BW - 8

FIRST SEMI-ANNUAL REPORT

2022

DBS&A
Daniel B. Stephens & Associates, Inc.
a Geo-Logic Company

September 21, 2022

Mr. Carl Chavez
New Mexico Oil Conservation Division
Environmental Bureau
1220 South St. Francis Drive
Santa Fe, New Mexico 87505-4225

Re: Semiannual Groundwater Monitoring and O&M Report
January 1 through June 30, 2022
Salty Dog Brine Station, Lea County, New Mexico

Dear Mr. Chavez:

On behalf of PAB Services, Inc., Daniel B. Stephens & Associates, Inc. (DBS&A) is submitting the enclosed groundwater monitoring and operation and maintenance (O&M) report for the Salty Dog brine station located in Lea County, New Mexico. Semiannual groundwater monitoring activities were completed at the site on June 9 and 10, 2022.

Please call us at (505) 822-9400 if you have any questions or require additional information.

Sincerely,

DANIEL B. STEPHENS & ASSOCIATES, INC.

John Ayarbe, P.G.
Senior Hydrogeologist

JA/rpf
Enclosure
cc: Pieter Bergstein, PAB Services, Inc.

First Semiannual 2022 Groundwater Monitoring and Operation and Maintenance Report

Salty Dog Brine Station
Lea County, New Mexico

Prepared for

New Mexico Energy, Minerals and Natural Resources Department, Oil Conservation Division
Santa Fe, New Mexico

Prepared by

DBS&A
Daniel B. Stephens & Associates, Inc.
a Geo-Logic Company

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DB19.1198

September 21, 2022

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1. Introduction

Daniel B. Stephens & Associates, Inc. (DBS&A) has prepared this groundwater monitoring and operation and maintenance (O&M) report for submission to the New Mexico Energy, Minerals and Natural Resources Department Oil Conservation Division (OCD) Environmental Bureau on behalf of PAB Services, Inc. (PAB) for the Salty Dog brine station (the site) located in Lea County, New Mexico (Figure 1). The report summarizes activities conducted at the site during the reporting period of January 1 through June 30, 2022. Groundwater monitoring and O&M during the reporting period was conducted in accordance with discharge permit BW-8 (DP-BW-8), which was last renewed on May 17, 2019 (NMEMNRD OCD, 2019).

The site consists of a northern portion, where the brine pond was located prior to closure in October 2008, and a southern portion, where the brine well is located. The brine pond area and the brine well area are separated by approximately 2,500 feet, joined by a dirt road (Figure 1). Injection water for the brine well comes from two fresh water supply wells (FWS-1 and FWS-2) and from remedial pumping at a recovery well in the brine well area (RW-2). FWS-2 is an auxiliary supply well that is used when FWS-1 and RW-2 are being serviced or when additional fresh water is needed.

Brine that is produced for sale is stored at a tank battery on the southern boundary of the former brine pond area. The tank battery consists of six 750-barrel aboveground storage tanks (ASTs) surrounded by a berm (Figure 1). A concrete truck loading pad with two brine filling stations is located north of the tank battery. An operations shed is located adjacent to the loading pad to the west.

The former brine pond area has 6 monitor wells (PMW-1, DBS-1R, and DBS-2 through DBS-5), 1 nested well (NW-1), 1 fresh water supply well (FWS-1), and a former recovery well (RW-1). The brine well area has 10 monitor wells (MW-2 through MW-6, DBS-6 through DBS-10), 1 nested well (NW-2), 1 fresh water supply well (FWS-2), and 1 recovery well (RW-2) (Figure 1).

In April 2012, DBS&A installed groundwater extraction systems at the site to provide hydraulic containment and removal of chloride-impacted groundwater in the former brine pond and brine well areas (DBS&A, 2009a and 2009b). The extraction systems consist of wells, submersible pumps, conveyance lines, electrical power, and controls to extract impacted groundwater. Extracted groundwater is conveyed to the on-site ASTs for reinjection at the brine well. Although groundwater extraction at well RW-1 was stopped in 2015, pumping at well FWS-1

provides hydraulic containment and removal of chloride-impacted groundwater in the former brine pond area; well FWS-1 is located approximately 50 feet southeast of RW-1. Extraction at RW-1 was stopped because the water level at the well had declined and was near the bottom of the well. Pumping at RW-2 provides hydraulic containment and removal of chloride-impacted groundwater in the brine well area.

2. Scope of Work

The scope of work for semiannual groundwater monitoring conducted in June 2022 consisted of (1) measuring groundwater levels in and collecting groundwater samples from 12 monitor wells and (2) performing maintenance on the groundwater extraction systems, as necessary. Groundwater samples were submitted to Hall Environmental Analysis Laboratory (HEAL) in Albuquerque, New Mexico for chloride analysis using U.S. Environmental Protection Agency (EPA) method 300.0. Section 2A.1 of DP-BW-8 requires that PAB collect one groundwater sample to be analyzed for general chemistry and other inorganic constituents, in addition to chloride. In consultation with Carl Chavez (OCD), DBS&A selected monitor well MW-3 for these additional analyses. Appendices A and B provide the laboratory report and field notes, respectively.

The monitor wells included in the sampling program were selected in October 2010 in consultation with Jim Griswold, the OCD Project Manager for the site at that time. The sampled monitor wells are shown in Figures 2 through 5.

3. Monitoring Activities

The following subsections describe the groundwater monitoring activities conducted in June 2022. The laboratory report and chain of custody documentation are provided in Appendix A. Field notes recorded during groundwater monitoring activities are provided in Appendix B. Historical groundwater monitoring data are provided in Appendix C.

3.1 Fluid Level Measurement

On June 9, 2022, DBS&A measured water levels in monitor wells DBS-1R, DBS-2 through DBS-5, and PMW-1 in the former brine pond area (Figure 2) and in wells DBS-6, DBS-8 through DBS-10, MW-3, and MW-5 in the brine well area (Figure 3) using a properly decontaminated electronic

water level meter. Table 1 reports the water level measurements and groundwater elevations. Appendix C provides historical groundwater level data.

Table 1. Fluid Level Measurements, June 9, 2022

Monitor Well	Screen Interval (feet bgs)	Top of Casing Elevation (feet msl)	Depth to Water (feet btoc)	Groundwater Elevation (feet msl)
DBS-1R	58.0–78.0	3,817.00	72.80	3,744.20
DBS-2	58.0–78.0	3,820.50	74.89	3,745.61
DBS-3	56.0–76.72	3,816.66	69.57	3,747.09
DBS-4	56.0–76.0	3,820.37	75.30	3,745.07
DBS-5	56.9–76.9	3,820.66	71.99	3,748.67
DBS-6	56.7–76.7	3,812.65	69.79	3,742.86
DBS-8	55.2–75.2	3,810.70	67.84	3,742.86
DBS-9	48.0–68.0	3,806.26	60.95	3,745.31
DBS-10	57.2–77.2	3,807.48	67.28	3,740.20
PMW-1	63–78	3,821.17	75.97	3,745.20
MW-3	NA	3,812.05	70.60	3,741.45
MW-5	112–132	3,808.96	67.59	3,741.37

bgs = Below ground surface
msl = Above mean sea level
btoc = Below top of casing
NA = Not available

During this reporting period, the average depths to water beneath the former brine pond area and brine well area were 73.42 feet below top of casing (btoc) and 67.34 feet btoc, respectively. Water levels in the former brine pond area declined relative to those of the last monitoring event in November 2021, declining on average by 1.98 feet. Water levels in the brine well area also declined—by 0.75 foot on average.

Figures 2 and 3 present potentiometric surface maps for the former brine pond area and the brine well area, respectively. The direction of groundwater flow beneath the former brine pond area remains to the southeast; the hydraulic gradient was approximately 0.0060 foot per foot (ft/ft) this reporting period (Figure 2). The direction of groundwater flow beneath the brine well area also remains to the southeast; the hydraulic gradient in this area was approximately

0.0055 ft/ft this reporting period (Figure 3). Both FWS-1 and RW-2 were pumping during this reporting period.

3.2 Groundwater Sampling

On June 9 and 10, 2022, groundwater samples were collected from monitor wells DBS-1R, DBS-3 through DBS-6, DBS-8 through DBS-10, MW-3, MW-5, and PMW-1. No sample was collected from well DBS-2 because there was insufficient water to sample. The samples were collected following standard sampling procedures developed from EPA guidance. Before sampling, each well was purged of a minimum of three casing volumes using a dedicated bailer to ensure that a representative groundwater sample was collected. While purging, DBS&A measured water quality field parameters consisting of temperature, specific conductance, and pH. Sample containers were filled, labeled, and placed in an ice-filled cooler. Groundwater samples were submitted under chain of custody to HEAL for analysis.

Samples of the brine well injection water and the produced brine were also collected to meet requirements under DP-BW-8. Analytical results of these samples will be presented in the 2022 annual Class III well report.

4. Analytical Results

Table 2 reports the chloride analytical results for the groundwater samples. Figures 4 and 5 show the distribution of chloride in groundwater beneath the former brine pond area and the brine well area, respectively. The complete laboratory report and chain of custody documentation are provided in Appendix A. Field notes recorded during groundwater monitoring activities are provided in Appendix B. Historical groundwater quality data are provided in Appendix C.

Table 2. Chloride Groundwater Analytical Data

Monitor Well	Date	Chloride Concentration (mg/L)
	NMWQCC Standard	*250*
DBS-1R	6/9/2022	**940**
DBS-2	6/9/2022	NS
DBS-3	6/9/2022	57
DBS-4	6/9/2022	44
DBS-5	6/9/2022	200
DBS-6	6/9/2022	**290**
DBS-8	6/9/2022	37
DBS-9	6/9/2022	**350**
DBS-10	6/9/2022	**530**
PMW-1	6/9/2022	**13,000**
MW-3	6/10/2022	**5,100**
MW-5	6/10/2022	**590**

Bold indicates that value equals or exceeds the applicable standard.
All samples analyzed using EPA method 300.0.
NMWQCC = New Mexico Water Quality Control Commission
mg/L = Milligrams per liter
NS = Not sampled

4.1 Former Brine Pond Area Wells

Well PMW-1, located just upgradient of FWS-1, continues to exhibit chloride concentrations above the New Mexico Water Quality Control Commission (NMWQCC) standard of 250 milligrams per liter (mg/L) (Figure 4). The chloride concentration at PMW-1 fluctuates (likely in response to pumping conditions at FWS-1) and increased from 9,800 mg/L in November 2021 to 13,000 mg/L in June 2022 (Appendix C).

Well DBS-1R is located downgradient of well PMW-1 and pumping well FWS-1 (Figure 4). In November 2020, the chloride concentration at DBS-1R exceeded the NMWQCC standard for the first time since 2017 (Appendix C). The chloride concentration at DBS-1R remains elevated, but decreased from 2,100 mg/L in November 2021 to 940 mg/L in June 2022.

The chloride concentration at upgradient monitor well DBS-5 was 200 mg/L, below the NMWQCC standard.

The chloride plume in the former brine pond area remains bounded by the existing monitor well network (Figure 4). The chloride concentration at downgradient monitor well DBS-4 remains stable and below the NMWQCC standard, as do chloride concentrations at the two cross-gradient monitor wells, DBS-2 and DBS-3 (Appendix C).

4.2 Brine Well Area Wells

Monitor well MW-3 (the well closest to extraction well RW-2) and downgradient monitor wells MW-5 and DBS-10 continue to exhibit chloride concentrations above the NMWQCC standard (Figure 5). The highest chloride concentration is observed at MW-3, where the chloride concentration was 5,100 mg/L this reporting period, decreasing from 6,100 mg/L in November 2021. The chloride concentrations at DBS-10 and MW-5 remained similar during this reporting period. The chloride concentration at DBS-10 decreased from 560 mg/L in November 2021 to 530 mg/L in June 2022, while the chloride concentration at MW-5 decreased from 680 mg/L (November 2021) to 590 mg/L (June 2022) (Appendix C).

The chloride concentration at cross-gradient monitor well DBS-6, which met the NMWQCC standard between June 2017 and November 2020 (Appendix C), exceeded the NMWQCC standard during this reporting period (290 mg/L) (Table 2).

The chloride concentration at upgradient monitor well DBS-9 was 350 mg/L during this reporting period, exceeding the NMWQCC standard. Chloride concentrations at DBS-9 fluctuate around the standard (Appendix C).

Section 2A.1 of DP-BW-8 requires that PAB collect one groundwater sample to be analyzed for general chemistry and several other groundwater constituents. Monitor well MW-3 was selected for this additional analysis because it is located downgradient of the location of the brine well. Groundwater at MW-3 has historically shown chloride impacts. Analytical results for the MW-3 sample are provided in Table 3.

At the request of the OCD, DBS&A collected a water quality sample from the Ranch Headquarters Supply Well during the June 2022 monitoring event. The sample was collected from a hose bibb, as it could not be collected directly from the well. Water from the hose bibb was allowed to run for several minutes before the sample was collected. The water quality sample that was collected is believed to be representative of the groundwater supplied by the

Ranch Headquarters Supply Well. Residential water treatment was not apparent. The chloride concentration of the sample was 54 mg/L (Appendix A). The Ranch Headquarters Supply Well had not been sampled since June 2008, when the chloride concentration was 35.4 mg/L.

