Gravity | Uncorrected Groundwater Elevation (feet amsl) | Corrected Groundwater Elevation (feet amsl)[1] |
|---|---|---|---|---|---|---|---|---|
| MWD-10 | 4/11/2011 | 3334.92 | 52.93 | 52.92 | 0.01 | 0.74 | 3281.99 | 3282.00 |
| MWD-10 | 8/8/2011 | 3334.92 | 52.89 | 52.88 | 0.01 | 0.74 | 3282.03 | 3282.04 |
| MWD-10 | 2/6/2012 | 3334.92 | NM | NM | NA | 0.74 | NM | NM |
| MWD-10 | 8/7/2012 | 3334.92 | NM | NM | NA | 0.74 | NM | NM |
| MWD-10 | 2/5/2013 | 3334.92 | NM | NM | NA | 0.74 | NM | NM |
| MWD-10 | 2/3/2014 | 3334.92 | NM | NM | NA | 0.74 | NM | NM |
| MWD-10 | 8/5/2014 | 3334.92 | NM | NM | NA | 0.74 | NM | NM |
| MWD-10 | 3/28/2016 | 3334.92 | NM | NM | NA | 0.74 | NM | NM |
| MWD-11 | 2/10/2009 | 3338.24 | 55.41 | NM | NA | NA | 3282.83 | 3282.83 |
| MWD-11 | 8/5/2009 | 3338.24 | 55.43 | NM | NA | NA | 3282.81 | 3282.81 |
| MWD-11 | 2/2/2010 | 3338.24 | 55.50 | NM | NA | NA | 3282.74 | 3282.74 |
| MWD-11 | 8/2/2010 | 3338.24 | 55.52 | NM | NA | NA | 3282.72 | 3282.72 |
| MWD-11 | 4/11/2011 | 3338.24 | 55.27 | NM | NA | NA | 3282.97 | 3282.97 |
| MWD-11 | 8/8/2011 | 3338.24 | 55.23 | NM | NA | NA | 3283.01 | 3283.01 |
| MWD-11 | 2/6/2012 | 3338.24 | 55.15 | NM | NA | NA | 3283.09 | 3283.09 |
| MWD-11 | 8/7/2012 | 3338.24 | 55.17 | NM | NA | NA | 3283.07 | 3283.07 |
| MWD-11 | 2/5/2013 | 3338.24 | 55.20 | NM | NA | NA | 3283.04 | 3283.04 |
| MWD-11 | 8/5/2013 | 3338.24 | 55.21 | NM | NA | NA | 3283.03 | 3283.03 |
| MWD-11 | 2/3/2014 | 3338.24 | 55.08 | NM | NA | NA | 3283.16 | 3283.16 |
| MWD-11 | 8/5/2014 | 3338.24 | 55.13 | NM | NA | NA | 3283.11 | 3283.11 |
| MWD-11 | 2/2/2015 | 3338.24 | 54.82 | NM | NA | NA | 3283.42 | 3283.42 |
| MWD-11 | 8/3/2015 | 3338.24 | 54.76 | NM | NA | NA | 3283.48 | 3283.48 |
| MWD-11 | 3/29/2016 | 3338.24 | 54.61 | NM | NA | NA | 3283.63 | 3283.63 |
| MWD-11 | 9/12/2016 | 3338.24 | 54.54 | NM | NA | NA | 3283.70 | 3283.70 |
| MWD-11 | 4/3/2017 | 3338.24 | 54.49 | NM | NA | NA | 3283.75 | 3283.75 |
| MWD-11 | 9/12/2017 | 3338.24 | 54.43 | NM | NA | NA | 3283.81 | 3283.81 |
| MWD-11 | 3/13/2018 | 3338.24 | 54.40 | NM | NA | NA | 3283.84 | 3283.84 |
| MWD-11 | 9/24/2018 | 3338.24 | 54.41 | NM | NA | NA | 3283.83 | 3283.83 |
| MWD-11 | 4/1/2019 | 3338.24 | 54.31 | NM | NA | NA | 3283.93 | 3283.93 |
| MWD-11 | 10/1/2019 | 3338.24 | 54.37 | NM | NA | NA | 3283.87 | 3283.87 |
| MWD-12 | 2/17/2009 | 3334.08 | 53.04 | NM | NA | NA | 3281.04 | 3281.04 |
| MWD-12 | 8/5/2009 | 3334.08 | 53.25 | NM | NA | NA | 3280.83 | 3280.83 |
| MWD-12 | 2/2/2010 | 3334.08 | 53.43 | NM | NA | NA | 3280.65 | 3280.65 |
| MWD-12 | 8/2/2010 | 3334.08 | 53.70 | NM | NA | NA | 3280.38 | 3280.38 |
| MWD-12 | 4/11/2011 | 3334.08 | 53.03 | NM | NA | NA | 3281.05 | 3281.05 |
| MWD-12 | 8/8/2011 | 3334.08 | 53.01 | NM | NA | NA | 3281.07 | 3281.07 |
| MWD-12 | 2/6/2012 | 3334.08 | 52.92 | NM | NA | NA | 3281.16 | 3281.16 |
| MWD-12 | 8/7/2012 | 3334.08 | 52.90 | NM | NA | NA | 3281.18 | 3281.18 |
| MWD-12 | 2/5/2013 | 3334.08 | 52.90 | NM | NA | NA | 3281.18 | 3281.18 |
| MWD-12 | 2/3/2014 | 3334.08 | 52.79 | NM | NA | NA | 3281.29 | 3281.29 |
| MWD-12 | 8/5/2014 | 3334.08 | 52.95 | NM | NA | NA | 3281.13 | 3281.13 |
| MWD-12 | 2/2/2015 | 3334.08 | 51.89 | NM | NA | NA | 3282.19 | 3282.19 |
| MWD-12 | 8/3/2015 | 3334.08 | 51.95 | NM | NA | NA | 3282.13 | 3282.13 |
| MWD-12 | 3/28/2016 | 3334.08 | 51.73 | NM | NA | NA | 3282.35 | 3282.35 |
| MWD-12 | 9/7/2016 | 3334.08 | 51.85 | NM | NA | NA | 3282.23 | 3282.23 |
| MWD-12 | 4/3/2017 | 3334.08 | 51.61 | NM | NA | NA | 3282.47 | 3282.47 |
| MWD-12 | 9/12/2017 | 3334.08 | 51.63 | NM | NA | NA | 3282.45 | 3282.45 |
| MWD-12 | 3/12/2018 | 3334.08 | 51.61 | NM | NA | NA | 3282.47 | 3282.47 |
| MWD-12 | 9/24/2018 | 3334.08 | 51.91 | NM | NA | NA | 3282.17 | 3282.17 |
| MWD-12 | 4/1/2019 | 3334.08 | 51.72 | NM | NA | NA | 3282.36 | 3282.36 |
| MWD-12 | 10/1/2019 | 3334.08 | 51.96 | NM | NA | NA | 3282.12 | 3282.12 |
| MWD-13 | 2/5/2009 | 3332.11 | 52.37 | NM | NA | NA | 3279.74 | 3279.74 |
| MWD-13 | 8/4/2009 | 3332.11 | 52.33 | NM | NA | NA | 3279.78 | 3279.78 |
| MWD-13 | 2/2/2010 | 3332.11 | 52.87 | NM | NA | NA | 3279.24 | 3279.24 |
| MWD-13 | 8/2/2010 | 3332.11 | 53.11 | NM | NA | NA | 3279.00 | 3279.00 |
| MWD-13 | 4/11/2011 | 3332.11 | 51.31 | NM | NA | NA | 3280.80 | 3280.80 |
| MWD-13 | 8/8/2011 | 3332.11 | 51.13 | NM | NA | NA | 3280.98 | 3280.98 |
| MWD-13 | 2/6/2012 | 3332.11 | 50.95 | NM | NA | NA | 3281.16 | 3281.16 |
| MWD-13 | 8/6/2012 | 3332.11 | 50.85 | NM | NA | NA | 3281.26 | 3281.26 |
| MWD-13 | 2/5/2013 | 3332.11 | 50.80 | NM | NA | NA | 3281.31 | 3281.31 |
| MWD-13 | 8/5/2013 | 3332.11 | 50.90 | NM | NA | NA | 3281.21 | 3281.21 |
| MWD-13 | 2/3/2014 | 3332.11 | 50.69 | NM | NA | NA | 3281.42 | 3281.42 |
| MWD-13 | 8/5/2014 | 3332.11 | 51.40 | NM | NA | NA | 3280.71 | 3280.71 |
| MWD-13 | 2/2/2015 | 3332.11 | 50.62 | NM | NA | NA | 3281.49 | 3281.49 |
| MWD-13 | 8/3/2015 | 3332.11 | 50.60 | NM | NA | NA | 3281.51 | 3281.51 |
| MWD-13 | 3/28/2016 | 3332.11 | 50.45 | NM | NA | NA | 3281.66 | 3281.66 |
| MWD-13 | 9/7/2016 | 3332.11 | 50.30 | NM | NA | NA | 3281.81 | 3281.81 |
| MWD-13 | 4/3/2017 | 3332.11 | 50.40 | NM | NA | NA | 3281.71 | 3281.71 |
| MWD-13 | 9/12/2017 | 3332.11 | 50.27 | NM | NA | NA | 3281.84 | 3281.84 |
| MWD-13 | 3/12/2018 | 3332.11 | 50.20 | NM | NA | NA | 3281.91 | 3281.91 |
| MWD-13 | 9/24/2018 | 3332.11 | 50.46 | NM | NA | NA | 3281.65 | 3281.65 |
| MWD-13 | 4/1/2019 | 3332.11 | 50.02 | NM | NA | NA | 3282.09 | 3282.09 |
| MWD-13 | 10/1/2019 | 3332.11 | 50.41 | NM | NA | NA | 3281.70 | 3281.70 |
| MWD-14 | 2/12/2009 | 3333.76 | 52.86 | NM | NA | NA | 3280.90 | 3280.90 |
| MWD-14 | 8/4/2009 | 3333.76 | 52.81 | NM | NA | NA | 3280.95 | 3280.95 |
| MWD-14 | 2/2/2010 | 3333.76 | 53.23 | NM | NA | NA | 3280.53 | 3280.53 |



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Appendix C
Historical Groundwater Elevations
2019 Annual Groundwater Monitoring Report
Former Eunice South Gas Plant
Eunice, Lea County, New Mexico

ARCADIS Design & Consultancy for natural and built assets

| Location ID | Date | Top of Casing (feet amsl) | Depth To Groundwater (feet btoc) | Depth to LNAPL (feet btoc) | LNAPL Thickness (feet) | LNAPL Specific Gravity | Uncorrected Groundwater Elevation (feet amsl) | Corrected Groundwater Elevation (feet amsl)[1] |
|---|---|---|---|---|---|---|---|---|
| MWD-14 | 8/2/2010 | 3333.76 | 53.26 | NM | NA | NA | 3280.50 | 3280.50 |
| MWD-14 | 4/11/2011 | 3333.76 | 52.27 | NM | NA | NA | 3281.49 | 3281.49 |
| MWD-14 | 8/8/2011 | 3333.76 | 52.21 | NM | NA | NA | 3281.55 | 3281.55 |
| MWD-14 | 2/6/2012 | 3333.76 | 52.10 | NM | NA | NA | 3281.66 | 3281.66 |
| MWD-14 | 8/7/2012 | 3333.76 | 51.97 | NM | NA | NA | 3281.79 | 3281.79 |
| MWD-14 | 2/5/2013 | 3333.76 | 51.96 | NM | NA | NA | 3281.80 | 3281.80 |
| MWD-14 | 2/3/2014 | 3333.76 | 51.90 | NM | NA | NA | 3281.86 | 3281.86 |
| MWD-14 | 8/5/2014 | 3333.76 | 52.35 | NM | NA | NA | 3281.41 | 3281.41 |
| MWD-14 | 2/2/2015 | 3333.76 | 51.55 | NM | NA | NA | 3282.21 | 3282.21 |
| MWD-14 | 8/3/2015 | 3333.76 | 51.50 | NM | NA | NA | 3282.26 | 3282.26 |
| MWD-14 | 3/29/2016 | 3333.76 | 51.35 | NM | NA | NA | 3282.41 | 3282.41 |
| MWD-14 | 9/7/2016 | 3333.76 | 51.15 | NM | NA | NA | 3282.61 | 3282.61 |
| MWD-14 | 4/3/2017 | 3333.76 | 51.20 | NM | NA | NA | 3282.56 | 3282.56 |
| MWD-14 | 9/12/2017 | 3333.76 | 50.76 | NM | NA | NA | 3283.00 | 3283.00 |
| MWD-14 | 3/13/2018 | 3333.76 | 51.08 | NM | NA | NA | 3282.68 | 3282.68 |
| MWD-14 | 9/24/2018 | 3333.76 | 48.64 | NM | NA | NA | 3285.12 | 3285.12 |
| MWD-14 | 4/1/2019 | 3333.76 | 50.95 | NM | NA | NA | 3282.81 | 3282.81 |
| MWD-14 | 10/1/2019 | 3333.76 | 51.36 | NM | NA | NA | 3282.40 | 3282.40 |
| MWD-15 | 8/4/2009 | 3335.35 | 53.29 | NM | NA | NA | 3282.06 | 3282.06 |
| MWD-15 | 2/2/2010 | 3335.35 | 53.70 | NM | NA | NA | 3281.65 | 3281.65 |
| MWD-15 | 8/2/2010 | 3335.35 | 53.57 | NM | NA | NA | 3281.78 | 3281.78 |
| MWD-15 | 4/11/2011 | 3335.35 | 52.92 | NM | NA | NA | 3282.43 | 3282.43 |
| MWD-15 | 8/8/2011 | 3335.35 | 52.46 | NM | NA | NA | 3282.89 | 3282.89 |
| MWD-15 | 2/6/2012 | 3335.35 | 54.81 | NM | NA | NA | 3280.54 | 3280.54 |
| MWD-15 | 8/7/2012 | 3335.35 | 52.73 | NM | NA | NA | 3282.62 | 3282.62 |
| MWD-15 | 2/5/2013 | 3335.35 | 52.66 | NM | NA | NA | 3282.69 | 3282.69 |
| MWD-15 | 8/5/2013 | 3335.35 | 53.81 | NM | NA | NA | 3281.54 | 3281.54 |
| MWD-15 | 2/3/2014 | 3335.35 | 52.63 | NM | NA | NA | 3282.72 | 3282.72 |
| MWD-15 | 8/5/2014 | 3335.35 | 52.86 | NM | NA | NA | 3282.49 | 3282.49 |
| MWD-15 | 2/2/2015 | 3335.35 | 52.35 | NM | NA | NA | 3283.00 | 3283.00 |
| MWD-15 | 8/3/2015 | 3335.35 | 52.22 | NM | NA | NA | 3283.13 | 3283.13 |
| MWD-15 | 3/29/2016 | 3335.35 | 52.13 | NM | NA | NA | 3283.22 | 3283.22 |
| MWD-15 | 9/9/2016 | 3335.35 | 52.10 | NM | NA | NA | 3283.25 | 3283.25 |
| MWD-15 | 4/3/2017 | 3335.35 | 51.99 | NM | NA | NA | 3283.36 | 3283.36 |
| MWD-15 | 9/12/2017 | 3335.35 | 51.92 | NM | NA | NA | 3283.43 | 3283.43 |
| MWD-15 | 3/12/2018 | 3335.35 | 51.84 | NM | NA | NA | 3283.51 | 3283.51 |
| MWD-15 | 9/24/2018 | 3335.35 | 52.00 | NM | NA | NA | 3283.35 | 3283.35 |
| MWD-15 | 4/1/2019 | 3335.35 | 51.77 | NM | NA | NA | 3283.58 | 3283.58 |
| MWD-15 | 10/1/2019 | 3335.35 | 51.97 | NM | NA | NA | 3283.38 | 3283.38 |
| MWD-16 | 2/12/2009 | 3334.1 | 52.39 | NM | NA | NA | 3281.71 | 3281.71 |
| MWD-16 | 8/5/2009 | 3334.1 | 52.42 | NM | NA | NA | 3281.68 | 3281.68 |
| MWD-16 | 2/2/2010 | 3334.1 | 52.73 | NM | NA | NA | 3281.37 | 3281.37 |
| MWD-16 | 8/2/2010 | 3334.1 | 52.77 | NM | NA | NA | 3281.33 | 3281.33 |
| MWD-16 | 4/11/2011 | 3334.1 | 52.04 | NM | NA | NA | 3282.06 | 3282.06 |
| MWD-16 | 8/8/2011 | 3334.1 | NM | NM | NA | NA | NM | NM |
| MWD-16 | 2/6/2012 | 3334.1 | NM | NM | NA | NA | NM | NM |
| MWD-16 | 8/7/2012 | 3334.1 | NM | NM | NA | NA | NM | NM |
| MWD-16 | 2/5/2013 | 3334.1 | NM | NM | NA | NA | NM | NM |
| MWD-16 | 2/3/2014 | 3334.1 | NM | NM | NA | NA | NM | NM |
| MWD-16 | 8/5/2014 | 3334.1 | NM | NM | NA | NA | NM | NM |
| MWD-16 | 3/29/2016 | 3334.1 | NM | NM | NA | NA | NM | NM |
| MWD-17 | 2/12/2009 | 3334.74 | 54.28 | NM | NA | NA | 3280.46 | 3280.46 |
| MWD-17 | 8/4/2009 | 3334.74 | 54.13 | NM | NA | NA | 3280.61 | 3280.61 |
| MWD-17 | 2/2/2010 | 3334.74 | 54.91 | NM | NA | NA | 3279.83 | 3279.83 |
| MWD-17 | 8/2/2010 | 3334.74 | 55.03 | NM | NA | NA | 3279.71 | 3279.71 |
| MWD-17 | 4/11/2011 | 3334.74 | 53.20 | NM | NA | NA | 3281.54 | 3281.54 |
| MWD-17 | 8/8/2011 | 3334.74 | 53.04 | NM | NA | NA | 3281.70 | 3281.70 |
| MWD-17 | 2/6/2012 | 3334.74 | 52.90 | NM | NA | NA | 3281.84 | 3281.84 |
| MWD-17 | 8/7/2012 | 3334.74 | 52.75 | NM | NA | NA | 3281.99 | 3281.99 |
| MWD-17 | 2/5/2013 | 3334.74 | 52.70 | NM | NA | NA | 3282.04 | 3282.04 |
| MWD-17 | 8/5/2013 | 3334.74 | 52.80 | NM | NA | NA | 3281.94 | 3281.94 |
| MWD-17 | 2/3/2014 | 3334.74 | 52.63 | NM | NA | NA | 3282.11 | 3282.11 |
| MWD-17 | 8/5/2014 | 3334.74 | 53.54 | NM | NA | NA | 3281.20 | 3281.20 |
| MWD-17 | 2/2/2015 | 3334.74 | 52.69 | NM | NA | NA | 3282.05 | 3282.05 |
| MWD-17 | 8/3/2015 | 3334.74 | 52.70 | NM | NA | NA | 3282.04 | 3282.04 |
| MWD-17 | 3/28/2016 | 3334.74 | 52.66 | NM | NA | NA | 3282.08 | 3282.08 |
| MWD-17 | 9/7/2016 | 3334.74 | 52.32 | NM | NA | NA | 3282.42 | 3282.42 |
| MWD-17 | 4/3/2017 | 3334.74 | 52.45 | NM | NA | NA | 3282.29 | 3282.29 |
| MWD-17 | 3/12/2018 | 3334.74 | 52.18 | NM | NA | NA | 3282.56 | 3282.56 |
| MWD-17 | 9/24/2018 | 3334.74 | NM | NM | NA | NA | NM | NM |
| MWD-17 | 4/1/2019 | 3334.74 | 52.24 | NM | NA | NA | 3282.50 | 3282.50 |
| RW-1 | 3/9/2009 | 3335.19 | 54.47 | 51.98 | 2.49 | 0.74 | 3280.72 | 3282.56 |
| RW-1 | 8/5/2009 | 3335.19 | 55.01 | 51.92 | 3.09 | 0.74 | 3280.18 | 3282.47 |
| RW-1 | 2/2/2010 | 3335.19 | 55.25 | 52.00 | 3.25 | 0.74 | 3279.94 | 3282.35 |
| RW-1 | 8/2/2010 | 3335.19 | 55.20 | 51.98 | 3.22 | 0.74 | 3279.99 | 3282.37 |
| RW-1 | 4/4/2011 | 3335.19 | 54.78 | 51.84 | 2.94 | 0.74 | 3280.41 | 3282.59 |



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Former Eunice South Gas Plant
Eunice, Lea County, New Mexico

ARCADIS Design & Consultancy for natural and built assets

| Location ID | Date | Top of Casing (feet amsl) | Depth To Groundwater (feet btoc) | Depth to LNAPL (feet btoc) | LNAPL Thickness (feet) | LNAPL Specific Gravity | Uncorrected Groundwater Elevation (feet amsl) | Corrected Groundwater Elevation (feet amsl)[1] |
|---|---|---|---|---|---|---|---|---|
| RW-1 | 8/8/2011 | 3335.19 | 54.45 | 51.73 | 2.72 | 0.74 | 3280.74 | 3282.75 |
| RW-1 | 2/6/2012 | 3335.19 | 55.20 | 52.13 | 3.07 | 0.74 | 3279.99 | 3282.26 |
| RW-1 | 8/14/2012 | 3335.19 | 54.68 | 51.77 | 2.91 | 0.74 | 3280.51 | 3282.66 |
| RW-1 | 2/5/2013 | 3335.19 | 54.53 | 51.78 | 2.75 | 0.74 | 3280.66 | 3282.70 |
| RW-1 | 8/5/2013 | 3335.19 | 54.50 | 51.70 | 2.8 | 0.74 | 3280.69 | 3282.76 |
| RW-1 | 2/3/2014 | 3335.19 | 53.37 | 51.67 | 1.7 | 0.74 | 3281.82 | 3283.08 |
| RW-1 | 8/5/2014 | 3335.19 | 54.41 | 51.69 | 2.72 | 0.74 | 3280.78 | 3282.79 |
| RW-1 | 2/2/2015 | 3335.19 | 53.36 | 51.45 | 1.91 | 0.74 | 3281.83 | 3283.24 |
| RW-1 | 8/3/2015 | 3335.19 | 53.36 | 51.41 | 1.95 | 0.74 | 3281.83 | 3283.27 |
| RW-1 | 3/29/2016 | 3335.19 | 53.11 | 51.25 | 1.86 | 0.74 | 3282.08 | 3283.46 |
| RW-1 | 9/13/2016 | 3335.19 | 53.13 | 51.30 | 1.83 | 0.74 | 3282.06 | 3283.41 |
| RW-1 | 4/3/2017 | 3335.19 | 52.94 | 51.16 | 1.78 | 0.74 | 3282.25 | 3283.57 |
| RW-1 | 3/13/2018 | 3335.19 | 52.78 | 51.16 | 1.62 | 0.74 | 3282.41 | 3283.61 |
| RW-1 | 9/24/2018 | 3335.19 | NM | 51.16 | NA | 0.74 | NM | NM |
| RW-1 | 4/1/2019 | 3335.19 | 52.72 | 51.09 | 1.63 | 0.74 | 3282.47 | 3283.68 |
| RW-1 | 10/1/2019 | 3335.19 | 52.85 | 51.29 | 1.56 | 0.74 | 3282.34 | 3283.49 |
| RW-2 | 3/9/2009 | 3337.84 | 58.04 | 55.75 | 2.29 | 0.74 | 3279.80 | 3281.49 |
| RW-2 | 8/5/2009 | 3337.84 | 58.31 | 55.79 | 2.52 | 0.74 | 3279.53 | 3281.39 |
| RW-2 | 2/2/2010 | 3337.84 | 58.45 | 55.82 | 2.63 | 0.74 | 3279.39 | 3281.34 |
| RW-2 | 8/2/2010 | 3337.84 | 58.45 | 55.84 | 2.61 | 0.74 | 3279.39 | 3281.32 |
| RW-2 | 4/4/2011 | 3337.84 | 58.25 | 55.72 | 2.53 | 0.74 | 3279.59 | 3281.46 |
| RW-2 | 8/8/2011 | 3337.84 | 58.23 | 55.73 | 2.5 | 0.74 | 3279.61 | 3281.46 |
| RW-2 | 2/6/2012 | 3337.84 | 58.53 | 55.87 | 2.66 | 0.74 | 3279.31 | 3281.28 |
| RW-2 | 8/14/2012 | 3337.84 | 58.31 | 55.65 | 2.66 | 0.74 | 3279.53 | 3281.50 |
| RW-2 | 2/5/2013 | 3337.84 | 58.25 | 55.61 | 2.64 | 0.74 | 3279.59 | 3281.54 |
| RW-2 | 8/5/2013 | 3337.84 | 57.89 | 55.35 | 2.54 | 0.74 | 3279.95 | 3281.83 |
| RW-2 | 2/3/2014 | 3337.84 | 57.83 | 55.66 | 2.17 | 0.74 | 3280.01 | 3281.62 |
| RW-2 | 8/5/2014 | 3337.84 | 58.17 | 55.61 | 2.56 | 0.74 | 3282.23 | 3280.34 |
| RW-2 | 2/2/2015 | 3337.84 | 57.13 | 55.25 | 1.88 | 0.74 | 3280.71 | 3282.10 |
| RW-2 | 8/3/2015 | 3337.84 | 57.18 | 55.30 | 1.88 | 0.74 | 3280.66 | 3282.05 |
| RW-2 | 3/29/2016 | 3337.84 | 56.90 | 55.16 | 1.74 | 0.74 | 3280.94 | 3282.23 |
| RW-2 | 9/13/2016 | 3337.84 | 56.90 | 56.90 | 0 | 0.74 | 3280.94 | 3280.94 |
| RW-2 | 4/3/2017 | 3337.84 | 55.10 | 55.06 | 0.04 | 0.74 | 3282.74 | 3282.77 |
| RW-2 | 3/13/2018 | 3337.84 | 56.53 | 55.03 | 1.5 | 0.74 | 3281.31 | 3282.42 |
| RW-2 | 9/24/2018 | 3337.84 | NM | 55.03 | NA | 0.74 | NM | NM |
| RW-2 | 4/1/2019 | 3337.84 | 56.47 | 54.95 | 1.52 | 0.74 | 3281.37 | 3282.49 |
| RW-2 | 10/1/2019 | 3337.84 | 56.60 | 55.13 | 1.47 | 0.74 | 3281.24 | 3282.33 |
| RW-3 | 3/9/2009 | 3338.06 | 57.15 | 56.37 | 0.78 | 0.72 | 3280.91 | 3281.47 |
| RW-3 | 8/5/2009 | 3338.06 | 57.29 | 56.46 | 0.83 | 0.72 | 3280.77 | 3281.37 |
| RW-3 | 2/2/2010 | 3338.06 | 57.45 | 56.58 | 0.87 | 0.72 | 3280.61 | 3281.24 |
| RW-3 | 8/2/2010 | 3338.06 | 57.49 | 56.59 | 0.9 | 0.72 | 3280.57 | 3281.22 |
| RW-3 | 4/4/2011 | 3338.06 | 57.23 | 56.40 | 0.83 | 0.72 | 3280.83 | 3281.43 |
| RW-3 | 8/8/2011 | 3338.06 | 57.38 | 56.35 | 1.03 | 0.72 | 3280.68 | 3281.42 |
| RW-3 | 2/6/2012 | 3338.06 | 57.50 | 56.52 | 0.98 | 0.72 | 3280.56 | 3281.27 |
| RW-3 | 8/14/2012 | 3338.06 | 57.55 | 56.34 | 1.21 | 0.72 | 3280.51 | 3281.38 |
| RW-3 | 2/5/2013 | 3338.06 | 57.61 | 56.31 | 1.3 | 0.72 | 3280.45 | 3281.39 |
| RW-3 | 8/5/2013 | 3338.06 | 57.60 | 56.25 | 1.35 | 0.72 | 3280.46 | 3281.43 |
| RW-3 | 2/3/2014 | 3338.06 | 57.58 | 56.20 | 1.38 | 0.72 | 3280.48 | 3281.47 |
| RW-3 | 8/5/2014 | 3338.06 | 57.68 | 56.26 | 1.42 | 0.72 | 3280.38 | 3281.40 |
| RW-3 | 2/2/2015 | 3338.06 | 56.21 | 55.94 | 0.27 | 0.72 | 3281.85 | 3282.04 |
| RW-3 | 8/3/2015 | 3338.06 | 56.08 | 55.93 | 0.15 | 0.72 | 3281.98 | 3282.09 |
| RW-3 | 3/29/2016 | 3338.06 | 55.84 | 55.67 | 0.17 | 0.72 | 3282.22 | 3282.34 |
| RW-3 | 9/13/2016 | 3338.06 | 55.72 | NM | NA | 0.72 | 3282.34 | 3282.34 |
| RW-3 | 4/3/2017 | 3338.06 | 55.59 | NM | NA | 0.72 | 3282.47 | 3282.47 |
| RW-3 | 3/13/2018 | 3338.06 | 55.71 | 55.54 | 0.17 | 0.72 | 3282.35 | 3282.47 |
| RW-3 | 9/24/2018 | 3338.06 | NM | 55.54 | NA | 0.72 | NM | NM |
| RW-3 | 4/4/2019 | 3338.06 | 55.55 | 55.55 | 0 | 0.72 | 3282.51 | 3282.51 |
| RW-3 | 10/1/2019 | 3338.06 | 55.72 | NM | NA | 0.72 | 3282.34 | 3282.34 |
| RW-4 | 3/9/2009 | 3334.14 | 57.70 | 54.63 | 3.07 | 0.72 | 3276.44 | 3278.65 |
| RW-4 | 8/5/2009 | 3334.14 | 58.04 | 54.67 | 3.37 | 0.72 | 3276.10 | 3278.53 |
| RW-4 | 2/2/2010 | 3334.14 | 58.00 | 54.77 | 3.23 | 0.72 | 3276.14 | 3278.47 |
| RW-4 | 8/2/2010 | 3334.14 | 58.37 | 54.80 | 3.57 | 0.72 | 3275.77 | 3278.34 |
| RW-4 | 4/4/2011 | 3334.14 | 57.77 | 54.57 | 3.2 | 0.72 | 3276.37 | 3278.67 |
| RW-4 | 8/8/2011 | 3334.14 | 57.54 | 54.54 | 3 | 0.72 | 3276.60 | 3278.76 |
| RW-4 | 2/6/2012 | 3334.14 | 58.10 | 54.79 | 3.31 | 0.72 | 3276.04 | 3278.42 |
| RW-4 | 8/14/2012 | 3334.14 | 57.77 | 54.49 | 3.28 | 0.72 | 3276.37 | 3278.73 |
| RW-4 | 2/5/2013 | 3334.14 | 57.70 | 54.45 | 3.25 | 0.72 | 3276.44 | 3278.78 |
| RW-4 | 8/5/2013 | 3334.14 | 57.65 | 54.42 | 3.23 | 0.72 | 3276.49 | 3278.82 |
| RW-4 | 2/3/2014 | 3334.14 | 57.57 | 54.42 | 3.15 | 0.72 | 3276.57 | 3278.84 |
| RW-4 | 8/5/2014 | 3334.14 | 57.67 | 54.51 | 3.16 | 0.72 | 3276.47 | 3278.75 |
| RW-4 | 2/2/2015 | 3334.14 | 50.95 | 50.80 | 0.15 | 0.72 | 3283.19 | 3283.30 |
| RW-4 | 8/3/2015 | 3334.14 | 56.08 | 53.89 | 2.19 | 0.72 | 3278.06 | 3279.64 |
| RW-4 | 3/29/2016 | 3334.14 | 56.78 | 53.80 | 2.98 | 0.72 | 3277.36 | 3279.51 |
| RW-4 | 9/13/2016 | 3334.14 | 55.96 | 53.84 | 2.12 | 0.72 | 3278.18 | 3279.71 |
| RW-4 | 4/3/2017 | 3334.14 | 55.72 | 53.75 | 1.97 | 0.72 | 3278.42 | 3279.84 |
| RW-4 | 3/13/2018 | 3334.14 | 55.50 | 53.68 | 1.82 | 0.72 | 3278.64 | 3279.95 |





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2019 Annual Groundwater Monitoring Report
Former Eunice South Gas Plant
Eunice, Lea County, New Mexico

ARCADIS Design & Consultancy for natural and built assets

| Location ID | Date | Top of Casing (feet amsl) | Depth To Groundwater (feet btoc) | Depth to LNAPL (feet btoc) | LNAPL Thickness (feet) | LNAPL Specific Gravity | Uncorrected Groundwater Elevation (feet amsl) | Corrected Groundwater Elevation (feet amsl)[1] |
|---|---|---|---|---|---|---|---|---|
| RW-4 | 9/24/2018 | 3334.14 | NM | 53.68 | NA | 0.72 | NM | NM |
| RW-4 | 4/1/2019 | 3334.14 | 55.65 | 53.70 | 1.95 | 0.72 | 3278.49 | 3279.89 |
| RW-4 | 10/1/2019 | 3334.14 | 53.89 | NM | NA | 0.72 | 3280.25 | 3280.25 |
| RW-5 | 3/9/2009 | 3334.2 | 57.60 | 55.23 | 2.37 | 0.72 | 3276.60 | 3278.31 |
| RW-5 | 8/5/2009 | 3334.2 | 58.09 | 55.28 | 2.81 | 0.72 | 3276.11 | 3278.13 |
| RW-5 | 2/2/2010 | 3334.2 | 58.13 | 55.35 | 2.78 | 0.72 | 3276.07 | 3278.07 |
| RW-5 | 8/2/2010 | 3334.2 | 58.00 | 55.37 | 2.63 | 0.72 | 3276.20 | 3278.09 |
| RW-5 | 4/4/2011 | 3334.2 | 58.11 | 55.25 | 2.86 | 0.72 | 3276.09 | 3278.15 |
| RW-5 | 8/8/2011 | 3334.2 | NM | NM | NA | 0.72 | NM | NM |
| RW-5 | 2/6/2012 | 3334.2 | 58.18 | 55.33 | 2.85 | 0.72 | 3276.02 | 3278.07 |
| RW-5 | 8/14/2012 | 3334.2 | 58.07 | 55.21 | 2.86 | 0.72 | 3276.13 | 3278.19 |
| RW-5 | 2/5/2013 | 3334.2 | 58.00 | 54.20 | 3.8 | 0.72 | 3276.20 | 3278.94 |
| RW-5 | 8/5/2013 | 3334.2 | 58.01 | 55.15 | 2.86 | 0.72 | 3276.19 | 3278.25 |
| RW-5 | 2/3/2014 | 3334.2 | 57.87 | 55.12 | 2.75 | 0.72 | 3276.33 | 3278.31 |
| RW-5 | 8/5/2014 | 3334.2 | NM | 55.19 | NA | 0.72 | NM | NM |
| RW-5 | 2/2/2015 | 3334.2 | 55.84 | 54.94 | 0.9 | 0.72 | 3278.36 | 3279.01 |
| RW-5 | 8/3/2015 | 3334.2 | 56.09 | 54.89 | 1.2 | 0.72 | 3278.11 | 3278.97 |
| RW-5 | 3/29/2016 | 3334.2 | 55.32 | 54.74 | 0.58 | 0.72 | 3278.88 | 3279.30 |
| RW-5 | 9/13/2016 | 3334.2 | 55.53 | 54.78 | 0.75 | 0.72 | 3278.67 | 3279.21 |
| RW-5 | 4/3/2017 | 3334.2 | 54.70 | 54.66 | 0.04 | 0.72 | 3279.50 | 3279.53 |
| RW-5 | 3/13/2018 | 3334.2 | 55.01 | 54.66 | 0.35 | 0.72 | 3279.19 | 3279.44 |
| RW-5 | 9/24/2018 | 3334.2 | NM | 54.66 | NA | 0.72 | NM | NM |
| RW-5 | 4/1/2019 | 3334.2 | 55.06 | 54.64 | 0.42 | 0.72 | 3279.14 | 3279.44 |
| RW-5 | 10/1/2019 | 3334.2 | 55.34 | 54.45 | 0.89 | 0.72 | 3278.86 | 3279.50 |
| RW-6 | 2/11/2009 | 3332.37 | NM | NM | NA | NA | NM | NM |
| RW-6 | 8/17/2009 | 3332.37 | NM | NM | NA | NA | NM | NM |
| RW-6 | 2/2/2010 | 3332.37 | NM | NM | NA | NA | NM | NM |
| RW-6 | 8/2/2010 | 3332.37 | NM | NM | NA | NA | NM | NM |
| RW-6 | 4/11/2011 | 3332.37 | NM | NM | NA | NA | NM | NM |
| RW-6 | 8/8/2011 | 3332.37 | NM | NM | NA | NA | NM | NM |
| RW-6 | 2/6/2012 | 3332.37 | NM | NM | NA | NA | NM | NM |
| RW-6 | 8/7/2012 | 3332.37 | NM | NM | NA | NA | NM | NM |
| RW-6 | 2/5/2013 | 3332.37 | NM | NM | NA | NA | NM | NM |
| RW-6 | 8/5/2013 | 3332.37 | 50.87 | NM | NA | NA | 3281.50 | 3281.50 |
| RW-6 | 2/3/2014 | 3332.37 | 50.68 | NM | NA | NA | 3281.69 | 3281.69 |
| RW-6 | 8/5/2014 | 3332.37 | 51.20 | NM | NA | NA | 3281.17 | 3281.17 |
| RW-6 | 2/2/2015 | 3332.37 | 49.80 | NM | NA | NA | 3282.57 | 3282.57 |
| RW-6 | 8/3/2015 | 3332.37 | 50.15 | NM | NA | NA | 3282.22 | 3282.22 |
| RW-6 | 3/28/2016 | 3332.37 | 49.92 | NM | NA | NA | 3282.45 | 3282.45 |
| RW-6 | 9/7/2016 | 3332.37 | 49.66 | NM | NA | NA | 3282.71 | 3282.71 |
| RW-6 | 4/3/2017 | 3332.37 | 49.91 | NM | NA | NA | 3282.46 | 3282.46 |
| RW-6 | 9/12/2017 | 3332.37 | 49.81 | NM | NA | NA | 3282.56 | 3282.56 |
| RW-6 | 3/12/2018 | 3332.37 | 49.75 | NM | NA | NA | 3282.62 | 3282.62 |
| RW-6 | 9/24/2018 | 3332.37 | 52.30 | NM | NA | NA | 3280.07 | 3280.07 |
| RW-6 | 4/1/2019 | 3332.37 | 49.70 | NM | NA | NA | 3282.67 | 3282.67 |
| RW-6 | 10/1/2019 | 3332.37 | 50.49 | NM | NA | NA | 3281.88 | 3281.88 |
| RW-7 | 2/11/2009 | 3331.23 | NM | NM | NA | NA | NM | NM |
| RW-7 | 8/17/2009 | 3331.23 | NM | NM | NA | NA | NM | NM |
| RW-7 | 2/2/2010 | 3331.23 | NM | NM | NA | NA | NM | NM |
| RW-7 | 8/2/2010 | 3331.23 | NM | NM | NA | NA | NM | NM |
| RW-7 | 4/11/2011 | 3331.23 | NM | NM | NA | NA | NM | NM |
| RW-7 | 8/8/2011 | 3331.23 | NM | NM | NA | NA | NM | NM |
| RW-7 | 2/6/2012 | 3331.23 | NM | NM | NA | NA | NM | NM |
| RW-7 | 8/7/2012 | 3331.23 | NM | NM | NA | NA | NM | NM |
| RW-7 | 2/5/2013 | 3331.23 | NM | NM | NA | NA | NM | NM |
| RW-7 | 8/5/2013 | 3331.23 | 52.55 | NM | NA | NA | 3278.68 | 3278.68 |
| RW-7 | 2/3/2014 | 3331.23 | 52.40 | NM | NA | NA | 3278.83 | 3278.83 |
| RW-7 | 8/5/2014 | 3331.23 | 53.05 | NM | NA | NA | 3278.18 | 3278.18 |
| RW-7 | 2/2/2015 | 3331.23 | 52.43 | NM | NA | NA | 3278.80 | 3278.80 |
| RW-7 | 8/3/2015 | 3331.23 | 52.53 | NM | NA | NA | 3278.70 | 3278.70 |
| RW-7 | 3/28/2016 | 3331.23 | 52.41 | NM | NA | NA | 3278.82 | 3278.82 |
| RW-7 | 9/7/2016 | 3331.23 | 52.13 | NM | NA | NA | 3279.10 | 3279.10 |
| RW-7 | 4/3/2017 | 3331.23 | 52.34 | NM | NA | NA | 3278.89 | 3278.89 |
| RW-7 | 9/12/2017 | 3331.23 | 52.22 | NM | NA | NA | 3279.01 | 3279.01 |
| RW-7 | 3/12/2018 | 3331.23 | 51.96 | NM | NA | NA | 3279.27 | 3279.27 |
| RW-7 | 9/24/2018 | 3331.23 | 52.22 | NM | NA | NA | 3279.01 | 3279.01 |
| RW-7 | 4/1/2019 | 3331.23 | 51.76 | NM | NA | NA | 3279.47 | 3279.47 |
| RW-7 | 10/1/2019 | 3331.23 | 52.28 | NM | NA | NA | 3278.95 | 3278.95 |
| RW-8 | 2/11/2009 | 3333.39 | NM | NM | NA | NA | NM | NM |
| RW-8 | 8/17/2009 | 3333.39 | NM | NM | NA | NA | NM | NM |
| RW-8 | 2/2/2010 | 3333.39 | NM | NM | NA | NA | NM | NM |
| RW-8 | 8/2/2010 | 3333.39 | NM | NM | NA | NA | NM | NM |
| RW-8 | 4/11/2011 | 3333.39 | NM | NM | NA | NA | NM | NM |
| RW-8 | 8/8/2011 | 3333.39 | NM | NM | NA | NA | NM | NM |
| RW-8 | 2/6/2012 | 3333.39 | NM | NM | NA | NA | NM | NM |
| RW-8 | 8/7/2012 | 3333.39 | NM | NM | NA | NA | NM | NM |



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Appendix C
Historical Groundwater Elevations
2019 Annual Groundwater Monitoring Report
Former Eunice South Gas Plant
Eunice, Lea County, New Mexico

ARCADIS Design & Consultancy for natural and built assets

| Location ID | Date | Top of Casing (feet amsl) | Depth To Groundwater (feet btoc) | Depth to LNAPL (feet btoc) | LNAPL Thickness (feet) | LNAPL Specific Gravity | Uncorrected Groundwater Elevation (feet amsl) | Corrected Groundwater Elevation (feet amsl)[1] |
|---|---|---|---|---|---|---|---|---|
| RW-8 | 2/5/2013 | 3333.39 | NM | NM | NA | NA | NM | NM |
| RW-8 | 8/5/2013 | 3333.39 | 53.82 | NM | NA | NA | 3279.57 | 3279.57 |
| RW-8 | 2/3/2014 | 3333.39 | 53.66 | NM | NA | NA | 3279.73 | 3279.73 |
| RW-8 | 8/5/2014 | 3333.39 | 53.98 | NM | NA | NA | 3279.41 | 3279.41 |
| RW-8 | 2/2/2015 | 3333.39 | 53.55 | NM | NA | NA | 3279.84 | 3279.84 |
| RW-8 | 8/3/2015 | 3333.39 | 53.45 | NM | NA | NA | 3279.94 | 3279.94 |
| RW-8 | 3/29/2016 | 3333.39 | 53.37 | NM | NA | NA | 3280.02 | 3280.02 |
| RW-8 | 9/9/2016 | 3333.39 | 53.35 | NM | NA | NA | 3280.04 | 3280.04 |
| RW-8 | 4/3/2017 | 3333.39 | 53.30 | NM | NA | NA | 3280.09 | 3280.09 |
| RW-8 | 3/12/2018 | 3333.39 | 53.04 | NM | NA | NA | 3280.35 | 3280.35 |
| RW-8 | 9/24/2018 | 3333.39 | NM | NM | NA | NA | NM | NM |
| RW-8 | 4/1/2019 | 3333.39 | 52.92 | NM | NA | NA | 3280.47 | 3280.47 |
| TMW-1 | 2/10/2009 | 3337.7 | 54.61 | NM | NA | NA | 3283.09 | 3283.09 |
| TMW-1 | 8/4/2009 | 3337.7 | 54.61 | NM | NA | NA | 3283.09 | 3283.09 |
| TMW-1 | 2/2/2010 | 3337.7 | 54.69 | NM | NA | NA | 3283.01 | 3283.01 |
| TMW-1 | 8/2/2010 | 3337.7 | 54.77 | NM | NA | NA | 3282.93 | 3282.93 |
| TMW-1 | 4/4/2011 | 3337.7 | 54.56 | NM | NA | NA | 3283.14 | 3283.14 |
| TMW-1 | 8/8/2011 | 3337.7 | 54.50 | NM | NA | NA | 3283.20 | 3283.20 |
| TMW-1 | 2/6/2012 | 3337.7 | 54.48 | NM | NA | NA | 3283.22 | 3283.22 |
| TMW-1 | 8/6/2012 | 3337.7 | 54.44 | NM | NA | NA | 3283.26 | 3283.26 |
| TMW-1 | 2/5/2013 | 3337.7 | 54.42 | NM | NA | NA | 3283.28 | 3283.28 |
| TMW-1 | 8/5/2013 | 3337.7 | 54.57 | NM | NA | NA | 3283.13 | 3283.13 |
| TMW-1 | 2/3/2014 | 3337.7 | 54.38 | NM | NA | NA | 3283.32 | 3283.32 |
| TMW-1 | 8/5/2014 | 3337.7 | 54.41 | NM | NA | NA | 3283.29 | 3283.29 |
| TMW-1 | 2/2/2015 | 3337.7 | 54.05 | NM | NA | NA | 3283.65 | 3283.65 |
| TMW-1 | 8/3/2015 | 3337.7 | 54.01 | NM | NA | NA | 3283.69 | 3283.69 |
| TMW-1 | 3/29/2016 | 3337.7 | 53.79 | NM | NA | NA | 3283.91 | 3283.91 |
| TMW-1 | 9/12/2016 | 3337.7 | 53.71 | NM | NA | NA | 3283.99 | 3283.99 |
| TMW-1 | 4/3/2017 | 3337.7 | 53.66 | NM | NA | NA | 3284.04 | 3284.04 |
| TMW-1 | 9/12/2017 | 3337.7 | 53.61 | NM | NA | NA | 3284.09 | 3284.09 |
| TMW-1 | 3/15/2018 | 3337.7 | 52.53 | NM | NA | NA | 3285.17 | 3285.17 |
| TMW-1 | 9/24/2018 | 3337.7 | 53.47 | NM | NA | NA | 3284.23 | 3284.23 |
| TMW-1 | 4/1/2019 | 3337.7 | 54.52 | NM | NA | NA | 3283.18 | 3283.18 |
| TMW-1 | 10/1/2019 | 3337.7 | 53.65 | NM | NA | NA | 3284.05 | 3284.05 |
| TMW-2 | 2/18/2009 | 3338.3 | 55.95 | 55.11 | 0.84 | 0.82 | 3282.35 | 3283.04 |
| TMW-2 | 3/18/2009 | 3338.3 | 56.08 | 55.18 | 0.9 | 0.82 | 3282.22 | 3282.96 |
| TMW-2 | 8/5/2009 | 3338.3 | 56.15 | 55.20 | 0.95 | 0.82 | 3282.15 | 3282.93 |
| TMW-2 | 2/2/2010 | 3338.3 | 56.59 | 55.25 | 1.34 | 0.82 | 3281.71 | 3282.81 |
| TMW-2 | 8/2/2010 | 3338.3 | 56.67 | 55.22 | 1.45 | 0.82 | 3281.63 | 3282.82 |
| TMW-2 | 4/4/2011 | 3338.3 | 56.65 | 55.06 | 1.59 | 0.82 | 3281.65 | 3282.95 |
| TMW-2 | 8/8/2011 | 3338.3 | 56.64 | 55.00 | 1.64 | 0.82 | 3281.66 | 3283.00 |
| TMW-2 | 2/6/2012 | 3338.3 | 56.70 | 54.96 | 1.74 | 0.82 | 3281.60 | 3283.03 |
| TMW-2 | 8/6/2012 | 3338.3 | 56.12 | 54.93 | 1.19 | 0.82 | 3282.18 | 3283.16 |
| TMW-2 | 2/5/2013 | 3338.3 | 56.81 | 54.90 | 1.91 | 0.82 | 3281.49 | 3283.06 |
| TMW-2 | 8/5/2013 | 3338.3 | 56.97 | 56.04 | 0.93 | 0.82 | 3281.33 | 3282.09 |
| TMW-2 | 2/3/2014 | 3338.3 | 56.77 | 54.84 | 1.93 | 0.82 | 3281.53 | 3283.11 |
| TMW-2 | 8/5/2014 | 3338.3 | 56.93 | 54.88 | 2.05 | 0.82 | 3281.37 | 3283.05 |
| TMW-2 | 2/2/2015 | 3338.3 | 54.90 | 54.65 | 0.25 | 0.82 | 3283.40 | 3283.61 |
| TMW-2 | 8/3/2015 | 3338.3 | 54.89 | 54.60 | 0.29 | 0.82 | 3283.41 | 3283.65 |
| TMW-2 | 3/29/2016 | 3338.3 | 54.97 | 54.40 | 0.57 | 0.82 | 3283.33 | 3283.80 |
| TMW-2 | 9/13/2016 | 3338.3 | 54.78 | 54.38 | 0.4 | 0.82 | 3283.52 | 3283.85 |
| TMW-2 | 4/3/2017 | 3338.3 | 54.85 | 54.27 | 0.58 | 0.82 | 3283.45 | 3283.93 |
| TMW-2 | 3/15/2018 | 3338.3 | 54.57 | 54.15 | 0.42 | 0.82 | 3283.73 | 3284.07 |
| TMW-2 | 9/24/2018 | 3338.3 | NM | 54.15 | NA | 0.82 | NM | NM |
| TMW-2 | 4/1/2019 | 3338.3 | 54.66 | 54.16 | 0.50 | 0.82 | 3283.64 | 3284.05 |
| TMW-3 | 2/17/2009 | 3336.67 | 53.77 | NM | NA | 0.82 | 3282.90 | 3282.90 |
| TMW-3 | 8/5/2009 | 3336.67 | 53.91 | 53.90 | 0.01 | 0.82 | 3282.76 | 3282.77 |
| TMW-3 | 2/2/2010 | 3336.67 | 54.01 | NM | NA | 0.82 | 3282.66 | 3282.66 |
| TMW-3 | 8/2/2010 | 3336.67 | 53.97 | NM | NA | 0.82 | 3282.70 | 3282.70 |
| TMW-3 | 4/4/2011 | 3336.67 | 53.78 | NM | NA | 0.82 | 3282.89 | 3282.89 |
| TMW-3 | 8/8/2011 | 3336.67 | 53.70 | NM | NA | 0.82 | 3282.97 | 3282.97 |
| TMW-3 | 2/6/2012 | 3336.67 | 53.77 | NM | NA | 0.82 | 3282.90 | 3282.90 |
| TMW-3 | 8/7/2012 | 3336.67 | 53.72 | NM | NA | 0.82 | 3282.95 | 3282.95 |
| TMW-3 | 2/5/2013 | 3336.67 | 53.72 | NM | NA | 0.82 | 3282.95 | 3282.95 |
| TMW-3 | 8/5/2013 | 3336.67 | 53.60 | NM | NA | 0.82 | 3283.07 | 3283.07 |
| TMW-3 | 2/3/2014 | 3336.67 | 53.61 | NM | NA | 0.82 | 3283.06 | 3283.06 |
| TMW-3 | 8/5/2014 | 3336.67 | 53.68 | NM | NA | 0.82 | 3282.99 | 3282.99 |
| TMW-3 | 2/2/2015 | 3336.67 | 53.28 | NM | NA | 0.82 | 3283.39 | 3283.39 |
| TMW-3 | 8/3/2015 | 3336.67 | 53.14 | NM | NA | 0.82 | 3283.53 | 3283.53 |
| TMW-3 | 3/29/2016 | 3336.67 | 52.92 | NM | NA | 0.82 | 3283.75 | 3283.75 |
| TMW-3 | 9/12/2016 | 3336.67 | 52.94 | NM | NA | 0.82 | 3283.73 | 3283.73 |
| TMW-3 | 4/3/2017 | 3336.67 | 52.79 | NM | NA | 0.82 | 3283.88 | 3283.88 |
| TMW-3 | 3/13/2018 | 3336.67 | 52.75 | NM | NA | 0.82 | 3283.92 | 3283.92 |
| TMW-3 | 9/24/2018 | 3336.67 | NM | NM | NA | 0.82 | NM | NM |
| TMW-5 | 2/18/2009 | 3335.66 | 53.50 | NM | NA | NA | 3282.16 | 3282.16 |
| TMW-5 | 8/4/2009 | 3335.66 | 53.51 | NM | NA | NA | 3282.15 | 3282.15 |



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Appendix C
Historical Groundwater Elevations
2019 Annual Groundwater Monitoring Report
Former Eunice South Gas Plant
Eunice, Lea County, New Mexico

ARCADIS Design & Consultancy for natural and built assets

| Location ID | Date | Top of Casing (feet amsl) | Depth To Groundwater (feet btoc) | Depth to LNAPL (feet btoc) | LNAPL Thickness (feet) | LNAPL Specific Gravity | Uncorrected Groundwater Elevation (feet amsl) | Corrected Groundwater Elevation (feet amsl)[1] |
|---|---|---|---|---|---|---|---|---|
| TMW-5 | 2/2/2010 | 3335.66 | 53.79 | NM | NA | NA | 3281.87 | 3281.87 |
| TMW-5 | 8/2/2010 | 3335.66 | 53.81 | NM | NA | NA | 3281.85 | 3281.85 |
| TMW-5 | 4/4/2011 | 3335.66 | 53.32 | NM | NA | NA | 3282.34 | 3282.34 |
| TMW-5 | 8/8/2011 | 3335.66 | NM | NM | NA | NA | NM | NM |
| TMW-5 | 2/6/2012 | 3335.66 | NM | NM | NA | NA | NM | NM |
| TMW-5 | 8/7/2012 | 3335.66 | NM | NM | NA | NA | NM | NM |
| TMW-5 | 2/5/2013 | 3335.66 | NM | NM | NA | NA | NM | NM |
| TMW-5 | 2/3/2014 | 3335.66 | NM | NM | NA | NA | NM | NM |
| TMW-5 | 8/5/2014 | 3335.66 | NM | NM | NA | NA | NM | NM |
| TMW-5 | 3/29/2016 | 3335.66 | NM | NM | NA | NA | NM | NM |
| TMW-6 | 2/17/2009 | 3335.36 | 52.36 | NM | NA | NA | 3283.00 | 3283.00 |
| TMW-6 | 8/4/2009 | 3335.36 | 52.46 | NM | NA | NA | 3282.90 | 3282.90 |
| TMW-6 | 2/2/2010 | 3335.36 | 52.59 | NM | NA | NA | 3282.77 | 3282.77 |
| TMW-6 | 8/2/2010 | 3335.36 | NM | NM | NA | NA | NM | NM |
| TMW-6 | 4/4/2011 | 3335.36 | 52.40 | NM | NA | NA | 3282.96 | 3282.96 |
| TMW-6 | 8/8/2011 | 3335.36 | 52.35 | NM | NA | NA | 3283.01 | 3283.01 |
| TMW-6 | 2/6/2012 | 3335.36 | 52.40 | NM | NA | NA | 3282.96 | 3282.96 |
| TMW-6 | 8/7/2012 | 3335.36 | 52.36 | NM | NA | NA | 3283.00 | 3283.00 |
| TMW-6 | 2/5/2013 | 3335.36 | 52.35 | NM | NA | NA | 3283.01 | 3283.01 |
| TMW-6 | 8/5/2013 | 3335.36 | 52.25 | NM | NA | NA | 3283.11 | 3283.11 |
| TMW-6 | 2/3/2014 | 3335.36 | 52.23 | NM | NA | NA | 3283.13 | 3283.13 |
| TMW-6 | 8/5/2014 | 3335.36 | 52.27 | NM | NA | NA | 3283.09 | 3283.09 |
| TMW-6 | 2/2/2015 | 3335.36 | 51.95 | NM | NA | NA | 3283.41 | 3283.41 |
| TMW-6 | 8/3/2015 | 3335.36 | 51.80 | NM | NA | NA | 3283.56 | 3283.56 |
| TMW-6 | 3/29/2016 | 3335.36 | 51.55 | NM | NA | NA | 3283.81 | 3283.81 |
| TMW-6 | 9/12/2016 | 3335.36 | 51.53 | NM | NA | NA | 3283.83 | 3283.83 |
| TMW-6 | 4/3/2017 | 3335.36 | 51.43 | NM | NA | NA | 3283.93 | 3283.93 |
| TMW-6 | 9/12/2017 | 3335.36 | 51.37 | NM | NA | NA | 3283.99 | 3283.99 |
| TMW-6 | 3/13/2018 | 3335.36 | 51.41 | NM | NA | NA | 3283.95 | 3283.95 |
| TMW-6 | 9/24/2018 | 3335.36 | 51.50 | NM | NA | NA | 3283.86 | 3283.86 |
| TMW-6 | 4/1/2019 | 3335.36 | 51.35 | NM | NA | NA | 3284.01 | 3284.01 |
| TMW-6 | 10/1/2019 | 3335.36 | 54.48 | NM | NA | NA | 3280.88 | 3280.88 |
| WW-1 | 2/2/2009 | 3332.04 | NM | NM | NA | NA | NM | NM |
| WW-1 | 8/17/2009 | 3332.04 | NM | NM | NA | NA | NM | NM |
| WW-1 | 8/2/2010 | 3332.04 | NM | NM | NA | NA | NM | NM |
| WW-1 | 4/11/2011 | 3332.04 | NM | NM | NA | NA | NM | NM |
| WW-1 | 8/8/2011 | 3332.04 | NM | NM | NA | NA | NM | NM |
| WW-1 | 2/6/2012 | 3332.04 | NM | NM | NA | NA | NM | NM |
| WW-1 | 3/28/2016 | 3332.04 | NM | NM | NA | NA | NM | NM |
| WW-2 | 2/2/2009 | 3331.46 | 49.91 | NM | NA | NA | 3281.55 | 3281.55 |
| WW-2 | 8/17/2009 | 3331.46 | NM | NM | NA | NA | NM | NM |
| WW-2 | 2/2/2010 | 3331.46 | NM | NM | NA | NA | NM | NM |
| WW-2 | 8/2/2010 | 3331.46 | NM | NM | NA | NA | NM | NM |
| WW-2 | 4/11/2011 | 3331.46 | NM | NM | NA | NA | NM | NM |
| WW-2 | 8/8/2011 | 3331.46 | NM | NM | NA | NA | NM | NM |
| WW-2 | 2/6/2012 | 3331.46 | NM | NM | NA | NA | NM | NM |
| WW-2 | 3/29/2016 | 3331.46 | 49.20 | NM | NA | NA | 3282.26 | 3282.26 |
| WW-2 | 9/6/2016 | 3331.46 | 49.20 | NM | NA | NA | 3282.26 | 3282.26 |
| WW-2 | 4/3/2017 | 3331.46 | 49.10 | NM | NA | NA | 3282.36 | 3282.36 |
| WW-2 | 3/12/2018 | 3331.46 | 49.07 | NM | NA | NA | 3282.39 | 3282.39 |
| WW-2 | 9/24/2018 | 3331.46 | NM | NM | NA | NA | NM | NM |
| WW-2 | 4/4/2019 | 3331.46 | 49.14 | NM | NA | NA | 3282.32 | 3282.32 |
| WW-3 | 2/2/2009 | 3334.45 | 52.69 | NM | NA | NA | 3281.76 | 3281.76 |
| WW-3 | 8/17/2009 | 3334.45 | NM | NM | NA | NA | NM | NM |
| WW-3 | 2/2/2010 | 3334.45 | NM | NM | NA | NA | NM | NM |
| WW-3 | 8/2/2010 | 3334.45 | NM | NM | NA | NA | NM | NM |
| WW-3 | 4/11/2011 | 3334.45 | NM | NM | NA | NA | NM | NM |
| WW-3 | 8/8/2011 | 3334.45 | NM | NM | NA | NA | NM | NM |
| WW-3 | 2/6/2012 | 3334.45 | NM | NM | NA | NA | NM | NM |
| WW-3 | 3/28/2016 | 3334.45 | NM | NM | NA | NA | NM | NM |
| WW-3 | 4/4/2017 | 3334.45 | 52.08 | NM | NA | NA | 3282.37 | 3282.37 |
| WW-4 | 2/3/2009 | 3335.4 | 55.95 | NM | NA | NA | 3279.45 | 3279.45 |
| WW-4 | 2/6/2012 | 3335.4 | NM | NM | NA | NA | NM | NM |
| WW-4 | 3/28/2016 | 3335.4 | NM | NM | NA | NA | NM | NM |
| WW-5 | 2/3/2009 | 3334.18 | 53.30 | NM | NA | NA | 3280.88 | 3280.88 |
| WW-5 | 8/17/2009 | 3336.4 | NM | NM | NA | NA | NM | NM |
| WW-5 | 2/2/2010 | 3334.18 | NM | NM | NA | NA | NM | NM |
| WW-5 | 8/2/2010 | 3334.18 | NM | NM | NA | NA | NM | NM |
| WW-5 | 4/11/2011 | 3334.18 | NM | NM | NA | NA | NM | NM |
| WW-5 | 8/8/2011 | 3334.18 | NM | NM | NA | NA | NM | NM |
| WW-5 | 2/6/2012 | 3334.18 | NM | NM | NA | NA | NM | NM |
| WW-5 | 3/28/2016 | 3334.18 | NM | NM | NA | NA | NM | NM |
| WW-6 | 2/3/2009 | 3329.72 | 50.30 | NM | NA | NA | 3279.42 | 3279.42 |
| WW-6 | 8/17/2009 | 3329.72 | NM | NM | NA | NA | NM | NM |
| WW-6 | 2/2/2010 | 3337.4 | NM | NM | NA | NA | NM | NM |
| WW-6 | 8/2/2010 | 3329.72 | NM | NM | NA | NA | NM | NM |



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Appendix C
Historical Groundwater Elevations
2019 Annual Groundwater Monitoring Report
Former Eunice South Gas Plant
Eunice, Lea County, New Mexico

ARCADIS Design & Consultancy for natural and built assets

| Location ID | Date | Top of Casing (feet amsl) | Depth To Groundwater (feet btoc) | Depth to LNAPL (feet btoc) | LNAPL Thickness (feet) | LNAPL Specific Gravity | Uncorrected Groundwater Elevation (feet amsl) | Corrected Groundwater Elevation (feet amsl)[1] |
|---|---|---|---|---|---|---|---|---|
| WW-6 | 4/11/2011 | 3329.72 | NM | NM | NA | NA | NM | NM |
| WW-6 | 8/8/2011 | 3329.72 | NM | NM | NA | NA | NM | NM |
| WW-6 | 2/6/2012 | 3329.72 | NM | NM | NA | NA | NM | NM |
| WW-6 | 3/28/2016 | 3329.72 | NM | NM | NA | NA | NM | NM |
| WW-7 | 2/2/2009 | 3331.73 | 50.95 | NM | NA | NA | 3280.78 | 3280.78 |
| WW-7 | 8/17/2009 | 3331.73 | NM | NM | NA | NA | NM | NM |
| WW-7 | 2/2/2010 | 3338.4 | NM | NM | NA | NA | NM | NM |
| WW-7 | 8/2/2010 | 3331.73 | NM | NM | NA | NA | NM | NM |
| WW-7 | 4/11/2011 | 3331.73 | NM | NM | NA | NA | NM | NM |
| WW-7 | 8/8/2011 | 3331.73 | NM | NM | NA | NA | NM | NM |
| WW-7 | 2/6/2012 | 3331.73 | NM | NM | NA | NA | NM | NM |
| WW-7 | 3/29/2016 | 3331.73 | 50.30 | NM | NA | NA | 3281.43 | 3281.43 |
| WW-7 | 9/6/2016 | 3331.73 | 50.30 | NM | NA | NA | 3281.43 | 3281.43 |
| WW-7 | 4/3/2017 | 3331.73 | 50.30 | NM | NA | NA | 3281.43 | 3281.43 |
| WW-7 | 3/12/2018 | 3331.73 | 50.15 | NM | NA | NA | 3281.58 | 3281.58 |
| WW-7 | 9/24/2018 | 3331.73 | NM | NM | NA | NA | NM | NM |
| WW-7 | 4/4/2019 | 3331.73 | 50.21 | NM | NA | NA | 3281.52 | 3281.52 |
| WW-8 | 8/2/2010 | 3339.4 | NM | NM | NA | NA | NM | NM |
| WW-10 | 8/8/2011 | 3341.40 | NM | NM | NA | NA | NM | NM |

**Note:**

[1] Groundwater elevations corrected using an assumed LNAPL specific gravity ranging from 0.72 to 0.82 based on limited LNAPL characterization conducted during 2017. The formula used to correct groundwater elevation is as follows

$$Corrected\ GW\ Elevation = TOC\ Elevation - (DTW - LNAPL\ Thickness * LNAPL\ Specific\ Gravity)$$

**Acronyms and Abbreviations:**

amsl = above mean sea level

btoc = below top of casing

DTW = depth to groundwater

GW = groundwater

ID = identification

LNAPL = light nonaqueous phase liquid

NA = not applicable

NM = not measured

TOC = top of casing

* active recovery well





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# APPENDIX D

## Laboratory Analytical Reports and Data Validation Review

ARCADIS Design & Consultancy for natural and built assets

# Chevron South Eunice

# DATA REVIEW

SOUTH EUNICE, NEW MEXICO

Volatiles, TPH, Metals and Miscellaneous Analyses

SDGs # 619806, 620013, 620014, 620148, 620150 and 620257

Analyses Performed By:
Xenco Laboratories

Midland, TX

Report #32888R
Review Level: Tier II
Project: B0048789.0004

**DATA REVIEW REPORT**

# SUMMARY

This data quality assessment summarizes the review of Sample Delivery Groups (SDGs) # 619806, 620013, 620014, 620148, 620150 and 620257 for samples collected in association with the Chevron South Eunice Site. The review was conducted as a Tier II evaluation and included review of data package completeness. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets and chain of custody. Analyses were performed on the following samples:

| SDG Number | Sample ID | Lab ID | Matrix | Sample Collection Date | Parent Sample | Analysis | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | VOC | TPH | MET | MISC |
| 619806 | MW-15-W-190402 | 619806-001 | Water | 04/02/2019 | | X | X | X | X |
| | MW-16-W-190402 | 619806-002 | Water | 04/02/2019 | | X | X | X | X |
| | MW-36-W-190402 | 619806-003 | Water | 04/02/2019 | | X | X | X | X |
| | MW-35-W-190402 | 619806-004 | Water | 04/02/2019 | | X | X | X | X |
| | MW-13-W-190402 | 619806-005 | Water | 04/02/2019 | | X | X | X | X |
| | MW-37-W-190402 | 619806-006 | Water | 04/02/2019 | | X | X | X | X |
| | MW-38-W-190402 | 619806-007 | Water | 04/02/2019 | | X | X | X | X |
| | MW-34-W-190402 | 619806-008 | Water | 04/02/2019 | | X | X | X | X |
| | MWD-6-W-190402 | 619806-009 | Water | 04/02/2019 | | X | X | X | X |
| 620013 | MW-31-W-190403 | 620013-001 | Water | 04/03/2019 | | X | X | X | X |
| | MW-14-W-190403 | 620013-002 | Water | 04/03/2019 | | X | X | X | X |
| | MWD-4-W-190403 | 620013-003 | Water | 04/03/2019 | | X | X | X | X |
| | MWD-13-W-190403 | 620013-004 | Water | 04/03/2019 | | X | X | X | X |
| | MW-22-W-190403 | 620013-005 | Water | 04/03/2019 | | X | X | X | X |
| | MWD-17-W-190403 | 620013-006 | Water | 04/03/2019 | | X | X | X | X |
| | MWD-7-W-190403 | 620013-007 | Water | 04/03/2019 | | X | X | X | X |
| | MW-17-W-190403 | 620013-008 | Water | 04/03/2019 | | X | X | X | X |
| | MWD-1-W-190403 | 620013-009 | Water | 04/03/2019 | | X | X | X | X |
| | DUP-4-W-190403 | 620013-010 | Water | 04/03/2019 | MWD-4 | X | X | X | X |
| 620014 | MW-30-W-190403 | 620014-001 | Water | 04/03/2019 | | X | X | X | X |
| | MW-9-W-190403 | 620014-002 | Water | 04/03/2019 | | X | X | X | X |
| | MW-29-W-190403 | 620014-003 | Water | 04/03/2019 | | X | X | X | X |
| | MWD-5-W-190403 | 620014-004 | Water | 04/03/2019 | | X | X | X | X |
| | MW-32-W-190403 | 620014-005 | Water | 04/03/2019 | | X | X | X | X |



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## DATA REVIEW REPORT

| SDG Number | Sample ID | Lab ID | Matrix | Sample Collection Date | Parent Sample | Analysis | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | VOC | TPH | MET | MISC |
| | MW-8-W-190403 | 620014-006 | Water | 04/03/2019 | | X | X | X | X |
| | MWD-12-W-190403 | 620014-007 | Water | 04/03/2019 | | X | X | X | X |
| | DUP 3-W-190403 | 620014-008 | Water | 04/03/2019 | MW-29 | X | X | X | X |
| 620148 | MWD-8-W-190404 | 620148-001 | Water | 04/04/2019 | | X | X | X | X |
| | WW-2-W-190404 | 620148-002 | Water | 04/04/2019 | | X | X | X | X |
| | WW-7-W-190404 | 620148-003 | Water | 04/04/2019 | | X | X | X | X |
| | MW-26-W-190404 | 620148-004 | Water | 04/04/2019 | | X | X | X | X |
| | MW-11-W-190404 | 620148-005 | Water | 04/04/2019 | | X | X | X | X |
| | MWD-2-W-190404 | 620148-006 | Water | 04/04/2019 | | X | X | X | X |
| | RW-8-W-190404 | 620148-007 | Water | 04/04/2019 | | X | X | X | X |
| | MWD-15-W-190404 | 620148-008 | Water | 04/04/2019 | | X | X | X | X |
| | DUP-2-W-190404 | 620148-009 | Water | 04/04/2019 | MW-11 | X | X | X | X |
| 620150 | RW-6-W-190404 | 620150-001 | Water | 04/04/2019 | | X | X | X | X |
| | RW-7-W-190404 | 620150-002 | Water | 04/04/2019 | | X | X | X | X |
| | MWD-9-W-190404 | 620150-003 | Water | 04/04/2019 | | X | X | X | X |
| | MW-4-W-190404 | 620150-004 | Water | 04/04/2019 | | X | X | X | X |
| | DUP5-W-190404 | 620150-005 | Water | 04/04/2019 | RW-7 | X | X | X | X |
| 620257 | RW-6-W-190405 | 620150-001 | Water | 04/05/2019 | | X | X | X | X |
| | MWD-14-W-190405 | 620257-001 | Water | 04/05/2019 | | X | X | X | X |
| | MW-25-W-190405 | 620257-002 | Water | 04/05/2019 | | X | X | X | X |
| | TMW-6-W-190405 | 620257-003 | Water | 04/05/2019 | | X | X | X | X |
| | MW-3-W-190405 | 620257-004 | Water | 04/05/2019 | | X | X | X | X |
| | MWD-11-W-190405 | 620257-005 | Water | 04/05/2019 | | X | X | X | X |
| | TMW-1-W-190405 | 620257-006 | Water | 04/05/2019 | | X | X | X | X |
| | DUP6-W-190405 | 620257-007 | Water | 04/05/2019 | TMW-1 | X | X | X | X |

Notes:

VOC – Volatile Organic Compounds.

TPH – Total Petroleum Hydrocarbons.

MET – Metals.

MISC – Miscellaneous includes hexavalent chromium, chloride and total dissolved solids.



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**DATA REVIEW REPORT**

## ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

| Items Reviewed | Reported | | Performance Acceptable | | Not Required |
|---|---|---|---|---|---|
| | No | Yes | No | Yes | |
| 1. Sample receipt condition | | X | | X | |
| 2. Requested analyses and sample results | | X | | X | |
| 3. Master tracking list | | X | | X | |
| 4. Methods of analysis | | X | | X | |
| 5. Reporting limits | | X | | X | |
| 6. Sample collection date | | X | | X | |
| 7. Laboratory sample received date | | X | | X | |
| 8. Sample preservation verification (as applicable) | | X | | X | |
| 9. Sample preparation/extraction/analysis dates | | X | | X | |
| 10. Fully executed Chain-of-Custody (COC) form | | X | | X | |
| 11. Narrative summary of QA or sample problems provided | | X | | X | |
| 12. Data Package Completeness and Compliance | | X | | X | |

Note:
QA - Quality Assurance



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**DATA REVIEW REPORT**

## ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 8021B and 8015 Mod. Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers

  U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.

  B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.

- Quantitation (Q) Qualifiers

  E The compound was quantitated above the calibration range.

  D Concentration is based on a diluted sample analysis.

- Validation Qualifiers

  J The compound was positively identified; however, the associated numerical value is an estimated concentration only.

  UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.

  JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.

  UB Compound considered non-detect at the listed value due to associated blank contamination.

  N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.

  R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.



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**DATA REVIEW REPORT**

**VOLATILE ORGANIC COMPOUND (VOC) ANALYSES**

## 1. Holding Times

The specified holding times for the following methods are presented in the following table.

| Method | Matrix | Holding Time | Preservation |
|---|---|---|---|
| SW-846 8021B | Water | 14 days from collection to analysis (preserved)<br>7 days from collection to analysis (non-preserved) | Cool to <6 °C; preserved to a pH of less than 2 s.u. |

Note:

s.u. Standard units

All samples were analyzed within the specified holding time criteria.

## 2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the sample detection limit (SDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the SDL in the associated blanks; therefore, detected sample results were not associated with blank contamination.

## 3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. VOC analysis requires that all surrogates associated with the analysis exhibit recoveries within the laboratory-established acceptance limits.

Samples associated with surrogates exhibiting recoveries outside of the control limits presented in the following table.

| SDG | Sample | Surrogate | Recovery |
|---|---|---|---|
| 620148 | MWD-15 | 4-Bromofluorobenzene | > UL |

Note:

UL – Upper control limit

The criteria used to evaluate the surrogate recoveries are presented in the following table. In the case of a surrogate deviation, the sample results associated with the deviant fraction are qualified as documented in the table below.



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| Control Limit | Sample Result | Qualification |
|---|---|---|
| > UL | Non-detect | No Action |
| | Detect | J |
| < LL but > 10% | Non-detect | UJ |
| | Detect | J |
| < 10% | Non-detect | R |
| | Detect | J |

**4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analyses**

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

The MS/MSD analyzed on samples MW-8-W-190403 and RW-6-W-190404 exhibited acceptable recoveries and RPD between the MS/MSD recoveries.

**5. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis**

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS/LCSD analysis exhibited recoveries within the control limits.

**6. Field Duplicate Analysis**

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

Results for duplicate samples are summarized in the following table.

| SDGs | Sample ID/Duplicate ID | Compounds | Sample Result (mg/l) | Duplicate Result (mg/l) | RPD |
|---|---|---|---|---|---|
| 620148 | MW-11-W-190404 /DUP-2-W-190404 | Benzene | 1.87 | 1.67 | 11.3% |
| | | Toluene | 0.0200 U | 0.0019 J | AC |
| | | Ethylbenzene | 0.00840 J | 0.00639 | AC |
| | | m,p-Xylenes | 0.0434 | 0.0301 | AC |



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| SDGs | Sample ID/Duplicate ID | Compounds | Sample Result (mg/l) | Duplicate Result (mg/l) | RPD |
|---|---|---|---|---|---|
| | | o-Xylene | 0.0108 J | 0.00814 | AC |
| | | Total Xylenes | 0.0542 | 0.0382 | AC |
| | | Total BTEX | 1.93 | 1.72 | 11.0% |
| 620014 | MW-29-W-190403 / DUP-3-W-190403 | Benzene | 0.0624 | 0.0462 | AC |
| | | Total BTEX | 0.0624 | 0.0462 | AC |
| 620257 | TMW-1-W-190405 /DUP-6-W-190405 | Benzene | 0.0320 | 0.0308 | AC |
| | | Ethylbenzene | 0.00524 | 0.00475 | AC |
| | | m,p-Xylenes | 0.0114 | 0.0111 | AC |
| | | o-Xylene | 0.00090 J | 0.00079 J | AC |
| | | Total Xylenes | 0.0123 | 0.0119 | AC |
| | | Total BTEX | 0.0495 | 0.0474 | AC |

Notes:

AC = Acceptable

U = Not detected

The calculated RPDs between the parent sample and field duplicates were acceptable.

### 7. System Performance and Overall Assessment

Sample results associated with compound that exhibited a concentration greater than the linear range of the instrument calibration are summarized in the following table.

| SDGs | Sample ID | Compound | Original Analysis | Diluted Analysis | Reported Analysis |
|---|---|---|---|---|---|
| 620014 | MW-32-W-190403 | Benzene | | 4.30 D | 4.30 D |
| 620148 | MW-26-W-190404 | Benzene | | 0.577 D | 0.577 D |
| | DUP-2-W-190404 | Benzene | | 1.67 D | 1.67 D |
| 620257 | MW-25-W-190405 | Benzene | | 14.1 | 14.1 D |

Sample results associated with compounds exhibiting concentrations greater than the linear range are qualified as documented in the table below when reported as the final reported sample result.

| Reported Sample Results | Qualification |
|---|---|
| Diluted sample result within calibration range | D |
| Diluted sample result less than the calibration range | DJ |
| Diluted sample result greater than the calibration range | EDJ |
| Original sample result greater than the calibration range | EJ |

**DATA REVIEW REPORT**

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.



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**DATA REVIEW REPORT**

## DATA VALIDATION CHECKLIST FOR VOCs

| VOCs: SW-846 8021B | Reported | | Performance Acceptable | | Not Required |
|---|---|---|---|---|---|
| | No | Yes | No | Yes | |
| **GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)** | | | | | |
| **Tier II Validation** | | | | | |
| Holding times | | X | | X | |
| Reporting limits (units) | | X | | X | |
| Blanks | | | | | |
| A. Method blanks | | X | | X | |
| B. Equipment blanks | X | | | | X |
| C. Trip blanks | X | | | | X |
| Laboratory Control Sample (LCS) | | X | | X | |
| Laboratory Control Sample Duplicate(LCSD) | | X | | X | |
| LCS/LCSD Precision (RPD) | | X | | X | |
| Matrix Spike (MS) | | X | | X | |
| Matrix Spike Duplicate(MSD) | | X | | X | |
| MS/MSD Precision (RPD) | | X | | X | |
| Field/Lab Duplicate (RPD) | | X | | X | |
| Surrogate Spike Recoveries | | X | X | | |
| Dilution Factor | | X | | X | |

Notes:

%R Percent recovery

RPD Relative percent difference



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**DATA REVIEW REPORT**

**TPH ANALYSES**

## 1. Holding Times

The specified holding times for the following methods are presented in the following table.

| Method | Matrix | Holding Time | Preservation |
|---|---|---|---|
| TPH by SW-846 8015B | Water | 14 days from collection to extraction and 40 days from extraction to analysis | Cool to <6 °C |

All samples were analyzed within the specified holding times.

## 2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the sample detection limit (SDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the SDL in the associated blanks; therefore, detected sample results were not associated with blank contamination.

## 3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. The analysis requires surrogate compounds exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

## 4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analyses

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

The MS/MSD analysis performed on samples MW-15-W-190402, MW-30-W-190403 and RW-6-W-190404 exhibited acceptable recoveries and RPD between the MS/MSD recoveries.

## 5. Laboratory Control Sample (LCS)/Laboratory Control Sample Duplicate Analysis (LCSD)



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The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS/LCSD analysis exhibited recoveries within the control limits.

**6. Field Duplicate Analysis**

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

Results for duplicate samples are summarized in the following table.

| SDGs | Sample ID/Duplicate ID | Compounds | Sample Result (mg/l) | Duplicate Result (mg/l) | RPD |
|---|---|---|---|---|---|
| 620148 | MW-11-W-190404 /DUP-2-W-190404 | Gasoline Range Hydrocarbons | 7.23 | 6.99 | AC |
| | | Total TPH | 7.23 | 6.99 | AC |
| 620014 | MW-29-W-190403 / DUP-3-W-190403 | Gasoline Range Hydrocarbons | 4.32 | 4.21 | AC |
| | | Diesel Range Organics | 1.50 U | 1.20 J | AC |
| | | Total TPH | 4.32 | 5.41 | AC |

Notes:

AC = Acceptable

The calculated RPDs between the parent sample and field duplicates were acceptable.

**7. System Performance and Overall Assessment**

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

**DATA REVIEW REPORT**

**DATA VALIDATION CHECKLIST FOR TPH**

| TPH: SW-846 8015M | Reported | | Performance Acceptable | | Not Required |
|---|---|---|---|---|---|
| | No | Yes | No | Yes | |
| GAS CHROMATOGRAPHY (GC/FID) | | | | | |
| **Tier II Validation** | | | | | |
| Holding times | | X | | X | |
| Reporting limits (units) | | X | | X | |
| Blanks | | | | | |
| A. Method blanks | | X | | X | |
| B. Equipment blanks | X | | | | X |
| Laboratory Control Sample (LCS) %R | | X | | X | |
| Laboratory Control Sample Duplicate(LCSD) %R | | X | | X | |
| LCS/LCSD Precision (RPD) | | X | | X | |
| Matrix Spike (MS) %R | | X | | X | |
| Matrix Spike Duplicate(MSD) %R | | X | | X | |
| MS/MSD Precision (RPD) | | X | | X | |
| Field/Lab Duplicate (RPD) | | X | | X | |
| Surrogate Spike Recoveries | | X | | X | |
| Dilution Factor | | X | | X | |

Notes:
%R - percent recovery
RPD - relative percent difference



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**DATA REVIEW REPORT**

## INORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 6020A, 7196A, EPA 300, SM 2540C. Data were reviewed in accordance with USEPA National Functional Guidelines of July 2002.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and that it was already subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with the USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
  - U The analyte was analyzed for but not detected. The associated value is the analyte instrument detection limit.
  - J The reported value was obtained from a reading less than the reporting limit (RL), but greater than or equal to the method detection limit (MDL).
- Quantitation (Q) Qualifiers
  - E The reported value is estimated due to the presence of interference.
  - N Spiked sample recovery is not within control limits.
  - * Duplicate analysis is not within control limits.
- Validation Qualifiers
  - J The analyte was positively identified; however, the associated numerical value is an estimated concentration only.
  - UJ The analyte was not detected above the reporting limit. However, the reported limit is approximate and may or may not represent the actual limit of detection.
  - UB Analyte considered non-detect at the listed value due to associated blank contamination.
  - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.



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**DATA REVIEW REPORT**

## METALS ANALYSES

### 1. Holding Times

The specified holding times for the following methods are presented in the following table.

| Method | Matrix | Holding Time | Preservation |
|---|---|---|---|
| SW-846 6020A | Water | 180 days from collection to analysis | Preserved to a pH of less than 2. |

All samples were analyzed within the specified holding times.

### 2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank is calculated for QA blanks containing concentrations greater than the sample detection limit (SDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

All analytes were not detected above the SDL in the associated blanks; therefore, detected sample results were not associated with blank contamination.

### 3. Matrix Spike/Matrix Spike Duplicate (MS/MSD)/Laboratory Duplicate Analysis

MS/MSD and laboratory duplicate data are used to assess the precision and accuracy of the analytical method.

### 3.1 MS/MSD Analysis

All metal analytes must exhibit a percent recovery within the established acceptance limits of 75% to 125%. The MS/MSD recovery control limits do not apply for MS performed on sample locations where the analyte's concentration detected in the parent sample exceeds the MS concentration by a factor of four or greater. In instance where this is true, the data will not be qualified even if the percent recovery does not meet the control limits and the laboratory flag will be removed.

The MS/MSD analysis performed on samples MW-15-W-190402, MW-31-W-190403, MWD-8-W-190404 and MWD-14-W-190405 exhibited acceptable recoveries and RPD between MS/MSD recoveries.

### 3.2 Laboratory Duplicate Analysis

The laboratory duplicates relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the RL. A control limit of 20% for water matrices and 35% for soil matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of one times the RL is applied for water matrices and two times the RL for soil matrices.

MS/MSD analysis was performed in replacement of the laboratory duplicate analysis. The MS/MSD recoveries exhibited acceptable RPD.



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### 4. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices or three times the RL is applied for soil matrices.

Results for duplicate samples are summarized in the following table.

| SDGs | Sample ID/Duplicate ID | Analytes | Sample Result (mg/l) | Duplicate Result (mg/l) | RPD |
|---|---|---|---|---|---|
| 620148 | MW-11-W-190404 / DUP-2-W-190404 | Arsenic | 0.0182 | 0.0122 | AC |
| | | Barium | 0.614 | 0.631 | 2.7% |
| | | Chromium | 0.00989 | 0.00543 | AC |
| 620014 | MW-29-W-190403 / DUP 3-W-190403 | Arsenic | 0.00389 J | 0.00338 J | AC |
| | | Barium | 9.21 | 7.51 | 20.3% |
| | | Chromium | 0.000856 J | 0.000706 J | AC |
| 620013 | MWD-4-W-190403 / DUP-4-W-190403 | Arsenic | 0.00154 J | 0.00147 J | AC |
| | | Barium | 0.0655 | 0.0655 | 0 % |
| 620150 | RW-7-W-190404 / DUP-5-W-190404 | Arsenic | 0.0106 | 0.00909 | AC |
| | | Barium | 0.0914 | 0.0723 | AC |
| | | Chromium | 0.00225 J | 0.00212 J | AC |
| 620257 | TMW-1-W-190405 / DUP-6-W-190405 | Arsenic | 0.0167 | 0.0169 | AC |
| | | Barium | 2.03 | 2.08 | 2.4 % |

Notes:

AC - Acceptable

The calculated RPDs between the parent sample and field duplicates were acceptable.

### 5. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS/LCSD analysis must exhibit a percent recovery between the control limits of 80% and 120%.

The LCS/LCSD analysis exhibited recoveries within the control limits.

### 6. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.



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**DATA REVIEW REPORT**

## DATA VALIDATION CHECKLIST FOR METAL

| METALS; SW-846 6020A | Reported | | Performance Acceptable | | Not Required |
|---|---|---|---|---|---|
| | No | Yes | No | Yes | |
| Inductively Coupled Plasma-Mass Spectrometry (ICP-MS) | | | | | |
| **Tier II Validation** | | | | | |
| Holding Times | | X | | X | |
| Reporting limits (units) | | X | | X | |
| Blanks | | | | | |
| A. Instrument Blanks | X | | | | X |
| B. Method Blanks | | X | | X | |
| C. Equipment/Field Blanks | X | | | | X |
| Laboratory Control Sample (LCS) | | X | | X | |
| Laboratory Control Sample Duplicate(LCSD) %R | | X | | X | |
| LCS/LCSD Precision (RPD) | | X | | X | |
| Matrix Spike (MS) %R | | X | | X | |
| Matrix Spike Duplicate (MSD) %R | | X | | X | |
| MS/MSD Precision (RPD) | | X | | X | |
| Field/Lab Duplicate (RPD) | | X | | X | |
| ICP Serial Dilution %D | X | | | | X |
| Reporting Limit Verification | | X | | X | |

Notes:

%R Percent recovery

RPD Relative percent difference

%D Percent difference



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**DATA REVIEW REPORT**

**GENERAL CHEMISTRY ANALYSES**

## 1. Holding Times

The specified holding times for the following methods are presented in the following table.

| Method | Matrix | Holding Time | Preservation |
|---|---|---|---|
| Hexavalent chromium by SW-846 7196A | Water | 24 hours from collection to analysis | Cool to <6 °C. |
| Chloride by EPA 300.0 | Water | 28 days from collection to analysis | Cool to <6 °C. |
| Total Dissolved Solids by SM 2540C | Water | 7 days from collection to analysis | Cool to <6 °C. |

All samples were analyzed within the specified holding times.

## 2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank is calculated for QA blanks containing concentrations greater than the sample detection limit (SDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Analytes were detected in the associated QA blanks; however, the associated sample results were greater than the BAL. Therefore, no other qualification of the sample results was required.

## 3. Matrix Spike (MS)/Laboratory Duplicate Analysis

MS and laboratory duplicate data are used to assess the precision and accuracy of the analytical method.

### 3.1 MS/MSD Analysis

All analytes must exhibit a percent recovery within the established acceptance limits of 75% to 125%. The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the analyte's concentration detected in the parent sample exceeds the MS concentration by a factor of four or greater. In instance where this is true, the data will not be qualified even if the percent recovery does not meet the control limits and the laboratory flag will be removed.

All analytes associated with MS/MSD recoveries were within control limits with the exception of the following analyte present in the table below.

| SDGs | Samples | Analyte | MS Recovery | MSD Recovery |
|---|---|---|---|---|
| 620148 | WW-2-W-190404 | Chloride | >UL | >UL |



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The criteria used to evaluate MS/MSD recoveries are presented in the following table. In the case of an MS/MSD deviation, the sample results are qualified. The qualifications are applied to all sample results associated with this SDG.

| Control limit | Sample Result | Qualification |
|---|---|---|
| MS percent recovery 30% to 74% | Non-detect | UJ |
| | Detect | J |
| MS percent recovery <30% | Non-detect | R |
| | Detect | J |
| MS percent recovery >125% | Non-detect | No Action |
| | Detect | J |

### 3.2 Laboratory Duplicate Analysis

The laboratory duplicates relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the RL. A control limit of 20% for water matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of one time the RL is applied for water matrices.

The laboratory duplicate sample results exhibited RPD within the control limit.

### 4. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices or three times the RL is applied for soil matrices.

Results for duplicate samples are summarized in the following table.

| SDGs | Sample ID/Duplicate ID | Analytes | Sample Result (mg/l) | Duplicate Result (mg/l) | RPD |
|---|---|---|---|---|---|
| 620148 | MW-11-W-190404 / DUP-2-W-190404 | Chloride | 78 | 93.1 | 17.7% |
| | | Total Dissolved Solids | 815 | 844 | 3.5% |
| 620014 | MW-29-W-190403 / DUP 3-W-190403 | Chloride | 185 | 165 | 11.4% |
| | | Total Dissolved Solids | 1170 | 1100 | 6.2% |
| 620013 | MWD-4-W-190403 / DUP-4-W-190403 | Chloride | 57.1 | 59.9 | 4.7% |
| | | Total Dissolved Solids | 1360 | 5610 | 121% |
| 620150 | RW-7-W-190404 / DUP-5-W-190404 | Chloride | 2750 | 2080 | 27.7% |
| | | Total Dissolved Solids | 8390 | 4740 | 55.6% |



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| SDGs | Sample ID/Duplicate ID | Analytes | Sample Result (mg/l) | Duplicate Result (mg/l) | RPD |
|---|---|---|---|---|---|
| 620257 | TMW-1-W-190405 / DUP-6-W-190405 | Chloride | 450 | 503 | 11.1% |
| | | Total Dissolved Solids | 1320 | 1310 | 0.8% |

The total dissolved solids associated with samples MWD-4-W-190403 / DUP-4-W-190403 and RW-7-W-190404 / DUP-5-W-190404 exhibited a field duplicate RPD greater than the control limit. The total dissolved results in associated samples results were qualified as estimated.

**5. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis**

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS/LCSD analysis must exhibit a percent recovery between the control limits of 80% and 120%.

The LCS/LCSD analysis exhibited recoveries within the control limits.

**6. System Performance and Overall Assessment**

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.



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**DATA REVIEW REPORT**

## DATA VALIDATION CHECKLIST FOR GENERAL CHEMISTRY

| General Chemistry: SW7196A, EPA 300.0 and SM 2540C | Reported | | Performance Acceptable | | Not Required |
|---|---|---|---|---|---|
| | No | Yes | No | Yes | |
| Miscellaneous Instrumentation | | | | | |
| **Tier II Validation** | | | | | |
| Holding times | | X | | X | |
| Reporting limits (units) | | X | | X | |
| Blanks | | | | | |
| A. Method blanks | | X | | X | |
| B. Equipment blanks | X | | | | X |
| Laboratory Control Sample (LCS) %R | | X | | X | |
| Laboratory Control Sample Duplicate(LCSD) %R | | X | | X | |
| LCS/LCSD Precision (RPD) | | X | | X | |
| Matrix Spike (MS) %R | | X | X | | |
| Matrix Spike Duplicate(MSD) %R | | X | X | | |
| MS/MSD Precision (RPD) | | X | | X | |
| Field/Lab Duplicate (RPD) | | X | X | | |
| Dilution Factor | | X | | X | |

Notes:

%RSD – Relative standard deviation
%R - Percent recovery
RPD - Relative percent difference



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**DATA REVIEW REPORT**

VALIDATION PERFORMED BY: Suresh PR

SIGNATURE: 

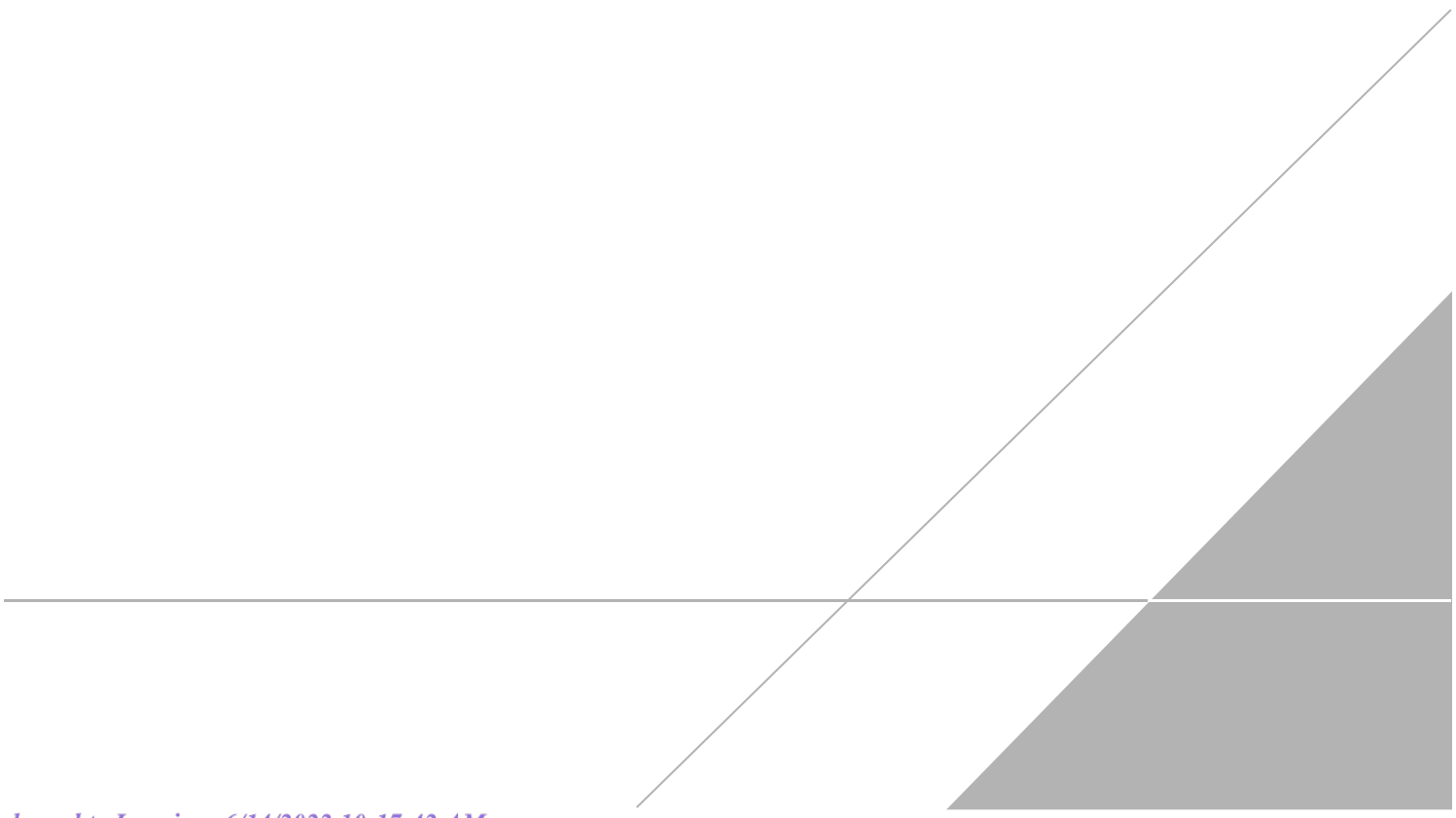
DATE: August 30, 2019



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# CHAIN OF CUSTODY

# CORRECTED SAMPLE ANALYSIS DATA SHEETS



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ARCADIS
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ID#:

# CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Page __/__ of __/__

Lab Work Order # 619806

**Send Results to:**

Contact & Company Name: Brent Rockhold / ARCADIS
Telephone: 916-786-5382
Address: 101 Creekside Ridge Court STE 200 Roseville, CA.
Fax:
City: Roseville State: CA Zip: 95678
E-mail Address:
Project Name/Location (City, State): Sitewide / Truxton NM
Project #: 30048789
Sampler's Printed Name: Jerry Silongswell
Sampler's Signature:

| Preservative | B | B | E | C | | | |
|---|---|---|---|---|---|---|---|
| Filtered (✓) | — | — | ✓ | ✓ | | | |
| # of Containers | 1 | 1 | 9 | 3 | | | |
| Container Information | | | | | | | |

**PARAMETER ANALYSIS & METHOD**

| Sample ID | Collection Date | Collection Time | Type (✓) Comp | Type (✓) Grab | Matrix | BTEX | TPH | Hex Cr | Diss Metals | TDS | Chlorides | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-15 | 04/01/19 | 1021 | | ✓ | W | 3 | 2 | 1 | 1 | 1 | 1 | | |
| MW-16 | | 1045 | | ✓ | W | 3 | 2 | 1 | 1 | 1 | 1 | | |
| MW-36 | | 1130 | | ✓ | W | 3 | 2 | 1 | 1 | 1 | 1 | | |
| MW-35 | | 1154 | | ✓ | W | 3 | 2 | 1 | 1 | 1 | 1 | | |
| MW-13 | | 1349 | | ✓ | W | 3 | 2 | 1 | 1 | 1 | 1 | | |
| MW-37 | | 1418 | | ✓ | W | 3 | 2 | 1 | 1 | 1 | 1 | | |
| MW-38 | | 1440 | | ✓ | W | 3 | 2 | 1 | 1 | 1 | 1 | | |
| MW-34 | | 1350 | | ✓ | W | 3 | 2 | 1 | 1 | 1 | 1 | | |
| MWD-6 | 04/02/19 | 1423 | | ✓ | W | 3 | 2 | 1 | 1 | 1 | 1 | | |

**Keys**

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

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

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

**REMARKS**

**Special Instructions/Comments:**

☐ Special QA/QC Instructions(✓):

**Laboratory Information and Receipt**

Lab Name: Xenco
☑ Cooler packed with ice (✓)
Specify Turnaround Requirements: Standard TAT
Shipping Tracking #:

Cooler Custody Seal (✓) ☐ Intact ☐ Not Intact
Sample Receipt:
Condition/Cooler Temp: _____

| Relinquished By | Received By | Relinquished By | Laboratory Received By |
|---|---|---|---|
| Printed Name: Jerry Silongswell | Printed Name: Winston Noel | Printed Name: Winston Noel | Printed Name: Katie Lowe |
| Signature: | Signature: | Signature: | Signature: |
| Firm: ARCADIS | Firm/Courier: Xenco | Firm/Courier: Xenco | Firm: Xenco |
| Date/Time: 04/01/19 / 1625 | Date/Time: 04/02/19 16:25 | Date/Time: 04/02/19 18:30 | Date/Time: 4/2/19 18:30 |

20730826 CofC AR Form 01.12.2007

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

Received by OCD: 3/25/2020 2:27:35 PM
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# Certificate of Analytical Results
## 619806
## ARCADIS, Midland, TX
S. Eunice

Sample Id: **MW-15** Matrix: Water Sample Depth:

Lab Sample Id: 619806-001 Date Collected: 04.02.2019 10:21 Date Received: 04.02.2019 18:30

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3084471 Date Prep: 04.03.2019 14:00

Prep seq: 7674980

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **1960** | 25.0 | 4.29 | mg/L | 04.03.2019 18:37 | | 50 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3084993 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **3840** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3084971 Date Prep: 04.08.2019 10:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675214

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0142** | 0.00400 | 0.000246 | mg/L | 04.08.2019 16:25 | | 1 |
| **Chromium** | 7440-47-3 | **0.00109** | 0.00400 | 0.000525 | mg/L | 04.08.2019 16:25 | J | 1 |
| **Barium** | 7440-39-3 | **0.0452** | 0.00400 | 0.000484 | mg/L | 04.08.2019 16:25 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3084508 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.03.2019 09:58 | U | 1 |

# Certificate of Analytical Results
## 619806
## ARCADIS, Midland, TX
S. Eunice

Sample Id: **MW-15** Matrix: Water Sample Depth:

Lab Sample Id: 619806-001 Date Collected: 04.02.2019 10:21 Date Received: 04.02.2019 18:30

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085311 Date Prep: 04.10.2019 07:00

Prep seq: 7675488

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.986 | 1.50 | 0.986 | mg/L | 04.10.2019 11:55 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 11:55 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 11:55 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 11:55 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 92 | 70 - 135 | % | | |
| o-Terphenyl | 92 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3084919 Date Prep: 04.05.2019 17:00

Prep seq: 7675278

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **0.00102** | 0.00200 | 0.000408 | mg/L | 04.06.2019 04:26 | J | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.06.2019 04:26 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.06.2019 04:26 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.06.2019 04:26 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.06.2019 04:26 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.06.2019 04:26 | U | 1 |
| **Total BTEX** | | **0.00102** | 0.00200 | 0.000367 | mg/L | 04.06.2019 04:26 | J | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 106 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 92 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 619806
## ARCADIS, Midland, TX
S. Eunice

Sample Id: **MW-16** Matrix: Water Sample Depth:

Lab Sample Id: 619806-002 Date Collected: 04.02.2019 10:45 Date Received: 04.02.2019 18:30

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3084471 Date Prep: 04.03.2019 14:00

Prep seq: 7674980

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **1780** | 25.0 | 4.29 | mg/L | 04.03.2019 18:42 | | 50 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3084993 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **3760** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3084971 Date Prep: 04.08.2019 10:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675214

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0136** | 0.00400 | 0.000246 | mg/L | 04.08.2019 17:15 | | 1 |
| **Chromium** | 7440-47-3 | **0.111** | 0.00400 | 0.000525 | mg/L | 04.08.2019 17:15 | | 1 |
| **Barium** | 7440-39-3 | **0.0417** | 0.00400 | 0.000484 | mg/L | 04.08.2019 17:15 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3084508 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chromium, Hexavalent** | 18540-29-9 | **0.0976** | 0.0100 | 0.00273 | mg/L | 04.03.2019 09:58 | | 1 |

# Certificate of Analytical Results
## 619806
## ARCADIS, Midland, TX
S. Eunice

Sample Id: **MW-16** Matrix: Water Sample Depth:

Lab Sample Id: 619806-002 Date Collected: 04.02.2019 10:45 Date Received: 04.02.2019 18:30

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085311 Date Prep: 04.10.2019 07:00

Prep seq: 7675488

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.987 | 1.50 | 0.987 | mg/L | 04.10.2019 12:53 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.912 | 1.50 | 0.912 | mg/L | 04.10.2019 12:53 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.912 | 1.50 | 0.912 | mg/L | 04.10.2019 12:53 | U | 1 |
| Total TPH | PHC635 | <0.912 | 1.50 | 0.912 | mg/L | 04.10.2019 12:53 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 94 | 70 - 135 | % | | |
| o-Terphenyl | 94 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3084919 Date Prep: 04.05.2019 17:00

Prep seq: 7675278

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 04.06.2019 04:46 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.06.2019 04:46 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.06.2019 04:46 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.06.2019 04:46 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.06.2019 04:46 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.06.2019 04:46 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.06.2019 04:46 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 107 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 96 | 70 - 130 | % | | |





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# Certificate of Analytical Results
## 619806
## ARCADIS, Midland, TX
S. Eunice

Sample Id: **MW-36** Matrix: Water Sample Depth:

Lab Sample Id: 619806-003 Date Collected: 04.02.2019 11:30 Date Received: 04.02.2019 18:30

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3084471 Date Prep: 04.03.2019 14:00

Prep seq: 7674980

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **406** | 5.00 | 0.858 | mg/L | 04.03.2019 19:05 | | 10 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3084993 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1180** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3084971 Date Prep: 04.08.2019 10:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675214

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0103** | 0.00400 | 0.000246 | mg/L | 04.08.2019 17:18 | | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 04.08.2019 17:18 | U | 1 |
| **Barium** | 7440-39-3 | **0.107** | 0.00400 | 0.000484 | mg/L | 04.08.2019 17:18 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3084508 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.03.2019 09:58 | U | 1 |





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# Certificate of Analytical Results
## 619806
## ARCADIS, Midland, TX
S. Eunice

Sample Id: **MW-36** Matrix: Water Sample Depth:

Lab Sample Id: 619806-003 Date Collected: 04.02.2019 11:30 Date Received: 04.02.2019 18:30

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085311 Date Prep: 04.10.2019 07:00

Prep seq: 7675488

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.986 | 1.50 | 0.986 | mg/L | 04.10.2019 13:12 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 13:12 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 13:12 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 13:12 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 92 | 70 - 135 | % | | |
| o-Terphenyl | 90 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3084919 Date Prep: 04.05.2019 17:00

Prep seq: 7675278

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 04.06.2019 05:05 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.06.2019 05:05 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.06.2019 05:05 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.06.2019 05:05 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.06.2019 05:05 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.06.2019 05:05 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.06.2019 05:05 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 106 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 93 | 70 - 130 | % | | |



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# Certificate of Analytical Results
## 619806
## ARCADIS, Midland, TX
S. Eunice

Sample Id: **MW-35** Matrix: Water Sample Depth:

Lab Sample Id: 619806-004 Date Collected: 04.02.2019 11:56 Date Received: 04.02.2019 18:30

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3084471 Date Prep: 04.03.2019 14:00

Prep seq: 7674980

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **321** | 5.00 | 0.858 | mg/L | 04.03.2019 19:11 | | 10 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3084993 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1100** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3084971 Date Prep: 04.08.2019 10:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675214

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0166** | 0.00400 | 0.000246 | mg/L | 04.08.2019 17:20 | | 1 |
| **Chromium** | 7440-47-3 | **0.000714** | 0.00400 | 0.000525 | mg/L | 04.08.2019 17:20 | J | 1 |
| **Barium** | 7440-39-3 | **0.0775** | 0.00400 | 0.000484 | mg/L | 04.08.2019 17:20 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3084508 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.03.2019 09:58 | U | 1 |

# Certificate of Analytical Results
## 619806
## ARCADIS, Midland, TX
S. Eunice

Sample Id: **MW-35** Matrix: Water Sample Depth:

Lab Sample Id: 619806-004 Date Collected: 04.02.2019 11:56 Date Received: 04.02.2019 18:30

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085311 Date Prep: 04.10.2019 07:00

Prep seq: 7675488

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.987 | 1.50 | 0.987 | mg/L | 04.10.2019 13:31 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 13:31 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 13:31 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 13:31 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 99 | 70 - 135 | % | | |
| o-Terphenyl | 98 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3084919 Date Prep: 04.05.2019 17:00

Prep seq: 7675278

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 04.06.2019 06:42 | U | 1 |
| **Toluene** | 108-88-3 | **0.000440** | 0.00200 | 0.000367 | mg/L | 04.06.2019 06:42 | J | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.06.2019 06:42 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.06.2019 06:42 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.06.2019 06:42 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.06.2019 06:42 | U | 1 |
| **Total BTEX** | | **0.000440** | 0.00200 | 0.000367 | mg/L | 04.06.2019 06:42 | J | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 107 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 91 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 619806
## ARCADIS, Midland, TX
S. Eunice

Sample Id: **MW-13** Matrix: Water Sample Depth:

Lab Sample Id: 619806-005 Date Collected: 04.02.2019 13:49 Date Received: 04.02.2019 18:30

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3084471 Date Prep: 04.03.2019 14:00

Prep seq: 7674980

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **349** | 5.00 | 0.858 | mg/L | 04.03.2019 19:28 | | 10 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3084993 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1060** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3084971 Date Prep: 04.08.2019 10:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675214

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0139** | 0.00400 | 0.000246 | mg/L | 04.08.2019 17:23 | | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 04.08.2019 17:23 | U | 1 |
| **Barium** | 7440-39-3 | **0.0935** | 0.00400 | 0.000484 | mg/L | 04.08.2019 17:23 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3084508 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.03.2019 09:58 | U | 1 |

# Certificate of Analytical Results
## 619806
## ARCADIS, Midland, TX
S. Eunice

Sample Id: **MW-13** Matrix: Water Sample Depth:

Lab Sample Id: 619806-005 Date Collected: 04.02.2019 13:49 Date Received: 04.02.2019 18:30

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085311 Date Prep: 04.10.2019 07:00

Prep seq: 7675488

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.986 | 1.50 | 0.986 | mg/L | 04.10.2019 13:50 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 13:50 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 13:50 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 13:50 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 92 | 70 - 135 | % | | |
| o-Terphenyl | 93 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3084919 Date Prep: 04.05.2019 17:00

Prep seq: 7675278

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 04.06.2019 05:25 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.06.2019 05:25 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.06.2019 05:25 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.06.2019 05:25 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.06.2019 05:25 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.06.2019 05:25 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.06.2019 05:25 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 107 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 97 | 70 - 130 | % | | |



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# Certificate of Analytical Results
## 619806
## ARCADIS, Midland, TX
S. Eunice

Sample Id: **MW-37** Matrix: Water Sample Depth:

Lab Sample Id: 619806-006 Date Collected: 04.02.2019 14:16 Date Received: 04.02.2019 18:30

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3084471 Date Prep: 04.03.2019 14:00

Prep seq: 7674980

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **336** | 5.00 | 0.858 | mg/L | 04.03.2019 19:34 | | 10 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3084993 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1100** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3084971 Date Prep: 04.08.2019 10:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675214

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.00678** | 0.00400 | 0.000246 | mg/L | 04.08.2019 17:26 | | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 04.08.2019 17:26 | U | 1 |
| **Barium** | 7440-39-3 | **0.223** | 0.00400 | 0.000484 | mg/L | 04.08.2019 17:26 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3084508 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.03.2019 09:58 | U | 1 |

# Certificate of Analytical Results
## 619806
## ARCADIS, Midland, TX
S. Eunice

Sample Id: **MW-37** Matrix: Water Sample Depth:

Lab Sample Id: 619806-006 Date Collected: 04.02.2019 14:16 Date Received: 04.02.2019 18:30

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085311 Date Prep: 04.10.2019 07:00

Prep seq: 7675488

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.986 | 1.50 | 0.986 | mg/L | 04.10.2019 14:10 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 14:10 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 14:10 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 14:10 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 91 | 70 - 135 | % | | |
| o-Terphenyl | 91 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3084919 Date Prep: 04.05.2019 17:00

Prep seq: 7675278

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 04.06.2019 06:23 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.06.2019 06:23 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.06.2019 06:23 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.06.2019 06:23 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.06.2019 06:23 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.06.2019 06:23 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.06.2019 06:23 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 107 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 93 | 70 - 130 | % | | |



Released to Imaging: 6/14/2022 10:17:42 AM

# Certificate of Analytical Results
## 619806
## ARCADIS, Midland, TX
S. Eunice

Sample Id: **MW-38** Matrix: Water Sample Depth:

Lab Sample Id: 619806-007 Date Collected: 04.02.2019 14:40 Date Received: 04.02.2019 18:30

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3084471 Date Prep: 04.03.2019 14:00

Prep seq: 7674980

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **614** | 10.0 | 1.72 | mg/L | 04.03.2019 19:39 | | 20 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3084993 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1870** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3084971 Date Prep: 04.08.2019 10:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675214

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0273** | 0.00400 | 0.000246 | mg/L | 04.08.2019 17:29 | | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 04.08.2019 17:29 | U | 1 |
| **Barium** | 7440-39-3 | **0.102** | 0.00400 | 0.000484 | mg/L | 04.08.2019 17:29 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3084508 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.03.2019 09:58 | U | 1 |

# Certificate of Analytical Results
## 619806
## ARCADIS, Midland, TX
S. Eunice

Sample Id: **MW-38** Matrix: Water Sample Depth:

Lab Sample Id: 619806-007 Date Collected: 04.02.2019 14:40 Date Received: 04.02.2019 18:30

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085311 Date Prep: 04.10.2019 07:00

Prep seq: 7675488

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.986 | 1.50 | 0.986 | mg/L | 04.10.2019 14:29 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 14:29 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 14:29 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 14:29 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 91 | 70 - 135 | % | | |
| o-Terphenyl | 92 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3084919 Date Prep: 04.05.2019 17:00

Prep seq: 7675278

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 04.06.2019 05:44 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.06.2019 05:44 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.06.2019 05:44 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.06.2019 05:44 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.06.2019 05:44 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.06.2019 05:44 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.06.2019 05:44 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 106 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 96 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 619806
## ARCADIS, Midland, TX
S. Eunice

Sample Id: **MW-34** Matrix: Water Sample Depth:

Lab Sample Id: 619806-008 Date Collected: 04.02.2019 13:50 Date Received: 04.02.2019 18:30

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3084471 Date Prep: 04.03.2019 14:00

Prep seq: 7674980

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **286** | 10.0 | 1.72 | mg/L | 04.03.2019 19:45 | | 20 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3084993 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1680** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3084971 Date Prep: 04.08.2019 10:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675214

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.00180** | 0.00400 | 0.000246 | mg/L | 04.08.2019 17:32 | J | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 04.08.2019 17:32 | U | 1 |
| **Barium** | 7440-39-3 | **5.30** | 0.200 | 0.0242 | mg/L | 04.09.2019 13:57 | ~~D~~ | 50 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3084508 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.03.2019 09:58 | U | 1 |

# Certificate of Analytical Results
## 619806
## ARCADIS, Midland, TX
S. Eunice

Sample Id: **MW-34** Matrix: Water Sample Depth:

Lab Sample Id: 619806-008 Date Collected: 04.02.2019 13:50 Date Received: 04.02.2019 18:30

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085311 Date Prep: 04.10.2019 07:00

Prep seq: 7675488

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Gasoline Range Hydrocarbons** | PHC610 | **1.33** | 1.50 | 0.986 | mg/L | 04.10.2019 14:48 | J | 1 |
| **Diesel Range Organics** | C10C28DRO | **0.937** | 1.50 | 0.911 | mg/L | 04.10.2019 14:48 | J | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 14:48 | U | 1 |
| **Total TPH** | PHC635 | **2.27** | 1.50 | 0.911 | mg/L | 04.10.2019 14:48 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 84 | 70 - 135 | % | | |
| o-Terphenyl | 83 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3084919 Date Prep: 04.05.2019 17:00

Prep seq: 7675278

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **0.0989** | 0.00200 | 0.000408 | mg/L | 04.06.2019 07:01 | | 1 |
| **Toluene** | 108-88-3 | **0.000770** | 0.00200 | 0.000367 | mg/L | 04.06.2019 07:01 | J | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.06.2019 07:01 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.06.2019 07:01 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.06.2019 07:01 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.06.2019 07:01 | U | 1 |
| **Total BTEX** | | **0.0997** | 0.00200 | 0.000367 | mg/L | 04.06.2019 07:01 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 113 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 92 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 619806
## ARCADIS, Midland, TX
S. Eunice

Sample Id: **MWD-6** Matrix: Water Sample Depth:

Lab Sample Id: 619806-009 Date Collected: 04.02.2019 14:28 Date Received: 04.02.2019 18:30

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3084471 Date Prep: 04.03.2019 14:00

Prep seq: 7674980

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **202** | 5.00 | 0.858 | mg/L | 04.03.2019 19:51 | | 10 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3084993 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1220** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3084971 Date Prep: 04.08.2019 10:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675214

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.00474** | 0.00400 | 0.000246 | mg/L | 04.08.2019 17:35 | | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 04.08.2019 17:35 | U | 1 |
| **Barium** | 7440-39-3 | **3.77** | 0.200 | 0.0242 | mg/L | 04.09.2019 14:00 | ~~D~~ | 50 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3084508 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.03.2019 09:58 | U | 1 |

# Certificate of Analytical Results
## 619806
## ARCADIS, Midland, TX
S. Eunice

Sample Id: **MWD-6** Matrix: Water Sample Depth:

Lab Sample Id: 619806-009 Date Collected: 04.02.2019 14:28 Date Received: 04.02.2019 18:30

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085311 Date Prep: 04.10.2019 07:00

Prep seq: 7675488

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.986 | 1.50 | 0.986 | mg/L | 04.10.2019 15:08 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 15:08 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 15:08 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 15:08 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 90 | 70 - 135 | % | | |
| o-Terphenyl | 91 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3084919 Date Prep: 04.05.2019 17:00

Prep seq: 7675278

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **0.00214** | 0.00200 | 0.000408 | mg/L | 04.06.2019 06:03 | | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.06.2019 06:03 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.06.2019 06:03 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.06.2019 06:03 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.06.2019 06:03 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.06.2019 06:03 | U | 1 |
| **Total BTEX** | | **0.00214** | 0.00200 | 0.000367 | mg/L | 04.06.2019 06:03 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 108 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 92 | 70 - 130 | % | | |

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ARCADIS

ID#:

# CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Page 1 of 1

Lab Work Order #: 620013

**Send Results to:**

Contact & Company Name: Brett Krehbiel Arcadis
Telephone: 916-786-0320
Address: 101 Creekside Ridge Court, Suite 200
Fax: 916-786-0366
City: Roseville State: CA Zip: 95678
E-mail Address: brett.krehbiel@arcadis.com
Project Name/Location (City, State): Chevron N. Eunice
Project #: B0048789.0004
Sampler's Printed Name: Jenny S. Longwell
Sampler's Signature:

| Preservative | B | B | C | E | E | | |
|---|---|---|---|---|---|---|---|
| Filtered (✓) | | | ✓ | ✓ | | | |
| # of Containers | 30 | 20 | 10 | 10 | 10 | | |
| Container Information | 1 | 1 | 3 | 4 | 4 | | |

**Keys**

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

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

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

| Sample ID | Collection Date | Collection Time | Type (✓) Comp | Type (✓) Grab | Matrix | BTEX 8021B | TPH GRO & DRO 8015B | Dissolved As, Mn, Fe, Cr 6010B | Dissolved Hex Chromium 7196 | Chloride & TDS | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-31 | 04/02/19 | 0930 | | X | W | 3 | 2 | 1 | 1 | 1 | |
| MW-14 | | 0854 | | X | W | 3 | 2 | 1 | 1 | 1 | |
| MWD-4 | | 0829 | | X | W | 3 | 2 | 1 | 1 | 1 | |
| MWD-13 | | 1007 | | X | W | 3 | 2 | 1 | 1 | 1 | |
| MW-22 | | 1043 | | X | W | 3 | 2 | 1 | 1 | 1 | |
| MWD-17 | | 1233 | | X | W | 3 | 2 | 1 | 1 | 1 | |
| MWD-7 | | 1313 | | X | W | 3 | 2 | 1 | 1 | 1 | |
| MW-17 | | 1338 | | X | W | 3 | 2 | 1 | 1 | 1 | |
| MWD-1 | | 1400 | | X | W | 3 | 2 | 1 | 1 | 1 | |
| DUP-4 | 04/03/19 | | | X | W | 3 | 2 | 1 | 1 | 1 | |

PARAMETER ANALYSIS & METHOD

Special Instructions/Comments:

☐ Special QA/QC Instructions(✓):

**Laboratory Information and Receipt**

Lab Name: Xenco
☒ Cooler packed with ice (✓)
Specify Turnaround Requirements: Standard TAT
Shipping Tracking #:

Cooler Custody Seal (✓): ☐ Intact ☐ Not Intact
Sample Receipt:
Condition/Cooler Temp: _____

| Relinquished By | Received By | Relinquished By | Laboratory Received By |
|---|---|---|---|
| Printed Name: Jenny S. Longwell | Printed Name: Winston Kidd | Printed Name: Katie Lowe | Printed Name: Winston Kidd |
| Signature: | Signature: | Signature: | Signature: |
| Firm: Arcadis | Firm/Courier: Xenco | Firm/Courier: Xenco | Firm: Xenco |
| Date/Time: 04/03/19 1617 | Date/Time: 4/3/19 16:17 | Date/Time: 4/3/19 1800 | Date/Time: 4/3/19 1800 |

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

20730828 CofC AR Form 06.27.2015

3.6 | 3.5 R8 -0

Received by OCD: 3/25/2020 2:27:35 PM
Released to Imaging: 6/14/2022 10:17:42 AM
Final 1.006
Page 40 of 43

# Certificate of Analytical Results
## 620013
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **MW-31** Matrix: Water Sample Depth:

Lab Sample Id: 620013-001 Date Collected: 04.03.2019 08:30 Date Received: 04.03.2019 18:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085133 Date Prep: 04.09.2019 09:45

Prep seq: 7675332

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **533** | 5.00 | 0.858 | mg/L | 04.10.2019 02:25 | | 10 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3084993 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1460** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085125 Date Prep: 04.09.2019 03:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675313

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0359** | 0.00400 | 0.000246 | mg/L | 04.09.2019 17:06 | | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 04.09.2019 17:06 | U | 1 |
| **Barium** | 7440-39-3 | **0.440** | 0.00400 | 0.000484 | mg/L | 04.09.2019 17:06 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3084512 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.04.2019 07:05 | U | 1 |

# Certificate of Analytical Results
## 620013
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **MW-31** Matrix: Water Sample Depth:

Lab Sample Id: 620013-001 Date Collected: 04.03.2019 08:30 Date Received: 04.03.2019 18:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085311 Date Prep: 04.10.2019 07:00

Prep seq: 7675488

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.986 | 1.50 | 0.986 | mg/L | 04.10.2019 15:27 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 15:27 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 15:27 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 15:27 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 90 | 70 - 135 | % | | |
| o-Terphenyl | 89 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3084919 Date Prep: 04.05.2019 17:00

Prep seq: 7675278

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 04.06.2019 08:16 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.06.2019 08:16 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.06.2019 08:16 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.06.2019 08:16 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.06.2019 08:16 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.06.2019 08:16 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.06.2019 08:16 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 106 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 94 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620013
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **MW-14** Matrix: Water Sample Depth:

Lab Sample Id: 620013-002 Date Collected: 04.03.2019 08:54 Date Received: 04.03.2019 18:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085133 Date Prep: 04.09.2019 09:45

Prep seq: 7675332

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **496** | 5.00 | 0.858 | mg/L | 04.10.2019 02:32 | | 10 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3084993 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1520** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085125 Date Prep: 04.09.2019 03:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675313

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.00933** | 0.00400 | 0.000246 | mg/L | 04.09.2019 17:26 | | 1 |
| **Chromium** | 7440-47-3 | **0.157** | 0.00400 | 0.000525 | mg/L | 04.09.2019 17:26 | | 1 |
| **Barium** | 7440-39-3 | **0.0760** | 0.00400 | 0.000484 | mg/L | 04.09.2019 17:26 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3084512 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.04.2019 07:05 | U | 1 |

# Certificate of Analytical Results
## 620013
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **MW-14** Matrix: Water Sample Depth:

Lab Sample Id: 620013-002 Date Collected: 04.03.2019 08:54 Date Received: 04.03.2019 18:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085311 Date Prep: 04.10.2019 07:00

Prep seq: 7675488

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.986 | 1.50 | 0.986 | mg/L | 04.10.2019 16:25 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 16:25 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 16:25 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 16:25 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 88 | 70 - 135 | % | | |
| o-Terphenyl | 89 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3084919 Date Prep: 04.05.2019 17:00

Prep seq: 7675278

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 04.06.2019 08:36 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.06.2019 08:36 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.06.2019 08:36 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.06.2019 08:36 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.06.2019 08:36 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.06.2019 08:36 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.06.2019 08:36 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 106 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 93 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620013
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **MWD-4** Matrix: Water Sample Depth:

Lab Sample Id: 620013-003 Date Collected: 04.03.2019 09:20 Date Received: 04.03.2019 18:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085133 Date Prep: 04.09.2019 09:45

Prep seq: 7675332

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **57.1** | 5.00 | 0.858 | mg/L | 04.10.2019 02:38 | | 10 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3084993 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1360** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | J | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085125 Date Prep: 04.09.2019 03:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675313

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.00154** | 0.00400 | 0.000246 | mg/L | 04.09.2019 17:29 | J | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 04.11.2019 17:38 | U | 1 |
| **Barium** | 7440-39-3 | **0.0655** | 0.00400 | 0.000484 | mg/L | 04.09.2019 17:29 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3084512 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.04.2019 07:05 | U | 1 |

# Certificate of Analytical Results
## 620013
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **MWD-4** Matrix: Water Sample Depth:

Lab Sample Id: 620013-003 Date Collected: 04.03.2019 09:20 Date Received: 04.03.2019 18:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085311 Date Prep: 04.10.2019 07:00

Prep seq: 7675488

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.987 | 1.50 | 0.987 | mg/L | 04.10.2019 16:44 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.912 | 1.50 | 0.912 | mg/L | 04.10.2019 16:44 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.912 | 1.50 | 0.912 | mg/L | 04.10.2019 16:44 | U | 1 |
| Total TPH | PHC635 | <0.912 | 1.50 | 0.912 | mg/L | 04.10.2019 16:44 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 91 | 70 - 135 | % | | |
| o-Terphenyl | 90 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3084919 Date Prep: 04.05.2019 17:00

Prep seq: 7675278

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 04.06.2019 08:55 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.06.2019 08:55 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.06.2019 08:55 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.06.2019 08:55 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.06.2019 08:55 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.06.2019 08:55 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.06.2019 08:55 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 107 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 98 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620013
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **MWD-13** Matrix: Water Sample Depth:

Lab Sample Id: 620013-004 Date Collected: 04.03.2019 10:07 Date Received: 04.03.2019 18:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085133 Date Prep: 04.09.2019 09:45

Prep seq: 7675332

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **1880** | 25.0 | 4.29 | mg/L | 04.10.2019 02:45 | | 50 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3084993 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **5180** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085125 Date Prep: 04.09.2019 03:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675313

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0349** | 0.00400 | 0.000246 | mg/L | 04.09.2019 17:32 | | 1 |
| **Chromium** | 7440-47-3 | **0.0102** | 0.00400 | 0.000525 | mg/L | 04.09.2019 17:32 | | 1 |
| **Barium** | 7440-39-3 | **0.0781** | 0.00400 | 0.000484 | mg/L | 04.09.2019 17:32 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3084512 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.04.2019 07:05 | U | 1 |

# Certificate of Analytical Results
## 620013
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **MWD-13** Matrix: Water Sample Depth:

Lab Sample Id: 620013-004 Date Collected: 04.03.2019 10:07 Date Received: 04.03.2019 18:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085311 Date Prep: 04.10.2019 07:00

Prep seq: 7675488

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.987 | 1.50 | 0.987 | mg/L | 04.10.2019 17:04 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 17:04 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 17:04 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 17:04 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 90 | 70 - 135 | % | | |
| o-Terphenyl | 90 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3084919 Date Prep: 04.05.2019 17:00

Prep seq: 7675278

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 04.06.2019 09:15 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.06.2019 09:15 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.06.2019 09:15 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.06.2019 09:15 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.06.2019 09:15 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.06.2019 09:15 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.06.2019 09:15 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 107 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 94 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620013
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **MW-22** Matrix: Water Sample Depth:

Lab Sample Id: 620013-005 Date Collected: 04.03.2019 10:42 Date Received: 04.03.2019 18:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085133 Date Prep: 04.09.2019 09:45

Prep seq: 7675332

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **1670** | 25.0 | 4.29 | mg/L | 04.10.2019 03:06 | | 50 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3084993 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **4900** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085125 Date Prep: 04.09.2019 03:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675313

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0554** | 0.00400 | 0.000246 | mg/L | 04.09.2019 17:34 | | 1 |
| **Chromium** | 7440-47-3 | **0.00802** | 0.00400 | 0.000525 | mg/L | 04.09.2019 17:34 | | 1 |
| **Barium** | 7440-39-3 | **0.654** | 0.00400 | 0.000484 | mg/L | 04.09.2019 17:34 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3084512 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.04.2019 07:05 | U | 1 |

# Certificate of Analytical Results
## 620013
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **MW-22** Matrix: Water Sample Depth:

Lab Sample Id: 620013-005 Date Collected: 04.03.2019 10:42 Date Received: 04.03.2019 18:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085311 Date Prep: 04.10.2019 07:00

Prep seq: 7675488

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Gasoline Range Hydrocarbons** | PHC610 | **5.66** | 1.50 | 0.986 | mg/L | 04.10.2019 17:23 | | 1 |
| **Diesel Range Organics** | C10C28DRO | **1.01** | 1.50 | 0.911 | mg/L | 04.10.2019 17:23 | J | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 17:23 | U | 1 |
| **Total TPH** | PHC635 | **6.67** | 1.50 | 0.911 | mg/L | 04.10.2019 17:23 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 97 | 70 - 135 | % | | |
| o-Terphenyl | 96 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085172 Date Prep: 04.09.2019 12:00

Prep seq: 7675452

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **0.588** | 0.0200 | 0.00408 | mg/L | 04.09.2019 20:41 | | 10 |
| Toluene | 108-88-3 | <0.00367 | 0.0200 | 0.00367 | mg/L | 04.09.2019 20:41 | U | 10 |
| Ethylbenzene | 100-41-4 | <0.00657 | 0.0200 | 0.00657 | mg/L | 04.09.2019 20:41 | U | 10 |
| m,p-Xylenes | 179601-23-1 | <0.00630 | 0.0400 | 0.00630 | mg/L | 04.09.2019 20:41 | U | 10 |
| o-Xylene | 95-47-6 | <0.00642 | 0.0200 | 0.00642 | mg/L | 04.09.2019 20:41 | U | 10 |
| Total Xylenes | 1330-20-7 | <0.00630 | 0.0200 | 0.00630 | mg/L | 04.09.2019 20:41 | U | 10 |
| **Total BTEX** | | **0.588** | 0.0200 | 0.00367 | mg/L | 04.09.2019 20:41 | | 10 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 96 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 90 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620013
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **MWD-17** Matrix: Water Sample Depth:

Lab Sample Id: 620013-006 Date Collected: 04.03.2019 12:38 Date Received: 04.03.2019 18:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085133 Date Prep: 04.09.2019 09:45

Prep seq: 7675332

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **3810** | 50.0 | 8.58 | mg/L | 04.10.2019 03:12 | | 100 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3084993 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **12500** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085125 Date Prep: 04.09.2019 03:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675313

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0593** | 0.00400 | 0.000246 | mg/L | 04.09.2019 17:37 | | 1 |
| **Chromium** | 7440-47-3 | **0.00396** | 0.00400 | 0.000525 | mg/L | 04.09.2019 17:37 | J | 1 |
| **Barium** | 7440-39-3 | **1.89** | 0.00400 | 0.000484 | mg/L | 04.09.2019 17:37 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3084512 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.04.2019 07:05 | U | 1 |

# Certificate of Analytical Results
## 620013
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **MWD-17** Matrix: Water Sample Depth:

Lab Sample Id: 620013-006 Date Collected: 04.03.2019 12:38 Date Received: 04.03.2019 18:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085311 Date Prep: 04.10.2019 07:00

Prep seq: 7675488

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Gasoline Range Hydrocarbons** | PHC610 | **1.10** | 1.50 | 0.986 | mg/L | 04.10.2019 17:42 | J | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 17:42 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 17:42 | U | 1 |
| **Total TPH** | PHC635 | **1.10** | 1.50 | 0.911 | mg/L | 04.10.2019 17:42 | J | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 87 | 70 - 135 | % | | |
| o-Terphenyl | 86 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085172 Date Prep: 04.09.2019 12:00

Prep seq: 7675452

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **0.179** | 0.00200 | 0.000408 | mg/L | 04.09.2019 18:00 | | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.09.2019 18:00 | U | 1 |
| **Ethylbenzene** | 100-41-4 | **0.0140** | 0.00200 | 0.000657 | mg/L | 04.09.2019 18:00 | | 1 |
| **m,p-Xylenes** | 179601-23-1 | **0.000950** | 0.00400 | 0.000630 | mg/L | 04.09.2019 18:00 | J | 1 |
| **o-Xylene** | 95-47-6 | **0.00315** | 0.00200 | 0.000642 | mg/L | 04.09.2019 18:00 | | 1 |
| **Total Xylenes** | 1330-20-7 | **0.00410** | 0.00200 | 0.000630 | mg/L | 04.09.2019 18:00 | | 1 |
| **Total BTEX** | | **0.197** | 0.00200 | 0.000367 | mg/L | 04.09.2019 18:00 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 93 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 92 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620013
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **MWD-7** Matrix: Water Sample Depth:

Lab Sample Id: 620013-007 Date Collected: 04.03.2019 13:13 Date Received: 04.03.2019 18:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085133 Date Prep: 04.09.2019 09:45

Prep seq: 7675332

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **3970** | 25.0 | 4.29 | mg/L | 04.10.2019 03:19 | | 50 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3084993 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **9440** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085125 Date Prep: 04.09.2019 03:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675313

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0150** | 0.00400 | 0.000246 | mg/L | 04.09.2019 17:40 | | 1 |
| **Chromium** | 7440-47-3 | **0.00339** | 0.00400 | 0.000525 | mg/L | 04.09.2019 17:40 | J | 1 |
| **Barium** | 7440-39-3 | **0.0442** | 0.00400 | 0.000484 | mg/L | 04.09.2019 17:40 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3084512 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.04.2019 07:05 | U | 1 |

# Certificate of Analytical Results
## 620013
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **MWD-7** Matrix: Water Sample Depth:

Lab Sample Id: 620013-007 Date Collected: 04.03.2019 13:13 Date Received: 04.03.2019 18:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085311 Date Prep: 04.10.2019 07:00

Prep seq: 7675488

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.987 | 1.50 | 0.987 | mg/L | 04.10.2019 18:01 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 18:01 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 18:01 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 18:01 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 92 | 70 - 135 | % | | |
| o-Terphenyl | 92 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085172 Date Prep: 04.09.2019 12:00

Prep seq: 7675452

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **0.000410** | 0.00200 | 0.000408 | mg/L | 04.09.2019 18:20 | J | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.09.2019 18:20 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.09.2019 18:20 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.09.2019 18:20 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.09.2019 18:20 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.09.2019 18:20 | U | 1 |
| **Total BTEX** | | **0.000410** | 0.00200 | 0.000367 | mg/L | 04.09.2019 18:20 | J | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 90 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 87 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620013
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **MW-17** Matrix: Water Sample Depth:

Lab Sample Id: 620013-008 Date Collected: 04.03.2019 13:38 Date Received: 04.03.2019 18:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085133 Date Prep: 04.09.2019 09:45

Prep seq: 7675332

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **1190** | 25.0 | 4.29 | mg/L | 04.10.2019 03:26 | | 50 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3084993 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **2860** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085125 Date Prep: 04.09.2019 03:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675313

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0113** | 0.00400 | 0.000246 | mg/L | 04.09.2019 17:43 | | 1 |
| **Chromium** | 7440-47-3 | **0.00141** | 0.00400 | 0.000525 | mg/L | 04.09.2019 17:43 | J | 1 |
| **Barium** | 7440-39-3 | **0.206** | 0.00400 | 0.000484 | mg/L | 04.09.2019 17:43 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3084512 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.04.2019 07:05 | U | 1 |

# Certificate of Analytical Results
## 620013
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **MW-17** Matrix: Water Sample Depth:

Lab Sample Id: 620013-008 Date Collected: 04.03.2019 13:38 Date Received: 04.03.2019 18:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085311 Date Prep: 04.10.2019 07:00

Prep seq: 7675488

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.986 | 1.50 | 0.986 | mg/L | 04.10.2019 18:20 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 18:20 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 18:20 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 18:20 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 92 | 70 - 135 | % | | |
| o-Terphenyl | 92 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3084919 Date Prep: 04.05.2019 17:00

Prep seq: 7675278

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 04.06.2019 09:34 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.06.2019 09:34 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.06.2019 09:34 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.06.2019 09:34 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.06.2019 09:34 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.06.2019 09:34 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.06.2019 09:34 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 107 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 93 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620013
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **MWD-1** Matrix: Water Sample Depth:

Lab Sample Id: 620013-009 Date Collected: 04.03.2019 14:00 Date Received: 04.03.2019 18:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085133 Date Prep: 04.09.2019 09:45

Prep seq: 7675332

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **501** | 5.00 | 0.858 | mg/L | 04.10.2019 03:33 | | 10 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3084993 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1640** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085125 Date Prep: 04.09.2019 03:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675313

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0544** | 0.00400 | 0.000246 | mg/L | 04.09.2019 17:46 | | 1 |
| **Chromium** | 7440-47-3 | **0.00612** | 0.00400 | 0.000525 | mg/L | 04.09.2019 17:46 | | 1 |
| **Barium** | 7440-39-3 | **0.0503** | 0.00400 | 0.000484 | mg/L | 04.09.2019 17:46 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3084512 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.04.2019 07:05 | U | 1 |

# Certificate of Analytical Results
## 620013
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **MWD-1** Matrix: Water Sample Depth:

Lab Sample Id: 620013-009 Date Collected: 04.03.2019 14:00 Date Received: 04.03.2019 18:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085311 Date Prep: 04.10.2019 07:00

Prep seq: 7675488

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.986 | 1.50 | 0.986 | mg/L | 04.10.2019 18:39 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 18:39 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 18:39 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 18:39 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 93 | 70 - 135 | % | | |
| o-Terphenyl | 93 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085172 Date Prep: 04.09.2019 12:00

Prep seq: 7675452

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 04.09.2019 18:39 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.09.2019 18:39 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.09.2019 18:39 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.09.2019 18:39 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.09.2019 18:39 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.09.2019 18:39 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.09.2019 18:39 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 90 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 88 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620013
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **DUP-4** Matrix: Water Sample Depth:

Lab Sample Id: 620013-010 Date Collected: 04.03.2019 00:00 Date Received: 04.03.2019 18:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085133 Date Prep: 04.09.2019 09:45

Prep seq: 7675332

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **59.9** | 5.00 | 0.858 | mg/L | 04.10.2019 04:00 | | 10 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3084993 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **5610** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | J | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085125 Date Prep: 04.09.2019 03:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675313

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.00147** | 0.00400 | 0.000246 | mg/L | 04.09.2019 17:49 | J | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 04.11.2019 17:41 | U | 1 |
| **Barium** | 7440-39-3 | **0.0655** | 0.00400 | 0.000484 | mg/L | 04.09.2019 17:49 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3084512 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.04.2019 07:05 | ~~UK~~ U | 1 |

# Certificate of Analytical Results
## 620013
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **DUP-4** Matrix: Water Sample Depth:

Lab Sample Id: 620013-010 Date Collected: 04.03.2019 00:00 Date Received: 04.03.2019 18:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085311 Date Prep: 04.10.2019 07:00

Prep seq: 7675488

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.986 | 1.50 | 0.986 | mg/L | 04.10.2019 18:58 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 18:58 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 18:58 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 18:58 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 92 | 70 - 135 | % | | |
| o-Terphenyl | 87 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085172 Date Prep: 04.09.2019 12:00

Prep seq: 7675452

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 04.09.2019 18:59 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.09.2019 18:59 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.09.2019 18:59 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.09.2019 18:59 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.09.2019 18:59 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.09.2019 18:59 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.09.2019 18:59 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 91 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 89 | 70 - 130 | % | | |

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ARCADIS

ID#:

# CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Page 1 of 1

Lab Work Order #: 620014

**Send Results to:**

Contact & Company Name: Brett Krehbiel Arcadis
Telephone: 916-786-0320
Address: 101 Creekside Ridge Court, Suite 200
Fax: 916-786-0366
City: Roseville State: CA Zip: 95678
E-mail Address: brett.krehbiel@arcadis.com
Project Name/Location (City, State): Chevron N. Eunice
Project #: B0048789.0004
Sampler's Printed Name: Chas Holder
Sampler's Signature:

| Preservative | B | B | C | E | E | | |
|---|---|---|---|---|---|---|---|
| Filtered (✓) | | | ✓ | ✓ | | | |
| # of Containers | | | | | | | |
| Container Information | 1 | 1 | 3 | 4 | 4 | | |

**Keys**

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

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

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

| Sample ID | Collection Date | Collection Time | Type (✓) Comp | Type (✓) Grab | Matrix | BTEX 8021B | TPH GRO & DRO 8015B | Dissolved As, Mn, Fe, Cr 6010B | Dissolved Hex Chromium 7196 | Chloride & TDS | | | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW 30 | 4-3 | 0832 | | X | W | 3 | 2 | 1 | 1 | 1 | | | |
| MW 9 | 4-3 | 0914 | | X | W | 3 | 2 | 1 | 1 | 1 | | | |
| MW 29 | 4-3 | 0952 | | X | W | 3 | 2 | 1 | 1 | 1 | | | |
| MWD 5 | 4-3 | 1041 | | X | W | 3 | 2 | 1 | 1 | 1 | | | |
| MW 32 | 4-3 | 1341 | | X | W | 3 | 2 | 1 | 1 | 1 | | | |
| MW 8 | 4-3 | 1320 | | X | W | 3 | 2 | 1 | 1 | 1 | | | |
| MWD 12 | 4-3 | 1351 | | X | W | 3 | 2 | 1 | 1 | 1 | | | |
| DUP 3 | 4-3 | - | | X | W | 3 | 2 | 1 | 1 | 1 | | | |
| | | | CA | | | | | | | | | | |

Special Instructions/Comments:

☐ Special QA/QC Instructions(✓):

**Laboratory Information and Receipt**

Lab Name: Xenco
☑ Cooler packed with Ice (✓)
Specify Turnaround Requirements: STAT
Shipping Tracking #:
Cooler Custody Seal (✓) ☐ Intact ☐ Not Intact
Sample Receipt:
Condition/Cooler Temp: _____

| Relinquished By | Received By | Relinquished By | Laboratory Received By |
|---|---|---|---|
| Printed Name: Chas Holder | Printed Name: Winston Noel | Printed Name: Winston Noel | Printed Name: Katie Lowe |
| Signature: | Signature: | Signature: | Signature: |
| Firm: Arcadis | Firm/Courier: Xenco | Firm/Courier: Xenco | Firm: Xenco |
| Date/Time: 4-3-19 / 1525 | Date/Time: 4/3/19 15:25 | Date/Time: 4/3/19 1800 | Date/Time: 4/3/19 1800 |

20730826 CoIC AR Form 06.27.2015

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

3.6135 PR -0.1

Received by OCD: 3/25/2020 2:27:35 PM
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Final 1.003

# Certificate of Analytical Results
## 620014
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **MW-30** Matrix: Water Sample Depth:

Lab Sample Id: 620014-001 Date Collected: 04.03.2019 08:32 Date Received: 04.03.2019 18:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085133 Date Prep: 04.09.2019 09:45

Prep seq: 7675332

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **260** | 5.00 | 0.858 | mg/L | 04.10.2019 04:07 | | 10 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3084993 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1240** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085125 Date Prep: 04.09.2019 03:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675313

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0212** | 0.00400 | 0.000246 | mg/L | 04.09.2019 17:52 | | 1 |
| **Chromium** | 7440-47-3 | **0.00146** | 0.00400 | 0.000525 | mg/L | 04.09.2019 17:52 | J | 1 |
| **Barium** | 7440-39-3 | **0.370** | 0.00400 | 0.000484 | mg/L | 04.09.2019 17:52 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3084515 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.04.2019 07:05 | U | 1 |

# Certificate of Analytical Results
## 620014

## ARCADIS, Midland, TX

Eunice Project-S. Eunice

Sample Id: **MW-30** Matrix: Water Sample Depth:

Lab Sample Id: 620014-001 Date Collected: 04.03.2019 08:32 Date Received: 04.03.2019 18:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085686 Date Prep: 04.12.2019 07:00

Prep seq: 7675744

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.986 | 1.50 | 0.986 | mg/L | 04.12.2019 11:16 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 11:16 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 11:16 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 11:16 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 94 | 70 - 135 | % | | |
| o-Terphenyl | 95 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085172 Date Prep: 04.09.2019 12:00

Prep seq: 7675452

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **0.00872** | 0.00200 | 0.000408 | mg/L | 04.09.2019 19:18 | | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.09.2019 19:18 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.09.2019 19:18 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.09.2019 19:18 | U | 1 |
| **o-Xylene** | 95-47-6 | **0.00100** | 0.00200 | 0.000642 | mg/L | 04.09.2019 19:18 | J | 1 |
| **Total Xylenes** | 1330-20-7 | **0.00100** | 0.00200 | 0.000630 | mg/L | 04.09.2019 19:18 | J | 1 |
| **Total BTEX** | | **0.00972** | 0.00200 | 0.000367 | mg/L | 04.09.2019 19:18 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 91 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 92 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620014
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **MW-9** Matrix: Water Sample Depth:

Lab Sample Id: 620014-002 Date Collected: 04.03.2019 09:14 Date Received: 04.03.2019 18:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085133 Date Prep: 04.09.2019 09:45

Prep seq: 7675332

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **334** | 5.00 | 0.858 | mg/L | 04.10.2019 04:27 | | 10 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085169 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1410** | 5.00 | 5.00 | mg/L | 04.09.2019 15:43 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085125 Date Prep: 04.09.2019 03:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675313

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0107** | 0.00400 | 0.000246 | mg/L | 04.09.2019 18:04 | | 1 |
| **Chromium** | 7440-47-3 | **0.00113** | 0.00400 | 0.000525 | mg/L | 04.09.2019 18:04 | J | 1 |
| **Barium** | 7440-39-3 | **4.79** | 0.400 | 0.0484 | mg/L | 04.16.2019 16:58 | ~~D~~ | 100 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3084515 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.04.2019 07:05 | U | 1 |

# Certificate of Analytical Results
## 620014

## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **MW-9** Matrix: Water Sample Depth:

Lab Sample Id: 620014-002 Date Collected: 04.03.2019 09:14 Date Received: 04.03.2019 18:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085686 Date Prep: 04.12.2019 07:00

Prep seq: 7675744

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.987 | 1.50 | 0.987 | mg/L | 04.12.2019 12:13 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 12:13 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 12:13 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 12:13 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 91 | 70 - 135 | % | | |
| o-Terphenyl | 87 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085172 Date Prep: 04.09.2019 12:00

Prep seq: 7675452

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **0.00105** | 0.00200 | 0.000408 | mg/L | 04.09.2019 19:38 | J | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.09.2019 19:38 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.09.2019 19:38 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.09.2019 19:38 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.09.2019 19:38 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.09.2019 19:38 | U | 1 |
| **Total BTEX** | | **0.00105** | 0.00200 | 0.000367 | mg/L | 04.09.2019 19:38 | J | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 92 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 90 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620014
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **MW-29** Matrix: Water Sample Depth:

Lab Sample Id: 620014-003 Date Collected: 04.03.2019 09:52 Date Received: 04.03.2019 18:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085133 Date Prep: 04.09.2019 09:45

Prep seq: 7675332

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **185** | 5.00 | 0.858 | mg/L | 04.10.2019 04:34 | | 10 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085018 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1170** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085125 Date Prep: 04.09.2019 03:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675313

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.00389** | 0.00400 | 0.000246 | mg/L | 04.09.2019 18:06 | J | 1 |
| **Chromium** | 7440-47-3 | **0.000856** | 0.00400 | 0.000525 | mg/L | 04.09.2019 18:06 | J | 1 |
| **Barium** | 7440-39-3 | **9.21** | 0.400 | 0.0484 | mg/L | 04.16.2019 17:01 | ~~D~~ | 100 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3084515 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.04.2019 07:05 | U | 1 |

# Certificate of Analytical Results
## 620014
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **MW-29** Matrix: Water Sample Depth:

Lab Sample Id: 620014-003 Date Collected: 04.03.2019 09:52 Date Received: 04.03.2019 18:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085686 Date Prep: 04.12.2019 07:00

Prep seq: 7675744

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Gasoline Range Hydrocarbons** | PHC610 | **4.32** | 1.50 | 0.986 | mg/L | 04.12.2019 12:32 | | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 12:32 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 12:32 | U | 1 |
| **Total TPH** | PHC635 | **4.32** | 1.50 | 0.911 | mg/L | 04.12.2019 12:32 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 93 | 70 - 135 | % | | |
| o-Terphenyl | 91 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085172 Date Prep: 04.09.2019 12:00

Prep seq: 7675452

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **0.0624** | 0.00200 | 0.000408 | mg/L | 04.09.2019 19:57 | | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.09.2019 19:57 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.09.2019 19:57 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.09.2019 19:57 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.09.2019 19:57 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.09.2019 19:57 | U | 1 |
| **Total BTEX** | | **0.0624** | 0.00200 | 0.000367 | mg/L | 04.09.2019 19:57 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 91 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 83 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620014
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **MWD-5** Matrix: Water Sample Depth:

Lab Sample Id: 620014-004 Date Collected: 04.03.2019 10:41 Date Received: 04.03.2019 18:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085133 Date Prep: 04.09.2019 09:45

Prep seq: 7675332

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **708** | 10.0 | 1.72 | mg/L | 04.10.2019 04:41 | | 20 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085018 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **2090** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085125 Date Prep: 04.09.2019 03:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675313

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0165** | 0.00400 | 0.000246 | mg/L | 04.09.2019 18:09 | | 1 |
| **Chromium** | 7440-47-3 | **0.00105** | 0.00400 | 0.000525 | mg/L | 04.09.2019 18:09 | J | 1 |
| **Barium** | 7440-39-3 | **7.71** | 0.400 | 0.0484 | mg/L | 04.16.2019 17:04 | ~~D~~ | 100 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3084515 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.04.2019 07:05 | U | 1 |

# Certificate of Analytical Results
## 620014
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **MWD-5** Matrix: Water Sample Depth:

Lab Sample Id: 620014-004 Date Collected: 04.03.2019 10:41 Date Received: 04.03.2019 18:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085686 Date Prep: 04.12.2019 07:00

Prep seq: 7675744

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Gasoline Range Hydrocarbons** | PHC610 | **12.9** | 1.50 | 0.986 | mg/L | 04.12.2019 12:52 | | 1 |
| **Diesel Range Organics** | C10C28DRO | **1.70** | 1.50 | 0.911 | mg/L | 04.12.2019 12:52 | | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 12:52 | U | 1 |
| **Total TPH** | PHC635 | **14.6** | 1.50 | 0.911 | mg/L | 04.12.2019 12:52 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 89 | 70 - 135 | % | | |
| o-Terphenyl | 88 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085172 Date Prep: 04.09.2019 12:00

Prep seq: 7675452

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **3.46** | 0.0500 | 0.0102 | mg/L | 04.09.2019 20:19 | | 25 |
| Toluene | 108-88-3 | <0.00918 | 0.0500 | 0.00918 | mg/L | 04.09.2019 20:19 | U | 25 |
| Ethylbenzene | 100-41-4 | <0.0164 | 0.0500 | 0.0164 | mg/L | 04.09.2019 20:19 | U | 25 |
| m,p-Xylenes | 179601-23-1 | <0.0157 | 0.100 | 0.0157 | mg/L | 04.09.2019 20:19 | U | 25 |
| o-Xylene | 95-47-6 | <0.0161 | 0.0500 | 0.0161 | mg/L | 04.09.2019 20:19 | U | 25 |
| Total Xylenes | 1330-20-7 | <0.0157 | 0.0500 | 0.0157 | mg/L | 04.09.2019 20:19 | U | 25 |
| **Total BTEX** | | **3.46** | 0.0500 | 0.00918 | mg/L | 04.09.2019 20:19 | | 25 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 93 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 87 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620014
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **MW-32** Matrix: Water Sample Depth:

Lab Sample Id: 620014-005 Date Collected: 04.03.2019 13:41 Date Received: 04.03.2019 18:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085133 Date Prep: 04.09.2019 09:45

Prep seq: 7675332

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **583** | 10.0 | 1.72 | mg/L | 04.10.2019 04:48 | | 20 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085018 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **2200** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085125 Date Prep: 04.09.2019 03:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675313

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0361** | 0.00400 | 0.000246 | mg/L | 04.09.2019 18:12 | | 1 |
| **Chromium** | 7440-47-3 | **0.000949** | 0.00400 | 0.000525 | mg/L | 04.09.2019 18:12 | J | 1 |
| **Barium** | 7440-39-3 | **1.40** | 0.00400 | 0.000484 | mg/L | 04.09.2019 18:12 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3084515 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.04.2019 07:05 | U | 1 |

# Certificate of Analytical Results
## 620014
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **MW-32** Matrix: Water Sample Depth:

Lab Sample Id: 620014-005 Date Collected: 04.03.2019 13:41 Date Received: 04.03.2019 18:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085686 Date Prep: 04.12.2019 07:00

Prep seq: 7675744

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Gasoline Range Hydrocarbons** | PHC610 | **11.1** | 1.50 | 0.986 | mg/L | 04.12.2019 13:11 | | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 13:11 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 13:11 | U | 1 |
| **Total TPH** | PHC635 | **11.1** | 1.50 | 0.911 | mg/L | 04.12.2019 13:11 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 92 | 70 - 135 | % | | |
| o-Terphenyl | 88 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085172 Date Prep: 04.09.2019 12:00

Prep seq: 7675452

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **4.30** | 0.500 | 0.102 | mg/L | 04.10.2019 12:17 | D | 250 |
| **Toluene** | 108-88-3 | **0.000510** | 0.00200 | 0.000367 | mg/L | 04.10.2019 00:35 | J | 1 |
| **Ethylbenzene** | 100-41-4 | **0.00196** | 0.00200 | 0.000657 | mg/L | 04.10.2019 00:35 | J | 1 |
| **m,p-Xylenes** | 179601-23-1 | **0.00115** | 0.00400 | 0.000630 | mg/L | 04.10.2019 00:35 | J | 1 |
| **o-Xylene** | 95-47-6 | **0.00196** | 0.00200 | 0.000642 | mg/L | 04.10.2019 00:35 | J | 1 |
| **Total Xylenes** | 1330-20-7 | **0.00311** | 0.00200 | 0.000630 | mg/L | 04.10.2019 00:35 | | 1 |
| **Total BTEX** | | **4.31** | 0.00200 | 0.000367 | mg/L | 04.10.2019 12:17 | | 250 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 100 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 86 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620014
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **MW-8** Matrix: Water Sample Depth:

Lab Sample Id: 620014-006 Date Collected: 04.03.2019 13:20 Date Received: 04.03.2019 18:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085133 Date Prep: 04.09.2019 09:45

Prep seq: 7675332

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **512** | 10.0 | 1.72 | mg/L | 04.10.2019 04:54 | | 20 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085018 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **2240** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085125 Date Prep: 04.09.2019 03:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675313

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0519** | 0.00400 | 0.000246 | mg/L | 04.09.2019 18:15 | | 1 |
| **Chromium** | 7440-47-3 | **0.00112** | 0.00400 | 0.000525 | mg/L | 04.09.2019 18:15 | J | 1 |
| **Barium** | 7440-39-3 | **0.0496** | 0.00400 | 0.000484 | mg/L | 04.09.2019 18:15 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3084515 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.04.2019 07:05 | U | 1 |

# Certificate of Analytical Results
## 620014

## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **MW-8** Matrix: Water Sample Depth:

Lab Sample Id: 620014-006 Date Collected: 04.03.2019 13:20 Date Received: 04.03.2019 18:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085686 Date Prep: 04.12.2019 07:00

Prep seq: 7675744

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.986 | 1.50 | 0.986 | mg/L | 04.12.2019 13:30 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 13:30 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 13:30 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 13:30 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 92 | 70 - 135 | % | | |
| o-Terphenyl | 91 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085172 Date Prep: 04.09.2019 12:00

Prep seq: 7675452

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 04.09.2019 17:41 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.09.2019 17:41 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.09.2019 17:41 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.09.2019 17:41 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.09.2019 17:41 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.09.2019 17:41 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.09.2019 17:41 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 92 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 92 | 70 - 130 | % | | |



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# Certificate of Analytical Results
## 620014
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **MWD-12** Matrix: Water Sample Depth:

Lab Sample Id: 620014-007 Date Collected: 04.03.2019 13:51 Date Received: 04.03.2019 18:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085133 Date Prep: 04.09.2019 09:45

Prep seq: 7675332

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **901** | 25.0 | 4.29 | mg/L | 04.10.2019 05:01 | | 50 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085018 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **3120** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085125 Date Prep: 04.09.2019 03:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675313

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0443** | 0.00400 | 0.000246 | mg/L | 04.09.2019 18:18 | | 1 |
| **Chromium** | 7440-47-3 | **0.000870** | 0.00400 | 0.000525 | mg/L | 04.09.2019 18:18 | J | 1 |
| **Barium** | 7440-39-3 | **0.380** | 0.00400 | 0.000484 | mg/L | 04.09.2019 18:18 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3084515 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.04.2019 07:05 | U | 1 |

# Certificate of Analytical Results
## 620014
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **MWD-12** Matrix: Water Sample Depth:

Lab Sample Id: 620014-007 Date Collected: 04.03.2019 13:51 Date Received: 04.03.2019 18:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085686 Date Prep: 04.12.2019 07:00

