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Accepted for the record
12/09/2022

March 11, 2021

NV

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

**Re: Former Eunice South Gas Plant
2020 Annual Groundwater Monitoring Report
Eunice, Lea County, New Mexico
NMOCID ID: fGP00000000002
TEXACO EXPLORATION & PROD INC - OGRID [22345]**

Dear Mr. Billings,

Please find enclosed the 2020 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) for Chevron U.S.A Inc.

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,

A handwritten signature in cursive script that reads "Jason Michelson".

Jason Michelson

cc Amy Barnhill, Chevron/MCBU



Chevron Environmental Management Company

2020 ANNUAL GROUNDWATER MONITORING REPORT

Former Eunice South Gas Plant
Eunice, Lea County, New Mexico
NMOCD ID: fGP000000000002
TEXACO EXPLORATION & PROD INC - OGRID [22345]

March 15, 2021

2020 ANNUAL GROUNDWATER MONITORING REPORT

**2020 ANNUAL
GROUNDWATER
MONITORING REPORT**



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Former Eunice South Gas Plant
Eunice, Lea County, New Mexico
NMOCD ID: fGP00000000002
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Date:
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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
CV	coefficient of variation
DRO	diesel-range organics
ft ² /d	square foot per day
GRO	gasoline-range organics
HS	HydraSleeve™
LNAPL	light nonaqueous phase liquid
mg/L	milligram per liter
report	2020 Annual Groundwater Monitoring Report
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
WQCC	Water Quality Control Commission

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1 INTRODUCTION

On behalf of Chevron Environmental Management Company, Arcadis U.S., Inc. (Arcadis) prepared this 2020 Annual Groundwater Monitoring Report (report) for the former Eunice South Gas Plant, located in Eunice, Lea County, New Mexico (Site). This report summarizes semiannual groundwater monitoring activities conducted in 2020 at the Site. Data presented in this report were collected during two semiannual groundwater monitoring events, conducted during March and September 2020.

The Site is located approximately 4.5 miles south of Eunice, New Mexico, 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 three bioventing units. The existing groundwater recovery system was decommissioned in April 2020. A Site Location Map is shown on Figure 1. A Well Location Map and Monitoring Plan is shown on Figure 2 and provides additional site details. Additional site background information is provided 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 66 wells (Arcadis 2020a). A Groundwater Monitoring Reduction Workplan was submitted in July 2020 and implemented during the second semiannual event. Spring monitoring events include sampling and gauging 66 wells and fall events include sampling a reduced set of 20 wells. Well locations and sampling frequency are shown on Figure 2; Table 1 presents a summary of 2020 groundwater monitoring activities. Arcadis performed semiannual groundwater sampling events on March 16 through 20 and September 22 through 24, 2020.

2.1 Groundwater Sampling Methodology

Representative groundwater samples were collected within the screened interval of each well under undisturbed conditions using the no-purge HydraSleeve™ (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. March and September 2020 field parameter readings are presented in Tables 2 and 3, 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 2020 elevations is shown on Figure 3. During the spring event, TMW-2 was unable to be gauged due to an obstruction in the well. During the fall event, MW-24 was dry. Groundwater elevation data for the sampling events are presented in Table 4, with historical elevation data provided in Appendix C.

Data collected during the semiannual monitoring events indicate the following:

- Groundwater elevations ranged from 3,279.33 feet above mean sea level (amsl) at MW-28 to 3,285.23 feet amsl at MW-25 during the spring 2020 semiannual gauging event and from 3,281.90 feet amsl at MW-15 to 3,285.27 feet amsl at MW-25 during the fall 2020 semiannual gauging event.
- The groundwater elevations during the 2020 monitoring events appear to be consistent with historical levels, with groundwater flow to 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 were pumped in 2004, 2005, and 2006.
- The calculated average gradient across the Site is approximately 0.002 foot per foot.

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- LNAPL was detected in 15 wells with thicknesses ranging from 0.07 foot in RW-3 to 3.82 feet in MW-5 during the spring 2020 gauging event. LNAPL was not detected in any of the wells gauged in fall 2020. 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 provided in Appendix C. LNAPL thickness and distribution observed during the comprehensive spring 2020 event are shown 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 2020, analytical groundwater samples were collected from 43 wells during the spring event and from 17 wells during the fall event. Additionally, four duplicate samples were collected during the spring event and two duplicate samples were collected during the fall event for quality control purposes. During the semiannual monitoring and sampling events at the wells included in the sampling plan (Table 1), 15 wells were not sampled in the spring and three were not sampled in the fall for the following reasons:

- *MW-1, MW-2, MW-10, MW-19, MW-21, MW-27, MW-28, RW-1, RW-2, RW-3, RW-4, and RW-5.* LNAPL was present in these wells during the spring event.
- *MW-24.* This well was not sampled during the spring event and recorded as dry during the fall event.
- *MWD-9.* The well screen collapsed late 2019, and was unable to be gauged during the spring or fall monitoring events.
- *MWD-15.* This well was not sampled during the fall monitoring event due to an obstruction in the well. The well was able to be gauged however, and depth to water was collected.
- *TMW-2.* This well was not sampled or gauged during the spring 2020 monitoring event due to an obstruction in the well.

Samples were sent to Xenco Laboratories, located 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 (WQCC) groundwater standards and are presented 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 2017 through present are provided in Appendices E and F, respectively.

2.3.1 Benzene, Toluene, Ethylbenzene, and Xylenes

Groundwater samples collected from 43 well locations in spring 2020 and 17 well locations in fall 2020 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 at concentrations greater than the WQCC groundwater standard of 0.005 milligram per liter (mg/L) at 15 of 43 locations, with a maximum concentration of 26.5 mg/L (MW-22) in spring 2020. The WQCC groundwater standard was

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exceeded at eight of 17 locations, with a maximum concentration of 1.67 D¹ mg/L (MW-11) in fall 2020. Analytical results for the samples collected for ethylbenzene, toluene, and xylenes analyses were each less than their respective standards. There are no WQCC groundwater standards established for DRO or GRO. Figures 5 and 6 show benzene isoconcentrations for the spring and fall 2020 monitoring events, respectively. The 2020 BTEX results are presented in Tables 5 and 6. Historical results are provided in Appendices E and F.

2.3.2 Chloride and Total Dissolved Solids

Groundwater samples collected from 43 well locations in spring 2020 and 17 well locations in fall 2020 were analyzed by USEPA Methods 300/300.1 and 2540C for chloride and TDS, respectively (Table 1). Figures 7 and 8 show chloride isoconcentrations for the spring and fall 2020 monitoring events, respectively. Results are summarized as follows:

- **Chloride.** The WQCC groundwater standard of 250 mg/L was exceeded at 35 of 43 locations, with a maximum concentration of 36,000 mg/L (MWD-3) in spring 2020. The WQCC groundwater standard was exceeded at 14 of 17 locations, with a maximum concentration of 7,110 mg/L (MWD-3) in fall 2020.
- **TDS.** The WQCC groundwater standard of 1,000 mg/L was exceeded at 36 of 43 locations, with a maximum concentration of 52,000 mg/L (MWD-3) in spring 2020. The WQCC groundwater standard was exceeded at 15 of 17 locations with a maximum concentration of 13,000 mg/L (MWD-3) in fall 2020.

Chloride and TDS concentrations in samples collected from MWD-3 decreased significantly between the Spring and Fall events. This decrease is likely attributed to shutting down the groundwater recovery system at this well in April 2020. 2020 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 collected from 43 well locations in spring 2020 and 17 well locations in fall 2020 were analyzed by USEPA Method 6020A for dissolved arsenic, dissolved total chromium, and dissolved barium; and USEPA Method 7196A for dissolved hexavalent chromium (Table 1). Results are summarized as follows:

- **Dissolved arsenic.** The updated WQCC groundwater standard of 0.01 mg/L was exceeded in 24 of 43 locations in spring 2020, with a maximum concentration of 0.0711 mg/L (TMW-6 and MW-22). The WQCC groundwater standard was exceeded at nine of 17 locations in fall 2020, with a maximum concentration of 0.0670 mg/L (MWD-13).
- **Dissolved total chromium.** The WQCC groundwater standard of 0.05 mg/L was exceeded in one of 43 locations, with a concentration of 0.115 mg/L (MW-16) in spring 2020. The WQCC groundwater

¹ D qualifier indicated that the concentration is based on a diluted sample analysis.

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standard was exceeded in one of 17 locations, with a concentration of 0.0972mg/L (MW-16) during fall 2020.

- *Dissolved hexavalent chromium.* The WQCC groundwater standard of 0.05 mg/L was exceeded in one of 43 locations, with a concentration of 0.104 mg/L (MW-16) in spring 2020. The WQCC groundwater standard was exceeded in one of 17 locations, with a concentration of 0.0950 mg/L (MW-16) during fall 2020.
- *Dissolved barium.* The WQCC groundwater standard of 2 mg/L was exceeded at six of 43 locations, with a maximum concentration of 11.0 D mg/L (MW-9) in spring 2020. The WQCC groundwater standard was exceeded at four of 17 locations, with a maximum concentration of 9.44 mg/L (MW-29) in fall 2020.

The 2020 dissolved metals results are presented in Tables 7 and 8. Historical results are provided in Appendices E and F.

2.4 Benzene and Chloride Trend Analysis

2.4.1 Mann-Kendall Test Methodology

Mann-Kendall analysis was used to evaluate concentration trends at representative 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 represent conditions within the respective plume areas. Trends are evaluated annually.

The Mann-Kendall trend test is a nonparametric test that determines trends based on ranked data. As such, it is relatively insensitive to outlier values and nondetect 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). Based on USEPA guidance, nondetect values are set to one value less than that of any detections (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 percent 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 through 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 spring 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:

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- Northern plume fringe (onsite):
 - TMW-1 benzene concentrations were between nondetect at less than 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). However, concentrations have been generally decreasing since reaching a maximum in September 2018. The most recent concentration of 0.0188 mg/L (March 2020) exceeds the benzene WQCC standard of 0.005 mg/L.
- Central plume (onsite):
 - 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 0.921 D mg/L (September 2020) exceeds the benzene WQCC groundwater standard.
- Eastern plume (onsite):
 - MWD-9 benzene concentrations range between 0.0119 J² mg/L (October 2019) and 1.19 mg/L (March 2018) and indicate a statistically significant decreasing trend (Appendix G, Figure G-3). This location has not been sampled since October 2019.
 - 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-4). However, concentrations have been stable to decreasing since reaching a maximum in September 2017. The most recent concentration of 0.780 D mg/L exceeds the benzene WQCC groundwater standard.
- Southern plume fringe (onsite):
 - MW-32 benzene concentrations were between 1.21 D mg/L (September 2020) and 14.7 mg/L (September 2017) during the analysis period. The time period analyzed at this location was adjusted to include data following the peak in concentrations (September 2017) to better represent more recent data trends. The results of this adjusted Mann-Kendall analysis indicate a statistically significant decreasing trend (Appendix G, Figure G-5). The most recent concentration of 1.21 J mg/L (September 2020) exceeds the benzene WQCC groundwater standard.
 - MW-29 benzene concentrations were between 0.0624 mg/L (April 2019) and 1.60 mg/L (September 2017) during the analysis period. The time period analyzed at this location was adjusted to include data following the peak in concentrations (September 2017) to better represent more recent data trends. The results of this adjusted Mann-Kendall analysis indicate a statistically significant decreasing trend (Appendix G, Figure G-6). The most recent concentration of 0.113 mg/L (September 2020) exceeds the benzene WQCC groundwater 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 limited extent because concentrations at this well remain near the WQCC groundwater standard for benzene (0.0188 mg/L in March 2020). Significantly decreasing trends seen downgradient and a stable trend seen in the

² J flag indicates an estimated concentration.

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eastern plume area (MWD-9), however, could indicate that the plume footprint and concentration is potentially naturally attenuating at the leading edges because active benzene treatment is not implemented at this time. A summary map of the benzene trend analyses is provided in Appendix G, Figure G-7.