Table 3. Groundwater Analytical Results, MW-3

Constituent	Concentration (mg/L [a])	
	NMWQCC Standard	MW-3 (6/10/2022)
Alkalinity, total	NS	195.9
Bicarbonate	NS	195.9
Calcium, total	NS	680
Carbonate	NS	<2.0
Bromide	NS	2.0
Chloride	250	**5,100**
Fluoride	1.6	<1.0
Magnesium, total	NS	110
Nitrate + nitrite (as N)	10.0	<4.0
Orthophosphate (as P)	NS	<5.0 H
pH (s.u.)	6–9	7.48 H
Potassium, total	NS	12
Sodium, total	NS	2,400
Sulfate	600	250
Total dissolved solids	1,000	**10,800 D**

Bold indicates that value exceeds New Mexico Water Quality Control Commission (NMWQCC) standard.
[a] Unless otherwise noted
NS = No standard
s.u. = Standard units
H = Holding time for preparation or analysis exceeded
D = Sample diluted due to matrix

5. Groundwater Extraction System O&M

Groundwater extraction from fresh water supply well FWS-1 and recovery well RW-2 provides hydraulic containment and removal of chloride-impacted groundwater in the former brine pond area and brine well area, respectively. PAB began remedial groundwater extraction in April 2012 (Appendix C). Extracted groundwater is used as injection water at the brine well or is sold as fresh water.

Table 4 shows the average groundwater extraction rates for the two wells during this reporting period. The rates were determined using totalizer flow meter readings.

Table 4. Average Groundwater Extraction Rates

Recovery Well	Date	Average Extraction Rate [a] (gpm)
FWS-1	6/9/2022	8.6
RW-2	6/9/2022	5.8

[a] Average extraction rates based on totalizer flow meter readings on 11/28/2021 and 6/9/2022.
gpm = Gallons per minute

5.1 Former Brine Pond Area

The average pumping rate at well FWS-1 during this reporting period was 8.6 gallons per minute (gpm) (Table 4). The average pumping rate during the previous reporting period was 3.9 gpm (Appendix C).

In the former brine pond area, monitor wells PMW-1 and DBS-1R are the only wells to exhibit chloride concentrations above the NMWQCC standard (Figure 4). The chloride concentration at DBS-1R had been meeting the NMWQCC standard until November 2020. PAB has increased the pumping rate at FWS-1 to address the elevated chloride concentration at DBS-1R. The chloride concentration at DBS-1R decreased during this reporting period, from 2,100 mg/L (November 2021) to 940 mg/L (June 2022). The chloride concentration at well DBS-4, located downgradient of well DBS-1R, remains stable and below the NMWQCC standard (Figure 4).

5.2 Brine Well Area

During this reporting period, the average pumping rate at well RW-2 was 5.8 gpm (Table 4). The average pumping rate during the previous reporting period was 17.6 gpm (Appendix C).

Pumping at well RW-2 is providing hydraulic containment and removal of chloride-impacted groundwater originating from the area upgradient of the recovery well. Groundwater extraction from this well is preventing further degradation of downgradient and cross-gradient water quality. Chloride concentrations at monitor wells MW-5 (downgradient) and DBS-6 (cross gradient) have decreased since PAB began remedial groundwater extraction at well RW-2 (Appendix C). Chloride concentrations at downgradient monitor wells DBS-10 and MW-5 decreased this reporting period relative to the previous reporting period.

5.3 Facility and Extraction System Maintenance

There were no maintenance issues during this reporting period.

On June 9, 2022, Atkins Engineering Associates Inc. surveyed the five surface subsidence monitoring points that were installed at the site in March 2018 (DBS&A, 2018). The survey was conducted in accordance with Condition 2.B.1 of DP-BW-8 (NMEMNRD OCD, 2019). Results of the survey were reported to Carl Chavez on June 15, 2022, and will be included in the 2022 annual Class III well report.

5.4 Future Extraction System Operation

PAB will continue groundwater extraction from the fresh water supply well FWS-1 and recovery well RW-2 to provide hydraulic containment and removal of chloride impacted groundwater.

PAB will continue semiannual groundwater monitoring at the selected wells to collect data used to assess the effectiveness of the remedial groundwater extraction measures.

6. Recommendations

Based on the current groundwater monitoring results and site O&M activities, DBS&A offers the following recommendations:

- Continue groundwater extraction at FWS-1 to provide hydraulic containment and removal of the chloride plume in the former brine pond area.

- Continue groundwater extraction at RW-2 to provide hydraulic containment and removal of the chloride plume in the brine well area.
- To the extent practical, attempt to balance groundwater extraction between FWS-1 and RW-2.

In addition, DBS&A and PAB will complete the following activities at the site in 2022 to meet the requirements of DP-BW-8:

- Continue to conduct semiannual groundwater monitoring and O&M of the extraction systems at the site.
- Conduct semiannual surveys of the surface subsidence survey monitoring points.
- Recalibrate or replace totalizer meters as needed.

References

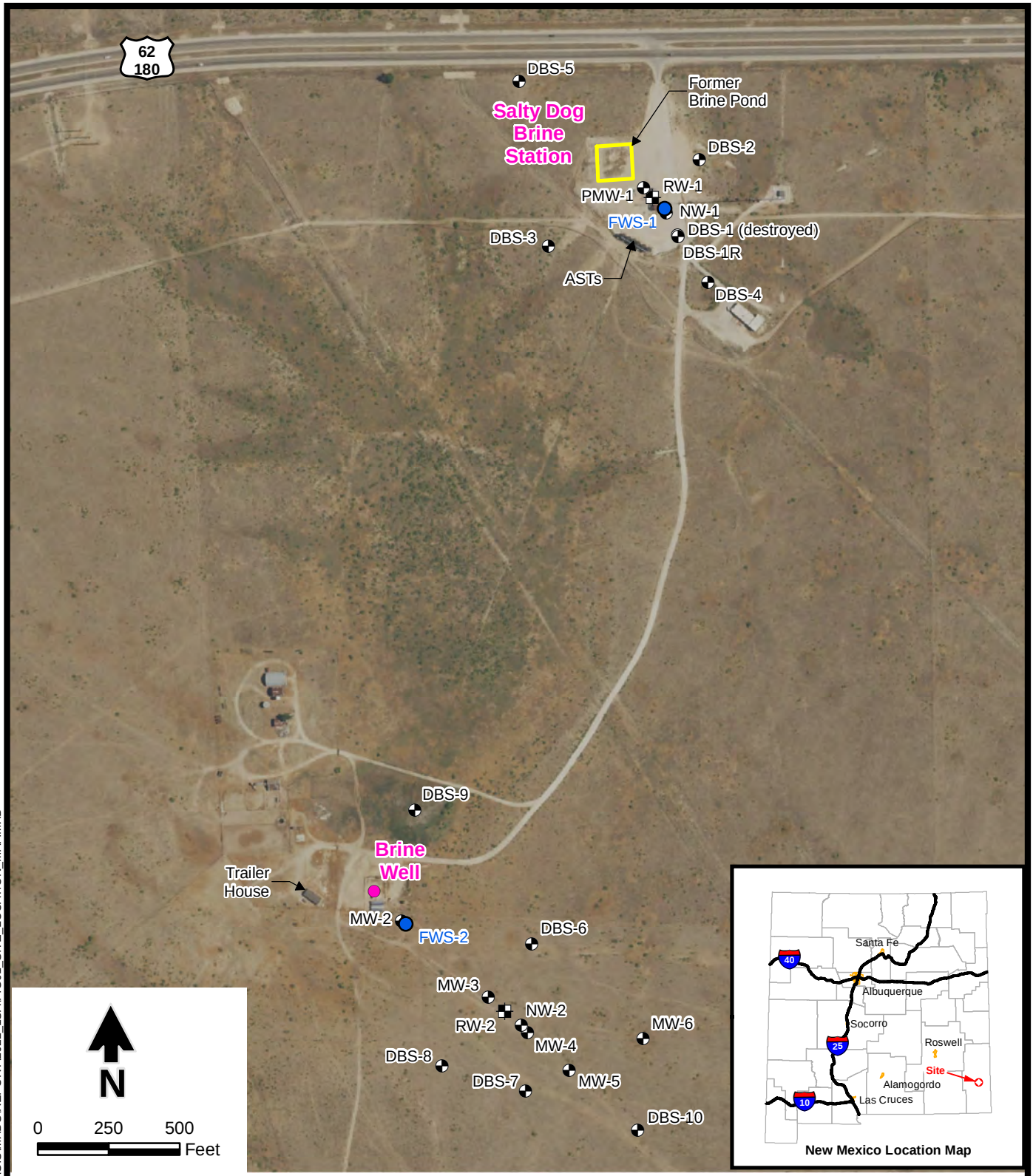
Daniel B. Stephens & Associates (DBS&A). 2009a. *Recovery well installation and pump test report, Salty Dog Brine Station, Lea County, New Mexico.* Prepared for New Mexico Energy, Minerals and Natural Resources Department Oil Conservation Division, Environmental Bureau. November 20, 2009.

DBS&A. 2009b. *Preliminary conceptual remedial design report, Salty Dog Brine Station, Lea County, New Mexico.* Prepared for New Mexico Energy, Minerals and Natural Resources Department Oil Conservation Division, Environmental Bureau. December 31, 2009.

DBS&A. 2018. Letter report from John Ayarbe and Michael D. McVey to Carl Chavez, New Mexico Energy, Minerals and Natural Resources Department Oil Conservation Division, Environmental Bureau, regarding Installation of a monitor well and subsidence survey monitoring points at the Salty Dog Brine Station (API No. 30-025-26307). June 25, 2018.

New Mexico Energy, Minerals and Natural Resources Department Oil Conservation Department (NMEMNRD OCD). 2019. *Discharge Permit (BW-8), Standard Energy, UIC Class III Brine Well Brine Supply Well No.1 API No. 30-025-26307 UL: J Section 5 Township 19 South, Range 36 East, Lea County, New Mexico.* May 17, 2019.

Figures



Explanation

- Fresh water supply well
- Monitor well
- Recovery well
- Well destroyed

Note: AST = Aboveground storage tank

Source: Aerial imagery (NAIP, 2020)

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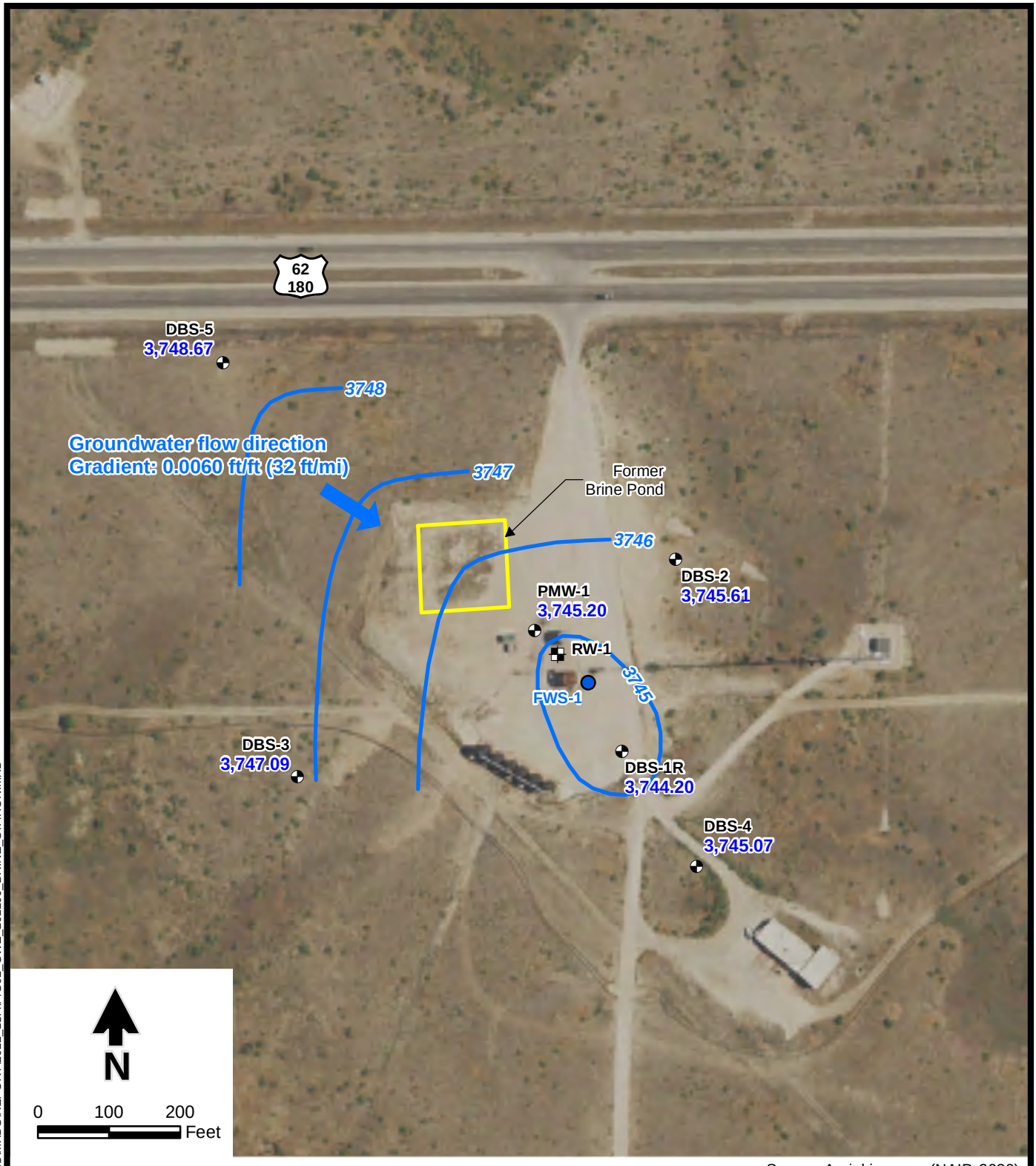
DBS&A
Daniel B. Stephens & Associates, Inc.
8/30/2022
DB19.1198