Prep seq: 7675744

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.986 | 1.50 | 0.986 | mg/L | 04.12.2019 13:49 | U | 1 |
| **Diesel Range Organics** | C10C28DRO | **1.20** | 1.50 | 0.911 | mg/L | 04.12.2019 13:49 | J | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 13:49 | U | 1 |
| **Total TPH** | PHC635 | **1.20** | 1.50 | 0.911 | mg/L | 04.12.2019 13:49 | J | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 91 | 70 - 135 | % | | |
| o-Terphenyl | 88 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085172 Date Prep: 04.09.2019 12:00

Prep seq: 7675452

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **0.000460** | 0.00200 | 0.000408 | mg/L | 04.09.2019 21:58 | J | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.09.2019 21:58 | U | 1 |
| **Ethylbenzene** | 100-41-4 | **0.0109** | 0.00200 | 0.000657 | mg/L | 04.09.2019 21:58 | | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.09.2019 21:58 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.09.2019 21:58 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.09.2019 21:58 | U | 1 |
| **Total BTEX** | | **0.0114** | 0.00200 | 0.000367 | mg/L | 04.09.2019 21:58 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 92 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 89 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620014
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **DUP 3** Matrix: Water Sample Depth:

Lab Sample Id: 620014-008 Date Collected: 04.03.2019 00:00 Date Received: 04.03.2019 18:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085133 Date Prep: 04.09.2019 09:45

Prep seq: 7675332

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **165** | 5.00 | 0.858 | mg/L | 04.10.2019 05:08 | | 10 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085018 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1100** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085125 Date Prep: 04.09.2019 03:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675313

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.00338** | 0.00400 | 0.000246 | mg/L | 04.09.2019 18:21 | J | 1 |
| **Chromium** | 7440-47-3 | **0.000706** | 0.00400 | 0.000525 | mg/L | 04.09.2019 18:21 | J | 1 |
| **Barium** | 7440-39-3 | **7.51** | 0.400 | 0.0484 | mg/L | 04.16.2019 17:10 | ~~D~~ | 100 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3084515 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.04.2019 07:05 | ~~UK~~ U | 1 |

# Certificate of Analytical Results
## 620014
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **DUP 3** Matrix: Water Sample Depth:

Lab Sample Id: 620014-008 Date Collected: 04.03.2019 00:00 Date Received: 04.03.2019 18:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085686 Date Prep: 04.12.2019 07:00

Prep seq: 7675744

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Gasoline Range Hydrocarbons** | PHC610 | **4.21** | 1.50 | 0.986 | mg/L | 04.12.2019 14:08 | | 1 |
| **Diesel Range Organics** | C10C28DRO | **1.20** | 1.50 | 0.911 | mg/L | 04.12.2019 14:08 | J | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 14:08 | U | 1 |
| **Total TPH** | PHC635 | **5.41** | 1.50 | 0.911 | mg/L | 04.12.2019 14:08 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 94 | 70 - 135 | % | | |
| o-Terphenyl | 93 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085172 Date Prep: 04.09.2019 12:00

Prep seq: 7675452

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **0.0462** | 0.00200 | 0.000408 | mg/L | 04.10.2019 00:55 | | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.10.2019 00:55 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.10.2019 00:55 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.10.2019 00:55 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.10.2019 00:55 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.10.2019 00:55 | U | 1 |
| **Total BTEX** | | **0.0462** | 0.00200 | 0.000367 | mg/L | 04.10.2019 00:55 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 93 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 81 | 70 - 130 | % | | |

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# Chain of Custody

Work Order No: 62048

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 _____ of _____

| | | | |
|---|---|---|---|
| Project Manager: | Brett Krehbiel | Bill to: (if different) | |
| Company Name: | ARCADIS | Company Name: | |
| Address: | 1004 N. Big Spring St. | Address: | |
| City, State ZIP: | Midland, TX. 79701 | City, State ZIP: | |
| Phone: | 916-786-5382 | Email: | brett.krehbiel@arcadis.com |

**Work Order Comments**

Program: UST/PST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐
State of Project:
Reporting:Level II ☐ Level III ☐ PST/UST ☐ RRP ☐ Level IV ☐
Deliverables: EDD ☐ ADaPT ☐ Other:

| | | | |
|---|---|---|---|
| Project Name: | Eunice Project- S. Eunice | Turn Around | |
| Project Number: | B0048789 | Routine | ☑ |
| P.O. Number: | | Rush: | |
| Sampler's Name: | Kerry Longwell | Due Date: | |

| SAMPLE RECEIPT | | | | |
|---|---|---|---|---|
| Temp Blank: | Yes No | Wet Ice: | Yes No | |
| Temperature (°C): | | Thermometer ID | | |
| Received Intact: | Yes No | | | |
| Cooler Custody Seals: | Yes No N/A | Correction Factor: | | |
| Sample Custody Seals: | Yes No N/A | Total Containers: | | |

| Sample Identification | Matrix | Date Sampled | Time Sampled | Depth | Number of Containers | BTEX (SW8021) | TPH (SW8015) | Hex Chrome (SW7196A) | Dissolved Metals (SW6020_DIS): Chromium, Arsenic & Barium) | TDS (SW2540) | Chlorides (E300) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MWD-8 | W | 04/04/19 | 0827 | | 8 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MW-2 | | 04/04/19 | 0917 | | 8 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MW-7 | | 04/04/19 | 0937 | | 8 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MW-26 | | 04/04/19 | 1006 | | 8 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| ~~MW-24~~ MW-11 | | 04/04/19 | 1116 | | 8 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MWD-2 | | 04/04/19 | 1248 | | 8 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MW-8 | | 04/04/19 | 1307 | | 8 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| ~~MW-15~~ MWD-15 | | 04/04/19 | 1351 | | 8 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| DUP-2 | | 04/04/19 | — | | 8 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | | | | | | | | | | | |

**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

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Xenco. A minimum charge of $75.00 will be applied to each project and a charge of $5 for each sample submitted to Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

| Relinquished by: (Signature) | Received by: (Signature) | Date/Time | Relinquished by: (Signature) | Received by: (Signature) | Date/Time |
|---|---|---|---|---|---|
| Kerry Longwell | Winston Abel | 4/4/19 16:21 | 2 | | 4/4/19 18:00 |
| 3 | | | 4 | | |
| 5 | | | 6 | | |

Revised Date 051418 Rev. 2018.1

Received by OCD: 3/25/2020 2:27:35 PM
Final 1.003
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Released to Imaging: 6/14/2022 10:17:42 AM

# Certificate of Analytical Results
## 620148

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **MWD-8** Matrix: Water Sample Depth:

Lab Sample Id: 620148-001 Date Collected: 04.04.2019 08:27 Date Received: 04.04.2019 18:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085133 Date Prep: 04.09.2019 09:45

Prep seq: 7675332

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **118** | 2.50 | 0.429 | mg/L | 04.10.2019 03:40 | J | 5 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085018 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **933** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085089 Date Prep: 04.09.2019 03:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675314

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0171** | 0.00400 | 0.000246 | mg/L | 04.09.2019 14:20 | | 1 |
| **Chromium** | 7440-47-3 | **0.00173** | 0.00400 | 0.000525 | mg/L | 04.09.2019 14:20 | J | 1 |
| **Barium** | 7440-39-3 | **0.0470** | 0.00400 | 0.000484 | mg/L | 04.09.2019 14:20 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3085062 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.05.2019 07:20 | U | 1 |

# Certificate of Analytical Results
## 620148

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **MWD-8** Matrix: Water Sample Depth:

Lab Sample Id: 620148-001 Date Collected: 04.04.2019 08:27 Date Received: 04.04.2019 18:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085686 Date Prep: 04.12.2019 07:00

Prep seq: 7675744

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.986 | 1.50 | 0.986 | mg/L | 04.12.2019 14:27 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 14:27 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 14:27 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 14:27 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 94 | 70 - 135 | % | | |
| o-Terphenyl | 94 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085172 Date Prep: 04.09.2019 12:00

Prep seq: 7675452

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 04.09.2019 22:17 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.09.2019 22:17 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.09.2019 22:17 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.09.2019 22:17 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.09.2019 22:17 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.09.2019 22:17 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.09.2019 22:17 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 90 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 90 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620148

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **WW-2** Matrix: Water Sample Depth:

Lab Sample Id: 620148-002 Date Collected: 04.04.2019 09:17 Date Received: 04.04.2019 18:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085133 Date Prep: 04.09.2019 09:45

Prep seq: 7675332

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **125** | 2.50 | 0.429 | mg/L | 04.10.2019 02:04 | J | 5 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085018 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **477** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085089 Date Prep: 04.09.2019 03:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675314

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.000970** | 0.00400 | 0.000246 | mg/L | 04.09.2019 15:13 | J | 1 |
| **Chromium** | 7440-47-3 | **0.000822** | 0.00400 | 0.000525 | mg/L | 04.09.2019 15:13 | J | 1 |
| **Barium** | 7440-39-3 | **0.418** | 0.00400 | 0.000484 | mg/L | 04.09.2019 15:13 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3085062 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.05.2019 07:20 | U | 1 |

# Certificate of Analytical Results
## 620148

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **WW-2** Matrix: Water Sample Depth:

Lab Sample Id: 620148-002 Date Collected: 04.04.2019 09:17 Date Received: 04.04.2019 18:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085686 Date Prep: 04.12.2019 07:00

Prep seq: 7675744

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.987 | 1.50 | 0.987 | mg/L | 04.12.2019 14:46 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 14:46 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 14:46 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 14:46 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 95 | 70 - 135 | % | | |
| o-Terphenyl | 91 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085172 Date Prep: 04.09.2019 12:00

Prep seq: 7675452

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 04.09.2019 22:36 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.09.2019 22:36 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.09.2019 22:36 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.09.2019 22:36 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.09.2019 22:36 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.09.2019 22:36 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.09.2019 22:36 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 91 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 90 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620148

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **WW-7** Matrix: Water Sample Depth:

Lab Sample Id: 620148-003 Date Collected: 04.04.2019 09:37 Date Received: 04.04.2019 18:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085303 Date Prep: 04.09.2019 10:40

Prep seq: 7675334

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **332** | 2.50 | 0.429 | mg/L | 04.10.2019 18:11 | J | 5 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085018 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **640** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085089 Date Prep: 04.09.2019 03:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675314

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.000970** | 0.00400 | 0.000246 | mg/L | 04.09.2019 15:16 | J | 1 |
| **Chromium** | 7440-47-3 | **0.00127** | 0.00400 | 0.000525 | mg/L | 04.09.2019 15:16 | J | 1 |
| **Barium** | 7440-39-3 | **1.51** | 0.00400 | 0.000484 | mg/L | 04.09.2019 15:16 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3085062 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.05.2019 07:20 | U | 1 |

# Certificate of Analytical Results
## 620148

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **WW-7** Matrix: Water Sample Depth:

Lab Sample Id: 620148-003 Date Collected: 04.04.2019 09:37 Date Received: 04.04.2019 18:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085686 Date Prep: 04.12.2019 07:00

Prep seq: 7675744

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.986 | 1.50 | 0.986 | mg/L | 04.12.2019 15:43 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 15:43 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 15:43 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 15:43 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 96 | 70 - 135 | % | | |
| o-Terphenyl | 92 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085172 Date Prep: 04.09.2019 12:00

Prep seq: 7675452

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 04.09.2019 22:56 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.09.2019 22:56 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.09.2019 22:56 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.09.2019 22:56 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.09.2019 22:56 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.09.2019 22:56 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.09.2019 22:56 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 90 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 89 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620148

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **MW-26** Matrix: Water Sample Depth:

Lab Sample Id: 620148-004 Date Collected: 04.04.2019 10:06 Date Received: 04.04.2019 18:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085303 Date Prep: 04.09.2019 10:40

Prep seq: 7675334

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **140** | 5.00 | 0.858 | mg/L | 04.10.2019 18:31 | J | 10 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085018 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1070** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085089 Date Prep: 04.09.2019 03:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675314

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0630** | 0.00400 | 0.000246 | mg/L | 04.09.2019 15:19 | | 1 |
| **Chromium** | 7440-47-3 | **0.000777** | 0.00400 | 0.000525 | mg/L | 04.09.2019 15:19 | J | 1 |
| **Barium** | 7440-39-3 | **5.59** | 0.200 | 0.0242 | mg/L | 04.09.2019 18:24 | ~~D~~ | 50 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3085062 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.05.2019 07:20 | U | 1 |

# Certificate of Analytical Results
## 620148
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-26** Matrix: Water Sample Depth:

Lab Sample Id: 620148-004 Date Collected: 04.04.2019 10:06 Date Received: 04.04.2019 18:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085686 Date Prep: 04.12.2019 07:00

Prep seq: 7675744

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Gasoline Range Hydrocarbons** | PHC610 | **3.41** | 1.50 | 0.987 | mg/L | 04.12.2019 16:02 | | 1 |
| **Diesel Range Organics** | C10C28DRO | **8.19** | 1.50 | 0.912 | mg/L | 04.12.2019 16:02 | | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.912 | 1.50 | 0.912 | mg/L | 04.12.2019 16:02 | U | 1 |
| **Total TPH** | PHC635 | **11.6** | 1.50 | 0.912 | mg/L | 04.12.2019 16:02 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 97 | 70 - 135 | % | | |
| o-Terphenyl | 103 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085172 Date Prep: 04.09.2019 12:00

Prep seq: 7675452

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **0.577** | 0.0200 | 0.00408 | mg/L | 04.10.2019 23:59 | D | 10 |
| **Toluene** | 108-88-3 | **0.000710** | 0.00200 | 0.000367 | mg/L | 04.10.2019 00:16 | J | 1 |
| **Ethylbenzene** | 100-41-4 | **0.00152** | 0.00200 | 0.000657 | mg/L | 04.10.2019 00:16 | J | 1 |
| **m,p-Xylenes** | 179601-23-1 | **0.00316** | 0.00400 | 0.000630 | mg/L | 04.10.2019 00:16 | J | 1 |
| **o-Xylene** | 95-47-6 | **0.00105** | 0.00200 | 0.000642 | mg/L | 04.10.2019 00:16 | J | 1 |
| **Total Xylenes** | 1330-20-7 | **0.00421** | 0.00200 | 0.000630 | mg/L | 04.10.2019 00:16 | | 1 |
| **Total BTEX** | | **0.583** | 0.00200 | 0.000367 | mg/L | 04.10.2019 23:59 | | 10 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 98 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 90 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620148

## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-11** Matrix: Water Sample Depth:

Lab Sample Id: 620148-005 Date Collected: 04.04.2019 14:16 Date Received: 04.04.2019 18:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085303 Date Prep: 04.09.2019 10:40

Prep seq: 7675334

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **78.0** | 2.50 | 0.429 | mg/L | 04.10.2019 18:38 | J | 5 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085018 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **815** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085089 Date Prep: 04.09.2019 03:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675314

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0182** | 0.00400 | 0.000246 | mg/L | 04.09.2019 15:22 | | 1 |
| **Chromium** | 7440-47-3 | **0.00989** | 0.00400 | 0.000525 | mg/L | 04.09.2019 15:22 | | 1 |
| **Barium** | 7440-39-3 | **0.614** | 0.00400 | 0.000484 | mg/L | 04.09.2019 15:22 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3085062 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.05.2019 07:20 | U | 1 |

# Certificate of Analytical Results
## 620148

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **MW-11** Matrix: Water Sample Depth:

Lab Sample Id: 620148-005 Date Collected: 04.04.2019 14:16 Date Received: 04.04.2019 18:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085686 Date Prep: 04.12.2019 07:00

Prep seq: 7675744

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Gasoline Range Hydrocarbons** | PHC610 | **7.23** | 1.50 | 0.986 | mg/L | 04.12.2019 16:21 | | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 16:21 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 16:21 | U | 1 |
| **Total TPH** | PHC635 | **7.23** | 1.50 | 0.911 | mg/L | 04.12.2019 16:21 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 96 | 70 - 135 | % | | |
| o-Terphenyl | 93 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085172 Date Prep: 04.09.2019 12:00

Prep seq: 7675452

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **1.87** | 0.0200 | 0.00408 | mg/L | 04.09.2019 23:57 | | 10 |
| Toluene | 108-88-3 | <0.00367 | 0.0200 | 0.00367 | mg/L | 04.09.2019 23:57 | U | 10 |
| **Ethylbenzene** | 100-41-4 | **0.00840** | 0.0200 | 0.00657 | mg/L | 04.09.2019 23:57 | J | 10 |
| **m,p-Xylenes** | 179601-23-1 | **0.0434** | 0.0400 | 0.00630 | mg/L | 04.09.2019 23:57 | | 10 |
| **o-Xylene** | 95-47-6 | **0.0108** | 0.0200 | 0.00642 | mg/L | 04.09.2019 23:57 | J | 10 |
| **Total Xylenes** | 1330-20-7 | **0.0542** | 0.0200 | 0.00630 | mg/L | 04.09.2019 23:57 | | 10 |
| **Total BTEX** | | **1.93** | 0.0200 | 0.00367 | mg/L | 04.09.2019 23:57 | | 10 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 97 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 92 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620148

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **MWD-2** Matrix: Water Sample Depth:

Lab Sample Id: 620148-006 Date Collected: 04.04.2019 12:48 Date Received: 04.04.2019 18:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085303 Date Prep: 04.09.2019 10:40

Prep seq: 7675334

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **796** | 25.0 | 4.29 | mg/L | 04.10.2019 18:45 | J | 50 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085018 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **2730** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085089 Date Prep: 04.09.2019 03:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675314

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.00880** | 0.00400 | 0.000246 | mg/L | 04.09.2019 15:24 | | 1 |
| **Chromium** | 7440-47-3 | **0.00119** | 0.00400 | 0.000525 | mg/L | 04.09.2019 15:24 | J | 1 |
| **Barium** | 7440-39-3 | **0.0500** | 0.00400 | 0.000484 | mg/L | 04.09.2019 15:24 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3085062 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.05.2019 07:20 | U | 1 |

# Certificate of Analytical Results
## 620148

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **MWD-2** Matrix: Water Sample Depth:

Lab Sample Id: 620148-006 Date Collected: 04.04.2019 12:48 Date Received: 04.04.2019 18:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085686 Date Prep: 04.12.2019 07:00

Prep seq: 7675744

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.986 | 1.50 | 0.986 | mg/L | 04.12.2019 16:40 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 16:40 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 16:40 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 16:40 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 93 | 70 - 135 | % | | |
| o-Terphenyl | 90 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085172 Date Prep: 04.09.2019 12:00

Prep seq: 7675452

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 04.09.2019 23:15 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.09.2019 23:15 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.09.2019 23:15 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.09.2019 23:15 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.09.2019 23:15 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.09.2019 23:15 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.09.2019 23:15 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 90 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 90 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620148

## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **RW-8** Matrix: Water Sample Depth:

Lab Sample Id: 620148-007 Date Collected: 04.04.2019 13:07 Date Received: 04.04.2019 18:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085303 Date Prep: 04.09.2019 10:40

Prep seq: 7675334

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **756** | 25.0 | 4.29 | mg/L | 04.10.2019 18:52 | J | 50 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085018 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **2690** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085089 Date Prep: 04.09.2019 03:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675314

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0139** | 0.00400 | 0.000246 | mg/L | 04.09.2019 15:27 | | 1 |
| **Chromium** | 7440-47-3 | **0.00167** | 0.00400 | 0.000525 | mg/L | 04.09.2019 15:27 | J | 1 |
| **Barium** | 7440-39-3 | **0.0981** | 0.00400 | 0.000484 | mg/L | 04.09.2019 15:27 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3085062 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.05.2019 07:20 | U | 1 |

# Certificate of Analytical Results
## 620148

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **RW-8** Matrix: Water Sample Depth:

Lab Sample Id: 620148-007 Date Collected: 04.04.2019 13:07 Date Received: 04.04.2019 18:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085686 Date Prep: 04.12.2019 07:00

Prep seq: 7675744

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.986 | 1.50 | 0.986 | mg/L | 04.12.2019 17:00 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 17:00 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 17:00 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 17:00 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 90 | 70 - 135 | % | | |
| o-Terphenyl | 89 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085172 Date Prep: 04.09.2019 12:00

Prep seq: 7675452

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 04.09.2019 23:35 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.09.2019 23:35 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.09.2019 23:35 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.09.2019 23:35 | U | 1 |
| **o-Xylene** | 95-47-6 | **0.000990** | 0.00200 | 0.000642 | mg/L | 04.09.2019 23:35 | J | 1 |
| **Total Xylenes** | 1330-20-7 | **0.000990** | 0.00200 | 0.000630 | mg/L | 04.09.2019 23:35 | J | 1 |
| **Total BTEX** | | **0.000990** | 0.00200 | 0.000367 | mg/L | 04.09.2019 23:35 | J | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 90 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 92 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620148

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **MWD-15** Matrix: Water Sample Depth:

Lab Sample Id: 620148-008 Date Collected: 04.04.2019 13:51 Date Received: 04.04.2019 18:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085303 Date Prep: 04.09.2019 10:40

Prep seq: 7675334

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **604** | 25.0 | 4.29 | mg/L | 04.10.2019 19:12 | J | 50 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085018 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **3210** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085089 Date Prep: 04.09.2019 03:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675314

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.00799** | 0.00400 | 0.000246 | mg/L | 04.09.2019 15:30 | | 1 |
| **Chromium** | 7440-47-3 | **0.00207** | 0.00400 | 0.000525 | mg/L | 04.09.2019 15:30 | J | 1 |
| **Barium** | 7440-39-3 | **1.83** | 0.00400 | 0.000484 | mg/L | 04.09.2019 15:30 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3085062 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.05.2019 07:20 | U | 1 |

# Certificate of Analytical Results
## 620148
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MWD-15** Matrix: Water Sample Depth:

Lab Sample Id: 620148-008 Date Collected: 04.04.2019 13:51 Date Received: 04.04.2019 18:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085686 Date Prep: 04.12.2019 07:00

Prep seq: 7675744

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Gasoline Range Hydrocarbons** | PHC610 | **1.67** | 1.50 | 0.986 | mg/L | 04.12.2019 17:19 | | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 17:19 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 17:19 | U | 1 |
| **Total TPH** | PHC635 | **1.67** | 1.50 | 0.911 | mg/L | 04.12.2019 17:19 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 93 | 70 - 135 | % | | |
| o-Terphenyl | 91 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085319 Date Prep: 04.10.2019 16:30

Prep seq: 7675537

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **0.0132** J | 0.00200 | 0.000408 | mg/L | 04.11.2019 09:11 | | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.11.2019 09:11 | U | 1 |
| **Ethylbenzene** | 100-41-4 | **0.0179** J | 0.00200 | 0.000657 | mg/L | 04.11.2019 09:11 | | 1 |
| **m,p-Xylenes** | 179601-23-1 | **0.0153** J | 0.00400 | 0.000630 | mg/L | 04.11.2019 09:11 | | 1 |
| **o-Xylene** | 95-47-6 | **0.0110** J | 0.00200 | 0.000642 | mg/L | 04.11.2019 09:11 | | 1 |
| **Total Xylenes** | 1330-20-7 | **0.0263** J | 0.00200 | 0.000630 | mg/L | 04.11.2019 09:11 | | 1 |
| **Total BTEX** | | **0.0574** J | 0.00200 | 0.000367 | mg/L | 04.11.2019 09:11 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 90 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 150 | 70 - 130 | % | | ** |

# Certificate of Analytical Results
## 620148
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **DUP-2** Matrix: Water Sample Depth:

Lab Sample Id: 620148-009 Date Collected: 04.04.2019 00:00 Date Received: 04.04.2019 18:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085303 Date Prep: 04.09.2019 10:40

Prep seq: 7675334

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **93.1** | 2.50 | 0.429 | mg/L | 04.10.2019 19:46 | J | 5 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085018 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **844** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085089 Date Prep: 04.09.2019 03:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675314

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0122** | 0.00400 | 0.000246 | mg/L | 04.09.2019 15:33 | | 1 |
| **Chromium** | 7440-47-3 | **0.00543** | 0.00400 | 0.000525 | mg/L | 04.09.2019 15:33 | | 1 |
| **Barium** | 7440-39-3 | **0.631** | 0.00400 | 0.000484 | mg/L | 04.09.2019 15:33 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3085062 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.05.2019 07:20 | ~~UK~~ U | 1 |

# Certificate of Analytical Results
## 620148

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **DUP-2** Matrix: Water Sample Depth:

Lab Sample Id: 620148-009 Date Collected: 04.04.2019 00:00 Date Received: 04.04.2019 18:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085686 Date Prep: 04.12.2019 07:00

Prep seq: 7675744

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Gasoline Range Hydrocarbons** | PHC610 | **6.99** | 1.50 | 0.987 | mg/L | 04.12.2019 17:38 | | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 17:38 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 17:38 | U | 1 |
| **Total TPH** | PHC635 | **6.99** | 1.50 | 0.911 | mg/L | 04.12.2019 17:38 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 93 | 70 - 135 | % | | |
| o-Terphenyl | 91 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085319 Date Prep: 04.10.2019 16:30

Prep seq: 7675537

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **1.67** | 0.100 | 0.0204 | mg/L | 04.11.2019 05:05 | D | 50 |
| **Toluene** | 108-88-3 | **0.00190** | 0.00200 | 0.000367 | mg/L | 04.11.2019 09:50 | J | 1 |
| **Ethylbenzene** | 100-41-4 | **0.00639** | 0.00200 | 0.000657 | mg/L | 04.11.2019 09:50 | | 1 |
| **m,p-Xylenes** | 179601-23-1 | **0.0301** | 0.00400 | 0.000630 | mg/L | 04.11.2019 09:50 | | 1 |
| **o-Xylene** | 95-47-6 | **0.00814** | 0.00200 | 0.000642 | mg/L | 04.11.2019 09:50 | | 1 |
| **Total Xylenes** | 1330-20-7 | **0.0382** | 0.00200 | 0.000630 | mg/L | 04.11.2019 09:50 | | 1 |
| **Total BTEX** | | **1.72** | 0.00200 | 0.000367 | mg/L | 04.11.2019 05:05 | | 50 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 106 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 94 | 70 - 130 | % | | |

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# Chain of Custody

Work Order No: 620150

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 1 of 1

| | | | |
|---|---|---|---|
| Project Manager: | Brett Krehbiel | Bill to: (if different) | |
| Company Name: | ARCADIS | Company Name: | |
| Address: | 1004 N. Big Spring St. | Address: | |
| City, State ZIP: | Midland, TX. 79701 | City, State ZIP: | |
| Phone: | 916-786-5382 | Email: | brett.krehbiel@arcadis.com |

**Work Order Comments**

Program: UST/PST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐
State of Project:
Reporting:Level II ☐ Level III ☐ PST/UST ☐ RRP ☐ Level IV ☐
Deliverables: EDD ☐ ADaPT ☐ Other:

| | | | |
|---|---|---|---|
| Project Name: | Eunice Project- S. Eunice | Turn Around | |
| Project Number: | B0048789 | Routine | ☑ |
| P.O. Number: | | Rush: | |
| Sampler's Name: | Chas Holder | Due Date: | |

| SAMPLE RECEIPT | | | | | |
|---|---|---|---|---|---|
| | Temp Blank: | Yes No | Wet Ice: | Yes No | |
| Temperature (°C): | | Thermometer ID | | | |
| Received Intact: | Yes No | | | | |
| Cooler Custody Seals: | Yes No N/A | Correction Factor: | | | |
| Sample Custody Seals: | Yes No N/A | Total Containers: | | | |

| Sample Identification | Matrix | Date Sampled | Time Sampled | Depth | Number of Containers | BTEX (SW8021) | TPH (SW8015) | Hex Chrome (SW7196A) | Dissolved Metals (SW6020_DIS): Chromium, Arsenic & Barium) | TDS (SW2540) | Chlorides (E300) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| RW6 | W | 4-4 | 0827 | | 8 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| RW7 | W | 4-4 | 0910 | | 8 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MWD 9 | W | 4-4 | 0955 | | 8 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MW4 | W | 4-4 | 1019 | | 8 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Dup5 | W | 4-4 | — | | 8 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

**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

**Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Xenco. A minimum charge of $75.00 will be applied to each project and a charge of $5 for each sample submitted to Xenco, but not analyzed. These terms will be enforced unless previously negotiated.**

| Relinquished by: (Signature) | Received by: (Signature) | Date/Time | Relinquished by: (Signature) | Received by: (Signature) | Date/Time |
|---|---|---|---|---|---|
| 1 | | 4/4/19 16:23 | 2 | | 4/4/19 18:00 |
| 3 | | | 4 | | |
| 5 | | | 6 | | |

Revised Date 051418 Rev. 2018.1

Received by OCD: 3/25/2020 2:27:35 PM
Final 1.003
Page 32 of 35
Released to Imaging: 6/14/2022 10:17:42 AM

# Certificate of Analytical Results
## 620150
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **RW-6** Matrix: Water Sample Depth:

Lab Sample Id: 620150-001 Date Collected: 04.04.2019 08:27 Date Received: 04.04.2019 18:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085303 Date Prep: 04.09.2019 10:40

Prep seq: 7675334

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **715** | 10.0 | 1.72 | mg/L | 04.10.2019 19:19 | | 20 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085018 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **2470** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085089 Date Prep: 04.09.2019 03:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675314

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.00211** | 0.00400 | 0.000246 | mg/L | 04.09.2019 15:36 | J | 1 |
| **Chromium** | 7440-47-3 | **0.00216** | 0.00400 | 0.000525 | mg/L | 04.09.2019 15:36 | J | 1 |
| **Barium** | 7440-39-3 | **0.927** | 0.00400 | 0.000484 | mg/L | 04.09.2019 15:36 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3085070 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.05.2019 07:20 | U | 1 |

# Certificate of Analytical Results
## 620150
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **RW-6** Matrix: Water Sample Depth:

Lab Sample Id: 620150-001 Date Collected: 04.04.2019 08:27 Date Received: 04.04.2019 18:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085705 Date Prep: 04.14.2019 08:00

Prep seq: 7675752

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.987 | 1.50 | 0.987 | mg/L | 04.14.2019 13:04 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.14.2019 13:04 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.14.2019 13:04 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.50 | 0.911 | mg/L | 04.14.2019 13:04 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 102 | 70 - 135 | % | | |
| o-Terphenyl | 102 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085319 Date Prep: 04.10.2019 16:30

Prep seq: 7675537

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 04.11.2019 02:00 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.11.2019 02:00 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.11.2019 02:00 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.11.2019 02:00 | U | 1 |
| **o-Xylene** | 95-47-6 | **0.00215** | 0.00200 | 0.000642 | mg/L | 04.11.2019 02:00 | | 1 |
| **Total Xylenes** | 1330-20-7 | **0.00215** | 0.00200 | 0.000630 | mg/L | 04.11.2019 02:00 | | 1 |
| **Total BTEX** | | **0.00215** | 0.00200 | 0.000367 | mg/L | 04.11.2019 02:00 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 93 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 90 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620150
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **RW-7** Matrix: Water Sample Depth:

Lab Sample Id: 620150-002 Date Collected: 04.04.2019 09:10 Date Received: 04.04.2019 18:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085303 Date Prep: 04.09.2019 10:40

Prep seq: 7675334

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **2750** | 25.0 | 4.29 | mg/L | 04.10.2019 19:26 | | 50 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085018 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **8390** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | J | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085089 Date Prep: 04.09.2019 03:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675314

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0106** | 0.00400 | 0.000246 | mg/L | 04.09.2019 15:39 | | 1 |
| **Chromium** | 7440-47-3 | **0.00225** | 0.00400 | 0.000525 | mg/L | 04.09.2019 15:39 | J | 1 |
| **Barium** | 7440-39-3 | **0.0914** | 0.00400 | 0.000484 | mg/L | 04.09.2019 15:39 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3085070 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.05.2019 07:20 | U | 1 |

# Certificate of Analytical Results
## 620150

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **RW-7** Matrix: Water Sample Depth:

Lab Sample Id: 620150-002 Date Collected: 04.04.2019 09:10 Date Received: 04.04.2019 18:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085686 Date Prep: 04.12.2019 07:00

Prep seq: 7675744

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.986 | 1.50 | 0.986 | mg/L | 04.12.2019 17:57 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 17:57 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 17:57 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 17:57 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 97 | 70 - 135 | % | | |
| o-Terphenyl | 97 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085319 Date Prep: 04.10.2019 16:30

Prep seq: 7675537

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 04.11.2019 02:19 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.11.2019 02:19 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.11.2019 02:19 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.11.2019 02:19 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.11.2019 02:19 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.11.2019 02:19 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.11.2019 02:19 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 90 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 89 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620150
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MWD-9** Matrix: Water Sample Depth:

Lab Sample Id: 620150-003 Date Collected: 04.04.2019 09:55 Date Received: 04.04.2019 18:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085303 Date Prep: 04.09.2019 10:40

Prep seq: 7675334

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **17000** | 100 | 17.2 | mg/L | 04.10.2019 19:32 | | 200 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085018 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **28800** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085089 Date Prep: 04.09.2019 03:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675314

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0192** | 0.00400 | 0.000246 | mg/L | 04.09.2019 15:48 | | 1 |
| **Chromium** | 7440-47-3 | **0.00931** | 0.00400 | 0.000525 | mg/L | 04.09.2019 15:48 | | 1 |
| **Barium** | 7440-39-3 | **0.0717** | 0.0400 | 0.00484 | mg/L | 04.09.2019 18:01 | ~~D~~ | 10 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3085070 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chromium, Hexavalent** | 18540-29-9 | **0.00760** | 0.0100 | 0.00273 | mg/L | 04.05.2019 07:20 | J | 1 |

# Certificate of Analytical Results
## 620150

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **MWD-9** Matrix: Water Sample Depth:

Lab Sample Id: 620150-003 Date Collected: 04.04.2019 09:55 Date Received: 04.04.2019 18:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085686 Date Prep: 04.12.2019 07:00

Prep seq: 7675744

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.987 | 1.50 | 0.987 | mg/L | 04.12.2019 18:16 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 18:16 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 18:16 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 18:16 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 92 | 70 - 135 | % | | |
| o-Terphenyl | 90 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085319 Date Prep: 04.10.2019 16:30

Prep seq: 7675537

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **0.0161** | 0.00200 | 0.000408 | mg/L | 04.11.2019 02:39 | | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.11.2019 02:39 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.11.2019 02:39 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.11.2019 02:39 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.11.2019 02:39 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.11.2019 02:39 | U | 1 |
| **Total BTEX** | | **0.0161** | 0.00200 | 0.000367 | mg/L | 04.11.2019 02:39 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 91 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 89 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620150
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-4** Matrix: Water Sample Depth:

Lab Sample Id: 620150-004 Date Collected: 04.04.2019 10:19 Date Received: 04.04.2019 18:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085303 Date Prep: 04.09.2019 10:40

Prep seq: 7675334

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **1830** | 25.0 | 4.29 | mg/L | 04.10.2019 19:39 | | 50 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085018 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **4970** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085089 Date Prep: 04.09.2019 03:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675314

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.00818** | 0.00400 | 0.000246 | mg/L | 04.09.2019 15:51 | | 1 |
| **Chromium** | 7440-47-3 | **0.00163** | 0.00400 | 0.000525 | mg/L | 04.09.2019 15:51 | J | 1 |
| **Barium** | 7440-39-3 | **0.0620** | 0.00400 | 0.000484 | mg/L | 04.09.2019 15:51 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3085070 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.05.2019 07:20 | U | 1 |

# Certificate of Analytical Results
## 620150

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **MW-4** Matrix: Water Sample Depth:

Lab Sample Id: 620150-004 Date Collected: 04.04.2019 10:19 Date Received: 04.04.2019 18:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085686 Date Prep: 04.12.2019 07:00

Prep seq: 7675744

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.986 | 1.50 | 0.986 | mg/L | 04.12.2019 18:35 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 18:35 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 18:35 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 18:35 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 93 | 70 - 135 | % | | |
| o-Terphenyl | 89 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085319 Date Prep: 04.10.2019 16:30

Prep seq: 7675537

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 04.11.2019 02:58 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.11.2019 02:58 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.11.2019 02:58 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.11.2019 02:58 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.11.2019 02:58 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.11.2019 02:58 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.11.2019 02:58 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 91 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 89 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620150
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **DUP5** Matrix: Water Sample Depth:

Lab Sample Id: 620150-005 Date Collected: 04.04.2019 00:00 Date Received: 04.04.2019 18:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085303 Date Prep: 04.09.2019 10:40

Prep seq: 7675334

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **2080** | 25.0 | 4.29 | mg/L | 04.10.2019 20:06 | | 50 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085018 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **4740** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | J | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085089 Date Prep: 04.09.2019 03:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675314

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.00909** | 0.00400 | 0.000246 | mg/L | 04.09.2019 15:54 | | 1 |
| **Chromium** | 7440-47-3 | **0.00212** | 0.00400 | 0.000525 | mg/L | 04.09.2019 15:54 | J | 1 |
| **Barium** | 7440-39-3 | **0.0723** | 0.00400 | 0.000484 | mg/L | 04.09.2019 15:54 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3085070 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.05.2019 07:20 | ~~UK~~ U | 1 |

# Certificate of Analytical Results
## 620150
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **DUP5** Matrix: Water Sample Depth:

Lab Sample Id: 620150-005 Date Collected: 04.04.2019 00:00 Date Received: 04.04.2019 18:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085311 Date Prep: 04.10.2019 07:00

Prep seq: 7675488

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.987 | 1.50 | 0.987 | mg/L | 04.10.2019 19:17 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 19:17 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 19:17 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 19:17 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 91 | 70 - 135 | % | | |
| o-Terphenyl | 91 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085319 Date Prep: 04.10.2019 16:30

Prep seq: 7675537

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 04.11.2019 03:18 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.11.2019 03:18 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.11.2019 03:18 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.11.2019 03:18 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.11.2019 03:18 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.11.2019 03:18 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.11.2019 03:18 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 90 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 88 | 70 - 130 | % | | |

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# Chain of Custody

Work Order No: 620257

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 1 of 1

| | | | |
|---|---|---|---|
| Project Manager: | Brett Krehbiel | Bill to: (if different) | |
| Company Name: | ARCADIS | Company Name: | |
| Address: | 1004 N. Big Spring St. | Address: | |
| City, State ZIP: | Midland, TX. 79701 | City, State ZIP: | |
| Phone: | 916-786-5382 | Email: | brett.krehbiel@arcadis.com |

**Work Order Comments**

Program: UST/PST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐
State of Project:
Reporting:Level II ☐ Level III ☐ PST/UST ☐ RRP ☐ Level IV ☐
Deliverables: EDD ☐ ADaPT ☐ Other:

| | | | |
|---|---|---|---|
| Project Name: | Eunice Project- S. Eunice | Turn Around | |
| Project Number: | B0048789 | Routine ☑ | |
| P.O. Number: | | Rush: | |
| Sampler's Name: | Chas Holder | Due Date: | |

| SAMPLE RECEIPT | | | |
|---|---|---|---|
| Temp Blank: | Yes (No) | Wet Ice: | (Yes) No |
| Temperature (°C): | 5.2/5.1 | Thermometer ID | R8 |
| Received Intact: | (Yes) No | | |
| Cooler Custody Seals: | Yes No (N/A) | Correction Factor: | -0.1 |
| Sample Custody Seals: | Yes No (N/A) | Total Containers: | |

| Sample Identification | Matrix | Date Sampled | Time Sampled | Depth | Number of Containers | BTEX (SW8021) | TPH (SW8015) | Hex Chrome (SW7196A) | Dissolved Metals (SW6020_DIS): Chromium, Arsenic & Barium) | TDS (SW2540) | Chlorides (E300) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MW 14 | W | 4-5 | 0846 | | 8 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MW 25 | W | 4-5 | 0921 | | 8 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| TMW 6 | W | 4-5 | 0951 | | 8 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MW 3 | W | 4-5 | 1018 | | 8 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MW 11 | W | 4-5 | 1057 | | 8 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| TMW 1 | W | 4-5 | 1130 | | 8 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Dup 6 | W | 4-5 | — | | 8 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

**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

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| | Relinquished by: (Signature) | Received by: (Signature) | Date/Time | Relinquished by: (Signature) | Received by: (Signature) | Date/Time |
|---|---|---|---|---|---|---|
| 1 | | Winston Noel | 4/5/19 14:11 | 2 | | 4/5/19 16:00 |
| 3 | | | | 4 | | |
| 5 | | | | 6 | | |

Revised Date 051418 Rev. 2018.1

Received by OCD: 3/25/2020 2:27:35 PM
Final 1.002
Page 32 of 34
Released to Imaging: 6/14/2022 10:17:42 AM

# Certificate of Analytical Results
## 620257
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MWD-14** Matrix: Water Sample Depth:

Lab Sample Id: 620257-001 Date Collected: 04.05.2019 08:46 Date Received: 04.05.2019 17:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085303 Date Prep: 04.09.2019 10:40

Prep seq: 7675334

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **974** | 25.0 | 4.29 | mg/L | 04.10.2019 20:13 | | 50 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085169 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **3820** | 5.00 | 5.00 | mg/L | 04.09.2019 15:43 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085335 Date Prep: 04.11.2019 08:50

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675519

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.000809** | 0.00400 | 0.000246 | mg/L | 04.11.2019 13:39 | J | 1 |
| **Chromium** | 7440-47-3 | **0.000762** | 0.00400 | 0.000525 | mg/L | 04.11.2019 13:39 | J | 1 |
| **Barium** | 7440-39-3 | **0.436** | 0.00400 | 0.000484 | mg/L | 04.11.2019 13:39 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3085074 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.05.2019 19:00 | U | 1 |

# Certificate of Analytical Results
## 620257
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MWD-14** Matrix: Water Sample Depth:

Lab Sample Id: 620257-001 Date Collected: 04.05.2019 08:46 Date Received: 04.05.2019 17:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085705 Date Prep: 04.14.2019 08:00

Prep seq: 7675752

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Gasoline Range Hydrocarbons** | PHC610 | **4.01** | 1.50 | 0.986 | mg/L | 04.14.2019 14:02 | | 1 |
| **Diesel Range Organics** | C10C28DRO | **1.82** | 1.50 | 0.911 | mg/L | 04.14.2019 14:02 | | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.14.2019 14:02 | U | 1 |
| **Total TPH** | PHC635 | **5.83** | 1.50 | 0.911 | mg/L | 04.14.2019 14:02 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 95 | 70 - 135 | % | | |
| o-Terphenyl | 95 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085319 Date Prep: 04.10.2019 16:30

Prep seq: 7675537

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **0.981** | 0.0200 | 0.00408 | mg/L | 04.11.2019 04:21 | | 10 |
| Toluene | 108-88-3 | <0.00367 | 0.0200 | 0.00367 | mg/L | 04.11.2019 04:21 | U | 10 |
| **Ethylbenzene** | 100-41-4 | **0.0709** | 0.0200 | 0.00657 | mg/L | 04.11.2019 04:21 | | 10 |
| m,p-Xylenes | 179601-23-1 | <0.00630 | 0.0400 | 0.00630 | mg/L | 04.11.2019 04:21 | U | 10 |
| o-Xylene | 95-47-6 | <0.00642 | 0.0200 | 0.00642 | mg/L | 04.11.2019 04:21 | U | 10 |
| Total Xylenes | 1330-20-7 | <0.00630 | 0.0200 | 0.00630 | mg/L | 04.11.2019 04:21 | U | 10 |
| **Total BTEX** | | **1.05** | 0.0200 | 0.00367 | mg/L | 04.11.2019 04:21 | | 10 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 97 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 91 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620257
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-25** Matrix: Water Sample Depth:

Lab Sample Id: 620257-002 Date Collected: 04.05.2019 09:21 Date Received: 04.05.2019 17:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085303 Date Prep: 04.09.2019 10:40

Prep seq: 7675334

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **1240** | 25.0 | 4.29 | mg/L | 04.10.2019 20:34 | | 50 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085169 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **4230** | 5.00 | 5.00 | mg/L | 04.09.2019 15:43 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085335 Date Prep: 04.11.2019 08:50

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675519

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.00145** | 0.00400 | 0.000246 | mg/L | 04.11.2019 14:00 | J | 1 |
| **Chromium** | 7440-47-3 | **0.00163** | 0.00400 | 0.000525 | mg/L | 04.11.2019 14:00 | J | 1 |
| **Barium** | 7440-39-3 | **1.21** | 0.00400 | 0.000484 | mg/L | 04.11.2019 14:00 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3085074 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.05.2019 19:00 | U | 1 |

# Certificate of Analytical Results
## 620257

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **MW-25** Matrix: Water Sample Depth:

Lab Sample Id: 620257-002 Date Collected: 04.05.2019 09:21 Date Received: 04.05.2019 17:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085705 Date Prep: 04.14.2019 08:00

Prep seq: 7675752

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Gasoline Range Hydrocarbons** | PHC610 | **5.95** | 1.50 | 0.986 | mg/L | 04.14.2019 14:22 | | 1 |
| **Diesel Range Organics** | C10C28DRO | **3.52** | 1.50 | 0.911 | mg/L | 04.14.2019 14:22 | | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.14.2019 14:22 | U | 1 |
| **Total TPH** | PHC635 | **9.47** | 1.50 | 0.911 | mg/L | 04.14.2019 14:22 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 93 | 70 - 135 | % | | |
| o-Terphenyl | 92 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085319 Date Prep: 04.10.2019 16:30

Prep seq: 7675537

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **14.1** | 0.200 | 0.0408 | mg/L | 04.11.2019 22:12 | D | 100 |
| **Toluene** | 108-88-3 | **0.00325** | 0.00200 | 0.000367 | mg/L | 04.11.2019 03:37 | | 1 |
| **Ethylbenzene** | 100-41-4 | **0.0232** | 0.00200 | 0.000657 | mg/L | 04.11.2019 03:37 | | 1 |
| **m,p-Xylenes** | 179601-23-1 | **0.0114** | 0.00400 | 0.000630 | mg/L | 04.11.2019 03:37 | | 1 |
| **o-Xylene** | 95-47-6 | **0.00296** | 0.00200 | 0.000642 | mg/L | 04.11.2019 03:37 | | 1 |
| **Total Xylenes** | 1330-20-7 | **0.0144** | 0.00200 | 0.000630 | mg/L | 04.11.2019 03:37 | | 1 |
| **Total BTEX** | | **14.1** | 0.00200 | 0.000367 | mg/L | 04.11.2019 22:12 | | 100 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 123 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 114 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620257
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **TMW-6** Matrix: Water Sample Depth:

Lab Sample Id: 620257-003 Date Collected: 04.05.2019 09:51 Date Received: 04.05.2019 17:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085303 Date Prep: 04.09.2019 10:40

Prep seq: 7675334

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **236** | 5.00 | 0.858 | mg/L | 04.10.2019 20:40 | | 10 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085169 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1430** | 5.00 | 5.00 | mg/L | 04.09.2019 15:43 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085335 Date Prep: 04.11.2019 08:50

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675519

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0647** | 0.00400 | 0.000246 | mg/L | 04.11.2019 14:03 | | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 04.11.2019 14:03 | U | 1 |
| **Barium** | 7440-39-3 | **1.98** | 0.00400 | 0.000484 | mg/L | 04.11.2019 14:03 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3085074 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.05.2019 19:00 | U | 1 |

# Certificate of Analytical Results
## 620257
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **TMW-6** Matrix: Water Sample Depth:

Lab Sample Id: 620257-003 Date Collected: 04.05.2019 09:51 Date Received: 04.05.2019 17:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085705 Date Prep: 04.14.2019 08:00

Prep seq: 7675752

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Gasoline Range Hydrocarbons** | PHC610 | **3.72** | 1.50 | 0.987 | mg/L | 04.14.2019 14:42 | | 1 |
| **Diesel Range Organics** | C10C28DRO | **2.50** | 1.50 | 0.911 | mg/L | 04.14.2019 14:42 | | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.14.2019 14:42 | U | 1 |
| **Total TPH** | PHC635 | **6.22** | 1.50 | 0.911 | mg/L | 04.14.2019 14:42 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 107 | 70 - 135 | % | | |
| o-Terphenyl | 107 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085319 Date Prep: 04.10.2019 16:30

Prep seq: 7675537

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **0.104** | 0.0200 | 0.00408 | mg/L | 04.11.2019 03:59 | | 10 |
| Toluene | 108-88-3 | <0.00367 | 0.0200 | 0.00367 | mg/L | 04.11.2019 03:59 | U | 10 |
| **Ethylbenzene** | 100-41-4 | **0.0425** | 0.0200 | 0.00657 | mg/L | 04.11.2019 03:59 | | 10 |
| m,p-Xylenes | 179601-23-1 | <0.00630 | 0.0400 | 0.00630 | mg/L | 04.11.2019 03:59 | U | 10 |
| o-Xylene | 95-47-6 | <0.00642 | 0.0200 | 0.00642 | mg/L | 04.11.2019 03:59 | U | 10 |
| Total Xylenes | 1330-20-7 | <0.00630 | 0.0200 | 0.00630 | mg/L | 04.11.2019 03:59 | U | 10 |
| **Total BTEX** | | **0.147** | 0.0200 | 0.00367 | mg/L | 04.11.2019 03:59 | | 10 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 94 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 94 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620257

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **MW-3** Matrix: Water Sample Depth:

Lab Sample Id: 620257-004 Date Collected: 04.05.2019 10:18 Date Received: 04.05.2019 17:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085303 Date Prep: 04.09.2019 10:40

Prep seq: 7675334

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **67.7** | 2.50 | 0.429 | mg/L | 04.10.2019 20:47 | | 5 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085169 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **344** | 5.00 | 5.00 | mg/L | 04.09.2019 15:43 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085335 Date Prep: 04.11.2019 08:50

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675519

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0160** | 0.00400 | 0.000246 | mg/L | 04.11.2019 14:06 | | 1 |
| **Chromium** | 7440-47-3 | **0.00111** | 0.00400 | 0.000525 | mg/L | 04.11.2019 14:06 | J | 1 |
| **Barium** | 7440-39-3 | **0.0562** | 0.00400 | 0.000484 | mg/L | 04.11.2019 14:06 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3085074 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.05.2019 19:00 | U | 1 |

# Certificate of Analytical Results
## 620257

## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-3** Matrix: Water Sample Depth:

Lab Sample Id: 620257-004 Date Collected: 04.05.2019 10:18 Date Received: 04.05.2019 17:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085705 Date Prep: 04.14.2019 08:00

Prep seq: 7675752

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.987 | 1.50 | 0.987 | mg/L | 04.14.2019 15:03 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.912 | 1.50 | 0.912 | mg/L | 04.14.2019 15:03 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.912 | 1.50 | 0.912 | mg/L | 04.14.2019 15:03 | U | 1 |
| Total TPH | PHC635 | <0.912 | 1.50 | 0.912 | mg/L | 04.14.2019 15:03 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 104 | 70 - 135 | % | | |
| o-Terphenyl | 104 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085319 Date Prep: 04.10.2019 16:30

Prep seq: 7675537

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 04.11.2019 06:58 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.11.2019 06:58 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.11.2019 06:58 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.11.2019 06:58 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.11.2019 06:58 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.11.2019 06:58 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.11.2019 06:58 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 90 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 90 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620257
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MWD-11** Matrix: Water Sample Depth:

Lab Sample Id: 620257-005 Date Collected: 04.05.2019 10:57 Date Received: 04.05.2019 17:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085303 Date Prep: 04.09.2019 10:40

Prep seq: 7675334

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **80.2** | 2.50 | 0.429 | mg/L | 04.10.2019 20:54 | | 5 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085169 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **736** | 5.00 | 5.00 | mg/L | 04.09.2019 15:43 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085335 Date Prep: 04.11.2019 08:50

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675519

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0198** | 0.00400 | 0.000246 | mg/L | 04.11.2019 14:09 | | 1 |
| **Chromium** | 7440-47-3 | **0.00113** | 0.00400 | 0.000525 | mg/L | 04.11.2019 14:09 | J | 1 |
| **Barium** | 7440-39-3 | **0.0466** | 0.00400 | 0.000484 | mg/L | 04.11.2019 14:09 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3085074 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.05.2019 19:00 | U | 1 |

# Certificate of Analytical Results
## 620257
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MWD-11** Matrix: Water Sample Depth:

Lab Sample Id: 620257-005 Date Collected: 04.05.2019 10:57 Date Received: 04.05.2019 17:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085705 Date Prep: 04.14.2019 08:00

Prep seq: 7675752

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.987 | 1.50 | 0.987 | mg/L | 04.14.2019 15:22 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.14.2019 15:22 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.14.2019 15:22 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.50 | 0.911 | mg/L | 04.14.2019 15:22 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 103 | 70 - 135 | % | | |
| o-Terphenyl | 104 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085319 Date Prep: 04.10.2019 16:30

Prep seq: 7675537

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 04.11.2019 07:17 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.11.2019 07:17 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.11.2019 07:17 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.11.2019 07:17 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.11.2019 07:17 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.11.2019 07:17 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.11.2019 07:17 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 91 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 89 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620257
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **TMW-1** Matrix: Water Sample Depth:

Lab Sample Id: 620257-006 Date Collected: 04.05.2019 11:30 Date Received: 04.05.2019 17:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085303 Date Prep: 04.09.2019 10:40

Prep seq: 7675334

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **450** | 5.00 | 0.858 | mg/L | 04.10.2019 21:01 | | 10 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085169 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1320** | 5.00 | 5.00 | mg/L | 04.09.2019 15:43 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085335 Date Prep: 04.11.2019 08:50

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675519

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0167** | 0.00400 | 0.000246 | mg/L | 04.11.2019 14:12 | | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 04.11.2019 14:12 | U | 1 |
| **Barium** | 7440-39-3 | **2.03** | 0.0800 | 0.00967 | mg/L | 04.11.2019 16:54 | ~~D~~ | 20 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3085074 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.05.2019 19:00 | U | 1 |

# Certificate of Analytical Results
## 620257

## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **TMW-1** Matrix: Water Sample Depth:

Lab Sample Id: 620257-006 Date Collected: 04.05.2019 11:30 Date Received: 04.05.2019 17:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085705 Date Prep: 04.14.2019 08:00

Prep seq: 7675752

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.986 | 1.50 | 0.986 | mg/L | 04.14.2019 15:42 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.14.2019 15:42 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.14.2019 15:42 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.50 | 0.911 | mg/L | 04.14.2019 15:42 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 119 | 70 - 135 | % | | |
| o-Terphenyl | 120 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085319 Date Prep: 04.10.2019 16:30

Prep seq: 7675537

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **0.0320** | 0.00200 | 0.000408 | mg/L | 04.11.2019 08:52 | | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.11.2019 08:52 | U | 1 |
| **Ethylbenzene** | 100-41-4 | **0.00524** | 0.00200 | 0.000657 | mg/L | 04.11.2019 08:52 | | 1 |
| **m,p-Xylenes** | 179601-23-1 | **0.0114** | 0.00400 | 0.000630 | mg/L | 04.11.2019 08:52 | | 1 |
| **o-Xylene** | 95-47-6 | **0.000900** | 0.00200 | 0.000642 | mg/L | 04.11.2019 08:52 | J | 1 |
| **Total Xylenes** | 1330-20-7 | **0.0123** | 0.00200 | 0.000630 | mg/L | 04.11.2019 08:52 | | 1 |
| **Total BTEX** | | **0.0495** | 0.00200 | 0.000367 | mg/L | 04.11.2019 08:52 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 93 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 91 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620257
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **DUP6** Matrix: Water Sample Depth:

Lab Sample Id: 620257-007 Date Collected: 04.05.2019 00:00 Date Received: 04.05.2019 17:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085303 Date Prep: 04.09.2019 10:40

Prep seq: 7675334

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **503** | 5.00 | 0.858 | mg/L | 04.10.2019 21:08 | | 10 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085169 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1310** | 5.00 | 5.00 | mg/L | 04.09.2019 15:43 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085335 Date Prep: 04.11.2019 08:50

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675519

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0169** | 0.00400 | 0.000246 | mg/L | 04.11.2019 14:14 | | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 04.11.2019 14:14 | U | 1 |
| **Barium** | 7440-39-3 | **2.08** | 0.0800 | 0.00967 | mg/L | 04.11.2019 16:57 | ~~D~~ | 20 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3085074 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.05.2019 19:00 | U | 1 |

# Certificate of Analytical Results
## 620257

## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **DUP6** Matrix: Water Sample Depth:

Lab Sample Id: 620257-007 Date Collected: 04.05.2019 00:00 Date Received: 04.05.2019 17:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085705 Date Prep: 04.14.2019 08:00

Prep seq: 7675752

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.986 | 1.50 | 0.986 | mg/L | 04.14.2019 16:02 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.14.2019 16:02 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.14.2019 16:02 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.50 | 0.911 | mg/L | 04.14.2019 16:02 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 96 | 70 - 135 | % | | |
| o-Terphenyl | 96 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085319 Date Prep: 04.10.2019 16:30

Prep seq: 7675537

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **0.0308** | 0.00200 | 0.000408 | mg/L | 04.11.2019 07:37 | | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.11.2019 07:37 | U | 1 |
| **Ethylbenzene** | 100-41-4 | **0.00475** | 0.00200 | 0.000657 | mg/L | 04.11.2019 07:37 | | 1 |
| **m,p-Xylenes** | 179601-23-1 | **0.0111** | 0.00400 | 0.000630 | mg/L | 04.11.2019 07:37 | | 1 |
| **o-Xylene** | 95-47-6 | **0.000790** | 0.00200 | 0.000642 | mg/L | 04.11.2019 07:37 | J | 1 |
| **Total Xylenes** | 1330-20-7 | **0.0119** | 0.00200 | 0.000630 | mg/L | 04.11.2019 07:37 | | 1 |
| **Total BTEX** | | **0.0474** | 0.00200 | 0.000367 | mg/L | 04.11.2019 07:37 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 92 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 92 | 70 - 130 | % | | |

# Analytical Report 619806

## for

## ARCADIS

**Project Manager: Brett Krehbiel**

**S. Eunice**

**B0048789**

**08.08.2019**

Collected By: Client

**1211 W. Florida Ave**
**Midland TX 79701**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-19-29), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142), North Carolina (681)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-19-19), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-18-14)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-19-20)
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-Atlanta (LELAP Lab ID #04176)
Xenco-Tampa: Florida (E87429), North Carolina (483)

08.08.2019

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

Reference: XENCO Report No(s): **619806**
**S. Eunice**
Project Address: Eunice, NM

**Brett Krehbiel**:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 619806. 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. 619806 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,



**John Builes**
Project Manager

*A Small Business and Minority Company*

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

# Sample Cross Reference 619806

## ARCADIS, Midland, TX

S. Eunice

| Sample Id | Matrix | Date Collected | Sample Depth | Lab Sample Id |
|---|---|---|---|---|
| MW-15 | W | 04.02.2019 10:21 | | 619806-001 |
| MW-16 | W | 04.02.2019 10:45 | | 619806-002 |
| MW-36 | W | 04.02.2019 11:30 | | 619806-003 |
| MW-35 | W | 04.02.2019 11:56 | | 619806-004 |
| MW-13 | W | 04.02.2019 13:49 | | 619806-005 |
| MW-37 | W | 04.02.2019 14:16 | | 619806-006 |
| MW-38 | W | 04.02.2019 14:40 | | 619806-007 |
| MW-34 | W | 04.02.2019 13:50 | | 619806-008 |
| MWD-6 | W | 04.02.2019 14:28 | | 619806-009 |

# CASE NARRATIVE

***Client Name: ARCADIS***

***Project Name: S. Eunice***

Project ID: *B0048789*
Work Order Number(s): *619806*

Report Date: *08.08.2019*
Date Received: *04.02.2019*

This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory.

**Sample receipt non conformances and comments:**

1.001. Corrected the sampling time for sample 619806-007.

**Sample receipt non conformances and comments per sample:**

None

# Certificate of Analytical Results
## 619806
## ARCADIS, Midland, TX
S. Eunice

Sample Id: **MW-15** Matrix: Water Sample Depth:

Lab Sample Id: 619806-001 Date Collected: 04.02.2019 10:21 Date Received: 04.02.2019 18:30

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3084471 Date Prep: 04.03.2019 14:00

Prep seq: 7674980

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **1960** | 25.0 | 4.29 | mg/L | 04.03.2019 18:37 | | 50 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3084993 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **3840** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3084971 Date Prep: 04.08.2019 10:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675214

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0142** | 0.00400 | 0.000246 | mg/L | 04.08.2019 16:25 | | 1 |
| **Chromium** | 7440-47-3 | **0.00109** | 0.00400 | 0.000525 | mg/L | 04.08.2019 16:25 | J | 1 |
| **Barium** | 7440-39-3 | **0.0452** | 0.00400 | 0.000484 | mg/L | 04.08.2019 16:25 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3084508 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.03.2019 09:58 | U | 1 |

# Certificate of Analytical Results
## 619806
## ARCADIS, Midland, TX
S. Eunice

Sample Id: **MW-15** Matrix: Water Sample Depth:

Lab Sample Id: 619806-001 Date Collected: 04.02.2019 10:21 Date Received: 04.02.2019 18:30

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085311 Date Prep: 04.10.2019 07:00

Prep seq: 7675488

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.986 | 1.50 | 0.986 | mg/L | 04.10.2019 11:55 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 11:55 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 11:55 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 11:55 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 92 | 70 - 135 | % | | |
| o-Terphenyl | 92 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3084919 Date Prep: 04.05.2019 17:00

Prep seq: 7675278

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **0.00102** | 0.00200 | 0.000408 | mg/L | 04.06.2019 04:26 | J | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.06.2019 04:26 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.06.2019 04:26 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.06.2019 04:26 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.06.2019 04:26 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.06.2019 04:26 | U | 1 |
| **Total BTEX** | | **0.00102** | 0.00200 | 0.000367 | mg/L | 04.06.2019 04:26 | J | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 106 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 92 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 619806
## ARCADIS, Midland, TX
S. Eunice

Sample Id: **MW-16** Matrix: Water Sample Depth:

Lab Sample Id: 619806-002 Date Collected: 04.02.2019 10:45 Date Received: 04.02.2019 18:30

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3084471 Date Prep: 04.03.2019 14:00

Prep seq: 7674980

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **1780** | 25.0 | 4.29 | mg/L | 04.03.2019 18:42 | | 50 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3084993 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **3760** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3084971 Date Prep: 04.08.2019 10:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675214

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0136** | 0.00400 | 0.000246 | mg/L | 04.08.2019 17:15 | | 1 |
| **Chromium** | 7440-47-3 | **0.111** | 0.00400 | 0.000525 | mg/L | 04.08.2019 17:15 | | 1 |
| **Barium** | 7440-39-3 | **0.0417** | 0.00400 | 0.000484 | mg/L | 04.08.2019 17:15 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3084508 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chromium, Hexavalent** | 18540-29-9 | **0.0976** | 0.0100 | 0.00273 | mg/L | 04.03.2019 09:58 | | 1 |

# Certificate of Analytical Results
## 619806
## ARCADIS, Midland, TX
S. Eunice

Sample Id: **MW-16** Matrix: Water Sample Depth:

Lab Sample Id: 619806-002 Date Collected: 04.02.2019 10:45 Date Received: 04.02.2019 18:30

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085311 Date Prep: 04.10.2019 07:00

Prep seq: 7675488

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.987 | 1.50 | 0.987 | mg/L | 04.10.2019 12:53 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.912 | 1.50 | 0.912 | mg/L | 04.10.2019 12:53 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.912 | 1.50 | 0.912 | mg/L | 04.10.2019 12:53 | U | 1 |
| Total TPH | PHC635 | <0.912 | 1.50 | 0.912 | mg/L | 04.10.2019 12:53 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 94 | 70 - 135 | % | | |
| o-Terphenyl | 94 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3084919 Date Prep: 04.05.2019 17:00

Prep seq: 7675278

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 04.06.2019 04:46 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.06.2019 04:46 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.06.2019 04:46 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.06.2019 04:46 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.06.2019 04:46 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.06.2019 04:46 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.06.2019 04:46 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 107 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 96 | 70 - 130 | % | | |





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# Certificate of Analytical Results
## 619806
## ARCADIS, Midland, TX
S. Eunice

Sample Id: **MW-36** Matrix: Water Sample Depth:

Lab Sample Id: 619806-003 Date Collected: 04.02.2019 11:30 Date Received: 04.02.2019 18:30

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3084471 Date Prep: 04.03.2019 14:00

Prep seq: 7674980

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **406** | 5.00 | 0.858 | mg/L | 04.03.2019 19:05 | | 10 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3084993 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1180** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3084971 Date Prep: 04.08.2019 10:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675214

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0103** | 0.00400 | 0.000246 | mg/L | 04.08.2019 17:18 | | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 04.08.2019 17:18 | U | 1 |
| **Barium** | 7440-39-3 | **0.107** | 0.00400 | 0.000484 | mg/L | 04.08.2019 17:18 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3084508 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.03.2019 09:58 | U | 1 |





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# Certificate of Analytical Results
## 619806
## ARCADIS, Midland, TX
S. Eunice

Sample Id: **MW-36** Matrix: Water Sample Depth:

Lab Sample Id: 619806-003 Date Collected: 04.02.2019 11:30 Date Received: 04.02.2019 18:30

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085311 Date Prep: 04.10.2019 07:00

Prep seq: 7675488

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.986 | 1.50 | 0.986 | mg/L | 04.10.2019 13:12 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 13:12 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 13:12 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 13:12 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 92 | 70 - 135 | % | | |
| o-Terphenyl | 90 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3084919 Date Prep: 04.05.2019 17:00

Prep seq: 7675278

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 04.06.2019 05:05 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.06.2019 05:05 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.06.2019 05:05 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.06.2019 05:05 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.06.2019 05:05 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.06.2019 05:05 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.06.2019 05:05 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 106 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 93 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 619806
## ARCADIS, Midland, TX
S. Eunice

Sample Id: **MW-35** Matrix: Water Sample Depth:

Lab Sample Id: 619806-004 Date Collected: 04.02.2019 11:56 Date Received: 04.02.2019 18:30

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3084471 Date Prep: 04.03.2019 14:00

Prep seq: 7674980

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **321** | 5.00 | 0.858 | mg/L | 04.03.2019 19:11 | | 10 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3084993 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1100** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3084971 Date Prep: 04.08.2019 10:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675214

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0166** | 0.00400 | 0.000246 | mg/L | 04.08.2019 17:20 | | 1 |
| **Chromium** | 7440-47-3 | **0.000714** | 0.00400 | 0.000525 | mg/L | 04.08.2019 17:20 | J | 1 |
| **Barium** | 7440-39-3 | **0.0775** | 0.00400 | 0.000484 | mg/L | 04.08.2019 17:20 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3084508 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.03.2019 09:58 | U | 1 |

# Certificate of Analytical Results
## 619806
## ARCADIS, Midland, TX
S. Eunice

Sample Id: **MW-35** Matrix: Water Sample Depth:

Lab Sample Id: 619806-004 Date Collected: 04.02.2019 11:56 Date Received: 04.02.2019 18:30

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085311 Date Prep: 04.10.2019 07:00

Prep seq: 7675488

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.987 | 1.50 | 0.987 | mg/L | 04.10.2019 13:31 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 13:31 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 13:31 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 13:31 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 99 | 70 - 135 | % | | |
| o-Terphenyl | 98 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3084919 Date Prep: 04.05.2019 17:00

Prep seq: 7675278

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 04.06.2019 06:42 | U | 1 |
| **Toluene** | 108-88-3 | **0.000440** | 0.00200 | 0.000367 | mg/L | 04.06.2019 06:42 | J | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.06.2019 06:42 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.06.2019 06:42 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.06.2019 06:42 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.06.2019 06:42 | U | 1 |
| **Total BTEX** | | **0.000440** | 0.00200 | 0.000367 | mg/L | 04.06.2019 06:42 | J | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 107 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 91 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 619806
## ARCADIS, Midland, TX
S. Eunice

Sample Id: **MW-13** Matrix: Water Sample Depth:

Lab Sample Id: 619806-005 Date Collected: 04.02.2019 13:49 Date Received: 04.02.2019 18:30

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3084471 Date Prep: 04.03.2019 14:00

Prep seq: 7674980

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **349** | 5.00 | 0.858 | mg/L | 04.03.2019 19:28 | | 10 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3084993 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1060** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3084971 Date Prep: 04.08.2019 10:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675214

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0139** | 0.00400 | 0.000246 | mg/L | 04.08.2019 17:23 | | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 04.08.2019 17:23 | U | 1 |
| **Barium** | 7440-39-3 | **0.0935** | 0.00400 | 0.000484 | mg/L | 04.08.2019 17:23 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3084508 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.03.2019 09:58 | U | 1 |

# Certificate of Analytical Results
## 619806
## ARCADIS, Midland, TX
S. Eunice

Sample Id: **MW-13** Matrix: Water Sample Depth:

Lab Sample Id: 619806-005 Date Collected: 04.02.2019 13:49 Date Received: 04.02.2019 18:30

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085311 Date Prep: 04.10.2019 07:00

Prep seq: 7675488

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.986 | 1.50 | 0.986 | mg/L | 04.10.2019 13:50 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 13:50 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 13:50 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 13:50 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 92 | 70 - 135 | % | | |
| o-Terphenyl | 93 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3084919 Date Prep: 04.05.2019 17:00

Prep seq: 7675278

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 04.06.2019 05:25 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.06.2019 05:25 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.06.2019 05:25 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.06.2019 05:25 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.06.2019 05:25 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.06.2019 05:25 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.06.2019 05:25 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 107 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 97 | 70 - 130 | % | | |



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# Certificate of Analytical Results
## 619806
## ARCADIS, Midland, TX
S. Eunice

Sample Id: **MW-37** Matrix: Water Sample Depth:

Lab Sample Id: 619806-006 Date Collected: 04.02.2019 14:16 Date Received: 04.02.2019 18:30

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3084471 Date Prep: 04.03.2019 14:00

Prep seq: 7674980

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **336** | 5.00 | 0.858 | mg/L | 04.03.2019 19:34 | | 10 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3084993 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1100** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3084971 Date Prep: 04.08.2019 10:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675214

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.00678** | 0.00400 | 0.000246 | mg/L | 04.08.2019 17:26 | | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 04.08.2019 17:26 | U | 1 |
| **Barium** | 7440-39-3 | **0.223** | 0.00400 | 0.000484 | mg/L | 04.08.2019 17:26 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3084508 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.03.2019 09:58 | U | 1 |

# Certificate of Analytical Results
## 619806
## ARCADIS, Midland, TX
S. Eunice

Sample Id: **MW-37** Matrix: Water Sample Depth:

Lab Sample Id: 619806-006 Date Collected: 04.02.2019 14:16 Date Received: 04.02.2019 18:30

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085311 Date Prep: 04.10.2019 07:00

Prep seq: 7675488

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.986 | 1.50 | 0.986 | mg/L | 04.10.2019 14:10 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 14:10 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 14:10 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 14:10 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 91 | 70 - 135 | % | | |
| o-Terphenyl | 91 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3084919 Date Prep: 04.05.2019 17:00

Prep seq: 7675278

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 04.06.2019 06:23 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.06.2019 06:23 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.06.2019 06:23 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.06.2019 06:23 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.06.2019 06:23 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.06.2019 06:23 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.06.2019 06:23 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 107 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 93 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 619806
## ARCADIS, Midland, TX
S. Eunice

Sample Id: **MW-38** Matrix: Water Sample Depth:

Lab Sample Id: 619806-007 Date Collected: 04.02.2019 14:40 Date Received: 04.02.2019 18:30

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3084471 Date Prep: 04.03.2019 14:00

Prep seq: 7674980

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **614** | 10.0 | 1.72 | mg/L | 04.03.2019 19:39 | | 20 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3084993 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1870** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3084971 Date Prep: 04.08.2019 10:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675214

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0273** | 0.00400 | 0.000246 | mg/L | 04.08.2019 17:29 | | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 04.08.2019 17:29 | U | 1 |
| **Barium** | 7440-39-3 | **0.102** | 0.00400 | 0.000484 | mg/L | 04.08.2019 17:29 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3084508 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.03.2019 09:58 | U | 1 |

# Certificate of Analytical Results
## 619806
## ARCADIS, Midland, TX
S. Eunice

Sample Id: **MW-38** Matrix: Water Sample Depth:

Lab Sample Id: 619806-007 Date Collected: 04.02.2019 14:40 Date Received: 04.02.2019 18:30

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085311 Date Prep: 04.10.2019 07:00

Prep seq: 7675488

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.986 | 1.50 | 0.986 | mg/L | 04.10.2019 14:29 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 14:29 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 14:29 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 14:29 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 91 | 70 - 135 | % | | |
| o-Terphenyl | 92 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3084919 Date Prep: 04.05.2019 17:00

Prep seq: 7675278

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 04.06.2019 05:44 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.06.2019 05:44 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.06.2019 05:44 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.06.2019 05:44 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.06.2019 05:44 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.06.2019 05:44 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.06.2019 05:44 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 106 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 96 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 619806
## ARCADIS, Midland, TX
S. Eunice

Sample Id: **MW-34** Matrix: Water Sample Depth:

Lab Sample Id: 619806-008 Date Collected: 04.02.2019 13:50 Date Received: 04.02.2019 18:30

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3084471 Date Prep: 04.03.2019 14:00

Prep seq: 7674980

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **286** | 10.0 | 1.72 | mg/L | 04.03.2019 19:45 | | 20 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3084993 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1680** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3084971 Date Prep: 04.08.2019 10:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675214

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.00180** | 0.00400 | 0.000246 | mg/L | 04.08.2019 17:32 | J | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 04.08.2019 17:32 | U | 1 |
| **Barium** | 7440-39-3 | **5.30** | 0.200 | 0.0242 | mg/L | 04.09.2019 13:57 | D | 50 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3084508 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.03.2019 09:58 | U | 1 |

# Certificate of Analytical Results
## 619806
## ARCADIS, Midland, TX
S. Eunice

Sample Id: **MW-34** Matrix: Water Sample Depth:

Lab Sample Id: 619806-008 Date Collected: 04.02.2019 13:50 Date Received: 04.02.2019 18:30

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085311 Date Prep: 04.10.2019 07:00

Prep seq: 7675488

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Gasoline Range Hydrocarbons** | PHC610 | **1.33** | 1.50 | 0.986 | mg/L | 04.10.2019 14:48 | J | 1 |
| **Diesel Range Organics** | C10C28DRO | **0.937** | 1.50 | 0.911 | mg/L | 04.10.2019 14:48 | J | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 14:48 | U | 1 |
| **Total TPH** | PHC635 | **2.27** | 1.50 | 0.911 | mg/L | 04.10.2019 14:48 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 84 | 70 - 135 | % | | |
| o-Terphenyl | 83 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3084919 Date Prep: 04.05.2019 17:00

Prep seq: 7675278

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **0.0989** | 0.00200 | 0.000408 | mg/L | 04.06.2019 07:01 | | 1 |
| **Toluene** | 108-88-3 | **0.000770** | 0.00200 | 0.000367 | mg/L | 04.06.2019 07:01 | J | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.06.2019 07:01 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.06.2019 07:01 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.06.2019 07:01 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.06.2019 07:01 | U | 1 |
| **Total BTEX** | | **0.0997** | 0.00200 | 0.000367 | mg/L | 04.06.2019 07:01 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 113 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 92 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 619806
## ARCADIS, Midland, TX
S. Eunice

Sample Id: **MWD-6** Matrix: Water Sample Depth:

Lab Sample Id: 619806-009 Date Collected: 04.02.2019 14:28 Date Received: 04.02.2019 18:30

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3084471 Date Prep: 04.03.2019 14:00

Prep seq: 7674980

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **202** | 5.00 | 0.858 | mg/L | 04.03.2019 19:51 | | 10 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3084993 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1220** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3084971 Date Prep: 04.08.2019 10:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675214

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.00474** | 0.00400 | 0.000246 | mg/L | 04.08.2019 17:35 | | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 04.08.2019 17:35 | U | 1 |
| **Barium** | 7440-39-3 | **3.77** | 0.200 | 0.0242 | mg/L | 04.09.2019 14:00 | D | 50 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3084508 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.03.2019 09:58 | U | 1 |

# Certificate of Analytical Results
## 619806
## ARCADIS, Midland, TX
S. Eunice

Sample Id: **MWD-6** Matrix: Water Sample Depth:

Lab Sample Id: 619806-009 Date Collected: 04.02.2019 14:28 Date Received: 04.02.2019 18:30

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085311 Date Prep: 04.10.2019 07:00

Prep seq: 7675488

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.986 | 1.50 | 0.986 | mg/L | 04.10.2019 15:08 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 15:08 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 15:08 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 15:08 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 90 | 70 - 135 | % | | |
| o-Terphenyl | 91 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3084919 Date Prep: 04.05.2019 17:00

Prep seq: 7675278

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **0.00214** | 0.00200 | 0.000408 | mg/L | 04.06.2019 06:03 | | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.06.2019 06:03 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.06.2019 06:03 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.06.2019 06:03 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.06.2019 06:03 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.06.2019 06:03 | U | 1 |
| **Total BTEX** | | **0.00214** | 0.00200 | 0.000367 | mg/L | 04.06.2019 06:03 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 108 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 92 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 619806
## ARCADIS, Midland, TX
S. Eunice

Sample Id: **3084508-1-BLK** Matrix: Water Sample Depth:
Lab Sample Id: 3084508-1-BLK Date Collected: Date Received:
Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:
Analyst: SPC % Moist: Tech: SPC
Seq Number: 3084508 Date Prep:
Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.03.2019 09:58 | U | 1 |

Sample Id: **3084993-1-BLK** Matrix: Water Sample Depth:
Lab Sample Id: 3084993-1-BLK Date Collected: Date Received:
Analytical Method: TDS by SM2540C Prep Method:
Analyst: CHE % Moist: Tech: CHE
Seq Number: 3084993 Date Prep:
Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids | 1642222 | <5.00 | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | U | 1 |

Sample Id: **7674980-1-BLK** Matrix: Water Sample Depth:
Lab Sample Id: 7674980-1-BLK Date Collected: Date Received:
Analytical Method: Chloride by EPA 300 Prep Method: E300P
Analyst: CHE % Moist: Tech: CHE
Seq Number: 3084471 Date Prep: 04.03.2019 14:00
Prep seq: 7674980

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chloride | 16887-00-6 | <0.0858 | 0.500 | 0.0858 | mg/L | 04.03.2019 17:11 | U | 1 |

# Certificate of Analytical Results
## 619806
## ARCADIS, Midland, TX
S. Eunice

Sample Id: **7675214-1-BLK** Matrix: Water Sample Depth:

Lab Sample Id: 7675214-1-BLK Date Collected: Date Received:

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3084971 Date Prep: 04.08.2019 10:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675214

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Arsenic | 7440-38-2 | <0.000246 | 0.00400 | 0.000246 | mg/L | 04.08.2019 16:16 | U | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 04.08.2019 16:16 | U | 1 |
| Barium | 7440-39-3 | <0.000484 | 0.00400 | 0.000484 | mg/L | 04.08.2019 16:16 | U | 1 |

Sample Id: **7675278-1-BLK** Matrix: Water Sample Depth:

Lab Sample Id: 7675278-1-BLK Date Collected: Date Received:

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3084919 Date Prep: 04.05.2019 17:00

Prep seq: 7675278

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 04.06.2019 03:48 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.06.2019 03:48 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.06.2019 03:48 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.06.2019 03:48 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.06.2019 03:48 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.06.2019 03:48 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.06.2019 03:48 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 107 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 97 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 619806
## ARCADIS, Midland, TX
S. Eunice

Sample Id: **7675488-1-BLK** Matrix: Water Sample Depth:

Lab Sample Id: 7675488-1-BLK Date Collected: Date Received:

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085311 Date Prep: 04.10.2019 07:00

Prep seq: 7675488

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.987 | 1.50 | 0.987 | mg/L | 04.10.2019 10:58 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 10:58 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 10:58 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 10:58 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 107 | 70 - 135 | % | | |
| o-Terphenyl | 109 | 70 - 135 | % | | |

# 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



Released to Imaging: 6/14/2022 10:17:42 AM

# Form 2 - Surrogate Recoveries

**Project Name:** S. Eunice

**Work Orders :** 619806 **Project ID:** B0048789

**Lab Batch #:** 3084919 **Sample:** 7675278-1-BKS / BKS **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.06.2019 02:13 **SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0301 | 0.0300 | 100 | 70-130 | |
| 4-Bromofluorobenzene | 0.0290 | 0.0300 | 97 | 70-130 | |

**Lab Batch #:** 3084919 **Sample:** 7675278-1-BSD / BSD **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.06.2019 02:32 **SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0303 | 0.0300 | 101 | 70-130 | |
| 4-Bromofluorobenzene | 0.0288 | 0.0300 | 96 | 70-130 | |

**Lab Batch #:** 3084919 **Sample:** 619796-001 S / MS **Batch:** 1 **Matrix:** Ground Water

**Units:** mg/L **Date Analyzed:** 04.06.2019 02:52 **SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0288 | 0.0300 | 96 | 70-130 | |
| 4-Bromofluorobenzene | 0.0260 | 0.0300 | 87 | 70-130 | |

**Lab Batch #:** 3084919 **Sample:** 619796-001 SD / MSD **Batch:** 1 **Matrix:** Ground Water

**Units:** mg/L **Date Analyzed:** 04.06.2019 03:11 **SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0293 | 0.0300 | 98 | 70-130 | |
| 4-Bromofluorobenzene | 0.0263 | 0.0300 | 88 | 70-130 | |

**Lab Batch #:** 3084919 **Sample:** 7675278-1-BLK / BLK **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.06.2019 03:48 **SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0321 | 0.0300 | 107 | 70-130 | |
| 4-Bromofluorobenzene | 0.0291 | 0.0300 | 97 | 70-130 | |

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

# Form 2 - Surrogate Recoveries

**Project Name:** S. Eunice

**Work Orders :** 619806 **Project ID:** B0048789

**Lab Batch #:** 3085311 **Sample:** 7675488-1-BLK / BLK **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.10.2019 10:58 **SURROGATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 10.7 | 9.99 | 107 | 70-135 | |
| o-Terphenyl | 5.47 | 5.00 | 109 | 70-135 | |

**Lab Batch #:** 3085311 **Sample:** 7675488-1-BKS / BKS **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.10.2019 11:17 **SURROGATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 11.9 | 9.98 | 119 | 70-135 | |
| o-Terphenyl | 5.45 | 4.99 | 109 | 70-135 | |

**Lab Batch #:** 3085311 **Sample:** 7675488-1-BSD / BSD **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.10.2019 11:36 **SURROGATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 12.5 | 9.98 | 125 | 70-135 | |
| o-Terphenyl | 5.85 | 4.99 | 117 | 70-135 | |

**Lab Batch #:** 3085311 **Sample:** 619806-001 S / MS **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.10.2019 12:14 **SURROGATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 10.9 | 9.99 | 109 | 70-135 | |
| o-Terphenyl | 5.36 | 4.99 | 107 | 70-135 | |

**Lab Batch #:** 3085311 **Sample:** 619806-001 SD / MSD **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.10.2019 12:34 **SURROGATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 11.1 | 9.98 | 111 | 70-135 | |
| o-Terphenyl | 5.58 | 4.99 | 112 | 70-135 | |

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

# BS / BSD Recoveries

## Project Name: S. Eunice

**Work Order #:** 619806 **Project ID:** B0048789

**Analyst:** SCM **Date Prepared:** 04.05.2019 **Date Analyzed:** 04.06.2019

**Lab Batch ID:** 3084919 **Sample:** 7675278-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Blank Sample Result [A] | Spike Added [B] | Blank Spike Result [C] | Blank Spike %R [D] | Spike Added [E] | Blank Spike Duplicate Result [F] | Blk. Spk Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.000408 | 0.100 | 0.0875 | 88 | 0.100 | 0.0871 | 87 | 0 | 70-130 | 25 | |
| Toluene | <0.000367 | 0.100 | 0.0840 | 84 | 0.100 | 0.0837 | 84 | 0 | 70-130 | 25 | |
| Ethylbenzene | <0.000657 | 0.100 | 0.0847 | 85 | 0.100 | 0.0843 | 84 | 0 | 70-130 | 25 | |
| m,p-Xylenes | <0.000630 | 0.200 | 0.165 | 83 | 0.200 | 0.165 | 83 | 0 | 70-130 | 25 | |
| o-Xylene | <0.000642 | 0.100 | 0.0855 | 86 | 0.100 | 0.0855 | 86 | 0 | 70-130 | 25 | |

**Analyst:** CHE **Date Prepared:** 04.03.2019 **Date Analyzed:** 04.03.2019

**Lab Batch ID:** 3084471 **Sample:** 7674980-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| Chloride by EPA 300<br>Analytes | Blank Sample Result [A] | Spike Added [B] | Blank Spike Result [C] | Blank Spike %R [D] | Spike Added [E] | Blank Spike Duplicate Result [F] | Blk. Spk Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | <0.0858 | 25.0 | 24.7 | 99 | 25.0 | 25.0 | 100 | 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

# BS / BSD Recoveries

## Project Name: S. Eunice

**Work Order #:** 619806 **Project ID:** B0048789

**Analyst:** SPC **Date Prepared:** 04.03.2019 **Date Analyzed:** 04.03.2019

**Lab Batch ID:** 3084508 **Sample:** 3084508-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| Chromium, Hexavalent by SW 7196A<br>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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | <0.00273 | 0.0400 | 0.0404 | 101 | 0.0400 | 0.0405 | 101 | 0 | 85-115 | 20 | |

**Analyst:** DEP **Date Prepared:** 04.08.2019 **Date Analyzed:** 04.08.2019

**Lab Batch ID:** 3084971 **Sample:** 7675214-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| Dissolved Metals by SW6020A<br>Analytes | Blank Sample Result [A] | Spike Added [B] | Blank Spike Result [C] | Blank Spike %R [D] | Spike Added [E] | Blank Spike Duplicate Result [F] | Blk. Spk Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | <0.000246 | 0.100 | 0.0990 | 99 | 0.100 | 0.0987 | 99 | 0 | 80-120 | 20 | |
| Chromium | <0.000525 | 0.100 | 0.101 | 101 | 0.100 | 0.100 | 100 | 1 | 80-120 | 20 | |
| Barium | <0.000484 | 0.100 | 0.0957 | 96 | 0.100 | 0.0960 | 96 | 0 | 80-120 | 20 | |

**Analyst:** CHE **Date Prepared:** 04.06.2019 **Date Analyzed:** 04.06.2019

**Lab Batch ID:** 3084993 **Sample:** 3084993-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| TDS by SM2540C<br>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 | 919 | 92 | 1000 | 912 | 91 | 1 | 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

# BS / BSD Recoveries

## Project Name: S. Eunice

**Work Order #:** 619806 **Project ID:** B0048789

**Analyst:** ARM **Date Prepared:** 04.10.2019 **Date Analyzed:** 04.10.2019

**Lab Batch ID:** 3085311 **Sample:** 7675488-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

### BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

| TPH By SW8015 Mod<br>Analytes | Blank Sample Result [A] | Spike Added [B] | Blank Spike Result [C] | Blank Spike %R [D] | Spike Added [E] | Blank Spike Duplicate Result [F] | Blk. Spk Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | <0.986 | 99.8 | 101 | 101 | 99.8 | 104 | 104 | 3 | 70-135 | 20 | |
| Diesel Range Organics | <0.911 | 99.8 | 112 | 112 | 99.8 | 114 | 114 | 2 | 70-135 | 20 | |

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

# Form 3 - MS / MSD Recoveries

## Project Name: S. Eunice

**Work Order # :** 619806 **Project ID:** B0048789

**Lab Batch ID:** 3084919 **QC- Sample ID:** 619796-001 S **Batch #:** 1 **Matrix:** Ground Water

**Date Analyzed:** 04.06.2019 **Date Prepared:** 04.05.2019 **Analyst:** SCM

**Reporting Units:** mg/L

**MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Parent Sample Result [A] | Spike Added [B] | Spiked Sample Result [C] | Spiked Sample %R [D] | Spike Added [E] | Duplicate Spiked Sample Result [F] | Spiked Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.000408 | 0.100 | 0.0853 | 85 | 0.100 | 0.0875 | 88 | 3 | 70-130 | 25 | |
| Toluene | <0.000367 | 0.100 | 0.0835 | 84 | 0.100 | 0.0844 | 84 | 1 | 70-130 | 25 | |
| Ethylbenzene | <0.000657 | 0.100 | 0.0857 | 86 | 0.100 | 0.0857 | 86 | 0 | 70-130 | 25 | |
| m,p-Xylenes | <0.000630 | 0.200 | 0.166 | 83 | 0.200 | 0.166 | 83 | 0 | 70-130 | 25 | |
| o-Xylene | <0.000642 | 0.100 | 0.0827 | 83 | 0.100 | 0.0839 | 84 | 1 | 70-130 | 25 | |

**Lab Batch ID:** 3084471 **QC- Sample ID:** 619784-001 S **Batch #:** 1 **Matrix:** Drinking Water

**Date Analyzed:** 04.03.2019 **Date Prepared:** 04.03.2019 **Analyst:** CHE

**Reporting Units:** mg/L

**MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY**

| Chloride by EPA 300<br>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 | 16.3 | 25.0 | 41.6 | 101 | 25.0 | 41.8 | 102 | 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: S. Eunice

**Work Order # :** 619806 **Project ID:** B0048789

**Lab Batch ID:** 3084471 **QC- Sample ID:** 619785-001 S **Batch #:** 1 **Matrix:** Drinking Water

**Date Analyzed:** 04.03.2019 **Date Prepared:** 04.03.2019 **Analyst:** CHE

**Reporting Units:** mg/L

### MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

| Chloride by EPA 300<br>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 | 8.29 | 25.0 | 33.6 | 101 | 25.0 | 33.6 | 101 | 0 | 90-110 | 20 | |

**Lab Batch ID:** 3084508 **QC- Sample ID:** 619806-001 S **Batch #:** 1 **Matrix:** Water

**Date Analyzed:** 04.03.2019 **Date Prepared:** 04.03.2019 **Analyst:** SPC

**Reporting Units:** mg/L

### MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

| Chromium, Hexavalent by SW 7196A<br>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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | <0.00273 | 0.200 | 0.220 | 110 | 0.200 | 0.219 | 110 | 0 | 75-125 | 20 | |

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

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

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

# Form 3 - MS / MSD Recoveries

## Project Name: S. Eunice

**Work Order # :** 619806 **Project ID:** B0048789

**Lab Batch ID:** 3084971 **QC- Sample ID:** 619806-001 S **Batch #:** 1 **Matrix:** Water

**Date Analyzed:** 04.08.2019 **Date Prepared:** 04.08.2019 **Analyst:** DEP

**Reporting Units:** mg/L

### MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

| Dissolved Metals by SW6020A<br>Analytes | Parent Sample Result [A] | Spike Added [B] | Spiked Sample Result [C] | Spiked Sample %R [D] | Spike Added [E] | Duplicate Spiked Sample Result [F] | Spiked Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 0.0142 | 0.100 | 0.114 | 100 | 0.100 | 0.115 | 101 | 1 | 75-125 | 20 | |
| Chromium | 0.00109 | 0.100 | 0.101 | 100 | 0.100 | 0.104 | 103 | 3 | 75-125 | 20 | |
| Barium | 0.0452 | 0.100 | 0.144 | 99 | 0.100 | 0.145 | 100 | 1 | 75-125 | 20 | |

**Lab Batch ID:** 3085311 **QC- Sample ID:** 619806-001 S **Batch #:** 1 **Matrix:** Water

**Date Analyzed:** 04.10.2019 **Date Prepared:** 04.10.2019 **Analyst:** ARM

**Reporting Units:** mg/L

### MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

| TPH By SW8015 Mod<br>Analytes | Parent Sample Result [A] | Spike Added [B] | Spiked Sample Result [C] | Spiked Sample %R [D] | Spike Added [E] | Duplicate Spiked Sample Result [F] | Spiked Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | <0.986 | 99.9 | 84.3 | 84 | 99.8 | 86.3 | 86 | 2 | 70-135 | 20 | |
| Diesel Range Organics | <0.911 | 99.9 | 89.1 | 89 | 99.8 | 92.1 | 92 | 3 | 70-135 | 20 | |

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

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

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

# Method Duplicate



**Project Name: S. Eunice**

**Work Order #:** 619806

**Lab Batch #:** 3084993 **Project ID:** B0048789

**Date Analyzed:** 04.06.2019 14:00 **Date Prepared:** 04.06.2019 **Analyst:** CHE

**QC- Sample ID:** 619806-001 D **Batch #:** 1 **Matrix:** Water

**Reporting Units:** mg/L

**SAMPLE / SAMPLE DUPLICATE RECOVERY**

| TDS by SM2540C<br>Analyte | Parent Sample Result [A] | Sample Duplicate Result [B] | RPD | Control Limits %RPD | Flag |
|---|---|---|---|---|---|
| Total Dissolved Solids | 3840 | 4120 | 7 | 10 | |

**Lab Batch #:** 3084993

**Date Analyzed:** 04.06.2019 14:00 **Date Prepared:** 04.06.2019 **Analyst:** CHE

**QC- Sample ID:** 620013-002 D **Batch #:** 1 **Matrix:** Water

**Reporting Units:** mg/L

**SAMPLE / SAMPLE DUPLICATE RECOVERY**

| TDS by SM2540C<br>Analyte | Parent Sample Result [A] | Sample Duplicate Result [B] | RPD | Control Limits %RPD | Flag |
|---|---|---|---|---|---|
| Total Dissolved Solids | 1520 | 1550 | 2 | 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

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ID#:

# CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Page __/__ of __/__

Lab Work Order # 619806

**Send Results to:**

Contact & Company Name: Brent Rockhold / ARCADIS
Telephone: 916-786-5382
Address: 101 Creekside Ridge Court STE 200 Roseville, CA.
Fax:
City: Roseville State: CA Zip: 95678
E-mail Address:
Project Name/Location (City, State): Sitewide / Truth or Consequences NM
Project #: 30048789
Sampler's Printed Name: Jerry Sitonglewell
Sampler's Signature:

| Preservative | B | B | E | C | | | |
|---|---|---|---|---|---|---|---|
| Filtered (✓) | — | — | ✓ | ✓ | | | |
| # of Containers | 1 | 1 | 9 | 3 | | | |
| Container Information | | | | | | | |

**Keys**

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

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

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

| Sample ID | Collection Date | Collection Time | Type (✓) Comp | Type (✓) Grab | Matrix | BTEX | TPH | MetCr | Diss Metals | TDS | Chlorides | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-15 | 04/02/19 | 1021 | | ✓ | W | 3 | 2 | 1 | 1 | 1 | 1 | |
| MW-16 | | 1045 | | ✓ | W | 3 | 2 | 1 | 1 | 1 | 1 | |
| MW-36 | | 1130 | | ✓ | W | 3 | 2 | 1 | 1 | 1 | 1 | |
| MW-35 | | 1154 | | ✓ | W | 3 | 2 | 1 | 1 | 1 | 1 | |
| MW-13 | | 1349 | | ✓ | W | 3 | 2 | 1 | 1 | 1 | 1 | |
| MW-37 | | 1412 | | ✓ | W | 3 | 2 | 1 | 1 | 1 | 1 | |
| MW-38 | | 1440 | | ✓ | W | 3 | 2 | 1 | 1 | 1 | 1 | |
| MW-34 | | 1350 | | ✓ | W | 3 | 2 | 1 | 1 | 1 | 1 | |
| MWD-6 | 04/02/19 | 1423 | | ✓ | W | 3 | 2 | 1 | 1 | 1 | 1 | |

**PARAMETER ANALYSIS & METHOD**

**REMARKS**

**Special Instructions/Comments:**

☐ Special QA/QC Instructions(✓):

**Laboratory Information and Receipt**

Lab Name: Xenco
☑ Cooler packed with ice (✓)
Specify Turnaround Requirements: Standard TAT
Shipping Tracking #:

Cooler Custody Seal (✓) ☐ Intact ☐ Not Intact
Sample Receipt:
Condition/Cooler Temp: _____

| | Relinquished By | Received By | Relinquished By | Laboratory Received By |
|---|---|---|---|---|
| Printed Name: | Jerry Sitonglewell | Winston Noel | Winston Noel | Katie Lowe |
| Signature: | | | | |
| Firm: | ARCADIS | Xenco | Xenco | Xenco |
| Date/Time: | 04/02/19 1625 | 04/02/19 16:25 | 04/02/19 18:30 | 4/2/19 18:30 |

20730826 CofC AR Form 01.12.2007

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

Received by OCD: 3/25/2020 2:27:35 PM
Page 36 of 39
Final 1.004
Released to Imaging: 6/14/2022 10:17:42 AM

# Inter-Office Shipment



**IOS Number : 125809**

Date/Time: 04.03.2019 07:35
Lab# From: **Midland**
Lab# To: **Houston**
Created by: Brianna Teel
Delivery Priority:
Air Bill No.: 774879253819

Please send report to: Brandi Ritcherson
Address: 1211 W. Florida Ave
E-Mail: brandi.ritcherson@xenco.com

| Sample Id | Matrix | Client Sample Id | Sample Collection | Method | Method Name | Lab Due | HT Due | PM | Analytes | Sign |
|---|---|---|---|---|---|---|---|---|---|---|
| 619806-001 | W | MW-15 | 04.02.2019 10:21 | SW6020_DIS | Dissolved Metals by SW6020A | 04.08.2019 | 09.29.2019 | BAR | AS BA CR | |
| 619806-002 | W | MW-16 | 04.02.2019 10:45 | SW6020_DIS | Dissolved Metals by SW6020A | 04.08.2019 | 09.29.2019 | BAR | AS BA CR | |
| 619806-003 | W | MW-36 | 04.02.2019 11:30 | SW6020_DIS | Dissolved Metals by SW6020A | 04.08.2019 | 09.29.2019 | BAR | AS BA CR | |
| 619806-004 | W | MW-35 | 04.02.2019 11:56 | SW6020_DIS | Dissolved Metals by SW6020A | 04.08.2019 | 09.29.2019 | BAR | AS BA CR | |
| 619806-005 | W | MW-13 | 04.02.2019 13:49 | SW6020_DIS | Dissolved Metals by SW6020A | 04.08.2019 | 09.29.2019 | BAR | AS BA CR | |
| 619806-006 | W | MW-37 | 04.02.2019 14:16 | SW6020_DIS | Dissolved Metals by SW6020A | 04.08.2019 | 09.29.2019 | BAR | AS BA CR | |
| 619806-007 | W | MW-38 | 04.02.2019 10:40 | SW6020_DIS | Dissolved Metals by SW6020A | 04.08.2019 | 09.29.2019 | BAR | AS BA CR | |
| 619806-008 | W | MW-34 | 04.02.2019 13:50 | SW6020_DIS | Dissolved Metals by SW6020A | 04.08.2019 | 09.29.2019 | BAR | AS BA CR | |
| 619806-009 | W | MWD-6 | 04.02.2019 14:28 | SW6020_DIS | Dissolved Metals by SW6020A | 04.08.2019 | 09.29.2019 | BAR | AS BA CR | |

**Inter Office Shipment or Sample Comments:**

Relinquished By: Brianna Teel
Brianna Teel

Date Relinquished: 04.03.2019

Received By:
Monica Shakhshir

Date Received: 04.04.2019 09:10

Cooler Temperature: 2.4

# XENCO Laboratories

## Inter Office Report- Sample Receipt Checklist

**Sent To:** Houston

**IOS #:** 125809

**Acceptable Temperature Range: 0 - 6 degC**
**Air and Metal samples Acceptable Range: Ambient**
**Temperature Measuring device used : HOU-068**

**Sent By:** Brianna Teel **Date Sent:** 04/03/2019 07:35 AM

**Received By:** Monica Shakhshir **Date Received:** 04/04/2019 09:10 AM

| Sample Receipt Checklist | | Comments |
|---|---|---|
| #1 *Temperature of cooler(s)? | 2.4 | |
| #2 *Shipping container in good condition? | **Yes** | |
| #3 *Samples received with appropriate temperature? | **Yes** | |
| #4 *Custody Seals intact on shipping container/ cooler? | **Yes** | |
| #5 *Custody Seals Signed and dated for Containers/coolers | **Yes** | |
| #6 *IOS present? | **Yes** | |
| #7 Any missing/extra samples? | **No** | |
| #8 IOS agrees with sample label(s)/matrix? | **Yes** | |
| #9 Sample matrix/ properties agree with IOS? | **Yes** | |
| #10 Samples in proper container/ bottle? | **Yes** | |
| #11 Samples properly preserved? | **Yes** | |
| #12 Sample container(s) intact? | **Yes** | |
| #13 Sufficient sample amount for indicated test(s)? | **Yes** | |
| #14 All samples received within hold time? | **Yes** | |

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

**NonConformance:**

**Corrective Action Taken:**

**Nonconformance Documentation**

**Contact:** _____ **Contacted by :** _____ **Date:** _____

**Checklist reviewed by:** _____ Date: 04/04/2019

Monica Shakhshir

# XENCO Laboratories

## Prelogin/Nonconformance Report- Sample Log-In

**Client:** ARCADIS

**Date/ Time Received:** 04/02/2019 06:30:00 PM

**Work Order #:** 619806

**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)? | 3.5 | |
| #2 *Shipping container in good condition? | **Yes** | |
| #3 *Samples received on ice? | **Yes** | |
| #4 *Custody Seals intact on shipping container/ cooler? | **N/A** | |
| #5 Custody Seals intact on sample bottles? | **N/A** | |
| #6*Custody Seals Signed and dated? | **N/A** | |
| #7 *Chain of Custody present? | **Yes** | |
| #8 Any missing/extra samples? | **No** | |
| #9 Chain of Custody signed when relinquished/ received? | **Yes** | |
| #10 Chain of Custody agrees with sample labels/matrix? | **Yes** | |
| #11 Container label(s) legible and intact? | **Yes** | |
| #12 Samples in proper container/ bottle? | **Yes** | |
| #13 Samples properly preserved? | **Yes** | |
| #14 Sample container(s) intact? | **Yes** | |
| #15 Sufficient sample amount for indicated test(s)? | **Yes** | |
| #16 All samples received within hold time? | **Yes** | |
| #17 Subcontract of sample(s)? | **Yes** | Xenco Stafford |
| #18 Water VOC samples have zero headspace? | **Yes** | |

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

Analyst: BT

PH Device/Lot#: A023690

**Checklist completed by:** Katie Lowe Date: 04/02/2019

**Checklist reviewed by:** Brandi Ritcherson Date: 04/15/2019

Brandi Ritcherson

# Analytical Report 620013

## for

## ARCADIS

**Project Manager: Brett Krehbiel**

**Eunice Project-S. Eunice**

**B0048789.0004**

**08.08.2019**

Collected By: Client

**1211 W. Florida Ave**
**Midland TX 79701**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-19-29), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142), North Carolina (681)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-19-19), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-18-14)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-19-20)
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-Atlanta (LELAP Lab ID #04176)
Xenco-Tampa: Florida (E87429), North Carolina (483)

08.08.2019

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

Reference: XENCO Report No(s): **620013**
**Eunice Project-S. Eunice**
Project Address: Eunice, NM

**Brett Krehbiel**:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 620013. 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. 620013 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,



**John Builes**
Project Manager

*A Small Business and Minority Company*

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

# Sample Cross Reference 620013

## ARCADIS, Midland, TX

Eunice Project-S. Eunice

| Sample Id | Matrix | Date Collected | Sample Depth | Lab Sample Id |
|---|---|---|---|---|
| MW-31 | W | 04.03.2019 08:30 | | 620013-001 |
| MW-14 | W | 04.03.2019 08:54 | | 620013-002 |
| MWD-4 | W | 04.03.2019 09:20 | | 620013-003 |
| MWD-13 | W | 04.03.2019 10:07 | | 620013-004 |
| MW-22 | W | 04.03.2019 10:42 | | 620013-005 |
| MWD-17 | W | 04.03.2019 12:38 | | 620013-006 |
| MWD-7 | W | 04.03.2019 13:13 | | 620013-007 |
| MW-17 | W | 04.03.2019 13:38 | | 620013-008 |
| MWD-1 | W | 04.03.2019 14:00 | | 620013-009 |
| DUP-4 | W | 04.03.2019 00:00 | | 620013-010 |

# CASE NARRATIVE



***Client Name: ARCADIS***

***Project Name: Eunice Project-S. Eunice***

Project ID: *B0048789.0004*
Work Order Number(s): *620013*

Report Date: *08.08.2019*
Date Received: *04.03.2019*

This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory.

**Sample receipt non conformances and comments:**

None

**Sample receipt non conformances and comments per sample:**

None

**Analytical non conformances and comments:**

Batch: LBA-3084512 Chromium, Hexavalent by SW 7196A
Sample 620013 - 010 K-flag due to no sample time entered for duplicate.

Batch: LBA-3085125 Dissolved Metals by SW6020A
Lab Sample ID 620013-001 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Barium 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: 620013-001, -002, -003, -004, -005, -006, -007, -008, -009, -010.
The Laboratory Control Sample for Barium is within laboratory Control Limits, therefore the data was accepted.

# Certificate of Analytical Results
## 620013
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **MW-31** Matrix: Water Sample Depth:

Lab Sample Id: 620013-001 Date Collected: 04.03.2019 08:30 Date Received: 04.03.2019 18:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085133 Date Prep: 04.09.2019 09:45

Prep seq: 7675332

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **533** | 5.00 | 0.858 | mg/L | 04.10.2019 02:25 | | 10 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3084993 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1460** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085125 Date Prep: 04.09.2019 03:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675313

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0359** | 0.00400 | 0.000246 | mg/L | 04.09.2019 17:06 | | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 04.09.2019 17:06 | U | 1 |
| **Barium** | 7440-39-3 | **0.440** | 0.00400 | 0.000484 | mg/L | 04.09.2019 17:06 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3084512 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.04.2019 07:05 | U | 1 |

# Certificate of Analytical Results
## 620013
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **MW-31** Matrix: Water Sample Depth:

Lab Sample Id: 620013-001 Date Collected: 04.03.2019 08:30 Date Received: 04.03.2019 18:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085311 Date Prep: 04.10.2019 07:00

Prep seq: 7675488

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.986 | 1.50 | 0.986 | mg/L | 04.10.2019 15:27 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 15:27 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 15:27 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 15:27 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 90 | 70 - 135 | % | | |
| o-Terphenyl | 89 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3084919 Date Prep: 04.05.2019 17:00

Prep seq: 7675278

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 04.06.2019 08:16 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.06.2019 08:16 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.06.2019 08:16 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.06.2019 08:16 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.06.2019 08:16 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.06.2019 08:16 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.06.2019 08:16 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 106 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 94 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620013
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **MW-14** Matrix: Water Sample Depth:

Lab Sample Id: 620013-002 Date Collected: 04.03.2019 08:54 Date Received: 04.03.2019 18:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085133 Date Prep: 04.09.2019 09:45

Prep seq: 7675332

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **496** | 5.00 | 0.858 | mg/L | 04.10.2019 02:32 | | 10 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3084993 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1520** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085125 Date Prep: 04.09.2019 03:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675313

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.00933** | 0.00400 | 0.000246 | mg/L | 04.09.2019 17:26 | | 1 |
| **Chromium** | 7440-47-3 | **0.157** | 0.00400 | 0.000525 | mg/L | 04.09.2019 17:26 | | 1 |
| **Barium** | 7440-39-3 | **0.0760** | 0.00400 | 0.000484 | mg/L | 04.09.2019 17:26 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3084512 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.04.2019 07:05 | U | 1 |

# Certificate of Analytical Results
## 620013
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **MW-14** Matrix: Water Sample Depth:

Lab Sample Id: 620013-002 Date Collected: 04.03.2019 08:54 Date Received: 04.03.2019 18:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085311 Date Prep: 04.10.2019 07:00

Prep seq: 7675488

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.986 | 1.50 | 0.986 | mg/L | 04.10.2019 16:25 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 16:25 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 16:25 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 16:25 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 88 | 70 - 135 | % | | |
| o-Terphenyl | 89 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3084919 Date Prep: 04.05.2019 17:00

Prep seq: 7675278

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 04.06.2019 08:36 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.06.2019 08:36 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.06.2019 08:36 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.06.2019 08:36 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.06.2019 08:36 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.06.2019 08:36 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.06.2019 08:36 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 106 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 93 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620013
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **MWD-4** Matrix: Water Sample Depth:

Lab Sample Id: 620013-003 Date Collected: 04.03.2019 09:20 Date Received: 04.03.2019 18:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085133 Date Prep: 04.09.2019 09:45

Prep seq: 7675332

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **57.1** | 5.00 | 0.858 | mg/L | 04.10.2019 02:38 | | 10 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3084993 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1360** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085125 Date Prep: 04.09.2019 03:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675313

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.00154** | 0.00400 | 0.000246 | mg/L | 04.09.2019 17:29 | J | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 04.11.2019 17:38 | U | 1 |
| **Barium** | 7440-39-3 | **0.0655** | 0.00400 | 0.000484 | mg/L | 04.09.2019 17:29 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3084512 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.04.2019 07:05 | U | 1 |

# Certificate of Analytical Results
## 620013
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **MWD-4** Matrix: Water Sample Depth:

Lab Sample Id: 620013-003 Date Collected: 04.03.2019 09:20 Date Received: 04.03.2019 18:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085311 Date Prep: 04.10.2019 07:00

Prep seq: 7675488

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.987 | 1.50 | 0.987 | mg/L | 04.10.2019 16:44 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.912 | 1.50 | 0.912 | mg/L | 04.10.2019 16:44 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.912 | 1.50 | 0.912 | mg/L | 04.10.2019 16:44 | U | 1 |
| Total TPH | PHC635 | <0.912 | 1.50 | 0.912 | mg/L | 04.10.2019 16:44 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 91 | 70 - 135 | % | | |
| o-Terphenyl | 90 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3084919 Date Prep: 04.05.2019 17:00

Prep seq: 7675278

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 04.06.2019 08:55 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.06.2019 08:55 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.06.2019 08:55 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.06.2019 08:55 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.06.2019 08:55 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.06.2019 08:55 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.06.2019 08:55 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 107 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 98 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620013
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **MWD-13** Matrix: Water Sample Depth:

Lab Sample Id: 620013-004 Date Collected: 04.03.2019 10:07 Date Received: 04.03.2019 18:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085133 Date Prep: 04.09.2019 09:45

Prep seq: 7675332

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **1880** | 25.0 | 4.29 | mg/L | 04.10.2019 02:45 | | 50 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3084993 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **5180** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085125 Date Prep: 04.09.2019 03:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675313

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0349** | 0.00400 | 0.000246 | mg/L | 04.09.2019 17:32 | | 1 |
| **Chromium** | 7440-47-3 | **0.0102** | 0.00400 | 0.000525 | mg/L | 04.09.2019 17:32 | | 1 |
| **Barium** | 7440-39-3 | **0.0781** | 0.00400 | 0.000484 | mg/L | 04.09.2019 17:32 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3084512 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.04.2019 07:05 | U | 1 |

# Certificate of Analytical Results
## 620013
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **MWD-13** Matrix: Water Sample Depth:

Lab Sample Id: 620013-004 Date Collected: 04.03.2019 10:07 Date Received: 04.03.2019 18:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085311 Date Prep: 04.10.2019 07:00

Prep seq: 7675488

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.987 | 1.50 | 0.987 | mg/L | 04.10.2019 17:04 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 17:04 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 17:04 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 17:04 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 90 | 70 - 135 | % | | |
| o-Terphenyl | 90 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3084919 Date Prep: 04.05.2019 17:00

Prep seq: 7675278

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 04.06.2019 09:15 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.06.2019 09:15 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.06.2019 09:15 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.06.2019 09:15 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.06.2019 09:15 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.06.2019 09:15 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.06.2019 09:15 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 107 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 94 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620013
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **MW-22** Matrix: Water Sample Depth:

Lab Sample Id: 620013-005 Date Collected: 04.03.2019 10:42 Date Received: 04.03.2019 18:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085133 Date Prep: 04.09.2019 09:45

Prep seq: 7675332

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **1670** | 25.0 | 4.29 | mg/L | 04.10.2019 03:06 | | 50 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3084993 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **4900** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085125 Date Prep: 04.09.2019 03:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675313

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0554** | 0.00400 | 0.000246 | mg/L | 04.09.2019 17:34 | | 1 |
| **Chromium** | 7440-47-3 | **0.00802** | 0.00400 | 0.000525 | mg/L | 04.09.2019 17:34 | | 1 |
| **Barium** | 7440-39-3 | **0.654** | 0.00400 | 0.000484 | mg/L | 04.09.2019 17:34 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3084512 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.04.2019 07:05 | U | 1 |

# Certificate of Analytical Results
## 620013
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **MW-22** Matrix: Water Sample Depth:

Lab Sample Id: 620013-005 Date Collected: 04.03.2019 10:42 Date Received: 04.03.2019 18:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085311 Date Prep: 04.10.2019 07:00

Prep seq: 7675488

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Gasoline Range Hydrocarbons** | PHC610 | **5.66** | 1.50 | 0.986 | mg/L | 04.10.2019 17:23 | | 1 |
| **Diesel Range Organics** | C10C28DRO | **1.01** | 1.50 | 0.911 | mg/L | 04.10.2019 17:23 | J | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 17:23 | U | 1 |
| **Total TPH** | PHC635 | **6.67** | 1.50 | 0.911 | mg/L | 04.10.2019 17:23 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 97 | 70 - 135 | % | | |
| o-Terphenyl | 96 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085172 Date Prep: 04.09.2019 12:00

Prep seq: 7675452

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **0.588** | 0.0200 | 0.00408 | mg/L | 04.09.2019 20:41 | | 10 |
| Toluene | 108-88-3 | <0.00367 | 0.0200 | 0.00367 | mg/L | 04.09.2019 20:41 | U | 10 |
| Ethylbenzene | 100-41-4 | <0.00657 | 0.0200 | 0.00657 | mg/L | 04.09.2019 20:41 | U | 10 |
| m,p-Xylenes | 179601-23-1 | <0.00630 | 0.0400 | 0.00630 | mg/L | 04.09.2019 20:41 | U | 10 |
| o-Xylene | 95-47-6 | <0.00642 | 0.0200 | 0.00642 | mg/L | 04.09.2019 20:41 | U | 10 |
| Total Xylenes | 1330-20-7 | <0.00630 | 0.0200 | 0.00630 | mg/L | 04.09.2019 20:41 | U | 10 |
| **Total BTEX** | | **0.588** | 0.0200 | 0.00367 | mg/L | 04.09.2019 20:41 | | 10 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 96 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 90 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620013
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **MWD-17** Matrix: Water Sample Depth:

Lab Sample Id: 620013-006 Date Collected: 04.03.2019 12:38 Date Received: 04.03.2019 18:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085133 Date Prep: 04.09.2019 09:45

Prep seq: 7675332

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **3810** | 50.0 | 8.58 | mg/L | 04.10.2019 03:12 | | 100 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3084993 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **12500** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085125 Date Prep: 04.09.2019 03:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675313

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0593** | 0.00400 | 0.000246 | mg/L | 04.09.2019 17:37 | | 1 |
| **Chromium** | 7440-47-3 | **0.00396** | 0.00400 | 0.000525 | mg/L | 04.09.2019 17:37 | J | 1 |
| **Barium** | 7440-39-3 | **1.89** | 0.00400 | 0.000484 | mg/L | 04.09.2019 17:37 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3084512 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.04.2019 07:05 | U | 1 |

# Certificate of Analytical Results
## 620013
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **MWD-17** Matrix: Water Sample Depth:

Lab Sample Id: 620013-006 Date Collected: 04.03.2019 12:38 Date Received: 04.03.2019 18:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085311 Date Prep: 04.10.2019 07:00

Prep seq: 7675488

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Gasoline Range Hydrocarbons** | PHC610 | **1.10** | 1.50 | 0.986 | mg/L | 04.10.2019 17:42 | J | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 17:42 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 17:42 | U | 1 |
| **Total TPH** | PHC635 | **1.10** | 1.50 | 0.911 | mg/L | 04.10.2019 17:42 | J | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 87 | 70 - 135 | % | | |
| o-Terphenyl | 86 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085172 Date Prep: 04.09.2019 12:00

Prep seq: 7675452

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **0.179** | 0.00200 | 0.000408 | mg/L | 04.09.2019 18:00 | | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.09.2019 18:00 | U | 1 |
| **Ethylbenzene** | 100-41-4 | **0.0140** | 0.00200 | 0.000657 | mg/L | 04.09.2019 18:00 | | 1 |
| **m,p-Xylenes** | 179601-23-1 | **0.000950** | 0.00400 | 0.000630 | mg/L | 04.09.2019 18:00 | J | 1 |
| **o-Xylene** | 95-47-6 | **0.00315** | 0.00200 | 0.000642 | mg/L | 04.09.2019 18:00 | | 1 |
| **Total Xylenes** | 1330-20-7 | **0.00410** | 0.00200 | 0.000630 | mg/L | 04.09.2019 18:00 | | 1 |
| **Total BTEX** | | **0.197** | 0.00200 | 0.000367 | mg/L | 04.09.2019 18:00 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 93 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 92 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620013
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **MWD-7** Matrix: Water Sample Depth:

Lab Sample Id: 620013-007 Date Collected: 04.03.2019 13:13 Date Received: 04.03.2019 18:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085133 Date Prep: 04.09.2019 09:45

Prep seq: 7675332

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **3970** | 25.0 | 4.29 | mg/L | 04.10.2019 03:19 | | 50 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3084993 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **9440** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085125 Date Prep: 04.09.2019 03:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675313

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0150** | 0.00400 | 0.000246 | mg/L | 04.09.2019 17:40 | | 1 |
| **Chromium** | 7440-47-3 | **0.00339** | 0.00400 | 0.000525 | mg/L | 04.09.2019 17:40 | J | 1 |
| **Barium** | 7440-39-3 | **0.0442** | 0.00400 | 0.000484 | mg/L | 04.09.2019 17:40 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3084512 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.04.2019 07:05 | U | 1 |

# Certificate of Analytical Results
## 620013
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **MWD-7** Matrix: Water Sample Depth:

Lab Sample Id: 620013-007 Date Collected: 04.03.2019 13:13 Date Received: 04.03.2019 18:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085311 Date Prep: 04.10.2019 07:00

Prep seq: 7675488

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.987 | 1.50 | 0.987 | mg/L | 04.10.2019 18:01 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 18:01 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 18:01 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 18:01 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 92 | 70 - 135 | % | | |
| o-Terphenyl | 92 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085172 Date Prep: 04.09.2019 12:00

Prep seq: 7675452

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **0.000410** | 0.00200 | 0.000408 | mg/L | 04.09.2019 18:20 | J | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.09.2019 18:20 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.09.2019 18:20 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.09.2019 18:20 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.09.2019 18:20 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.09.2019 18:20 | U | 1 |
| **Total BTEX** | | **0.000410** | 0.00200 | 0.000367 | mg/L | 04.09.2019 18:20 | J | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 90 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 87 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620013
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **MW-17** Matrix: Water Sample Depth:

Lab Sample Id: 620013-008 Date Collected: 04.03.2019 13:38 Date Received: 04.03.2019 18:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085133 Date Prep: 04.09.2019 09:45

Prep seq: 7675332

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **1190** | 25.0 | 4.29 | mg/L | 04.10.2019 03:26 | | 50 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3084993 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **2860** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085125 Date Prep: 04.09.2019 03:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675313

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0113** | 0.00400 | 0.000246 | mg/L | 04.09.2019 17:43 | | 1 |
| **Chromium** | 7440-47-3 | **0.00141** | 0.00400 | 0.000525 | mg/L | 04.09.2019 17:43 | J | 1 |
| **Barium** | 7440-39-3 | **0.206** | 0.00400 | 0.000484 | mg/L | 04.09.2019 17:43 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3084512 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.04.2019 07:05 | U | 1 |

# Certificate of Analytical Results
## 620013
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **MW-17** Matrix: Water Sample Depth:

Lab Sample Id: 620013-008 Date Collected: 04.03.2019 13:38 Date Received: 04.03.2019 18:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085311 Date Prep: 04.10.2019 07:00

Prep seq: 7675488

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.986 | 1.50 | 0.986 | mg/L | 04.10.2019 18:20 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 18:20 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 18:20 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 18:20 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 92 | 70 - 135 | % | | |
| o-Terphenyl | 92 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3084919 Date Prep: 04.05.2019 17:00

Prep seq: 7675278

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 04.06.2019 09:34 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.06.2019 09:34 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.06.2019 09:34 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.06.2019 09:34 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.06.2019 09:34 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.06.2019 09:34 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.06.2019 09:34 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 107 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 93 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620013
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **MWD-1** Matrix: Water Sample Depth:

Lab Sample Id: 620013-009 Date Collected: 04.03.2019 14:00 Date Received: 04.03.2019 18:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085133 Date Prep: 04.09.2019 09:45

Prep seq: 7675332

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **501** | 5.00 | 0.858 | mg/L | 04.10.2019 03:33 | | 10 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3084993 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1640** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085125 Date Prep: 04.09.2019 03:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675313

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0544** | 0.00400 | 0.000246 | mg/L | 04.09.2019 17:46 | | 1 |
| **Chromium** | 7440-47-3 | **0.00612** | 0.00400 | 0.000525 | mg/L | 04.09.2019 17:46 | | 1 |
| **Barium** | 7440-39-3 | **0.0503** | 0.00400 | 0.000484 | mg/L | 04.09.2019 17:46 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3084512 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.04.2019 07:05 | U | 1 |

# Certificate of Analytical Results
## 620013
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **MWD-1** Matrix: Water Sample Depth:

Lab Sample Id: 620013-009 Date Collected: 04.03.2019 14:00 Date Received: 04.03.2019 18:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085311 Date Prep: 04.10.2019 07:00

Prep seq: 7675488

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.986 | 1.50 | 0.986 | mg/L | 04.10.2019 18:39 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 18:39 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 18:39 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 18:39 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 93 | 70 - 135 | % | | |
| o-Terphenyl | 93 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085172 Date Prep: 04.09.2019 12:00

Prep seq: 7675452

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 04.09.2019 18:39 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.09.2019 18:39 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.09.2019 18:39 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.09.2019 18:39 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.09.2019 18:39 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.09.2019 18:39 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.09.2019 18:39 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 90 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 88 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620013
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **DUP-4** Matrix: Water Sample Depth:

Lab Sample Id: 620013-010 Date Collected: 04.03.2019 00:00 Date Received: 04.03.2019 18:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085133 Date Prep: 04.09.2019 09:45

Prep seq: 7675332

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **59.9** | 5.00 | 0.858 | mg/L | 04.10.2019 04:00 | | 10 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3084993 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **5610** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085125 Date Prep: 04.09.2019 03:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675313

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.00147** | 0.00400 | 0.000246 | mg/L | 04.09.2019 17:49 | J | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 04.11.2019 17:41 | U | 1 |
| **Barium** | 7440-39-3 | **0.0655** | 0.00400 | 0.000484 | mg/L | 04.09.2019 17:49 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3084512 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.04.2019 07:05 | UK | 1 |

# Certificate of Analytical Results
## 620013

## ARCADIS, Midland, TX

Eunice Project-S. Eunice

Sample Id: **DUP-4** Matrix: Water Sample Depth:

Lab Sample Id: 620013-010 Date Collected: 04.03.2019 00:00 Date Received: 04.03.2019 18:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085311 Date Prep: 04.10.2019 07:00

Prep seq: 7675488

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.986 | 1.50 | 0.986 | mg/L | 04.10.2019 18:58 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 18:58 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 18:58 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 18:58 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 92 | 70 - 135 | % | | |
| o-Terphenyl | 87 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085172 Date Prep: 04.09.2019 12:00

Prep seq: 7675452

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 04.09.2019 18:59 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.09.2019 18:59 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.09.2019 18:59 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.09.2019 18:59 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.09.2019 18:59 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.09.2019 18:59 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.09.2019 18:59 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 91 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 89 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620013
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **3084512-1-BLK** Matrix: Water Sample Depth:
Lab Sample Id: 3084512-1-BLK Date Collected: Date Received:
Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:
Analyst: SPC % Moist: Tech: SPC
Seq Number: 3084512 Date Prep:
Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.04.2019 07:05 | U | 1 |

Sample Id: **3084993-1-BLK** Matrix: Water Sample Depth:
Lab Sample Id: 3084993-1-BLK Date Collected: Date Received:
Analytical Method: TDS by SM2540C Prep Method:
Analyst: CHE % Moist: Tech: CHE
Seq Number: 3084993 Date Prep:
Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids | 1642222 | <5.00 | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | U | 1 |

Sample Id: **7675278-1-BLK** Matrix: Water Sample Depth:
Lab Sample Id: 7675278-1-BLK Date Collected: Date Received:
Analytical Method: BTEX by EPA 8021B Prep Method: 5030B
Analyst: SCM % Moist: Tech: SCM
Seq Number: 3084919 Date Prep: 04.05.2019 17:00
Prep seq: 7675278

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 04.06.2019 03:48 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.06.2019 03:48 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.06.2019 03:48 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.06.2019 03:48 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.06.2019 03:48 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.06.2019 03:48 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.06.2019 03:48 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 107 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 97 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620013
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **7675313-1-BLK** Matrix: Water Sample Depth:
Lab Sample Id: 7675313-1-BLK Date Collected: Date Received:
Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A
Analyst: DEP % Moist: Tech: DEP
Seq Number: 3085125 Date Prep: 04.09.2019 03:00
Subcontractor: SUB: T104704215-19-29 Prep seq: 7675313

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Arsenic | 7440-38-2 | <0.000246 | 0.00400 | 0.000246 | mg/L | 04.09.2019 16:57 | U | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 04.09.2019 16:57 | U | 1 |
| Barium | 7440-39-3 | <0.000484 | 0.00400 | 0.000484 | mg/L | 04.09.2019 16:57 | U | 1 |

Sample Id: **7675332-1-BLK** Matrix: Water Sample Depth:
Lab Sample Id: 7675332-1-BLK Date Collected: Date Received:
Analytical Method: Chloride by EPA 300 Prep Method: E300P
Analyst: CHE % Moist: Tech: CHE
Seq Number: 3085133 Date Prep: 04.09.2019 09:45
Prep seq: 7675332

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chloride | 16887-00-6 | <0.0858 | 0.500 | 0.0858 | mg/L | 04.10.2019 01:37 | U | 1 |

Sample Id: **7675452-1-BLK** Matrix: Water Sample Depth:
Lab Sample Id: 7675452-1-BLK Date Collected: Date Received:
Analytical Method: BTEX by EPA 8021B Prep Method: 5030B
Analyst: SCM % Moist: Tech: SCM
Seq Number: 3085172 Date Prep: 04.09.2019 12:00
Prep seq: 7675452

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 04.09.2019 17:21 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.09.2019 17:21 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.09.2019 17:21 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.09.2019 17:21 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.09.2019 17:21 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.09.2019 17:21 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.09.2019 17:21 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 91 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 90 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620013
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **7675488-1-BLK** Matrix: Water Sample Depth:

Lab Sample Id: 7675488-1-BLK Date Collected: Date Received:

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085311 Date Prep: 04.10.2019 07:00

Prep seq: 7675488

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.987 | 1.50 | 0.987 | mg/L | 04.10.2019 10:58 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 10:58 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 10:58 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 10:58 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 107 | 70 - 135 | % | | |
| o-Terphenyl | 109 | 70 - 135 | % | | |

Sample Id: **7675520-1-BLK** Matrix: Water Sample Depth:

Lab Sample Id: 7675520-1-BLK Date Collected: Date Received:

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085363 Date Prep: 04.11.2019 10:10

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675520

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 04.11.2019 16:10 | U | 1 |

# 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



Released to Imaging: 6/14/2022 10:17:42 AM

# Form 2 - Surrogate Recoveries

**Project Name:** Eunice Project-S. Eunice

**Work Orders :** 620013 **Project ID:** B0048789.0004

**Lab Batch #:** 3084919 **Sample:** 7675278-1-BKS / BKS **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.06.2019 02:13 **SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0301 | 0.0300 | 100 | 70-130 | |
| 4-Bromofluorobenzene | 0.0290 | 0.0300 | 97 | 70-130 | |

**Lab Batch #:** 3084919 **Sample:** 7675278-1-BSD / BSD **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.06.2019 02:32 **SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0303 | 0.0300 | 101 | 70-130 | |
| 4-Bromofluorobenzene | 0.0288 | 0.0300 | 96 | 70-130 | |

**Lab Batch #:** 3084919 **Sample:** 619796-001 S / MS **Batch:** 1 **Matrix:** Ground Water

**Units:** mg/L **Date Analyzed:** 04.06.2019 02:52 **SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0288 | 0.0300 | 96 | 70-130 | |
| 4-Bromofluorobenzene | 0.0260 | 0.0300 | 87 | 70-130 | |

**Lab Batch #:** 3084919 **Sample:** 619796-001 SD / MSD **Batch:** 1 **Matrix:** Ground Water

**Units:** mg/L **Date Analyzed:** 04.06.2019 03:11 **SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0293 | 0.0300 | 98 | 70-130 | |
| 4-Bromofluorobenzene | 0.0263 | 0.0300 | 88 | 70-130 | |

**Lab Batch #:** 3084919 **Sample:** 7675278-1-BLK / BLK **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.06.2019 03:48 **SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0321 | 0.0300 | 107 | 70-130 | |
| 4-Bromofluorobenzene | 0.0291 | 0.0300 | 97 | 70-130 | |

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

# Form 2 - Surrogate Recoveries

**Project Name:** Eunice Project-S. Eunice

**Work Orders :** 620013 **Project ID:** B0048789.0004

**Lab Batch #:** 3085172 **Sample:** 7675452-1-BKS / BKS **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.09.2019 15:42 **SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0295 | 0.0300 | 98 | 70-130 | |
| 4-Bromofluorobenzene | 0.0299 | 0.0300 | 100 | 70-130 | |

**Lab Batch #:** 3085172 **Sample:** 7675452-1-BSD / BSD **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.09.2019 16:02 **SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0294 | 0.0300 | 98 | 70-130 | |
| 4-Bromofluorobenzene | 0.0294 | 0.0300 | 98 | 70-130 | |

**Lab Batch #:** 3085172 **Sample:** 620014-006 S / MS **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.09.2019 16:22 **SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0297 | 0.0300 | 99 | 70-130 | |
| 4-Bromofluorobenzene | 0.0303 | 0.0300 | 101 | 70-130 | |

**Lab Batch #:** 3085172 **Sample:** 620014-006 SD / MSD **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.09.2019 16:42 **SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0298 | 0.0300 | 99 | 70-130 | |
| 4-Bromofluorobenzene | 0.0300 | 0.0300 | 100 | 70-130 | |

**Lab Batch #:** 3085172 **Sample:** 7675452-1-BLK / BLK **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.09.2019 17:21 **SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0274 | 0.0300 | 91 | 70-130 | |
| 4-Bromofluorobenzene | 0.0269 | 0.0300 | 90 | 70-130 | |

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

# Form 2 - Surrogate Recoveries

**Project Name:** Eunice Project-S. Eunice

**Work Orders :** 620013 **Project ID:** B0048789.0004

**Lab Batch #:** 3085311 **Sample:** 7675488-1-BLK / BLK **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.10.2019 10:58 **SURROGATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 10.7 | 9.99 | 107 | 70-135 | |
| o-Terphenyl | 5.47 | 5.00 | 109 | 70-135 | |

**Lab Batch #:** 3085311 **Sample:** 7675488-1-BKS / BKS **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.10.2019 11:17 **SURROGATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 11.9 | 9.98 | 119 | 70-135 | |
| o-Terphenyl | 5.45 | 4.99 | 109 | 70-135 | |

**Lab Batch #:** 3085311 **Sample:** 7675488-1-BSD / BSD **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.10.2019 11:36 **SURROGATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 12.5 | 9.98 | 125 | 70-135 | |
| o-Terphenyl | 5.85 | 4.99 | 117 | 70-135 | |

**Lab Batch #:** 3085311 **Sample:** 619806-001 S / MS **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.10.2019 12:14 **SURROGATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 10.9 | 9.99 | 109 | 70-135 | |
| o-Terphenyl | 5.36 | 4.99 | 107 | 70-135 | |

**Lab Batch #:** 3085311 **Sample:** 619806-001 SD / MSD **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.10.2019 12:34 **SURROGATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 11.1 | 9.98 | 111 | 70-135 | |
| o-Terphenyl | 5.58 | 4.99 | 112 | 70-135 | |

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



Released to Imaging: 6/14/2022 10:17:42 AM

# BS / BSD Recoveries

## Project Name: Eunice Project-S. Eunice

**Work Order #:** 620013 **Project ID:** B0048789.0004

**Analyst:** SCM **Date Prepared:** 04.05.2019 **Date Analyzed:** 04.06.2019

**Lab Batch ID:** 3084919 **Sample:** 7675278-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Blank Sample Result [A] | Spike Added [B] | Blank Spike Result [C] | Blank Spike %R [D] | Spike Added [E] | Blank Spike Duplicate Result [F] | Blk. Spk Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.000408 | 0.100 | 0.0875 | 88 | 0.100 | 0.0871 | 87 | 0 | 70-130 | 25 | |
| Toluene | <0.000367 | 0.100 | 0.0840 | 84 | 0.100 | 0.0837 | 84 | 0 | 70-130 | 25 | |
| Ethylbenzene | <0.000657 | 0.100 | 0.0847 | 85 | 0.100 | 0.0843 | 84 | 0 | 70-130 | 25 | |
| m,p-Xylenes | <0.000630 | 0.200 | 0.165 | 83 | 0.200 | 0.165 | 83 | 0 | 70-130 | 25 | |
| o-Xylene | <0.000642 | 0.100 | 0.0855 | 86 | 0.100 | 0.0855 | 86 | 0 | 70-130 | 25 | |

**Analyst:** SCM **Date Prepared:** 04.09.2019 **Date Analyzed:** 04.09.2019

**Lab Batch ID:** 3085172 **Sample:** 7675452-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Blank Sample Result [A] | Spike Added [B] | Blank Spike Result [C] | Blank Spike %R [D] | Spike Added [E] | Blank Spike Duplicate Result [F] | Blk. Spk Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.000408 | 0.100 | 0.0998 | 100 | 0.100 | 0.0971 | 97 | 3 | 70-130 | 25 | |
| Toluene | <0.000367 | 0.100 | 0.103 | 103 | 0.100 | 0.0996 | 100 | 3 | 70-130 | 25 | |
| Ethylbenzene | <0.000657 | 0.100 | 0.0976 | 98 | 0.100 | 0.0945 | 95 | 3 | 70-130 | 25 | |
| m,p-Xylenes | <0.000630 | 0.200 | 0.196 | 98 | 0.200 | 0.189 | 95 | 4 | 70-130 | 25 | |
| o-Xylene | <0.000642 | 0.100 | 0.0990 | 99 | 0.100 | 0.0959 | 96 | 3 | 70-130 | 25 | |

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: Eunice Project-S. Eunice

**Work Order #:** 620013 **Project ID:** B0048789.0004

**Analyst:** CHE **Date Prepared:** 04.09.2019 **Date Analyzed:** 04.10.2019

**Lab Batch ID:** 3085133 **Sample:** 7675332-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| Chloride by EPA 300<br>Analytes | Blank Sample Result [A] | Spike Added [B] | Blank Spike Result [C] | Blank Spike %R [D] | Spike Added [E] | Blank Spike Duplicate Result [F] | Blk. Spk Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | <0.0858 | 25.0 | 23.7 | 95 | 25.0 | 24.7 | 99 | 4 | 90-110 | 20 | |

**Analyst:** SPC **Date Prepared:** 04.04.2019 **Date Analyzed:** 04.04.2019

**Lab Batch ID:** 3084512 **Sample:** 3084512-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| Chromium, Hexavalent by SW 7196A<br>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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | <0.00273 | 0.0400 | 0.0374 | 94 | 0.0400 | 0.0365 | 91 | 2 | 85-115 | 20 | |

**Analyst:** DEP **Date Prepared:** 04.09.2019 **Date Analyzed:** 04.09.2019

**Lab Batch ID:** 3085125 **Sample:** 7675313-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| Dissolved Metals by SW6020A<br>Analytes | Blank Sample Result [A] | Spike Added [B] | Blank Spike Result [C] | Blank Spike %R [D] | Spike Added [E] | Blank Spike Duplicate Result [F] | Blk. Spk Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | <0.000246 | 0.100 | 0.0967 | 97 | 0.100 | 0.0973 | 97 | 1 | 80-120 | 20 | |
| Chromium | <0.000525 | 0.100 | 0.0978 | 98 | 0.100 | 0.0990 | 99 | 1 | 80-120 | 20 | |
| Barium | <0.000484 | 0.100 | 0.0960 | 96 | 0.100 | 0.0968 | 97 | 1 | 80-120 | 20 | |

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

# BS / BSD Recoveries

## Project Name: Eunice Project-S. Eunice

**Work Order #:** 620013 **Project ID:** B0048789.0004

**Analyst:** DEP **Date Prepared:** 04.11.2019 **Date Analyzed:** 04.11.2019

**Lab Batch ID:** 3085363 **Sample:** 7675520-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| Dissolved Metals by SW6020A<br>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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | <0.000525 | 0.100 | 0.0971 | 97 | 0.100 | 0.0981 | 98 | 1 | 80-120 | 20 | |

**Analyst:** CHE **Date Prepared:** 04.06.2019 **Date Analyzed:** 04.06.2019

**Lab Batch ID:** 3084993 **Sample:** 3084993-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| TDS by SM2540C<br>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 | 919 | 92 | 1000 | 912 | 91 | 1 | 80-120 | 10 | |

**Analyst:** ARM **Date Prepared:** 04.10.2019 **Date Analyzed:** 04.10.2019

**Lab Batch ID:** 3085311 **Sample:** 7675488-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Blank Sample Result [A] | Spike Added [B] | Blank Spike Result [C] | Blank Spike %R [D] | Spike Added [E] | Blank Spike Duplicate Result [F] | Blk. Spk Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | <0.986 | 99.8 | 101 | 101 | 99.8 | 104 | 104 | 3 | 70-135 | 20 | |
| Diesel Range Organics | <0.911 | 99.8 | 112 | 112 | 99.8 | 114 | 114 | 2 | 70-135 | 20 | |

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

# Form 3 - MS / MSD Recoveries

## Project Name: Eunice Project-S. Eunice

**Work Order # :** 620013 **Project ID:** B0048789.0004

**Lab Batch ID:** 3084919 **QC- Sample ID:** 619796-001 S **Batch #:** 1 **Matrix:** Ground Water

**Date Analyzed:** 04.06.2019 **Date Prepared:** 04.05.2019 **Analyst:** SCM

**Reporting Units:** mg/L

### MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

| BTEX by EPA 8021B Analytes | Parent Sample Result [A] | Spike Added [B] | Spiked Sample Result [C] | Spiked Sample %R [D] | Spike Added [E] | Duplicate Spiked Sample Result [F] | Spiked Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.000408 | 0.100 | 0.0853 | 85 | 0.100 | 0.0875 | 88 | 3 | 70-130 | 25 | |
| Toluene | <0.000367 | 0.100 | 0.0835 | 84 | 0.100 | 0.0844 | 84 | 1 | 70-130 | 25 | |
| Ethylbenzene | <0.000657 | 0.100 | 0.0857 | 86 | 0.100 | 0.0857 | 86 | 0 | 70-130 | 25 | |
| m,p-Xylenes | <0.000630 | 0.200 | 0.166 | 83 | 0.200 | 0.166 | 83 | 0 | 70-130 | 25 | |
| o-Xylene | <0.000642 | 0.100 | 0.0827 | 83 | 0.100 | 0.0839 | 84 | 1 | 70-130 | 25 | |

**Lab Batch ID:** 3085172 **QC- Sample ID:** 620014-006 S **Batch #:** 1 **Matrix:** Water

**Date Analyzed:** 04.09.2019 **Date Prepared:** 04.09.2019 **Analyst:** SCM

**Reporting Units:** mg/L

### MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

| BTEX by EPA 8021B Analytes | Parent Sample Result [A] | Spike Added [B] | Spiked Sample Result [C] | Spiked Sample %R [D] | Spike Added [E] | Duplicate Spiked Sample Result [F] | Spiked Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.000408 | 0.100 | 0.109 | 109 | 0.100 | 0.113 | 113 | 4 | 70-130 | 25 | |
| Toluene | <0.000367 | 0.100 | 0.112 | 112 | 0.100 | 0.115 | 115 | 3 | 70-130 | 25 | |
| Ethylbenzene | <0.000657 | 0.100 | 0.107 | 107 | 0.100 | 0.111 | 111 | 4 | 70-130 | 25 | |
| m,p-Xylenes | <0.000630 | 0.200 | 0.214 | 107 | 0.200 | 0.222 | 111 | 4 | 70-130 | 25 | |
| o-Xylene | <0.000642 | 0.100 | 0.109 | 109 | 0.100 | 0.112 | 112 | 3 | 70-130 | 25 | |

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: Eunice Project-S. Eunice

**Work Order # :** 620013 **Project ID:** B0048789.0004

**Lab Batch ID:** 3085133 **QC- Sample ID:** 620148-001 S **Batch #:** 1 **Matrix:** Water

**Date Analyzed:** 04.10.2019 **Date Prepared:** 04.09.2019 **Analyst:** CHE

**Reporting Units:** mg/L

### MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

| Chloride by EPA 300<br>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 | 118 | 125 | 245 | 102 | 125 | 249 | 105 | 2 | 90-110 | 20 | |

**Lab Batch ID:** 3085133 **QC- Sample ID:** 620148-002 S **Batch #:** 1 **Matrix:** Water

**Date Analyzed:** 04.10.2019 **Date Prepared:** 04.09.2019 **Analyst:** CHE

**Reporting Units:** mg/L

### MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

| Chloride by EPA 300<br>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 | 125 | 125 | 386 | 209 | 125 | 366 | 193 | 5 | 90-110 | 20 | X |

**Lab Batch ID:** 3084512 **QC- Sample ID:** 620013-001 S **Batch #:** 1 **Matrix:** Water

**Date Analyzed:** 04.04.2019 **Date Prepared:** 04.04.2019 **Analyst:** SPC

**Reporting Units:** mg/L

### MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

| Chromium, Hexavalent by SW 7196A<br>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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | <0.00273 | 0.200 | 0.169 | 85 | 0.200 | 0.168 | 84 | 1 | 75-125 | 20 | |

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

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

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

# Form 3 - MS / MSD Recoveries

## Project Name: Eunice Project-S. Eunice

**Work Order # :** 620013 **Project ID:** B0048789.0004

**Lab Batch ID:** 3085125 **QC- Sample ID:** 620013-001 S **Batch #:** 1 **Matrix:** Water

**Date Analyzed:** 04.09.2019 **Date Prepared:** 04.09.2019 **Analyst:** DEP

**Reporting Units:** mg/L

### MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

| Dissolved Metals by SW6020A<br>Analytes | Parent Sample Result [A] | Spike Added [B] | Spiked Sample Result [C] | Spiked Sample %R [D] | Spike Added [E] | Duplicate Spiked Sample Result [F] | Spiked Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 0.0359 | 0.100 | 0.138 | 102 | 0.100 | 0.137 | 101 | 1 | 75-125 | 20 | |
| Chromium | <0.000525 | 0.100 | 0.101 | 101 | 0.100 | 0.0997 | 100 | 1 | 75-125 | 20 | |
| Barium | 0.440 | 0.100 | 0.568 | 128 | 0.100 | 0.566 | 126 | 0 | 75-125 | 20 | X |

**Lab Batch ID:** 3085363 **QC- Sample ID:** 620360-001 S **Batch #:** 1 **Matrix:** Ground Water

**Date Analyzed:** 04.11.2019 **Date Prepared:** 04.11.2019 **Analyst:** DEP

**Reporting Units:** mg/L

### MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

| Dissolved Metals by SW6020A<br>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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 0.00117 | 0.100 | 0.103 | 102 | 0.100 | 0.103 | 102 | 0 | 75-125 | 20 | |

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

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

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

# Form 3 - MS / MSD Recoveries

## Project Name: Eunice Project-S. Eunice

**Work Order # :** 620013 **Project ID:** B0048789.0004

**Lab Batch ID:** 3085311 **QC- Sample ID:** 619806-001 S **Batch #:** 1 **Matrix:** Water

**Date Analyzed:** 04.10.2019 **Date Prepared:** 04.10.2019 **Analyst:** ARM

**Reporting Units:** mg/L

### MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

| TPH By SW8015 Mod<br>Analytes | Parent Sample Result [A] | Spike Added [B] | Spiked Sample Result [C] | Spiked Sample %R [D] | Spike Added [E] | Duplicate Spiked Sample Result [F] | Spiked Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | <0.986 | 99.9 | 84.3 | 84 | 99.8 | 86.3 | 86 | 2 | 70-135 | 20 | |
| Diesel Range Organics | <0.911 | 99.9 | 89.1 | 89 | 99.8 | 92.1 | 92 | 3 | 70-135 | 20 | |

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

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

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

# Method Duplicate



## Project Name: Eunice Project-S. Eunice

**Work Order #:** 620013

**Lab Batch #:** 3084993 **Project ID:** B0048789.0004

**Date Analyzed:** 04.06.2019 14:00 **Date Prepared:** 04.06.2019 **Analyst:** CHE

**QC- Sample ID:** 619806-001 D **Batch #:** 1 **Matrix:** Water

**Reporting Units:** mg/L

**SAMPLE / SAMPLE DUPLICATE RECOVERY**

| TDS by SM2540C<br>Analyte | Parent Sample Result [A] | Sample Duplicate Result [B] | RPD | Control Limits %RPD | Flag |
|---|---|---|---|---|---|
| Total Dissolved Solids | 3840 | 4120 | 7 | 10 | |

**Lab Batch #:** 3084993

**Date Analyzed:** 04.06.2019 14:00 **Date Prepared:** 04.06.2019 **Analyst:** CHE

**QC- Sample ID:** 620013-002 D **Batch #:** 1 **Matrix:** Water

**Reporting Units:** mg/L

**SAMPLE / SAMPLE DUPLICATE RECOVERY**

| TDS by SM2540C<br>Analyte | Parent Sample Result [A] | Sample Duplicate Result [B] | RPD | Control Limits %RPD | Flag |
|---|---|---|---|---|---|
| Total Dissolved Solids | 1520 | 1550 | 2 | 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

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ARCADIS

ID#:

# CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Page 1 of 1

Lab Work Order #: 620013

**Send Results to:**

Contact & Company Name: Brett Krehbiel Arcadis
Telephone: 916-786-0320
Address: 101 Creekside Ridge Court, Suite 200
Fax: 916-786-0366
City: Roseville State: CA Zip: 95678
E-mail Address: brett.krehbiel@arcadis.com
Project Name/Location (City, State): Chevron N. Eunice
Project #: B0048789.0004
Sampler's Printed Name: Jenny S. Longwell
Sampler's Signature:

| Preservative | B | B | C | E | E | | |
|---|---|---|---|---|---|---|---|
| Filtered (✓) | | | ✓ | ✓ | | | |
| # of Containers | 30 | 20 | 10 | 10 | 10 | | |
| Container Information | 1 | 1 | 3 | 4 | 4 | | |

**PARAMETER ANALYSIS & METHOD**

**Keys**

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

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

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

| Sample ID | Collection Date | Collection Time | Type (✓) Comp | Type (✓) Grab | Matrix | BTEX 8021B | TPH GRO & DRO 8015B | Dissolved As, Mn, Fe, Cr 6010B | Dissolved Hex Chromium 7196 | Chloride & TDS | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-31 | 4/02/19 | 0930 | | X | W | 3 | 2 | 1 | 1 | 1 | |
| MW-14 | | 0854 | | X | W | 3 | 2 | 1 | 1 | 1 | |
| MWD-4 | | 0829 | | X | W | 3 | 2 | 1 | 1 | 1 | |
| MWD-13 | | 1007 | | X | W | 3 | 2 | 1 | 1 | 1 | |
| MW-22 | | 1047 | | X | W | 3 | 2 | 1 | 1 | 1 | |
| MWD-17 | | 1233 | | X | W | 3 | 2 | 1 | 1 | 1 | |
| MWD-7 | | 1313 | | X | W | 3 | 2 | 1 | 1 | 1 | |
| MW-17 | | 1338 | | X | W | 3 | 2 | 1 | 1 | 1 | |
| MWD-1 | | 1400 | | X | W | 3 | 2 | 1 | 1 | 1 | |
| DUP-4 | 4/03/19 | | | X | W | 3 | 2 | 1 | 1 | 1 | |

Special Instructions/Comments:

☐ Special QA/QC Instructions(✓):

**Laboratory Information and Receipt**

Lab Name: Xenco
☒ Cooler packed with ice (✓)
Specify Turnaround Requirements: Standard TAT
Shipping Tracking #:

Cooler Custody Seal (✓): ☐ Intact ☐ Not Intact
Sample Receipt:
Condition/Cooler Temp: ____

| Relinquished By | Received By | Relinquished By | Laboratory Received By |
|---|---|---|---|
| Printed Name: Jenny S. Longwell | Printed Name: Winston Kidd | Printed Name: Katie Lowe | Printed Name: Winston Kidd |
| Signature: | Signature: | Signature: | Signature: |
| Firm: Arcadis | Firm/Courier: Xenco | Firm/Courier: Xenco | Firm: Xenco |
| Date/Time: 04/03/19 1617 | Date/Time: 4/3/19 16:17 | Date/Time: 4/3/19 1800 | Date/Time: 4/3/19 1800 |

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

20730828 CofC AR Form 06.27.2015

3.6 | 3.5 R8 -0

Received by OCD: 3/25/2020 2:27:35 PM
Released to Imaging: 6/14/2022 10:17:42 AM
Final 1.006
Page 40 of 43

# Inter-Office Shipment





**IOS Number** **125946**

Date/Time: 04/04/19 07:38
Lab# From: **Midland**
Lab# To: **Houston**

Created by: Brianna Teel
Delivery Priority:
Air Bill No.: 774891180762

Please send report to: Brandi Ritcherson
Address: 1211 W. Florida Ave
E-Mail: brandi.ritcherson@xenco.com

| Sample Id | Matrix | Client Sample Id | Sample Collection | Method | Method Name | Lab Due | HT Due | PM | Analytes | Sign |
|---|---|---|---|---|---|---|---|---|---|---|
| 620013-001 | W | MW-31 | 04/03/19 08:30 | SW6020_DIS | Dissolved Metals by SW6020A | 04/09/19 | 09/30/19 | BAR | AS CR FE MN | |
| 620013-002 | W | MW-14 | 04/03/19 08:34 | SW6020_DIS | Dissolved Metals by SW6020A | 04/09/19 | 09/30/19 | BAR | AS CR FE MN | |
| 620013-003 | W | MWD-4 | 04/03/19 08:20 | SW6020_DIS | Dissolved Metals by SW6020A | 04/09/19 | 09/30/19 | BAR | AS CR FE MN | |
| 620013-004 | W | MWD-13 | 04/03/19 10:07 | SW6020_DIS | Dissolved Metals by SW6020A | 04/09/19 | 09/30/19 | BAR | AS CR FE MN | |
| 620013-005 | W | MW-22 | 04/03/19 10:42 | SW6020_DIS | Dissolved Metals by SW6020A | 04/09/19 | 09/30/19 | BAR | AS CR FE MN | |
| 620013-006 | W | MWD-17 | 04/03/19 12:38 | SW6020_DIS | Dissolved Metals by SW6020A | 04/09/19 | 09/30/19 | BAR | AS CR FE MN | |
| 620013-007 | W | MWD-7 | 04/03/19 13:13 | SW6020_DIS | Dissolved Metals by SW6020A | 04/09/19 | 09/30/19 | BAR | AS CR FE MN | |
| 620013-008 | W | MW-17 | 04/03/19 13:38 | SW6020_DIS | Dissolved Metals by SW6020A | 04/09/19 | 09/30/19 | BAR | AS CR FE MN | |
| 620013-009 | W | MWD-1 | 04/03/19 14:00 | SW6020_DIS | Dissolved Metals by SW6020A | 04/09/19 | 09/30/19 | BAR | AS CR FE MN | |
| 620013-010 | W | DUP-4 | 04/03/19 00:00 | SW6020_DIS | Dissolved Metals by SW6020A | 04/09/19 | 09/30/19 | BAR | AS CR FE MN | |

Inter Office Shipment or Sample Comments:

Relinquished By: Brianna Teel
Brianna Teel

Date Relinquished: 04/04/2019

Received By:
Taha Hedib

Date Received: 04/05/2019 09:25

Cooler Temperature: 0.5

# XENCO Laboratories

## Inter Office Report- Sample Receipt Checklist

**Sent To:** Houston

**IOS #:** 125946

**Acceptable Temperature Range: 0 - 6 degC**
**Air and Metal samples Acceptable Range: Ambient**
**Temperature Measuring device used :**

**Sent By:** Brianna Teel **Date Sent:** 04/04/2019 07:38 AM

**Received By:** Taha Hedib **Date Received:** 04/05/2019 09:25 AM

| Sample Receipt Checklist | | Comments |
|---|---|---|
| #1 *Temperature of cooler(s)? | .5 | |
| #2 *Shipping container in good condition? | **Yes** | |
| #3 *Samples received with appropriate temperature? | **Yes** | |
| #4 *Custody Seals intact on shipping container/ cooler? | **Yes** | |
| #5 *Custody Seals Signed and dated for Containers/coolers | **Yes** | |
| #6 *IOS present? | **Yes** | |
| #7 Any missing/extra samples? | **No** | |
| #8 IOS agrees with sample label(s)/matrix? | **Yes** | |
| #9 Sample matrix/ properties agree with IOS? | **Yes** | |
| #10 Samples in proper container/ bottle? | **Yes** | |
| #11 Samples properly preserved? | **Yes** | |
| #12 Sample container(s) intact? | **Yes** | |
| #13 Sufficient sample amount for indicated test(s)? | **Yes** | |
| #14 All samples received within hold time? | **Yes** | |

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

**NonConformance:**

**Corrective Action Taken:**

**Nonconformance Documentation**

**Contact:** _____ **Contacted by :** _____ **Date:** _____

**Checklist reviewed by:** _____ Date: 04/05/2019

Taha Hedib

# XENCO Laboratories

## Prelogin/Nonconformance Report- Sample Log-In

**Client:** ARCADIS

**Date/ Time Received:** 04/03/2019 06:00:00 PM

**Work Order #:** 620013

**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)? | 3.5 | |
| #2 *Shipping container in good condition? | **Yes** | |
| #3 *Samples received on ice? | **Yes** | |
| #4 *Custody Seals intact on shipping container/ cooler? | **N/A** | |
| #5 Custody Seals intact on sample bottles? | **N/A** | |
| #6*Custody Seals Signed and dated? | **N/A** | |
| #7 *Chain of Custody present? | **Yes** | |
| #8 Any missing/extra samples? | **No** | |
| #9 Chain of Custody signed when relinquished/ received? | **Yes** | |
| #10 Chain of Custody agrees with sample labels/matrix? | **Yes** | |
| #11 Container label(s) legible and intact? | **Yes** | |
| #12 Samples in proper container/ bottle? | **Yes** | |
| #13 Samples properly preserved? | **Yes** | |
| #14 Sample container(s) intact? | **Yes** | |
| #15 Sufficient sample amount for indicated test(s)? | **Yes** | |
| #16 All samples received within hold time? | **Yes** | |
| #17 Subcontract of sample(s)? | **Yes** | Xenco Stafford |
| #18 Water VOC samples have zero headspace? | **Yes** | |

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

Analyst: BT

PH Device/Lot#: A023690

**Checklist completed by:** Katie Lowe Date: 04/03/2019

**Checklist reviewed by:** Brandi Ritcherson Date: 04/08/2019

# Analytical Report 620014

## for

## ARCADIS

**Project Manager: Brett Krehbiel**

**Eunice Project-S. Eunice**

**B0048789.0004**

**08.08.2019**

Collected By: Client

**1211 W. Florida Ave**
**Midland TX 79701**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-19-29), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142), North Carolina (681)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-19-19), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-18-14)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-19-20)
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-Atlanta (LELAP Lab ID #04176)
Xenco-Tampa: Florida (E87429), North Carolina (483)

08.08.2019

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

Reference: XENCO Report No(s): **620014**
**Eunice Project-S. Eunice**
Project Address: Eunice, NM.

**Brett Krehbiel**:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 620014. 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. 620014 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,

**John Builes**
Project Manager

*A Small Business and Minority Company*

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

# Sample Cross Reference 620014

## ARCADIS, Midland, TX

Eunice Project-S. Eunice

| Sample Id | Matrix | Date Collected | Sample Depth | Lab Sample Id |
|---|---|---|---|---|
| MW-30 | W | 04.03.2019 08:32 | | 620014-001 |
| MW-9 | W | 04.03.2019 09:14 | | 620014-002 |
| MW-29 | W | 04.03.2019 09:52 | | 620014-003 |
| MWD-5 | W | 04.03.2019 10:41 | | 620014-004 |
| MW-32 | W | 04.03.2019 13:41 | | 620014-005 |
| MW-8 | W | 04.03.2019 13:20 | | 620014-006 |
| MWD-12 | W | 04.03.2019 13:51 | | 620014-007 |
| DUP 3 | W | 04.03.2019 00:00 | | 620014-008 |

# CASE NARRATIVE



***Client Name: ARCADIS***

***Project Name: Eunice Project-S. Eunice***

Project ID: *B0048789.0004*
Work Order Number(s): *620014*

Report Date: *08.08.2019*
Date Received: *04.03.2019*

This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory.