2.4.3 Chloride Trend Analysis Results

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

- Western plume fringe (offsite):
 - MW-35 chloride concentrations were between 167 mg/L (March and September 2020) and 1,810 mg/L (April 2017; upon well installation), and indicate a statistically significant decreasing trend (Appendix G, Figure G-8). The most recently measured chloride concentration of 167 mg/L (September 2020) was less than the WQCC groundwater standard of 250 mg/L.
- Onsite western plume:
 - TMW-1 chloride concentrations were between 450 mg/L (April 2019) and 761 mg/L (April 2016) during the analysis period, and indicate a statistically significant decreasing trend (Appendix G, Figure G-9). The most recent concentration of 518 mg/L (March 2020) exceeds the chloride WQCC groundwater standard.
 - MW-26 chloride concentrations were between 139 mg/L (March 2018) and 285 mg/L (April 2016) during the analysis period. Although not statistically significant at 90 percent confidence, Mann-Kendall trend results suggest a decreasing trend and visual analysis of concentrations through time indicate that chloride concentrations have stabilized to less than the WQCC groundwater standard (Appendix G, Figure G-10). The WQCC groundwater standard for chloride was only exceeded during the analysis period in April 2016.
- Onsite central plume:
 - MWD-14 chloride concentrations were between 426 mg/L (September 2020) and 8,000 mg/L (March 2018) during the analysis period, and indicate a statistically significant decreasing trend (Appendix G, Figure G-11). The most recent concentration of 426 mg/L (September 2020) exceeds the chloride WQCC groundwater 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-12). The most recent chloride concentration of 510 mg/L (September 2020) exceeds the WQCC groundwater standard.
 - MW-29 chloride concentrations were between 101 mg/L (September 2016) and 316 mg/L (September 2020) during the analysis period, and indicate a statistically significant increasing trend (Appendix G, Figure G-13). Chloride concentrations exceeded the WQCC groundwater standard during the last two monitoring events.
- Eastern plume fringe (offsite):

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- MWD-7 chloride concentrations have remained stable between 3,970 mg/L (April 2019) and 7,210 mg/L (September 2016) (Appendix G, Figure G-14). The most recent concentration of 5,590 mg/L (March 2020) exceeds the WQCC groundwater standard for chloride.
- MW-15 chloride concentrations have remained stable between 1,590 mg/L (September 2020) and 2,320 mg/L (September 2018) (Appendix G, Figure G-15). However, concentrations have been decreasing since September 2018. This is confirmed by Mann-Kendall trend analysis run on an abbreviated time period (September 2018 through September 2020), which indicates a statistically significant decreasing trend (Appendix G, Figure G-16). The most recent chloride concentration of 1,590 mg/L (September 2020) exceeds the WQCC groundwater standard.
- Southern plume fringe (offsite):
 - MW-38 chloride concentrations are statistically significant increasing, ranging from 307 mg/L (March 2018) to 772 mg/L (March 2020) (Appendix G, Figure G-17). Although still greater than the WQCC groundwater standard, concentrations decreased slightly in September 2020 to 641 mg/L.
 - MW-36 chloride concentrations are statistically significant increasing, ranging from 391 mg/L (April 2017) to 453 mg/L (March 2020) (Appendix G, Figure G-18). All concentrations have exceeded the WQCC standard.
 - MW-37 chloride concentrations have remained stable between 314 mg/L (October 2019) and 336 mg/L (March 2019) (Appendix G, Figure G-19). All concentrations have exceeded the WQCC 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 crossgradient plume edges. An increasing trend seen in the area of MW-29, MW-36, and MW-38 could indicate a natural concentration migration within the plume footprint toward the downgradient, leading edge of the chloride plume. A summary map of the chloride trend analyses is provided in Appendix G, Figure G-20.

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3 LIGHT NONAQUEOUS PHASE LIQUID INVESTIGATION ACTIVITIES

LNAPL transmissivity tests were conducted at three well locations in October 2020 to assess relative LNAPL recoverability compared to previous years (2016 through 2019). LNAPL transmissivity tests included the three wells at which bioventing systems are operating (MW-27, MW-28, and RW-2) to compare transmissivity values through time and with the influence of the bioventing application. Transmissivity testing procedures, results, and analysis are provided in Appendix H. The 2020 LNAPL transmissivity testing results, including the average results from 2016 through 2019 for comparison, are presented in Table 9. Notable results observed at bioventing wells include:

- Results for bioventing well MW-27 indicate a decrease in LNAPL transmissivity from approximately 1.8 square feet per day (ft^2/d) in 2019 to approximately 0.4 ft^2/d in 2020.
- Results for bioventing well MW-28 indicate an increase in LNAPL transmissivity from approximately 1.5 ft^2/d in 2019 to approximately 2.9 ft^2/d in 2020.
- LNAPL transmissivity values do not show a clear trend at bioventing well RW-2. Transmissivity values range between 4.2 to 8.6 ft^2/d and appear relatively stable throughout multiple testing events.

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4 OPERATION AND MAINTENANCE ACTIVITIES

This section discusses operation and maintenance of the chloride groundwater recovery system and the bioventing units.

4.1 Chloride Groundwater Recovery System

As part of the chloride groundwater recovery system, recovery well MWD-3 operated during the first two quarters of 2020 to extract chloride-impacted groundwater. A total of approximately 1.35 acre-feet (ac-ft; 440,860 gallons) of groundwater were recovered. Recovery well MWD-9 was not operated during 2020. Groundwater usage approved by the New Mexico Office of the State Engineer is 32 ac-ft per year from each well. Recovered groundwater was pumped into two 18,430-gallon aboveground storage tanks and disposed of at the Key Energy Christmas saltwater disposal well (API 30-025-10500). MWD-3 was shut down and the chloride removal system was decommissioned in April 2020 following approval from New Mexico Oil Conservation division via email in March 2020. Chloride recovery estimates are presented in Table 10.

Construction of a full-scale groundwater remediation system is underway at the North Eunice Site to address chloride and other site-specific constituents of concern. Ultimately the South Eunice Site will be connected to the treatment system to resume chloride remediation in the future.

4.2 Bioventing

As part of the bioventing system, bioventing units operated at wells MW-1, MW-27, MW-28, and RW-2 in 2020. The wellhead bioventing unit installed on well MW-1 was moved to MW-27 on July 27, 2020 based on the recommendation in the 2019 Annual Groundwater Monitoring Report (Arcadis 2020b). Air emission samples were collected quarterly 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 2,593 gallons of LNAPL degraded during system operation through September 2020.

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5 SUMMARY

The 2020 monitoring and investigation activities indicated the following:

- Groundwater analytical results are consistent with historical trends observed and suggest an overall stable plume.
- Mann-Kendall results indicate that benzene concentrations are stable to decreasing across the Site, with the exception of an increasing trend at upgradient location TMW-1. Chloride concentrations within the plume area appear to be stable to decreasing. Trend analysis of chloride concentrations at downgradient plume fringe monitoring locations MW-29, MW-36, and MW-38 indicate increasing trends.
- LNAPL transmissivity testing results indicate that testing at bioventing wells should continue to be conducted annually, while testing at other LNAPL wells can be reduced to a biennial frequency.
- Air emissions and LNAPL transmissivity data indicate that the bioventing units should remain on wells MW-27, MW-28, and RW-2 in 2021.

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6 REFERENCES

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TABLES

Table 1
Summary of 2020 Groundwater Monitoring Activities
2020 Annual Groundwater Monitoring Report
Former Eunice South Gas Plant
Eunice, Lea County, New Mexico



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)/--	LNAPL
MW-2	x/--	(x)/--	(x)/--	(x)/--	(x)/--	(x)/--	(x)/--	(x)/--	(x)/--	LNAPL
MW-3	x/--	x/--	x/--	x/--	x/--	x/--	x/--	x/--	x/--	
MW-4	x/--	x/--	x/--	x/--	x/--	x/--	x/--	x/--	x/--	
MW-5	x/--	--/--	--/--	--/--	--/--	--/--	--/--	--/--	--/--	
MW-6	x/--	--/--	--/--	--/--	--/--	--/--	--/--	--/--	--/--	
MW-7	x/--	--/--	--/--	--/--	--/--	--/--	--/--	--/--	--/--	
MW-8	x/--	x/--	x/--	x/--	x/--	x/--	x/--	x/--	x/--	
MW-9	x/--	x/--	x/--	x/--	x/--	x/--	x/--	x/--	x/--	
MW-10	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/--	
MW-14	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/--	--/--	--/--	--/--	--/--	--/--	--/--	--/--	--/--	
MW-19	x/--	(x)/--	(x)/--	(x)/--	(x)/--	(x)/--	(x)/--	(x)/--	(x)/--	LNAPL
MW-20	x/--	--/--	--/--	--/--	--/--	--/--	--/--	--/--	--/--	
MW-21	x/--	(x)/--	(x)/--	(x)/--	(x)/--	(x)/--	(x)/--	(x)/--	(x)/--	LNAPL
MW-22	x/--	x/--	x/--	x/--	x/--	x/--	x/--	x/--	x/--	
MW-23	x/--	--/--	--/--	--/--	--/--	--/--	--/--	--/--	--/--	
MW-24	x/(x)	(x)/(x)	(x)/(x)	(x)/(x)	(x)/(x)	(x)/(x)	(x)/(x)	(x)/(x)	(x)/(x)	--/Well dry
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)/--	LNAPL
MW-28	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/--	
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/--	
MW-37	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/--	
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	

Table 1
Summary of 2020 Groundwater Monitoring Activities
2020 Annual Groundwater Monitoring Report
Former Eunice South Gas Plant
Eunice, Lea County, New Mexico



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/--	
MWD-5	x/--	x/--	x/--	x/--	x/--	x/--	x/--	x/--	x/--	
MWD-6	x/--	x/--	x/--	x/--	x/--	x/--	x/--	x/--	x/--	
MWD-7	x/--	x/--	x/--	x/--	x/--	x/--	x/--	x/--	x/--	
MWD-8	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)	Well damaged due to excess sand in well.
MWD-11	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)	Obstruction in well.
MWD-17	x/--	x/--	x/--	x/--	x/--	x/--	x/--	x/--	x/--	
RW-1	x/--	(x)/--	(x)/--	(x)/--	(x)/--	(x)/--	(x)/--	(x)/--	(x)/--	LNAPL
RW-2	x/--	(x)/--	(x)/--	(x)/--	(x)/--	(x)/--	(x)/--	(x)/--	(x)/--	LNAPL
RW-3	x/--	(x)/--	(x)/--	(x)/--	(x)/--	(x)/--	(x)/--	(x)/--	(x)/--	LNAPL
RW-4	x/--	(x)/--	(x)/--	(x)/--	(x)/--	(x)/--	(x)/--	(x)/--	(x)/--	LNAPL
RW-5	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/--	
RW-8	x/--	x/--	x/--	x/--	x/--	x/--	x/--	x/--	x/--	
TMW-1	x/--	x/--	x/--	x/--	x/--	x/--	x/--	x/--	x/--	
TMW-2	(x)/--	(x)/--	(x)/--	(x)/--	(x)/--	(x)/--	(x)/--	(x)/--	(x)/--	Bailer was in fluid in well. Unable to gauge.
TMW-3	x/--	--/--	--/--	--/--	--/--	--/--	--/--	--/--	--/--	
TMW-6	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