SALTY DOG BRINE STATION

Site Location Map

Figure 1



Source: Aerial imagery (NAIP, 2020)

Explanation

DBS-1R Well designation

3,744.20 Groundwater elevation, ft msl

- Monitor well
- Fresh water supply well
- Recovery well
- Potentiometric surface elevation contour (ft msl)
- Groundwater flow direction

SALTY DOG BRINE STATION

Former Brine Pond Area
Potentiometric Surface Elevations
June 2022

Figure 2

DBS&A
Daniel B. Stephens & Associates, Inc.
9/7/2022
DB19.1198

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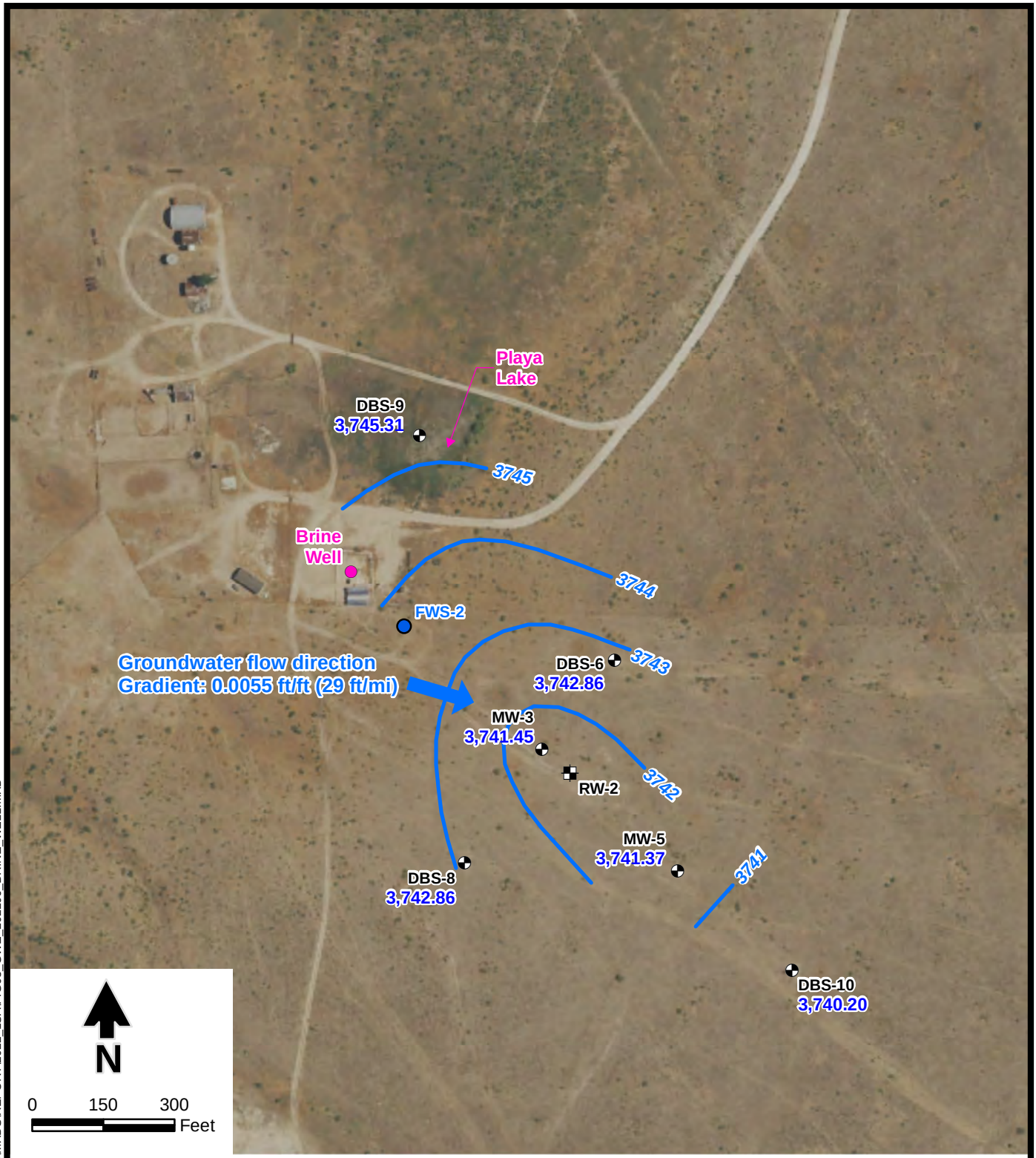

Source: Aerial imagery (NAIP, 2020)

Explanation

MW-3 Well designation

3,741.45 Groundwater elevation, ft msl

- Monitor well
- Fresh water supply well
- Recovery well
- Potentiometric surface elevation contour (ft msl)
- Groundwater flow direction

SALTY DOG BRINE STATION

Playa Lake and Brine Well Area Potentiometric Surface Elevations June 2022

Figure 3

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DBS&A Daniel B. Stephens & Associates, Inc.

9/7/2022

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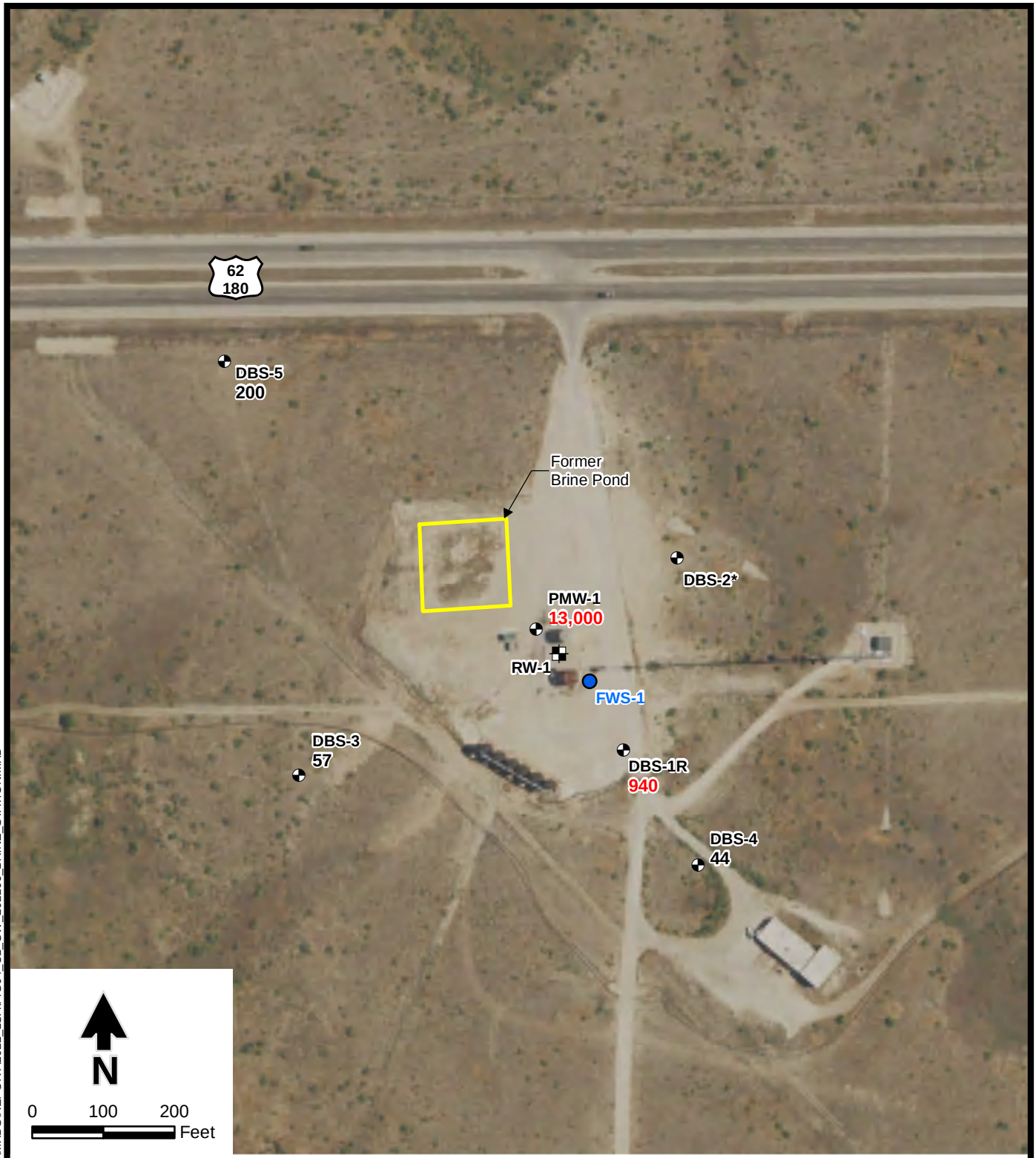

Note: * Insufficient water to sample.

Source: Aerial imagery (NAIP, 2020)

Explanation

DBS-3 Well designation

57 Chloride concentration (mg/L)

Monitor well

Fresh water supply well

Recovery well

Red indicates a concentration greater than or equal to the NMWQCC standard.

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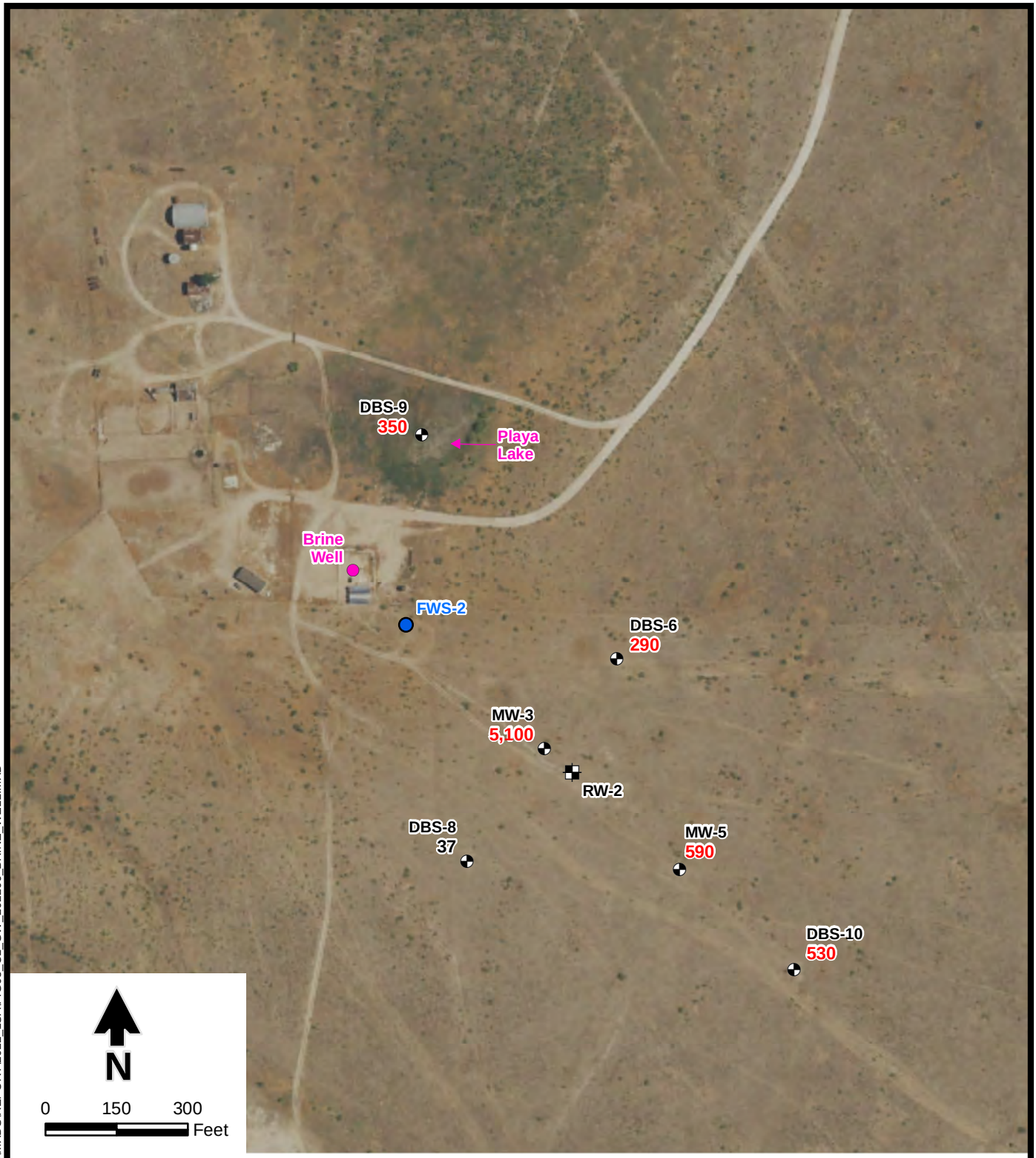
SALTY DOG BRINE STATION

Former Brine Pond Area
Chloride Concentrations in Groundwater
June 2022

DBS&A
Daniel B. Stephens & Associates, Inc.

8/30/2022 DB19.1198

Figure 4



Source: Aerial imagery (NAIP, 2020)

Explanation

DBS-8 Well designation

37 Chloride concentration (mg/L)

Monitor well

Fresh water supply well

Recovery well

Red indicates a concentration greater than or equal to the NMWQCC standard.