**Sample receipt non conformances and comments:**

None

**Sample receipt non conformances and comments per sample:**

None

**Analytical non conformances and comments:**

Batch: LBA-3084515 Chromium, Hexavalent by SW 7196A
Sample 620014 - 008 K-flag due to no sample time entered for duplicate.

Batch: LBA-3085018 TDS by SM2540C
Total Dissolved Solids detected in the blank above the MQL, therefore possible laboratory contamination indicating a potential high bias. Samples in the analytical batch are: 620014-003, -004, -005, -006, -007, -008.

Batch: LBA-3085169 TDS by SM2540C
Total Dissolved Solids detected in the blank above the MQL, therefore possible laboratory contamination indicating a potential high bias. Samples in the analytical batch are: 620014-002.

# Certificate of Analytical Results
## 620014
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **MW-30** Matrix: Water Sample Depth:

Lab Sample Id: 620014-001 Date Collected: 04.03.2019 08:32 Date Received: 04.03.2019 18:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085133 Date Prep: 04.09.2019 09:45

Prep seq: 7675332

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **260** | 5.00 | 0.858 | mg/L | 04.10.2019 04:07 | | 10 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3084993 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1240** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085125 Date Prep: 04.09.2019 03:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675313

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0212** | 0.00400 | 0.000246 | mg/L | 04.09.2019 17:52 | | 1 |
| **Chromium** | 7440-47-3 | **0.00146** | 0.00400 | 0.000525 | mg/L | 04.09.2019 17:52 | J | 1 |
| **Barium** | 7440-39-3 | **0.370** | 0.00400 | 0.000484 | mg/L | 04.09.2019 17:52 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3084515 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.04.2019 07:05 | U | 1 |

# Certificate of Analytical Results
## 620014

## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **MW-30** Matrix: Water Sample Depth:

Lab Sample Id: 620014-001 Date Collected: 04.03.2019 08:32 Date Received: 04.03.2019 18:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085686 Date Prep: 04.12.2019 07:00

Prep seq: 7675744

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.986 | 1.50 | 0.986 | mg/L | 04.12.2019 11:16 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 11:16 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 11:16 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 11:16 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 94 | 70 - 135 | % | | |
| o-Terphenyl | 95 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085172 Date Prep: 04.09.2019 12:00

Prep seq: 7675452

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **0.00872** | 0.00200 | 0.000408 | mg/L | 04.09.2019 19:18 | | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.09.2019 19:18 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.09.2019 19:18 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.09.2019 19:18 | U | 1 |
| **o-Xylene** | 95-47-6 | **0.00100** | 0.00200 | 0.000642 | mg/L | 04.09.2019 19:18 | J | 1 |
| **Total Xylenes** | 1330-20-7 | **0.00100** | 0.00200 | 0.000630 | mg/L | 04.09.2019 19:18 | J | 1 |
| **Total BTEX** | | **0.00972** | 0.00200 | 0.000367 | mg/L | 04.09.2019 19:18 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 91 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 92 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620014
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **MW-9** Matrix: Water Sample Depth:

Lab Sample Id: 620014-002 Date Collected: 04.03.2019 09:14 Date Received: 04.03.2019 18:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085133 Date Prep: 04.09.2019 09:45

Prep seq: 7675332

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **334** | 5.00 | 0.858 | mg/L | 04.10.2019 04:27 | | 10 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085169 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1410** | 5.00 | 5.00 | mg/L | 04.09.2019 15:43 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085125 Date Prep: 04.09.2019 03:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675313

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0107** | 0.00400 | 0.000246 | mg/L | 04.09.2019 18:04 | | 1 |
| **Chromium** | 7440-47-3 | **0.00113** | 0.00400 | 0.000525 | mg/L | 04.09.2019 18:04 | J | 1 |
| **Barium** | 7440-39-3 | **4.79** | 0.400 | 0.0484 | mg/L | 04.16.2019 16:58 | D | 100 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3084515 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.04.2019 07:05 | U | 1 |

# Certificate of Analytical Results
## 620014

## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **MW-9** Matrix: Water Sample Depth:

Lab Sample Id: 620014-002 Date Collected: 04.03.2019 09:14 Date Received: 04.03.2019 18:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085686 Date Prep: 04.12.2019 07:00

Prep seq: 7675744

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.987 | 1.50 | 0.987 | mg/L | 04.12.2019 12:13 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 12:13 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 12:13 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 12:13 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 91 | 70 - 135 | % | | |
| o-Terphenyl | 87 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085172 Date Prep: 04.09.2019 12:00

Prep seq: 7675452

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **0.00105** | 0.00200 | 0.000408 | mg/L | 04.09.2019 19:38 | J | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.09.2019 19:38 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.09.2019 19:38 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.09.2019 19:38 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.09.2019 19:38 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.09.2019 19:38 | U | 1 |
| **Total BTEX** | | **0.00105** | 0.00200 | 0.000367 | mg/L | 04.09.2019 19:38 | J | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 92 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 90 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620014
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **MW-29** Matrix: Water Sample Depth:

Lab Sample Id: 620014-003 Date Collected: 04.03.2019 09:52 Date Received: 04.03.2019 18:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085133 Date Prep: 04.09.2019 09:45

Prep seq: 7675332

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **185** | 5.00 | 0.858 | mg/L | 04.10.2019 04:34 | | 10 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085018 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1170** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085125 Date Prep: 04.09.2019 03:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675313

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.00389** | 0.00400 | 0.000246 | mg/L | 04.09.2019 18:06 | J | 1 |
| **Chromium** | 7440-47-3 | **0.000856** | 0.00400 | 0.000525 | mg/L | 04.09.2019 18:06 | J | 1 |
| **Barium** | 7440-39-3 | **9.21** | 0.400 | 0.0484 | mg/L | 04.16.2019 17:01 | D | 100 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3084515 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.04.2019 07:05 | U | 1 |

# Certificate of Analytical Results
## 620014

## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **MW-29** Matrix: Water Sample Depth:

Lab Sample Id: 620014-003 Date Collected: 04.03.2019 09:52 Date Received: 04.03.2019 18:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085686 Date Prep: 04.12.2019 07:00

Prep seq: 7675744

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Gasoline Range Hydrocarbons** | PHC610 | **4.32** | 1.50 | 0.986 | mg/L | 04.12.2019 12:32 | | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 12:32 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 12:32 | U | 1 |
| **Total TPH** | PHC635 | **4.32** | 1.50 | 0.911 | mg/L | 04.12.2019 12:32 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 93 | 70 - 135 | % | | |
| o-Terphenyl | 91 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085172 Date Prep: 04.09.2019 12:00

Prep seq: 7675452

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **0.0624** | 0.00200 | 0.000408 | mg/L | 04.09.2019 19:57 | | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.09.2019 19:57 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.09.2019 19:57 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.09.2019 19:57 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.09.2019 19:57 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.09.2019 19:57 | U | 1 |
| **Total BTEX** | | **0.0624** | 0.00200 | 0.000367 | mg/L | 04.09.2019 19:57 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 91 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 83 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620014
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **MWD-5** Matrix: Water Sample Depth:

Lab Sample Id: 620014-004 Date Collected: 04.03.2019 10:41 Date Received: 04.03.2019 18:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085133 Date Prep: 04.09.2019 09:45

Prep seq: 7675332

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **708** | 10.0 | 1.72 | mg/L | 04.10.2019 04:41 | | 20 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085018 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **2090** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085125 Date Prep: 04.09.2019 03:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675313

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0165** | 0.00400 | 0.000246 | mg/L | 04.09.2019 18:09 | | 1 |
| **Chromium** | 7440-47-3 | **0.00105** | 0.00400 | 0.000525 | mg/L | 04.09.2019 18:09 | J | 1 |
| **Barium** | 7440-39-3 | **7.71** | 0.400 | 0.0484 | mg/L | 04.16.2019 17:04 | D | 100 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3084515 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.04.2019 07:05 | U | 1 |

# Certificate of Analytical Results
## 620014
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **MWD-5** Matrix: Water Sample Depth:

Lab Sample Id: 620014-004 Date Collected: 04.03.2019 10:41 Date Received: 04.03.2019 18:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085686 Date Prep: 04.12.2019 07:00

Prep seq: 7675744

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Gasoline Range Hydrocarbons** | PHC610 | **12.9** | 1.50 | 0.986 | mg/L | 04.12.2019 12:52 | | 1 |
| **Diesel Range Organics** | C10C28DRO | **1.70** | 1.50 | 0.911 | mg/L | 04.12.2019 12:52 | | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 12:52 | U | 1 |
| **Total TPH** | PHC635 | **14.6** | 1.50 | 0.911 | mg/L | 04.12.2019 12:52 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 89 | 70 - 135 | % | | |
| o-Terphenyl | 88 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085172 Date Prep: 04.09.2019 12:00

Prep seq: 7675452

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **3.46** | 0.0500 | 0.0102 | mg/L | 04.09.2019 20:19 | | 25 |
| Toluene | 108-88-3 | <0.00918 | 0.0500 | 0.00918 | mg/L | 04.09.2019 20:19 | U | 25 |
| Ethylbenzene | 100-41-4 | <0.0164 | 0.0500 | 0.0164 | mg/L | 04.09.2019 20:19 | U | 25 |
| m,p-Xylenes | 179601-23-1 | <0.0157 | 0.100 | 0.0157 | mg/L | 04.09.2019 20:19 | U | 25 |
| o-Xylene | 95-47-6 | <0.0161 | 0.0500 | 0.0161 | mg/L | 04.09.2019 20:19 | U | 25 |
| Total Xylenes | 1330-20-7 | <0.0157 | 0.0500 | 0.0157 | mg/L | 04.09.2019 20:19 | U | 25 |
| **Total BTEX** | | **3.46** | 0.0500 | 0.00918 | mg/L | 04.09.2019 20:19 | | 25 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 93 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 87 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620014
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **MW-32** Matrix: Water Sample Depth:

Lab Sample Id: 620014-005 Date Collected: 04.03.2019 13:41 Date Received: 04.03.2019 18:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085133 Date Prep: 04.09.2019 09:45

Prep seq: 7675332

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **583** | 10.0 | 1.72 | mg/L | 04.10.2019 04:48 | | 20 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085018 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **2200** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085125 Date Prep: 04.09.2019 03:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675313

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0361** | 0.00400 | 0.000246 | mg/L | 04.09.2019 18:12 | | 1 |
| **Chromium** | 7440-47-3 | **0.000949** | 0.00400 | 0.000525 | mg/L | 04.09.2019 18:12 | J | 1 |
| **Barium** | 7440-39-3 | **1.40** | 0.00400 | 0.000484 | mg/L | 04.09.2019 18:12 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3084515 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.04.2019 07:05 | U | 1 |

# Certificate of Analytical Results
## 620014
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **MW-32** Matrix: Water Sample Depth:

Lab Sample Id: 620014-005 Date Collected: 04.03.2019 13:41 Date Received: 04.03.2019 18:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085686 Date Prep: 04.12.2019 07:00

Prep seq: 7675744

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Gasoline Range Hydrocarbons** | PHC610 | **11.1** | 1.50 | 0.986 | mg/L | 04.12.2019 13:11 | | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 13:11 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 13:11 | U | 1 |
| **Total TPH** | PHC635 | **11.1** | 1.50 | 0.911 | mg/L | 04.12.2019 13:11 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 92 | 70 - 135 | % | | |
| o-Terphenyl | 88 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085172 Date Prep: 04.09.2019 12:00

Prep seq: 7675452

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **4.30** | 0.500 | 0.102 | mg/L | 04.10.2019 12:17 | D | 250 |
| **Toluene** | 108-88-3 | **0.000510** | 0.00200 | 0.000367 | mg/L | 04.10.2019 00:35 | J | 1 |
| **Ethylbenzene** | 100-41-4 | **0.00196** | 0.00200 | 0.000657 | mg/L | 04.10.2019 00:35 | J | 1 |
| **m,p-Xylenes** | 179601-23-1 | **0.00115** | 0.00400 | 0.000630 | mg/L | 04.10.2019 00:35 | J | 1 |
| **o-Xylene** | 95-47-6 | **0.00196** | 0.00200 | 0.000642 | mg/L | 04.10.2019 00:35 | J | 1 |
| **Total Xylenes** | 1330-20-7 | **0.00311** | 0.00200 | 0.000630 | mg/L | 04.10.2019 00:35 | | 1 |
| **Total BTEX** | | **4.31** | 0.00200 | 0.000367 | mg/L | 04.10.2019 12:17 | | 250 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 100 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 86 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620014
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **MW-8** Matrix: Water Sample Depth:

Lab Sample Id: 620014-006 Date Collected: 04.03.2019 13:20 Date Received: 04.03.2019 18:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085133 Date Prep: 04.09.2019 09:45

Prep seq: 7675332

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **512** | 10.0 | 1.72 | mg/L | 04.10.2019 04:54 | | 20 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085018 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **2240** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085125 Date Prep: 04.09.2019 03:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675313

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0519** | 0.00400 | 0.000246 | mg/L | 04.09.2019 18:15 | | 1 |
| **Chromium** | 7440-47-3 | **0.00112** | 0.00400 | 0.000525 | mg/L | 04.09.2019 18:15 | J | 1 |
| **Barium** | 7440-39-3 | **0.0496** | 0.00400 | 0.000484 | mg/L | 04.09.2019 18:15 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3084515 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.04.2019 07:05 | U | 1 |

# Certificate of Analytical Results
## 620014
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **MW-8** Matrix: Water Sample Depth:

Lab Sample Id: 620014-006 Date Collected: 04.03.2019 13:20 Date Received: 04.03.2019 18:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085686 Date Prep: 04.12.2019 07:00

Prep seq: 7675744

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.986 | 1.50 | 0.986 | mg/L | 04.12.2019 13:30 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 13:30 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 13:30 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 13:30 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 92 | 70 - 135 | % | | |
| o-Terphenyl | 91 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085172 Date Prep: 04.09.2019 12:00

Prep seq: 7675452

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 04.09.2019 17:41 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.09.2019 17:41 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.09.2019 17:41 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.09.2019 17:41 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.09.2019 17:41 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.09.2019 17:41 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.09.2019 17:41 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 92 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 92 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620014
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **MWD-12** Matrix: Water Sample Depth:

Lab Sample Id: 620014-007 Date Collected: 04.03.2019 13:51 Date Received: 04.03.2019 18:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085133 Date Prep: 04.09.2019 09:45

Prep seq: 7675332

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **901** | 25.0 | 4.29 | mg/L | 04.10.2019 05:01 | | 50 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085018 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **3120** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085125 Date Prep: 04.09.2019 03:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675313

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0443** | 0.00400 | 0.000246 | mg/L | 04.09.2019 18:18 | | 1 |
| **Chromium** | 7440-47-3 | **0.000870** | 0.00400 | 0.000525 | mg/L | 04.09.2019 18:18 | J | 1 |
| **Barium** | 7440-39-3 | **0.380** | 0.00400 | 0.000484 | mg/L | 04.09.2019 18:18 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3084515 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.04.2019 07:05 | U | 1 |

# Certificate of Analytical Results
## 620014
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **MWD-12** Matrix: Water Sample Depth:

Lab Sample Id: 620014-007 Date Collected: 04.03.2019 13:51 Date Received: 04.03.2019 18:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085686 Date Prep: 04.12.2019 07:00

Prep seq: 7675744

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.986 | 1.50 | 0.986 | mg/L | 04.12.2019 13:49 | U | 1 |
| **Diesel Range Organics** | C10C28DRO | **1.20** | 1.50 | 0.911 | mg/L | 04.12.2019 13:49 | J | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 13:49 | U | 1 |
| **Total TPH** | PHC635 | **1.20** | 1.50 | 0.911 | mg/L | 04.12.2019 13:49 | J | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 91 | 70 - 135 | % | | |
| o-Terphenyl | 88 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085172 Date Prep: 04.09.2019 12:00

Prep seq: 7675452

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **0.000460** | 0.00200 | 0.000408 | mg/L | 04.09.2019 21:58 | J | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.09.2019 21:58 | U | 1 |
| **Ethylbenzene** | 100-41-4 | **0.0109** | 0.00200 | 0.000657 | mg/L | 04.09.2019 21:58 | | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.09.2019 21:58 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.09.2019 21:58 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.09.2019 21:58 | U | 1 |
| **Total BTEX** | | **0.0114** | 0.00200 | 0.000367 | mg/L | 04.09.2019 21:58 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 92 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 89 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620014
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **DUP 3** Matrix: Water Sample Depth:

Lab Sample Id: 620014-008 Date Collected: 04.03.2019 00:00 Date Received: 04.03.2019 18:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085133 Date Prep: 04.09.2019 09:45

Prep seq: 7675332

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **165** | 5.00 | 0.858 | mg/L | 04.10.2019 05:08 | | 10 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085018 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1100** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085125 Date Prep: 04.09.2019 03:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675313

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.00338** | 0.00400 | 0.000246 | mg/L | 04.09.2019 18:21 | J | 1 |
| **Chromium** | 7440-47-3 | **0.000706** | 0.00400 | 0.000525 | mg/L | 04.09.2019 18:21 | J | 1 |
| **Barium** | 7440-39-3 | **7.51** | 0.400 | 0.0484 | mg/L | 04.16.2019 17:10 | D | 100 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3084515 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.04.2019 07:05 | UK | 1 |

# Certificate of Analytical Results
## 620014
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **DUP 3** Matrix: Water Sample Depth:

Lab Sample Id: 620014-008 Date Collected: 04.03.2019 00:00 Date Received: 04.03.2019 18:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085686 Date Prep: 04.12.2019 07:00

Prep seq: 7675744

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Gasoline Range Hydrocarbons** | PHC610 | **4.21** | 1.50 | 0.986 | mg/L | 04.12.2019 14:08 | | 1 |
| **Diesel Range Organics** | C10C28DRO | **1.20** | 1.50 | 0.911 | mg/L | 04.12.2019 14:08 | J | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 14:08 | U | 1 |
| **Total TPH** | PHC635 | **5.41** | 1.50 | 0.911 | mg/L | 04.12.2019 14:08 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 94 | 70 - 135 | % | | |
| o-Terphenyl | 93 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085172 Date Prep: 04.09.2019 12:00

Prep seq: 7675452

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **0.0462** | 0.00200 | 0.000408 | mg/L | 04.10.2019 00:55 | | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.10.2019 00:55 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.10.2019 00:55 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.10.2019 00:55 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.10.2019 00:55 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.10.2019 00:55 | U | 1 |
| **Total BTEX** | | **0.0462** | 0.00200 | 0.000367 | mg/L | 04.10.2019 00:55 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 93 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 81 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620014
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **3084515-1-BLK** Matrix: Water Sample Depth:
Lab Sample Id: 3084515-1-BLK Date Collected: Date Received:
Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:
Analyst: SPC % Moist: Tech: SPC
Seq Number: 3084515 Date Prep:
Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.04.2019 07:05 | U | 1 |

Sample Id: **3084993-1-BLK** Matrix: Water Sample Depth:
Lab Sample Id: 3084993-1-BLK Date Collected: Date Received:
Analytical Method: TDS by SM2540C Prep Method:
Analyst: CHE % Moist: Tech: CHE
Seq Number: 3084993 Date Prep:
Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids | 1642222 | <5.00 | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | U | 1 |

Sample Id: **3085018-1-BLK** Matrix: Water Sample Depth:
Lab Sample Id: 3085018-1-BLK Date Collected: Date Received:
Analytical Method: TDS by SM2540C Prep Method:
Analyst: CHE % Moist: Tech: CHE
Seq Number: 3085018 Date Prep:
Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **28.0** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | B | 1 |

Sample Id: **3085169-1-BLK** Matrix: Water Sample Depth:
Lab Sample Id: 3085169-1-BLK Date Collected: Date Received:
Analytical Method: TDS by SM2540C Prep Method:
Analyst: CHE % Moist: Tech: CHE
Seq Number: 3085169 Date Prep:
Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **6.00** | 5.00 | 5.00 | mg/L | 04.09.2019 15:43 | B | 1 |

# Certificate of Analytical Results
## 620014
## ARCADIS, Midland, TX
Eunice Project-S. Eunice

Sample Id: **7675313-1-BLK** Matrix: Water Sample Depth:
Lab Sample Id: 7675313-1-BLK Date Collected: Date Received:
Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A
Analyst: DEP % Moist: Tech: DEP
Seq Number: 3085125 Date Prep: 04.09.2019 03:00
Subcontractor: SUB: T104704215-19-29 Prep seq: 7675313

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Arsenic | 7440-38-2 | <0.000246 | 0.00400 | 0.000246 | mg/L | 04.09.2019 16:57 | U | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 04.09.2019 16:57 | U | 1 |
| Barium | 7440-39-3 | <0.000484 | 0.00400 | 0.000484 | mg/L | 04.09.2019 16:57 | U | 1 |

Sample Id: **7675332-1-BLK** Matrix: Water Sample Depth:
Lab Sample Id: 7675332-1-BLK Date Collected: Date Received:
Analytical Method: Chloride by EPA 300 Prep Method: E300P
Analyst: CHE % Moist: Tech: CHE
Seq Number: 3085133 Date Prep: 04.09.2019 09:45
Prep seq: 7675332

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chloride | 16887-00-6 | <0.0858 | 0.500 | 0.0858 | mg/L | 04.10.2019 01:37 | U | 1 |

Sample Id: **7675452-1-BLK** Matrix: Water Sample Depth:
Lab Sample Id: 7675452-1-BLK Date Collected: Date Received:
Analytical Method: BTEX by EPA 8021B Prep Method: 5030B
Analyst: SCM % Moist: Tech: SCM
Seq Number: 3085172 Date Prep: 04.09.2019 12:00
Prep seq: 7675452

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 04.09.2019 17:21 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.09.2019 17:21 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.09.2019 17:21 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.09.2019 17:21 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.09.2019 17:21 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.09.2019 17:21 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.09.2019 17:21 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 91 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 90 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620014

## ARCADIS, Midland, TX

Eunice Project-S. Eunice

Sample Id: **7675744-1-BLK** Matrix: Water Sample Depth:

Lab Sample Id: 7675744-1-BLK Date Collected: Date Received:

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085686 Date Prep: 04.12.2019 07:00

Prep seq: 7675744

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.986 | 1.50 | 0.986 | mg/L | 04.12.2019 10:19 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 10:19 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 10:19 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 10:19 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 107 | 70 - 135 | % | | |
| o-Terphenyl | 109 | 70 - 135 | % | | |

# 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



Released to Imaging: 6/14/2022 10:17:42 AM

# Form 2 - Surrogate Recoveries

**Project Name:** Eunice Project-S. Eunice

**Work Orders :** 620014 **Project ID:** B0048789.0004

**Lab Batch #:** 3085172 **Sample:** 7675452-1-BKS / BKS **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.09.2019 15:42 **SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0295 | 0.0300 | 98 | 70-130 | |
| 4-Bromofluorobenzene | 0.0299 | 0.0300 | 100 | 70-130 | |

**Lab Batch #:** 3085172 **Sample:** 7675452-1-BSD / BSD **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.09.2019 16:02 **SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0294 | 0.0300 | 98 | 70-130 | |
| 4-Bromofluorobenzene | 0.0294 | 0.0300 | 98 | 70-130 | |

**Lab Batch #:** 3085172 **Sample:** 620014-006 S / MS **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.09.2019 16:22 **SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0297 | 0.0300 | 99 | 70-130 | |
| 4-Bromofluorobenzene | 0.0303 | 0.0300 | 101 | 70-130 | |

**Lab Batch #:** 3085172 **Sample:** 620014-006 SD / MSD **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.09.2019 16:42 **SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0298 | 0.0300 | 99 | 70-130 | |
| 4-Bromofluorobenzene | 0.0300 | 0.0300 | 100 | 70-130 | |

**Lab Batch #:** 3085172 **Sample:** 7675452-1-BLK / BLK **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.09.2019 17:21 **SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0274 | 0.0300 | 91 | 70-130 | |
| 4-Bromofluorobenzene | 0.0269 | 0.0300 | 90 | 70-130 | |

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

# Form 2 - Surrogate Recoveries

**Project Name:** Eunice Project-S. Eunice

**Work Orders :** 620014 **Project ID:** B0048789.0004

**Lab Batch #:** 3085686 **Sample:** 7675744-1-BLK / BLK **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.12.2019 10:19 **SURROGATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 10.7 | 9.98 | 107 | 70-135 | |
| o-Terphenyl | 5.42 | 4.99 | 109 | 70-135 | |

**Lab Batch #:** 3085686 **Sample:** 7675744-1-BKS / BKS **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.12.2019 10:38 **SURROGATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 12.5 | 9.99 | 125 | 70-135 | |
| o-Terphenyl | 5.98 | 4.99 | 120 | 70-135 | |

**Lab Batch #:** 3085686 **Sample:** 7675744-1-BSD / BSD **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.12.2019 10:57 **SURROGATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 13.0 | 9.98 | 130 | 70-135 | |
| o-Terphenyl | 6.35 | 4.99 | 127 | 70-135 | |

**Lab Batch #:** 3085686 **Sample:** 620014-001 S / MS **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.12.2019 11:35 **SURROGATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 12.8 | 9.99 | 128 | 70-135 | |
| o-Terphenyl | 6.37 | 5.00 | 127 | 70-135 | |

**Lab Batch #:** 3085686 **Sample:** 620014-001 SD / MSD **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.12.2019 11:54 **SURROGATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 12.8 | 9.98 | 128 | 70-135 | |
| o-Terphenyl | 6.43 | 4.99 | 129 | 70-135 | |

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

# BS / BSD Recoveries

## Project Name: Eunice Project-S. Eunice

**Work Order #:** 620014 **Project ID:** B0048789.0004

**Analyst:** SCM **Date Prepared:** 04.09.2019 **Date Analyzed:** 04.09.2019

**Lab Batch ID:** 3085172 **Sample:** 7675452-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Blank Sample Result [A] | Spike Added [B] | Blank Spike Result [C] | Blank Spike %R [D] | Spike Added [E] | Blank Spike Duplicate Result [F] | Blk. Spk Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.000408 | 0.100 | 0.0998 | 100 | 0.100 | 0.0971 | 97 | 3 | 70-130 | 25 | |
| Toluene | <0.000367 | 0.100 | 0.103 | 103 | 0.100 | 0.0996 | 100 | 3 | 70-130 | 25 | |
| Ethylbenzene | <0.000657 | 0.100 | 0.0976 | 98 | 0.100 | 0.0945 | 95 | 3 | 70-130 | 25 | |
| m,p-Xylenes | <0.000630 | 0.200 | 0.196 | 98 | 0.200 | 0.189 | 95 | 4 | 70-130 | 25 | |
| o-Xylene | <0.000642 | 0.100 | 0.0990 | 99 | 0.100 | 0.0959 | 96 | 3 | 70-130 | 25 | |

**Analyst:** CHE **Date Prepared:** 04.09.2019 **Date Analyzed:** 04.10.2019

**Lab Batch ID:** 3085133 **Sample:** 7675332-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| Chloride by EPA 300<br>Analytes | Blank Sample Result [A] | Spike Added [B] | Blank Spike Result [C] | Blank Spike %R [D] | Spike Added [E] | Blank Spike Duplicate Result [F] | Blk. Spk Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | <0.0858 | 25.0 | 23.7 | 95 | 25.0 | 24.7 | 99 | 4 | 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: Eunice Project-S. Eunice

**Work Order #:** 620014 **Project ID:** B0048789.0004

**Analyst:** SPC **Date Prepared:** 04.04.2019 **Date Analyzed:** 04.04.2019

**Lab Batch ID:** 3084515 **Sample:** 3084515-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| Chromium, Hexavalent by SW 7196A<br>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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | <0.00273 | 0.0400 | 0.0365 | 91 | 0.0400 | 0.0364 | 91 | 0 | 85-115 | 20 | |

**Analyst:** DEP **Date Prepared:** 04.09.2019 **Date Analyzed:** 04.09.2019

**Lab Batch ID:** 3085125 **Sample:** 7675313-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| Dissolved Metals by SW6020A<br>Analytes | Blank Sample Result [A] | Spike Added [B] | Blank Spike Result [C] | Blank Spike %R [D] | Spike Added [E] | Blank Spike Duplicate Result [F] | Blk. Spk Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | <0.000246 | 0.100 | 0.0967 | 97 | 0.100 | 0.0973 | 97 | 1 | 80-120 | 20 | |
| Chromium | <0.000525 | 0.100 | 0.0978 | 98 | 0.100 | 0.0990 | 99 | 1 | 80-120 | 20 | |
| Barium | <0.000484 | 0.100 | 0.0960 | 96 | 0.100 | 0.0968 | 97 | 1 | 80-120 | 20 | |

**Analyst:** CHE **Date Prepared:** 04.06.2019 **Date Analyzed:** 04.06.2019

**Lab Batch ID:** 3084993 **Sample:** 3084993-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| TDS by SM2540C<br>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 | 919 | 92 | 1000 | 912 | 91 | 1 | 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

# BS / BSD Recoveries

## Project Name: Eunice Project-S. Eunice

**Work Order #:** 620014 **Project ID:** B0048789.0004

**Analyst:** CHE **Date Prepared:** 04.06.2019 **Date Analyzed:** 04.06.2019

**Lab Batch ID:** 3085018 **Sample:** 3085018-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| TDS by SM2540C<br>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 | 28.0 | 1000 | 946 | 95 | 1000 | 928 | 93 | 2 | 80-120 | 10 | |

**Analyst:** CHE **Date Prepared:** 04.09.2019 **Date Analyzed:** 04.09.2019

**Lab Batch ID:** 3085169 **Sample:** 3085169-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| TDS by SM2540C<br>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 | 6.00 | 1000 | 953 | 95 | 1000 | 945 | 95 | 1 | 80-120 | 10 | |

**Analyst:** ARM **Date Prepared:** 04.12.2019 **Date Analyzed:** 04.12.2019

**Lab Batch ID:** 3085686 **Sample:** 7675744-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Blank Sample Result [A] | Spike Added [B] | Blank Spike Result [C] | Blank Spike %R [D] | Spike Added [E] | Blank Spike Duplicate Result [F] | Blk. Spk Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | <0.986 | 99.9 | 97.7 | 98 | 99.8 | 101 | 101 | 3 | 70-135 | 20 | |
| Diesel Range Organics | <0.911 | 99.9 | 100 | 100 | 99.8 | 101 | 101 | 1 | 70-135 | 20 | |

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

# Form 3 - MS / MSD Recoveries

## Project Name: Eunice Project-S. Eunice

**Work Order # :** 620014 **Project ID:** B0048789.0004

**Lab Batch ID:** 3085172 **QC- Sample ID:** 620014-006 S **Batch #:** 1 **Matrix:** Water

**Date Analyzed:** 04.09.2019 **Date Prepared:** 04.09.2019 **Analyst:** SCM

**Reporting Units:** mg/L

**MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Parent Sample Result [A] | Spike Added [B] | Spiked Sample Result [C] | Spiked Sample %R [D] | Spike Added [E] | Duplicate Spiked Sample Result [F] | Spiked Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.000408 | 0.100 | 0.109 | 109 | 0.100 | 0.113 | 113 | 4 | 70-130 | 25 | |
| Toluene | <0.000367 | 0.100 | 0.112 | 112 | 0.100 | 0.115 | 115 | 3 | 70-130 | 25 | |
| Ethylbenzene | <0.000657 | 0.100 | 0.107 | 107 | 0.100 | 0.111 | 111 | 4 | 70-130 | 25 | |
| m,p-Xylenes | <0.000630 | 0.200 | 0.214 | 107 | 0.200 | 0.222 | 111 | 4 | 70-130 | 25 | |
| o-Xylene | <0.000642 | 0.100 | 0.109 | 109 | 0.100 | 0.112 | 112 | 3 | 70-130 | 25 | |

**Lab Batch ID:** 3085133 **QC- Sample ID:** 620148-001 S **Batch #:** 1 **Matrix:** Water

**Date Analyzed:** 04.10.2019 **Date Prepared:** 04.09.2019 **Analyst:** CHE

**Reporting Units:** mg/L

**MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY**

| Chloride by EPA 300<br>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 | 118 | 125 | 245 | 102 | 125 | 249 | 105 | 2 | 90-110 | 20 | |

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

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

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

# Form 3 - MS / MSD Recoveries

## Project Name: Eunice Project-S. Eunice

**Work Order # :** 620014 **Project ID:** B0048789.0004

**Lab Batch ID:** 3085133 **QC- Sample ID:** 620148-002 S **Batch #:** 1 **Matrix:** Water

**Date Analyzed:** 04.10.2019 **Date Prepared:** 04.09.2019 **Analyst:** CHE

**Reporting Units:** mg/L

**MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY**

| Chloride by EPA 300<br>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 | 125 | 125 | 386 | 209 | 125 | 366 | 193 | 5 | 90-110 | 20 | X |

**Lab Batch ID:** 3084515 **QC- Sample ID:** 620014-001 S **Batch #:** 1 **Matrix:** Water

**Date Analyzed:** 04.04.2019 **Date Prepared:** 04.04.2019 **Analyst:** SPC

**Reporting Units:** mg/L

**MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY**

| Chromium, Hexavalent by SW 7196A<br>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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | <0.00273 | 0.200 | 0.183 | 92 | 0.200 | 0.183 | 92 | 0 | 75-125 | 20 | |

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

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

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

# Form 3 - MS / MSD Recoveries

## Project Name: Eunice Project-S. Eunice

**Work Order # :** 620014 **Project ID:** B0048789.0004

**Lab Batch ID:** 3085125 **QC- Sample ID:** 620013-001 S **Batch #:** 1 **Matrix:** Water

**Date Analyzed:** 04.09.2019 **Date Prepared:** 04.09.2019 **Analyst:** DEP

**Reporting Units:** mg/L

### MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

| Dissolved Metals by SW6020A<br>Analytes | Parent Sample Result [A] | Spike Added [B] | Spiked Sample Result [C] | Spiked Sample %R [D] | Spike Added [E] | Duplicate Spiked Sample Result [F] | Spiked Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 0.0359 | 0.100 | 0.138 | 102 | 0.100 | 0.137 | 101 | 1 | 75-125 | 20 | |
| Chromium | <0.000525 | 0.100 | 0.101 | 101 | 0.100 | 0.0997 | 100 | 1 | 75-125 | 20 | |
| Barium | 0.440 | 0.100 | 0.568 | 128 | 0.100 | 0.566 | 126 | 0 | 75-125 | 20 | X |

**Lab Batch ID:** 3085686 **QC- Sample ID:** 620014-001 S **Batch #:** 1 **Matrix:** Water

**Date Analyzed:** 04.12.2019 **Date Prepared:** 04.12.2019 **Analyst:** ARM

**Reporting Units:** mg/L

### MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

| TPH By SW8015 Mod<br>Analytes | Parent Sample Result [A] | Spike Added [B] | Spiked Sample Result [C] | Spiked Sample %R [D] | Spike Added [E] | Duplicate Spiked Sample Result [F] | Spiked Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | <0.987 | 99.9 | 111 | 111 | 99.8 | 112 | 112 | 1 | 70-135 | 20 | |
| Diesel Range Organics | <0.912 | 99.9 | 112 | 112 | 99.8 | 113 | 113 | 1 | 70-135 | 20 | |

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

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

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

# Method Duplicate



## Project Name: Eunice Project-S. Eunice

**Work Order #:** 620014

**Lab Batch #:** 3084993 **Project ID:** B0048789.0004
**Date Analyzed:** 04.06.2019 14:00 **Date Prepared:** 04.06.2019 **Analyst:** CHE
**QC- Sample ID:** 619806-001 D **Batch #:** 1 **Matrix:** Water
**Reporting Units:** mg/L

**SAMPLE / SAMPLE DUPLICATE RECOVERY**

| TDS by SM2540C<br>Analyte | Parent Sample Result [A] | Sample Duplicate Result [B] | RPD | Control Limits %RPD | Flag |
|---|---|---|---|---|---|
| Total Dissolved Solids | 3840 | 4120 | 7 | 10 | |

**Lab Batch #:** 3084993
**Date Analyzed:** 04.06.2019 14:00 **Date Prepared:** 04.06.2019 **Analyst:** CHE
**QC- Sample ID:** 620013-002 D **Batch #:** 1 **Matrix:** Water
**Reporting Units:** mg/L

**SAMPLE / SAMPLE DUPLICATE RECOVERY**

| TDS by SM2540C<br>Analyte | Parent Sample Result [A] | Sample Duplicate Result [B] | RPD | Control Limits %RPD | Flag |
|---|---|---|---|---|---|
| Total Dissolved Solids | 1520 | 1550 | 2 | 10 | |

**Lab Batch #:** 3085018
**Date Analyzed:** 04.06.2019 14:00 **Date Prepared:** 04.06.2019 **Analyst:** CHE
**QC- Sample ID:** 620014-003 D **Batch #:** 1 **Matrix:** Water
**Reporting Units:** mg/L

**SAMPLE / SAMPLE DUPLICATE RECOVERY**

| TDS by SM2540C<br>Analyte | Parent Sample Result [A] | Sample Duplicate Result [B] | RPD | Control Limits %RPD | Flag |
|---|---|---|---|---|---|
| Total Dissolved Solids | 1170 | 1170 | 0 | 10 | |

**Lab Batch #:** 3085018
**Date Analyzed:** 04.06.2019 14:00 **Date Prepared:** 04.06.2019 **Analyst:** CHE
**QC- Sample ID:** 620148-003 D **Batch #:** 1 **Matrix:** Water
**Reporting Units:** mg/L

**SAMPLE / SAMPLE DUPLICATE RECOVERY**

| TDS by SM2540C<br>Analyte | Parent Sample Result [A] | Sample Duplicate Result [B] | RPD | Control Limits %RPD | Flag |
|---|---|---|---|---|---|
| Total Dissolved Solids | 640 | 661 | 3 | 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

# Method Duplicate



## Project Name: Eunice Project-S. Eunice

**Work Order #:** 620014

**Lab Batch #:** 3085169 **Project ID:** B0048789.0004

**Date Analyzed:** 04.09.2019 15:43 **Date Prepared:** 04.09.2019 **Analyst:** CHE

**QC- Sample ID:** 620014-002 D **Batch #:** 1 **Matrix:** Water

**Reporting Units:** mg/L

**SAMPLE / SAMPLE DUPLICATE RECOVERY**

| TDS by SM2540C<br>Analyte | Parent Sample Result [A] | Sample Duplicate Result [B] | RPD | Control Limits %RPD | Flag |
|---|---|---|---|---|---|
| Total Dissolved Solids | 1410 | 1430 | 1 | 10 | |

**Lab Batch #:** 3085169

**Date Analyzed:** 04.09.2019 15:43 **Date Prepared:** 04.09.2019 **Analyst:** CHE

**QC- Sample ID:** 620285-003 D **Batch #:** 1 **Matrix:** Ground Water

**Reporting Units:** mg/L

**SAMPLE / SAMPLE DUPLICATE RECOVERY**

| TDS by SM2540C<br>Analyte | Parent Sample Result [A] | Sample Duplicate Result [B] | RPD | Control Limits %RPD | Flag |
|---|---|---|---|---|---|
| Total Dissolved Solids | 420 | 426 | 1 | 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

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ARCADIS

ID#:

# CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Page 1 of 1

Lab Work Order #: 620014

**Send Results to:**

Contact & Company Name: Brett Krehbiel Arcadis
Telephone: 916-786-0320
Address: 101 Creekside Ridge Court, Suite 200
Fax: 916-786-0366
City: Roseville State: CA Zip: 95678
E-mail Address: brett.krehbiel@arcadis.com
Project Name/Location (City, State): Chevron N. Eunice
Project #: B0048789.0004
Sampler's Printed Name: Chas Holder
Sampler's Signature:

| Sample ID | Collection Date | Collection Time | Type (✓) Comp | Type (✓) Grab | Matrix | BTEX 8021B | TPH GRO & DRO 8015B | Dissolved As, Mn, Fe, Cr 6010B | Dissolved Hex Chromium 7196 | Chloride & TDS | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Preservative | | | | | | B | B | C | E | E | | | |
| Filtered (✓) | | | | | | | | ✓ | ✓ | | | | |
| # of Containers | | | | | | | | | | | | | |
| Container Information | | | | | | 1 | 1 | 3 | 4 | 4 | | | |
| MW 30 | 4-3 | 0832 | | X | W | 3 | 2 | 1 | 1 | 1 | | | |
| MW 9 | 4-3 | 0914 | | X | W | 3 | 2 | 1 | 1 | 1 | | | |
| MW 29 | 4-3 | 0952 | | X | W | 3 | 2 | 1 | 1 | 1 | | | |
| MWD 5 | 4-3 | 1041 | | X | W | 3 | 2 | 1 | 1 | 1 | | | |
| MW 32 | 4-3 | 1341 | | X | W | 3 | 2 | 1 | 1 | 1 | | | |
| MW 8 | 4-3 | 1320 | | X | W | 3 | 2 | 1 | 1 | 1 | | | |
| MWD 12 | 4-3 | 1351 | | X | W | 3 | 2 | 1 | 1 | 1 | | | |
| DUP 3 | 4-3 | — | | X | W | 3 | 2 | 1 | 1 | 1 | | | |
| | | | CA | | | | | | | | | | |

**Keys**

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

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

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

**PARAMETER ANALYSIS & METHOD**

**REMARKS**

Special Instructions/Comments:

☐ Special QA/QC Instructions(✓):

| Laboratory Information and Receipt | | Relinquished By | Received By | Relinquished By | Laboratory Received By |
|---|---|---|---|---|---|
| Lab Name: Xenco | Cooler Custody Seal (✓) ☐ Intact ☐ Not Intact | Printed Name: Chas Holder | Printed Name: Winston Hoel | Printed Name: Winston Hoel | Printed Name: Katie Lowe |
| ☑ Cooler packed with Ice (✓) | | Signature: | Signature: | Signature: | Signature: |
| Specify Turnaround Requirements: STAT | Sample Receipt: | Firm: Arcadis | Firm/Courier: Xenco | Firm/Courier: Xenco | Firm: Xenco |
| Shipping Tracking #: | Condition/Cooler Temp: | Date/Time: 4-3-19 / 1525 | Date/Time: 4/3/19 15:25 | Date/Time: 4/3/19 1800 | Date/Time: 4/3/19 1800 |

3.6/35 PR -0.1



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

Received by OCD: 3/25/2020 2:27:35 PM
Page 39 of 38
Released to Imaging: 6/14/2022 10:17:42 AM
Final 1.003

# Inter-Office Shipment





**IOS Number** **125945**

Date/Time: 04/04/19 07:37
Lab# From: **Midland**
Lab# To: **Houston**

Created by: Brianna Teel
Delivery Priority:
Air Bill No.: 774891180762

Please send report to: Brandi Ritcherson
Address: 1211 W. Florida Ave
E-Mail: brandi.ritcherson@xenco.com

| Sample Id | Matrix | Client Sample Id | Sample Collection | Method | Method Name | Lab Due | HT Due | PM | Analytes | Sign |
|---|---|---|---|---|---|---|---|---|---|---|
| 620014-001 | W | MW-30 | 04/03/19 08:32 | SW6020_DIS | Dissolved Metals by SW6020A | 04/09/19 | 09/30/19 | BAR | AS CR FE MN | |
| 620014-002 | W | MW-9 | 04/03/19 09:14 | SW6020_DIS | Dissolved Metals by SW6020A | 04/09/19 | 09/30/19 | BAR | AS CR FE MN | |
| 620014-003 | W | MW-29 | 04/03/19 09:52 | SW6020_DIS | Dissolved Metals by SW6020A | 04/09/19 | 09/30/19 | BAR | AS CR FE MN | |
| 620014-004 | W | MWD-5 | 04/03/19 10:41 | SW6020_DIS | Dissolved Metals by SW6020A | 04/09/19 | 09/30/19 | BAR | AS CR FE MN | |
| 620014-005 | W | MW-32 | 04/03/19 13:41 | SW6020_DIS | Dissolved Metals by SW6020A | 04/09/19 | 09/30/19 | BAR | AS CR FE MN | |
| 620014-006 | W | MW-8 | 04/03/19 13:20 | SW6020_DIS | Dissolved Metals by SW6020A | 04/09/19 | 09/30/19 | BAR | AS CR FE MN | |
| 620014-007 | W | MWD-12 | 04/03/19 13:51 | SW6020_DIS | Dissolved Metals by SW6020A | 04/09/19 | 09/30/19 | BAR | AS CR FE MN | |
| 620014-008 | W | DUP 3 | 04/03/19 00:00 | SW6020_DIS | Dissolved Metals by SW6020A | 04/09/19 | 09/30/19 | BAR | AS CR FE MN | |

Inter Office Shipment or Sample Comments:

Relinquished By: Brianna Teel
Brianna Teel

Date Relinquished: 04/04/2019

Received By:
Taha Hedib

Date Received: 04/05/2019 09:25

Cooler Temperature: 0.5

# XENCO Laboratories

## Inter Office Report- Sample Receipt Checklist

**Sent To:** Houston

**IOS #:** 125945

**Acceptable Temperature Range: 0 - 6 degC**
**Air and Metal samples Acceptable Range: Ambient**
**Temperature Measuring device used :**

**Sent By:** Brianna Teel **Date Sent:** 04/04/2019 07:37 AM

**Received By:** Taha Hedib **Date Received:** 04/05/2019 09:25 AM

| Sample Receipt Checklist | | Comments |
|---|---|---|
| #1 *Temperature of cooler(s)? | .5 | |
| #2 *Shipping container in good condition? | **Yes** | |
| #3 *Samples received with appropriate temperature? | **Yes** | |
| #4 *Custody Seals intact on shipping container/ cooler? | **Yes** | |
| #5 *Custody Seals Signed and dated for Containers/coolers | **Yes** | |
| #6 *IOS present? | **Yes** | |
| #7 Any missing/extra samples? | **No** | |
| #8 IOS agrees with sample label(s)/matrix? | **Yes** | |
| #9 Sample matrix/ properties agree with IOS? | **Yes** | |
| #10 Samples in proper container/ bottle? | **Yes** | |
| #11 Samples properly preserved? | **Yes** | |
| #12 Sample container(s) intact? | **Yes** | |
| #13 Sufficient sample amount for indicated test(s)? | **Yes** | |
| #14 All samples received within hold time? | **Yes** | |

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

**NonConformance:**

**Corrective Action Taken:**

**Nonconformance Documentation**

**Contact:** _____ **Contacted by :** _____ **Date:** _____

**Checklist reviewed by:** _____ Date: 04/05/2019

Taha Hedib

# XENCO Laboratories

## Prelogin/Nonconformance Report- Sample Log-In

**Client:** ARCADIS

**Date/ Time Received:** 04/03/2019 06:00:00 PM

**Work Order #:** 620014

**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)? | 3.5 | |
| #2 *Shipping container in good condition? | **Yes** | |
| #3 *Samples received on ice? | **Yes** | |
| #4 *Custody Seals intact on shipping container/ cooler? | **N/A** | |
| #5 Custody Seals intact on sample bottles? | **N/A** | |
| #6*Custody Seals Signed and dated? | **N/A** | |
| #7 *Chain of Custody present? | **Yes** | |
| #8 Any missing/extra samples? | **No** | |
| #9 Chain of Custody signed when relinquished/ received? | **Yes** | |
| #10 Chain of Custody agrees with sample labels/matrix? | **Yes** | |
| #11 Container label(s) legible and intact? | **Yes** | |
| #12 Samples in proper container/ bottle? | **Yes** | |
| #13 Samples properly preserved? | **Yes** | |
| #14 Sample container(s) intact? | **Yes** | |
| #15 Sufficient sample amount for indicated test(s)? | **Yes** | |
| #16 All samples received within hold time? | **Yes** | |
| #17 Subcontract of sample(s)? | **Yes** | Metals-Stafford |
| #18 Water VOC samples have zero headspace? | **N/A** | |

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

Analyst: BT

PH Device/Lot#: A023690

**Checklist completed by:** Katie Lowe Date: 04/03/2019

**Checklist reviewed by:** Brandi Ritcherson Date: 04/08/2019

Brandi Ritcherson

# Analytical Report 620148

## for

## ARCADIS

**Project Manager: Brett Krehbiel**

**Eunice Project- S. Eunice**

**B0048789**

**08.08.2019**

Collected By: Client

**1211 W. Florida Ave**
**Midland TX 79701**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-19-29), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142), North Carolina (681)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-19-19), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-18-14)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-19-20)
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-Atlanta (LELAP Lab ID #04176)
Xenco-Tampa: Florida (E87429), North Carolina (483)

08.08.2019

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

Reference: XENCO Report No(s): **620148**
**Eunice Project- S. Eunice**
Project Address: Eunice, NM

**Brett Krehbiel**:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 620148. 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. 620148 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,



**John Builes**
Project Manager

*A Small Business and Minority Company*

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

# Sample Cross Reference 620148

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

| Sample Id | Matrix | Date Collected | Sample Depth | Lab Sample Id |
|---|---|---|---|---|
| MWD-8 | W | 04.04.2019 08:27 | | 620148-001 |
| WW-2 | W | 04.04.2019 09:17 | | 620148-002 |
| WW-7 | W | 04.04.2019 09:37 | | 620148-003 |
| MW-26 | W | 04.04.2019 10:06 | | 620148-004 |
| MW-11 | W | 04.04.2019 14:16 | | 620148-005 |
| MWD-2 | W | 04.04.2019 12:48 | | 620148-006 |
| RW-8 | W | 04.04.2019 13:07 | | 620148-007 |
| MWD-15 | W | 04.04.2019 13:51 | | 620148-008 |
| DUP-2 | W | 04.04.2019 00:00 | | 620148-009 |

# CASE NARRATIVE



***Client Name: ARCADIS***

***Project Name: Eunice Project- S. Eunice***

Project ID: *B0048789*
Work Order Number(s): *620148*

Report Date: *08.08.2019*
Date Received: *04.04.2019*

This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory.

**Sample receipt non conformances and comments:**

None

**Sample receipt non conformances and comments per sample:**

None

**Analytical non conformances and comments:**

Batch: LBA-3085018 TDS by SM2540C

Total Dissolved Solids detected in the blank above the MQL, therefore possible laboratory contamination indicating a potential high bias. Samples in the analytical batch are: 620148-001, -002, -003, -004, -005, -006, -007, -008, -009.

Batch: LBA-3085062 Chromium, Hexavalent by SW 7196A

Samples 620148 -02, -03, -05, -07, and -08 were false positive due to iron interferent; no color change observed.

Sample 620148 - 009 K-flag due to no sample time entered for duplicate.

Batch: LBA-3085133 Chloride by EPA 300

Lab Sample ID 620148-002 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride recovered above QC limits in the Matrix Spike and Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 620148-001, -002.
The Laboratory Control Sample for Chloride is within laboratory Control Limits, therefore the data was accepted.

Batch: LBA-3085303 Inorganic Anions by EPA 300

Lab Sample ID 620148-009 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride recovered below QC limits Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 620148-003, -004, -005, -006, -007, -008, -009.
The Laboratory Control Sample for Chloride is within laboratory Control Limits, therefore the data was accepted.

Batch: LBA-3085319 BTEX by EPA 8021B

Surrogate 4-Bromofluorobenzene recovered above QC limits. Matrix interferences is suspected. Samples affected are: 620148-008.

# CASE NARRATIVE

***Client Name: ARCADIS***

***Project Name: Eunice Project- S. Eunice***

| | | | |
|---|---|---|---|
| Project ID: | *B0048789* | Report Date: | *08.08.2019* |
| Work Order Number(s): | *620148* | Date Received: | *04.04.2019* |

# Certificate of Analytical Results
## 620148

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **MWD-8** Matrix: Water Sample Depth:

Lab Sample Id: 620148-001 Date Collected: 04.04.2019 08:27 Date Received: 04.04.2019 18:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085133 Date Prep: 04.09.2019 09:45

Prep seq: 7675332

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **118** | 2.50 | 0.429 | mg/L | 04.10.2019 03:40 | | 5 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085018 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **933** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085089 Date Prep: 04.09.2019 03:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675314

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0171** | 0.00400 | 0.000246 | mg/L | 04.09.2019 14:20 | | 1 |
| **Chromium** | 7440-47-3 | **0.00173** | 0.00400 | 0.000525 | mg/L | 04.09.2019 14:20 | J | 1 |
| **Barium** | 7440-39-3 | **0.0470** | 0.00400 | 0.000484 | mg/L | 04.09.2019 14:20 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3085062 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.05.2019 07:20 | U | 1 |

# Certificate of Analytical Results
## 620148

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **MWD-8** Matrix: Water Sample Depth:

Lab Sample Id: 620148-001 Date Collected: 04.04.2019 08:27 Date Received: 04.04.2019 18:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085686 Date Prep: 04.12.2019 07:00

Prep seq: 7675744

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.986 | 1.50 | 0.986 | mg/L | 04.12.2019 14:27 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 14:27 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 14:27 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 14:27 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 94 | 70 - 135 | % | | |
| o-Terphenyl | 94 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085172 Date Prep: 04.09.2019 12:00

Prep seq: 7675452

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 04.09.2019 22:17 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.09.2019 22:17 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.09.2019 22:17 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.09.2019 22:17 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.09.2019 22:17 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.09.2019 22:17 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.09.2019 22:17 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 90 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 90 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620148

## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **WW-2** Matrix: Water Sample Depth:

Lab Sample Id: 620148-002 Date Collected: 04.04.2019 09:17 Date Received: 04.04.2019 18:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085133 Date Prep: 04.09.2019 09:45

Prep seq: 7675332

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **125** | 2.50 | 0.429 | mg/L | 04.10.2019 02:04 | | 5 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085018 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **477** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085089 Date Prep: 04.09.2019 03:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675314

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.000970** | 0.00400 | 0.000246 | mg/L | 04.09.2019 15:13 | J | 1 |
| **Chromium** | 7440-47-3 | **0.000822** | 0.00400 | 0.000525 | mg/L | 04.09.2019 15:13 | J | 1 |
| **Barium** | 7440-39-3 | **0.418** | 0.00400 | 0.000484 | mg/L | 04.09.2019 15:13 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3085062 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.05.2019 07:20 | U | 1 |

# Certificate of Analytical Results
## 620148

## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **WW-2** Matrix: Water Sample Depth:

Lab Sample Id: 620148-002 Date Collected: 04.04.2019 09:17 Date Received: 04.04.2019 18:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085686 Date Prep: 04.12.2019 07:00

Prep seq: 7675744

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.987 | 1.50 | 0.987 | mg/L | 04.12.2019 14:46 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 14:46 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 14:46 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 14:46 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 95 | 70 - 135 | % | | |
| o-Terphenyl | 91 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085172 Date Prep: 04.09.2019 12:00

Prep seq: 7675452

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 04.09.2019 22:36 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.09.2019 22:36 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.09.2019 22:36 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.09.2019 22:36 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.09.2019 22:36 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.09.2019 22:36 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.09.2019 22:36 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 91 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 90 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620148

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **WW-7** Matrix: Water Sample Depth:

Lab Sample Id: 620148-003 Date Collected: 04.04.2019 09:37 Date Received: 04.04.2019 18:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085303 Date Prep: 04.09.2019 10:40

Prep seq: 7675334

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **332** | 2.50 | 0.429 | mg/L | 04.10.2019 18:11 | | 5 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085018 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **640** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085089 Date Prep: 04.09.2019 03:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675314

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.000970** | 0.00400 | 0.000246 | mg/L | 04.09.2019 15:16 | J | 1 |
| **Chromium** | 7440-47-3 | **0.00127** | 0.00400 | 0.000525 | mg/L | 04.09.2019 15:16 | J | 1 |
| **Barium** | 7440-39-3 | **1.51** | 0.00400 | 0.000484 | mg/L | 04.09.2019 15:16 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3085062 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.05.2019 07:20 | U | 1 |

# Certificate of Analytical Results
## 620148

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **WW-7** Matrix: Water Sample Depth:

Lab Sample Id: 620148-003 Date Collected: 04.04.2019 09:37 Date Received: 04.04.2019 18:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085686 Date Prep: 04.12.2019 07:00

Prep seq: 7675744

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.986 | 1.50 | 0.986 | mg/L | 04.12.2019 15:43 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 15:43 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 15:43 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 15:43 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 96 | 70 - 135 | % | | |
| o-Terphenyl | 92 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085172 Date Prep: 04.09.2019 12:00

Prep seq: 7675452

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 04.09.2019 22:56 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.09.2019 22:56 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.09.2019 22:56 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.09.2019 22:56 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.09.2019 22:56 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.09.2019 22:56 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.09.2019 22:56 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 90 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 89 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620148

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **MW-26** Matrix: Water Sample Depth:

Lab Sample Id: 620148-004 Date Collected: 04.04.2019 10:06 Date Received: 04.04.2019 18:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085303 Date Prep: 04.09.2019 10:40

Prep seq: 7675334

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **140** | 5.00 | 0.858 | mg/L | 04.10.2019 18:31 | | 10 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085018 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1070** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085089 Date Prep: 04.09.2019 03:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675314

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0630** | 0.00400 | 0.000246 | mg/L | 04.09.2019 15:19 | | 1 |
| **Chromium** | 7440-47-3 | **0.000777** | 0.00400 | 0.000525 | mg/L | 04.09.2019 15:19 | J | 1 |
| **Barium** | 7440-39-3 | **5.59** | 0.200 | 0.0242 | mg/L | 04.09.2019 18:24 | D | 50 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3085062 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.05.2019 07:20 | U | 1 |

# Certificate of Analytical Results
## 620148

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **MW-26** Matrix: Water Sample Depth:

Lab Sample Id: 620148-004 Date Collected: 04.04.2019 10:06 Date Received: 04.04.2019 18:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085686 Date Prep: 04.12.2019 07:00

Prep seq: 7675744

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Gasoline Range Hydrocarbons** | PHC610 | **3.41** | 1.50 | 0.987 | mg/L | 04.12.2019 16:02 | | 1 |
| **Diesel Range Organics** | C10C28DRO | **8.19** | 1.50 | 0.912 | mg/L | 04.12.2019 16:02 | | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.912 | 1.50 | 0.912 | mg/L | 04.12.2019 16:02 | U | 1 |
| **Total TPH** | PHC635 | **11.6** | 1.50 | 0.912 | mg/L | 04.12.2019 16:02 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 97 | 70 - 135 | % | | |
| o-Terphenyl | 103 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085172 Date Prep: 04.09.2019 12:00

Prep seq: 7675452

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **0.577** | 0.0200 | 0.00408 | mg/L | 04.10.2019 23:59 | D | 10 |
| **Toluene** | 108-88-3 | **0.000710** | 0.00200 | 0.000367 | mg/L | 04.10.2019 00:16 | J | 1 |
| **Ethylbenzene** | 100-41-4 | **0.00152** | 0.00200 | 0.000657 | mg/L | 04.10.2019 00:16 | J | 1 |
| **m,p-Xylenes** | 179601-23-1 | **0.00316** | 0.00400 | 0.000630 | mg/L | 04.10.2019 00:16 | J | 1 |
| **o-Xylene** | 95-47-6 | **0.00105** | 0.00200 | 0.000642 | mg/L | 04.10.2019 00:16 | J | 1 |
| **Total Xylenes** | 1330-20-7 | **0.00421** | 0.00200 | 0.000630 | mg/L | 04.10.2019 00:16 | | 1 |
| **Total BTEX** | | **0.583** | 0.00200 | 0.000367 | mg/L | 04.10.2019 23:59 | | 10 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 98 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 90 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620148

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **MW-11** Matrix: Water Sample Depth:

Lab Sample Id: 620148-005 Date Collected: 04.04.2019 14:16 Date Received: 04.04.2019 18:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085303 Date Prep: 04.09.2019 10:40

Prep seq: 7675334

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **78.0** | 2.50 | 0.429 | mg/L | 04.10.2019 18:38 | | 5 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085018 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **815** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085089 Date Prep: 04.09.2019 03:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675314

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0182** | 0.00400 | 0.000246 | mg/L | 04.09.2019 15:22 | | 1 |
| **Chromium** | 7440-47-3 | **0.00989** | 0.00400 | 0.000525 | mg/L | 04.09.2019 15:22 | | 1 |
| **Barium** | 7440-39-3 | **0.614** | 0.00400 | 0.000484 | mg/L | 04.09.2019 15:22 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3085062 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.05.2019 07:20 | U | 1 |

# Certificate of Analytical Results
## 620148

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **MW-11** Matrix: Water Sample Depth:

Lab Sample Id: 620148-005 Date Collected: 04.04.2019 14:16 Date Received: 04.04.2019 18:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085686 Date Prep: 04.12.2019 07:00

Prep seq: 7675744

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Gasoline Range Hydrocarbons** | PHC610 | **7.23** | 1.50 | 0.986 | mg/L | 04.12.2019 16:21 | | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 16:21 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 16:21 | U | 1 |
| **Total TPH** | PHC635 | **7.23** | 1.50 | 0.911 | mg/L | 04.12.2019 16:21 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 96 | 70 - 135 | % | | |
| o-Terphenyl | 93 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085172 Date Prep: 04.09.2019 12:00

Prep seq: 7675452

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **1.87** | 0.0200 | 0.00408 | mg/L | 04.09.2019 23:57 | | 10 |
| Toluene | 108-88-3 | <0.00367 | 0.0200 | 0.00367 | mg/L | 04.09.2019 23:57 | U | 10 |
| **Ethylbenzene** | 100-41-4 | **0.00840** | 0.0200 | 0.00657 | mg/L | 04.09.2019 23:57 | J | 10 |
| **m,p-Xylenes** | 179601-23-1 | **0.0434** | 0.0400 | 0.00630 | mg/L | 04.09.2019 23:57 | | 10 |
| **o-Xylene** | 95-47-6 | **0.0108** | 0.0200 | 0.00642 | mg/L | 04.09.2019 23:57 | J | 10 |
| **Total Xylenes** | 1330-20-7 | **0.0542** | 0.0200 | 0.00630 | mg/L | 04.09.2019 23:57 | | 10 |
| **Total BTEX** | | **1.93** | 0.0200 | 0.00367 | mg/L | 04.09.2019 23:57 | | 10 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 97 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 92 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620148

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **MWD-2** Matrix: Water Sample Depth:

Lab Sample Id: 620148-006 Date Collected: 04.04.2019 12:48 Date Received: 04.04.2019 18:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085303 Date Prep: 04.09.2019 10:40

Prep seq: 7675334

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **796** | 25.0 | 4.29 | mg/L | 04.10.2019 18:45 | | 50 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085018 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **2730** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085089 Date Prep: 04.09.2019 03:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675314

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.00880** | 0.00400 | 0.000246 | mg/L | 04.09.2019 15:24 | | 1 |
| **Chromium** | 7440-47-3 | **0.00119** | 0.00400 | 0.000525 | mg/L | 04.09.2019 15:24 | J | 1 |
| **Barium** | 7440-39-3 | **0.0500** | 0.00400 | 0.000484 | mg/L | 04.09.2019 15:24 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3085062 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.05.2019 07:20 | U | 1 |

# Certificate of Analytical Results
## 620148

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **MWD-2** Matrix: Water Sample Depth:

Lab Sample Id: 620148-006 Date Collected: 04.04.2019 12:48 Date Received: 04.04.2019 18:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085686 Date Prep: 04.12.2019 07:00

Prep seq: 7675744

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.986 | 1.50 | 0.986 | mg/L | 04.12.2019 16:40 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 16:40 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 16:40 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 16:40 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 93 | 70 - 135 | % | | |
| o-Terphenyl | 90 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085172 Date Prep: 04.09.2019 12:00

Prep seq: 7675452

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 04.09.2019 23:15 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.09.2019 23:15 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.09.2019 23:15 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.09.2019 23:15 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.09.2019 23:15 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.09.2019 23:15 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.09.2019 23:15 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 90 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 90 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620148

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **RW-8** Matrix: Water Sample Depth:

Lab Sample Id: 620148-007 Date Collected: 04.04.2019 13:07 Date Received: 04.04.2019 18:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085303 Date Prep: 04.09.2019 10:40

Prep seq: 7675334

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **756** | 25.0 | 4.29 | mg/L | 04.10.2019 18:52 | | 50 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085018 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **2690** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085089 Date Prep: 04.09.2019 03:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675314

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0139** | 0.00400 | 0.000246 | mg/L | 04.09.2019 15:27 | | 1 |
| **Chromium** | 7440-47-3 | **0.00167** | 0.00400 | 0.000525 | mg/L | 04.09.2019 15:27 | J | 1 |
| **Barium** | 7440-39-3 | **0.0981** | 0.00400 | 0.000484 | mg/L | 04.09.2019 15:27 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3085062 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.05.2019 07:20 | U | 1 |

# Certificate of Analytical Results
## 620148

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **RW-8** Matrix: Water Sample Depth:

Lab Sample Id: 620148-007 Date Collected: 04.04.2019 13:07 Date Received: 04.04.2019 18:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085686 Date Prep: 04.12.2019 07:00

Prep seq: 7675744

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.986 | 1.50 | 0.986 | mg/L | 04.12.2019 17:00 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 17:00 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 17:00 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 17:00 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 90 | 70 - 135 | % | | |
| o-Terphenyl | 89 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085172 Date Prep: 04.09.2019 12:00

Prep seq: 7675452

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 04.09.2019 23:35 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.09.2019 23:35 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.09.2019 23:35 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.09.2019 23:35 | U | 1 |
| **o-Xylene** | 95-47-6 | **0.000990** | 0.00200 | 0.000642 | mg/L | 04.09.2019 23:35 | J | 1 |
| **Total Xylenes** | 1330-20-7 | **0.000990** | 0.00200 | 0.000630 | mg/L | 04.09.2019 23:35 | J | 1 |
| **Total BTEX** | | **0.000990** | 0.00200 | 0.000367 | mg/L | 04.09.2019 23:35 | J | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 90 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 92 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620148

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **MWD-15** Matrix: Water Sample Depth:

Lab Sample Id: 620148-008 Date Collected: 04.04.2019 13:51 Date Received: 04.04.2019 18:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085303 Date Prep: 04.09.2019 10:40

Prep seq: 7675334

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **604** | 25.0 | 4.29 | mg/L | 04.10.2019 19:12 | | 50 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085018 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **3210** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085089 Date Prep: 04.09.2019 03:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675314

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.00799** | 0.00400 | 0.000246 | mg/L | 04.09.2019 15:30 | | 1 |
| **Chromium** | 7440-47-3 | **0.00207** | 0.00400 | 0.000525 | mg/L | 04.09.2019 15:30 | J | 1 |
| **Barium** | 7440-39-3 | **1.83** | 0.00400 | 0.000484 | mg/L | 04.09.2019 15:30 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3085062 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.05.2019 07:20 | U | 1 |

# Certificate of Analytical Results
## 620148

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **MWD-15** Matrix: Water Sample Depth:

Lab Sample Id: 620148-008 Date Collected: 04.04.2019 13:51 Date Received: 04.04.2019 18:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085686 Date Prep: 04.12.2019 07:00

Prep seq: 7675744

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Gasoline Range Hydrocarbons** | PHC610 | **1.67** | 1.50 | 0.986 | mg/L | 04.12.2019 17:19 | | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 17:19 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 17:19 | U | 1 |
| **Total TPH** | PHC635 | **1.67** | 1.50 | 0.911 | mg/L | 04.12.2019 17:19 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 93 | 70 - 135 | % | | |
| o-Terphenyl | 91 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085319 Date Prep: 04.10.2019 16:30

Prep seq: 7675537

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **0.0132** | 0.00200 | 0.000408 | mg/L | 04.11.2019 09:11 | | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.11.2019 09:11 | U | 1 |
| **Ethylbenzene** | 100-41-4 | **0.0179** | 0.00200 | 0.000657 | mg/L | 04.11.2019 09:11 | | 1 |
| **m,p-Xylenes** | 179601-23-1 | **0.0153** | 0.00400 | 0.000630 | mg/L | 04.11.2019 09:11 | | 1 |
| **o-Xylene** | 95-47-6 | **0.0110** | 0.00200 | 0.000642 | mg/L | 04.11.2019 09:11 | | 1 |
| **Total Xylenes** | 1330-20-7 | **0.0263** | 0.00200 | 0.000630 | mg/L | 04.11.2019 09:11 | | 1 |
| **Total BTEX** | | **0.0574** | 0.00200 | 0.000367 | mg/L | 04.11.2019 09:11 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 90 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 150 | 70 - 130 | % | | ** |

# Certificate of Analytical Results
## 620148

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **DUP-2** Matrix: Water Sample Depth:

Lab Sample Id: 620148-009 Date Collected: 04.04.2019 00:00 Date Received: 04.04.2019 18:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085303 Date Prep: 04.09.2019 10:40

Prep seq: 7675334

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **93.1** | 2.50 | 0.429 | mg/L | 04.10.2019 19:46 | | 5 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085018 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **844** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085089 Date Prep: 04.09.2019 03:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675314

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0122** | 0.00400 | 0.000246 | mg/L | 04.09.2019 15:33 | | 1 |
| **Chromium** | 7440-47-3 | **0.00543** | 0.00400 | 0.000525 | mg/L | 04.09.2019 15:33 | | 1 |
| **Barium** | 7440-39-3 | **0.631** | 0.00400 | 0.000484 | mg/L | 04.09.2019 15:33 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3085062 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.05.2019 07:20 | UK | 1 |

# Certificate of Analytical Results
## 620148

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **DUP-2** Matrix: Water Sample Depth:

Lab Sample Id: 620148-009 Date Collected: 04.04.2019 00:00 Date Received: 04.04.2019 18:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085686 Date Prep: 04.12.2019 07:00

Prep seq: 7675744

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Gasoline Range Hydrocarbons** | PHC610 | **6.99** | 1.50 | 0.987 | mg/L | 04.12.2019 17:38 | | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 17:38 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 17:38 | U | 1 |
| **Total TPH** | PHC635 | **6.99** | 1.50 | 0.911 | mg/L | 04.12.2019 17:38 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 93 | 70 - 135 | % | | |
| o-Terphenyl | 91 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085319 Date Prep: 04.10.2019 16:30

Prep seq: 7675537

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **1.67** | 0.100 | 0.0204 | mg/L | 04.11.2019 05:05 | D | 50 |
| **Toluene** | 108-88-3 | **0.00190** | 0.00200 | 0.000367 | mg/L | 04.11.2019 09:50 | J | 1 |
| **Ethylbenzene** | 100-41-4 | **0.00639** | 0.00200 | 0.000657 | mg/L | 04.11.2019 09:50 | | 1 |
| **m,p-Xylenes** | 179601-23-1 | **0.0301** | 0.00400 | 0.000630 | mg/L | 04.11.2019 09:50 | | 1 |
| **o-Xylene** | 95-47-6 | **0.00814** | 0.00200 | 0.000642 | mg/L | 04.11.2019 09:50 | | 1 |
| **Total Xylenes** | 1330-20-7 | **0.0382** | 0.00200 | 0.000630 | mg/L | 04.11.2019 09:50 | | 1 |
| **Total BTEX** | | **1.72** | 0.00200 | 0.000367 | mg/L | 04.11.2019 05:05 | | 50 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 106 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 94 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620148
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **3085018-1-BLK** Matrix: Water Sample Depth:
Lab Sample Id: 3085018-1-BLK Date Collected: Date Received:
Analytical Method: TDS by SM2540C Prep Method:
Analyst: CHE % Moist: Tech: CHE
Seq Number: 3085018 Date Prep:
Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **28.0** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | B | 1 |

Sample Id: **3085062-1-BLK** Matrix: Water Sample Depth:
Lab Sample Id: 3085062-1-BLK Date Collected: Date Received:
Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:
Analyst: SPC % Moist: Tech: SPC
Seq Number: 3085062 Date Prep:
Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.05.2019 07:20 | U | 1 |

Sample Id: **7675314-1-BLK** Matrix: Water Sample Depth:
Lab Sample Id: 7675314-1-BLK Date Collected: Date Received:
Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A
Analyst: DEP % Moist: Tech: DEP
Seq Number: 3085089 Date Prep: 04.09.2019 03:00
Subcontractor: SUB: T104704215-19-29 Prep seq: 7675314

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Arsenic | 7440-38-2 | <0.000246 | 0.00400 | 0.000246 | mg/L | 04.09.2019 14:11 | U | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 04.09.2019 14:11 | U | 1 |
| Barium | 7440-39-3 | <0.000484 | 0.00400 | 0.000484 | mg/L | 04.09.2019 14:11 | U | 1 |

# Certificate of Analytical Results
## 620148
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **7675332-1-BLK** Matrix: Water Sample Depth:
Lab Sample Id: 7675332-1-BLK Date Collected: Date Received:
Analytical Method: Chloride by EPA 300 Prep Method: E300P
Analyst: CHE % Moist: Tech: CHE
Seq Number: 3085133 Date Prep: 04.09.2019 09:45
Prep seq: 7675332

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chloride | 16887-00-6 | <0.0858 | 0.500 | 0.0858 | mg/L | 04.10.2019 01:37 | U | 1 |

Sample Id: **7675334-1-BLK** Matrix: Water Sample Depth:
Lab Sample Id: 7675334-1-BLK Date Collected: Date Received:
Analytical Method: Chloride by EPA 300 Prep Method: E300P
Analyst: CHE % Moist: Tech: CHE
Seq Number: 3085303 Date Prep: 04.09.2019 10:40
Prep seq: 7675334

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chloride | 16887-00-6 | <0.0858 | 0.500 | 0.0858 | mg/L | 04.10.2019 17:44 | U | 1 |

Sample Id: **7675452-1-BLK** Matrix: Water Sample Depth:
Lab Sample Id: 7675452-1-BLK Date Collected: Date Received:
Analytical Method: BTEX by EPA 8021B Prep Method: 5030B
Analyst: SCM % Moist: Tech: SCM
Seq Number: 3085172 Date Prep: 04.09.2019 12:00
Prep seq: 7675452

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 04.09.2019 17:21 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.09.2019 17:21 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.09.2019 17:21 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.09.2019 17:21 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.09.2019 17:21 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.09.2019 17:21 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.09.2019 17:21 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 91 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 90 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620148

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **7675537-1-BLK** Matrix: Water Sample Depth:

Lab Sample Id: 7675537-1-BLK Date Collected: Date Received:

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085319 Date Prep: 04.10.2019 16:30

Prep seq: 7675537

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 04.11.2019 01:41 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.11.2019 01:41 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.11.2019 01:41 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.11.2019 01:41 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.11.2019 01:41 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.11.2019 01:41 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.11.2019 01:41 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 91 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 89 | 70 - 130 | % | | |

Sample Id: **7675744-1-BLK** Matrix: Water Sample Depth:

Lab Sample Id: 7675744-1-BLK Date Collected: Date Received:

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085686 Date Prep: 04.12.2019 07:00

Prep seq: 7675744

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.986 | 1.50 | 0.986 | mg/L | 04.12.2019 10:19 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 10:19 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 10:19 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 10:19 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 107 | 70 - 135 | % | | |
| o-Terphenyl | 109 | 70 - 135 | % | | |

# 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



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# Form 2 - Surrogate Recoveries

**Project Name:** Eunice Project- S. Eunice

**Work Orders :** 620148 **Project ID:** B0048789

**Lab Batch #:** 3085172 **Sample:** 7675452-1-BKS / BKS **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.09.2019 15:42 **SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0295 | 0.0300 | 98 | 70-130 | |
| 4-Bromofluorobenzene | 0.0299 | 0.0300 | 100 | 70-130 | |

**Lab Batch #:** 3085172 **Sample:** 7675452-1-BSD / BSD **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.09.2019 16:02 **SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0294 | 0.0300 | 98 | 70-130 | |
| 4-Bromofluorobenzene | 0.0294 | 0.0300 | 98 | 70-130 | |

**Lab Batch #:** 3085172 **Sample:** 620014-006 S / MS **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.09.2019 16:22 **SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0297 | 0.0300 | 99 | 70-130 | |
| 4-Bromofluorobenzene | 0.0303 | 0.0300 | 101 | 70-130 | |

**Lab Batch #:** 3085172 **Sample:** 620014-006 SD / MSD **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.09.2019 16:42 **SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0298 | 0.0300 | 99 | 70-130 | |
| 4-Bromofluorobenzene | 0.0300 | 0.0300 | 100 | 70-130 | |

**Lab Batch #:** 3085172 **Sample:** 7675452-1-BLK / BLK **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.09.2019 17:21 **SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0274 | 0.0300 | 91 | 70-130 | |
| 4-Bromofluorobenzene | 0.0269 | 0.0300 | 90 | 70-130 | |

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

# Form 2 - Surrogate Recoveries

**Project Name:** Eunice Project- S. Eunice

**Work Orders :** 620148 **Project ID:** B0048789

**Lab Batch #:** 3085319 **Sample:** 7675537-1-BKS / BKS **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.11.2019 00:07 **SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0298 | 0.0300 | 99 | 70-130 | |
| 4-Bromofluorobenzene | 0.0286 | 0.0300 | 95 | 70-130 | |

**Lab Batch #:** 3085319 **Sample:** 7675537-1-BSD / BSD **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.11.2019 00:26 **SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0293 | 0.0300 | 98 | 70-130 | |
| 4-Bromofluorobenzene | 0.0278 | 0.0300 | 93 | 70-130 | |

**Lab Batch #:** 3085319 **Sample:** 620150-001 S / MS **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.11.2019 00:45 **SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0298 | 0.0300 | 99 | 70-130 | |
| 4-Bromofluorobenzene | 0.0294 | 0.0300 | 98 | 70-130 | |

**Lab Batch #:** 3085319 **Sample:** 620150-001 SD / MSD **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.11.2019 01:04 **SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0297 | 0.0300 | 99 | 70-130 | |
| 4-Bromofluorobenzene | 0.0290 | 0.0300 | 97 | 70-130 | |

**Lab Batch #:** 3085319 **Sample:** 7675537-1-BLK / BLK **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.11.2019 01:41 **SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0272 | 0.0300 | 91 | 70-130 | |
| 4-Bromofluorobenzene | 0.0268 | 0.0300 | 89 | 70-130 | |

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

# Form 2 - Surrogate Recoveries

**Project Name:** Eunice Project- S. Eunice

**Work Orders :** 620148 **Project ID:** B0048789

**Lab Batch #:** 3085686 **Sample:** 7675744-1-BLK / BLK **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.12.2019 10:19 **SURROGATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 10.7 | 9.98 | 107 | 70-135 | |
| o-Terphenyl | 5.42 | 4.99 | 109 | 70-135 | |

**Lab Batch #:** 3085686 **Sample:** 7675744-1-BKS / BKS **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.12.2019 10:38 **SURROGATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 12.5 | 9.99 | 125 | 70-135 | |
| o-Terphenyl | 5.98 | 4.99 | 120 | 70-135 | |

**Lab Batch #:** 3085686 **Sample:** 7675744-1-BSD / BSD **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.12.2019 10:57 **SURROGATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 13.0 | 9.98 | 130 | 70-135 | |
| o-Terphenyl | 6.35 | 4.99 | 127 | 70-135 | |

**Lab Batch #:** 3085686 **Sample:** 620014-001 S / MS **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.12.2019 11:35 **SURROGATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 12.8 | 9.99 | 128 | 70-135 | |
| o-Terphenyl | 6.37 | 5.00 | 127 | 70-135 | |

**Lab Batch #:** 3085686 **Sample:** 620014-001 SD / MSD **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.12.2019 11:54 **SURROGATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 12.8 | 9.98 | 128 | 70-135 | |
| o-Terphenyl | 6.43 | 4.99 | 129 | 70-135 | |

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



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# BS / BSD Recoveries

## Project Name: Eunice Project- S. Eunice

**Work Order #:** 620148 **Project ID:** B0048789

**Analyst:** SCM **Date Prepared:** 04.09.2019 **Date Analyzed:** 04.09.2019

**Lab Batch ID:** 3085172 **Sample:** 7675452-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Blank Sample Result [A] | Spike Added [B] | Blank Spike Result [C] | Blank Spike %R [D] | Spike Added [E] | Blank Spike Duplicate Result [F] | Blk. Spk Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.000408 | 0.100 | 0.0998 | 100 | 0.100 | 0.0971 | 97 | 3 | 70-130 | 25 | |
| Toluene | <0.000367 | 0.100 | 0.103 | 103 | 0.100 | 0.0996 | 100 | 3 | 70-130 | 25 | |
| Ethylbenzene | <0.000657 | 0.100 | 0.0976 | 98 | 0.100 | 0.0945 | 95 | 3 | 70-130 | 25 | |
| m,p-Xylenes | <0.000630 | 0.200 | 0.196 | 98 | 0.200 | 0.189 | 95 | 4 | 70-130 | 25 | |
| o-Xylene | <0.000642 | 0.100 | 0.0990 | 99 | 0.100 | 0.0959 | 96 | 3 | 70-130 | 25 | |

**Analyst:** SCM **Date Prepared:** 04.10.2019 **Date Analyzed:** 04.11.2019

**Lab Batch ID:** 3085319 **Sample:** 7675537-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Blank Sample Result [A] | Spike Added [B] | Blank Spike Result [C] | Blank Spike %R [D] | Spike Added [E] | Blank Spike Duplicate Result [F] | Blk. Spk Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.000408 | 0.100 | 0.0860 | 86 | 0.100 | 0.0905 | 91 | 5 | 70-130 | 25 | |
| Toluene | <0.000367 | 0.100 | 0.0869 | 87 | 0.100 | 0.0911 | 91 | 5 | 70-130 | 25 | |
| Ethylbenzene | <0.000657 | 0.100 | 0.0805 | 81 | 0.100 | 0.0846 | 85 | 5 | 70-130 | 25 | |
| m,p-Xylenes | <0.000630 | 0.200 | 0.159 | 80 | 0.200 | 0.168 | 84 | 6 | 70-130 | 25 | |
| o-Xylene | <0.000642 | 0.100 | 0.0809 | 81 | 0.100 | 0.0852 | 85 | 5 | 70-130 | 25 | |

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: Eunice Project- S. Eunice

**Work Order #:** 620148 **Project ID:** B0048789

**Analyst:** CHE **Date Prepared:** 04.09.2019 **Date Analyzed:** 04.10.2019

**Lab Batch ID:** 3085133 **Sample:** 7675332-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| Chloride by EPA 300<br>Analytes | Blank Sample Result [A] | Spike Added [B] | Blank Spike Result [C] | Blank Spike %R [D] | Spike Added [E] | Blank Spike Duplicate Result [F] | Blk. Spk Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | <0.0858 | 25.0 | 23.7 | 95 | 25.0 | 24.7 | 99 | 4 | 90-110 | 20 | |

**Analyst:** CHE **Date Prepared:** 04.09.2019 **Date Analyzed:** 04.10.2019

**Lab Batch ID:** 3085303 **Sample:** 7675334-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| Chloride by EPA 300<br>Analytes | Blank Sample Result [A] | Spike Added [B] | Blank Spike Result [C] | Blank Spike %R [D] | Spike Added [E] | Blank Spike Duplicate Result [F] | Blk. Spk Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | <0.0858 | 25.0 | 26.7 | 107 | 25.0 | 25.8 | 103 | 3 | 90-110 | 20 | |

**Analyst:** SPC **Date Prepared:** 04.05.2019 **Date Analyzed:** 04.05.2019

**Lab Batch ID:** 3085062 **Sample:** 3085062-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| Chromium, Hexavalent by SW 7196A<br>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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | <0.00273 | 0.0400 | 0.0375 | 94 | 0.0400 | 0.0376 | 94 | 0 | 85-115 | 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: Eunice Project- S. Eunice

**Work Order #:** 620148 **Project ID:** B0048789

**Analyst:** DEP **Date Prepared:** 04.09.2019 **Date Analyzed:** 04.09.2019

**Lab Batch ID:** 3085089 **Sample:** 7675314-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| Dissolved Metals by SW6020A<br>Analytes | Blank Sample Result [A] | Spike Added [B] | Blank Spike Result [C] | Blank Spike %R [D] | Spike Added [E] | Blank Spike Duplicate Result [F] | Blk. Spk Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | <0.000246 | 0.100 | 0.0966 | 97 | 0.100 | 0.0954 | 95 | 1 | 80-120 | 20 | |
| Chromium | <0.000525 | 0.100 | 0.0978 | 98 | 0.100 | 0.0983 | 98 | 1 | 80-120 | 20 | |
| Barium | <0.000484 | 0.100 | 0.0941 | 94 | 0.100 | 0.0948 | 95 | 1 | 80-120 | 20 | |

**Analyst:** CHE **Date Prepared:** 04.06.2019 **Date Analyzed:** 04.06.2019

**Lab Batch ID:** 3085018 **Sample:** 3085018-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| TDS by SM2540C<br>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 | 28.0 | 1000 | 946 | 95 | 1000 | 928 | 93 | 2 | 80-120 | 10 | |

**Analyst:** ARM **Date Prepared:** 04.12.2019 **Date Analyzed:** 04.12.2019

**Lab Batch ID:** 3085686 **Sample:** 7675744-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Blank Sample Result [A] | Spike Added [B] | Blank Spike Result [C] | Blank Spike %R [D] | Spike Added [E] | Blank Spike Duplicate Result [F] | Blk. Spk Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | <0.986 | 99.9 | 97.7 | 98 | 99.8 | 101 | 101 | 3 | 70-135 | 20 | |
| Diesel Range Organics | <0.911 | 99.9 | 100 | 100 | 99.8 | 101 | 101 | 1 | 70-135 | 20 | |

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

# Form 3 - MS / MSD Recoveries

## Project Name: Eunice Project- S. Eunice

**Work Order # :** 620148 **Project ID:** B0048789

**Lab Batch ID:** 3085172 **QC- Sample ID:** 620014-006 S **Batch #:** 1 **Matrix:** Water

**Date Analyzed:** 04.09.2019 **Date Prepared:** 04.09.2019 **Analyst:** SCM

**Reporting Units:** mg/L

### MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

| BTEX by EPA 8021B Analytes | Parent Sample Result [A] | Spike Added [B] | Spiked Sample Result [C] | Spiked Sample %R [D] | Spike Added [E] | Duplicate Spiked Sample Result [F] | Spiked Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.000408 | 0.100 | 0.109 | 109 | 0.100 | 0.113 | 113 | 4 | 70-130 | 25 | |
| Toluene | <0.000367 | 0.100 | 0.112 | 112 | 0.100 | 0.115 | 115 | 3 | 70-130 | 25 | |
| Ethylbenzene | <0.000657 | 0.100 | 0.107 | 107 | 0.100 | 0.111 | 111 | 4 | 70-130 | 25 | |
| m,p-Xylenes | <0.000630 | 0.200 | 0.214 | 107 | 0.200 | 0.222 | 111 | 4 | 70-130 | 25 | |
| o-Xylene | <0.000642 | 0.100 | 0.109 | 109 | 0.100 | 0.112 | 112 | 3 | 70-130 | 25 | |

**Lab Batch ID:** 3085319 **QC- Sample ID:** 620150-001 S **Batch #:** 1 **Matrix:** Water

**Date Analyzed:** 04.11.2019 **Date Prepared:** 04.10.2019 **Analyst:** SCM

**Reporting Units:** mg/L

### MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

| BTEX by EPA 8021B Analytes | Parent Sample Result [A] | Spike Added [B] | Spiked Sample Result [C] | Spiked Sample %R [D] | Spike Added [E] | Duplicate Spiked Sample Result [F] | Spiked Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.000408 | 0.100 | 0.0902 | 90 | 0.100 | 0.0899 | 90 | 0 | 70-130 | 25 | |
| Toluene | <0.000367 | 0.100 | 0.0898 | 90 | 0.100 | 0.0891 | 89 | 1 | 70-130 | 25 | |
| Ethylbenzene | <0.000657 | 0.100 | 0.0841 | 84 | 0.100 | 0.0835 | 84 | 1 | 70-130 | 25 | |
| m,p-Xylenes | <0.000630 | 0.200 | 0.174 | 87 | 0.200 | 0.172 | 86 | 1 | 70-130 | 25 | |
| o-Xylene | 0.00215 | 0.100 | 0.0876 | 85 | 0.100 | 0.0868 | 85 | 1 | 70-130 | 25 | |

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: Eunice Project- S. Eunice

**Work Order # :** 620148 **Project ID:** B0048789

**Lab Batch ID:** 3085133 **QC- Sample ID:** 620148-001 S **Batch #:** 1 **Matrix:** Water

**Date Analyzed:** 04.10.2019 **Date Prepared:** 04.09.2019 **Analyst:** CHE

**Reporting Units:** mg/L

### MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

| Chloride by EPA 300 Analytes | Parent Sample Result [A] | Spike Added [B] | Spiked Sample Result [C] | Spiked Sample %R [D] | Spike Added [E] | Duplicate Spiked Sample Result [F] | Spiked Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 118 | 125 | 245 | 102 | 125 | 249 | 105 | 2 | 90-110 | 20 | |

**Lab Batch ID:** 3085133 **QC- Sample ID:** 620148-002 S **Batch #:** 1 **Matrix:** Water

**Date Analyzed:** 04.10.2019 **Date Prepared:** 04.09.2019 **Analyst:** CHE

**Reporting Units:** mg/L

### MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

| Chloride by EPA 300 Analytes | Parent Sample Result [A] | Spike Added [B] | Spiked Sample Result [C] | Spiked Sample %R [D] | Spike Added [E] | Duplicate Spiked Sample Result [F] | Spiked Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 125 | 125 | 386 | 209 | 125 | 366 | 193 | 5 | 90-110 | 20 | X |

**Lab Batch ID:** 3085303 **QC- Sample ID:** 620148-003 S **Batch #:** 1 **Matrix:** Water

**Date Analyzed:** 04.10.2019 **Date Prepared:** 04.09.2019 **Analyst:** CHE

**Reporting Units:** mg/L

### MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

| Chloride by EPA 300 Analytes | Parent Sample Result [A] | Spike Added [B] | Spiked Sample Result [C] | Spiked Sample %R [D] | Spike Added [E] | Duplicate Spiked Sample Result [F] | Spiked Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 332 | 125 | 428 | 77 | 125 | 464 | 106 | 8 | 90-110 | 20 | X |

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: Eunice Project- S. Eunice

**Work Order # :** 620148 **Project ID:** B0048789

**Lab Batch ID:** 3085303 **QC- Sample ID:** 620148-009 S **Batch #:** 1 **Matrix:** Water

**Date Analyzed:** 04.10.2019 **Date Prepared:** 04.09.2019 **Analyst:** CHE

**Reporting Units:** mg/L

**MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY**

| Chloride by EPA 300<br>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 | 93.1 | 125 | 203 | 88 | 125 | 206 | 90 | 1 | 90-110 | 20 | X |

**Lab Batch ID:** 3085062 **QC- Sample ID:** 620148-001 S **Batch #:** 1 **Matrix:** Water

**Date Analyzed:** 04.05.2019 **Date Prepared:** 04.05.2019 **Analyst:** SPC

**Reporting Units:** mg/L

**MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY**

| Chromium, Hexavalent by SW 7196A<br>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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | <0.00273 | 0.200 | 0.194 | 97 | 0.200 | 0.198 | 99 | 2 | 75-125 | 20 | |

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

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

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

# Form 3 - MS / MSD Recoveries

## Project Name: Eunice Project- S. Eunice

**Work Order # :** 620148 **Project ID:** B0048789

**Lab Batch ID:** 3085089 **QC- Sample ID:** 620148-001 S **Batch #:** 1 **Matrix:** Water

**Date Analyzed:** 04.09.2019 **Date Prepared:** 04.09.2019 **Analyst:** DEP

**Reporting Units:** mg/L

### MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

| Dissolved Metals by SW6020A<br>Analytes | Parent Sample Result [A] | Spike Added [B] | Spiked Sample Result [C] | Spiked Sample %R [D] | Spike Added [E] | Duplicate Spiked Sample Result [F] | Spiked Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 0.0171 | 0.100 | 0.113 | 96 | 0.100 | 0.114 | 97 | 1 | 75-125 | 20 | |
| Chromium | 0.00173 | 0.100 | 0.0981 | 96 | 0.100 | 0.0979 | 96 | 0 | 75-125 | 20 | |
| Barium | 0.0470 | 0.100 | 0.141 | 94 | 0.100 | 0.140 | 93 | 1 | 75-125 | 20 | |

**Lab Batch ID:** 3085686 **QC- Sample ID:** 620014-001 S **Batch #:** 1 **Matrix:** Water

**Date Analyzed:** 04.12.2019 **Date Prepared:** 04.12.2019 **Analyst:** ARM

**Reporting Units:** mg/L

### MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

| TPH By SW8015 Mod<br>Analytes | Parent Sample Result [A] | Spike Added [B] | Spiked Sample Result [C] | Spiked Sample %R [D] | Spike Added [E] | Duplicate Spiked Sample Result [F] | Spiked Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | <0.987 | 99.9 | 111 | 111 | 99.8 | 112 | 112 | 1 | 70-135 | 20 | |
| Diesel Range Organics | <0.912 | 99.9 | 112 | 112 | 99.8 | 113 | 113 | 1 | 70-135 | 20 | |

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

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

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

# Method Duplicate



## Project Name: Eunice Project- S. Eunice

**Work Order #:** 620148

**Lab Batch #:** 3085018 **Project ID:** B0048789
**Date Analyzed:** 04.06.2019 14:00 **Date Prepared:** 04.06.2019 **Analyst:** CHE
**QC- Sample ID:** 620014-003 D **Batch #:** 1 **Matrix:** Water
**Reporting Units:** mg/L

**SAMPLE / SAMPLE DUPLICATE RECOVERY**

| TDS by SM2540C<br>Analyte | Parent Sample Result [A] | Sample Duplicate Result [B] | RPD | Control Limits %RPD | Flag |
|---|---|---|---|---|---|
| Total Dissolved Solids | 1170 | 1170 | 0 | 10 | |

**Lab Batch #:** 3085018
**Date Analyzed:** 04.06.2019 14:00 **Date Prepared:** 04.06.2019 **Analyst:** CHE
**QC- Sample ID:** 620148-003 D **Batch #:** 1 **Matrix:** Water
**Reporting Units:** mg/L

**SAMPLE / SAMPLE DUPLICATE RECOVERY**

| TDS by SM2540C<br>Analyte | Parent Sample Result [A] | Sample Duplicate Result [B] | RPD | Control Limits %RPD | Flag |
|---|---|---|---|---|---|
| Total Dissolved Solids | 640 | 661 | 3 | 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

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# Chain of Custody

Work Order No: 62048

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 _____ of _____

| | | | |
|---|---|---|---|
| Project Manager: | Brett Krehbiel | Bill to: (if different) | |
| Company Name: | ARCADIS | Company Name: | |
| Address: | 1004 N. Big Spring St. | Address: | |
| City, State ZIP: | Midland, TX. 79701 | City, State ZIP: | |
| Phone: | 916-786-5382 | Email: | brett.krehbiel@arcadis.com |

**Work Order Comments**

Program: UST/PST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐
State of Project:
Reporting:Level II ☐ Level III ☐ PST/UST ☐ RRP ☐ Level IV ☐
Deliverables: EDD ☐ ADaPT ☐ Other:

| | | | |
|---|---|---|---|
| Project Name: | Eunice Project- S. Eunice | Turn Around | |
| Project Number: | B0048789 | Routine ☑ | |
| P.O. Number: | | Rush: | |
| Sampler's Name: | Kerry Longwell | Due Date: | |

| SAMPLE RECEIPT | | | | |
|---|---|---|---|---|
| Temp Blank: | Yes No | Wet Ice: | Yes No | |
| Temperature (°C): | | Thermometer ID | | |
| Received Intact: | Yes No | | | |
| Cooler Custody Seals: | Yes No N/A | Correction Factor: | | |
| Sample Custody Seals: | Yes No N/A | Total Containers: | | |

| Sample Identification | Matrix | Date Sampled | Time Sampled | Depth | Number of Containers | BTEX (SW8021) | TPH (SW8015) | Hex Chrome (SW7196A) | Dissolved Metals (SW6020_DIS): Chromium, Arsenic & Barium) | TDS (SW2540) | Chlorides (E300) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MWD-8 | W | 04/04/19 | 0827 | | 8 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MW-2 | | 04/04/19 | 0917 | | 8 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MW-7 | | 04/04/19 | 0937 | | 8 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MW-26 | | 04/04/19 | 1006 | | 8 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| ~~MW-24~~ MW-11 | | 04/04/19 | 1116 | | 8 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MWD-2 | | 04/04/19 | 1248 | | 8 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MW-8 | | 04/04/19 | 1307 | | 8 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| ~~MW-15~~ MWD-15 | | 04/04/19 | 1351 | | 8 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| DUP-2 | | 04/04/19 | — | | 8 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | | | | | | | | | | | |

**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

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Xenco. A minimum charge of $75.00 will be applied to each project and a charge of $5 for each sample submitted to Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

| Relinquished by: (Signature) | Received by: (Signature) | Date/Time | Relinquished by: (Signature) | Received by: (Signature) | Date/Time |
|---|---|---|---|---|---|
| Kerry Longwell | Winston Abel | 4/4/19 16:21 | 2 | | 4/4/19 18:00 |
| 3 | | | 4 | | |
| 5 | | | 6 | | |

Revised Date 051418 Rev. 2018.1

Received by OCD: 3/25/2020 2:27:35 PM
Final 1.003
Page 39 of 42
Released to Imaging: 6/14/2022 10:17:42 AM

# Inter-Office Shipment



**IOS Number : 126037**

Date/Time: 04.05.2019 08:00
Lab# From: **Midland**
Lab# To: **Houston**
Created by: Brianna Teel
Delivery Priority:
Air Bill No.: 774901939030

Please send report to: Brandi Ritcherson
Address: 1211 W. Florida Ave
E-Mail: brandi.ritcherson@xenco.com

| Sample Id | Matrix | Client Sample Id | Sample Collection | Method | Method Name | Lab Due | HT Due | PM | Analytes | Sign |
|---|---|---|---|---|---|---|---|---|---|---|
| 620148-001 | W | MWD-8 | 04.04.2019 08:27 | SW6020_DIS | Dissolved Metals by SW6020A | 04.10.2019 | 10.01.2019 | BAR | AS BA CR | |
| 620148-002 | W | WW-2 | 04.04.2019 09:17 | SW6020_DIS | Dissolved Metals by SW6020A | 04.10.2019 | 10.01.2019 | BAR | AS BA CR | |
| 620148-003 | W | WW-7 | 04.04.2019 09:37 | SW6020_DIS | Dissolved Metals by SW6020A | 04.10.2019 | 10.01.2019 | BAR | AS BA CR | |
| 620148-004 | W | MW-26 | 04.04.2019 10:06 | SW6020_DIS | Dissolved Metals by SW6020A | 04.10.2019 | 10.01.2019 | BAR | AS BA CR | |
| 620148-005 | W | MW-11 | 04.04.2019 14:16 | SW6020_DIS | Dissolved Metals by SW6020A | 04.10.2019 | 10.01.2019 | BAR | AS BA CR | |
| 620148-006 | W | MWD-2 | 04.04.2019 12:48 | SW6020_DIS | Dissolved Metals by SW6020A | 04.10.2019 | 10.01.2019 | BAR | AS BA CR | |
| 620148-007 | W | RW-8 | 04.04.2019 13:07 | SW6020_DIS | Dissolved Metals by SW6020A | 04.10.2019 | 10.01.2019 | BAR | AS BA CR | |
| 620148-008 | W | MWD-15 | 04.04.2019 13:51 | SW6020_DIS | Dissolved Metals by SW6020A | 04.10.2019 | 10.01.2019 | BAR | AS BA CR | |
| 620148-009 | W | DUP-2 | 04.04.2019 00:00 | SW6020_DIS | Dissolved Metals by SW6020A | 04.10.2019 | 10.01.2019 | BAR | AS BA CR | |

**Inter Office Shipment or Sample Comments:**

Relinquished By: Brianna Teel
Brianna Teel

Date Relinquished: 04.05.2019

Received By: Travis Simmons
Travis Simmons

Date Received: 04.06.2019 10:00

Cooler Temperature: 3.1

# XENCO Laboratories

## Inter Office Report- Sample Receipt Checklist

**Sent To:** Houston

**IOS #:** 126037

**Acceptable Temperature Range: 0 - 6 degC**
**Air and Metal samples Acceptable Range: Ambient**
**Temperature Measuring device used : HOU-068**

**Sent By:** Brianna Teel **Date Sent:** 04/05/2019 08:00 AM

**Received By:** Travis Simmons **Date Received:** 04/06/2019 10:00 AM

| Sample Receipt Checklist | | Comments |
|---|---|---|
| #1 *Temperature of cooler(s)? | 3.1 | |
| #2 *Shipping container in good condition? | **Yes** | |
| #3 *Samples received with appropriate temperature? | **Yes** | |
| #4 *Custody Seals intact on shipping container/ cooler? | **Yes** | |
| #5 *Custody Seals Signed and dated for Containers/coolers | **Yes** | |
| #6 *IOS present? | **Yes** | |
| #7 Any missing/extra samples? | **No** | |
| #8 IOS agrees with sample label(s)/matrix? | **Yes** | |
| #9 Sample matrix/ properties agree with IOS? | **Yes** | |
| #10 Samples in proper container/ bottle? | **Yes** | |
| #11 Samples properly preserved? | **Yes** | |
| #12 Sample container(s) intact? | **Yes** | |
| #13 Sufficient sample amount for indicated test(s)? | **Yes** | |
| #14 All samples received within hold time? | **Yes** | |

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

**NonConformance:**

**Corrective Action Taken:**

**Nonconformance Documentation**

**Contact:** _____ **Contacted by :** _____ **Date:** _____

**Checklist reviewed by:** Travis Simmons Date: 04/06/2019

Travis Simmons

# XENCO Laboratories

## Prelogin/Nonconformance Report- Sample Log-In

**Client:** ARCADIS

**Date/ Time Received:** 04/04/2019 06:00:00 PM

**Work Order #:** 620148

**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)? | 3.5 | |
| #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? | **Yes** | |
| #6*Custody Seals Signed and dated? | **N/A** | |
| #7 *Chain of Custody present? | **Yes** | |
| #8 Any missing/extra samples? | **No** | |
| #9 Chain of Custody signed when relinquished/ received? | **Yes** | |
| #10 Chain of Custody agrees with sample labels/matrix? | **Yes** | |
| #11 Container label(s) legible and intact? | **Yes** | |
| #12 Samples in proper container/ bottle? | **Yes** | |
| #13 Samples properly preserved? | **Yes** | |
| #14 Sample container(s) intact? | **Yes** | |
| #15 Sufficient sample amount for indicated test(s)? | **Yes** | |
| #16 All samples received within hold time? | **Yes** | |
| #17 Subcontract of sample(s)? | **Yes** | Xenco Stafford |
| #18 Water VOC samples have zero headspace? | **Yes** | |

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

Analyst: BT

PH Device/Lot#: A023690

**Checklist completed by:** Brianna Teel
Brianna Teel
Date: 04/05/2019

**Checklist reviewed by:** Brandi Ritchinson
Brandi Ritcherson
Date: 04/08/2019

# Analytical Report 620150

## for

## ARCADIS

**Project Manager: Brett Krehbiel**

**Eunice Project- S. Eunice**

**B0048789**

**08.08.2019**

Collected By: Client

**1211 W. Florida Ave**
**Midland TX 79701**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-19-29), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142), North Carolina (681)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-19-19), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-18-14)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-19-20)
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-Atlanta (LELAP Lab ID #04176)
Xenco-Tampa: Florida (E87429), North Carolina (483)

08.08.2019

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

Reference: XENCO Report No(s): **620150**
**Eunice Project- S. Eunice**
Project Address: Eunice, NM

**Brett Krehbiel**:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 620150. 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. 620150 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,

**John Builes**
Project Manager

*A Small Business and Minority Company*

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico


Released to Imaging: 6/14/2022 10:17:42 AM

# Sample Cross Reference 620150

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

| Sample Id | Matrix | Date Collected | Sample Depth | Lab Sample Id |
|---|---|---|---|---|
| RW-6 | W | 04.04.2019 08:27 | | 620150-001 |
| RW-7 | W | 04.04.2019 09:10 | | 620150-002 |
| MWD-9 | W | 04.04.2019 09:55 | | 620150-003 |
| MW-4 | W | 04.04.2019 10:19 | | 620150-004 |
| DUP5 | W | 04.04.2019 00:00 | | 620150-005 |

# CASE NARRATIVE



***Client Name: ARCADIS***

***Project Name: Eunice Project- S. Eunice***

| | | | |
|---|---|---|---|
| Project ID: | *B0048789* | Report Date: | *08.08.2019* |
| Work Order Number(s): | *620150* | Date Received: | *04.04.2019* |

This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory.

**Sample receipt non conformances and comments:**

None

**Sample receipt non conformances and comments per sample:**

None

**Analytical non conformances and comments:**

Batch: LBA-3085018 TDS by SM2540C

Total Dissolved Solids detected in the blank above the MQL, therefore possible laboratory contamination indicating a potential high bias. Samples in the analytical batch are: 620150-001, -002, -003, -004, -005.

Batch: LBA-3085070 Chromium, Hexavalent by SW 7196A

Sample 620150 -01 was false positive due to iron interference; no color change observed.

Sample 620150 - 005 K-flag due to no sample time entered for duplicate.

# Certificate of Analytical Results
## 620150
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **RW-6** Matrix: Water Sample Depth:

Lab Sample Id: 620150-001 Date Collected: 04.04.2019 08:27 Date Received: 04.04.2019 18:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085303 Date Prep: 04.09.2019 10:40

Prep seq: 7675334

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **715** | 10.0 | 1.72 | mg/L | 04.10.2019 19:19 | | 20 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085018 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **2470** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085089 Date Prep: 04.09.2019 03:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675314

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.00211** | 0.00400 | 0.000246 | mg/L | 04.09.2019 15:36 | J | 1 |
| **Chromium** | 7440-47-3 | **0.00216** | 0.00400 | 0.000525 | mg/L | 04.09.2019 15:36 | J | 1 |
| **Barium** | 7440-39-3 | **0.927** | 0.00400 | 0.000484 | mg/L | 04.09.2019 15:36 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3085070 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.05.2019 07:20 | U | 1 |

# Certificate of Analytical Results
## 620150
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **RW-6** Matrix: Water Sample Depth:

Lab Sample Id: 620150-001 Date Collected: 04.04.2019 08:27 Date Received: 04.04.2019 18:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085705 Date Prep: 04.14.2019 08:00

Prep seq: 7675752

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.987 | 1.50 | 0.987 | mg/L | 04.14.2019 13:04 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.14.2019 13:04 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.14.2019 13:04 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.50 | 0.911 | mg/L | 04.14.2019 13:04 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 102 | 70 - 135 | % | | |
| o-Terphenyl | 102 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085319 Date Prep: 04.10.2019 16:30

Prep seq: 7675537

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 04.11.2019 02:00 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.11.2019 02:00 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.11.2019 02:00 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.11.2019 02:00 | U | 1 |
| **o-Xylene** | 95-47-6 | **0.00215** | 0.00200 | 0.000642 | mg/L | 04.11.2019 02:00 | | 1 |
| **Total Xylenes** | 1330-20-7 | **0.00215** | 0.00200 | 0.000630 | mg/L | 04.11.2019 02:00 | | 1 |
| **Total BTEX** | | **0.00215** | 0.00200 | 0.000367 | mg/L | 04.11.2019 02:00 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 93 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 90 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620150
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **RW-7** Matrix: Water Sample Depth:

Lab Sample Id: 620150-002 Date Collected: 04.04.2019 09:10 Date Received: 04.04.2019 18:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085303 Date Prep: 04.09.2019 10:40

Prep seq: 7675334

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **2750** | 25.0 | 4.29 | mg/L | 04.10.2019 19:26 | | 50 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085018 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **8390** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085089 Date Prep: 04.09.2019 03:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675314

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0106** | 0.00400 | 0.000246 | mg/L | 04.09.2019 15:39 | | 1 |
| **Chromium** | 7440-47-3 | **0.00225** | 0.00400 | 0.000525 | mg/L | 04.09.2019 15:39 | J | 1 |
| **Barium** | 7440-39-3 | **0.0914** | 0.00400 | 0.000484 | mg/L | 04.09.2019 15:39 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3085070 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.05.2019 07:20 | U | 1 |

# Certificate of Analytical Results
## 620150
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **RW-7** Matrix: Water Sample Depth:

Lab Sample Id: 620150-002 Date Collected: 04.04.2019 09:10 Date Received: 04.04.2019 18:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085686 Date Prep: 04.12.2019 07:00

Prep seq: 7675744

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.986 | 1.50 | 0.986 | mg/L | 04.12.2019 17:57 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 17:57 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 17:57 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 17:57 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 97 | 70 - 135 | % | | |
| o-Terphenyl | 97 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085319 Date Prep: 04.10.2019 16:30

Prep seq: 7675537

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 04.11.2019 02:19 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.11.2019 02:19 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.11.2019 02:19 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.11.2019 02:19 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.11.2019 02:19 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.11.2019 02:19 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.11.2019 02:19 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 90 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 89 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620150
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MWD-9** Matrix: Water Sample Depth:

Lab Sample Id: 620150-003 Date Collected: 04.04.2019 09:55 Date Received: 04.04.2019 18:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085303 Date Prep: 04.09.2019 10:40

Prep seq: 7675334

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **17000** | 100 | 17.2 | mg/L | 04.10.2019 19:32 | | 200 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085018 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **28800** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085089 Date Prep: 04.09.2019 03:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675314

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0192** | 0.00400 | 0.000246 | mg/L | 04.09.2019 15:48 | | 1 |
| **Chromium** | 7440-47-3 | **0.00931** | 0.00400 | 0.000525 | mg/L | 04.09.2019 15:48 | | 1 |
| **Barium** | 7440-39-3 | **0.0717** | 0.0400 | 0.00484 | mg/L | 04.09.2019 18:01 | D | 10 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3085070 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chromium, Hexavalent** | 18540-29-9 | **0.00760** | 0.0100 | 0.00273 | mg/L | 04.05.2019 07:20 | J | 1 |

# Certificate of Analytical Results
## 620150
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MWD-9** Matrix: Water Sample Depth:

Lab Sample Id: 620150-003 Date Collected: 04.04.2019 09:55 Date Received: 04.04.2019 18:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085686 Date Prep: 04.12.2019 07:00

Prep seq: 7675744

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.987 | 1.50 | 0.987 | mg/L | 04.12.2019 18:16 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 18:16 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 18:16 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 18:16 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 92 | 70 - 135 | % | | |
| o-Terphenyl | 90 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085319 Date Prep: 04.10.2019 16:30

Prep seq: 7675537

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **0.0161** | 0.00200 | 0.000408 | mg/L | 04.11.2019 02:39 | | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.11.2019 02:39 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.11.2019 02:39 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.11.2019 02:39 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.11.2019 02:39 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.11.2019 02:39 | U | 1 |
| **Total BTEX** | | **0.0161** | 0.00200 | 0.000367 | mg/L | 04.11.2019 02:39 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 91 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 89 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620150
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-4** Matrix: Water Sample Depth:

Lab Sample Id: 620150-004 Date Collected: 04.04.2019 10:19 Date Received: 04.04.2019 18:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085303 Date Prep: 04.09.2019 10:40

Prep seq: 7675334

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **1830** | 25.0 | 4.29 | mg/L | 04.10.2019 19:39 | | 50 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085018 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **4970** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085089 Date Prep: 04.09.2019 03:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675314

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.00818** | 0.00400 | 0.000246 | mg/L | 04.09.2019 15:51 | | 1 |
| **Chromium** | 7440-47-3 | **0.00163** | 0.00400 | 0.000525 | mg/L | 04.09.2019 15:51 | J | 1 |
| **Barium** | 7440-39-3 | **0.0620** | 0.00400 | 0.000484 | mg/L | 04.09.2019 15:51 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3085070 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.05.2019 07:20 | U | 1 |

# Certificate of Analytical Results
## 620150

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **MW-4** Matrix: Water Sample Depth:

Lab Sample Id: 620150-004 Date Collected: 04.04.2019 10:19 Date Received: 04.04.2019 18:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085686 Date Prep: 04.12.2019 07:00

Prep seq: 7675744

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.986 | 1.50 | 0.986 | mg/L | 04.12.2019 18:35 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 18:35 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 18:35 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 18:35 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 93 | 70 - 135 | % | | |
| o-Terphenyl | 89 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085319 Date Prep: 04.10.2019 16:30

Prep seq: 7675537

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 04.11.2019 02:58 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.11.2019 02:58 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.11.2019 02:58 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.11.2019 02:58 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.11.2019 02:58 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.11.2019 02:58 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.11.2019 02:58 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 91 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 89 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620150
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **DUP5** Matrix: Water Sample Depth:

Lab Sample Id: 620150-005 Date Collected: 04.04.2019 00:00 Date Received: 04.04.2019 18:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085303 Date Prep: 04.09.2019 10:40

Prep seq: 7675334

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **2080** | 25.0 | 4.29 | mg/L | 04.10.2019 20:06 | | 50 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085018 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **4740** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085089 Date Prep: 04.09.2019 03:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675314

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.00909** | 0.00400 | 0.000246 | mg/L | 04.09.2019 15:54 | | 1 |
| **Chromium** | 7440-47-3 | **0.00212** | 0.00400 | 0.000525 | mg/L | 04.09.2019 15:54 | J | 1 |
| **Barium** | 7440-39-3 | **0.0723** | 0.00400 | 0.000484 | mg/L | 04.09.2019 15:54 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3085070 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.05.2019 07:20 | UK | 1 |

# Certificate of Analytical Results
## 620150

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **DUP5** Matrix: Water Sample Depth:

Lab Sample Id: 620150-005 Date Collected: 04.04.2019 00:00 Date Received: 04.04.2019 18:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085311 Date Prep: 04.10.2019 07:00

Prep seq: 7675488

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.987 | 1.50 | 0.987 | mg/L | 04.10.2019 19:17 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 19:17 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 19:17 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 19:17 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 91 | 70 - 135 | % | | |
| o-Terphenyl | 91 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085319 Date Prep: 04.10.2019 16:30

Prep seq: 7675537

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 04.11.2019 03:18 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.11.2019 03:18 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.11.2019 03:18 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.11.2019 03:18 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.11.2019 03:18 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.11.2019 03:18 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.11.2019 03:18 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 90 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 88 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620150
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **3085018-1-BLK** Matrix: Water Sample Depth:

Lab Sample Id: 3085018-1-BLK Date Collected: Date Received:

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085018 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **28.0** | 5.00 | 5.00 | mg/L | 04.06.2019 14:00 | B | 1 |

Sample Id: **3085070-1-BLK** Matrix: Water Sample Depth:

Lab Sample Id: 3085070-1-BLK Date Collected: Date Received:

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3085070 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.05.2019 07:20 | U | 1 |

Sample Id: **7675314-1-BLK** Matrix: Water Sample Depth:

Lab Sample Id: 7675314-1-BLK Date Collected: Date Received:

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085089 Date Prep: 04.09.2019 03:00

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675314

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Arsenic | 7440-38-2 | <0.000246 | 0.00400 | 0.000246 | mg/L | 04.09.2019 14:11 | U | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 04.09.2019 14:11 | U | 1 |
| Barium | 7440-39-3 | <0.000484 | 0.00400 | 0.000484 | mg/L | 04.09.2019 14:11 | U | 1 |

# Certificate of Analytical Results
## 620150
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **7675334-1-BLK** Matrix: Water Sample Depth:

Lab Sample Id: 7675334-1-BLK Date Collected: Date Received:

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085303 Date Prep: 04.09.2019 10:40

Prep seq: 7675334

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chloride | 16887-00-6 | <0.0858 | 0.500 | 0.0858 | mg/L | 04.10.2019 17:44 | U | 1 |

Sample Id: **7675488-1-BLK** Matrix: Water Sample Depth:

Lab Sample Id: 7675488-1-BLK Date Collected: Date Received:

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085311 Date Prep: 04.10.2019 07:00

Prep seq: 7675488

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.987 | 1.50 | 0.987 | mg/L | 04.10.2019 10:58 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 10:58 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 10:58 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.50 | 0.911 | mg/L | 04.10.2019 10:58 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 107 | 70 - 135 | % | | |
| o-Terphenyl | 109 | 70 - 135 | % | | |

# Certificate of Analytical Results
## 620150
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **7675537-1-BLK** Matrix: Water Sample Depth:

Lab Sample Id: 7675537-1-BLK Date Collected: Date Received:

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085319 Date Prep: 04.10.2019 16:30

Prep seq: 7675537

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 04.11.2019 01:41 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.11.2019 01:41 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.11.2019 01:41 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.11.2019 01:41 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.11.2019 01:41 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.11.2019 01:41 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.11.2019 01:41 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 91 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 89 | 70 - 130 | % | | |

Sample Id: **7675744-1-BLK** Matrix: Water Sample Depth:

Lab Sample Id: 7675744-1-BLK Date Collected: Date Received:

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085686 Date Prep: 04.12.2019 07:00

Prep seq: 7675744

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.986 | 1.50 | 0.986 | mg/L | 04.12.2019 10:19 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 10:19 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 10:19 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.50 | 0.911 | mg/L | 04.12.2019 10:19 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 107 | 70 - 135 | % | | |
| o-Terphenyl | 109 | 70 - 135 | % | | |

# Certificate of Analytical Results
## 620150

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **7675752-1-BLK** Matrix: Water Sample Depth:

Lab Sample Id: 7675752-1-BLK Date Collected: Date Received:

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085705 Date Prep: 04.14.2019 08:00

Prep seq: 7675752

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.986 | 1.50 | 0.986 | mg/L | 04.14.2019 12:05 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.14.2019 12:05 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.14.2019 12:05 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.50 | 0.911 | mg/L | 04.14.2019 12:05 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 112 | 70 - 135 | % | | |
| o-Terphenyl | 113 | 70 - 135 | % | | |

# 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



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# Form 2 - Surrogate Recoveries

**Project Name:** Eunice Project- S. Eunice

**Work Orders :** 620150 **Project ID:** B0048789

**Lab Batch #:** 3085319 **Sample:** 7675537-1-BKS / BKS **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.11.2019 00:07 **SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0298 | 0.0300 | 99 | 70-130 | |
| 4-Bromofluorobenzene | 0.0286 | 0.0300 | 95 | 70-130 | |

**Lab Batch #:** 3085319 **Sample:** 7675537-1-BSD / BSD **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.11.2019 00:26 **SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0293 | 0.0300 | 98 | 70-130 | |
| 4-Bromofluorobenzene | 0.0278 | 0.0300 | 93 | 70-130 | |

**Lab Batch #:** 3085319 **Sample:** 620150-001 S / MS **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.11.2019 00:45 **SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0298 | 0.0300 | 99 | 70-130 | |
| 4-Bromofluorobenzene | 0.0294 | 0.0300 | 98 | 70-130 | |

**Lab Batch #:** 3085319 **Sample:** 620150-001 SD / MSD **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.11.2019 01:04 **SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0297 | 0.0300 | 99 | 70-130 | |
| 4-Bromofluorobenzene | 0.0290 | 0.0300 | 97 | 70-130 | |

**Lab Batch #:** 3085319 **Sample:** 7675537-1-BLK / BLK **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.11.2019 01:41 **SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0272 | 0.0300 | 91 | 70-130 | |
| 4-Bromofluorobenzene | 0.0268 | 0.0300 | 89 | 70-130 | |

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

# Form 2 - Surrogate Recoveries

**Project Name:** Eunice Project- S. Eunice

**Work Orders :** 620150 **Project ID:** B0048789

**Lab Batch #:** 3085311 **Sample:** 7675488-1-BLK / BLK **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.10.2019 10:58 **SURROGATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 10.7 | 9.99 | 107 | 70-135 | |
| o-Terphenyl | 5.47 | 5.00 | 109 | 70-135 | |

**Lab Batch #:** 3085311 **Sample:** 7675488-1-BKS / BKS **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.10.2019 11:17 **SURROGATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 11.9 | 9.98 | 119 | 70-135 | |
| o-Terphenyl | 5.45 | 4.99 | 109 | 70-135 | |

**Lab Batch #:** 3085311 **Sample:** 7675488-1-BSD / BSD **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.10.2019 11:36 **SURROGATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 12.5 | 9.98 | 125 | 70-135 | |
| o-Terphenyl | 5.85 | 4.99 | 117 | 70-135 | |

**Lab Batch #:** 3085311 **Sample:** 619806-001 S / MS **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.10.2019 12:14 **SURROGATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 10.9 | 9.99 | 109 | 70-135 | |
| o-Terphenyl | 5.36 | 4.99 | 107 | 70-135 | |

**Lab Batch #:** 3085311 **Sample:** 619806-001 SD / MSD **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.10.2019 12:34 **SURROGATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 11.1 | 9.98 | 111 | 70-135 | |
| o-Terphenyl | 5.58 | 4.99 | 112 | 70-135 | |

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



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# Form 2 - Surrogate Recoveries

**Project Name:** Eunice Project- S. Eunice

**Work Orders :** 620150 **Project ID:** B0048789

**Lab Batch #:** 3085686 **Sample:** 7675744-1-BLK / BLK **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.12.2019 10:19 **SURROGATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 10.7 | 9.98 | 107 | 70-135 | |
| o-Terphenyl | 5.42 | 4.99 | 109 | 70-135 | |

**Lab Batch #:** 3085686 **Sample:** 7675744-1-BKS / BKS **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.12.2019 10:38 **SURROGATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 12.5 | 9.99 | 125 | 70-135 | |
| o-Terphenyl | 5.98 | 4.99 | 120 | 70-135 | |

**Lab Batch #:** 3085686 **Sample:** 7675744-1-BSD / BSD **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.12.2019 10:57 **SURROGATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 13.0 | 9.98 | 130 | 70-135 | |
| o-Terphenyl | 6.35 | 4.99 | 127 | 70-135 | |

**Lab Batch #:** 3085686 **Sample:** 620014-001 S / MS **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.12.2019 11:35 **SURROGATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 12.8 | 9.99 | 128 | 70-135 | |
| o-Terphenyl | 6.37 | 5.00 | 127 | 70-135 | |

**Lab Batch #:** 3085686 **Sample:** 620014-001 SD / MSD **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.12.2019 11:54 **SURROGATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 12.8 | 9.98 | 128 | 70-135 | |
| o-Terphenyl | 6.43 | 4.99 | 129 | 70-135 | |

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

# Form 2 - Surrogate Recoveries

**Project Name:** Eunice Project- S. Eunice

**Work Orders :** 620150 **Project ID:** B0048789

**Lab Batch #:** 3085705 **Sample:** 7675752-1-BLK / BLK **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.14.2019 12:05 **SURROGATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 11.2 | 9.98 | 112 | 70-135 | |
| o-Terphenyl | 5.66 | 4.99 | 113 | 70-135 | |

**Lab Batch #:** 3085705 **Sample:** 7675752-1-BKS / BKS **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.14.2019 12:24 **SURROGATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 12.8 | 9.99 | 128 | 70-135 | |
| o-Terphenyl | 6.02 | 5.00 | 120 | 70-135 | |

**Lab Batch #:** 3085705 **Sample:** 7675752-1-BSD / BSD **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.14.2019 12:44 **SURROGATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 12.8 | 9.98 | 128 | 70-135 | |
| o-Terphenyl | 5.40 | 4.99 | 108 | 70-135 | |

**Lab Batch #:** 3085705 **Sample:** 620150-001 S / MS **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.14.2019 13:23 **SURROGATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 10.9 | 9.98 | 109 | 70-135 | |
| o-Terphenyl | 5.20 | 4.99 | 104 | 70-135 | |

**Lab Batch #:** 3085705 **Sample:** 620150-001 SD / MSD **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.14.2019 13:43 **SURROGATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 11.1 | 9.99 | 111 | 70-135 | |
| o-Terphenyl | 4.77 | 4.99 | 96 | 70-135 | |

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



Released to Imaging: 6/14/2022 10:17:42 AM

# BS / BSD Recoveries

## Project Name: Eunice Project- S. Eunice

**Work Order #:** 620150 **Project ID:** B0048789

**Analyst:** SCM **Date Prepared:** 04.10.2019 **Date Analyzed:** 04.11.2019

**Lab Batch ID:** 3085319 **Sample:** 7675537-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Blank Sample Result [A] | Spike Added [B] | Blank Spike Result [C] | Blank Spike %R [D] | Spike Added [E] | Blank Spike Duplicate Result [F] | Blk. Spk Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.000408 | 0.100 | 0.0860 | 86 | 0.100 | 0.0905 | 91 | 5 | 70-130 | 25 | |
| Toluene | <0.000367 | 0.100 | 0.0869 | 87 | 0.100 | 0.0911 | 91 | 5 | 70-130 | 25 | |
| Ethylbenzene | <0.000657 | 0.100 | 0.0805 | 81 | 0.100 | 0.0846 | 85 | 5 | 70-130 | 25 | |
| m,p-Xylenes | <0.000630 | 0.200 | 0.159 | 80 | 0.200 | 0.168 | 84 | 6 | 70-130 | 25 | |
| o-Xylene | <0.000642 | 0.100 | 0.0809 | 81 | 0.100 | 0.0852 | 85 | 5 | 70-130 | 25 | |

**Analyst:** CHE **Date Prepared:** 04.09.2019 **Date Analyzed:** 04.10.2019

**Lab Batch ID:** 3085303 **Sample:** 7675334-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| Chloride by EPA 300<br>Analytes | Blank Sample Result [A] | Spike Added [B] | Blank Spike Result [C] | Blank Spike %R [D] | Spike Added [E] | Blank Spike Duplicate Result [F] | Blk. Spk Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | <0.0858 | 25.0 | 26.7 | 107 | 25.0 | 25.8 | 103 | 3 | 90-110 | 20 | |

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

# BS / BSD Recoveries

## Project Name: Eunice Project- S. Eunice

**Work Order #:** 620150 **Project ID:** B0048789

**Analyst:** SPC **Date Prepared:** 04.05.2019 **Date Analyzed:** 04.05.2019

**Lab Batch ID:** 3085070 **Sample:** 3085070-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| Chromium, Hexavalent by SW 7196A<br>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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | <0.00273 | 0.0400 | 0.0378 | 95 | 0.0400 | 0.0380 | 95 | 1 | 85-115 | 20 | |

**Analyst:** DEP **Date Prepared:** 04.09.2019 **Date Analyzed:** 04.09.2019

**Lab Batch ID:** 3085089 **Sample:** 7675314-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| Dissolved Metals by SW6020A<br>Analytes | Blank Sample Result [A] | Spike Added [B] | Blank Spike Result [C] | Blank Spike %R [D] | Spike Added [E] | Blank Spike Duplicate Result [F] | Blk. Spk Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | <0.000246 | 0.100 | 0.0966 | 97 | 0.100 | 0.0954 | 95 | 1 | 80-120 | 20 | |
| Chromium | <0.000525 | 0.100 | 0.0978 | 98 | 0.100 | 0.0983 | 98 | 1 | 80-120 | 20 | |
| Barium | <0.000484 | 0.100 | 0.0941 | 94 | 0.100 | 0.0948 | 95 | 1 | 80-120 | 20 | |

**Analyst:** CHE **Date Prepared:** 04.06.2019 **Date Analyzed:** 04.06.2019

**Lab Batch ID:** 3085018 **Sample:** 3085018-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| TDS by SM2540C<br>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 | 28.0 | 1000 | 946 | 95 | 1000 | 928 | 93 | 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

# BS / BSD Recoveries

## Project Name: Eunice Project- S. Eunice

**Work Order #:** 620150 **Project ID:** B0048789

**Analyst:** ARM **Date Prepared:** 04.10.2019 **Date Analyzed:** 04.10.2019

**Lab Batch ID:** 3085311 **Sample:** 7675488-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Blank Sample Result [A] | Spike Added [B] | Blank Spike Result [C] | Blank Spike %R [D] | Spike Added [E] | Blank Spike Duplicate Result [F] | Blk. Spk Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | <0.986 | 99.8 | 101 | 101 | 99.8 | 104 | 104 | 3 | 70-135 | 20 | |
| Diesel Range Organics | <0.911 | 99.8 | 112 | 112 | 99.8 | 114 | 114 | 2 | 70-135 | 20 | |

**Analyst:** ARM **Date Prepared:** 04.12.2019 **Date Analyzed:** 04.12.2019

**Lab Batch ID:** 3085686 **Sample:** 7675744-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Blank Sample Result [A] | Spike Added [B] | Blank Spike Result [C] | Blank Spike %R [D] | Spike Added [E] | Blank Spike Duplicate Result [F] | Blk. Spk Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | <0.986 | 99.9 | 97.7 | 98 | 99.8 | 101 | 101 | 3 | 70-135 | 20 | |
| Diesel Range Organics | <0.911 | 99.9 | 100 | 100 | 99.8 | 101 | 101 | 1 | 70-135 | 20 | |

**Analyst:** ARM **Date Prepared:** 04.14.2019 **Date Analyzed:** 04.14.2019

**Lab Batch ID:** 3085705 **Sample:** 7675752-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Blank Sample Result [A] | Spike Added [B] | Blank Spike Result [C] | Blank Spike %R [D] | Spike Added [E] | Blank Spike Duplicate Result [F] | Blk. Spk Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | <0.987 | 99.9 | 101 | 101 | 99.8 | 98.7 | 99 | 2 | 70-135 | 20 | |
| Diesel Range Organics | <0.911 | 99.9 | 107 | 107 | 99.8 | 104 | 104 | 3 | 70-135 | 20 | |

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

# Form 3 - MS / MSD Recoveries

## Project Name: Eunice Project- S. Eunice

**Work Order # :** 620150 **Project ID:** B0048789

**Lab Batch ID:** 3085319 **QC- Sample ID:** 620150-001 S **Batch #:** 1 **Matrix:** Water

**Date Analyzed:** 04.11.2019 **Date Prepared:** 04.10.2019 **Analyst:** SCM

**Reporting Units:** mg/L

### MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

| BTEX by EPA 8021B<br>Analytes | Parent Sample Result [A] | Spike Added [B] | Spiked Sample Result [C] | Spiked Sample %R [D] | Spike Added [E] | Duplicate Spiked Sample Result [F] | Spiked Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.000408 | 0.100 | 0.0902 | 90 | 0.100 | 0.0899 | 90 | 0 | 70-130 | 25 | |
| Toluene | <0.000367 | 0.100 | 0.0898 | 90 | 0.100 | 0.0891 | 89 | 1 | 70-130 | 25 | |
| Ethylbenzene | <0.000657 | 0.100 | 0.0841 | 84 | 0.100 | 0.0835 | 84 | 1 | 70-130 | 25 | |
| m,p-Xylenes | <0.000630 | 0.200 | 0.174 | 87 | 0.200 | 0.172 | 86 | 1 | 70-130 | 25 | |
| o-Xylene | 0.00215 | 0.100 | 0.0876 | 85 | 0.100 | 0.0868 | 85 | 1 | 70-130 | 25 | |

**Lab Batch ID:** 3085303 **QC- Sample ID:** 620148-003 S **Batch #:** 1 **Matrix:** Water

**Date Analyzed:** 04.10.2019 **Date Prepared:** 04.09.2019 **Analyst:** CHE

**Reporting Units:** mg/L

### MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

| Chloride by EPA 300<br>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 | 332 | 125 | 428 | 77 | 125 | 464 | 106 | 8 | 90-110 | 20 | X |

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: Eunice Project- S. Eunice

**Work Order # :** 620150 **Project ID:** B0048789

**Lab Batch ID:** 3085303 **QC- Sample ID:** 620148-009 S **Batch #:** 1 **Matrix:** Water

**Date Analyzed:** 04.10.2019 **Date Prepared:** 04.09.2019 **Analyst:** CHE

**Reporting Units:** mg/L

**MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY**

| Chloride by EPA 300<br>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 | 93.1 | 125 | 203 | 88 | 125 | 206 | 90 | 1 | 90-110 | 20 | X |

**Lab Batch ID:** 3085070 **QC- Sample ID:** 620150-002 S **Batch #:** 1 **Matrix:** Water

**Date Analyzed:** 04.05.2019 **Date Prepared:** 04.05.2019 **Analyst:** SPC

**Reporting Units:** mg/L

**MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY**

| Chromium, Hexavalent by SW 7196A<br>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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | <0.00273 | 0.200 | 0.198 | 99 | 0.200 | 0.198 | 99 | 0 | 75-125 | 20 | |

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

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

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

# Form 3 - MS / MSD Recoveries

## Project Name: Eunice Project- S. Eunice

**Work Order # :** 620150 **Project ID:** B0048789

**Lab Batch ID:** 3085089 **QC- Sample ID:** 620148-001 S **Batch #:** 1 **Matrix:** Water

**Date Analyzed:** 04.09.2019 **Date Prepared:** 04.09.2019 **Analyst:** DEP

**Reporting Units:** mg/L

### MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

| Dissolved Metals by SW6020A<br>Analytes | Parent Sample Result [A] | Spike Added [B] | Spiked Sample Result [C] | Spiked Sample %R [D] | Spike Added [E] | Duplicate Spiked Sample Result [F] | Spiked Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 0.0171 | 0.100 | 0.113 | 96 | 0.100 | 0.114 | 97 | 1 | 75-125 | 20 | |
| Chromium | 0.00173 | 0.100 | 0.0981 | 96 | 0.100 | 0.0979 | 96 | 0 | 75-125 | 20 | |
| Barium | 0.0470 | 0.100 | 0.141 | 94 | 0.100 | 0.140 | 93 | 1 | 75-125 | 20 | |

**Lab Batch ID:** 3085311 **QC- Sample ID:** 619806-001 S **Batch #:** 1 **Matrix:** Water

**Date Analyzed:** 04.10.2019 **Date Prepared:** 04.10.2019 **Analyst:** ARM

**Reporting Units:** mg/L

### MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

| TPH By SW8015 Mod<br>Analytes | Parent Sample Result [A] | Spike Added [B] | Spiked Sample Result [C] | Spiked Sample %R [D] | Spike Added [E] | Duplicate Spiked Sample Result [F] | Spiked Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | <0.986 | 99.9 | 84.3 | 84 | 99.8 | 86.3 | 86 | 2 | 70-135 | 20 | |
| Diesel Range Organics | <0.911 | 99.9 | 89.1 | 89 | 99.8 | 92.1 | 92 | 3 | 70-135 | 20 | |

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

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

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

# Form 3 - MS / MSD Recoveries

## Project Name: Eunice Project- S. Eunice

**Work Order # :** 620150 **Project ID:** B0048789

**Lab Batch ID:** 3085686 **QC- Sample ID:** 620014-001 S **Batch #:** 1 **Matrix:** Water

**Date Analyzed:** 04.12.2019 **Date Prepared:** 04.12.2019 **Analyst:** ARM

**Reporting Units:** mg/L

### MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

| TPH By SW8015 Mod<br>Analytes | Parent Sample Result [A] | Spike Added [B] | Spiked Sample Result [C] | Spiked Sample %R [D] | Spike Added [E] | Duplicate Spiked Sample Result [F] | Spiked Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | <0.987 | 99.9 | 111 | 111 | 99.8 | 112 | 112 | 1 | 70-135 | 20 | |
| Diesel Range Organics | <0.912 | 99.9 | 112 | 112 | 99.8 | 113 | 113 | 1 | 70-135 | 20 | |

**Lab Batch ID:** 3085705 **QC- Sample ID:** 620150-001 S **Batch #:** 1 **Matrix:** Water

**Date Analyzed:** 04.14.2019 **Date Prepared:** 04.14.2019 **Analyst:** ARM

**Reporting Units:** mg/L

### MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

| TPH By SW8015 Mod<br>Analytes | Parent Sample Result [A] | Spike Added [B] | Spiked Sample Result [C] | Spiked Sample %R [D] | Spike Added [E] | Duplicate Spiked Sample Result [F] | Spiked Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | <0.986 | 99.8 | 90.5 | 91 | 99.9 | 90.6 | 91 | 0 | 70-135 | 20 | |
| Diesel Range Organics | <0.911 | 99.8 | 92.1 | 92 | 99.9 | 94.5 | 95 | 3 | 70-135 | 20 | |

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

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

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

# Method Duplicate



## Project Name: Eunice Project- S. Eunice

**Work Order #:** 620150

**Lab Batch #:** 3085018 **Project ID:** B0048789
**Date Analyzed:** 04.06.2019 14:00 **Date Prepared:** 04.06.2019 **Analyst:** CHE
**QC- Sample ID:** 620014-003 D **Batch #:** 1 **Matrix:** Water
**Reporting Units:** mg/L

**SAMPLE / SAMPLE DUPLICATE RECOVERY**

| TDS by SM2540C<br>Analyte | Parent Sample Result [A] | Sample Duplicate Result [B] | RPD | Control Limits %RPD | Flag |
|---|---|---|---|---|---|
| Total Dissolved Solids | 1170 | 1170 | 0 | 10 | |

**Lab Batch #:** 3085018
**Date Analyzed:** 04.06.2019 14:00 **Date Prepared:** 04.06.2019 **Analyst:** CHE
**QC- Sample ID:** 620148-003 D **Batch #:** 1 **Matrix:** Water
**Reporting Units:** mg/L

**SAMPLE / SAMPLE DUPLICATE RECOVERY**

| TDS by SM2540C<br>Analyte | Parent Sample Result [A] | Sample Duplicate Result [B] | RPD | Control Limits %RPD | Flag |
|---|---|---|---|---|---|
| Total Dissolved Solids | 640 | 661 | 3 | 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

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# Chain of Custody

Work Order No: 620150

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)
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| | | | |
|---|---|---|---|
| Project Manager: | Brett Krehbiel | Bill to: (if different) | |
| Company Name: | ARCADIS | Company Name: | |
| Address: | 1004 N. Big Spring St. | Address: | |
| City, State ZIP: | Midland, TX. 79701 | City, State ZIP: | |
| Phone: | 916-786-5382 | Email: | brett.krehbiel@arcadis.com |

**Work Order Comments**

Program: UST/PST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐
State of Project:
Reporting:Level II ☐ Level III ☐ PST/UST ☐ RRP ☐ Level IV ☐
Deliverables: EDD ☐ ADaPT ☐ Other:

| | | | |
|---|---|---|---|
| Project Name: | Eunice Project- S. Eunice | Turn Around | |
| Project Number: | B0048789 | Routine | ☑ |
| P.O. Number: | | Rush: | |
| Sampler's Name: | Chas Holder | Due Date: | |

| SAMPLE RECEIPT | | | | | |
|---|---|---|---|---|---|
| | Temp Blank: | Yes No | Wet Ice: | Yes No | |
| Temperature (°C): | | Thermometer ID | | | |
| Received Intact: | Yes No | | | | |
| Cooler Custody Seals: | Yes No N/A | Correction Factor: | | | |
| Sample Custody Seals: | Yes No N/A | Total Containers: | | | |

| Sample Identification | Matrix | Date Sampled | Time Sampled | Depth | Number of Containers | BTEX (SW8021) | TPH (SW8015) | Hex Chrome (SW7196A) | Dissolved Metals (SW6020_DIS): Chromium, Arsenic & Barium) | TDS (SW2540) | Chlorides (E300) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| RW6 | W | 4-4 | 0827 | | 8 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| RW7 | W | 4-4 | 0910 | | 8 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MWD 9 | W | 4-4 | 0955 | | 8 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MW4 | W | 4-4 | 1019 | | 8 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Dup5 | W | 4-4 | — | | 8 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

**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

**Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Xenco. A minimum charge of $75.00 will be applied to each project and a charge of $5 for each sample submitted to Xenco, but not analyzed. These terms will be enforced unless previously negotiated.**

| Relinquished by: (Signature) | Received by: (Signature) | Date/Time | Relinquished by: (Signature) | Received by: (Signature) | Date/Time |
|---|---|---|---|---|---|
| 1 | | 4/4/19 16:23 | 2 | | 4/4/19 18:00 |
| 3 | | | 4 | | |
| 5 | | | 6 | | |

Revised Date 051418 Rev. 2018.1

Received by OCD: 3/25/2020 2:27:35 PM
Final 1.003
Page 32 of 35
Released to Imaging: 6/14/2022 10:17:42 AM

# Inter-Office Shipment

**IOS Number : 126040**

| | | | | | |
|---|---|---|---|---|---|
| Date/Time: | 04.05.2019 08:08 | Created by: | Brianna Teel | Please send report to: | Brandi Ritcherson |
| Lab# From: | **Midland** | Delivery Priority: | | Address: | 1211 W. Florida Ave |
| Lab# To: | **Houston** | Air Bill No.: | 774901939030 | E-Mail: | brandi.ritcherson@xenco.com |

| Sample Id | Matrix | Client Sample Id | Sample Collection | Method | Method Name | Lab Due | HT Due | PM | Analytes | Sign |
|---|---|---|---|---|---|---|---|---|---|---|
| 620150-001 | W | RW6 | 04.04.2019 08:27 | SW6020_DIS | Dissolved Metals by SW6020A | 04.10.2019 | 10.01.2019 | BAR | AS BA CR | |
| 620150-002 | W | RW7 | 04.04.2019 09:10 | SW6020_DIS | Dissolved Metals by SW6020A | 04.10.2019 | 10.01.2019 | BAR | AS BA CR | |
| 620150-003 | W | MWD 9 | 04.04.2019 09:55 | SW6020_DIS | Dissolved Metals by SW6020A | 04.10.2019 | 10.01.2019 | BAR | AS BA CR | |
| 620150-004 | W | MW4 | 04.04.2019 10:19 | SW6020_DIS | Dissolved Metals by SW6020A | 04.10.2019 | 10.01.2019 | BAR | AS BA CR | |
| 620150-005 | W | DUP5 | 04.04.2019 00:00 | SW6020_DIS | Dissolved Metals by SW6020A | 04.10.2019 | 10.01.2019 | BAR | AS BA CR | |

**Inter Office Shipment or Sample Comments:**

Relinquished By: Brianna Teel

Brianna Teel

Date Relinquished: 04.05.2019

Received By: Travis Simmons

Travis Simmons

Date Received: 04.06.2019 10:00

Cooler Temperature: 3.1

# XENCO Laboratories

## Inter Office Report- Sample Receipt Checklist

**Sent To:** Houston

**IOS #:** 126040

**Acceptable Temperature Range: 0 - 6 degC**
**Air and Metal samples Acceptable Range: Ambient**
**Temperature Measuring device used : HOU-068**

**Sent By:** Brianna Teel **Date Sent:** 04/05/2019 08:08 AM

**Received By:** Travis Simmons **Date Received:** 04/06/2019 10:00 AM

| Sample Receipt Checklist | | Comments |
|---|---|---|
| #1 *Temperature of cooler(s)? | 3.1 | |
| #2 *Shipping container in good condition? | **Yes** | |
| #3 *Samples received with appropriate temperature? | **Yes** | |
| #4 *Custody Seals intact on shipping container/ cooler? | **Yes** | |
| #5 *Custody Seals Signed and dated for Containers/coolers | **Yes** | |
| #6 *IOS present? | **Yes** | |
| #7 Any missing/extra samples? | **No** | |
| #8 IOS agrees with sample label(s)/matrix? | **Yes** | |
| #9 Sample matrix/ properties agree with IOS? | **Yes** | |
| #10 Samples in proper container/ bottle? | **Yes** | |
| #11 Samples properly preserved? | **Yes** | |
| #12 Sample container(s) intact? | **Yes** | |
| #13 Sufficient sample amount for indicated test(s)? | **Yes** | |
| #14 All samples received within hold time? | **Yes** | |

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

**NonConformance:**

**Corrective Action Taken:**

**Nonconformance Documentation**

**Contact:** _____ **Contacted by :** _____ **Date:** _____

**Checklist reviewed by:** Travis Simmons Date: 04/06/2019

Travis Simmons

# XENCO Laboratories

## Prelogin/Nonconformance Report- Sample Log-In

**Client:** ARCADIS

**Date/ Time Received:** 04/04/2019 06:00:00 PM

**Work Order #:** 620150

**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)? | 3.5 | |
| #2 *Shipping container in good condition? | **Yes** | |
| #3 *Samples received on ice? | **Yes** | |
| #4 *Custody Seals intact on shipping container/ cooler? | **N/A** | |
| #5 Custody Seals intact on sample bottles? | **N/A** | |
| #6*Custody Seals Signed and dated? | **N/A** | |
| #7 *Chain of Custody present? | **Yes** | |
| #8 Any missing/extra samples? | **No** | |
| #9 Chain of Custody signed when relinquished/ received? | **Yes** | |
| #10 Chain of Custody agrees with sample labels/matrix? | **Yes** | |
| #11 Container label(s) legible and intact? | **Yes** | |
| #12 Samples in proper container/ bottle? | **Yes** | |
| #13 Samples properly preserved? | **Yes** | |
| #14 Sample container(s) intact? | **Yes** | |
| #15 Sufficient sample amount for indicated test(s)? | **Yes** | |
| #16 All samples received within hold time? | **Yes** | |
| #17 Subcontract of sample(s)? | **Yes** | Xenco Stafford |
| #18 Water VOC samples have zero headspace? | **Yes** | |

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

Analyst: BT

PH Device/Lot#: A023690

**Checklist completed by:** Brianna Teel
Brianna Teel
Date: 04/05/2019

**Checklist reviewed by:** Brandi Ritchinson
Brandi Ritcherson
Date: 04/08/2019

# Analytical Report 620257

## for

## ARCADIS

**Project Manager: Brett Krehbiel**

**Eunice Project- S. Eunice**

**B0048789**

**08.08.2019**

Collected By: Client

**1211 W. Florida Ave**
**Midland TX 79701**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-19-29), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142), North Carolina (681)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-19-19), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-18-14)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-19-20)
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-Atlanta (LELAP Lab ID #04176)
Xenco-Tampa: Florida (E87429), North Carolina (483)

08.08.2019

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

Reference: XENCO Report No(s): **620257**
**Eunice Project- S. Eunice**
Project Address: Eunice, NM

**Brett Krehbiel**:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 620257. 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. 620257 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,



**John Builes**
Project Manager

*A Small Business and Minority Company*

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

# Sample Cross Reference 620257

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

| Sample Id | Matrix | Date Collected | Sample Depth | Lab Sample Id |
|---|---|---|---|---|
| MWD-14 | W | 04.05.2019 08:46 | | 620257-001 |
| MW-25 | W | 04.05.2019 09:21 | | 620257-002 |
| TMW-6 | W | 04.05.2019 09:51 | | 620257-003 |
| MW-3 | W | 04.05.2019 10:18 | | 620257-004 |
| MWD-11 | W | 04.05.2019 10:57 | | 620257-005 |
| TMW-1 | W | 04.05.2019 11:30 | | 620257-006 |
| DUP6 | W | 04.05.2019 00:00 | | 620257-007 |

# CASE NARRATIVE



***Client Name: ARCADIS***

***Project Name: Eunice Project- S. Eunice***

Project ID: *B0048789*
Work Order Number(s): *620257*

Report Date: *08.08.2019*
Date Received: *04.05.2019*

This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory.

**Sample receipt non conformances and comments:**

None

**Sample receipt non conformances and comments per sample:**

None

**Analytical non conformances and comments:**

Batch: LBA-3085169 TDS by SM2540C

Total Dissolved Solids detected in the blank above the MQL, therefore possible laboratory contamination indicating a potential high bias. Samples in the analytical batch are: 620257-001, -002, -003, -004, -005, -006, -007.