x / x = spring sampling event/fall sampling event

x = sample planned and collected

(x) = sample planned and not collected

-- = no sample planned during event

Table 2
Spring 2020 Field Parameters
2020 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	3/18/2020	2.11	102	7.49	1230	20.89	0.0
MW-4	3/19/2020	4.22	164	5.56	6170	20.26	0.0
MW-8	3/18/2020	0.00	-111	7.45	3790	19.99	0.0
MW-9	3/18/2020	0.00	-89	7.34	2620	20.19	0.0
MW-11	3/20/2020	0.00	-87	6.77	1800	15.08	19.6
MW-13	3/18/2020	0.65	42	7.66	2130	18.86	0.0
MW-14	3/18/2020	0.00	2	7.24	2950	19.38	0.0
MW-15	3/17/2020	0.00	161	6.94	5080	20.06	0.0
MW-16	3/17/2020	0.00	194	7.38	6850	22.11	0.0
MW-17	3/19/2020	0.00	-110	5.51	3750	17.3	0.0
MW-22	3/20/2020	2.96	-123	6.96	7730	12.18	3.8
MW-25	3/20/2020	0.00	-122	7.17	8200	11.94	0.0
MW-26	3/20/2020	0.00	-99	6.9	1860	16.06	1.6
MW-29	3/18/2020	0.00	-141	7.14	2700	20.38	0.0
MW-30	3/18/2020	0.00	-75	7.09	2490	20.5	0.0
MW-31	3/18/2020	0.00	-71	7.07	2990	17.82	0.0
MW-32	3/18/2020	0.00	-152	7.09	4190	20.64	0.0
MW-34	3/18/2020	2.69	-94	6.5	3540	17.84	20.1
MW-35	3/18/2020	0.00	-86	7.44	1700	22.28	0.0
MW-36	3/17/2020	0.00	144	7.62	2460	22.13	0.0
MW-37	3/18/2020	0.00	-100	7.52	2170	20.31	0.0
MW-38	3/18/2020	0.00	-105	7.54	3520	20.19	0.0
MWD-1	3/19/2020	0.00	74	5.71	2730	19.55	0.0
MWD-2	3/19/2020	0.00	94	5.62	4170	20.52	0.0
MWD-3	3/19/2020	0.00	-60	6.84	82100	20.5	0.0
MWD-4	3/19/2020	0.00	38	7.12	1550	17.95	0.0
MWD-5	3/18/2020	0.00	-101	6.69	3520	20.54	0.0
MWD-6	3/18/2020	0.00	-68	7.2	2350	19.79	0.0
MWD-7	3/19/2020	0.00	91	5.57	16900	17.42	0.0
MWD-8	3/19/2020	4.00	93	5.88	1090	20.44	0.0
MWD-11	3/18/2020	0.42	123	7.5	1280	20.9	0.0
MWD-12	3/19/2020	0.00	-139	7.73	4600	18.02	0.0
MWD-13	3/19/2020	3.94	33	7.1	10800	17.96	0.0
MWD-14	3/19/2020	0.00	29	7.74	5030	15.94	0.0
MWD-15	3/19/2020	0.00	-132	5.4	5480	21.07	0.0
MWD-17	3/19/2020	0.00	-158	6.02	16900	15.1	0.0
RW-6	3/19/2020	7.69	-146	7.62	5350	18.24	0.2
RW-7	3/19/2020	0.00	87	6.95	9310	19.41	0.0
RW-8	3/19/2020	0.00	-141	5.48	4770	20.49	0.0
TMW-1	3/19/2020	0.00	-93	7.28	4180	19.73	0.0

Table 2
Spring 2020 Field Parameters
2020 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
TMW-6	3/20/2020	0.00	-66	6.98	2580	8.83	0.0
WW-2	3/19/2020	0.00	-164	7.42	7040	18.66	1.4
WW-7	3/18/2020	0.00	-200	7.75	1030	20.02	7.6

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

Table 3
Fall 2020 Field Parameters
2020 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	mS/cm	°C	NTU
MW-11	9/24/2020	1.54	-76	6.96	1.58	22.66	5.0
MW-15	9/22/2020	5.02	187	6.67	5.52	19.14	0.4
MW-16	9/24/2020	1.05	-136	7.38	6.15	24.47	3.1
MW-17	9/22/2020	4.08	-44	7.18	3.20	27.30	0.0
MW-25	9/23/2020	8.96	-117	7.64	7.30	20.27	1.0
MW-26	9/24/2020	0.00	-106	7.18	1.70	23.69	0.90
MW-29	9/24/2020	0.39	-156	8.04	2.12	31.60	0.00
MW-30	9/24/2020	0.35	-177	8.07	1.89	32.35	0.00
MW-32	9/24/2020	0.00	-152	8.44	3.50	31.39	1.2
MW-34	9/24/2020	0.04	-120	7.79	2.55	28.18	0.00
MW-35	9/22/2020	1.62	-49	7.49	1.60	28.16	1.4
MW-38	9/22/2020	0.02	-72	8.00	2.82	26.44	0.10
MWD-3	9/22/2020	10.72	-118	6.94	11.7	26.12	12.8
MWD-12	9/24/2020	3.02	-170	8.37	55.4	21.17	0.1
MWD-13	9/23/2020	8.85	37	7.92	8.14	24.37	0.0
MWD-14	9/23/2020	4.88	-140	7.58	5.08	19.70	0.90
RW-6	9/22/2020	7.68	-116	7.34	4.42	26.33	0.1

Acronyms and Abbreviations:

°C = degrees Celsius

ID = identification

mg/L = milligrams per liter

mV = millivolts

NTU = nephelometric turbidity unit

SU = standard unit

mS/cm = milliSiemens per centimeter

Table 4
2020 Groundwater Elevations
2020 Annual Groundwater Monitoring Report
Former Eunice South Gas Plant
Eunice, Lea County, New Mexico



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	3/17/2020	3335.09	54.71	53.25	1.46	0.74	3280.38	3281.46
MW-2	3/17/2020	3335.70	53.57	51.55	2.02	0.74	3282.13	3283.62
MW-3	3/16/2020	3339.65	55.30	NM	NA	NA	3284.35	3284.35
MW-4	3/16/2020	3333.25	49.78	NM	NA	NA	3283.47	3283.47
MW-5	3/17/2020	3333.85	54.43	50.61	3.82	0.82	3279.42	3282.55
MW-6	3/16/2020	3332.33	49.90	NM	NA	NA	3282.43	3282.43
MW-7	3/16/2020	3330.43	48.15	NM	NA	NA	3282.28	3282.28
MW-8	3/16/2020	3330.59	48.75	NM	NA	NA	3281.84	3281.84
MW-9	3/16/2020	3334.73	52.83	NM	NA	NA	3281.90	3281.90
MW-10	3/17/2020	3336.38	52.70	50.91	1.79	0.74	3283.68	3285.00
MW-11	3/16/2020	3334.86	51.35	NM	NA	0.72	3283.51	3283.51
MW-11	9/23/2020	3334.86	51.33	NM	NA	0.72	3283.53	3283.53
MW-12	3/17/2020	3333.88	51.16	50.41	0.75	0.72	3282.72	3283.26
MW-13	3/16/2020	3336.15	55.64	NM	NA	NA	3280.51	3280.51
MW-14	3/16/2020	3333.04	51.99	NM	NA	NA	3281.05	3281.05
MW-15	3/16/2020	3328.98	47.20	NM	NA	NA	3281.78	3281.78
MW-15	9/22/2020	3328.98	47.08	NM	NA	NA	3281.90	3281.90
MW-16	3/16/2020	3330.20	47.97	NM	NA	NA	3282.23	3282.23
MW-16	9/24/2020	3330.20	47.78	NM	NA	NA	3282.42	3282.42
MW-17	3/16/2020	3334.32	49.99	NM	NA	NA	3284.33	3284.33
MW-17	9/22/2020	3334.32	50.78	NM	NA	NA	3283.54	3283.54
MW-18	3/16/2020	3336.10	51.98	NM	NA	NA	3284.12	3284.12
MW-19	3/17/2020	3334.21	52.61	51.07	1.54	0.82	3281.60	3282.86
MW-20	3/17/2020	3334.06	54.03	50.92	3.11	0.82	3280.03	3282.58
MW-21	3/17/2020	3333.02	52.15	50.18	1.97	0.82	3280.87	3282.49
MW-22	3/16/2020	3334.87	52.37	NM	NA	NA	3282.50	3282.50
MW-23	3/16/2020	3334.45	51.55	NM	NA	NA	3282.90	3282.90
MW-24	3/16/2020	3336.97	53.35	NM	NA	0.74	3283.62	3283.62
MW-24	9/22/2020	3336.97	NM	NM	NA	NA	NM	NM
MW-25	3/16/2020	3336.31	51.08	NM	NA	NA	3285.23	3285.23
MW-25	9/23/2020	3336.31	51.04	NM	NA	NA	3285.27	3285.27
MW-26	3/16/2020	3334.93	51.67	NM	NA	0.72	3283.26	3283.26
MW-26	9/23/2020	3334.93	51.66	NM	NA	0.72	3283.27	3283.27
MW-27	3/17/2020	3334.96	50.84	49.60	1.24	0.72	3284.12	3285.01
MW-28	3/17/2020	3333.04	54.98	53.22	1.76	0.72	3278.06	3279.33
MW-29	3/16/2020	3334.01	51.93	NM	NA	NA	3282.08	3282.08
MW-29	9/24/2020	3334.01	51.88	NM	NA	NA	3282.13	3282.13
MW-30	3/16/2020	3336.49	54.62	NM	NA	NA	3281.87	3281.87
MW-30	9/24/2020	3336.49	54.55	NM	NA	NA	3281.94	3281.94
MW-31	3/16/2020	3334.52	53.13	NM	NA	NA	3281.39	3281.39
MW-32	3/16/2020	3333.01	50.55	NM	NA	NA	3282.46	3282.46
MW-32	9/24/2020	3333.01	50.50	NM	NA	NA	3282.51	3282.51
MW-34	3/16/2020	3335.77	52.80	NM	NA	NA	3282.97	3282.97
MW-34	9/24/2020	3335.77	52.77	NM	NA	NA	3283.00	3283.00
MW-35	3/16/2020	NM	56.50	NM	NA	NA	NM	NM
MW-35	9/22/2020	NM	56.43	NM	NA	NA	NM	NM
MW-36	3/16/2020	NM	50.32	NM	NA	NA	NM	NM
MW-37	3/16/2020	NM	55.87	NM	NA	NA	NM	NM
MW-38	3/16/2020	NM	50.22	NM	NA	NA	NM	NM
MW-38	9/22/2020	NM	50.24	NM	NA	NA	NM	NM
MWD-1	3/16/2020	3335.26	51.76	NM	NA	NA	3283.50	3283.50
MWD-2	3/16/2020	3336.32	52.65	NM	NA	NA	3283.67	3283.67
MWD-3	3/16/2020	3335.06	52.69	NM	NA	NA	3282.37	3282.37
MWD-3	9/22/2020	3335.06	52.19	NM	NA	NA	3282.87	3282.87
MWD-4	3/16/2020	3330.86	48.64	NM	NA	NA	3282.22	3282.22
MWD-5	3/16/2020	3334.01	51.41	NM	NA	NA	3282.60	3282.60
MWD-6	3/16/2020	3335.08	52.77	NM	NA	NA	3282.31	3282.31
MWD-7	3/17/2020	3332.82	49.98	NM	NA	NA	3282.84	3282.84
MWD-8	3/16/2020	3335.97	52.18	NM	NA	NA	3283.79	3283.79
MWD-9	3/16/2020	3333.45	50.92	NM	NA	NA	3282.53	3282.53
MWD-9	9/22/2020	3333.45	50.62	NM	NA	NA	3282.83	3282.83
MWD-11	3/16/2020	3338.24	54.31	NM	NA	NA	3283.93	3283.93
MWD-12	9/24/2020	3334.08	51.78	NM	NA	NA	3282.30	3282.30
MWD-12	3/16/2020	3334.08	51.89	NM	NA	NA	3282.19	3282.19
MWD-13	3/16/2020	3332.11	50.08	NM	NA	NA	3282.03	3282.03
MWD-13	9/22/2020	3332.11	49.70	NM	NA	NA	3282.41	3282.41
MWD-14	9/23/2020	3333.76	50.78	NM	NA	NA	3282.98	3282.98
MWD-14	3/16/2020	3333.76	51.06	NM	NA	NA	3282.70	3282.70
MWD-15	3/16/2020	3335.35	51.83	NM	NA	NA	3283.52	3283.52
MWD-15	9/22/2020	3335.35	51.85	NM	NA	NA	3283.50	3283.50
MWD-17	3/16/2020	3334.74	51.99	NM	NA	NA	3282.75	3282.75
RW-1	3/17/2020	3335.19	52.83	51.17	1.66	0.74	3282.36	3283.59
RW-2	3/17/2020	3337.84	56.54	55.10	1.44	0.74	3281.30	3282.37