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8/30/2022 DB19.1198

SALTY DOG BRINE STATION

Playa Lake and Brine Well Area
Chloride Concentrations in Groundwater
June 2022

Figure 5

Appendix A

Laboratory Analytical Report

DBS&A
Daniel B. Stephens & Associates, Inc.

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

July 14, 2022

John Ayarbe

Daniel B. Stephens & Assoc.
6020 Academy NE Suite 100
Albuquerque, NM 87109
TEL:
FAX:

RE: Salty Dog OrderNo.: 2206811

Dear John Ayarbe:

Hall Environmental Analysis Laboratory received 14 sample(s) on 6/15/2022 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2206811**
Date Reported: **7/14/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc. **Client Sample ID:** DBS-1R
Project: Salty Dog **Collection Date:** 6/9/2022 4:08:00 PM
Lab ID: 2206811-001 **Matrix:** GROUNDWA **Received Date:** 6/15/2022 10:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	940	50	*	mg/L	100	6/15/2022 6:21:58 PM	R88776

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Estimated value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

Analytical Report
Lab Order **2206811**
Date Reported: **7/14/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc. **Client Sample ID:** DBS-3
Project: Salty Dog **Collection Date:** 6/9/2022 3:24:00 PM
Lab ID: 2206811-002 **Matrix:** GROUNDWA **Received Date:** 6/15/2022 10:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	57	5.0		mg/L	10	6/15/2022 6:34:51 PM	R88776

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Estimated value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

Analytical Report
Lab Order **2206811**
Date Reported: **7/14/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc. **Client Sample ID:** DBS-4
Project: Salty Dog **Collection Date:** 6/9/2022 2:42:00 PM
Lab ID: 2206811-003 **Matrix:** GROUNDWA **Received Date:** 6/15/2022 10:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	44	5.0		mg/L	10	6/15/2022 7:26:17 PM	R88776

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Estimated value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

Analytical Report
Lab Order **2206811**
Date Reported: **7/14/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc. **Client Sample ID:** DBS-5
Project: Salty Dog **Collection Date:** 6/9/2022 4:45:00 PM
Lab ID: 2206811-004 **Matrix:** GROUNDWA **Received Date:** 6/15/2022 10:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	200	5.0		mg/L	10	6/15/2022 7:52:01 PM	R88776

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Estimated value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

Analytical Report
Lab Order **2206811**
Date Reported: **7/14/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc. **Client Sample ID:** DBS-6
Project: Salty Dog **Collection Date:** 6/9/2022 6:44:00 PM
Lab ID: 2206811-005 **Matrix:** GROUNDWA **Received Date:** 6/15/2022 10:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	290	50	*	mg/L	100	6/15/2022 8:30:35 PM	R88776

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2206811**
Date Reported: **7/14/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc. **Client Sample ID:** DBS-8
Project: Salty Dog **Collection Date:** 6/9/2022 6:16:00 PM
Lab ID: 2206811-006 **Matrix:** GROUNDWA **Received Date:** 6/15/2022 10:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	37	5.0		mg/L	10	6/15/2022 8:43:27 PM	R88776

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Estimated value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

Analytical Report
Lab Order **2206811**
Date Reported: **7/14/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc. **Client Sample ID:** DBS-9
Project: Salty Dog **Collection Date:** 6/9/2022 5:40:00 PM
Lab ID: 2206811-007 **Matrix:** GROUNDWA **Received Date:** 6/15/2022 10:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	350	50	*	mg/L	100	6/15/2022 9:22:01 PM	R88776

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Estimated value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

Analytical Report
Lab Order **2206811**
Date Reported: **7/14/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc. **Client Sample ID:** DBS-10
Project: Salty Dog **Collection Date:** 6/9/2022 7:25:00 PM
Lab ID: 2206811-008 **Matrix:** GROUNDWA **Received Date:** 6/15/2022 10:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	530	50	*	mg/L	100	6/15/2022 10:13:28 PM	R88776

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Estimated value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

Analytical Report
Lab Order **2206811**
Date Reported: **7/14/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc. **Client Sample ID:** MW-5
Project: Salty Dog **Collection Date:** 6/10/2022 3:35:00 PM
Lab ID: 2206811-009 **Matrix:** GROUNDWA **Received Date:** 6/15/2022 10:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	590	50	*	mg/L	100	6/15/2022 10:39:11 PM	R88776

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Estimated value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

Analytical Report
Lab Order **2206811**
Date Reported: **7/14/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc. **Client Sample ID:** PMW-1
Project: Salty Dog **Collection Date:** 6/9/2022 8:24:00 PM
Lab ID: 2206811-010 **Matrix:** GROUNDWA **Received Date:** 6/15/2022 10:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JTT**	
Chloride	13000	500	*	mg/L	1E+	6/27/2022 12:11:08 PM	R89065

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Estimated value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

Analytical Report
Lab Order **2206811**
Date Reported: **7/14/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc. **Client Sample ID:** Ranch Well
Project: Salty Dog **Collection Date:** 6/10/2022 10:27:00 AM
Lab ID: 2206811-011 **Matrix:** GROUNDWA **Received Date:** 6/15/2022 10:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	54	5.0		mg/L	10	6/15/2022 11:17:45 PM	R88776

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Estimated value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

Analytical Report
Lab Order **2206811**
Date Reported: **7/14/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc. **Client Sample ID:** MW-3
Project: Salty Dog **Collection Date:** 6/10/2022 1:38:00 PM
Lab ID: 2206811-012 **Matrix:** GROUNDWA **Received Date:** 6/15/2022 10:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
SPECIFIC GRAVITY						Analyst: **CAS**	
Specific Gravity	1.000	0			1	6/30/2022 3:28:00 PM	R89169
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Fluoride	ND	1.0		mg/L	10	6/16/2022 12:34:56 AM	R88776
Chloride	5100	250	*	mg/L	500	6/27/2022 12:24:00 PM	R89065
Bromide	2.0	1.0		mg/L	10	6/16/2022 12:34:56 AM	R88776
Phosphorus, Orthophosphate (As P)	ND	5.0	H	mg/L	10	6/16/2022 12:34:56 AM	R88776
Sulfate	250	5.0		mg/L	10	6/16/2022 12:34:56 AM	R88776
Nitrate+Nitrite as N	ND	4.0		mg/L	20	6/27/2022 2:58:28 PM	R89065
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **CAS**	
Conductivity	17000	100		µmhos/c	10	6/20/2022 1:03:46 PM	R88891
SM2320B: ALKALINITY						Analyst: **CAS**	
Bicarbonate (As CaCO3)	195.9	20.00		mg/L Ca	1	6/16/2022 2:16:25 PM	R88821
Carbonate (As CaCO3)	ND	2.000		mg/L Ca	1	6/16/2022 2:16:25 PM	R88821
Total Alkalinity (as CaCO3)	195.9	20.00		mg/L Ca	1	6/16/2022 2:16:25 PM	R88821
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	10800	200	*D	mg/L	1	6/20/2022 12:44:00 PM	68166
SM4500-H+B / 9040C: PH						Analyst: **CAS**	
pH	7.48		H	pH units	1	6/16/2022 2:16:25 PM	R88821
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **JRR**	
Calcium	680	100		mg/L	100	6/16/2022 12:41:23 PM	68150
Magnesium	110	100		mg/L	100	6/16/2022 12:41:23 PM	68150
Potassium	12	1.0		mg/L	1	6/16/2022 12:22:17 PM	68150
Sodium	2400	100		mg/L	100	6/16/2022 12:41:23 PM	68150

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Estimated value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

Analytical Report
Lab Order **2206811**
Date Reported: **7/14/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc. **Client Sample ID:** Brine
Project: Salty Dog **Collection Date:** 6/10/2022 3:58:00 PM
Lab ID: 2206811-013 **Matrix:** GROUNDWA **Received Date:** 6/15/2022 10:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
SPECIFIC GRAVITY						Analyst: **CAS**	
Specific Gravity	1.200	0			1	6/30/2022 3:28:00 PM	R89169
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	170000	10000	*	mg/L	2E+	6/16/2022 1:13:30 AM	R88776
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	326000	2000	*D	mg/L	1	6/20/2022 12:44:00 PM	68166
SM4500-H+B / 9040C: PH						Analyst: **CAS**	
pH	7.13		H	pH units	1	6/16/2022 12:07:45 PM	R88821
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **JRR**	
Sodium	56000	1000		mg/L	1E+	6/16/2022 12:43:36 PM	68150

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Estimated value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

Analytical Report
Lab Order **2206811**
Date Reported: **7/14/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc. **Client Sample ID:** Injection
Project: Salty Dog **Collection Date:** 6/10/2022 4:50:00 PM
Lab ID: 2206811-014 **Matrix:** GROUNDWA **Received Date:** 6/15/2022 10:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
SPECIFIC GRAVITY						Analyst: **CAS**	
Specific Gravity	0.9959	0			1	6/30/2022 3:28:00 PM	R89169
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	590	50	*	mg/L	100	6/16/2022 1:39:12 AM	R88776
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	1470	20.0	*	mg/L	1	6/20/2022 12:44:00 PM	68166
SM4500-H+B / 9040C: PH						Analyst: **CAS**	
pH	7.57		H	pH units	1	6/16/2022 12:12:18 PM	R88821
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **JRR**	
Sodium	300	100		mg/L	100	6/16/2022 12:47:59 PM	68150

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Estimated value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

Pace Analytical®

ANALYTICAL REPORT

July 13, 2022

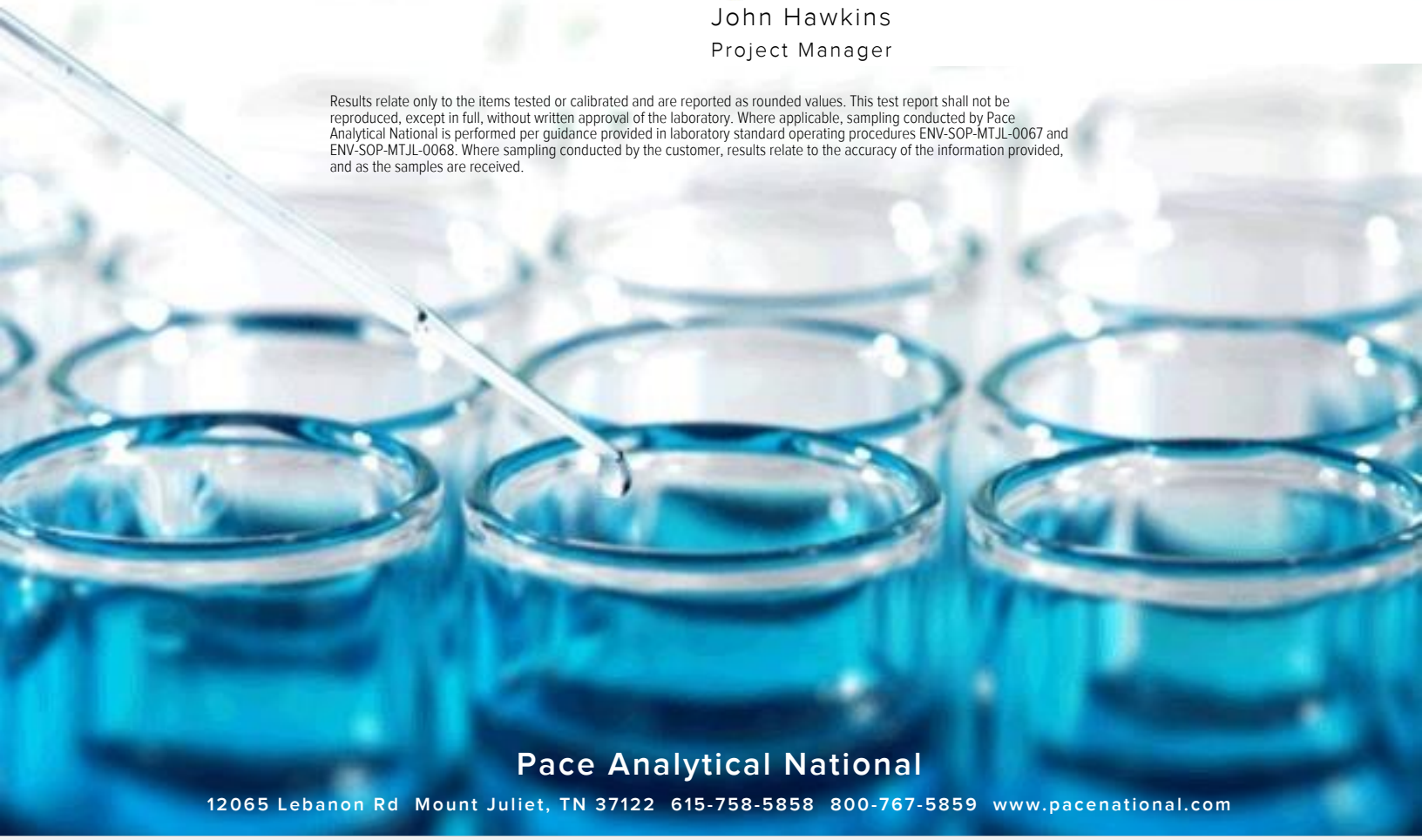
Hall Environmental Analysis Laboratory

Sample Delivery Group:	L1505736
Samples Received:	06/16/2022
Project Number:	
Description:	

Report To: Andy Freeman
4901 Hawkins NE
Albuquerque, NM 87109

Entire Report Reviewed By:

John Hawkins
Project Manager



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

SAMPLE SUMMARY

2206811-012C MW-3 L1505736-01 GW

Collected by	Collected date/time	Received date/time
	06/10/22 13:38	06/16/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2580	WG1891794	1	07/13/22 13:16	07/13/22 13:16	ARD	Mt. Juliet, TN

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

John V Hawkins

John Hawkins
Project Manager

220681-0120 MW-3
Collected date/time: 06/10/22 13:38
L1505736

Wet Chemistry by Method 2580

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	mV			date / time	
ORP	176	T8	1	07/13/2022 13:16	WG1891794

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

L1505736-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1505736-01 07/13/22 13:16 • (DUP) R3814296-3 07/13/22 13:16

Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	DUP Qualifier	DUP Diff Limits mV
ORP	176	176	1	0.700		20

L1508843-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1508843-02 07/13/22 13:16 • (DUP) R3814296-4 07/13/22 13:16

Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	DUP Qualifier	DUP Diff Limits mV
ORP	198	197	1	1.00		20

L1510492-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1510492-01 07/13/22 13:16 • (DUP) R3814296-5 07/13/22 13:16

Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	DUP Qualifier	DUP Diff Limits mV
ORP	-83.5	-82.3	1	0.000		20

L1512255-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1512255-02 07/13/22 13:16 • (DUP) R3814296-6 07/13/22 13:16

Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	DUP Qualifier	DUP Diff Limits mV
ORP	166	166	1	0.500		20

L1512255-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1512255-03 07/13/22 13:16 • (DUP) R3814296-7 07/13/22 13:16

Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	DUP Qualifier	DUP Diff Limits mV
ORP	93.6	91.3	1	2.30		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3814296-1 07/13/22 13:16 • (LCSD) R3814296-2 07/13/22 13:16

Analyte	Spike Amount mV	LCS Result mV	LCSD Result mV	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	Diff mV	Diff Limits mV
ORP	108	107	110	99.2	102	90.0-110			2.70	20

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
T8	Sample(s) received past/too close to holding time expiration.