# Certificate of Analytical Results
## 620257
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MWD-14** Matrix: Water Sample Depth:

Lab Sample Id: 620257-001 Date Collected: 04.05.2019 08:46 Date Received: 04.05.2019 17:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085303 Date Prep: 04.09.2019 10:40

Prep seq: 7675334

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **974** | 25.0 | 4.29 | mg/L | 04.10.2019 20:13 | | 50 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085169 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **3820** | 5.00 | 5.00 | mg/L | 04.09.2019 15:43 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085335 Date Prep: 04.11.2019 08:50

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675519

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.000809** | 0.00400 | 0.000246 | mg/L | 04.11.2019 13:39 | J | 1 |
| **Chromium** | 7440-47-3 | **0.000762** | 0.00400 | 0.000525 | mg/L | 04.11.2019 13:39 | J | 1 |
| **Barium** | 7440-39-3 | **0.436** | 0.00400 | 0.000484 | mg/L | 04.11.2019 13:39 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3085074 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.05.2019 19:00 | U | 1 |

# Certificate of Analytical Results
## 620257
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MWD-14** Matrix: Water Sample Depth:

Lab Sample Id: 620257-001 Date Collected: 04.05.2019 08:46 Date Received: 04.05.2019 17:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085705 Date Prep: 04.14.2019 08:00

Prep seq: 7675752

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Gasoline Range Hydrocarbons** | PHC610 | **4.01** | 1.50 | 0.986 | mg/L | 04.14.2019 14:02 | | 1 |
| **Diesel Range Organics** | C10C28DRO | **1.82** | 1.50 | 0.911 | mg/L | 04.14.2019 14:02 | | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.14.2019 14:02 | U | 1 |
| **Total TPH** | PHC635 | **5.83** | 1.50 | 0.911 | mg/L | 04.14.2019 14:02 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 95 | 70 - 135 | % | | |
| o-Terphenyl | 95 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085319 Date Prep: 04.10.2019 16:30

Prep seq: 7675537

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **0.981** | 0.0200 | 0.00408 | mg/L | 04.11.2019 04:21 | | 10 |
| Toluene | 108-88-3 | <0.00367 | 0.0200 | 0.00367 | mg/L | 04.11.2019 04:21 | U | 10 |
| **Ethylbenzene** | 100-41-4 | **0.0709** | 0.0200 | 0.00657 | mg/L | 04.11.2019 04:21 | | 10 |
| m,p-Xylenes | 179601-23-1 | <0.00630 | 0.0400 | 0.00630 | mg/L | 04.11.2019 04:21 | U | 10 |
| o-Xylene | 95-47-6 | <0.00642 | 0.0200 | 0.00642 | mg/L | 04.11.2019 04:21 | U | 10 |
| Total Xylenes | 1330-20-7 | <0.00630 | 0.0200 | 0.00630 | mg/L | 04.11.2019 04:21 | U | 10 |
| **Total BTEX** | | **1.05** | 0.0200 | 0.00367 | mg/L | 04.11.2019 04:21 | | 10 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 97 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 91 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620257
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-25** Matrix: Water Sample Depth:

Lab Sample Id: 620257-002 Date Collected: 04.05.2019 09:21 Date Received: 04.05.2019 17:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085303 Date Prep: 04.09.2019 10:40

Prep seq: 7675334

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **1240** | 25.0 | 4.29 | mg/L | 04.10.2019 20:34 | | 50 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085169 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **4230** | 5.00 | 5.00 | mg/L | 04.09.2019 15:43 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085335 Date Prep: 04.11.2019 08:50

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675519

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.00145** | 0.00400 | 0.000246 | mg/L | 04.11.2019 14:00 | J | 1 |
| **Chromium** | 7440-47-3 | **0.00163** | 0.00400 | 0.000525 | mg/L | 04.11.2019 14:00 | J | 1 |
| **Barium** | 7440-39-3 | **1.21** | 0.00400 | 0.000484 | mg/L | 04.11.2019 14:00 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3085074 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.05.2019 19:00 | U | 1 |

# Certificate of Analytical Results
## 620257

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **MW-25** Matrix: Water Sample Depth:

Lab Sample Id: 620257-002 Date Collected: 04.05.2019 09:21 Date Received: 04.05.2019 17:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085705 Date Prep: 04.14.2019 08:00

Prep seq: 7675752

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Gasoline Range Hydrocarbons** | PHC610 | **5.95** | 1.50 | 0.986 | mg/L | 04.14.2019 14:22 | | 1 |
| **Diesel Range Organics** | C10C28DRO | **3.52** | 1.50 | 0.911 | mg/L | 04.14.2019 14:22 | | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.14.2019 14:22 | U | 1 |
| **Total TPH** | PHC635 | **9.47** | 1.50 | 0.911 | mg/L | 04.14.2019 14:22 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 93 | 70 - 135 | % | | |
| o-Terphenyl | 92 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085319 Date Prep: 04.10.2019 16:30

Prep seq: 7675537

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **14.1** | 0.200 | 0.0408 | mg/L | 04.11.2019 22:12 | D | 100 |
| **Toluene** | 108-88-3 | **0.00325** | 0.00200 | 0.000367 | mg/L | 04.11.2019 03:37 | | 1 |
| **Ethylbenzene** | 100-41-4 | **0.0232** | 0.00200 | 0.000657 | mg/L | 04.11.2019 03:37 | | 1 |
| **m,p-Xylenes** | 179601-23-1 | **0.0114** | 0.00400 | 0.000630 | mg/L | 04.11.2019 03:37 | | 1 |
| **o-Xylene** | 95-47-6 | **0.00296** | 0.00200 | 0.000642 | mg/L | 04.11.2019 03:37 | | 1 |
| **Total Xylenes** | 1330-20-7 | **0.0144** | 0.00200 | 0.000630 | mg/L | 04.11.2019 03:37 | | 1 |
| **Total BTEX** | | **14.1** | 0.00200 | 0.000367 | mg/L | 04.11.2019 22:12 | | 100 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 123 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 114 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620257
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **TMW-6** Matrix: Water Sample Depth:

Lab Sample Id: 620257-003 Date Collected: 04.05.2019 09:51 Date Received: 04.05.2019 17:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085303 Date Prep: 04.09.2019 10:40

Prep seq: 7675334

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **236** | 5.00 | 0.858 | mg/L | 04.10.2019 20:40 | | 10 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085169 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1430** | 5.00 | 5.00 | mg/L | 04.09.2019 15:43 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085335 Date Prep: 04.11.2019 08:50

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675519

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0647** | 0.00400 | 0.000246 | mg/L | 04.11.2019 14:03 | | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 04.11.2019 14:03 | U | 1 |
| **Barium** | 7440-39-3 | **1.98** | 0.00400 | 0.000484 | mg/L | 04.11.2019 14:03 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3085074 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.05.2019 19:00 | U | 1 |

# Certificate of Analytical Results
## 620257
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **TMW-6** Matrix: Water Sample Depth:

Lab Sample Id: 620257-003 Date Collected: 04.05.2019 09:51 Date Received: 04.05.2019 17:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085705 Date Prep: 04.14.2019 08:00

Prep seq: 7675752

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Gasoline Range Hydrocarbons** | PHC610 | **3.72** | 1.50 | 0.987 | mg/L | 04.14.2019 14:42 | | 1 |
| **Diesel Range Organics** | C10C28DRO | **2.50** | 1.50 | 0.911 | mg/L | 04.14.2019 14:42 | | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.14.2019 14:42 | U | 1 |
| **Total TPH** | PHC635 | **6.22** | 1.50 | 0.911 | mg/L | 04.14.2019 14:42 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 107 | 70 - 135 | % | | |
| o-Terphenyl | 107 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085319 Date Prep: 04.10.2019 16:30

Prep seq: 7675537

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **0.104** | 0.0200 | 0.00408 | mg/L | 04.11.2019 03:59 | | 10 |
| Toluene | 108-88-3 | <0.00367 | 0.0200 | 0.00367 | mg/L | 04.11.2019 03:59 | U | 10 |
| **Ethylbenzene** | 100-41-4 | **0.0425** | 0.0200 | 0.00657 | mg/L | 04.11.2019 03:59 | | 10 |
| m,p-Xylenes | 179601-23-1 | <0.00630 | 0.0400 | 0.00630 | mg/L | 04.11.2019 03:59 | U | 10 |
| o-Xylene | 95-47-6 | <0.00642 | 0.0200 | 0.00642 | mg/L | 04.11.2019 03:59 | U | 10 |
| Total Xylenes | 1330-20-7 | <0.00630 | 0.0200 | 0.00630 | mg/L | 04.11.2019 03:59 | U | 10 |
| **Total BTEX** | | **0.147** | 0.0200 | 0.00367 | mg/L | 04.11.2019 03:59 | | 10 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 94 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 94 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620257
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-3** Matrix: Water Sample Depth:

Lab Sample Id: 620257-004 Date Collected: 04.05.2019 10:18 Date Received: 04.05.2019 17:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085303 Date Prep: 04.09.2019 10:40

Prep seq: 7675334

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **67.7** | 2.50 | 0.429 | mg/L | 04.10.2019 20:47 | | 5 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085169 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **344** | 5.00 | 5.00 | mg/L | 04.09.2019 15:43 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085335 Date Prep: 04.11.2019 08:50

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675519

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0160** | 0.00400 | 0.000246 | mg/L | 04.11.2019 14:06 | | 1 |
| **Chromium** | 7440-47-3 | **0.00111** | 0.00400 | 0.000525 | mg/L | 04.11.2019 14:06 | J | 1 |
| **Barium** | 7440-39-3 | **0.0562** | 0.00400 | 0.000484 | mg/L | 04.11.2019 14:06 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3085074 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.05.2019 19:00 | U | 1 |

# Certificate of Analytical Results
## 620257

## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-3** Matrix: Water Sample Depth:

Lab Sample Id: 620257-004 Date Collected: 04.05.2019 10:18 Date Received: 04.05.2019 17:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085705 Date Prep: 04.14.2019 08:00

Prep seq: 7675752

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.987 | 1.50 | 0.987 | mg/L | 04.14.2019 15:03 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.912 | 1.50 | 0.912 | mg/L | 04.14.2019 15:03 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.912 | 1.50 | 0.912 | mg/L | 04.14.2019 15:03 | U | 1 |
| Total TPH | PHC635 | <0.912 | 1.50 | 0.912 | mg/L | 04.14.2019 15:03 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 104 | 70 - 135 | % | | |
| o-Terphenyl | 104 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085319 Date Prep: 04.10.2019 16:30

Prep seq: 7675537

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 04.11.2019 06:58 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.11.2019 06:58 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.11.2019 06:58 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.11.2019 06:58 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.11.2019 06:58 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.11.2019 06:58 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.11.2019 06:58 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 90 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 90 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620257
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MWD-11** Matrix: Water Sample Depth:

Lab Sample Id: 620257-005 Date Collected: 04.05.2019 10:57 Date Received: 04.05.2019 17:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085303 Date Prep: 04.09.2019 10:40

Prep seq: 7675334

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **80.2** | 2.50 | 0.429 | mg/L | 04.10.2019 20:54 | | 5 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085169 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **736** | 5.00 | 5.00 | mg/L | 04.09.2019 15:43 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085335 Date Prep: 04.11.2019 08:50

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675519

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0198** | 0.00400 | 0.000246 | mg/L | 04.11.2019 14:09 | | 1 |
| **Chromium** | 7440-47-3 | **0.00113** | 0.00400 | 0.000525 | mg/L | 04.11.2019 14:09 | J | 1 |
| **Barium** | 7440-39-3 | **0.0466** | 0.00400 | 0.000484 | mg/L | 04.11.2019 14:09 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3085074 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.05.2019 19:00 | U | 1 |

# Certificate of Analytical Results
## 620257

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **MWD-11** Matrix: Water Sample Depth:

Lab Sample Id: 620257-005 Date Collected: 04.05.2019 10:57 Date Received: 04.05.2019 17:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085705 Date Prep: 04.14.2019 08:00

Prep seq: 7675752

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.987 | 1.50 | 0.987 | mg/L | 04.14.2019 15:22 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.14.2019 15:22 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.14.2019 15:22 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.50 | 0.911 | mg/L | 04.14.2019 15:22 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 103 | 70 - 135 | % | | |
| o-Terphenyl | 104 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085319 Date Prep: 04.10.2019 16:30

Prep seq: 7675537

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 04.11.2019 07:17 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.11.2019 07:17 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.11.2019 07:17 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.11.2019 07:17 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.11.2019 07:17 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.11.2019 07:17 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.11.2019 07:17 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 91 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 89 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620257
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **TMW-1** Matrix: Water Sample Depth:

Lab Sample Id: 620257-006 Date Collected: 04.05.2019 11:30 Date Received: 04.05.2019 17:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085303 Date Prep: 04.09.2019 10:40

Prep seq: 7675334

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **450** | 5.00 | 0.858 | mg/L | 04.10.2019 21:01 | | 10 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085169 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1320** | 5.00 | 5.00 | mg/L | 04.09.2019 15:43 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085335 Date Prep: 04.11.2019 08:50

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675519

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0167** | 0.00400 | 0.000246 | mg/L | 04.11.2019 14:12 | | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 04.11.2019 14:12 | U | 1 |
| **Barium** | 7440-39-3 | **2.03** | 0.0800 | 0.00967 | mg/L | 04.11.2019 16:54 | D | 20 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3085074 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.05.2019 19:00 | U | 1 |

# Certificate of Analytical Results
## 620257

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **TMW-1** Matrix: Water Sample Depth:

Lab Sample Id: 620257-006 Date Collected: 04.05.2019 11:30 Date Received: 04.05.2019 17:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085705 Date Prep: 04.14.2019 08:00

Prep seq: 7675752

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.986 | 1.50 | 0.986 | mg/L | 04.14.2019 15:42 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.14.2019 15:42 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.14.2019 15:42 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.50 | 0.911 | mg/L | 04.14.2019 15:42 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 119 | 70 - 135 | % | | |
| o-Terphenyl | 120 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085319 Date Prep: 04.10.2019 16:30

Prep seq: 7675537

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **0.0320** | 0.00200 | 0.000408 | mg/L | 04.11.2019 08:52 | | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.11.2019 08:52 | U | 1 |
| **Ethylbenzene** | 100-41-4 | **0.00524** | 0.00200 | 0.000657 | mg/L | 04.11.2019 08:52 | | 1 |
| **m,p-Xylenes** | 179601-23-1 | **0.0114** | 0.00400 | 0.000630 | mg/L | 04.11.2019 08:52 | | 1 |
| **o-Xylene** | 95-47-6 | **0.000900** | 0.00200 | 0.000642 | mg/L | 04.11.2019 08:52 | J | 1 |
| **Total Xylenes** | 1330-20-7 | **0.0123** | 0.00200 | 0.000630 | mg/L | 04.11.2019 08:52 | | 1 |
| **Total BTEX** | | **0.0495** | 0.00200 | 0.000367 | mg/L | 04.11.2019 08:52 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 93 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 91 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620257
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **DUP6** Matrix: Water Sample Depth:

Lab Sample Id: 620257-007 Date Collected: 04.05.2019 00:00 Date Received: 04.05.2019 17:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085303 Date Prep: 04.09.2019 10:40

Prep seq: 7675334

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **503** | 5.00 | 0.858 | mg/L | 04.10.2019 21:08 | | 10 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3085169 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1310** | 5.00 | 5.00 | mg/L | 04.09.2019 15:43 | | 1 |

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085335 Date Prep: 04.11.2019 08:50

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675519

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0169** | 0.00400 | 0.000246 | mg/L | 04.11.2019 14:14 | | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 04.11.2019 14:14 | U | 1 |
| **Barium** | 7440-39-3 | **2.08** | 0.0800 | 0.00967 | mg/L | 04.11.2019 16:57 | D | 20 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3085074 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.05.2019 19:00 | U | 1 |

# Certificate of Analytical Results
## 620257

## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **DUP6** Matrix: Water Sample Depth:

Lab Sample Id: 620257-007 Date Collected: 04.05.2019 00:00 Date Received: 04.05.2019 17:00

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085705 Date Prep: 04.14.2019 08:00

Prep seq: 7675752

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.986 | 1.50 | 0.986 | mg/L | 04.14.2019 16:02 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.14.2019 16:02 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.14.2019 16:02 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.50 | 0.911 | mg/L | 04.14.2019 16:02 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 96 | 70 - 135 | % | | |
| o-Terphenyl | 96 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085319 Date Prep: 04.10.2019 16:30

Prep seq: 7675537

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **0.0308** | 0.00200 | 0.000408 | mg/L | 04.11.2019 07:37 | | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.11.2019 07:37 | U | 1 |
| **Ethylbenzene** | 100-41-4 | **0.00475** | 0.00200 | 0.000657 | mg/L | 04.11.2019 07:37 | | 1 |
| **m,p-Xylenes** | 179601-23-1 | **0.0111** | 0.00400 | 0.000630 | mg/L | 04.11.2019 07:37 | | 1 |
| **o-Xylene** | 95-47-6 | **0.000790** | 0.00200 | 0.000642 | mg/L | 04.11.2019 07:37 | J | 1 |
| **Total Xylenes** | 1330-20-7 | **0.0119** | 0.00200 | 0.000630 | mg/L | 04.11.2019 07:37 | | 1 |
| **Total BTEX** | | **0.0474** | 0.00200 | 0.000367 | mg/L | 04.11.2019 07:37 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 92 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 92 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620257
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **3085074-1-BLK** Matrix: Water Sample Depth:
Lab Sample Id: 3085074-1-BLK Date Collected: Date Received:
Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:
Analyst: SPC % Moist: Tech: SPC
Seq Number: 3085074 Date Prep:
Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 04.05.2019 19:00 | U | 1 |

Sample Id: **3085169-1-BLK** Matrix: Water Sample Depth:
Lab Sample Id: 3085169-1-BLK Date Collected: Date Received:
Analytical Method: TDS by SM2540C Prep Method:
Analyst: CHE % Moist: Tech: CHE
Seq Number: 3085169 Date Prep:
Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **6.00** | 5.00 | 5.00 | mg/L | 04.09.2019 15:43 | B | 1 |

Sample Id: **7675334-1-BLK** Matrix: Water Sample Depth:
Lab Sample Id: 7675334-1-BLK Date Collected: Date Received:
Analytical Method: Chloride by EPA 300 Prep Method: E300P
Analyst: CHE % Moist: Tech: CHE
Seq Number: 3085303 Date Prep: 04.09.2019 10:40
Prep seq: 7675334

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chloride | 16887-00-6 | <0.0858 | 0.500 | 0.0858 | mg/L | 04.10.2019 17:44 | U | 1 |

# Certificate of Analytical Results
## 620257

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **7675519-1-BLK** Matrix: Water Sample Depth:

Lab Sample Id: 7675519-1-BLK Date Collected: Date Received:

Analytical Method: Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3085335 Date Prep: 04.11.2019 08:50

Subcontractor: SUB: T104704215-19-29 Prep seq: 7675519

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Arsenic | 7440-38-2 | <0.000246 | 0.00400 | 0.000246 | mg/L | 04.11.2019 13:31 | U | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 04.11.2019 13:31 | U | 1 |
| Barium | 7440-39-3 | <0.000484 | 0.00400 | 0.000484 | mg/L | 04.11.2019 13:31 | U | 1 |

Sample Id: **7675537-1-BLK** Matrix: Water Sample Depth:

Lab Sample Id: 7675537-1-BLK Date Collected: Date Received:

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: SCM % Moist: Tech: SCM

Seq Number: 3085319 Date Prep: 04.10.2019 16:30

Prep seq: 7675537

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 04.11.2019 01:41 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.11.2019 01:41 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 04.11.2019 01:41 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 04.11.2019 01:41 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 04.11.2019 01:41 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 04.11.2019 01:41 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 04.11.2019 01:41 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 91 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 89 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 620257

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **7675752-1-BLK** Matrix: Water Sample Depth:

Lab Sample Id: 7675752-1-BLK Date Collected: Date Received:

Analytical Method: TPH By SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3085705 Date Prep: 04.14.2019 08:00

Prep seq: 7675752

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.986 | 1.50 | 0.986 | mg/L | 04.14.2019 12:05 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.50 | 0.911 | mg/L | 04.14.2019 12:05 | U | 1 |
| Oil Range Hydrocarbons | PHCG2835 | <0.911 | 1.50 | 0.911 | mg/L | 04.14.2019 12:05 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.50 | 0.911 | mg/L | 04.14.2019 12:05 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 112 | 70 - 135 | % | | |
| o-Terphenyl | 113 | 70 - 135 | % | | |

# 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



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# Form 2 - Surrogate Recoveries

**Project Name:** Eunice Project- S. Eunice

**Work Orders :** 620257 **Project ID:** B0048789

**Lab Batch #:** 3085319 **Sample:** 7675537-1-BKS / BKS **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.11.2019 00:07 **SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0298 | 0.0300 | 99 | 70-130 | |
| 4-Bromofluorobenzene | 0.0286 | 0.0300 | 95 | 70-130 | |

**Lab Batch #:** 3085319 **Sample:** 7675537-1-BSD / BSD **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.11.2019 00:26 **SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0293 | 0.0300 | 98 | 70-130 | |
| 4-Bromofluorobenzene | 0.0278 | 0.0300 | 93 | 70-130 | |

**Lab Batch #:** 3085319 **Sample:** 620150-001 S / MS **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.11.2019 00:45 **SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0298 | 0.0300 | 99 | 70-130 | |
| 4-Bromofluorobenzene | 0.0294 | 0.0300 | 98 | 70-130 | |

**Lab Batch #:** 3085319 **Sample:** 620150-001 SD / MSD **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.11.2019 01:04 **SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0297 | 0.0300 | 99 | 70-130 | |
| 4-Bromofluorobenzene | 0.0290 | 0.0300 | 97 | 70-130 | |

**Lab Batch #:** 3085319 **Sample:** 7675537-1-BLK / BLK **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.11.2019 01:41 **SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0272 | 0.0300 | 91 | 70-130 | |
| 4-Bromofluorobenzene | 0.0268 | 0.0300 | 89 | 70-130 | |

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



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# Form 2 - Surrogate Recoveries

**Project Name:** Eunice Project- S. Eunice

**Work Orders :** 620257 **Project ID:** B0048789

**Lab Batch #:** 3085705 **Sample:** 7675752-1-BLK / BLK **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.14.2019 12:05 **SURROGATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 11.2 | 9.98 | 112 | 70-135 | |
| o-Terphenyl | 5.66 | 4.99 | 113 | 70-135 | |

**Lab Batch #:** 3085705 **Sample:** 7675752-1-BKS / BKS **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.14.2019 12:24 **SURROGATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 12.8 | 9.99 | 128 | 70-135 | |
| o-Terphenyl | 6.02 | 5.00 | 120 | 70-135 | |

**Lab Batch #:** 3085705 **Sample:** 7675752-1-BSD / BSD **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.14.2019 12:44 **SURROGATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 12.8 | 9.98 | 128 | 70-135 | |
| o-Terphenyl | 5.40 | 4.99 | 108 | 70-135 | |

**Lab Batch #:** 3085705 **Sample:** 620150-001 S / MS **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.14.2019 13:23 **SURROGATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 10.9 | 9.98 | 109 | 70-135 | |
| o-Terphenyl | 5.20 | 4.99 | 104 | 70-135 | |

**Lab Batch #:** 3085705 **Sample:** 620150-001 SD / MSD **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 04.14.2019 13:43 **SURROGATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 11.1 | 9.99 | 111 | 70-135 | |
| o-Terphenyl | 4.77 | 4.99 | 96 | 70-135 | |

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

# BS / BSD Recoveries

## Project Name: Eunice Project- S. Eunice

**Work Order #:** 620257 **Project ID:** B0048789

**Analyst:** SCM **Date Prepared:** 04.10.2019 **Date Analyzed:** 04.11.2019

**Lab Batch ID:** 3085319 **Sample:** 7675537-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Blank Sample Result [A] | Spike Added [B] | Blank Spike Result [C] | Blank Spike %R [D] | Spike Added [E] | Blank Spike Duplicate Result [F] | Blk. Spk Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.000408 | 0.100 | 0.0860 | 86 | 0.100 | 0.0905 | 91 | 5 | 70-130 | 25 | |
| Toluene | <0.000367 | 0.100 | 0.0869 | 87 | 0.100 | 0.0911 | 91 | 5 | 70-130 | 25 | |
| Ethylbenzene | <0.000657 | 0.100 | 0.0805 | 81 | 0.100 | 0.0846 | 85 | 5 | 70-130 | 25 | |
| m,p-Xylenes | <0.000630 | 0.200 | 0.159 | 80 | 0.200 | 0.168 | 84 | 6 | 70-130 | 25 | |
| o-Xylene | <0.000642 | 0.100 | 0.0809 | 81 | 0.100 | 0.0852 | 85 | 5 | 70-130 | 25 | |

**Analyst:** CHE **Date Prepared:** 04.09.2019 **Date Analyzed:** 04.10.2019

**Lab Batch ID:** 3085303 **Sample:** 7675334-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| Chloride by EPA 300<br>Analytes | Blank Sample Result [A] | Spike Added [B] | Blank Spike Result [C] | Blank Spike %R [D] | Spike Added [E] | Blank Spike Duplicate Result [F] | Blk. Spk Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | <0.0858 | 25.0 | 26.7 | 107 | 25.0 | 25.8 | 103 | 3 | 90-110 | 20 | |

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

# BS / BSD Recoveries

## Project Name: Eunice Project- S. Eunice

**Work Order #:** 620257 **Project ID:** B0048789

**Analyst:** SPC **Date Prepared:** 04.05.2019 **Date Analyzed:** 04.05.2019

**Lab Batch ID:** 3085074 **Sample:** 3085074-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| Chromium, Hexavalent by SW 7196A<br>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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | <0.00273 | 0.0400 | 0.0451 | 113 | 0.0400 | 0.0449 | 112 | 0 | 85-115 | 20 | |

**Analyst:** DEP **Date Prepared:** 04.11.2019 **Date Analyzed:** 04.11.2019

**Lab Batch ID:** 3085335 **Sample:** 7675519-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| Dissolved Metals by SW6020A<br>Analytes | Blank Sample Result [A] | Spike Added [B] | Blank Spike Result [C] | Blank Spike %R [D] | Spike Added [E] | Blank Spike Duplicate Result [F] | Blk. Spk Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | <0.000246 | 0.100 | 0.0965 | 97 | 0.100 | 0.0978 | 98 | 1 | 80-120 | 20 | |
| Chromium | <0.000525 | 0.100 | 0.100 | 100 | 0.100 | 0.0996 | 100 | 0 | 80-120 | 20 | |
| Barium | <0.000484 | 0.100 | 0.0981 | 98 | 0.100 | 0.0964 | 96 | 2 | 80-120 | 20 | |

**Analyst:** CHE **Date Prepared:** 04.09.2019 **Date Analyzed:** 04.09.2019

**Lab Batch ID:** 3085169 **Sample:** 3085169-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| TDS by SM2540C<br>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 | 6.00 | 1000 | 953 | 95 | 1000 | 945 | 95 | 1 | 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

# BS / BSD Recoveries

## Project Name: Eunice Project- S. Eunice

**Work Order #:** 620257 **Project ID:** B0048789

**Analyst:** ARM **Date Prepared:** 04.14.2019 **Date Analyzed:** 04.14.2019

**Lab Batch ID:** 3085705 **Sample:** 7675752-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

### BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

| TPH By SW8015 Mod<br>Analytes | Blank Sample Result [A] | Spike Added [B] | Blank Spike Result [C] | Blank Spike %R [D] | Spike Added [E] | Blank Spike Duplicate Result [F] | Blk. Spk Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | <0.987 | 99.9 | 101 | 101 | 99.8 | 98.7 | 99 | 2 | 70-135 | 20 | |
| Diesel Range Organics | <0.911 | 99.9 | 107 | 107 | 99.8 | 104 | 104 | 3 | 70-135 | 20 | |

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

# Form 3 - MS / MSD Recoveries

## Project Name: Eunice Project- S. Eunice

**Work Order # :** 620257 **Project ID:** B0048789

**Lab Batch ID:** 3085319 **QC- Sample ID:** 620150-001 S **Batch #:** 1 **Matrix:** Water

**Date Analyzed:** 04.11.2019 **Date Prepared:** 04.10.2019 **Analyst:** SCM

**Reporting Units:** mg/L

### MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

| BTEX by EPA 8021B<br>Analytes | Parent Sample Result [A] | Spike Added [B] | Spiked Sample Result [C] | Spiked Sample %R [D] | Spike Added [E] | Duplicate Spiked Sample Result [F] | Spiked Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.000408 | 0.100 | 0.0902 | 90 | 0.100 | 0.0899 | 90 | 0 | 70-130 | 25 | |
| Toluene | <0.000367 | 0.100 | 0.0898 | 90 | 0.100 | 0.0891 | 89 | 1 | 70-130 | 25 | |
| Ethylbenzene | <0.000657 | 0.100 | 0.0841 | 84 | 0.100 | 0.0835 | 84 | 1 | 70-130 | 25 | |
| m,p-Xylenes | <0.000630 | 0.200 | 0.174 | 87 | 0.200 | 0.172 | 86 | 1 | 70-130 | 25 | |
| o-Xylene | 0.00215 | 0.100 | 0.0876 | 85 | 0.100 | 0.0868 | 85 | 1 | 70-130 | 25 | |

**Lab Batch ID:** 3085303 **QC- Sample ID:** 620148-003 S **Batch #:** 1 **Matrix:** Water

**Date Analyzed:** 04.10.2019 **Date Prepared:** 04.09.2019 **Analyst:** CHE

**Reporting Units:** mg/L

### MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

| Chloride by EPA 300<br>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 | 332 | 125 | 428 | 77 | 125 | 464 | 106 | 8 | 90-110 | 20 | X |

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: Eunice Project- S. Eunice

**Work Order # :** 620257 **Project ID:** B0048789

**Lab Batch ID:** 3085303 **QC- Sample ID:** 620148-009 S **Batch #:** 1 **Matrix:** Water

**Date Analyzed:** 04.10.2019 **Date Prepared:** 04.09.2019 **Analyst:** CHE

**Reporting Units:** mg/L

### MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

| Chloride by EPA 300<br>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 | 93.1 | 125 | 203 | 88 | 125 | 206 | 90 | 1 | 90-110 | 20 | X |

**Lab Batch ID:** 3085074 **QC- Sample ID:** 620257-001 S **Batch #:** 1 **Matrix:** Water

**Date Analyzed:** 04.05.2019 **Date Prepared:** 04.05.2019 **Analyst:** SPC

**Reporting Units:** mg/L

### MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

| Chromium, Hexavalent by SW 7196A<br>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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | <0.00273 | 0.200 | 0.155 | 78 | 0.200 | 0.157 | 79 | 1 | 75-125 | 20 | |

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

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

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

# Form 3 - MS / MSD Recoveries

## Project Name: Eunice Project- S. Eunice

**Work Order # :** 620257 **Project ID:** B0048789

**Lab Batch ID:** 3085335 **QC- Sample ID:** 620257-001 S **Batch #:** 1 **Matrix:** Water

**Date Analyzed:** 04.11.2019 **Date Prepared:** 04.11.2019 **Analyst:** DEP

**Reporting Units:** mg/L

### MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

| Dissolved Metals by SW6020A<br>Analytes | Parent Sample Result [A] | Spike Added [B] | Spiked Sample Result [C] | Spiked Sample %R [D] | Spike Added [E] | Duplicate Spiked Sample Result [F] | Spiked Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 0.000809 | 0.100 | 0.0985 | 98 | 0.100 | 0.0980 | 97 | 1 | 75-125 | 20 | |
| Chromium | 0.000762 | 0.100 | 0.100 | 99 | 0.100 | 0.0994 | 99 | 1 | 75-125 | 20 | |
| Barium | 0.436 | 0.100 | 0.545 | 109 | 0.100 | 0.545 | 109 | 0 | 75-125 | 20 | |

**Lab Batch ID:** 3085705 **QC- Sample ID:** 620150-001 S **Batch #:** 1 **Matrix:** Water

**Date Analyzed:** 04.14.2019 **Date Prepared:** 04.14.2019 **Analyst:** ARM

**Reporting Units:** mg/L

### MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

| TPH By SW8015 Mod<br>Analytes | Parent Sample Result [A] | Spike Added [B] | Spiked Sample Result [C] | Spiked Sample %R [D] | Spike Added [E] | Duplicate Spiked Sample Result [F] | Spiked Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | <0.986 | 99.8 | 90.5 | 91 | 99.9 | 90.6 | 91 | 0 | 70-135 | 20 | |
| Diesel Range Organics | <0.911 | 99.8 | 92.1 | 92 | 99.9 | 94.5 | 95 | 3 | 70-135 | 20 | |

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

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

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

# Method Duplicate



## Project Name: Eunice Project- S. Eunice

**Work Order #:** 620257

**Lab Batch #:** 3085169 **Project ID:** B0048789

**Date Analyzed:** 04.09.2019 15:43 **Date Prepared:** 04.09.2019 **Analyst:** CHE

**QC- Sample ID:** 620014-002 D **Batch #:** 1 **Matrix:** Water

**Reporting Units:** mg/L

**SAMPLE / SAMPLE DUPLICATE RECOVERY**

| TDS by SM2540C<br>Analyte | Parent Sample Result [A] | Sample Duplicate Result [B] | RPD | Control Limits %RPD | Flag |
|---|---|---|---|---|---|
| Total Dissolved Solids | 1410 | 1430 | 1 | 10 | |

**Lab Batch #:** 3085169

**Date Analyzed:** 04.09.2019 15:43 **Date Prepared:** 04.09.2019 **Analyst:** CHE

**QC- Sample ID:** 620285-003 D **Batch #:** 1 **Matrix:** Ground Water

**Reporting Units:** mg/L

**SAMPLE / SAMPLE DUPLICATE RECOVERY**

| TDS by SM2540C<br>Analyte | Parent Sample Result [A] | Sample Duplicate Result [B] | RPD | Control Limits %RPD | Flag |
|---|---|---|---|---|---|
| Total Dissolved Solids | 420 | 426 | 1 | 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

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# Chain of Custody

Work Order No: 620257

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
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| | | | |
|---|---|---|---|
| Project Manager: | Brett Krehbiel | Bill to: (if different) | |
| Company Name: | ARCADIS | Company Name: | |
| Address: | 1004 N. Big Spring St. | Address: | |
| City, State ZIP: | Midland, TX. 79701 | City, State ZIP: | |
| Phone: | 916-786-5382 | Email: | brett.krehbiel@arcadis.com |

**Work Order Comments**

Program: UST/PST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐
State of Project:
Reporting: Level II ☐ Level III ☐ PST/UST ☐ RRP ☐ Level IV ☐
Deliverables: EDD ☐ ADaPT ☐ Other:

| | | | |
|---|---|---|---|
| Project Name: | Eunice Project- S. Eunice | Turn Around | |
| Project Number: | B0048789 | Routine ☑ | |
| P.O. Number: | | Rush: | |
| Sampler's Name: | Chas Holder | Due Date: | |

| SAMPLE RECEIPT | | | |
|---|---|---|---|
| Temp Blank: | Yes (No) | Wet Ice: | (Yes) No |
| Temperature (°C): | 5.2/5.1 | Thermometer ID | R8 |
| Received Intact: | (Yes) No | | |
| Cooler Custody Seals: | Yes No (N/A) | Correction Factor: | -0.1 |
| Sample Custody Seals: | Yes No (N/A) | Total Containers: | |

| Sample Identification | Matrix | Date Sampled | Time Sampled | Depth | Number of Containers | BTEX (SW8021) | TPH (SW8015) | Hex Chrome (SW7196A) | Dissolved Metals (SW6020_DIS): Chromium, Arsenic & Barium) | TDS (SW2540) | Chlorides (E300) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MW 14 | W | 4-5 | 0846 | | 8 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MW 25 | W | 4-5 | 0921 | | 8 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| TMW 6 | W | 4-5 | 0951 | | 8 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MW 3 | W | 4-5 | 1018 | | 8 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MW 11 | W | 4-5 | 1057 | | 8 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| TMW 1 | W | 4-5 | 1130 | | 8 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Dup 6 | W | 4-5 | — | | 8 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

**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

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Xenco. A minimum charge of $75.00 will be applied to each project and a charge of $5 for each sample submitted to Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

| | Relinquished by: (Signature) | Received by: (Signature) | Date/Time | Relinquished by: (Signature) | Received by: (Signature) | Date/Time |
|---|---|---|---|---|---|---|
| 1 | | Winston Noel | 4/5/19 14:11 | 2 | | 4/5/19 16:00 |
| 3 | | | | 4 | | |
| 5 | | | | 6 | | |

Revised Date 051418 Rev. 2018.1

Received by OCD: 3/25/2020 2:27:35 PM
Final 1.002
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Released to Imaging: 6/14/2022 10:17:42 AM

# Inter-Office Shipment





**IOS Number** **126146**

Date/Time: 04/05/19 16:34
Lab# From: **Midland**
Lab# To: **Houston**

Created by: Katie Lowe
Delivery Priority:
Air Bill No.:

Please send report to: Brandi Ritcherson
Address: 1211 W. Florida Ave
E-Mail: brandi.ritcherson@xenco.com

| Sample Id | Matrix | Client Sample Id | Sample Collection | Method | Method Name | Lab Due | HT Due | PM | Analytes | Sign |
|---|---|---|---|---|---|---|---|---|---|---|
| 620257-001 | W | MWD14 | 04/05/19 08:46 | SW6020_DIS | Dissolved Metals by SW6020A | 04/11/19 | 10/02/19 | BAR | AS BA CR | |
| 620257-002 | W | MW25 | 04/05/19 09:21 | SW6020_DIS | Dissolved Metals by SW6020A | 04/11/19 | 10/02/19 | BAR | AS BA CR | |
| 620257-003 | W | TMW6 | 04/05/19 09:51 | SW6020_DIS | Dissolved Metals by SW6020A | 04/11/19 | 10/02/19 | BAR | AS BA CR | |
| 620257-004 | W | MW3 | 04/05/19 10:18 | SW6020_DIS | Dissolved Metals by SW6020A | 04/11/19 | 10/02/19 | BAR | AS BA CR | |
| 620257-005 | W | MWD11 | 04/05/19 10:57 | SW6020_DIS | Dissolved Metals by SW6020A | 04/11/19 | 10/02/19 | BAR | AS BA CR | |
| 620257-006 | W | TMW1 | 04/05/19 11:30 | SW6020_DIS | Dissolved Metals by SW6020A | 04/11/19 | 10/02/19 | BAR | AS BA CR | |
| 620257-007 | W | DUP6 | 04/05/19 00:00 | SW6020_DIS | Dissolved Metals by SW6020A | 04/11/19 | 10/02/19 | BAR | AS BA CR | |

**Inter Office Shipment or Sample Comments:**

Relinquished By: Katie Lowe

Katie Lowe

Date Relinquished: 04/05/2019

Received By:

Date Received:

Cooler Temperature:

# XENCO Laboratories

## Prelogin/Nonconformance Report- Sample Log-In

**Client:** ARCADIS

**Date/ Time Received:** 04/05/2019 05:00:00 PM

**Work Order #:** 620257

**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)? | 5.1 | |
| #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)? | **Yes** | Xenco Stafford |
| #18 Water VOC samples have zero headspace? | **Yes** | |

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

Analyst: BT

PH Device/Lot#: A023690

**Checklist completed by:** Katie Lowe Date: 04/08/2019

**Checklist reviewed by:** Brandi Ritcherson Date: 04/09/2019

Brandi Ritcherson

ARCADIS Design & Consultancy for natural and built assets

# Chevron South Eunice

# DATA REVIEW

SOUTH EUNICE, NEW MEXICO

Volatile organic compounds, Total Petroleum Hydrocarbons, Metals and Miscellaneous Analyses

SDGs # 638660, 638845, 638989 and 639099

Analyses Performed By:
Xenco Laboratories

Midland, TX

Report #34657R
Review Level: Tier II
Project: 30006138 0003A.GEC- 9404

**DATA REVIEW REPORT**

# SUMMARY

This data quality assessment summarizes the review of Sample Delivery Groups (SDGs) # 638660, 638845, 638989 and 639099 for samples collected in association with the Chevron South Eunice Site. The review was conducted as a Tier II evaluation and included review of data package completeness. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets and chain of custody. Analyses were performed on the following samples:

| SDG Number | Sample ID | Lab ID | Matrix | Sample Collection Date | Parent Sample | Analysis | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | VOC | TPH | MET | MISC |
| 638660 | MW-35 | 638660-001 | Water | 10/1/2019 | | X | X | X | X |
| | MW-36 | 638660-002 | Water | 10/1/2019 | | X | X | X | X |
| | MW-13 | 638660-003 | Water | 10/1/2019 | | X | X | X | X |
| 638845 | MW-31 | 638845-001 | Water | 10/2/2019 | | X | X | X | X |
| | MW-14 | 638845-002 | Water | 10/2/2019 | | X | X | X | X |
| | MW-37 | 638845-003 | Water | 10/2/2019 | | X | X | X | X |
| | MW-38 | 638845-004 | Water | 10/2/2019 | | X | X | X | X |
| | MW-15 | 638845-005 | Water | 10/2/2019 | | X | X | X | X |
| | MW-16 | 638845-006 | Water | 10/2/2019 | | X | X | X | X |
| | MW-34 | 638845-007 | Water | 10/2/2019 | | X | X | X | X |
| | MWD-6 | 638845-008 | Water | 10/2/2019 | | X | X | X | X |
| | DUP-2 | 638845-009 | Water | 10/2/2019 | MW-34 | X | X | X | X |
| | DUP-1 | 638845-010 | Water | 10/2/2019 | MW-15 | X | X | X | X |
| 638989 | MWD-7 | 638989-001 | Water | 10/3/2019 | | X | X | X | X |
| | MW-17 | 638989-002 | Water | 10/3/2019 | | X | X | X | X |
| | MW-30 | 638989-003 | Water | 10/3/2019 | | X | X | X | X |
| | MWD-1 | 638989-004 | Water | 10/3/2019 | | X | X | X | X |
| | MW-4 | 638989-005 | Water | 10/3/2019 | | X | X | X | X |
| | MWD-15 | 638989-006 | Water | 10/3/2019 | | X | X | X | X |
| | MWD-8 | 638989-007 | Water | 10/3/2019 | | X | X | X | X |
| | MW-9 | 638989-008 | Water | 10/3/2019 | | X | X | X | X |
| | MW-29 | 638989-009 | Water | 10/3/2019 | | X | X | X | X |
| | MW-32 | 638989-010 | Water | 10/3/2019 | | X | X | X | X |
| | MW-8 | 638989-011 | Water | 10/3/2019 | | X | X | X | X |
| | MWD-13 | 638989-012 | Water | 10/3/2019 | | X | X | X | X |
| | MWD-4 | 638989-013 | Water | 10/3/2019 | | X | X | X | X |



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## DATA REVIEW REPORT

| SDG Number | Sample ID | Lab ID | Matrix | Sample Collection Date | Parent Sample | Analysis | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | VOC | TPH | MET | MISC |
| | DUP-3 | 638989-014 | Water | 10/3/2019 | MWD-1 | X | X | X | X |
| | DUP-4 | 638989-015 | Water | 10/3/2019 | MW-4 | X | X | X | X |
| 639099 | MWD-9 | 639099-001 | Water | 10/4/2019 | | X | X | X | X |
| | MWD-3 | 639099-002 | Water | 10/4/2019 | | X | X | X | X |
| | MWD-14 | 639099-003 | Water | 10/4/2019 | | X | X | X | X |
| | MW-11 | 639099-004 | Water | 10/4/2019 | | X | X | X | X |
| | MW-26 | 639099-005 | Water | 10/4/2019 | | X | X | X | X |
| | MWD-12 | 639099-006 | Water | 10/4/2019 | | X | X | X | X |
| | MW-3 | 639099-007 | Water | 10/4/2019 | | X | X | X | X |
| | MWD-11 | 639099-008 | Water | 10/4/2019 | | X | X | X | X |
| | TMW-1 | 639099-009 | Water | 10/4/2019 | | X | X | X | X |
| | RW-7 | 639099-010 | Water | 10/4/2019 | | X | X | X | X |
| | RW-6 | 639099-011 | Water | 10/4/2019 | | X | X | X | X |
| | MW-25 | 639099-012 | Water | 10/4/2019 | | X | X | X | X |
| | TMW-6 | 639099-013 | Water | 10/4/2019 | | X | X | X | X |

Notes:

VOC – Volatile Organic Compounds.

TPH – Total Petroleum Hydrocarbons.

MET – Metals.

MISC – Miscellaneous includes hexavalent chromium, chloride and total dissolved solids.



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**DATA REVIEW REPORT**

## ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

| Items Reviewed | Reported | | Performance Acceptable | | Not Required |
|---|---|---|---|---|---|
| | No | Yes | No | Yes | |
| 1. Sample receipt condition | | X | | X | |
| 2. Requested analyses and sample results | | X | | X | |
| 3. Master tracking list | | X | | X | |
| 4. Methods of analysis | | X | | X | |
| 5. Reporting limits | | X | | X | |
| 6. Sample collection date | | X | | X | |
| 7. Laboratory sample received date | | X | | X | |
| 8. Sample preservation verification (as applicable) | | X | | X | |
| 9. Sample preparation/extraction/analysis dates | | X | | X | |
| 10. Fully executed Chain-of-Custody (COC) form | | X | | X | |
| 11. Narrative summary of QA or sample problems provided | | X | | X | |
| 12. Data Package Completeness and Compliance | | X | | X | |

Note:
QA - Quality Assurance



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**DATA REVIEW REPORT**

## ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 8021B and 8015 Mod. Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers

  U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.

  B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.

- Quantitation (Q) Qualifiers

  E The compound was quantitated above the calibration range.

  D Concentration is based on a diluted sample analysis.

- Validation Qualifiers

  J The compound was positively identified; however, the associated numerical value is an estimated concentration only.

  UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.

  JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.

  UB Compound considered non-detect at the listed value due to associated blank contamination.

  N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.

  R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.



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**DATA REVIEW REPORT**

**VOLATILE ORGANIC COMPOUND (VOC) ANALYSES**

## 1. Holding Times

The specified holding times for the following methods are presented in the following table.

| Method | Matrix | Holding Time | Preservation |
|---|---|---|---|
| SW-846 8021B | Water | 14 days from collection to analysis (preserved) | Cool to <6 °C; preserved to a pH of less than 2 s.u. |

Note:

s.u. Standard units

All samples were analyzed within the specified holding time criteria.

## 2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the sample detection limit (SDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the SDL in the associated blanks; therefore, detected sample results were not associated with blank contamination.

## 3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. VOC analysis requires that all surrogates associated with the analysis exhibit recoveries within the laboratory-established acceptance limits.

Samples associated with surrogates exhibiting recoveries outside of the control limits presented in the following table.

| SDGs | Sample location | Surrogates | Recovery (%) |
|---|---|---|---|
| 638660 | MW-35 | 4-Bromofluorobenzene | > UL |
| | MW-36 | | > UL |
| | MW-13 | | > UL |
| 638845 | MW-14 | 4-Bromofluorobenzene | > UL |
| | MW-37 | | > UL |
| | MW-15 | | > UL |
| | MW-16 | | > UL |
| | MW-34 | | > UL |
| | MWD-6 | | > UL |



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| SDGs | Sample location | Surrogates | Recovery (%) |
|---|---|---|---|
| | DUP-2 | | > UL |
| | DUP-1 | | > UL |
| 638989 | MWD-7 | 4-Bromofluorobenzene | > UL |
| | MW-17 | | > UL |
| | MWD-15 | | > UL |
| | MWD-13 | | > UL |
| | MWD-4 | | > UL |
| | DUP-4 | | > UL |
| 639099 | MWD-9 | 4-Bromofluorobenzene | > UL |
| | MWD-14 | | > UL |
| | MW-11 | | > UL |
| | MW-26 | | > UL |
| | MWD-12 | | > UL |
| | MW-3 | | > UL |
| | MWD-11 | | > UL |
| | TMW-1 | | > UL |
| | RW-7 | | > UL |
| | RW-6 | | > UL |
| | MW-25 | 1,4-Difluorobenzene | > UL |
| | | 4-Bromofluorobenzene | > UL |

Note:
UL – Upper control limit

The criteria used to evaluate the surrogate recoveries are presented in the following table. In the case of a surrogate deviation, the sample results associated with the deviant fraction are qualified as documented in the table below.

| Control Limit | Sample Result | Qualification |
|---|---|---|
| > UL | Non-detect | No Action |
| | Detect | J |
| < LL but > 10% | Non-detect | UJ |
| | Detect | J |
| < 10% | Non-detect | R |
| | Detect | J |

### 4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analyses

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.



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Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

SDGs# 638660 and 639099: MS/MSD analysis was not performed using a sample from these SDGs.

SDGs# 638845 and 638989: The MS/MSD analysis was performed on samples MW-31 and MWD-7 exhibited recoveries within control limits with the exception of the analytes presented in the table below.

| SDGs | Sample locations | Compounds | MS Recovery (%) | MSD Recovery (%) |
|---|---|---|---|---|
| 638845 | MW-31 | m,p-Xylenes | AC | > UL |
| | | o-Xylene | > UL | > UL |
| 638989 | MWD-7 | Benzene | > UL | > UL |
| | | Toluene | > UL | > UL |
| | | Ethylbenzene | > UL | > UL |
| | | m,p-Xylenes | > UL | > UL |
| | | o-Xylene | > UL | > UL |

Note:
UL – Upper control limit

The criteria used to evaluate MS/MSD recoveries are presented in the following table. In the case of an MS/MSD deviation, the sample results are qualified. The qualifications are applied to all sample results associated with SDGs # 638845 and 638989.

| Control limit | Sample Result | Qualification |
|---|---|---|
| MS/MSD percent recovery 30% to 74% | Non-detect | UJ |
| | Detect | J |
| MS/MSD percent recovery <30% | Non-detect | R |
| | Detect | J |
| MS/MSD percent recovery >125% | Non-detect | No Action |
| | Detect | J |

All analytes associated with MS/MSD RPDs were within control limit.

**5. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis**

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS/LCSD analysis exhibited recoveries within the control limits with the exception of the analytes presented in the table below.

| SDG | Compounds | LCS Recovery (%) | LCSD Recovery (%) |
|---|---|---|---|
| 639099 | Ethylbenzene | > UL | > UL |
| | m,p-Xylenes | > UL | > UL |
| | o-Xylene | > UL | > UL |

Note:
UL – Upper control limit



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The criteria used to evaluate the LCS/LCSD recoveries are presented in the following table. In the case of an LCS/LCSD deviation, the sample results are qualified as documented in the table below.

| Control Limit | Sample Result | Qualification |
|---|---|---|
| > the upper control limit (UL) | Non-detect | No Action |
| | Detect | J |
| < the lower control limit (LL) but > 10% | Non-detect | UJ |
| | Detect | J |
| < 10% | Non-detect | R |
| | Detect | J |

Sample locations associated with LCS/LCSD recoveries exhibiting an RPD within the control limit.

### 6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

SDGs# 638660 and 639099: A field duplicate sample was not collected in association with these SDGs.

SDGs# 638845 and 638989: Results for duplicate samples are summarized in the following table.

| SDG | Sample ID/Duplicate ID | Compounds | Sample Result (mg/l) | Duplicate Result (mg/l) | RPD |
|---|---|---|---|---|---|
| 638845 | MW-34 / DUP-2 | Benzene | 0.0642 | 0.0609 | 5% |
| | | Total BTEX | 0.0642 | 0.0609 | 5% |

The calculated RPDs between the parent sample and field duplicates were acceptable.

### 7. System Performance and Overall Assessment

Sample results associated with compound that exhibited a concentration greater than the linear range of the instrument calibration are summarized in the following table.

| SDGs | Sample ID | Compound | Original Analysis | Diluted Analysis | Reported Analysis |
|---|---|---|---|---|---|
| 638989 | MW-32 | Benzene | - | 5.96 D | 5.96 D |
| 639099 | MWD-3 | Benzene | - | 1.97 D | 1.97 D |
| | MWD-14 | Benzene | - | 1.18 D | 1.18 D |
| | MW-11 | Benzene | - | 1.96 D | 1.96 D |
| | MW-26 | Benzene | - | 0.797 D | 0.797 D |
| | MW-25 | Benzene | - | 2.99 D | 2.99 D |

Sample results associated with compounds exhibiting concentrations greater than the linear range are qualified as documented in the table below when reported as the final reported sample result.

| Reported Sample Results | Qualification |
|---|---|
| Diluted sample result within calibration range | D |
| Diluted sample result less than the calibration range | DJ |

**DATA REVIEW REPORT**

| Reported Sample Results | Qualification |
|---|---|
| Diluted sample result greater than the calibration range | EDJ |
| Original sample result greater than the calibration range | EJ |

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.



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**DATA REVIEW REPORT**

## DATA VALIDATION CHECKLIST FOR VOCs

| VOCs: SW-846 8021B | Reported | | Performance Acceptable | | Not Required |
|---|---|---|---|---|---|
| | No | Yes | No | Yes | |
| **GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)** | | | | | |
| **Tier II Validation** | | | | | |
| Holding times | | X | | X | |
| Reporting limits (units) | | X | | X | |
| Blanks | | | | | |
| A. Method blanks | | X | | X | |
| B. Equipment blanks | X | | | | X |
| C. Trip blanks | X | | | | X |
| Laboratory Control Sample (LCS) | | X | X | | |
| Laboratory Control Sample Duplicate(LCSD) | | X | X | | |
| LCS/LCSD Precision (RPD) | | X | | X | |
| Matrix Spike (MS) | | X | X | | |
| Matrix Spike Duplicate(MSD) | | X | X | | |
| MS/MSD Precision (RPD) | | X | | X | |
| Field/Lab Duplicate (RPD) | | X | | X | |
| Surrogate Spike Recoveries | | X | X | | |
| Dilution Factor | | X | | X | |

Notes:

%R Percent recovery

RPD Relative percent difference

**DATA REVIEW REPORT**

**TOTAL PETROLEUM HYDROCARBONS ANALYSES**

## 1. Holding Times

The specified holding times for the following methods are presented in the following table.

| Method | Matrix | Holding Time | Preservation |
|---|---|---|---|
| TPH by SW-846 8015B | Water | 14 days from collection to extraction and 40 days from extraction to analysis | Cool to <6 °C |

All samples were analyzed within the specified holding times.

## 2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the sample detection limit (SDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the SDL in the associated blanks; therefore, detected sample results were not associated with blank contamination.

## 3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. The analysis requires surrogate compounds exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

## 4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analyses

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

SDGs# 638660 and 638845: MS/MSD analysis was not performed using a sample from these SDGs.

SDGs# 638989 and 639099: The MS analysis was performed on samples MW-17 and MW-3 exhibited recoveries and RPDs within control limits.



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### 5. Laboratory Control Sample (LCS)/Laboratory Control Sample Duplicate Analysis (LCSD)

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS/LCSD analysis exhibited recoveries within the control limits.

### 6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

SDGs# 638660 and 639099: A field duplicate sample was not collected in association with these SDGs.

SDGs# 638845 and 638989: Results for duplicate samples are summarized in the following table.

| SDGs | Sample ID/Duplicate ID | Compounds | Sample Result (mg/l) | Duplicate Result (mg/l) | RPD |
|---|---|---|---|---|---|
| 638845 | MW-34 / DUP-2 | Gasoline Range Hydrocarbons | 2.17 | 2.33 | AC |
| | | Diesel Range Organics | 1.18 J | 1.29 J | AC |
| | | Total TPH | 3.35 | 3.62 | AC |
| 638989 | MW-4 / DUP-4 | Gasoline Range Hydrocarbons | 0.928 J | 1.38 U | AC |
| | | Total TPH | 0.928 J | 1.38 U | AC |

Notes:

AC = Acceptable

The calculated RPDs between the parent sample and field duplicates were acceptable.

### 7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

**DATA REVIEW REPORT**

**DATA VALIDATION CHECKLIST FOR TPH**

| TPH: SW-846 8015M | Reported | | Performance Acceptable | | Not Required |
|---|---|---|---|---|---|
| | No | Yes | No | Yes | |
| GAS CHROMATOGRAPHY (GC/FID) | | | | | |
| **Tier II Validation** | | | | | |
| Holding times | | X | | X | |
| Reporting limits (units) | | X | | X | |
| Blanks | | | | | |
| A. Method blanks | | X | | X | |
| B. Equipment blanks | X | | | | X |
| Laboratory Control Sample (LCS) %R | | X | | X | |
| Laboratory Control Sample Duplicate(LCSD) %R | | X | | X | |
| LCS/LCSD Precision (RPD) | | X | | X | |
| Matrix Spike (MS) %R | | X | | X | |
| Matrix Spike Duplicate (MSD) %R | X | | | | X |
| MS/MSD Precision (RPD) | X | | | | X |
| Field/Lab Duplicate (RPD) | | X | | X | |
| Surrogate Spike Recoveries | | X | | X | |
| Dilution Factor | | X | | X | |

Notes:
%R - percent recovery
RPD - relative percent difference



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**DATA REVIEW REPORT**

## INORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 6020A, 7196A, EPA 300, SM 2540C. Data were reviewed in accordance with USEPA National Functional Guidelines of July 2002.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and that it was already subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with the USEPA National Functional Guidelines:

- Concentration (C) Qualifiers

  U The analyte was analyzed for but not detected. The associated value is the analyte instrument detection limit.

  J The reported value was obtained from a reading less than the reporting limit (RL), but greater than or equal to the method detection limit (MDL).

- Quantitation (Q) Qualifiers

  E The reported value is estimated due to the presence of interference.

  N Spiked sample recovery is not within control limits.

  * Duplicate analysis is not within control limits.

- Validation Qualifiers

  J The analyte was positively identified; however, the associated numerical value is an estimated concentration only.

  UJ The analyte was not detected above the reporting limit. However, the reported limit is approximate and may or may not represent the actual limit of detection.

  UB Analyte considered non-detect at the listed value due to associated blank contamination.

  R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.



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**DATA REVIEW REPORT**

**METALS ANALYSES**

## 1. Holding Times

The specified holding times for the following methods are presented in the following table.

| Method | Matrix | Holding Time | Preservation |
|---|---|---|---|
| SW-846 6020A | Water | 180 days from collection to analysis | Preserved to a pH of less than 2. |

All samples were analyzed within the specified holding times.

## 2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank is calculated for QA blanks containing concentrations greater than the sample detection limit (SDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

All analytes were not detected above the SDL in the associated blanks; therefore, detected sample results were not associated with blank contamination.

## 3. Matrix Spike/Matrix Spike Duplicate (MS/MSD)/Laboratory Duplicate Analysis

MS/MSD and laboratory duplicate data are used to assess the precision and accuracy of the analytical method.

### 3.1 MS/MSD Analysis

All metal analytes must exhibit a percent recovery within the established acceptance limits of 75% to 125%. The MS/MSD recovery control limits do not apply for MS performed on sample locations where the analyte's concentration detected in the parent sample exceeds the MS concentration by a factor of four or greater. In instance where this is true, the data will not be qualified even if the percent recovery does not meet the control limits and the laboratory flag will be removed.

SDGs# 638660 and 638989: MS/MSD analysis was not performed using a sample from these SDGs.

SDGs# 638845 and 639099: The MS analysis was performed on samples MW-31, MWD-7 and MW-8 exhibited recoveries and RPDs within control limits.

### 3.2 Laboratory Duplicate Analysis

The laboratory duplicates relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the RL. A control limit of 20% for water matrices and 35% for soil matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of one times the RL is applied for water matrices and two times the RL for soil matrices.

The laboratory duplicate analysis was not performed for sample from these SDGs.



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### 4. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices or three times the RL is applied for soil matrices.

SDGs# 638660 and 639099: A field duplicate sample was not collected in association with these SDGs.

SDGs# 638845 and 638989: Results for duplicate samples are summarized in the following table.

| SDGs | Sample ID/Duplicate ID | Analytes | Sample Result (mg/l) | Duplicate Result (mg/l) | RPD |
|---|---|---|---|---|---|
| 638845 | MW-15 / DUP-1 | Arsenic | 0.0119 | 0.0122 | AC |
| | | Barium | 0.0452 | 0.0482 | 6% |
| | MW-34 / DUP-2 | Arsenic | 0.00108 J | 0.00107 J | AC |
| | | Barium | 4.84 | 4.70 | 3% |
| 638989 | MWD-1 / DUP-3 | Arsenic | 0.0501 | 0.0507 | 1% |
| | | Barium | 0.0483 | 0.0482 | 0% |
| | | Chromium | 0.00388 J | 0.00404 | AC |
| | MW-4 / DUP-4 | Arsenic | 0.00848 | 0.00914 | 7% |
| | | Barium | 0.0585 | 0.0534 | 9% |

Notes:

AC - Acceptable

The calculated RPDs between the parent sample and field duplicates were acceptable.

### 5. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS/LCSD analysis must exhibit a percent recovery between the control limits of 80% and 120%.

The LCS/LCSD analysis exhibited recoveries within the control limits.

### 6. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.



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**DATA REVIEW REPORT**

## DATA VALIDATION CHECKLIST FOR METAL

| METALS; SW-846 6020A | Reported | | Performance Acceptable | | Not Required |
|---|---|---|---|---|---|
| | No | Yes | No | Yes | |
| Inductively Coupled Plasma-Mass Spectrometry (ICP-MS) | | | | | |
| **Tier II Validation** | | | | | |
| Holding Times | | X | | X | |
| Reporting limits (units) | | X | | X | |
| Blanks | | | | | |
| A. Instrument Blanks | X | | | | X |
| B. Method Blanks | | X | | X | |
| C. Equipment/Field Blanks | X | | | | X |
| Laboratory Control Sample (LCS) | | X | | X | |
| Laboratory Control Sample Duplicate(LCSD) %R | | X | | X | |
| LCS/LCSD Precision (RPD) | | X | | X | |
| Matrix Spike (MS) %R | | X | | X | |
| Matrix Spike Duplicate (MSD) %R | | X | | X | |
| MS/MSD Precision (RPD) | | X | | X | |
| Field/Lab Duplicate (RPD) | | X | | X | |
| ICP Serial Dilution %D | X | | | | X |
| Reporting Limit Verification | | X | | X | |

Notes:

%R Percent recovery

RPD Relative percent difference

%D Percent difference



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**DATA REVIEW REPORT**

## GENERAL CHEMISTRY ANALYSES

### 1. Holding Times

The specified holding times for the following methods are presented in the following table.

| Method | Matrix | Holding Time | Preservation |
|---|---|---|---|
| Hexavalent chromium by SW-846 7196A | Water | 24 hours from collection to analysis | Cool to <6 °C. |
| Chloride by EPA 300.0 | Water | 28 days from collection to analysis | Cool to <6 °C. |
| Total Dissolved Solids by SM 2540C | Water | 7 days from collection to analysis | Cool to <6 °C. |

All samples were analyzed within the specified holding times.

### 2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank is calculated for QA blanks containing concentrations greater than the sample detection limit (SDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Analytes were detected in the associated QA blanks; however, the associated sample results were greater than the BAL. Therefore, no other qualification of the sample results was required.

### 3. Matrix Spike (MS)/Laboratory Duplicate Analysis

MS and laboratory duplicate data are used to assess the precision and accuracy of the analytical method.

### 3.1 MS/MSD Analysis

All analytes must exhibit a percent recovery within the established acceptance limits of 75% to 125%. The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the analyte's concentration detected in the parent sample exceeds the MS concentration by a factor of four or greater. In instance where this is true, the data will not be qualified even if the percent recovery does not meet the control limits and the laboratory flag will be removed.

SDGs# 638660, 638845, 638989 and 639099: MS/MSD analysis was not performed using a sample from these SDGs for chloride and total dissolved solids.

SDG# 638660: MS/MSD analysis was not performed using a sample from this SDG hexavalent chromium.

SDGs# 638845, 638989 and 639099: The MS/MSD analysis was performed on samples MW-14, MWD-7, DUP-4 and MW-3 for hexavalent chromium exhibited recoveries and RPDs within control limits.

### 3.2 Laboratory Duplicate Analysis

The laboratory duplicates relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the RL. A control limit of 20% for water



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matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of one time the RL is applied for water matrices.

SDGs# 638660, 638845, 638989 and 639099: A laboratory duplicate analysis was not performed using a sample from these SDGs for chloride and hexavalent chromium.

SDGs# 638660, 638845, 638989 and 639099: A laboratory duplicate analysis was performed on samples MW-13, MW-34, MWD-7, DUP-4 and MWD-12 for total dissolved solids exhibited RPD within control limits.

**4. Field Duplicate Analysis**

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices or three times the RL is applied for soil matrices.

SDGs# 638660 and 639099: A field duplicate sample was not collected in association with these SDGs.

SDGs# 638845 and 638989: Results for duplicate samples are summarized in the following table.

| SDGs | Sample ID/Duplicate ID | Analytes | Sample Result (mg/l) | Duplicate Result (mg/l) | RPD |
|---|---|---|---|---|---|
| 638845 | MW-15 / DUP-1 | Chloride | 1890 | 1850 | 2% |
| | | Total Dissolved Solids | 3930 | 3920 | 0% |
| | MW-34 / DUP-2 | Chloride | 302 | 299 | 1% |
| | | Total Dissolved Solids | 1710 | 1590 | 7% |
| 638989 | MWD-1 / DUP-3 | Chloride | 469 | 475 | 1% |
| | | Total Dissolved Solids | 1540 | 1530 | 1% |
| | MW-4 / DUP-4 | Chloride | 2150 | 2130 | 1% |
| | | Total Dissolved Solids | 4390 | 4240 | 3% |

The calculated RPDs between the parent sample and field duplicates were acceptable.

**5. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis**

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS/LCSD analysis must exhibit a percent recovery between the control limits of 80% and 120%.

The LCS/LCSD analysis exhibited recoveries within the control limits.

**6. System Performance and Overall Assessment**

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

**DATA REVIEW REPORT**

## DATA VALIDATION CHECKLIST FOR GENERAL CHEMISTRY

| General Chemistry: SW7196A, EPA 300.0 and SM 2540C | Reported | | Performance Acceptable | | Not Required |
|---|---|---|---|---|---|
| | No | Yes | No | Yes | |
| Miscellaneous Instrumentation | | | | | |
| **Tier II Validation** | | | | | |
| Holding times | | X | | X | |
| Reporting limits (units) | | X | | X | |
| Blanks | | | | | |
| A. Method blanks | | X | | X | |
| B. Equipment blanks | X | | | | X |
| Laboratory Control Sample (LCS) %R | | X | | X | |
| Laboratory Control Sample Duplicate(LCSD) %R | | X | | X | |
| LCS/LCSD Precision (RPD) | | X | | X | |
| Matrix Spike (MS) %R | | X | | X | |
| Matrix Spike Duplicate(MSD) %R | | X | | X | |
| MS/MSD Precision (RPD) | | X | | X | |
| Field/Lab Duplicate (RPD) | | X | | X | |
| Dilution Factor | | X | | X | |

Notes:

%RSD – Relative standard deviation
%R - Percent recovery
RPD - Relative percent difference



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**DATA REVIEW REPORT**

VALIDATION PERFORMED BY: Hrishikesh Upadhyaya

SIGNATURE: 

DATE: November 04, 2019

PEER REVIEW: Dennis Capria

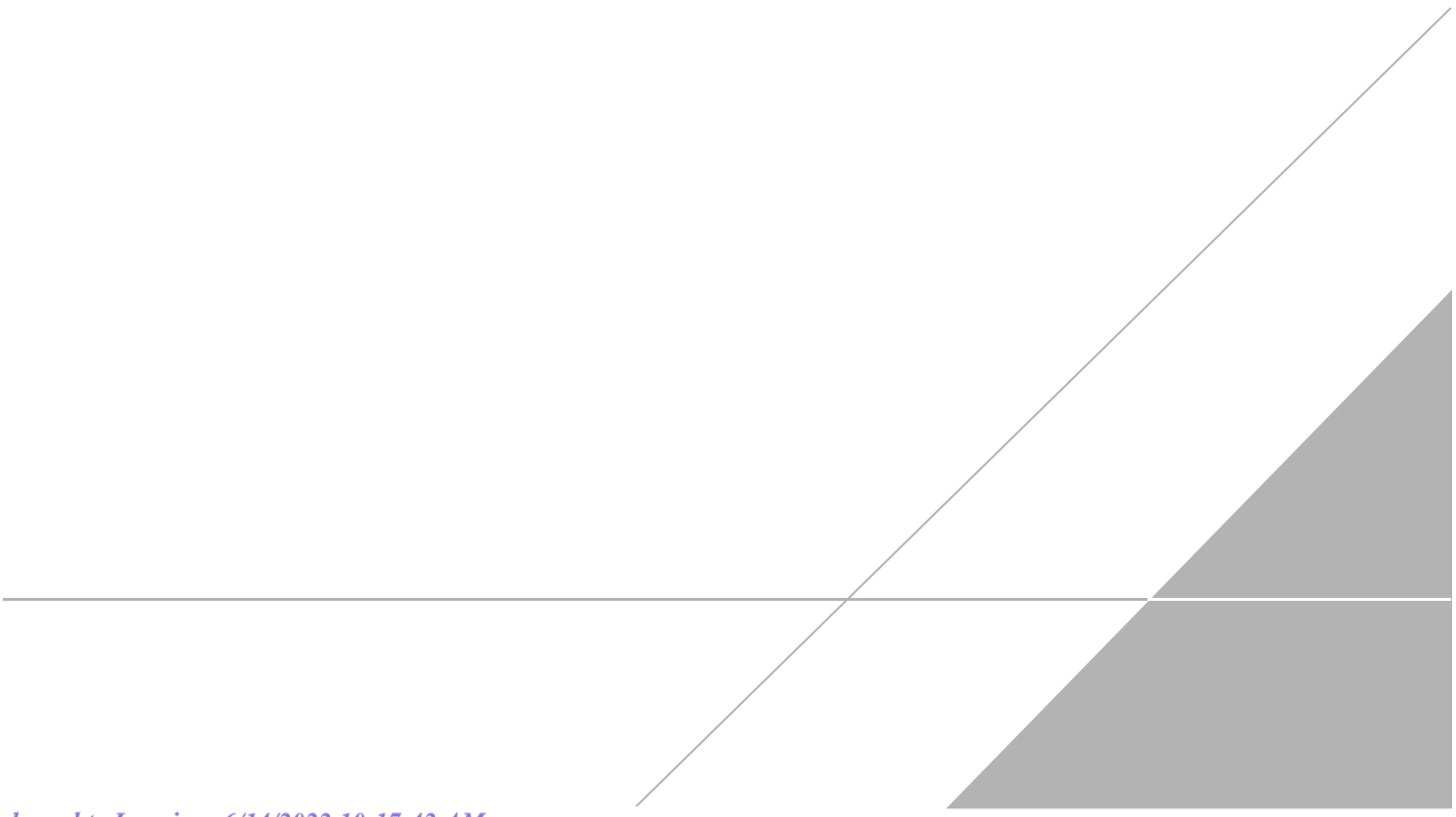
DATE: November 05, 2019



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# CHAIN OF CUSTODY

# CORRECTED SAMPLE ANALYSIS DATA SHEETS



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# Chain of Custody

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

Work Order No: 639660



| | | | |
|---|---|---|---|
| Project Manager: | Rebecca Andresen | Bill to: (if different) | |
| Company Name: | ARCADIS | Company Name: | |
| Address: | 1004 N. Big Spring St. | Address: | |
| City, State ZIP: | Midland, TX. 79701 | City, State ZIP: | |
| Phone: | 303-471-3477 | Email: | madisyn.frandsen@arcadis.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: | Eunice Project- S. Eunice | Turn Around | |
| Project Number: | 30006138 | Routine | ☒ |
| P.O. Number: | | Rush: | |
| Sampler's Name: | Jerry Longsull / Chas Holder | Due Date: | |

| SAMPLE RECEIPT | | | |
|---|---|---|---|
| Temp Blank: | Yes (No) | Wet Ice: | (Yes) No |
| Temperature (°C): | 3.5 3.3 | Thermometer ID | 20 |
| Received Intact: | (Yes) No | | |
| Cooler Custody Seals: | Yes (No) N/A | Correction Factor: | -0.2 |
| Sample Custody Seals: | Yes (No) N/A | Total Containers: | |

| Sample Identification | Matrix | Date Sampled | Time Sampled | Depth | Number of Containers | BTEX (EPA 8021B) | TPH (SW8015) | Hex Chrome (SW7196A) | Dissolved Metals (SW6020_DIS): Chromium, Arsenic & Barium) | TDS (SM2540C) | Chlorides (EPA 300.0) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-35 | W | 10/1/19 | 1315 | | 7 | 3 | 2 | 1 | ✓ | ✓ | ✓ |
| MW-36 | W | 10/1/19 | 1340 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MW-13 | W | 10/1/19 | 1400 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

**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

**Notice:** Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Xenco. A minimum charge of $75.00 will be applied to each project and a charge of $5 for each sample submitted to Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

| Relinquished by: (Signature) | Received by: (Signature) | Date/Time | Relinquished by: (Signature) | Received by: (Signature) | Date/Time |
|---|---|---|---|---|---|
| 1 Jerry S. Longsull | I. Bell Rhuman | 10-1-19 15:25 | 2 Bell Rhuman | | 10-1-19 16:56 |
| 3 | | | 4 | | |
| 5 | | | 6 | | |



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# Certificate of Analytical Results
## 638660
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample ~~Id:~~ **MW-35** Matrix: Water Sample Depth:

Lab Sample Id: 638660-001 Date Collected: 10.01.2019 13:16 Date Received: 10.01.2019 16:56

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103330 Date Prep: 10.03.2019 13:00

Prep seq: 7687425

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **243** | 5.00 | 0.210 | mg/L | 10.03.2019 20:12 | | 10 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3103415 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1020** | 5.00 | 5.00 | mg/L | 10.03.2019 15:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3103380 Date Prep: 10.04.2019 07:30

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687471

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0108** | 0.00400 | 0.000246 | mg/L | 10.04.2019 14:32 | | 1 |
| **Barium** | 7440-39-3 | **0.0875** | 0.00400 | 0.000484 | mg/L | 10.04.2019 17:42 | | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 10.04.2019 14:32 | U | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3103316 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.02.2019 12:30 | U | 1 |

# Certificate of Analytical Results
## 638660
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-35** Matrix: Water Sample Depth:

Lab Sample Id: 638660-001 Date Collected: 10.01.2019 13:16 Date Received: 10.01.2019 16:56

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103851 Date Prep: 10.09.2019 10:48

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687718

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.907 | 1.38 | 0.907 | mg/L | 10.09.2019 12:59 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.907 | 1.38 | 0.907 | mg/L | 10.09.2019 12:59 | U | 1 |
| Total TPH | PHC635 | <0.907 | 1.38 | 0.907 | mg/L | 10.09.2019 12:59 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 73 | 70 - 135 | % | | |
| o-Terphenyl | 75 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103309 Date Prep: 10.02.2019 13:30

Prep seq: 7687330

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 10.03.2019 11:48 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.03.2019 11:48 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.03.2019 11:48 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 10.03.2019 11:48 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.03.2019 11:48 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 10.03.2019 11:48 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.03.2019 11:48 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 91 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 132 | 70 - 130 | % | | ** |

# Certificate of Analytical Results
## 638660
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-36** Matrix: Water Sample Depth:

Lab Sample Id: 638660-002 Date Collected: 10.01.2019 13:40 Date Received: 10.01.2019 16:56

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103330 Date Prep: 10.03.2019 13:00

Prep seq: 7687425

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **434** | 5.00 | 0.210 | mg/L | 10.03.2019 20:24 | | 10 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3103415 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1280** | 5.00 | 5.00 | mg/L | 10.03.2019 15:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3103380 Date Prep: 10.04.2019 07:30

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687471

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.00948** | 0.00400 | 0.000246 | mg/L | 10.04.2019 14:34 | | 1 |
| **Barium** | 7440-39-3 | **0.124** | 0.00400 | 0.000484 | mg/L | 10.04.2019 17:45 | | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 10.04.2019 14:34 | U | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3103316 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.02.2019 12:30 | U | 1 |

# Certificate of Analytical Results
## 638660

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **MW-36** Matrix: Water Sample Depth:

Lab Sample Id: 638660-002 Date Collected: 10.01.2019 13:40 Date Received: 10.01.2019 16:56

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103851 Date Prep: 10.09.2019 10:51

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687718

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.920 | 1.40 | 0.920 | mg/L | 10.09.2019 13:17 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.920 | 1.40 | 0.920 | mg/L | 10.09.2019 13:17 | U | 1 |
| Total TPH | PHC635 | <0.920 | 1.40 | 0.920 | mg/L | 10.09.2019 13:17 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 78 | 70 - 135 | % | | |
| o-Terphenyl | 79 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103309 Date Prep: 10.02.2019 13:30

Prep seq: 7687330

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 10.04.2019 12:08 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.04.2019 12:08 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.04.2019 12:08 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 10.04.2019 12:08 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.04.2019 12:08 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 10.04.2019 12:08 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.04.2019 12:08 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 93 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 141 | 70 - 130 | % | | ** |

# Certificate of Analytical Results
## 638660
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-13** Matrix: Water Sample Depth:

Lab Sample Id: 638660-003 Date Collected: 10.01.2019 14:00 Date Received: 10.01.2019 16:56

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103330 Date Prep: 10.03.2019 13:00

Prep seq: 7687425

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **332** | 5.00 | 0.210 | mg/L | 10.03.2019 20:36 | | 10 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3103415 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1130** | 5.00 | 5.00 | mg/L | 10.03.2019 15:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3103380 Date Prep: 10.04.2019 07:30

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687471

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0161** | 0.00400 | 0.000246 | mg/L | 10.04.2019 14:37 | | 1 |
| **Barium** | 7440-39-3 | **0.0981** | 0.00400 | 0.000484 | mg/L | 10.04.2019 17:47 | | 1 |
| **Chromium** | 7440-47-3 | **0.000672** | 0.00400 | 0.000525 | mg/L | 10.04.2019 14:37 | J | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3103316 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.02.2019 12:30 | U | 1 |

# Certificate of Analytical Results
## 638660

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **MW-13** Matrix: Water Sample Depth:

Lab Sample Id: 638660-003 Date Collected: 10.01.2019 14:00 Date Received: 10.01.2019 16:56

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103851 Date Prep: 10.09.2019 10:54

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687718

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.911 | 1.38 | 0.911 | mg/L | 10.09.2019 13:36 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.38 | 0.911 | mg/L | 10.09.2019 13:36 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.38 | 0.911 | mg/L | 10.09.2019 13:36 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 76 | 70 - 135 | % | | |
| o-Terphenyl | 78 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103309 Date Prep: 10.02.2019 13:30

Prep seq: 7687330

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 10.04.2019 12:28 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.04.2019 12:28 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.04.2019 12:28 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 10.04.2019 12:28 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.04.2019 12:28 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 10.04.2019 12:28 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.04.2019 12:28 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 84 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 138 | 70 - 130 | % | | ** |

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# Chain of Custody

Work Order No: 639945

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

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| | | | |
|---|---|---|---|
| Project Manager: | Rebecca Andresen | Bill to: (if different) | |
| Company Name: | ARCADIS | Company Name: | |
| Address: | 1004 N. Big Spring St. | Address: | |
| City, State ZIP: | Midland, TX. 79701 | City, State ZIP: | |
| Phone: | 303-471-3477 | Email: | madisyn.frandsen@arcadis.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: | Eunice Project- S. Eunice | Turn Around | |
| Project Number: | 30006138 | Routine ☒ | |
| P.O. Number: | | Rush: | |
| Sampler's Name: | Jerry Longwell | Due Date: | |

| SAMPLE RECEIPT | | | | |
|---|---|---|---|---|
| Temp Blank: | Yes (No) | Wet Ice: | (Yes) No | |
| Temperature (°C): | 0.5/0.3 | Thermometer ID | | |
| Received Intact: | (Yes) No | | | |
| Cooler Custody Seals: | Yes (No) N/A | Correction Factor: | -0.2 | |
| Sample Custody Seals: | Yes (No) N/A | Total Containers: | | |

| Sample Identification | Matrix | Date Sampled | Time Sampled | Depth | Number of Containers | BTEX (EPA 8021B) | TPH (SW8015) | Hex Chrome (SW7196A) | Dissolved Metals (SW6020_DIS): Chromium, Arsenic & Barium) | TDS (SM2540C) | Chlorides (EPA 300.0) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-31 | W | 10/2/19 | 0849 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MW-14 | W | 10/2/19 | 0914 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MW-37 | W | 10/2/19 | 0945 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MW-38 | W | 10/2/19 | 0959 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MW-45 | W | 10/2/19 | 1021 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MW-46 | W | 10/2/19 | 1105 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MW-34 | W | 10/2/19 | 1222 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MWD-6 | W | 10/2/19 | 1350 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| DUP-2 | W | 10/2/19 | — | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| DUP-1 | W | 10/2/19 | — | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

**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

**Notice:** Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Xenco. A minimum charge of $75.00 will be applied to each project and a charge of $5 for each sample submitted to Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

| Relinquished by: (Signature) | Received by: (Signature) | Date/Time | Relinquished by: (Signature) | Received by: (Signature) | Date/Time |
|---|---|---|---|---|---|
| 1 | 2 JKramer | 10/2 1730 | 2 JKramer | | 10/3/19 0800 |
| 3 | | | 4 | | |
| 5 | | | 6 | | |

Revised Date 051418 Rev. 2018.1

Received by OCD: 3/25/2020 2:27:35 PM
Released to Imaging: 6/14/2022 10:17:42 AM
Final 1.000
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# Certificate of Analytical Results
## 638845
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-31** Matrix: Water Sample Depth:

Lab Sample Id: 638845-001 Date Collected: 10.02.2019 08:49 Date Received: 10.03.2019 08:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103330 Date Prep: 10.03.2019 13:00

Prep seq: 7687425

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **462** | 5.00 | 0.210 | mg/L | 10.03.2019 20:48 | | 10 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3103415 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1440** | 5.00 | 5.00 | mg/L | 10.03.2019 15:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3103498 Date Prep: 10.05.2019 14:05

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687552

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0392** | 0.00400 | 0.000246 | mg/L | 10.07.2019 05:11 | | 1 |
| **Barium** | 7440-39-3 | **0.555** | 0.00400 | 0.000484 | mg/L | 10.07.2019 05:11 | | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 10.07.2019 05:11 | U | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3103319 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.03.2019 08:39 | U | 1 |

# Certificate of Analytical Results
## 638845
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-31** Matrix: Water Sample Depth:

Lab Sample Id: 638845-001 Date Collected: 10.02.2019 08:49 Date Received: 10.03.2019 08:00

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103851 Date Prep: 10.09.2019 10:57

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687718

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.928 | 1.41 | 0.928 | mg/L | 10.10.2019 12:39 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.928 | 1.41 | 0.928 | mg/L | 10.10.2019 12:39 | U | 1 |
| Total TPH | PHC635 | <0.928 | 1.41 | 0.928 | mg/L | 10.10.2019 12:39 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 78 | 70 - 135 | % | | |
| o-Terphenyl | 81 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103513 Date Prep: 10.04.2019 13:15

Prep seq: 7687499

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 10.06.2019 06:27 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.06.2019 06:27 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.06.2019 06:27 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 10.06.2019 06:27 | ~~UX~~ U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.06.2019 06:27 | ~~UX~~ U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 10.06.2019 06:27 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.06.2019 06:27 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 88 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 118 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 638845
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-14** Matrix: Water Sample Depth:

Lab Sample Id: 638845-002 Date Collected: 10.02.2019 09:14 Date Received: 10.03.2019 08:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103330 Date Prep: 10.03.2019 13:00

Prep seq: 7687425

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **512** | 5.00 | 0.210 | mg/L | 10.03.2019 21:23 | | 10 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3103415 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1630** | 5.00 | 5.00 | mg/L | 10.03.2019 15:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3103498 Date Prep: 10.05.2019 14:05

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687552

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.00787** | 0.00400 | 0.000246 | mg/L | 10.07.2019 05:31 | | 1 |
| **Barium** | 7440-39-3 | **0.0726** | 0.00400 | 0.000484 | mg/L | 10.07.2019 05:31 | | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 10.07.2019 05:31 | U | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3103319 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.03.2019 08:39 | U | 1 |

# Certificate of Analytical Results
## 638845

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **MW-14** Matrix: Water Sample Depth:

Lab Sample Id: 638845-002 Date Collected: 10.02.2019 09:14 Date Received: 10.03.2019 08:00

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103851 Date Prep: 10.09.2019 11:00

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687718

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.920 | 1.40 | 0.920 | mg/L | 10.09.2019 15:56 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.920 | 1.40 | 0.920 | mg/L | 10.09.2019 15:56 | U | 1 |
| Total TPH | PHC635 | <0.920 | 1.40 | 0.920 | mg/L | 10.09.2019 15:56 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 78 | 70 - 135 | % | | |
| o-Terphenyl | 79 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103513 Date Prep: 10.04.2019 13:15

Prep seq: 7687499

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 10.06.2019 06:47 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.06.2019 06:47 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.06.2019 06:47 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 10.06.2019 06:47 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.06.2019 06:47 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 10.06.2019 06:47 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.06.2019 06:47 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 103 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 138 | 70 - 130 | % | | ** |

# Certificate of Analytical Results
## 638845
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-37** Matrix: Water Sample Depth:

Lab Sample Id: 638845-003 Date Collected: 10.02.2019 09:45 Date Received: 10.03.2019 08:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103330 Date Prep: 10.03.2019 13:00

Prep seq: 7687425

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **314** | 5.00 | 0.210 | mg/L | 10.03.2019 21:35 | | 10 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3103415 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1060** | 5.00 | 5.00 | mg/L | 10.03.2019 15:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3103498 Date Prep: 10.05.2019 14:05

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687552

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.00595** | 0.00400 | 0.000246 | mg/L | 10.07.2019 05:34 | | 1 |
| **Barium** | 7440-39-3 | **0.192** | 0.00400 | 0.000484 | mg/L | 10.07.2019 05:34 | | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 10.07.2019 05:34 | U | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3103319 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.03.2019 08:39 | U | 1 |

# Certificate of Analytical Results
## 638845
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-37** Matrix: Water Sample Depth:

Lab Sample Id: 638845-003 Date Collected: 10.02.2019 09:45 Date Received: 10.03.2019 08:00

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103851 Date Prep: 10.09.2019 11:03

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687718

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.910 | 1.38 | 0.910 | mg/L | 10.09.2019 16:15 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.910 | 1.38 | 0.910 | mg/L | 10.09.2019 16:15 | U | 1 |
| Total TPH | PHC635 | <0.910 | 1.38 | 0.910 | mg/L | 10.09.2019 16:15 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 80 | 70 - 135 | % | | |
| o-Terphenyl | 82 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103513 Date Prep: 10.04.2019 13:15

Prep seq: 7687499

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 10.06.2019 07:07 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.06.2019 07:07 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.06.2019 07:07 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 10.06.2019 07:07 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.06.2019 07:07 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 10.06.2019 07:07 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.06.2019 07:07 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 94 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 135 | 70 - 130 | % | | ** |

# Certificate of Analytical Results
## 638845
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-38** Matrix: Water Sample Depth:

Lab Sample Id: 638845-004 Date Collected: 10.02.2019 09:59 Date Received: 10.03.2019 08:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103330 Date Prep: 10.03.2019 13:00

Prep seq: 7687425

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **655** | 10.0 | 0.421 | mg/L | 10.03.2019 21:47 | | 20 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3103415 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1960** | 5.00 | 5.00 | mg/L | 10.03.2019 15:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3103498 Date Prep: 10.05.2019 14:05

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687552

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0126** | 0.00400 | 0.000246 | mg/L | 10.07.2019 05:37 | | 1 |
| **Barium** | 7440-39-3 | **0.0940** | 0.00400 | 0.000484 | mg/L | 10.07.2019 05:37 | | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 10.07.2019 05:37 | U | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3103319 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.03.2019 08:39 | U | 1 |

# Certificate of Analytical Results
## 638845
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-38** Matrix: Water Sample Depth:

Lab Sample Id: 638845-004 Date Collected: 10.02.2019 09:59 Date Received: 10.03.2019 08:00

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103851 Date Prep: 10.09.2019 11:06

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687718

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.897 | 1.36 | 0.897 | mg/L | 10.09.2019 16:34 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.897 | 1.36 | 0.897 | mg/L | 10.09.2019 16:34 | U | 1 |
| Total TPH | PHC635 | <0.897 | 1.36 | 0.897 | mg/L | 10.09.2019 16:34 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 78 | 70 - 135 | % | | |
| o-Terphenyl | 80 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103513 Date Prep: 10.04.2019 13:15

Prep seq: 7687499

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 10.06.2019 07:28 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.06.2019 07:28 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.06.2019 07:28 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 10.06.2019 07:28 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.06.2019 07:28 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 10.06.2019 07:28 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.06.2019 07:28 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 99 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 122 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 638845
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-15** Matrix: Water Sample Depth:

Lab Sample Id: 638845-005 Date Collected: 10.02.2019 10:21 Date Received: 10.03.2019 08:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103330 Date Prep: 10.03.2019 13:00

Prep seq: 7687425

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **1890** | 25.0 | 1.05 | mg/L | 10.03.2019 21:59 | | 50 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3103415 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **3930** | 5.00 | 5.00 | mg/L | 10.03.2019 15:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3103498 Date Prep: 10.05.2019 14:05

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687552

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0119** | 0.00400 | 0.000246 | mg/L | 10.07.2019 05:40 | | 1 |
| **Barium** | 7440-39-3 | **0.0452** | 0.00400 | 0.000484 | mg/L | 10.07.2019 05:40 | | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 10.07.2019 05:40 | U | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3103319 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.03.2019 08:39 | U | 1 |

# Certificate of Analytical Results
## 638845

## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-15** Matrix: Water Sample Depth:

Lab Sample Id: 638845-005 Date Collected: 10.02.2019 10:21 Date Received: 10.03.2019 08:00

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103851 Date Prep: 10.09.2019 11:09

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687718

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.923 | 1.40 | 0.923 | mg/L | 10.09.2019 17:31 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.923 | 1.40 | 0.923 | mg/L | 10.09.2019 17:31 | U | 1 |
| Total TPH | PHC635 | <0.923 | 1.40 | 0.923 | mg/L | 10.09.2019 17:31 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 76 | 70 - 135 | % | | |
| o-Terphenyl | 79 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103513 Date Prep: 10.04.2019 13:15

Prep seq: 7687499

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 10.06.2019 07:48 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.06.2019 07:48 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.06.2019 07:48 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 10.06.2019 07:48 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.06.2019 07:48 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 10.06.2019 07:48 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.06.2019 07:48 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 98 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 135 | 70 - 130 | % | | ** |

# Certificate of Analytical Results
## 638845

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **MW-16** Matrix: Water Sample Depth:

Lab Sample Id: 638845-006 Date Collected: 10.02.2019 11:05 Date Received: 10.03.2019 08:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103330 Date Prep: 10.03.2019 13:00

Prep seq: 7687425

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **1930** | 25.0 | 1.05 | mg/L | 10.03.2019 22:11 | | 50 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3103415 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **3970** | 5.00 | 5.00 | mg/L | 10.03.2019 15:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3103498 Date Prep: 10.05.2019 14:05

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687552

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0136** | 0.00400 | 0.000246 | mg/L | 10.07.2019 05:43 | | 1 |
| **Barium** | 7440-39-3 | **0.0394** | 0.00400 | 0.000484 | mg/L | 10.07.2019 05:43 | | 1 |
| **Chromium** | 7440-47-3 | **0.107** | 0.00400 | 0.000525 | mg/L | 10.07.2019 05:43 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3103319 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chromium, Hexavalent** | 18540-29-9 | **0.0982** | 0.0100 | 0.00273 | mg/L | 10.03.2019 08:39 | | 1 |

# Certificate of Analytical Results
## 638845
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-16** Matrix: Water Sample Depth:

Lab Sample Id: 638845-006 Date Collected: 10.02.2019 11:05 Date Received: 10.03.2019 08:00

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103851 Date Prep: 10.09.2019 11:12

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687718

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.912 | 1.38 | 0.912 | mg/L | 10.09.2019 17:50 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.912 | 1.38 | 0.912 | mg/L | 10.09.2019 17:50 | U | 1 |
| Total TPH | PHC635 | <0.912 | 1.38 | 0.912 | mg/L | 10.09.2019 17:50 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 80 | 70 - 135 | % | | |
| o-Terphenyl | 83 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103513 Date Prep: 10.04.2019 13:15

Prep seq: 7687499

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 10.06.2019 08:08 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.06.2019 08:08 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.06.2019 08:08 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 10.06.2019 08:08 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.06.2019 08:08 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 10.06.2019 08:08 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.06.2019 08:08 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 97 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 137 | 70 - 130 | % | | ** |

# Certificate of Analytical Results
## 638845
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-34** Matrix: Water Sample Depth:

Lab Sample Id: 638845-007 Date Collected: 10.02.2019 12:22 Date Received: 10.03.2019 08:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103330 Date Prep: 10.03.2019 13:00

Prep seq: 7687425

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **302** | 10.0 | 0.421 | mg/L | 10.03.2019 22:58 | | 20 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3103415 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1710** | 5.00 | 5.00 | mg/L | 10.03.2019 15:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3103498 Date Prep: 10.05.2019 14:05

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687552

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.00108** | 0.00400 | 0.000246 | mg/L | 10.07.2019 05:46 | J | 1 |
| **Barium** | 7440-39-3 | **4.84** | 0.200 | 0.0242 | mg/L | 10.07.2019 19:50 | ~~D~~ | 50 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 10.07.2019 05:46 | U | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3103319 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.03.2019 08:39 | U | 1 |

# Certificate of Analytical Results
## 638845
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-34** Matrix: Water Sample Depth:

Lab Sample Id: 638845-007 Date Collected: 10.02.2019 12:22 Date Received: 10.03.2019 08:00

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103851 Date Prep: 10.09.2019 11:15

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687718

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Gasoline Range Hydrocarbons** | PHC610 | **2.17** | 1.41 | 0.926 | mg/L | 10.09.2019 18:10 | | 1 |
| **Diesel Range Organics** | C10C28DRO | **1.18** | 1.41 | 0.926 | mg/L | 10.09.2019 18:10 | J | 1 |
| **Total TPH** | PHC635 | **3.35** | 1.41 | 0.926 | mg/L | 10.09.2019 18:10 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 76 | 70 - 135 | % | | |
| o-Terphenyl | 78 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103513 Date Prep: 10.04.2019 13:15

Prep seq: 7687499

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **0.0642** | 0.00200 | 0.000408 | mg/L | 10.06.2019 08:28 | J | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.06.2019 08:28 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.06.2019 08:28 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 10.06.2019 08:28 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.06.2019 08:28 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 10.06.2019 08:28 | U | 1 |
| **Total BTEX** | | **0.0642** | 0.00200 | 0.000367 | mg/L | 10.06.2019 08:28 | J | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 119 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 143 | 70 - 130 | % | | ** |

# Certificate of Analytical Results
## 638845
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MWD-6** Matrix: Water Sample Depth:

Lab Sample Id: 638845-008 Date Collected: 10.02.2019 13:50 Date Received: 10.03.2019 08:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103330 Date Prep: 10.03.2019 13:00

Prep seq: 7687425

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **184** | 5.00 | 0.210 | mg/L | 10.03.2019 23:10 | | 10 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3103415 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1250** | 5.00 | 5.00 | mg/L | 10.03.2019 15:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3103498 Date Prep: 10.05.2019 14:05

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687552

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.00234** | 0.00400 | 0.000246 | mg/L | 10.07.2019 05:49 | J | 1 |
| **Barium** | 7440-39-3 | **2.87** | 0.200 | 0.0242 | mg/L | 10.07.2019 19:59 | ~~D~~ | 50 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 10.07.2019 05:49 | U | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3103319 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.03.2019 08:39 | U | 1 |

# Certificate of Analytical Results
## 638845
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MWD-6** Matrix: Water Sample Depth:

Lab Sample Id: 638845-008 Date Collected: 10.02.2019 13:50 Date Received: 10.03.2019 08:00

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103851 Date Prep: 10.09.2019 11:18

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687718

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Gasoline Range Hydrocarbons** | PHC610 | **0.966** | 1.35 | 0.889 | mg/L | 10.10.2019 12:57 | J | 1 |
| Diesel Range Organics | C10C28DRO | <0.889 | 1.35 | 0.889 | mg/L | 10.10.2019 12:57 | U | 1 |
| **Total TPH** | PHC635 | **0.966** | 1.35 | 0.889 | mg/L | 10.10.2019 12:57 | J | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 78 | 70 - 135 | % | | |
| o-Terphenyl | 81 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103513 Date Prep: 10.04.2019 13:15

Prep seq: 7687499

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 10.06.2019 08:48 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.06.2019 08:48 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.06.2019 08:48 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 10.06.2019 08:48 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.06.2019 08:48 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 10.06.2019 08:48 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.06.2019 08:48 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 103 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 134 | 70 - 130 | % | | ** |

# Certificate of Analytical Results
## 638845
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **DUP-2** Matrix: Water Sample Depth:

Lab Sample Id: 638845-009 Date Collected: 10.02.2019 00:00 Date Received: 10.03.2019 08:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103330 Date Prep: 10.03.2019 13:00

Prep seq: 7687425

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **299** | 10.0 | 0.421 | mg/L | 10.03.2019 23:45 | | 20 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3103415 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1590** | 5.00 | 5.00 | mg/L | 10.03.2019 15:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3103498 Date Prep: 10.05.2019 14:05

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687552

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.00107** | 0.00400 | 0.000246 | mg/L | 10.07.2019 05:52 | J | 1 |
| **Barium** | 7440-39-3 | **4.70** | 0.200 | 0.0242 | mg/L | 10.07.2019 20:02 | ~~D~~ | 50 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 10.07.2019 05:52 | U | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3103319 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.03.2019 08:39 | UK ~~K~~ U | 1 |

# Certificate of Analytical Results
## 638845
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **DUP-2** Matrix: Water Sample Depth:

Lab Sample Id: 638845-009 Date Collected: 10.02.2019 00:00 Date Received: 10.03.2019 08:00

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103851 Date Prep: 10.09.2019 11:21

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687718

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Gasoline Range Hydrocarbons** | PHC610 | **2.33** | 1.40 | 0.921 | mg/L | 10.09.2019 18:48 | | 1 |
| **Diesel Range Organics** | C10C28DRO | **1.29** | 1.40 | 0.921 | mg/L | 10.09.2019 18:48 | J | 1 |
| **Total TPH** | PHC635 | **3.62** | 1.40 | 0.921 | mg/L | 10.09.2019 18:48 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 76 | 70 - 135 | % | | |
| o-Terphenyl | 77 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103513 Date Prep: 10.04.2019 13:15

Prep seq: 7687499

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **0.0609** | 0.00200 | 0.000408 | mg/L | 10.06.2019 09:08 | J | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.06.2019 09:08 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.06.2019 09:08 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 10.06.2019 09:08 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.06.2019 09:08 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 10.06.2019 09:08 | U | 1 |
| **Total BTEX** | | **0.0609** | 0.00200 | 0.000367 | mg/L | 10.06.2019 09:08 | J | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 110 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 145 | 70 - 130 | % | | ** |

# Certificate of Analytical Results
## 638845
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **DUP-1** Matrix: Water Sample Depth:

Lab Sample Id: 638845-010 Date Collected: 10.02.2019 00:00 Date Received: 10.03.2019 08:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103330 Date Prep: 10.03.2019 13:00

Prep seq: 7687425

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **1850** | 25.0 | 1.05 | mg/L | 10.03.2019 23:57 | | 50 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3103415 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **3920** | 5.00 | 5.00 | mg/L | 10.03.2019 15:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3103498 Date Prep: 10.05.2019 14:05

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687552

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0122** | 0.00400 | 0.000246 | mg/L | 10.07.2019 05:55 | | 1 |
| **Barium** | 7440-39-3 | **0.0482** | 0.00400 | 0.000484 | mg/L | 10.07.2019 05:55 | | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 10.07.2019 05:55 | U | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3103324 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.03.2019 10:05 | ~~UK~~ U | 1 |

# Certificate of Analytical Results
## 638845
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **DUP-1** Matrix: Water Sample Depth:

Lab Sample Id: 638845-010 Date Collected: 10.02.2019 00:00 Date Received: 10.03.2019 08:00

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103851 Date Prep: 10.09.2019 11:24

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687718

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.926 | 1.41 | 0.926 | mg/L | 10.09.2019 19:06 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.926 | 1.41 | 0.926 | mg/L | 10.09.2019 19:06 | U | 1 |
| Total TPH | PHC635 | <0.926 | 1.41 | 0.926 | mg/L | 10.09.2019 19:06 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 76 | 70 - 135 | % | | |
| o-Terphenyl | 78 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103513 Date Prep: 10.04.2019 13:15

Prep seq: 7687499

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 10.06.2019 09:29 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.06.2019 09:29 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.06.2019 09:29 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 10.06.2019 09:29 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.06.2019 09:29 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 10.06.2019 09:29 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.06.2019 09:29 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 98 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 138 | 70 - 130 | % | | ** |

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# Chain of Custody

Work Order No: 623691

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 1 of 2

| | | | |
|---|---|---|---|
| Project Manager: | Rebecca Andresen | Bill to: (if different) | |
| Company Name: | ARCADIS | Company Name: | |
| Address: | 1004 N. Big Spring St. | Address: | |
| City, State ZIP: | Midland, TX. 79701 | City, State ZIP: | |
| Phone: | 303-471-3477 | Email: | madisyn.frandsen@arcadis.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: | Eunice Project- S. Eunice | Turn Around | |
| Project Number: | 30006138 | Routine ☐ | |
| P.O. Number: | | Rush: | |
| Sampler's Name: | Chas Holder | Due Date: | |

| SAMPLE RECEIPT | | | | |
|---|---|---|---|---|
| Temp Blank: | Yes No | Wet Ice: | Yes No | |
| Temperature (°C): | | Thermometer ID | | |
| Received Intact: | Yes No | | | |
| Cooler Custody Seals: | Yes No N/A | Correction Factor: | | |
| Sample Custody Seals: | Yes No N/A | Total Containers: | | |

| Sample Identification | Matrix | Date Sampled | Time Sampled | Depth | Number of Containers | BTEX (EPA 8021B) | TPH (SW8015) | Hex Chrome (SW7196A) | Dissolved Metals (SW6020_DIS): Chromium, Arsenic & Barium) | TDS (SM2540C) | Chlorides (EPA 300.0) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-7 | W | 10-3 | 0753 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MW-17 | W | 10-3 | 0812 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MW-30 | W | 10-3 | 0815 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MW-1 | W | 10-3 | 0910 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MW-4 | W | 10-3 | 0950 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MW-15 | W | 10-3 | 1020 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MW-8 | W | 10-3 | 1045 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MW 9 | W | 10-3 | 1230 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MW 24 | W | 10-3 | 1245 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MW 32 | W | 10-3 | 1300 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

**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

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| Relinquished by: (Signature) | Received by: (Signature) | Date/Time | Relinquished by: (Signature) | Received by: (Signature) | Date/Time |
|---|---|---|---|---|---|
| 1 | | | 2 | | |
| 3 | | | 4 | | |
| 5 | | | 6 | | |

Revised Date 051418 Rev. 2018.1

Received by OCD: 3/25/2020 2:27:35 PM
Released to Imaging: 6/14/2022 10:17:42 AM
Final 1.000
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# Chain of Custody

Work Order No: 630909

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: | Rebecca Andresen | Bill to: (if different) | |
| Company Name: | ARCADIS | Company Name: | |
| Address: | 1004 N. Big Spring St. | Address: | |
| City, State ZIP: | Midland, TX. 79701 | City, State ZIP: | |
| Phone: | 303-471-3477 | Email: | madisyn.frandsen@arcadis.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: | Eunice Project- S. Eunice | Turn Around | |
| Project Number: | 30006138 | Routine ☐ | |
| P.O. Number: | | Rush: | |
| Sampler's Name: | Chas Holder | Due Date: | |

| SAMPLE RECEIPT | | | | |
|---|---|---|---|---|
| Temperature (°C): | | Temp Blank: Yes No | Wet Ice: Yes No | |
| Received Intact: | Yes No | Thermometer ID | | |
| Cooler Custody Seals: | Yes No N/A | Correction Factor: | | |
| Sample Custody Seals: | Yes No N/A | Total Containers: | | |

| Sample Identification | Matrix | Date Sampled | Time Sampled | Depth | Number of Containers | BTEX (EPA 8021B) | TPH (SW8015) | Hex Chrome (SW7196A) | Dissolved Metals (SW6020_DIS): Chromium, Arsenic & Barium) | TDS (SM2540C) | Chlorides (EPA 300.0) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MW8 | W | 10-3 | 1318 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MW13 | W | 10-3 | 1355 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MW4 | W | 10-3 | 1412 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Dup 3 | W | 10-3 | | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Dup 4 | W | 10-3 | | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

**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

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| | Relinquished by: (Signature) | Received by: (Signature) | Date/Time | Relinquished by: (Signature) | Received by: (Signature) | Date/Time |
|---|---|---|---|---|---|---|
| 1 | | JKramer | 10/3 1712 | 2 JKramer | | |
| 3 | | | | 4 | | |
| 5 | | | | 6 | | |

Revised Date 051418 Rev. 2018.1

Received by OCD: 3/25/2020 2:27:35 PM
Released to Imaging: 6/14/2022 10:17:42 AM
Final 1.000
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# Certificate of Analytical Results
## 638989
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MWD-7** Matrix: Water Sample Depth:

Lab Sample Id: 638989-001 Date Collected: 10.03.2019 07:53 Date Received: 10.03.2019 17:28

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103555 Date Prep: 10.07.2019 16:15

Prep seq: 7687629

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **6470** | 50.0 | 2.10 | mg/L | 10.07.2019 20:33 | | 100 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103470 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **9590** | 5.00 | 5.00 | mg/L | 10.04.2019 17:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: ANJ % Moist: Tech: ANJ

Seq Number: 3104079 Date Prep: 10.08.2019 07:45

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687662

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0153** | 0.00400 | 0.000246 | mg/L | 10.08.2019 19:58 | | 1 |
| **Barium** | 7440-39-3 | **0.0429** | 0.00400 | 0.000484 | mg/L | 10.08.2019 19:58 | | 1 |
| **Chromium** | 7440-47-3 | **0.00169** | 0.00400 | 0.000525 | mg/L | 10.08.2019 19:58 | J | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103451 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.04.2019 07:40 | U | 1 |

# Certificate of Analytical Results
## 638989
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MWD-7** Matrix: Water Sample Depth:

Lab Sample Id: 638989-001 Date Collected: 10.03.2019 07:53 Date Received: 10.03.2019 17:28

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103851 Date Prep: 10.09.2019 11:27

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687718

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.910 | 1.38 | 0.910 | mg/L | 10.09.2019 19:25 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.910 | 1.38 | 0.910 | mg/L | 10.09.2019 19:25 | U | 1 |
| Total TPH | PHC635 | <0.910 | 1.38 | 0.910 | mg/L | 10.09.2019 19:25 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 75 | 70 - 135 | % | | |
| o-Terphenyl | 79 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103512 Date Prep: 10.04.2019 13:00

Prep seq: 7687497

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 10.05.2019 09:27 | UX U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.05.2019 09:27 | UX U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.05.2019 09:27 | UX U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 10.05.2019 09:27 | UX U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.05.2019 09:27 | UX U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 10.05.2019 09:27 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.05.2019 09:27 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 98 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 132 | 70 - 130 | % | | ** |

# Certificate of Analytical Results
## 638989
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-17** Matrix: Water Sample Depth:

Lab Sample Id: 638989-002 Date Collected: 10.03.2019 08:12 Date Received: 10.03.2019 17:28

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103434 Date Prep: 10.04.2019 10:45

Prep seq: 7687472

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **1300** | 25.0 | 1.05 | mg/L | 10.04.2019 12:07 | | 50 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103470 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **2700** | 5.00 | 5.00 | mg/L | 10.04.2019 17:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: ANJ % Moist: Tech: ANJ

Seq Number: 3104079 Date Prep: 10.08.2019 07:45

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687662

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.00838** | 0.00400 | 0.000246 | mg/L | 10.08.2019 20:18 | | 1 |
| **Barium** | 7440-39-3 | **0.156** | 0.00400 | 0.000484 | mg/L | 10.08.2019 20:18 | | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 10.08.2019 20:18 | U | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103451 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.04.2019 07:40 | U | 1 |

# Certificate of Analytical Results
## 638989

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **MW-17** Matrix: Water Sample Depth:

Lab Sample Id: 638989-002 Date Collected: 10.03.2019 08:12 Date Received: 10.03.2019 17:28

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103841 Date Prep: 10.09.2019 11:39

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687754

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.909 | 1.38 | 0.909 | mg/L | 10.09.2019 18:29 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.909 | 1.38 | 0.909 | mg/L | 10.09.2019 18:29 | U | 1 |
| Total TPH | PHC635 | <0.909 | 1.38 | 0.909 | mg/L | 10.09.2019 18:29 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 81 | 70 - 135 | % | | |
| o-Terphenyl | 86 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103512 Date Prep: 10.04.2019 13:00

Prep seq: 7687497

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 10.05.2019 09:47 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.05.2019 09:47 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.05.2019 09:47 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 10.05.2019 09:47 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.05.2019 09:47 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 10.05.2019 09:47 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.05.2019 09:47 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 100 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 131 | 70 - 130 | % | | ** |

# Certificate of Analytical Results
## 638989
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-30** Matrix: Water Sample Depth:

Lab Sample Id: 638989-003 Date Collected: 10.03.2019 08:15 Date Received: 10.03.2019 17:28

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103434 Date Prep: 10.04.2019 10:45

Prep seq: 7687472

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **244** | 5.00 | 0.210 | mg/L | 10.04.2019 12:14 | | 10 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103470 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1220** | 5.00 | 5.00 | mg/L | 10.04.2019 17:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: ANJ % Moist: Tech: ANJ

Seq Number: 3104079 Date Prep: 10.08.2019 07:45

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687662

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0123** | 0.00400 | 0.000246 | mg/L | 10.08.2019 20:21 | | 1 |
| **Barium** | 7440-39-3 | **0.298** | 0.00400 | 0.000484 | mg/L | 10.08.2019 20:21 | | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 10.08.2019 20:21 | U | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103451 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.04.2019 07:40 | U | 1 |

# Certificate of Analytical Results
## 638989

## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-30** Matrix: Water Sample Depth:

Lab Sample Id: 638989-003 Date Collected: 10.03.2019 08:15 Date Received: 10.03.2019 17:28

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103841 Date Prep: 10.09.2019 11:45

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687754

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Gasoline Range Hydrocarbons** | PHC610 | **0.969** | 1.38 | 0.906 | mg/L | 10.09.2019 19:06 | J | 1 |
| Diesel Range Organics | C10C28DRO | <0.906 | 1.38 | 0.906 | mg/L | 10.09.2019 19:06 | U | 1 |
| **Total TPH** | PHC635 | **0.969** | 1.38 | 0.906 | mg/L | 10.09.2019 19:06 | J | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 78 | 70 - 135 | % | | |
| o-Terphenyl | 84 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103512 Date Prep: 10.04.2019 13:00

Prep seq: 7687497

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 10.05.2019 10:07 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.05.2019 10:07 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.05.2019 10:07 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 10.05.2019 10:07 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.05.2019 10:07 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 10.05.2019 10:07 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.05.2019 10:07 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 103 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 129 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 638989
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MWD-1** Matrix: Water Sample Depth:

Lab Sample Id: 638989-004 Date Collected: 10.03.2019 09:10 Date Received: 10.03.2019 17:28

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103434 Date Prep: 10.04.2019 10:45

Prep seq: 7687472

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **469** | 5.00 | 0.210 | mg/L | 10.04.2019 12:21 | | 10 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103470 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1540** | 5.00 | 5.00 | mg/L | 10.04.2019 17:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: ANJ % Moist: Tech: ANJ

Seq Number: 3104079 Date Prep: 10.08.2019 07:45

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687662

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0501** | 0.00400 | 0.000246 | mg/L | 10.08.2019 20:24 | | 1 |
| **Barium** | 7440-39-3 | **0.0483** | 0.00400 | 0.000484 | mg/L | 10.08.2019 20:24 | | 1 |
| **Chromium** | 7440-47-3 | **0.00388** | 0.00400 | 0.000525 | mg/L | 10.08.2019 20:24 | J | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103451 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.04.2019 07:40 | U | 1 |

# Certificate of Analytical Results
## 638989
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MWD-1** Matrix: Water Sample Depth:

Lab Sample Id: 638989-004 Date Collected: 10.03.2019 09:10 Date Received: 10.03.2019 17:28

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103841 Date Prep: 10.09.2019 11:48

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687754

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.882 | 1.34 | 0.882 | mg/L | 10.09.2019 19:25 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.882 | 1.34 | 0.882 | mg/L | 10.09.2019 19:25 | U | 1 |
| Total TPH | PHC635 | <0.882 | 1.34 | 0.882 | mg/L | 10.09.2019 19:25 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 82 | 70 - 135 | % | | |
| o-Terphenyl | 88 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103512 Date Prep: 10.04.2019 13:00

Prep seq: 7687497

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 10.05.2019 10:28 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.05.2019 10:28 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.05.2019 10:28 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 10.05.2019 10:28 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.05.2019 10:28 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 10.05.2019 10:28 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.05.2019 10:28 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 90 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 123 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 638989
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-4** Matrix: Water Sample Depth:

Lab Sample Id: 638989-005 Date Collected: 10.03.2019 09:50 Date Received: 10.03.2019 17:28

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103434 Date Prep: 10.04.2019 10:45

Prep seq: 7687472

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **2150** | 25.0 | 1.05 | mg/L | 10.04.2019 12:47 | | 50 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103470 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **4390** | 5.00 | 5.00 | mg/L | 10.04.2019 17:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: ANJ % Moist: Tech: ANJ

Seq Number: 3104079 Date Prep: 10.08.2019 07:45

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687662

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.00848** | 0.00400 | 0.000246 | mg/L | 10.08.2019 20:27 | | 1 |
| **Barium** | 7440-39-3 | **0.0585** | 0.00400 | 0.000484 | mg/L | 10.08.2019 20:27 | | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 10.08.2019 20:27 | U | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103451 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.04.2019 07:40 | U | 1 |

# Certificate of Analytical Results
## 638989

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **MW-4** Matrix: Water Sample Depth:

Lab Sample Id: 638989-005 Date Collected: 10.03.2019 09:50 Date Received: 10.03.2019 17:28

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103841 Date Prep: 10.09.2019 11:51

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687754

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Gasoline Range Hydrocarbons** | PHC610 | **0.928** | 1.39 | 0.915 | mg/L | 10.09.2019 19:44 | J | 1 |
| Diesel Range Organics | C10C28DRO | <0.915 | 1.39 | 0.915 | mg/L | 10.09.2019 19:44 | U | 1 |
| **Total TPH** | PHC635 | **0.928** | 1.39 | 0.915 | mg/L | 10.09.2019 19:44 | J | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 79 | 70 - 135 | % | | |
| o-Terphenyl | 85 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103512 Date Prep: 10.04.2019 13:00

Prep seq: 7687497

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 10.05.2019 10:48 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.05.2019 10:48 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.05.2019 10:48 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 10.05.2019 10:48 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.05.2019 10:48 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 10.05.2019 10:48 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.05.2019 10:48 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 99 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 130 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 638989
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MWD-15** Matrix: Water Sample Depth:

Lab Sample Id: 638989-006 Date Collected: 10.03.2019 10:20 Date Received: 10.03.2019 17:28

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103434 Date Prep: 10.04.2019 10:45

Prep seq: 7687472

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **1300** | 25.0 | 1.05 | mg/L | 10.04.2019 12:54 | | 50 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103470 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **3570** | 5.00 | 5.00 | mg/L | 10.04.2019 17:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: ANJ % Moist: Tech: ANJ

Seq Number: 3104079 Date Prep: 10.08.2019 07:45

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687662

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0180** | 0.00400 | 0.000246 | mg/L | 10.08.2019 20:30 | | 1 |
| **Barium** | 7440-39-3 | **1.19** | 0.00400 | 0.000484 | mg/L | 10.08.2019 20:30 | | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 10.08.2019 20:30 | U | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103451 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.04.2019 07:40 | U | 1 |

# Certificate of Analytical Results
## 638989

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **MWD-15** Matrix: Water Sample Depth:

Lab Sample Id: 638989-006 Date Collected: 10.03.2019 10:20 Date Received: 10.03.2019 17:28

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103841 Date Prep: 10.09.2019 11:54

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687754

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Gasoline Range Hydrocarbons** | PHC610 | **1.77** | 1.36 | 0.897 | mg/L | 10.11.2019 14:12 | | 1 |
| **Diesel Range Organics** | C10C28DRO | **1.60** | 1.36 | 0.897 | mg/L | 10.11.2019 14:12 | | 1 |
| **Total TPH** | PHC635 | **3.37** | 1.36 | 0.897 | mg/L | 10.11.2019 14:12 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 87 | 70 - 135 | % | | |
| o-Terphenyl | 96 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103512 Date Prep: 10.04.2019 13:00

Prep seq: 7687497

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **0.00443** | 0.00200 | 0.000408 | mg/L | 10.05.2019 11:08 | J | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.05.2019 11:08 | U | 1 |
| **Ethylbenzene** | 100-41-4 | **0.0146** | 0.00200 | 0.000657 | mg/L | 10.05.2019 11:08 | J | 1 |
| **m,p-Xylenes** | 179601-23-1 | **0.0180** | 0.00400 | 0.000630 | mg/L | 10.05.2019 11:08 | J | 1 |
| **o-Xylene** | 95-47-6 | **0.0162** | 0.00200 | 0.000642 | mg/L | 10.05.2019 11:08 | J | 1 |
| **Total Xylenes** | 1330-20-7 | **0.0342** | 0.00200 | 0.000630 | mg/L | 10.05.2019 11:08 | J | 1 |
| **Total BTEX** | | **0.0532** | 0.00200 | 0.000367 | mg/L | 10.05.2019 11:08 | J | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 89 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 184 | 70 - 130 | % | | ** |

# Certificate of Analytical Results
## 638989
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MWD-8** Matrix: Water Sample Depth:

Lab Sample Id: 638989-007 Date Collected: 10.03.2019 10:45 Date Received: 10.03.2019 17:28

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103434 Date Prep: 10.04.2019 10:45

Prep seq: 7687472

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **105** | 2.50 | 0.105 | mg/L | 10.04.2019 13:00 | | 5 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103470 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **565** | 5.00 | 5.00 | mg/L | 10.04.2019 17:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: ANJ % Moist: Tech: ANJ

Seq Number: 3104079 Date Prep: 10.08.2019 07:45

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687662

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0181** | 0.00400 | 0.000246 | mg/L | 10.08.2019 20:33 | | 1 |
| **Barium** | 7440-39-3 | **0.0433** | 0.00400 | 0.000484 | mg/L | 10.08.2019 20:33 | | 1 |
| **Chromium** | 7440-47-3 | **0.00111** | 0.00400 | 0.000525 | mg/L | 10.08.2019 20:33 | J | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103451 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.04.2019 07:40 | U | 1 |

# Certificate of Analytical Results
## 638989

## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MWD-8** Matrix: Water Sample Depth:

Lab Sample Id: 638989-007 Date Collected: 10.03.2019 10:45 Date Received: 10.03.2019 17:28

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103841 Date Prep: 10.09.2019 11:57

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687754

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.902 | 1.37 | 0.902 | mg/L | 10.09.2019 20:21 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.902 | 1.37 | 0.902 | mg/L | 10.09.2019 20:21 | U | 1 |
| Total TPH | PHC635 | <0.902 | 1.37 | 0.902 | mg/L | 10.09.2019 20:21 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 79 | 70 - 135 | % | | |
| o-Terphenyl | 85 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103512 Date Prep: 10.04.2019 13:00

Prep seq: 7687497

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 10.05.2019 11:28 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.05.2019 11:28 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.05.2019 11:28 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 10.05.2019 11:28 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.05.2019 11:28 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 10.05.2019 11:28 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.05.2019 11:28 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 98 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 125 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 638989
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-9** Matrix: Water Sample Depth:

Lab Sample Id: 638989-008 Date Collected: 10.03.2019 12:30 Date Received: 10.03.2019 17:28

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103434 Date Prep: 10.04.2019 10:45

Prep seq: 7687472

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **286** | 5.00 | 0.210 | mg/L | 10.04.2019 13:07 | | 10 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103470 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1340** | 5.00 | 5.00 | mg/L | 10.04.2019 17:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: ANJ % Moist: Tech: ANJ

Seq Number: 3104079 Date Prep: 10.08.2019 07:45

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687662

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.00387** | 0.00400 | 0.000246 | mg/L | 10.08.2019 20:36 | J | 1 |
| **Barium** | 7440-39-3 | **9.06** | 0.0800 | 0.00967 | mg/L | 10.14.2019 12:10 | ~~D~~ | 20 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 10.08.2019 20:36 | U | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103451 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.04.2019 07:40 | U | 1 |

# Certificate of Analytical Results
## 638989

## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-9** Matrix: Water Sample Depth:

Lab Sample Id: 638989-008 Date Collected: 10.03.2019 12:30 Date Received: 10.03.2019 17:28

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103841 Date Prep: 10.09.2019 12:00

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687754

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Gasoline Range Hydrocarbons** | PHC610 | **1.04** | 1.38 | 0.911 | mg/L | 10.09.2019 20:57 | J | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.38 | 0.911 | mg/L | 10.09.2019 20:57 | U | 1 |
| **Total TPH** | PHC635 | **1.04** | 1.38 | 0.911 | mg/L | 10.09.2019 20:57 | J | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 78 | 70 - 135 | % | | |
| o-Terphenyl | 84 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103512 Date Prep: 10.04.2019 13:00

Prep seq: 7687497

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 10.05.2019 11:48 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.05.2019 11:48 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.05.2019 11:48 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 10.05.2019 11:48 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.05.2019 11:48 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 10.05.2019 11:48 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.05.2019 11:48 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 105 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 130 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 638989
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-29** Matrix: Water Sample Depth:

Lab Sample Id: 638989-009 Date Collected: 10.03.2019 12:45 Date Received: 10.03.2019 17:28

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103434 Date Prep: 10.04.2019 10:45

Prep seq: 7687472

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **232** | 5.00 | 0.210 | mg/L | 10.04.2019 13:14 | | 10 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103470 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1250** | 5.00 | 5.00 | mg/L | 10.04.2019 17:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: ANJ % Moist: Tech: ANJ

Seq Number: 3104079 Date Prep: 10.08.2019 07:45

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687662

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.00249** | 0.00400 | 0.000246 | mg/L | 10.08.2019 20:39 | J | 1 |
| **Barium** | 7440-39-3 | **8.41** | 0.0800 | 0.00967 | mg/L | 10.14.2019 12:13 | ~~D~~ | 20 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 10.08.2019 20:39 | U | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103451 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chromium, Hexavalent** | 18540-29-9 | **0.0139** | 0.0100 | 0.00273 | mg/L | 10.04.2019 07:40 | | 1 |

# Certificate of Analytical Results
## 638989
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-29** Matrix: Water Sample Depth:

Lab Sample Id: 638989-009 Date Collected: 10.03.2019 12:45 Date Received: 10.03.2019 17:28

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103841 Date Prep: 10.09.2019 12:03

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687754

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Gasoline Range Hydrocarbons** | PHC610 | **4.72** | 1.41 | 0.926 | mg/L | 10.09.2019 21:16 | | 1 |
| Diesel Range Organics | C10C28DRO | <0.926 | 1.41 | 0.926 | mg/L | 10.09.2019 21:16 | U | 1 |
| **Total TPH** | PHC635 | **4.72** | 1.41 | 0.926 | mg/L | 10.09.2019 21:16 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 77 | 70 - 135 | % | | |
| o-Terphenyl | 83 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103512 Date Prep: 10.04.2019 13:00

Prep seq: 7687497

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **0.177** | 0.00200 | 0.000408 | mg/L | 10.06.2019 12:08 | | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.06.2019 12:08 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.06.2019 12:08 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 10.06.2019 12:08 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.06.2019 12:08 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 10.06.2019 12:08 | U | 1 |
| **Total BTEX** | | **0.177** | 0.00200 | 0.000367 | mg/L | 10.06.2019 12:08 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 114 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 129 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 638989
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-32** Matrix: Water Sample Depth:

Lab Sample Id: 638989-010 Date Collected: 10.03.2019 13:00 Date Received: 10.03.2019 17:28

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103434 Date Prep: 10.04.2019 10:45

Prep seq: 7687472

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **435** | 10.0 | 0.421 | mg/L | 10.04.2019 13:49 | | 20 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103470 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **2110** | 5.00 | 5.00 | mg/L | 10.04.2019 17:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: ANJ % Moist: Tech: ANJ

Seq Number: 3104079 Date Prep: 10.08.2019 07:45

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687662

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0329** | 0.00400 | 0.000246 | mg/L | 10.08.2019 20:42 | | 1 |
| **Barium** | 7440-39-3 | **1.32** | 0.00400 | 0.000484 | mg/L | 10.08.2019 20:42 | | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 10.08.2019 20:42 | U | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103451 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.04.2019 07:40 | U | 1 |

# Certificate of Analytical Results
## 638989
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-32** Matrix: Water Sample Depth:

Lab Sample Id: 638989-010 Date Collected: 10.03.2019 13:00 Date Received: 10.03.2019 17:28

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103841 Date Prep: 10.09.2019 12:06

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687754

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Gasoline Range Hydrocarbons** | PHC610 | **11.9** | 1.36 | 0.896 | mg/L | 10.09.2019 21:34 | | 1 |
| Diesel Range Organics | C10C28DRO | <0.896 | 1.36 | 0.896 | mg/L | 10.09.2019 21:34 | U | 1 |
| **Total TPH** | PHC635 | **11.9** | 1.36 | 0.896 | mg/L | 10.09.2019 21:34 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 76 | 70 - 135 | % | | |
| o-Terphenyl | 82 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103512 Date Prep: 10.04.2019 13:00

Prep seq: 7687497

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **5.96** | 0.500 | 0.102 | mg/L | 10.07.2019 08:14 | D J | 250 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.06.2019 12:29 | U | 1 |
| **Ethylbenzene** | 100-41-4 | **0.00533** | 0.00200 | 0.000657 | mg/L | 10.06.2019 12:29 | | 1 |
| **m,p-Xylenes** | 179601-23-1 | **0.00338** | 0.00400 | 0.000630 | mg/L | 10.06.2019 12:29 | J | 1 |
| **o-Xylene** | 95-47-6 | **0.00200** | 0.00200 | 0.000642 | mg/L | 10.06.2019 12:29 | J | 1 |
| **Total Xylenes** | 1330-20-7 | **0.00538** | 0.00200 | 0.000630 | mg/L | 10.06.2019 12:29 | | 1 |
| **Total BTEX** | | **5.97** | 0.00200 | 0.000367 | mg/L | 10.07.2019 08:14 | D | 250 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 106 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 106 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 638989

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **MW-8** Matrix: Water Sample Depth:

Lab Sample Id: 638989-011 Date Collected: 10.03.2019 13:18 Date Received: 10.03.2019 17:28

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103434 Date Prep: 10.04.2019 10:45

Prep seq: 7687472

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **458** | 10.0 | 0.421 | mg/L | 10.04.2019 13:56 | | 20 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103470 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **2090** | 5.00 | 5.00 | mg/L | 10.04.2019 17:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: ANJ % Moist: Tech: ANJ

Seq Number: 3103928 Date Prep: 10.09.2019 08:30

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687750

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0340** | 0.00400 | 0.000246 | mg/L | 10.09.2019 22:10 | | 1 |
| **Barium** | 7440-39-3 | **0.0426** | 0.00400 | 0.000484 | mg/L | 10.09.2019 22:10 | | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 10.09.2019 22:10 | U | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103453 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.04.2019 12:30 | U | 1 |

# Certificate of Analytical Results
## 638989

## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-8** Matrix: Water Sample Depth:

Lab Sample Id: 638989-011 Date Collected: 10.03.2019 13:18 Date Received: 10.03.2019 17:28

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103841 Date Prep: 10.09.2019 12:09

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687754

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.908 | 1.38 | 0.908 | mg/L | 10.09.2019 21:53 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.908 | 1.38 | 0.908 | mg/L | 10.09.2019 21:53 | U | 1 |
| Total TPH | PHC635 | <0.908 | 1.38 | 0.908 | mg/L | 10.09.2019 21:53 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 80 | 70 - 135 | % | | |
| o-Terphenyl | 85 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103512 Date Prep: 10.04.2019 13:00

Prep seq: 7687497

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 10.06.2019 01:47 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.06.2019 01:47 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.06.2019 01:47 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 10.06.2019 01:47 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.06.2019 01:47 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 10.06.2019 01:47 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.06.2019 01:47 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 95 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 127 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 638989
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MWD-13** Matrix: Water Sample Depth:

Lab Sample Id: 638989-012 Date Collected: 10.03.2019 13:55 Date Received: 10.03.2019 17:28

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103434 Date Prep: 10.04.2019 10:45

Prep seq: 7687472

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **1290** | 25.0 | 1.05 | mg/L | 10.04.2019 14:21 | | 50 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103470 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **4610** | 5.00 | 5.00 | mg/L | 10.04.2019 17:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: ANJ % Moist: Tech: ANJ

Seq Number: 3103928 Date Prep: 10.09.2019 08:30

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687750

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0620** | 0.00400 | 0.000246 | mg/L | 10.09.2019 22:30 | | 1 |
| **Barium** | 7440-39-3 | **0.0726** | 0.00400 | 0.000484 | mg/L | 10.09.2019 22:30 | | 1 |
| **Chromium** | 7440-47-3 | **0.00285** | 0.00400 | 0.000525 | mg/L | 10.09.2019 22:30 | J | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103453 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.04.2019 12:30 | U | 1 |

# Certificate of Analytical Results
## 638989
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MWD-13** Matrix: Water Sample Depth:

Lab Sample Id: 638989-012 Date Collected: 10.03.2019 13:55 Date Received: 10.03.2019 17:28

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103841 Date Prep: 10.09.2019 12:12

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687754

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.891 | 1.35 | 0.891 | mg/L | 10.09.2019 22:11 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.891 | 1.35 | 0.891 | mg/L | 10.09.2019 22:11 | U | 1 |
| Total TPH | PHC635 | <0.891 | 1.35 | 0.891 | mg/L | 10.09.2019 22:11 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 79 | 70 - 135 | % | | |
| o-Terphenyl | 85 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103512 Date Prep: 10.04.2019 13:00

Prep seq: 7687497

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 10.06.2019 02:08 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.06.2019 02:08 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.06.2019 02:08 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 10.06.2019 02:08 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.06.2019 02:08 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 10.06.2019 02:08 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.06.2019 02:08 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 105 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 133 | 70 - 130 | % | | ** |

# Certificate of Analytical Results
## 638989
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MWD-4** Matrix: Water Sample Depth:

Lab Sample Id: 638989-013 Date Collected: 10.03.2019 14:12 Date Received: 10.03.2019 17:28

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103434 Date Prep: 10.04.2019 10:45

Prep seq: 7687472

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **49.5** | 2.50 | 0.105 | mg/L | 10.04.2019 14:28 | | 5 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103470 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1220** | 5.00 | 5.00 | mg/L | 10.04.2019 17:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: ANJ % Moist: Tech: ANJ

Seq Number: 3103928 Date Prep: 10.09.2019 08:30

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687750

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.00139** | 0.00400 | 0.000246 | mg/L | 10.09.2019 22:33 | J | 1 |
| **Barium** | 7440-39-3 | **0.0593** | 0.00400 | 0.000484 | mg/L | 10.09.2019 22:33 | | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 10.09.2019 22:33 | U | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103453 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.04.2019 12:30 | U | 1 |

# Certificate of Analytical Results
## 638989

## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MWD-4** Matrix: Water Sample Depth:

Lab Sample Id: 638989-013 Date Collected: 10.03.2019 14:12 Date Received: 10.03.2019 17:28

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103841 Date Prep: 10.09.2019 12:15

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687754

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.908 | 1.38 | 0.908 | mg/L | 10.09.2019 22:29 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.908 | 1.38 | 0.908 | mg/L | 10.09.2019 22:29 | U | 1 |
| Total TPH | PHC635 | <0.908 | 1.38 | 0.908 | mg/L | 10.09.2019 22:29 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 74 | 70 - 135 | % | | |
| o-Terphenyl | 79 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103512 Date Prep: 10.04.2019 13:00

Prep seq: 7687497

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 10.06.2019 02:28 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.06.2019 02:28 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.06.2019 02:28 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 10.06.2019 02:28 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.06.2019 02:28 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 10.06.2019 02:28 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.06.2019 02:28 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 98 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 137 | 70 - 130 | % | | ** |

# Certificate of Analytical Results
## 638989
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **DUP-3** Matrix: Water Sample Depth:

Lab Sample Id: 638989-014 Date Collected: 10.03.2019 00:00 Date Received: 10.03.2019 17:28

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103434 Date Prep: 10.04.2019 10:45

Prep seq: 7687472

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **475** | 5.00 | 0.210 | mg/L | 10.04.2019 14:35 | | 10 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103470 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1530** | 5.00 | 5.00 | mg/L | 10.04.2019 17:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: ANJ % Moist: Tech: ANJ

Seq Number: 3103928 Date Prep: 10.09.2019 08:30

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687750

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0507** | 0.00400 | 0.000246 | mg/L | 10.09.2019 22:36 | | 1 |
| **Barium** | 7440-39-3 | **0.0482** | 0.00400 | 0.000484 | mg/L | 10.09.2019 22:36 | | 1 |
| **Chromium** | 7440-47-3 | **0.00404** | 0.00400 | 0.000525 | mg/L | 10.09.2019 22:36 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103453 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.04.2019 12:30 | ~~UK~~ U | 1 |

# Certificate of Analytical Results
## 638989
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **DUP-3** Matrix: Water Sample Depth:

Lab Sample Id: 638989-014 Date Collected: 10.03.2019 00:00 Date Received: 10.03.2019 17:28

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103841 Date Prep: 10.09.2019 12:18

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687754

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.910 | 1.38 | 0.910 | mg/L | 10.09.2019 22:48 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.910 | 1.38 | 0.910 | mg/L | 10.09.2019 22:48 | U | 1 |
| Total TPH | PHC635 | <0.910 | 1.38 | 0.910 | mg/L | 10.09.2019 22:48 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 81 | 70 - 135 | % | | |
| o-Terphenyl | 88 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103512 Date Prep: 10.04.2019 13:00

Prep seq: 7687497

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 10.06.2019 02:48 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.06.2019 02:48 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.06.2019 02:48 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 10.06.2019 02:48 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.06.2019 02:48 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 10.06.2019 02:48 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.06.2019 02:48 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 92 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 128 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 638989
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **DUP-4** Matrix: Water Sample Depth:

Lab Sample Id: 638989-015 Date Collected: 10.03.2019 00:00 Date Received: 10.03.2019 17:28

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103434 Date Prep: 10.04.2019 10:45

Prep seq: 7687472

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **2130** | 25.0 | 1.05 | mg/L | 10.04.2019 14:42 | | 50 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103470 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **4240** | 5.00 | 5.00 | mg/L | 10.04.2019 17:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: ANJ % Moist: Tech: ANJ

Seq Number: 3103928 Date Prep: 10.09.2019 08:30

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687750

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.00914** | 0.00400 | 0.000246 | mg/L | 10.09.2019 22:39 | | 1 |
| **Barium** | 7440-39-3 | **0.0534** | 0.00400 | 0.000484 | mg/L | 10.09.2019 22:39 | | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 10.09.2019 22:39 | U | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103453 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.04.2019 12:30 | UK U | 1 |

# Certificate of Analytical Results
## 638989
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **DUP-4** Matrix: Water Sample Depth:

Lab Sample Id: 638989-015 Date Collected: 10.03.2019 00:00 Date Received: 10.03.2019 17:28

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103841 Date Prep: 10.09.2019 12:21

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687754

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.910 | 1.38 | 0.910 | mg/L | 10.09.2019 23:06 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.910 | 1.38 | 0.910 | mg/L | 10.09.2019 23:06 | U | 1 |
| Total TPH | PHC635 | <0.910 | 1.38 | 0.910 | mg/L | 10.09.2019 23:06 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 77 | 70 - 135 | % | | |
| o-Terphenyl | 83 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103512 Date Prep: 10.04.2019 13:00

Prep seq: 7687497

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 10.06.2019 03:08 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.06.2019 03:08 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.06.2019 03:08 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 10.06.2019 03:08 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.06.2019 03:08 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 10.06.2019 03:08 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.06.2019 03:08 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 101 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 137 | 70 - 130 | % | | ** |

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# Chain of Custody

Work Order No: 639099

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 1 of 1

| | | | |
|---|---|---|---|
| Project Manager: | Rebecca Andresen | Bill to: (if different) | |
| Company Name: | ARCADIS | Company Name: | |
| Address: | 1004 N. Big Spring St. | Address: | |
| City, State ZIP: | Midland, TX. 79701 | City, State ZIP: | |
| Phone: | 303-471-3477 Email: | madisyn.frandsen@arcadis.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: | Eunice Project- S. Eunice | Turn Around | |
| Project Number: | 30006138 | Routine ☑ | |
| P.O. Number: | | Rush: | |
| Sampler's Name: | Chas Holder / Kemp Silvas said | Due Date: | |

| SAMPLE RECEIPT | | | |
|---|---|---|---|
| Temp Blank: | Yes (No) | Wet Ice: | (Yes) No |
| Temperature (°C): | 3.2 / 3.0 | Thermometer ID | |
| Received Intact: | Yes No | | |
| Cooler Custody Seals: | Yes (No) N/A | Correction Factor: | |
| Sample Custody Seals: | Yes No N/A | Total Containers: | |

| Sample Identification | Matrix | Date Sampled | Time Sampled | Depth | Number of Containers | BTEX (EPA 8021B) | TPH (SW8015) | Hex Chrome (SW7196A) | Dissolved Metals (SW6020_DIS): Chromium, Arsenic & Barium) | TDS (SM2540C) | Chlorides (EPA 300.0) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MWD-9 | W | 10/4/19 | 1013 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MWD-3 | W | 10/4/19 | 1030 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MWD-14 | W | 10/4/19 | 1214 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MW-11 | W | 10/4/19 | 1241 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MW-26 | W | 10/4/19 | 1302 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MWD-12 | W | 10/4/19 | 0850 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MW-3 | W | 10/4/19 | 0819 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MWD-11 | W | 10/4/19 | 0934 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| TMW-1 | W | 10/4/19 | 0957 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| RW-7 | W | 10/4/19 | 1011 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

**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

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| Relinquished by: (Signature) | Received by: (Signature) | Date/Time | Relinquished by: (Signature) | Received by: (Signature) | Date/Time |
|---|---|---|---|---|---|
| 1 | | 10/4/19 1622 | 2 | | |
| 3 | | | 4 | | |
| 5 | | | 6 | | |

Revised Date 051418 Rev. 2018.1

Received by OCD: 3/25/2020 2:27:35 PM
Released to Imaging: 6/14/2022 10:17:42 AM
Final 1.001
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# Chain of Custody

Work Order No: 634099

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 2 of 2

| | | | |
|---|---|---|---|
| Project Manager: | Rebecca Andresen | Bill to: (if different) | |
| Company Name: | ARCADIS | Company Name: | |
| Address: | 1004 N. Big Spring St. | Address: | |
| City, State ZIP: | Midland, TX. 79701 | City, State ZIP: | |
| Phone: | 303-471-3477 Email: | madisyn.frandsen@arcadis.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: | Eunice Project- S. Eunice | Turn Around | |
| Project Number: | 30006138 | Routine | ☒ |
| P.O. Number: | | Rush: | |
| Sampler's Name: | Chris Haley / Jerry Longwell | Due Date: | |

| SAMPLE RECEIPT | | | | | |
|---|---|---|---|---|---|
| Temp Blank: | Yes (No) | Wet Ice: | (Yes) No | | |
| Temperature (°C): | 3.2 3.0 | Thermometer ID | | | |
| Received Intact: | (Yes) No | | | | |
| Cooler Custody Seals: | Yes No N/A | Correction Factor: | | | |
| 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 | BTEX (EPA 8021B) | TPH (SW8015) | Hex Chrome (SW7196A) | Dissolved Metals (SW6020_DIS): Chromium, Arsenic & Barium) | TDS (SM2540C) | Chlorides (EPA 300.0) | Sample Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RW-6 | W | 10/4/19 | 1040 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| MW-25 | W | 10/4/19 | 1285 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| TMW-6 | W | 10/4/19 | 1751 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |

**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

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Xenco. A minimum charge of $75.00 will be applied to each project and a charge of $5 for each sample submitted to Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

| Relinquished by: (Signature) | Received by: (Signature) | Date/Time | Relinquished by: (Signature) | Received by: (Signature) | Date/Time |
|---|---|---|---|---|---|
| 1 | | 10/4/19 1620 | 2 | | |
| 3 | | | 4 | | |
| 5 | | | 6 | | |

Revised Date 051418 Rev. 2018.1

Received by OCD: 3/25/2020 2:27:35 PM
Final 1.001
Page 48 of 53
Released to Imaging: 6/14/2022 10:17:42 AM

# Certificate of Analytical Results
## 639099
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MWD-9** Matrix: Water Sample Depth:

Lab Sample Id: 639099-001 Date Collected: 10.04.2019 10:13 Date Received: 10.04.2019 16:25

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103555 Date Prep: 10.07.2019 16:15

Prep seq: 7687629

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **15000** | 100 | 4.21 | mg/L | 10.07.2019 18:16 | | 200 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103470 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **26800** | 5.00 | 5.00 | mg/L | 10.04.2019 17:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: ANJ % Moist: Tech: ANJ

Seq Number: 3103928 Date Prep: 10.09.2019 08:30

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687750

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0184** | 0.00400 | 0.000246 | mg/L | 10.09.2019 22:42 | | 1 |
| **Barium** | 7440-39-3 | **0.0755** | 0.00800 | 0.000967 | mg/L | 10.14.2019 12:25 | ~~D~~ | 2 |
| **Chromium** | 7440-47-3 | **0.00569** | 0.00400 | 0.000525 | mg/L | 10.09.2019 22:42 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103458 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.04.2019 16:45 | U | 1 |

# Certificate of Analytical Results
## 639099

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **MWD-9** Matrix: Water Sample Depth:

Lab Sample Id: 639099-001 Date Collected: 10.04.2019 10:13 Date Received: 10.04.2019 16:25

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103841 Date Prep: 10.09.2019 12:24

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687754

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.879 | 1.33 | 0.879 | mg/L | 10.09.2019 23:24 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.879 | 1.33 | 0.879 | mg/L | 10.09.2019 23:24 | U | 1 |
| Total TPH | PHC635 | <0.879 | 1.33 | 0.879 | mg/L | 10.09.2019 23:24 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 75 | 70 - 135 | % | | |
| o-Terphenyl | 81 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103666 Date Prep: 10.07.2019 13:45

Prep seq: 7687635

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **0.0119** | 0.00200 | 0.000408 | mg/L | 10.08.2019 11:14 | J | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.08.2019 11:14 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.08.2019 11:14 | UH U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 10.08.2019 11:14 | UH U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.08.2019 11:14 | UH U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 10.08.2019 11:14 | U | 1 |
| **Total BTEX** | | **0.0119** | 0.00200 | 0.000367 | mg/L | 10.08.2019 11:14 | J | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 92 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 131 | 70 - 130 | % | | ** |

# Certificate of Analytical Results
## 639099
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MWD-3** Matrix: Water Sample Depth:

Lab Sample Id: 639099-002 Date Collected: 10.04.2019 10:30 Date Received: 10.04.2019 16:25

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103555 Date Prep: 10.07.2019 16:15

Prep seq: 7687629

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **44800** | 250 | 10.5 | mg/L | 10.07.2019 18:23 | | 500 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103470 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **57700** | 5.00 | 5.00 | mg/L | 10.04.2019 17:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: ANJ % Moist: Tech: ANJ

Seq Number: 3103928 Date Prep: 10.09.2019 08:30

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687750

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0297** | 0.00400 | 0.000246 | mg/L | 10.14.2019 12:28 | | 1 |
| **Barium** | 7440-39-3 | **0.753** | 0.0400 | 0.00484 | mg/L | 10.14.2019 12:31 | ~~D~~ | 10 |
| **Chromium** | 7440-47-3 | **0.00194** | 0.00400 | 0.000525 | mg/L | 10.14.2019 12:28 | J | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103458 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.04.2019 16:45 | U | 1 |

# Certificate of Analytical Results
## 639099

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **MWD-3** Matrix: Water Sample Depth:

Lab Sample Id: 639099-002 Date Collected: 10.04.2019 10:30 Date Received: 10.04.2019 16:25

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103841 Date Prep: 10.09.2019 12:27

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687754

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Gasoline Range Hydrocarbons** | PHC610 | **5.55** | 1.34 | 0.881 | mg/L | 10.09.2019 23:43 | | 1 |
| Diesel Range Organics | C10C28DRO | <0.881 | 1.34 | 0.881 | mg/L | 10.09.2019 23:43 | U | 1 |
| **Total TPH** | PHC635 | **5.55** | 1.34 | 0.881 | mg/L | 10.09.2019 23:43 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 75 | 70 - 135 | % | | |
| o-Terphenyl | 81 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103666 Date Prep: 10.07.2019 13:45

Prep seq: 7687635

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **1.97** | 0.200 | 0.0408 | mg/L | 10.13.2019 08:06 | D | 100 |
| **Toluene** | 108-88-3 | **0.00558** | 0.00200 | 0.000367 | mg/L | 10.08.2019 11:34 | | 1 |
| **Ethylbenzene** | 100-41-4 | **0.0662** | 0.00200 | 0.000657 | mg/L | 10.08.2019 11:34 | ~~H~~ J | 1 |
| **m,p-Xylenes** | 179601-23-1 | **0.0265** | 0.00400 | 0.000630 | mg/L | 10.08.2019 11:34 | ~~H~~ J | 1 |
| **o-Xylene** | 95-47-6 | **0.00646** | 0.00200 | 0.000642 | mg/L | 10.08.2019 11:34 | ~~H~~ J | 1 |
| **Total Xylenes** | 1330-20-7 | **0.0330** | 0.00200 | 0.000630 | mg/L | 10.08.2019 11:34 | | 1 |
| **Total BTEX** | | **2.07** | 0.00200 | 0.000367 | mg/L | 10.13.2019 08:06 | | 100 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 93 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 114 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 639099
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MWD-14** Matrix: Water Sample Depth:

Lab Sample Id: 639099-003 Date Collected: 10.04.2019 12:14 Date Received: 10.04.2019 16:25

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103555 Date Prep: 10.07.2019 16:15

Prep seq: 7687629

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **595** | 25.0 | 1.05 | mg/L | 10.07.2019 18:30 | | 50 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103470 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **2900** | 5.00 | 5.00 | mg/L | 10.04.2019 17:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: ANJ % Moist: Tech: ANJ

Seq Number: 3103928 Date Prep: 10.09.2019 08:30

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687750

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.000588** | 0.00400 | 0.000246 | mg/L | 10.09.2019 22:48 | J | 1 |
| **Barium** | 7440-39-3 | **0.808** | 0.0400 | 0.00484 | mg/L | 10.14.2019 12:34 | ~~D~~ | 10 |
| **Chromium** | 7440-47-3 | **0.000883** | 0.00400 | 0.000525 | mg/L | 10.09.2019 22:48 | J | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103458 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.04.2019 16:45 | U | 1 |

# Certificate of Analytical Results
## 639099

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **MWD-14** Matrix: Water Sample Depth:

Lab Sample Id: 639099-003 Date Collected: 10.04.2019 12:14 Date Received: 10.04.2019 16:25

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103841 Date Prep: 10.09.2019 12:30

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687754

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Gasoline Range Hydrocarbons** | PHC610 | **3.43** | 1.35 | 0.889 | mg/L | 10.09.2019 23:24 | | 1 |
| Diesel Range Organics | C10C28DRO | <0.889 | 1.35 | 0.889 | mg/L | 10.09.2019 23:24 | U | 1 |
| **Total TPH** | PHC635 | **3.43** | 1.35 | 0.889 | mg/L | 10.09.2019 23:24 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 77 | 70 - 135 | % | | |
| o-Terphenyl | 79 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103666 Date Prep: 10.07.2019 13:45

Prep seq: 7687635

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **1.18** | 0.200 | 0.0408 | mg/L | 10.13.2019 08:26 | D J | 100 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.08.2019 11:54 | U | 1 |
| **Ethylbenzene** | 100-41-4 | **0.136** | 0.00200 | 0.000657 | mg/L | 10.08.2019 11:54 | H J | 1 |
| **m,p-Xylenes** | 179601-23-1 | **0.00448** | 0.00400 | 0.000630 | mg/L | 10.08.2019 11:54 | H J | 1 |
| **o-Xylene** | 95-47-6 | **0.00456** | 0.00200 | 0.000642 | mg/L | 10.08.2019 11:54 | H J | 1 |
| **Total Xylenes** | 1330-20-7 | **0.00904** | 0.00200 | 0.000630 | mg/L | 10.08.2019 11:54 | J | 1 |
| **Total BTEX** | | **1.33** | 0.00200 | 0.000367 | mg/L | 10.13.2019 08:26 | J | 100 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 109 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 149 | 70 - 130 | % | | ** |

# Certificate of Analytical Results
## 639099

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **MW-11** Matrix: Water Sample Depth:

Lab Sample Id: 639099-004 Date Collected: 10.04.2019 12:41 Date Received: 10.04.2019 16:25

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103555 Date Prep: 10.07.2019 16:15

Prep seq: 7687629

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **92.9** | 2.50 | 0.105 | mg/L | 10.07.2019 18:51 | | 5 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103470 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **692** | 5.00 | 5.00 | mg/L | 10.04.2019 17:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: ANJ % Moist: Tech: ANJ

Seq Number: 3103928 Date Prep: 10.09.2019 08:30

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687750

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0143** | 0.00400 | 0.000246 | mg/L | 10.09.2019 22:51 | | 1 |
| **Barium** | 7440-39-3 | **0.472** | 0.00400 | 0.000484 | mg/L | 10.09.2019 22:51 | | 1 |
| **Chromium** | 7440-47-3 | **0.00340** | 0.00400 | 0.000525 | mg/L | 10.09.2019 22:51 | J | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103458 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.04.2019 16:45 | U | 1 |

# Certificate of Analytical Results
## 639099

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **MW-11** Matrix: Water Sample Depth:

Lab Sample Id: 639099-004 Date Collected: 10.04.2019 12:41 Date Received: 10.04.2019 16:25

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103841 Date Prep: 10.09.2019 12:33

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687754

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Gasoline Range Hydrocarbons** | PHC610 | **6.06** | 1.38 | 0.908 | mg/L | 10.09.2019 23:43 | | 1 |
| Diesel Range Organics | C10C28DRO | <0.908 | 1.38 | 0.908 | mg/L | 10.09.2019 23:43 | U | 1 |
| **Total TPH** | PHC635 | **6.06** | 1.38 | 0.908 | mg/L | 10.09.2019 23:43 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 80 | 70 - 135 | % | | |
| o-Terphenyl | 81 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103666 Date Prep: 10.07.2019 13:45

Prep seq: 7687635

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **1.96** | 0.200 | 0.0408 | mg/L | 10.13.2019 08:47 | D J | 100 |
| **Toluene** | 108-88-3 | **0.00752** | 0.00200 | 0.000367 | mg/L | 10.08.2019 12:15 | J | 1 |
| **Ethylbenzene** | 100-41-4 | **0.0255** | 0.00200 | 0.000657 | mg/L | 10.08.2019 12:15 | H J | 1 |
| **m,p-Xylenes** | 179601-23-1 | **0.135** | 0.00400 | 0.000630 | mg/L | 10.08.2019 12:15 | H J | 1 |
| **o-Xylene** | 95-47-6 | **0.0100** | 0.00200 | 0.000642 | mg/L | 10.08.2019 12:15 | H J | 1 |
| **Total Xylenes** | 1330-20-7 | **0.145** | 0.00200 | 0.000630 | mg/L | 10.08.2019 12:15 | J | 1 |
| **Total BTEX** | | **2.14** | 0.00200 | 0.000367 | mg/L | 10.13.2019 08:47 | J | 100 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 130 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 140 | 70 - 130 | % | | ** |

# Certificate of Analytical Results
## 639099

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **MW-26** Matrix: Water Sample Depth:

Lab Sample Id: 639099-005 Date Collected: 10.04.2019 13:02 Date Received: 10.04.2019 16:25

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103555 Date Prep: 10.07.2019 16:15

Prep seq: 7687629

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **157** | 5.00 | 0.210 | mg/L | 10.07.2019 18:57 | | 10 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103470 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1090** | 5.00 | 5.00 | mg/L | 10.04.2019 17:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: ANJ % Moist: Tech: ANJ

Seq Number: 3103928 Date Prep: 10.09.2019 08:30

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687750

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0599** | 0.00400 | 0.000246 | mg/L | 10.09.2019 22:54 | | 1 |
| **Barium** | 7440-39-3 | **6.33** | 0.400 | 0.0484 | mg/L | 10.14.2019 12:37 | ~~D~~ | 100 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 10.09.2019 22:54 | U | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103459 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.04.2019 18:00 | U | 1 |

# Certificate of Analytical Results
## 639099

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **MW-26** Matrix: Water Sample Depth:

Lab Sample Id: 639099-005 Date Collected: 10.04.2019 13:02 Date Received: 10.04.2019 16:25

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103841 Date Prep: 10.09.2019 12:36

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687754

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Gasoline Range Hydrocarbons** | PHC610 | **2.37** | 1.38 | 0.907 | mg/L | 10.10.2019 01:34 | | 1 |
| **Diesel Range Organics** | C10C28DRO | **4.73** | 1.38 | 0.907 | mg/L | 10.10.2019 01:34 | | 1 |
| **Total TPH** | PHC635 | **14.8** | 1.38 | 0.680 | mg/L | 10.10.2019 01:34 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 80 | 70 - 135 | % | | |
| o-Terphenyl | 81 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103666 Date Prep: 10.07.2019 13:45

Prep seq: 7687635

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **0.797** | 0.100 | 0.0204 | mg/L | 10.13.2019 10:05 | D J | 50 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.08.2019 12:35 | U | 1 |
| **Ethylbenzene** | 100-41-4 | **0.00743** | 0.00200 | 0.000657 | mg/L | 10.08.2019 12:35 | ~~H~~ J | 1 |
| **m,p-Xylenes** | 179601-23-1 | **0.0152** | 0.00400 | 0.000630 | mg/L | 10.08.2019 12:35 | ~~H~~ J | 1 |
| **o-Xylene** | 95-47-6 | **0.00245** | 0.00200 | 0.000642 | mg/L | 10.08.2019 12:35 | ~~H~~ J | 1 |
| **Total Xylenes** | 1330-20-7 | **0.0177** | 0.00200 | 0.000630 | mg/L | 10.08.2019 12:35 | J | 1 |
| **Total BTEX** | | **0.822** | 0.00200 | 0.000367 | mg/L | 10.13.2019 10:05 | J | 50 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 115 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 156 | 70 - 130 | % | | ** |

# Certificate of Analytical Results
## 639099
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MWD-12** Matrix: Water Sample Depth:

Lab Sample Id: 639099-006 Date Collected: 10.04.2019 08:50 Date Received: 10.04.2019 16:25

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103555 Date Prep: 10.07.2019 16:15

Prep seq: 7687629

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **914** | 25.0 | 1.05 | mg/L | 10.07.2019 19:04 | | 50 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103476 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **2840** | 5.00 | 5.00 | mg/L | 10.04.2019 17:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: ANJ % Moist: Tech: ANJ

Seq Number: 3103928 Date Prep: 10.09.2019 08:30

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687750

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0350** | 0.00400 | 0.000246 | mg/L | 10.09.2019 22:57 | | 1 |
| **Barium** | 7440-39-3 | **0.371** | 0.00400 | 0.000484 | mg/L | 10.09.2019 22:57 | | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 10.09.2019 22:57 | U | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103459 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.04.2019 18:00 | U | 1 |

# Certificate of Analytical Results
## 639099
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MWD-12** Matrix: Water Sample Depth:

Lab Sample Id: 639099-006 Date Collected: 10.04.2019 08:50 Date Received: 10.04.2019 16:25

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103841 Date Prep: 10.09.2019 12:39

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687754

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.912 | 1.38 | 0.912 | mg/L | 10.10.2019 15:08 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.912 | 1.38 | 0.912 | mg/L | 10.10.2019 15:08 | U | 1 |
| Total TPH | PHC635 | <0.683 | 1.38 | 0.683 | mg/L | 10.10.2019 15:08 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 111 | 70 - 135 | % | | |
| o-Terphenyl | 117 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103666 Date Prep: 10.07.2019 13:45

Prep seq: 7687635

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 10.08.2019 12:55 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.08.2019 12:55 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.08.2019 12:55 | UH U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 10.08.2019 12:55 | UH U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.08.2019 12:55 | UH U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 10.08.2019 12:55 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.08.2019 12:55 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 107 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 147 | 70 - 130 | % | | ** |

# Certificate of Analytical Results
## 639099

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **MW-3** Matrix: Water Sample Depth:

Lab Sample Id: 639099-007 Date Collected: 10.04.2019 09:19 Date Received: 10.04.2019 16:25

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: ANJ % Moist: Tech: ANJ

Seq Number: 3103928 Date Prep: 10.09.2019 08:30

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687750

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0164** | 0.00400 | 0.000246 | mg/L | 10.09.2019 23:06 | | 1 |
| **Barium** | 7440-39-3 | **0.0512** | 0.00400 | 0.000484 | mg/L | 10.09.2019 23:06 | | 1 |
| **Chromium** | 7440-47-3 | **0.00113** | 0.00400 | 0.000525 | mg/L | 10.09.2019 23:06 | J | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103459 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.04.2019 18:00 | U | 1 |

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103863 Date Prep: 10.09.2019 12:51

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687755

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.913 | 1.39 | 0.913 | mg/L | 10.09.2019 20:57 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.913 | 1.39 | 0.913 | mg/L | 10.09.2019 20:57 | U | 1 |
| Total TPH | PHC635 | <0.913 | 1.39 | 0.913 | mg/L | 10.09.2019 20:57 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 78 | 70 - 135 | % | | |
| o-Terphenyl | 80 | 70 - 135 | % | | |

# Certificate of Analytical Results
## 639099
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-3** Matrix: Water Sample Depth:

Lab Sample Id: 639099-007 Date Collected: 10.04.2019 09:19 Date Received: 10.04.2019 16:25

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103666 Date Prep: 10.07.2019 13:45

Prep seq: 7687635

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 10.08.2019 01:15 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.08.2019 01:15 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.08.2019 01:15 | UH U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 10.08.2019 01:15 | UH U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.08.2019 01:15 | UH U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 10.08.2019 01:15 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.08.2019 01:15 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 92 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 146 | 70 - 130 | % | | ** |

Sample Id: **MW-3** Matrix: Water Sample Depth:

Lab Sample Id: 639099-007 Date Collected: 10.04.2019 09:19 Date Received: 10.04.2019 16:25

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103555 Date Prep: 10.07.2019 16:15

Prep seq: 7687629

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **84.0** | 2.50 | 0.105 | mg/L | 10.07.2019 19:11 | | 5 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103476 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **723** | 5.00 | 5.00 | mg/L | 10.04.2019 17:00 | | 1 |

# Certificate of Analytical Results
## 639099
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MWD-11** Matrix: Water Sample Depth:

Lab Sample Id: 639099-008 Date Collected: 10.04.2019 09:34 Date Received: 10.04.2019 16:25

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103555 Date Prep: 10.07.2019 16:15

Prep seq: 7687629

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **112** | 2.50 | 0.105 | mg/L | 10.07.2019 19:18 | | 5 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103476 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **801** | 5.00 | 5.00 | mg/L | 10.04.2019 17:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: ANJ % Moist: Tech: ANJ

Seq Number: 3103928 Date Prep: 10.09.2019 08:30

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687750

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0160** | 0.00400 | 0.000246 | mg/L | 10.09.2019 23:09 | | 1 |
| **Barium** | 7440-39-3 | **0.0486** | 0.00400 | 0.000484 | mg/L | 10.09.2019 23:09 | | 1 |
| **Chromium** | 7440-47-3 | **0.00135** | 0.00400 | 0.000525 | mg/L | 10.09.2019 23:09 | J | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103459 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chromium, Hexavalent** | 18540-29-9 | **0.00550** | 0.0100 | 0.00273 | mg/L | 10.04.2019 18:00 | J | 1 |

# Certificate of Analytical Results
## 639099
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MWD-11** Matrix: Water Sample Depth:

Lab Sample Id: 639099-008 Date Collected: 10.04.2019 09:34 Date Received: 10.04.2019 16:25

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103863 Date Prep: 10.09.2019 12:57

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687755

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.912 | 1.38 | 0.912 | mg/L | 10.09.2019 21:34 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.912 | 1.38 | 0.912 | mg/L | 10.09.2019 21:34 | U | 1 |
| Total TPH | PHC635 | <0.912 | 1.38 | 0.912 | mg/L | 10.09.2019 21:34 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 75 | 70 - 135 | % | | |
| o-Terphenyl | 77 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103666 Date Prep: 10.07.2019 13:45

Prep seq: 7687635

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 10.08.2019 02:35 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.08.2019 02:35 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.08.2019 02:35 | UH U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 10.08.2019 02:35 | UH U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.08.2019 02:35 | UH U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 10.08.2019 02:35 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.08.2019 02:35 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 92 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 138 | 70 - 130 | % | | ** |

# Certificate of Analytical Results
## 639099
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **TMW-1** Matrix: Water Sample Depth:

Lab Sample Id: 639099-009 Date Collected: 10.04.2019 09:57 Date Received: 10.04.2019 16:25

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103555 Date Prep: 10.07.2019 16:15

Prep seq: 7687629

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **537** | 5.00 | 0.210 | mg/L | 10.07.2019 19:45 | | 10 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103476 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1430** | 5.00 | 5.00 | mg/L | 10.04.2019 17:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: ANJ % Moist: Tech: ANJ

Seq Number: 3103928 Date Prep: 10.09.2019 08:30

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687750

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0184** | 0.00400 | 0.000246 | mg/L | 10.09.2019 23:12 | | 1 |
| **Barium** | 7440-39-3 | **1.14** | 0.00400 | 0.000484 | mg/L | 10.09.2019 23:12 | | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 10.09.2019 23:12 | U | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103459 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.04.2019 18:00 | U | 1 |

# Certificate of Analytical Results
## 639099

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **TMW-1** Matrix: Water Sample Depth:

Lab Sample Id: 639099-009 Date Collected: 10.04.2019 09:57 Date Received: 10.04.2019 16:25

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103863 Date Prep: 10.09.2019 13:00

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687755

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.929 | 1.41 | 0.929 | mg/L | 10.09.2019 21:53 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.929 | 1.41 | 0.929 | mg/L | 10.09.2019 21:53 | U | 1 |
| Total TPH | PHC635 | <0.929 | 1.41 | 0.929 | mg/L | 10.09.2019 21:53 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 77 | 70 - 135 | % | | |
| o-Terphenyl | 79 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103666 Date Prep: 10.07.2019 13:45

Prep seq: 7687635

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **0.00589** | 0.00200 | 0.000408 | mg/L | 10.08.2019 02:55 | J | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.08.2019 02:55 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.08.2019 02:55 | ~~UH~~ | 1 |
| **m,p-Xylenes** | 179601-23-1 | **0.00557** | 0.00400 | 0.000630 | mg/L | 10.08.2019 02:55 | ~~H~~ J | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.08.2019 02:55 | ~~UH~~ | 1 |
| **Total Xylenes** | 1330-20-7 | **0.00557** | 0.00200 | 0.000630 | mg/L | 10.08.2019 02:55 | J | 1 |
| **Total BTEX** | | **0.0115** | 0.00200 | 0.000367 | mg/L | 10.08.2019 02:55 | J | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 97 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 150 | 70 - 130 | % | | ** |

# Certificate of Analytical Results
## 639099

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **RW-7** Matrix: Water Sample Depth:

Lab Sample Id: 639099-010 Date Collected: 10.04.2019 10:18 Date Received: 10.04.2019 16:25

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: ANJ % Moist: Tech: ANJ

Seq Number: 3103928 Date Prep: 10.09.2019 08:30

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687750

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.00847** | 0.00400 | 0.000246 | mg/L | 10.14.2019 12:40 | | 1 |
| **Barium** | 7440-39-3 | **0.0830** | 0.0200 | 0.00242 | mg/L | 10.14.2019 12:43 | D | 5 |
| **Chromium** | 7440-47-3 | **0.00105** | 0.00400 | 0.000525 | mg/L | 10.14.2019 12:40 | J | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103459 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.04.2019 18:00 | U | 1 |

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103863 Date Prep: 10.09.2019 13:03

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687755

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.923 | 1.40 | 0.923 | mg/L | 10.09.2019 22:11 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.923 | 1.40 | 0.923 | mg/L | 10.09.2019 22:11 | U | 1 |
| Total TPH | PHC635 | <0.923 | 1.40 | 0.923 | mg/L | 10.09.2019 22:11 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 75 | 70 - 135 | % | | |
| o-Terphenyl | 77 | 70 - 135 | % | | |

# Certificate of Analytical Results
## 639099
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **RW-7** Matrix: Water Sample Depth:

Lab Sample Id: 639099-010 Date Collected: 10.04.2019 10:18 Date Received: 10.04.2019 16:25

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103666 Date Prep: 10.07.2019 13:45

Prep seq: 7687635

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 10.08.2019 03:15 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.08.2019 03:15 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.08.2019 03:15 | UH U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 10.08.2019 03:15 | UH U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.08.2019 03:15 | UH U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 10.08.2019 03:15 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.08.2019 03:15 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 102 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 147 | 70 - 130 | % | | ** |

Sample Id: **RW-7** Matrix: Water Sample Depth:

Lab Sample Id: 639099-010 Date Collected: 10.04.2019 10:18 Date Received: 10.04.2019 16:25

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103555 Date Prep: 10.07.2019 16:15

Prep seq: 7687629

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **4400** | 25.0 | 1.05 | mg/L | 10.07.2019 19:52 | | 50 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103476 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **5270** | 5.00 | 5.00 | mg/L | 10.04.2019 17:00 | | 1 |

# Certificate of Analytical Results
## 639099
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **RW-6** Matrix: Water Sample Depth:

Lab Sample Id: 639099-011 Date Collected: 10.04.2019 10:40 Date Received: 10.04.2019 16:25

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103555 Date Prep: 10.07.2019 16:15

Prep seq: 7687629

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **876** | 10.0 | 0.421 | mg/L | 10.07.2019 20:13 | | 20 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103476 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **2360** | 5.00 | 5.00 | mg/L | 10.04.2019 17:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: ANJ % Moist: Tech: ANJ

Seq Number: 3103928 Date Prep: 10.09.2019 08:30

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687750

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.00266** | 0.00400 | 0.000246 | mg/L | 10.09.2019 23:18 | J | 1 |
| **Barium** | 7440-39-3 | **1.53** | 0.00400 | 0.000484 | mg/L | 10.09.2019 23:18 | | 1 |
| **Chromium** | 7440-47-3 | **0.000681** | 0.00400 | 0.000525 | mg/L | 10.09.2019 23:18 | J | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103459 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.04.2019 18:00 | U | 1 |

# Certificate of Analytical Results
## 639099

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **RW-6** Matrix: Water Sample Depth:

Lab Sample Id: 639099-011 Date Collected: 10.04.2019 10:40 Date Received: 10.04.2019 16:25

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103863 Date Prep: 10.09.2019 13:06

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687755

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Gasoline Range Hydrocarbons** | PHC610 | **1.23** | 1.38 | 0.908 | mg/L | 10.09.2019 22:29 | J | 1 |
| Diesel Range Organics | C10C28DRO | <0.908 | 1.38 | 0.908 | mg/L | 10.09.2019 22:29 | U | 1 |
| **Total TPH** | PHC635 | **1.23** | 1.38 | 0.908 | mg/L | 10.09.2019 22:29 | J | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 76 | 70 - 135 | % | | |
| o-Terphenyl | 78 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103666 Date Prep: 10.07.2019 13:45

Prep seq: 7687635

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **0.00986** | 0.00200 | 0.000408 | mg/L | 10.08.2019 03:36 | J | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.08.2019 03:36 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.08.2019 03:36 | UH U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 10.08.2019 03:36 | UH U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.08.2019 03:36 | UH U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 10.08.2019 03:36 | U | 1 |
| **Total BTEX** | | **0.00986** | 0.00200 | 0.000367 | mg/L | 10.08.2019 03:36 | J | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 99 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 139 | 70 - 130 | % | | ** |

# Certificate of Analytical Results
## 639099

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **MW-25** Matrix: Water Sample Depth:

Lab Sample Id: 639099-012 Date Collected: 10.04.2019 12:25 Date Received: 10.04.2019 16:25

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: ANJ % Moist: Tech: ANJ

Seq Number: 3103928 Date Prep: 10.09.2019 08:30

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687750

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.00129** | 0.00400 | 0.000246 | mg/L | 10.09.2019 23:21 | J | 1 |
| **Barium** | 7440-39-3 | **1.34** | 0.0800 | 0.00967 | mg/L | 10.14.2019 12:45 | ~~D~~ | 20 |
| **Chromium** | 7440-47-3 | **0.00161** | 0.00400 | 0.000525 | mg/L | 10.09.2019 23:21 | J | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103459 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.04.2019 18:00 | U | 1 |

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103863 Date Prep: 10.09.2019 13:09

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687755

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Gasoline Range Hydrocarbons** | PHC610 | **7.03** | 1.42 | 0.934 | mg/L | 10.09.2019 22:48 | | 1 |
| **Diesel Range Organics** | C10C28DRO | **3.98** | 1.42 | 0.934 | mg/L | 10.09.2019 22:48 | | 1 |
| **Total TPH** | PHC635 | **11.0** | 1.42 | 0.934 | mg/L | 10.09.2019 22:48 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 81 | 70 - 135 | % | | |
| o-Terphenyl | 83 | 70 - 135 | % | | |

# Certificate of Analytical Results
## 639099
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-25** Matrix: Water Sample Depth:

Lab Sample Id: 639099-012 Date Collected: 10.04.2019 12:25 Date Received: 10.04.2019 16:25

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103666 Date Prep: 10.07.2019 13:45

Prep seq: 7687635

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **2.99** | 0.200 | 0.0408 | mg/L | 10.13.2019 10:25 | D J | 100 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.08.2019 03:56 | U | 1 |
| **Ethylbenzene** | 100-41-4 | **0.0358** | 0.00200 | 0.000657 | mg/L | 10.08.2019 03:56 | H J | 1 |
| **m,p-Xylenes** | 179601-23-1 | **0.0120** | 0.00400 | 0.000630 | mg/L | 10.08.2019 03:56 | H J | 1 |
| **o-Xylene** | 95-47-6 | **0.00374** | 0.00200 | 0.000642 | mg/L | 10.08.2019 03:56 | H J | 1 |
| **Total Xylenes** | 1330-20-7 | **0.0157** | 0.00200 | 0.000630 | mg/L | 10.08.2019 03:56 | J | 1 |
| **Total BTEX** | | **3.04** | 0.00200 | 0.000367 | mg/L | 10.13.2019 10:25 | J | 100 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 147 | 70 - 130 | % | | ** |
| 4-Bromofluorobenzene | 175 | 70 - 130 | % | | ** |

Sample Id: **MW-25** Matrix: Water Sample Depth:

Lab Sample Id: 639099-012 Date Collected: 10.04.2019 12:25 Date Received: 10.04.2019 16:25

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103555 Date Prep: 10.07.2019 16:15

Prep seq: 7687629

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **1960** | 25.0 | 1.05 | mg/L | 10.08.2019 08:27 | | 50 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103476 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **4420** | 5.00 | 5.00 | mg/L | 10.04.2019 17:00 | | 1 |

# Certificate of Analytical Results
## 639099

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **TMW-6** Matrix: Water Sample Depth:

Lab Sample Id: 639099-013 Date Collected: 10.04.2019 12:51 Date Received: 10.04.2019 16:25

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103555 Date Prep: 10.07.2019 16:15

Prep seq: 7687629

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **312** | 5.00 | 0.210 | mg/L | 10.07.2019 20:26 | | 10 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103476 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1450** | 5.00 | 5.00 | mg/L | 10.04.2019 17:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: ANJ % Moist: Tech: ANJ

Seq Number: 3103928 Date Prep: 10.09.2019 08:30

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687750

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0671** | 0.00400 | 0.000246 | mg/L | 10.09.2019 23:24 | | 1 |
| **Barium** | 7440-39-3 | **1.10** | 0.00400 | 0.000484 | mg/L | 10.09.2019 23:24 | | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 10.09.2019 23:24 | U | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103459 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.04.2019 18:00 | U | 1 |

# Certificate of Analytical Results
## 639099
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **TMW-6** Matrix: Water Sample Depth:

Lab Sample Id: 639099-013 Date Collected: 10.04.2019 12:51 Date Received: 10.04.2019 16:25

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103863 Date Prep: 10.09.2019 13:12

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687755

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Gasoline Range Hydrocarbons** | PHC610 | **2.71** | 1.40 | 0.922 | mg/L | 10.09.2019 23:06 | | 1 |
| **Diesel Range Organics** | C10C28DRO | **2.05** | 1.40 | 0.922 | mg/L | 10.09.2019 23:06 | | 1 |
| **Total TPH** | PHC635 | **4.76** | 1.40 | 0.922 | mg/L | 10.09.2019 23:06 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 76 | 70 - 135 | % | | |
| o-Terphenyl | 79 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103666 Date Prep: 10.07.2019 13:45

Prep seq: 7687635

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **0.0381** | 0.00200 | 0.000408 | mg/L | 10.08.2019 04:16 | | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.08.2019 04:16 | U | 1 |
| **Ethylbenzene** | 100-41-4 | **0.00828** | 0.00200 | 0.000657 | mg/L | 10.08.2019 04:16 | ~~H~~ J | 1 |
| **m,p-Xylenes** | 179601-23-1 | **0.00387** | 0.00400 | 0.000630 | mg/L | 10.08.2019 04:16 | ~~JH~~ J | 1 |
| **o-Xylene** | 95-47-6 | **0.00173** | 0.00200 | 0.000642 | mg/L | 10.08.2019 04:16 | ~~JH~~ J | 1 |
| **Total Xylenes** | 1330-20-7 | **0.00560** | 0.00200 | 0.000630 | mg/L | 10.08.2019 04:16 | | 1 |
| **Total BTEX** | | **0.0520** | 0.00200 | 0.000367 | mg/L | 10.08.2019 04:16 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 81 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 95 | 70 - 130 | % | | |

# Analytical Report 638660

## for

## ARCADIS

**Project Manager: Madisyn Frandsen**

**Eunice Project- S. Eunice**

**30006138**

**10.10.2019**

Collected By: Client

**1211 W. Florida Ave**
**Midland TX 79701**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-19-30), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142), North Carolina (681)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (TX104704295-19-22), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-19-16)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-19-21)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-19)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-19-5)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Tampa: Florida (E87429), North Carolina (483)



Released to Imaging: 6/14/2022 10:17:42 AM

10.10.2019

Project Manager: **Madisyn Frandsen**
**ARCADIS**
1004 N. Big Spring St.
Midland, TX 79701

Reference: XENCO Report No(s): **638660**
**Eunice Project- S. Eunice**
Project Address: Eunice, NM.