Table 4
2020 Groundwater Elevations
2020 Annual Groundwater Monitoring Report
Former Eunice South Gas Plant
Eunice, Lea County, New Mexico



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-3	3/16/2020	3338.06	55.69	55.62	0.07	0.72	3282.37	3282.42
RW-4	3/17/2020	3334.14	NM	53.84	NA	0.72	NM	NM
RW-5	3/17/2020	3334.20	55.03	54.72	0.31	0.72	3279.17	3279.39
RW-6	9/22/2020	3332.37	49.64	NM	NA	NA	3282.73	3282.73
RW-6	3/16/2020	3332.37	49.92	NM	NA	NA	3282.45	3282.45
RW-7	3/16/2020	3331.23	51.68	NM	NA	NA	3279.55	3279.55
RW-8	3/16/2020	3333.39	52.92	NM	NA	NA	3280.47	3280.47
TMW-1	3/16/2020	3337.70	53.57	NM	NA	NA	3284.13	3284.13
TMW-2	3/17/2020	3338.30	NM	NM	NA	0.82	NM	NM
TMW-3	3/16/2020	3336.67	52.75	NM	NA	NA	3283.92	3283.92
TMW-6	3/16/2020	3335.36	51.41	NM	NA	NA	3283.95	3283.95
WW-2	3/17/2020	3331.46	49.24	NM	NA	NA	3282.22	3282.22
WW-7	3/17/2020	3331.73	50.31	NM	NA	NA	3281.42	3281.42

Note:

1. Corrected groundwater elevations are corrected using an assumed LNAPL specific gravity of determined during LNAPL transmissivity testing. 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

Table 5
Spring 2020 BTEX Analytical Data
2020 Annual Groundwater Monitoring Report
Former Eunice South Gas Plant
Eunice, Lea County, New Mexico

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	3/18/2020	REG	0.000460	J	0.00200	U	0.00200	U	0.00200	U	2.31	U	2.31	U
MW-4	3/19/2020	REG	0.000470	J	0.00200	U	0.00200	U	0.00200	U	2.19	U	2.19	U
MW-8	3/18/2020	REG	0.00200	U	0.00200	U	0.00200	U	0.00200	U	2.24	U	2.24	U
MW-9	3/18/2020	REG	0.00370		0.00200	U	0.00200	U	0.00200	U	2.24	U	2.24	U
MW-11	3/20/2020	REG	2.25	DJ	0.00162	J	0.00423	J	0.0202	J	2.18	U	4.77	
MW-13	3/18/2020	REG	0.00226		0.00200	U	0.00200	U	0.00200	U	2.19	U	2.19	U
MW-14	3/18/2020	REG	0.00121	J	0.00200	U	0.00200	U	0.00200	U	2.19	U	2.19	U
MW-15	3/17/2020	FD	0.000910	J	0.00200	U	0.00200	U	0.00200	U	2.28	U	2.28	U
MW-15	3/17/2020	REG	0.000820	J	0.00200	U	0.00200	U	0.00200	U	2.23	U	2.23	U
MW-16	3/17/2020	REG	0.00200	U	0.00200	U	0.00200	U	0.00200	U	2.22	U	2.22	U
MW-17	3/19/2020	REG	0.000600	J	0.00200	U	0.00200	U	0.00200	U	2.16	U	2.16	U
MW-22	3/20/2020	REG	26.50	DJ	0.00740	J	0.0441	J	0.0297	J	2.21	U	19.00	
MW-25	3/20/2020	REG	2.19	DJ	0.000930	J	0.00365	J	0.00246	J	3.03		2.98	
MW-25	3/20/2020	FD	1.97	DJ	0.000790	J	0.00331	J	0.00236	J	3.03		2.48	
MW-26	3/20/2020	REG	0.814	DJ	0.000730	J	0.00125	J	0.00214	J	28.90		3.58	
MW-29	3/18/2020	REG	0.259	J	0.000470	J	0.00144	J	0.000700	J	2.20	U	3.43	
MW-30	3/18/2020	REG	0.00387		0.00200	U	0.00200	U	0.000870	J	2.25	U	2.25	U
MW-31	3/18/2020	REG	0.000740	J	0.00200	U	0.00200	U	0.00200	U	2.22	U	2.22	U
MW-32	3/18/2020	REG	3.91	DJ	0.00200	J	0.00703	J	0.00663	J	2.20	U	7.65	
MW-34	3/18/2020	FD	0.347		0.00200	U	0.000810	J	0.00200	U	1.68	J	1.55	J
MW-34	3/18/2020	REG	0.331		0.00200	U	0.000890	J	0.00200	U	1.82	J	1.60	J
MW-35	3/18/2020	REG	0.000580	J	0.000470	J	0.00200	U	0.00200	U	2.19	U	2.19	U
MW-36	3/17/2020	REG	0.00200	U	0.00200	U	0.00200	U	0.00200	U	2.25	U	2.25	U
MW-37	3/18/2020	REG	0.000750	J	0.000370	J	0.00200	U	0.00200	U	0.888	J	2.22	U
MW-38	3/18/2020	REG	0.00104	J	0.00200	U	0.00200	U	0.00200	U	2.18	U	2.18	U
MWD-1	3/19/2020	REG	0.000840	J	0.000390	J	0.00200	U	0.00200	U	2.20	U	2.20	U
MWD-2	3/19/2020	REG	0.000410	J	0.00200	U	0.00200	U	0.00200	U	2.24	U	2.24	U
MWD-3	3/19/2020	REG	4.62	DJ	0.00533	J	0.0630	J	0.0249	J	0.942	J	4.61	
MWD-4	3/19/2020	REG	0.00200	U	0.00200	U	0.00200	U	0.00200	U	2.14	U	2.14	U
MWD-5	3/18/2020	REG	6.82	D	0.00158	J	0.0103		0.0100		3.30		10.50	

Table 5
Spring 2020 BTEX Analytical Data
2020 Annual Groundwater Monitoring Report
Former Eunice South Gas Plant
Eunice, Lea County, New Mexico

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-6	3/18/2020	REG	0.00766	0.00200 U	0.00200 U	0.00200 U	2.25 U	2.25 U
MWD-7	3/19/2020	REG	0.000510 J	0.00200 U	0.00200 U	0.00200 U	2.16 U	2.16 U
MWD-8	3/19/2020	REG	0.00200 U	0.000450 J	0.00200 U	0.00200 U	0.845 J	2.21 U
MWD-11	3/18/2020	REG	0.00200 U	0.00200 U	0.00200 U	0.00200 U	2.31 U	2.31 U
MWD-12	3/19/2020	REG	0.00886	0.000500 J	0.0424	0.00428	1.70 J	2.17 U
MWD-13	3/19/2020	REG	0.00200 U	0.00200 U	0.00200 U	0.00200 U	2.18 U	2.18 U
MWD-14	3/19/2020	REG	1.98 D	0.00200 U	0.152	0.00539	2.03 J	3.00
MWD-15	3/19/2020	REG	0.00200 U	0.000470 J	0.00200 U	0.00200 U	0.834 J	2.14 U
MWD-17	3/19/2020	REG	0.0885	0.00200 U	0.00864	0.00331	0.974 J	2.14 U
RW-6	3/19/2020	REG	0.00270	0.000410 J	0.00200 U	0.00550	2.12 U	1.03 J
RW-7	3/19/2020	REG	0.00200 U	0.00200 U	0.00200 U	0.00200 U	2.04 U	2.04 U
RW-8	3/19/2020	REG	0.00200 U	0.00200 U	0.00200 U	0.00164 J	2.23 U	2.23 U
TMW-1	3/19/2020	FD	0.0186	0.00200 U	0.00501	0.00916	2.22 U	2.22 U
TMW-1	3/19/2020	REG	0.0188	0.00200 U	0.00525	0.00985	2.18 U	2.18 U
TMW-6	3/20/2020	REG	0.0221	0.00200 U	0.000960 J	0.00129 J	1.93 J	1.48 J
WW-2	3/19/2020	REG	0.000970 J	0.00200 U	0.00200 U	0.00200 U	2.15 U	2.15 U
WW-7	3/18/2020	REG	0.00200 U	0.00200 U	0.00200 U	0.00200 U	2.17 U	2.17 U

Acronyms and Abbreviations:**bold** = detected analytes

BTEX = benzene, toluene, ethylbenzene, and xylene

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

Qualifiers:

J = estimated value

D = diluted sample

U = nondetect

UU = 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.

Table 6
Fall 2020 BTEX Analytical Data
2020 Annual Groundwater Monitoring Report
Former Eunice South Gas Plant
Eunice, Lea County, New Mexico

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	9/23/2020	REG	1.67	D	0.00288		0.00606		0.0281		2.19	U	5.67	
MW-15	9/22/2020	FD	0.000770	J	0.000610	J	0.00200	U	0.00200	U	2.16	U	2.16	U
MW-15	9/22/2020	REG	0.00200	U	0.00200	U	0.00200	U	0.00200	U	2.19	U	2.19	U
MW-16	9/22/2020	REG	0.00200	U	0.00200	U	0.00200	U	0.00200	U	2.18	U	2.18	U
MW-17	9/22/2020	REG	0.00200	U	0.00200	U	0.00200	U	0.00200	U	2.19	U	2.19	U
MW-25	9/23/2020	REG	0.871	DJ	0.00107	J	0.00919	J	0.00510	J	1.25	J	2.38	
MW-26	9/23/2020	REG	0.921	D	0.00200	U	0.00623		0.00905		4.17		3.17	
MW-29	9/22/2020	REG	0.113		0.00200	U	0.00200	U	0.00200	U	2.40	U	3.87	
MW-30	9/22/2020	REG	0.00474		0.00200	U	0.00200	U	0.00200	U	2.22	U	0.927	J
MW-32	9/22/2020	REG	1.21	D	0.00200	U	0.00157	J	0.00200	U	2.23	U	3.76	
MW-34	9/22/2020	FD	0.186	J	0.00200	U	0.00200	U	0.00200	U	2.22	U	2.04	J
MW-34	9/22/2020	REG	0.0857	J	0.00200	U	0.00200	U	0.000900	J	1.05	J	2.29	
MW-35	9/22/2020	REG	0.00200	U	0.00200	U	0.00200	U	0.00200	U	2.19	U	2.19	U
MW-38	9/22/2020	REG	0.00121	J	0.00200	U	0.00200	U	0.00200	U	2.19	U	2.19	U
MWD-3	9/22/2020	REG	0.137		0.002	U	0.00200	J	0.00200	U	2.23	UJ	1.32	J
MWD-12	9/22/2020	REG	0.00200	U	0.00200	U	0.0516		0.00346		2.26	UJ	1.15	J
MWD-13	9/22/2020	REG	0.00200	U	0.00200	U	0.00200	U	0.00200	U	2.24	U	2.24	U
MWD-14	9/23/2020	REG	0.780	D	0.00200	U	0.0504		0.00496		2.19	U	3.07	
RW-6	9/22/2020	REG	0.00200	U	0.00200	U	0.00200	U	0.00485		2.22	UJ	1.61	J

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

Qualifier:

D = sample was diluted

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

U = Analyte was not detected

Table 7

Spring 2020 Metals, Chloride, and Total Dissolved Solids Analytical Data
 2020 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	0.01	2	0.05	0.05	1000	250				
MW-3	3/18/2020	REG	0.0174	0.0497	0.00114	J	0.0100	U	709	86.3		
MW-4	3/19/2020	REG	0.00985	0.0627	0.0200	U	0.0100	U	4,460	2,120		
MW-8	3/18/2020	REG	0.0353	0.0607	0.00400	U	0.0100	U	2,330	423		
MW-9	3/18/2020	REG	0.00572	11.0	D	0.00400	U	0.0100	U	1,370	276	
MW-11	3/20/2020	REG	0.0249	1.26	0.00400	U	0.0100	U	974	133		
MW-13	3/18/2020	REG	0.0169	0.100	0.00400	U	0.0100	U	1,140	342		
MW-14	3/18/2020	REG	0.00862	0.0793	0.00400	U	0.0100	U	2,100	504		
MW-15	3/17/2020	FD	0.0113	0.0506	0.00400	U	0.0100	U	880	J	1,840	
MW-15	3/17/2020	REG	0.0115	0.0447	0.00400	U	0.0100	U	3,690	J	1,900	
MW-16	3/17/2020	REG	0.0135	0.0400	0.115		0.104		4,030		2,120	
MW-17	3/19/2020	REG	0.0213	0.764	0.00400	U	0.0100	U	2,320		1,060	
MW-22	3/20/2020	REG	0.0711	0.851	0.000743	J	0.0500	U	4,600		1,940	
MW-25	3/20/2020	REG	0.00166	J	1.34	0.00151	J	0.0100	U	4,560	1,900	
MW-25	3/20/2020	FD	0.00203	J	1.48	0.00151	J	0.0100	U	4,680	1,880	
MW-26	3/20/2020	REG	0.0605		5.71	D	0.00400	U	0.0100	U	1,080	173
MW-29	3/18/2020	REG	0.00335	J	8.64	D	0.00400	U	0.0100	U	1,290	308
MW-30	3/18/2020	REG	0.00942		0.440	0.00400	U	0.0100	U	1,250	256	
MW-31	3/18/2020	REG	0.0409		0.442	0.00400	U	0.0100	U	1,430	462	
MW-32	3/18/2020	REG	0.0397		1.81	0.00400	U	0.0100	U	2,300	438	
MW-34	3/18/2020	FD	0.00102	J	4.36	D	0.00400	U	0.0100	U	1,620	311
MW-34	3/18/2020	REG	0.00123	J	4.59	D	0.00400	U	0.0100	U	1,620	308
MW-35	3/18/2020	REG	0.00963		0.104	0.00400	U	0.0100	U	955	167	
MW-36	3/17/2020	REG	0.00886		0.105	0.00400	U	0.0100	U	1,270	453	
MW-37	3/18/2020	REG	0.00797		0.287	0.00400	U	0.0100	U	1,090	318	
MW-38	3/18/2020	REG	0.00838		0.090	0.00400	U	0.0100	U	2,400	772	
MWD-1	3/19/2020	REG	0.0543		0.0454	0.00389	J	0.0100	U	1,590	479	
MWD-2	3/19/2020	REG	0.0100		0.0431	0.000565	J	0.0100	U	2,660	857	
MWD-3	3/19/2020	REG	0.0348	D	0.936	D	0.0200	U	0.0100	U	52,000	36,000
MWD-4	3/19/2020	REG	0.00127	J	0.0554	0.00400	U	0.0100	U	1,260	39.6	
MWD-5	3/18/2020	REG	0.0148		7.58	D	0.00400	U	0.0100	U	7,900	598
MWD-6	3/18/2020	REG	0.00757		1.75	0.00400	U	0.0100	U	1,240	193	

Table 7
Spring 2020 Metals, Chloride, and Total Dissolved Solids Analytical Data
2020 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	0.01	2	0.05	0.05	1000	250						
MWD-7	3/19/2020	REG	0.0156		0.0409		0.0200	U	0.0100	U	10,600		5,590	
MWD-8	3/19/2020	REG	0.0185		0.0463		0.000971	J	0.0100	U	690		95.4	
MWD-11	3/18/2020	REG	0.0169		0.0488		0.00151	J	0.0100	U	753		96.6	
MWD-12	3/19/2020	REG	0.0389		0.296		0.00400	U	0.0100	U	3,280		1,390	
MWD-13	3/19/2020	REG	0.0359		0.0625		0.00158	J	0.0100	U	5,300		2,230	
MWD-14	3/19/2020	REG	0.000667	J	0.605		0.000833	J	0.0100	U	3,410		742	
MWD-15	3/19/2020	REG	0.0117		1.79		0.0200	U	0.0100	U	3,470		1,470	
MWD-17	3/19/2020	REG	0.0490		2.23	D	0.0200	U	0.0500	U	11,600		5,340	
RW-6	3/19/2020	REG	0.00358	J	1.74		0.00400	U	0.0100	U	2,720		1,040	
RW-7	3/19/2020	REG	0.0100		0.087		0.00136	J	0.0100	U	9,060		4,820	
RW-8	3/19/2020	REG	0.0284		0.219		0.00400	U	0.0100	U	2,660		1,190	
TMW-1	3/19/2020	FD	0.0187		1.12		0.00400	U	0.0100	U	1,480		531	
TMW-1	3/19/2020	REG	0.0178		1.14		0.00400	U	0.0100	U	1,430		518	
TMW-6	3/20/2020	REG	0.0711		1.09		0.000609	J	0.0100	U	1,400		305	
WW-2	3/19/2020	REG	0.000628	J	1.86		0.00400	U	0.0100	U	3,640		2,450	
WW-7	3/18/2020	REG	0.000661	J	0.448		0.00400	U	0.0100	U	459		238	

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

D = Concentration is based on a diluted sample analysis.

Table 8
Fall 2020 Metals, Chloride, and Total Dissolved Solids Analytical Data
2020 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	0.01	2	0.05	0.05	1000	250				
MW-11	9/23/2020	REG	0.0294	1.05	0.00400	U	0.0100	UJ	972	117		
MW-15	9/22/2020	FD	0.0116	0.0430	J	0.00400	U	0.0100	U	3,290	1,590	
MW-15	9/22/2020	REG	0.0114	0.0430	J	0.00400	U	0.0100	U	3,320	1,590	
MW-16	9/22/2020	REG	0.0136	0.0356		0.0972		0.0950		4,040	1,900	
MW-17	9/22/2020	REG	0.0105	0.214	J	0.00400	U	0.0100	U	2,320	1,140	
MW-25	9/23/2020	REG	0.00162	J	1.13	0.00126	J	0.0100	UJ	4,550	1,540	
MW-26	9/23/2020	REG	0.0606		5.69	0.00400	U	0.0100	U	1,120	168	
MW-29	9/22/2020	REG	0.00270	J	9.44	0.00400	U	0.0100	U	1,430	316	
MW-30	9/22/2020	REG	0.00762		0.317	0.00400	U	0.0100	U	1,220	266	
MW-32	9/22/2020	REG	0.038		1.63	0.00400	U	0.0100	U	2,320	510	
MW-34	9/22/2020	FD	0.000838	J	5.14	0.00400	U	0.0100	U	1,530	297	
MW-34	9/22/2020	REG	0.000802	J	4.69	0.00400	U	0.0100	U	1,550	295	
MW-35	9/22/2020	REG	0.00942		0.122	J	0.00400	U	0.0100	U	937	167
MW-38	9/22/2020	REG	0.00970		0.0718	0.00400	U	0.0100	U	1,960	641	
MWD-3	9/22/2020	REG	0.0469		4.50	J	0.00400	U	0.0100	U	13,000	7,110
MWD-12	9/22/2020	REG	0.0352		0.298	J	0.00400	U	0.0100	U	3,730	1,550
MWD-13	9/22/2020	REG	0.0670		0.0878	J	0.00337	J	0.0100	U	6,430	2,250
MWD-14	9/23/2020	REG	0.000588	J	1.09	0.000723		0.0100	UJ	3,140	426	
RW-6	9/22/2020	REG	0.00287	J	1.71	J	0.00400	J	0.0100	U	2,660	1,070

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
** 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 = The target analyte was positively identified below the quantitation limit and above the detection limit.
U = Analyte was not detected.

Table 9
LNAPL Transmissivity Test
2020 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	Geometric Mean	2019 Geometric Mean	2018 Geometric Mean	2017 Geometric Mean	2016 Geometric Mean
MW-1	--- ^a	---	---	---	---	---	---	---	---	---	0.75	0.55 1.8	1.8	2.9
MW-2	--- ^a	---	---	---	---	---	---	---	---	---	1.2	5.4 3.4	1.6	---
MW-5	--- ^a	---	---	---	---	---	---	---	---	---	---	0.35 0.21	0.16	0.30
MW-10	--- ^a	---	---	---	---	---	---	---	---	---	0.03	---	---	---
MW-12	--- ^a	---	---	---	---	---	---	---	---	---	---	0.04 0.37	---	---
MW-19	--- ^a	---	---	---	---	---	---	---	---	---	0.16	0.01 3.5	0.01	---
MW-20	--- ^a	---	---	---	---	---	---	---	---	---	2.5	2.9 1.7	2.9	2.7
MW-21	--- ^a	---	---	---	---	---	---	---	---	---	---	0.47 0.38	0.005	---
MW-27	10/1/2020	11	1.28	203	0.79	62%	0.4	0.5	0.4	0.4	2.0	0.57	1.0	---
MW-28	10/1/2020	35	1.69	323	1.65	98%	2.4	2.9	3.6	2.9	1.6	6.2 3.3	4.5	5.9
RW-1	--- ^a	---	---	---	---	---	---	---	---	---	1.2	1.7 2.0	2.2	1.2
RW-2	10/1/2020	19	1.41	139	1.48	105%	3.9	7.1	9.3	6.3	4.8	8.1 8.6	5.3	4.7
RW-4	--- ^a	---	---	---	---	---	---	---	---	---	3.9	3.1 1.6	3.1	2.4
RW-5	--- ^a	---	---	---	---	---	---	---	---	---	---	4.1	---	---
TMW-2	--- ^a	---	---	---	---	---	---	---	---	---	---	1.9	---	---

Notes:

^aLNAPL baildown testing was not conducted in accordance with the work plan

Acronyms and Abbreviations:

bold = values greater than the Interstate Technology & Regulatory Commission (ITRC [2009]) recommended threshold for practical recoverability of LNAPL (0.8 ft²/day)

ft²/day = square foot (feet) per day

LNAPL = light nonaqueous phase liquid

--- = data not available

% = percent

Table 10
Chloride Recovery Estimates
2020 Annual Groundwater Monitoring Report
Former Eunice South Gas Plant
Eunice, Lea County, New Mexico



Date		MWD-3			MWD-9		
		Volume Removed (gallons)	Average Chloride Concentration (mg/L)	Estimated Chloride Mass Removal (lbs)	Volume Removed (gallons)	Average Chloride Concentration (mg/L)	Estimated Chloride Mass Removal (lbs)
2017	Q1	3,698	32,300	997	874,200	18,100	132,091
	Q2	2,113	30,650	541	831,200	17,200	119,349
	Q3	1,611	35,800	481	763,100	17,267	109,995
	Q4	49,500	38,400	15,868	685,178	16,650	95,236
	Total	56,922	--	17,887	3,153,678	--	456,671
2018	Q1	304,765	34,233	87,096	394,338	16,850	55,469
	Q2	30,335	35,900	9,091	1,392	16,700	194
	Q3	504,100	37,650	158,440	605,392	15,200	76,818
	Q4	384,913	38,350	123,229	719,099	13,350	80,141
	Total	1,224,113	--	377,856	1,720,221	--	212,622
2019	Q1	0	--	--	875,201	16,800	122,744
	Q2	0	--	--	728,275	16,300	99,098
	Q3	270,323	30,150	68,038	362,895	18,500	56,045
	Q4	563,826	35,700	168,034	26,155	18,500*	4,039
	Total	834,149	--	236,072	1,992,526	--	281,926
2020	Q1	431,244	37,250	134,101	0	--	--
	Q2	9,616	35,600	2,858	0	--	--
	Q3	0	--	--	0	--	--
	Q4	0	--	--	0	--	--
	Total	440,860	--	136,959	0	--	0

Acronyms and Abbreviations:

-- = not applicable

lbs = pounds

mg/L = milligrams per liter

Q1 = first quarter

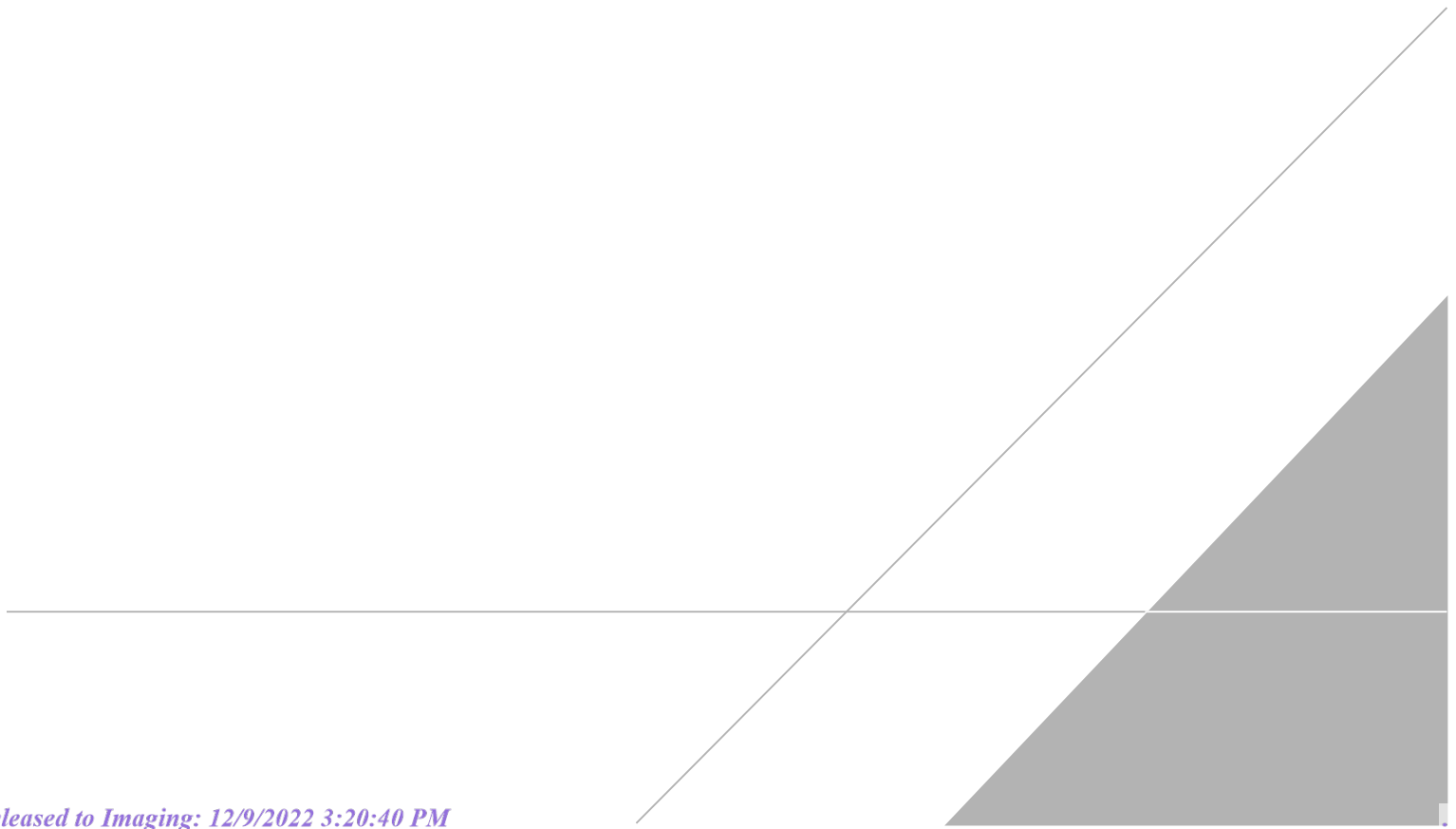
Q2 = second quarter

Q3 = third quarter

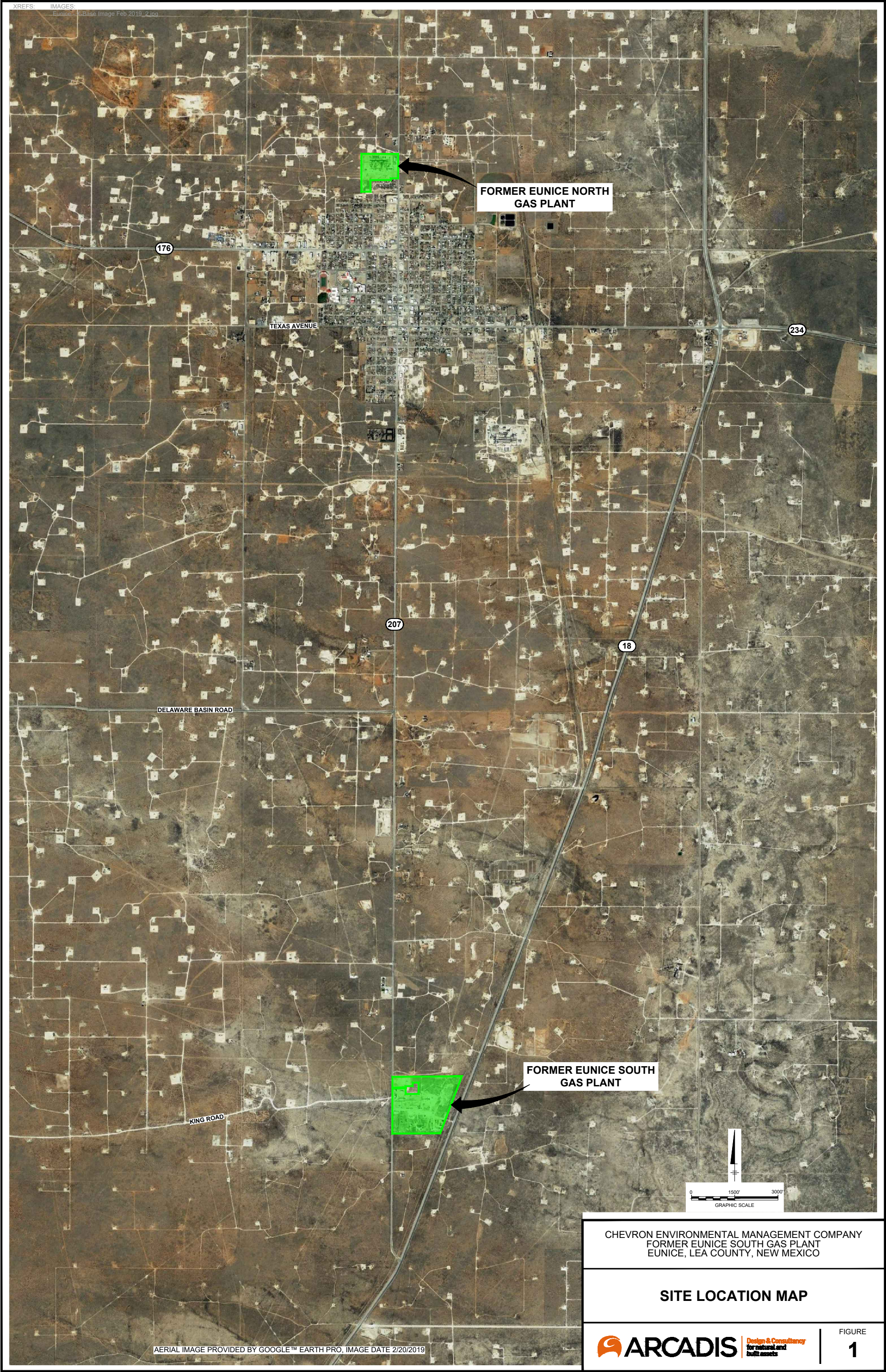
Q4 = fourth quarter

* An average chloride concentration could not be calculated for MWD-9 due to the down time in Q4 2019. The average value was used from Q3 for removal calculation.

FIGURES



DIV/GROUP: ENVCAD
C:\Users\byrappab8346\BIM 360\Arcadis\ANA - CHEVRON CORPORATION\Project Files\Eunice South Gas Plant-Site O&M\2021\30049612\01-DWG\GEN-F01-SITE LOCATION.dwg LAYOUT: 1 SAVED: 2/18/2021 6:54 PM ACADVER: 23.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ARCADIS.CTB
PLOTTED: 2/18/2021 6:57 PM BY: BYRAPPA, BYRAREDDY



CITY: SAN RAFAEL, CA DIV/GROUP: ENVCAD DB: J. HARRIS
C:\Users\byrappab8346\BIM 360\Arcadis\ANA - CHEVRON CORPORATION\Project Files\Eunice South Gas Plant-Site O&M\2021\30049612\01-DWG\GEN-F02-WELL LOCATION AND MONITORING PLAN.dwg LAYOUT: 2 SAVED: 2/18/2021 6:50 PM ACADVER: 23.1S (LMS TECH) PAGESETUP: ----
PLOTSTYLETABLE: ---- PLOTTED: 2/18/2021 6:53 PM BY: BYRAPPA, BYRAREDDY



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**



FIGURE
2

CITY: SAN RAFAEL, CA DIV/GROUP: ENVCAD DB: J. HARRIS
C:\Users\jharris\BIM 360\Arcadis\ANA - CHEVRON CORPORATION\Project Files\Eunice South Gas Plant-Site O&M\2021\30049612\01-DWG\GWM-2020SA2-F03-POTENTIOMETRIC SURFACE MAP.dwg LAYOUT: 3 SAVED: 2/22/2021 4:29 AM ACADVER: 24.0S (LMS TECH) PAGESETUP: ---
PLOTSTYLETABLE: --- PLOTTED: 2/24/2021 9:52 PM BY: HARRIS, JESS



LEGEND


- MONITORING WELLS
- TARGA'S ONSITE INJECTION WELL
- RECOVERY WELL
- ⊠ INACTIVE WATER WELL
- ⊕ OFFSITE PROPERTY WELL (NOT SAMPLED)
- 3281.78 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 MARCH 16-17, 2020.
6. WHERE LNAPL IS PRESENT, GROUNDWATER ELEVATION WAS CORRECTED BASED OFF ESTIMATED LNAPL SPECIFIC GRAVITY OF 0.72-0.82.

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

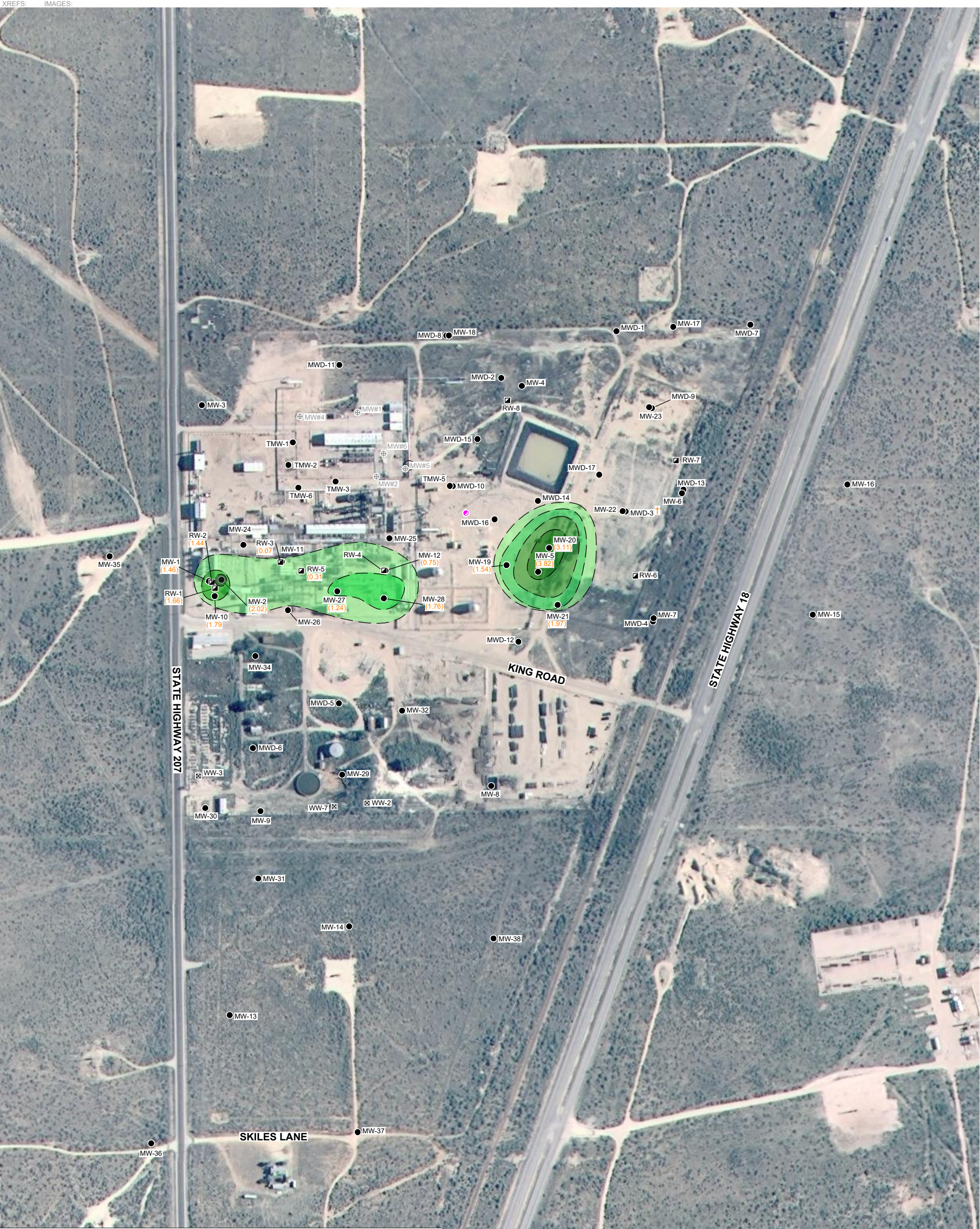
**POTENTIOMETRIC SURFACE MAP
SPRING 2020**