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

HALL ENVIRONMENTAL ANALYSIS LABORATORY

CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 1

D176

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FAX: 505-345-4107
Website: www.hallenvironmental.com

SUB CONTRATOR: Pace TN	COMPANY: PACE TN	PHONE: (800) 767-5859	FAX: (615) 758-5859
ADDRESS: 12065 Lebanon Rd		ACCOUNT #:	EMAIL:
CITY, STATE, ZIP: Mt. Juliet, TN 37122			

4505736

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS
1	2206811-012C	MW-3	125HDP	Groundwater	6/10/2022 1:38:00 PM	1	ORP -01

cmc 6/15/22

5755 8089 3826

Sample Receipt Checklist

COC Seal Present/Intact:	Y N	If Applicable	
COC Signed/Accurate:	Y N	VOA Zero Headspace:	Y N
Bottles arrive intact:	Y N	Pres.Correct/Check:	Y N
Correct bottles used:	Y N	DRA7	2.7 + 0 = 2.7
Sufficient volume sent:	Y N		
RAD Screen <0.5 mR/hr:	Y N		

SPECIAL INSTRUCTIONS / COMMENTS:

Please include the LAB ID and the CLIENT SAMPLE ID on all final reports. Please e-mail results to lab@hallenvironmental.com. Please return all coolers and blue ice. Thank you.

Relinquished By: CMC	Date: 6/15/2022	Time: 11:00 AM	Received By: Matt Elv	Date: 6/16/22	Time: 0900
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

TAT: Standard ☑ RUSH Next BD ☐ 2nd BD ☐ 3rd BD ☐

REPORT TRANSMITTAL DESIRED:

☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

FOR LAB USE ONLY

Temp of samples _____ ℃ Attempt to Cool ? _____

Comments: _____

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2206811**

14-Jul-22

Client: Daniel B. Stephens & Assoc.

Project: Salty Dog

Sample ID: **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R88776**	RunNo: **88776**
Prep Date:	Analysis Date: **6/15/2022**	SeqNo: **3151883** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Bromide	ND	0.10								
Phosphorus, Orthophosphate (As P)	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R88776**	RunNo: **88776**
Prep Date:	Analysis Date: **6/15/2022**	SeqNo: **3151884** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.51	0.10	0.5000	0	102	90	110			
Chloride	4.7	0.50	5.000	0	94.9	90	110			
Bromide	2.5	0.10	2.500	0	99.6	90	110			
Phosphorus, Orthophosphate (As P)	4.6	0.50	5.000	0	92.0	90	110			
Sulfate	10	0.50	10.00	0	102	90	110			

Sample ID: **2206811-001AMS**	SampType: **ms**	TestCode: **EPA Method 300.0: Anions**
Client ID: **DBS-1R**	Batch ID: **R88776**	RunNo: **88776**
Prep Date:	Analysis Date: **6/15/2022**	SeqNo: **3151886** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	5.8	1.0	5.000	0.9770	95.9	79.7	110			
Bromide	25	1.0	25.00	0.6060	99.0	91.2	106			
Sulfate	170	5.0	100.0	62.38	104	90.5	112			

Sample ID: **2206811-001AMSD**	SampType: **msd**	TestCode: **EPA Method 300.0: Anions**
Client ID: **DBS-1R**	Batch ID: **R88776**	RunNo: **88776**
Prep Date:	Analysis Date: **6/15/2022**	SeqNo: **3151887** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	5.8	1.0	5.000	0.9770	96.0	79.7	110	0.0866	20	
Bromide	25	1.0	25.00	0.6060	98.8	91.2	106	0.162	20	
Sulfate	170	5.0	100.0	62.38	104	90.5	112	0.0673	20	

Sample ID: **2206811-011AMS**	SampType: **ms**	TestCode: **EPA Method 300.0: Anions**
Client ID: **Ranch Well**	Batch ID: **R88776**	RunNo: **88776**
Prep Date:	Analysis Date: **6/15/2022**	SeqNo: **3151912** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2206811**

14-Jul-22

Client: Daniel B. Stephens & Assoc.

Project: Salty Dog

Sample ID: **2206811-011AMS**	SampType: **ms**	TestCode: **EPA Method 300.0: Anions**
Client ID: **Ranch Well**	Batch ID: **R88776**	RunNo: **88776**
Prep Date:	Analysis Date: **6/15/2022**	SeqNo: **3151912** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	5.4	1.0	5.000	0.6930	94.9	79.7	110			
Chloride	100	5.0	50.00	53.87	97.8	86.3	114			
Bromide	24	1.0	25.00	0	97.2	91.2	106			
Sulfate	160	5.0	100.0	60.34	101	90.5	112			

Sample ID: **2206811-011AMSD**	SampType: **msd**	TestCode: **EPA Method 300.0: Anions**
Client ID: **Ranch Well**	Batch ID: **R88776**	RunNo: **88776**
Prep Date:	Analysis Date: **6/15/2022**	SeqNo: **3151913** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	5.5	1.0	5.000	0.6930	96.1	79.7	110	1.17	20	
Chloride	100	5.0	50.00	53.87	99.5	86.3	114	0.855	20	
Bromide	24	1.0	25.00	0	98.0	91.2	106	0.762	20	
Sulfate	160	5.0	100.0	60.34	103	90.5	112	1.01	20	

Sample ID: **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R89065**	RunNo: **89065**
Prep Date:	Analysis Date: **6/27/2022**	SeqNo: **3163601** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID: **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R89065**	RunNo: **89065**
Prep Date:	Analysis Date: **6/27/2022**	SeqNo: **3163602** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	94.9	90	110			
Nitrate+Nitrite as N	3.6	0.20	3.500	0	102	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2206811**

14-Jul-22

Client: Daniel B. Stephens & Assoc.

Project: Salty Dog

Sample ID:	**lcs-1 99.6uS eC**	SampType:	**lcs**	TestCode:	**SM2510B: Specific Conductance**					
Client ID:	**LCSW**	Batch ID:	**R88891**	RunNo:	**88891**					
Prep Date:		Analysis Date:	**6/20/2022**	SeqNo:	**3156279**	Units:	**µmhos/cm**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	100	10	99.60	0	103	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2206811**

14-Jul-22

Client: Daniel B. Stephens & Assoc.

Project: Salty Dog

Sample ID: **MB-68150**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **PBW**	Batch ID: **68150**	RunNo: **88834**
Prep Date: **6/15/2022**	Analysis Date: **6/16/2022**	SeqNo: **3154017** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Magnesium	ND	1.0								
Potassium	ND	1.0								
Sodium	ND	1.0								

Sample ID: **LCS-68150**	SampType: **LCS**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **LCSW**	Batch ID: **68150**	RunNo: **88834**
Prep Date: **6/15/2022**	Analysis Date: **6/16/2022**	SeqNo: **3154019** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	50	1.0	50.00	0	100	80	120			
Magnesium	50	1.0	50.00	0	99.0	80	120			
Potassium	49	1.0	50.00	0	97.0	80	120			
Sodium	47	1.0	50.00	0	94.1	80	120			

Sample ID: **2206811-012BMS**	SampType: **MS**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **MW-3**	Batch ID: **68150**	RunNo: **88834**
Prep Date: **6/15/2022**	Analysis Date: **6/16/2022**	SeqNo: **3154026** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Potassium	62	1.0	50.00	12.40	99.4	75	125			

Sample ID: **2206811-012BMSD**	SampType: **MSD**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **MW-3**	Batch ID: **68150**	RunNo: **88834**
Prep Date: **6/15/2022**	Analysis Date: **6/16/2022**	SeqNo: **3154030** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Potassium	62	1.0	50.00	12.40	99.8	75	125	0.353	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2206811**

14-Jul-22

Client: Daniel B. Stephens & Assoc.

Project: Salty Dog

Sample ID: **mb-1 alk**	SampType: **mblk**	TestCode: **SM2320B: Alkalinity**
Client ID: **PBW**	Batch ID: **R88821**	RunNo: **88821**
Prep Date:	Analysis Date: **6/16/2022**	SeqNo: **3153402** Units: **mg/L CaCO3**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: **lcs-1 alk**	SampType: **lcs**	TestCode: **SM2320B: Alkalinity**
Client ID: **LCSW**	Batch ID: **R88821**	RunNo: **88821**
Prep Date:	Analysis Date: **6/16/2022**	SeqNo: **3153403** Units: **mg/L CaCO3**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	75.00	20.00	80.00	0	93.8	90	110			

Sample ID: **mb-2 alk**	SampType: **mblk**	TestCode: **SM2320B: Alkalinity**
Client ID: **PBW**	Batch ID: **R88821**	RunNo: **88821**
Prep Date:	Analysis Date: **6/16/2022**	SeqNo: **3153425** Units: **mg/L CaCO3**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: **lcs-2 alk**	SampType: **lcs**	TestCode: **SM2320B: Alkalinity**
Client ID: **LCSW**	Batch ID: **R88821**	RunNo: **88821**
Prep Date:	Analysis Date: **6/16/2022**	SeqNo: **3153426** Units: **mg/L CaCO3**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	75.16	20.00	80.00	0	93.9	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2206811**

14-Jul-22

Client: Daniel B. Stephens & Assoc.

Project: Salty Dog

Sample ID: **2206811-012ADUP**	SampType: **DUP**	TestCode: **Specific Gravity**							
Client ID: **MW-3**	Batch ID: **R89169**	RunNo: **89169**							
Prep Date:	Analysis Date: **6/30/2022**	SeqNo: **3169253**	Units:						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Gravity	1.000	0						0.0300	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2206811**

14-Jul-22

Client: Daniel B. Stephens & Assoc.

Project: Salty Dog

Sample ID: **MB-68166**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **68166**	RunNo: **88869**
Prep Date: **6/17/2022**	Analysis Date: **6/20/2022**	SeqNo: **3155242** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID: **LCS-68166**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **68166**	RunNo: **88869**
Prep Date: **6/17/2022**	Analysis Date: **6/20/2022**	SeqNo: **3155243** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1040	20.0	1000	0	104	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Estimated value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: **Daniel B. Stephens & Assoc.** Work Order Number: **2206811** RcptNo: **1**

Received By: **Cheyenne Cason** **6/15/2022 10:30:00 AM**

Completed By: **Cheyenne Cason** **6/15/2022 10:36:32 AM**

Reviewed By: KDG 6.15.22

Chain of Custody

1. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	UPS		

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA?	Yes ☐	No ☐	NA ☑
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: 1 (<2 or >12 unless noted)

Adjusted? NO

Checked by: CMC 6/15/22

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date: _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	4.1	Good	Not Present			

Chain-of-Custody Record

Client: DBS+A

Mailing Address: ABQ Office

Phone #: 505.822.9400

email or Fax#: JAyarbe@geo-logic.com

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:
☒ Standard ☐ Rush

Project Name: Salty Dog

Project #: DB19.1198 ph 8

Project Manager: John Ayarbe

Sampler: York Morgan

On Ice: ☒ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): 4.1-0=4.1 (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2206811	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)	Cl only - 300.0
6-9-22	1608	GW	DBS-1R	1 Poly	none	001											X
	1524		DBS-3			002											X
	1442		DBS-4			003											X
	1641		DBS-5			004											X
	1844		DBS-6			005											X
	1816		DBS-8			006											X
	1740		DBS-9			007											X
↓	1925		DBS-10			008											X
10-22	1535		MW-5			009											X
9-22	2024		PMW-1			010											X
10-22	1027	↓	Ranch well	↓	↓	011											X

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
6-14-22	1315	York Morgan	CNC UPS		6/15/22	1030
Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time

Remarks:

Page 1 of 2

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Chain-of-Custody Record

Client: DBS+A

Mailing Address:

Phone #: 505.822.9400

email or Fax#:

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance

☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:

☒ Standard ☐ Rush

Project Name: Salty Dog

Project #: J. Ayarbe

Project Manager:

Sampler: Y. Morgan

On Ice: ☒ Yes ☐ No

# of Coolers: 1

Cooler Temp (including CF): 4.1 - 0 = 4.1 (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2206811	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals / 300.0	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA) ORP	8270 (Semi-VOA)	Total Coliform (Present/Absent)	Specific Gravity, TDS, PH	Specific Conductance	Total Bicarbonate Alkalinity	Ca, Mg, K, NA - 6010B	NA - 6010B	Cl-only 300.0
6-10-22	13:38	GW	MW-3 ✓	4 poly	Varies	012							X	X			X	X	X	X		
↓	15:58	↓	Brine ✓	3 poly	↓	013											X				X	X
↓	16:50	↓	Injection ✓	3 poly	↓	014											X				X	X

Yoz. Morgan

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
6.14.22	1315	Yoz Morgan	CM	UPS	6/15/22	0730
Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time

Remarks:

Page 2 of 2

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Appendix B

Field Notes

Daniel B. Stephens & Associates, Inc.