**Madisyn Frandsen**:

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) 638660. 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. 638660 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,



**John Builes**
Project Manager

*A Small Business and Minority Company*

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico


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# Sample Cross Reference 638660

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

| Sample Id | Matrix | Date Collected | Sample Depth | Lab Sample Id |
|---|---|---|---|---|
| MW-35 | W | 10.01.2019 13:16 | | 638660-001 |
| MW-36 | W | 10.01.2019 13:40 | | 638660-002 |
| MW-13 | W | 10.01.2019 14:00 | | 638660-003 |

# CASE NARRATIVE



***Client Name: ARCADIS***

***Project Name: Eunice Project- S. Eunice***

Project ID: *30006138*
Work Order Number(s): *638660*

Report Date: *10.10.2019*
Date Received: *10.01.2019*

This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory.

**Sample receipt non conformances and comments:**

**Sample receipt non conformances and comments per sample:**

None

**Analytical non conformances and comments:**

Batch: LBA-3103309 BTEX by EPA 8021B

Surrogate 4-Bromofluorobenzene recovered above QC limits. Matrix interferences is suspected. Samples affected are: 638221-001 SD,638660-002,638660-003,638660-001.

# Certificate of Analytical Results
## 638660
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-35** Matrix: Water Sample Depth:

Lab Sample Id: 638660-001 Date Collected: 10.01.2019 13:16 Date Received: 10.01.2019 16:56

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103330 Date Prep: 10.03.2019 13:00

Prep seq: 7687425

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **243** | 5.00 | 0.210 | mg/L | 10.03.2019 20:12 | | 10 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3103415 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1020** | 5.00 | 5.00 | mg/L | 10.03.2019 15:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3103380 Date Prep: 10.04.2019 07:30

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687471

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0108** | 0.00400 | 0.000246 | mg/L | 10.04.2019 14:32 | | 1 |
| **Barium** | 7440-39-3 | **0.0875** | 0.00400 | 0.000484 | mg/L | 10.04.2019 17:42 | | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 10.04.2019 14:32 | U | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3103316 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.02.2019 12:30 | U | 1 |

# Certificate of Analytical Results
## 638660

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **MW-35** Matrix: Water Sample Depth:

Lab Sample Id: 638660-001 Date Collected: 10.01.2019 13:16 Date Received: 10.01.2019 16:56

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103851 Date Prep: 10.09.2019 10:48

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687718

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.907 | 1.38 | 0.907 | mg/L | 10.09.2019 12:59 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.907 | 1.38 | 0.907 | mg/L | 10.09.2019 12:59 | U | 1 |
| Total TPH | PHC635 | <0.907 | 1.38 | 0.907 | mg/L | 10.09.2019 12:59 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 73 | 70 - 135 | % | | |
| o-Terphenyl | 75 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103309 Date Prep: 10.02.2019 13:30

Prep seq: 7687330

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 10.03.2019 11:48 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.03.2019 11:48 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.03.2019 11:48 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 10.03.2019 11:48 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.03.2019 11:48 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 10.03.2019 11:48 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.03.2019 11:48 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 91 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 132 | 70 - 130 | % | | ** |

# Certificate of Analytical Results
## 638660
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-36** Matrix: Water Sample Depth:

Lab Sample Id: 638660-002 Date Collected: 10.01.2019 13:40 Date Received: 10.01.2019 16:56

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103330 Date Prep: 10.03.2019 13:00

Prep seq: 7687425

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **434** | 5.00 | 0.210 | mg/L | 10.03.2019 20:24 | | 10 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3103415 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1280** | 5.00 | 5.00 | mg/L | 10.03.2019 15:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3103380 Date Prep: 10.04.2019 07:30

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687471

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.00948** | 0.00400 | 0.000246 | mg/L | 10.04.2019 14:34 | | 1 |
| **Barium** | 7440-39-3 | **0.124** | 0.00400 | 0.000484 | mg/L | 10.04.2019 17:45 | | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 10.04.2019 14:34 | U | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3103316 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.02.2019 12:30 | U | 1 |

# Certificate of Analytical Results
## 638660

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **MW-36** Matrix: Water Sample Depth:

Lab Sample Id: 638660-002 Date Collected: 10.01.2019 13:40 Date Received: 10.01.2019 16:56

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103851 Date Prep: 10.09.2019 10:51

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687718

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.920 | 1.40 | 0.920 | mg/L | 10.09.2019 13:17 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.920 | 1.40 | 0.920 | mg/L | 10.09.2019 13:17 | U | 1 |
| Total TPH | PHC635 | <0.920 | 1.40 | 0.920 | mg/L | 10.09.2019 13:17 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 78 | 70 - 135 | % | | |
| o-Terphenyl | 79 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103309 Date Prep: 10.02.2019 13:30

Prep seq: 7687330

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 10.04.2019 12:08 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.04.2019 12:08 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.04.2019 12:08 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 10.04.2019 12:08 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.04.2019 12:08 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 10.04.2019 12:08 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.04.2019 12:08 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 93 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 141 | 70 - 130 | % | | ** |

# Certificate of Analytical Results
## 638660
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-13** Matrix: Water Sample Depth:

Lab Sample Id: 638660-003 Date Collected: 10.01.2019 14:00 Date Received: 10.01.2019 16:56

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103330 Date Prep: 10.03.2019 13:00

Prep seq: 7687425

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **332** | 5.00 | 0.210 | mg/L | 10.03.2019 20:36 | | 10 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3103415 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1130** | 5.00 | 5.00 | mg/L | 10.03.2019 15:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3103380 Date Prep: 10.04.2019 07:30

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687471

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0161** | 0.00400 | 0.000246 | mg/L | 10.04.2019 14:37 | | 1 |
| **Barium** | 7440-39-3 | **0.0981** | 0.00400 | 0.000484 | mg/L | 10.04.2019 17:47 | | 1 |
| **Chromium** | 7440-47-3 | **0.000672** | 0.00400 | 0.000525 | mg/L | 10.04.2019 14:37 | J | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3103316 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.02.2019 12:30 | U | 1 |

# Certificate of Analytical Results
## 638660
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-13** Matrix: Water Sample Depth:

Lab Sample Id: 638660-003 Date Collected: 10.01.2019 14:00 Date Received: 10.01.2019 16:56

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103851 Date Prep: 10.09.2019 10:54

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687718

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.911 | 1.38 | 0.911 | mg/L | 10.09.2019 13:36 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.38 | 0.911 | mg/L | 10.09.2019 13:36 | U | 1 |
| Total TPH | PHC635 | <0.911 | 1.38 | 0.911 | mg/L | 10.09.2019 13:36 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 76 | 70 - 135 | % | | |
| o-Terphenyl | 78 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103309 Date Prep: 10.02.2019 13:30

Prep seq: 7687330

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 10.04.2019 12:28 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.04.2019 12:28 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.04.2019 12:28 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 10.04.2019 12:28 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.04.2019 12:28 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 10.04.2019 12:28 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.04.2019 12:28 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 84 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 138 | 70 - 130 | % | | ** |

# Certificate of Analytical Results
## 638660
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **3103316-1-BLK** Matrix: Water Sample Depth:
Lab Sample Id: 3103316-1-BLK Date Collected: Date Received:
Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:
Analyst: SPC % Moist: Tech: SPC
Seq Number: 3103316 Date Prep:
Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.02.2019 12:30 | U | 1 |

Sample Id: **3103415-1-BLK** Matrix: Water Sample Depth:
Lab Sample Id: 3103415-1-BLK Date Collected: Date Received:
Analytical Method: TDS by SM2540C Prep Method:
Analyst: SPC % Moist: Tech: SPC
Seq Number: 3103415 Date Prep:
Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids | 1642222 | <5.00 | 5.00 | 5.00 | mg/L | 10.03.2019 15:00 | U | 1 |

Sample Id: **7687330-1-BLK** Matrix: Water Sample Depth:
Lab Sample Id: 7687330-1-BLK Date Collected: Date Received:
Analytical Method: BTEX by EPA 8021B Prep Method: 5030B
Analyst: KTL % Moist: Tech: KTL
Seq Number: 3103309 Date Prep: 10.02.2019 13:30
Prep seq: 7687330

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 10.03.2019 05:27 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.03.2019 05:27 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.03.2019 05:27 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 10.03.2019 05:27 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.03.2019 05:27 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 93 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 117 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 638660
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **7687425-1-BLK** Matrix: Water Sample Depth:

Lab Sample Id: 7687425-1-BLK Date Collected: Date Received:

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103330 Date Prep: 10.03.2019 13:00

Prep seq: 7687425

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chloride | 16887-00-6 | <0.0210 | 0.500 | 0.0210 | mg/L | 10.03.2019 19:01 | U | 1 |

Sample Id: **7687471-1-BLK** Matrix: Water Sample Depth:

Lab Sample Id: 7687471-1-BLK Date Collected: Date Received:

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3103380 Date Prep: 10.04.2019 07:30

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687471

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Arsenic | 7440-38-2 | <0.000246 | 0.00400 | 0.000246 | mg/L | 10.04.2019 13:59 | U | 1 |
| Barium | 7440-39-3 | <0.000484 | 0.00400 | 0.000484 | mg/L | 10.04.2019 13:59 | U | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 10.04.2019 13:59 | U | 1 |

Sample Id: **7687718-1-BLK** Matrix: Water Sample Depth:

Lab Sample Id: 7687718-1-BLK Date Collected: Date Received:

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103851 Date Prep: 10.08.2019 16:00

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687718

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.988 | 1.50 | 0.988 | mg/L | 10.09.2019 02:32 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.988 | 1.50 | 0.988 | mg/L | 10.09.2019 02:32 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 80 | 70 - 135 | % | | |
| o-Terphenyl | 85 | 70 - 135 | % | | |

# 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



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# Form 2 - Surrogate Recoveries

**Project Name:** Eunice Project- S. Eunice

**Work Orders :** 638660 **Project ID:** 30006138

**Lab Batch #:** 3103309 **Sample:** 7687330-1-BKS / BKS **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 10.03.2019 03:45 **SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0288 | 0.0300 | 96 | 70-130 | |
| 4-Bromofluorobenzene | 0.0379 | 0.0300 | 126 | 70-130 | |

**Lab Batch #:** 3103309 **Sample:** 7687330-1-BSD / BSD **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 10.03.2019 04:05 **SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0311 | 0.0300 | 104 | 70-130 | |
| 4-Bromofluorobenzene | 0.0386 | 0.0300 | 129 | 70-130 | |

**Lab Batch #:** 3103309 **Sample:** 638221-001 S / MS **Batch:** 1 **Matrix:** Ground Water

**Units:** mg/L **Date Analyzed:** 10.03.2019 04:25 **SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0309 | 0.0300 | 103 | 70-130 | |
| 4-Bromofluorobenzene | 0.0385 | 0.0300 | 128 | 70-130 | |

**Lab Batch #:** 3103309 **Sample:** 638221-001 SD / MSD **Batch:** 1 **Matrix:** Ground Water

**Units:** mg/L **Date Analyzed:** 10.03.2019 04:45 **SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0305 | 0.0300 | 102 | 70-130 | |
| 4-Bromofluorobenzene | 0.0403 | 0.0300 | 134 | 70-130 | ** |

**Lab Batch #:** 3103309 **Sample:** 7687330-1-BLK / BLK **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 10.03.2019 05:27 **SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0279 | 0.0300 | 93 | 70-130 | |
| 4-Bromofluorobenzene | 0.0351 | 0.0300 | 117 | 70-130 | |

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



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# Form 2 - Surrogate Recoveries

**Project Name:** Eunice Project- S. Eunice

**Work Orders :** 638660 **Project ID:** 30006138

**Lab Batch #:** 3103851 **Sample:** 7687718-1-BLK / BLK **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 10.09.2019 02:32 **SURROGATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 7.98 | 10.0 | 80 | 70-135 | |
| o-Terphenyl | 4.26 | 5.00 | 85 | 70-135 | |

**Lab Batch #:** 3103851 **Sample:** 7687718-1-BKS / BKS **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 10.09.2019 02:51 **SURROGATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 8.85 | 10.0 | 89 | 70-135 | |
| o-Terphenyl | 4.59 | 5.00 | 92 | 70-135 | |

**Lab Batch #:** 3103851 **Sample:** 7687718-1-BSD / BSD **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 10.09.2019 03:09 **SURROGATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 9.49 | 10.0 | 95 | 70-135 | |
| o-Terphenyl | 4.64 | 5.00 | 93 | 70-135 | |

**Lab Batch #:** 3103851 **Sample:** 639190-004 S / MS **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 10.09.2019 03:47 **SURROGATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 8.35 | 9.20 | 91 | 70-135 | |
| o-Terphenyl | 4.04 | 4.60 | 88 | 70-135 | |

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

# BS / BSD Recoveries

## Project Name: Eunice Project- S. Eunice

**Work Order #:** 638660 **Project ID:** 30006138

**Analyst:** KTL **Date Prepared:** 10.02.2019 **Date Analyzed:** 10.03.2019

**Lab Batch ID:** 3103309 **Sample:** 7687330-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Blank Sample Result [A] | Spike Added [B] | Blank Spike Result [C] | Blank Spike %R [D] | Spike Added [E] | Blank Spike Duplicate Result [F] | Blk. Spk Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.000408 | 0.100 | 0.107 | 107 | 0.100 | 0.111 | 111 | 4 | 70-130 | 25 | |
| Toluene | <0.000367 | 0.100 | 0.108 | 108 | 0.100 | 0.113 | 113 | 5 | 70-130 | 25 | |
| Ethylbenzene | <0.000657 | 0.100 | 0.114 | 114 | 0.100 | 0.119 | 119 | 4 | 70-130 | 25 | |
| m,p-Xylenes | <0.000630 | 0.200 | 0.243 | 122 | 0.200 | 0.256 | 128 | 5 | 70-130 | 25 | |
| o-Xylene | <0.000642 | 0.100 | 0.122 | 122 | 0.100 | 0.130 | 130 | 6 | 70-130 | 25 | |

**Analyst:** CHE **Date Prepared:** 10.03.2019 **Date Analyzed:** 10.03.2019

**Lab Batch ID:** 3103330 **Sample:** 7687425-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| Chloride by EPA 300<br>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 | <0.0210 | 25.0 | 24.4 | 98 | 25.0 | 24.4 | 98 | 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: Eunice Project- S. Eunice

**Work Order #:** 638660 **Project ID:** 30006138

**Analyst:** SPC **Date Prepared:** 10.02.2019 **Date Analyzed:** 10.02.2019

**Lab Batch ID:** 3103316 **Sample:** 3103316-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| Chromium, Hexavalent by SW 7196A<br>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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | <0.00273 | 0.0400 | 0.0371 | 93 | 0.0400 | 0.0372 | 93 | 0 | 85-115 | 20 | |

**Analyst:** DEP **Date Prepared:** 10.04.2019 **Date Analyzed:** 10.04.2019

**Lab Batch ID:** 3103380 **Sample:** 7687471-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| (S) Dissolved Metals by SW6020A<br>Analytes | Blank Sample Result [A] | Spike Added [B] | Blank Spike Result [C] | Blank Spike %R [D] | Spike Added [E] | Blank Spike Duplicate Result [F] | Blk. Spk Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | <0.000246 | 0.100 | 0.102 | 102 | 0.100 | 0.0975 | 98 | 5 | 80-120 | 20 | |
| Barium | <0.000484 | 0.100 | 0.0993 | 99 | 0.100 | 0.100 | 100 | 1 | 80-120 | 20 | |
| Chromium | <0.000525 | 0.100 | 0.0991 | 99 | 0.100 | 0.0988 | 99 | 0 | 80-120 | 20 | |

**Analyst:** SPC **Date Prepared:** 10.03.2019 **Date Analyzed:** 10.03.2019

**Lab Batch ID:** 3103415 **Sample:** 3103415-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| TDS by SM2540C<br>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 | 985 | 99 | 1000 | 986 | 99 | 0 | 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

# BS / BSD Recoveries

## Project Name: Eunice Project- S. Eunice

**Work Order #:** 638660 **Project ID:** 30006138

**Analyst:** ISU **Date Prepared:** 10.08.2019 **Date Analyzed:** 10.09.2019

**Lab Batch ID:** 3103851 **Sample:** 7687718-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

### BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

| TPH By SW8015 Mod<br>Analytes | Blank Sample Result [A] | Spike Added [B] | Blank Spike Result [C] | Blank Spike %R [D] | Spike Added [E] | Blank Spike Duplicate Result [F] | Blk. Spk Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | <0.988 | 100 | 98.8 | 99 | 100 | 108 | 108 | 9 | 70-135 | 35 | |
| Diesel Range Organics | <0.988 | 100 | 109 | 109 | 100 | 114 | 114 | 4 | 70-135 | 35 | |

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

# Form 3 - MS Recoveries

## Project Name: Eunice Project- S. Eunice

**Work Order #:** 638660

**Lab Batch #:** 3103851

**Project ID:** 30006138

**Date Analyzed:** 10.09.2019

**Date Prepared:** 10.08.2019

**Analyst:** ISU

**QC- Sample ID:** 639190-004 S

**Batch #:** 1

**Matrix:** Water

**Reporting Units:** mg/L

### MATRIX / MATRIX SPIKE RECOVERY STUDY

| TPH by SW8015 Mod<br>Analytes | Parent Sample Result [A] | Spike Added [B] | Spiked Sample Result [C] | %R [D] | Control Limits %R | Flag |
|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | 33.7 | 92.0 | 129 | 104 | 70-135 | |
| Diesel Range Organics | 84.8 | 92.0 | 163 | 85 | 70-135 | |

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference [E] = 200*(C-A)/(C+B)
All Results are based on MDL and Validated for QC Purposes

BRL - Below Reporting Limit

# Form 3 - MS / MSD Recoveries

## Project Name: Eunice Project- S. Eunice

**Work Order # :** 638660 **Project ID:** 30006138

**Lab Batch ID:** 3103309 **QC- Sample ID:** 638221-001 S **Batch #:** 1 **Matrix:** Ground Water

**Date Analyzed:** 10.03.2019 **Date Prepared:** 10.02.2019 **Analyst:** KTL

**Reporting Units:** mg/L

**MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Parent Sample Result [A] | Spike Added [B] | Spiked Sample Result [C] | Spiked Sample %R [D] | Spike Added [E] | Duplicate Spiked Sample Result [F] | Spiked Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.000408 | 0.100 | 0.106 | 106 | 0.100 | 0.109 | 109 | 3 | 70-130 | 25 | |
| Toluene | <0.000367 | 0.100 | 0.107 | 107 | 0.100 | 0.112 | 112 | 5 | 70-130 | 25 | |
| Ethylbenzene | <0.000657 | 0.100 | 0.115 | 115 | 0.100 | 0.120 | 120 | 4 | 70-130 | 25 | |
| m,p-Xylenes | <0.000630 | 0.200 | 0.240 | 120 | 0.200 | 0.252 | 126 | 5 | 70-130 | 25 | |
| o-Xylene | <0.000642 | 0.100 | 0.120 | 120 | 0.100 | 0.139 | 139 | 15 | 70-130 | 25 | X |

**Lab Batch ID:** 3103330 **QC- Sample ID:** 638818-001 S **Batch #:** 1 **Matrix:** Drinking Water

**Date Analyzed:** 10.03.2019 **Date Prepared:** 10.03.2019 **Analyst:** CHE

**Reporting Units:** mg/L

**MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY**

| Chloride by EPA 300<br>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 | 8.63 | 25.0 | 34.9 | 105 | 25.0 | 34.4 | 103 | 1 | 90-110 | 20 | |

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

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

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

# Form 3 - MS / MSD Recoveries

## Project Name: Eunice Project- S. Eunice

**Work Order # :** 638660 **Project ID:** 30006138

**Lab Batch ID:** 3103330 **QC- Sample ID:** 638819-001 S **Batch #:** 1 **Matrix:** Drinking Water

**Date Analyzed:** 10.03.2019 **Date Prepared:** 10.03.2019 **Analyst:** CHE

**Reporting Units:** mg/L

**MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY**

| Chloride by EPA 300<br>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 | 7.33 | 25.0 | 32.7 | 101 | 25.0 | 32.4 | 100 | 1 | 90-110 | 20 | |

**Lab Batch ID:** 3103316 **QC- Sample ID:** 638667-001 S **Batch #:** 1 **Matrix:** Water

**Date Analyzed:** 10.02.2019 **Date Prepared:** 10.02.2019 **Analyst:** SPC

**Reporting Units:** mg/L

**MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY**

| Chromium, Hexavalent by SW 7196A<br>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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | <0.00273 | 0.200 | 0.152 | 76 | 0.200 | 0.152 | 76 | 0 | 75-125 | 20 | |

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

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

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

# Form 3 - MS / MSD Recoveries

## Project Name: Eunice Project- S. Eunice

**Work Order # :** 638660 **Project ID:** 30006138

**Lab Batch ID:** 3103380 **QC- Sample ID:** 638950-001 S **Batch #:** 1 **Matrix:** Ground Water

**Date Analyzed:** 10.04.2019 **Date Prepared:** 10.04.2019 **Analyst:** DEP

**Reporting Units:** mg/L

### MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

| (S) Dissolved Metals by SW6020A<br>Analytes | Parent Sample Result [A] | Spike Added [B] | Spiked Sample Result [C] | Spiked Sample %R [D] | Spike Added [E] | Duplicate Spiked Sample Result [F] | Spiked Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 0.000905 | 0.100 | 0.101 | 100 | 0.100 | 0.102 | 101 | 1 | 75-125 | 20 | |
| Barium | 0.0643 | 0.100 | 0.161 | 97 | 0.100 | 0.161 | 97 | 0 | 75-125 | 20 | |
| Chromium | <0.000525 | 0.100 | 0.101 | 101 | 0.100 | 0.101 | 101 | 0 | 75-125 | 20 | |

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

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

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

# Method Duplicate



## Project Name: Eunice Project- S. Eunice

**Work Order #:** 638660

**Lab Batch #:** 3103415 **Project ID:** 30006138

**Date Analyzed:** 10.03.2019 15:00 **Date Prepared:** 10.03.2019 **Analyst:** SPC

**QC- Sample ID:** 638660-003 D **Batch #:** 1 **Matrix:** Water

**Reporting Units:** mg/L

**SAMPLE / SAMPLE DUPLICATE RECOVERY**

| TDS by SM2540C<br>Analyte | Parent Sample Result [A] | Sample Duplicate Result [B] | RPD | Control Limits %RPD | Flag |
|---|---|---|---|---|---|
| Total Dissolved Solids | 1130 | 1130 | 0 | 10 | |

**Lab Batch #:** 3103415

**Date Analyzed:** 10.03.2019 15:00 **Date Prepared:** 10.03.2019 **Analyst:** SPC

**QC- Sample ID:** 638845-007 D **Batch #:** 1 **Matrix:** Water

**Reporting Units:** mg/L

**SAMPLE / SAMPLE DUPLICATE RECOVERY**

| TDS by SM2540C<br>Analyte | Parent Sample Result [A] | Sample Duplicate Result [B] | RPD | Control Limits %RPD | Flag |
|---|---|---|---|---|---|
| Total Dissolved Solids | 1710 | 1720 | 1 | 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

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XENCO LABORATORIES

# Chain of Custody

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 1 of 1

Work Order No: 639660

| | | | |
|---|---|---|---|
| Project Manager: | Rebecca Andresen | Bill to: (if different) | |
| Company Name: | ARCADIS | Company Name: | |
| Address: | 1004 N. Big Spring St. | Address: | |
| City, State ZIP: | Midland, TX. 79701 | City, State ZIP: | |
| Phone: | 303-471-3477 | Email: | madisyn.frandsen@arcadis.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: | Eunice Project- S. Eunice | Turn Around | |
| Project Number: | 30006138 | Routine | ☒ |
| P.O. Number: | | Rush: | |
| Sampler's Name: | Jerry Longsull / Chas Holder | Due Date: | |

| SAMPLE RECEIPT | | | | |
|---|---|---|---|---|
| Temp Blank: | Yes (No) | Wet Ice: | (Yes) No | |
| Temperature (°C): | 3.5 3.3 | Thermometer ID | 20 | |
| Received Intact: | (Yes) No | | | |
| Cooler Custody Seals: | Yes (No) N/A | Correction Factor: | -0.2 | |
| Sample Custody Seals: | Yes (No) N/A | Total Containers: | | |

| Sample Identification | Matrix | Date Sampled | Time Sampled | Depth | Number of Containers | BTEX (EPA 8021B) | TPH (SW8015) | Hex Chrome (SW7196A) | Dissolved Metals (SW6020_DIS): Chromium, Arsenic & Barium) | TDS (SM2540C) | Chlorides (EPA 300.0) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-35 | W | 10/1/19 | 1315 | | 7 | 3 | 2 | 1 | ✓ | ✓ | ✓ |
| MW-36 | W | 10/1/19 | 1340 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MW-13 | W | 10/1/19 | 1400 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

**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

**Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Xenco. A minimum charge of $75.00 will be applied to each project and a charge of $5 for each sample submitted to Xenco, but not analyzed. These terms will be enforced unless previously negotiated.**

| | Relinquished by: (Signature) | Received by: (Signature) | Date/Time | Relinquished by: (Signature) | Received by: (Signature) | Date/Time |
|---|---|---|---|---|---|---|
| 1 | Jerry S. Longsull | I. Bell Rhuman | 10-1-19 15:25 | 2 Bell Rhuman | | 10-1-19 16:56 |
| 3 | | | | 4 | | |
| 5 | | | | 6 | | |

Revised Date 051418 Rev. 2018.1

Received by OCD: 3/25/2020 2:27:35 PM
Released to Imaging: 6/14/2022 10:17:42 AM
Final 1.000
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# Inter-Office Shipment

**IOS Number : 49148**

| | | | | | |
|---|---|---|---|---|---|
| Date/Time: | 10.02.2019 | Created by: | Brianna Teel | Please send report to: | John Builes |
| Lab# From: | **Midland** | Delivery Priority: | | Address: | 1211 W. Florida Ave |
| Lab# To: | **Houston** | Air Bill No.: | 776447654499 | E-Mail: | john.builes@xenco.com |

| Sample Id | Matrix | Client Sample Id | Sample Collection | Method | Method Name | Lab Due | HT Due | PM | Analytes | Sign |
|---|---|---|---|---|---|---|---|---|---|---|
| 638660-001 | W | MW-35 | 10.01.2019 13:16 | SW6020_Select_DIS | (S) Dissolved Metals by SW6020A | 10.07.2019 | 03.29.2020 | JHB | AS BA CR | |
| 638660-002 | W | MW-36 | 10.01.2019 13:40 | SW6020_Select_DIS | (S) Dissolved Metals by SW6020A | 10.07.2019 | 03.29.2020 | JHB | AS BA CR | |
| 638660-003 | W | MW-13 | 10.01.2019 14:00 | SW6020_Select_DIS | (S) Dissolved Metals by SW6020A | 10.07.2019 | 03.29.2020 | JHB | AS BA CR | |

**Inter Office Shipment or Sample Comments:**

Relinquished By: Brianna Teel

Brianna Teel

Date Relinquished: 10.02.2019

Received By:

Ashly Kowalski

Date Received: 10.03.2019

Cooler Temperature: 3.5

# Inter-Office Shipment



**IOS Number : 49589**

| | | | | | |
|---|---|---|---|---|---|
| Date/Time: | 10.08.2019 | Created by: | Jessica Kramer | Please send report to: | John Builes |
| Lab# From: | **Midland** | Delivery Priority: | | Address: | 1211 W. Florida Ave |
| Lab# To: | **Houston** | Air Bill No.: | 776604651301 | E-Mail: | john.builes@xenco.com |

| Sample Id | Matrix | Client Sample Id | Sample Collection | Method | Method Name | Lab Due | HT Due | PM | Analytes | Sign |
|---|---|---|---|---|---|---|---|---|---|---|
| 638660-001 | W | MW-35 | 10.01.2019 13:16 | SW8015MOD_NM | TPH By SW8015 Mod | **10.07.2019** | 10.15.2019 | JHB | PHCC10C28 PHCC28C3 | |
| 638660-002 | W | MW-36 | 10.01.2019 13:40 | SW8015MOD_NM | TPH By SW8015 Mod | **10.07.2019** | 10.15.2019 | JHB | PHCC10C28 PHCC28C3 | |
| 638660-003 | W | MW-13 | 10.01.2019 14:00 | SW8015MOD_NM | TPH By SW8015 Mod | **10.07.2019** | 10.15.2019 | JHB | PHCC10C28 PHCC28C3 | |

**Inter Office Shipment or Sample Comments:**

Relinquished By: Jessica Kramer

Jessica Kramer

Date Relinquished: 10.08.2019

Received By:

Monica Shakhshir

Date Received: 10.09.2019

Cooler Temperature: 0.9

# XENCO Laboratories

## Inter Office Report- Sample Receipt Checklist

**Sent To:** Houston

**IOS #:** 49148

**Acceptable Temperature Range: 0 - 6 degC**
**Air and Metal samples Acceptable Range: Ambient**
**Temperature Measuring device used : HOU-068**

**Sent By:** Brianna Teel **Date Sent:** 10.02.2019 07.04 AM

**Received By:** Ashly Kowalski **Date Received:** 10.03.2019 09.30 AM

| Sample Receipt Checklist | | Comments |
|---|---|---|
| #1 *Temperature of cooler(s)? | 3.5 | |
| #2 *Shipping container in good condition? | **Yes** | |
| #3 *Samples received with appropriate temperature? | **Yes** | |
| #4 *Custody Seals intact on shipping container/ cooler? | **Yes** | |
| #5 *Custody Seals Signed and dated for Containers/coolers | **Yes** | |
| #6 *IOS present? | **Yes** | |
| #7 Any missing/extra samples? | **No** | |
| #8 IOS agrees with sample label(s)/matrix? | **Yes** | |
| #9 Sample matrix/ properties agree with IOS? | **Yes** | |
| #10 Samples in proper container/ bottle? | **Yes** | |
| #11 Samples properly preserved? | **Yes** | |
| #12 Sample container(s) intact? | **Yes** | |
| #13 Sufficient sample amount for indicated test(s)? | **Yes** | |
| #14 All samples received within hold time? | **Yes** | |

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

**NonConformance:**

**Corrective Action Taken:**

**Nonconformance Documentation**

**Contact:** _____ **Contacted by :** _____ **Date:** _____

**Checklist reviewed by:** _____ Date: 10.03.2019

Ashly Kowalski

# XENCO Laboratories

## Inter Office Report- Sample Receipt Checklist

**Sent To:** Houston

**IOS #:** 49589

**Acceptable Temperature Range: 0 - 6 degC**
**Air and Metal samples Acceptable Range: Ambient**
**Temperature Measuring device used : HOU-068**

**Sent By:** Jessica Kramer **Date Sent:** 10.08.2019 11.05 AM

**Received By:** Monica Shakhshir **Date Received:** 10.09.2019 09.30 AM

| Sample Receipt Checklist | | Comments |
|---|---|---|
| #1 *Temperature of cooler(s)? | .9 | |
| #2 *Shipping container in good condition? | **Yes** | |
| #3 *Samples received with appropriate temperature? | **Yes** | |
| #4 *Custody Seals intact on shipping container/ cooler? | **Yes** | |
| #5 *Custody Seals Signed and dated for Containers/coolers | **Yes** | |
| #6 *IOS present? | **Yes** | |
| #7 Any missing/extra samples? | **No** | |
| #8 IOS agrees with sample label(s)/matrix? | **Yes** | |
| #9 Sample matrix/ properties agree with IOS? | **Yes** | |
| #10 Samples in proper container/ bottle? | **Yes** | |
| #11 Samples properly preserved? | **Yes** | |
| #12 Sample container(s) intact? | **Yes** | |
| #13 Sufficient sample amount for indicated test(s)? | **Yes** | |
| #14 All samples received within hold time? | **Yes** | |

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

**NonConformance:**

**Corrective Action Taken:**

**Nonconformance Documentation**

**Contact:** _____ **Contacted by :** _____ **Date:** _____

**Checklist reviewed by:** _____ Date: 10.09.2019

Monica Shakhshir

# XENCO Laboratories

## Prelogin/Nonconformance Report- Sample Log-In

**Client:** ARCADIS

**Date/ Time Received:** 10.01.2019 04.56.00 PM

**Work Order #:** 638660

**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)? | 3.3 | |
| #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)? | **Yes** | Xenco Stafford |
| #18 Water VOC samples have zero headspace? | **Yes** | |

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

Analyst:

PH Device/Lot#: A032690

**Checklist completed by:** Brianna Teel Date: 10.01.2019

Brianna Teel

**Checklist reviewed by:** Date: 10.02.2019

John Builes

# Analytical Report 638845

## for

## ARCADIS

**Project Manager: Madisyn Frandsen**

**Eunice Project- S. Eunice**

**30006138**

**10.14.2019**

Collected By: Client

**1211 W. Florida Ave**
**Midland TX 79701**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-19-30), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142), North Carolina (681)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (TX104704295-19-22), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-19-16)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-19-21)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-19)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-19-5)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Tampa: Florida (E87429), North Carolina (483)


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10.14.2019

Project Manager: **Madisyn Frandsen**
**ARCADIS**
1004 N. Big Spring St.
Midland, TX 79701

Reference: XENCO Report No(s): **638845**
**Eunice Project- S. Eunice**
Project Address: Eunice, NM.

**Madisyn Frandsen**:

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) 638845. 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. 638845 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,



**John Builes**
Project Manager

*A Small Business and Minority Company*

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

# Sample Cross Reference 638845

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

| Sample Id | Matrix | Date Collected | Sample Depth | Lab Sample Id |
|---|---|---|---|---|
| MW-31 | W | 10.02.2019 08:49 | | 638845-001 |
| MW-14 | W | 10.02.2019 09:14 | | 638845-002 |
| MW-37 | W | 10.02.2019 09:45 | | 638845-003 |
| MW-38 | W | 10.02.2019 09:59 | | 638845-004 |
| MW-15 | W | 10.02.2019 10:21 | | 638845-005 |
| MW-16 | W | 10.02.2019 11:05 | | 638845-006 |
| MW-34 | W | 10.02.2019 12:22 | | 638845-007 |
| MWD-6 | W | 10.02.2019 13:50 | | 638845-008 |
| DUP-2 | W | 10.02.2019 00:00 | | 638845-009 |
| DUP-1 | W | 10.02.2019 00:00 | | 638845-010 |

# CASE NARRATIVE



***Client Name: ARCADIS***

***Project Name: Eunice Project- S. Eunice***

Project ID: *30006138*
Work Order Number(s): *638845*

Report Date: *10.14.2019*
Date Received: *10.03.2019*

This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory.

**Sample receipt non conformances and comments:**

**Sample receipt non conformances and comments per sample:**

None

**Analytical non conformances and comments:**

Batch: LBA-3103324 Chromium, Hexavalent by SW 7196A
Sample 638845-010 K-flag due to no sampling time recorded for duplicate.

Batch: LBA-3103513 BTEX by EPA 8021B
Surrogate 4-Bromofluorobenzene recovered above QC limits. Matrix interferences is suspected. Samples affected are: 638845-001 S,638845-001 SD,638845-010,638845-006,638845-007,638845-008,638845-009,638845-003,638845-002,638845-005.

Lab Sample ID 638845-001 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). o-Xylene recovered above QC limits in the Matrix Spike and Matrix Spike Duplicate. m,p-Xylenes recovered above QC limits in the Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 638845-001, -002, -003, -004, -005, -006, -007, -008, -009, -010. The Laboratory Control Sample for m,p-Xylenes, o-Xylene is within laboratory Control Limits, therefore the data was accepted.





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# Certificate of Analytical Results
## 638845
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-31** Matrix: Water Sample Depth:

Lab Sample Id: 638845-001 Date Collected: 10.02.2019 08:49 Date Received: 10.03.2019 08:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103330 Date Prep: 10.03.2019 13:00

Prep seq: 7687425

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **462** | 5.00 | 0.210 | mg/L | 10.03.2019 20:48 | | 10 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3103415 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1440** | 5.00 | 5.00 | mg/L | 10.03.2019 15:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3103498 Date Prep: 10.05.2019 14:05

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687552

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0392** | 0.00400 | 0.000246 | mg/L | 10.07.2019 05:11 | | 1 |
| **Barium** | 7440-39-3 | **0.555** | 0.00400 | 0.000484 | mg/L | 10.07.2019 05:11 | | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 10.07.2019 05:11 | U | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3103319 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.03.2019 08:39 | U | 1 |

# Certificate of Analytical Results
## 638845

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **MW-31** Matrix: Water Sample Depth:

Lab Sample Id: 638845-001 Date Collected: 10.02.2019 08:49 Date Received: 10.03.2019 08:00

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103851 Date Prep: 10.09.2019 10:57

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687718

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.928 | 1.41 | 0.928 | mg/L | 10.10.2019 12:39 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.928 | 1.41 | 0.928 | mg/L | 10.10.2019 12:39 | U | 1 |
| Total TPH | PHC635 | <0.928 | 1.41 | 0.928 | mg/L | 10.10.2019 12:39 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 78 | 70 - 135 | % | | |
| o-Terphenyl | 81 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103513 Date Prep: 10.04.2019 13:15

Prep seq: 7687499

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 10.06.2019 06:27 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.06.2019 06:27 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.06.2019 06:27 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 10.06.2019 06:27 | UX | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.06.2019 06:27 | UX | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 10.06.2019 06:27 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.06.2019 06:27 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 88 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 118 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 638845
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-14** Matrix: Water Sample Depth:

Lab Sample Id: 638845-002 Date Collected: 10.02.2019 09:14 Date Received: 10.03.2019 08:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103330 Date Prep: 10.03.2019 13:00

Prep seq: 7687425

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **512** | 5.00 | 0.210 | mg/L | 10.03.2019 21:23 | | 10 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3103415 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1630** | 5.00 | 5.00 | mg/L | 10.03.2019 15:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3103498 Date Prep: 10.05.2019 14:05

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687552

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.00787** | 0.00400 | 0.000246 | mg/L | 10.07.2019 05:31 | | 1 |
| **Barium** | 7440-39-3 | **0.0726** | 0.00400 | 0.000484 | mg/L | 10.07.2019 05:31 | | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 10.07.2019 05:31 | U | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3103319 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.03.2019 08:39 | U | 1 |

# Certificate of Analytical Results
## 638845

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **MW-14** Matrix: Water Sample Depth:

Lab Sample Id: 638845-002 Date Collected: 10.02.2019 09:14 Date Received: 10.03.2019 08:00

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103851 Date Prep: 10.09.2019 11:00

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687718

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.920 | 1.40 | 0.920 | mg/L | 10.09.2019 15:56 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.920 | 1.40 | 0.920 | mg/L | 10.09.2019 15:56 | U | 1 |
| Total TPH | PHC635 | <0.920 | 1.40 | 0.920 | mg/L | 10.09.2019 15:56 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 78 | 70 - 135 | % | | |
| o-Terphenyl | 79 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103513 Date Prep: 10.04.2019 13:15

Prep seq: 7687499

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 10.06.2019 06:47 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.06.2019 06:47 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.06.2019 06:47 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 10.06.2019 06:47 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.06.2019 06:47 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 10.06.2019 06:47 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.06.2019 06:47 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 103 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 138 | 70 - 130 | % | | ** |

# Certificate of Analytical Results
## 638845
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-37** Matrix: Water Sample Depth:

Lab Sample Id: 638845-003 Date Collected: 10.02.2019 09:45 Date Received: 10.03.2019 08:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103330 Date Prep: 10.03.2019 13:00

Prep seq: 7687425

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **314** | 5.00 | 0.210 | mg/L | 10.03.2019 21:35 | | 10 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3103415 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1060** | 5.00 | 5.00 | mg/L | 10.03.2019 15:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3103498 Date Prep: 10.05.2019 14:05

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687552

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.00595** | 0.00400 | 0.000246 | mg/L | 10.07.2019 05:34 | | 1 |
| **Barium** | 7440-39-3 | **0.192** | 0.00400 | 0.000484 | mg/L | 10.07.2019 05:34 | | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 10.07.2019 05:34 | U | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3103319 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.03.2019 08:39 | U | 1 |

# Certificate of Analytical Results
## 638845

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **MW-37** Matrix: Water Sample Depth:

Lab Sample Id: 638845-003 Date Collected: 10.02.2019 09:45 Date Received: 10.03.2019 08:00

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103851 Date Prep: 10.09.2019 11:03

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687718

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.910 | 1.38 | 0.910 | mg/L | 10.09.2019 16:15 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.910 | 1.38 | 0.910 | mg/L | 10.09.2019 16:15 | U | 1 |
| Total TPH | PHC635 | <0.910 | 1.38 | 0.910 | mg/L | 10.09.2019 16:15 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 80 | 70 - 135 | % | | |
| o-Terphenyl | 82 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103513 Date Prep: 10.04.2019 13:15

Prep seq: 7687499

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 10.06.2019 07:07 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.06.2019 07:07 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.06.2019 07:07 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 10.06.2019 07:07 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.06.2019 07:07 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 10.06.2019 07:07 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.06.2019 07:07 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 94 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 135 | 70 - 130 | % | | ** |

# Certificate of Analytical Results
## 638845
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-38** Matrix: Water Sample Depth:

Lab Sample Id: 638845-004 Date Collected: 10.02.2019 09:59 Date Received: 10.03.2019 08:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103330 Date Prep: 10.03.2019 13:00

Prep seq: 7687425

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **655** | 10.0 | 0.421 | mg/L | 10.03.2019 21:47 | | 20 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3103415 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1960** | 5.00 | 5.00 | mg/L | 10.03.2019 15:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3103498 Date Prep: 10.05.2019 14:05

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687552

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0126** | 0.00400 | 0.000246 | mg/L | 10.07.2019 05:37 | | 1 |
| **Barium** | 7440-39-3 | **0.0940** | 0.00400 | 0.000484 | mg/L | 10.07.2019 05:37 | | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 10.07.2019 05:37 | U | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3103319 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.03.2019 08:39 | U | 1 |

# Certificate of Analytical Results
## 638845
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-38** Matrix: Water Sample Depth:

Lab Sample Id: 638845-004 Date Collected: 10.02.2019 09:59 Date Received: 10.03.2019 08:00

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103851 Date Prep: 10.09.2019 11:06

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687718

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.897 | 1.36 | 0.897 | mg/L | 10.09.2019 16:34 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.897 | 1.36 | 0.897 | mg/L | 10.09.2019 16:34 | U | 1 |
| Total TPH | PHC635 | <0.897 | 1.36 | 0.897 | mg/L | 10.09.2019 16:34 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 78 | 70 - 135 | % | | |
| o-Terphenyl | 80 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103513 Date Prep: 10.04.2019 13:15

Prep seq: 7687499

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 10.06.2019 07:28 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.06.2019 07:28 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.06.2019 07:28 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 10.06.2019 07:28 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.06.2019 07:28 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 10.06.2019 07:28 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.06.2019 07:28 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 99 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 122 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 638845
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-15** Matrix: Water Sample Depth:

Lab Sample Id: 638845-005 Date Collected: 10.02.2019 10:21 Date Received: 10.03.2019 08:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103330 Date Prep: 10.03.2019 13:00

Prep seq: 7687425

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **1890** | 25.0 | 1.05 | mg/L | 10.03.2019 21:59 | | 50 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3103415 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **3930** | 5.00 | 5.00 | mg/L | 10.03.2019 15:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3103498 Date Prep: 10.05.2019 14:05

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687552

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0119** | 0.00400 | 0.000246 | mg/L | 10.07.2019 05:40 | | 1 |
| **Barium** | 7440-39-3 | **0.0452** | 0.00400 | 0.000484 | mg/L | 10.07.2019 05:40 | | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 10.07.2019 05:40 | U | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3103319 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.03.2019 08:39 | U | 1 |

# Certificate of Analytical Results
## 638845
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-15** Matrix: Water Sample Depth:

Lab Sample Id: 638845-005 Date Collected: 10.02.2019 10:21 Date Received: 10.03.2019 08:00

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103851 Date Prep: 10.09.2019 11:09

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687718

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.923 | 1.40 | 0.923 | mg/L | 10.09.2019 17:31 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.923 | 1.40 | 0.923 | mg/L | 10.09.2019 17:31 | U | 1 |
| Total TPH | PHC635 | <0.923 | 1.40 | 0.923 | mg/L | 10.09.2019 17:31 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 76 | 70 - 135 | % | | |
| o-Terphenyl | 79 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103513 Date Prep: 10.04.2019 13:15

Prep seq: 7687499

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 10.06.2019 07:48 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.06.2019 07:48 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.06.2019 07:48 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 10.06.2019 07:48 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.06.2019 07:48 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 10.06.2019 07:48 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.06.2019 07:48 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 98 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 135 | 70 - 130 | % | | ** |

# Certificate of Analytical Results
## 638845
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-16** Matrix: Water Sample Depth:

Lab Sample Id: 638845-006 Date Collected: 10.02.2019 11:05 Date Received: 10.03.2019 08:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103330 Date Prep: 10.03.2019 13:00

Prep seq: 7687425

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **1930** | 25.0 | 1.05 | mg/L | 10.03.2019 22:11 | | 50 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3103415 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **3970** | 5.00 | 5.00 | mg/L | 10.03.2019 15:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3103498 Date Prep: 10.05.2019 14:05

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687552

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0136** | 0.00400 | 0.000246 | mg/L | 10.07.2019 05:43 | | 1 |
| **Barium** | 7440-39-3 | **0.0394** | 0.00400 | 0.000484 | mg/L | 10.07.2019 05:43 | | 1 |
| **Chromium** | 7440-47-3 | **0.107** | 0.00400 | 0.000525 | mg/L | 10.07.2019 05:43 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3103319 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chromium, Hexavalent** | 18540-29-9 | **0.0982** | 0.0100 | 0.00273 | mg/L | 10.03.2019 08:39 | | 1 |

# Certificate of Analytical Results
## 638845
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-16** Matrix: Water Sample Depth:

Lab Sample Id: 638845-006 Date Collected: 10.02.2019 11:05 Date Received: 10.03.2019 08:00

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103851 Date Prep: 10.09.2019 11:12

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687718

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.912 | 1.38 | 0.912 | mg/L | 10.09.2019 17:50 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.912 | 1.38 | 0.912 | mg/L | 10.09.2019 17:50 | U | 1 |
| Total TPH | PHC635 | <0.912 | 1.38 | 0.912 | mg/L | 10.09.2019 17:50 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 80 | 70 - 135 | % | | |
| o-Terphenyl | 83 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103513 Date Prep: 10.04.2019 13:15

Prep seq: 7687499

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 10.06.2019 08:08 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.06.2019 08:08 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.06.2019 08:08 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 10.06.2019 08:08 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.06.2019 08:08 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 10.06.2019 08:08 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.06.2019 08:08 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 97 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 137 | 70 - 130 | % | | ** |

# Certificate of Analytical Results
## 638845
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-34** Matrix: Water Sample Depth:

Lab Sample Id: 638845-007 Date Collected: 10.02.2019 12:22 Date Received: 10.03.2019 08:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103330 Date Prep: 10.03.2019 13:00

Prep seq: 7687425

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **302** | 10.0 | 0.421 | mg/L | 10.03.2019 22:58 | | 20 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3103415 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1710** | 5.00 | 5.00 | mg/L | 10.03.2019 15:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3103498 Date Prep: 10.05.2019 14:05

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687552

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.00108** | 0.00400 | 0.000246 | mg/L | 10.07.2019 05:46 | J | 1 |
| **Barium** | 7440-39-3 | **4.84** | 0.200 | 0.0242 | mg/L | 10.07.2019 19:50 | D | 50 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 10.07.2019 05:46 | U | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3103319 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.03.2019 08:39 | U | 1 |

# Certificate of Analytical Results
## 638845

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **MW-34** Matrix: Water Sample Depth:

Lab Sample Id: 638845-007 Date Collected: 10.02.2019 12:22 Date Received: 10.03.2019 08:00

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103851 Date Prep: 10.09.2019 11:15

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687718

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Gasoline Range Hydrocarbons** | PHC610 | **2.17** | 1.41 | 0.926 | mg/L | 10.09.2019 18:10 | | 1 |
| **Diesel Range Organics** | C10C28DRO | **1.18** | 1.41 | 0.926 | mg/L | 10.09.2019 18:10 | J | 1 |
| **Total TPH** | PHC635 | **3.35** | 1.41 | 0.926 | mg/L | 10.09.2019 18:10 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 76 | 70 - 135 | % | | |
| o-Terphenyl | 78 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103513 Date Prep: 10.04.2019 13:15

Prep seq: 7687499

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **0.0642** | 0.00200 | 0.000408 | mg/L | 10.06.2019 08:28 | | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.06.2019 08:28 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.06.2019 08:28 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 10.06.2019 08:28 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.06.2019 08:28 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 10.06.2019 08:28 | U | 1 |
| **Total BTEX** | | **0.0642** | 0.00200 | 0.000367 | mg/L | 10.06.2019 08:28 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 119 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 143 | 70 - 130 | % | | ** |

# Certificate of Analytical Results
## 638845
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MWD-6** Matrix: Water Sample Depth:

Lab Sample Id: 638845-008 Date Collected: 10.02.2019 13:50 Date Received: 10.03.2019 08:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103330 Date Prep: 10.03.2019 13:00

Prep seq: 7687425

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **184** | 5.00 | 0.210 | mg/L | 10.03.2019 23:10 | | 10 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3103415 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1250** | 5.00 | 5.00 | mg/L | 10.03.2019 15:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3103498 Date Prep: 10.05.2019 14:05

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687552

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.00234** | 0.00400 | 0.000246 | mg/L | 10.07.2019 05:49 | J | 1 |
| **Barium** | 7440-39-3 | **2.87** | 0.200 | 0.0242 | mg/L | 10.07.2019 19:59 | D | 50 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 10.07.2019 05:49 | U | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3103319 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.03.2019 08:39 | U | 1 |

# Certificate of Analytical Results
## 638845
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MWD-6** Matrix: Water Sample Depth:

Lab Sample Id: 638845-008 Date Collected: 10.02.2019 13:50 Date Received: 10.03.2019 08:00

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103851 Date Prep: 10.09.2019 11:18

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687718

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Gasoline Range Hydrocarbons** | PHC610 | **0.966** | 1.35 | 0.889 | mg/L | 10.10.2019 12:57 | J | 1 |
| Diesel Range Organics | C10C28DRO | <0.889 | 1.35 | 0.889 | mg/L | 10.10.2019 12:57 | U | 1 |
| **Total TPH** | PHC635 | **0.966** | 1.35 | 0.889 | mg/L | 10.10.2019 12:57 | J | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 78 | 70 - 135 | % | | |
| o-Terphenyl | 81 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103513 Date Prep: 10.04.2019 13:15

Prep seq: 7687499

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 10.06.2019 08:48 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.06.2019 08:48 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.06.2019 08:48 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 10.06.2019 08:48 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.06.2019 08:48 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 10.06.2019 08:48 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.06.2019 08:48 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 103 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 134 | 70 - 130 | % | | ** |

# Certificate of Analytical Results
## 638845
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **DUP-2** Matrix: Water Sample Depth:

Lab Sample Id: 638845-009 Date Collected: 10.02.2019 00:00 Date Received: 10.03.2019 08:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103330 Date Prep: 10.03.2019 13:00

Prep seq: 7687425

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **299** | 10.0 | 0.421 | mg/L | 10.03.2019 23:45 | | 20 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3103415 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1590** | 5.00 | 5.00 | mg/L | 10.03.2019 15:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3103498 Date Prep: 10.05.2019 14:05

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687552

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.00107** | 0.00400 | 0.000246 | mg/L | 10.07.2019 05:52 | J | 1 |
| **Barium** | 7440-39-3 | **4.70** | 0.200 | 0.0242 | mg/L | 10.07.2019 20:02 | D | 50 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 10.07.2019 05:52 | U | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3103319 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.03.2019 08:39 | UK | 1 |

# Certificate of Analytical Results
## 638845
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **DUP-2** Matrix: Water Sample Depth:

Lab Sample Id: 638845-009 Date Collected: 10.02.2019 00:00 Date Received: 10.03.2019 08:00

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103851 Date Prep: 10.09.2019 11:21

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687718

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Gasoline Range Hydrocarbons** | PHC610 | **2.33** | 1.40 | 0.921 | mg/L | 10.09.2019 18:48 | | 1 |
| **Diesel Range Organics** | C10C28DRO | **1.29** | 1.40 | 0.921 | mg/L | 10.09.2019 18:48 | J | 1 |
| **Total TPH** | PHC635 | **3.62** | 1.40 | 0.921 | mg/L | 10.09.2019 18:48 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 76 | 70 - 135 | % | | |
| o-Terphenyl | 77 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103513 Date Prep: 10.04.2019 13:15

Prep seq: 7687499

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **0.0609** | 0.00200 | 0.000408 | mg/L | 10.06.2019 09:08 | | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.06.2019 09:08 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.06.2019 09:08 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 10.06.2019 09:08 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.06.2019 09:08 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 10.06.2019 09:08 | U | 1 |
| **Total BTEX** | | **0.0609** | 0.00200 | 0.000367 | mg/L | 10.06.2019 09:08 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 110 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 145 | 70 - 130 | % | | ** |

# Certificate of Analytical Results
## 638845
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **DUP-1** Matrix: Water Sample Depth:

Lab Sample Id: 638845-010 Date Collected: 10.02.2019 00:00 Date Received: 10.03.2019 08:00

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103330 Date Prep: 10.03.2019 13:00

Prep seq: 7687425

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **1850** | 25.0 | 1.05 | mg/L | 10.03.2019 23:57 | | 50 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3103415 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **3920** | 5.00 | 5.00 | mg/L | 10.03.2019 15:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3103498 Date Prep: 10.05.2019 14:05

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687552

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0122** | 0.00400 | 0.000246 | mg/L | 10.07.2019 05:55 | | 1 |
| **Barium** | 7440-39-3 | **0.0482** | 0.00400 | 0.000484 | mg/L | 10.07.2019 05:55 | | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 10.07.2019 05:55 | U | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: SPC % Moist: Tech: SPC

Seq Number: 3103324 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.03.2019 10:05 | UK | 1 |

# Certificate of Analytical Results
## 638845

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **DUP-1** Matrix: Water Sample Depth:

Lab Sample Id: 638845-010 Date Collected: 10.02.2019 00:00 Date Received: 10.03.2019 08:00

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103851 Date Prep: 10.09.2019 11:24

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687718

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.926 | 1.41 | 0.926 | mg/L | 10.09.2019 19:06 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.926 | 1.41 | 0.926 | mg/L | 10.09.2019 19:06 | U | 1 |
| Total TPH | PHC635 | <0.926 | 1.41 | 0.926 | mg/L | 10.09.2019 19:06 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 76 | 70 - 135 | % | | |
| o-Terphenyl | 78 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103513 Date Prep: 10.04.2019 13:15

Prep seq: 7687499

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 10.06.2019 09:29 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.06.2019 09:29 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.06.2019 09:29 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 10.06.2019 09:29 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.06.2019 09:29 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 10.06.2019 09:29 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.06.2019 09:29 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 98 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 138 | 70 - 130 | % | | ** |

# Certificate of Analytical Results
## 638845
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **3103319-1-BLK** Matrix: Water Sample Depth:
Lab Sample Id: 3103319-1-BLK Date Collected: Date Received:
Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:
Analyst: SPC % Moist: Tech: SPC
Seq Number: 3103319 Date Prep:
Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.03.2019 08:39 | U | 1 |

Sample Id: **3103324-1-BLK** Matrix: Water Sample Depth:
Lab Sample Id: 3103324-1-BLK Date Collected: Date Received:
Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:
Analyst: SPC % Moist: Tech: SPC
Seq Number: 3103324 Date Prep:
Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.03.2019 10:05 | U | 1 |

Sample Id: **3103415-1-BLK** Matrix: Water Sample Depth:
Lab Sample Id: 3103415-1-BLK Date Collected: Date Received:
Analytical Method: TDS by SM2540C Prep Method:
Analyst: SPC % Moist: Tech: SPC
Seq Number: 3103415 Date Prep:
Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids | 1642222 | <5.00 | 5.00 | 5.00 | mg/L | 10.03.2019 15:00 | U | 1 |

Sample Id: **7687425-1-BLK** Matrix: Water Sample Depth:
Lab Sample Id: 7687425-1-BLK Date Collected: Date Received:
Analytical Method: Chloride by EPA 300 Prep Method: E300P
Analyst: CHE % Moist: Tech: CHE
Seq Number: 3103330 Date Prep: 10.03.2019 13:00
Prep seq: 7687425

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chloride | 16887-00-6 | <0.0210 | 0.500 | 0.0210 | mg/L | 10.03.2019 19:01 | U | 1 |

# Certificate of Analytical Results
## 638845
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **7687499-1-BLK** Matrix: Water Sample Depth:

Lab Sample Id: 7687499-1-BLK Date Collected: Date Received:

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103513 Date Prep: 10.04.2019 13:15

Prep seq: 7687499

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 10.06.2019 06:07 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.06.2019 06:07 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.06.2019 06:07 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 10.06.2019 06:07 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.06.2019 06:07 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 10.06.2019 06:07 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.06.2019 06:07 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 86 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 128 | 70 - 130 | % | | |

Sample Id: **7687552-1-BLK** Matrix: Water Sample Depth:

Lab Sample Id: 7687552-1-BLK Date Collected: Date Received:

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3103498 Date Prep: 10.05.2019 14:05

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687552

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Arsenic | 7440-38-2 | <0.000246 | 0.00400 | 0.000246 | mg/L | 10.07.2019 05:02 | U | 1 |
| Barium | 7440-39-3 | <0.000484 | 0.00400 | 0.000484 | mg/L | 10.07.2019 05:02 | U | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 10.07.2019 05:02 | U | 1 |

# Certificate of Analytical Results
## 638845

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **7687718-1-BLK** Matrix: Water Sample Depth:

Lab Sample Id: 7687718-1-BLK Date Collected: Date Received:

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103851 Date Prep: 10.08.2019 16:00

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687718

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.988 | 1.50 | 0.988 | mg/L | 10.09.2019 02:32 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.988 | 1.50 | 0.988 | mg/L | 10.09.2019 02:32 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 80 | 70 - 135 | % | | |
| o-Terphenyl | 85 | 70 - 135 | % | | |

# 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



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# Form 2 - Surrogate Recoveries

**Project Name:** Eunice Project- S. Eunice

**Work Orders :** 638845 **Project ID:** 30006138

**Lab Batch #:** 3103513 **Sample:** 7687499-1-BKS / BKS **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 10.06.2019 04:27 **SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0276 | 0.0300 | 92 | 70-130 | |
| 4-Bromofluorobenzene | 0.0390 | 0.0300 | 130 | 70-130 | |

**Lab Batch #:** 3103513 **Sample:** 7687499-1-BSD / BSD **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 10.06.2019 04:47 **SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0279 | 0.0300 | 93 | 70-130 | |
| 4-Bromofluorobenzene | 0.0381 | 0.0300 | 127 | 70-130 | |

**Lab Batch #:** 3103513 **Sample:** 638845-001 S / MS **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 10.06.2019 05:07 **SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0291 | 0.0300 | 97 | 70-130 | |
| 4-Bromofluorobenzene | 0.0407 | 0.0300 | 136 | 70-130 | ** |

**Lab Batch #:** 3103513 **Sample:** 638845-001 SD / MSD **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 10.06.2019 05:27 **SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0301 | 0.0300 | 100 | 70-130 | |
| 4-Bromofluorobenzene | 0.0428 | 0.0300 | 143 | 70-130 | ** |

**Lab Batch #:** 3103513 **Sample:** 7687499-1-BLK / BLK **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 10.06.2019 06:07 **SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0257 | 0.0300 | 86 | 70-130 | |
| 4-Bromofluorobenzene | 0.0383 | 0.0300 | 128 | 70-130 | |

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

# Form 2 - Surrogate Recoveries

**Project Name:** Eunice Project- S. Eunice

**Work Orders :** 638845 **Project ID:** 30006138

**Lab Batch #:** 3103851 **Sample:** 7687718-1-BLK / BLK **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 10.09.2019 02:32 **SURROGATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 7.98 | 10.0 | 80 | 70-135 | |
| o-Terphenyl | 4.26 | 5.00 | 85 | 70-135 | |

**Lab Batch #:** 3103851 **Sample:** 7687718-1-BKS / BKS **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 10.09.2019 02:51 **SURROGATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 8.85 | 10.0 | 89 | 70-135 | |
| o-Terphenyl | 4.59 | 5.00 | 92 | 70-135 | |

**Lab Batch #:** 3103851 **Sample:** 7687718-1-BSD / BSD **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 10.09.2019 03:09 **SURROGATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 9.49 | 10.0 | 95 | 70-135 | |
| o-Terphenyl | 4.64 | 5.00 | 93 | 70-135 | |

**Lab Batch #:** 3103851 **Sample:** 639190-004 S / MS **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 10.09.2019 03:47 **SURROGATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 8.35 | 9.20 | 91 | 70-135 | |
| o-Terphenyl | 4.04 | 4.60 | 88 | 70-135 | |

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



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# BS / BSD Recoveries

## Project Name: Eunice Project- S. Eunice

**Work Order #:** 638845 **Project ID:** 30006138

**Analyst:** KTL **Date Prepared:** 10.04.2019 **Date Analyzed:** 10.06.2019

**Lab Batch ID:** 3103513 **Sample:** 7687499-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Blank Sample Result [A] | Spike Added [B] | Blank Spike Result [C] | Blank Spike %R [D] | Spike Added [E] | Blank Spike Duplicate Result [F] | Blk. Spk Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.000408 | 0.100 | 0.104 | 104 | 0.100 | 0.105 | 105 | 1 | 70-130 | 25 | |
| Toluene | <0.000367 | 0.100 | 0.112 | 112 | 0.100 | 0.108 | 108 | 4 | 70-130 | 25 | |
| Ethylbenzene | <0.000657 | 0.100 | 0.128 | 128 | 0.100 | 0.112 | 112 | 13 | 70-130 | 25 | |
| m,p-Xylenes | <0.000630 | 0.200 | 0.253 | 127 | 0.200 | 0.235 | 118 | 7 | 70-130 | 25 | |
| o-Xylene | <0.000642 | 0.100 | 0.127 | 127 | 0.100 | 0.120 | 120 | 6 | 70-130 | 25 | |

**Analyst:** CHE **Date Prepared:** 10.03.2019 **Date Analyzed:** 10.03.2019

**Lab Batch ID:** 3103330 **Sample:** 7687425-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| Chloride by EPA 300<br>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 | <0.0210 | 25.0 | 24.4 | 98 | 25.0 | 24.4 | 98 | 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: Eunice Project- S. Eunice

**Work Order #:** 638845 **Project ID:** 30006138

**Analyst:** SPC **Date Prepared:** 10.03.2019 **Date Analyzed:** 10.03.2019

**Lab Batch ID:** 3103319 **Sample:** 3103319-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| Chromium, Hexavalent by SW 7196A<br>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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | <0.00273 | 0.0400 | 0.0393 | 98 | 0.0400 | 0.0394 | 99 | 0 | 85-115 | 20 | |

**Analyst:** SPC **Date Prepared:** 10.03.2019 **Date Analyzed:** 10.03.2019

**Lab Batch ID:** 3103324 **Sample:** 3103324-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| Chromium, Hexavalent by SW 7196A<br>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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | <0.00273 | 0.0400 | 0.0382 | 96 | 0.0400 | 0.0383 | 96 | 0 | 85-115 | 20 | |

**Analyst:** DEP **Date Prepared:** 10.05.2019 **Date Analyzed:** 10.07.2019

**Lab Batch ID:** 3103498 **Sample:** 7687552-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| (S) Dissolved Metals by SW6020A<br>Analytes | Blank Sample Result [A] | Spike Added [B] | Blank Spike Result [C] | Blank Spike %R [D] | Spike Added [E] | Blank Spike Duplicate Result [F] | Blk. Spk Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | <0.000246 | 0.100 | 0.0965 | 97 | 0.100 | 0.0981 | 98 | 2 | 80-120 | 20 | |
| Barium | <0.000484 | 0.100 | 0.0958 | 96 | 0.100 | 0.0945 | 95 | 1 | 80-120 | 20 | |
| Chromium | <0.000525 | 0.100 | 0.0986 | 99 | 0.100 | 0.0959 | 96 | 3 | 80-120 | 20 | |

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

# BS / BSD Recoveries

## Project Name: Eunice Project- S. Eunice

**Work Order #:** 638845 **Project ID:** 30006138

**Analyst:** SPC **Date Prepared:** 10.03.2019 **Date Analyzed:** 10.03.2019

**Lab Batch ID:** 3103415 **Sample:** 3103415-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| TDS by SM2540C<br>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 | 985 | 99 | 1000 | 986 | 99 | 0 | 80-120 | 10 | |

**Analyst:** ISU **Date Prepared:** 10.08.2019 **Date Analyzed:** 10.09.2019

**Lab Batch ID:** 3103851 **Sample:** 7687718-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Blank Sample Result [A] | Spike Added [B] | Blank Spike Result [C] | Blank Spike %R [D] | Spike Added [E] | Blank Spike Duplicate Result [F] | Blk. Spk Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | <0.988 | 100 | 98.8 | 99 | 100 | 108 | 108 | 9 | 70-135 | 35 | |
| Diesel Range Organics | <0.988 | 100 | 109 | 109 | 100 | 114 | 114 | 4 | 70-135 | 35 | |

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

# Form 3 - MS Recoveries

## Project Name: Eunice Project- S. Eunice

**Work Order #:** 638845

**Lab Batch #:** 3103851

**Project ID:** 30006138

**Date Analyzed:** 10.09.2019

**Date Prepared:** 10.08.2019

**Analyst:** ISU

**QC- Sample ID:** 639190-004 S

**Batch #:** 1

**Matrix:** Water

**Reporting Units:** mg/L

### MATRIX / MATRIX SPIKE RECOVERY STUDY

| TPH by SW8015 Mod<br>Analytes | Parent Sample Result [A] | Spike Added [B] | Spiked Sample Result [C] | %R [D] | Control Limits %R | Flag |
|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | 33.7 | 92.0 | 129 | 104 | 70-135 | |
| Diesel Range Organics | 84.8 | 92.0 | 163 | 85 | 70-135 | |

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference [E] = 200*(C-A)/(C+B)
All Results are based on MDL and Validated for QC Purposes

BRL - Below Reporting Limit

# Form 3 - MS / MSD Recoveries

## Project Name: Eunice Project- S. Eunice

**Work Order # :** 638845 **Project ID:** 30006138

**Lab Batch ID:** 3103513 **QC- Sample ID:** 638845-001 S **Batch #:** 1 **Matrix:** Water

**Date Analyzed:** 10.06.2019 **Date Prepared:** 10.04.2019 **Analyst:** KTL

**Reporting Units:** mg/L

**MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Parent Sample Result [A] | Spike Added [B] | Spiked Sample Result [C] | Spiked Sample %R [D] | Spike Added [E] | Duplicate Spiked Sample Result [F] | Spiked Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.000408 | 0.100 | 0.113 | 113 | 0.100 | 0.111 | 111 | 2 | 70-130 | 25 | |
| Toluene | <0.000367 | 0.100 | 0.116 | 116 | 0.100 | 0.118 | 118 | 2 | 70-130 | 25 | |
| Ethylbenzene | <0.000657 | 0.100 | 0.124 | 124 | 0.100 | 0.128 | 128 | 3 | 70-130 | 25 | |
| m,p-Xylenes | <0.000630 | 0.200 | 0.260 | 130 | 0.200 | 0.280 | 140 | 7 | 70-130 | 25 | X |
| o-Xylene | <0.000642 | 0.100 | 0.134 | 134 | 0.100 | 0.143 | 143 | 6 | 70-130 | 25 | X |

**Lab Batch ID:** 3103330 **QC- Sample ID:** 638818-001 S **Batch #:** 1 **Matrix:** Drinking Water

**Date Analyzed:** 10.03.2019 **Date Prepared:** 10.03.2019 **Analyst:** CHE

**Reporting Units:** mg/L

**MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY**

| Chloride by EPA 300<br>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 | 8.63 | 25.0 | 34.9 | 105 | 25.0 | 34.4 | 103 | 1 | 90-110 | 20 | |

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

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

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

# Form 3 - MS / MSD Recoveries

## Project Name: Eunice Project- S. Eunice

**Work Order # :** 638845 **Project ID:** 30006138

**Lab Batch ID:** 3103330 **QC- Sample ID:** 638819-001 S **Batch #:** 1 **Matrix:** Drinking Water

**Date Analyzed:** 10.03.2019 **Date Prepared:** 10.03.2019 **Analyst:** CHE

**Reporting Units:** mg/L

### MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

| Chloride by EPA 300 Analytes | Parent Sample Result [A] | Spike Added [B] | Spiked Sample Result [C] | Spiked Sample %R [D] | Spike Added [E] | Duplicate Spiked Sample Result [F] | Spiked Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 7.33 | 25.0 | 32.7 | 101 | 25.0 | 32.4 | 100 | 1 | 90-110 | 20 | |

**Lab Batch ID:** 3103319 **QC- Sample ID:** 638845-002 S **Batch #:** 1 **Matrix:** Water

**Date Analyzed:** 10.03.2019 **Date Prepared:** 10.03.2019 **Analyst:** SPC

**Reporting Units:** mg/L

### MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

| Chromium, Hexavalent by SW 7196A 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | <0.00273 | 0.200 | 0.207 | 104 | 0.200 | 0.206 | 103 | 0 | 75-125 | 20 | |

**Lab Batch ID:** 3103324 **QC- Sample ID:** 638847-006 S **Batch #:** 1 **Matrix:** Water

**Date Analyzed:** 10.03.2019 **Date Prepared:** 10.03.2019 **Analyst:** SPC

**Reporting Units:** mg/L

### MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

| Chromium, Hexavalent by SW 7196A 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 0.00700 | 0.200 | 0.222 | 108 | 0.200 | 0.223 | 108 | 0 | 75-125 | 20 | |

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

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

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

# Form 3 - MS / MSD Recoveries

## Project Name: Eunice Project- S. Eunice

**Work Order # :** 638845 **Project ID:** 30006138

**Lab Batch ID:** 3103498 **QC- Sample ID:** 638845-001 S **Batch #:** 1 **Matrix:** Water

**Date Analyzed:** 10.07.2019 **Date Prepared:** 10.05.2019 **Analyst:** DEP

**Reporting Units:** mg/L

### MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

| (S) Dissolved Metals by SW6020A<br>Analytes | Parent Sample Result [A] | Spike Added [B] | Spiked Sample Result [C] | Spiked Sample %R [D] | Spike Added [E] | Duplicate Spiked Sample Result [F] | Spiked Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 0.0392 | 0.100 | 0.139 | 100 | 0.100 | 0.138 | 99 | 1 | 75-125 | 20 | |
| Barium | 0.555 | 0.100 | 0.645 | 90 | 0.100 | 0.642 | 87 | 0 | 75-125 | 20 | |
| Chromium | <0.000525 | 0.100 | 0.100 | 100 | 0.100 | 0.100 | 100 | 0 | 75-125 | 20 | |

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

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

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

# Method Duplicate



## Project Name: Eunice Project- S. Eunice

**Work Order #:** 638845

**Lab Batch #:** 3103415 **Project ID:** 30006138

**Date Analyzed:** 10.03.2019 15:00 **Date Prepared:** 10.03.2019 **Analyst:** SPC

**QC- Sample ID:** 638660-003 D **Batch #:** 1 **Matrix:** Water

**Reporting Units:** mg/L

**SAMPLE / SAMPLE DUPLICATE RECOVERY**

| TDS by SM2540C<br>Analyte | Parent Sample Result [A] | Sample Duplicate Result [B] | RPD | Control Limits %RPD | Flag |
|---|---|---|---|---|---|
| Total Dissolved Solids | 1130 | 1130 | 0 | 10 | |

**Lab Batch #:** 3103415

**Date Analyzed:** 10.03.2019 15:00 **Date Prepared:** 10.03.2019 **Analyst:** SPC

**QC- Sample ID:** 638845-007 D **Batch #:** 1 **Matrix:** Water

**Reporting Units:** mg/L

**SAMPLE / SAMPLE DUPLICATE RECOVERY**

| TDS by SM2540C<br>Analyte | Parent Sample Result [A] | Sample Duplicate Result [B] | RPD | Control Limits %RPD | Flag |
|---|---|---|---|---|---|
| Total Dissolved Solids | 1710 | 1720 | 1 | 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

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# Chain of Custody

Work Order No: 639945

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: | Rebecca Andresen | Bill to: (if different) | |
| Company Name: | ARCADIS | Company Name: | |
| Address: | 1004 N. Big Spring St. | Address: | |
| City, State ZIP: | Midland, TX. 79701 | City, State ZIP: | |
| Phone: | 303-471-3477 | Email: | madisyn.frandsen@arcadis.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: | Eunice Project- S. Eunice | Turn Around | |
| Project Number: | 30006138 | Routine ☒ | |
| P.O. Number: | | Rush: | |
| Sampler's Name: | Jerry Longwell | Due Date: | |

| SAMPLE RECEIPT | | | | |
|---|---|---|---|---|
| Temp Blank: | Yes (No) | Wet Ice: | (Yes) No | |
| Temperature (°C): | 0.5/0.3 | Thermometer ID | | |
| Received Intact: | (Yes) No | | | |
| Cooler Custody Seals: | Yes (No) N/A | Correction Factor: | -0.2 | |
| Sample Custody Seals: | Yes (No) N/A | Total Containers: | | |

| Sample Identification | Matrix | Date Sampled | Time Sampled | Depth | Number of Containers | BTEX (EPA 8021B) | TPH (SW8015) | Hex Chrome (SW7196A) | Dissolved Metals (SW6020_DIS): Chromium, Arsenic & Barium) | TDS (SM2540C) | Chlorides (EPA 300.0) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-31 | W | 10/2/19 | 0849 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MW-14 | W | 10/2/19 | 0914 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MW-37 | W | 10/2/19 | 0945 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MW-38 | W | 10/2/19 | 0959 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MW-15 | W | 10/2/19 | 1021 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MW-16 | W | 10/2/19 | 1105 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MW-34 | W | 10/2/19 | 1222 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MWD-6 | W | 10/2/19 | 1350 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| DUP-2 | W | 10/2/19 | — | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| DUP-1 | W | 10/2/19 | — | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

**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

**Notice:** Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Xenco. A minimum charge of $75.00 will be applied to each project and a charge of $5 for each sample submitted to Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

| Relinquished by: (Signature) | Received by: (Signature) | Date/Time | Relinquished by: (Signature) | Received by: (Signature) | Date/Time |
|---|---|---|---|---|---|
| 1 | 2 JKramer | 10/2 1730 | 2 JKRAMER | | 10/3/19 0800 |
| 3 | | | 4 | | |
| 5 | | | 6 | | |

Revised Date 051418 Rev. 2018.1

Received by OCD: 3/25/2020 2:27:35 PM
Released to Imaging: 6/14/2022 10:17:42 AM
Final 1.000
Page 39 of 44

# Inter-Office Shipment



**IOS Number : 49264**

Date/Time: 10.03.2019
Lab# From: **Midland**
Lab# To: **Houston**

Created by: Brianna Teel
Delivery Priority:
Air Bill No.: 776476714406

Please send report to: John Builes
Address: 1211 W. Florida Ave
E-Mail: john.builes@xenco.com

| Sample Id | Matrix | Client Sample Id | Sample Collection | Method | Method Name | Lab Due | HT Due | PM | Analytes | Sign |
|---|---|---|---|---|---|---|---|---|---|---|
| 638845-001 | W | MW-31 | 10.02.2019 08:49 | SW6020_Select_DIS | (S) Dissolved Metals by SW6020A | 10.08.2019 | 03.30.2020 | JHB | AS BA CR | |
| 638845-002 | W | MW-14 | 10.02.2019 09:14 | SW6020_Select_DIS | (S) Dissolved Metals by SW6020A | 10.08.2019 | 03.30.2020 | JHB | AS BA CR | |
| 638845-003 | W | MW-37 | 10.02.2019 09:45 | SW6020_Select_DIS | (S) Dissolved Metals by SW6020A | 10.08.2019 | 03.30.2020 | JHB | AS BA CR | |
| 638845-004 | W | MW-38 | 10.02.2019 09:59 | SW6020_Select_DIS | (S) Dissolved Metals by SW6020A | 10.08.2019 | 03.30.2020 | JHB | AS BA CR | |
| 638845-005 | W | MW-15 | 10.02.2019 10:21 | SW6020_Select_DIS | (S) Dissolved Metals by SW6020A | 10.08.2019 | 03.30.2020 | JHB | AS BA CR | |
| 638845-006 | W | MW-16 | 10.02.2019 11:05 | SW6020_Select_DIS | (S) Dissolved Metals by SW6020A | 10.08.2019 | 03.30.2020 | JHB | AS BA CR | |
| 638845-007 | W | MW-34 | 10.02.2019 12:22 | SW6020_Select_DIS | (S) Dissolved Metals by SW6020A | 10.08.2019 | 03.30.2020 | JHB | AS BA CR | |
| 638845-008 | W | MWD-6 | 10.02.2019 13:50 | SW6020_Select_DIS | (S) Dissolved Metals by SW6020A | 10.08.2019 | 03.30.2020 | JHB | AS BA CR | |
| 638845-009 | W | DUP-2 | 10.02.2019 00:00 | SW6020_Select_DIS | (S) Dissolved Metals by SW6020A | 10.08.2019 | 03.30.2020 | JHB | AS BA CR | |
| 638845-010 | W | DUP-1 | 10.02.2019 00:00 | SW6020_Select_DIS | (S) Dissolved Metals by SW6020A | 10.08.2019 | 03.30.2020 | JHB | AS BA CR | |

**Inter Office Shipment or Sample Comments:**

Relinquished By: Brianna Teel
Brianna Teel

Date Relinquished: 10.03.2019

Received By: Ashly Kowalski

Date Received: 10.04.2019

Cooler Temperature: 3.1

# Inter-Office Shipment

**IOS Number : 49590**

| | | | | | |
|---|---|---|---|---|---|
| Date/Time: | 10.08.2019 | Created by: | Jessica Kramer | Please send report to: | John Builes |
| Lab# From: | **Midland** | Delivery Priority: | | Address: | 1211 W. Florida Ave |
| Lab# To: | **Houston** | Air Bill No.: | 776604651301 | E-Mail: | john.builes@xenco.com |

| Sample Id | Matrix | Client Sample Id | Sample Collection | Method | Method Name | Lab Due | HT Due | PM | Analytes | Sign |
|---|---|---|---|---|---|---|---|---|---|---|
| 638845-001 | W | MW-31 | 10.02.2019 08:49 | SW8015MOD_NM | TPH By SW8015 Mod | 10.09.2019 | 10.16.2019 | JHB | PHCC10C28 PHCC28C3 | |
| 638845-002 | W | MW-14 | 10.02.2019 09:14 | SW8015MOD_NM | TPH By SW8015 Mod | 10.09.2019 | 10.16.2019 | JHB | PHCC10C28 PHCC28C3 | |
| 638845-003 | W | MW-37 | 10.02.2019 09:45 | SW8015MOD_NM | TPH By SW8015 Mod | 10.09.2019 | 10.16.2019 | JHB | PHCC10C28 PHCC28C3 | |
| 638845-004 | W | MW-38 | 10.02.2019 09:59 | SW8015MOD_NM | TPH By SW8015 Mod | 10.09.2019 | 10.16.2019 | JHB | PHCC10C28 PHCC28C3 | |
| 638845-005 | W | MW-15 | 10.02.2019 10:21 | SW8015MOD_NM | TPH By SW8015 Mod | 10.09.2019 | 10.16.2019 | JHB | PHCC10C28 PHCC28C3 | |
| 638845-006 | W | MW-16 | 10.02.2019 11:05 | SW8015MOD_NM | TPH By SW8015 Mod | 10.09.2019 | 10.16.2019 | JHB | PHCC10C28 PHCC28C3 | |
| 638845-007 | W | MW-34 | 10.02.2019 12:22 | SW8015MOD_NM | TPH By SW8015 Mod | 10.09.2019 | 10.16.2019 | JHB | PHCC10C28 PHCC28C3 | |
| 638845-008 | W | MWD-6 | 10.02.2019 13:50 | SW8015MOD_NM | TPH By SW8015 Mod | 10.09.2019 | 10.16.2019 | JHB | PHCC10C28 PHCC28C3 | |
| 638845-009 | W | DUP-2 | 10.02.2019 00:00 | SW8015MOD_NM | TPH By SW8015 Mod | 10.09.2019 | 10.16.2019 | JHB | PHCC10C28 PHCC28C3 | |
| 638845-010 | W | DUP-1 | 10.02.2019 00:00 | SW8015MOD_NM | TPH By SW8015 Mod | 10.09.2019 | 10.16.2019 | JHB | PHCC10C28 PHCC28C3 | |

**Inter Office Shipment or Sample Comments:**

Relinquished By: Jessica Kramer

Jessica Kramer

Date Relinquished: 10.08.2019

Received By:

Monica Shakhshir

Date Received: 10.09.2019

Cooler Temperature: 0.9

# XENCO Laboratories

## Inter Office Report- Sample Receipt Checklist

**Sent To:** Houston

**IOS #:** 49264

**Acceptable Temperature Range: 0 - 6 degC**
**Air and Metal samples Acceptable Range: Ambient**
**Temperature Measuring device used : HOU-068**

**Sent By:** Brianna Teel **Date Sent:** 10.03.2019 08.33 AM

**Received By:** Ashly Kowalski **Date Received:** 10.04.2019 09.50 AM

| Sample Receipt Checklist | | Comments |
|---|---|---|
| #1 *Temperature of cooler(s)? | 3.1 | |
| #2 *Shipping container in good condition? | **Yes** | |
| #3 *Samples received with appropriate temperature? | **Yes** | |
| #4 *Custody Seals intact on shipping container/ cooler? | **Yes** | |
| #5 *Custody Seals Signed and dated for Containers/coolers | **Yes** | |
| #6 *IOS present? | **Yes** | |
| #7 Any missing/extra samples? | **No** | |
| #8 IOS agrees with sample label(s)/matrix? | **Yes** | |
| #9 Sample matrix/ properties agree with IOS? | **Yes** | |
| #10 Samples in proper container/ bottle? | **Yes** | |
| #11 Samples properly preserved? | **Yes** | |
| #12 Sample container(s) intact? | **Yes** | |
| #13 Sufficient sample amount for indicated test(s)? | **Yes** | |
| #14 All samples received within hold time? | **Yes** | |

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

**NonConformance:**

**Corrective Action Taken:**

**Nonconformance Documentation**

**Contact:** _____ **Contacted by :** _____ **Date:** _____

**Checklist reviewed by:** _____ Date: 10.04.2019

Ashly Kowalski

# XENCO Laboratories

## Inter Office Report- Sample Receipt Checklist

**Sent To:** Houston

**IOS #:** 49590

**Acceptable Temperature Range: 0 - 6 degC**
**Air and Metal samples Acceptable Range: Ambient**
**Temperature Measuring device used : HOU-068**

**Sent By:** Jessica Kramer **Date Sent:** 10.08.2019 11.05 AM

**Received By:** Monica Shakhshir **Date Received:** 10.09.2019 09.30 AM

| Sample Receipt Checklist | | Comments |
|---|---|---|
| #1 *Temperature of cooler(s)? | .9 | |
| #2 *Shipping container in good condition? | **Yes** | |
| #3 *Samples received with appropriate temperature? | **Yes** | |
| #4 *Custody Seals intact on shipping container/ cooler? | **Yes** | |
| #5 *Custody Seals Signed and dated for Containers/coolers | **Yes** | |
| #6 *IOS present? | **Yes** | |
| #7 Any missing/extra samples? | **No** | |
| #8 IOS agrees with sample label(s)/matrix? | **Yes** | |
| #9 Sample matrix/ properties agree with IOS? | **Yes** | |
| #10 Samples in proper container/ bottle? | **Yes** | |
| #11 Samples properly preserved? | **Yes** | |
| #12 Sample container(s) intact? | **Yes** | |
| #13 Sufficient sample amount for indicated test(s)? | **Yes** | |
| #14 All samples received within hold time? | **Yes** | |

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

**NonConformance:**

**Corrective Action Taken:**

**Nonconformance Documentation**

**Contact:** _____ **Contacted by :** _____ **Date:** _____

**Checklist reviewed by:** _____ Date: 10.09.2019

Monica Shakhshir

# XENCO Laboratories

## Prelogin/Nonconformance Report- Sample Log-In

**Client:** ARCADIS

**Date/ Time Received:** 10.03.2019 08.00.00 AM

**Work Order #:** 638845

**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)? | **Yes** | Xenco Stafford |
| #18 Water VOC samples have zero headspace? | **N/A** | |

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

Analyst: bt

PH Device/Lot#: A032690

**Checklist completed by:** Brianna Teel

Brianna Teel

Date: 10.03.2019

**Checklist reviewed by:**

John Builes

Date: 10.03.2019

# Analytical Report 638989

## for

## ARCADIS

**Project Manager: Madisyn Frandsen**

**Eunice Project- S. Eunice**

**30006138**

**10.15.2019**

Collected By: Client

**1211 W. Florida Ave**
**Midland TX 79701**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-19-30), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142), North Carolina (681)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (TX104704295-19-22), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-19-16)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-19-21)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-19)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-19-5)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Tampa: Florida (E87429), North Carolina (483)


Released to Imaging: 6/14/2022 10:17:42 AM

10.15.2019

Project Manager: **Madisyn Frandsen**
**ARCADIS**
1004 N. Big Spring St.
Midland, TX 79701

Reference: XENCO Report No(s): **638989**
**Eunice Project- S. Eunice**
Project Address: Eunice, NM.

**Madisyn Frandsen**:

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) 638989. 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. 638989 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,



**John Builes**
Project Manager

*A Small Business and Minority Company*

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

# Sample Cross Reference 638989

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

| Sample Id | Matrix | Date Collected | Sample Depth | Lab Sample Id |
|---|---|---|---|---|
| MWD-7 | W | 10.03.2019 07:53 | | 638989-001 |
| MW-17 | W | 10.03.2019 08:12 | | 638989-002 |
| MW-30 | W | 10.03.2019 08:15 | | 638989-003 |
| MWD-1 | W | 10.03.2019 09:10 | | 638989-004 |
| MW-4 | W | 10.03.2019 09:50 | | 638989-005 |
| MWD-15 | W | 10.03.2019 10:20 | | 638989-006 |
| MWD-8 | W | 10.03.2019 10:45 | | 638989-007 |
| MW-9 | W | 10.03.2019 12:30 | | 638989-008 |
| MW-29 | W | 10.03.2019 12:45 | | 638989-009 |
| MW-32 | W | 10.03.2019 13:00 | | 638989-010 |
| MW-8 | W | 10.03.2019 13:18 | | 638989-011 |
| MWD-13 | W | 10.03.2019 13:55 | | 638989-012 |
| MWD-4 | W | 10.03.2019 14:12 | | 638989-013 |
| DUP-3 | W | 10.03.2019 00:00 | | 638989-014 |
| DUP-4 | W | 10.03.2019 00:00 | | 638989-015 |

# CASE NARRATIVE

***Client Name: ARCADIS***

***Project Name: Eunice Project- S. Eunice***

Project ID: *30006138*
Work Order Number(s): *638989*

Report Date: *10.15.2019*
Date Received: *10.03.2019*

This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory.

**Sample receipt non conformances and comments:**

**Sample receipt non conformances and comments per sample:**

None

**Analytical non conformances and comments:**

Batch: LBA-3103453 Chromium, Hexavalent by SW 7196A
K flag is due to samples 638989-014, 015 having no sampling time.

Batch: LBA-3103512 BTEX by EPA 8021B
Surrogate 4-Bromofluorobenzene recovered above QC limits. Matrix interferences is suspected. Samples affected are: 638989-001 S,638989-001 SD,638989-006,638989-012,638989-013,638989-015,638989-001,638989-002.

Lab Sample ID 638989-001 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Benzene, Ethylbenzene, Toluene, m,p-Xylenes, o-Xylene 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: 638989-001, -002, -003, -004, -005, -006, -007, -008, -009, -010, -011, -012, -013, -014, -015.
The Laboratory Control Sample for Toluene, Benzene, m,p-Xylenes, Ethylbenzene, o-Xylene is within laboratory Control Limits, therefore the data was accepted.

# Certificate of Analytical Results
## 638989
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MWD-7** Matrix: Water Sample Depth:

Lab Sample Id: 638989-001 Date Collected: 10.03.2019 07:53 Date Received: 10.03.2019 17:28

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103555 Date Prep: 10.07.2019 16:15

Prep seq: 7687629

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **6470** | 50.0 | 2.10 | mg/L | 10.07.2019 20:33 | | 100 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103470 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **9590** | 5.00 | 5.00 | mg/L | 10.04.2019 17:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: ANJ % Moist: Tech: ANJ

Seq Number: 3104079 Date Prep: 10.08.2019 07:45

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687662

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0153** | 0.00400 | 0.000246 | mg/L | 10.08.2019 19:58 | | 1 |
| **Barium** | 7440-39-3 | **0.0429** | 0.00400 | 0.000484 | mg/L | 10.08.2019 19:58 | | 1 |
| **Chromium** | 7440-47-3 | **0.00169** | 0.00400 | 0.000525 | mg/L | 10.08.2019 19:58 | J | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103451 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.04.2019 07:40 | U | 1 |

# Certificate of Analytical Results
## 638989

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **MWD-7** Matrix: Water Sample Depth:

Lab Sample Id: 638989-001 Date Collected: 10.03.2019 07:53 Date Received: 10.03.2019 17:28

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103851 Date Prep: 10.09.2019 11:27

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687718

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.910 | 1.38 | 0.910 | mg/L | 10.09.2019 19:25 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.910 | 1.38 | 0.910 | mg/L | 10.09.2019 19:25 | U | 1 |
| Total TPH | PHC635 | <0.910 | 1.38 | 0.910 | mg/L | 10.09.2019 19:25 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 75 | 70 - 135 | % | | |
| o-Terphenyl | 79 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103512 Date Prep: 10.04.2019 13:00

Prep seq: 7687497

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 10.05.2019 09:27 | UX | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.05.2019 09:27 | UX | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.05.2019 09:27 | UX | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 10.05.2019 09:27 | UX | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.05.2019 09:27 | UX | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 10.05.2019 09:27 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.05.2019 09:27 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 98 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 132 | 70 - 130 | % | | ** |

# Certificate of Analytical Results
## 638989
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-17** Matrix: Water Sample Depth:

Lab Sample Id: 638989-002 Date Collected: 10.03.2019 08:12 Date Received: 10.03.2019 17:28

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103434 Date Prep: 10.04.2019 10:45

Prep seq: 7687472

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **1300** | 25.0 | 1.05 | mg/L | 10.04.2019 12:07 | | 50 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103470 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **2700** | 5.00 | 5.00 | mg/L | 10.04.2019 17:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: ANJ % Moist: Tech: ANJ

Seq Number: 3104079 Date Prep: 10.08.2019 07:45

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687662

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.00838** | 0.00400 | 0.000246 | mg/L | 10.08.2019 20:18 | | 1 |
| **Barium** | 7440-39-3 | **0.156** | 0.00400 | 0.000484 | mg/L | 10.08.2019 20:18 | | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 10.08.2019 20:18 | U | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103451 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.04.2019 07:40 | U | 1 |

# Certificate of Analytical Results
## 638989

## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-17** Matrix: Water Sample Depth:

Lab Sample Id: 638989-002 Date Collected: 10.03.2019 08:12 Date Received: 10.03.2019 17:28

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103841 Date Prep: 10.09.2019 11:39

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687754

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.909 | 1.38 | 0.909 | mg/L | 10.09.2019 18:29 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.909 | 1.38 | 0.909 | mg/L | 10.09.2019 18:29 | U | 1 |
| Total TPH | PHC635 | <0.909 | 1.38 | 0.909 | mg/L | 10.09.2019 18:29 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 81 | 70 - 135 | % | | |
| o-Terphenyl | 86 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103512 Date Prep: 10.04.2019 13:00

Prep seq: 7687497

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 10.05.2019 09:47 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.05.2019 09:47 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.05.2019 09:47 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 10.05.2019 09:47 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.05.2019 09:47 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 10.05.2019 09:47 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.05.2019 09:47 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 100 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 131 | 70 - 130 | % | | ** |

# Certificate of Analytical Results
## 638989
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-30** Matrix: Water Sample Depth:

Lab Sample Id: 638989-003 Date Collected: 10.03.2019 08:15 Date Received: 10.03.2019 17:28

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103434 Date Prep: 10.04.2019 10:45

Prep seq: 7687472

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **244** | 5.00 | 0.210 | mg/L | 10.04.2019 12:14 | | 10 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103470 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1220** | 5.00 | 5.00 | mg/L | 10.04.2019 17:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: ANJ % Moist: Tech: ANJ

Seq Number: 3104079 Date Prep: 10.08.2019 07:45

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687662

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0123** | 0.00400 | 0.000246 | mg/L | 10.08.2019 20:21 | | 1 |
| **Barium** | 7440-39-3 | **0.298** | 0.00400 | 0.000484 | mg/L | 10.08.2019 20:21 | | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 10.08.2019 20:21 | U | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103451 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.04.2019 07:40 | U | 1 |

# Certificate of Analytical Results
## 638989

## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-30** Matrix: Water Sample Depth:

Lab Sample Id: 638989-003 Date Collected: 10.03.2019 08:15 Date Received: 10.03.2019 17:28

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103841 Date Prep: 10.09.2019 11:45

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687754

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Gasoline Range Hydrocarbons** | PHC610 | **0.969** | 1.38 | 0.906 | mg/L | 10.09.2019 19:06 | J | 1 |
| Diesel Range Organics | C10C28DRO | <0.906 | 1.38 | 0.906 | mg/L | 10.09.2019 19:06 | U | 1 |
| **Total TPH** | PHC635 | **0.969** | 1.38 | 0.906 | mg/L | 10.09.2019 19:06 | J | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 78 | 70 - 135 | % | | |
| o-Terphenyl | 84 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103512 Date Prep: 10.04.2019 13:00

Prep seq: 7687497

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 10.05.2019 10:07 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.05.2019 10:07 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.05.2019 10:07 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 10.05.2019 10:07 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.05.2019 10:07 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 10.05.2019 10:07 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.05.2019 10:07 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 103 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 129 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 638989
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MWD-1** Matrix: Water Sample Depth:

Lab Sample Id: 638989-004 Date Collected: 10.03.2019 09:10 Date Received: 10.03.2019 17:28

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103434 Date Prep: 10.04.2019 10:45

Prep seq: 7687472

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **469** | 5.00 | 0.210 | mg/L | 10.04.2019 12:21 | | 10 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103470 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1540** | 5.00 | 5.00 | mg/L | 10.04.2019 17:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: ANJ % Moist: Tech: ANJ

Seq Number: 3104079 Date Prep: 10.08.2019 07:45

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687662

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0501** | 0.00400 | 0.000246 | mg/L | 10.08.2019 20:24 | | 1 |
| **Barium** | 7440-39-3 | **0.0483** | 0.00400 | 0.000484 | mg/L | 10.08.2019 20:24 | | 1 |
| **Chromium** | 7440-47-3 | **0.00388** | 0.00400 | 0.000525 | mg/L | 10.08.2019 20:24 | J | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103451 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.04.2019 07:40 | U | 1 |

# Certificate of Analytical Results
## 638989

## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MWD-1** Matrix: Water Sample Depth:

Lab Sample Id: 638989-004 Date Collected: 10.03.2019 09:10 Date Received: 10.03.2019 17:28

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103841 Date Prep: 10.09.2019 11:48

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687754

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.882 | 1.34 | 0.882 | mg/L | 10.09.2019 19:25 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.882 | 1.34 | 0.882 | mg/L | 10.09.2019 19:25 | U | 1 |
| Total TPH | PHC635 | <0.882 | 1.34 | 0.882 | mg/L | 10.09.2019 19:25 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 82 | 70 - 135 | % | | |
| o-Terphenyl | 88 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103512 Date Prep: 10.04.2019 13:00

Prep seq: 7687497

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 10.05.2019 10:28 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.05.2019 10:28 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.05.2019 10:28 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 10.05.2019 10:28 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.05.2019 10:28 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 10.05.2019 10:28 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.05.2019 10:28 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 90 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 123 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 638989
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-4** Matrix: Water Sample Depth:

Lab Sample Id: 638989-005 Date Collected: 10.03.2019 09:50 Date Received: 10.03.2019 17:28

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103434 Date Prep: 10.04.2019 10:45

Prep seq: 7687472

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **2150** | 25.0 | 1.05 | mg/L | 10.04.2019 12:47 | | 50 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103470 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **4390** | 5.00 | 5.00 | mg/L | 10.04.2019 17:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: ANJ % Moist: Tech: ANJ

Seq Number: 3104079 Date Prep: 10.08.2019 07:45

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687662

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.00848** | 0.00400 | 0.000246 | mg/L | 10.08.2019 20:27 | | 1 |
| **Barium** | 7440-39-3 | **0.0585** | 0.00400 | 0.000484 | mg/L | 10.08.2019 20:27 | | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 10.08.2019 20:27 | U | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103451 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.04.2019 07:40 | U | 1 |

# Certificate of Analytical Results
## 638989

## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-4** Matrix: Water Sample Depth:

Lab Sample Id: 638989-005 Date Collected: 10.03.2019 09:50 Date Received: 10.03.2019 17:28

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103841 Date Prep: 10.09.2019 11:51

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687754

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Gasoline Range Hydrocarbons** | PHC610 | **0.928** | 1.39 | 0.915 | mg/L | 10.09.2019 19:44 | J | 1 |
| Diesel Range Organics | C10C28DRO | <0.915 | 1.39 | 0.915 | mg/L | 10.09.2019 19:44 | U | 1 |
| **Total TPH** | PHC635 | **0.928** | 1.39 | 0.915 | mg/L | 10.09.2019 19:44 | J | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 79 | 70 - 135 | % | | |
| o-Terphenyl | 85 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103512 Date Prep: 10.04.2019 13:00

Prep seq: 7687497

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 10.05.2019 10:48 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.05.2019 10:48 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.05.2019 10:48 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 10.05.2019 10:48 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.05.2019 10:48 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 10.05.2019 10:48 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.05.2019 10:48 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 99 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 130 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 638989
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MWD-15** Matrix: Water Sample Depth:

Lab Sample Id: 638989-006 Date Collected: 10.03.2019 10:20 Date Received: 10.03.2019 17:28

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103434 Date Prep: 10.04.2019 10:45

Prep seq: 7687472

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **1300** | 25.0 | 1.05 | mg/L | 10.04.2019 12:54 | | 50 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103470 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **3570** | 5.00 | 5.00 | mg/L | 10.04.2019 17:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: ANJ % Moist: Tech: ANJ

Seq Number: 3104079 Date Prep: 10.08.2019 07:45

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687662

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0180** | 0.00400 | 0.000246 | mg/L | 10.08.2019 20:30 | | 1 |
| **Barium** | 7440-39-3 | **1.19** | 0.00400 | 0.000484 | mg/L | 10.08.2019 20:30 | | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 10.08.2019 20:30 | U | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103451 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.04.2019 07:40 | U | 1 |

# Certificate of Analytical Results
## 638989

## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MWD-15** Matrix: Water Sample Depth:

Lab Sample Id: 638989-006 Date Collected: 10.03.2019 10:20 Date Received: 10.03.2019 17:28

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103841 Date Prep: 10.09.2019 11:54

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687754

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Gasoline Range Hydrocarbons** | PHC610 | **1.77** | 1.36 | 0.897 | mg/L | 10.11.2019 14:12 | | 1 |
| **Diesel Range Organics** | C10C28DRO | **1.60** | 1.36 | 0.897 | mg/L | 10.11.2019 14:12 | | 1 |
| **Total TPH** | PHC635 | **3.37** | 1.36 | 0.897 | mg/L | 10.11.2019 14:12 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 87 | 70 - 135 | % | | |
| o-Terphenyl | 96 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103512 Date Prep: 10.04.2019 13:00

Prep seq: 7687497

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **0.00443** | 0.00200 | 0.000408 | mg/L | 10.05.2019 11:08 | | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.05.2019 11:08 | U | 1 |
| **Ethylbenzene** | 100-41-4 | **0.0146** | 0.00200 | 0.000657 | mg/L | 10.05.2019 11:08 | | 1 |
| **m,p-Xylenes** | 179601-23-1 | **0.0180** | 0.00400 | 0.000630 | mg/L | 10.05.2019 11:08 | | 1 |
| **o-Xylene** | 95-47-6 | **0.0162** | 0.00200 | 0.000642 | mg/L | 10.05.2019 11:08 | | 1 |
| **Total Xylenes** | 1330-20-7 | **0.0342** | 0.00200 | 0.000630 | mg/L | 10.05.2019 11:08 | | 1 |
| **Total BTEX** | | **0.0532** | 0.00200 | 0.000367 | mg/L | 10.05.2019 11:08 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 89 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 184 | 70 - 130 | % | | ** |

# Certificate of Analytical Results
## 638989
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MWD-8** Matrix: Water Sample Depth:

Lab Sample Id: 638989-007 Date Collected: 10.03.2019 10:45 Date Received: 10.03.2019 17:28

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103434 Date Prep: 10.04.2019 10:45

Prep seq: 7687472

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **105** | 2.50 | 0.105 | mg/L | 10.04.2019 13:00 | | 5 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103470 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **565** | 5.00 | 5.00 | mg/L | 10.04.2019 17:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: ANJ % Moist: Tech: ANJ

Seq Number: 3104079 Date Prep: 10.08.2019 07:45

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687662

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0181** | 0.00400 | 0.000246 | mg/L | 10.08.2019 20:33 | | 1 |
| **Barium** | 7440-39-3 | **0.0433** | 0.00400 | 0.000484 | mg/L | 10.08.2019 20:33 | | 1 |
| **Chromium** | 7440-47-3 | **0.00111** | 0.00400 | 0.000525 | mg/L | 10.08.2019 20:33 | J | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103451 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.04.2019 07:40 | U | 1 |

# Certificate of Analytical Results
## 638989

## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MWD-8** Matrix: Water Sample Depth:

Lab Sample Id: 638989-007 Date Collected: 10.03.2019 10:45 Date Received: 10.03.2019 17:28

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103841 Date Prep: 10.09.2019 11:57

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687754

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.902 | 1.37 | 0.902 | mg/L | 10.09.2019 20:21 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.902 | 1.37 | 0.902 | mg/L | 10.09.2019 20:21 | U | 1 |
| Total TPH | PHC635 | <0.902 | 1.37 | 0.902 | mg/L | 10.09.2019 20:21 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 79 | 70 - 135 | % | | |
| o-Terphenyl | 85 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103512 Date Prep: 10.04.2019 13:00

Prep seq: 7687497

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 10.05.2019 11:28 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.05.2019 11:28 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.05.2019 11:28 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 10.05.2019 11:28 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.05.2019 11:28 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 10.05.2019 11:28 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.05.2019 11:28 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 98 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 125 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 638989
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-9** Matrix: Water Sample Depth:

Lab Sample Id: 638989-008 Date Collected: 10.03.2019 12:30 Date Received: 10.03.2019 17:28

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103434 Date Prep: 10.04.2019 10:45

Prep seq: 7687472

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **286** | 5.00 | 0.210 | mg/L | 10.04.2019 13:07 | | 10 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103470 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1340** | 5.00 | 5.00 | mg/L | 10.04.2019 17:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: ANJ % Moist: Tech: ANJ

Seq Number: 3104079 Date Prep: 10.08.2019 07:45

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687662

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.00387** | 0.00400 | 0.000246 | mg/L | 10.08.2019 20:36 | J | 1 |
| **Barium** | 7440-39-3 | **9.06** | 0.0800 | 0.00967 | mg/L | 10.14.2019 12:10 | D | 20 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 10.08.2019 20:36 | U | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103451 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.04.2019 07:40 | U | 1 |

# Certificate of Analytical Results
## 638989

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **MW-9** Matrix: Water Sample Depth:

Lab Sample Id: 638989-008 Date Collected: 10.03.2019 12:30 Date Received: 10.03.2019 17:28

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103841 Date Prep: 10.09.2019 12:00

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687754

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Gasoline Range Hydrocarbons** | PHC610 | **1.04** | 1.38 | 0.911 | mg/L | 10.09.2019 20:57 | J | 1 |
| Diesel Range Organics | C10C28DRO | <0.911 | 1.38 | 0.911 | mg/L | 10.09.2019 20:57 | U | 1 |
| **Total TPH** | PHC635 | **1.04** | 1.38 | 0.911 | mg/L | 10.09.2019 20:57 | J | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 78 | 70 - 135 | % | | |
| o-Terphenyl | 84 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103512 Date Prep: 10.04.2019 13:00

Prep seq: 7687497

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 10.05.2019 11:48 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.05.2019 11:48 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.05.2019 11:48 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 10.05.2019 11:48 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.05.2019 11:48 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 10.05.2019 11:48 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.05.2019 11:48 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 105 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 130 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 638989
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-29** Matrix: Water Sample Depth:

Lab Sample Id: 638989-009 Date Collected: 10.03.2019 12:45 Date Received: 10.03.2019 17:28

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103434 Date Prep: 10.04.2019 10:45

Prep seq: 7687472

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **232** | 5.00 | 0.210 | mg/L | 10.04.2019 13:14 | | 10 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103470 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1250** | 5.00 | 5.00 | mg/L | 10.04.2019 17:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: ANJ % Moist: Tech: ANJ

Seq Number: 3104079 Date Prep: 10.08.2019 07:45

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687662

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.00249** | 0.00400 | 0.000246 | mg/L | 10.08.2019 20:39 | J | 1 |
| **Barium** | 7440-39-3 | **8.41** | 0.0800 | 0.00967 | mg/L | 10.14.2019 12:13 | D | 20 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 10.08.2019 20:39 | U | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103451 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chromium, Hexavalent** | 18540-29-9 | **0.0139** | 0.0100 | 0.00273 | mg/L | 10.04.2019 07:40 | | 1 |

# Certificate of Analytical Results
## 638989

## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-29** Matrix: Water Sample Depth:

Lab Sample Id: 638989-009 Date Collected: 10.03.2019 12:45 Date Received: 10.03.2019 17:28

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103841 Date Prep: 10.09.2019 12:03

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687754

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Gasoline Range Hydrocarbons** | PHC610 | **4.72** | 1.41 | 0.926 | mg/L | 10.09.2019 21:16 | | 1 |
| Diesel Range Organics | C10C28DRO | <0.926 | 1.41 | 0.926 | mg/L | 10.09.2019 21:16 | U | 1 |
| **Total TPH** | PHC635 | **4.72** | 1.41 | 0.926 | mg/L | 10.09.2019 21:16 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 77 | 70 - 135 | % | | |
| o-Terphenyl | 83 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103512 Date Prep: 10.04.2019 13:00

Prep seq: 7687497

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **0.177** | 0.00200 | 0.000408 | mg/L | 10.06.2019 12:08 | | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.06.2019 12:08 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.06.2019 12:08 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 10.06.2019 12:08 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.06.2019 12:08 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 10.06.2019 12:08 | U | 1 |
| **Total BTEX** | | **0.177** | 0.00200 | 0.000367 | mg/L | 10.06.2019 12:08 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 114 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 129 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 638989
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-32** Matrix: Water Sample Depth:

Lab Sample Id: 638989-010 Date Collected: 10.03.2019 13:00 Date Received: 10.03.2019 17:28

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103434 Date Prep: 10.04.2019 10:45

Prep seq: 7687472

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **435** | 10.0 | 0.421 | mg/L | 10.04.2019 13:49 | | 20 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103470 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **2110** | 5.00 | 5.00 | mg/L | 10.04.2019 17:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: ANJ % Moist: Tech: ANJ

Seq Number: 3104079 Date Prep: 10.08.2019 07:45

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687662

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0329** | 0.00400 | 0.000246 | mg/L | 10.08.2019 20:42 | | 1 |
| **Barium** | 7440-39-3 | **1.32** | 0.00400 | 0.000484 | mg/L | 10.08.2019 20:42 | | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 10.08.2019 20:42 | U | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103451 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.04.2019 07:40 | U | 1 |

# Certificate of Analytical Results
## 638989

## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-32** Matrix: Water Sample Depth:

Lab Sample Id: 638989-010 Date Collected: 10.03.2019 13:00 Date Received: 10.03.2019 17:28

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103841 Date Prep: 10.09.2019 12:06

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687754

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Gasoline Range Hydrocarbons** | PHC610 | **11.9** | 1.36 | 0.896 | mg/L | 10.09.2019 21:34 | | 1 |
| Diesel Range Organics | C10C28DRO | <0.896 | 1.36 | 0.896 | mg/L | 10.09.2019 21:34 | U | 1 |
| **Total TPH** | PHC635 | **11.9** | 1.36 | 0.896 | mg/L | 10.09.2019 21:34 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 76 | 70 - 135 | % | | |
| o-Terphenyl | 82 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103512 Date Prep: 10.04.2019 13:00

Prep seq: 7687497

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **5.96** | 0.500 | 0.102 | mg/L | 10.07.2019 08:14 | D | 250 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.06.2019 12:29 | U | 1 |
| **Ethylbenzene** | 100-41-4 | **0.00533** | 0.00200 | 0.000657 | mg/L | 10.06.2019 12:29 | | 1 |
| **m,p-Xylenes** | 179601-23-1 | **0.00338** | 0.00400 | 0.000630 | mg/L | 10.06.2019 12:29 | J | 1 |
| **o-Xylene** | 95-47-6 | **0.00200** | 0.00200 | 0.000642 | mg/L | 10.06.2019 12:29 | J | 1 |
| **Total Xylenes** | 1330-20-7 | **0.00538** | 0.00200 | 0.000630 | mg/L | 10.06.2019 12:29 | | 1 |
| **Total BTEX** | | **5.97** | 0.00200 | 0.000367 | mg/L | 10.07.2019 08:14 | | 250 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 106 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 106 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 638989
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-8** Matrix: Water Sample Depth:

Lab Sample Id: 638989-011 Date Collected: 10.03.2019 13:18 Date Received: 10.03.2019 17:28

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103434 Date Prep: 10.04.2019 10:45

Prep seq: 7687472

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **458** | 10.0 | 0.421 | mg/L | 10.04.2019 13:56 | | 20 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103470 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **2090** | 5.00 | 5.00 | mg/L | 10.04.2019 17:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: ANJ % Moist: Tech: ANJ

Seq Number: 3103928 Date Prep: 10.09.2019 08:30

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687750

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0340** | 0.00400 | 0.000246 | mg/L | 10.09.2019 22:10 | | 1 |
| **Barium** | 7440-39-3 | **0.0426** | 0.00400 | 0.000484 | mg/L | 10.09.2019 22:10 | | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 10.09.2019 22:10 | U | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103453 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.04.2019 12:30 | U | 1 |

# Certificate of Analytical Results
## 638989

## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-8** Matrix: Water Sample Depth:

Lab Sample Id: 638989-011 Date Collected: 10.03.2019 13:18 Date Received: 10.03.2019 17:28

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103841 Date Prep: 10.09.2019 12:09

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687754

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.908 | 1.38 | 0.908 | mg/L | 10.09.2019 21:53 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.908 | 1.38 | 0.908 | mg/L | 10.09.2019 21:53 | U | 1 |
| Total TPH | PHC635 | <0.908 | 1.38 | 0.908 | mg/L | 10.09.2019 21:53 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 80 | 70 - 135 | % | | |
| o-Terphenyl | 85 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103512 Date Prep: 10.04.2019 13:00

Prep seq: 7687497

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 10.06.2019 01:47 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.06.2019 01:47 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.06.2019 01:47 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 10.06.2019 01:47 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.06.2019 01:47 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 10.06.2019 01:47 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.06.2019 01:47 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 95 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 127 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 638989
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MWD-13** Matrix: Water Sample Depth:

Lab Sample Id: 638989-012 Date Collected: 10.03.2019 13:55 Date Received: 10.03.2019 17:28

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103434 Date Prep: 10.04.2019 10:45

Prep seq: 7687472

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **1290** | 25.0 | 1.05 | mg/L | 10.04.2019 14:21 | | 50 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103470 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **4610** | 5.00 | 5.00 | mg/L | 10.04.2019 17:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: ANJ % Moist: Tech: ANJ

Seq Number: 3103928 Date Prep: 10.09.2019 08:30

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687750

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0620** | 0.00400 | 0.000246 | mg/L | 10.09.2019 22:30 | | 1 |
| **Barium** | 7440-39-3 | **0.0726** | 0.00400 | 0.000484 | mg/L | 10.09.2019 22:30 | | 1 |
| **Chromium** | 7440-47-3 | **0.00285** | 0.00400 | 0.000525 | mg/L | 10.09.2019 22:30 | J | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103453 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.04.2019 12:30 | U | 1 |

# Certificate of Analytical Results
## 638989

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **MWD-13** Matrix: Water Sample Depth:

Lab Sample Id: 638989-012 Date Collected: 10.03.2019 13:55 Date Received: 10.03.2019 17:28

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103841 Date Prep: 10.09.2019 12:12

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687754

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.891 | 1.35 | 0.891 | mg/L | 10.09.2019 22:11 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.891 | 1.35 | 0.891 | mg/L | 10.09.2019 22:11 | U | 1 |
| Total TPH | PHC635 | <0.891 | 1.35 | 0.891 | mg/L | 10.09.2019 22:11 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 79 | 70 - 135 | % | | |
| o-Terphenyl | 85 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103512 Date Prep: 10.04.2019 13:00

Prep seq: 7687497

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 10.06.2019 02:08 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.06.2019 02:08 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.06.2019 02:08 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 10.06.2019 02:08 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.06.2019 02:08 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 10.06.2019 02:08 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.06.2019 02:08 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 105 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 133 | 70 - 130 | % | | ** |

# Certificate of Analytical Results
## 638989
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MWD-4** Matrix: Water Sample Depth:

Lab Sample Id: 638989-013 Date Collected: 10.03.2019 14:12 Date Received: 10.03.2019 17:28

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103434 Date Prep: 10.04.2019 10:45

Prep seq: 7687472

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **49.5** | 2.50 | 0.105 | mg/L | 10.04.2019 14:28 | | 5 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103470 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1220** | 5.00 | 5.00 | mg/L | 10.04.2019 17:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: ANJ % Moist: Tech: ANJ

Seq Number: 3103928 Date Prep: 10.09.2019 08:30

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687750

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.00139** | 0.00400 | 0.000246 | mg/L | 10.09.2019 22:33 | J | 1 |
| **Barium** | 7440-39-3 | **0.0593** | 0.00400 | 0.000484 | mg/L | 10.09.2019 22:33 | | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 10.09.2019 22:33 | U | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103453 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.04.2019 12:30 | U | 1 |

# Certificate of Analytical Results
## 638989
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MWD-4** Matrix: Water Sample Depth:

Lab Sample Id: 638989-013 Date Collected: 10.03.2019 14:12 Date Received: 10.03.2019 17:28

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103841 Date Prep: 10.09.2019 12:15

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687754

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.908 | 1.38 | 0.908 | mg/L | 10.09.2019 22:29 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.908 | 1.38 | 0.908 | mg/L | 10.09.2019 22:29 | U | 1 |
| Total TPH | PHC635 | <0.908 | 1.38 | 0.908 | mg/L | 10.09.2019 22:29 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 74 | 70 - 135 | % | | |
| o-Terphenyl | 79 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103512 Date Prep: 10.04.2019 13:00

Prep seq: 7687497

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 10.06.2019 02:28 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.06.2019 02:28 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.06.2019 02:28 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 10.06.2019 02:28 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.06.2019 02:28 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 10.06.2019 02:28 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.06.2019 02:28 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 98 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 137 | 70 - 130 | % | | ** |

# Certificate of Analytical Results
## 638989
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **DUP-3** Matrix: Water Sample Depth:

Lab Sample Id: 638989-014 Date Collected: 10.03.2019 00:00 Date Received: 10.03.2019 17:28

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103434 Date Prep: 10.04.2019 10:45

Prep seq: 7687472

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **475** | 5.00 | 0.210 | mg/L | 10.04.2019 14:35 | | 10 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103470 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1530** | 5.00 | 5.00 | mg/L | 10.04.2019 17:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: ANJ % Moist: Tech: ANJ

Seq Number: 3103928 Date Prep: 10.09.2019 08:30

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687750

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0507** | 0.00400 | 0.000246 | mg/L | 10.09.2019 22:36 | | 1 |
| **Barium** | 7440-39-3 | **0.0482** | 0.00400 | 0.000484 | mg/L | 10.09.2019 22:36 | | 1 |
| **Chromium** | 7440-47-3 | **0.00404** | 0.00400 | 0.000525 | mg/L | 10.09.2019 22:36 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103453 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.04.2019 12:30 | UK | 1 |

# Certificate of Analytical Results
## 638989

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **DUP-3** Matrix: Water Sample Depth:

Lab Sample Id: 638989-014 Date Collected: 10.03.2019 00:00 Date Received: 10.03.2019 17:28

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103841 Date Prep: 10.09.2019 12:18

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687754

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.910 | 1.38 | 0.910 | mg/L | 10.09.2019 22:48 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.910 | 1.38 | 0.910 | mg/L | 10.09.2019 22:48 | U | 1 |
| Total TPH | PHC635 | <0.910 | 1.38 | 0.910 | mg/L | 10.09.2019 22:48 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 81 | 70 - 135 | % | | |
| o-Terphenyl | 88 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103512 Date Prep: 10.04.2019 13:00

Prep seq: 7687497

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 10.06.2019 02:48 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.06.2019 02:48 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.06.2019 02:48 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 10.06.2019 02:48 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.06.2019 02:48 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 10.06.2019 02:48 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.06.2019 02:48 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 92 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 128 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 638989
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **DUP-4** Matrix: Water Sample Depth:

Lab Sample Id: 638989-015 Date Collected: 10.03.2019 00:00 Date Received: 10.03.2019 17:28

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103434 Date Prep: 10.04.2019 10:45

Prep seq: 7687472

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **2130** | 25.0 | 1.05 | mg/L | 10.04.2019 14:42 | | 50 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103470 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **4240** | 5.00 | 5.00 | mg/L | 10.04.2019 17:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: ANJ % Moist: Tech: ANJ

Seq Number: 3103928 Date Prep: 10.09.2019 08:30

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687750

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.00914** | 0.00400 | 0.000246 | mg/L | 10.09.2019 22:39 | | 1 |
| **Barium** | 7440-39-3 | **0.0534** | 0.00400 | 0.000484 | mg/L | 10.09.2019 22:39 | | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 10.09.2019 22:39 | U | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103453 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.04.2019 12:30 | UK | 1 |

# Certificate of Analytical Results
## 638989
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **DUP-4** Matrix: Water Sample Depth:

Lab Sample Id: 638989-015 Date Collected: 10.03.2019 00:00 Date Received: 10.03.2019 17:28

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103841 Date Prep: 10.09.2019 12:21

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687754

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.910 | 1.38 | 0.910 | mg/L | 10.09.2019 23:06 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.910 | 1.38 | 0.910 | mg/L | 10.09.2019 23:06 | U | 1 |
| Total TPH | PHC635 | <0.910 | 1.38 | 0.910 | mg/L | 10.09.2019 23:06 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 77 | 70 - 135 | % | | |
| o-Terphenyl | 83 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103512 Date Prep: 10.04.2019 13:00

Prep seq: 7687497

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 10.06.2019 03:08 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.06.2019 03:08 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.06.2019 03:08 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 10.06.2019 03:08 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.06.2019 03:08 | U | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 10.06.2019 03:08 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.06.2019 03:08 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 101 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 137 | 70 - 130 | % | | ** |

# Certificate of Analytical Results
## 638989
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **3103451-1-BLK** Matrix: Water Sample Depth:
Lab Sample Id: 3103451-1-BLK Date Collected: Date Received:
Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:
Analyst: CHE % Moist: Tech: CHE
Seq Number: 3103451 Date Prep:
Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.04.2019 07:40 | U | 1 |

Sample Id: **3103453-1-BLK** Matrix: Water Sample Depth:
Lab Sample Id: 3103453-1-BLK Date Collected: Date Received:
Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:
Analyst: CHE % Moist: Tech: CHE
Seq Number: 3103453 Date Prep:
Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.04.2019 12:30 | U | 1 |

Sample Id: **3103470-1-BLK** Matrix: Water Sample Depth:
Lab Sample Id: 3103470-1-BLK Date Collected: Date Received:
Analytical Method: TDS by SM2540C Prep Method:
Analyst: CHE % Moist: Tech: CHE
Seq Number: 3103470 Date Prep:
Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids | 1642222 | <5.00 | 5.00 | 5.00 | mg/L | 10.04.2019 17:00 | U | 1 |

Sample Id: **7687472-1-BLK** Matrix: Water Sample Depth:
Lab Sample Id: 7687472-1-BLK Date Collected: Date Received:
Analytical Method: Chloride by EPA 300 Prep Method: E300P
Analyst: CHE % Moist: Tech: CHE
Seq Number: 3103434 Date Prep: 10.04.2019 10:45
Prep seq: 7687472

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chloride | 16887-00-6 | <0.0210 | 0.500 | 0.0210 | mg/L | 10.04.2019 11:05 | U | 1 |

# Certificate of Analytical Results
## 638989
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **7687497-1-BLK** Matrix: Water Sample Depth:

Lab Sample Id: 7687497-1-BLK Date Collected: Date Received:

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103512 Date Prep: 10.04.2019 13:00

Prep seq: 7687497

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 10.04.2019 03:36 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.04.2019 03:36 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.04.2019 03:36 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 10.04.2019 03:36 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.04.2019 03:36 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 87 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 126 | 70 - 130 | % | | |

Sample Id: **7687629-1-BLK** Matrix: Water Sample Depth:

Lab Sample Id: 7687629-1-BLK Date Collected: Date Received:

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103555 Date Prep: 10.07.2019 16:15

Prep seq: 7687629

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chloride | 16887-00-6 | <0.0210 | 0.500 | 0.0210 | mg/L | 10.07.2019 17:28 | U | 1 |

Sample Id: **7687662-1-BLK** Matrix: Water Sample Depth:

Lab Sample Id: 7687662-1-BLK Date Collected: Date Received:

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: ANJ % Moist: Tech: ANJ

Seq Number: 3104079 Date Prep: 10.08.2019 07:45

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687662

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Arsenic | 7440-38-2 | <0.000246 | 0.00400 | 0.000246 | mg/L | 10.08.2019 19:49 | U | 1 |
| Barium | 7440-39-3 | <0.000484 | 0.00400 | 0.000484 | mg/L | 10.08.2019 19:49 | U | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 10.08.2019 19:49 | U | 1 |

# Certificate of Analytical Results
## 638989
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **7687718-1-BLK** Matrix: Water Sample Depth:

Lab Sample Id: 7687718-1-BLK Date Collected: Date Received:

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103851 Date Prep: 10.08.2019 16:00

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687718

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.988 | 1.50 | 0.988 | mg/L | 10.09.2019 02:32 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.988 | 1.50 | 0.988 | mg/L | 10.09.2019 02:32 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 80 | 70 - 135 | % | | |
| o-Terphenyl | 85 | 70 - 135 | % | | |

Sample Id: **7687750-1-BLK** Matrix: Water Sample Depth:

Lab Sample Id: 7687750-1-BLK Date Collected: Date Received:

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: ANJ % Moist: Tech: ANJ

Seq Number: 3103928 Date Prep: 10.09.2019 08:30

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687750

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Arsenic | 7440-38-2 | <0.000246 | 0.00400 | 0.000246 | mg/L | 10.09.2019 22:01 | U | 1 |
| Barium | 7440-39-3 | <0.000484 | 0.00400 | 0.000484 | mg/L | 10.09.2019 22:01 | U | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 10.09.2019 22:01 | U | 1 |

Sample Id: **7687754-1-BLK** Matrix: Water Sample Depth:

Lab Sample Id: 7687754-1-BLK Date Collected: Date Received:

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103841 Date Prep: 10.09.2019 11:30

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687754

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.988 | 1.50 | 0.988 | mg/L | 10.09.2019 17:31 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.988 | 1.50 | 0.988 | mg/L | 10.09.2019 17:31 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 81 | 70 - 135 | % | | |
| o-Terphenyl | 87 | 70 - 135 | % | | |

# 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



Released to Imaging: 6/14/2022 10:17:42 AM

# Form 2 - Surrogate Recoveries

**Project Name:** Eunice Project- S. Eunice

**Work Orders :** 638989 **Project ID:** 30006138

**Lab Batch #:** 3103512 **Sample:** 7687497-1-BKS / BKS **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 10.04.2019 01:54 **SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0279 | 0.0300 | 93 | 70-130 | |
| 4-Bromofluorobenzene | 0.0385 | 0.0300 | 128 | 70-130 | |

**Lab Batch #:** 3103512 **Sample:** 7687497-1-BSD / BSD **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 10.04.2019 02:14 **SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0296 | 0.0300 | 99 | 70-130 | |
| 4-Bromofluorobenzene | 0.0380 | 0.0300 | 127 | 70-130 | |

**Lab Batch #:** 3103512 **Sample:** 7687497-1-BLK / BLK **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 10.04.2019 03:36 **SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0262 | 0.0300 | 87 | 70-130 | |
| 4-Bromofluorobenzene | 0.0377 | 0.0300 | 126 | 70-130 | |

**Lab Batch #:** 3103512 **Sample:** 638989-001 S / MS **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 10.05.2019 08:07 **SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0290 | 0.0300 | 97 | 70-130 | |
| 4-Bromofluorobenzene | 0.0396 | 0.0300 | 132 | 70-130 | ** |

**Lab Batch #:** 3103512 **Sample:** 638989-001 SD / MSD **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 10.05.2019 08:28 **SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0293 | 0.0300 | 98 | 70-130 | |
| 4-Bromofluorobenzene | 0.0404 | 0.0300 | 135 | 70-130 | ** |

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

# Form 2 - Surrogate Recoveries

**Project Name:** Eunice Project- S. Eunice

**Work Orders :** 638989 **Project ID:** 30006138

**Lab Batch #:** 3103841 **Sample:** 7687754-1-BLK / BLK **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 10.09.2019 17:31 **SURROGATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 8.08 | 10.0 | 81 | 70-135 | |
| o-Terphenyl | 4.34 | 5.00 | 87 | 70-135 | |

**Lab Batch #:** 3103841 **Sample:** 7687754-1-BKS / BKS **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 10.09.2019 17:50 **SURROGATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 8.52 | 10.0 | 85 | 70-135 | |
| o-Terphenyl | 4.00 | 5.00 | 80 | 70-135 | |

**Lab Batch #:** 3103841 **Sample:** 7687754-1-BSD / BSD **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 10.09.2019 18:10 **SURROGATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 9.13 | 10.0 | 91 | 70-135 | |
| o-Terphenyl | 4.14 | 5.00 | 83 | 70-135 | |

**Lab Batch #:** 3103841 **Sample:** 638989-002 S / MS **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 10.09.2019 18:48 **SURROGATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 7.80 | 9.02 | 86 | 70-135 | |
| o-Terphenyl | 3.59 | 4.51 | 80 | 70-135 | |

**Lab Batch #:** 3103851 **Sample:** 7687718-1-BLK / BLK **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 10.09.2019 02:32 **SURROGATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 7.98 | 10.0 | 80 | 70-135 | |
| o-Terphenyl | 4.26 | 5.00 | 85 | 70-135 | |

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

# Form 2 - Surrogate Recoveries

**Project Name:** Eunice Project- S. Eunice

**Work Orders :** 638989 **Project ID:** 30006138

**Lab Batch #:** 3103851 **Sample:** 7687718-1-BKS / BKS **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 10.09.2019 02:51 **SURROGATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 8.85 | 10.0 | 89 | 70-135 | |
| o-Terphenyl | 4.59 | 5.00 | 92 | 70-135 | |

**Lab Batch #:** 3103851 **Sample:** 7687718-1-BSD / BSD **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 10.09.2019 03:09 **SURROGATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 9.49 | 10.0 | 95 | 70-135 | |
| o-Terphenyl | 4.64 | 5.00 | 93 | 70-135 | |

**Lab Batch #:** 3103851 **Sample:** 639190-004 S / MS **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 10.09.2019 03:47 **SURROGATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 8.35 | 9.20 | 91 | 70-135 | |
| o-Terphenyl | 4.04 | 4.60 | 88 | 70-135 | |

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

# BS / BSD Recoveries

## Project Name: Eunice Project- S. Eunice

**Work Order #:** 638989 **Project ID:** 30006138

**Analyst:** KTL **Date Prepared:** 10.04.2019 **Date Analyzed:** 10.04.2019

**Lab Batch ID:** 3103512 **Sample:** 7687497-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Blank Sample Result [A] | Spike Added [B] | Blank Spike Result [C] | Blank Spike %R [D] | Spike Added [E] | Blank Spike Duplicate Result [F] | Blk. Spk Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.000408 | 0.100 | 0.109 | 109 | 0.100 | 0.105 | 105 | 4 | 70-130 | 25 | |
| Toluene | <0.000367 | 0.100 | 0.111 | 111 | 0.100 | 0.110 | 110 | 1 | 70-130 | 25 | |
| Ethylbenzene | <0.000657 | 0.100 | 0.130 | 130 | 0.100 | 0.129 | 129 | 1 | 70-130 | 25 | |
| m,p-Xylenes | <0.000630 | 0.200 | 0.257 | 129 | 0.200 | 0.256 | 128 | 0 | 70-130 | 25 | |
| o-Xylene | <0.000642 | 0.100 | 0.126 | 126 | 0.100 | 0.130 | 130 | 3 | 70-130 | 25 | |

**Analyst:** CHE **Date Prepared:** 10.04.2019 **Date Analyzed:** 10.04.2019

**Lab Batch ID:** 3103434 **Sample:** 7687472-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| Chloride by EPA 300<br>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 | <0.0210 | 25.0 | 23.3 | 93 | 25.0 | 23.4 | 94 | 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: Eunice Project- S. Eunice

**Work Order #:** 638989 **Project ID:** 30006138

**Analyst:** CHE **Date Prepared:** 10.07.2019 **Date Analyzed:** 10.07.2019

**Lab Batch ID:** 3103555 **Sample:** 7687629-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| Chloride by EPA 300<br>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 | <0.0210 | 25.0 | 25.0 | 100 | 25.0 | 25.1 | 100 | 0 | 90-110 | 20 | |

**Analyst:** CHE **Date Prepared:** 10.04.2019 **Date Analyzed:** 10.04.2019

**Lab Batch ID:** 3103451 **Sample:** 3103451-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| Chromium, Hexavalent by SW 7196A<br>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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | <0.00273 | 0.0400 | 0.0383 | 96 | 0.0400 | 0.0383 | 96 | 0 | 85-115 | 20 | |

**Analyst:** CHE **Date Prepared:** 10.04.2019 **Date Analyzed:** 10.04.2019

**Lab Batch ID:** 3103453 **Sample:** 3103453-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| Chromium, Hexavalent by SW 7196A<br>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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | <0.00273 | 0.0400 | 0.0383 | 96 | 0.0400 | 0.0380 | 95 | 1 | 85-115 | 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: Eunice Project- S. Eunice

**Work Order #:** 638989 **Project ID:** 30006138

**Analyst:** ANJ **Date Prepared:** 10.08.2019 **Date Analyzed:** 10.08.2019

**Lab Batch ID:** 3104079 **Sample:** 7687662-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| (S) Dissolved Metals by SW6020A<br>Analytes | Blank Sample Result [A] | Spike Added [B] | Blank Spike Result [C] | Blank Spike %R [D] | Spike Added [E] | Blank Spike Duplicate Result [F] | Blk. Spk Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | <0.000246 | 0.100 | 0.101 | 101 | 0.100 | 0.0995 | 100 | 1 | 80-120 | 20 | |
| Barium | <0.000484 | 0.100 | 0.0984 | 98 | 0.100 | 0.0981 | 98 | 0 | 80-120 | 20 | |
| Chromium | <0.000525 | 0.100 | 0.102 | 102 | 0.100 | 0.102 | 102 | 0 | 80-120 | 20 | |

**Analyst:** ANJ **Date Prepared:** 10.09.2019 **Date Analyzed:** 10.09.2019

**Lab Batch ID:** 3103928 **Sample:** 7687750-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| (S) Dissolved Metals by SW6020A<br>Analytes | Blank Sample Result [A] | Spike Added [B] | Blank Spike Result [C] | Blank Spike %R [D] | Spike Added [E] | Blank Spike Duplicate Result [F] | Blk. Spk Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | <0.000246 | 0.100 | 0.0971 | 97 | 0.100 | 0.0984 | 98 | 1 | 80-120 | 20 | |
| Barium | <0.000484 | 0.100 | 0.0951 | 95 | 0.100 | 0.0944 | 94 | 1 | 80-120 | 20 | |
| Chromium | <0.000525 | 0.100 | 0.100 | 100 | 0.100 | 0.0992 | 99 | 1 | 80-120 | 20 | |

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

# BS / BSD Recoveries

## Project Name: Eunice Project- S. Eunice

**Work Order #:** 638989 **Project ID:** 30006138

**Analyst:** CHE **Date Prepared:** 10.04.2019 **Date Analyzed:** 10.04.2019

**Lab Batch ID:** 3103470 **Sample:** 3103470-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| TDS by SM2540C<br>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 | 988 | 99 | 1000 | 985 | 99 | 0 | 80-120 | 10 | |

**Analyst:** ISU **Date Prepared:** 10.08.2019 **Date Analyzed:** 10.09.2019

**Lab Batch ID:** 3103851 **Sample:** 7687718-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Blank Sample Result [A] | Spike Added [B] | Blank Spike Result [C] | Blank Spike %R [D] | Spike Added [E] | Blank Spike Duplicate Result [F] | Blk. Spk Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | <0.988 | 100 | 98.8 | 99 | 100 | 108 | 108 | 9 | 70-135 | 35 | |
| Diesel Range Organics | <0.988 | 100 | 109 | 109 | 100 | 114 | 114 | 4 | 70-135 | 35 | |

**Analyst:** ISU **Date Prepared:** 10.09.2019 **Date Analyzed:** 10.09.2019

**Lab Batch ID:** 3103841 **Sample:** 7687754-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Blank Sample Result [A] | Spike Added [B] | Blank Spike Result [C] | Blank Spike %R [D] | Spike Added [E] | Blank Spike Duplicate Result [F] | Blk. Spk Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | <0.988 | 100 | 111 | 111 | 100 | 106 | 106 | 5 | 70-135 | 35 | |
| Diesel Range Organics | <0.988 | 100 | 111 | 111 | 100 | 105 | 105 | 6 | 70-135 | 35 | |

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

# Form 3 - MS Recoveries

## Project Name: Eunice Project- S. Eunice

**Work Order #:** 638989

**Lab Batch #:** 3103841 **Project ID:** 30006138

**Date Analyzed:** 10.09.2019 **Date Prepared:** 10.09.2019 **Analyst:** ISU

**QC- Sample ID:** 638989-002 S **Batch #:** 1 **Matrix:** Water

**Reporting Units:** mg/L

### MATRIX / MATRIX SPIKE RECOVERY STUDY

| TPH by SW8015 Mod<br>Analytes | Parent Sample Result [A] | Spike Added [B] | Spiked Sample Result [C] | %R [D] | Control Limits %R | Flag |
|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | <0.891 | 90.2 | 95.1 | 105 | 70-135 | |
| Diesel Range Organics | <0.891 | 90.2 | 96.0 | 106 | 70-135 | |

**Lab Batch #:** 3103851

**Date Analyzed:** 10.09.2019 **Date Prepared:** 10.08.2019 **Analyst:** ISU

**QC- Sample ID:** 639190-004 S **Batch #:** 1 **Matrix:** Water

**Reporting Units:** mg/L

### MATRIX / MATRIX SPIKE RECOVERY STUDY

| TPH by SW8015 Mod<br>Analytes | Parent Sample Result [A] | Spike Added [B] | Spiked Sample Result [C] | %R [D] | Control Limits %R | Flag |
|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | 33.7 | 92.0 | 129 | 104 | 70-135 | |
| Diesel Range Organics | 84.8 | 92.0 | 163 | 85 | 70-135 | |

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference [E] = 200*(C-A)/(C+B)
All Results are based on MDL and Validated for QC Purposes

BRL - Below Reporting Limit

# Form 3 - MS / MSD Recoveries

## Project Name: Eunice Project- S. Eunice

**Work Order # :** 638989 **Project ID:** 30006138

**Lab Batch ID:** 3103512 **QC- Sample ID:** 638989-001 S **Batch #:** 1 **Matrix:** Water

**Date Analyzed:** 10.05.2019 **Date Prepared:** 10.04.2019 **Analyst:** KTL

**Reporting Units:** mg/L

**MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Parent Sample Result [A] | Spike Added [B] | Spiked Sample Result [C] | Spiked Sample %R [D] | Spike Added [E] | Duplicate Spiked Sample Result [F] | Spiked Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.000408 | 0.100 | 0.162 | 162 | 0.100 | 0.172 | 172 | 6 | 70-130 | 25 | X |
| Toluene | <0.000367 | 0.100 | 0.170 | 170 | 0.100 | 0.179 | 179 | 5 | 70-130 | 25 | X |
| Ethylbenzene | <0.000657 | 0.100 | 0.180 | 180 | 0.100 | 0.208 | 208 | 14 | 70-130 | 25 | X |
| m,p-Xylenes | <0.000630 | 0.200 | 0.418 | 209 | 0.200 | 0.451 | 226 | 8 | 70-130 | 25 | X |
| o-Xylene | <0.000642 | 0.100 | 0.209 | 209 | 0.100 | 0.216 | 216 | 3 | 70-130 | 25 | X |

**Lab Batch ID:** 3103434 **QC- Sample ID:** 638980-001 S **Batch #:** 1 **Matrix:** Drinking Water

**Date Analyzed:** 10.04.2019 **Date Prepared:** 10.04.2019 **Analyst:** CHE

**Reporting Units:** mg/L

**MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY**

| Chloride by EPA 300<br>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 | 2.90 | 25.0 | 27.4 | 98 | 25.0 | 27.0 | 96 | 1 | 90-110 | 20 | |

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

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

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

# Form 3 - MS / MSD Recoveries

## Project Name: Eunice Project- S. Eunice

**Work Order # :** 638989 **Project ID:** 30006138

**Lab Batch ID:** 3103434 **QC- Sample ID:** 638981-001 S **Batch #:** 1 **Matrix:** Drinking Water

**Date Analyzed:** 10.04.2019 **Date Prepared:** 10.04.2019 **Analyst:** CHE

**Reporting Units:** mg/L

### MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

| Chloride by EPA 300 Analytes | Parent Sample Result [A] | Spike Added [B] | Spiked Sample Result [C] | Spiked Sample %R [D] | Spike Added [E] | Duplicate Spiked Sample Result [F] | Spiked Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 6.79 | 25.0 | 32.2 | 102 | 25.0 | 32.0 | 101 | 1 | 90-110 | 20 | |

**Lab Batch ID:** 3103555 **QC- Sample ID:** 639240-001 S **Batch #:** 1 **Matrix:** Water

**Date Analyzed:** 10.07.2019 **Date Prepared:** 10.07.2019 **Analyst:** CHE

**Reporting Units:** mg/L

### MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

| Chloride by EPA 300 Analytes | Parent Sample Result [A] | Spike Added [B] | Spiked Sample Result [C] | Spiked Sample %R [D] | Spike Added [E] | Duplicate Spiked Sample Result [F] | Spiked Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 0.0255 | 25.0 | 24.4 | 97 | 25.0 | 24.3 | 97 | 0 | 90-110 | 20 | |

**Lab Batch ID:** 3103555 **QC- Sample ID:** 639240-002 S **Batch #:** 1 **Matrix:** Water

**Date Analyzed:** 10.07.2019 **Date Prepared:** 10.07.2019 **Analyst:** CHE

**Reporting Units:** mg/L

### MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

| Chloride by EPA 300 Analytes | Parent Sample Result [A] | Spike Added [B] | Spiked Sample Result [C] | Spiked Sample %R [D] | Spike Added [E] | Duplicate Spiked Sample Result [F] | Spiked Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | <0.0210 | 25.0 | 25.0 | 100 | 25.0 | 25.5 | 102 | 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: Eunice Project- S. Eunice

**Work Order # :** 638989 **Project ID:** 30006138

**Lab Batch ID:** 3103451 **QC- Sample ID:** 638989-001 S **Batch #:** 1 **Matrix:** Water

**Date Analyzed:** 10.04.2019 **Date Prepared:** 10.04.2019 **Analyst:** CHE

**Reporting Units:** mg/L

### MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

| Chromium, Hexavalent by SW 7196A<br>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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | <0.00273 | 0.200 | 0.207 | 104 | 0.200 | 0.210 | 105 | 1 | 75-125 | 20 | |

**Lab Batch ID:** 3103453 **QC- Sample ID:** 638989-015 S **Batch #:** 1 **Matrix:** Water

**Date Analyzed:** 10.04.2019 **Date Prepared:** 10.04.2019 **Analyst:** CHE

**Reporting Units:** mg/L

### MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

| Chromium, Hexavalent by SW 7196A<br>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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | <0.00273 | 0.200 | 0.201 | 101 | 0.200 | 0.201 | 101 | 0 | 75-125 | 20 | |

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

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

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

# Form 3 - MS / MSD Recoveries

## Project Name: Eunice Project- S. Eunice

**Work Order # :** 638989 **Project ID:** 30006138

**Lab Batch ID:** 3103928 **QC- Sample ID:** 638989-011 S **Batch #:** 1 **Matrix:** Water

**Date Analyzed:** 10.09.2019 **Date Prepared:** 10.09.2019 **Analyst:** ANJ

**Reporting Units:** mg/L

### MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

| (S) Dissolved Metals by SW6020A Analytes | Parent Sample Result [A] | Spike Added [B] | Spiked Sample Result [C] | Spiked Sample %R [D] | Spike Added [E] | Duplicate Spiked Sample Result [F] | Spiked Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 0.0340 | 0.100 | 0.134 | 100 | 0.100 | 0.133 | 99 | 1 | 75-125 | 20 | |
| Barium | 0.0426 | 0.100 | 0.138 | 95 | 0.100 | 0.151 | 108 | 9 | 75-125 | 20 | |
| Chromium | <0.000525 | 0.100 | 0.102 | 102 | 0.100 | 0.110 | 110 | 8 | 75-125 | 20 | |

**Lab Batch ID:** 3104079 **QC- Sample ID:** 638989-001 S **Batch #:** 1 **Matrix:** Water

**Date Analyzed:** 10.08.2019 **Date Prepared:** 10.08.2019 **Analyst:** ANJ

**Reporting Units:** mg/L

### MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

| (S) Dissolved Metals by SW6020A Analytes | Parent Sample Result [A] | Spike Added [B] | Spiked Sample Result [C] | Spiked Sample %R [D] | Spike Added [E] | Duplicate Spiked Sample Result [F] | Spiked Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 0.0153 | 0.100 | 0.114 | 99 | 0.100 | 0.113 | 98 | 1 | 75-125 | 20 | |
| Barium | 0.0429 | 0.100 | 0.143 | 100 | 0.100 | 0.141 | 98 | 1 | 75-125 | 20 | |
| Chromium | 0.00169 | 0.100 | 0.102 | 100 | 0.100 | 0.0985 | 97 | 3 | 75-125 | 20 | |

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

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

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

# Method Duplicate



## Project Name: Eunice Project- S. Eunice

**Work Order #:** 638989

**Lab Batch #:** 3103470 **Project ID:** 30006138

**Date Analyzed:** 10.04.2019 17:00 **Date Prepared:** 10.04.2019 **Analyst:** CHE

**QC- Sample ID:** 638989-001 D **Batch #:** 1 **Matrix:** Water

**Reporting Units:** mg/L

**SAMPLE / SAMPLE DUPLICATE RECOVERY**

| TDS by SM2540C<br>Analyte | Parent Sample Result [A] | Sample Duplicate Result [B] | RPD | Control Limits %RPD | Flag |
|---|---|---|---|---|---|
| Total Dissolved Solids | 9590 | 9540 | 1 | 10 | |

**Lab Batch #:** 3103470

**Date Analyzed:** 10.04.2019 17:00 **Date Prepared:** 10.04.2019 **Analyst:** CHE

**QC- Sample ID:** 638989-011 D **Batch #:** 1 **Matrix:** Water

**Reporting Units:** mg/L

**SAMPLE / SAMPLE DUPLICATE RECOVERY**

| TDS by SM2540C<br>Analyte | Parent Sample Result [A] | Sample Duplicate Result [B] | RPD | Control Limits %RPD | Flag |
|---|---|---|---|---|---|
| Total Dissolved Solids | 2090 | 2000 | 4 | 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

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# Chain of Custody

Work Order No: 623691

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)

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| | | | |
|---|---|---|---|
| Project Manager: | Rebecca Andresen | Bill to: (if different) | |
| Company Name: | ARCADIS | Company Name: | |
| Address: | 1004 N. Big Spring St. | Address: | |
| City, State ZIP: | Midland, TX. 79701 | City, State ZIP: | |
| Phone: | 303-471-3477 | Email: | madisyn.frandsen@arcadis.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: | Eunice Project- S. Eunice | Turn Around | |
| Project Number: | 30006138 | Routine ☐ | |
| P.O. Number: | | Rush: | |
| Sampler's Name: | Chas Holder | Due Date: | |

| SAMPLE RECEIPT | | | | |
|---|---|---|---|---|
| Temp Blank: | Yes No | Wet Ice: | Yes No | |
| Temperature (°C): | | Thermometer ID | | |
| Received Intact: | Yes No | | | |
| Cooler Custody Seals: | Yes No N/A | Correction Factor: | | |
| Sample Custody Seals: | Yes No N/A | Total Containers: | | |

| Sample Identification | Matrix | Date Sampled | Time Sampled | Depth | Number of Containers | BTEX (EPA 8021B) | TPH (SW8015) | Hex Chrome (SW7196A) | Dissolved Metals (SW6020_DIS): Chromium, Arsenic & Barium) | TDS (SM2540C) | Chlorides (EPA 300.0) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MWD-7 | W | 10-3 | 0753 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MW-17 | W | 10-3 | 0812 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MW-30 | W | 10-3 | 0815 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MWD-1 | W | 10-3 | 0910 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MW-4 | W | 10-3 | 0950 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MWD-15 | W | 10-3 | 1020 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MWD-8 | W | 10-3 | 1045 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MW 9 | W | 10-3 | 1230 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MW 24 | W | 10-3 | 1245 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MW 32 | W | 10-3 | 1300 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

**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

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| Relinquished by: (Signature) | Received by: (Signature) | Date/Time | Relinquished by: (Signature) | Received by: (Signature) | Date/Time |
|---|---|---|---|---|---|
| 1 | | | 2 | | |
| 3 | | | 4 | | |
| 5 | | | 6 | | |

Revised Date 051418 Rev. 2018.1

Received by OCD: 3/25/2020 2:27:35 PM
Released to Imaging: 6/14/2022 10:17:42 AM
Final 1.000
Page 52 of 58

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# Chain of Custody

Work Order No: 630909

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: | Rebecca Andresen | Bill to: (if different) | |
| Company Name: | ARCADIS | Company Name: | |
| Address: | 1004 N. Big Spring St. | Address: | |
| City, State ZIP: | Midland, TX. 79701 | City, State ZIP: | |
| Phone: | 303-471-3477 | Email: | madisyn.frandsen@arcadis.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: | Eunice Project- S. Eunice | Turn Around | |
| Project Number: | 30006138 | Routine ☐ | |
| P.O. Number: | | Rush: | |
| Sampler's Name: | Chas Holder | Due Date: | |

| SAMPLE RECEIPT | | | | |
|---|---|---|---|---|
| Temperature (°C): | | Temp Blank: Yes No | Wet Ice: Yes No | |
| Received Intact: | Yes No | Thermometer ID | | |
| Cooler Custody Seals: | Yes No N/A | Correction Factor: | | |
| Sample Custody Seals: | Yes No N/A | Total Containers: | | |

| Sample Identification | Matrix | Date Sampled | Time Sampled | Depth | Number of Containers | BTEX (EPA 8021B) | TPH (SW8015) | Hex Chrome (SW7196A) | Dissolved Metals (SW6020_DIS): Chromium, Arsenic & Barium) | TDS (SM2540C) | Chlorides (EPA 300.0) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MW8 | W | 10-3 | 1318 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MW13 | W | 10-3 | 1355 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MW4 | W | 10-3 | 1412 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Dup 3 | W | 10-3 | | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Dup 4 | W | 10-3 | | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

**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

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Xenco. A minimum charge of $75.00 will be applied to each project and a charge of $5 for each sample submitted to Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

| | Relinquished by: (Signature) | Received by: (Signature) | Date/Time | Relinquished by: (Signature) | Received by: (Signature) | Date/Time |
|---|---|---|---|---|---|---|
| 1 | | J Kramer | 10/3 1712 | 2 J Kramer | | |
| 3 | | | | 4 | | |
| 5 | | | | 6 | | |

Revised Date 051418 Rev. 2018.1

Received by OCD: 3/25/2020 2:27:35 PM
Released to Imaging: 6/14/2022 10:17:42 AM
Final 1.000
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# Inter-Office Shipment

**IOS Number : 49361**

| | | | | | |
|---|---|---|---|---|---|
| Date/Time: | 10.04.2019 | Created by: | Brianna Teel | Please send report to: | John Builes |
| Lab# From: | **Midland** | Delivery Priority: | | Address: | 1211 W. Florida Ave |
| Lab# To: | **Houston** | Air Bill No.: | 776511508146 | E-Mail: | john.builes@xenco.com |

| Sample Id | Matrix | Client Sample Id | Sample Collection | Method | Method Name | Lab Due | HT Due | PM | Analytes | Sign |
|---|---|---|---|---|---|---|---|---|---|---|
| 638989-001 | W | MWD-7 | 10.03.2019 07:53 | SW6020_Select_DIS | (S) Dissolved Metals by SW6020A | 10.09.2019 | 03.31.2020 | JHB | AS BA CR | |
| 638989-002 | W | MW-17 | 10.03.2019 08:12 | SW6020_Select_DIS | (S) Dissolved Metals by SW6020A | 10.09.2019 | 03.31.2020 | JHB | AS BA CR | |
| 638989-003 | W | MW-30 | 10.03.2019 08:15 | SW6020_Select_DIS | (S) Dissolved Metals by SW6020A | 10.09.2019 | 03.31.2020 | JHB | AS BA CR | |
| 638989-004 | W | MWD-1 | 10.03.2019 09:10 | SW6020_Select_DIS | (S) Dissolved Metals by SW6020A | 10.09.2019 | 03.31.2020 | JHB | AS BA CR | |
| 638989-005 | W | MW-4 | 10.03.2019 09:50 | SW6020_Select_DIS | (S) Dissolved Metals by SW6020A | 10.09.2019 | 03.31.2020 | JHB | AS BA CR | |
| 638989-006 | W | MWD-15 | 10.03.2019 10:20 | SW6020_Select_DIS | (S) Dissolved Metals by SW6020A | 10.09.2019 | 03.31.2020 | JHB | AS BA CR | |
| 638989-007 | W | MWD-8 | 10.03.2019 10:45 | SW6020_Select_DIS | (S) Dissolved Metals by SW6020A | 10.09.2019 | 03.31.2020 | JHB | AS BA CR | |
| 638989-008 | W | MW-9 | 10.03.2019 12:30 | SW6020_Select_DIS | (S) Dissolved Metals by SW6020A | 10.09.2019 | 03.31.2020 | JHB | AS BA CR | |
| 638989-009 | W | MW-29 | 10.03.2019 12:45 | SW6020_Select_DIS | (S) Dissolved Metals by SW6020A | 10.09.2019 | 03.31.2020 | JHB | AS BA CR | |
| 638989-010 | W | MW-32 | 10.03.2019 13:00 | SW6020_Select_DIS | (S) Dissolved Metals by SW6020A | 10.09.2019 | 03.31.2020 | JHB | AS BA CR | |
| 638989-011 | W | MW-8 | 10.03.2019 13:18 | SW6020_Select_DIS | (S) Dissolved Metals by SW6020A | 10.09.2019 | 03.31.2020 | JHB | AS BA CR | |
| 638989-012 | W | MWD-13 | 10.03.2019 13:55 | SW6020_Select_DIS | (S) Dissolved Metals by SW6020A | 10.09.2019 | 03.31.2020 | JHB | AS BA CR | |
| 638989-013 | W | MWD-4 | 10.03.2019 14:12 | SW6020_Select_DIS | (S) Dissolved Metals by SW6020A | 10.09.2019 | 03.31.2020 | JHB | AS BA CR | |
| 638989-014 | W | DUP-3 | 10.03.2019 00:00 | SW6020_Select_DIS | (S) Dissolved Metals by SW6020A | 10.09.2019 | 03.31.2020 | JHB | AS BA CR | |
| 638989-015 | W | DUP-4 | 10.03.2019 00:00 | SW6020_Select_DIS | (S) Dissolved Metals by SW6020A | 10.09.2019 | 03.31.2020 | JHB | AS BA CR | |

**Inter Office Shipment or Sample Comments:**

Relinquished By: Brianna Teel

Brianna Teel

Date Relinquished: 10.04.2019

Received By: Travis Simmons

Travis Simmons

Date Received: 10.05.2019

Cooler Temperature: 4.5

# Inter-Office Shipment



**IOS Number : 49591**

Date/Time: 10.08.2019
Lab# From: **Midland**
Lab# To: **Houston**
Created by: Jessica Kramer
Delivery Priority:
Air Bill No.: 776604651301

Please send report to: John Builes
Address: 1211 W. Florida Ave
E-Mail: john.builes@xenco.com

| Sample Id | Matrix | Client Sample Id | Sample Collection | Method | Method Name | Lab Due | HT Due | PM | Analytes | Sign |
|---|---|---|---|---|---|---|---|---|---|---|
| 638989-001 | W | MWD-7 | 10.03.2019 07:53 | SW8015MOD_NM | TPH By SW8015 Mod | 10.09.2019 | 10.17.2019 | JHB | PHCC10C28 PHCC28C3 | |
| 638989-002 | W | MW-17 | 10.03.2019 08:12 | SW8015MOD_NM | TPH By SW8015 Mod | 10.09.2019 | 10.17.2019 | JHB | PHCC10C28 PHCC28C3 | |
| 638989-003 | W | MW-30 | 10.03.2019 08:15 | SW8015MOD_NM | TPH By SW8015 Mod | 10.09.2019 | 10.17.2019 | JHB | PHCC10C28 PHCC28C3 | |
| 638989-004 | W | MWD-1 | 10.03.2019 09:10 | SW8015MOD_NM | TPH By SW8015 Mod | 10.09.2019 | 10.17.2019 | JHB | PHCC10C28 PHCC28C3 | |
| 638989-005 | W | MW-4 | 10.03.2019 09:50 | SW8015MOD_NM | TPH By SW8015 Mod | 10.09.2019 | 10.17.2019 | JHB | PHCC10C28 PHCC28C3 | |
| 638989-006 | W | MWD-15 | 10.03.2019 10:20 | SW8015MOD_NM | TPH By SW8015 Mod | 10.09.2019 | 10.10.2019 10:20 | JHB | PHCC10C28 PHCC28C3 | |
| 638989-007 | W | MWD-8 | 10.03.2019 10:45 | SW8015MOD_NM | TPH By SW8015 Mod | 10.09.2019 | 10.10.2019 10:45 | JHB | PHCC10C28 PHCC28C3 | |
| 638989-008 | W | MW-9 | 10.03.2019 12:30 | SW8015MOD_NM | TPH By SW8015 Mod | 10.09.2019 | 10.10.2019 12:30 | JHB | PHCC10C28 PHCC28C3 | |
| 638989-009 | W | MW-29 | 10.03.2019 12:45 | SW8015MOD_NM | TPH By SW8015 Mod | 10.09.2019 | 10.10.2019 12:45 | JHB | PHCC10C28 PHCC28C3 | |
| 638989-010 | W | MW-32 | 10.03.2019 13:00 | SW8015MOD_NM | TPH By SW8015 Mod | 10.09.2019 | 10.10.2019 13:00 | JHB | PHCC10C28 PHCC28C3 | |
| 638989-011 | W | MW-8 | 10.03.2019 13:18 | SW8015MOD_NM | TPH By SW8015 Mod | 10.09.2019 | 10.17.2019 | JHB | PHCC10C28 PHCC28C3 | |
| 638989-012 | W | MWD-13 | 10.03.2019 13:55 | SW8015MOD_NM | TPH By SW8015 Mod | 10.09.2019 | 10.17.2019 | JHB | PHCC10C28 PHCC28C3 | |
| 638989-013 | W | MWD-4 | 10.03.2019 14:12 | SW8015MOD_NM | TPH By SW8015 Mod | 10.09.2019 | 10.17.2019 | JHB | PHCC10C28 PHCC28C3 | |
| 638989-014 | W | DUP-3 | 10.03.2019 00:00 | SW8015MOD_NM | TPH By SW8015 Mod | 10.09.2019 | 10.17.2019 | JHB | PHCC10C28 PHCC28C3 | |
| 638989-015 | W | DUP-4 | 10.03.2019 00:00 | SW8015MOD_NM | TPH By SW8015 Mod | 10.09.2019 | 10.17.2019 | JHB | PHCC10C28 PHCC28C3 | |

**Inter Office Shipment or Sample Comments:**

Relinquished By: Jessica Kramer
Jessica Kramer

Date Relinquished: 10.08.2019

Received By:
Monica Shakhshir

Date Received: 10.09.2019

Cooler Temperature: 0.9

# XENCO Laboratories

## Inter Office Report- Sample Receipt Checklist

**Sent To:** Houston

**IOS #:** 49361

**Acceptable Temperature Range: 0 - 6 degC**
**Air and Metal samples Acceptable Range: Ambient**
**Temperature Measuring device used : HOU-068**

**Sent By:** Brianna Teel **Date Sent:** 10.04.2019 07.50 AM

**Received By:** Travis Simmons **Date Received:** 10.05.2019 09.30 AM

| Sample Receipt Checklist | | Comments |
|---|---|---|
| #1 *Temperature of cooler(s)? | 4.5 | |
| #2 *Shipping container in good condition? | **Yes** | |
| #3 *Samples received with appropriate temperature? | **Yes** | |
| #4 *Custody Seals intact on shipping container/ cooler? | **Yes** | |
| #5 *Custody Seals Signed and dated for Containers/coolers | **Yes** | |
| #6 *IOS present? | **Yes** | |
| #7 Any missing/extra samples? | **No** | |
| #8 IOS agrees with sample label(s)/matrix? | **Yes** | |
| #9 Sample matrix/ properties agree with IOS? | **Yes** | |
| #10 Samples in proper container/ bottle? | **Yes** | |
| #11 Samples properly preserved? | **Yes** | |
| #12 Sample container(s) intact? | **Yes** | |
| #13 Sufficient sample amount for indicated test(s)? | **Yes** | |
| #14 All samples received within hold time? | **Yes** | |

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

**NonConformance:**

**Corrective Action Taken:**

**Nonconformance Documentation**

**Contact:** _____ **Contacted by :** _____ **Date:** _____

**Checklist reviewed by:** Travis Simmons Date: 10.05.2019

Travis Simmons

# XENCO Laboratories

## Inter Office Report- Sample Receipt Checklist

**Sent To:** Houston

**IOS #:** 49591

**Acceptable Temperature Range: 0 - 6 degC**
**Air and Metal samples Acceptable Range: Ambient**
**Temperature Measuring device used : HOU-068**

**Sent By:** Jessica Kramer **Date Sent:** 10.08.2019 11.06 AM

**Received By:** Monica Shakhshir **Date Received:** 10.09.2019 09.30 AM

| Sample Receipt Checklist | | Comments |
|---|---|---|
| #1 *Temperature of cooler(s)? | .9 | |
| #2 *Shipping container in good condition? | **Yes** | |
| #3 *Samples received with appropriate temperature? | **Yes** | |
| #4 *Custody Seals intact on shipping container/ cooler? | **Yes** | |
| #5 *Custody Seals Signed and dated for Containers/coolers | **Yes** | |
| #6 *IOS present? | **Yes** | |
| #7 Any missing/extra samples? | **No** | |
| #8 IOS agrees with sample label(s)/matrix? | **Yes** | |
| #9 Sample matrix/ properties agree with IOS? | **Yes** | |
| #10 Samples in proper container/ bottle? | **Yes** | |
| #11 Samples properly preserved? | **Yes** | |
| #12 Sample container(s) intact? | **Yes** | |
| #13 Sufficient sample amount for indicated test(s)? | **Yes** | |
| #14 All samples received within hold time? | **Yes** | |

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

**NonConformance:**

**Corrective Action Taken:**

**Nonconformance Documentation**

**Contact:** _____ **Contacted by :** _____ **Date:** _____

**Checklist reviewed by:** _____ Date: 10.09.2019

Monica Shakhshir

# XENCO Laboratories

## Prelogin/Nonconformance Report- Sample Log-In

**Client:** ARCADIS

**Date/ Time Received:** 10.03.2019 05.28.59 PM

**Work Order #:** 638989

**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)? | **Yes** | Xenco Stafford |
| #18 Water VOC samples have zero headspace? | **N/A** | |

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

Analyst: BT

PH Device/Lot#: A032690

**Checklist completed by:** Brianna Teel Date: 10.04.2019

Brianna Teel

**Checklist reviewed by:** John Builes Date: 10.04.2019

John Builes

# Analytical Report 639099

## for

## ARCADIS

**Project Manager: Madisyn Frandsen**

**Eunice Project- S. Eunice**

**30006138**

**10.22.2019**

Collected By: Client

**1211 W. Florida Ave**
**Midland TX 79701**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-19-30), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142), North Carolina (681)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (TX104704295-19-22), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-19-16)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-19-21)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-19)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-19-5)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Tampa: Florida (E87429), North Carolina (483)

10.22.2019

Project Manager: **Madisyn Frandsen**
**ARCADIS**
1004 N. Big Spring St.
Midland, TX 79701

Reference: XENCO Report No(s): **639099**
**Eunice Project- S. Eunice**
Project Address: Eunice, NM.