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FIGURE
3

CITY: SAN RAFAEL, CA DIV/GROUP: ENVCAD DB: J. HARRIS
C:\Users\byrappab8346\BIM 360\Arcadis\ANA - CHEVRON CORPORATION\Project Files\Eunice South Gas Plant-Site O&M\2021\30049612\01-DWG\GWM-2020SA2-F04-LNAPL SPRING.dwg LAYOUT: 4 SAVED: 2/4/2021 2:15 PM ACADVER: 23.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ----
PLOTTED: 2/18/2021 7:37 PM BY: BYRAPPA, BYRAREDDY



LEGEND

● MONITORING WELL

● TARGA'S ONSITE INJECTION WELL

■ RECOVERY WELL

⊗ INACTIVE WATER WELL

⊕ OFFSITE PROPERTY WELL (NOT SAMPLED)

3.82 LNAPL THICKNESS MARCH 2020 (FEET)

† PUMPING WELL

LNAPL LIGHT NON-AQUEOUS PHASE LIQUID

NG WELL NOT GAUGED THIS EVENT

NA WELL NOT ANALYZED THIS EVENT

LNAPL THICKNESS CONTOUR (FEET; DASHED WHERE INFERRED)

>0

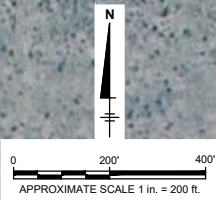
>1

>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 MARCH 2020.
6. ONLY DATA COLLECTED IN 2020 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

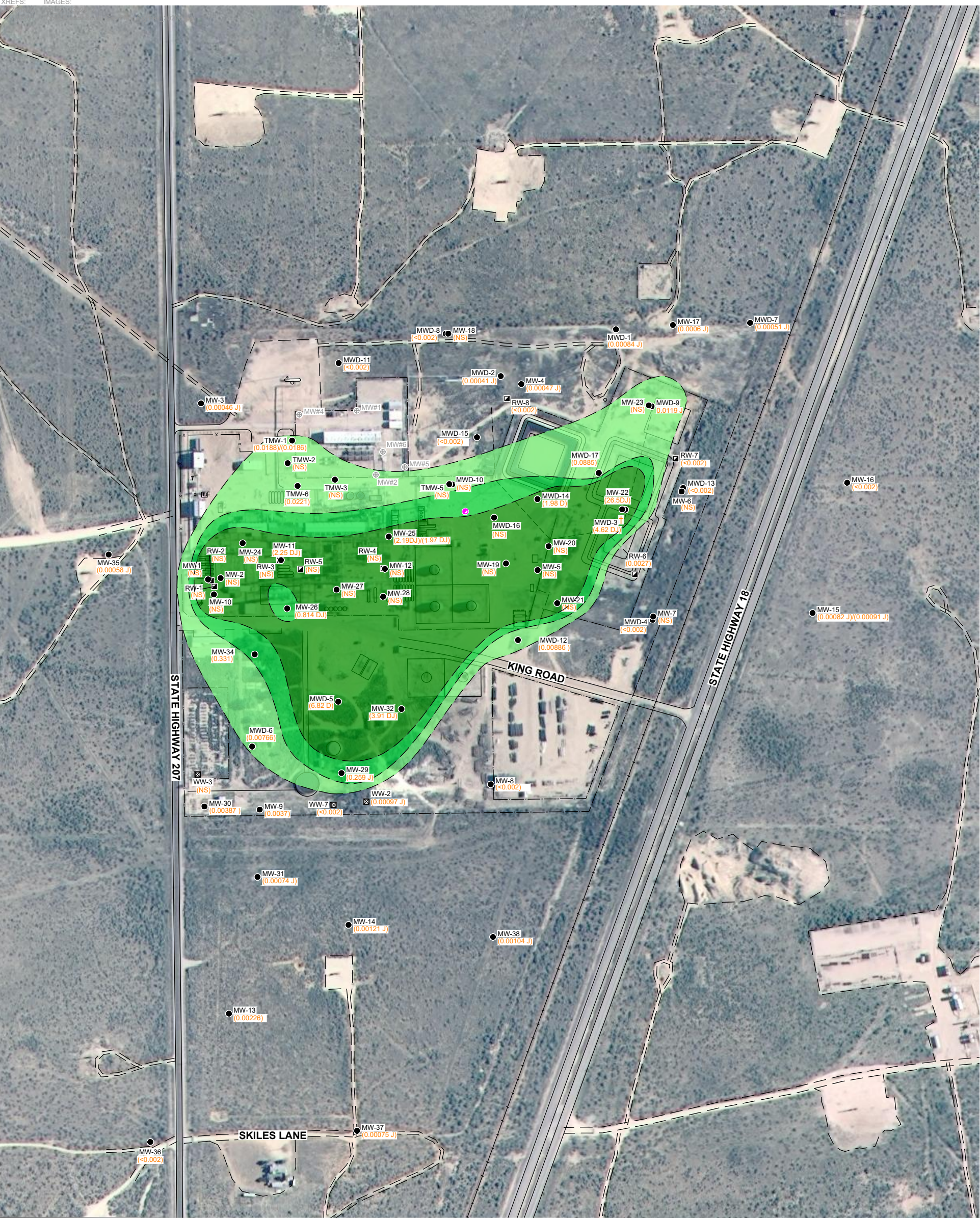
**LNAPL DISTRIBUTION MAP
SPRING 2020**



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FIGURE
4

CITY: SAN RAFAEL, CA DIV/GROUP: ENVCAD DB: J. HARRIS
C:\Users\byrappab8346\BIM 360\Arcadis\ANA - CHEVRON CORPORATION\Project Files\Eunice South Gas Plant-Site O&M\2021\30049612\01-DWG\GWM-2020SA2-F05-BENEZENE FALL.dwg LAYOUT: 5 SAVED: 2/18/2021 8:11 PM ACADVER: 23.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ----
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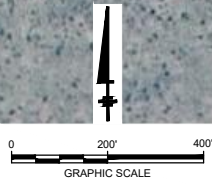


LEGEND

- MONITORING WELL
- TARGA'S ONSITE INJECTION WELL
- RECOVERY WELL
- ⊠ INACTIVE WATER WELL
- ⊕ OFFSITE PROPERTY WELL (NOT SAMPLED)
- (2.19)/(1.97) BENZENE CONCENTRATION/DUPLICATE RESULT IN MILLIGRAMS PER LITER (mg/L)
- (NS) NOT SAMPLED
- LNAPL LIGHT NON-AQUEOUS PHASE LIQUID
- <0.002 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