GROUNDWATER ELEVATION DATA SHEET

Project Name: Salty Dog Sampler: V Morgan

Project #: DB19.1198 Sample Date: 6-9-22

Project Manager: John Ayarbe Sheet # 1 of 1

Time Gauged	Well ID	previous (06/19)	Depth to Water	Total Depth	Comments: (well dia., sampled, condition)
1327	DBS-1R	68.25	72.80	74.42	✓
1320	DBS-2	70.94	74.89	75.35	No Sample - Nearly dry
1330	DBS-3	66.10	69.57	74.76	✓
1315	DBS-4	71.66	75.30	78.81	✓
1343	DBS-5	68.44	71.99	75.38	✓
12:56	DBS-6	67.24	69.79	76.02	✓
12:42	DBS-7	65.99	68.29		WL only ✓
12:44	DBS-8	65.52	~~10:44~~ 67.84	69.91	✓
13:11	DBS-9	58.53	60.95	67.55	✓
1229	DBS-10	65.11	67.28	78.11	✓
1059 ~~1029~~	MW-2	65.45	~~67.35~~ 68.46 67.84	=	WL only ✓
12:53	MW-3	68.18	70.60	147.13	✓
12:51	MW-4	68.12	70.44		WL only ✓
1237	MW-5	65.30	67.59	128.78	✓
1234	MW-6	66.70	69.04		WL only ✓
2009	PMW-1	71.76	75.97	77.73	✓

Comments: RW-2 Totalizer = 5108863 @ 1059 6-9-22 - broken / disconnected from pipe
= 5108863 @ 1215 Not working

FWS-1 Totalizer = 3496239 @ 1947 pumping, meter works 6-9-22

Daniel B. Stephens & Associates, Inc.

GROUNDWATER MONITORING DATA SHEET

Project Name: Salty Dog Sampler: V Morgan

Project #: DB19.1198.00 Sample Date: 6.9.22

Project Manager: John Ayarbe Sample Time: 1608

Well #: DBS-1R

Well Diameter: 2" (inches) Height of Water Column: 1.62 (feet)

Depth to NAPL: --- (feet btoc) Casing Volume: @ 0.26 (gal)

Depth to Water: 72.80 (feet btoc) Purge Volume: 0.78 (gal)

Total Depth of Well: 74.42 (feet) Purge Method: Grab 4" poly bailer

Note:
One casing volume (SCH 40 PVC): 2.0" ID casing = 0.16 gal/ft; 4.0" = 0.65 gal/ft; 6.0" = 1.47 gal/ft

Groundwater Parameters:

	Casing Volume	pH	Temp (°F) °C	Conductivity (µS/cm)	ORP (mv)	D.O. (mg/L)	Turbidity (NTU)
1538	Initial	7.20	20.5	2800	224.2	0.53	very
1540	1	7.36	19.5	3085	219.5	0.56	"
1543	2	7.43	19.5	3117	215.2	0.78	"
1608	3	7.36	20.2	3136	206.6	0.46	Moderate

Sample Description: 1 poly

Physical Observations: Going dry @ 1543. Waited for recovery to Collect Sample

Analytical Method(s): Chloride

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Daniel B. Stephens & Associates, Inc.

GROUNDWATER MONITORING DATA SHEET

Project Name: Salty Dog Sampler: V. Morgan

Project #: DB19.1198.00 Sample Date: 6.9.22

Project Manager: John Ayarbe Sample Time: N/A

Well #: DBS-2

Well Diameter: 2" (inches) Height of Water Column: 0.46 (feet) ← less in reality

Depth to NAPL: --- (feet btoc) Casing Volume: 0.07 Ø (gal)

Depth to Water: 74.89 (feet btoc) Purge Volume: 0.2 Ø (gal)

Total Depth of Well: 75.35 (feet) Purge Method: Grab

Note:
One casing volume (SCH 40 PVC): 2.0" ID casing = 0.16 gal/ft; 4.0" = 0.65 gal/ft; 6.0" = 1.47 gal/ft

Groundwater Parameters:

Casing Volume	pH	Temp (°F)	Conductivity (µS/cm)	ORP (mv)	D.O. (mg/L)	Turbidity (NTU)
Initial	N/A					
1						
2						
3						

Sample Description: ~~1 poly~~ None

Physical Observations: 15:00 - bailer has minimal water on end - none in reservoir - Not enough water to sample

Analytical Method(s): Chloride

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Daniel B. Stephens & Associates, Inc.

GROUNDWATER MONITORING DATA SHEET

Project Name: Salty Dog
Project #: DB19.1198.00
Project Manager: John Ayarbe

Sampler: Y. Morgan
Sample Date: 6-9-22
Sample Time: 1524

Well #: DBS-3
Well Diameter: 2" (inches)
Depth to NAPL: --- (feet btoc)
Depth to Water: 69.57 (feet btoc)
Total Depth of Well: 74.76 (feet)

Height of Water Column: 5.19 (feet)
Casing Volume: 0.83 (gal)
Purge Volume: 2.49 (gal)
Purge Method: Grab, 48" poly bailer

Note:
One casing volume (SCH 40 PVC): 2.0" ID casing = 0.16 gal/ft; 4.0" = 0.65 gal/ft; 6.0" = 1.47 gal/ft

Groundwater Parameters:

	Casing Volume	pH	Temp (°C)	Conductivity (µS/cm)	ORP (mv)	D.O. (mg/L)	Turbidity (NTU)
1514	Initial	7.31	20.8	594	253.4	0.58	slight
1517	1	7.59	19.7	581	232.9	0.56	very
1520	2	7.58	19.7	580	226.1	0.76	"
1524	3	7.49	20.1	573	226.1	0.73	"

Sample Description: 1 poly

Physical Observations: very turbid

Analytical Method(s): Chloride

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Daniel B. Stephens & Associates, Inc.

GROUNDWATER MONITORING DATA SHEET

Project Name: Salty Dog
Project #: DB19.1198.00
Project Manager: John Ayarbe

Sampler: Y. Rogers
Sample Date: 6.9.22
Sample Time: 1442

Well #: DBS-4

Well Diameter: 2" (inches) Height of Water Column: 3.49 (feet)
Depth to NAPL: --- (feet btoc) Casing Volume: 0.56 (gal)
Depth to Water: 75.30 (feet btoc) Purge Volume: 1.7 (gal)
Total Depth of Well: 78.81 (feet) Purge Method: Grab, 48" bailer (poly)

Note:
One casing volume (SCH 40 PVC): 2.0" ID casing = 0.16 gal/ft; 4.0" = 0.65 gal/ft; 6.0" = 1.47 gal/ft

Groundwater Parameters:

	Casing Volume	pH	Temp (°F)	Conductivity (µS/cm)	ORP (mv)	D.O. (mg/L)	Turbidity (NTU)
1430	Initial	7.67	20.7	617	197.7	0.40	slight
1435	1	7.65	20.7	561	197.7	0.51	"
1438	2	7.58	19.8	562	196.1	0.66	"
1442	3	7.58	20.0	558	193.0	0.80	"

Sample Description: 1 poly

Physical Observations: very turbid

Analytical Method(s): Chloride

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Daniel B. Stephens & Associates, Inc.

GROUNDWATER MONITORING DATA SHEET

Project Name: Salty Dog Sampler: Y. Morgan

Project #: DB19.1198.00 Sample Date: 6-9-22

Project Manager: John Ayarbe Sample Time: 1641

Well #: DBS-5

Well Diameter: 2" (inches) Height of Water Column: 3.39 (feet)

Depth to NAPL: --- (feet btoc) Casing Volume: 0.54 (gal)

Depth to Water: 71.99 (feet btoc) Purge Volume: 1.63 (gal)

Total Depth of Well: 75.38 (feet) Purge Method: Grab, poly bailer - 48"

Note:
One casing volume (SCH 40 PVC): 2.0" ID casing = 0.16 gal/ft; 4.0" = 0.65 gal/ft; 6.0" = 1.47 gal/ft

Groundwater Parameters:

	Casing Volume	pH	Temp ~~(°F)~~ °C	Conductivity (µS/cm)	ORP (mv)	D.O. (mg/L)	Turbidity (NTU)
1628	Initial	7.61	21.0	1414	198.0	0.51	very
1633	1	7.27	20.2	1273	198.7	0.64	"
1638	2	7.20	20.2	1246	200.8	0.75	"
1641	3	7.20	20.2	1233	200.0	0.77	"

Sample Description: 1 poly

Physical Observations: Very turbid, short water column

Analytical Method(s): Chloride

Daniel B. Stephens & Associates, Inc.

GROUNDWATER MONITORING DATA SHEET

Project Name: Salty Dog
Project #: DB19.1198.00
Project Manager: John Ayarbe

Sampler: K. Morgan
Sample Date: 6-9-22
Sample Time: 1844

Well #: DBS-6
Well Diameter: 2" (inches)
Depth to NAPL: --- (feet btoc)
Depth to Water: 69.79 (feet btoc)
Total Depth of Well: 76.02 (feet)

Height of Water Column: 6.23 (feet)
Casing Volume: 1.0 (gal)
Purge Volume: 3.0 (gal)
Purge Method: Grab 48" poly bailer

Note:
One casing volume (SCH 40 PVC): 2.0" ID casing = 0.16 gal/ft; 4.0" = 0.65 gal/ft; 6.0" = 1.47 gal/ft

Groundwater Parameters:

	Casing Volume	pH	Temp (°F) °C	Conductivity (µS/cm)	ORP (mv)	D.O. (mg/L)	Turbidity (NTU)
1830	Initial	7.34	20.2	1382	182.0	0.59	very
1834	1	7.33	19.7	1392	180.4	0.63	"
1837	2	7.29	19.6	1425	181.6	0.73	Moderate
1844	3	7.30	19.6	1445	170.8	0.71	"

Sample Description: 1 poly

Physical Observations: Moderate turbidity

Analytical Method(s): Chloride

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Daniel B. Stephens & Associates, Inc.

GROUNDWATER MONITORING DATA SHEET

Project Name: Salty Dog Sampler: V. Morgan

Project #: DB19.1198.00 Sample Date: 6-9-22

Project Manager: John Ayarbe Sample Time: 1816

Well #: DBS-8

Well Diameter: 2" (inches) Height of Water Column: 2.07 (feet)

Depth to NAPL: --- (feet btoc) Casing Volume: 0.33 (gal)

Depth to Water: 67.84 (feet btoc) Purge Volume: 1.0 (gal)

Total Depth of Well: 69.91 (feet) Purge Method: Grab, 48" poly bailer

Note:
One casing volume (SCH 40 PVC): 2.0" ID casing = 0.16 gal/ft; 4.0" = 0.65 gal/ft; 6.0" = 1.47 gal/ft

Groundwater Parameters:

	Casing Volume	pH	Temp ~~(°F)~~ °C	Conductivity (µS/cm)	ORP (mv)	D.O. (mg/L)	Turbidity (NTU)
1802	Initial	7.53	21.9	637	162.0	0.54	Slight
1807	1	7.50	20.9	597	163.9	0.64	Very
	2	7.46	20.1	594	168.0	0.65	"
1811	3	7.47	20.5	593	162.7	0.83	"
1816							

Sample Description: 1 poly

Physical Observations: Very turbid

Analytical Method(s): Chloride

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Daniel B. Stephens & Associates, Inc.

GROUNDWATER MONITORING DATA SHEET

Project Name: Salty Dog
Project #: DB19.1198.00
Project Manager: John Ayarbe

Sampler: J Morgan
Sample Date: 6-9-22
Sample Time: 1740

Well #: DBS-9
Well Diameter: 2" (inches) Height of Water Column: 6.6 (feet)
Depth to NAPL: --- (feet btoc) Casing Volume: 1.06 (gal)
Depth to Water: 60.95 (feet btoc) Purge Volume: 3.2 (gal)
Total Depth of Well: 67.55 (feet) Purge Method: Grab, 48" poly bailer

Note:
One casing volume (SCH 40 PVC): 2.0" ID casing = 0.16 gal/ft; 4.0" = 0.65 gal/ft; 6.0" = 1.47 gal/ft

Groundwater Parameters:

	Casing Volume	pH	Temp (~~C~~) °C	Conductivity (µS/cm)	ORP (mv)	D.O. (mg/L)	Turbidity (NTU)
1709	Initial	7.04	19.5	2596	203.7	0.47	Slight
1727	1	6.90	19.3	2034	198.9	0.50	Moderate
1733	2	7.19	19.5	1995	184.8	0.65	"
1740	3	7.19	19.5	1646	180.4	0.75	"

Sample Description: 1 poly

Physical Observations: Moderately turbid

Analytical Method(s): Chloride

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Daniel B. Stephens & Associates, Inc.