**Madisyn Frandsen**:

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) 639099. 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. 639099 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,



**John Builes**
Project Manager

*A Small Business and Minority Company*

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

# Sample Cross Reference 639099

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

| Sample Id | Matrix | Date Collected | Sample Depth | Lab Sample Id |
|---|---|---|---|---|
| MWD-9 | W | 10.04.2019 10:13 | | 639099-001 |
| MWD-3 | W | 10.04.2019 10:30 | | 639099-002 |
| MWD-14 | W | 10.04.2019 12:14 | | 639099-003 |
| MW-11 | W | 10.04.2019 12:41 | | 639099-004 |
| MW-26 | W | 10.04.2019 13:02 | | 639099-005 |
| MWD-12 | W | 10.04.2019 08:50 | | 639099-006 |
| MW-3 | W | 10.04.2019 09:19 | | 639099-007 |
| MWD-11 | W | 10.04.2019 09:34 | | 639099-008 |
| TMW-1 | W | 10.04.2019 09:57 | | 639099-009 |
| RW-7 | W | 10.04.2019 10:18 | | 639099-010 |
| RW-6 | W | 10.04.2019 10:40 | | 639099-011 |
| MW-25 | W | 10.04.2019 12:25 | | 639099-012 |
| TMW-6 | W | 10.04.2019 12:51 | | 639099-013 |

# CASE NARRATIVE



***Client Name: ARCADIS***

***Project Name: Eunice Project- S. Eunice***

Project ID: *30006138*
Work Order Number(s): *639099*

Report Date: *10.22.2019*
Date Received: *10.04.2019*

This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory.

**Sample receipt non conformances and comments:**

The discrepancy in sample 008 between Chromium and Hex Chromium is likely the result of a non-target analyte interfering with method SW-846 7196 for Hex Chromium. We believe the Hex Chromium result to be a false positive based on multiple re-runs and confirmation of the presense of known interferences - JB 10/22/19

**Sample receipt non conformances and comments per sample:**

None

**Analytical non conformances and comments:**

Batch: LBA-3103666 BTEX by EPA 8021B
Surrogate 1,4-Difluorobenzene recovered above QC limits. Matrix interferences is suspected. Samples affected are: 639099-012.
Surrogate 4-Bromofluorobenzene recovered above QC limits. Samples affected are: 7687635-1-BKS,7687635-1-BLK,7687635-1-BSD,639079-001 S,639079-001 SD,639099-008,639099-009,639099-010,639099-011,639099-007,639099-006,639099-005,639099-012,639099-003,639099-001,639099-004.

Initial qc failed high for ethylbenzene and xylenes. All samples that had a detection were analyzed to confirm no high bias during reporting.

# Certificate of Analytical Results
## 639099

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **MWD-9** Matrix: Water Sample Depth:

Lab Sample Id: 639099-001 Date Collected: 10.04.2019 10:13 Date Received: 10.04.2019 16:25

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103555 Date Prep: 10.07.2019 16:15

Prep seq: 7687629

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **15000** | 100 | 4.21 | mg/L | 10.07.2019 18:16 | | 200 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103470 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **26800** | 5.00 | 5.00 | mg/L | 10.04.2019 17:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: ANJ % Moist: Tech: ANJ

Seq Number: 3103928 Date Prep: 10.09.2019 08:30

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687750

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0184** | 0.00400 | 0.000246 | mg/L | 10.09.2019 22:42 | | 1 |
| **Barium** | 7440-39-3 | **0.0755** | 0.00800 | 0.000967 | mg/L | 10.14.2019 12:25 | D | 2 |
| **Chromium** | 7440-47-3 | **0.00569** | 0.00400 | 0.000525 | mg/L | 10.09.2019 22:42 | | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103458 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.04.2019 16:45 | U | 1 |

# Certificate of Analytical Results
## 639099

## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MWD-9** Matrix: Water Sample Depth:

Lab Sample Id: 639099-001 Date Collected: 10.04.2019 10:13 Date Received: 10.04.2019 16:25

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103841 Date Prep: 10.09.2019 12:24

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687754

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.879 | 1.33 | 0.879 | mg/L | 10.09.2019 23:24 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.879 | 1.33 | 0.879 | mg/L | 10.09.2019 23:24 | U | 1 |
| Total TPH | PHC635 | <0.879 | 1.33 | 0.879 | mg/L | 10.09.2019 23:24 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 75 | 70 - 135 | % | | |
| o-Terphenyl | 81 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103666 Date Prep: 10.07.2019 13:45

Prep seq: 7687635

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **0.0119** | 0.00200 | 0.000408 | mg/L | 10.08.2019 11:14 | | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.08.2019 11:14 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.08.2019 11:14 | UH | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 10.08.2019 11:14 | UH | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.08.2019 11:14 | UH | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 10.08.2019 11:14 | U | 1 |
| **Total BTEX** | | **0.0119** | 0.00200 | 0.000367 | mg/L | 10.08.2019 11:14 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 92 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 131 | 70 - 130 | % | | ** |

# Certificate of Analytical Results
## 639099
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MWD-3** Matrix: Water Sample Depth:

Lab Sample Id: 639099-002 Date Collected: 10.04.2019 10:30 Date Received: 10.04.2019 16:25

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103555 Date Prep: 10.07.2019 16:15

Prep seq: 7687629

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **44800** | 250 | 10.5 | mg/L | 10.07.2019 18:23 | | 500 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103470 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **57700** | 5.00 | 5.00 | mg/L | 10.04.2019 17:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: ANJ % Moist: Tech: ANJ

Seq Number: 3103928 Date Prep: 10.09.2019 08:30

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687750

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0297** | 0.00400 | 0.000246 | mg/L | 10.14.2019 12:28 | | 1 |
| **Barium** | 7440-39-3 | **0.753** | 0.0400 | 0.00484 | mg/L | 10.14.2019 12:31 | D | 10 |
| **Chromium** | 7440-47-3 | **0.00194** | 0.00400 | 0.000525 | mg/L | 10.14.2019 12:28 | J | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103458 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.04.2019 16:45 | U | 1 |

# Certificate of Analytical Results
## 639099

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **MWD-3** Matrix: Water Sample Depth:

Lab Sample Id: 639099-002 Date Collected: 10.04.2019 10:30 Date Received: 10.04.2019 16:25

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103841 Date Prep: 10.09.2019 12:27

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687754

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Gasoline Range Hydrocarbons** | PHC610 | **5.55** | 1.34 | 0.881 | mg/L | 10.09.2019 23:43 | | 1 |
| Diesel Range Organics | C10C28DRO | <0.881 | 1.34 | 0.881 | mg/L | 10.09.2019 23:43 | U | 1 |
| **Total TPH** | PHC635 | **5.55** | 1.34 | 0.881 | mg/L | 10.09.2019 23:43 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 75 | 70 - 135 | % | | |
| o-Terphenyl | 81 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103666 Date Prep: 10.07.2019 13:45

Prep seq: 7687635

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **1.97** | 0.200 | 0.0408 | mg/L | 10.13.2019 08:06 | D | 100 |
| **Toluene** | 108-88-3 | **0.00558** | 0.00200 | 0.000367 | mg/L | 10.08.2019 11:34 | | 1 |
| **Ethylbenzene** | 100-41-4 | **0.0662** | 0.00200 | 0.000657 | mg/L | 10.08.2019 11:34 | H | 1 |
| **m,p-Xylenes** | 179601-23-1 | **0.0265** | 0.00400 | 0.000630 | mg/L | 10.08.2019 11:34 | H | 1 |
| **o-Xylene** | 95-47-6 | **0.00646** | 0.00200 | 0.000642 | mg/L | 10.08.2019 11:34 | H | 1 |
| **Total Xylenes** | 1330-20-7 | **0.0330** | 0.00200 | 0.000630 | mg/L | 10.08.2019 11:34 | | 1 |
| **Total BTEX** | | **2.07** | 0.00200 | 0.000367 | mg/L | 10.13.2019 08:06 | | 100 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 93 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 114 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 639099
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MWD-14** Matrix: Water Sample Depth:

Lab Sample Id: 639099-003 Date Collected: 10.04.2019 12:14 Date Received: 10.04.2019 16:25

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103555 Date Prep: 10.07.2019 16:15

Prep seq: 7687629

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **595** | 25.0 | 1.05 | mg/L | 10.07.2019 18:30 | | 50 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103470 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **2900** | 5.00 | 5.00 | mg/L | 10.04.2019 17:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: ANJ % Moist: Tech: ANJ

Seq Number: 3103928 Date Prep: 10.09.2019 08:30

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687750

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.000588** | 0.00400 | 0.000246 | mg/L | 10.09.2019 22:48 | J | 1 |
| **Barium** | 7440-39-3 | **0.808** | 0.0400 | 0.00484 | mg/L | 10.14.2019 12:34 | D | 10 |
| **Chromium** | 7440-47-3 | **0.000883** | 0.00400 | 0.000525 | mg/L | 10.09.2019 22:48 | J | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103458 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.04.2019 16:45 | U | 1 |

# Certificate of Analytical Results
## 639099

## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MWD-14** Matrix: Water Sample Depth:

Lab Sample Id: 639099-003 Date Collected: 10.04.2019 12:14 Date Received: 10.04.2019 16:25

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103841 Date Prep: 10.09.2019 12:30

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687754

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Gasoline Range Hydrocarbons** | PHC610 | **3.43** | 1.35 | 0.889 | mg/L | 10.09.2019 23:24 | | 1 |
| Diesel Range Organics | C10C28DRO | <0.889 | 1.35 | 0.889 | mg/L | 10.09.2019 23:24 | U | 1 |
| **Total TPH** | PHC635 | **3.43** | 1.35 | 0.889 | mg/L | 10.09.2019 23:24 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 77 | 70 - 135 | % | | |
| o-Terphenyl | 79 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103666 Date Prep: 10.07.2019 13:45

Prep seq: 7687635

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **1.18** | 0.200 | 0.0408 | mg/L | 10.13.2019 08:26 | D | 100 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.08.2019 11:54 | U | 1 |
| **Ethylbenzene** | 100-41-4 | **0.136** | 0.00200 | 0.000657 | mg/L | 10.08.2019 11:54 | H | 1 |
| **m,p-Xylenes** | 179601-23-1 | **0.00448** | 0.00400 | 0.000630 | mg/L | 10.08.2019 11:54 | H | 1 |
| **o-Xylene** | 95-47-6 | **0.00456** | 0.00200 | 0.000642 | mg/L | 10.08.2019 11:54 | H | 1 |
| **Total Xylenes** | 1330-20-7 | **0.00904** | 0.00200 | 0.000630 | mg/L | 10.08.2019 11:54 | | 1 |
| **Total BTEX** | | **1.33** | 0.00200 | 0.000367 | mg/L | 10.13.2019 08:26 | | 100 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 109 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 149 | 70 - 130 | % | | ** |

# Certificate of Analytical Results
## 639099
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-11** Matrix: Water Sample Depth:

Lab Sample Id: 639099-004 Date Collected: 10.04.2019 12:41 Date Received: 10.04.2019 16:25

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103555 Date Prep: 10.07.2019 16:15

Prep seq: 7687629

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **92.9** | 2.50 | 0.105 | mg/L | 10.07.2019 18:51 | | 5 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103470 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **692** | 5.00 | 5.00 | mg/L | 10.04.2019 17:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: ANJ % Moist: Tech: ANJ

Seq Number: 3103928 Date Prep: 10.09.2019 08:30

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687750

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0143** | 0.00400 | 0.000246 | mg/L | 10.09.2019 22:51 | | 1 |
| **Barium** | 7440-39-3 | **0.472** | 0.00400 | 0.000484 | mg/L | 10.09.2019 22:51 | | 1 |
| **Chromium** | 7440-47-3 | **0.00340** | 0.00400 | 0.000525 | mg/L | 10.09.2019 22:51 | J | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103458 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.04.2019 16:45 | U | 1 |

# Certificate of Analytical Results
## 639099

## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-11** Matrix: Water Sample Depth:

Lab Sample Id: 639099-004 Date Collected: 10.04.2019 12:41 Date Received: 10.04.2019 16:25

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103841 Date Prep: 10.09.2019 12:33

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687754

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Gasoline Range Hydrocarbons** | PHC610 | **6.06** | 1.38 | 0.908 | mg/L | 10.09.2019 23:43 | | 1 |
| Diesel Range Organics | C10C28DRO | <0.908 | 1.38 | 0.908 | mg/L | 10.09.2019 23:43 | U | 1 |
| **Total TPH** | PHC635 | **6.06** | 1.38 | 0.908 | mg/L | 10.09.2019 23:43 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 80 | 70 - 135 | % | | |
| o-Terphenyl | 81 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103666 Date Prep: 10.07.2019 13:45

Prep seq: 7687635

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **1.96** | 0.200 | 0.0408 | mg/L | 10.13.2019 08:47 | D | 100 |
| **Toluene** | 108-88-3 | **0.00752** | 0.00200 | 0.000367 | mg/L | 10.08.2019 12:15 | | 1 |
| **Ethylbenzene** | 100-41-4 | **0.0255** | 0.00200 | 0.000657 | mg/L | 10.08.2019 12:15 | H | 1 |
| **m,p-Xylenes** | 179601-23-1 | **0.135** | 0.00400 | 0.000630 | mg/L | 10.08.2019 12:15 | H | 1 |
| **o-Xylene** | 95-47-6 | **0.0100** | 0.00200 | 0.000642 | mg/L | 10.08.2019 12:15 | H | 1 |
| **Total Xylenes** | 1330-20-7 | **0.145** | 0.00200 | 0.000630 | mg/L | 10.08.2019 12:15 | | 1 |
| **Total BTEX** | | **2.14** | 0.00200 | 0.000367 | mg/L | 10.13.2019 08:47 | | 100 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 130 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 140 | 70 - 130 | % | | ** |

# Certificate of Analytical Results
## 639099
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-26** Matrix: Water Sample Depth:

Lab Sample Id: 639099-005 Date Collected: 10.04.2019 13:02 Date Received: 10.04.2019 16:25

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103555 Date Prep: 10.07.2019 16:15

Prep seq: 7687629

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **157** | 5.00 | 0.210 | mg/L | 10.07.2019 18:57 | | 10 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103470 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1090** | 5.00 | 5.00 | mg/L | 10.04.2019 17:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: ANJ % Moist: Tech: ANJ

Seq Number: 3103928 Date Prep: 10.09.2019 08:30

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687750

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0599** | 0.00400 | 0.000246 | mg/L | 10.09.2019 22:54 | | 1 |
| **Barium** | 7440-39-3 | **6.33** | 0.400 | 0.0484 | mg/L | 10.14.2019 12:37 | D | 100 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 10.09.2019 22:54 | U | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103459 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.04.2019 18:00 | U | 1 |

# Certificate of Analytical Results
## 639099

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **MW-26** Matrix: Water Sample Depth:

Lab Sample Id: 639099-005 Date Collected: 10.04.2019 13:02 Date Received: 10.04.2019 16:25

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103841 Date Prep: 10.09.2019 12:36

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687754

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Gasoline Range Hydrocarbons** | PHC610 | **2.37** | 1.38 | 0.907 | mg/L | 10.10.2019 01:34 | | 1 |
| **Diesel Range Organics** | C10C28DRO | **4.73** | 1.38 | 0.907 | mg/L | 10.10.2019 01:34 | | 1 |
| **Total TPH** | PHC635 | **14.8** | 1.38 | 0.680 | mg/L | 10.10.2019 01:34 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 80 | 70 - 135 | % | | |
| o-Terphenyl | 81 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103666 Date Prep: 10.07.2019 13:45

Prep seq: 7687635

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **0.797** | 0.100 | 0.0204 | mg/L | 10.13.2019 10:05 | D | 50 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.08.2019 12:35 | U | 1 |
| **Ethylbenzene** | 100-41-4 | **0.00743** | 0.00200 | 0.000657 | mg/L | 10.08.2019 12:35 | H | 1 |
| **m,p-Xylenes** | 179601-23-1 | **0.0152** | 0.00400 | 0.000630 | mg/L | 10.08.2019 12:35 | H | 1 |
| **o-Xylene** | 95-47-6 | **0.00245** | 0.00200 | 0.000642 | mg/L | 10.08.2019 12:35 | H | 1 |
| **Total Xylenes** | 1330-20-7 | **0.0177** | 0.00200 | 0.000630 | mg/L | 10.08.2019 12:35 | | 1 |
| **Total BTEX** | | **0.822** | 0.00200 | 0.000367 | mg/L | 10.13.2019 10:05 | | 50 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 115 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 156 | 70 - 130 | % | | ** |

# Certificate of Analytical Results
## 639099
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MWD-12** Matrix: Water Sample Depth:

Lab Sample Id: 639099-006 Date Collected: 10.04.2019 08:50 Date Received: 10.04.2019 16:25

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103555 Date Prep: 10.07.2019 16:15

Prep seq: 7687629

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **914** | 25.0 | 1.05 | mg/L | 10.07.2019 19:04 | | 50 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103476 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **2840** | 5.00 | 5.00 | mg/L | 10.04.2019 17:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: ANJ % Moist: Tech: ANJ

Seq Number: 3103928 Date Prep: 10.09.2019 08:30

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687750

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0350** | 0.00400 | 0.000246 | mg/L | 10.09.2019 22:57 | | 1 |
| **Barium** | 7440-39-3 | **0.371** | 0.00400 | 0.000484 | mg/L | 10.09.2019 22:57 | | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 10.09.2019 22:57 | U | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103459 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.04.2019 18:00 | U | 1 |

# Certificate of Analytical Results
## 639099

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **MWD-12** Matrix: Water Sample Depth:

Lab Sample Id: 639099-006 Date Collected: 10.04.2019 08:50 Date Received: 10.04.2019 16:25

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103841 Date Prep: 10.09.2019 12:39

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687754

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.912 | 1.38 | 0.912 | mg/L | 10.10.2019 15:08 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.912 | 1.38 | 0.912 | mg/L | 10.10.2019 15:08 | U | 1 |
| Total TPH | PHC635 | <0.683 | 1.38 | 0.683 | mg/L | 10.10.2019 15:08 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 111 | 70 - 135 | % | | |
| o-Terphenyl | 117 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103666 Date Prep: 10.07.2019 13:45

Prep seq: 7687635

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 10.08.2019 12:55 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.08.2019 12:55 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.08.2019 12:55 | UH | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 10.08.2019 12:55 | UH | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.08.2019 12:55 | UH | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 10.08.2019 12:55 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.08.2019 12:55 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 107 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 147 | 70 - 130 | % | | ** |

# Certificate of Analytical Results
## 639099

## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-3** Matrix: Water Sample Depth:

Lab Sample Id: 639099-007 Date Collected: 10.04.2019 09:19 Date Received: 10.04.2019 16:25

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: ANJ % Moist: Tech: ANJ

Seq Number: 3103928 Date Prep: 10.09.2019 08:30

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687750

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0164** | 0.00400 | 0.000246 | mg/L | 10.09.2019 23:06 | | 1 |
| **Barium** | 7440-39-3 | **0.0512** | 0.00400 | 0.000484 | mg/L | 10.09.2019 23:06 | | 1 |
| **Chromium** | 7440-47-3 | **0.00113** | 0.00400 | 0.000525 | mg/L | 10.09.2019 23:06 | J | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103459 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.04.2019 18:00 | U | 1 |

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103863 Date Prep: 10.09.2019 12:51

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687755

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.913 | 1.39 | 0.913 | mg/L | 10.09.2019 20:57 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.913 | 1.39 | 0.913 | mg/L | 10.09.2019 20:57 | U | 1 |
| Total TPH | PHC635 | <0.913 | 1.39 | 0.913 | mg/L | 10.09.2019 20:57 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 78 | 70 - 135 | % | | |
| o-Terphenyl | 80 | 70 - 135 | % | | |

# Certificate of Analytical Results
## 639099

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **MW-3** Matrix: Water Sample Depth:

Lab Sample Id: 639099-007 Date Collected: 10.04.2019 09:19 Date Received: 10.04.2019 16:25

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103666 Date Prep: 10.07.2019 13:45

Prep seq: 7687635

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 10.08.2019 01:15 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.08.2019 01:15 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.08.2019 01:15 | UH | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 10.08.2019 01:15 | UH | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.08.2019 01:15 | UH | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 10.08.2019 01:15 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.08.2019 01:15 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 92 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 146 | 70 - 130 | % | | ** |

Sample Id: **MW-3** Matrix: Water Sample Depth:

Lab Sample Id: 639099-007 Date Collected: 10.04.2019 09:19 Date Received: 10.04.2019 16:25

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103555 Date Prep: 10.07.2019 16:15

Prep seq: 7687629

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **84.0** | 2.50 | 0.105 | mg/L | 10.07.2019 19:11 | | 5 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103476 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **723** | 5.00 | 5.00 | mg/L | 10.04.2019 17:00 | | 1 |

# Certificate of Analytical Results
## 639099
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MWD-11** Matrix: Water Sample Depth:

Lab Sample Id: 639099-008 Date Collected: 10.04.2019 09:34 Date Received: 10.04.2019 16:25

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103555 Date Prep: 10.07.2019 16:15

Prep seq: 7687629

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **112** | 2.50 | 0.105 | mg/L | 10.07.2019 19:18 | | 5 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103476 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **801** | 5.00 | 5.00 | mg/L | 10.04.2019 17:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: ANJ % Moist: Tech: ANJ

Seq Number: 3103928 Date Prep: 10.09.2019 08:30

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687750

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0160** | 0.00400 | 0.000246 | mg/L | 10.09.2019 23:09 | | 1 |
| **Barium** | 7440-39-3 | **0.0486** | 0.00400 | 0.000484 | mg/L | 10.09.2019 23:09 | | 1 |
| **Chromium** | 7440-47-3 | **0.00135** | 0.00400 | 0.000525 | mg/L | 10.09.2019 23:09 | J | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103459 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chromium, Hexavalent** | 18540-29-9 | **0.00550** | 0.0100 | 0.00273 | mg/L | 10.04.2019 18:00 | J | 1 |

# Certificate of Analytical Results
## 639099
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MWD-11** Matrix: Water Sample Depth:

Lab Sample Id: 639099-008 Date Collected: 10.04.2019 09:34 Date Received: 10.04.2019 16:25

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103863 Date Prep: 10.09.2019 12:57

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687755

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.912 | 1.38 | 0.912 | mg/L | 10.09.2019 21:34 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.912 | 1.38 | 0.912 | mg/L | 10.09.2019 21:34 | U | 1 |
| Total TPH | PHC635 | <0.912 | 1.38 | 0.912 | mg/L | 10.09.2019 21:34 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 75 | 70 - 135 | % | | |
| o-Terphenyl | 77 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103666 Date Prep: 10.07.2019 13:45

Prep seq: 7687635

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 10.08.2019 02:35 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.08.2019 02:35 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.08.2019 02:35 | UH | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 10.08.2019 02:35 | UH | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.08.2019 02:35 | UH | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 10.08.2019 02:35 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.08.2019 02:35 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 92 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 138 | 70 - 130 | % | | ** |

# Certificate of Analytical Results
## 639099
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **TMW-1** Matrix: Water Sample Depth:

Lab Sample Id: 639099-009 Date Collected: 10.04.2019 09:57 Date Received: 10.04.2019 16:25

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103555 Date Prep: 10.07.2019 16:15

Prep seq: 7687629

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **537** | 5.00 | 0.210 | mg/L | 10.07.2019 19:45 | | 10 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103476 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1430** | 5.00 | 5.00 | mg/L | 10.04.2019 17:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: ANJ % Moist: Tech: ANJ

Seq Number: 3103928 Date Prep: 10.09.2019 08:30

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687750

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0184** | 0.00400 | 0.000246 | mg/L | 10.09.2019 23:12 | | 1 |
| **Barium** | 7440-39-3 | **1.14** | 0.00400 | 0.000484 | mg/L | 10.09.2019 23:12 | | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 10.09.2019 23:12 | U | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103459 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.04.2019 18:00 | U | 1 |

# Certificate of Analytical Results
## 639099

## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **TMW-1** Matrix: Water Sample Depth:

Lab Sample Id: 639099-009 Date Collected: 10.04.2019 09:57 Date Received: 10.04.2019 16:25

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103863 Date Prep: 10.09.2019 13:00

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687755

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.929 | 1.41 | 0.929 | mg/L | 10.09.2019 21:53 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.929 | 1.41 | 0.929 | mg/L | 10.09.2019 21:53 | U | 1 |
| Total TPH | PHC635 | <0.929 | 1.41 | 0.929 | mg/L | 10.09.2019 21:53 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 77 | 70 - 135 | % | | |
| o-Terphenyl | 79 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103666 Date Prep: 10.07.2019 13:45

Prep seq: 7687635

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **0.00589** | 0.00200 | 0.000408 | mg/L | 10.08.2019 02:55 | | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.08.2019 02:55 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.08.2019 02:55 | UH | 1 |
| **m,p-Xylenes** | 179601-23-1 | **0.00557** | 0.00400 | 0.000630 | mg/L | 10.08.2019 02:55 | H | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.08.2019 02:55 | UH | 1 |
| **Total Xylenes** | 1330-20-7 | **0.00557** | 0.00200 | 0.000630 | mg/L | 10.08.2019 02:55 | | 1 |
| **Total BTEX** | | **0.0115** | 0.00200 | 0.000367 | mg/L | 10.08.2019 02:55 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 97 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 150 | 70 - 130 | % | | ** |

# Certificate of Analytical Results
## 639099
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **RW-7** Matrix: Water Sample Depth:

Lab Sample Id: 639099-010 Date Collected: 10.04.2019 10:18 Date Received: 10.04.2019 16:25

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: ANJ % Moist: Tech: ANJ

Seq Number: 3103928 Date Prep: 10.09.2019 08:30

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687750

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.00847** | 0.00400 | 0.000246 | mg/L | 10.14.2019 12:40 | | 1 |
| **Barium** | 7440-39-3 | **0.0830** | 0.0200 | 0.00242 | mg/L | 10.14.2019 12:43 | D | 5 |
| **Chromium** | 7440-47-3 | **0.00105** | 0.00400 | 0.000525 | mg/L | 10.14.2019 12:40 | J | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103459 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.04.2019 18:00 | U | 1 |

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103863 Date Prep: 10.09.2019 13:03

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687755

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.923 | 1.40 | 0.923 | mg/L | 10.09.2019 22:11 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.923 | 1.40 | 0.923 | mg/L | 10.09.2019 22:11 | U | 1 |
| Total TPH | PHC635 | <0.923 | 1.40 | 0.923 | mg/L | 10.09.2019 22:11 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 75 | 70 - 135 | % | | |
| o-Terphenyl | 77 | 70 - 135 | % | | |

# Certificate of Analytical Results
## 639099
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **RW-7** Matrix: Water Sample Depth:

Lab Sample Id: 639099-010 Date Collected: 10.04.2019 10:18 Date Received: 10.04.2019 16:25

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103666 Date Prep: 10.07.2019 13:45

Prep seq: 7687635

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 10.08.2019 03:15 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.08.2019 03:15 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.08.2019 03:15 | UH | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 10.08.2019 03:15 | UH | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.08.2019 03:15 | UH | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 10.08.2019 03:15 | U | 1 |
| Total BTEX | | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.08.2019 03:15 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 102 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 147 | 70 - 130 | % | | ** |

Sample Id: **RW-7** Matrix: Water Sample Depth:

Lab Sample Id: 639099-010 Date Collected: 10.04.2019 10:18 Date Received: 10.04.2019 16:25

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103555 Date Prep: 10.07.2019 16:15

Prep seq: 7687629

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **4400** | 25.0 | 1.05 | mg/L | 10.07.2019 19:52 | | 50 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103476 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **5270** | 5.00 | 5.00 | mg/L | 10.04.2019 17:00 | | 1 |

# Certificate of Analytical Results
## 639099
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **RW-6** Matrix: Water Sample Depth:

Lab Sample Id: 639099-011 Date Collected: 10.04.2019 10:40 Date Received: 10.04.2019 16:25

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103555 Date Prep: 10.07.2019 16:15

Prep seq: 7687629

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **876** | 10.0 | 0.421 | mg/L | 10.07.2019 20:13 | | 20 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103476 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **2360** | 5.00 | 5.00 | mg/L | 10.04.2019 17:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: ANJ % Moist: Tech: ANJ

Seq Number: 3103928 Date Prep: 10.09.2019 08:30

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687750

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.00266** | 0.00400 | 0.000246 | mg/L | 10.09.2019 23:18 | J | 1 |
| **Barium** | 7440-39-3 | **1.53** | 0.00400 | 0.000484 | mg/L | 10.09.2019 23:18 | | 1 |
| **Chromium** | 7440-47-3 | **0.000681** | 0.00400 | 0.000525 | mg/L | 10.09.2019 23:18 | J | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103459 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.04.2019 18:00 | U | 1 |

# Certificate of Analytical Results
## 639099

## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **RW-6** Matrix: Water Sample Depth:

Lab Sample Id: 639099-011 Date Collected: 10.04.2019 10:40 Date Received: 10.04.2019 16:25

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103863 Date Prep: 10.09.2019 13:06

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687755

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Gasoline Range Hydrocarbons** | PHC610 | **1.23** | 1.38 | 0.908 | mg/L | 10.09.2019 22:29 | J | 1 |
| Diesel Range Organics | C10C28DRO | <0.908 | 1.38 | 0.908 | mg/L | 10.09.2019 22:29 | U | 1 |
| **Total TPH** | PHC635 | **1.23** | 1.38 | 0.908 | mg/L | 10.09.2019 22:29 | J | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 76 | 70 - 135 | % | | |
| o-Terphenyl | 78 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103666 Date Prep: 10.07.2019 13:45

Prep seq: 7687635

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **0.00986** | 0.00200 | 0.000408 | mg/L | 10.08.2019 03:36 | | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.08.2019 03:36 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.08.2019 03:36 | UH | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 10.08.2019 03:36 | UH | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.08.2019 03:36 | UH | 1 |
| Total Xylenes | 1330-20-7 | <0.000630 | 0.00200 | 0.000630 | mg/L | 10.08.2019 03:36 | U | 1 |
| **Total BTEX** | | **0.00986** | 0.00200 | 0.000367 | mg/L | 10.08.2019 03:36 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 99 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 139 | 70 - 130 | % | | ** |

# Certificate of Analytical Results
## 639099

## ARCADIS, Midland, TX

Eunice Project- S. Eunice

Sample Id: **MW-25** Matrix: Water Sample Depth:

Lab Sample Id: 639099-012 Date Collected: 10.04.2019 12:25 Date Received: 10.04.2019 16:25

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: ANJ % Moist: Tech: ANJ

Seq Number: 3103928 Date Prep: 10.09.2019 08:30

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687750

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.00129** | 0.00400 | 0.000246 | mg/L | 10.09.2019 23:21 | J | 1 |
| **Barium** | 7440-39-3 | **1.34** | 0.0800 | 0.00967 | mg/L | 10.14.2019 12:45 | D | 20 |
| **Chromium** | 7440-47-3 | **0.00161** | 0.00400 | 0.000525 | mg/L | 10.09.2019 23:21 | J | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103459 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.04.2019 18:00 | U | 1 |

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103863 Date Prep: 10.09.2019 13:09

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687755

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Gasoline Range Hydrocarbons** | PHC610 | **7.03** | 1.42 | 0.934 | mg/L | 10.09.2019 22:48 | | 1 |
| **Diesel Range Organics** | C10C28DRO | **3.98** | 1.42 | 0.934 | mg/L | 10.09.2019 22:48 | | 1 |
| **Total TPH** | PHC635 | **11.0** | 1.42 | 0.934 | mg/L | 10.09.2019 22:48 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 81 | 70 - 135 | % | | |
| o-Terphenyl | 83 | 70 - 135 | % | | |

# Certificate of Analytical Results
## 639099
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **MW-25** Matrix: Water Sample Depth:

Lab Sample Id: 639099-012 Date Collected: 10.04.2019 12:25 Date Received: 10.04.2019 16:25

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103666 Date Prep: 10.07.2019 13:45

Prep seq: 7687635

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **2.99** | 0.200 | 0.0408 | mg/L | 10.13.2019 10:25 | D | 100 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.08.2019 03:56 | U | 1 |
| **Ethylbenzene** | 100-41-4 | **0.0358** | 0.00200 | 0.000657 | mg/L | 10.08.2019 03:56 | H | 1 |
| **m,p-Xylenes** | 179601-23-1 | **0.0120** | 0.00400 | 0.000630 | mg/L | 10.08.2019 03:56 | H | 1 |
| **o-Xylene** | 95-47-6 | **0.00374** | 0.00200 | 0.000642 | mg/L | 10.08.2019 03:56 | H | 1 |
| **Total Xylenes** | 1330-20-7 | **0.0157** | 0.00200 | 0.000630 | mg/L | 10.08.2019 03:56 | | 1 |
| **Total BTEX** | | **3.04** | 0.00200 | 0.000367 | mg/L | 10.13.2019 10:25 | | 100 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 147 | 70 - 130 | % | | ** |
| 4-Bromofluorobenzene | 175 | 70 - 130 | % | | ** |

Sample Id: **MW-25** Matrix: Water Sample Depth:

Lab Sample Id: 639099-012 Date Collected: 10.04.2019 12:25 Date Received: 10.04.2019 16:25

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103555 Date Prep: 10.07.2019 16:15

Prep seq: 7687629

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **1960** | 25.0 | 1.05 | mg/L | 10.08.2019 08:27 | | 50 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103476 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **4420** | 5.00 | 5.00 | mg/L | 10.04.2019 17:00 | | 1 |

# Certificate of Analytical Results
## 639099

## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **TMW-6** Matrix: Water Sample Depth:

Lab Sample Id: 639099-013 Date Collected: 10.04.2019 12:51 Date Received: 10.04.2019 16:25

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103555 Date Prep: 10.07.2019 16:15

Prep seq: 7687629

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Chloride** | 16887-00-6 | **312** | 5.00 | 0.210 | mg/L | 10.07.2019 20:26 | | 10 |

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103476 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | 1642222 | **1450** | 5.00 | 5.00 | mg/L | 10.04.2019 17:00 | | 1 |

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: ANJ % Moist: Tech: ANJ

Seq Number: 3103928 Date Prep: 10.09.2019 08:30

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687750

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 7440-38-2 | **0.0671** | 0.00400 | 0.000246 | mg/L | 10.09.2019 23:24 | | 1 |
| **Barium** | 7440-39-3 | **1.10** | 0.00400 | 0.000484 | mg/L | 10.09.2019 23:24 | | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 10.09.2019 23:24 | U | 1 |

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103459 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.04.2019 18:00 | U | 1 |

# Certificate of Analytical Results
## 639099

## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **TMW-6** Matrix: Water Sample Depth:

Lab Sample Id: 639099-013 Date Collected: 10.04.2019 12:51 Date Received: 10.04.2019 16:25

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103863 Date Prep: 10.09.2019 13:12

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687755

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Gasoline Range Hydrocarbons** | PHC610 | **2.71** | 1.40 | 0.922 | mg/L | 10.09.2019 23:06 | | 1 |
| **Diesel Range Organics** | C10C28DRO | **2.05** | 1.40 | 0.922 | mg/L | 10.09.2019 23:06 | | 1 |
| **Total TPH** | PHC635 | **4.76** | 1.40 | 0.922 | mg/L | 10.09.2019 23:06 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 76 | 70 - 135 | % | | |
| o-Terphenyl | 79 | 70 - 135 | % | | |

Analytical Method: BTEX by EPA 8021B Prep Method: 5030B

Analyst: KTL % Moist: Tech: KTL

Seq Number: 3103666 Date Prep: 10.07.2019 13:45

Prep seq: 7687635

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| **Benzene** | 71-43-2 | **0.0381** | 0.00200 | 0.000408 | mg/L | 10.08.2019 04:16 | | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.08.2019 04:16 | U | 1 |
| **Ethylbenzene** | 100-41-4 | **0.00828** | 0.00200 | 0.000657 | mg/L | 10.08.2019 04:16 | H | 1 |
| **m,p-Xylenes** | 179601-23-1 | **0.00387** | 0.00400 | 0.000630 | mg/L | 10.08.2019 04:16 | JH | 1 |
| **o-Xylene** | 95-47-6 | **0.00173** | 0.00200 | 0.000642 | mg/L | 10.08.2019 04:16 | JH | 1 |
| **Total Xylenes** | 1330-20-7 | **0.00560** | 0.00200 | 0.000630 | mg/L | 10.08.2019 04:16 | | 1 |
| **Total BTEX** | | **0.0520** | 0.00200 | 0.000367 | mg/L | 10.08.2019 04:16 | | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 81 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 95 | 70 - 130 | % | | |

# Certificate of Analytical Results
## 639099
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **3103458-1-BLK** Matrix: Water Sample Depth:

Lab Sample Id: 3103458-1-BLK Date Collected: Date Received:

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103458 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.04.2019 16:45 | U | 1 |

Sample Id: **3103459-1-BLK** Matrix: Water Sample Depth:

Lab Sample Id: 3103459-1-BLK Date Collected: Date Received:

Analytical Method: Chromium, Hexavalent by SW 7196A Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103459 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 18540-29-9 | <0.00273 | 0.0100 | 0.00273 | mg/L | 10.04.2019 18:00 | U | 1 |

Sample Id: **3103470-1-BLK** Matrix: Water Sample Depth:

Lab Sample Id: 3103470-1-BLK Date Collected: Date Received:

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103470 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids | 1642222 | <5.00 | 5.00 | 5.00 | mg/L | 10.04.2019 17:00 | U | 1 |

Sample Id: **3103476-1-BLK** Matrix: Water Sample Depth:

Lab Sample Id: 3103476-1-BLK Date Collected: Date Received:

Analytical Method: TDS by SM2540C Prep Method:

Analyst: CHE % Moist: Tech: CHE

Seq Number: 3103476 Date Prep:

Prep seq:

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids | 1642222 | <5.00 | 5.00 | 5.00 | mg/L | 10.04.2019 17:00 | U | 1 |

# Certificate of Analytical Results
## 639099
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **7687629-1-BLK** Matrix: Water Sample Depth:
Lab Sample Id: 7687629-1-BLK Date Collected: Date Received:
Analytical Method: Chloride by EPA 300 Prep Method: E300P
Analyst: CHE % Moist: Tech: CHE
Seq Number: 3103555 Date Prep: 10.07.2019 16:15
Prep seq: 7687629

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Chloride | 16887-00-6 | <0.0210 | 0.500 | 0.0210 | mg/L | 10.07.2019 17:28 | U | 1 |

Sample Id: **7687635-1-BLK** Matrix: Water Sample Depth:
Lab Sample Id: 7687635-1-BLK Date Collected: Date Received:
Analytical Method: BTEX by EPA 8021B Prep Method: 5030B
Analyst: KTL % Moist: Tech: KTL
Seq Number: 3103666 Date Prep: 10.07.2019 13:45
Prep seq: 7687635

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Benzene | 71-43-2 | <0.000408 | 0.00200 | 0.000408 | mg/L | 10.08.2019 09:53 | U | 1 |
| Toluene | 108-88-3 | <0.000367 | 0.00200 | 0.000367 | mg/L | 10.08.2019 09:53 | U | 1 |
| Ethylbenzene | 100-41-4 | <0.000657 | 0.00200 | 0.000657 | mg/L | 10.08.2019 09:53 | U | 1 |
| m,p-Xylenes | 179601-23-1 | <0.000630 | 0.00400 | 0.000630 | mg/L | 10.08.2019 09:53 | U | 1 |
| o-Xylene | 95-47-6 | <0.000642 | 0.00200 | 0.000642 | mg/L | 10.08.2019 09:53 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 90 | 70 - 130 | % | | |
| 4-Bromofluorobenzene | 151 | 70 - 130 | % | | ** |

Sample Id: **7687750-1-BLK** Matrix: Water Sample Depth:
Lab Sample Id: 7687750-1-BLK Date Collected: Date Received:
Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A
Analyst: ANJ % Moist: Tech: ANJ
Seq Number: 3103928 Date Prep: 10.09.2019 08:30
Subcontractor: SUB: T104704215-19-30 Prep seq: 7687750

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Arsenic | 7440-38-2 | <0.000246 | 0.00400 | 0.000246 | mg/L | 10.09.2019 22:01 | U | 1 |
| Barium | 7440-39-3 | <0.000484 | 0.00400 | 0.000484 | mg/L | 10.09.2019 22:01 | U | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 10.09.2019 22:01 | U | 1 |

# Certificate of Analytical Results
## 639099
## ARCADIS, Midland, TX
Eunice Project- S. Eunice

Sample Id: **7687754-1-BLK** Matrix: Water Sample Depth:

Lab Sample Id: 7687754-1-BLK Date Collected: Date Received:

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103841 Date Prep: 10.09.2019 11:30

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687754

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.988 | 1.50 | 0.988 | mg/L | 10.09.2019 17:31 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.988 | 1.50 | 0.988 | mg/L | 10.09.2019 17:31 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 81 | 70 - 135 | % | | |
| o-Terphenyl | 87 | 70 - 135 | % | | |

Sample Id: **7687755-1-BLK** Matrix: Water Sample Depth:

Lab Sample Id: 7687755-1-BLK Date Collected: Date Received:

Analytical Method: TPH By SW8015 Mod Prep Method: 8015

Analyst: ISU % Moist: Tech: ISU

Seq Number: 3103863 Date Prep: 10.09.2019 12:42

Subcontractor: SUB: T104704215-19-30 Prep seq: 7687755

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | PHC610 | <0.988 | 1.50 | 0.988 | mg/L | 10.10.2019 12:20 | U | 1 |
| Diesel Range Organics | C10C28DRO | <0.988 | 1.50 | 0.988 | mg/L | 10.10.2019 12:20 | U | 1 |

| Surrogate | % Recovery | Limits | Units | Analysis Date | Flag |
|---|---|---|---|---|---|
| 1-Chlorooctane | 77 | 70 - 135 | % | | |
| o-Terphenyl | 80 | 70 - 135 | % | | |

Sample Id: **7688511-1-BLK** Matrix: Water Sample Depth:

Lab Sample Id: 7688511-1-BLK Date Collected: Date Received:

Analytical Method: (S) Dissolved Metals by SW6020A Prep Method: 3010A

Analyst: DEP % Moist: Tech: DEP

Seq Number: 3104901 Date Prep: 10.21.2019 09:00

Subcontractor: SUB: T104704215-19-30 Prep seq: 7688511

| Parameter | CAS Number | Result | MQL | SDL | Units | Analysis Date | Flag | Dil Factor |
|---|---|---|---|---|---|---|---|---|
| Arsenic | 7440-38-2 | <0.000246 | 0.00400 | 0.000246 | mg/L | 10.21.2019 15:07 | U | 1 |
| Barium | 7440-39-3 | <0.000484 | 0.00400 | 0.000484 | mg/L | 10.21.2019 15:07 | U | 1 |
| Chromium | 7440-47-3 | <0.000525 | 0.00400 | 0.000525 | mg/L | 10.21.2019 15:07 | U | 1 |

# 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



Released to Imaging: 6/14/2022 10:17:42 AM

# Form 2 - Surrogate Recoveries

**Project Name:** Eunice Project- S. Eunice

**Work Orders :** 639099 **Project ID:** 30006138

**Lab Batch #:** 3103666 **Sample:** 7687635-1-BKS / BKS **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 10.08.2019 08:13 **SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0298 | 0.0300 | 99 | 70-130 | |
| 4-Bromofluorobenzene | 0.0483 | 0.0300 | 161 | 70-130 | ** |

**Lab Batch #:** 3103666 **Sample:** 7687635-1-BSD / BSD **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 10.08.2019 08:34 **SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0290 | 0.0300 | 97 | 70-130 | |
| 4-Bromofluorobenzene | 0.0422 | 0.0300 | 141 | 70-130 | ** |

**Lab Batch #:** 3103666 **Sample:** 639079-001 S / MS **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 10.08.2019 08:54 **SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0289 | 0.0300 | 96 | 70-130 | |
| 4-Bromofluorobenzene | 0.0430 | 0.0300 | 143 | 70-130 | ** |

**Lab Batch #:** 3103666 **Sample:** 639079-001 SD / MSD **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 10.08.2019 09:14 **SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0307 | 0.0300 | 102 | 70-130 | |
| 4-Bromofluorobenzene | 0.0437 | 0.0300 | 146 | 70-130 | ** |

**Lab Batch #:** 3103666 **Sample:** 7687635-1-BLK / BLK **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 10.08.2019 09:53 **SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0269 | 0.0300 | 90 | 70-130 | |
| 4-Bromofluorobenzene | 0.0454 | 0.0300 | 151 | 70-130 | ** |

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

# Form 2 - Surrogate Recoveries

**Project Name:** Eunice Project- S. Eunice

**Work Orders :** 639099 **Project ID:** 30006138

**Lab Batch #:** 3103841 **Sample:** 7687754-1-BLK / BLK **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 10.09.2019 17:31 **SURROGATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 8.08 | 10.0 | 81 | 70-135 | |
| o-Terphenyl | 4.34 | 5.00 | 87 | 70-135 | |

**Lab Batch #:** 3103841 **Sample:** 7687754-1-BKS / BKS **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 10.09.2019 17:50 **SURROGATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 8.52 | 10.0 | 85 | 70-135 | |
| o-Terphenyl | 4.00 | 5.00 | 80 | 70-135 | |

**Lab Batch #:** 3103841 **Sample:** 7687754-1-BSD / BSD **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 10.09.2019 18:10 **SURROGATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 9.13 | 10.0 | 91 | 70-135 | |
| o-Terphenyl | 4.14 | 5.00 | 83 | 70-135 | |

**Lab Batch #:** 3103841 **Sample:** 638989-002 S / MS **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 10.09.2019 18:48 **SURROGATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 7.80 | 9.02 | 86 | 70-135 | |
| o-Terphenyl | 3.59 | 4.51 | 80 | 70-135 | |

**Lab Batch #:** 3103863 **Sample:** 7687755-1-BKS / BKS **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 10.09.2019 20:02 **SURROGATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 8.29 | 10.0 | 83 | 70-135 | |
| o-Terphenyl | 3.99 | 5.00 | 80 | 70-135 | |

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

# Form 2 - Surrogate Recoveries

**Project Name:** Eunice Project- S. Eunice

**Work Orders :** 639099 **Project ID:** 30006138

**Lab Batch #:** 3103863 **Sample:** 7687755-1-BSD / BSD **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 10.09.2019 20:21 **SURROGATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 8.35 | 10.0 | 84 | 70-135 | |
| o-Terphenyl | 3.85 | 5.00 | 77 | 70-135 | |

**Lab Batch #:** 3103863 **Sample:** 639099-007 S / MS **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 10.09.2019 21:16 **SURROGATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 7.96 | 9.22 | 86 | 70-135 | |
| o-Terphenyl | 3.68 | 4.61 | 80 | 70-135 | |

**Lab Batch #:** 3103863 **Sample:** 7687755-1-BLK / BLK **Batch:** 1 **Matrix:** Water

**Units:** mg/L **Date Analyzed:** 10.10.2019 12:20 **SURROGATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 7.70 | 10.0 | 77 | 70-135 | |
| o-Terphenyl | 4.00 | 5.00 | 80 | 70-135 | |

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

# BS / BSD Recoveries

## Project Name: Eunice Project- S. Eunice

**Work Order #:** 639099 **Project ID:** 30006138

**Analyst:** KTL **Date Prepared:** 10.07.2019 **Date Analyzed:** 10.08.2019

**Lab Batch ID:** 3103666 **Sample:** 7687635-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Blank Sample Result [A] | Spike Added [B] | Blank Spike Result [C] | Blank Spike %R [D] | Spike Added [E] | Blank Spike Duplicate Result [F] | Blk. Spk Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.000408 | 0.100 | 0.122 | 122 | 0.100 | 0.106 | 106 | 14 | 70-130 | 25 | |
| Toluene | <0.000367 | 0.100 | 0.123 | 123 | 0.100 | 0.116 | 116 | 6 | 70-130 | 25 | |
| Ethylbenzene | <0.000657 | 0.100 | 0.137 | 137 | 0.100 | 0.132 | 132 | 4 | 70-130 | 25 | H |
| m,p-Xylenes | <0.000630 | 0.200 | 0.288 | 144 | 0.200 | 0.275 | 138 | 5 | 70-130 | 25 | H |
| o-Xylene | <0.000642 | 0.100 | 0.149 | 149 | 0.100 | 0.143 | 143 | 4 | 70-130 | 25 | H |

**Analyst:** CHE **Date Prepared:** 10.07.2019 **Date Analyzed:** 10.07.2019

**Lab Batch ID:** 3103555 **Sample:** 7687629-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| Chloride by EPA 300<br>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 | <0.0210 | 25.0 | 25.0 | 100 | 25.0 | 25.1 | 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: Eunice Project- S. Eunice

**Work Order #:** 639099 **Project ID:** 30006138

**Analyst:** CHE **Date Prepared:** 10.04.2019 **Date Analyzed:** 10.04.2019

**Lab Batch ID:** 3103458 **Sample:** 3103458-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| Chromium, Hexavalent by SW 7196A<br>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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | <0.00273 | 0.0400 | 0.0348 | 87 | 0.0400 | 0.0343 | 86 | 1 | 85-115 | 20 | |

**Analyst:** CHE **Date Prepared:** 10.04.2019 **Date Analyzed:** 10.04.2019

**Lab Batch ID:** 3103459 **Sample:** 3103459-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| Chromium, Hexavalent by SW 7196A<br>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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | <0.00273 | 0.0400 | 0.0380 | 95 | 0.0400 | 0.0340 | 85 | 11 | 85-115 | 20 | |

**Analyst:** ANJ **Date Prepared:** 10.09.2019 **Date Analyzed:** 10.09.2019

**Lab Batch ID:** 3103928 **Sample:** 7687750-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| (S) Dissolved Metals by SW6020A<br>Analytes | Blank Sample Result [A] | Spike Added [B] | Blank Spike Result [C] | Blank Spike %R [D] | Spike Added [E] | Blank Spike Duplicate Result [F] | Blk. Spk Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | <0.000246 | 0.100 | 0.0971 | 97 | 0.100 | 0.0984 | 98 | 1 | 80-120 | 20 | |
| Barium | <0.000484 | 0.100 | 0.0951 | 95 | 0.100 | 0.0944 | 94 | 1 | 80-120 | 20 | |
| Chromium | <0.000525 | 0.100 | 0.100 | 100 | 0.100 | 0.0992 | 99 | 1 | 80-120 | 20 | |

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

# BS / BSD Recoveries

## Project Name: Eunice Project- S. Eunice

**Work Order #:** 639099 **Project ID:** 30006138

**Analyst:** DEP **Date Prepared:** 10.21.2019 **Date Analyzed:** 10.21.2019

**Lab Batch ID:** 3104901 **Sample:** 7688511-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| (S) Dissolved Metals by SW6020A<br>Analytes | Blank Sample Result [A] | Spike Added [B] | Blank Spike Result [C] | Blank Spike %R [D] | Spike Added [E] | Blank Spike Duplicate Result [F] | Blk. Spk Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | <0.000246 | 0.100 | 0.100 | 100 | 0.100 | 0.0991 | 99 | 1 | 80-120 | 20 | |
| Barium | <0.000484 | 0.100 | 0.0970 | 97 | 0.100 | 0.0969 | 97 | 0 | 80-120 | 20 | |
| Chromium | <0.000525 | 0.100 | 0.0977 | 98 | 0.100 | 0.0984 | 98 | 1 | 80-120 | 20 | |

**Analyst:** CHE **Date Prepared:** 10.04.2019 **Date Analyzed:** 10.04.2019

**Lab Batch ID:** 3103470 **Sample:** 3103470-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| TDS by SM2540C<br>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 | 988 | 99 | 1000 | 985 | 99 | 0 | 80-120 | 10 | |

**Analyst:** CHE **Date Prepared:** 10.04.2019 **Date Analyzed:** 10.04.2019

**Lab Batch ID:** 3103476 **Sample:** 3103476-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| TDS by SM2540C<br>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 | 964 | 96 | 1000 | 976 | 98 | 1 | 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

# BS / BSD Recoveries

## Project Name: Eunice Project- S. Eunice

**Work Order #:** 639099 **Project ID:** 30006138

**Analyst:** ISU **Date Prepared:** 10.09.2019 **Date Analyzed:** 10.09.2019

**Lab Batch ID:** 3103841 **Sample:** 7687754-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Blank Sample Result [A] | Spike Added [B] | Blank Spike Result [C] | Blank Spike %R [D] | Spike Added [E] | Blank Spike Duplicate Result [F] | Blk. Spk Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | <0.988 | 100 | 111 | 111 | 100 | 106 | 106 | 5 | 70-135 | 35 | |
| Diesel Range Organics | <0.988 | 100 | 111 | 111 | 100 | 105 | 105 | 6 | 70-135 | 35 | |

**Analyst:** ISU **Date Prepared:** 10.09.2019 **Date Analyzed:** 10.09.2019

**Lab Batch ID:** 3103863 **Sample:** 7687755-1-BKS **Batch #:** 1 **Matrix:** Water

**Units:** mg/L

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| TPH By SW8015 Mod<br>Analytes | Blank Sample Result [A] | Spike Added [B] | Blank Spike Result [C] | Blank Spike %R [D] | Spike Added [E] | Blank Spike Duplicate Result [F] | Blk. Spk Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | <0.988 | 100 | 105 | 105 | 100 | 110 | 110 | 5 | 70-135 | 35 | |
| Diesel Range Organics | <0.988 | 100 | 97.2 | 97 | 100 | 103 | 103 | 6 | 70-135 | 35 | |

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

# Form 3 - MS Recoveries

## Project Name: Eunice Project- S. Eunice

**Work Order #:** 639099

**Lab Batch #:** 3103841 **Project ID:** 30006138

**Date Analyzed:** 10.09.2019 **Date Prepared:** 10.09.2019 **Analyst:** ISU

**QC- Sample ID:** 638989-002 S **Batch #:** 1 **Matrix:** Water

**Reporting Units:** mg/L

### MATRIX / MATRIX SPIKE RECOVERY STUDY

| TPH by SW8015 Mod<br>Analytes | Parent Sample Result [A] | Spike Added [B] | Spiked Sample Result [C] | %R [D] | Control Limits %R | Flag |
|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | <0.891 | 90.2 | 95.1 | 105 | 70-135 | |
| Diesel Range Organics | <0.891 | 90.2 | 96.0 | 106 | 70-135 | |

**Lab Batch #:** 3103863

**Date Analyzed:** 10.09.2019 **Date Prepared:** 10.09.2019 **Analyst:** ISU

**QC- Sample ID:** 639099-007 S **Batch #:** 1 **Matrix:** Water

**Reporting Units:** mg/L

### MATRIX / MATRIX SPIKE RECOVERY STUDY

| TPH by SW8015 Mod<br>Analytes | Parent Sample Result [A] | Spike Added [B] | Spiked Sample Result [C] | %R [D] | Control Limits %R | Flag |
|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons | <0.911 | 92.2 | 101 | 110 | 70-135 | |
| Diesel Range Organics | <0.911 | 92.2 | 95.3 | 103 | 70-135 | |

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference [E] = 200*(C-A)/(C+B)
All Results are based on MDL and Validated for QC Purposes

BRL - Below Reporting Limit

# Form 3 - MS / MSD Recoveries

## Project Name: Eunice Project- S. Eunice

**Work Order # :** 639099 **Project ID:** 30006138

**Lab Batch ID:** 3103666 **QC- Sample ID:** 639079-001 S **Batch #:** 1 **Matrix:** Water

**Date Analyzed:** 10.08.2019 **Date Prepared:** 10.07.2019 **Analyst:** KTL

**Reporting Units:** mg/L

**MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Parent Sample Result [A] | Spike Added [B] | Spiked Sample Result [C] | Spiked Sample %R [D] | Spike Added [E] | Duplicate Spiked Sample Result [F] | Spiked Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.000408 | 0.100 | 0.109 | 109 | 0.100 | 0.115 | 115 | 5 | 70-130 | 25 | |
| Toluene | 0.524 | 0.100 | 0.620 | 96 | 0.100 | 0.599 | 75 | 3 | 70-130 | 25 | |
| Ethylbenzene | <0.000657 | 0.100 | 0.128 | 128 | 0.100 | 0.128 | 128 | 0 | 70-130 | 25 | |
| m,p-Xylenes | 0.0142 | 0.200 | 0.259 | 122 | 0.200 | 0.279 | 132 | 7 | 70-130 | 25 | X |
| o-Xylene | 0.0112 | 0.100 | 0.134 | 123 | 0.100 | 0.144 | 133 | 7 | 70-130 | 25 | X |

**Lab Batch ID:** 3103555 **QC- Sample ID:** 639240-001 S **Batch #:** 1 **Matrix:** Water

**Date Analyzed:** 10.07.2019 **Date Prepared:** 10.07.2019 **Analyst:** CHE

**Reporting Units:** mg/L

**MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY**

| Chloride by EPA 300<br>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 | 0.0255 | 25.0 | 24.4 | 97 | 25.0 | 24.3 | 97 | 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: Eunice Project- S. Eunice

**Work Order # :** 639099 **Project ID:** 30006138

**Lab Batch ID:** 3103555 **QC- Sample ID:** 639240-002 S **Batch #:** 1 **Matrix:** Water

**Date Analyzed:** 10.07.2019 **Date Prepared:** 10.07.2019 **Analyst:** CHE

**Reporting Units:** mg/L

**MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY**

| Chloride by EPA 300 Analytes | Parent Sample Result [A] | Spike Added [B] | Spiked Sample Result [C] | Spiked Sample %R [D] | Spike Added [E] | Duplicate Spiked Sample Result [F] | Spiked Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | <0.0210 | 25.0 | 25.0 | 100 | 25.0 | 25.5 | 102 | 2 | 90-110 | 20 | |

**Lab Batch ID:** 3103458 **QC- Sample ID:** 639048-008 S **Batch #:** 1 **Matrix:** Water

**Date Analyzed:** 10.04.2019 **Date Prepared:** 10.04.2019 **Analyst:** CHE

**Reporting Units:** mg/L

**MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY**

| Chromium, Hexavalent by SW 7196A 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | <0.00273 | 0.200 | 0.198 | 99 | 0.200 | 0.200 | 100 | 1 | 75-125 | 20 | |

**Lab Batch ID:** 3103459 **QC- Sample ID:** 639099-007 S **Batch #:** 1 **Matrix:** Water

**Date Analyzed:** 10.04.2019 **Date Prepared:** 10.04.2019 **Analyst:** CHE

**Reporting Units:** mg/L

**MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY**

| Chromium, Hexavalent by SW 7196A 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | <0.00273 | 0.200 | 0.232 | 116 | 0.200 | 0.232 | 116 | 0 | 75-125 | 20 | |

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

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

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

# Form 3 - MS / MSD Recoveries

## Project Name: Eunice Project- S. Eunice

**Work Order # :** 639099 **Project ID:** 30006138

**Lab Batch ID:** 3103928 **QC- Sample ID:** 638989-011 S **Batch #:** 1 **Matrix:** Water

**Date Analyzed:** 10.09.2019 **Date Prepared:** 10.09.2019 **Analyst:** ANJ

**Reporting Units:** mg/L

### MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

| (S) Dissolved Metals by SW6020A Analytes | Parent Sample Result [A] | Spike Added [B] | Spiked Sample Result [C] | Spiked Sample %R [D] | Spike Added [E] | Duplicate Spiked Sample Result [F] | Spiked Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 0.0340 | 0.100 | 0.134 | 100 | 0.100 | 0.133 | 99 | 1 | 75-125 | 20 | |
| Barium | 0.0426 | 0.100 | 0.138 | 95 | 0.100 | 0.151 | 108 | 9 | 75-125 | 20 | |
| Chromium | <0.000525 | 0.100 | 0.102 | 102 | 0.100 | 0.110 | 110 | 8 | 75-125 | 20 | |

**Lab Batch ID:** 3104901 **QC- Sample ID:** 640294-001 S **Batch #:** 1 **Matrix:** Water

**Date Analyzed:** 10.21.2019 **Date Prepared:** 10.21.2019 **Analyst:** DEP

**Reporting Units:** mg/L

### MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

| (S) Dissolved Metals by SW6020A Analytes | Parent Sample Result [A] | Spike Added [B] | Spiked Sample Result [C] | Spiked Sample %R [D] | Spike Added [E] | Duplicate Spiked Sample Result [F] | Spiked Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 0.00165 | 0.100 | 0.0961 | 94 | 0.100 | 0.0956 | 94 | 1 | 75-125 | 20 | |
| Barium | 0.0216 | 0.100 | 0.112 | 90 | 0.100 | 0.113 | 91 | 1 | 75-125 | 20 | |
| Chromium | <0.000525 | 0.100 | 0.0973 | 97 | 0.100 | 0.0966 | 97 | 1 | 75-125 | 20 | |

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

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

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

# Method Duplicate



## Project Name: Eunice Project- S. Eunice

**Work Order #:** 639099

**Lab Batch #:** 3103470 **Project ID:** 30006138
**Date Analyzed:** 10.04.2019 17:00 **Date Prepared:** 10.04.2019 **Analyst:** CHE
**QC- Sample ID:** 638989-001 D **Batch #:** 1 **Matrix:** Water
**Reporting Units:** mg/L

**SAMPLE / SAMPLE DUPLICATE RECOVERY**

| TDS by SM2540C<br>Analyte | Parent Sample Result [A] | Sample Duplicate Result [B] | RPD | Control Limits %RPD | Flag |
|---|---|---|---|---|---|
| Total Dissolved Solids | 9590 | 9540 | 1 | 10 | |

**Lab Batch #:** 3103470
**Date Analyzed:** 10.04.2019 17:00 **Date Prepared:** 10.04.2019 **Analyst:** CHE
**QC- Sample ID:** 638989-011 D **Batch #:** 1 **Matrix:** Water
**Reporting Units:** mg/L

**SAMPLE / SAMPLE DUPLICATE RECOVERY**

| TDS by SM2540C<br>Analyte | Parent Sample Result [A] | Sample Duplicate Result [B] | RPD | Control Limits %RPD | Flag |
|---|---|---|---|---|---|
| Total Dissolved Solids | 2090 | 2000 | 4 | 10 | |

**Lab Batch #:** 3103476
**Date Analyzed:** 10.04.2019 17:00 **Date Prepared:** 10.04.2019 **Analyst:** CHE
**QC- Sample ID:** 639099-006 D **Batch #:** 1 **Matrix:** Water
**Reporting Units:** mg/L

**SAMPLE / SAMPLE DUPLICATE RECOVERY**

| TDS by SM2540C<br>Analyte | Parent Sample Result [A] | Sample Duplicate Result [B] | RPD | Control Limits %RPD | Flag |
|---|---|---|---|---|---|
| Total Dissolved Solids | 2840 | 2580 | 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

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# Chain of Custody

Work Order No: 639099

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: | Rebecca Andresen | Bill to: (if different) | |
| Company Name: | ARCADIS | Company Name: | |
| Address: | 1004 N. Big Spring St. | Address: | |
| City, State ZIP: | Midland, TX. 79701 | City, State ZIP: | |
| Phone: | 303-471-3477 Email: | madisyn.frandsen@arcadis.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: | Eunice Project- S. Eunice | Turn Around | |
| Project Number: | 30006138 | Routine ☑ | |
| P.O. Number: | | Rush: | |
| Sampler's Name: | Chas Holder / Kemp Silvas said | Due Date: | |

| SAMPLE RECEIPT | | | |
|---|---|---|---|
| Temp Blank: | Yes (No) | Wet Ice: | (Yes) No |
| Temperature (°C): | 3.2 / 3.0 | Thermometer ID | |
| Received Intact: | Yes No | | |
| Cooler Custody Seals: | Yes (No) N/A | Correction Factor: | |
| Sample Custody Seals: | Yes No N/A | Total Containers: | |

| Sample Identification | Matrix | Date Sampled | Time Sampled | Depth | Number of Containers | BTEX (EPA 8021B) | TPH (SW8015) | Hex Chrome (SW7196A) | Dissolved Metals (SW6020_DIS): Chromium, Arsenic & Barium) | TDS (SM2540C) | Chlorides (EPA 300.0) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MWD-9 | W | 10/4/19 | 1013 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MWD-3 | W | 10/4/19 | 1030 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MWD-14 | W | 10/4/19 | 1214 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MW-11 | W | 10/4/19 | 1241 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MW-26 | W | 10/4/19 | 1302 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MWD-12 | W | 10/4/19 | 0850 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MW-3 | W | 10/4/19 | 0819 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MWD-11 | W | 10/4/19 | 0934 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| TMW-1 | W | 10/4/19 | 0957 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| RW-7 | W | 10/4/19 | 1011 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

**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

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| Relinquished by: (Signature) | Received by: (Signature) | Date/Time | Relinquished by: (Signature) | Received by: (Signature) | Date/Time |
|---|---|---|---|---|---|
| 1 | | 10/4/19 1622 | 2 | | |
| 3 | | | 4 | | |
| 5 | | | 6 | | |

Revised Date 051418 Rev. 2018.1

Received by OCD: 3/25/2020 2:27:35 PM
Released to Imaging: 6/14/2022 10:17:42 AM
Final 1.001
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# Chain of Custody

Work Order No: 634099

Houston,TX (281) 240-4200 Dallas,TX (214) 902-0300 San Antonio,TX (210) 509-3334
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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: | Rebecca Andresen | Bill to: (if different) | |
| Company Name: | ARCADIS | Company Name: | |
| Address: | 1004 N. Big Spring St. | Address: | |
| City, State ZIP: | Midland, TX. 79701 | City, State ZIP: | |
| Phone: | 303-471-3477 Email: | madisyn.frandsen@arcadis.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: | Eunice Project- S. Eunice | Turn Around | |
| Project Number: | 30006138 | Routine ☒ | |
| P.O. Number: | | Rush: | |
| Sampler's Name: | Chris Haley / Jerry Longwell | Due Date: | |

| SAMPLE RECEIPT | | | | |
|---|---|---|---|---|
| Temp Blank: | Yes (No) | Wet Ice: | (Yes) No | |
| Temperature (°C): | 3.2 3.0 | Thermometer ID | | |
| Received Intact: | (Yes) No | | | |
| Cooler Custody Seals: | Yes No N/A | Correction Factor: | | |
| 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 | BTEX (EPA 8021B) | TPH (SW8015) | Hex Chrome (SW7196A) | Dissolved Metals (SW6020_DIS): Chromium, Arsenic & Barium) | TDS (SM2540C) | Chlorides (EPA 300.0) | Sample Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RW-6 | W | 10/4/19 | 1040 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| MW-25 | W | 10/4/19 | 1285 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| TMW-6 | W | 10/4/19 | 1751 | | 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |

**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

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Xenco. A minimum charge of $75.00 will be applied to each project and a charge of $5 for each sample submitted to Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

| Relinquished by: (Signature) | Received by: (Signature) | Date/Time | Relinquished by: (Signature) | Received by: (Signature) | Date/Time |
|---|---|---|---|---|---|
| 1 | | 10/4/19 1620 | 2 | | |
| 3 | | | 4 | | |
| 5 | | | 6 | | |

Revised Date 051418 Rev. 2018.1

Received by OCD: 3/25/2020 2:27:35 PM
Final 1.001
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Released to Imaging: 6/14/2022 10:17:42 AM

# Inter-Office Shipment



**IOS Number : 49432**

Date/Time: 10.04.2019
Lab# From: **Midland**
Lab# To: **Houston**

Created by: Brianna Teel
Delivery Priority:
Air Bill No.: 776511508146

Please send report to: John Builes
Address: 1211 W. Florida Ave
E-Mail: john.builes@xenco.com

| Sample Id | Matrix | Client Sample Id | Sample Collection | Method | Method Name | Lab Due | HT Due | PM | Analytes | Sign |
|---|---|---|---|---|---|---|---|---|---|---|
| 639099-001 | W | MWD-9 | 10.04.2019 10:13 | SW6020_Select_DIS | (S) Dissolved Metals by SW6020A | 10.10.2019 | 04.01.2020 | JHB | AS BA CR | |
| 639099-002 | W | MWD-3 | 10.04.2019 10:30 | SW6020_Select_DIS | (S) Dissolved Metals by SW6020A | 10.10.2019 | 04.01.2020 | JHB | AS BA CR | |
| 639099-003 | W | MWD-14 | 10.04.2019 12:14 | SW6020_Select_DIS | (S) Dissolved Metals by SW6020A | 10.10.2019 | 04.01.2020 | JHB | AS BA CR | |
| 639099-004 | W | MW-11 | 10.04.2019 12:41 | SW6020_Select_DIS | (S) Dissolved Metals by SW6020A | 10.10.2019 | 04.01.2020 | JHB | AS BA CR | |
| 639099-005 | W | MW-26 | 10.04.2019 13:02 | SW6020_Select_DIS | (S) Dissolved Metals by SW6020A | 10.10.2019 | 04.01.2020 | JHB | AS BA CR | |
| 639099-006 | W | MWD-12 | 10.04.2019 08:50 | SW6020_Select_DIS | (S) Dissolved Metals by SW6020A | 10.10.2019 | 04.01.2020 | JHB | AS BA CR | |
| 639099-007 | W | MW-13 | 10.04.2019 09:19 | SW6020_Select_DIS | (S) Dissolved Metals by SW6020A | 10.10.2019 | 04.01.2020 | JHB | AS BA CR | |
| 639099-008 | W | MWD-11 | 10.04.2019 09:34 | SW6020_Select_DIS | (S) Dissolved Metals by SW6020A | 10.10.2019 | 04.01.2020 | JHB | AS BA CR | |
| 639099-009 | W | TMW-1 | 10.04.2019 09:57 | SW6020_Select_DIS | (S) Dissolved Metals by SW6020A | 10.10.2019 | 04.01.2020 | JHB | AS BA CR | |
| 639099-010 | W | RW-1 | 10.04.2019 10:18 | SW6020_Select_DIS | (S) Dissolved Metals by SW6020A | 10.10.2019 | 04.01.2020 | JHB | AS BA CR | |
| 639099-011 | W | RW-6 | 10.04.2019 10:40 | SW6020_Select_DIS | (S) Dissolved Metals by SW6020A | 10.10.2019 | 04.01.2020 | JHB | AS BA CR | |
| 639099-012 | W | MWD-25 | 10.04.2019 12:25 | SW6020_Select_DIS | (S) Dissolved Metals by SW6020A | 10.10.2019 | 04.01.2020 | JHB | AS BA CR | |
| 639099-013 | W | TMW-6 | 10.04.2019 12:51 | SW6020_Select_DIS | (S) Dissolved Metals by SW6020A | 10.10.2019 | 04.01.2020 | JHB | AS BA CR | |

**Inter Office Shipment or Sample Comments:**

Relinquished By: Brianna Teel
Brianna Teel

Date Relinquished: 10.04.2019

Received By: Travis Simmons
Travis Simmons

Date Received: 10.05.2019

Cooler Temperature: 4.5

# Inter-Office Shipment



**IOS Number : 49592**

Date/Time: 10.08.2019
Lab# From: **Midland**
Lab# To: **Houston**
Created by: Jessica Kramer
Delivery Priority:
Air Bill No.: 776604651301
Please send report to: John Builes
Address: 1211 W. Florida Ave
E-Mail: john.builes@xenco.com

| Sample Id | Matrix | Client Sample Id | Sample Collection | Method | Method Name | Lab Due | HT Due | PM | Analytes | Sign |
|---|---|---|---|---|---|---|---|---|---|---|
| 639099-001 | W | MWD-9 | 10.04.2019 10:13 | SW8015MOD_NM | TPH By SW8015 Mod | 10.10.2019 | 10.18.2019 | JHB | PHCC10C28 PHCC28C3 | |
| 639099-002 | W | MWD-3 | 10.04.2019 10:30 | SW8015MOD_NM | TPH By SW8015 Mod | 10.10.2019 | 10.18.2019 | JHB | PHCC10C28 PHCC28C3 | |
| 639099-003 | W | MWD-14 | 10.04.2019 12:14 | SW8015MOD_NM | TPH By SW8015 Mod | 10.10.2019 | 10.18.2019 | JHB | PHCC10C28 PHCC28C3 | |
| 639099-004 | W | MW-11 | 10.04.2019 12:41 | SW8015MOD_NM | TPH By SW8015 Mod | 10.10.2019 | 10.18.2019 | JHB | PHCC10C28 PHCC28C3 | |
| 639099-005 | W | MW-26 | 10.04.2019 13:02 | SW8015MOD_NM | TPH By SW8015 Mod | 10.10.2019 | 10.18.2019 | JHB | PHCC10C28 PHCC28C3 | |
| 639099-006 | W | MWD-12 | 10.04.2019 08:50 | SW8015MOD_NM | TPH By SW8015 Mod | 10.10.2019 | 10.11.2019 08:50 | JHB | PHCC10C28 PHCC28C3 | |
| 639099-007 | W | MW-3 | 10.04.2019 09:19 | SW8015MOD_NM | TPH By SW8015 Mod | 10.10.2019 | 10.11.2019 09:19 | JHB | PHCC10C28 PHCC28C3 | |
| 639099-008 | W | MWD-11 | 10.04.2019 09:34 | SW8015MOD_NM | TPH By SW8015 Mod | 10.10.2019 | 10.11.2019 09:34 | JHB | PHCC10C28 PHCC28C3 | |
| 639099-009 | W | TMW-1 | 10.04.2019 09:57 | SW8015MOD_NM | TPH By SW8015 Mod | 10.10.2019 | 10.11.2019 09:57 | JHB | PHCC10C28 PHCC28C3 | |
| 639099-010 | W | RW-7 | 10.04.2019 10:18 | SW8015MOD_NM | TPH By SW8015 Mod | 10.10.2019 | 10.11.2019 10:18 | JHB | PHCC10C28 PHCC28C3 | |
| 639099-011 | W | RW-6 | 10.04.2019 10:40 | SW8015MOD_NM | TPH By SW8015 Mod | 10.10.2019 | 10.18.2019 | JHB | PHCC10C28 PHCC28C3 | |
| 639099-012 | W | MW-25 | 10.04.2019 12:25 | SW8015MOD_NM | TPH By SW8015 Mod | 10.10.2019 | 10.18.2019 | JHB | PHCC10C28 PHCC28C3 | |
| 639099-013 | W | TMW-6 | 10.04.2019 12:51 | SW8015MOD_NM | TPH By SW8015 Mod | 10.10.2019 | 10.18.2019 | JHB | PHCC10C28 PHCC28C3 | |

**Inter Office Shipment or Sample Comments:**

Relinquished By: Jessica Kramer
Jessica Kramer

Date Relinquished: 10.08.2019

Received By:
Monica Shakhshir

Date Received: 10.09.2019

Cooler Temperature: 0.9

# XENCO Laboratories

## Inter Office Report- Sample Receipt Checklist

**Sent To:** Houston

**IOS #:** 49432

**Acceptable Temperature Range: 0 - 6 degC**
**Air and Metal samples Acceptable Range: Ambient**
**Temperature Measuring device used : HOU-068**

**Sent By:** Brianna Teel **Date Sent:** 10.04.2019 04.51 PM

**Received By:** Travis Simmons **Date Received:** 10.05.2019 09.30 AM

| Sample Receipt Checklist | | Comments |
|---|---|---|
| #1 *Temperature of cooler(s)? | 4.5 | |
| #2 *Shipping container in good condition? | **Yes** | |
| #3 *Samples received with appropriate temperature? | **Yes** | |
| #4 *Custody Seals intact on shipping container/ cooler? | **Yes** | |
| #5 *Custody Seals Signed and dated for Containers/coolers | **Yes** | |
| #6 *IOS present? | **Yes** | |
| #7 Any missing/extra samples? | **No** | |
| #8 IOS agrees with sample label(s)/matrix? | **Yes** | |
| #9 Sample matrix/ properties agree with IOS? | **Yes** | |
| #10 Samples in proper container/ bottle? | **Yes** | |
| #11 Samples properly preserved? | **Yes** | |
| #12 Sample container(s) intact? | **Yes** | |
| #13 Sufficient sample amount for indicated test(s)? | **Yes** | |
| #14 All samples received within hold time? | **Yes** | |

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

**NonConformance:**

**Corrective Action Taken:**

**Nonconformance Documentation**

**Contact:** _____ **Contacted by :** _____ **Date:** _____

**Checklist reviewed by:** Travis Simmons Date: 10.05.2019

Travis Simmons

# XENCO Laboratories

## Inter Office Report- Sample Receipt Checklist

**Sent To:** Houston

**IOS #:** 49592

**Acceptable Temperature Range: 0 - 6 degC**
**Air and Metal samples Acceptable Range: Ambient**
**Temperature Measuring device used : HOU-068**

**Sent By:** Jessica Kramer **Date Sent:** 10.08.2019 11.06 AM

**Received By:** Monica Shakhshir **Date Received:** 10.09.2019 09.30 AM

| Sample Receipt Checklist | | Comments |
|---|---|---|
| #1 *Temperature of cooler(s)? | .9 | |
| #2 *Shipping container in good condition? | **Yes** | |
| #3 *Samples received with appropriate temperature? | **Yes** | |
| #4 *Custody Seals intact on shipping container/ cooler? | **Yes** | |
| #5 *Custody Seals Signed and dated for Containers/coolers | **Yes** | |
| #6 *IOS present? | **Yes** | |
| #7 Any missing/extra samples? | **No** | |
| #8 IOS agrees with sample label(s)/matrix? | **Yes** | |
| #9 Sample matrix/ properties agree with IOS? | **Yes** | |
| #10 Samples in proper container/ bottle? | **Yes** | |
| #11 Samples properly preserved? | **Yes** | |
| #12 Sample container(s) intact? | **Yes** | |
| #13 Sufficient sample amount for indicated test(s)? | **Yes** | |
| #14 All samples received within hold time? | **Yes** | |

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

**NonConformance:**

**Corrective Action Taken:**

**Nonconformance Documentation**

**Contact:** _____ **Contacted by :** _____ **Date:** _____

**Checklist reviewed by:** _____ Date: 10.09.2019

Monica Shakhshir

# XENCO Laboratories

## Prelogin/Nonconformance Report- Sample Log-In

**Client:** ARCADIS

**Date/ Time Received:** 10.04.2019 04.25.04 PM

**Work Order #:** 639099

**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)? | **Yes** | Xenco Stafford |
| #18 Water VOC samples have zero headspace? | **N/A** | |

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

Analyst: BT

PH Device/Lot#: A032690

**Checklist completed by:** Brianna Teel Date: 10.04.2019

Brianna Teel

**Checklist reviewed by:** John Builes Date: 10.08.2019

John Builes

# APPENDIX E

## Historical Analytical Data (through 2017)

Released to Imaging: 6/14/2022 10:17:42 AM



ARCADIS Design & Consultancy for natural and built assets

Received by OCD: 3/25/2020 2:27:35 PM

| | | Chemical Name | Arsenic | Chromium | Chromium VI | Iron | Manganese | Benzene | Ethylbenzene | Total Xylenes | DRO | GRO | Chloride | Total Dissolved Solids |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Units | mg/l | mg/l | mg/l | mg/l | mg/l | ug/l | ug/l | ug/l | mg/l | mg/l | mg/l | mg/l |
| | | NMWQCC Standard | 0.1 | 0.05 | 0.05 | 1 | 0.2 | 10 | 750 | 620 | | | 250 | 1000 |
| Location ID | Sample Date | Sample Type | | | | | | | | | | | | |
| MW-11 | 2/17/2010 | N | **0.054** | < 0.0150 U | -- | -- | -- | **29000** | **710** | < 300 U | -- | -- | **337** | **1410** |
| | 8/12/2010 | N | **0.0565** | < 0.0150 U | -- | -- | -- | **17000** | **420** | < 150 U | -- | -- | **406** | **1540** |
| | 4/8/2011 | N | **0.0558** | < 0.0150 U | -- | -- | -- | **29000** | **480** | < 300 U | -- | -- | **425** | **1550** |
| | 8/16/2011 | N | **0.0450** | < 0.0150 U | -- | -- | -- | **32000** | **430** | < 150 U | -- | -- | **422** | **1350** |
| | 2/16/2012 | N | **0.0309** | < 0.0150 U | -- | -- | -- | **22000** | **420** | < 60 U | -- | -- | **260** | **1390** |
| | 8/14/2012 | N | **0.0368** | < 0.0150 U | -- | -- | -- | **20000** | **760** | < 300 U | -- | -- | **304 J** | **1200** |
| | 2/11/2013 | N | **0.0315** | < 0.0150 U | -- | -- | -- | **18000** | **560** | **32** | -- | -- | **192** | **1180** |
| | 8/12/2013 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **14000** | **410** | < 150 U | -- | -- | **199** | **1150** |
| | 2/7/2014 | N | **0.0138 J** | < 0.0150 U | -- | -- | -- | **22000** | **670** | **57 J** | -- | -- | **195** | **1050** |
| | 8/13/2014 | N | < 0.0200 UJ | < 0.0150 UJ | -- | -- | -- | **30000** | **130** | < 100 U | -- | -- | **277** | **1340** |
| | 2/11/2015 | N | **0.0077 J** | < 0.0150 U | -- | -- | -- | **16000** | **26 J** | **160** | -- | -- | **144** | **696** |
| | 8/11/2015 | N | < 0.0200 U | **0.0016 J** | -- | -- | -- | **11000** | **33** | **190** | -- | -- | **97.8** | **798** |
| | 4/1/2016 | N | < 0.01 U | < 0.01 U | < 0.01 U | -- | -- | **6840** | < 40 U | **54.8** | < 1.41 U | **11.5** | **93.9** | **688** |
| | 9/12/2016 | N | < 0.00336 U | < 0.00136 U | -- | **6.54** | **0.14** | **5890 D** | **15** | **91.2** | < 0.986 U | **7.72** | **71.1** | **888** |
| | 4/6/2017 | N | < 0.05 U | < 0.05 U | **0.0078 J** | **0.219 J** | **0.142 J** | **7020** | < 100 U | < 100 U | < 1.5 U | **1.67** | **128** | **1060** |
| | 9/14/2017 | N | **0.0118** | **0.000585 J** | < 0.01 U | -- | -- | **7210 J** | **49.8 J** | **259 J** | < 1.5 U | **2.54** | **91** | **900** |
| MW-13 | 2/9/2009 | N | **0.0286** | < 0.0150 U | -- | -- | -- | **5.5** | **3.3** | **4.6** | -- | -- | **374** | **1170** |
| | 8/11/2009 | N | **0.0246** | < 0.0150 U | -- | -- | -- | < 5.0 U | < 1.0 U | < 3.0 U | -- | -- | **340** | **1160** |
| | 2/12/2010 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **562** | **1100** |
| | 8/6/2010 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **337** | **1010** |
| | 4/6/2011 | N | **0.0339** | < 0.0150 U | -- | -- | -- | < 10 U | < 1.0 U | < 3.0 U | -- | -- | **426** | **1120** |
| | 8/15/2011 | N | **0.0235** | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **454** | **1080** |
| | 2/8/2012 | N | **0.0276** | < 0.0150 U | -- | -- | -- | **14** | < 1.0 U | < 3.0 U | -- | -- | **379** | **1090** |
| | 8/9/2012 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **439** | **1140** |
| | 2/6/2013 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **348 J** | **1000** |
| | 8/6/2013 | N | **0.0249** | < 0.0150 U | -- | -- | -- | < 3.0 U | < 1.0 U | < 3.0 U | -- | -- | **372** | **1380** |
| | 8/6/2013 | FD | **0.0248** | < 0.0150 U | -- | -- | -- | < 2.0 U | < 1.0 U | < 3.0 U | -- | -- | **377** | **1250** |
| | 2/4/2014 | N | **0.0137 J** | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **830** | **1100** |
| | 8/7/2014 | N | **0.0291** | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **366** | **1160** |
| | 2/3/2015 | N | **0.0120 J** | **0.0017 J** | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **366** | **828** |
| | 8/6/2015 | N | **0.0151 J** | **0.0026 J** | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **381** | **1040 J** |
| | 3/30/2016 | N | < 0.01 U | < 0.01 U | < 0.01 U | -- | -- | < 2 U | < 2 U | < 2 U | < 1.41 U | < 1.41 U | **337** | **835** |
| | 3/30/2016 | FD | **0.014** | < 0.01 U | < 0.01 U | -- | -- | < 2 U | < 2 U | < 2 U | < 1.41 U | < 1.41 U | **340** | **865** |
| | 9/6/2016 | N | **0.0166** | < 0.00136 U | < 0.01 U | < 0.00616 U | **0.0101 J** | < 0.408 U | < 0.657 U | < 0.642 U | < 0.986 U | < 0.986 U | **329** | **1030** |
| | 9/6/2016 | FD | **0.0105** | < 0.00136 U | < 0.01 U | **0.00629 J** | **0.0103 J** | < 0.408 U | < 0.657 U | < 0.642 U | < 0.986 U | < 0.986 U | **314** | **1130** |
| | 4/5/2017 | N | < 0.05 U | < 0.05 U | < 0.01 U | < 1 U | **0.0182 J** | < 2 U | < 2 U | < 2 U | < 1.5 U | < 1.5 U | **343** | **976** |
| | 9/13/2017 | N | **0.0145** | < 0.004 U | < 0.01 U | -- | -- | < 2 U | < 2 U | < 2 U | < 1.5 U | < 1.5 U | **331** | **1170** |
| MW-14 | 2/9/2009 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | **2.4** | < 3.0 U | -- | -- | **421** | **1280** |
| | 8/6/2009 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **429** | **1500** |
| | 2/5/2010 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **573** | **1550** |
| | 8/4/2010 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **485** | **1540** |
| | 4/6/2011 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **512** | **1460** |
| | 8/8/2011 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **595** | **1750** |
| | 2/8/2012 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **475** | **1620** |
| | 8/9/2012 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **553** | **1760** |
| | 2/6/2013 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **556 J** | **1510** |
| | 8/6/2013 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **580** | **1770** |
| | 2/4/2014 | N | **0.0105 J** | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **597** | **1500** |
| | 8/7/2014 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **558** | **1700 J** |
| | 8/7/2014 | FD | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **530** | **1580** |
| | 2/3/2015 | N | < 0.0200 U | **0.0014 J** | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **504** | **1260** |
| | 8/6/2015 | N | **0.0075 J** | **0.0023 J** | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **475** | **1380 J** |
| | 3/30/2016 | N | **0.0139** | < 0.01 U | < 0.01 U | -- | -- | < 2 U | < 2 U | < 2 U | < 1.41 U | < 1.41 U | **488** | **1360** |
| | 9/6/2016 | N | < 0.00336 U | < 0.00136 U | < 0.01 U | **0.0263 J** | **0.831** | < 0.408 U | < 0.657 U | < 0.642 U | < 0.986 U | < 0.986 U | **465** | **1670** |
| | 4/5/2017 | N | < 0.05 U | < 0.05 U | < 0.01 U | < 1 U | **0.835** | < 2 U | < 2 U | < 2 U | < 1.5 U | < 1.5 U | **489** | **1560** |
| | 9/13/2017 | N | **0.00699** | < 0.004 U | < 0.01 U | -- | -- | < 2 U | < 2 U | < 2 U | < 1.5 U | < 1.5 U | **486** | **1640** |

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| | | Chemical Name | Arsenic | Chromium | Chromium VI | Iron | Manganese | Benzene | Ethylbenzene | Total Xylenes | DRO | GRO | Chloride | Total Dissolved Solids |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Units | mg/l | mg/l | mg/l | mg/l | mg/l | ug/l | ug/l | ug/l | mg/l | mg/l | mg/l | mg/l |
| | | NMWQCC Standard | 0.1 | 0.05 | 0.05 | 1 | 0.2 | 10 | 750 | 620 | | | 250 | 1000 |
| Location ID | Sample Date | Sample Type | | | | | | | | | | | | |
| MW-15 | 2/9/2009 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **6.1** | **3.7** | **3.2** | -- | -- | **2370** | **5250** |
| | 8/12/2009 | N | **0.0252** | < 0.0150 U | -- | -- | -- | **3.3** | < 1.0 U | < 3.0 U | -- | -- | **2560** | **4810** |
| | 2/8/2010 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **1970** | **4520** |
| | 8/9/2010 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **1270** | **3230** |
| | 4/7/2011 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **2.4** | < 1.0 U | < 3.0 U | -- | -- | **3310** | **4260** |
| | 8/9/2011 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **16** | < 1.0 U | < 3.0 U | -- | -- | **1840** | **3820** |
| | 2/15/2012 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **3.2** | < 1.0 U | < 3.0 U | -- | -- | **1020** | **3190** |
| | 2/15/2012 | FD | < 0.0200 U | < 0.0150 U | -- | -- | -- | **3.2** | < 1.0 U | < 3.0 U | -- | -- | **778** | **3620** |
| | 8/13/2012 | N | **0.0203** | < 0.0150 U | -- | -- | -- | **1.9** | < 1.0 U | < 3.0 U | -- | -- | **1540 J** | **3000** |
| | 2/7/2013 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **1.4** | < 1.0 U | < 3.0 U | -- | -- | **1340 J** | **3250** |
| | 8/7/2013 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **1.2** | < 1.0 U | < 3.0 U | -- | -- | **1320** | **3310** |
| | 2/6/2014 | N | **0.0106 J** | < 0.0150 U | -- | -- | -- | **1.3** | < 1.0 U | < 1.0 U | -- | -- | **2610 J** | **3010** |
| | 8/14/2014 | N | < 0.0200 UJ | < 0.0150 UJ | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **1340** | **3160** |
| | 2/10/2015 | N | **0.0169 J** | **0.0025 J** | -- | -- | -- | **1.5** | < 1.0 U | < 1.0 U | -- | -- | **1150** | **2160** |
| | 8/13/2015 | N | **0.0141 J** | **0.0020 J** | -- | -- | -- | **0.5 J** | < 1.0 U | < 1.0 U | -- | -- | **1180** | **2920** |
| | 3/30/2016 | N | **0.0181** | < 0.01 U | < 0.01 U | -- | -- | < 2 U | < 2 U | < 2 U | < 1.41 U | < 1.41 U | **1750** | **3160** |
| | 9/6/2016 | N | < 0.00336 U | < 0.00136 U | < 0.01 U | **0.00905 J** | **0.028** | **1.8 J** | < 0.657 U | < 0.642 U | < 0.987 U | < 0.987 U | **1780** | **4580** |
| | 4/5/2017 | N | < 0.05 U | < 0.05 U | < 0.01 U | < 1 U | **0.0345 J** | < 2 U | < 2 U | < 2 U | < 1.5 U | < 1.5 U | **1960** | **2900** |
| | 9/13/2017 | N | **0.0124** | **0.000535 J** | < 0.01 U | -- | -- | **7.95** | < 2 U | < 2 U | < 1.5 U | < 1.5 U | **2040** | **4590** |
| MW-16 | 2/9/2009 | N | < 0.0200 U | **0.138** | -- | -- | -- | **1.3** | **3.6** | **3.2** | -- | -- | **1830** | **3790** |
| | 8/6/2009 | N | < 0.0200 U | **0.123** | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **1570** | **3970** |
| | 2/8/2010 | N | < 0.0200 U | **0.109** | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **1820** | **3750** |
| | 8/4/2010 | N | < 0.0200 U | **0.138** | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **1840** | **3950** |
| | 4/7/2011 | N | < 0.0200 U | **0.114** | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **1830** | **3380** |
| | 8/9/2011 | N | < 0.0200 U | **0.0936** | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **1790** | **3230** |
| | 2/15/2012 | N | < 0.0200 U | **0.108** | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **1270** | **3940** |
| | 8/13/2012 | N | < 0.0200 U | **0.101** | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **1750 J** | **3530** |
| | 2/6/2013 | N | < 0.0200 U | **0.0965** | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **1590 J** | **3450** |
| | 8/7/2013 | N | < 0.0200 U | **0.0783** | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **1650** | **3790** |
| | 2/6/2014 | N | **0.0132 J** | **0.0952** | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **1730 J** | **4200** |
| | 8/14/2014 | N | < 0.0200 UJ | **0.104 J** | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **1560** | **3880** |
| | 2/10/2015 | N | **0.0169 J** | **0.104** | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **1390** | **2760** |
| | 8/13/2015 | N | **0.0149 J** | **0.0817** | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **1560** | **3480** |
| | 3/30/2016 | N | **0.0255** | **0.107** | **0.0946** | -- | -- | < 2 U | < 2 U | < 2 U | < 1.41 U | < 1.41 U | **2060** | **3220** |
| | 9/6/2016 | N | < 0.00336 U | **0.0625** | **0.0959** | **0.00979 J** | < 0.000585 U | < 0.408 U | < 0.657 U | < 0.642 U | < 0.986 U | < 0.986 U | **1750** | **4860** |
| | 4/5/2017 | N | < 0.05 U | **0.0955** | **0.106** | < 1 U | < 0.1 U | < 2 U | < 2 U | < 2 U | < 1.5 U | < 1.5 U | **1880** | **3810** |
| | 9/13/2017 | N | **0.0129** | **0.11** | **0.0957** | -- | -- | < 2 U | < 2 U | < 2 U | < 1.5 U | < 1.5 U | **1880** | **4230** |
| MW-17 | 2/11/2009 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **4.5** | **4.2** | < 3.0 U | -- | -- | **4160** | **8240** |
| | 8/11/2009 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **3100** | **7680** |
| | 2/10/2010 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **1260** | **3110** |
| | 8/6/2010 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **2910** | **7030** |
| | 4/7/2011 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **697** | **2140** |
| | 8/10/2011 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **3050** | **6270** |
| | 2/14/2012 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **3950** | **10800** |
| | 8/13/2012 | N | **0.0226** | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **5490 J** | **7580** |
| | 2/7/2013 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **1820 J** | **4000** |
| | 8/7/2013 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **3430** | **7280** |
| | 8/7/2013 | FD | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **3310** | **7360** |
| | 2/5/2014 | N | **0.0110 J** | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | **0.2 J** | -- | -- | **2730** | **5640** |
| | 8/12/2014 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **3120** | **6130** |
| | 2/6/2015 | N | **0.0109 J** | **0.0022 J** | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **2050** | **2890** |
| | 8/12/2015 | N | **0.0095 J** | **0.0021 J** | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **2220** | **5640** |
| | 3/31/2016 | N | **0.0127** | < 0.01 U | < 0.01 U | -- | -- | < 2 U | < 2 U | < 2 U | < 1.41 U | < 1.41 U | **3460** | **4180** |
| | 9/9/2016 | N | **0.00742 J** | < 0.00136 U | -- | **0.154 J** | **0.504** | < 0.408 U | < 0.657 U | < 0.642 U | < 0.987 U | < 0.987 U | **2220** | **3740** |
| | 4/6/2017 | N | < 0.05 U | < 0.05 U | < 0.01 U | < 1 U | **0.534 J** | < 2 U | < 2 U | < 2 U | < 1.5 U | < 1.5 U | **1750** | **3440** |
| | 9/13/2017 | N | **0.0141** | < 0.004 U | < 0.01 U | -- | -- | < 2 UJ | < 2 UJ | < 2 UJ | < 1.5 U | < 1.5 U | **603** | **3030** |
| | 9/13/2017 | FD | **0.0127** | < 0.004 U | < 0.01 U | -- | -- | < 2 U | < 2 U | < 2 U | < 1.5 U | < 1.5 U | **627** | **3450** |

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ARCADIS Design & Consultancy for natural and built assets

Received by OCD: 3/25/2020 2:27:35 PM

| Chemical Name | | | Arsenic | Chromium | Chromium VI | Iron | Manganese | Benzene | Ethylbenzene | Total Xylenes | DRO | GRO | Chloride | Total Dissolved Solids |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Units | | | mg/l | mg/l | mg/l | mg/l | mg/l | ug/l | ug/l | ug/l | mg/l | mg/l | mg/l | mg/l |
| NMWQCC Standard | | | 0.1 | 0.05 | 0.05 | 1 | 0.2 | 10 | 750 | 620 | | | 250 | 1000 |
| Location ID | Sample Date | Sample Type | | | | | | | | | | | | |
| MW-18 | 2/10/2009 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **4.0** | **4.2** | < 3.0 U | -- | -- | **2570** | **4880** |
| | 8/10/2009 | N | **0.0246** | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **1070** | **2740** |
| | 2/10/2010 | N | **0.0329** | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **457** | **1440** |
| | 8/5/2010 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **1340** | **2970** |
| | 4/7/2011 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **1170** | **2280** |
| | 8/10/2011 | N | **0.0210** | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **532** | **1510** |
| | 2/13/2012 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **907** | **2250** |
| | 8/9/2012 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **598** | **1580** |
| | 2/6/2013 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **699 J** | **1540** |
| | 8/7/2013 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **700** | **1620** |
| | 2/4/2014 | N | **0.0206 J** | **0.0016 J** | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **474** | **1260** |
| | 8/6/2014 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **533** | **1260** |
| | 2/4/2015 | N | **0.0191 J** | **0.0014 J** | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **401** | **1080** |
| | 8/6/2015 | N | **0.0180 J** | **0.0027 J** | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **406** | **1130** |
| | 4/1/2016 | N | **0.0218** | < 0.01 U | < 0.01 U | -- | -- | < 2 U | < 2 U | < 2 U | < 1.41 U | < 1.41 U | **284** | **906** |
| | 9/12/2016 | N | **0.0135** | < 0.00136 U | -- | < 0.00616 U | < 0.000585 U | < 0.408 U | < 0.657 U | < 0.642 U | < 0.986 U | < 0.986 U | **287** | **964** |
| | 4/4/2017 | N | < 0.05 U | < 0.05 U | < 0.01 U | < 1 U | < 0.1 U | < 2 U | < 2 U | < 2 U | < 1.5 U | < 1.5 U | **231** | **730** |
| MW-19 | 8/10/2010 | N | **0.0484** | < 0.0150 U | -- | -- | -- | **1300** | **83** | **52** | -- | -- | **4070** | **8300** |
| | 8/9/2012 | N | **0.0464** | < 0.0150 U | -- | -- | -- | **1300 J** | **170 J** | **57 J** | -- | -- | **4050** | **8440** |
| | 8/9/2012 | FD | **0.0466** | < 0.0150 U | -- | -- | -- | **1400 J** | **170 J** | **57 J** | -- | -- | **4360 J** | **8880** |
| | 2/8/2013 | N | **0.0494** | < 0.0150 U | -- | -- | -- | **1300** | **150 J** | **58 J** | -- | -- | **4030** | **9000** |
| | 8/9/2013 | N | **0.0411** | < 0.0150 U | -- | -- | -- | **1400** | **210 J** | **7.1 J** | -- | -- | **4080** | **8740** |
| | 2/10/2014 | N | **0.0270** | < 0.0150 U | -- | -- | -- | **1000** | **160** | **36** | -- | -- | **4850** | **9720** |
| MW-21 | 8/11/2010 | N | **0.0621** | < 0.0150 U | -- | -- | -- | **510** | **140** | **22** | -- | -- | **834** | **2370** |
| | 8/14/2012 | N | **0.0562** | < 0.0150 U | -- | -- | -- | **490** | **250** | **33** | -- | -- | **856 J** | **2320** |
| | 2/11/2013 | N | **0.0557** | < 0.0150 U | -- | -- | -- | **340** | **230** | **11** | -- | -- | **857** | **2430** |
| | 8/9/2013 | N | **0.0294** | < 0.0150 U | -- | -- | -- | **650 J** | **150 J** | **45 J** | -- | -- | **913 J** | **2030** |
| | 2/7/2014 | N | **0.0642** | < 0.0150 U | -- | -- | -- | **130** | **190** | **9.9** | -- | -- | **945** | **2480** |
| | 2/7/2014 | FD | **0.0667** | < 0.0150 U | -- | -- | -- | **130** | **190** | **9.8** | -- | -- | **853** | **2540** |
| MW-22 | 2/11/2009 | N | **0.0508** | < 0.0150 U | -- | -- | -- | **2700** | **66** | **43** | -- | -- | **6400** | **9840** |
| | 8/13/2009 | N | **0.0381** | < 0.0150 U | -- | -- | -- | **3500** | **130** | < 30 U | -- | -- | **2990** | **6480** |
| | 2/17/2010 | N | **0.0363** | < 0.0150 U | -- | -- | -- | **19000** | **260** | < 150 U | -- | -- | **2770** | **5520** |
| | 8/10/2010 | N | **0.0444** | < 0.0150 U | -- | -- | -- | **18000** | **260** | < 150 U | -- | -- | **2150** | **5000** |
| | 8/10/2010 | FD | **0.0448** | < 0.0150 U | -- | -- | -- | **18000** | **230** | < 150 U | -- | -- | **2420** | **4990** |
| | 4/7/2011 | N | **0.0581** | < 0.0150 U | -- | -- | -- | **1900** | **36** | **3.2** | -- | -- | **6270** | **10500** |
| | 8/11/2011 | N | **0.0670** | < 0.0150 U | -- | -- | -- | **7500** | **67** | < 60 U | -- | -- | **5120** | **8360** |
| | 2/15/2012 | N | **0.0242** | < 0.0150 U | -- | -- | -- | **6800** | **6.9** | < 15 U | -- | -- | **10100** | **26600** |
| | 8/13/2012 | N | **0.0352** | < 0.0150 U | -- | -- | -- | **8700** | **120** | **16** | -- | -- | **4660 J** | **6050** |
| | 2/8/2013 | N | **0.0285** | < 0.0150 U | -- | -- | -- | **73** | **3.3** | < 8.0 U | -- | -- | **10500** | **20000** |
| | 8/12/2013 | N | **0.0200** | < 0.0150 U | -- | -- | -- | **160** | **3.1** | **3.0** | -- | -- | **6840** | **13000** |
| | 2/6/2014 | N | **0.0175 J** | < 0.0150 U | -- | -- | -- | **3400** | **39** | **8.1** | -- | -- | **12100** | **23700** |
| | 8/13/2014 | N | **0.0342 J** | < 0.0150 UJ | -- | -- | -- | **7100** | **150** | **120** | -- | -- | **6540** | **10400** |
| | 2/6/2015 | N | **0.0194 J** | **0.0019 J** | -- | -- | -- | **18000** | **200** | **51** | -- | -- | **3060** | **3720** |
| | 8/12/2015 | N | **0.0227** | **0.0020 J** | -- | -- | -- | **15000** | **140** | **49** | -- | -- | **2570** | **6240** |
| | 3/31/2016 | N | **0.0367** | < 0.01 U | **0.0157** | -- | -- | **17100** | **205** | < 100 U | < 1.41 U | **23.1** | **2270** | **4800** |
| | 9/9/2016 | N | **0.0195** | < 0.00136 U | -- | **8.22** | **0.0761** | **3090 D** | **3.05** | < 0.642 U | < 0.986 U | **3.51** | **3510** | **6160** |
| | 4/4/2017 | N | < 0.05 U | < 0.05 U | -- | **0.267 J** | **0.0947 J** | **16700** | **624** | **668** | **1.62** | **2.35** | **2310** | **4050** |
| | 4/7/2017 | N | -- | -- | **0.0038 J** | -- | -- | -- | -- | -- | -- | -- | -- | -- |



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ARCADIS Design & Consultancy for natural and built assets

Received by OCD: 3/25/2020 2:27:35 PM

| Chemical Name | | | Arsenic | Chromium | Chromium VI | Iron | Manganese | Benzene | Ethylbenzene | Total Xylenes | DRO | GRO | Chloride | Total Dissolved Solids |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Units | | | mg/l | mg/l | mg/l | mg/l | mg/l | ug/l | ug/l | ug/l | mg/l | mg/l | mg/l | mg/l |
| NMWQCC Standard | | | 0.1 | 0.05 | 0.05 | 1 | 0.2 | 10 | 750 | 620 | | | 250 | 1000 |
| Location ID | Sample Date | Sample Type | | | | | | | | | | | | |
| MW-23 | 2/11/2009 | N | **0.0524** | < 0.0150 U | -- | -- | -- | **3.1** | **2.7** | < 3.0 U | -- | -- | **12100** | **21000** |
| | 8/7/2009 | N | **0.0566** | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **8860** | **17800** |
| | 2/9/2010 | N | **0.0228** | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **9770** | **17400** |
| | 8/5/2010 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **7960** | **14400** |
| | 4/6/2011 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **7640** | **13000** |
| | 4/6/2011 | FD | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **7660** | **12900** |
| | 8/9/2011 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **6360** | **11200** |
| | 2/15/2012 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **1590** | **15000** |
| | 8/14/2012 | N | **0.0218** | < 0.0150 U | -- | -- | -- | **13** | **2.0** | < 3.0 U | -- | -- | **8360 J** | **16000** |
| | 2/7/2013 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **8080 J** | **12000** |
| | 8/8/2013 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **10200 J** | **16300** |
| | 2/6/2014 | N | **0.0150 J** | **0.0029 J** | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **9750** | **17300** |
| | 8/12/2014 | N | **0.0217** | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **7610** | **12400** |
| | 2/3/2015 | N | **0.0154 J** | **0.0021 J** | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **6740** | **10500** |
| | 8/12/2015 | N | **0.0226** | **0.0024 J** | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **5680** | **13700** |
| | 3/31/2016 | N | **0.0275** | < 0.01 U | < 0.01 U | -- | -- | < 2 U | < 2 U | < 2 U | < 1.41 U | < 1.41 U | **4590** | **8680** |
| | 9/9/2016 | N | < 0.00336 U | < 0.00136 U | -- | **0.0175 J** | < 0.000585 U | < 0.408 U | < 0.657 U | < 0.642 U | < 0.986 U | < 0.986 U | **5570** | **10300** |
| | 4/4/2017 | N | < 0.05 U | < 0.05 U | -- | < 1 U | < 0.1 U | < 2 U | < 2 U | < 2 U | < 1.5 U | < 1.5 U | **4150** | **8040** |
| | 4/7/2017 | N | -- | -- | < 0.01 U | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MW-24 | 2/18/2009 | N | **0.0350** | < 0.0150 U | -- | -- | -- | **11000** | **630** | **610** | -- | -- | **371** | **1390** |
| | 2/16/2010 | N | **0.0355** | < 0.0150 U | -- | -- | -- | **25000** | **990** | **520** | -- | -- | **201** | **1340** |
| | 8/12/2010 | N | **0.0361** | < 0.0150 U | -- | -- | -- | **23000** | **1100** | **530** | -- | -- | **175** | **1450** |
| | 4/6/2011 | N | **0.0383** | < 0.0150 U | -- | -- | -- | **23000** | **760** | **240** | -- | -- | **202** | **1210** |
| | 8/10/2011 | N | **0.0326** | < 0.0150 U | -- | -- | -- | **26000** | **840** | **260** | -- | -- | **84.7** | **944** |
| | 2/16/2012 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **27000** | **1400** | **440** | -- | -- | **70.2** | **1030** |
| | 8/13/2012 | N | **0.0288** | < 0.0150 U | -- | -- | -- | **28000** | **1500** | **500** | -- | -- | **66.0 J** | **854** |
| | 2/11/2013 | N | **0.0306** | < 0.0150 U | -- | -- | -- | **27000** | **1500** | **590** | -- | -- | **74.1** | **988** |
| | 8/9/2013 | N | **0.0239** | < 0.0150 U | -- | -- | -- | **14000** | **580** | < 150 U | -- | -- | **202** | **1250** |
| | 2/7/2014 | N | **0.0213** | **0.0028 J** | -- | -- | -- | **14000** | **970** | **230** | -- | -- | **184** | **1040** |
| | 8/13/2014 | N | < 0.0200 UJ | < 0.0150 UJ | -- | -- | -- | **17000** | **870** | **110** | -- | -- | **282** | **1170** |
| | 8/13/2014 | FD | < 0.0200 UJ | < 0.0150 UJ | -- | -- | -- | **22000** | **910** | **140** | -- | -- | **279** | **1330** |
| | 2/11/2015 | N | **0.0198 J** | **0.0025 J** | -- | -- | -- | **19000** | **1100** | **380** | -- | -- | **305** | **1160** |
| | 8/11/2015 | N | **0.0161 J** | **0.0027 J** | -- | -- | -- | **15000 J** | **130 J** | **100 J** | -- | -- | **301** | **1340** |
| | 4/1/2016 | N | **0.0335** | < 0.01 U | < 0.01 U | -- | -- | **19800** | **174** | **221** | < 1.41 U | **34.6** | **164** | **1610** |
| | 9/12/2016 | N | **0.0254** | < 0.00136 U | -- | **3.88** | **0.0318** | **31300 D** | **134** | **110** | < 0.986 U | **27.7** | **153** | **1580** |
| MW-25 | 2/12/2009 | N | **0.0272** | < 0.0150 U | -- | -- | -- | **7900** | **560** | < 75 U | -- | -- | **2630** | **6470** |
| | 8/14/2009 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **8200** | **780** | < 60 U | -- | -- | **1940** | **4570** |
| | 2/17/2010 | N | **0.0209** | < 0.0150 U | -- | -- | -- | **6800** | **770** | **16** | -- | -- | **4180** | **7280** |
| | 8/11/2010 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **8600** | **860** | < 60 U | -- | -- | **1290** | **3430** |
| | 8/12/2010 | FD | < 0.0200 U | < 0.0150 U | -- | -- | -- | **10000** | **890** | **15** | -- | -- | **1310** | **3470** |
| | 4/7/2011 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **6500** | **740** | < 60 U | -- | -- | **2890** | **6060** |
| | 8/11/2011 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **6700** | **510** | < 60 U | -- | -- | **2900** | **5880** |
| | 2/15/2012 | N | **0.0291** | < 0.0150 U | -- | -- | -- | **4800** | **750** | **34** | -- | -- | **2900** | **6620** |
| | 2/15/2012 | FD | **0.0254** | < 0.0150 U | -- | -- | -- | **5000** | **730** | **34** | -- | -- | **1350** | **6460** |
| | 8/13/2012 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **7900** | **970** | **41** | -- | -- | **2830 J** | **9480** |
| | 2/8/2013 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **6700** | **790** | **30 J** | -- | -- | **2840** | **6310** |
| | 8/12/2013 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **4500** | **610** | < 60 U | -- | -- | **2960** | **5120** |
| | 2/10/2014 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **4200 J** | **390 J** | **26 J** | -- | -- | **2470** | **5120** |
| | 8/13/2014 | N | < 0.0200 UJ | < 0.0150 UJ | -- | -- | -- | **2800 J** | **540 J** | **1.9 J** | -- | -- | **2540** | **5210** |
| | 2/11/2015 | N | **0.0077 J** | **0.0020 J** | -- | -- | -- | **2700** | **160** | < 20 U | -- | -- | **2510** | **5020** |
| | 2/11/2015 | FD | **0.0078 J** | < 0.0150 U | -- | -- | -- | **2900** | **170** | **22** | -- | -- | **2260** | **4870** |
| | 8/11/2015 | N | **0.0074 J** | < 0.0150 U | -- | -- | -- | **2300** | **100** | **6.4 J** | -- | -- | **2170** | **5070** |
| | 4/1/2016 | N | < 0.01 U | < 0.01 U | < 0.01 U | -- | -- | **1940** | **13.8** | < 10 U | < 1.41 U | **4.63** | **1920** | **4420** |
| | 4/1/2016 | FD | **0.0109** | < 0.01 U | < 0.01 U | -- | -- | **1970** | **18.9** | < 10 U | < 1.41 U | **4.57** | **190** | **3810** |
| | 9/12/2016 | N | < 0.00336 U | < 0.00136 U | -- | **3.3** | **0.0957** | **2000 D** | **29.2** | < 0.642 U | **1.2 J** | **3.76** | **1830** | **4240** |
| | 9/12/2016 | FD | < 0.00336 U | < 0.00136 U | -- | **3.05** | **0.0968** | **1980 D** | **25.1** | **2.22** | **1.32 J** | **2.94** | **1780** | **4200** |
| | 4/6/2017 | N | < 0.05 U | < 0.05 U | < 0.01 U | **0.343 J** | **0.0964 J** | **1340** | **35.8** | < 20 U | **1.72** | **1.9** | **2170** | **4370** |
| | 9/14/2017 | N | **0.00341** | **0.00146 J** | < 0.01 U | -- | -- | **7110** | **120** | **49.6** | **3.12** | **3.22** | **1810** | **4790** |



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ARCADIS Design & Consultancy for natural and built assets

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| Chemical Name | | | Arsenic | Chromium | Chromium VI | Iron | Manganese | Benzene | Ethylbenzene | Total Xylenes | DRO | GRO | Chloride | Total Dissolved Solids |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Units | | | mg/l | mg/l | mg/l | mg/l | mg/l | ug/l | ug/l | ug/l | mg/l | mg/l | mg/l | mg/l |
| NMWQCC Standard | | | 0.1 | 0.05 | 0.05 | 1 | 0.2 | 10 | 750 | 620 | | | 250 | 1000 |
| Location ID | Sample Date | Sample Type | | | | | | | | | | | | |
| MW-26 | 2/17/2009 | N | **0.0442** | < 0.0150 U | -- | -- | -- | **6100** | **350** | **78** | -- | -- | **295** | **1330** |
| | 2/16/2010 | N | **0.0493** | < 0.0150 U | -- | -- | -- | **1800** | **160** | **6.0** | -- | -- | **297** | **1380** |
| | 8/11/2010 | N | **0.0485** | < 0.0150 U | -- | -- | -- | **1700** | **150** | **22** | -- | -- | **240** | **1280** |
| | 4/7/2011 | N | **0.0460** | < 0.0150 U | -- | -- | -- | **2800** | **110** | **8.5** | -- | -- | **354** | **1290** |
| | 8/9/2011 | N | **0.0468** | < 0.0150 U | -- | -- | -- | **3300** | **160** | **22** | -- | -- | **360** | **1440** |
| | 2/17/2012 | N | **0.0320** | < 0.0150 U | -- | -- | -- | **2300** | **120** | **16** | -- | -- | **256** | **1350** |
| | 8/13/2012 | N | **0.0336** | < 0.0150 U | -- | -- | -- | **4600** | **230** | **32** | -- | -- | **233 J** | **1340** |
| | 2/8/2013 | N | **0.0256** | < 0.0150 U | -- | -- | -- | **4400** | **140** | < 30 U | -- | -- | **259** | **1380** |
| | 8/12/2013 | N | **0.0263** | < 0.0150 U | -- | -- | -- | **3300 J** | **150 J** | **27 J** | -- | -- | **312** | **1290** |
| | 8/12/2013 | FD | **0.0299** | < 0.0150 U | -- | -- | -- | **3200 J** | **140 J** | **25 J** | -- | -- | **277** | **1330** |
| | 2/10/2014 | N | **0.0236** | **0.0017 J** | -- | -- | -- | **2400** | **110** | **14** | -- | -- | **270** | **1390** |
| | 8/14/2014 | N | **0.0285 J** | < 0.0150 UJ | -- | -- | -- | **3600** | **210** | **22** | -- | -- | **263** | **1260** |
| | 8/14/2014 | FD | **0.0293 J** | < 0.0150 UJ | -- | -- | -- | **3100** | **220** | **23** | -- | -- | **268** | **1240** |
| | 2/11/2015 | N | **0.0304** | < 0.0150 U | -- | -- | -- | **1200** | **51** | **14** | -- | -- | **320** | **1200** |
| | 8/11/2015 | N | **0.0352** | < 0.0150 U | -- | -- | -- | **1600** | **7.9 J** | **17** | -- | -- | **260** | **1320** |
| | 4/1/2016 | N | **0.059** | < 0.01 U | < 0.01 U | -- | -- | **962** | < 10 U | < 10 U | **2.53** | **3** | **285** | **1220** |
| | 9/12/2016 | N | **0.0519** | < 0.00136 U | -- | **7.35** | **0.039** | **1500 D** | **5.28** | **22** | **7.1** | **3.25** | **233** | **1270** |
| | 4/6/2017 | N | **0.0362 J** | < 0.05 U | **0.0049 J** | **0.26 J** | **0.0324 J** | **940** | < 20 U | < 20 U | **3.53** | **1.61** | **191** | **1200** |
| | 9/15/2017 | N | **0.057** | < 0.004 U | < 0.01 U | -- | -- | **1790** | **14.6** | **25.2** | **4.19** | **1.74** | **167** | **1240** |
| MW-27 | 2/17/2009 | N | **0.0408** | < 0.0150 U | -- | -- | -- | **12000** | **1300** | **420** | -- | -- | **1000** | **2390** |
| MW-29 | 2/4/2009 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **490** | **170** | **140** | -- | -- | **661** | **1840** |
| | 8/13/2009 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **49** | **51** | **29** | -- | -- | **916** | **1510** |
| | 2/15/2010 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **130** | **190** | **58** | -- | -- | **389** | **1470** |
| | 2/15/2010 | FD | < 0.0200 U | < 0.0150 U | -- | -- | -- | **120** | **180** | **58** | -- | -- | **434** | **1460** |
| | 8/23/2010 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **78** | **59** | **33** | -- | -- | **365** | **1380** |
| | 4/7/2011 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **250** | **510** | **3.7** | -- | -- | **371** | **1420** |
| | 8/10/2011 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **190** | **230** | < 15 U | -- | -- | **344** | **1470** |
| | 8/10/2011 | FD | < 0.0200 U | < 0.0150 U | -- | -- | -- | **180** | **230** | < 3.0 U | -- | -- | **377** | **1490** |
| | 2/9/2012 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **100** | **250** | **15** | -- | -- | **241** | **1270** |
| | 8/8/2012 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **130 J** | **170 J** | **30 J** | -- | -- | **186** | **1230** |
| | 2/8/2013 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **86 J** | **160 J** | **79 J** | -- | -- | **151 J** | **1140** |
| | 2/8/2013 | FD | < 0.0200 U | < 0.0150 U | -- | -- | -- | **84 J** | **150 J** | **77 J** | -- | -- | **150 J** | **1180** |
| | 8/8/2013 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **60 J** | **48 J** | **28 J** | -- | -- | **126** | **874** |
| | 2/6/2014 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **110 J** | **88 J** | **7.4 J** | -- | -- | **103 J** | **856** |
| | 8/11/2014 | N | < 0.0200 UJ | < 0.0150 UJ | -- | -- | -- | **80 J** | **63 J** | **14 J** | -- | -- | **101** | **870** |
| | 2/9/2015 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **240 J** | **27 J** | **3.5 J** | -- | -- | **135** | **850** |
| | 8/5/2015 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **86** | **4.3** | **1.9** | -- | -- | **91.9 J** | **930** |
| | 3/31/2016 | N | < 0.01 U | < 0.01 U | < 0.01 U | -- | -- | **134** | **2.51** | < 2 U | < 1.41 U | **4.28** | **115** | **829** |
| | 9/7/2016 | N | < 0.00336 U | < 0.00136 U | **0.0101** | **6.92** | **0.107** | **90.7** | **2.25** | **1.56 J** | < 0.987 U | **4.68** | **101** | **953** |
| | 4/5/2017 | N | < 0.05 U | < 0.05 U | -- | **0.323 J** | **0.115 J** | **272** | **3.87** | < 2 U | < 1.5 U | **2.15** | **131** | **918** |
| | 4/7/2017 | N | -- | -- | **0.0056 J** | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | 9/12/2017 | N | **0.00288** | < 0.004 U | **0.0028 J** | -- | -- | **1600 D** | **10** | **2.92** | < 1.5 U | **1.72** | **138** | **1040** |



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ARCADIS Design & Consultancy for natural and built assets

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| | | Chemical Name | Arsenic | Chromium | Chromium VI | Iron | Manganese | Benzene | Ethylbenzene | Total Xylenes | DRO | GRO | Chloride | Total Dissolved Solids |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Units | mg/l | mg/l | mg/l | mg/l | mg/l | ug/l | ug/l | ug/l | mg/l | mg/l | mg/l | mg/l |
| | | NMWQCC Standard | 0.1 | 0.05 | 0.05 | 1 | 0.2 | 10 | 750 | 620 | | | 250 | 1000 |
| Location ID | Sample Date | Sample Type | | | | | | | | | | | | |
| MW-3 | 2/9/2009 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **98** | **31** | < 3.0 U | -- | -- | **110** | **685** |
| | 8/13/2009 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **423** | **706** |
| | 2/16/2010 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **86.7** | **667** |
| | 8/10/2010 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **95.0** | **694** |
| | 4/7/2011 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **120** | **675** |
| | 4/7/2011 | FD | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **98.1** | **706** |
| | 8/9/2011 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **134** | **784** |
| | 2/10/2012 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **105** | **740** |
| | 8/9/2012 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **133** | **744** |
| | 2/7/2013 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **85.4 J** | **756** |
| | 8/12/2013 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **80.2** | **732** |
| | 2/4/2014 | N | **0.0147 J** | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **75.0** | **709** |
| | 8/5/2014 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **59.9** | **669** |
| | 2/3/2015 | N | **0.0126 J** | **0.0019 J** | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **68.5** | **667** |
| | 8/6/2015 | N | **0.0150 J** | **0.0024 J** | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **71.5** | **690** |
| | 4/1/2016 | N | **0.0121** | < 0.01 U | < 0.01 U | -- | -- | < 2 U | < 2 U | < 2 U | < 1.41 U | < 1.41 U | **83.8** | **784** |
| | 9/12/2016 | N | **0.0124** | < 0.00136 U | -- | < 0.00616 U | < 0.000585 U | < 0.408 U | < 0.657 U | < 0.642 U | < 0.986 U | < 0.986 U | **79** | **683** |
| | 4/5/2017 | N | < 0.05 U | < 0.05 U | < 0.01 U | < 1 U | < 0.1 U | < 2 U | < 2 U | < 2 U | < 1.5 U | < 1.5 U | **83.7** | **706** |
| | 4/5/2017 | FD | < 0.05 U | < 0.05 U | < 0.01 U | **0.0738 J** | < 0.1 U | < 2 U | < 2 U | < 2 U | < 1.5 U | < 1.5 U | **91.7** | **664** |
| | 9/13/2017 | N | **0.0141** | **0.00068 J** | < 0.01 U | -- | -- | < 2 U | < 2 U | < 2 U | < 1.5 U | < 1.5 U | **74.1** | **806** |
| MW-30 | 2/4/2009 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **75** | **10** | < 3.0 U | -- | -- | **412** | **1380** |
| | 8/13/2009 | N | **0.0334** | < 0.0150 U | -- | -- | -- | **1.9** | < 1.0 U | < 3.0 U | -- | -- | **795** | **1250** |
| | 2/15/2010 | N | **0.0270** | < 0.0150 U | -- | -- | -- | **1.4** | < 1.0 U | < 3.0 U | -- | -- | **365** | **1240** |
| | 8/23/2010 | N | **0.0263** | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **374** | **1210** |
| | 4/6/2011 | N | **0.0249** | < 0.0150 U | -- | -- | -- | **1.7** | < 1.0 U | < 3.0 U | -- | -- | **455** | **1330** |
| | 8/10/2011 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **320** | **7.3** | < 3.0 U | -- | -- | **509** | **1470** |
| | 2/8/2012 | N | **0.0270** | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **403** | **1340** |
| | 8/9/2012 | N | **0.0252** | < 0.0150 U | -- | -- | -- | **1.5** | < 1.0 U | < 3.0 U | -- | -- | **372** | **1260** |
| | 2/11/2013 | N | **0.0209** | < 0.0150 U | -- | -- | -- | **9.8** | < 1.0 U | < 3.0 U | -- | -- | **423 J** | **1520** |
| | 8/7/2013 | N | **0.0237** | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **365** | **1370** |
| | 2/7/2014 | N | **0.0243** | < 0.0150 U | -- | -- | -- | **0.9 J** | < 1.0 U | **1.5** | -- | -- | **342** | **1240** |
| | 8/11/2014 | N | **0.0200 J** | < 0.0150 UJ | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **349** | **1350** |
| | 2/10/2015 | N | **0.0297** | **0.0017 J** | -- | -- | -- | **0.5 J** | < 1.0 U | < 1.0 U | -- | -- | **312** | **1120** |
| | 8/5/2015 | N | **0.0224** | **0.0017 J** | -- | -- | -- | **4.3** | **0.2 J** | < 1.0 U | -- | -- | **344 J** | **1320 J** |
| | 9/6/2016 | N | **0.0101** | < 0.00136 U | < 0.01 U | **0.0699 J** | **0.484** | **40.9** | < 0.657 U | < 0.642 U | < 0.986 U | < 0.986 U | **321** | **1290** |
| | 4/5/2017 | N | < 0.05 U | < 0.05 U | -- | < 1 U | **0.529 J** | **32.5** | < 2 U | < 2 U | < 1.5 U | < 1.5 U | **328** | **1330** |
| | 4/7/2017 | N | -- | -- | < 0.01 U | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | 9/12/2017 | N | **0.00903** | < 0.004 U | < 0.01 U | -- | -- | **53** | < 2 U | **2.31** | < 1.5 U | < 1.5 U | **307** | **1320** |
| MW-31 | 2/9/2009 | N | **0.0539** | < 0.0150 U | -- | -- | -- | **3700** | **330** | **6.7** | -- | -- | **454** | **1400** |
| | 8/14/2009 | N | **0.0365** | < 0.0150 U | -- | -- | -- | **2000** | **180** | < 15 U | -- | -- | **844** | **1500** |
| | 2/15/2010 | N | **0.0323** | < 0.0150 U | -- | -- | -- | **1700** | **190** | **3.0** | -- | -- | **507** | **1380** |
| | 8/10/2010 | N | **0.0420** | < 0.0150 U | -- | -- | -- | **1400** | **130** | **4.7** | -- | -- | **496** | **1420** |
| | 4/7/2011 | N | **0.0452** | < 0.0150 U | -- | -- | -- | **1300** | **200** | < 3.0 U | -- | -- | **769** | **1600** |
| | 8/15/2011 | N | **0.0361** | < 0.0150 U | -- | -- | -- | **1300** | **190** | < 15 U | -- | -- | **666** | **1510** |
| | 2/8/2012 | N | **0.0296** | < 0.0150 U | -- | -- | -- | **230** | **190** | **4.5** | -- | -- | **743** | **1480** |
| | 8/9/2012 | N | **0.0308** | < 0.0150 U | -- | -- | -- | **340 J** | **190 J** | **10 J** | -- | -- | **591** | **1470** |
| | 2/6/2013 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **14** | **17** | < 5.0 U | -- | -- | **414 J** | **1120** |
| | 8/6/2013 | N | **0.0236** | < 0.0150 U | -- | -- | -- | **9.4 J** | **29 J** | < 3.0 U | -- | -- | **464** | **1530** |
| | 2/7/2014 | N | **0.0242** | < 0.0150 U | -- | -- | -- | **0.4 J** | < 1.0 U | < 2.0 U | -- | -- | **571** | **1290** |
| | 8/12/2014 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 20 U | < 1.0 U | < 2.0 U | -- | -- | **453** | **1260** |
| | 2/3/2015 | N | **0.0277** | < 0.0150 U | -- | -- | -- | **0.5 J** | < 1.0 U | < 1.0 U | -- | -- | **476** | **1110** |
| | 8/6/2015 | N | **0.0290** | **0.0016 J** | -- | -- | -- | < 1.0 U | < 1.0 U | **0.6 J** | -- | -- | **424** | **1290 J** |
| | 8/6/2015 | FD | **0.0236** | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | **0.6 J** | -- | -- | **461** | **1380 J** |
| | 3/30/2016 | N | **0.0267** | < 0.01 U | < 0.01 U | -- | -- | < 2 U | < 2 U | < 2 U | < 1.41 U | < 1.41 U | **417** | **1160** |
| | 9/6/2016 | N | **0.034** | < 0.00136 U | < 0.01 U | **1.07** | **0.245** | < 0.408 U | < 0.657 U | < 0.642 U | < 0.987 U | < 0.987 U | **218** | **1490** |
| | 12/12/2016 | N | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | **116** | -- |
| | 4/5/2017 | N | < 0.05 U | < 0.05 U | < 0.01 U | **0.105 J** | **0.316** | < 2 U | < 2 U | < 2 U | < 1.5 U | < 1.5 U | **435** | **1310** |



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ARCADIS Design & Consultancy for natural and built assets

Received by OCD: 3/25/2020 2:27:35 PM

| | | | Chemical Name | Arsenic | Chromium | Chromium VI | Iron | Manganese | Benzene | Ethylbenzene | Total Xylenes | DRO | GRO | Chloride | Total Dissolved Solids |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Units | mg/l | mg/l | mg/l | mg/l | mg/l | ug/l | ug/l | ug/l | mg/l | mg/l | mg/l | mg/l |
| | | | NMWQCC Standard | 0.1 | 0.05 | 0.05 | 1 | 0.2 | 10 | 750 | 620 | | | 250 | 1000 |
| Location ID | Sample Date | Sample Type | | | | | | | | | | | | | |
| | 4/5/2017 | FD | | < 0.05 U | < 0.05 U | < 0.01 U | **0.0918 J** | **0.298** | < 2 U | < 2 U | < 2 U | < 1.5 U | < 1.5 U | **431** | **1400** |
| | 9/13/2017 | N | | **0.0347** | < 0.004 U | < 0.01 U | -- | -- | < 2 U | < 2 U | < 2 U | < 1.5 U | < 1.5 U | **445** | **1450** |
| MW-32 | 2/4/2009 | N | | < 0.0200 U | < 0.0150 U | -- | -- | -- | **20** | **17** | **14** | -- | -- | **1540** | **3910** |
| | 8/12/2009 | N | | < 0.0200 U | < 0.0150 U | -- | -- | -- | **2.8** | < 1.0 U | < 3.0 U | -- | -- | **2180** | **3770** |
| | 2/12/2010 | N | | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **1370** | **3810** |
| | 8/9/2010 | N | | < 0.0200 U | < 0.0150 U | -- | -- | -- | **38** | **25** | **8.6** | -- | -- | **1860** | **3750** |
| | 4/6/2011 | N | | < 0.0200 U | < 0.0150 U | -- | -- | -- | **43** | **16** | < 3.0 U | -- | -- | **2080** | **3990** |
| | 4/6/2011 | FD | | < 0.0200 U | < 0.0150 U | -- | -- | -- | **45** | **17** | < 3.0 U | -- | -- | **1870** | **3900** |
| | 8/10/2011 | N | | < 0.0200 U | < 0.0150 U | -- | -- | -- | **99** | **19** | **5.5** | -- | -- | **2040** | **3790** |
| | 2/8/2012 | N | | < 0.0200 U | < 0.0150 U | -- | -- | -- | **400** | **13** | **12** | -- | -- | **656** | **2980** |
| | 8/8/2012 | N | | < 0.0200 U | < 0.0150 U | -- | -- | -- | **1400 J** | **7.3 J** | **21 J** | -- | -- | **1170** | **3040** |
| | 2/7/2013 | N | | **0.0233** | < 0.0150 U | -- | -- | -- | **1800 J** | **5.0 J** | **7.2 J** | -- | -- | **1200 J** | **3070** |
| | 8/8/2013 | N | | **0.0233** | < 0.0150 U | -- | -- | -- | **2000 J** | **3.2 J** | **8.8 J** | -- | -- | **1220** | **2830** |
| | 2/7/2014 | N | | **0.0188 J** | < 0.0150 U | -- | -- | -- | **4200** | **9.5 J** | **16 J** | -- | -- | **1340** | **3000** |
| | 8/11/2014 | N | | < 0.0200 UJ | < 0.0150 UJ | -- | -- | -- | **3600** | **7.6** | **91** | -- | -- | **1360** | **3310** |
| | 2/9/2015 | N | | **0.0277** | < 0.0150 U | -- | -- | -- | **3700** | **6.4 J** | **85** | -- | -- | **1360** | **2550** |
| | 2/9/2015 | FD | | **0.0206** | < 0.0150 U | -- | -- | -- | **3500** | **5.8 J** | **87** | -- | -- | **1400** | **2490** |
| | 8/5/2015 | N | | **0.0304** | **0.0018 J** | -- | -- | -- | **6500** | **5.1 J** | **15** | -- | -- | **1220 J** | **3010 J** |
| | 3/31/2016 | N | | **0.0297** | < 0.01 U | **0.0128** | -- | -- | **4300** | < 40 U | < 40 U | < 1.41 U | **6.79** | **1120** | **2450** |
| | 9/7/2016 | N | | **0.011** | < 0.00136 U | **0.008 J** | **6.35** | **0.0674** | **6500** | < 32.9 U | < 32.1 U | < 0.986 U | **7.52** | **1070** | **2650** |
| | 4/7/2017 | N | | < 0.05 U | **0.00848 J** | **0.0056 J** | **0.0899 J** | **0.054 J** | **7560** | **177** | **119** | < 1.5 U | < 1.5 U | **988** | **2650** |
| | 9/13/2017 | N | | **0.0263** | < 0.004 U | < 0.01 U | -- | -- | **14700** | **9.9** | **3.25** | < 1.5 U | **1.35 J** | **1070** | **3140** |
| MW-34 | 2/4/2009 | N | | < 0.0200 U | < 0.0150 U | -- | -- | -- | **84** | **240** | **240** | -- | -- | **73** | **569** |
| | 8/13/2009 | N | | < 0.0200 U | < 0.0150 U | -- | -- | -- | **26** | **150** | **210** | -- | -- | **93.2** | **697** |
| | 2/16/2010 | N | | < 0.0200 U | < 0.0150 U | -- | -- | -- | **28** | **120** | **180** | -- | -- | **226** | **942** |
| | 8/23/2010 | N | | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 50 U | **81** | **90** | -- | -- | **206** | **1030** |
| | 4/6/2011 | N | | < 0.0200 U | < 0.0150 U | -- | -- | -- | **170** | **160** | **190** | -- | -- | **385** | **1230** |
| | 8/10/2011 | N | | < 0.0200 U | < 0.0150 U | -- | -- | -- | **160** | **200** | **250** | -- | -- | **392** | **1410** |
| | 8/10/2011 | FD | | < 0.0200 U | < 0.0150 U | -- | -- | -- | **160** | **200** | **250** | -- | -- | **437** | **1340** |
| | 2/8/2012 | N | | < 0.0200 U | < 0.0150 U | -- | -- | -- | **560** | **180** | **190** | -- | -- | **431** | **1160** |
| | 8/8/2012 | N | | < 0.0200 U | < 0.0150 U | -- | -- | -- | **1100** | **120** | **100** | -- | -- | **300** | **1450** |
| | 2/7/2013 | N | | < 0.0200 U | < 0.0150 U | -- | -- | -- | **910 J** | **84 J** | **46 J** | -- | -- | **322 J** | **1580** |
| | 8/8/2013 | N | | < 0.0200 U | < 0.0150 U | -- | -- | -- | **1400 J** | **80 J** | **51 J** | -- | -- | **298** | **1340** |
| | 2/6/2014 | N | | < 0.0200 U | < 0.0150 U | -- | -- | -- | **1200** | **16 J** | **7.7 J** | -- | -- | **394 J** | **1540** |
| | 2/6/2014 | FD | | < 0.0200 U | < 0.0150 U | -- | -- | -- | **1200** | **14** | **6.9** | -- | -- | **268 J** | **1370** |
| | 8/11/2014 | N | | < 0.0200 UJ | < 0.0150 UJ | -- | -- | -- | **1500** | **21** | **6.8** | -- | -- | **293** | **1410** |
| | 2/10/2015 | N | | < 0.0200 U | < 0.0150 U | -- | -- | -- | **870** | **3.0 J** | < 5.0 U | -- | -- | **269** | **1330** |
| | 8/4/2015 | N | | < 0.0200 U | < 0.0150 U | -- | -- | -- | **1500** | **7.1 J** | **2.5 J** | -- | -- | **272 J** | **1540 J** |
| | 3/31/2016 | N | | < 0.01 U | < 0.01 U | < 0.01 U | -- | -- | **230** | < 2 U | < 2 U | **5.4** | **3.22** | **272** | **1160** |
| | 9/7/2016 | N | | < 0.00336 U | < 0.00136 U | < 0.01 U | **3.43** | **0.0506** | **1590** | < 13.1 U | < 12.8 U | **1.32 J** | **3.99** | < 0.858 U | **1390** |
| | 4/5/2017 | N | | < 0.05 U | **0.0078 J** | -- | **0.162 J** | **0.0612 J** | **1840** | **85** | **45.4** | < 1.5 U | < 1.5 U | **244** | **1340** |
| | 4/7/2017 | N | | -- | -- | **0.0034 J** | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | 9/12/2017 | N | | **0.00215** | < 0.004 U | **0.003 J** | -- | -- | **2420 J** | < 2 UJ | < 2 UJ | **1.04 J** | < 1.5 U | **235** | **1500** |
| MW-35 | 4/12/2017 | N | | -- | -- | < 0.01 U | -- | -- | **0.75 J** | < 2 U | < 2 U | **1.77** | **2.28** | **1810** | **3300** |
| | 9/15/2017 | N | | **0.0293 J** | < 0.004 U | < 0.01 U | -- | -- | < 2 U | < 2 U | < 2 U | < 1.5 U | < 1.5 U | **941** | **2090** |
| MW-36 | 4/12/2017 | N | | -- | -- | < 0.01 U | -- | -- | < 2 U | < 2 U | < 2 U | < 1.5 U | < 1.5 U | **391** | **1150** |
| | 9/15/2017 | N | | **0.00957 J** | < 0.004 U | < 0.01 U | -- | -- | < 2 U | < 2 U | < 2 U | < 1.5 U | < 1.5 U | **393** | **1350** |

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| Chemical Name | | | Arsenic | Chromium | Chromium VI | Iron | Manganese | Benzene | Ethylbenzene | Total Xylenes | DRO | GRO | Chloride | Total Dissolved Solids |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Units | | | mg/l | mg/l | mg/l | mg/l | mg/l | ug/l | ug/l | ug/l | mg/l | mg/l | mg/l | mg/l |
| NMWQCC Standard | | | 0.1 | 0.05 | 0.05 | 1 | 0.2 | 10 | 750 | 620 | | | 250 | 1000 |
| Location ID | Sample Date | Sample Type | | | | | | | | | | | | |
| MW-4 | 2/11/2009 | N | **0.0207** | < 0.0150 U | -- | -- | -- | **5.9** | **4.7** | < 3.0 U | -- | -- | **4190** | **9220** |
| | 2/11/2009 | FD | < 0.0200 U | < 0.0150 U | -- | -- | -- | **5.9** | **4.8** | < 3.0 U | -- | -- | **4900** | **9800** |
| | 8/12/2009 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **3600** | **6940** |
| | 2/12/2010 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **3480** | **5790** |
| | 8/6/2010 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **3100** | **6110** |
| | 8/10/2011 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **3610** | **6680** |
| | 2/14/2012 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **1180** | **8480** |
| | 8/10/2012 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **3230 J** | **6090** |
| | 2/7/2013 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **2420 J** | **4910** |
| | 8/8/2013 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **3040 J** | **5310** |
| | 2/5/2014 | N | < 0.0200 U | **0.0021 J** | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **2290** | **4920** |
| | 8/12/2014 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **3910** | **6880** |
| | 2/4/2015 | N | **0.0093 J** | **0.0023 J** | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **2490** | **4650** |
| | 8/10/2015 | N | **0.0099 J** | **0.0019 J** | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **2300** | **4720** |
| | 9/12/2016 | N | < 0.00336 U | < 0.00136 U | -- | **0.338** | **1.43** | **1.77 J** | < 0.657 U | < 0.642 U | < 0.987 U | < 0.987 U | **3740** | **6810** |
| | 9/12/2016 | FD | < 0.00336 U | < 0.00136 U | -- | **0.242** | **1.04** | **1.55 J** | < 0.657 U | < 0.642 U | < 0.986 U | **1.05 J** | **2400** | **5280** |
| | 4/4/2017 | N | < 0.05 U | < 0.05 U | -- | **0.0629 J** | **1.14** | **4.02** | < 2 U | < 2 U | < 1.5 U | < 1.5 U | **2390** | **4180** |
| | 4/7/2017 | N | -- | -- | < 0.01 U | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | 9/13/2017 | N | **0.00758** | < 0.004 U | < 0.01 U | -- | -- | < 2 U | < 2 U | < 2 U | < 1.5 U | < 1.5 U | **2500** | **5360** |
| MW-6 | 2/5/2009 | N | **0.0269** | < 0.0150 U | -- | -- | -- | **3.1** | **7.6** | **6.7** | -- | -- | **5050** | **10700** |
| | 8/7/2009 | N | **0.0247** | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **748** | **3160** |
| | 2/9/2010 | N | **0.0227** | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **867** | **2950** |
| | 8/5/2010 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **1070** | **3940** |
| | 4/6/2011 | N | **0.0230** | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **913** | **2940** |
| | 8/9/2011 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **973** | **3180** |
| | 2/9/2012 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **1050** | **3400** |
| | 8/10/2012 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **2190 J** | **5980** |
| | 2/7/2013 | N | **0.0248** | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **1170 J** | **4120** |
| | 2/7/2013 | FD | **0.0241** | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **1210 J** | **4040** |
| | 8/6/2013 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **1910** | **5990** |
| | 2/5/2014 | N | **0.0193 J** | **0.0024 J** | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **2030 J** | **5620** |
| | 8/5/2014 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **3810** | **8280** |
| | 2/5/2015 | N | **0.0257** | **0.0022 J** | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **825** | **3450** |
| | 8/7/2015 | N | **0.0328 J** | **0.0018 J** | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **1020** | **3960** |
| | 3/31/2016 | N | **0.0344** | < 0.01 U | < 0.01 U | -- | -- | < 2 U | < 2 U | < 2 U | < 1.41 U | < 1.41 U | **1430** | **3490** |
| | 9/7/2016 | N | **0.0167** | < 0.00136 U | < 0.01 U | **0.449** | **0.125** | < 0.408 U | < 0.657 U | < 0.642 U | < 0.987 U | < 0.987 U | **1440** | **4480** |
| | 4/4/2017 | N | < 0.05 U | < 0.05 U | < 0.01 U | **0.0437 J** | **0.115** | < 2 U | < 2 U | < 2 U | < 1.5 U | < 1.5 U | **866** | **3700** |
| MW-7 | 2/5/2009 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **2.8** | **11** | **9.0** | -- | -- | **97.1** | **1060** |
| | 8/6/2009 | N | **0.0277** | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **51.3** | **1010** |
| | 2/9/2010 | N | **0.0250** | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **38.4** | **1000** |
| | 8/5/2010 | N | **0.0258** | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **33.6** | **1030** |
| | 4/6/2011 | N | **0.0273** | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **101** | **894** |
| | 8/9/2011 | N | **0.0256** | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **35.7** | **876** |
| | 2/9/2012 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **40.9** | **884** |
| | 8/9/2012 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **71.1** | **1040** |
| | 2/6/2013 | N | **0.0226** | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **41.3 J** | **1180** |
| | 8/6/2013 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **56.4** | **1370** |
| | 2/4/2014 | N | **0.0085 J** | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **44.8** | **1420** |
| | 8/5/2014 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **46.7** | **1420** |
| | 2/3/2015 | N | < 0.0200 U | **0.0014 J** | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **49.3** | **1150** |
| | 8/7/2015 | N | **0.0084 J** | **0.0018 J** | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **78.1** | **1400** |
| | 9/9/2016 | N | **0.0138** | < 0.00136 U | -- | **4.25** | **1.26** | < 0.408 U | < 0.657 U | < 0.642 U | < 0.986 U | < 0.986 U | **154** | **1170** |
| | 4/4/2017 | N | < 0.05 U | < 0.05 U | < 0.01 U | **0.265 J** | **1.08** | < 2 U | < 2 U | < 2 U | < 1.5 U | < 1.5 U | **95.7** | **1050** |

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ARCADIS Design & Consultancy for natural and built assets