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

BENZENE ISOCONCENTRATION MAP
SPRING 2020

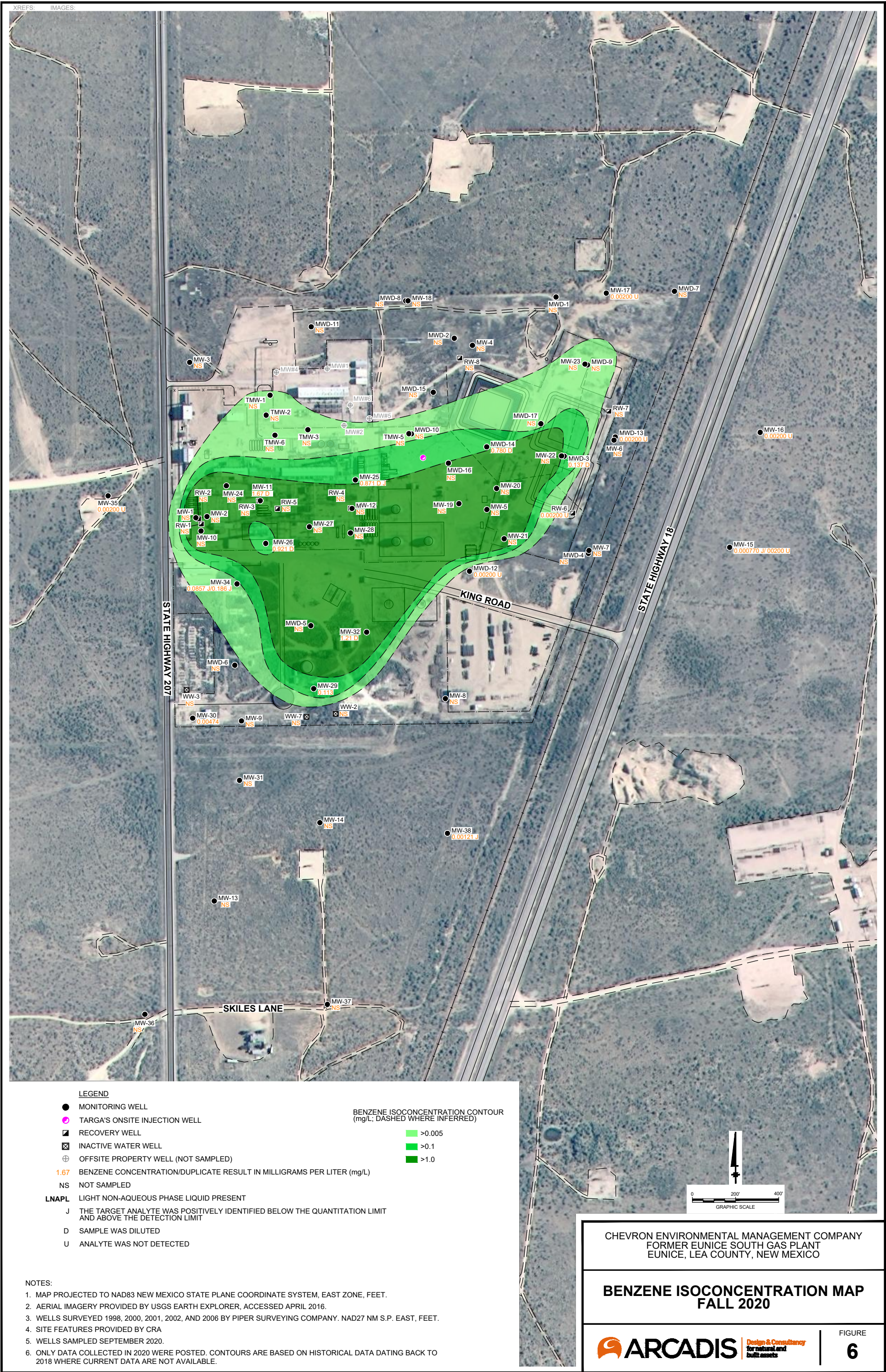


FIGURE

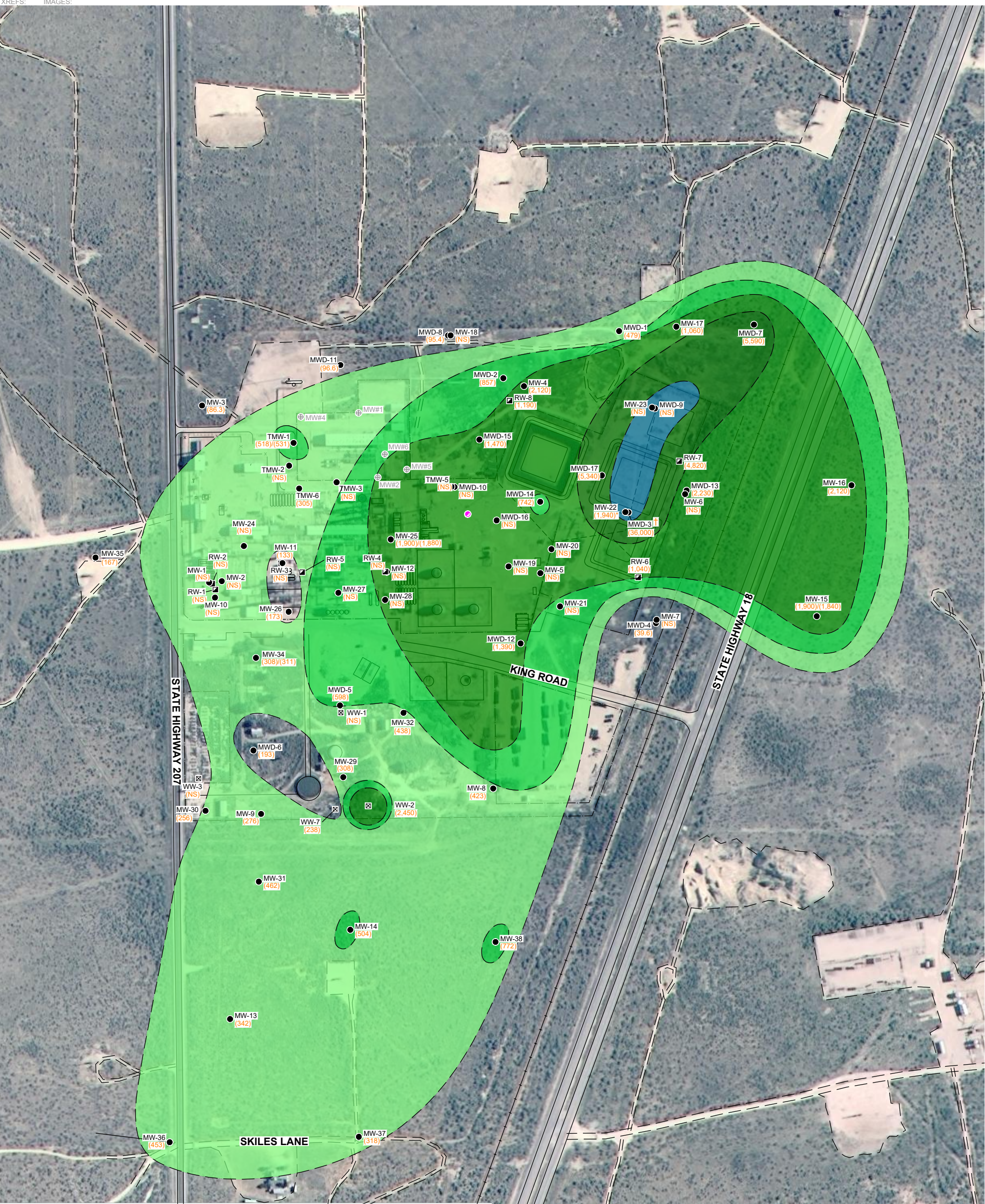
5

- 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 MARCH 2020.
 6. ONLY DATA COLLECTED IN 2020 WERE POSTED. CONTOURS ARE BASED ON HISTORICAL DATA DATING BACK TO 2018 WHERE CURRENT DATA ARE NOT AVAILABLE

CITY: SAN RAFAEL, CA DIV/GROUP: ENVCAD DB: J. HARRIS
C:\Users\byrappab8346\BIM 360\Arcadis\ANA - CHEVRON CORPORATION\Project Files\Eunice South Gas Plant-Site O&M\2021\30049612\01-DWG\GWM-2020SA2-F06-BENEZENE FALL.dwg LAYOUT: 6 SAVED: 2/3/2021 7:06 PM ACADVER: 23.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ----
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CITY: SAN RAFAEL, CA DIV/GROUP: ENVCAD DB: J. HARRIS
C:\Users\byrappab8346\BIM 360\Arcadis\ANA - CHEVRON CORPORATION\Project Files\Eunice South Gas Plant-Site O&M\2021\30049612\01-DWG\GWM-2020SA2-F07-CHLORIDE FALL-1.dwg LAYOUT: 7 SAVED: 2/19/2021 10:08 AM ACADVER: 23.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ----
PLOTTED: 2/22/2021 5:32 PM BY: BYRAPPA, BYRAREDDY



LEGEND

- MONITORING WELL
- TARGA'S ONSITE INJECTION WELL
- RECOVERY WELL
- ⊠ INACTIVE WATER WELL
- ⊕ OFFSITE PROPERTY WELL (NOT SAMPLED)
- 36,000 CHLORIDE CONCENTRATION/DUPLICATE RESULT IN MILLIGRAMS PER LITER (mg/L)
- NS NOT SAMPLED
- <0.002 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:

- MAP PROJECTED TO NAD83 NEW MEXICO STATE PLANE COORDINATE SYSTEM, EAST ZONE, FEET.
- AERIAL IMAGERY PROVIDED BY USGS EARTH EXPLORER, ACCESSED APRIL 2016.
- WELLS SURVEYED 1998, 2000, 2001, 2002, AND 2006 BY PIPER SURVEYING COMPANY. NAD27 NM S.P. EAST, FEET.
- SITE FEATURES PROVIDED BY CRA.
- WELLS SAMPLED MARCH 2020
- ONLY DATA COLLECTED IN 2020 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

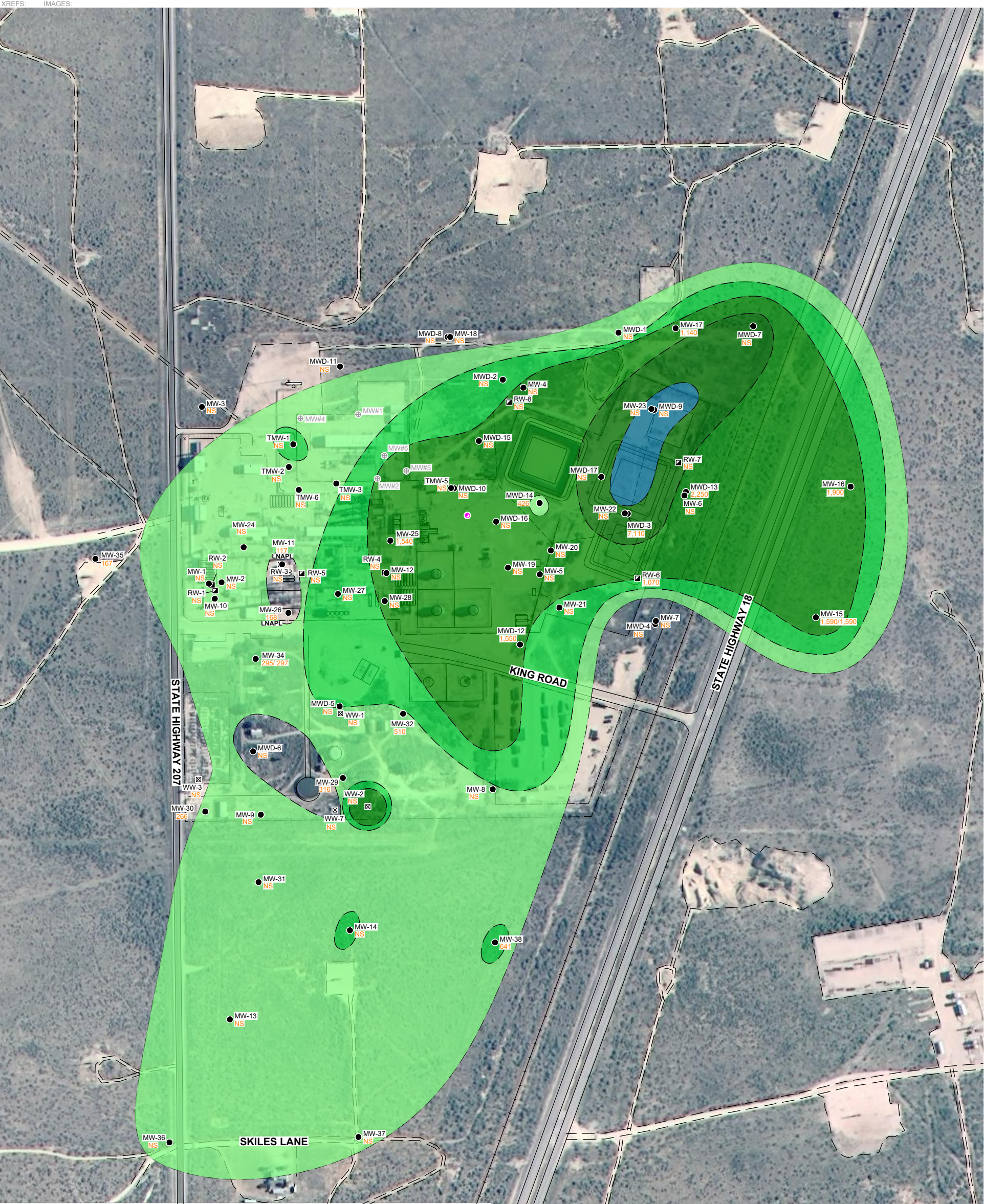
**CHLORIDE ISOCONCENTRATION MAP
SPRING 2020**

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FIGURE
7

CITY: SAN RAFAEL, CA DIV/GROUP: ENVCAD DB: J. HARRIS
C:\Users\byrappab8346\BIM 360\Arcadis\ANA - CHEVRON CORPORATION\Project Files\Eunice South Gas Plant-Site O&M\2021\30049612\01-DWG\GWM-2020SA2-F08-CHLORIDE FALL.dwg LAYOUT: 8 SAVED: 2/19/2021 10:11 AM ACADVER: 23.15 (LMS TECH) PAGES SETUP: ---- PLOTSTYLETABLE: ----
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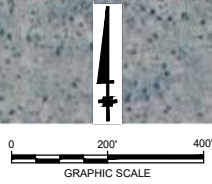


LEGEND

- MONITORING WELL
- TARGA'S ONSITE INJECTION WELL
- ☒ RECOVERY WELL
- ☒ INACTIVE WATER WELL
- ⊕ OFFSITE PROPERTY WELL (NOT SAMPLED)
- 7,110 CHLORIDE CONCENTRATION/DUPLICATE RESULT IN MILLIGRAMS PER LITER (mg/L)
- NS NOT SAMPLED
- LNAPL LIGHT NON-AQUEOUS PHASE LIQUID PRESENT

- CHLORIDE ISOCONCENTRATION CONTOUR (mg/L; DASHED WHERE INFERRED)
- >250
 - >500
 - >1,000
 - >3,000
 - >10,000

- NOTES:
- MAP PROJECTED TO NAD83 NEW MEXICO STATE PLANE COORDINATE SYSTEM, EAST ZONE, FEET.
 - AERIAL IMAGERY PROVIDED BY USGS EARTH EXPLORER, ACCESSED APRIL 2016.
 - WELLS SURVEYED 1998, 2000, 2001, 2002, AND 2006 BY PIPER SURVEYING COMPANY, NAD27 NM S.P. EAST, FEET.
 - SITE FEATURES PROVIDED BY CRA.
 - WELLS SAMPLED SEPTEMBER 2020
 - ONLY DATA COLLECTED IN 2020 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 2020



FIGURE
8

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 22814

CONDITIONS

Operator: CHEVRON U S A INC 6301 Deauville Blvd Midland, TX 79706	OGRID: 4323
	Action Number: 22814
	Action Type: [UF-GWA] Ground Water Abatement (GROUND WATER ABATEMENT)

CONDITIONS

Created By	Condition	Condition Date
nvelez	Accepted for the record. See app ID 91731 for most updated status.	12/9/2022