GROUNDWATER MONITORING DATA SHEET

Project Name: Salty Dog Sampler: Y. Morgan

Project #: DB19.1198.00 Sample Date: 6-9-22

Project Manager: John Ayarbe Sample Time: 1925

Well #: DBS-10

Well Diameter: 2" (inches) Height of Water Column: 10.83 (feet)

Depth to NAPL: --- (feet btoc) Casing Volume: 1.73 (gal)

Depth to Water: 67.28 (feet btoc) Purge Volume: 5.2 (gal)

Total Depth of Well: 78.11 (feet) Purge Method: Grab 48" poly bailer

Note:
One casing volume (SCH 40 PVC): 2.0" ID casing = 0.16 gal/ft; 4.0" = 0.65 gal/ft; 6.0" = 1.47 gal/ft

Groundwater Parameters:

	Casing Volume	pH	Temp °C	Conductivity (µS/cm)	ORP (mv)	D.O. (mg/L)	Turbidity (NTU)
1905	Initial	7.24	20.2	2091	180.1	0.58	None
1914	1	7.24	19.5	2118	187.5	0.67	Slight
1918	2	7.22	19.5	2122	187.7	0.88	Moderate
1925	3	7.22	19.5	2130	187.9	0.79	"

Sample Description: 1 poly

Physical Observations: Moderate turbidity

Analytical Method(s): Chloride

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Daniel B. Stephens & Associates, Inc.

GROUNDWATER MONITORING DATA SHEET

Project Name: Salty Dog Sampler: V. Morgan

Project #: DB19.1198.00 Sample Date: 6.10.22

Project Manager: John Ayarbe Sample Time: 13:38

Well #: MW-3

Well Diameter: 2" (inches) Height of Water Column: 76.53 (feet)

Depth to NAPL: --- (feet btoc) Casing Volume: 12.25 (gal)

Depth to Water: 70.60 (feet btoc) Purge Volume: 36.8 (gal)

Total Depth of Well: 147.13 (feet) Purge Method: Grab, via 4" poly bailer

Note:
One casing volume (SCH 40 PVC): 2.0" ID casing = 0.16 gal/ft; 4.0" = 0.65 gal/ft; 6.0" = 1.47 gal/ft

Groundwater Parameters:

	Casing Volume	pH	Temp °C	Conductivity (µS/cm)	ORP (mv)	D.O. (mg/L)	Turbidity (NTU)
1140	Initial	6.99	21.4	2700	187.6	0.62	None
1221	1	7.01	20.5	3208	188.5	0.57	"
1300	2	6.71	20.4	14494	203.9	0.61	"
1338	3	6.97	20.5	15186	186.5	0.63	"

Sample Description: 1 poly (unpreserved Chloride), Water Quality Suite
(4 poly total)

Physical Observations: Non turbid

Analytical Method(s): ~~Chloride~~

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Daniel B. Stephens & Associates, Inc.

GROUNDWATER MONITORING DATA SHEET

Project Name: Salty Dog Sampler: V. Morgan

Project #: DB19.1198.00 Sample Date: 6-10-22

Project Manager: John Ayarbe Sample Time: 1535

Well #: MW-5

Well Diameter: 2" (inches) Height of Water Column: 61.19 (feet)

Depth to NAPL: --- (feet btoc) Casing Volume: 9.8 (gal)

Depth to Water: 67.59 (feet btoc) Purge Volume: 29.4 (gal)

Total Depth of Well: 128.78 (feet) Purge Method: Grab

Note:
One casing volume (SCH 40 PVC): 2.0" ID casing = 0.16 gal/ft; 4.0" = 0.65 gal/ft; 6.0" = 1.47 gal/ft

Groundwater Parameters:

	Casing Volume	pH	Temp °C	Conductivity (µS/cm)	ORP (mv)	D.O. (mg/L)	Turbidity (NTU)
1413	Initial	7.94	21.2	1941	145.2	0.46	None
	1	6.98	20.5	1967	187.8	0.78	"
	2	7.07	20.4	2051	176.8	0.61	"
1535	3	6.93	20.2	1917	189.7	0.82	"

Sample Description: 1 poly

Physical Observations: Non-turbid

Analytical Method(s): Chloride

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Daniel B. Stephens & Associates, Inc.

GROUNDWATER MONITORING DATA SHEET

Project Name: Salty Dog Sampler: Y. Borga

Project #: DB19.1198.00 Sample Date: 6-9-22

Project Manager: John Ayarbe Sample Time: 2024

Well #: PMW-1

Well Diameter: 2" (inches) Height of Water Column: 1.96 (feet)

Depth to NAPL: --- (feet btoc) Casing Volume: 0.32 (gal)

Depth to Water: 75.97 (feet btoc) Purge Volume: .94 (gal)

Total Depth of Well: 77.73 (feet) Purge Method: Grab

Note:
One casing volume (SCH 40 PVC): 2.0" ID casing = 0.16 gal/ft; 4.0" = 0.65 gal/ft; 6.0" = 1.47 gal/ft

Groundwater Parameters:

Casing Volume	pH	Temp (°F)	Conductivity (µS/cm)	ORP (mv)	D.O. (mg/L)	Turbidity (NTU)
Initial	7.21	20.4	30,109	144.6	0.71	Slight
1	7.36	19.5	30,481	126.2	0.68	Moderate
2						
3						

2020
2024

Sample Description: 1 poly

Physical Observations: Very turbid sample ~

Analytical Method(s): Chloride

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Daniel B. Stephens & Associates, Inc.

GROUNDWATER MONITORING DATA SHEET

Project Name: Salty Dog
Project #: DB19.1198.00
Project Manager: S. Ayarbe

Sampler: V. Rogan
Sample Date: 6-10-22
Sample Time: 1027

Well #: Ranch Well

Well Diameter: ____ (inches)
Depth to NAPL: ____ (feet btoc)
Depth to Water: ____ (feet btoc)
Total Depth of Well: ____ (feet)

Height of Water Column: ____ (feet)
Casing Volume: ____ (gal)
Purge Volume: ~50 (gal)
Purge Method: Spigot Flow

Note:
One casing volume (SCH 40 PVC): 2.0" ID casing = 0.16 gal/ft; 4.0" = 0.65 gal/ft; 6.0" = 1.47 gal/ft

Groundwater Parameters:

	Casing Volume	pH	Temp (°C)	Conductivity (µS/cm)	ORP (mv)	D.O. (mg/L)	Turbidity (NTU)
1012	Initial	8.18	25.0	650	116.0	1.39	None
1027	1	7.77	22.7	639	145.9	0.67	"
	2						
	3						

Sample Description: 1 Poly From spigot @ NW Corner of trailer house. Well is ~300' NW of spigot - apparently well is covered in insulation - No access point observed. Spigot is

~~Physical Observations~~: ~200' west of ~~injection~~ Brine well. Used existing 3/4" garden hose to channel purge water away from trailer house. Removed hose for sample after 15-min purge.

~~Analytical Method(s)~~: Purge was in surges up to 5 gpm + down to 2 gpm - as if pump was on/off. → directly from spigot

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Daniel B. Stephens & Associates, Inc.

GROUNDWATER MONITORING DATA SHEET

Project Name: Salty Dog Sampler: Y. Morgan

Project #: DB19.1198.00 Sample Date: 6-10-22

Project Manager: John Ayarbe Sample Time: 1558

Well #: ~~Injection~~ Brine

Well Diameter: 2" (inches) Height of Water Column: — (feet)

Depth to NAPL: --- (feet btoc) Casing Volume: — (gal)

Depth to Water: — (feet btoc) Purge Volume: 10 (gal)

Total Depth of Well: — (feet) Purge Method: Grab @ Sample port pumping

Note:
One casing volume (SCH 40 PVC): 2.0" ID casing = 0.16 gal/ft; 4.0" = 0.65 gal/ft; 6.0" = 1.47 gal/ft

Groundwater Parameters:

Casing Volume	pH	Temp (~~F~~) °C	Conductivity (µS/cm)	ORP (mv)	D.O. (mg/L)	Turbidity (NTU)
1558 Initial	6.04	24.1	224,572	207.9	0.49	very
1						
2						
3						

Sample Description: 3 poly

Pumping @ pumphouse - 2 wells: RW-2 + FW-52

Collected @ Sample port in pump shed above brine well

Physical Observations: - white water - very salty - Initially thought this was port for injection sampling. Wrong. This is

Analytical Method(s): Chloride, TDS, Spec Gravity, pH, and Na for Brine

Daniel B. Stephens & Associates, Inc.

GROUNDWATER MONITORING DATA SHEET

Project Name: Salty Dog
Project #: DB19.1198.00
Project Manager: John Ayarbe

Sampler: Y. Morgan
Sample Date: 6-10-22
Sample Time: 1650

Well #: ~~Brine~~ Injection
Well Diameter: 2" (inches) Height of Water Column: — (feet)
Depth to NAPL: --- (feet btoc) Casing Volume: — (gal)
Depth to Water: — (feet btoc) Purge Volume: ~~30~~ 100 gallons (gal)
Total Depth of Well: — (feet) Purge Method: Grab - Fill line

Note:
One casing volume (SCH 40 PVC): 2.0" ID casing = 0.16 gal/ft; 4.0" = 0.65 gal/ft; 6.0" = 1.47 gal/ft

Groundwater Parameters:

Casing Volume	pH	Temp (~~C~~ °C)	Conductivity (µS/cm)	ORP (mv)	D.O. (mg/L)	Turbidity (NTU)
Initial	8.25	20.2	2085	163.0	3.91	None
1						
2						
3						

1650

Sample Description: 3 poly - Fresh water collected from Fill line @ 2 brown tanks. Turned valve w/ wrench

Physical Observations: Non-turbid. Tested SC in 2 separate, clear containers

Analytical Method(s): Sodium, Chloride, TDS, Spec Gravity, pH

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Daniel B. Stephens & Associates, Inc.

Tailgate Safety Meeting

Project ID: Salty Dog
Location: Hobbs, NM
Project Manager: J. Ayarbe
Health & Safety Officer: Y. Morga
Day: Thursday
Date: 6-9-22
Team Leader: Y. Morga
No. of Personnel Present: 1

Check Topics Discussed

Scheduled Activities:

Chemical/Physical Hazards
- Contaminants of Concern
- Material Safety Data Sheets
- ✓ Overhead & Underground Utilities
- ✓ Extraordinary Site Conditions - Cows
- ✓ Lifting/Slips/Trips/Falls
- ✓ Heat/Cold Stress (Inc. Sunburn)
- Other: Dehydration, snakes, gates

First Aid
- ✓ Facilities/Kits/Eyewashes

Personal Protective Equipment - Level D
- Hard Hats/Hearing Protection
- ✓ Steel-Toed Boots
- ✓ Glasses/Goggles/Shields
- Gloves
- Contingency: Level C
- Respirators & Tyvek/Saranex

Emergency Procedures/Site Safety
- "Buddy System"
- ✓ Communication
- ✓ Facility-Specific Regulations
- Rally Point

Vehicle/Heavy Equipment
- Drill Rig "KILL" Switches
- Operation & Inspection
- Preventive Maintenance
- Rotating Augers/Moving Parts

Sanitation & Hygiene
- ✓ Drinking Water/Fluids
- ✓ Restrooms
- ✓ Personal Cleanliness

Housekeeping
- Waste Containers
- Waste Materials
- ✓ Waste Water/Decon. Water

Fire Prevention
- ✓ Locations of Extinguishers
- Smoking
- Hot Work
- Explosive & Flammable Liquids
- Other:

Emergency Facilities (and Directions)
Name: Hobbs Hospital
Address: 5419 N. Lovington Hwy
Tel. No.: 575-492-5000 911

Safety Meeting Attendees:

Name	Signature	Name	Signature
6.9.22 York Morga	York Morga		
6-10-22 York Morga	York Morga		

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Daniel B. Stephens & Associates, Inc.