Received by OCD: 3/25/2020 2:27:35 PM

| Chemical Name | | | Arsenic | Chromium | Chromium VI | Iron | Manganese | Benzene | Ethylbenzene | Total Xylenes | DRO | GRO | Chloride | Total Dissolved Solids |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Units | | | mg/l | mg/l | mg/l | mg/l | mg/l | ug/l | ug/l | ug/l | mg/l | mg/l | mg/l | mg/l |
| NMWQCC Standard | | | 0.1 | 0.05 | 0.05 | 1 | 0.2 | 10 | 750 | 620 | | | 250 | 1000 |
| Location ID | Sample Date | Sample Type | | | | | | | | | | | | |
| MW-8 | 8/6/2009 | N | **0.0442** | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **1310** | **4010** |
| | 2/5/2010 | N | **0.0321** | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **1230** | **3710** |
| | 8/4/2010 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **1420** | **3690** |
| | 4/6/2011 | N | **0.0220** | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **1230** | **3270** |
| | 8/8/2011 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **1250** | **3130** |
| | 2/8/2012 | N | **0.0224** | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **1350** | **3420** |
| | 8/8/2012 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **1260** | **3280** |
| | 8/8/2012 | FD | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **1310 J** | **3380** |
| | 2/6/2013 | FD | **0.0235** | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **874 J** | **1640** |
| | 2/7/2013 | N | **0.0282** | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **1440 J** | **3780** |
| | 8/8/2013 | N | **0.0399** | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **1550** | **4020** |
| | 2/5/2014 | N | **0.0224 J** | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | **0.7 J** | -- | -- | **1810 J** | **4260** |
| | 8/8/2014 | N | **0.0436** | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **1720** | **4110 J** |
| | 2/5/2015 | N | **0.0154 J** | **0.0014 J** | -- | -- | -- | < 1.0 U | **0.6 J** | **1.3** | -- | -- | **1630** | **4000** |
| | 8/5/2015 | N | **0.0234** | **0.0021 J** | -- | -- | -- | < 1.0 U | **0.4 J** | **0.9 J** | -- | -- | **1260 J** | **4100 J** |
| | 3/31/2016 | N | **0.029** | < 0.01 U | < 0.01 U | -- | -- | < 2 U | < 2 U | < 2 U | < 1.41 U | < 1.41 U | **1200** | **3150** |
| | 9/6/2016 | N | **0.0311** | < 0.00136 U | < 0.01 U | **4.39** | **0.236** | < 0.408 U | < 0.657 U | < 0.642 U | < 0.986 U | < 0.986 U | **51** | **2920** |
| | 4/5/2017 | N | < 0.05 U | < 0.05 U | **0.0067 J** | **0.0964 J** | **0.181** | < 2 U | < 2 U | < 2 U | < 1.5 U | < 1.5 U | **840** | **2620** |
| | 4/5/2017 | FD | < 0.05 U | < 0.05 U | **0.0042 J** | **0.0918 J** | **0.194** | < 2 U | < 2 U | < 2 U | < 1.5 U | < 1.5 U | **851** | **2460** |
| | 9/12/2017 | N | **0.0408** | < 0.004 U | < 0.01 U | -- | -- | < 2 U | < 2 U | < 2 U | < 1.5 U | < 1.5 U | **782** | **3300** |
| MW-9 | 2/12/2009 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **3700** | **470** | **140** | -- | -- | **560** | **1720** |
| | 8/14/2009 | N | **0.0244** | < 0.0150 U | -- | -- | -- | **1600** | **64** | < 3.0 U | -- | -- | **802** | **1540** |
| | 2/15/2010 | N | **0.0221** | < 0.0150 U | -- | -- | -- | **2700** | **430** | **6.0** | -- | -- | **536** | **1640** |
| | 8/23/2010 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **1500** | **250** | < 15 U | -- | -- | **583** | **1680** |
| | 4/7/2011 | N | **0.0201** | < 0.0150 U | -- | -- | -- | **1400** | **270** | < 3.0 U | -- | -- | **608** | **1640** |
| | 8/10/2011 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **610** | **210** | **3.7** | -- | -- | **544** | **1710** |
| | 2/9/2012 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **220 J** | **200 J** | **4.5 J** | -- | -- | **525** | **1680** |
| | 8/8/2012 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **16** | **5.0** | < 3.0 U | -- | -- | **492** | **1730** |
| | 2/11/2013 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **61** | **130** | **6.2** | -- | -- | **580 J** | **1970** |
| | 8/7/2013 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **54** | **110** | < 5.0 U | -- | -- | **504** | **1710** |
| | 2/7/2014 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **13** | **5.9** | **2.2** | -- | -- | **490** | **1600** |
| | 8/8/2014 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **42** | **21** | < 3.0 U | -- | -- | **602** | **1770 J** |
| | 2/9/2015 | N | **0.0136 J** | < 0.0150 U | -- | -- | -- | **8.1** | **0.2 J** | < 1.0 U | -- | -- | **576** | **1640** |
| | 8/4/2015 | N | **0.0119 J** | **0.0022 J** | -- | -- | -- | **1.6** | < 1.0 U | < 1.0 U | -- | -- | **504 J** | **1680 J** |
| | 3/30/2016 | N | < 0.01 U | < 0.01 U | < 0.01 U | -- | -- | < 2 U | < 2 U | < 2 U | < 1.41 U | < 1.41 U | **526** | **1660** |
| | 9/6/2016 | N | **0.0106** | < 0.00136 U | < 0.01 U | **0.24** | **0.312** | < 0.408 U | < 0.657 U | < 0.642 U | < 0.986 U | < 0.986 U | **477** | **1770** |
| | 4/5/2017 | N | < 0.05 U | < 0.05 U | -- | **0.0551 J** | **0.307 J** | < 2 U | < 2 U | < 2 U | < 1.5 U | < 1.5 U | **453** | **1650** |
| | 4/7/2017 | N | -- | -- | < 0.01 U | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | 9/12/2017 | N | **0.0131** | < 0.004 U | < 0.01 U | -- | -- | < 2 U | < 2 U | < 2 U | < 1.5 U | < 1.5 U | **434** | **1760** |
| MWD-1 | 2/11/2009 | N | **0.0263** | < 0.0150 U | -- | -- | -- | **3.7** | **3.1** | < 3.0 U | -- | -- | **10500** | **19600** |
| | 8/6/2009 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **1.9** | < 1.0 U | < 3.0 U | -- | -- | **9340** | **18800** |
| | 2/8/2010 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **1.2** | < 1.0 U | < 3.0 U | -- | -- | **9500** | **17400** |
| | 8/4/2010 | N | **0.0293** | < 0.0150 U | -- | -- | -- | **5.0** | < 1.0 U | < 3.0 U | -- | -- | **8490** | **11100** |
| | 4/14/2011 | N | **0.0221** | < 0.0150 U | -- | -- | -- | **4.5** | < 1.0 U | < 3.0 U | -- | -- | **9670** | **18100** |
| | 8/17/2011 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **5.4** | **1.9** | < 3.0 U | -- | -- | **8950** | **13000** |
| | 2/13/2012 | N | **0.0379 J** | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **1630 J** | **7950 J** |
| | 2/13/2012 | FD | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **381 J** | **1470 J** |
| | 8/13/2012 | N | **0.0210** | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **8220 J** | **13300** |
| | 2/6/2013 | N | **0.0201** | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **3820 J** | **7330** |
| | 8/7/2013 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **7290** | **11400** |
| | 2/4/2014 | N | **0.0158 J** | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **8140 J** | **12800** |
| | 8/6/2014 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **4860** | **9920** |
| | 2/6/2015 | N | **0.0513** | **0.0088 J** | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **908** | **2000** |
| | 8/6/2015 | N | **0.0572** | **0.0087 J** | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **712** | **2040** |
| | 4/1/2016 | N | **0.0375** | < 0.01 U | < 0.01 U | -- | -- | < 2 U | < 2 U | < 2 U | < 1.41 U | < 1.41 U | **718** | **1820** |
| | 9/9/2016 | N | **0.0571** | **0.00432 J** | -- | < 0.00616 U | **0.00129 J** | < 0.408 U | < 0.657 U | < 0.642 U | < 0.986 U | < 0.986 U | **815** | **1840** |
| | 4/6/2017 | N | **0.0715** | < 0.05 U | < 0.01 U | < 1 U | < 0.1 U | < 2 U | < 2 U | < 2 U | < 1.5 U | < 1.5 U | **629** | **1700** |
| | 9/13/2017 | N | **0.0514** | **0.00479** | < 0.01 U | -- | -- | < 2 U | < 2 U | < 2 U | < 1.5 U | < 1.5 U | **635** | **1910** |

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| | | Chemical Name | Arsenic | Chromium | Chromium VI | Iron | Manganese | Benzene | Ethylbenzene | Total Xylenes | DRO | GRO | Chloride | Total Dissolved Solids |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Units | mg/l | mg/l | mg/l | mg/l | mg/l | ug/l | ug/l | ug/l | mg/l | mg/l | mg/l | mg/l |
| | | NMWQCC Standard | 0.1 | 0.05 | 0.05 | 1 | 0.2 | 10 | 750 | 620 | | | 250 | 1000 |
| Location ID | Sample Date | Sample Type | | | | | | | | | | | | |
| MWD-10 | 2/12/2009 | N | **0.0866** | < 0.0150 U | -- | -- | -- | **700** | **100** | **18** | -- | -- | **6130** | **11600** |
| | 8/10/2009 | N | **0.0739** | < 0.0150 U | -- | -- | -- | **700** | **67** | **13** | -- | -- | **5550** | **11400** |
| | 8/10/2009 | FD | **0.0717** | < 0.0150 U | -- | -- | -- | **700** | **70** | **14** | -- | -- | **5670** | **12600** |
| | 2/9/2010 | N | **0.0717** | < 0.0150 U | -- | -- | -- | **1100** | **40** | < 3.0 U | -- | -- | **6590** | **10900** |
| | 8/19/2011 | N | **0.0695** | < 0.0150 U | -- | -- | -- | **810** | **76** | **8.5** | -- | -- | **4660** | **9810** |
| MWD-11 | 2/10/2009 | N | < 0.020 U | < 0.0150 U | -- | -- | -- | **13** | **6.6** | < 3.0 U | -- | -- | **2640** | **4670** |
| | 8/12/2009 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **3.5** | **1.2** | < 3.0 U | -- | -- | **2460** | **4370** |
| | 2/8/2010 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **2210** | **4440** |
| | 8/5/2010 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **1560** | **3330** |
| | 4/15/2011 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **4.2** | < 1.0 U | < 3.0 U | -- | -- | **2400** | **4750** |
| | 4/15/2011 | FD | < 0.0200 U | < 0.0150 U | -- | -- | -- | **4.3** | < 1.0 U | < 3.0 U | -- | -- | **2370** | **4110** |
| | 8/19/2011 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **4.0** | **1.4** | < 3.0 U | -- | -- | **1520** | **3130** |
| | 8/19/2011 | FD | < 0.0200 U | < 0.0150 U | -- | -- | -- | **3.4** | **1.4** | < 3.0 U | -- | -- | **1340** | **3370** |
| | 2/10/2012 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **205** | **932** |
| | 8/9/2012 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **315 J** | **864** |
| | 8/9/2012 | FD | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **156 J** | **836** |
| | 2/5/2013 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **623 J** | **1450** |
| | 8/9/2013 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **701** | **1600** |
| | 8/9/2013 | FD | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **675** | **1670** |
| | 2/4/2014 | N | **0.0079 J** | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **1700 J** | **3520** |
| | 8/5/2014 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **112** | **656** |
| | 2/5/2015 | N | **0.0183 J** | **0.0024 J** | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **89.6** | **672** |
| | 8/10/2015 | N | **0.0217 J** | **0.0022 J** | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **85.9** | **682** |
| | 4/1/2016 | N | **0.0143** | < 0.01 U | < 0.01 U | -- | -- | < 2 U | < 2 U | < 2 U | < 1.41 U | < 1.41 U | **66.9** | **630** |
| | 9/12/2016 | N | **0.012** | < 0.00136 U | -- | < 0.00616 U | < 0.000585 U | < 0.408 U | < 0.657 U | < 0.642 U | < 0.987 U | < 0.987 U | **94.2** | **707** |
| | 4/5/2017 | N | < 0.05 U | < 0.05 U | < 0.01 U | < 1 U | < 0.1 U | < 2 U | < 2 U | < 2 U | < 1.5 U | < 1.5 U | **91.6** | **722** |
| | 9/15/2017 | N | **0.0157 J** | **0.00142 J** | **0.0058 J** | -- | -- | < 2 U | < 2 U | < 2 U | < 1.5 U | < 1.5 U | **101 J** | **758 J** |
| | 9/15/2017 | FD | **0.0276 J** | < 0.004 U | < 0.01 U | -- | -- | < 2 U | < 2 U | < 2 U | < 1.5 U | < 1.5 U | **1190 J** | **2560 J** |
| MWD-12 | 2/10/2009 | N | **0.0534** | < 0.0150 U | -- | -- | -- | **900** | **69** | **25** | -- | -- | **5280** | **7480** |
| | 8/6/2009 | N | **0.0617** | < 0.0150 U | -- | -- | -- | **660** | **41** | **12** | -- | -- | **4350** | **9440** |
| | 2/5/2010 | N | **0.0629** | < 0.0150 U | -- | -- | -- | **700** | **51** | **12** | -- | -- | **4630** | **8600** |
| | 8/4/2010 | N | **0.0636** | < 0.0150 U | -- | -- | -- | **640** | **40** | **9.3** | -- | -- | **4340** | **8100** |
| | 4/14/2011 | N | **0.0632** | < 0.0150 U | -- | -- | -- | **780** | **57** | **13** | -- | -- | **5260** | **8820** |
| | 8/17/2011 | N | **0.0572** | < 0.0150 U | -- | -- | -- | **720** | **49** | **12** | -- | -- | **5090** | **8460** |
| | 2/10/2012 | N | **0.0317** | < 0.0150 U | -- | -- | -- | **1.7** | < 1.0 U | < 3.0 U | -- | -- | **8390** | **22800** |
| | 8/9/2012 | N | **0.0761** | < 0.0150 U | -- | -- | -- | **1000** | **45** | **13** | -- | -- | **3280** | **6340** |
| | 2/11/2013 | N | **0.0515** | < 0.0150 U | -- | -- | -- | **660** | **31** | **8.3** | -- | -- | **1630 J** | **4400** |
| | 8/8/2013 | N | **0.0679** | < 0.0150 U | -- | -- | -- | **930** | **44** | **13** | -- | -- | **1500** | **3670** |
| | 2/6/2014 | N | **0.0805** | < 0.0150 U | -- | -- | -- | **1300** | **54** | **11** | -- | -- | **2320** | **5420** |
| | 8/11/2014 | N | **0.0662 J** | < 0.0150 UJ | -- | -- | -- | **160** | **17** | < 1.0 U | -- | -- | **4370** | **7040** |
| | 8/11/2014 | FD | **0.0714 J** | < 0.0150 UJ | -- | -- | -- | **160** | **17** | < 1.0 U | -- | -- | **4290** | **7480** |
| | 2/9/2015 | N | **0.0362** | < 0.0150 U | -- | -- | -- | **5.8** | **9.5** | **3.8** | -- | -- | **667** | **2410** |
| | 8/5/2015 | N | **0.0463** | **0.0016 J** | -- | -- | -- | **6.9** | **85** | **8.7** | -- | -- | **694 J** | **2690 J** |
| | 3/31/2016 | N | **0.0435** | < 0.01 U | < 0.01 U | -- | -- | **32.6** | **14.5** | < 2 U | < 1.41 U | < 1.41 U | **714** | **4570** |
| | 9/7/2016 | N | **0.0165** | < 0.00136 U | < 0.01 U | **1.21** | **0.13** | **51.4** | **109** | **4.85** | < 0.986 U | **1.39 J** | **998** | **2730** |
| | 4/6/2017 | N | **0.0375 J** | < 0.05 U | **0.0028 J** | **0.161 J** | **0.0977 J** | **48** | **74.5** | **5.92** | **3.07** | **1.61** | **962** | **2780** |
| | 9/13/2017 | N | **0.037** | < 0.004 U | < 0.01 U | -- | -- | **27.1** | **83.4** | **2.33** | < 1.5 U | < 1.5 U | **793** | **2740** |

Received by OCD: 3/25/2020 2:27:35 PM

Released to Imaging: 6/14/2022 10:17:42 AM



ARCADIS Design & Consultancy for natural and built assets

Received by OCD: 3/25/2020 2:27:35 PM

| Chemical Name | | | Arsenic | Chromium | Chromium VI | Iron | Manganese | Benzene | Ethylbenzene | Total Xylenes | DRO | GRO | Chloride | Total Dissolved Solids |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Units | | | mg/l | mg/l | mg/l | mg/l | mg/l | ug/l | ug/l | ug/l | mg/l | mg/l | mg/l | mg/l |
| NMWQCC Standard | | | 0.1 | 0.05 | 0.05 | 1 | 0.2 | 10 | 750 | 620 | | | 250 | 1000 |
| Location ID | Sample Date | Sample Type | | | | | | | | | | | | |
| MWD-13 | 2/5/2009 | N | **0.0244** | < 0.0150 U | -- | -- | -- | **1.2** | **3.6** | **3.1** | -- | -- | **6610** | **12600** |
| | 2/5/2009 | FD | < 0.0200 U | < 0.0150 U | -- | -- | -- | **1.2** | **3.6** | **3.1** | -- | -- | **6830** | **13000** |
| | 8/7/2009 | N | **0.0264** | < 0.0150 U | -- | -- | -- | **1.1** | < 1.0 U | < 3.0 U | -- | -- | **9110** | **20800** |
| | 2/5/2010 | N | **0.0257** | < 0.0150 U | -- | -- | -- | **2.7** | < 1.0 U | < 3.0 U | -- | -- | **1840** | **5540** |
| | 8/20/2010 | N | **0.0245** | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **1950** | **5710** |
| | 4/15/2011 | N | < 0.100 U | < 0.0750 U | -- | -- | -- | **3.6** | < 1.0 U | < 3.0 U | -- | -- | **26800** | **45400** |
| | 8/17/2011 | N | **0.0240** | < 0.0150 U | -- | -- | -- | **9.8** | **2.9** | < 3.0 U | -- | -- | **12400** | **17500** |
| | 2/9/2012 | N | **0.0531** | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **935** | **3100** |
| | 8/10/2012 | N | **0.0232** | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **1820 J** | **5530** |
| | 2/8/2013 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **5280 J** | **13300** |
| | 8/6/2013 | N | **0.0205** | < 0.0150 U | -- | -- | -- | **11** | < 1.0 U | < 3.0 U | -- | -- | **20000** | **37000** |
| | 2/5/2014 | N | **0.0172 J** | **0.0018 J** | -- | -- | -- | **3.1** | < 1.0 U | < 1.0 U | -- | -- | **11900 J** | **20900** |
| | 8/5/2014 | N | **0.0594** | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **2850** | **7000** |
| | 2/5/2015 | N | **0.0702** | **0.0024 J** | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **1250** | **3930** |
| | 8/7/2015 | N | **0.0464 J** | **0.0027 J** | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **1300** | **4760** |
| | 3/31/2016 | N | **0.0451** | < 0.01 U | < 0.01 U | -- | -- | < 2 U | < 2 U | < 2 U | < 1.41 U | < 1.41 U | **1760** | **3860** |
| | 9/7/2016 | N | **0.0304** | < 0.00136 U | < 0.01 U | **0.102 J** | **0.177** | < 0.408 U | < 0.657 U | < 0.642 U | < 0.986 U | < 0.986 U | **4010** | **8690** |
| | 4/4/2017 | N | < 0.05 U | < 0.05 U | < 0.01 U | < 1 U | **0.269** | < 2 U | < 2 U | < 2 U | < 1.5 U | < 1.5 U | **1930** | **5150** |
| | 9/12/2017 | N | **0.0294** | **0.000896 J** | < 0.01 U | -- | -- | < 2 U | < 2 U | < 2 U | < 1.5 U | < 1.5 U | **2620** | **6280** |
| MWD-14 | 2/12/2009 | N | **0.0589** | < 0.0150 U | -- | -- | -- | **1400** | **16** | < 15 U | -- | -- | **9170** | **18500** |
| | 8/10/2009 | N | **0.0543** | < 0.0150 U | -- | -- | -- | **1600** | **31** | **18** | -- | -- | **10700** | **21200** |
| | 2/9/2010 | N | **0.0612** | < 0.0150 U | -- | -- | -- | **1400** | **13** | **7.8** | -- | -- | **11800** | **19000** |
| | 8/5/2010 | N | **0.0520** | < 0.0150 U | -- | -- | -- | **1300** | **31** | **20** | -- | -- | **7150** | **13700** |
| | 8/19/2011 | N | **0.0587** | < 0.0150 U | -- | -- | -- | **730 E** | **11** | **17** | -- | -- | **10900** | **19200** |
| | 8/19/2011 | FD | **0.0602** | < 0.0750 U | -- | -- | -- | **1400** | **12** | **18** | -- | -- | **9990** | **18500** |
| | 2/17/2012 | N | **0.0585** | < 0.0150 U | -- | -- | -- | **1200** | **100** | **74** | -- | -- | **5220** | **10400** |
| | 2/17/2012 | FD | **0.0532** | < 0.0150 U | -- | -- | -- | **1300** | **98** | **66** | -- | -- | **6140** | **10600** |
| | 8/9/2012 | N | **0.0265** | < 0.0150 U | -- | -- | -- | **1600 J** | **190 J** | **100 J** | -- | -- | **4900** | **8960** |
| | 2/8/2013 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **1200** | **310 J** | **98 J** | -- | -- | **4170** | **8670** |
| | 8/8/2013 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **1700** | **460** | **92 J** | -- | -- | **4800** | **8560** |
| | 2/6/2014 | N | **0.0274** | < 0.0150 U | -- | -- | -- | **1100** | **170** | **29** | -- | -- | **7180** | **10400** |
| | 8/13/2014 | N | < 0.0200 UJ | < 0.0150 UJ | -- | -- | -- | **1900 J** | **580 J** | **63 J** | -- | -- | **5290** | **7960** |
| | 2/11/2015 | N | **0.0077 J** | **0.0015 J** | -- | -- | -- | **1300** | **210** | **41** | -- | -- | **3910** | **6880** |
| | 8/5/2015 | N | **0.0079 J** | < 0.0150 U | -- | -- | -- | **1000** | **400** | **90** | -- | -- | **4070 J** | **8030** |
| | 4/1/2016 | N | < 0.01 U | < 0.01 U | < 0.01 U | -- | -- | **940** | **250** | **46.8** | < 1.41 U | **2.83** | **3460** | **6980** |
| | 9/7/2016 | N | < 0.00336 U | < 0.00136 U | **0.0097 J** | **0.886** | **0.128** | **1080** | **467** | **108** | **1.2 J** | **3.3** | **3650** | **7190** |
| | 4/6/2017 | N | < 0.05 U | < 0.05 U | < 0.01 U | **0.212 J** | **0.161 J** | **1320** | **337** | **86.5** | **2.02** | < 1.5 U | **2980** | **5760** |
| | 9/14/2017 | N | **0.00292** | **0.000812 J** | < 0.01 U | -- | -- | **2600** | **369** | **30.3** | < 1.5 U | **1.59** | **1210** | **4090** |
| MWD-15 | 2/12/2009 | N | **0.0540** | < 0.0150 U | -- | -- | -- | **440** | **210** | **56** | -- | -- | **20800** | **37000** |
| | 2/12/2009 | FD | **0.0606** | < 0.0150 U | -- | -- | -- | **420** | **210** | **55** | -- | -- | **20400** | **37000** |
| | 8/12/2009 | N | < 0.100 U | < 0.0750 U | -- | -- | -- | **300** | **120** | **29** | -- | -- | **26500** | **31500** |
| | 2/8/2010 | N | < 0.100 U | < 0.0150 U | -- | -- | -- | **360** | **23** | **4.6** | -- | -- | **33700** | **56400** |
| | 8/5/2010 | N | **0.0785** | < 0.0750 U | -- | -- | -- | **240** | **28** | < 5.0 U | -- | -- | **19100** | **33400** |
| | 4/15/2011 | N | < 0.100 U | < 0.150 U | -- | -- | -- | **280** | **14** | < 3.0 U | -- | -- | **90600** | **136000** |
| | 8/19/2011 | N | **0.0749** | < 0.0150 U | -- | -- | -- | **150** | **93** | **64** | -- | -- | **7180** | **19000** |
| | 2/16/2012 | N | < 0.100 U | < 0.0750 U | -- | -- | -- | < 230 U | **7.6** | < 3.0 U | -- | -- | **33100** | **160000** |
| | 8/10/2012 | N | **0.0707** | < 0.0150 U | -- | -- | -- | < 1.0 U | **2.3** | **8.9** | -- | -- | **3420 J** | **7350** |
| | 2/8/2013 | N | **0.120** | < 0.0150 U | -- | -- | -- | **20** | **20** | **18** | -- | -- | **1620 J** | **4980** |
| | 8/8/2013 | N | **0.0559** | < 0.0150 U | -- | -- | -- | **1.3** | **6.1** | **12** | -- | -- | **4010 J** | **10600** |
| | 2/5/2014 | N | **0.0905** | < 0.0150 U | -- | -- | -- | **0.2 J** | **1.7** | **11** | -- | -- | **2500** | **5610** |
| | 8/12/2014 | N | **0.0971** | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | **1.9** | -- | -- | **2500** | **6440** |
| | 2/4/2015 | N | **0.0312** | **0.0014 J** | -- | -- | -- | **12** | **19** | **35** | -- | -- | **1720** | **4000** |
| | 8/11/2015 | N | **0.0953** | **0.0015 J** | -- | -- | -- | **1.1** | **0.4 J** | **0.7 J** | -- | -- | **1650** | **4180** |
| | 8/11/2015 | FD | **0.0881** | < 0.0150 U | -- | -- | -- | **0.8 J** | **0.4 J** | < 5.0 UJ | -- | -- | **1620** | **3990** |
| | 4/1/2016 | N | **0.036** | < 0.01 U | < 0.01 U | -- | -- | **4.37** | < 2 U | **2.5** | < 1.41 U | < 1.41 U | **1520** | **2560** |
| | 9/9/2016 | N | **0.025** | **0.00181 J** | -- | **2.1** | **0.103** | **2.56** | **3.58** | **12.4** | < 0.986 U | **1.08 J** | **1170** | **3400** |
| | 4/6/2017 | N | < 0.05 U | < 0.05 U | **0.0061 J** | **0.199 J** | **0.0899 J** | **17.7** | **24.4** | **58.5** | < 1.5 U | **2.2** | < 25 U | **3390** |
| | 9/14/2017 | N | **0.0258** | **0.000651 J** | **0.0025 J** | -- | -- | **5.98** | **2.62** | **10.2** | < 1.5 U | **1.24 J** | **1450** | **4010** |



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Received by OCD: 3/25/2020 2:27:35 PM

| | | Chemical Name | Arsenic | Chromium | Chromium VI | Iron | Manganese | Benzene | Ethylbenzene | Total Xylenes | DRO | GRO | Chloride | Total Dissolved Solids |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Units | mg/l | mg/l | mg/l | mg/l | mg/l | ug/l | ug/l | ug/l | mg/l | mg/l | mg/l | mg/l |
| | | NMWQCC Standard | 0.1 | 0.05 | 0.05 | 1 | 0.2 | 10 | 750 | 620 | | | 250 | 1000 |
| Location ID | Sample Date | Sample Type | | | | | | | | | | | | |
| MWD-16 | 2/12/2009 | N | **0.0376** | < 0.0150 U | -- | -- | -- | **770** | **300** | **170** | -- | -- | **8080** | **16500** |
| | 8/10/2009 | N | **0.0484** | < 0.0150 U | -- | -- | -- | **660** | **280** | **160** | -- | -- | **8750** | **17600** |
| | 2/9/2010 | N | **0.0426** | < 0.0150 U | -- | -- | -- | **760** | **340** | **180** | -- | -- | **7160** | **14100** |
| | 8/5/2010 | N | **0.0399** | < 0.0150 U | -- | -- | -- | **700** | **280** | **140** | -- | -- | **4570** | **8600** |
| MWD-17 | 2/12/2009 | N | **0.471** | < 0.0150 U | -- | -- | -- | **2400** | **34** | **22** | -- | -- | **34400** | **62500** |
| | 8/12/2009 | N | **0.616** | < 0.0750 U | -- | -- | -- | **3200** | **68** | **45** | -- | -- | **46500** | **67800** |
| | 2/9/2010 | N | **0.535** | < 0.0150 U | -- | -- | -- | **1800** | **100** | **37** | -- | -- | **18900** | **34100** |
| | 8/6/2010 | N | **0.669** | < 0.0750 U | -- | -- | -- | **2100** | **71** | **36** | -- | -- | **29200** | **53500** |
| | 4/15/2011 | N | **0.376** | < 0.0750 U | -- | -- | -- | **1900** | **110** | **38** | -- | -- | **39200** | **65200** |
| | 8/16/2011 | N | **0.600** | < 0.0750 U | -- | -- | -- | **2200** | **140** | **54** | -- | -- | **53500** | **101000** |
| | 2/21/2012 | N | **0.999** | < 0.0150 U | -- | -- | -- | **1500** | **220** | < 62 UJ | -- | -- | **8690** | **20600** |
| | 8/14/2012 | N | -- | -- | -- | -- | -- | **1200** | **47** | **15** | -- | -- | **6900 J** | **13800** |
| | 8/24/2012 | N | < 0.200 U | < 0.150 U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | 2/11/2013 | N | **1.13** | < 0.0150 U | -- | -- | -- | **2600** | **520** | **220** | -- | -- | **11400** | **23200** |
| | 8/8/2013 | N | **1.30** | < 0.0150 U | -- | -- | -- | **5100 J** | **20 J** | **20 J** | -- | -- | **17400 J** | **27300** |
| | 2/6/2014 | N | **0.429** | < 0.0150 U | -- | -- | -- | **1600** | **240** | **43** | -- | -- | **8470 J** | **16600** |
| | 8/12/2014 | N | < 0.100 U | < 0.0750 U | -- | -- | -- | **210 J** | **14 J** | **18 J** | -- | -- | **117000** | **203000** |
| | 2/10/2015 | N | **0.0698** | < 0.0150 U | -- | -- | -- | **260** | **9.9** | < 5.0 U | -- | -- | **6480** | **8230** |
| | 8/12/2015 | N | **0.0819** | **0.0018 J** | -- | -- | -- | **130** | **16** | < 5.0 U | -- | -- | **5720** | **12200** |
| | 3/31/2016 | N | **0.0518** | < 0.01 U | < 0.01 U | -- | -- | **567** | **110** | < 10 U | < 1.41 U | **2.06** | **6030** | **11800** |
| | 9/7/2016 | N | < 0.00336 U | < 0.00136 U | **0.0152** | **1.58** | **0.127** | **957** | **251** | < 12.8 U | < 0.987 U | **2.63** | **6300** | **12900** |
| | 4/4/2017 | N | **0.0765** | < 0.05 U | -- | **0.0942 J** | **0.118** | **790** | **145** | **17.3** | < 1.5 U | < 1.5 U | **7460** | **13300** |
| | 4/7/2017 | N | -- | -- | < 0.01 U | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MWD-2 | 2/10/2009 | N | < 0.020 U | **0.0219** | -- | -- | -- | **6.2** | **3.6** | < 3.0 U | -- | -- | **14500** | **31100** |
| | 8/12/2009 | N | < 0.0200 U | < 0.0750 U | -- | -- | -- | **3.5** | **1.2** | < 3.0 U | -- | -- | **18200** | **25900** |
| | 2/8/2010 | N | < 0.100 U | **0.0206** | -- | -- | -- | **1.6** | < 1.0 U | < 3.0 U | -- | -- | **27900** | **44900** |
| | 8/5/2010 | N | < 0.0200 U | < 0.0750 U | -- | -- | -- | **1.4** | < 1.0 U | < 3.0 U | -- | -- | **15800** | **26500** |
| | 8/5/2010 | FD | < 0.0200 U | < 0.0750 U | -- | -- | -- | **1.6** | < 1.0 U | < 3.0 U | -- | -- | **15600** | **27900** |
| | 4/15/2011 | N | < 0.100 U | < 0.0750 U | -- | -- | -- | **7.8** | < 1.0 U | < 3.0 U | -- | -- | **26700** | **31500** |
| | 8/17/2011 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **2.6** | < 1.0 U | < 3.0 U | -- | -- | **19600** | **26700** |
| | 2/14/2012 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **3460** | **8720** |
| | 8/10/2012 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **2860 J** | **5770** |
| | 2/5/2013 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **7570 J** | **9240** |
| | 2/5/2013 | FD | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **7920 J** | **9530** |
| | 8/8/2013 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **11500 J** | **18900** |
| | 2/4/2014 | N | < 0.100 U | **0.0446 J** | -- | -- | -- | **3.4** | < 1.0 U | < 1.0 U | -- | -- | **59700** | **60200** |
| | 8/6/2014 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **2620** | **5120** |
| | 8/6/2014 | FD | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **2620** | **5250** |
| | 2/4/2015 | N | < 0.0200 U | **0.0018 J** | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **1900** | **4250** |
| | 8/10/2015 | N | **0.0103 J** | **0.0016 J** | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **2060** | **4470** |
| | 4/1/2016 | N | < 0.01 U | < 0.01 U | < 0.01 U | -- | -- | < 2 U | < 2 U | < 2 U | < 1.41 U | < 1.41 U | **1630** | **2910** |
| | 9/9/2016 | N | **0.0124** | < 0.00136 U | -- | **0.0188 J** | **0.162** | < 0.408 U | < 0.657 U | < 0.642 U | < 0.987 U | < 0.987 U | **1570** | **3130** |
| | 4/5/2017 | N | < 0.05 U | < 0.05 U | < 0.01 U | < 1 U | **0.105** | < 2 U | < 2 U | < 2 U | < 1.5 U | < 1.5 U | **1200** | **2370** |
| MWD-3 | 2/11/2009 | N | < 0.100 U | < 0.0150 U | -- | -- | -- | **4100** | **160** | **87** | -- | -- | **48100** | **82200** |
| | 8/18/2009 | N | < 0.100 U | < 0.0750 U | -- | -- | -- | **4100** | **120** | < 30 U | -- | -- | **48200** | **84000** |
| | 2/2/2010 | N | < 0.100 U | < 0.150 U | -- | -- | -- | **2400** | **88** | **44.0** | -- | -- | **57800** | **89600** |
| | 8/3/2010 | N | < 0.200 U | < 0.150 U | -- | -- | -- | **2100** | **81** | **32** | -- | -- | **55300** | **89000** |
| | 2/6/2015 | N | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | **38500** | **58600** |
| | 4/29/2016 | N | < 0.01 U | **0.0127** | < 0.01 U | -- | -- | **2330** | **42.6** | **27.4** | < 1.5 U | **4.21** | **39900** | **64900** |

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Received by OCD: 3/25/2020 2:27:35 PM

| Chemical Name | | | Arsenic | Chromium | Chromium VI | Iron | Manganese | Benzene | Ethylbenzene | Total Xylenes | DRO | GRO | Chloride | Total Dissolved Solids |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Units | | | mg/l | mg/l | mg/l | mg/l | mg/l | ug/l | ug/l | ug/l | mg/l | mg/l | mg/l | mg/l |
| NMWQCC Standard | | | 0.1 | 0.05 | 0.05 | 1 | 0.2 | 10 | 750 | 620 | | | 250 | 1000 |
| Location ID | Sample Date | Sample Type | | | | | | | | | | | | |
| MWD-4 | 2/5/2009 | N | **0.0275** | < 0.0150 U | -- | -- | -- | **2.8** | **11** | **9.2** | -- | -- | **237** | **1170** |
| | 8/6/2009 | N | **0.0344** | < 0.0150 U | -- | -- | -- | **1.0** | < 1.0 U | < 3.0 U | -- | -- | **310** | **1440** |
| | 2/5/2010 | N | **0.0382** | < 0.0150 U | -- | -- | -- | **8.1** | **1.3** | < 3.0 U | -- | -- | **270** | **1250** |
| | 8/20/2010 | N | **0.0331** | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **328** | **1490** |
| | 4/14/2011 | N | **0.0324** | < 0.0150 U | -- | -- | -- | **4.5** | **1.4** | < 3.0 U | -- | -- | **1620** | **2230** |
| | 8/17/2011 | N | **0.0257** | < 0.0150 U | -- | -- | -- | **5.7** | **2.4** | < 3.0 U | -- | -- | **729** | **2030** |
| | 2/9/2012 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **73.4** | **902** |
| | 8/9/2012 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **50.4 J** | **910** |
| | 2/6/2013 | N | **0.0222** | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **44.5 J** | **1030** |
| | 8/6/2013 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **50.4** | **1380** |
| | 2/4/2014 | N | **0.0154 J** | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **45.7** | **1190** |
| | 8/5/2014 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **53.8** | **1220** |
| | 2/3/2015 | N | < 0.0200 U | **0.0017 J** | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **52.7** | **916** |
| | 8/7/2015 | N | **0.0117 J** | **0.0019 J** | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **49.9** | **1260** |
| | 3/31/2016 | N | < 0.01 U | < 0.01 U | < 0.01 U | -- | -- | < 2 U | < 2 U | < 2 U | < 1.41 U | < 1.41 U | **68.4** | **1100** |
| | 9/7/2016 | N | **0.0527** | < 0.00136 U | < 0.01 U | **12.2** | **1.02** | < 0.408 U | < 0.657 U | < 0.642 U | < 0.986 U | < 0.986 U | **59.6** | **1260** |
| | 4/4/2017 | N | < 0.05 U | < 0.05 U | < 0.01 U | **0.105 J** | **0.608** | < 2 U | < 2 U | < 2 U | < 1.5 U | < 1.5 U | **45.5** | **872** |
| | 9/12/2017 | N | **0.00158 J** | < 0.004 U | **0.0039 J** | -- | -- | < 2 U | < 2 U | < 2 U | < 1.5 U | < 1.5 U | **48.4** | **1290** |
| MWD-5 | 2/12/2009 | N | **0.0880** | < 0.0150 U | -- | -- | -- | **5000** | **470** | **110** | -- | -- | **1830** | **3780** |
| | 8/12/2009 | N | **0.116** | < 0.0150 U | -- | -- | -- | **5700** | < 250 U | < 750 U | -- | -- | **2240** | **4530** |
| | 2/9/2010 | N | **0.143** | < 0.0150 U | -- | -- | -- | **4800** | < 250 U | < 750 U | -- | -- | **1710** | **4510** |
| | 8/6/2010 | N | **0.106** | < 0.0150 U | -- | -- | -- | **3500** | **280** | **58** | -- | -- | **1960** | **3970** |
| | 4/15/2011 | N | **0.133** | < 0.0150 U | -- | -- | -- | **4600** | **420** | < 750 U | -- | -- | **2050** | **4480** |
| | 8/15/2011 | N | **0.0930** | < 0.0150 U | -- | -- | -- | **4400** | **450** | **49** | -- | -- | **2070** | **3600** |
| | 8/8/2012 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **5000** | **200** | **150** | -- | -- | **2010** | **2520** |
| | 2/8/2013 | N | **0.0203** | < 0.0150 U | -- | -- | -- | **5800** | **310 J** | **86 J** | -- | -- | **1070 J** | **2700** |
| | 8/8/2013 | N | **0.0698** | < 0.0150 U | -- | -- | -- | **4800 J** | **180 J** | **27 J** | -- | -- | **2000** | **3650** |
| | 8/8/2013 | FD | **0.0651** | < 0.0150 U | -- | -- | -- | **4800** | **190** | < 60 UJ | -- | -- | **2000** | **3690** |
| | 2/7/2014 | N | **0.0293** | **0.0018 J** | -- | -- | -- | **5500 J** | **33 J** | **47 J** | -- | -- | **1120** | **2520** |
| | 8/11/2014 | N | **0.948 J** | < 0.0150 UJ | -- | -- | -- | < 5000 U | < 5000 U | < 5000 U | -- | -- | **3260** | **9560** |
| | 2/9/2015 | N | **0.0204** | < 0.0150 U | -- | -- | -- | **5800** | **95** | **120** | -- | -- | **603** | **1690** |
| | 8/5/2015 | N | **0.0205** | **0.0017 J** | -- | -- | -- | **7400** | **35 J** | **73 J** | -- | -- | **565 J** | **2200 J** |
| | 3/31/2016 | N | **0.0148** | < 0.01 U | < 0.01 U | -- | -- | **5200** | < 40 U | **57** | < 1.41 U | **13** | **404** | **1750** |
| | 3/31/2016 | FD | **0.0156** | < 0.01 U | < 0.01 U | -- | -- | **3800** | **32.5** | **44.1** | < 1.41 U | **12.6** | **404** | **1660** |
| | 9/7/2016 | N | **0.0192** | < 0.00136 U | **0.0055 J** | **5.33** | **0.238** | **7180** | **58.5 J** | **70 J** | **9.02** | **15.4** | **421** | **1790** |
| | 9/7/2016 | FD | **0.014** | < 0.00136 U | < 0.01 U | **5.39** | **0.248** | **7050** | **73.5 J** | **88.5 J** | **14.5** | **17** | **486** | **1800** |
| | 1/31/2017 | N | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | **512** | **1980** |
| | 4/5/2017 | N | < 0.05 U | < 0.05 U | -- | **0.2 J** | **0.248 J** | **5050** | < 100 U | **62.5 J** | **5.36** | **3.73** | **448** | **1840** |
| | 4/7/2017 | N | -- | -- | **0.0048 J** | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MWD-6 | 2/12/2009 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **5.8** | **8.3** | < 3.0 U | -- | -- | **237** | **822** |
| | 8/7/2009 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **71** | **61** | **4.9** | -- | -- | **995** | **2800** |
| | 8/7/2009 | FD | < 0.0200 U | < 0.0150 U | -- | -- | -- | **69** | **59** | < 6.0 U | -- | -- | **1010** | **2760** |
| | 2/5/2010 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **370** | **43** | **6.1** | -- | -- | **948** | **2550** |
| | 8/20/2010 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **160** | **44** | **6.5** | -- | -- | **1020** | **2400** |
| | 4/15/2011 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **270** | **2.9** | < 3.0 U | -- | -- | **1030** | **2420** |
| | 8/15/2011 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **170** | **100** | **4.0** | -- | -- | **1170** | **2130** |
| | 2/9/2012 | N | **0.0329** | < 0.0150 U | -- | -- | -- | **1.9** | < 1.0 U | < 3.0 U | -- | -- | **1400** | **6620** |
| | 8/8/2012 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **84** | **21** | **3.7** | -- | -- | **507** | **1880** |
| | 8/8/2012 | FD | < 0.0200 U | < 0.0150 U | -- | -- | -- | **86** | **26** | **3.9** | -- | -- | **608 J** | **1860** |
| | 2/8/2013 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **3.2** | **15** | < 3.0 U | -- | -- | **413 J** | **1820** |
| | 8/7/2013 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **3.4** | **6.2** | < 3.0 U | -- | -- | **427** | **1520** |
| | 2/6/2014 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **32** | **20** | **2.8** | -- | -- | **621 J** | **1550** |
| | 8/8/2014 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | **5.4** | < 2.0 U | -- | -- | **261** | **1460 J** |
| | 2/9/2015 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **12** | **17** | < 1.3 U | -- | -- | **260** | **1300** |
| | 8/4/2015 | N | < 0.0200 U | **0.0016 J** | -- | -- | -- | < 1.0 U | **2.8** | **0.3 J** | -- | -- | **229 J** | **1540 J** |
| | 3/31/2016 | N | < 0.01 U | < 0.01 U | < 0.01 U | -- | -- | < 2 U | < 2 U | < 2 U | < 1.41 U | < 1.41 U | **237** | **1370** |
| | 9/7/2016 | N | **0.00504 J** | < 0.00136 U | < 0.01 U | **2.33** | **0.189** | < 0.408 U | < 0.657 U | < 0.642 U | < 0.986 U | < 0.986 U | **193** | **2340** |
| | 4/5/2017 | N | < 0.05 U | < 0.05 U | -- | **0.106 J** | **0.239 J** | < 2 U | < 2 U | < 2 U | < 1.5 U | < 1.5 U | < 5 U | **1260** |



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Received by OCD: 3/25/2020 2:27:35 PM

| Chemical Name | | | Arsenic | Chromium | Chromium VI | Iron | Manganese | Benzene | Ethylbenzene | Total Xylenes | DRO | GRO | Chloride | Total Dissolved Solids |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Units | | | mg/l | mg/l | mg/l | mg/l | mg/l | ug/l | ug/l | ug/l | mg/l | mg/l | mg/l | mg/l |
| NMWQCC Standard | | | 0.1 | 0.05 | 0.05 | 1 | 0.2 | 10 | 750 | 620 | | | 250 | 1000 |
| Location ID | Sample Date | Sample Type | | | | | | | | | | | | |
| | 4/7/2017 | N | -- | -- | < 0.01 U | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | 9/13/2017 | N | **0.00345** | < 0.004 U | < 0.01 U | -- | -- | < 2 U | < 2 U | < 2 U | < 1.5 U | < 1.5 U | **183** | **1310** |
| MWD-7 | 2/11/2009 | N | < 0.020 U | < 0.0150 U | -- | -- | -- | **2.3** | **2.8** | < 3.0 U | -- | -- | **7940** | **14700** |
| | 8/6/2009 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **2.9** | < 1.0 U | < 3.0 U | -- | -- | **7610** | **16600** |
| | 2/8/2010 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **8040** | **15100** |
| | 8/4/2010 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **11** | **1.2** | < 3.0 U | -- | -- | **7630** | **14100** |
| | 4/14/2011 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **9.4** | **2.3** | < 3.0 U | -- | -- | **7870** | **14800** |
| | 8/17/2011 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **4.5** | **1.8** | < 3.0 U | -- | -- | **8880** | **14600** |
| | 2/16/2012 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **10200** | **25100** |
| | 8/13/2012 | N | **0.0266** | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **7220 J** | **13600** |
| | 2/6/2013 | N | **0.0205** | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **6140 J** | **11000** |
| | 8/7/2013 | N | **0.0214** | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **5830** | **12400** |
| | 2/4/2014 | N | **0.0229 J** | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **7010 J** | **10700** |
| | 2/4/2014 | FD | **0.0139 J** | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **45.2 J** | **1380** |
| | 8/6/2014 | N | **0.0229** | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **5650** | **10900 J** |
| | 2/6/2015 | N | **0.0159 J** | **0.0032 J** | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **5240** | **7560** |
| | 2/6/2015 | FD | **0.0131 J** | **0.0025 J** | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **5170** | **9080** |
| | 8/12/2015 | N | **0.0198 J** | **0.0018 J** | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **4940** | **10600** |
| | 3/31/2016 | N | **0.0363** | < 0.01 U | < 0.01 U | -- | -- | < 2 U | < 2 U | < 2 U | < 1.41 U | < 1.41 U | **5020** | **10800** |
| | 9/9/2016 | N | < 0.00336 U | < 0.00136 U | -- | **0.021 J** | **0.319** | < 0.408 U | < 0.657 U | < 0.642 U | < 0.986 U | < 0.986 U | **7210** | **12100** |
| | 4/4/2017 | N | < 0.05 U | < 0.05 U | < 0.01 U | < 1 U | **0.324** | < 2 U | < 2 U | < 2 U | < 1.5 U | < 1.5 U | **5130** | **9590** |
| | 9/13/2017 | N | **0.0146** | **0.00116 J** | < 0.01 U | -- | -- | < 2 U | < 2 U | < 2 U | < 1.5 U | < 1.5 U | **5900** | **10400** |
| MWD-8 | 2/10/2009 | N | < 0.020 U | < 0.0150 U | -- | -- | -- | **7.0** | **4.8** | < 3.0 U | -- | -- | **9390** | **18400** |
| | 8/11/2009 | N | < 0.0200 U | **0.0222** | -- | -- | -- | **3.3** | **2.2** | **4.7** | -- | -- | **8570** | **16300** |
| | 2/8/2010 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **1.2** | < 1.0 U | < 3.0 U | -- | -- | **11100** | **20000** |
| | 8/5/2010 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **1.1** | < 1.0 U | < 3.0 U | -- | -- | **10000** | **17500** |
| | 4/15/2011 | N | < 0.0200 U | **0.0164** | -- | -- | -- | **4.1** | < 1.0 U | < 3.0 U | -- | -- | **15100** | **20700** |
| | 8/17/2011 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **4.4** | **1.8** | < 3.0 U | -- | -- | **8840** | **12400** |
| | 2/13/2012 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **336** | **1400** |
| | 8/9/2012 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **980** | **2220** |
| | 2/6/2013 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **824 J** | **1800** |
| | 8/8/2013 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **1190 J** | **2630** |
| | 2/4/2014 | N | **0.0120 J** | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **1140 J** | **2210** |
| | 8/6/2014 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **968** | **2000** |
| | 2/4/2015 | N | **0.0121 J** | **0.0016 J** | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **571** | **1260** |
| | 2/4/2015 | FD | **0.0164 J** | **0.0020 J** | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **416** | **1080** |
| | 8/6/2015 | N | **0.0112 J** | **0.0027 J** | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **474** | **1270** |
| | 4/1/2016 | N | **0.0101** | < 0.01 U | < 0.01 U | -- | -- | < 2 U | < 2 U | < 2 U | < 1.41 U | < 1.41 U | **305** | **854** |
| | 9/12/2016 | N | **0.0055 J** | < 0.00136 U | -- | < 0.00616 U | < 0.000585 U | < 0.408 U | < 0.657 U | < 0.642 U | < 0.986 U | < 0.986 U | **251** | **864** |
| | 4/4/2017 | N | < 0.05 U | < 0.05 U | < 0.01 U | < 1 U | < 0.1 U | < 2 U | < 2 U | < 2 U | < 1.5 U | < 1.5 U | **177** | **540** |
| | 9/13/2017 | N | **0.0141** | **0.000796 J** | < 0.01 U | -- | -- | < 2 U | < 2 U | < 2 U | < 1.5 U | < 1.5 U | **220** | **884** |
| MWD-9 | 2/11/2009 | N | < 0.100 U | < 0.0150 U | -- | -- | -- | **10** | **1.4** | < 3.0 U | -- | -- | **22700** | **39300** |
| | 8/17/2009 | N | < 0.100 U | < 0.0750 U | -- | -- | -- | **13** | **1.0** | < 3.0 U | -- | -- | **20900** | **39600** |
| | 2/2/2010 | N | < 0.100 U | < 0.0750 U | -- | -- | -- | **15** | **1.2** | < 3.0 U | -- | -- | **23800** | **39500** |
| | 8/3/2010 | N | **0.0245** | < 0.0750 U | -- | -- | -- | **8.6** | < 5.0 U | < 15 U | -- | -- | **20900** | **37400** |
| | 2/6/2015 | N | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | **19600** | **29400** |
| | 8/13/2015 | N | **0.0271** | **0.0088 J** | -- | -- | -- | **24** | **2.0** | **2.4** | -- | -- | **18300** | **45700 J** |
| | 8/13/2015 | FD | **0.0273** | **0.0090 J** | -- | -- | -- | **26** | **2.0** | **2.8** | -- | -- | **22900** | **98000 J** |
| | 3/31/2016 | N | **0.0431** | < 0.01 U | < 0.01 U | -- | -- | **17.2** | < 2 U | < 2 U | < 1.41 U | < 1.41 U | **2690** | **34800** |
| | 9/9/2016 | N | < 0.00336 U | < 0.00136 U | -- | **0.111 J** | **0.611** | **22.2** | **0.88 J** | < 0.642 U | **2.92** | < 0.986 U | **18000** | **31600** |
| | 4/4/2017 | N | < 0.05 U | < 0.05 U | -- | < 1 U | **0.629** | **20.1** | < 2 U | < 2 U | < 1.5 U | < 1.5 U | **18700** | **33300** |
| | 4/7/2017 | N | -- | -- | < 0.01 U | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | 9/14/2017 | N | **0.0172** | **0.00738** | < 0.01 U | -- | -- | **53.3** | **2.07** | **2.18** | < 1.5 U | < 1.5 U | **19300** | **32800** |

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ARCADIS Design & Consultancy for natural and built assets

Received by OCD: 3/25/2020 2:27:35 PM

| Chemical Name | | | Arsenic | Chromium | Chromium VI | Iron | Manganese | Benzene | Ethylbenzene | Total Xylenes | DRO | GRO | Chloride | Total Dissolved Solids |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Units | | | mg/l | mg/l | mg/l | mg/l | mg/l | ug/l | ug/l | ug/l | mg/l | mg/l | mg/l | mg/l |
| NMWQCC Standard | | | 0.1 | 0.05 | 0.05 | 1 | 0.2 | 10 | 750 | 620 | | | 250 | 1000 |
| Location ID | Sample Date | Sample Type | | | | | | | | | | | | |
| RW-6 | 2/11/2009 | N | **0.0252** | < 0.0150 U | -- | -- | -- | **15** | **4.8** | **7.4** | -- | -- | **26700** | **44800** |
| | 8/17/2009 | N | < 0.100 U | < 0.0750 U | -- | -- | -- | **23** | **9.5** | **11** | -- | -- | **32400** | **61300** |
| | 2/2/2010 | N | < 0.100 U | < 0.0750 U | -- | -- | -- | **16** | **4.0** | **6.7** | -- | -- | **22100** | **37800** |
| | 8/3/2010 | N | < 0.100 U | < 0.0750 U | -- | -- | -- | **30** | **8.5** | **19** | -- | -- | **30800** | **52600** |
| | 8/9/2013 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 8.0 U | **3.8** | **23** | -- | -- | **1930 J** | **3840** |
| | 2/5/2014 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 25 U | **7.5** | **25** | -- | -- | **1470** | **3330** |
| | 8/7/2014 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 30 U | **6.4** | **6.7** | -- | -- | **1530** | **3530** |
| | 2/10/2015 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 31 U | **40** | **35** | -- | -- | **1020** | **2240** |
| | 8/12/2015 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | **5.0** | -- | -- | **959** | **2820** |
| | 3/31/2016 | N | < 0.01 U | < 0.01 U | < 0.01 U | -- | -- | **9.49** | < 2 U | < 2 U | < 1.41 U | < 1.41 U | **488** | **1600** |
| | 9/7/2016 | N | < 0.00336 U | < 0.00136 U | < 0.01 U | **2.81** | **0.063** | < 0.408 U | < 0.657 U | < 0.642 U | < 0.986 U | < 0.986 U | **502** | **1150** |
| | 4/6/2017 | N | < 0.05 U | < 0.05 U | < 0.01 U | **0.203 J** | **0.111 J** | < 2 U | < 2 U | < 2 U | < 1.5 U | < 1.5 U | **396** | **2040** |
| | 9/14/2017 | N | **0.0652** | **0.000638 J** | < 0.01 U | -- | -- | **3090** | **104** | **89.9** | **4.86** | **2.91** | **337** | **1600** |
| RW-7 | 2/12/2009 | N | < 0.100 U | **0.0278** | -- | -- | -- | **13** | **3.7** | **3.4** | -- | -- | **46900** | **115000** |
| | 8/17/2009 | N | < 0.100 U | < 0.0750 U | -- | -- | -- | **17** | **4.5** | **3.8** | -- | -- | **58600** | **104000** |
| | 2/2/2010 | N | < 0.100 U | < 0.150 U | -- | -- | -- | **16** | **5.7** | **4.6** | -- | -- | **62500** | **98000** |
| | 8/3/2010 | N | < 0.100 U | < 0.0750 U | -- | -- | -- | **18** | **3.5** | **18** | -- | -- | **41100** | **66400** |
| | 8/9/2013 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | **330** | < 1.0 U | < 3.0 U | -- | -- | **18000 J** | **30400** |
| | 2/5/2014 | N | **0.0146 J** | **0.0016 J** | -- | -- | -- | **54** | < 1.0 U | **0.4 J** | -- | -- | **12900** | **19600** |
| | 8/7/2014 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **3020** | **5840 J** |
| | 2/10/2015 | N | **0.0172 J** | **0.0024 J** | -- | -- | -- | **0.2 J** | < 1.0 U | < 1.0 U | -- | -- | **3750** | **5510** |
| | 8/12/2015 | N | **0.0098 J** | **0.0021 J** | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **2480** | **6530** |
| | 3/31/2016 | N | **0.0209** | < 0.01 U | < 0.01 U | -- | -- | **4.22** | < 2 U | < 2 U | < 1.41 U | < 1.41 U | **4100** | **7500** |
| | 9/7/2016 | N | < 0.00336 U | < 0.00136 U | < 0.01 UX | **0.013 J** | **0.666** | < 0.408 U | < 0.657 U | < 0.642 U | < 0.987 U | < 0.987 U | **5850** | **12300** |
| | 4/6/2017 | N | < 0.05 U | < 0.05 U | < 0.01 U | < 1 U | **0.61 J** | < 2 U | < 2 U | < 2 U | < 1.5 U | < 1.5 U | **5180 J** | **10000 J** |
| | 4/6/2017 | FD | < 0.05 U | < 0.05 U | **0.0054 J** | < 1 U | **0.0547 J** | < 2 U | < 2 U | < 2 U | < 1.5 U | < 1.5 U | **2730 J** | **5750 J** |
| | 9/14/2017 | N | **0.00754** | **0.000949 J** | < 0.01 U | -- | -- | < 2 U | < 2 U | < 2 U | < 1.5 U | < 1.5 U | **4740** | **9050** |
| RW-8 | 2/12/2009 | N | **0.0216** | < 0.0150 U | -- | -- | -- | **95** | **19** | **220** | -- | -- | **12100** | **22900** |
| | 10/1/2009 | N | **0.0212** | < 0.0150 U | -- | -- | -- | **19** | **7.1** | **110** | -- | -- | **10700** | **20800** |
| | 2/9/2010 | N | **0.0243** | < 0.0150 U | -- | -- | -- | **57** | **23** | **190** | -- | -- | **12600** | **22200** |
| | 8/20/2010 | N | < 0.100 U | < 0.0750 U | -- | -- | -- | **17** | **2.7** | < 3.0 U | -- | -- | **31800** | **57100** |
| | 8/8/2013 | N | **0.0454** | < 0.0150 U | -- | -- | -- | < 1.0 U | **2.9** | **23** | -- | -- | **5950 J** | **11500** |
| | 2/5/2014 | N | **0.0161 J** | < 0.0150 U | -- | -- | -- | **0.4 J** | **2.2** | **27** | -- | -- | **10100** | **19100** |
| | 2/5/2014 | FD | **0.0167 J** | < 0.0150 U | -- | -- | -- | **0.4 J** | **2.3** | **27** | -- | -- | **9700 J** | **15500** |
| | 8/7/2014 | N | **0.152** | < 0.0150 U | -- | -- | -- | < 1.0 U | < 2.0 U | < 3.0 U | -- | -- | **1870** | **4380** |
| | 2/5/2015 | N | **0.0391** | **0.0014 J** | -- | -- | -- | < 1.0 U | < 1.0 U | **1.6** | -- | -- | **1420** | **2860** |
| | 8/10/2015 | N | **0.0730 J** | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | **2.2** | -- | -- | **1360** | **3400** |
| | 8/10/2015 | FD | **0.0851 J** | **0.0020 J** | -- | -- | -- | < 1.0 U | < 1.0 U | **2.4** | -- | -- | **1510** | **3530** |
| | 4/1/2016 | N | **0.0426** | < 0.01 U | < 0.01 U | -- | -- | < 2 U | < 2 U | < 2 U | < 1.41 U | < 1.41 U | **1310** | **2410** |
| | 4/1/2016 | FD | **0.0406** | < 0.01 U | < 0.01 U | -- | -- | < 2 U | < 2 U | < 2 U | < 1.41 U | < 1.41 U | **1230** | **2380** |
| | 9/9/2016 | N | **0.0656** | < 0.00136 U | -- | **12.4** | **0.434** | < 0.408 U | < 0.657 U | < 0.642 U | < 0.986 U | < 0.986 U | **1250** | **2110** |
| | 4/4/2017 | N | < 0.05 U | < 0.05 U | -- | **0.26 J** | **0.369** | < 2 U | < 2 U | < 2 U | < 1.5 U | < 1.5 U | **1220** | **2510** |
| | 4/7/2017 | N | -- | -- | < 0.01 U | -- | -- | -- | -- | -- | -- | -- | -- | -- |



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| | | Chemical Name | Arsenic | Chromium | Chromium VI | Iron | Manganese | Benzene | Ethylbenzene | Total Xylenes | DRO | GRO | Chloride | Total Dissolved Solids |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Units | mg/l | mg/l | mg/l | mg/l | mg/l | ug/l | ug/l | ug/l | mg/l | mg/l | mg/l | mg/l |
| | | NMWQCC Standard | 0.1 | 0.05 | 0.05 | 1 | 0.2 | 10 | 750 | 620 | | | 250 | 1000 |
| Location ID | Sample Date | Sample Type | | | | | | | | | | | | |
| TMW-1 | 2/10/2009 | N | **0.0585** | < 0.0150 U | -- | -- | -- | -- | -- | -- | -- | -- | **1840** | **3620** |
| | 8/12/2009 | N | **0.0481** | < 0.0150 U | -- | -- | -- | -- | -- | -- | -- | -- | **1070** | **2130** |
| | 2/12/2010 | N | **0.0500** | < 0.0150 U | -- | -- | -- | -- | -- | -- | -- | -- | **369** | **1130** |
| | 8/9/2010 | N | **0.0444** | < 0.0150 U | -- | -- | -- | **9.0** | < 1.0 U | **4.4** | -- | -- | **368** | **1130** |
| | 4/6/2011 | N | **0.0437** | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **2290** | **4430** |
| | 8/9/2011 | N | **0.0340** | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **1990** | **3440** |
| | 2/15/2012 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **1170** | **3310** |
| | 8/9/2012 | N | **0.0225** | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **1210** | **2380** |
| | 2/7/2013 | N | **0.0203** | < 0.0150 U | -- | -- | -- | **4.0** | < 1.0 U | < 3.0 U | -- | -- | **1060 J** | **2500** |
| | 8/12/2013 | N | < 0.0200 U | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **1100** | **2250** |
| | 2/5/2014 | N | **0.0224 J** | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | **1.8** | -- | -- | **1090 J** | **2610** |
| | 8/12/2014 | N | **0.0241** | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 1.0 U | -- | -- | **875** | **1930** |
| | 2/5/2015 | N | **0.0117 J** | **0.0017 J** | -- | -- | -- | **14** | **0.4 J** | **1.8** | -- | -- | **833** | **1710** |
| | 8/10/2015 | N | **0.0186 J** | **0.0022 J** | -- | -- | -- | **1 J** | < 1.0 U | < 1.0 U | -- | -- | **842** | **1990** |
| | 4/1/2016 | N | **0.0172** | < 0.01 U | **0.0135** | -- | -- | **2.53** | < 2 U | < 2 U | < 1.41 U | < 1.41 U | **761** | **1950** |
| | 9/12/2016 | N | **0.0122** | < 0.00136 U | -- | **11.5** | **1.21** | < 0.408 U | < 0.657 U | < 0.642 U | < 0.987 U | **1.04 J** | **748** | **1830** |
| | 4/7/2017 | N | < 0.05 U | < 0.05 U | **0.0125** | **0.442 J** | **1.18** | **5.59** | < 2 U | < 2 U | < 1.5 U | < 1.5 U | **757** | **1970** |
| | 4/7/2017 | FD | < 0.05 U | **0.00707 J** | **0.0116** | **0.342 J** | **1.15** | **5.29** | < 2 U | < 2 U | < 1.5 U | < 1.5 U | **712** | **1720** |
| | 9/13/2017 | N | **0.0195** | **0.000722 J** | < 0.01 U | -- | -- | **31.6** | **1.42 J** | **3.53** | < 1.5 U | < 1.5 U | **685** | **1600** |
| TMW-3 | 2/17/2010 | N | **0.0577** | < 0.0150 U | -- | -- | -- | **4** | **0.2** | < 3.0 U | -- | -- | **383** | **1320** |
| | 8/12/2010 | N | **0.0501** | < 0.0150 U | -- | -- | -- | **3.0** | **2.2** | **9.3** | -- | -- | **318** | **1200** |
| | 4/8/2011 | N | **0.0511** | < 0.0150 U | -- | -- | -- | **4.3** | **1.6** | < 3.0 U | -- | -- | **333** | **1170** |
| | 8/16/2011 | N | **0.0549** | < 0.0150 U | -- | -- | -- | **1.8** | < 1.0 U | < 3.0 U | -- | -- | **855** | **1740** |
| | 2/15/2012 | N | **0.0393** | < 0.0150 U | -- | -- | -- | < 1.0 U | < 1.0 U | < 3.0 U | -- | -- | **1190** | **2120** |
| | 8/14/2012 | N | **0.0357** | < 0.0150 U | -- | -- | -- | **6.6** | **3.1** | **9.2** | -- | -- | **345 J** | **1180** |
| | 2/7/2013 | N | **0.0336** | < 0.0150 U | -- | -- | -- | **2.5** | **1.2** | **5.0** | -- | -- | **381 J** | **1390** |
| | 8/9/2013 | N | **0.0279** | < 0.0150 U | -- | -- | -- | **6.4** | **1.4** | < 3.0 U | -- | -- | **344** | **1090** |
| | 2/6/2014 | N | **0.0181 J** | < 0.0150 U | -- | -- | -- | **18** | **1.5** | **7.3** | -- | -- | **237** | **1070** |
| | 8/13/2014 | N | **0.0442 J** | < 0.0150 UJ | -- | -- | -- | **3.8** | < 1.0 U | < 1.0 U | -- | -- | **670** | **1620** |
| | 2/11/2015 | N | **0.0222** | < 0.0150 U | -- | -- | -- | **34** | **1.8** | < 3.0 U | -- | -- | **360** | **1020** |
| | 8/11/2015 | N | **0.0215** | < 0.0150 U | -- | -- | -- | **17** | **1.9** | **3.1** | -- | -- | **309** | **1070** |
| | 4/1/2016 | N | **0.0434** | < 0.01 U | < 0.01 U | -- | -- | **5.88** | < 2 U | < 2 U | < 1.41 U | < 1.41 U | **310** | **1140** |
| | 9/12/2016 | N | **0.0393** | < 0.00136 U | -- | **11.3** | **0.49** | **10.1** | < 0.657 U | < 0.642 U | < 0.987 U | **1.23 J** | **297** | **1180** |
| | 4/6/2017 | N | < 0.05 U | < 0.05 U | **0.0063 J** | **0.47 J** | **0.491 J** | **6.89** | < 2 U | < 2 U | < 1.5 U | < 1.5 U | **325** | **1130** |
| TMW-5 | 2/18/2009 | N | **0.0669** | < 0.0150 U | -- | -- | -- | **2200** | **110** | **41** | -- | -- | **4780** | **7660** |
| | 8/10/2009 | N | **0.0372** | < 0.0150 U | -- | -- | -- | **4700** | **140** | **5.3** | -- | -- | **2970** | **6830** |
| | 2/10/2010 | N | **0.0302** | < 0.0150 U | -- | -- | -- | **4400** | **210** | **15** | -- | -- | **3120** | **6120** |
| | 8/11/2010 | N | **0.0341** | < 0.0150 U | -- | -- | -- | **2800** | **180** | < 30 U | -- | -- | **2660** | **5450** |
| | 8/11/2010 | FD | **0.0324** | < 0.0150 U | -- | -- | -- | **3100** | **190** | **5.0** | -- | -- | **2660** | **5540** |
| | 4/7/2011 | N | **0.0454** | < 0.0150 U | -- | -- | -- | **1900** | **180** | **3.4** | -- | -- | **3210** | **5910** |
| | 8/9/2011 | N | **0.0312** | < 0.0150 U | -- | -- | -- | **1400** | **100** | **15** | -- | -- | **3470** | **6030** |
| TMW-6 | 2/17/2009 | N | **0.0724** | < 0.0150 U | -- | -- | -- | **3700** | **420** | **210** | -- | -- | **437** | **1440** |
| | 8/11/2009 | N | **0.0712** | < 0.0150 U | -- | -- | -- | **3800** | **200** | **8.5** | -- | -- | **177** | **1140** |
| | 2/16/2010 | N | **0.0930** | < 0.0150 U | -- | -- | -- | **2600** | **350** | **11** | -- | -- | **657** | **1850** |
| | 4/7/2011 | N | **0.0867** | < 0.0150 U | -- | -- | -- | **2500** | **310** | **4.8** | -- | -- | **515** | **1430** |
| | 8/9/2011 | N | **0.0585** | < 0.0150 U | -- | -- | -- | **4700** | **400** | **25** | -- | -- | **345** | **1310** |
| | 2/10/2012 | N | **0.0445** | < 0.0150 U | -- | -- | -- | **600** | **140** | **29** | -- | -- | **684** | **1940** |
| | 8/14/2012 | N | **0.0504** | < 0.0150 U | -- | -- | -- | **4900** | **640** | **29** | -- | -- | **603 J** | **1550** |
| | 2/11/2013 | N | **0.0568** | < 0.0150 U | -- | -- | -- | **4900** | **470** | **31** | -- | -- | **516** | **1760** |
| | 8/9/2013 | N | **0.0366** | < 0.0150 U | -- | -- | -- | **1400** | **230 J** | **7.8 J** | -- | -- | **755** | **1930** |
| | 2/6/2014 | N | **0.0295** | < 0.0150 U | -- | -- | -- | **1700** | **570** | **22** | -- | -- | **239** | **1570** |
| | 8/13/2014 | N | < 0.0200 UJ | < 0.0150 UJ | -- | -- | -- | **8.1** | **3.5** | < 5.0 U | -- | -- | **1270** | **2280** |
| | 2/11/2015 | N | **0.0386** | **0.0016 J** | -- | -- | -- | **2600** | **6.5 J** | **23** | -- | -- | **411** | **1380** |
| | 8/11/2015 | N | **0.0401** | < 0.0150 U | -- | -- | -- | **3600 J** | **6.5 J** | **4.1 J** | -- | -- | **436** | **1590** |
| | 4/1/2016 | N | **0.056** | < 0.01 U | < 0.01 U | -- | -- | **345** | < 2 U | < 2 U | **1.63** | **3.01** | **257** | **1300** |
| | 4/1/2016 | FD | **0.0553** | < 0.01 U | < 0.01 U | -- | -- | **341** | < 2 U | < 2 U | **1.47** | **2.86** | **254** | **1360** |
| | 9/12/2016 | N | **0.0516** | < 0.00136 U | -- | **6.7** | **0.0241** | **1370 D** | **31.3** | **7.31** | **2.55** | **3.14** | **324** | **1530** |
| | 9/12/2016 | FD | **0.0573** | < 0.00136 U | -- | **6.62** | **0.0239** | **1220 D** | **25.7** | **4.74** | **2.82** | **3.29** | **320** | **1540** |

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ARCADIS Design & Consultancy for natural and built assets

## Appendix E
## Historical Analytical Data (through 2017)
## 2018 Annual Groundwater Monitoring Report
## Former Eunice South Gas Plant

| Chemical Name | | | Arsenic | Chromium | Chromium VI | Iron | Manganese | Benzene | Ethylbenzene | Total Xylenes | DRO | GRO | Chloride | Total Dissolved Solids |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Units | | | mg/l | mg/l | mg/l | mg/l | mg/l | ug/l | ug/l | ug/l | mg/l | mg/l | mg/l | mg/l |
| NMWQCC Standard | | | 0.1 | 0.05 | 0.05 | 1 | 0.2 | 10 | 750 | 620 | | | 250 | 1000 |
| Location ID | Sample Date | Sample Type | | | | | | | | | | | | |
| | 4/6/2017 | N | **0.046 J** | **0.00768 J** | **0.0078 J** | **0.28 J** | **0.0301 J** | **446** | < 10 U | < 10 U | **3.18** | **1.53** | **318** | **1260** |
| | 9/14/2017 | N | **0.00275** | < 0.004 U | < 0.01 U | -- | -- | < 2 U | < 2 U | < 2 U | < 1.5 U | < 1.5 U | **519** | **2640** |
| WW-2 | 3/30/2016 | N | < 0.01 U | < 0.01 U | < 0.01 U | -- | -- | < 2 U | < 2 U | < 2 U | < 1.41 U | < 1.41 U | **304** | **652** |
| | 9/6/2016 | N | < 0.00336 U | < 0.00136 U | < 0.01 U | **0.109 J** | **0.134** | < 0.408 U | < 0.657 U | < 0.642 U | < 0.987 U | < 0.987 U | **287** | **627** |
| | 4/5/2017 | N | < 0.05 U | < 0.05 U | -- | < 1 U | **0.0806 J** | < 2 U | < 2 U | < 2 U | < 1.5 U | < 1.5 U | **352 J** | **546** |
| | 4/7/2017 | N | -- | -- | < 0.01 U | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| WW-3 | 4/7/2017 | N | < 0.05 U | < 0.05 U | **0.0105** | **0.24 J** | **0.211** | **40.3** | **5.01** | < 2 U | < 1.5 U | < 1.5 U | **207** | **468** |
| WW-7 | 3/30/2016 | N | < 0.01 U | < 0.01 U | **0.0148** | -- | -- | < 2 U | < 2 U | < 2 U | < 1.41 U | < 1.41 U | **266** | **548** |
| | 9/6/2016 | N | < 0.00336 U | < 0.00136 U | < 0.01 U | **3.14** | **0.583** | < 0.408 U | < 0.657 U | < 0.642 U | < 0.987 U | < 0.987 U | **563** | **511** |
| | 4/4/2017 | N | < 0.05 U | < 0.05 U | -- | < 1 U | **0.389** | < 2 U | < 2 U | < 2 U | < 1.5 U | < 1.5 U | **270 J** | **458** |
| | 4/7/2017 | N | -- | -- | < 0.01 U | -- | -- | -- | -- | -- | -- | -- | -- | -- |

**Notes:**

Analytes exceeding the NMWQCC Standard are highlighted

Detected analytes are bolded.

-- = not analyzed

< = less than

D = compounds identified at a secondary dilution factor

FD = field duplicate sample

ID = identification

J = estimated value

mg/l = milligrams per liter

N = normal sample

NMWQCC = New Mexico Water Quality Control Commission

TDS = total dissolved solids

U = non-detect

ug/l = micrograms per liter



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# APPENDIX F

## Historical Analytical Data (2017 to current)

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# GROUNDWATER ANALYTICAL RESULTS
# EUNICE SOUTH GAS PLANT GW REME

| Parameter Name / Report Units | | | Arsenic mg/L | Chromium mg/L | Chromium, Hexavalent mg/L | Iron mg/L | Barium mg/L | Manganese mg/L | Benzene mg/L |
|---|---|---|---|---|---|---|---|---|---|
| Location ID | Date Sampled | Sample Purpose | | | | | | | |
| NMWQCC Domestic | | | 0.1 mg/L | 0.05 mg/L | 0.05 mg/L | 1.0 mg/L | 2 mg/L | 0.2 mg/L | 0.005 mg/L |
| MW-11 | 4/6/2017 | REG | < 0.0500 U | < 0.0500 U | 0.00780 J | 0.219 J | -- | 0.142 J | 7.02 |
| MW-11 | 9/14/2017 | REG | 0.0118 | 0.000585 J | < 0.0100 U | -- | 0.841 | -- | 7.21 J |
| MW-11 | 3/19/2018 | Reg | 0.0125 | 0.000888 J | < 0.0100 U | -- | 0.779 | -- | 4.78 J |
| MW-11 | 3/19/2018 | FD | 0.0109 | < 0.00400 U | < 0.0100 U | -- | 0.676 | -- | 1.31 J |
| MW-11 | 9/28/2018 | REG | 0.021 | < 0.00400 U | < 0.0100 U | -- | 1.19 | -- | 4.19 D |
| MW-11 | 4/4/2019 | REG | 0.0182 | 0.00989 | < 0.0100 U | -- | 0.614 | -- | 1.87 |
| MW-11 | 4/4/2019 | FD | 0.0122 | 0.00543 | < 0.0100 U | -- | 0.631 | -- | 1.67 D |
| MW-11 | 10/4/2019 | REG | 0.0143 | 0.00340 J | < 0.0100 U | -- | 0.472 | -- | 1.96 DJ |
| MW-13 | 4/5/2017 | REG | < 0.0500 U | < 0.0500 U | < 0.0100 U | < 1.00 U | -- | 0.0182 J | < 0.00200 U |
| MW-13 | 3/14/2018 | Reg | 0.016 | 0.000616 J | < 0.0100 U | -- | 0.102 | -- | < 0.00200 U |
| MW-13 | 9/25/2018 | REG | 0.0165 | 0.00114 J | < 0.0100 U | -- | 0.102 | -- | < 0.00200 U |
| MW-13 | 4/2/2019 | REG | 0.0139 | < 0.00400 U | < 0.0100 U | -- | 0.0935 | -- | < 0.00200 U |
| MW-13 | 10/1/2019 | REG | 0.0161 | 0.000672 J | < 0.0100 U | -- | 0.0981 | -- | < 0.00200 U |
| MW-14 | 4/5/2017 | REG | < 0.0500 U | < 0.0500 U | < 0.0100 U | < 1.00 U | -- | 0.835 | < 0.00200 U |
| MW-14 | 9/13/2017 | REG | 0.00699 | < 0.00400 U | < 0.0100 U | -- | 0.0691 | -- | < 0.00200 U |
| MW-14 | 3/13/2018 | Reg | 0.0077 | < 0.00400 U | < 0.0100 U | -- | 0.0644 | -- | < 0.00200 U |
| MW-14 | 3/13/2018 | FD | 0.00764 | < 0.00400 U | < 0.0100 U | -- | 0.0637 | -- | < 0.00200 U |
| MW-14 | 9/26/2018 | REG | 0.00827 | < 0.00400 U | < 0.0100 U | -- | 0.0786 | -- | < 0.00200 U |
| MW-14 | 4/3/2019 | REG | 0.00933 | 0.157 | < 0.0100 U | -- | 0.076 | -- | < 0.00200 U |
| MW-14 | 10/2/2019 | REG | 0.00787 | < 0.00400 U | < 0.0100 U | -- | 0.0726 | -- | < 0.00200 U |
| MW-15 | 4/5/2017 | REG | < 0.0500 U | < 0.0500 U | < 0.0100 U | < 1.00 U | -- | 0.0345 J | < 0.00200 U |
| MW-15 | 9/13/2017 | REG | 0.0124 | 0.000535 J | < 0.0100 U | -- | 0.0481 | -- | 0.00795 |
| MW-15 | 3/13/2018 | REG | 0.0135 | < 0.00400 U | < 0.0100 U | -- | 0.0475 | -- | 0.00159 J |
| MW-15 | 9/25/2018 | REG | 0.0133 | 0.000735 J | < 0.0100 U | -- | 0.0533 | -- | 0.000780 J |
| MW-15 | 4/2/2019 | REG | 0.0142 | 0.00109 J | < 0.0100 U | -- | 0.0452 | -- | 0.00102 J |
| MW-15 | 10/2/2019 | REG | 0.0119 | < 0.00400 U | < 0.0100 U | -- | 0.0452 | -- | < 0.00200 U |
| MW-15 | 10/2/2019 | FD | 0.0122 | < 0.00400 U | < 0.0100 U | -- | 0.0482 | -- | < 0.00200 U |
| MW-16 | 4/5/2017 | REG | < 0.0500 U | 0.0955 | 0.106 | < 1.00 U | -- | < 0.100 U | < 0.00200 U |
| MW-16 | 9/13/2017 | REG | 0.0129 | 0.11 | 0.0957 | -- | 0.0448 | -- | < 0.00200 U |
| MW-16 | 3/13/2018 | REG | 0.013 | 0.108 | 0.101 | -- | 0.0406 | -- | < 0.00200 U |

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# GROUNDWATER ANALYTICAL RESULTS
# EUNICE SOUTH GAS PLANT GW REME

| Parameter Name / Report Units | | | Arsenic mg/L | Chromium mg/L | Chromium, Hexavalent mg/L | Iron mg/L | Barium mg/L | Manganese mg/L | Benzene mg/L |
|---|---|---|---|---|---|---|---|---|---|
| Location ID | Date Sampled | Sample Purpose | | | | | | | |
| NMWQCC Domestic | | | 0.1 mg/L | 0.05 mg/L | 0.05 mg/L | 1.0 mg/L | 2 mg/L | 0.2 mg/L | 0.005 mg/L |
| MW-16 | 9/25/2018 | REG | 0.0144 | 0.111 | < 0.0100 U | -- | 0.0423 | -- | < 0.00200 U |
| MW-16 | 4/2/2019 | REG | 0.0136 | 0.111 | 0.0976 | -- | 0.0417 | -- | < 0.00200 U |
| MW-16 | 10/2/2019 | REG | 0.0136 | 0.107 | 0.0982 | -- | 0.0394 | -- | < 0.00200 U |
| MW-17 | 4/6/2017 | REG | < 0.0500 U | < 0.0500 U | < 0.0100 U | < 1.00 U | -- | 0.534 J | < 0.00200 U |
| MW-17 | 9/13/2017 | REG | 0.0141 | < 0.00400 U | < 0.0100 U | -- | 0.316 | -- | < 0.00200 UJ |
| MW-17 | 9/13/2017 | FD | 0.0127 | < 0.00400 U | < 0.0100 U | -- | 0.27 | -- | < 0.00200 U |
| MW-17 | 3/14/2018 | Reg | 0.00804 | < 0.00400 U | < 0.0100 U | -- | 0.195 | -- | < 0.00200 U |
| MW-17 | 9/25/2018 | REG | 0.00912 | < 0.00400 U | < 0.0100 U | -- | 0.21 | -- | < 0.00200 U |
| MW-17 | 4/3/2019 | REG | 0.0113 | 0.00141 J | < 0.0100 U | -- | 0.206 | -- | < 0.00200 U |
| MW-17 | 10/3/2019 | REG | 0.00838 | < 0.00400 U | < 0.0100 U | -- | 0.156 | -- | < 0.00200 U |
| MW-18 | 4/4/2017 | REG | < 0.0500 U | < 0.0500 U | < 0.0100 U | < 1.00 U | -- | < 0.100 U | < 0.00200 U |
| MW-22 | 4/4/2017 | REG | < 0.0500 U | < 0.0500 U | -- | 0.267 J | -- | 0.0947 J | 16.7 |
| MW-22 | 4/7/2017 | REG | -- | -- | 0.00380 J | -- | -- | -- | -- |
| MW-22 | 3/15/2018 | Reg | 0.0371 | < 0.00400 U | < 0.0100 U | -- | 0.982 | -- | 8.55 |
| MW-22 | 4/3/2019 | REG | 0.0554 | 0.00802 | < 0.0100 U | -- | 0.654 | -- | 0.588 |
| MW-23 | 4/4/2017 | REG | < 0.0500 U | < 0.0500 U | -- | < 1.00 U | -- | < 0.100 U | < 0.00200 U |
| MW-23 | 4/7/2017 | REG | -- | -- | < 0.0100 U | -- | -- | -- | -- |
| MW-25 | 4/6/2017 | REG | < 0.0500 U | < 0.0500 U | < 0.0100 U | 0.343 J | -- | 0.0964 J | 1.34 |
| MW-25 | 9/14/2017 | REG | 0.00341 | 0.00146 J | < 0.0100 U | -- | 1.72 | -- | 7.11 |
| MW-25 | 3/19/2018 | Reg | 0.00155 J | 0.00104 J | < 0.0100 U | -- | 1.19 | -- | 1.8 |
| MW-25 | 9/28/2018 | REG | 0.00187 J | 0.00138 J | < 0.0100 U | -- | 1.46 | -- | 2.18 D |
| MW-25 | 4/5/2019 | REG | 0.00145 J | 0.00163 J | < 0.0100 U | -- | 1.21 | -- | 14.1 D |
| MW-25 | 10/4/2019 | REG | 0.00129 J | 0.00161 J | < 0.0100 U | -- | 1.34 | -- | 2.99 DJ |
| MW-26 | 4/6/2017 | REG | 0.0362 J | < 0.0500 U | 0.00490 J | 0.260 J | -- | 0.0324 J | 0.94 |
| MW-26 | 9/14/2017 | REG | 0.057 | < 0.00400 U | < 0.0100 U | -- | 5.09 | -- | 1.79 |
| MW-26 | 3/19/2018 | Reg | 0.0421 | 0.00155 J | < 0.0100 U | -- | 3.52 | -- | 0.821 J |
| MW-26 | 3/19/2018 | FD | 0.0374 | 0.000994 J | < 0.0100 U | -- | 3.13 | -- | 0.177 J |
| MW-26 | 9/28/2018 | REG | 0.0645 | < 0.00400 U | 0.353 | -- | 5.73 | -- | 1.08 D |
| MW-26 | 4/4/2019 | REG | 0.063 | 0.000777 J | < 0.0100 U | -- | 5.59 | -- | 0.577 D |
| MW-26 | 10/4/2019 | REG | 0.0599 | < 0.00400 U | < 0.0100 U | -- | 6.33 | -- | 0.797 DJ |

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# GROUNDWATER ANALYTICAL RESULTS
# EUNICE SOUTH GAS PLANT GW REME

| Parameter Name / Report Units | | | Arsenic mg/L | Chromium mg/L | Chromium, Hexavalent mg/L | Iron mg/L | Barium mg/L | Manganese mg/L | Benzene mg/L |
|---|---|---|---|---|---|---|---|---|---|
| Location ID | Date Sampled | Sample Purpose | | | | | | | |
| NMWQCC Domestic | | | 0.1 mg/L | 0.05 mg/L | 0.05 mg/L | 1.0 mg/L | 2 mg/L | 0.2 mg/L | 0.005 mg/L |
| MW-29 | 4/5/2017 | REG | < 0.0500 U | < 0.0500 U | -- | 0.323 J | -- | 0.115 J | 0.272 |
| MW-29 | 4/7/2017 | REG | -- | -- | 0.00560 J | -- | -- | -- | -- |
| MW-29 | 9/12/2017 | REG | 0.00288 | < 0.00400 U | 0.00280 J | -- | 6.85 | -- | 1.6 |
| MW-29 | 3/16/2018 | Reg | 0.00292 | < 0.00400 U | < 0.0100 U | -- | 7.28 | -- | 0.634 |
| MW-29 | 9/27/2018 | REG | 0.00327 J | < 0.00400 U | 0.00530 J | -- | 6.59 | -- | 0.231 |
| MW-29 | 4/3/2019 | REG | 0.00389 J | 0.000856 J | < 0.0100 U | -- | 9.21 | -- | 0.0624 |
| MW-29 | 4/3/2019 | FD | 0.00338 J | 0.000706 J | < 0.0100 U | -- | 7.51 | -- | 0.0462 |
| MW-29 | 10/3/2019 | REG | 0.00249 J | < 0.00400 U | 0.0139 | -- | 8.41 | -- | 0.177 |
| MW-3 | 4/5/2017 | REG | < 0.0500 U | < 0.0500 U | < 0.0100 U | < 1.00 U | -- | < 0.100 U | < 0.00200 U |
| MW-3 | 4/5/2017 | FD | < 0.0500 U | < 0.0500 U | < 0.0100 U | 0.0738 J | -- | < 0.100 U | < 0.00200 U |
| MW-3 | 9/13/2017 | REG | 0.0141 | 0.000680 J | < 0.0100 U | -- | 0.0619 | -- | < 0.00200 U |
| MW-3 | 3/15/2018 | Reg | 0.0146 | 0.000668 J | < 0.0100 U | -- | 0.0584 | -- | < 0.00200 U |
| MW-3 | 9/25/2018 | REG | 0.017 | 0.00122 J | < 0.0100 U | -- | 0.0528 | -- | < 0.00200 U |
| MW-3 | 4/5/2019 | REG | 0.016 | 0.00111 J | < 0.0100 U | -- | 0.0562 | -- | < 0.00200 U |
| MW-3 | 10/4/2019 | REG | 0.0164 | 0.00113 J | < 0.0100 U | -- | 0.0512 | -- | < 0.00200 U |
| MW-30 | 4/5/2017 | REG | < 0.0500 U | < 0.0500 U | -- | < 1.00 U | -- | 0.529 J | 0.0325 |
| MW-30 | 4/7/2017 | REG | -- | -- | < 0.0100 U | -- | -- | -- | -- |
| MW-30 | 9/12/2017 | REG | 0.00903 | < 0.00400 U | < 0.0100 U | -- | 0.542 | -- | 0.053 |
| MW-30 | 3/16/2018 | Reg | 0.0119 | < 0.00400 U | < 0.0100 U | -- | 0.616 | -- | 0.015 |
| MW-30 | 9/26/2018 | REG | 0.0158 | < 0.00400 U | < 0.0100 U | -- | 0.455 | -- | 0.0244 |
| MW-30 | 4/3/2019 | REG | 0.0212 | 0.00146 J | < 0.0100 U | -- | 0.37 | -- | 0.00872 |
| MW-30 | 10/3/2019 | REG | 0.0123 | < 0.00400 U | < 0.0100 U | -- | 0.298 | -- | < 0.00200 U |
| MW-31 | 4/5/2017 | REG | < 0.0500 U | < 0.0500 U | < 0.0100 U | 0.105 J | -- | 0.316 | < 0.00200 U |
| MW-31 | 4/5/2017 | FD | < 0.0500 U | < 0.0500 U | < 0.0100 U | 0.0918 J | -- | 0.298 | < 0.00200 U |
| MW-31 | 9/13/2017 | REG | 0.0347 | < 0.00400 U | < 0.0100 U | -- | 0.569 | -- | < 0.00200 U |
| MW-31 | 3/14/2018 | Reg | 0.0463 | < 0.00400 U | < 0.0100 U | -- | 0.483 | -- | < 0.00200 UJ |
| MW-31 | 9/25/2018 | REG | 0.0334 | < 0.00400 U | < 0.0100 U | -- | 0.565 | -- | < 0.00200 U |
| MW-31 | 4/3/2019 | REG | 0.0359 | < 0.00400 U | < 0.0100 U | -- | 0.44 | -- | < 0.00200 U |
| MW-31 | 10/2/2019 | REG | 0.0392 | < 0.00400 U | < 0.0100 U | -- | 0.555 | -- | < 0.00200 U |
| MW-32 | 4/7/2017 | REG | < 0.0500 U | 0.00848 J | 0.00560 J | 0.0899 J | -- | 0.0540 J | 7.56 |

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# GROUNDWATER ANALYTICAL RESULTS
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| Parameter Name / Report Units | | | Arsenic mg/L | Chromium mg/L | Chromium, Hexavalent mg/L | Iron mg/L | Barium mg/L | Manganese mg/L | Benzene mg/L |
|---|---|---|---|---|---|---|---|---|---|
| Location ID | Date Sampled | Sample Purpose | | | | | | | |
| NMWQCC Domestic | | | 0.1 mg/L | 0.05 mg/L | 0.05 mg/L | 1.0 mg/L | 2 mg/L | 0.2 mg/L | 0.005 mg/L |
| MW-32 | 9/13/2017 | REG | 0.0263 | < 0.00400 U | < 0.0100 U | -- | 1.32 | -- | 14.7 |
| MW-32 | 3/19/2018 | Reg | 0.0198 | < 0.00400 U | < 0.0100 U | -- | 0.886 | -- | 5.08 |
| MW-32 | 9/27/2018 | REG | 0.0298 | < 0.00400 U | < 0.0100 U | -- | 1.32 | -- | 8.37 D |
| MW-32 | 4/3/2019 | REG | 0.0361 | 0.000949 J | < 0.0100 U | -- | 1.4 | -- | 4.30 D |
| MW-32 | 10/3/2019 | REG | 0.0329 | < 0.00400 U | < 0.0100 U | -- | 1.32 | -- | 5.96 DJ |
| MW-34 | 4/5/2017 | REG | < 0.0500 U | 0.00780 J | -- | 0.162 J | -- | 0.0612 J | 1.84 |
| MW-34 | 4/7/2017 | REG | -- | -- | 0.00340 J | -- | -- | -- | -- |
| MW-34 | 9/12/2017 | REG | 0.00215 | < 0.00400 U | 0.00300 J | -- | 4.72 | -- | 2.42 J |
| MW-34 | 3/16/2018 | Reg | 0.00242 | < 0.00400 U | < 0.0100 U | -- | 4.66 | -- | 3.68 |
| MW-34 | 9/27/2018 | REG | 0.00186 J | < 0.00400 U | 0.00470 J | -- | 5.28 | -- | 0.599 D |
| MW-34 | 4/2/2019 | REG | 0.00180 J | < 0.00400 U | < 0.0100 U | -- | 5.3 | -- | 0.0989 |
| MW-34 | 10/2/2019 | REG | 0.00108 J | < 0.00400 U | < 0.0100 U | -- | 4.84 | -- | 0.0642 J |
| MW-34 | 10/2/2019 | FD | 0.00107 J | < 0.00400 U | < 0.0100 U | -- | 4.7 | -- | 0.0609 J |
| MW-35 | 4/12/2017 | REG | -- | -- | < 0.0100 U | -- | 0.046 | -- | 0.000750 J |
| MW-35 | 9/15/2017 | REG | 0.0293 J | < 0.00400 U | < 0.0100 U | -- | 0.163 J | -- | < 0.00200 U |
| MW-35 | 3/14/2018 | Reg | 0.0184 | < 0.00400 U | < 0.0100 U | -- | 0.0735 | -- | < 0.00200 U |
| MW-35 | 9/27/2018 | REG | 0.0175 | < 0.00400 U | < 0.0100 U | -- | 0.0802 | -- | < 0.00200 U |
| MW-35 | 4/2/2019 | REG | 0.0166 | 0.000714 J | < 0.0100 U | -- | 0.0775 | -- | < 0.00200 U |
| MW-35 | 10/1/2019 | REG | 0.0108 | < 0.00400 U | < 0.0100 U | -- | 0.0875 | -- | < 0.00200 U |
| MW-36 | 4/12/2017 | REG | -- | -- | < 0.0100 U | -- | 0.0488 | -- | < 0.00200 U |
| MW-36 | 9/15/2017 | REG | 0.00957 J | < 0.00400 U | < 0.0100 U | -- | 0.0627 J | -- | < 0.00200 U |
| MW-36 | 3/14/2018 | Reg | 0.00978 | < 0.00400 U | < 0.0100 U | -- | 0.0802 | -- | < 0.00200 U |
| MW-36 | 9/26/2018 | REG | 0.01 | < 0.00400 U | < 0.0100 U | -- | 0.102 | -- | < 0.00200 U |
| MW-36 | 9/26/2018 | FD | 0.01 | < 0.00400 U | < 0.0100 U | -- | 0.101 | -- | < 0.00200 U |
| MW-36 | 4/2/2019 | REG | 0.0103 | < 0.00400 U | < 0.0100 U | -- | 0.107 | -- | < 0.00200 U |
| MW-36 | 10/1/2019 | REG | 0.00948 | < 0.00400 U | < 0.0100 U | -- | 0.124 | -- | < 0.00200 U |
| MW-37 | 3/14/2018 | Reg | 0.0118 | < 0.00400 U | < 0.0100 U | -- | 0.127 | -- | < 0.00200 U |
| MW-37 | 9/26/2018 | REG | 0.0105 | < 0.00400 U | < 0.0100 U | -- | 0.201 | -- | < 0.00200 U |
| MW-37 | 4/2/2019 | REG | 0.00678 | < 0.00400 U | < 0.0100 U | -- | 0.223 | -- | < 0.00200 U |
| MW-37 | 10/2/2019 | REG | 0.00595 | < 0.00400 U | < 0.0100 U | -- | 0.192 | -- | < 0.00200 U |

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| Parameter Name / Report Units | | | Arsenic mg/L | Chromium mg/L | Chromium, Hexavalent mg/L | Iron mg/L | Barium mg/L | Manganese mg/L | Benzene mg/L |
|---|---|---|---|---|---|---|---|---|---|
| Location ID | Date Sampled | Sample Purpose | | | | | | | |
| NMWQCC Domestic | | | 0.1 mg/L | 0.05 mg/L | 0.05 mg/L | 1.0 mg/L | 2 mg/L | 0.2 mg/L | 0.005 mg/L |
| MW-38 | 3/14/2018 | Reg | 0.0106 | < 0.00400 U | < 0.0100 U | -- | 0.183 | -- | < 0.00200 U |
| MW-38 | 3/14/2018 | FD | 0.0102 | < 0.00400 U | < 0.0100 U | -- | 0.175 | -- | < 0.00200 U |
| MW-38 | 9/26/2018 | REG | 0.0492 | 0.000709 J | < 0.0100 U | -- | 0.265 | -- | < 0.00200 U |
| MW-38 | 4/2/2019 | REG | 0.0273 | < 0.00400 U | < 0.0100 U | -- | 0.102 | -- | < 0.00200 U |
| MW-38 | 10/2/2019 | REG | 0.0126 | < 0.00400 U | < 0.0100 U | -- | 0.094 | -- | < 0.00200 U |
| MW-4 | 4/4/2017 | REG | < 0.0500 U | < 0.0500 U | -- | 0.0629 J | -- | 1.14 | 0.00402 |
| MW-4 | 4/7/2017 | REG | -- | -- | < 0.0100 U | -- | -- | -- | -- |
| MW-4 | 9/13/2017 | REG | 0.00758 | < 0.00400 U | < 0.0100 U | -- | 0.0783 | -- | < 0.00200 U |
| MW-4 | 3/15/2018 | Reg | 0.00787 | < 0.00400 U | < 0.0100 U | -- | 0.0796 | -- | 0.00595 |
| MW-4 | 9/27/2018 | REG | 0.00858 | < 0.00400 U | < 0.0100 U | -- | 0.0803 | -- | < 0.00200 U |
| MW-4 | 4/4/2019 | REG | 0.00818 | 0.00163 J | < 0.0100 U | -- | 0.062 | -- | < 0.00200 U |
| MW-4 | 10/3/2019 | REG | 0.00848 | < 0.00400 U | < 0.0100 U | -- | 0.0585 | -- | < 0.00200 U |
| MW-4 | 10/3/2019 | FD | 0.00914 | < 0.00400 U | < 0.0100 U | -- | 0.0534 | -- | < 0.00200 U |
| MW-6 | 4/4/2017 | REG | < 0.0500 U | < 0.0500 U | < 0.0100 U | 0.0437 J | -- | 0.115 | < 0.00200 U |
| MW-7 | 4/4/2017 | REG | < 0.0500 U | < 0.0500 U | < 0.0100 U | 0.265 J | -- | 1.08 | < 0.00200 U |
| MW-8 | 4/5/2017 | REG | < 0.0500 U | < 0.0500 U | 0.0067 J | 0.0964 J | -- | 0.181 | < 0.00200 U |
| MW-8 | 4/5/2017 | FD | < 0.0500 U | < 0.0500 U | 0.0042 J | 0.0918 J | -- | 0.194 | < 0.00200 U |
| MW-8 | 9/12/2017 | REG | 0.0408 | < 0.00400 U | < 0.0100 U | -- | 0.04 | -- | < 0.00200 U |
| MW-8 | 3/16/2018 | Reg | 0.0344 | < 0.00400 U | < 0.0100 U | -- | 0.0383 | -- | < 0.00200 U |
| MW-8 | 9/28/2018 | REG | 0.0416 | < 0.00400 U | < 0.0100 U | -- | 0.0484 | -- | 0.00242 |
| MW-8 | 4/3/2019 | REG | 0.0519 | 0.00112 J | < 0.0100 U | -- | 0.0496 | -- | < 0.00200 U |
| MW-8 | 10/3/2019 | REG | 0.034 | < 0.00400 U | < 0.0100 U | -- | 0.0426 | -- | < 0.00200 U |
| MW-9 | 4/5/2017 | REG | < 0.0500 U | < 0.0500 U | -- | 0.0551 J | -- | 0.307 J | < 0.00200 U |
| MW-9 | 4/7/2017 | REG | -- | -- | < 0.0100 U | -- | -- | -- | -- |
| MW-9 | 9/12/2017 | REG | 0.0131 | < 0.00400 U | < 0.0100 U | -- | 0.177 | -- | < 0.00200 U |
| MW-9 | 3/16/2018 | Reg | 0.0125 | < 0.00400 U | < 0.0100 U | -- | 0.379 | -- | < 0.00200 U |
| MW-9 | 9/27/2018 | REG | 0.0145 | < 0.00400 U | < 0.0100 U | -- | 1.11 | -- | 0.00122 J |
| MW-9 | 4/3/2019 | REG | 0.0107 | 0.00113 J | < 0.0100 U | -- | 4.79 | -- | 0.00105 J |
| MW-9 | 10/3/2019 | REG | 0.00387 J | < 0.00400 U | < 0.0100 U | -- | 9.06 | -- | < 0.00200 U |
| MWD-1 | 4/6/2017 | REG | 0.0715 | < 0.0500 U | < 0.0100 U | < 1.00 U | -- | < 0.100 U | < 0.00200 U |

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| Parameter Name / Report Units | | | Arsenic mg/L | Chromium mg/L | Chromium, Hexavalent mg/L | Iron mg/L | Barium mg/L | Manganese mg/L | Benzene mg/L |
|---|---|---|---|---|---|---|---|---|---|
| Location ID | Date Sampled | Sample Purpose | | | | | | | |
| NMWQCC Domestic | | | 0.1 mg/L | 0.05 mg/L | 0.05 mg/L | 1.0 mg/L | 2 mg/L | 0.2 mg/L | 0.005 mg/L |
| MWD-1 | 9/13/2017 | REG | 0.0514 | 0.00479 | < 0.0100 U | -- | 0.0455 | -- | < 0.00200 U |
| MWD-1 | 3/14/2018 | REG | 0.0483 | 0.00475 | < 0.0100 U | -- | 0.0447 | -- | < 0.00200 U |
| MWD-1 | 9/25/2018 | REG | 0.0485 | 0.00485 | 0.00360 J | -- | 0.0581 | -- | < 0.00200 U |
| MWD-1 | 4/3/2019 | REG | 0.0544 | 0.00612 | < 0.0100 U | -- | 0.0503 | -- | < 0.00200 U |
| MWD-1 | 10/3/2019 | REG | 0.0501 | 0.00388 J | < 0.0100 U | -- | 0.0483 | -- | < 0.00200 U |
| MWD-1 | 10/3/2019 | FD | 0.0507 | 0.00404 | < 0.0100 U | -- | 0.0482 | -- | < 0.00200 U |
| MWD-11 | 4/5/2017 | REG | < 0.0500 U | < 0.0500 U | < 0.0100 U | < 1.00 U | -- | < 0.100 U | < 0.00200 U |
| MWD-11 | 9/15/2017 | REG | 0.0157 J | 0.00142 J | 0.00580 J | -- | 0.0520 J | -- | < 0.00200 U |
| MWD-11 | 9/15/2017 | FD | 0.0276 J | < 0.00400 U | < 0.0100 U | -- | 0.155 J | -- | < 0.00200 U |
| MWD-11 | 3/15/2018 | Reg | 0.0142 | 0.00121 J | < 0.0100 U | -- | 0.0632 | -- | < 0.00200 U |
| MWD-11 | 9/25/2018 | REG | 0.0184 | 0.00107 J | < 0.0100 U | -- | 0.0667 | -- | < 0.00200 U |
| MWD-11 | 4/5/2019 | REG | 0.0198 | 0.00113 J | < 0.0100 U | -- | 0.0466 | -- | < 0.00200 U |
| MWD-11 | 10/4/2019 | REG | 0.016 | 0.00135 J | 0.00550 J | -- | 0.0486 | -- | < 0.00200 U |
| MWD-12 | 4/6/2017 | REG | 0.0375 J | < 0.0500 U | 0.00280 J | 0.161 J | -- | 0.0977 J | 0.048 |
| MWD-12 | 9/13/2017 | REG | 0.037 | < 0.00400 U | < 0.0100 U | -- | 0.275 | -- | 0.0271 |
| MWD-12 | 3/19/2018 | Reg | 0.0321 | < 0.00400 U | < 0.0100 U | -- | 0.245 | -- | 0.00204 |
| MWD-12 | 9/27/2018 | REG | 0.0391 | < 0.00400 U | < 0.0100 U | -- | 0.346 | -- | 0.0049 |
| MWD-12 | 4/3/2019 | REG | 0.0443 | 0.000870 J | < 0.0100 U | -- | 0.38 | -- | 0.000460 J |
| MWD-12 | 10/4/2019 | REG | 0.035 | < 0.00400 U | < 0.0100 U | -- | 0.371 | -- | < 0.00200 U |
| MWD-13 | 4/4/2017 | REG | < 0.0500 U | < 0.0500 U | < 0.0100 U | < 1.00 U | -- | 0.269 | < 0.00200 U |
| MWD-13 | 9/12/2017 | REG | 0.0294 | 0.000896 J | < 0.0100 U | -- | 0.0615 | -- | < 0.00200 U |
| MWD-13 | 9/13/2017 | REG | 0.0145 | < 0.00400 U | < 0.0100 U | -- | 0.12 | -- | < 0.00200 U |
| MWD-13 | 3/15/2018 | Reg | 0.0366 | 0.000814 J | < 0.0100 U | -- | 0.0555 | -- | < 0.00200 U |
| MWD-13 | 9/27/2018 | REG | 0.0622 | 0.00149 J | < 0.0100 U | -- | 0.0885 | -- | < 0.00200 U |
| MWD-13 | 4/3/2019 | REG | 0.0349 | 0.0102 | < 0.0100 U | -- | 0.0781 | -- | < 0.00200 U |
| MWD-13 | 10/3/2019 | REG | 0.062 | 0.00285 J | < 0.0100 U | -- | 0.0726 | -- | < 0.00200 U |
| MWD-14 | 4/6/2017 | REG | < 0.0500 U | < 0.0500 U | < 0.0100 U | 0.212 J | -- | 0.161 J | 1.32 |
| MWD-14 | 9/14/2017 | REG | 0.00292 | 0.000812 J | < 0.0100 U | -- | 0.532 | -- | 2.6 |
| MWD-14 | 3/19/2018 | Reg | 0.00254 | 0.000705 J | < 0.0100 U | -- | 0.342 | -- | 0.363 |
| MWD-14 | 9/28/2018 | REG | 0.000750 J | 0.000714 J | < 0.0100 U | -- | 0.747 | -- | 1.86 D |

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# GROUNDWATER ANALYTICAL RESULTS
# EUNICE SOUTH GAS PLANT GW REME

| Parameter Name / Report Units | | | Arsenic mg/L | Chromium mg/L | Chromium, Hexavalent mg/L | Iron mg/L | Barium mg/L | Manganese mg/L | Benzene mg/L |
|---|---|---|---|---|---|---|---|---|---|
| Location ID | Date Sampled | Sample Purpose | | | | | | | |
| NMWQCC Domestic | | | 0.1 mg/L | 0.05 mg/L | 0.05 mg/L | 1.0 mg/L | 2 mg/L | 0.2 mg/L | 0.005 mg/L |
| MWD-14 | 4/5/2019 | REG | 0.000809 J | 0.000762 J | < 0.0100 U | -- | 0.436 | -- | 0.981 |
| MWD-14 | 10/4/2019 | REG | 0.000588 J | 0.000883 J | < 0.0100 U | -- | 0.808 | -- | 1.18 DJ |
| MWD-15 | 4/6/2017 | REG | < 0.0500 U | < 0.0500 U | 0.00610 J | 0.199 J | -- | 0.0899 J | 0.0177 |
| MWD-15 | 9/14/2017 | REG | 0.0258 | 0.000651 J | 0.00250 J | -- | 1.51 | -- | 0.00598 |
| MWD-15 | 3/15/2018 | Reg | 0.0182 | < 0.00400 U | < 0.0100 U | -- | 1.26 | -- | 0.00123 J |
| MWD-15 | 9/27/2018 | REG | 0.00653 | < 0.00400 U | < 0.0100 U | -- | 2.41 | -- | 0.00417 J |
| MWD-15 | 4/4/2019 | REG | 0.00799 | 0.00207 J | < 0.0100 U | -- | 1.83 | -- | 0.0132 J |
| MWD-15 | 10/3/2019 | REG | 0.018 | < 0.00400 U | < 0.0100 U | -- | 1.19 | -- | 0.00443 J |
| MWD-17 | 4/4/2017 | REG | 0.0765 | < 0.0500 U | -- | 0.0942 J | -- | 0.118 | 0.79 |
| MWD-17 | 4/7/2017 | REG | -- | -- | < 0.0100 U | -- | -- | -- | -- |
| MWD-17 | 3/15/2018 | Reg | 0.0491 | < 0.00400 U | < 0.0100 U | -- | 1.55 | -- | 0.529 |
| MWD-17 | 4/3/2019 | REG | 0.0593 | 0.00396 J | < 0.0100 U | -- | 1.89 | -- | 0.179 |
| MWD-2 | 4/5/2017 | REG | < 0.0500 U | < 0.0500 U | < 0.0100 U | < 1.00 U | -- | 0.105 | < 0.00200 U |
| MWD-2 | 3/15/2018 | Reg | 0.0102 | < 0.00400 U | < 0.0100 U | -- | 0.0456 | -- | < 0.00200 U |
| MWD-2 | 4/4/2019 | REG | 0.0088 | 0.00119 J | < 0.0100 U | -- | 0.05 | -- | < 0.00200 U |
| MWD-3 | 2/28/2018 | REG | -- | -- | -- | -- | -- | -- | -- |
| MWD-3 | 3/15/2018 | Reg | 0.0358 | 0.00196 J | < 0.0100 U | -- | 0.755 | -- | 2.13 |
| MWD-3 | 3/30/2018 | REG | -- | -- | -- | -- | -- | -- | -- |
| MWD-3 | 8/8/2018 | REG | -- | -- | -- | -- | -- | -- | -- |
| MWD-3 | 8/31/2018 | REG | -- | -- | -- | -- | -- | -- | -- |
| MWD-3 | 9/28/2018 | REG | 0.0335 | 0.00307 J | < 0.0100 U | -- | 0.671 | -- | 2.40 D |
| MWD-3 | 10/4/2019 | REG | 0.0297 | 0.00194 J | < 0.0100 U | -- | 0.753 | -- | 1.97 D |
| MWD-4 | 4/4/2017 | REG | < 0.0500 U | < 0.0500 U | < 0.0100 U | 0.105 J | -- | 0.608 | < 0.00200 U |
| MWD-4 | 9/12/2017 | REG | 0.00158 J | < 0.00400 U | 0.00390 J | -- | 0.0522 | -- | < 0.00200 U |
| MWD-4 | 3/15/2018 | Reg | 0.00147 J | < 0.00400 U | < 0.0100 U | -- | 0.0573 | -- | < 0.00200 U |
| MWD-4 | 9/27/2018 | REG | 0.00152 J | < 0.00400 U | < 0.0100 U | -- | 0.0698 | -- | < 0.00200 U |
| MWD-4 | 4/3/2019 | REG | 0.00154 J | < 0.00400 U | < 0.0100 U | -- | 0.0655 | -- | < 0.00200 U |
| MWD-4 | 4/3/2019 | FD | 0.00147 J | < 0.00400 U | < 0.0100 U | -- | 0.0655 | -- | < 0.00200 U |
| MWD-4 | 10/3/2019 | REG | 0.00139 J | < 0.00400 U | < 0.0100 U | -- | 0.0593 | -- | < 0.00200 U |
| MWD-5 | 1/31/2017 | REG | -- | -- | -- | -- | 5.28 | -- | -- |

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# GROUNDWATER ANALYTICAL RESULTS
# EUNICE SOUTH GAS PLANT GW REME

| Parameter Name / Report Units | | | Arsenic mg/L | Chromium mg/L | Chromium, Hexavalent mg/L | Iron mg/L | Barium mg/L | Manganese mg/L | Benzene mg/L |
|---|---|---|---|---|---|---|---|---|---|
| Location ID | Date Sampled | Sample Purpose | | | | | | | |
| NMWQCC Domestic | | | 0.1 mg/L | 0.05 mg/L | 0.05 mg/L | 1.0 mg/L | 2 mg/L | 0.2 mg/L | 0.005 mg/L |
| MWD-5 | 4/5/2017 | REG | < 0.0500 U | < 0.0500 U | -- | **0.200 J** | -- | **0.248 J** | **5.05** |
| MWD-5 | 4/7/2017 | REG | -- | -- | **0.00480 J** | -- | -- | -- | -- |
| MWD-5 | 3/15/2018 | REG | **0.0175** | **0.00649** | < 0.0100 U | -- | **0.0728** | -- | **0.0122** |
| MWD-5 | 4/3/2019 | REG | **0.0165** | **0.00105 J** | < 0.0100 U | -- | **7.71** | -- | **3.46** |
| MWD-6 | 4/5/2017 | REG | < 0.0500 U | < 0.0500 U | -- | **0.106 J** | -- | **0.239 J** | < 0.00200 U |
| MWD-6 | 4/7/2017 | REG | -- | -- | < 0.0100 U | -- | -- | -- | -- |
| MWD-6 | 9/13/2017 | REG | **0.00345** | < 0.00400 U | < 0.0100 U | -- | **1.5** | -- | < 0.00200 U |
| MWD-6 | 3/16/2018 | Reg | **0.0069** | < 0.00400 U | < 0.0100 U | -- | **2.45** | -- | **0.00112 J** |
| MWD-6 | 9/27/2018 | REG | **0.00238 J** | < 0.00400 U | < 0.0100 U | -- | **3.74** | -- | **0.0043** |
| MWD-6 | 4/2/2019 | REG | **0.00474** | < 0.00400 U | < 0.0100 U | -- | **3.77** | -- | **0.00214** |
| MWD-6 | 10/2/2019 | REG | **0.00234 J** | < 0.00400 U | < 0.0100 U | -- | **2.87** | -- | < 0.00200 U |
| MWD-7 | 4/4/2017 | REG | < 0.0500 U | < 0.0500 U | < 0.0100 U | < 1.00 U | -- | **0.324** | < 0.00200 U |
| MWD-7 | 9/13/2017 | REG | **0.0146** | **0.00116 J** | < 0.0100 U | -- | **0.0381** | -- | < 0.00200 U |
| MWD-7 | 3/14/2018 | Reg | **0.0146** | < 0.00400 U | < 0.0100 U | -- | **0.0393** | -- | < 0.00200 U |
| MWD-7 | 9/25/2018 | REG | **0.0158** | **0.000919 J** | < 0.0100 U | -- | **0.0405** | -- | < 0.00200 U |
| MWD-7 | 4/3/2019 | REG | **0.015** | **0.00339 J** | < 0.0100 U | -- | **0.0442** | -- | **0.000410 J** |
| MWD-7 | 10/3/2019 | REG | **0.0153** | **0.00169 J** | < 0.0100 U | -- | **0.0429** | -- | < 0.00200 U |
| MWD-8 | 4/4/2017 | REG | < 0.0500 U | < 0.0500 U | < 0.0100 U | < 1.00 U | -- | < 0.100 U | < 0.00200 U |
| MWD-8 | 9/13/2017 | REG | **0.0141** | **0.000796 J** | < 0.0100 U | -- | **0.0503** | -- | < 0.00200 U |
| MWD-8 | 3/15/2018 | Reg | **0.0155** | **0.000951 J** | < 0.0100 U | -- | **0.0498** | -- | < 0.00200 U |
| MWD-8 | 9/25/2018 | REG | **0.0159** | **0.000875 J** | < 0.0100 U | -- | **0.0527** | -- | < 0.00200 U |
| MWD-8 | 4/4/2019 | REG | **0.0171** | **0.00173 J** | < 0.0100 U | -- | **0.047** | -- | < 0.00200 U |
| MWD-8 | 10/3/2019 | REG | **0.0181** | **0.00111 J** | < 0.0100 U | -- | **0.0433** | -- | < 0.00200 U |
| MWD-9 | 4/4/2017 | REG | < 0.0500 U | < 0.0500 U | -- | < 1.00 U | -- | **0.629** | **0.0201** |
| MWD-9 | 4/7/2017 | REG | -- | -- | < 0.0100 U | -- | -- | -- | -- |
| MWD-9 | 9/14/2017 | REG | **0.0172** | **0.00738** | < 0.0100 U | -- | **0.0675** | -- | **0.0533** |
| MWD-9 | 2/28/2018 | REG | -- | -- | -- | -- | -- | -- | -- |
| MWD-9 | 3/19/2018 | REG | **0.0112** | < 0.00400 U | < 0.0100 U | -- | **4.73** | -- | **1.19** |
| MWD-9 | 8/8/2018 | REG | -- | -- | -- | -- | -- | -- | -- |
| MWD-9 | 8/31/2018 | REG | -- | -- | -- | -- | -- | -- | -- |

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# GROUNDWATER ANALYTICAL RESULTS
# EUNICE SOUTH GAS PLANT GW REME

| Parameter Name / Report Units | | | Arsenic mg/L | Chromium mg/L | Chromium, Hexavalent mg/L | Iron mg/L | Barium mg/L | Manganese mg/L | Benzene mg/L |
|---|---|---|---|---|---|---|---|---|---|
| Location ID | Date Sampled | Sample Purpose | | | | | | | |
| NMWQCC Domestic | | | 0.1 mg/L | 0.05 mg/L | 0.05 mg/L | 1.0 mg/L | 2 mg/L | 0.2 mg/L | 0.005 mg/L |
| MWD-9 | 9/28/2018 | REG | 0.0207 | 0.00694 | < 0.0100 U | -- | 0.0705 | -- | 0.0179 |
| MWD-9 | 4/4/2019 | REG | 0.0192 | 0.00931 | 0.00760 J | -- | 0.0717 | -- | 0.0161 |
| MWD-9 | 10/4/2019 | REG | 0.0184 | 0.00569 | < 0.0100 U | -- | 0.0755 | -- | 0.0119 J |
| RW-6 | 4/6/2017 | REG | < 0.0500 U | < 0.0500 U | < 0.0100 U | 0.203 J | -- | 0.111 J | < 0.00200 U |
| RW-6 | 9/14/2017 | REG | 0.0652 | 0.000638 J | < 0.0100 U | -- | 1.5 | -- | 3.09 |
| RW-6 | 3/15/2018 | Reg | 0.00233 | < 0.00400 U | < 0.0100 U | -- | 0.498 | -- | < 0.00200 U |
| RW-6 | 9/27/2018 | REG | 0.00266 J | < 0.00400 U | < 0.0100 U | -- | 0.713 | -- | 0.000470 J |
| RW-6 | 4/4/2019 | REG | 0.00211 J | 0.00216 J | < 0.0100 U | -- | 0.927 | -- | < 0.00200 U |
| RW-6 | 10/4/2019 | REG | 0.00266 J | 0.000681 J | < 0.0100 U | -- | 1.53 | -- | 0.00986 J |
| RW-7 | 4/6/2017 | REG | < 0.0500 U | < 0.0500 U | < 0.0100 U | < 1.00 U | -- | 0.610 J | < 0.00200 U |
| RW-7 | 4/6/2017 | FD | < 0.0500 U | < 0.0500 U | 0.00540 J | < 1.00 U | -- | 0.0547 J | < 0.00200 U |
| RW-7 | 9/14/2017 | REG | 0.00754 | 0.000949 J | < 0.0100 U | -- | 0.0738 | -- | < 0.00200 U |
| RW-7 | 3/15/2018 | Reg | 0.00955 | 0.000882 J | < 0.0100 U | -- | 0.0712 | -- | < 0.00200 U |
| RW-7 | 3/15/2018 | FD | 0.00874 | 0.00120 J | < 0.0100 U | -- | 0.0651 | -- | < 0.00200 U |
| RW-7 | 9/27/2018 | REG | 0.0104 | 0.00125 J | < 0.0100 U | -- | 0.0692 | -- | < 0.00200 U |
| RW-7 | 4/4/2019 | REG | 0.0106 | 0.00225 J | < 0.0100 U | -- | 0.0914 | -- | < 0.00200 U |
| RW-7 | 4/4/2019 | FD | 0.00909 | 0.00212 J | < 0.0100 U | -- | 0.0723 | -- | < 0.00200 U |
| RW-7 | 10/4/2019 | REG | 0.00847 | 0.00105 J | < 0.0100 U | -- | 0.083 | -- | < 0.00200 U |
| RW-8 | 4/4/2017 | REG | < 0.0500 U | < 0.0500 U | -- | 0.26 J | -- | 0.369 | < 0.00200 U |
| RW-8 | 4/7/2017 | REG | -- | -- | < 0.0100 U | -- | -- | -- | -- |
| RW-8 | 3/15/2018 | Reg | 0.0409 | < 0.00400 U | < 0.0100 U | -- | 0.0938 | -- | < 0.00200 U |
| RW-8 | 4/4/2019 | REG | 0.0139 | 0.00167 J | < 0.0100 U | -- | 0.0981 | -- | < 0.00200 U |
| TMW-1 | 4/7/2017 | REG | < 0.0500 U | < 0.0500 U | 0.0125 | 0.442 J | -- | 1.18 | 0.00559 |
| TMW-1 | 4/7/2017 | FD | < 0.0500 U | 0.00707 J | 0.0116 | 0.342 J | -- | 1.15 | 0.00529 |
| TMW-1 | 9/13/2017 | REG | 0.0195 | 0.000722 J | < 0.0100 U | -- | 2.83 | -- | 0.0316 |
| TMW-1 | 3/15/2018 | Reg | 0.0212 | < 0.00400 U | < 0.0100 U | -- | 2.61 | -- | 0.00186 J |
| TMW-1 | 9/27/2018 | REG | 0.0183 | < 0.00400 U | 0.0107 | -- | 2.19 | -- | 0.108 |
| TMW-1 | 4/5/2019 | REG | 0.0167 | < 0.00400 U | < 0.0100 U | -- | 2.03 | -- | 0.032 |
| TMW-1 | 4/5/2019 | FD | 0.0169 | < 0.00400 U | < 0.0100 U | -- | 2.08 | -- | 0.0308 |
| TMW-1 | 10/4/2019 | REG | 0.0184 | < 0.00400 U | < 0.0100 U | -- | 1.14 | -- | 0.00589 J |

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# GROUNDWATER ANALYTICAL RESULTS
# EUNICE SOUTH GAS PLANT GW REME

| Parameter Name / Report Units | | | Arsenic mg/L | Chromium mg/L | Chromium, Hexavalent mg/L | Iron mg/L | Barium mg/L | Manganese mg/L | Benzene mg/L |
|---|---|---|---|---|---|---|---|---|---|
| Location ID | Date Sampled | Sample Purpose | | | | | | | |
| NMWQCC Domestic | | | 0.1 mg/L | 0.05 mg/L | 0.05 mg/L | 1.0 mg/L | 2 mg/L | 0.2 mg/L | 0.005 mg/L |
| TMW-3 | 4/6/2017 | REG | < 0.0500 U | < 0.0500 U | **0.00630 J** | **0.470 J** | -- | **0.491 J** | **0.00689** |
| TMW-6 | 4/6/2017 | REG | **0.0460 J** | **0.00768 J** | **0.00780 J** | **0.280 J** | -- | **0.0301 J** | **0.446** |
| TMW-6 | 9/14/2017 | REG | **0.00275** | < 0.00400 U | < 0.0100 U | -- | **0.515** | -- | < 0.00200 U |
| TMW-6 | 3/19/2018 | Reg | **0.0453** | < 0.00400 U | < 0.0100 U | -- | **1.02** | -- | **0.111** |
| TMW-6 | 4/5/2018 | Reg | **0.0606** | < 0.00400 U | < 0.0100 U | **5.18** | -- | **0.0466** | **0.23** |
| TMW-6 | 9/28/2018 | REG | **0.0779** | < 0.00400 U | < 0.0100 U | -- | **1.23** | -- | **0.22** |
| TMW-6 | 9/28/2018 | FD | **0.0748** | < 0.00400 U | < 0.0100 U | -- | **1.36** | -- | **0.208** |
| TMW-6 | 4/5/2019 | REG | **0.0647** | < 0.00400 U | < 0.0100 U | -- | **1.98** | -- | **0.104** |
| TMW-6 | 10/4/2019 | REG | **0.0671** | < 0.00400 U | < 0.0100 U | -- | **1.1** | -- | **0.0381** |
| WW-2 | 4/5/2017 | REG | < 0.0500 U | < 0.0500 U | -- | < 1.00 U | -- | **0.0806 J** | < 0.00200 U |
| WW-2 | 4/7/2017 | REG | -- | -- | < 0.0100 U | -- | -- | -- | -- |
| WW-2 | 3/16/2018 | Reg | **0.00100 J** | < 0.00400 U | < 0.0100 U | -- | **1.5** | -- | < 0.00200 U |
| WW-2 | 4/4/2019 | REG | **0.000970 J** | **0.000822 J** | < 0.0100 U | -- | **0.418** | -- | < 0.00200 U |
| WW-3 | 4/7/2017 | REG | < 0.0500 U | < 0.0500 U | **0.0105** | **0.240 J** | -- | **0.211** | **0.0403** |
| WW-7 | 4/4/2017 | REG | < 0.0500 U | < 0.0500 U | -- | < 1.00 U | -- | **0.389** | < 0.00200 U |
| WW-7 | 4/7/2017 | REG | -- | -- | < 0.0100 U | -- | -- | -- | -- |
| WW-7 | 3/16/2018 | Reg | **0.000628 J** | < 0.00400 U | < 0.0100 U | -- | **0.368** | -- | < 0.00200 U |
| WW-7 | 4/4/2019 | REG | **0.000970 J** | **0.00127 J** | < 0.0100 U | -- | **1.51** | -- | < 0.00200 U |

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# GROUNDWATER ANALYTICAL RESULTS
# EUNICE SOUTH GAS PLANT GW REME

| Parameter Name / Report Units | | | Toluene mg/L | Ethylbenzene mg/L | Xylene (total) mg/L | Petroleum Hydrocarbons (C6-C10)-GRO mg/L | >C10-C28 Petroleum Hydrocarbons mg/L | C6-C10 mg/L |
|---|---|---|---|---|---|---|---|---|
| Location ID | Date Sampled | Sample Purpose | | | | | | |
| NMWQCC Domestic | | | 1 mg/L | 0.7 mg/L | 0.62 mg/L | -- | -- | -- |
| MW-11 | 4/6/2017 | REG | < 0.0750 U | < 0.100 U | < 0.100 U | -- | -- | 1.67 |
| MW-11 | 9/14/2017 | REG | 0.0788 J | 0.0498 J | 0.259 J | -- | -- | 2.54 |
| MW-11 | 3/19/2018 | Reg | 0.0223 J | < 0.0500 U | 0.0648 | -- | -- | 4.3 |
| MW-11 | 3/19/2018 | FD | < 0.0200 U | < 0.0200 U | 0.0130 J | -- | -- | 4.04 |
| MW-11 | 9/28/2018 | REG | 0.00268 | 0.00582 | 0.0339 | 11.1 | < 1.50 U | -- |
| MW-11 | 4/4/2019 | REG | < 0.0200 U | 0.00840 J | 0.0542 | -- | -- | 7.23 |
| MW-11 | 4/4/2019 | FD | 0.00190 J | 0.00639 | 0.0382 | -- | -- | 6.99 |
| MW-11 | 10/4/2019 | REG | 0.00752 J | 0.0255 J | 0.145 J | -- | -- | 6.06 |
| MW-13 | 4/5/2017 | REG | < 0.00150 U | < 0.00200 U | < 0.00200 U | < 1.50 U | -- | -- |
| MW-13 | 3/14/2018 | Reg | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MW-13 | 9/25/2018 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | < 1.50 U | < 1.50 U | -- |
| MW-13 | 4/2/2019 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MW-13 | 10/1/2019 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.38 U |
| MW-14 | 4/5/2017 | REG | < 0.00150 U | < 0.00200 U | < 0.00200 U | < 1.50 U | -- | -- |
| MW-14 | 9/13/2017 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MW-14 | 3/13/2018 | Reg | < 0.00200 U | < 0.00200 U | 0.000730 J | -- | -- | < 1.50 U |
| MW-14 | 3/13/2018 | FD | < 0.00200 U | < 0.00200 U | 0.000820 J | -- | -- | < 1.50 U |
| MW-14 | 9/26/2018 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | < 1.50 U | -- | -- |
| MW-14 | 4/3/2019 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MW-14 | 10/2/2019 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.40 U |
| MW-15 | 4/5/2017 | REG | < 0.00150 U | < 0.00200 U | < 0.00200 U | < 1.50 U | -- | -- |
| MW-15 | 9/13/2017 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MW-15 | 3/13/2018 | REG | 0.000630 J | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MW-15 | 9/25/2018 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | < 1.50 U | < 1.50 U | -- |
| MW-15 | 4/2/2019 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MW-15 | 10/2/2019 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.40 U |
| MW-15 | 10/2/2019 | FD | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.41 U |
| MW-16 | 4/5/2017 | REG | < 0.00150 U | < 0.00200 U | < 0.00200 U | < 1.50 U | -- | -- |
| MW-16 | 9/13/2017 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MW-16 | 3/13/2018 | REG | 0.000950 J | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |

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# GROUNDWATER ANALYTICAL RESULTS
# EUNICE SOUTH GAS PLANT GW REME

| Parameter Name / Report Units | | | Toluene mg/L | Ethylbenzene mg/L | Xylene (total) mg/L | Petroleum Hydrocarbons (C6-C10)-GRO mg/L | >C10-C28 Petroleum Hydrocarbons mg/L | C6-C10 mg/L |
|---|---|---|---|---|---|---|---|---|
| Location ID | Date Sampled | Sample Purpose | | | | | | |
| NMWQCC Domestic | | | 1 mg/L | 0.7 mg/L | 0.62 mg/L | -- | -- | -- |
| MW-16 | 9/25/2018 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | < 1.50 U | < 1.50 U | -- |
| MW-16 | 4/2/2019 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MW-16 | 10/2/2019 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.38 U |
| MW-17 | 4/6/2017 | REG | < 0.00150 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MW-17 | 9/13/2017 | REG | < 0.00200 UJ | < 0.00200 UJ | < 0.00200 UJ | -- | -- | < 1.50 U |
| MW-17 | 9/13/2017 | FD | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MW-17 | 3/14/2018 | Reg | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MW-17 | 9/25/2018 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | < 1.50 U | < 1.50 U | -- |
| MW-17 | 4/3/2019 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MW-17 | 10/3/2019 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.38 U |
| MW-18 | 4/4/2017 | REG | < 0.00150 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MW-22 | 4/4/2017 | REG | **0.367** | **0.624** | **0.668** | **2.35** | -- | -- |
| MW-22 | 4/7/2017 | REG | -- | -- | -- | -- | -- | -- |
| MW-22 | 3/15/2018 | Reg | **0.0605 J** | **0.279** | **0.113** | -- | -- | **25.5** |
| MW-22 | 4/3/2019 | REG | < 0.0200 U | < 0.0200 U | < 0.0200 U | -- | -- | **5.66** |
| MW-23 | 4/4/2017 | REG | < 0.00150 U | < 0.00200 U | < 0.00200 U | < 1.50 U | -- | -- |
| MW-23 | 4/7/2017 | REG | -- | -- | -- | -- | -- | -- |
| MW-25 | 4/6/2017 | REG | < 0.0150 U | **0.0358** | < 0.0200 U | -- | -- | **1.9** |
| MW-25 | 9/14/2017 | REG | **0.0167** | **0.12** | **0.0496** | -- | -- | **3.22** |
| MW-25 | 3/19/2018 | Reg | **0.00910 J** | **0.0422** | **0.016** | -- | -- | **2.97** |
| MW-25 | 9/28/2018 | REG | < 0.00200 U | **0.0145** | **0.00639** | **6.12** | **3.55** | -- |
| MW-25 | 4/5/2019 | REG | **0.00325** | **0.0232** | **0.0144** | -- | -- | **5.95** |
| MW-25 | 10/4/2019 | REG | < 0.00200 U | **0.0358 J** | **0.0157 J** | -- | -- | **7.03** |
| MW-26 | 4/6/2017 | REG | < 0.0150 U | < 0.0200 U | < 0.0200 U | -- | -- | **1.61** |
| MW-26 | 9/14/2017 | REG | **0.00486** | **0.0146** | **0.0252** | -- | -- | **1.74** |
| MW-26 | 3/19/2018 | Reg | < 0.0100 U | < 0.0100 U | **0.00650 J** | -- | -- | **2.83** |
| MW-26 | 3/19/2018 | FD | < 0.0200 U | < 0.0200 U | < 0.0200 U | -- | -- | **4.26** |
| MW-26 | 9/28/2018 | REG | **0.00284** | **0.00328** | **0.00951** | **6.24** | **38.4** | -- |
| MW-26 | 4/4/2019 | REG | **0.000710 J** | **0.00152 J** | **0.00421** | -- | -- | **3.41** |
| MW-26 | 10/4/2019 | REG | < 0.00200 U | **0.00743 J** | **0.0177 J** | -- | -- | **2.37** |

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# GROUNDWATER ANALYTICAL RESULTS
# EUNICE SOUTH GAS PLANT GW REME

| Parameter Name / Report Units | | | Toluene mg/L | Ethylbenzene mg/L | Xylene (total) mg/L | Petroleum Hydrocarbons (C6-C10)-GRO mg/L | >C10-C28 Petroleum Hydrocarbons mg/L | C6-C10 mg/L |
|---|---|---|---|---|---|---|---|---|
| Location ID | Date Sampled | Sample Purpose | | | | | | |
| NMWQCC Domestic | | | 1 mg/L | 0.7 mg/L | 0.62 mg/L | -- | -- | -- |
| MW-29 | 4/5/2017 | REG | < 0.00150 U | **0.00387** | < 0.00200 U | -- | -- | **2.15** |
| MW-29 | 4/7/2017 | REG | -- | -- | -- | -- | -- | -- |
| MW-29 | 9/12/2017 | REG | **0.0135** | **0.01** | **0.00292** | -- | -- | **1.72** |
| MW-29 | 3/16/2018 | Reg | < 0.0200 U | < 0.0200 U | < 0.0200 U | -- | -- | **7.58** |
| MW-29 | 9/27/2018 | REG | **0.0109** | **0.00107 J** | **0.000900 J** | **5.28** | < 1.50 U | -- |
| MW-29 | 4/3/2019 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | **4.32** |
| MW-29 | 4/3/2019 | FD | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | **4.21** |
| MW-29 | 10/3/2019 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | **4.72** |
| MW-3 | 4/5/2017 | REG | < 0.00150 U | < 0.00200 U | < 0.00200 U | < 1.50 U | -- | -- |
| MW-3 | 4/5/2017 | FD | < 0.00150 U | < 0.00200 U | < 0.00200 U | < 1.50 U | -- | -- |
| MW-3 | 9/13/2017 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MW-3 | 3/15/2018 | Reg | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MW-3 | 9/25/2018 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | < 1.50 U | < 1.50 U | -- |
| MW-3 | 4/5/2019 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MW-3 | 10/4/2019 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.39 U |
| MW-30 | 4/5/2017 | REG | < 0.00150 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MW-30 | 4/7/2017 | REG | -- | -- | -- | -- | -- | -- |
| MW-30 | 9/12/2017 | REG | < 0.00200 U | < 0.00200 U | **0.00231** | -- | -- | < 1.50 U |
| MW-30 | 3/16/2018 | Reg | < 0.00200 U | < 0.00200 U | **0.000860 J** | -- | -- | < 1.50 U |
| MW-30 | 9/26/2018 | REG | < 0.00200 U | < 0.00200 U | **0.00125 J** | < 1.50 U | -- | -- |
| MW-30 | 4/3/2019 | REG | < 0.00200 U | < 0.00200 U | **0.00100 J** | -- | -- | < 1.50 U |
| MW-30 | 10/3/2019 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | **0.969 J** |
| MW-31 | 4/5/2017 | REG | < 0.00150 U | < 0.00200 U | < 0.00200 U | < 1.50 U | -- | -- |
| MW-31 | 4/5/2017 | FD | < 0.00150 U | < 0.00200 U | < 0.00200 U | < 1.50 U | -- | -- |
| MW-31 | 9/13/2017 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MW-31 | 3/14/2018 | Reg | < 0.00200 UJ | < 0.00200 UJ | < 0.00200 UJ | -- | -- | < 1.50 U |
| MW-31 | 9/25/2018 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | < 1.50 U | < 1.50 U | -- |
| MW-31 | 4/3/2019 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MW-31 | 10/2/2019 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.41 U |
| MW-32 | 4/7/2017 | REG | **0.133** | **0.177** | **0.119** | -- | -- | < 1.50 U |

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# GROUNDWATER ANALYTICAL RESULTS
# EUNICE SOUTH GAS PLANT GW REME

| Parameter Name / Report Units | | | Toluene mg/L | Ethylbenzene mg/L | Xylene (total) mg/L | Petroleum Hydrocarbons (C6-C10)-GRO mg/L | >C10-C28 Petroleum Hydrocarbons mg/L | C6-C10 mg/L |
|---|---|---|---|---|---|---|---|---|
| Location ID | Date Sampled | Sample Purpose | | | | | | |
| NMWQCC Domestic | | | 1 mg/L | 0.7 mg/L | 0.62 mg/L | -- | -- | -- |
| MW-32 | 9/13/2017 | REG | < 0.00200 U | **0.0099** | **0.00325** | -- | -- | **1.35 J** |
| MW-32 | 3/19/2018 | Reg | **0.07** | < 0.0500 U | **0.056** | -- | -- | **2.99** |
| MW-32 | 9/27/2018 | REG | **0.000520 J** | **0.00239** | **0.00134 J** | **10.7** | < 1.50 U | -- |
| MW-32 | 4/3/2019 | REG | **0.000510 J** | **0.00196 J** | **0.00311** | -- | -- | **11.1** |
| MW-32 | 10/3/2019 | REG | < 0.00200 U | **0.00533** | **0.00538** | -- | -- | **11.9** |
| MW-34 | 4/5/2017 | REG | < 0.0150 U | **0.085** | **0.0454** | -- | -- | < 1.50 U |
| MW-34 | 4/7/2017 | REG | -- | -- | -- | -- | -- | -- |
| MW-34 | 9/12/2017 | REG | < 0.00200 UJ | < 0.00200 UJ | < 0.00200 UJ | -- | -- | < 1.50 U |
| MW-34 | 3/16/2018 | Reg | < 0.0200 U | < 0.0200 U | < 0.0200 U | -- | -- | **7.24** |
| MW-34 | 9/27/2018 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | **2.33** | **1.46 J** | -- |
| MW-34 | 4/2/2019 | REG | **0.000770 J** | < 0.00200 U | < 0.00200 U | -- | -- | **1.33 J** |
| MW-34 | 10/2/2019 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | **2.17** |
| MW-34 | 10/2/2019 | FD | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | **2.33** |
| MW-35 | 4/12/2017 | REG | **0.0044** | < 0.00200 U | < 0.00200 U | -- | -- | **2.28** |
| MW-35 | 9/15/2017 | REG | **0.00455** | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MW-35 | 3/14/2018 | Reg | **0.00148 J** | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MW-35 | 9/27/2018 | REG | **0.00130 J** | < 0.00200 U | < 0.00200 U | < 1.50 U | < 1.50 U | -- |
| MW-35 | 4/2/2019 | REG | **0.000440 J** | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MW-35 | 10/1/2019 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.38 U |
| MW-36 | 4/12/2017 | REG | **0.0348** | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MW-36 | 9/15/2017 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MW-36 | 3/14/2018 | Reg | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MW-36 | 9/26/2018 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | < 1.50 U | -- | -- |
| MW-36 | 9/26/2018 | FD | < 0.00200 U | < 0.00200 U | < 0.00200 U | < 1.50 U | -- | -- |
| MW-36 | 4/2/2019 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MW-36 | 10/1/2019 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.40 U |
| MW-37 | 3/14/2018 | Reg | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MW-37 | 9/26/2018 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | < 1.50 U | -- | -- |
| MW-37 | 4/2/2019 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MW-37 | 10/2/2019 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.38 U |

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# GROUNDWATER ANALYTICAL RESULTS
# EUNICE SOUTH GAS PLANT GW REME

| Parameter Name / Report Units | | | Toluene mg/L | Ethylbenzene mg/L | Xylene (total) mg/L | Petroleum Hydrocarbons (C6-C10)-GRO mg/L | >C10-C28 Petroleum Hydrocarbons mg/L | C6-C10 mg/L |
|---|---|---|---|---|---|---|---|---|
| Location ID | Date Sampled | Sample Purpose | | | | | | |
| NMWQCC Domestic | | | 1 mg/L | 0.7 mg/L | 0.62 mg/L | -- | -- | -- |
| MW-38 | 3/14/2018 | Reg | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MW-38 | 3/14/2018 | FD | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MW-38 | 9/26/2018 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | < 1.50 U | -- | -- |
| MW-38 | 4/2/2019 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MW-38 | 10/2/2019 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.36 U |
| MW-4 | 4/4/2017 | REG | < 0.00150 U | < 0.00200 U | < 0.00200 U | < 1.50 U | -- | -- |
| MW-4 | 4/7/2017 | REG | -- | -- | -- | -- | -- | -- |
| MW-4 | 9/13/2017 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MW-4 | 3/15/2018 | Reg | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MW-4 | 9/27/2018 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | < 1.50 U | < 1.50 U | -- |
| MW-4 | 4/4/2019 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MW-4 | 10/3/2019 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | **0.928 J** |
| MW-4 | 10/3/2019 | FD | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.38 U |
| MW-6 | 4/4/2017 | REG | < 0.00150 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MW-7 | 4/4/2017 | REG | < 0.00150 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MW-8 | 4/5/2017 | REG | < 0.00150 U | < 0.00200 U | < 0.00200 U | < 1.50 U | -- | -- |
| MW-8 | 4/5/2017 | FD | < 0.00150 U | < 0.00200 U | < 0.00200 U | < 1.50 U | -- | -- |
| MW-8 | 9/12/2017 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MW-8 | 3/16/2018 | Reg | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MW-8 | 9/28/2018 | REG | < 0.00200 U | < 0.00200 U | **0.000930 J** | < 1.50 U | < 1.50 U | -- |
| MW-8 | 4/3/2019 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MW-8 | 10/3/2019 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.38 U |
| MW-9 | 4/5/2017 | REG | < 0.00150 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MW-9 | 4/7/2017 | REG | -- | -- | -- | -- | -- | -- |
| MW-9 | 9/12/2017 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MW-9 | 3/16/2018 | Reg | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MW-9 | 9/27/2018 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | < 1.50 U | < 1.50 U | -- |
| MW-9 | 4/3/2019 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MW-9 | 10/3/2019 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | **1.04 J** |
| MWD-1 | 4/6/2017 | REG | < 0.00150 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |

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# GROUNDWATER ANALYTICAL RESULTS
# EUNICE SOUTH GAS PLANT GW REME

| Parameter Name / Report Units | | | Toluene mg/L | Ethylbenzene mg/L | Xylene (total) mg/L | Petroleum Hydrocarbons (C6-C10)-GRO mg/L | >C10-C28 Petroleum Hydrocarbons mg/L | C6-C10 mg/L |
|---|---|---|---|---|---|---|---|---|
| Location ID | Date Sampled | Sample Purpose | | | | | | |
| NMWQCC Domestic | | | 1 mg/L | 0.7 mg/L | 0.62 mg/L | -- | -- | -- |
| MWD-1 | 9/13/2017 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MWD-1 | 3/14/2018 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MWD-1 | 9/25/2018 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | < 1.50 U | < 1.50 U | -- |
| MWD-1 | 4/3/2019 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MWD-1 | 10/3/2019 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.34 U |
| MWD-1 | 10/3/2019 | FD | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.38 U |
| MWD-11 | 4/5/2017 | REG | < 0.00150 U | < 0.00200 U | < 0.00200 U | < 1.50 U | -- | -- |
| MWD-11 | 9/15/2017 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MWD-11 | 9/15/2017 | FD | **0.00335** | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MWD-11 | 3/15/2018 | Reg | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MWD-11 | 9/25/2018 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | < 1.50 U | < 1.50 U | -- |
| MWD-11 | 4/5/2019 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MWD-11 | 10/4/2019 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.38 U |
| MWD-12 | 4/6/2017 | REG | < 0.00150 U | **0.0745** | **0.00592** | -- | -- | **1.61** |
| MWD-12 | 9/13/2017 | REG | < 0.00200 U | **0.0834** | **0.00233** | -- | -- | < 1.50 U |
| MWD-12 | 3/19/2018 | Reg | < 0.00200 U | **0.0325** | < 0.00200 U | -- | -- | **1.04 J** |
| MWD-12 | 9/27/2018 | REG | **0.000380 J** | **0.06** | **0.00176 J** | **1.01 J** | **1.15 J** | -- |
| MWD-12 | 4/3/2019 | REG | < 0.00200 U | **0.0109** | < 0.00200 U | -- | -- | < 1.50 U |
| MWD-12 | 10/4/2019 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.38 U |
| MWD-13 | 4/4/2017 | REG | < 0.00150 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MWD-13 | 9/12/2017 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MWD-13 | 9/13/2017 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MWD-13 | 3/15/2018 | Reg | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MWD-13 | 9/27/2018 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | < 1.50 U | < 1.50 U | -- |
| MWD-13 | 4/3/2019 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MWD-13 | 10/3/2019 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.35 U |
| MWD-14 | 4/6/2017 | REG | < 0.0150 U | **0.337** | **0.0865** | -- | -- | < 1.50 U |
| MWD-14 | 9/14/2017 | REG | **0.0117** | **0.369** | **0.0303** | -- | -- | **1.59** |
| MWD-14 | 3/19/2018 | Reg | < 0.00200 U | **0.0184** | < 0.00200 U | -- | -- | **3.18** |
| MWD-14 | 9/28/2018 | REG | **0.00177 J** | **0.306** | **0.0137** | **4.68** | **2.02** | -- |

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# GROUNDWATER ANALYTICAL RESULTS
# EUNICE SOUTH GAS PLANT GW REME

| Parameter Name / Report Units | | | Toluene mg/L | Ethylbenzene mg/L | Xylene (total) mg/L | Petroleum Hydrocarbons (C6-C10)-GRO mg/L | >C10-C28 Petroleum Hydrocarbons mg/L | C6-C10 mg/L |
|---|---|---|---|---|---|---|---|---|
| Location ID | Date Sampled | Sample Purpose | | | | | | |
| NMWQCC Domestic | | | 1 mg/L | 0.7 mg/L | 0.62 mg/L | -- | -- | -- |
| MWD-14 | 4/5/2019 | REG | < 0.0200 U | **0.0709** | < 0.0200 U | -- | -- | **4.01** |
| MWD-14 | 10/4/2019 | REG | < 0.00200 U | **0.136 J** | **0.00904 J** | -- | -- | **3.43** |
| MWD-15 | 4/6/2017 | REG | < 0.00150 U | **0.0244** | **0.0585** | -- | -- | **2.2** |
| MWD-15 | 9/14/2017 | REG | < 0.00200 U | **0.00262** | **0.0102** | -- | -- | **1.24 J** |
| MWD-15 | 3/15/2018 | Reg | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | **1.03 J** |
| MWD-15 | 9/27/2018 | REG | < 0.00200 U | **0.00437 J** | **0.00479 J** | **1.43 J** | < 1.50 U | -- |
| MWD-15 | 4/4/2019 | REG | < 0.00200 U | **0.0179 J** | **0.0263 J** | -- | -- | **1.67** |
| MWD-15 | 10/3/2019 | REG | < 0.00200 U | **0.0146 J** | **0.0342 J** | -- | -- | **1.77** |
| MWD-17 | 4/4/2017 | REG | < 0.00750 U | **0.145** | **0.0173** | < 1.50 U | -- | -- |
| MWD-17 | 4/7/2017 | REG | -- | -- | -- | -- | -- | -- |
| MWD-17 | 3/15/2018 | Reg | < 0.0100 U | **0.0928** | **0.00450 J** | -- | -- | **2.3** |
| MWD-17 | 4/3/2019 | REG | < 0.00200 U | **0.014** | **0.0041** | -- | -- | **1.10 J** |
| MWD-2 | 4/5/2017 | REG | < 0.00150 U | < 0.00200 U | < 0.00200 U | < 1.50 U | -- | -- |
| MWD-2 | 3/15/2018 | Reg | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MWD-2 | 4/4/2019 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MWD-3 | 2/28/2018 | REG | -- | -- | -- | -- | -- | -- |
| MWD-3 | 3/15/2018 | Reg | **0.00770 J** | **0.0677** | **0.025** | -- | -- | **5.35** |
| MWD-3 | 3/30/2018 | REG | -- | -- | -- | -- | -- | -- |
| MWD-3 | 8/8/2018 | REG | -- | -- | -- | -- | -- | -- |
| MWD-3 | 8/31/2018 | REG | -- | -- | -- | -- | -- | -- |
| MWD-3 | 9/28/2018 | REG | **0.0062** | **0.0575** | **0.0224** | **4.62** | < 1.50 U | -- |
| MWD-3 | 10/4/2019 | REG | **0.00558** | **0.0662 J** | **0.033** | -- | -- | **5.55** |
| MWD-4 | 4/4/2017 | REG | < 0.00150 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MWD-4 | 9/12/2017 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MWD-4 | 3/15/2018 | Reg | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MWD-4 | 9/27/2018 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | < 1.50 U | < 1.50 U | -- |
| MWD-4 | 4/3/2019 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MWD-4 | 4/3/2019 | FD | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MWD-4 | 10/3/2019 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.38 U |
| MWD-5 | 1/31/2017 | REG | -- | -- | -- | -- | -- | -- |

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# GROUNDWATER ANALYTICAL RESULTS
# EUNICE SOUTH GAS PLANT GW REME

| Parameter Name / Report Units | | | Toluene mg/L | Ethylbenzene mg/L | Xylene (total) mg/L | Petroleum Hydrocarbons (C6-C10)-GRO mg/L | >C10-C28 Petroleum Hydrocarbons mg/L | C6-C10 mg/L |
|---|---|---|---|---|---|---|---|---|
| Location ID | Date Sampled | Sample Purpose | | | | | | |
| NMWQCC Domestic | | | 1 mg/L | 0.7 mg/L | 0.62 mg/L | -- | -- | -- |
| MWD-5 | 4/5/2017 | REG | < 0.0750 U | < 0.100 U | **0.0625 J** | -- | -- | **3.73** |
| MWD-5 | 4/7/2017 | REG | -- | -- | -- | -- | -- | -- |
| MWD-5 | 3/15/2018 | REG | < 0.00200 U | < 0.00200 U | **0.000710 J** | -- | -- | < 1.50 U |
| MWD-5 | 4/3/2019 | REG | < 0.0500 U | < 0.0500 U | < 0.0500 U | -- | -- | **12.9** |
| MWD-6 | 4/5/2017 | REG | < 0.00150 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MWD-6 | 4/7/2017 | REG | -- | -- | -- | -- | -- | -- |
| MWD-6 | 9/13/2017 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MWD-6 | 3/16/2018 | Reg | < 0.00200 UJ | < 0.00200 UJ | **0.000680 J** | -- | -- | < 1.50 U |
| MWD-6 | 9/27/2018 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | < 1.50 U | < 1.50 U | -- |
| MWD-6 | 4/2/2019 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MWD-6 | 10/2/2019 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | **0.966 J** |
| MWD-7 | 4/4/2017 | REG | < 0.00150 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MWD-7 | 9/13/2017 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MWD-7 | 3/14/2018 | Reg | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MWD-7 | 9/25/2018 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | < 1.50 U | < 1.50 U | -- |
| MWD-7 | 4/3/2019 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MWD-7 | 10/3/2019 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.38 U |
| MWD-8 | 4/4/2017 | REG | < 0.00150 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MWD-8 | 9/13/2017 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MWD-8 | 3/15/2018 | Reg | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MWD-8 | 9/25/2018 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | < 1.50 U | < 1.50 U | -- |
| MWD-8 | 4/4/2019 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MWD-8 | 10/3/2019 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.37 U |
| MWD-9 | 4/4/2017 | REG | < 0.00150 U | < 0.00200 U | < 0.00200 U | < 1.50 U | -- | -- |
| MWD-9 | 4/7/2017 | REG | -- | -- | -- | -- | -- | -- |
| MWD-9 | 9/14/2017 | REG | **0.000670 J** | **0.00207** | **0.00218** | -- | -- | < 1.50 U |
| MWD-9 | 2/28/2018 | REG | -- | -- | -- | -- | -- | -- |
| MWD-9 | 3/19/2018 | REG | < 0.0100 U | **0.00465 J** | **0.00690 J** | -- | -- | **5.62** |
| MWD-9 | 8/8/2018 | REG | -- | -- | -- | -- | -- | -- |
| MWD-9 | 8/31/2018 | REG | -- | -- | -- | -- | -- | -- |

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# GROUNDWATER ANALYTICAL RESULTS
# EUNICE SOUTH GAS PLANT GW REME

| Parameter Name / Report Units | | | Toluene mg/L | Ethylbenzene mg/L | Xylene (total) mg/L | Petroleum Hydrocarbons (C6-C10)-GRO mg/L | >C10-C28 Petroleum Hydrocarbons mg/L | C6-C10 mg/L |
|---|---|---|---|---|---|---|---|---|
| Location ID | Date Sampled | Sample Purpose | | | | | | |
| NMWQCC Domestic | | | 1 mg/L | 0.7 mg/L | 0.62 mg/L | -- | -- | -- |
| MWD-9 | 9/28/2018 | REG | < 0.00200 U | < 0.00200 U | **0.000930 J** | < 1.50 U | < 1.50 U | -- |
| MWD-9 | 4/4/2019 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| MWD-9 | 10/4/2019 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.33 U |
| RW-6 | 4/6/2017 | REG | < 0.00150 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| RW-6 | 9/14/2017 | REG | **0.0158** | **0.104** | **0.0899** | -- | -- | **2.91** |
| RW-6 | 3/15/2018 | Reg | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| RW-6 | 9/27/2018 | REG | < 0.00200 U | < 0.00200 U | **0.000740 J** | < 1.50 U | < 1.50 U | -- |
| RW-6 | 4/4/2019 | REG | < 0.00200 U | < 0.00200 U | **0.00215** | -- | -- | < 1.50 U |
| RW-6 | 10/4/2019 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | **1.23 J** |
| RW-7 | 4/6/2017 | REG | < 0.00150 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| RW-7 | 4/6/2017 | FD | < 0.00150 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| RW-7 | 9/14/2017 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| RW-7 | 3/15/2018 | Reg | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| RW-7 | 3/15/2018 | FD | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| RW-7 | 9/27/2018 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | < 1.50 U | < 1.50 U | -- |
| RW-7 | 4/4/2019 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| RW-7 | 4/4/2019 | FD | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| RW-7 | 10/4/2019 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.40 U |
| RW-8 | 4/4/2017 | REG | < 0.00150 U | < 0.00200 U | < 0.00200 U | < 1.50 U | -- | -- |
| RW-8 | 4/7/2017 | REG | -- | -- | -- | -- | -- | -- |
| RW-8 | 3/15/2018 | Reg | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| RW-8 | 4/4/2019 | REG | < 0.00200 U | < 0.00200 U | **0.000990 J** | -- | -- | < 1.50 U |
| TMW-1 | 4/7/2017 | REG | < 0.00150 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| TMW-1 | 4/7/2017 | FD | < 0.00150 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| TMW-1 | 9/13/2017 | REG | < 0.00200 U | **0.00142 J** | **0.00353** | -- | -- | < 1.50 U |
| TMW-1 | 3/15/2018 | Reg | < 0.00200 U | < 0.00200 U | **0.00131 J** | -- | -- | < 1.50 U |
| TMW-1 | 9/27/2018 | REG | < 0.00200 U | **0.00356** | **0.0208** | < 1.50 U | < 1.50 U | -- |
| TMW-1 | 4/5/2019 | REG | < 0.00200 U | **0.00524** | **0.0123** | -- | -- | < 1.50 U |
| TMW-1 | 4/5/2019 | FD | < 0.00200 U | **0.00475** | **0.0119** | -- | -- | < 1.50 U |
| TMW-1 | 10/4/2019 | REG | < 0.00200 U | < 0.00200 U | **0.00557 J** | -- | -- | < 1.41 U |

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# GROUNDWATER ANALYTICAL RESULTS
# EUNICE SOUTH GAS PLANT GW REME

| Parameter Name / Report Units | | | Toluene mg/L | Ethylbenzene mg/L | Xylene (total) mg/L | Petroleum Hydrocarbons (C6-C10)-GRO mg/L | >C10-C28 Petroleum Hydrocarbons mg/L | C6-C10 mg/L |
|---|---|---|---|---|---|---|---|---|
| Location ID | Date Sampled | Sample Purpose | | | | | | |
| NMWQCC Domestic | | | 1 mg/L | 0.7 mg/L | 0.62 mg/L | -- | -- | -- |
| TMW-3 | 4/6/2017 | REG | < 0.00150 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| TMW-6 | 4/6/2017 | REG | < 0.00750 U | < 0.0100 U | < 0.0100 U | -- | -- | **1.53** |
| TMW-6 | 9/14/2017 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| TMW-6 | 3/19/2018 | Reg | **0.00235** | **0.00112 J** | < 0.00200 U | -- | -- | **3.58** |
| TMW-6 | 4/5/2018 | Reg | **0.00427** | **0.00221** | < 0.00200 U | -- | **3.52** | **2.9** |
| TMW-6 | 9/28/2018 | REG | **0.00642** | **0.011** | **0.00707** | **3.86** | **2.86** | -- |
| TMW-6 | 9/28/2018 | FD | **0.00468** | **0.00915** | **0.00688** | **3.64** | **2.2** | -- |
| TMW-6 | 4/5/2019 | REG | < 0.0200 U | **0.0425** | < 0.0200 U | -- | -- | **3.72** |
| TMW-6 | 10/4/2019 | REG | < 0.00200 U | **0.00828 J** | **0.0056** | -- | -- | **2.71** |
| WW-2 | 4/5/2017 | REG | < 0.00150 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| WW-2 | 4/7/2017 | REG | -- | -- | -- | -- | -- | -- |
| WW-2 | 3/16/2018 | Reg | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| WW-2 | 4/4/2019 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| WW-3 | 4/7/2017 | REG | < 0.00150 U | **0.00501** | < 0.00200 U | -- | -- | < 1.50 U |
| WW-7 | 4/4/2017 | REG | < 0.00150 U | < 0.00200 U | < 0.00200 U | < 1.50 U | -- | -- |
| WW-7 | 4/7/2017 | REG | -- | -- | -- | -- | -- | -- |
| WW-7 | 3/16/2018 | Reg | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |
| WW-7 | 4/4/2019 | REG | < 0.00200 U | < 0.00200 U | < 0.00200 U | -- | -- | < 1.50 U |

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# GROUNDWATER ANALYTICAL RESULTS
# EUNICE SOUTH GAS PLANT GW REME

| Parameter Name / Report Units | | | C6-C35 Petroleum Hydrocarbon Summary mg/L | Chloride mg/L | Total Dissolved Solids (TDS) mg/L | C10-C28 Petroleum Hydrocarbons, Diesel mg/L |
|---|---|---|---|---|---|---|
| Location ID | Date Sampled | Sample Purpose | | | | |
| NMWQCC Domestic | | | -- | 250.0 mg/L | 1000.0 mg/L | -- |
| MW-11 | 4/6/2017 | REG | 1.67 | 128 | 1,060 | < 1.50 U |
| MW-11 | 9/14/2017 | REG | 2.54 | 91 | 900 | < 1.50 U |
| MW-11 | 3/19/2018 | Reg | 4.3 | 104 | 852 | < 1.50 U |
| MW-11 | 3/19/2018 | FD | 4.04 | 105 | 935 | < 1.50 U |
| MW-11 | 9/28/2018 | REG | 11.1 | 120 | 942 | -- |
| MW-11 | 4/4/2019 | REG | 7.23 | 78.0 J | 815 | < 1.50 U |
| MW-11 | 4/4/2019 | FD | 6.99 | 93.1 J | 844 | < 1.50 U |
| MW-11 | 10/4/2019 | REG | 6.06 | 92.9 | 692 | < 1.38 U |
| MW-13 | 4/5/2017 | REG | < 1.50 U | 343 | 976 | < 1.50 U |
| MW-13 | 3/14/2018 | Reg | < 1.50 U | 336 | 1,030 | < 1.50 U |
| MW-13 | 9/25/2018 | REG | < 1.50 U | 339 | 980 | -- |
| MW-13 | 4/2/2019 | REG | < 1.50 U | 349 | 1,060 | < 1.50 U |
| MW-13 | 10/1/2019 | REG | < 1.38 U | 332 | 1,130 | < 1.38 U |
| MW-14 | 4/5/2017 | REG | < 1.50 U | 489 | 1,560 | < 1.50 U |
| MW-14 | 9/13/2017 | REG | < 1.50 U | 486 | 1,640 | < 1.50 U |
| MW-14 | 3/13/2018 | Reg | < 1.50 U | 516 | 1,500 | < 1.50 U |
| MW-14 | 3/13/2018 | FD | < 1.50 U | 498 | 1,440 | < 1.50 U |
| MW-14 | 9/26/2018 | REG | < 1.50 U | 527 | 1,470 | < 1.50 U |
| MW-14 | 4/3/2019 | REG | < 1.50 U | 496 | 1,520 | < 1.50 U |
| MW-14 | 10/2/2019 | REG | < 1.40 U | 512 | 1,630 | < 1.40 U |
| MW-15 | 4/5/2017 | REG | < 1.50 U | 1,960 | 2,900 | < 1.50 U |
| MW-15 | 9/13/2017 | REG | < 1.50 U | 2,040 | 4,590 | < 1.50 U |
| MW-15 | 3/13/2018 | REG | < 1.50 U | 2,160 | 5,060 | < 1.50 U |
| MW-15 | 9/25/2018 | REG | < 1.50 U | 2,320 | 3,910 | -- |
| MW-15 | 4/2/2019 | REG | < 1.50 U | 1,960 | 3,840 | < 1.50 U |
| MW-15 | 10/2/2019 | REG | < 1.40 U | 1,890 | 3,930 | < 1.40 U |
| MW-15 | 10/2/2019 | FD | < 1.41 U | 1,850 | 3,920 | < 1.41 U |
| MW-16 | 4/5/2017 | REG | < 1.50 U | 1,880 | 3,810 | < 1.50 U |
| MW-16 | 9/13/2017 | REG | < 1.50 U | 1,880 | 4,230 | < 1.50 U |
| MW-16 | 3/13/2018 | REG | < 1.50 U | 2,150 | 3,930 | < 1.50 U |

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# GROUNDWATER ANALYTICAL RESULTS
# EUNICE SOUTH GAS PLANT GW REME

| Parameter Name / Report Units | | | C6-C35 Petroleum Hydrocarbon Summary mg/L | Chloride mg/L | Total Dissolved Solids (TDS) mg/L | C10-C28 Petroleum Hydrocarbons, Diesel mg/L |
|---|---|---|---|---|---|---|
| Location ID | Date Sampled | Sample Purpose | | | | |
| NMWQCC Domestic | | | -- | 250.0 mg/L | 1000.0 mg/L | -- |
| MW-16 | 9/25/2018 | REG | < 1.50 U | 2,090 | 3,880 | -- |
| MW-16 | 4/2/2019 | REG | < 1.50 U | 1,780 | 3,760 | < 1.50 U |
| MW-16 | 10/2/2019 | REG | < 1.38 U | 1,930 | 3,970 | < 1.38 U |
| MW-17 | 4/6/2017 | REG | < 1.50 U | 1,750 | 3,440 | < 1.50 U |
| MW-17 | 9/13/2017 | REG | < 1.50 U | 603 | 3,030 | < 1.50 U |
| MW-17 | 9/13/2017 | FD | < 1.50 U | 627 | 3,450 | < 1.50 U |
| MW-17 | 3/14/2018 | Reg | < 1.50 U | 1,730 | 3,100 | < 1.50 U |
| MW-17 | 9/25/2018 | REG | < 1.50 U | 1,590 | 2,970 | -- |
| MW-17 | 4/3/2019 | REG | < 1.50 U | 1,190 | 2,860 | < 1.50 U |
| MW-17 | 10/3/2019 | REG | < 1.38 U | 1,300 | 2,700 | < 1.38 U |
| MW-18 | 4/4/2017 | REG | < 1.50 U | 231 | 730 | < 1.50 U |
| MW-22 | 4/4/2017 | REG | 3.97 | 2,310 | 4,050 | 1.62 |
| MW-22 | 4/7/2017 | REG | -- | -- | -- | -- |
| MW-22 | 3/15/2018 | Reg | 26.5 | 2,440 | 5,530 | 1.00 J |
| MW-22 | 4/3/2019 | REG | 6.67 | 1,670 | 4,900 | 1.01 J |
| MW-23 | 4/4/2017 | REG | < 1.50 U | 4,150 | 8,040 | < 1.50 U |
| MW-23 | 4/7/2017 | REG | -- | -- | -- | -- |
| MW-25 | 4/6/2017 | REG | 3.62 | 2,170 | 4,370 | 1.72 |
| MW-25 | 9/14/2017 | REG | 6.34 | 1,810 | 4,790 | 3.12 |
| MW-25 | 3/19/2018 | Reg | 4.62 | 1,550 | 3,760 | 1.65 |
| MW-25 | 9/28/2018 | REG | 9.67 | 1,590 | 4,210 | -- |
| MW-25 | 4/5/2019 | REG | 9.47 | 1,240 | 4,230 | 3.52 |
| MW-25 | 10/4/2019 | REG | 11 | 1,960 | 4,420 | 3.98 |
| MW-26 | 4/6/2017 | REG | 5.14 | 191 | 1,200 | 3.53 |
| MW-26 | 9/14/2017 | REG | 5.93 | 167 | 1,240 | 4.19 |
| MW-26 | 3/19/2018 | Reg | 11.7 J | 139 | 1,120 | 8.85 J |
| MW-26 | 3/19/2018 | FD | 58.7 J | 138 | 1,080 | 54.4 J |
| MW-26 | 9/28/2018 | REG | 44.6 | 149 | 1,120 | -- |
| MW-26 | 4/4/2019 | REG | 11.6 | 140 J | 1,070 | 8.19 |
| MW-26 | 10/4/2019 | REG | 14.8 | 157 | 1,090 | 4.73 |

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# GROUNDWATER ANALYTICAL RESULTS
# EUNICE SOUTH GAS PLANT GW REME

| Parameter Name / Report Units | | | C6-C35 Petroleum Hydrocarbon Summary mg/L | Chloride mg/L | Total Dissolved Solids (TDS) mg/L | C10-C28 Petroleum Hydrocarbons, Diesel mg/L |
|---|---|---|---|---|---|---|
| Location ID | Date Sampled | Sample Purpose | | | | |
| NMWQCC Domestic | | | -- | 250.0 mg/L | 1000.0 mg/L | -- |
| MW-29 | 4/5/2017 | REG | 2.15 | 131 | 918 | < 1.50 U |
| MW-29 | 4/7/2017 | REG | -- | -- | -- | -- |
| MW-29 | 9/12/2017 | REG | 1.72 | 138 | 1,040 | < 1.50 U |
| MW-29 | 3/16/2018 | Reg | 8.51 | 128 | 1,120 | 0.929 J |
| MW-29 | 9/27/2018 | REG | 5.28 | 153 | 1,120 | -- |
| MW-29 | 4/3/2019 | REG | 4.32 | 185 | 1,170 | < 1.50 U |
| MW-29 | 4/3/2019 | FD | 5.41 | 165 | 1,100 | 1.20 J |
| MW-29 | 10/3/2019 | REG | 4.72 | 232 | 1,250 | < 1.41 U |
| MW-3 | 4/5/2017 | REG | < 1.50 U | 83.7 | 706 | < 1.50 U |
| MW-3 | 4/5/2017 | FD | < 1.50 U | 91.7 | 664 | < 1.50 U |
| MW-3 | 9/13/2017 | REG | < 1.50 U | 74.1 | 806 | < 1.50 U |
| MW-3 | 3/15/2018 | Reg | < 1.50 U | 61.4 | 732 | < 1.50 U |
| MW-3 | 9/25/2018 | REG | < 1.50 U | 130 | 656 | -- |
| MW-3 | 4/5/2019 | REG | < 1.50 U | 67.7 | 344 | < 1.50 U |
| MW-3 | 10/4/2019 | REG | < 1.39 U | 84 | 723 | < 1.39 U |
| MW-30 | 4/5/2017 | REG | < 1.50 U | 328 | 1,330 | < 1.50 U |
| MW-30 | 4/7/2017 | REG | -- | -- | -- | -- |
| MW-30 | 9/12/2017 | REG | < 1.50 U | 307 | 1,320 | < 1.50 U |
| MW-30 | 3/16/2018 | Reg | < 1.50 U | 285 | 1,230 | < 1.50 U |
| MW-30 | 9/26/2018 | REG | < 1.50 U | 284 | 1,130 | < 1.50 U |
| MW-30 | 4/3/2019 | REG | < 1.50 U | 260 | 1,240 | < 1.50 U |
| MW-30 | 10/3/2019 | REG | 0.969 J | 244 | 1,220 | < 1.38 U |
| MW-31 | 4/5/2017 | REG | < 1.50 U | 435 | 1,310 | < 1.50 U |
| MW-31 | 4/5/2017 | FD | < 1.50 U | 431 | 1,400 | < 1.50 U |
| MW-31 | 9/13/2017 | REG | < 1.50 U | 445 | 1,450 | < 1.50 U |
| MW-31 | 3/14/2018 | Reg | < 1.50 U | 449 | 1,450 | < 1.50 U |
| MW-31 | 9/25/2018 | REG | < 1.50 U | 499 | 1,420 | -- |
| MW-31 | 4/3/2019 | REG | < 1.50 U | 533 | 1,460 | < 1.50 U |
| MW-31 | 10/2/2019 | REG | < 1.41 U | 462 | 1,440 | < 1.41 U |
| MW-32 | 4/7/2017 | REG | < 1.50 U | 988 | 2,650 | < 1.50 U |

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# GROUNDWATER ANALYTICAL RESULTS
# EUNICE SOUTH GAS PLANT GW REME

| Parameter Name / Report Units | | | C6-C35 Petroleum Hydrocarbon Summary mg/L | Chloride mg/L | Total Dissolved Solids (TDS) mg/L | C10-C28 Petroleum Hydrocarbons, Diesel mg/L |
|---|---|---|---|---|---|---|
| Location ID | Date Sampled | Sample Purpose | | | | |
| NMWQCC Domestic | | | -- | 250.0 mg/L | 1000.0 mg/L | -- |
| MW-32 | 9/13/2017 | REG | 1.35 J | 1,070 | 3,140 | < 1.50 U |
| MW-32 | 3/19/2018 | Reg | 2.99 | 831 | 2,470 | < 1.50 U |
| MW-32 | 9/27/2018 | REG | 10.7 | 578 | 2,000 | -- |
| MW-32 | 4/3/2019 | REG | 11.1 | 583 | 2,200 | < 1.50 U |
| MW-32 | 10/3/2019 | REG | 11.9 | 435 | 2,110 | < 1.36 U |
| MW-34 | 4/5/2017 | REG | < 1.50 U | 244 | 1,340 | < 1.50 U |
| MW-34 | 4/7/2017 | REG | -- | -- | -- | -- |
| MW-34 | 9/12/2017 | REG | 1.04 J | 235 | 1,500 | 1.04 J |
| MW-34 | 3/16/2018 | Reg | 9.64 | 455 | 1,470 | 2.4 |
| MW-34 | 9/27/2018 | REG | 3.79 | 262 | 1,450 | -- |
| MW-34 | 4/2/2019 | REG | 2.27 | 286 | 1,680 | 0.937 J |
| MW-34 | 10/2/2019 | REG | 3.35 | 302 | 1,710 | 1.18 J |
| MW-34 | 10/2/2019 | FD | 3.62 | 299 | 1,590 | 1.29 J |
| MW-35 | 4/12/2017 | REG | 4.05 | 1,810 | 3,300 | 1.77 |
| MW-35 | 9/15/2017 | REG | < 1.50 U | 941 | 2,090 | < 1.50 U |
| MW-35 | 3/14/2018 | Reg | < 1.50 U | 761 | 2,220 | < 1.50 U |
| MW-35 | 9/27/2018 | REG | < 1.50 U | 331 | 1,120 | -- |
| MW-35 | 4/2/2019 | REG | < 1.50 U | 321 | 1,100 | < 1.50 U |
| MW-35 | 10/1/2019 | REG | < 1.38 U | 243 | 1,020 | < 1.38 U |
| MW-36 | 4/12/2017 | REG | < 1.50 U | 391 | 1,150 | < 1.50 U |
| MW-36 | 9/15/2017 | REG | < 1.50 U | 393 | 1,350 | < 1.50 U |
| MW-36 | 3/14/2018 | Reg | < 1.50 U | 421 | 1,190 | < 1.50 U |
| MW-36 | 9/26/2018 | REG | < 1.50 U | 426 | 1,200 | < 1.50 U |
| MW-36 | 9/26/2018 | FD | < 1.50 U | 417 | 1,120 | < 1.50 U |
| MW-36 | 4/2/2019 | REG | < 1.50 U | 406 | 1,180 | < 1.50 U |
| MW-36 | 10/1/2019 | REG | < 1.40 U | 434 | 1,280 | < 1.40 U |
| MW-37 | 3/14/2018 | Reg | < 1.50 U | 318 | 1,000 | < 1.50 U |
| MW-37 | 9/26/2018 | REG | < 1.50 U | 327 | 1,010 | < 1.50 U |
| MW-37 | 4/2/2019 | REG | < 1.50 U | 336 | 1,100 | < 1.50 U |
| MW-37 | 10/2/2019 | REG | < 1.38 U | 314 | 1,060 | < 1.38 U |

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# GROUNDWATER ANALYTICAL RESULTS
# EUNICE SOUTH GAS PLANT GW REME

| Parameter Name / Report Units | | | C6-C35 Petroleum Hydrocarbon Summary mg/L | Chloride mg/L | Total Dissolved Solids (TDS) mg/L | C10-C28 Petroleum Hydrocarbons, Diesel mg/L |
|---|---|---|---|---|---|---|
| Location ID | Date Sampled | Sample Purpose | | | | |
| NMWQCC Domestic | | | -- | 250.0 mg/L | 1000.0 mg/L | -- |
| MW-38 | 3/14/2018 | Reg | < 1.50 U | 307 J | 1,110 | < 1.50 U |
| MW-38 | 3/14/2018 | FD | < 1.50 U | 438 J | 1,230 | < 1.50 U |
| MW-38 | 9/26/2018 | REG | < 1.50 U | 613 | 1,850 | < 1.50 U |
| MW-38 | 4/2/2019 | REG | < 1.50 U | 614 | 1,870 | < 1.50 U |
| MW-38 | 10/2/2019 | REG | < 1.36 U | 655 | 1,960 | < 1.36 U |
| MW-4 | 4/4/2017 | REG | < 1.50 U | 2,390 | 4,180 | < 1.50 U |
| MW-4 | 4/7/2017 | REG | -- | -- | -- | -- |
| MW-4 | 9/13/2017 | REG | < 1.50 U | 2,500 | 5,360 | < 1.50 U |
| MW-4 | 3/15/2018 | Reg | < 1.50 U | 2,540 | 6,170 | < 1.50 U |
| MW-4 | 9/27/2018 | REG | < 1.50 U | 2,620 | 4,350 | -- |
| MW-4 | 4/4/2019 | REG | < 1.50 U | 1,830 | 4,970 | < 1.50 U |
| MW-4 | 10/3/2019 | REG | 0.928 J | 2,150 | 4,390 | < 1.39 U |
| MW-4 | 10/3/2019 | FD | < 1.38 U | 2,130 | 4,240 | < 1.38 U |
| MW-6 | 4/4/2017 | REG | < 1.50 U | 866 | 3,700 | < 1.50 U |
| MW-7 | 4/4/2017 | REG | < 1.50 U | 95.7 | 1,050 | < 1.50 U |
| MW-8 | 4/5/2017 | REG | < 1.50 U | 840 | 2,620 | < 1.50 U |
| MW-8 | 4/5/2017 | FD | < 1.50 U | 851 | 2,460 | < 1.50 U |
| MW-8 | 9/12/2017 | REG | < 1.50 U | 782 | 3,300 | < 1.50 U |
| MW-8 | 3/16/2018 | Reg | < 1.50 U | 1,330 | 2,340 | < 1.50 U |
| MW-8 | 9/28/2018 | REG | < 1.50 U | 592 | 2,160 | -- |
| MW-8 | 4/3/2019 | REG | < 1.50 U | 512 | 2,240 | < 1.50 U |
| MW-8 | 10/3/2019 | REG | < 1.38 U | 458 | 2,090 | < 1.38 U |
| MW-9 | 4/5/2017 | REG | < 1.50 U | 453 | 1,650 | < 1.50 U |
| MW-9 | 4/7/2017 | REG | -- | -- | -- | -- |
| MW-9 | 9/12/2017 | REG | < 1.50 U | 434 | 1,760 | < 1.50 U |
| MW-9 | 3/16/2018 | Reg | < 1.50 U | 716 | 1,670 | < 1.50 U |
| MW-9 | 9/27/2018 | REG | < 1.50 U | 360 | 1,470 | -- |
| MW-9 | 4/3/2019 | REG | < 1.50 U | 334 | 1,410 | < 1.50 U |
| MW-9 | 10/3/2019 | REG | 1.04 J | 286 | 1,340 | < 1.38 U |
| MWD-1 | 4/6/2017 | REG | < 1.50 U | 629 | 1,700 | < 1.50 U |

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# GROUNDWATER ANALYTICAL RESULTS
# EUNICE SOUTH GAS PLANT GW REME

| Parameter Name / Report Units | | | C6-C35 Petroleum Hydrocarbon Summary mg/L | Chloride mg/L | Total Dissolved Solids (TDS) mg/L | C10-C28 Petroleum Hydrocarbons, Diesel mg/L |
|---|---|---|---|---|---|---|
| Location ID | Date Sampled | Sample Purpose | | | | |
| NMWQCC Domestic | | | -- | 250.0 mg/L | 1000.0 mg/L | -- |
| MWD-1 | 9/13/2017 | REG | < 1.50 U | 635 | 1,910 | < 1.50 U |
| MWD-1 | 3/14/2018 | REG | < 1.50 U | 547 | 1,500 | < 1.50 U |
| MWD-1 | 9/25/2018 | REG | < 1.50 U | 567 | 1,580 | -- |
| MWD-1 | 4/3/2019 | REG | < 1.50 U | 501 | 1,640 | < 1.50 U |
| MWD-1 | 10/3/2019 | REG | < 1.34 U | 469 | 1,540 | < 1.34 U |
| MWD-1 | 10/3/2019 | FD | < 1.38 U | 475 | 1,530 | < 1.38 U |
| MWD-11 | 4/5/2017 | REG | < 1.50 U | 91.6 | 722 | < 1.50 U |
| MWD-11 | 9/15/2017 | REG | < 1.50 U | 101 J | 758 J | < 1.50 U |
| MWD-11 | 9/15/2017 | FD | < 1.50 U | 1,190 J | 2,560 J | < 1.50 U |
| MWD-11 | 3/15/2018 | Reg | < 1.50 U | 121 | 937 | < 1.50 U |
| MWD-11 | 9/25/2018 | REG | < 1.50 U | 145 | 981 | -- |
| MWD-11 | 4/5/2019 | REG | < 1.50 U | 80.2 | 736 | < 1.50 U |
| MWD-11 | 10/4/2019 | REG | < 1.38 U | 112 | 801 | < 1.38 U |
| MWD-12 | 4/6/2017 | REG | 4.68 | 962 | 2,780 | 3.07 |
| MWD-12 | 9/13/2017 | REG | < 1.50 U | 793 | 2,740 | < 1.50 U |
| MWD-12 | 3/19/2018 | Reg | 1.04 J | 1,020 | 2,480 | < 1.50 U |
| MWD-12 | 9/27/2018 | REG | 2.16 | 1,080 | 2,760 | -- |
| MWD-12 | 4/3/2019 | REG | 1.20 J | 901 | 3,120 | 1.20 J |
| MWD-12 | 10/4/2019 | REG | < 1.38 U | 914 | 2,840 | < 1.38 U |
| MWD-13 | 4/4/2017 | REG | < 1.50 U | 1,930 | 5,150 | < 1.50 U |
| MWD-13 | 9/12/2017 | REG | < 1.50 U | 2,620 | 6,280 | < 1.50 U |
| MWD-13 | 9/13/2017 | REG | < 1.50 U | 331 | 1,170 | < 1.50 U |
| MWD-13 | 3/15/2018 | Reg | < 1.50 U | 2,450 | 5,470 | < 1.50 U |
| MWD-13 | 9/27/2018 | REG | < 1.50 U | 2,410 | 6,330 | -- |
| MWD-13 | 4/3/2019 | REG | < 1.50 U | 1,880 | 5,180 | < 1.50 U |
| MWD-13 | 10/3/2019 | REG | < 1.35 U | 1,290 | 4,610 | < 1.35 U |
| MWD-14 | 4/6/2017 | REG | 2.02 | 2,980 | 5,760 | 2.02 |
| MWD-14 | 9/14/2017 | REG | 1.59 | 1,210 | 4,090 | < 1.50 U |
| MWD-14 | 3/19/2018 | Reg | 3.18 | 8,000 | 11,400 | < 1.50 U |
| MWD-14 | 9/28/2018 | REG | 6.7 | 1,280 | 4,130 | -- |

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# GROUNDWATER ANALYTICAL RESULTS
# EUNICE SOUTH GAS PLANT GW REME

| Parameter Name / Report Units | | | C6-C35 Petroleum Hydrocarbon Summary mg/L | Chloride mg/L | Total Dissolved Solids (TDS) mg/L | C10-C28 Petroleum Hydrocarbons, Diesel mg/L |
|---|---|---|---|---|---|---|
| Location ID | Date Sampled | Sample Purpose | | | | |
| NMWQCC Domestic | | | -- | 250.0 mg/L | 1000.0 mg/L | -- |
| MWD-14 | 4/5/2019 | REG | 5.83 | 974 | 3,820 | 1.82 |
| MWD-14 | 10/4/2019 | REG | 3.43 | 595 | 2,900 | < 1.35 U |
| MWD-15 | 4/6/2017 | REG | 2.2 | < 25.0 U | 3,390 | < 1.50 U |
| MWD-15 | 9/14/2017 | REG | 1.24 J | 1,450 | 4,010 | < 1.50 U |
| MWD-15 | 3/15/2018 | Reg | 1.03 J | 1,480 | 4,140 | < 1.50 U |
| MWD-15 | 9/27/2018 | REG | 1.43 J | 1,440 | 3,200 | -- |
| MWD-15 | 4/4/2019 | REG | 1.67 | 604 J | 3,210 | < 1.50 U |
| MWD-15 | 10/3/2019 | REG | 3.37 | 1,300 | 3,570 | 1.6 |
| MWD-17 | 4/4/2017 | REG | < 1.50 U | 7,460 | 13,300 | < 1.50 U |
| MWD-17 | 4/7/2017 | REG | -- | -- | -- | -- |
| MWD-17 | 3/15/2018 | Reg | 2.3 | 8,690 | 14,600 | < 1.50 U |
| MWD-17 | 4/3/2019 | REG | 1.10 J | 3,810 | 12,500 | < 1.50 U |
| MWD-2 | 4/5/2017 | REG | < 1.50 U | 1,200 | 2,370 | < 1.50 U |
| MWD-2 | 3/15/2018 | Reg | < 1.50 U | 1,140 | 3,120 | < 1.50 U |
| MWD-2 | 4/4/2019 | REG | < 1.50 U | 796 J | 2,730 | < 1.50 U |
| MWD-3 | 2/28/2018 | REG | -- | 38,700 | 45,900 | -- |
| MWD-3 | 3/15/2018 | Reg | 5.35 | 35,900 | 49,300 | < 1.50 U |
| MWD-3 | 3/30/2018 | REG | -- | 37,000 | 51,200 | -- |
| MWD-3 | 8/8/2018 | REG | -- | 34,500 | 54,700 | -- |
| MWD-3 | 8/31/2018 | REG | -- | 40,800 | 60,300 | -- |
| MWD-3 | 9/28/2018 | REG | 4.62 | 41,100 | 86,700 | -- |
| MWD-3 | 10/4/2019 | REG | 5.55 | 44,800 | 57,700 | < 1.34 U |
| MWD-4 | 4/4/2017 | REG | < 1.50 U | 45.5 | 872 | < 1.50 U |
| MWD-4 | 9/12/2017 | REG | < 1.50 U | 48.4 | 1,290 | < 1.50 U |
| MWD-4 | 3/15/2018 | Reg | < 1.50 U | 29.4 | 1,110 | < 1.50 U |
| MWD-4 | 9/27/2018 | REG | < 1.50 U | 56.3 | 992 | -- |
| MWD-4 | 4/3/2019 | REG | < 1.50 U | 57.1 | 1,360 J | < 1.50 U |
| MWD-4 | 4/3/2019 | FD | < 1.50 U | 59.9 | 5,610 J | < 1.50 U |
| MWD-4 | 10/3/2019 | REG | < 1.38 U | 49.5 | 1,220 | < 1.38 U |
| MWD-5 | 1/31/2017 | REG | -- | 512 | 1,980 | -- |

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# GROUNDWATER ANALYTICAL RESULTS
# EUNICE SOUTH GAS PLANT GW REME

| Parameter Name / Report Units | | | C6-C35 Petroleum Hydrocarbon Summary mg/L | Chloride mg/L | Total Dissolved Solids (TDS) mg/L | C10-C28 Petroleum Hydrocarbons, Diesel mg/L |
|---|---|---|---|---|---|---|
| Location ID | Date Sampled | Sample Purpose | | | | |
| NMWQCC Domestic | | | -- | 250.0 mg/L | 1000.0 mg/L | -- |
| MWD-5 | 4/5/2017 | REG | 9.09 | 448 | 1,840 | 5.36 |
| MWD-5 | 4/7/2017 | REG | -- | -- | -- | -- |
| MWD-5 | 3/15/2018 | REG | < 1.50 U | 16,700 | 28,500 | < 1.50 U |
| MWD-5 | 4/3/2019 | REG | 14.6 | 708 | 2,090 | 1.7 |
| MWD-6 | 4/5/2017 | REG | < 1.50 U | < 5.00 U | 1,260 | < 1.50 U |
| MWD-6 | 4/7/2017 | REG | -- | -- | -- | -- |
| MWD-6 | 9/13/2017 | REG | < 1.50 U | 183 | 1,310 | < 1.50 U |
| MWD-6 | 3/16/2018 | Reg | < 1.50 U | 172 | 1,370 | < 1.50 U |
| MWD-6 | 9/27/2018 | REG | < 1.50 U | 209 | 1,250 | -- |
| MWD-6 | 4/2/2019 | REG | < 1.50 U | 202 | 1,220 | < 1.50 U |
| MWD-6 | 10/2/2019 | REG | 0.966 J | 184 | 1,250 | < 1.35 U |
| MWD-7 | 4/4/2017 | REG | < 1.50 U | 5,130 | 9,590 | < 1.50 U |
| MWD-7 | 9/13/2017 | REG | < 1.50 U | 5,900 | 10,400 | < 1.50 U |
| MWD-7 | 3/14/2018 | Reg | < 1.50 U | 6,080 | 11,000 | < 1.50 U |
| MWD-7 | 9/25/2018 | REG | < 1.50 U | 6,740 | 10,600 | -- |
| MWD-7 | 4/3/2019 | REG | < 1.50 U | 3,970 | 9,440 | < 1.50 U |
| MWD-7 | 10/3/2019 | REG | < 1.38 U | 6,470 | 9,590 | < 1.38 U |
| MWD-8 | 4/4/2017 | REG | < 1.50 U | 177 | 540 | < 1.50 U |
| MWD-8 | 9/13/2017 | REG | < 1.50 U | 220 | 884 | < 1.50 U |
| MWD-8 | 3/15/2018 | Reg | < 1.50 U | 136 | 663 | < 1.50 U |
| MWD-8 | 9/25/2018 | REG | < 1.50 U | 103 | 658 | -- |
| MWD-8 | 4/4/2019 | REG | < 1.50 U | 118 J | 933 | < 1.50 U |
| MWD-8 | 10/3/2019 | REG | < 1.37 U | 105 | 565 | < 1.37 U |
| MWD-9 | 4/4/2017 | REG | < 1.50 U | 18,700 | 33,300 | < 1.50 U |
| MWD-9 | 4/7/2017 | REG | -- | -- | -- | -- |
| MWD-9 | 9/14/2017 | REG | < 1.50 U | 19,300 | 32,800 | < 1.50 U |
| MWD-9 | 2/28/2018 | REG | -- | 18,000 | 21,200 | -- |
| MWD-9 | 3/19/2018 | REG | 9.56 | 635 | 2,160 | 3.94 |
| MWD-9 | 8/8/2018 | REG | -- | 14,700 | 26,500 | -- |
| MWD-9 | 8/31/2018 | REG | -- | 15,700 | 27,800 | -- |

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# GROUNDWATER ANALYTICAL RESULTS
# EUNICE SOUTH GAS PLANT GW REME

| Parameter Name / Report Units | | | C6-C35 Petroleum Hydrocarbon Summary mg/L | Chloride mg/L | Total Dissolved Solids (TDS) mg/L | C10-C28 Petroleum Hydrocarbons, Diesel mg/L |
|---|---|---|---|---|---|---|
| Location ID | Date Sampled | Sample Purpose | | | | |
| NMWQCC Domestic | | | -- | 250.0 mg/L | 1000.0 mg/L | -- |
| MWD-9 | 9/28/2018 | REG | < 1.50 U | 16,400 | 28,100 | -- |
| MWD-9 | 4/4/2019 | REG | < 1.50 U | 17,000 | 28,800 | < 1.50 U |
| MWD-9 | 10/4/2019 | REG | < 1.33 U | 15,000 | 26,800 | < 1.33 U |
| RW-6 | 4/6/2017 | REG | < 1.50 U | 396 | 2,040 | < 1.50 U |
| RW-6 | 9/14/2017 | REG | 7.77 | 337 | 1,600 | 4.86 |
| RW-6 | 3/15/2018 | Reg | < 1.50 U | 675 | 2,540 | < 1.50 U |
| RW-6 | 9/27/2018 | REG | < 1.50 U | 790 | 2,150 | -- |
| RW-6 | 4/4/2019 | REG | < 1.50 U | 715 | 2,470 | < 1.50 U |
| RW-6 | 10/4/2019 | REG | 1.23 J | 876 | 2,360 | < 1.38 U |
| RW-7 | 4/6/2017 | REG | < 1.50 U | 5,180 J | 10,000 J | < 1.50 U |
| RW-7 | 4/6/2017 | FD | < 1.50 U | 2,730 J | 5,750 J | < 1.50 U |
| RW-7 | 9/14/2017 | REG | < 1.50 U | 4,740 | 9,050 | < 1.50 U |
| RW-7 | 3/15/2018 | Reg | < 1.50 U | 4,780 J | 7,340 J | < 1.50 U |
| RW-7 | 3/15/2018 | FD | < 1.50 U | 2,400 J | 4,890 J | < 1.50 U |
| RW-7 | 9/27/2018 | REG | < 1.50 U | 5,250 | 9,190 | -- |
| RW-7 | 4/4/2019 | REG | < 1.50 U | 2,750 | 8,390 J | < 1.50 U |
| RW-7 | 4/4/2019 | FD | < 1.50 U | 2,080 | 4,740 J | < 1.50 U |
| RW-7 | 10/4/2019 | REG | < 1.40 U | 4,400 | 5,270 | < 1.40 U |
| RW-8 | 4/4/2017 | REG | < 1.50 U | 1,220 | 2,510 | < 1.50 U |
| RW-8 | 4/7/2017 | REG | -- | -- | -- | -- |
| RW-8 | 3/15/2018 | Reg | < 1.50 U | 1,260 | 3,530 | < 1.50 U |
| RW-8 | 4/4/2019 | REG | < 1.50 U | 756 J | 2,690 | < 1.50 U |
| TMW-1 | 4/7/2017 | REG | < 1.50 U | 757 | 1,970 | < 1.50 U |
| TMW-1 | 4/7/2017 | FD | < 1.50 U | 712 | 1,720 | < 1.50 U |
| TMW-1 | 9/13/2017 | REG | < 1.50 U | 685 | 1,600 | < 1.50 U |
| TMW-1 | 3/15/2018 | Reg | < 1.50 U | 608 | 1,450 | < 1.50 U |
| TMW-1 | 9/27/2018 | REG | < 1.50 U | 600 | 1,320 | -- |
| TMW-1 | 4/5/2019 | REG | < 1.50 U | 450 | 1,320 | < 1.50 U |
| TMW-1 | 4/5/2019 | FD | < 1.50 U | 503 | 1,310 | < 1.50 U |
| TMW-1 | 10/4/2019 | REG | < 1.41 U | 537 | 1,430 | < 1.41 U |

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# GROUNDWATER ANALYTICAL RESULTS
# EUNICE SOUTH GAS PLANT GW REME

| Parameter Name / Report Units | | | C6-C35 Petroleum Hydrocarbon Summary mg/L | Chloride mg/L | Total Dissolved Solids (TDS) mg/L | C10-C28 Petroleum Hydrocarbons, Diesel mg/L |
|---|---|---|---|---|---|---|
| Location ID | Date Sampled | Sample Purpose | | | | |
| NMWQCC Domestic | | | -- | 250.0 mg/L | 1000.0 mg/L | -- |
| TMW-3 | 4/6/2017 | REG | < 1.50 U | 325 | 1,130 | < 1.50 U |
| TMW-6 | 4/6/2017 | REG | 4.71 | 318 | 1,260 | 3.18 |
| TMW-6 | 9/14/2017 | REG | < 1.50 U | 519 | 2,640 | < 1.50 U |
| TMW-6 | 3/19/2018 | Reg | 6.29 | 332 | 1,490 | 2.71 |
| TMW-6 | 4/5/2018 | Reg | 6.42 | 336 | 1,670 | -- |
| TMW-6 | 9/28/2018 | REG | 6.72 | 356 | 1,490 | -- |
| TMW-6 | 9/28/2018 | FD | 5.84 | 351 | 1,450 | -- |
| TMW-6 | 4/5/2019 | REG | 6.22 | 236 | 1,430 | 2.5 |
| TMW-6 | 10/4/2019 | REG | 4.76 | 312 | 1,450 | 2.05 |
| WW-2 | 4/5/2017 | REG | < 1.50 U | 352 J | 546 | < 1.50 U |
| WW-2 | 4/7/2017 | REG | -- | -- | -- | -- |
| WW-2 | 3/16/2018 | Reg | < 1.50 U | 351 | 616 | < 1.50 U |
| WW-2 | 4/4/2019 | REG | < 1.50 U | 125 J | 477 | < 1.50 U |
| WW-3 | 4/7/2017 | REG | < 1.50 U | 207 | 468 | < 1.50 U |
| WW-7 | 4/4/2017 | REG | < 1.50 U | 270 J | 458 | < 1.50 U |
| WW-7 | 4/7/2017 | REG | -- | -- | -- | -- |
| WW-7 | 3/16/2018 | Reg | < 1.50 U | 251 | 500 | < 1.50 U |
| WW-7 | 4/4/2019 | REG | < 1.50 U | 332 J | 640 | < 1.50 U |

# APPENDIX G

## 2019 Mann-Kendall Analysis

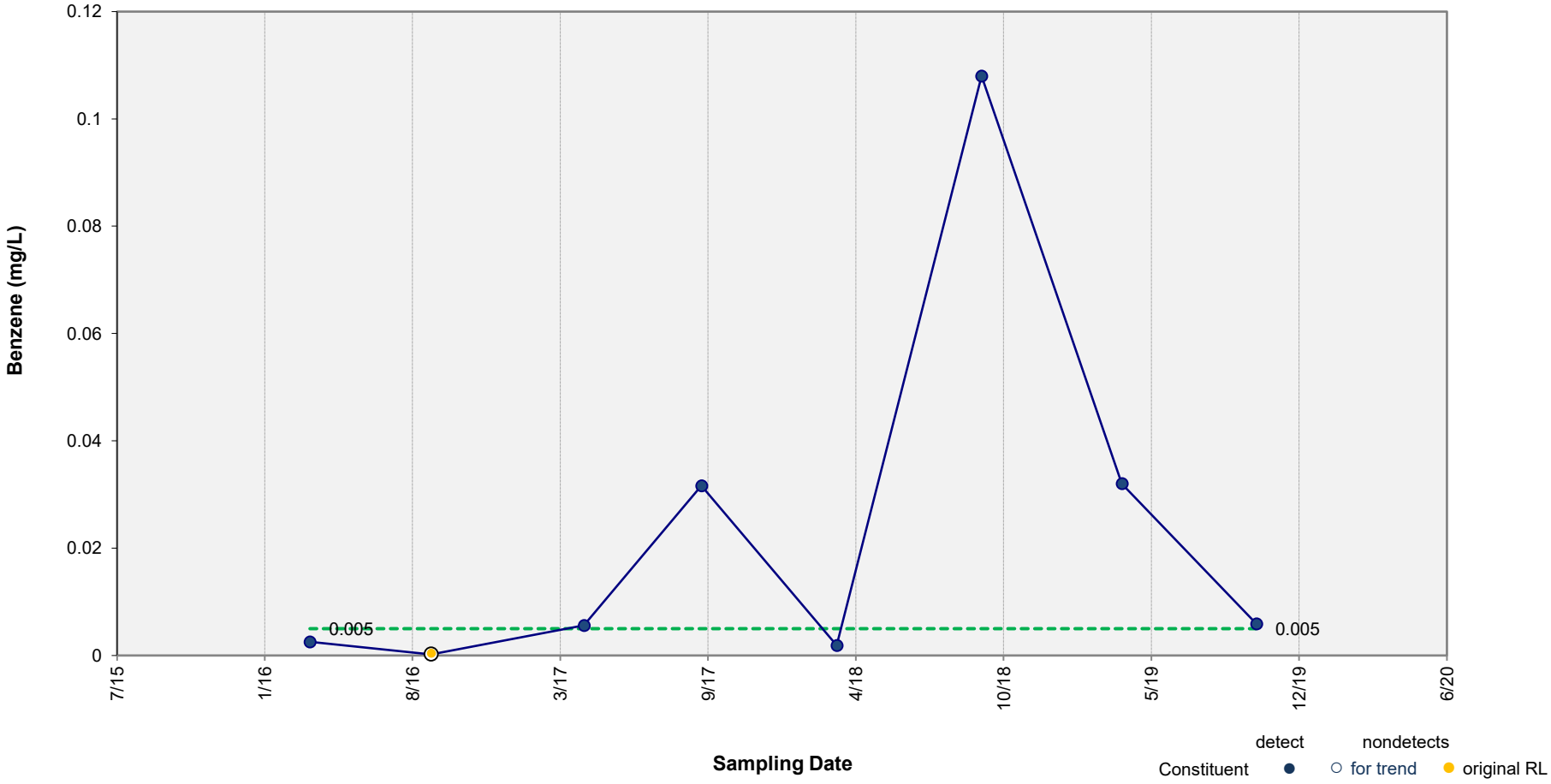
**Appendix G - 2019 Mann-Kendall Analysis**
**Eunice South, New Mexico**

| Monitoring Well | Constituent | Criteria (mg/L) | Start Date | End Date | Summary Statistics | | | | | | | Mann-Kendall | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | n | % ND | Minimum Concentration (mg/L) | Maximum Concentration (mg/L) | Average Detected Concentration (mg/L) | Most Recent Concentration (mg/L) | CV | S-Statistic | p-value | Trend Determination | Significance |
| TMW-1 | Chloride | 250 | 4/1/2016 | 10/4/2019 | 8 | 0 | 450 | 761 | 643 | 537 | 0.18 | -24 | < 0.01 | Decreasing | Significant |
| | Benzene | 0.005 | | | 8 | 12.5 | < 0.000408 | 0.108 | 0.0268 | 0.00589 J | 1.43 | 12 | 0.09 | Increasing | Significant |
| MWD-7 | Chloride | 250 | 3/31/2016 | 10/3/2019 | 8 | 0 | 3,970 | 7,210 | 5,815 | 6,470 | 0.18 | 4 | 0.36 | Stable | NS |
| MWD-14 | Chloride | 250 | 4/1/2016 | 10/4/2019 | 8 | 0 | 595 | 8,000 | 2,769 | 595 | 0.88 | -16 | 0.03 | Decreasing | Significant |
| | Benzene | 0.005 | | | 8 | 0 | 0.363 | 2.60 | 1.29 | 1.18 J | 0.52 | 4 | 0.36 | Stable | NS |
| MW-15 | Chloride | 250 | 3/30/2016 | 10/2/2019 | 8 | 0 | 1,750 | 2,320 | 1,983 | 1,890 | 0.10 | 11 | 0.11 | Potentially Increasing | NS |
| MW-26 | Chloride | 250 | 4/1/2016 | 10/4/2019 | 8 | 0 | 139 | 285 | 183 | 157 | 0.28 | -18 | 0.02 | Decreasing | Significant |
| | Benzene | 0.005 | | | 8 | 0 | 0.577 | 1.79 | 1.06 | 0.797 J | 0.38 | -12 | 0.09 | Decreasing | Significant |
| MW-29 | Chloride | 250 | 3/31/2016 | 10/3/2019 | 8 | 0 | 101 | 232 | 148 | 232 | 0.29 | 22 | < 0.01 | Increasing | Significant |
| | Benzene (since 2017) | 0.005 | 9/12/2017 | 10/3/2019 | 5 | 0 | 0.0624 | 1.60 | 0.541 | 0.177 | 1.16 | -8 | 0.04 | Decreasing | Significant |
| MW-32 | Chloride | 250 | 3/31/2016 | 10/3/2019 | 8 | 0 | 435 | 1,120 | 834 | 435 | 0.32 | -23 | < 0.01 | Decreasing | Significant |
| | Benzene | 0.005 | | | 8 | 0 | 4.30 | 14.7 | 7.10 | 5.96 J | 0.48 | 1 | 0.50 | No Trend | NS |
| MW-35 | Chloride | 250 | 4/12/2017 | 10/1/2019 | 6 | 0 | 243 | 1,810 | 735 | 243 | 0.81 | -15 | < 0.01 | Decreasing | Significant |
| MW-38 | Chloride | 250 | 3/14/2018 | 10/2/2019 | 4 | 0 | 307 J | 655 | 547 | 655 | 0.29 | -- | -- | -- | -- |

**Notes:**
1. p-value <0.1 indicates a statistically significant trend (90% confidence level).

**Acronyms:**
% - percent
CV - coefficient of variation
mg/L - milligrams per liter
NS - not significant

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**Results of Mann-Kendall Test for Trend:** **INCREASING TREND**

p value = 0.089 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

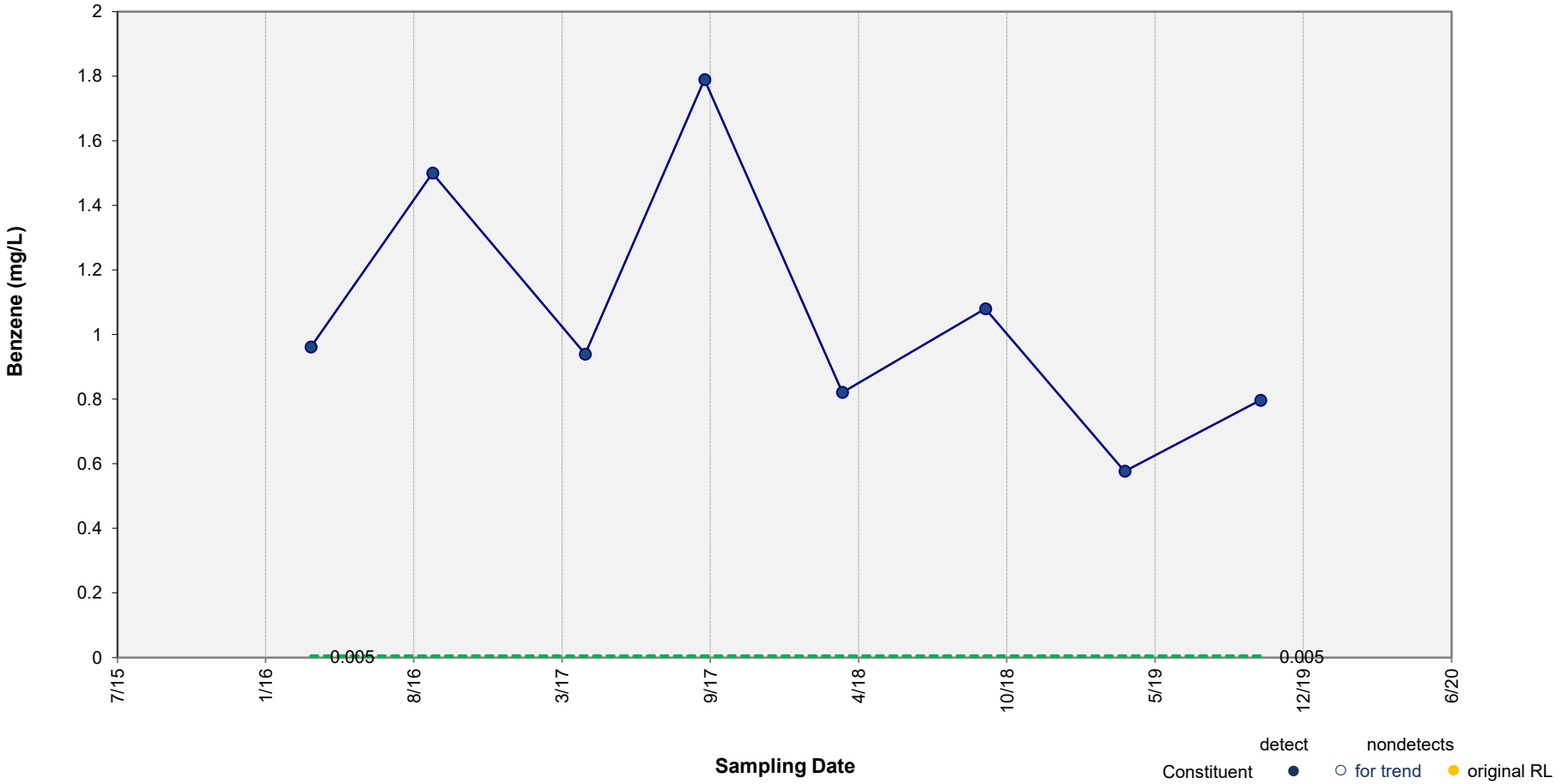
**Concentration vs. Time Plot - Benzene in TMW-1**

Eunice South

**Figure G-1**

MK Trends_TMW-1_Benzene_HS.xlsx

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**Results of Mann-Kendall Test for Trend:** **DECREASING TREND**

p value = 0.089 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

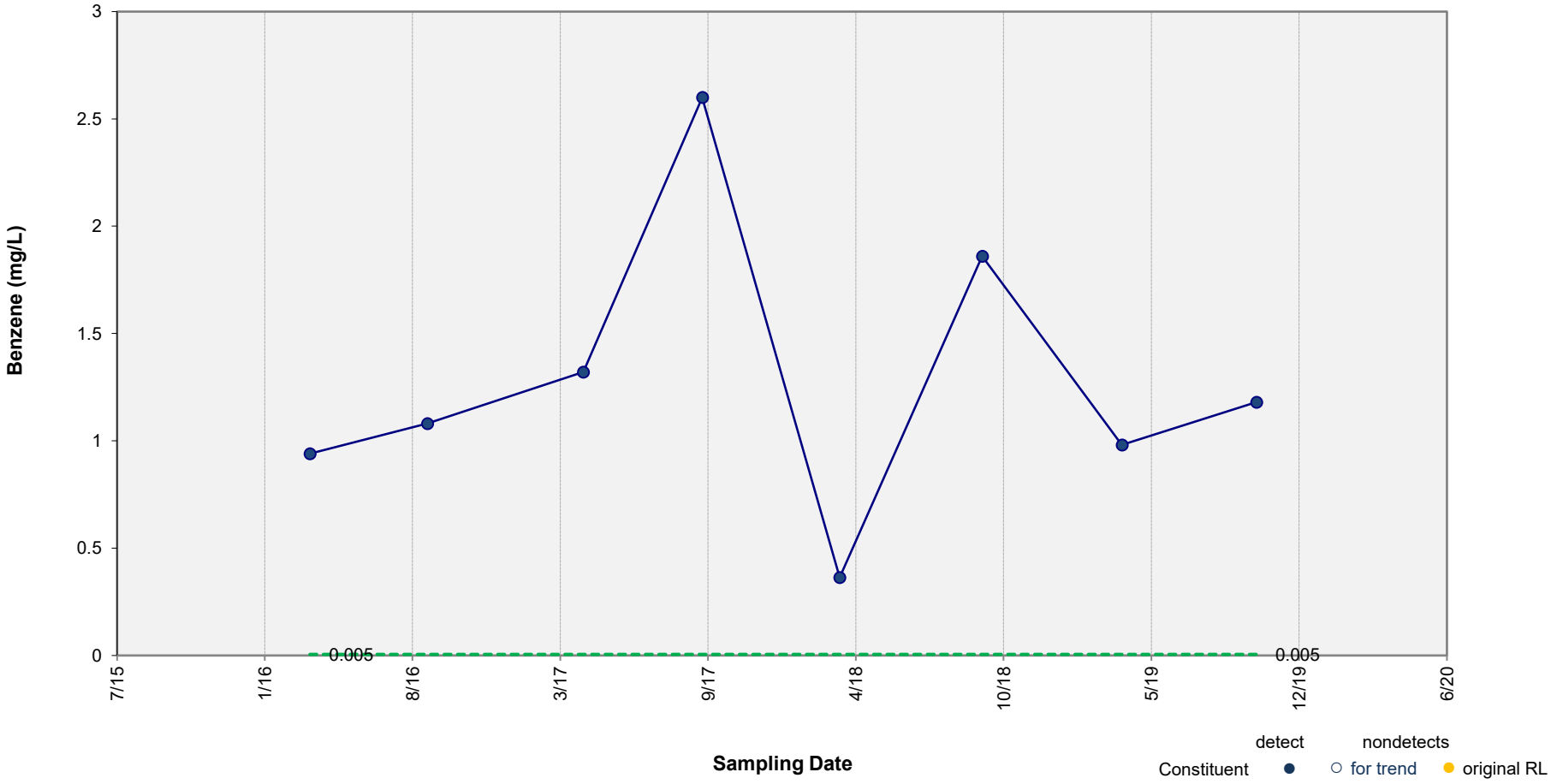
**Concentration vs. Time Plot - Benzene in MW-26**

Eunice South

**Figure G-2**

MK Trends_MW-26_Benzene_HS.xlsx

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**Results of Mann-Kendall Test for Trend:** **No Significant Trend**

p value = 0.360 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

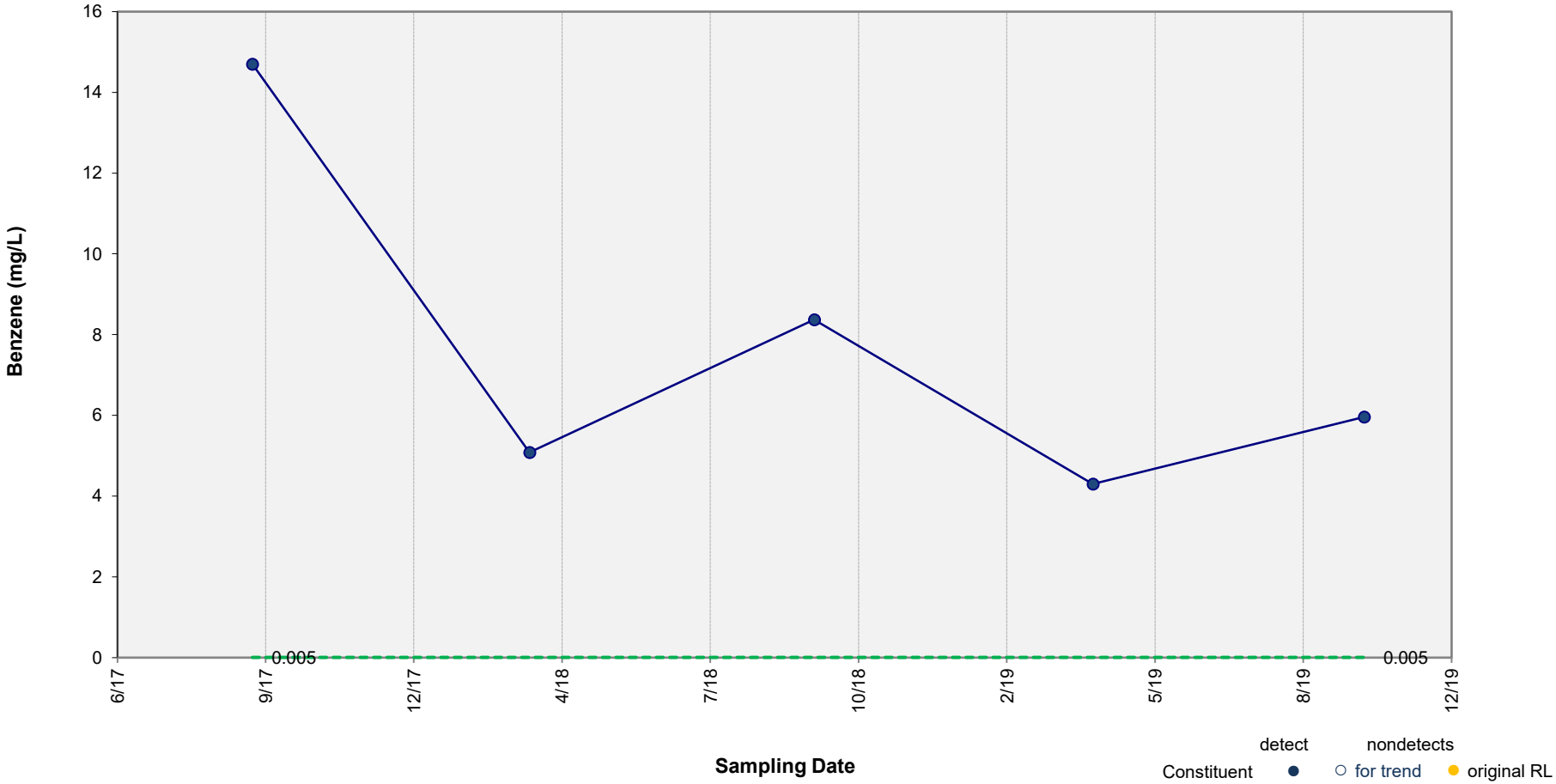
**Concentration vs. Time Plot - Benzene in MWD-14**

Eunice South

**Figure G-3**

MK Trends_MWD-14_Benzene_HS.xlsx

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**Results of Mann-Kendall Test for Trend:** **No Significant Trend**

p value = 0.242 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

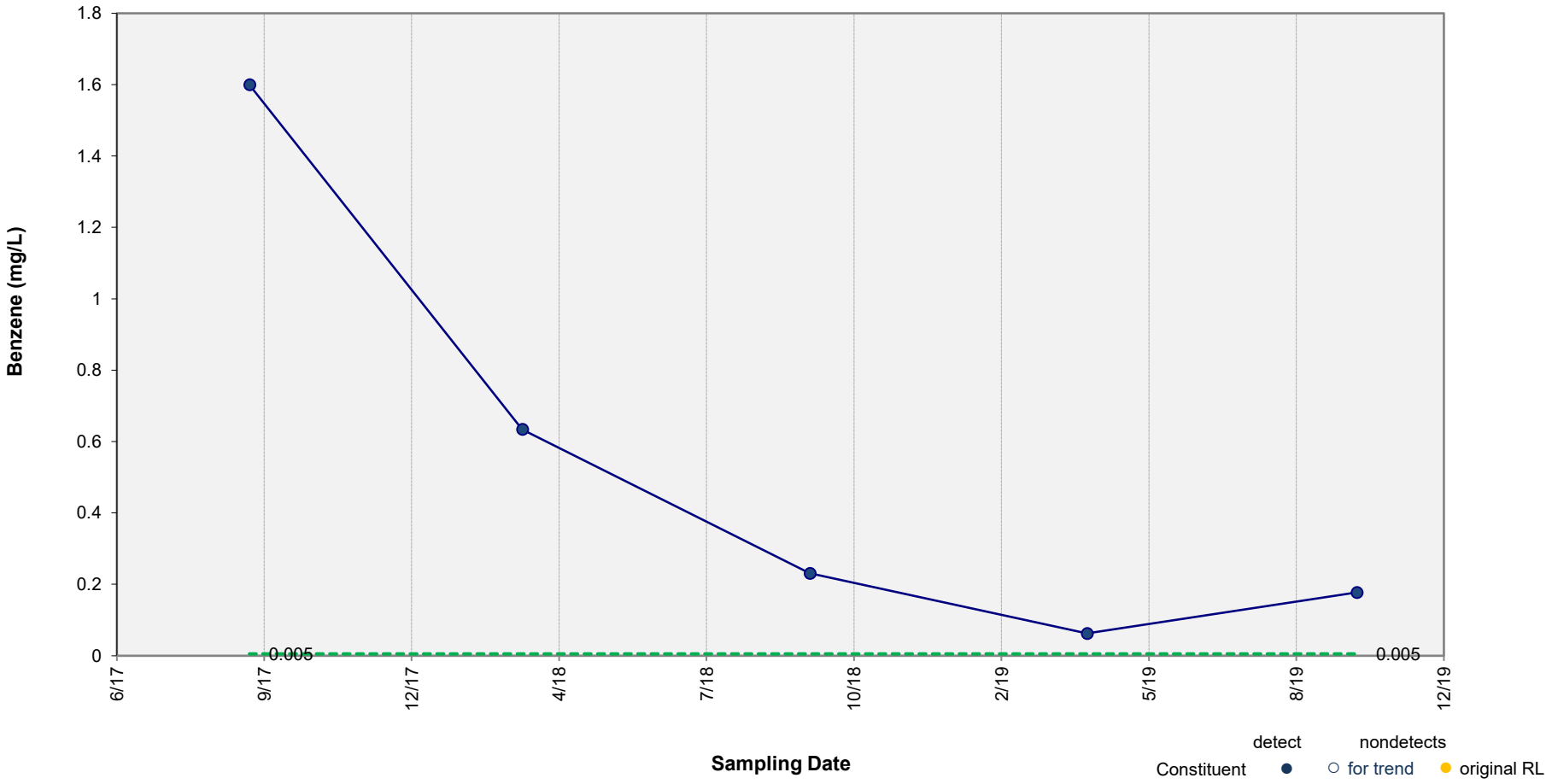
**Concentration vs. Time - Benzene in MW-32 (since 2017)**

Eunice South

**Figure G-4**

MK Trends_MW-32_Benzene_HS_2017.xlsx

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**Results of Mann-Kendall Test for Trend:** **DECREASING TREND**

p value = 0.042 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

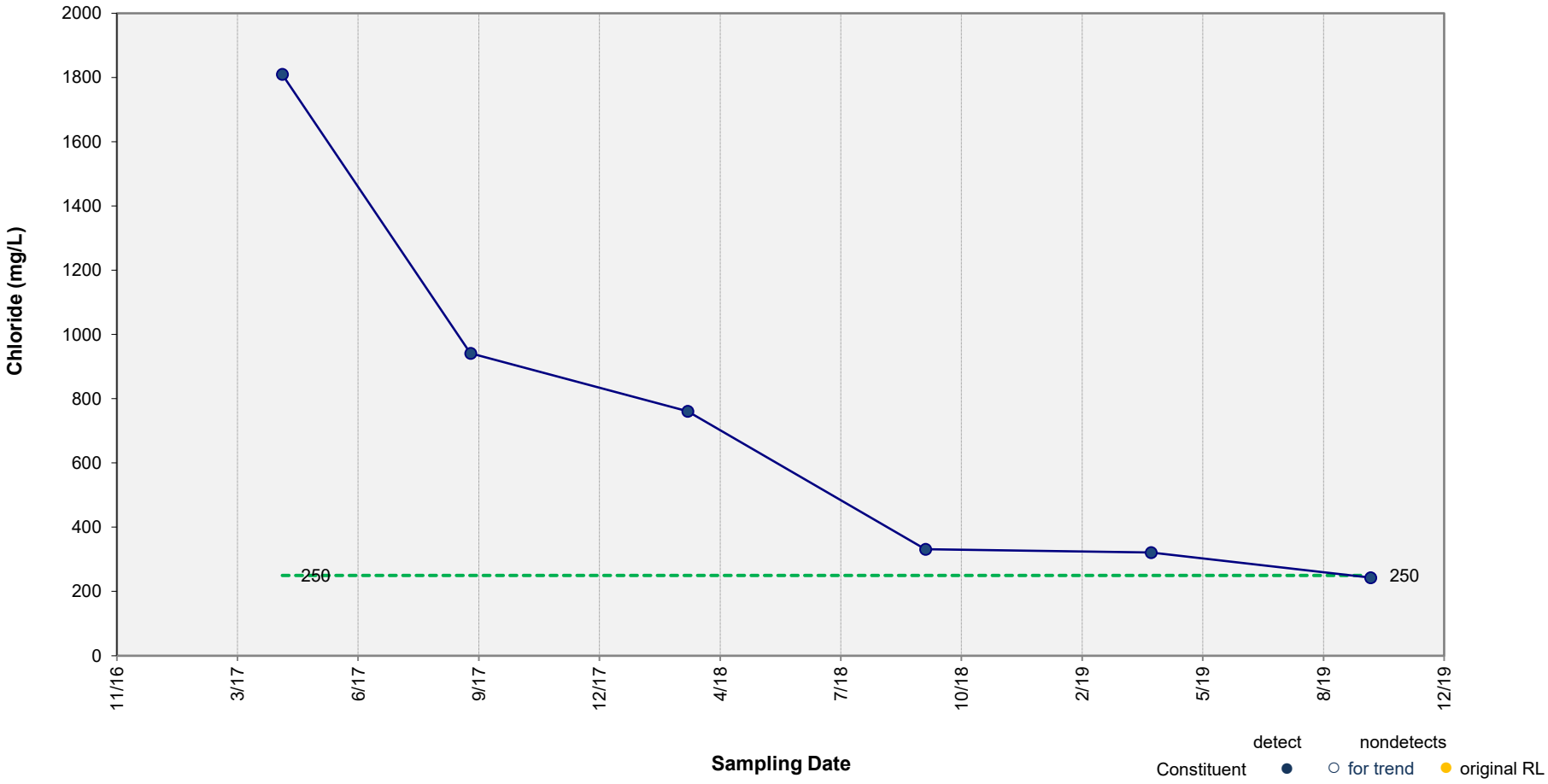
**Concentration vs. Time Plot - Benzene in MW-29 (since 2017)**

Eunice South

**Figure G-5**

MK Trends_MW-29_Benzene_HS_2017.xlsx

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**Results of Mann-Kendall Test for Trend:** **DECREASING TREND**

p value = 0.001 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

**Concentration vs. Time Plot - Chloride in MW-35**

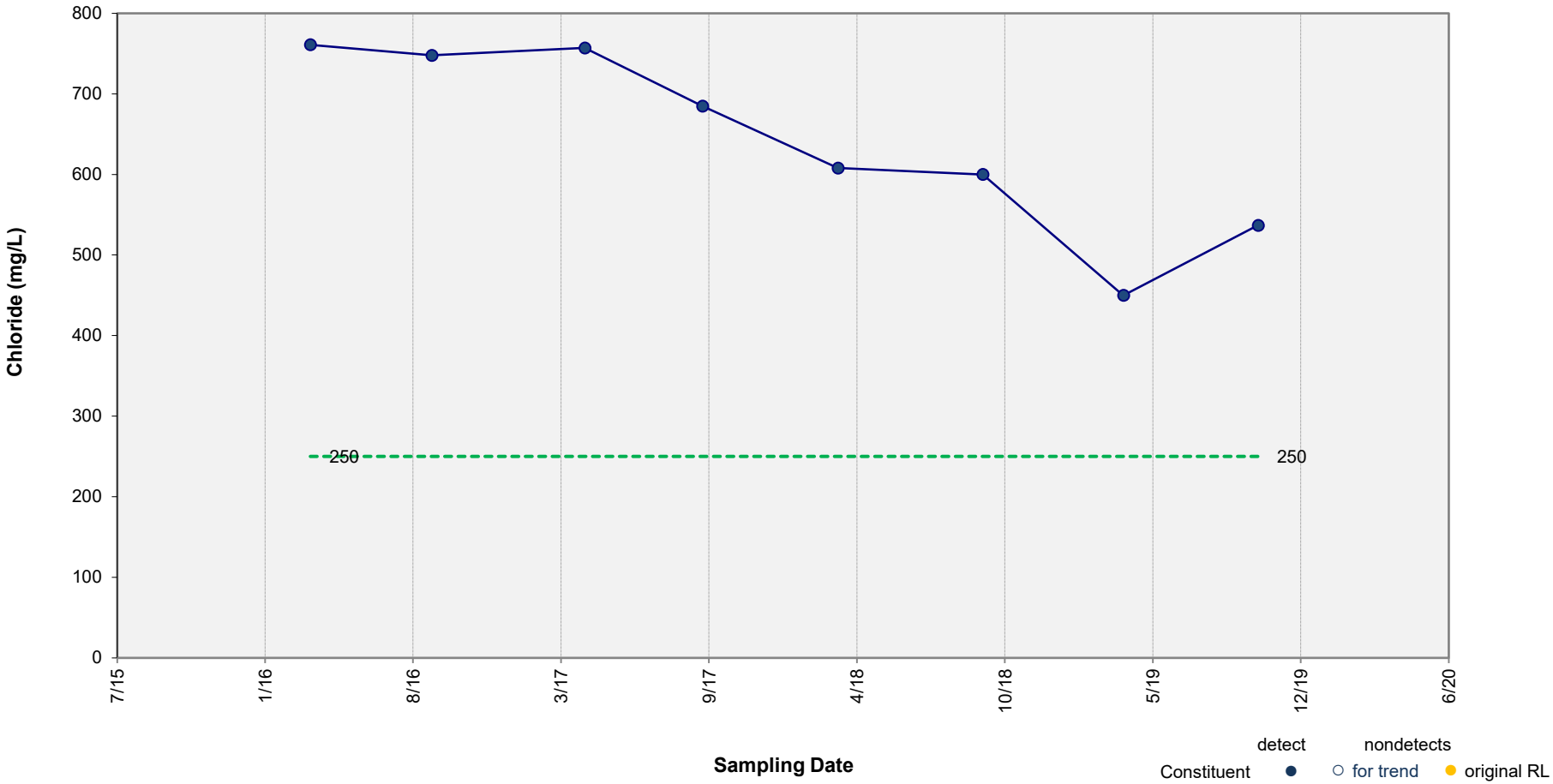
Eunice South

**Figure G-6**



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**Results of Mann-Kendall Test for Trend:** **DECREASING TREND**

p value = <0.001 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

**Concentration vs. Time Plot - Chloride in TMW-1**

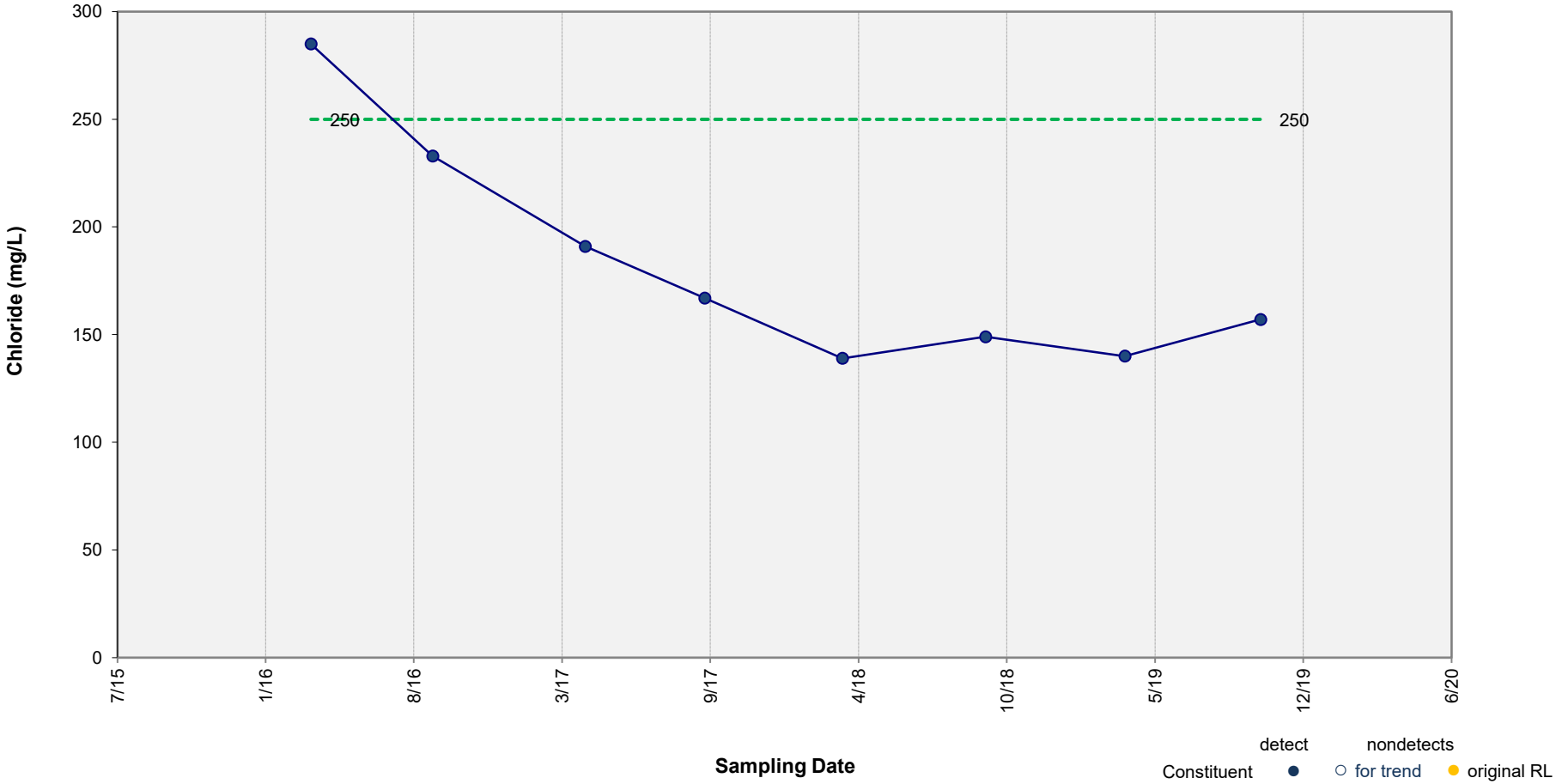
Eunice South

**Figure G-7**



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**Results of Mann-Kendall Test for Trend:** **DECREASING TREND**

p value = 0.016 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

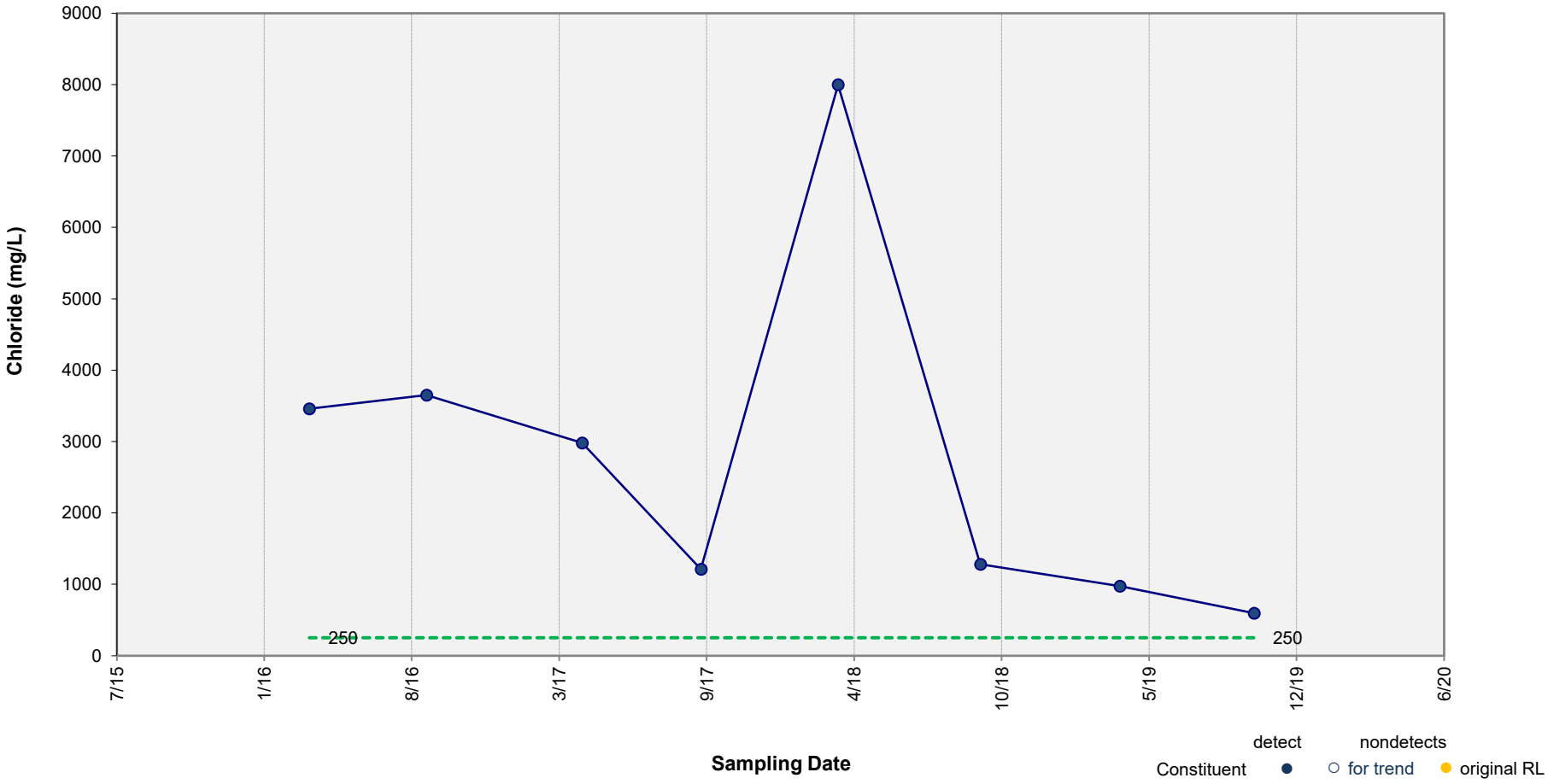
**Concentration vs. Time Plot - Chloride in MW-26**

Eunice South

**Figure G-8**

MK Trends_MW-26_Chloride_HS.xlsx

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**Results of Mann-Kendall Test for Trend:** **DECREASING TREND**

p value = 0.031 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

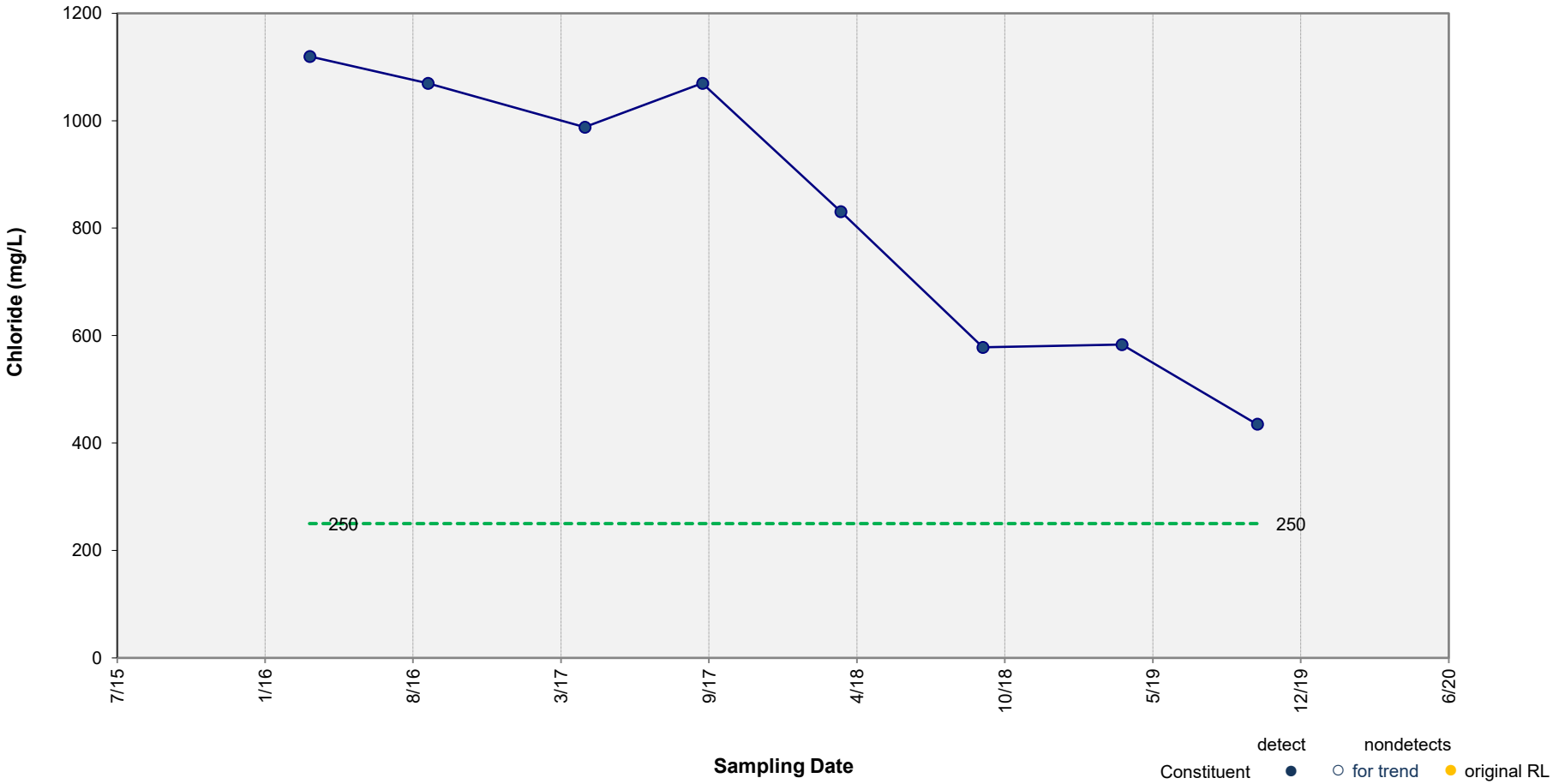
**Concentration vs. Time Plot - Chloride in MWD-14**

Eunice South

**Figure G-9**

MK Trends_MWD-14_Chloride_HS.xlsx

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**Results of Mann-Kendall Test for Trend:** **DECREASING TREND**

p value = 0.002 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

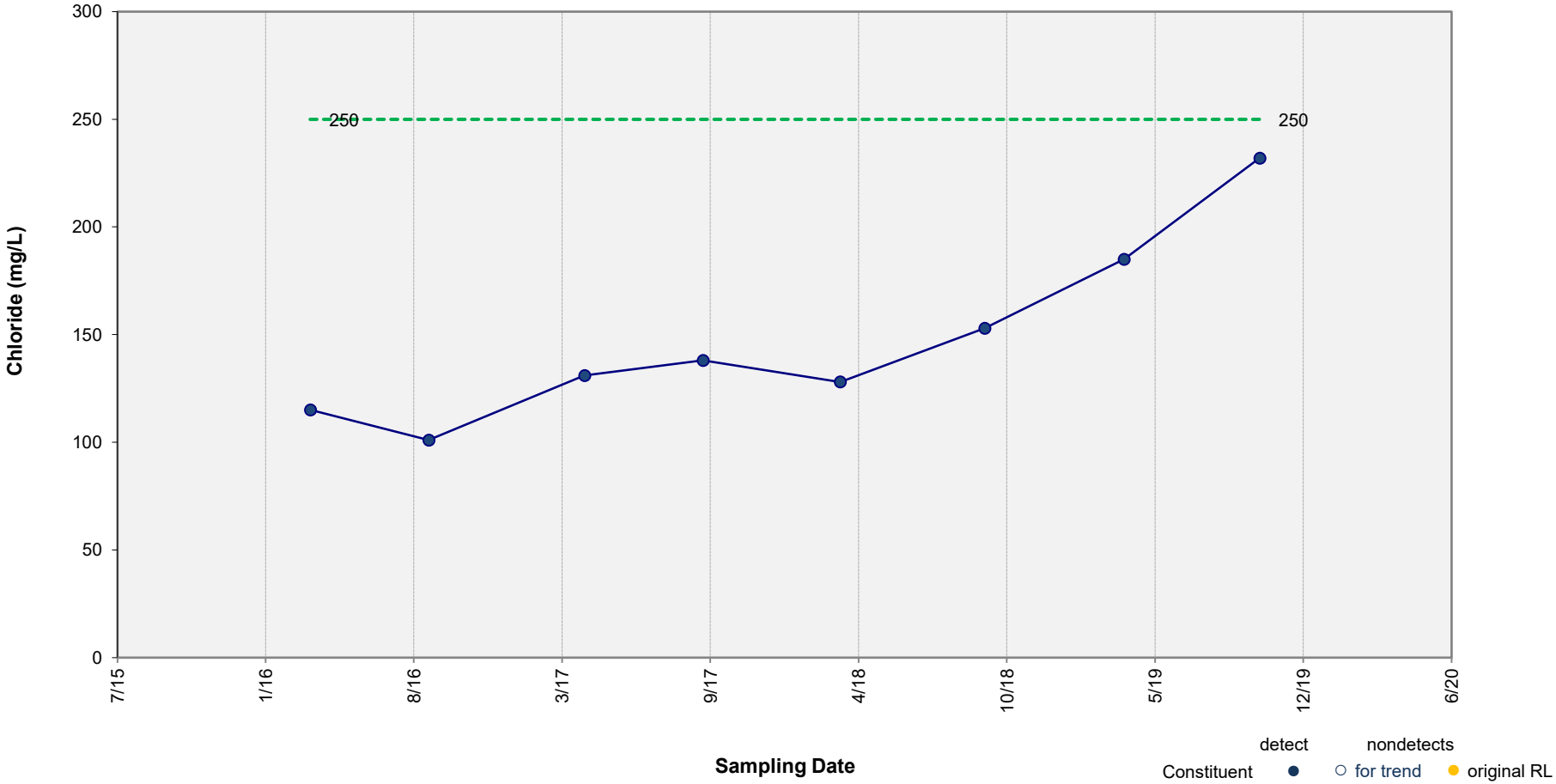
**Concentration vs. Time Plot - Chloride in MW-32**

Eunice South

**Figure G-10**

MK Trends_MW-32_Chloride_HS.xlsx

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**Results of Mann-Kendall Test for Trend:** **INCREASING TREND**

p value = 0.003 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

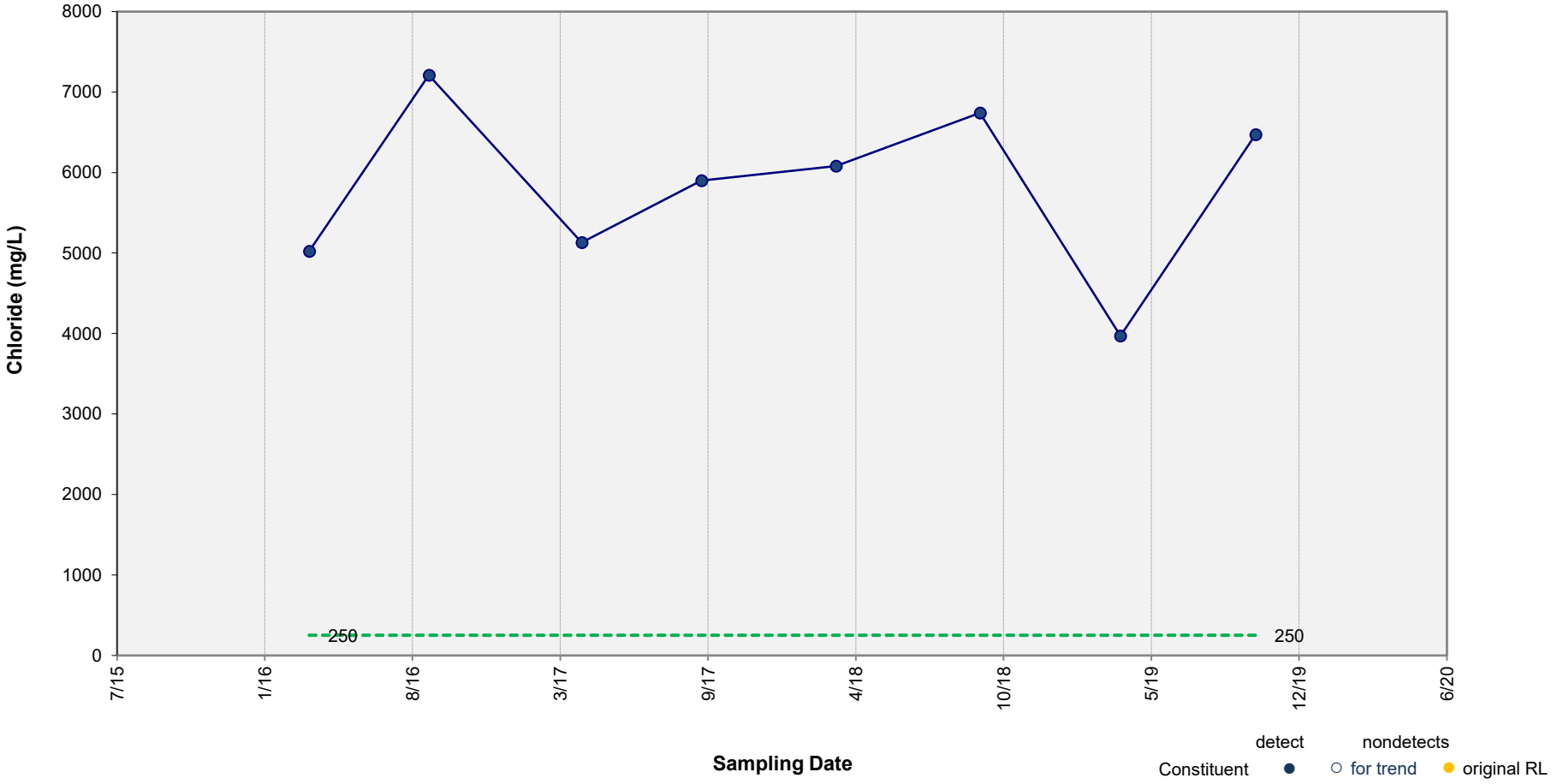
**Concentration vs. Time Plot - Chloride in MW-29**

Eunice South

**Figure G-11**

MK Trends_MW-29_Chloride_HS.xlsx

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**Results of Mann-Kendall Test for Trend:** **No Significant Trend**

p value = 0.360 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

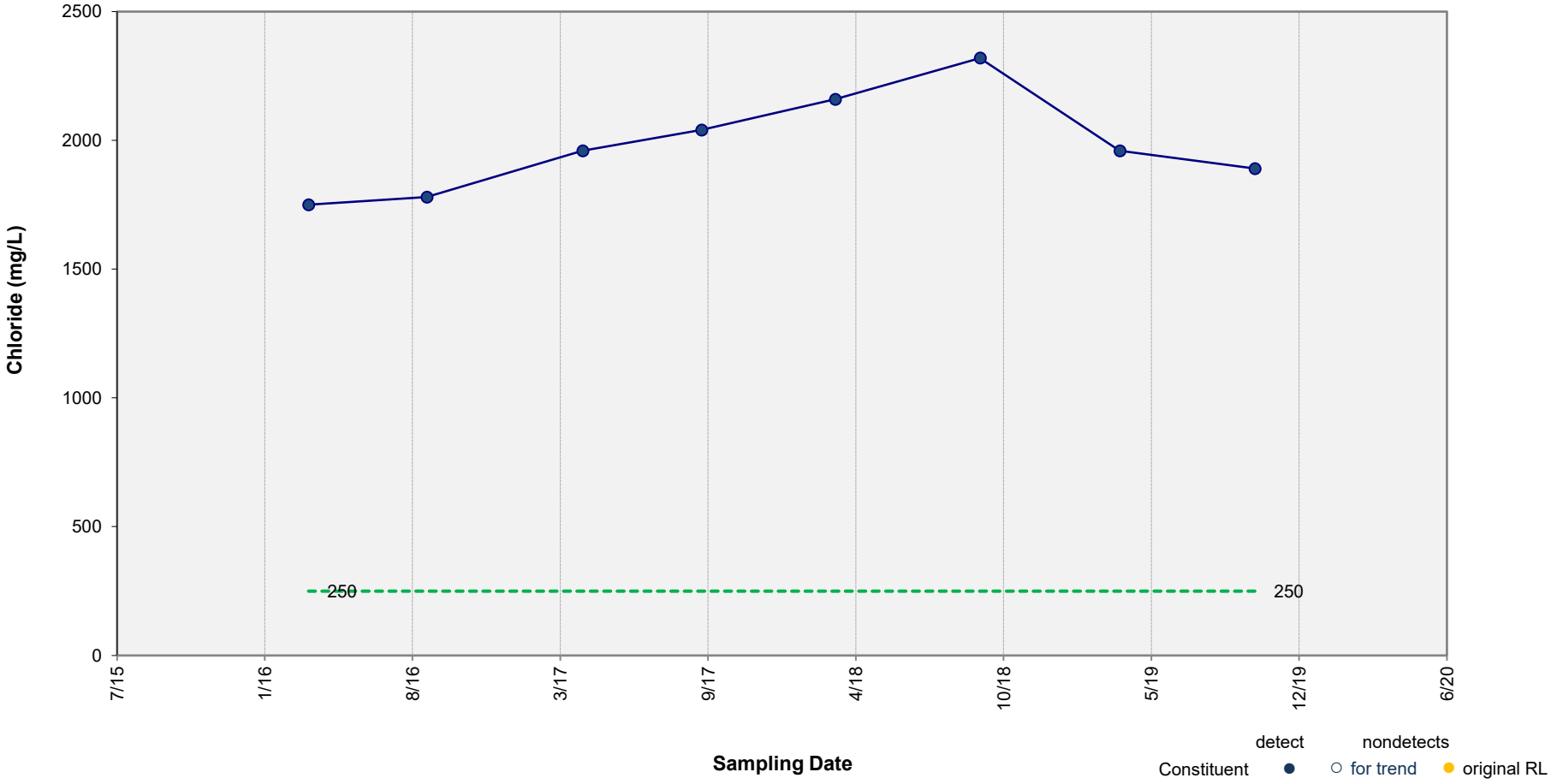
**Concentration vs. Time Plot - Chloride in MWD-7**

Eunice South

**Figure G-12**

MK Trends_MWD-7_Chloride_HS.xlsx

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**Results of Mann-Kendall Test for Trend:** **No Significant Trend**

p value = 0.114 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

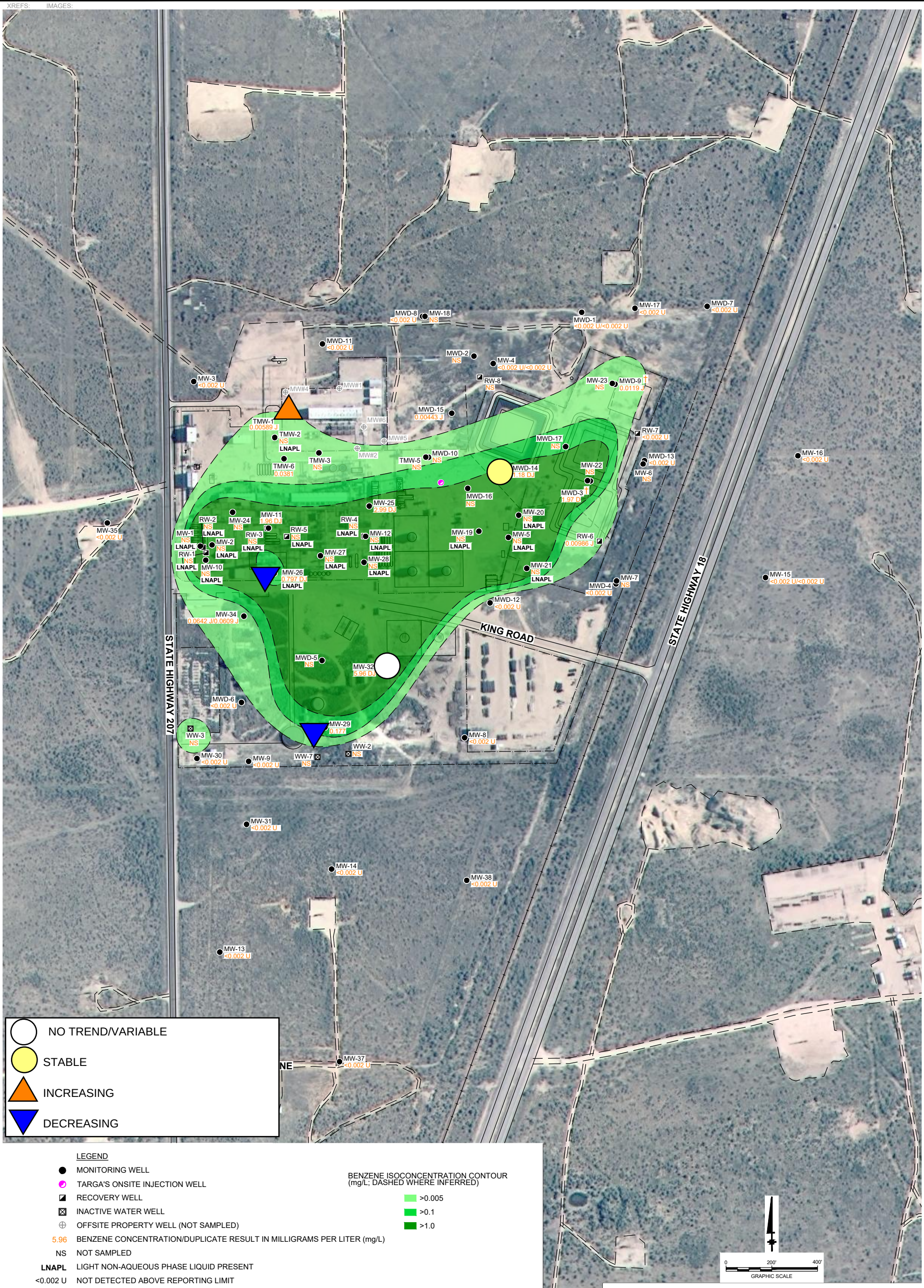
**Concentration vs. Time Plot - Chloride in MW-15**

Eunice South

**Figure G-13**

MK Trends_MW-15_Chloride_HS.xlsx

CITY: SAN RAFAEL, CA DIV/GROUP: ENVCAD DB: J. HARRIS
C:\Users\Pai01041\BIM 360\Arcadis\ANA - CHEVRON CORPORATION\Project Files\Eunice South Gas Plant-Site O&M\2020\30006138\01-DWG\GWM-Fig6-Benzene Fall 2020.dwg LAYOUT: 6 SAVED: 3/9/2020 6:57 PM ACADVER: 23.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ---- PLOTTED: 3/10/2020 10:42 AM BY: ANJANEYAKUMAR, PAVAN KUMAR
XREFS: IMAGES:




LEGEND

- MONITORING WELL
- TARGA'S ONSITE INJECTION WELL
- RECOVERY WELL
- INACTIVE WATER WELL
- OFFSITE PROPERTY WELL (NOT SAMPLED)
- 5.96 BENZENE CONCENTRATION/DUPLICATE RESULT IN MILLIGRAMS PER LITER (mg/L)
- NS NOT SAMPLED
- **LNAPL** LIGHT NON-AQUEOUS PHASE LIQUID PRESENT
- <0.002 U NOT DETECTED ABOVE REPORTING LIMIT
- J THE TARGET ANALYTE WAS POSITIVELY IDENTIFIED BELOW THE QUANTITATION LIMIT AND ABOVE THE DETECTION LIMIT
- D CONCENTRATION IS BASED ON A DILUTED SAMPLE ANALYSIS
- † PUMPING WELL

BENZENE ISOCONCENTRATION CONTOUR (mg/L; DASHED WHERE INFERRED)

- >0.005
- >0.1
- >1.0

NOTES:

1. MAP PROJECTED TO NAD83 NEW MEXICO STATE PLANE COORDINATE SYSTEM, EAST ZONE, FEET.
2. AERIAL IMAGERY PROVIDED BY USGS EARTH EXPLORER, ACCESSED APRIL 2016.
3. WELLS SURVEYED 1998, 2000, 2001, 2002, AND 2006 BY PIPER SURVEYING COMPANY. NAD27 NM S.P. EAST, FEET.
4. SITE FEATURES PROVIDED BY CRA
5. WELLS SAMPLED OCTOBER 2019.
6. ONLY DATA COLLECTED IN 2019 WERE POSTED. CONTOURS ARE BASED ON HISTORICAL DATA DATING BACK TO 2018 WHERE CURRENT DATA ARE NOT AVAILABLE.

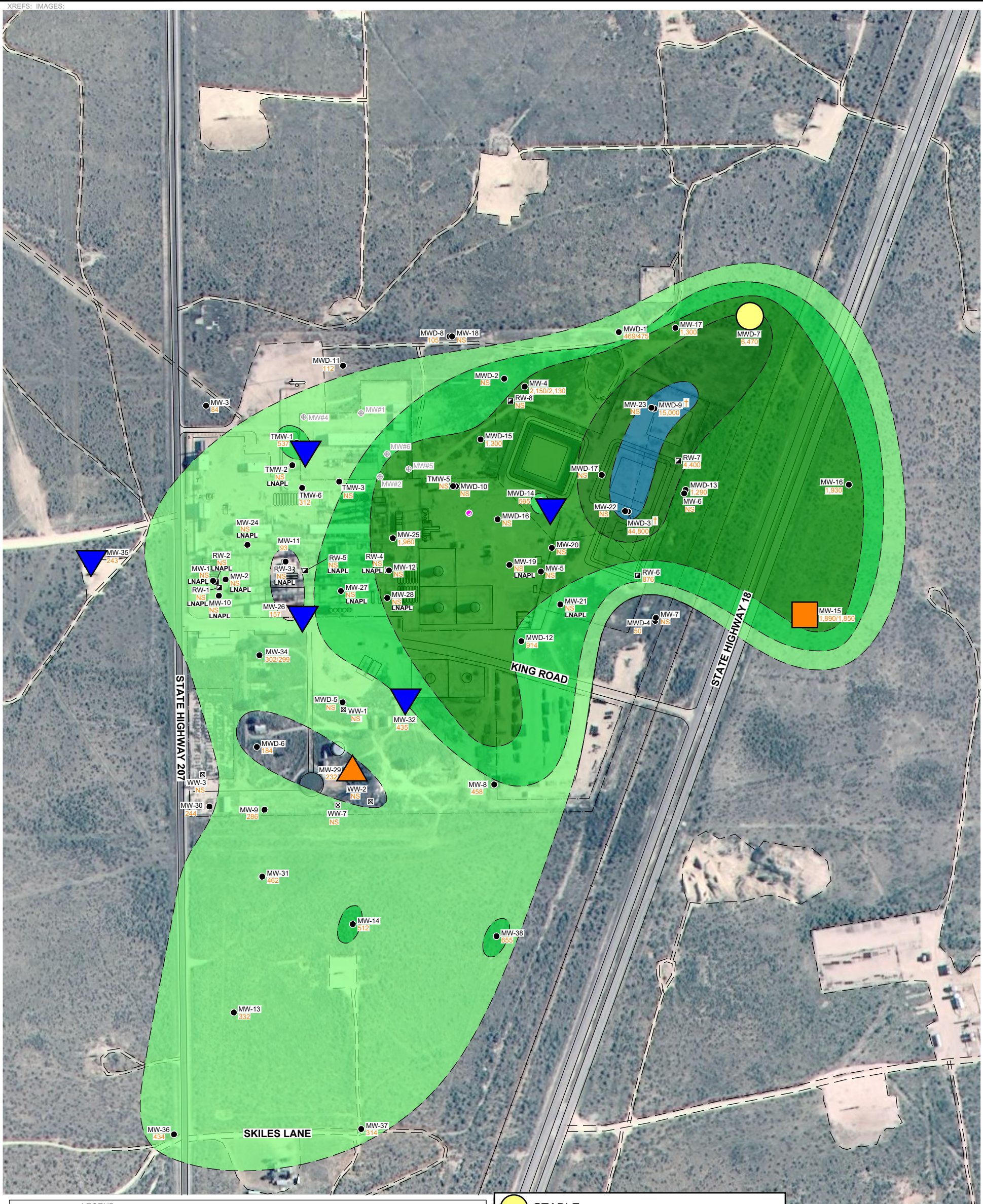
CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER EUNICE SOUTH GAS PLANT
EUNICE, LEA COUNTY, NEW MEXICO

# BENZENE TREND SUMMARY MAP

ARCADIS Design & Consultancy for natural and built assets

FIGURE
G-14

CITY: SAN RAFAEL, CA DIV/GROUP: ENVCAD DB: J. HARRIS
C:\Users\Pai01041\BIM 360\Arcadis\ANA - CHEVRON CORPORATION\Project Files\Eunice South Gas Plant-Site O&M\2020\30006138\01-DWG\GWM-Fig8-Chloride Fall 2020.dwg LAYOUT: 8 SAVED: 3/9/2020 7:00 PM ACADVER: 23.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ---- PLOTTED: 3/10/2020 10:46 AM BY: ANJANEYAKUMAR, PAVAN KUMAR
XREFS: IMAGES:




LEGEND

- MONITORING WELL
- TARGA'S ONSITE INJECTION WELL
- RECOVERY WELL
- INACTIVE WATER WELL
- OFFSITE PROPERTY WELL (NOT SAMPLED)
- 17,000 — CHLORIDE CONCENTRATION/DUPLICATE RESULT IN MILLIGRAMS PER LITER (mg/L)
- NS — NOT SAMPLED
- <0.002 U — NOT DETECTED ABOVE REPORTING LIMIT
- **LNAPL** — LIGHT NON-AQUEOUS PHASE LIQUID PRESENT
- J — THE TARGET ANALYTE WAS POSITIVELY IDENTIFIED BELOW THE QUANTITATION LIMIT AND ABOVE THE DETECTION LIMIT
- D — CONCENTRATION IS BASED ON A DILUTED SAMPLE ANALYSIS
- † — PUMPING WELL

CHLORIDE ISOCONCENTRATION CONTOUR (mg/L; DASHED WHERE INFERRED)

- >250
- >500
- >1,000
- >3,000
- >10,000

- STABLE
- POTENTIALLY INCREASING
- INCREASING
- DECREASING

0 200' 400'
GRAPHIC SCALE

NOTES:

1. MAP PROJECTED TO NAD83 NEW MEXICO STATE PLANE COORDINATE SYSTEM, EAST ZONE, FEET.
2. AERIAL IMAGERY PROVIDED BY USGS EARTH EXPLORER, ACCESSED APRIL 2016.
3. WELLS SURVEYED 1998, 2000, 2001, 2002, AND 2006 BY PIPER SURVEYING COMPANY. NAD27 NM S.P. EAST, FEET.
4. SITE FEATURES PROVIDED BY CRA.
5. WELLS SAMPLED OCTOBER 2019
6. ONLY DATA COLLECTED IN 2019 WERE POSTED. CONTOURS ARE BASED ON HISTORICAL DATA DATING BACK TO 2018 WHERE CURRENT DATA ARE NOT AVAILABLE.

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER EUNICE SOUTH GAS PLANT
EUNICE, LEA COUNTY, NEW MEXICO

# CHLORIDE TREND SUMMARY MAP

ARCADIS Design & Consultancy for natural and built assets

FIGURE
G-15

# APPENDIX H

## Bioventing and Natural Source Zone Depletion Memo

# MEMO

Arcadis U.S., Inc.
630 Plaza Drive
Suite 100
Highlands Ranch
Colorado 80129
Tel 720 344 3500
Fax 720 344 3535

To:
Jason Michelson, CEMC

Copies:
Jon Spitzinger
Sonja Zabienski

From:
Rebecca Andresen

Date:
December 20, 2019

Arcadis Project No.:
30006138

Subject:

**Bioventing and Natural Source Zone Depletion Evaluation Memo**

Former Eunice South Gas Plant

Lea County, Eunice, New Mexico

---

Arcadis U.S., Inc. (Arcadis) prepared this Bioventing and Natural Source Zone Depletion Evaluation Memo on behalf of Chevron Environmental Management Company (CEMC) to present the results associated with bioventing operation and natural source zone depletion (NSZD) monitoring at the Former Eunice South Gas Plant (Site).

## BIOVENTING OPERATION SUMMARY

### Design Objectives and Approach

Bioventing is a remedial process in which oxygen is circulated through contaminated vadose zone soils via applied air flow for stimulation of microbial degradation of contaminants. Design of the bioventing system was based upon the following objectives:

- Achieve measurable light non-aqueous phase liquid (LNAPL) reduction at target wells using a cost-effective technology,
- Utilize mobile bioventing units for flexible use at wellheads, and
- Limit reliance on permanent infrastructure to the extent practicable (e.g., mobile power source).

Three mobile wellhead bioventing units were designed to accommodate simultaneous but independent operation at three individual wells. Wellhead units were designed to be transferable between wells as remediation progressed. Since wells with observed historic measurable LNAPL vary in diameter from 2-inch to 6-inch, bioventing units were designed with appropriate fittings to accommodate different well casing diameters. The bioventing units became operational in May 2017.



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The bioventing units consist of a small blower connected to the wellhead to induce vacuum from the well. A 1/2-inch diameter vertical exhaust stack is connected to the pump outlet. Solar panels provide charge to one 12V battery per unit, which powers the pump. Because no additional power backup is supplied, the solar panels and battery have the capacity to allow for approximately six hours of operation per day with efficiency varying with the solar cycle in the area. The bioventing units do not operate when sufficient solar energy is not present.

Upon determination that bioventing has succeeded in remediation of LNAPL at the current locations, the units will be relocated to operate at additional wellhead locations within the Site. It is anticipated that relocations will be made approximately every two to four years.

## Permitting

While the intent of bioventing is to provide oxygen via circulation of air through the vadose zone at a rate that is supportive of biodegradation, rather than volatilization, it is possible that some volatilization may occur and vapors may be extracted through the bioventing units at levels requiring an air permit. Therefore, regular emission measurements from the bioventing units have been collected since startup in 2017 and throughout 2018 and 2019, based on grab air samples collected from each well and submitted for analysis by US Environmental Protection Agency (US EPA) Method TO-15. Exhaust flow rates are approximately 1 cubic foot per minute (CFM) from each unit. Constituents monitored include total petroleum hydrocarbons (gasoline range) along with the applicable US EPA Hazardous Air Pollutants and New Mexico Toxic Air Pollutants.

On December 21, 2018, a request for concurrence on a no permit required (NPR) designation was sent to New Mexico Environmental Department Air Quality Bureau (AQB) based on the combined bioventing emission rates since startup in 2017. Emission rates were calculated with a conservative operational assumption of 14 hours per day, 365 days per year even though actual operation is closer to six hours per day based on the limitations of the solar panels and battery to provide power to the system. Under this assumption, bioventing emissions have been below the 10 tons per year VOC maximum limit for an NPR designation. The AQB approved the NPR designation on March 12, 2019.

The following section summarizes additional monitoring details.

## System Operation and Natural Source Zone Depletion Monitoring

Wellhead bioventing units were installed on wells with observed historic measurable LNAPL for individual well treatment. Wells MW-1, RW-2, and MW-28 were identified for bioventing and are presented in **Figure 1**. The following NSZD monitoring activities have been conducted to assess system operation and in-situ biodegradation at the Site:

- LNAPL baildown (transmissivity) testing
- Bioventing effluent vapor sampling at bioventing wells
- In-situ temperature monitoring both at bioventing wells and other surrounding LNAPL wells

LNAPL baildown testing has been conducted at wells containing LNAPL on a semiannual or annual basis to assess LNAPL transmissivity and the effectiveness of the system operation over time. LNAPL



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transmissivity was identified as a metric for system performance because it correlates to LNAPL recoverability and LNAPL saturation. In contrast, other potential metrics (like in-well thickness over time) are not well-correlated to recoverability or saturation. LNAPL transmissivity can track reductions in LNAPL saturation via mass removal or mass degradation in situ. The transmissivity results are used to assess the remedial effect of targeted efforts at higher-transmissivity wells and guide potential relocation of the bioventing systems to alternate wells once the desired saturation reductions have been reached at a specific well location. The tests generally coincided with the semi-annual groundwater monitoring program.

Bioventing effluent air samples for analysis of VOCs and NSZD indicators were collected on a monthly basis, when possible, since startup of the bioventing units in 2017 to 2019. In 2019, quarterly sampling was initiated.

In-situ temperatures at wells MW-5, MW-28, RW-1, and MWD-11 were monitored from April 2017 to April 2019 using data-logging temperature probes installed at various depths within each well, with monthly data downloads. In August 2019, temperature probes were reinstalled at new well locations MW-1, RW-2, MW-28, RW-4, RW-5, MW-19 and MW-31, with one probe per well aimed at the smear zone of each well to collect additional temperature data.

## ANALYSIS

The section below provides further description and analysis of each of the three NSZD monitoring activities.

### LNAPL Transmissivity

LNAPL transmissivity represents the volumetric rate of LNAPL flow through a unit width of porous media per unit time under a hydraulic gradient, and is presented in units of area per time, such as square feet per day ($ft^2/d$). LNAPL transmissivity is well-suited for assessing LNAPL recoverability, inherently accounting for the combined effects of aquifer matrix permeability, LNAPL physical properties, and the relative proportion of pore space occupied by LNAPL within a specified vertical interval of aquifer material. LNAPL transmissivity values in the range of 0.1 to 0.8 $ft^2/d$ are generally associated with the lower limits of practical hydraulic LNAPL recovery (ITRC 2009 and 2018), and several jurisdictions have adopted LNAPL transmissivity values within or below this range as an indication that LNAPL recovery to the extent practicable has been completed.

An ASTM International (ASTM) standard for LNAPL transmissivity measurement (ASTM E2856, 2013) provides standardized methods for LNAPL transmissivity measurement. The ASTM standard is intended to establish consistency between practitioners for field data collection and analysis procedures, facilitating wider adoption of LNAPL transmissivity as a metric for assessing practicality of LNAPL recovery. The Site activities conducted as part of this assessment were completed in accordance with the ASTM standard practices.

#### LNAPL Baildown Testing

LNAPL transmissivity was evaluated at the Site through analysis of LNAPL baildown tests at monitoring wells. LNAPL baildown tests are analogous to rising-head slug tests that are typically employed to estimate the average hydraulic conductivity of saturated geologic formation materials proximal to the screened portion of a groundwater well under prevailing ambient test conditions. LNAPL is removed during a single event from the test well, in a relatively short period of time, and then fluid levels within the well are monitored to measure LNAPL recharge to the well and track LNAPL drawdown. LNAPL transmissivity



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values calculated from baildown testing are representative of the LNAPL transmissivity of the formation in the vicinity of the well being tested, under the conditions existing at the time of the test.

The LNAPL transmissivity values calculated from baildown test data were used to quantitatively characterize LNAPL transport conditions at the Site and to characterize LNAPL recoverability. Low LNAPL transmissivity values are indicative of conditions not conducive to practical hydraulic recovery. High LNAPL transmissivity values are indicative of higher LNAPL saturation and locally drainable/flowable LNAPL, and of locations ideal for bioventing in order to accelerate long-term reductions in LNAPL saturation and LNAPL mass.

In 2019, LNAPL baildown tests were completed at the Site in October at the wells summarized in the following table.

| October 2-9, 2019 |
|---|
| MW-1 |
| MW-2 |
| MW-10 |
| MW-19 |
| MW-20 |
| MW-27 |
| MW-28 |
| RW-1 |
| RW-2 |
| RW-4 |
| TMW-2 |

LNAPL transmissivity tests were also completed in 2016, 2017, and 2018; those field activities are not documented in this memo, but data are discussed for comparison purposes.

LNAPL baildown tests were analyzed using the API Transmissivity Workbook (API 2012) and in accordance with the recommendations of ASTM E-2856 (2013), using the Bouwer & Rice, Cooper & Jacob/Jacob & Lohmann, and Cooper-Bredhoeft-Papadopulos solutions contained within the API workbook. Note that, at locations where the ambient water table appeared to be consistently declining over the course of a baildown test (for example, the October 2019 tests completed at wells MW-10 and TMW-2), LNAPL drawdown for that test was calculated based on the unconfined “skimming drawdown” equation referenced in ASTM E-2856 (equation 17), as follows:

$$s_{n(t)} = \left(b_{n(0)} - b_{n(t)}\right) * (1 - \rho_r)$$

Where,

$s_{n(t)}$ = LNAPL drawdown at time t;
$b_{n(0)}$ = initial LNAPL thickness;
$b_{n(t)}$ = LNAPL thickness at time t;
$\rho_r$ = LNAPL-water density ratio.

This approach generally provides a conservative result by assuming that the mobile LNAPL interval moves vertically with the water table and avoids overestimating LNAPL drawdown (and thus underestimating LNAPL transmissivity) during periods of decreasing ambient water table fluctuation.

**Results**

LNAPL transmissivity results are summarized in **Table 1**. In general, LNAPL transmissivity values have remained relatively consistent over five transmissivity testing events from August 2016 to October 2019. Findings and conclusions from LNAPL transmissivity data include the following:

- Results for bioventing well MW-28 indicate a decrease in LNAPL transmissivity from approximately 6.3 $ft^2/d$ in 2018 to approximately 1.5 $ft^2/d$ in 2019.
- Results for bioventing well MW-1 indicate a decrease in LNAPL transmissivity from approximately 2.9 $ft^2/d$ in 2016 to below 0.8 $ft^2/d$ in October 2019. LNAPL recovery potential is now inferred to be limited at this well and it is recommended to relocate the bioventing unit from this well to another one with higher LNAPL transmissivity.
- LNAPL transmissivity values do not show a clear trend at wells MW-2, MW-20, MW-27, RW-1, RW-2 (bioventing well), and RW-4. Transmissivity values range between 1 $ft^2/d$ to 9 $ft^2/d$ and appear relatively stable over multiple testing events. A similar value was also observed at RW-5, although only one test (November 2018) has been completed at this well. The initial LNAPL thickness at well RW-5 in October 2019 was 0.45 feet, which did not meet the 0.50-foot thickness requirement to run a transmissivity test.
- Results for well TMW-2 indicate a decrease in LNAPL transmissivity from approximately 2 $ft^2/d$ in 2018 to approximately 0.3 $ft^2/d$ in 2019.
- At wells MW-5, MW-12, and MW-21, located on the eastern side of the LNAPL area which was historically identified to have heavier, crude-type LNAPL, results were consistently below 0.8 $ft^2/d$ across multiple testing events, indicating that hydraulic LNAPL recovery potential at those locations is low. Therefore, LNAPL transmissivity testing was not conducted at these locations in 2019.
- LNAPL transmissivity at well MW-10 was below 0.8 $ft^2/d$ in October 2019 (with a test result of 0.03 $ft^2/d$) and recovery potential is also inferred to be limited there, although only one test has been completed at this well.
- LNAPL transmissivity at well MW-19 has had three out of four test results below 0.8 $ft^2/d$ (with test results of 0.01 $ft^2/d$, 0.01 $ft^2/d$, 3.5 $ft^2/d$, and 0.1 $ft^2/d$) and recovery potential is also inferred to be limited there.

Each of the well locations where increases in LNAPL transmissivity are observed from 2018 to 2019 (MW-20, MW-27, and RW-4) have historically contained measurable in-well LNAPL, and the increase in transmissivity does not necessarily imply large-scale migration or movement of the LNAPL body. Water level measurements indicate that groundwater elevation (and the groundwater potentiometric surface within LNAPL areas) has typically increased by approximately 1.5 feet at the Site relative to conditions prior to 2016. The increased transmissivity values observed at these locations may be the result of small-scale redistribution of mobile LNAPL within the LNAPL body as regional water levels rise.



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## Bioventing Performance

As described in previous submittals, bioventing is a remedial process in which oxygen is circulated through contaminated vadose zone soils via applied air flow for stimulation of microbial degradation of contaminants. The system installation and startup is described below, along with results of performance monitoring conducted to date.

### System Installation and Startup

As discussed above, wellhead bioventing units were installed on wells MW-1, RW-2 and MW-28. The units ran intermittently through 2017 while troubleshooting was conducted, then consistently in 2018 and 2019 with limited unscheduled downtime for maintenance and repairs. The bioventing systems run approximately six hours per day, depending on the solar cycle.

### Performance Monitoring

The wellhead bioventing units are not intended to act like soil vapor extraction systems and remove total petroleum hydrocarbon mass; although TPH concentrations were measured during performance monitoring, the key performance indicators are $CO_2$, $O_2$, and temperature. In this case, the performance of the bioventing units was analyzed using two different methods. First, effluent gas monitoring was conducted to determine the volume of VOCs that have been removed and the rate of LNAPL degradation that has been achieved. Second, temperature profiles were prepared to compare the temperature in wells during bioventing operation and when the system is shutdown; those temperature profiles can be used to determine an LNAPL degradation rate and the rate should be higher when the bioventing units are in operation.

### Effluent Gas Monitoring

Effluent gas samples were collected from each bioventing unit for analysis of VOCs, total petroleum hydrocarbons (TPH), and $CH_4$, $CO_2$, oxygen and hydrogen sulfide. Gas samples were collected generally one to two hours after the bioventing systems started up. Grab samples were collected for measurement of $CH_4$, $CO_2$, oxygen and hydrogen sulfide in the field and summa canisters were sent to a laboratory for analytical testing of VOCs and TPH. The flow rate and measured concentration of $CO_2$ and $CH_4$ were used to calculate an emission rate in pounds per hour and tons per year (**Table 2**). When petroleum hydrocarbon molecules are converted to the end products of methane and carbon dioxide ($CO_2$ and $CH_4$ are both generated in anaerobic conditions, while only $CO_2$ is generated under aerobic conditions) each carbon atom will correspond to one molecule of either $CO_2$ or $CH_4$. Assuming a hydrocarbon compound of octane ($C_8H_{18}$), eight moles of $CO_2$ or $CH_4$ correspond to one mole of $C_8H_{18}$. Following this relationship and assuming an LNAPL density of 0.8 grams per mole (g/mol), the following approximate equivalents can be calculated:

- 1 pound per hour (lb/hr) of $CH_4$ is generated from 1.6 gallons per day (gal/day) of $C_8H_{18}$
- 1 lb/hr of $CO_2$ is generated from 0.58 gal/day of $C_8H_{18}$

The rates of LNAPL degradation at MW-1 range from less than 0.1 gal/day to 4.9 gal/day, at MW-28 from less than 0.1 gal/day to 3.1 gal/day and at RW-2 from less than 0.1 gal/day to 5.0 gal/day. Using an average degradation rate for each well and the runtimes outlined above, the total volume of LNAPL that has been degraded through October 10, 2019 has been calculated as approximately 1,389 gallons based on measurement of $CO_2$ and $CH_4$ generation.



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In 2019, $O_2$ generation decreased and $CO_2$ generation increased at MW-28 and RW-2, indicating LNAPL degradation. However, $CO_2$ generation was not observed at MW-1 in 2019, indicating minimal biological activity and minimal LNAPL degradation. Therefore, it is recommended that the bioventing unit at MW-1 be moved to another well.

**Temperature Monitoring**

The biologically-mediated processes stimulated by bioventing that destroy hydrocarbons also release heat and create subsurface temperature anomalies where soil is warmer than background conditions. Recent research has focused on measuring temperatures in and around LNAPL-affected areas and characterizing thermal anomalies (areas of warmer temperature) associated with $CH_4$ oxidation from LNAPL depletion (Sweeney and Ririe, 2014). The studies concluded that temperature evaluation can provide useful information to evaluate biodegradation of hydrocarbons in soil. However, the methodology used to monitor temperature at the Site was determined to be ineffective in 2019. The temperature dataloggers that were deployed in wells MWD-11, MW-28, MW-5, and RW-1 frequently failed or were damaged due to the difficult subsurface environment, which led to an incomplete dataset. Temperature data collected from the revised well locations deployed in August 2019 were also inconsistent due to issues with the probes. In the datalogger data that were collected, there is no visible sharply increasing temperature signal. This indicates that either the environment was not conducive for measuring temperature or that the temperature loggers were malfunctioning, collecting inaccurate data, or were not at the exact location where biodegradation is occurring and that attempts to target heat increases were ineffective. Therefore, continuing to use the temperature data loggers is not considered an effective method to evaluate biodegradation of hydrocarbons in soil at the Site in 2020.

## Biodegradation and Performance Summary

LNAPL transmissivity data indicate that LNAPL recoverability has remained relatively consistent at the bioventing locations and other monitoring points tested, with the exceptions noted in the sections above, most notably at the MW-1 bioventing location. While it is expected to see decreases in LNAPL transmissivity at bioventing wells as LNAPL degradation progresses, it is likely that transmissivity values will continue to vary with fluctuating water levels but will follow a generally declining trend as LNAPL mass continues to biodegrade and LNAPL saturation is accordingly reduced.

Based on the bioventing air emissions tracking data reviewed above, bioventing is having an observable positive impact on LNAPL degradation rates at the Site relative to ambient conditions, with approximately 1,389 gallons of LNAPL degraded over the course of system operation through October of 2019. As a comparison, the four mobile dual-phase extraction events conducted in 2015 at RW-1, MW-27, and MW-28 resulted in a removal of approximately 1,185 gallons of LNAPL out of approximately 22,784 gallons of total liquid recovered and disposed of. Although a similar LNAPL mass was removed with the dual-phase extraction events, there was also a substantial amount of effort expelled to manage and properly dispose of the 22,784 gallons of liquid waste generated during the four events. Whereas the bioventing units required zero power (solar powered) and generate zero waste during the removal of the 1,389 gallons of LNAPL.



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Following this evaluation, Arcadis recommends the following:

- Discontinued operation of the bioventing system at MW-1, and relocating the bioventing unit to well MW-20, RW-4 or MW-27, as emissions data from MW-1 suggest that there is minimal biological activity at this location and further LNAPL degradation would be inefficient at MW-1. In addition, LNAPL transmissivity results from MW-1 indicate LNAPL recovery potential is limited at this well and that the overall amount of LNAPL mass in this area is low.
- Continued operation of bioventing systems at RW-2 and MW-28 for further LNAPL degradation.
    - Re-evaluation of the systems in approximately six months to determine if removal rates become asymptotic.
- Discontinued temperature monitoring at the Site.
- Continued annual LNAPL baildown testing in 2020 at only the wells with bioventing units.
- Reduced frequency biennial LNAPL baildown testing at all the wells previously tested in 2019, starting in 2021 and occurring every other year after that.

Arcadis will provide CEMC an update on performance on an annual basis.

## REFERENCES

ITRC (Interstate Technology & Regulatory Council). 2009. Evaluating LNAPL Remedial Technologies for Achieving Project Goals. LNAPL-2. Washington, D.C.: Interstate Technology & Regulatory Council, LNAPLs Team. Available at www.itrcweb.org.

ITRC. 2018. LNAPL-3: LNAPL Site Management: LCSM Evolution, Decision Process, and Remedial Technologies. Washington, D.C.: Interstate Technology & Regulatory Council, LNAPLs Team. Available at https://lnapl-3.itrcweb.org/

Sweeney, R.E., and G.T. Ririe. 2014. Temperature as a Tool to Evaluate Aerobic Biodegradation in Hydrocarbon Contaminated Soil. Groundwater Monitoring and Remediation. 34:41-50.

## FIGURES

Figure 1 Site Layout Map with Bioventing System Locations

Figure 2 LNAPL Transmissivity Results for MW-1, MW-2, MW-5, MW-19, MW-20, and MW-21

Figure 3 LNAPL Transmissivity Results for MW-27, MW-28, RW-1, RW-2, and RW-4

## TABLES

Table 1 LNAPL Transmissivity Test Summary

Table 2 Bioventing Emissions Summary



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# FIGURES

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LEGEND

- SHALLOW MONITORING WELL
- DEEP MONITORING WELL
- TARGA'S ONSITE INJECTION WELL
- RECOVERY WELL
- INACTIVE WATER WELL
- OFFSITE PROPERTY WELL (NOT SAMPLED)
- BIOVENTING PILOT TEST WELL

NOTES:

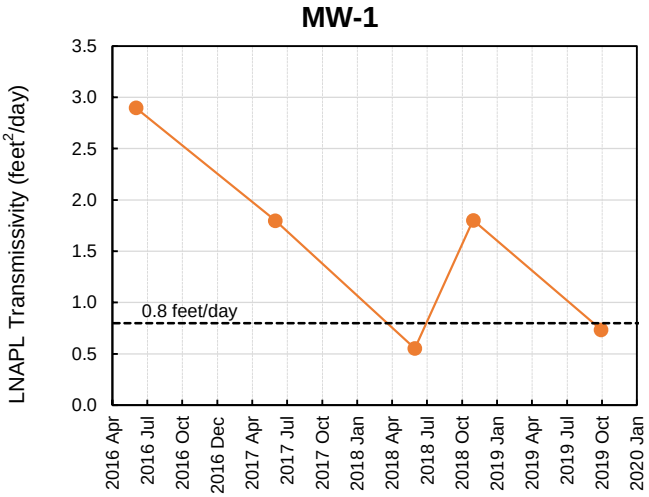
1. MAP PROJECTED TO NAD83 NEW MEXICO STATE PLANE COORDINATE SYSTEM, EAST ZONE, FEET.
2. AERIAL IMAGERY PROVIDED BY USGS EARTH EXPLORER, ACCESSED APRIL 2016.
3. WELLS SURVEYED 1998, 2000, 2001, 2002, AND 2006 BY PIPER SURVEYING COMPANY. NAD27 NM S.P. EAST, FEET.
4. SITE FEATURES PROVIDED BY CRA.

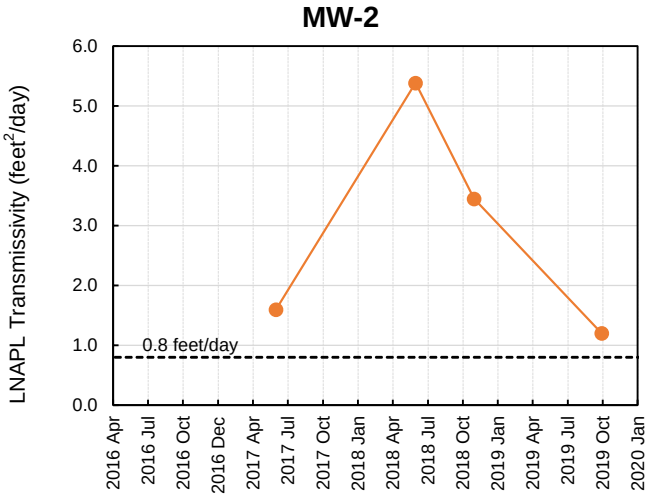
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FORMER EUNICE SOUTH GAS PLANT
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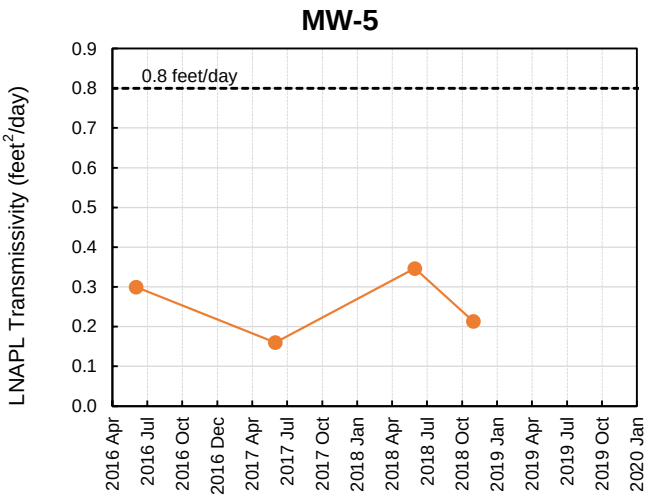
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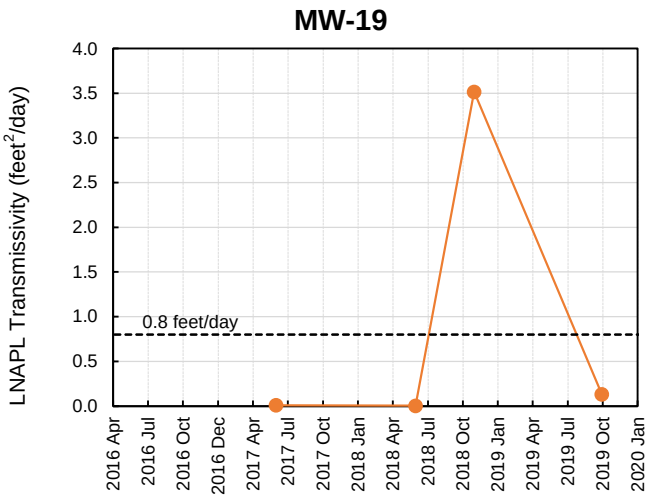
ARCADIS Design & Consultancy for natural and built assets

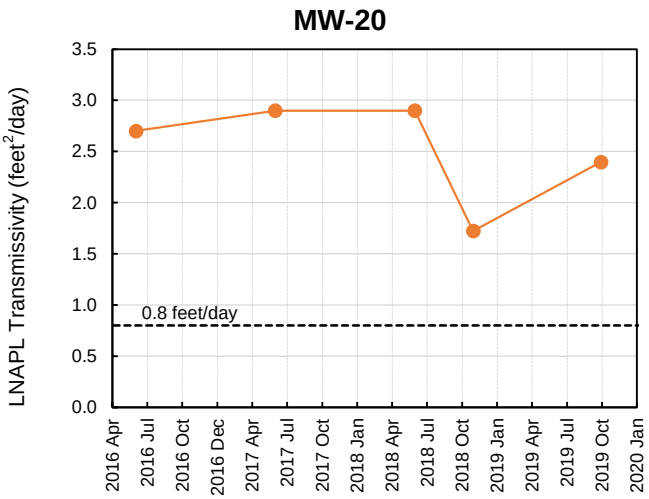
FIGURE
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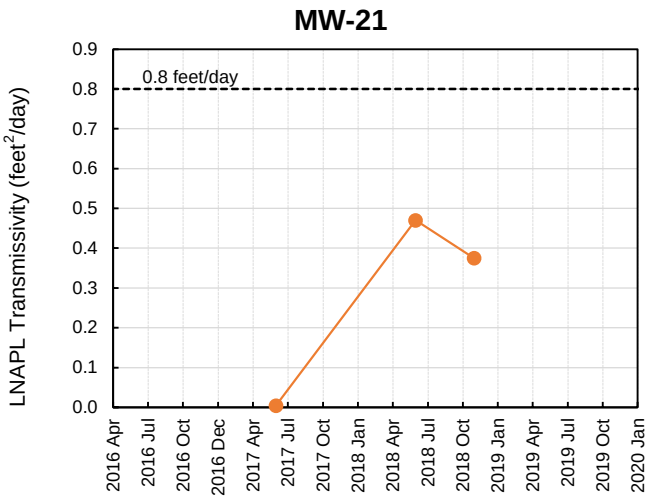



**Notes:**

Plots were not developed for wells with less than three transmissivity test results.

● LNAPL Transmissivity (feet²/day)

▬ ▬ 0.8 feet²/day is the lower limit of practical hydraulic LNAPL recovery

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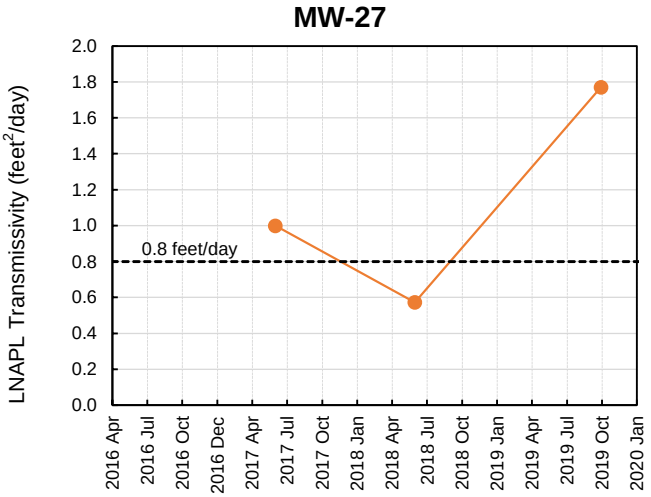
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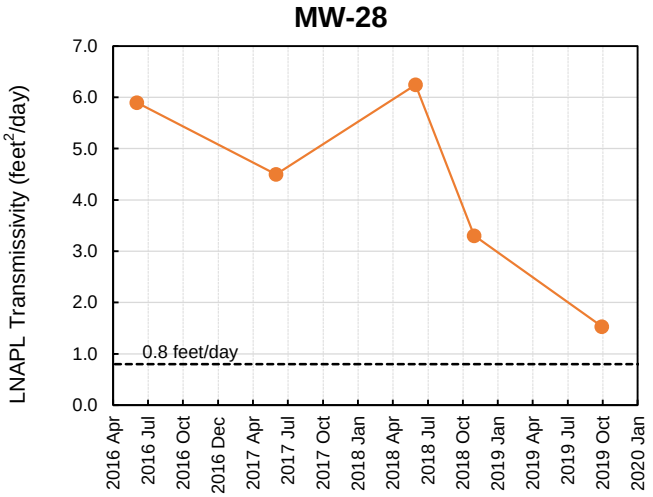
Bioventing and Natural Source Zone Depletion Evaluation Memo

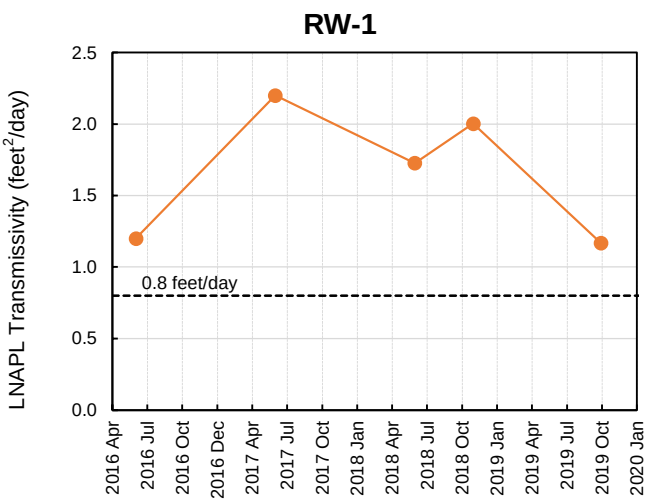
Former Eunice South Gas Plant, Lea County, Eunice, New Mexico

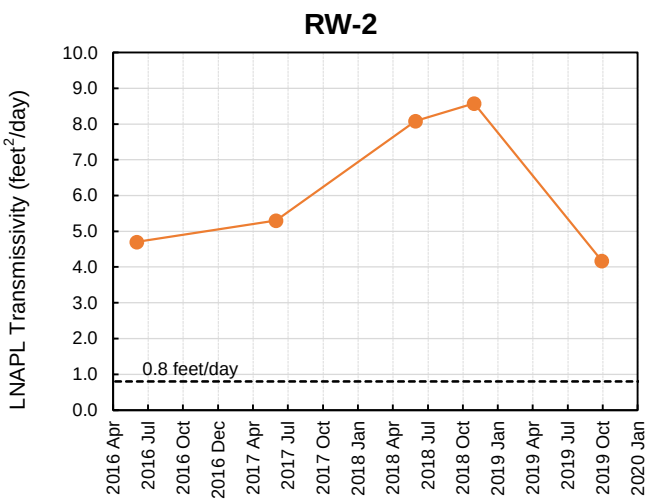
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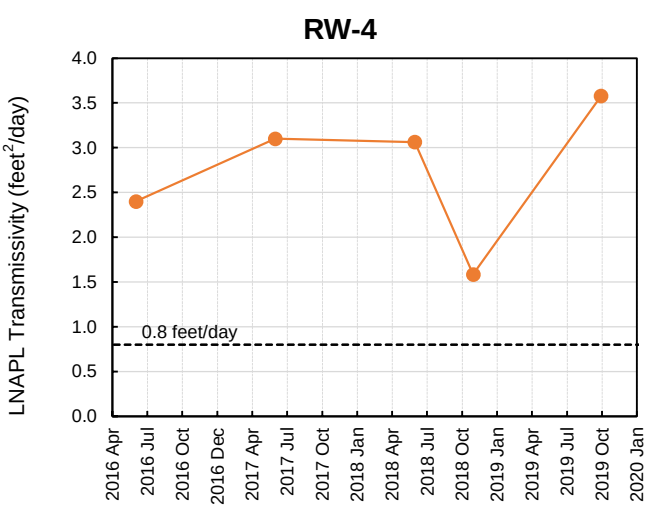
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**Notes:**

Plots were not developed for wells with less than three transmissivity test results.

● LNAPL Transmissivity (feet²/day)

▬ ▬ 0.8 feet²/day is the lower limit of practical hydraulic LNAPL recovery

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**LNAPL Transmissivity Results for MW-27, MW-28, RW-1, RW-2, and RW-4**

Bioventing and Natural Source Zone Depletion Evaluation Memo

Former Eunice South Gas Plant, Lea County, Eunice, New Mexico

**FIGURE**

**3**

# TABLES

**Table 1**
**LNAPL Transmissivity Test Summary**
**Former Eunice South Gas Plant**
**Eunice, Lea County, New Mexico**

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| Well ID | Test Date | Time Cut (minutes) | Initial LNAPL Thickness (feet) | Test Duration (minutes) | Final LNAPL Thickness (feet) | Percent Recovery | LNAPL Transmissivity ($ft^2$/day) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Bouwer and Rice | Cooper and Jacob/Jacob and Lohman | Cooper, Bredehoeft, and Papadopoulos | Geometric Mean | *2018 Geometric Mean* | *2017 Geometric Mean* | *2016 Geometric Mean* |
| MW-1 | 10/3/2019 | 13 | 1.46 | 54 | 1.34 | 92% | 0.70 | 0.68 | **0.84** | 0.74 | 0.55<br>**1.8** | **1.8** | **2.9** |
| MW-2 | 10/3/2019 | 16 | 1.52 | 60 | 1.37 | 90% | **1.1** | **1.5** | **1.1** | **1.2** | **5.4**<br>**3.4** | **1.6** | --- |
| MW-5 | ---[a] | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.35<br>0.21 | 0.16 | 0.30 |
| MW-10 | 10/2/2019 | 90 | 2.33 | 12,737 | 1.66 | 71% | 0.03 | --- | --- | 0.03 | --- | --- | --- |
| MW-12 | ---[a] | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.04<br>0.37 | --- | --- |
| MW-19 | 10/8/2019 | 24 | 1.56 | 2,877 | 0.46 | 29% | 0.07 | 0.16 | 0.21 | 0.13 | 0.01<br>**3.5** | 0.01 | --- |
| MW-20 | 10/8/2019 | 44 | 3.26 | 1,167 | 3.07 | 94% | **2.2** | **2.7** | **2.3** | **2.4** | **2.9**<br>**1.7** | **2.9** | **2.7** |
| MW-21 | ---[a] | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.47<br>0.38 | 0.005 | --- |
| MW-27 | 10/9/2019 | 21 | 0.94 | 57 | 0.82 | 87% | **1.3** | **2.2** | **2.0** | **1.8** | 0.57 | **1.0** | --- |
| MW-28 | 10/9/2019 | 28 | 1.96 | 260 | 1.77 | 90% | **1.3** | **1.7** | **1.7** | **1.5** | **6.2**<br>**3.3** | **4.5** | **5.9** |
| RW-1 | 10/2/2019 | 15 | 1.56 | 254 | 1.56 | 100% | **1.1** | **1.1** | **1.3** | **1.2** | **1.7**<br>**2.0** | **2.2** | **1.2** |
| RW-2 | 10/2/2019 | 11 | 1.47 | 129 | 1.36 | 93% | **2.8** | **4.9** | **5.4** | **4.2** | **8.1**<br>**8.6** | **5.3** | **4.7** |
| RW-4 | 10/9/2019 | 45 | 2.05 | 592 | 1.85 | 90% | **2.8** | **3.9** | **4.2** | **3.6** | **3.1**<br>**1.6** | **3.1** | **2.4** |
| RW-5 | 10/4/2019 | --- | 0.45[b] | --- | --- | --- | --- | --- | --- | --- | **4.1** | --- | --- |
| TMW-2 | 10/8/2019 | 20 | 0.52 | 100 | 0.32 | 62% | 0.31 | --- | --- | 0.31 | **1.9** | --- | --- |

**Notes:**

[a]LNAPL baildown testing was not continued in 2019 because hydraulic LNAPL recovery potential was historically low

[b]The initial LNAPL thickness did not meet the 0.50-foot thickness requirement to run a transmissivity test.

**Acronyms and Abbreviations:**

**bold** = values greater than the Interstate Technology & Regulatory Commission (ITRC [2009]) recommended threshold for practical recoverability of LNAPL (0.8 $ft^2$/day)

$ft^2$/day = square foot (feet) per day

LNAPL = light nonaqueous phase liquid

--- = data not available

% = percent





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Table 2
Bioventing Emissions Summary
Former Eunice South Gas Plant
Eunice, Lea County, New Mexico

ARCADIS Design & Consultancy for natural and built assets

| Well ID | Date | Flow Rate | Temperature | $CH_4$ | | | | $CO_2$ | | | | Total Hydrocarbon Depletion Rate |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Field-Measured Concentration | Molecular Weight | Potential Emission Rate | Rate of Hydrocarbon Depletion | Concentration | Molecular Weight | Potential Emission Rate | Rate of Hydrocarbon Depletion | |
| | | acfm | °F | ppmv | g/mol | lb/hr | tpy | gal-LNAPL/day | ppmv | g/mol | lb/hr | tpy | gal-LNAPL/day | gal-LNAPL/day |
| MW-1 | 5/22/2017 | 1.30 | 100.0 | 160,000 | 16.04 | 0.43 | 1.89 | 0.69 | 130,000 | 44.01 | 0.96 | 4.21 | 0.56 | 1.25 |
| | 5/23/2017 | 1.30 | 100.0 | 30,000 | 16.04 | 0.08 | 0.35 | 0.13 | 94,000 | 44.01 | 0.70 | 3.05 | 0.41 | 0.53 |
| | 5/25/2017 | 1.10 | 100.0 | 0 | 16.04 | 0.00 | 0.00 | 0.00 | 53,000 | 44.01 | 0.33 | 1.45 | 0.19 | 0.19 |
| | 7/11/2017 | 1.05 | 100.0 | 5,000 | 16.04 | 0.01 | 0.05 | 0.02 | 81,000 | 44.01 | 0.48 | 2.12 | 0.28 | 0.30 |
| | 7/31/2017 | 1.05 | 100.0 | 0 | 16.04 | 0.00 | 0.00 | 0.00 | 13,000 | 44.01 | 0.08 | 0.34 | 0.05 | 0.05 |
| | 8/31/2017 | 1.12 | 66.0 | 1,000,000 | 16.04 | 2.47 | 10.83 | 3.95 | 240,000 | 44.01 | 1.63 | 7.13 | 0.95 | 4.90 |
| | 10/31/2017 | 1.12 | 50.3 | 300,000 | 16.04 | 0.76 | 3.35 | 1.22 | 115,000 | 44.01 | 0.80 | 3.52 | 0.47 | 1.69 |
| | 2/12/2018 | 0.70 | 35.4 | 40,000 | 16.04 | 0.07 | 0.29 | 0.10 | 152,000 | 44.01 | 0.68 | 3.00 | 0.40 | 0.50 |
| | 3/8/2018 | 0.49 | 47.3 | 40,000 | 16.04 | 0.04 | 0.20 | 0.07 | 141,000 | 44.01 | 0.43 | 1.90 | 0.25 | 0.32 |
| | 4/5/2018 | 0.28 | 57.0 | 0 | 16.04 | 0.00 | 0.00 | 0.00 | 112,000 | 44.01 | 0.19 | 0.85 | 0.11 | 0.11 |
| | 4/30/2018 | 0.21 | 64.2 | 0 | 16.04 | 0.00 | 0.00 | 0.00 | 140,000 | 44.01 | 0.18 | 0.78 | 0.10 | 0.10 |
| | 5/30/2018 | 0.28 | 58.8 | 15,000 | 16.04 | 0.01 | 0.04 | 0.02 | 19,000 | 44.01 | 0.03 | 0.14 | 0.02 | 0.03 |
| | 6/29/2018 | 0.21 | 66.2 | 0 | 16.04 | 0.00 | 0.00 | 0.00 | 22,000 | 44.01 | 0.03 | 0.12 | 0.02 | 0.02 |
| | 8/8/2018 | 0.21 | 66.0 | 10,000 | 16.04 | 0.00 | 0.02 | 0.01 | 24,000 | 44.01 | 0.03 | 0.13 | 0.02 | 0.03 |
| | 8/31/2018 | 0.03 | 69.6 | 10,000 | 16.04 | 0.00 | 0.00 | 0.00 | 0 | 44.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| | 10/1/2018 | 0.03 | 67.8 | 430,000 | 16.04 | 0.03 | 0.12 | 0.04 | 24,000 | 44.01 | 0.00 | 0.02 | 0.00 | 0.04 |
| | 11/1/2018 | 0.14 | 51.6 | 1,263 | 16.04 | 0.00 | 0.00 | 0.00 | 0 | 44.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| | 12/3/2018 | 0.01 | 46.2 | 693 | 16.04 | 0.00 | 0.00 | 0.00 | 6 | 44.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| | 6/28/2019 | 0.98 | 66.0 | -- | 16.04 | -- | -- | -- | 0 | 44.01 | 0.00 | 0.00 | 0.00 | -- |
| | 7/31/2019 | 0.95 | 64.2 | 50,000 | 16.04 | 0.10 | 0.46 | 0.17 | 0 | 44.01 | 0.00 | 0.00 | 0.00 | 0.17 |
| | 8/29/2019 | 1.02 | 66.0 | 50,000 | 16.04 | 0.11 | 0.49 | 0.18 | 0 | 44.01 | 0.00 | 0.00 | 0.00 | 0.18 |
| | 10/10/2019 | 0.98 | 41.0 | -- | 16.04 | -- | -- | -- | 0 | 44.01 | 0.00 | 0.00 | 0.00 | -- |
| RW-2 | 5/22/2017 | 1.30 | 100.0 | 300,000 | 16.04 | 0.81 | 3.54 | 1.29 | 127,000 | 44.01 | 0.94 | 4.12 | 0.55 | 1.84 |
| | 5/23/2017 | 1.30 | 100.0 | 45,000 | 16.04 | 0.12 | 0.53 | 0.19 | 94,000 | 44.01 | 0.70 | 3.05 | 0.41 | 0.60 |
| | 5/25/2017 | 1.10 | 100.0 | 0 | 16.04 | 0.00 | 0.00 | 0.00 | 82,000 | 44.01 | 0.51 | 2.25 | 0.30 | 0.30 |
| | 7/11/2017 | 1.30 | 100.0 | 15,000 | 16.04 | 0.04 | 0.18 | 0.06 | 19,000 | 44.01 | 0.14 | 0.62 | 0.08 | 0.15 |
| | 7/31/2017 | 1.05 | 100.0 | 45,000 | 16.04 | 0.10 | 0.43 | 0.16 | 30,000 | 44.01 | 0.18 | 0.79 | 0.10 | 0.26 |
| | 8/31/2017 | 0.98 | 67.8 | 1,000,000 | 16.04 | 2.16 | 9.45 | 3.44 | 460,000 | 44.01 | 2.72 | 11.92 | 1.59 | 5.03 |
| | 10/31/2017 | 1.26 | 51.6 | 55,000 | 16.04 | 0.16 | 0.69 | 0.25 | 146,000 | 44.01 | 1.15 | 5.02 | 0.67 | 0.92 |
| | 2/12/2018 | 0.91 | 37.4 | 50,000 | 16.04 | 0.11 | 0.47 | 0.17 | 133,000 | 44.01 | 0.78 | 3.40 | 0.45 | 0.62 |
| | 3/8/2018 | 0.14 | 51.6 | 45,000 | 16.04 | 0.01 | 0.06 | 0.02 | 136,000 | 44.01 | 0.12 | 0.52 | 0.07 | 0.09 |
| | 4/5/2018 | 1.05 | 53.4 | 0 | 16.04 | 0.00 | 0.00 | 0.00 | 23,000 | 44.01 | 0.15 | 0.66 | 0.09 | 0.09 |
| | 4/30/2018 | 0.98 | 64.2 | 30,000 | 16.04 | 0.07 | 0.29 | 0.10 | 154,000 | 44.01 | 0.92 | 4.02 | 0.53 | 0.64 |
| | 5/30/2018 | 1.12 | 53.6 | 0 | 16.04 | 0.00 | 0.00 | 0.00 | 127,000 | 44.01 | 0.88 | 3.87 | 0.51 | 0.51 |
| | 6/29/2018 | 1.05 | 66.0 | 30,000 | 16.04 | 0.07 | 0.30 | 0.11 | 151,000 | 44.01 | 0.96 | 4.21 | 0.56 | 0.67 |
| | 8/8/2018 | 0.98 | 66.0 | 0 | 16.04 | 0.00 | 0.00 | 0.00 | 73,000 | 44.01 | 0.43 | 1.90 | 0.25 | 0.25 |
| | 8/31/2018 | 1.05 | 67.8 | 31,000 | 16.04 | 0.07 | 0.31 | 0.11 | 209,000 | 44.01 | 1.33 | 5.80 | 0.77 | 0.89 |
| | 10/1/2018 | 0.84 | 69.6 | 33,000 | 16.04 | 0.06 | 0.27 | 0.10 | 1,000 | 44.01 | 0.01 | 0.02 | 0.00 | 0.10 |
| | 11/1/2018 | 0.42 | 49.8 | 10,260 | 16.04 | 0.01 | 0.04 | 0.02 | 0 | 44.01 | 0.00 | 0.00 | 0.00 | 0.02 |
| | 12/3/2018 | 0.01 | 44.4 | 5,744 | 16.04 | 0.00 | 0.00 | 0.00 | 230 | 44.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| | 12/28/2018 | 0.00 | 29.8 | -- | -- | -- | -- | -- | 0 | 44.01 | 0.00 | 0.00 | 0.00 | -- |
| | 4/30/2019 | 1.02 | 51.8 | -- | -- | -- | -- | -- | 270,000 | 44.01 | 1.71 | 7.47 | 0.99 | -- |
| | 5/30/2019 | 1.05 | 62.0 | 42,500 | 16.04 | 0.10 | 0.43 | 0.16 | 80,000 | 44.01 | 0.51 | 2.25 | 0.30 | 0.46 |
| | 6/28/2019 | 1.02 | 69.6 | -- | -- | -- | -- | -- | 10,000 | 44.01 | 0.06 | 0.27 | 0.04 | -- |
| | 7/31/2019 | 0.98 | 64.2 | 50,000 | 16.04 | 0.11 | 0.48 | 0.17 | 200,000 | 44.01 | 1.19 | 5.22 | 0.69 | 0.87 |
| | 8/29/2019 | 1.05 | 64.2 | 50,000 | 16.04 | 0.12 | 0.51 | 0.19 | 220,000 | 44.01 | 1.40 | 6.15 | 0.82 | 1.00 |
| | 10/10/2019 | 0.98 | 42.6 | -- | -- | -- | -- | -- | 650,000 | 44.01 | 4.04 | 17.69 | 2.35 | -- |
| MW-28 | 5/22/2017 | 1.30 | 100.0 | 325,000 | 16.04 | 0.88 | 3.84 | 1.40 | 43,000 | 44.01 | 0.32 | 1.39 | 0.19 | 1.58 |
| | 5/23/2017 | 1.20 | 100.0 | 75,000 | 16.04 | 0.19 | 0.82 | 0.30 | 16,000 | 44.01 | 0.11 | 0.48 | 0.06 | 0.36 |
| | 7/11/2017 | 1.00 | 100.0 | 30,000 | 16.04 | 0.06 | 0.27 | 0.10 | 1,000 | 44.01 | 0.01 | 0.02 | 0.00 | 0.10 |
| | 8/31/2017 | 1.05 | 66.0 | 710,000 | 16.04 | 1.65 | 7.21 | 2.63 | 120,000 | 44.01 | 0.76 | 3.34 | 0.45 | 3.07 |
| | 10/31/2017 | 1.12 | 48.0 | 0 | 16.04 | 0.00 | 0.00 | 0.00 | 9,000 | 44.01 | 0.06 | 0.28 | 0.04 | 0.04 |
| | 2/12/2018 | 1.05 | 33.8 | 5,000 | 16.04 | 0.01 | 0.05 | 0.02 | 0 | 44.01 | 0.00 | 0.00 | 0.00 | 0.02 |
| | 3/8/2018 | 0.98 | 48.0 | 0 | 16.04 | 0.00 | 0.00 | 0.00 | 130,000 | 44.01 | 0.80 | 3.50 | 0.47 | 0.47 |
| | 4/5/2018 | 0.98 | 57.0 | 0 | 16.04 | 0.00 | 0.00 | 0.00 | 10,000 | 44.01 | 0.06 | 0.26 | 0.04 | 0.04 |
| | 4/30/2018 | 0.91 | 66.0 | 15,000 | 16.04 | 0.03 | 0.13 | 0.05 | 7,000 | 44.01 | 0.04 | 0.17 | 0.02 | 0.07 |
| | 5/30/2018 | 1.05 | 55.0 | 45,000 | 16.04 | 0.11 | 0.47 | 0.17 | 67,000 | 44.01 | 0.44 | 1.91 | 0.25 | 0.42 |
| | 6/29/2018 | 0.98 | 66.0 | 10,000 | 16.04 | 0.02 | 0.09 | 0.03 | 12,000 | 44.01 | 0.07 | 0.31 | 0.04 | 0.08 |
| | 8/8/2018 | 0.98 | 66.0 | 0 | 16.04 | 0.00 | 0.00 | 0.00 | 17,000 | 44.01 | 0.10 | 0.44 | 0.06 | 0.06 |
| | 8/31/2018 | 1.05 | 67.8 | 10,000 | 16.04 | 0.02 | 0.10 | 0.04 | 14,000 | 44.01 | 0.09 | 0.39 | 0.05 | 0.09 |
| | 10/1/2018 | 1.12 | 67.8 | 13,000 | 16.04 | 0.03 | 0.14 | 0.05 | 0 | 44.01 | 0.00 | 0.00 | 0.00 | 0.05 |
| | 11/1/2018 | 2.80 | 51.6 | 1,922 | 16.04 | 0.01 | 0.05 | 0.02 | 80,000 | 44.01 | 1.40 | 6.11 | 0.81 | 0.83 |
| | 12/3/2018 | 0.98 | 45.6 | 4,901 | 16.04 | 0.01 | 0.05 | 0.02 | 120 | 44.01 | 0.00 | 0.00 | 0.00 | 0.02 |
| | 12/28/2018 | 0.98 | 30.5 | -- | -- | -- | -- | -- | 0 | 44.01 | 0.00 | 0.00 | 0.00 | -- |
| | 4/30/2019 | 1.05 | 73.2 | -- | -- | -- | -- | -- | 80,000 | 44.01 | 0.50 | 2.20 | 0.29 | -- |
| | 5/28/2019 | 1.12 | 62.4 | 50,000 | 16.04 | 0.12 | 0.55 | 0.20 | 0 | 44.01 | 0.00 | 0.00 | 0.00 | 0.20 |
| | 6/28/2019 | 1.12 | 67.1 | -- | -- | -- | -- | -- | 440,000 | 44.01 | 2.98 | 13.05 | 1.74 | -- |
| | 7/31/2019 | 1.12 | 66.0 | 50,000 | 16.04 | 0.12 | 0.54 | 0.20 | 590,000 | 44.01 | 4.00 | 17.54 | 2.33 | 2.53 |
| | 8/29/2019 | 1.33 | 56.0 | 50,000 | 16.04 | 0.15 | 0.66 | 0.24 | 520,000 | 44.01 | 4.27 | 18.71 | 2.49 | 2.73 |
| | 10/10/2019 | 1.12 | 43.8 | -- | -- | -- | -- | -- | 350,000 | 44.01 | 2.48 | 10.86 | 1.45 | -- |

Notes:
acfm = actual cubic-foot per meter
$CH_4$ = methane
$CO_2$ = carbon dioxide
°F = degrees Fahrenheit
gal-LNAPL/day = gallons of light non-aqueous phase liquid per day
g/mol = grams per mole
ppmv = parts per million by volume
tpy = tons per year





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# State of New Mexico
# Energy, Minerals and Natural Resources
# Oil Conservation Division
# 1220 S. St Francis Dr.
# Santa Fe, NM 87505

CONDITIONS

Action 4690

## CONDITIONS

| | |
|---|---|
| Operator:<br>Arcadis U.S., Inc<br>630 Plaza Drive<br>Highlands Ranch, CO 80129 | OGRID:<br>329073 |
| | Action Number:<br>4690 |
| | Action Type:<br>[C-141] Release Corrective Action (C-141) |

**CONDITIONS**

| Created By | Condition | Condition Date |
|---|---|---|
| bbillings | Report accepted. All suggestions in Summary, including change in bio-venting wells, are approved. | 6/14/2022 |