GROUNDWATER METER CALIBRATION SHEET

Project Name: Salty Dog
Project #: DB19.1198.00
Project Manager: J. Agarbe

Sampler: Y. Morgan
Date: 6.9.22

pH	Temp (°C)	Comments
(4)		
(7) 7.04	33.5	No cal needed 6/10 - 705
(10)		
SpCon (µs/cm)	Temp (°C)	Comments
(1413) 1418	33.2	No Cal needed 6/10 1416
ORP (mv)	Temp (°C)	Comments
205.6 → ~~220~~	32.3	6/10 219.1
Dissolved O_2	Temp (°C)	Comments
(%)		
(mg/L) 0.36	32.3	
Pressure	Temp (°C)	Comments
(mmHg) 668	32.4	

Comments: YSI Pro

Salty Dog K Morgan 6-22-22

- 69°-94°, clear, but hazy (dust, smoke), 15 mph
- 0930 - Leave Carlsbad
- 1030 - Arrive onsite. Call Jason 575-200-9253. Contact. Will meet later onsite
- 1045 RW-2 pumping - leaking ~.2 gpm to ground - Not brine
- 1059 RW-2 meter = 510886.3
- Jason onsite
- ATKins - 2 people onsite. Confirm survey from precise pkde @ Brinewell. Shawn was here last 2 times. remembers very well where he surveyed.
- Jason - has been very busy. Trying to get help. worked every day since starting job 2 months ago. Selling a lot of brine. Just connected a 2nd well to brine station - FWS-2 to keep up w/ demand.
- Sample port @ brine well near top @ ceiling of bldg.
- Spigot @ trailer - hard well - works.
- other → corner N/NW

1215 Salty Dog 6.9.22
cont.

- RW-2 meter still 5108863 - 2 wires - disconnected meter broken from pipe - is cause of leak.
- FWS-2 pumping - no totalizer or flow rate meter
- 1415 - calibrate 45i Pro
- Start sampling - all wells via bailer
- 1500 - No sample @ DBS-2 - Not enough water to collect in bailer.
- 2000 - Finish sampling DBS-1R, DBS-2 (Org), DBS-3, DBS-4, DBS-5, DBS-6, DBS-8, DBS-9, DBS-10,
- 2024 - collect PMW-1 after trucks move out of the way
- 2038 - Leave site
- 2120 - check in hotel

Salty Dog - Y Morgan

- 70°-103°, 10-15 mph, clear
- 0800 - check out hotel, ice, fuel
- 0920 - Arrive onsite. Tailgate safety, check meter calibration
- Collect "Ranch Well" from spigot @ NW corner of trailer house, west of pump station, after 15-min purge
- MW-3 - long purge time
- MW-5 - long purge time
- Collect "Brine" sample @ sample port above brine well in pump shed. Very white - salty.
- Had some confusion re: ideal sample locations - J.A. agreed we should collect "Brine" @ port @ brine well and collect "Injection" @ brown tanks where sign says "Fresh water".
- 1705 - Leave site - to Monahans, TX

Appendix C

Historical Data

DBS&A
Daniel B. Stephens & Associates, Inc.

Table C-1. Historical Fluid Level Measurements
Page 1 of 13

Monitor Well	Screen Interval (feet bgs)	Top of Casing Elevation [a] (feet msl)	Date Measured	Depth to Water (feet btoc)	Groundwater Elevation (feet msl)
DBS-1	56.0–76.0	3,817.09	4/08/2009	62.38	3,754.71
			5/11/2011	64.70	3,752.39
			10/04/2011	Well destroyed	
DBS-1R	58.0–78.0	3,817.00 [b]	4/30/2012	63.60	3,753.40
			9/10/2012	65.65	3,751.35
			6/23/2013	64.40	3,752.60
			1/09/2014	67.23	3,749.77
			4/07/2014	66.36	3,750.64
			3/20/2015	67.17	3,749.83
			7/01/2015	67.92	3,749.08
			9/29/2015	67.07	3,749.93
			12/16/2015	67.54	3,749.46
			3/22/2016	66.61	3,750.39
			6/08/2016	66.23	3,750.77
			9/13/2016	67.43	3,749.57
			12/01/2016	67.31	3,749.69
			6/20/2017	69.60	3,747.40
			12/19/2017	67.80	3,749.20
			6/18/2018	67.45	3,749.55
			11/07/2018	68.71	3,748.29
			6/03/2019	68.25	3,748.75
			12/17/2019	70.41	3,746.59
			6/23/2020	68.66	3,748.34
			11/21/2020	68.94	3,748.06
			6/02/2021	69.95	3,747.05
			11/28/2021	70.06	3,746.94
			6/9/2022	72.80	3,744.20

[a] Top of casing elevations surveyed by Pettigrew & Assoc. on May 28, 2009.
[b] Top of casing elevation surveyed by Pettigrew & Assoc. on June 13, 2012.

bgs = Below ground surface
btoc = Below top of casing
msl = Above mean sea level
NA = Not available

Table C-1. Historical Fluid Level Measurements
Page 2 of 13

Monitor Well	Screen Interval (feet bgs)	Top of Casing Elevation [a] (feet msl)	Date Measured	Depth to Water (feet btoc)	Groundwater Elevation (feet msl)
DBS-2	58.0–78.0	3,820.50	4/08/2009	65.45	3,755.05
			5/11/2011	66.80	3,753.70
			10/04/2011	65.87	3,754.63
			2/08/2012	65.96	3,754.54
			4/30/2012	66.26	3,754.24
			9/10/2012	67.45	3,753.05
			6/23/2013	67.03	3,753.47
			1/09/2014	69.08	3,751.42
			4/07/2014	68.67	3,751.83
			3/20/2015	69.32	3,751.18
			6/30/2015	69.29	3,751.21
			9/29/2015	69.41	3,751.09
			12/16/2015	69.71	3,750.79
			3/22/2016	69.13	3,751.37
			6/08/2016	68.91	3,751.59
			9/13/2016	69.76	3,750.74
			12/01/2016	69.73	3,750.77
			6/20/2017	71.33	3,749.17
			12/19/2017	70.42	3,750.08
			6/18/2018	70.25	3,750.25
			11/07/2018	71.07	3,749.43
			6/03/2019	70.94	3,749.56
			12/17/2019	72.43	3,748.07
			6/23/2020	71.54	3,748.96
			11/21/2020	71.57	3,748.93
			6/02/2021	72.43	3,748.07

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Table C-1. Historical Fluid Level Measurements
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Monitor Well	Screen Interval (feet bgs)	Top of Casing Elevation [a] (feet msl)	Date Measured	Depth to Water (feet btoc)	Groundwater Elevation (feet msl)
DBS-2 (cont.)	58.0–78.0	3,820.50	11/28/2021	72.81	3,747.69
			6/9/2022	74.89	3,745.61
DBS-3	56.0–76.72	3,816.66	4/08/2009	60.67	3,755.99
			5/11/2011	61.25	3,755.41
			10/04/2011	61.25	3,755.41
			2/08/2012	61.11	3,755.55
			4/30/2012	61.41	3,755.25
			9/10/2012	61.81	3,754.85
			6/23/2013	62.08	3,754.58
			1/09/2014	63.30	3,753.36
			4/07/2014	63.43	3,753.23
			3/20/2015	63.93	3,752.73
			6/30/2015	63.99	3,752.67
			9/29/2015	64.17	3,752.49
			12/16/2015	64.41	3,752.25
			3/22/2016	63.88	3,752.78
			6/08/2016	63.92	3,752.74
			9/13/2016	64.56	3,752.10
			12/01/2016	64.59	3,752.07
			6/20/2017	65.52	3,751.14
			12/19/2017	65.54	3,751.12
			6/18/2018	65.60	3,751.06
			11/07/2018	66.11	3,750.55
			6/03/2019	66.10	3,750.56
			12/17/2019	66.96	3,749.70
			6/23/2020	66.81	3,749.85
			11/21/2020	66.67	3,749.99

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msl = Above mean sea level NA = Not available

Table C-1. Historical Fluid Level Measurements
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Monitor Well	Screen Interval (feet bgs)	Top of Casing Elevation [a] (feet msl)	Date Measured	Depth to Water (feet btoc)	Groundwater Elevation (feet msl)
DBS-3 (cont.)	56.0–76.72	3,816.66	6/02/2021	67.50	3,749.16
			11/28/2021	68.12	3,748.54
			6/9/2022	69.57	3,747.09
DBS-4	56.0–76.0	3,820.37	4/08/2009	66.27	3,754.10
			5/11/2011	67.23	3,753.14
			10/04/2011	66.67	3,753.70
			2/08/2012	66.76	3,753.61
			4/30/2012	67.02	3,753.35
			9/10/2012	67.78	3,752.59
			6/23/2013	67.70	3,752.67
			1/09/2014	69.37	3,751.00
			4/07/2014	69.23	3,751.14
			3/20/2015	69.81	3,750.56
			6/30/2015	69.85	3,750.52
			9/29/2015	70.00	3,750.37
			12/16/2015	70.25	3,750.12
			3/22/2016	69.74	3,750.63
			6/08/2016	69.62	3,750.75
			9/13/2016	70.35	3,750.02
			12/01/2016	70.38	3,749.99
			6/20/2017	71.67	3,748.70
			12/19/2017	71.08	3,749.29
			6/18/2018	70.98	3,749.39
			11/07/2018	71.61	3,748.76
			6/03/2019	71.66	3,748.71
			12/17/2019	72.90	3,747.47
			6/23/2020	72.36	3,748.01

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Table C-1. Historical Fluid Level Measurements
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Monitor Well	Screen Interval (feet bgs)	Top of Casing Elevation [a] (feet msl)	Date Measured	Depth to Water (feet btoc)	Groundwater Elevation (feet msl)
DBS-4 (cont.)	56.0–76.0	3,820.37	11/21/2020	72.33	3,748.04
			6/02/2021	73.05	3,747.32
			11/28/2021	73.57	3,746.80
			6/9/2022	75.30	3,745.07
DBS-5	56.9–76.9	3,820.66	4/08/2009	62.99	3,757.67
			5/11/2011	63.45	3,757.21
			10/04/2011	63.41	3,757.25
			2/08/2012	63.46	3,757.20
			4/30/2012	63.70	3,756.96
			9/10/2012	63.92	3,756.74
			6/23/2013	64.30	3,756.36
			1/09/2014	65.28	3,755.38
			4/07/2014	65.48	3,755.18
			3/20/2015	65.90	3,754.76
			7/01/2015	66.18	3,754.48
			9/29/2015	66.25	3,754.41
			12/16/2015	66.47	3,754.19
			3/22/2016	66.08	3,754.58
			6/08/2016	66.16	3,754.50
			9/13/2016	66.64	3,754.02
			12/01/2016	66.72	3,753.94
			6/20/2017	67.60	3,753.06
			12/19/2017	67.88	3,752.78
			6/18/2018	68.04	3,752.62
			11/07/2018	68.47	3,752.19
			6/03/2019	68.44	3,752.22
			12/17/2019	69.13	3,751.53

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NA = Not available

Table C-1. Historical Fluid Level Measurements
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Monitor Well	Screen Interval (feet bgs)	Top of Casing Elevation [a] (feet msl)	Date Measured	Depth to Water (feet btoc)	Groundwater Elevation (feet msl)
DBS-5 (cont.)	56.9–76.9	3,820.66	6/23/2020	66.26	3,754.40
			11/21/2020	69.08	3,751.58
			6/02/2021	69.88	3,750.78
			11/28/2021	70.60	3,750.06
			6/9/2022	71.99	3,748.67
DBS-6	56.7–76.7	3,812.65	4/07/2009	62.75	3,749.90
			5/11/2011	63.11	3,749.54
			10/04/2011	63.16	3,749.49
			2/08/2012	63.20	3,749.45
			4/30/2012	63.43	3,749.22
			9/10/2012	63.60	3,749.05
			6/23/2013	63.74	3,748.91
			1/09/2014	64.00	3,748.65
			4/07/2014	64.22	3,748.43
			3/19/2015	64.78	3,747.87
			7/01/2015	64.81	3,747.84
			9/29/2015	65.48	3,747.17
			12/16/2015	65.26	3,747.39
			3/22/2016	65.38	3,747.27
			6/08/2016	65.37	3,747.28
			9/13/2016	65.51	3,747.14
			12/01/2016	65.51	3,747.14
			6/20/2017	65.81	3,746.84
			12/19/2017	66.29	3,746.36
			6/18/2018	66.45	3,746.20
			11/07/2018	66.62	3,746.03
			6/03/2019	67.24	3,745.41

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NA = Not available

Table C-1. Historical Fluid Level Measurements
Page 7 of 13

Monitor Well	Screen Interval (feet bgs)	Top of Casing Elevation [a] (feet msl)	Date Measured	Depth to Water (feet btoc)	Groundwater Elevation (feet msl)
DBS-6 (cont.)	56.7–76.7	3,812.65	12/17/2019	67.95	3,744.70
			6/23/2020	68.29	3,744.36
			11/21/2020	68.38	3,743.27
			6/02/2021	68.72	3,743.93
			11/28/2021	69.27	3,743.38
			6/9/2022	69.79	3,742.86
DBS-7	55.1–75.1	3,810.21	4/07/2009	61.74	3,748.47
DBS-8	55.2–75.2	3,810.70	4/07/2009	61.20	3,749.50
			5/11/2011	61.67	3,749.03
			10/04/2011	61.71	3,748.99
			2/08/2012	61.77	3,748.93
			4/30/2012	62.00	3,748.70
			9/10/2012	62.15	3,748.55
			6/23/2013	62.28	3,748.42
			1/09/2014	62.47	3,748.23
			4/07/2014	62.67	3,748.03
			3/19/2015	63.19	3,747.51
			6/30/2015	63.25	3,747.45
			9/29/2015	63.82	3,746.88
			12/16/2015	63.58	3,747.12
			3/22/2016	63.76	3,746.94
			6/08/2016	63.72	3,746.98
			9/13/2016	63.83	3,746.87
			12/01/2016	63.79	3,746.91
			6/20/2017	64.09	3,746.61
			12/19/2017	64.53	3,746.17
			6/18/2018	64.70	3,746.00

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NA = Not available

Table C-1. Historical Fluid Level Measurements
Page 8 of 13

Monitor Well	Screen Interval (feet bgs)	Top of Casing Elevation [a] (feet msl)	Date Measured	Depth to Water (feet btoc)	Groundwater Elevation (feet msl)
DBS-8 (cont.)	55.2–75.2	3,810.70	11/07/2018	64.82	3,745.88
			6/03/2019	65.52	3,745.18
			12/17/2019	66.12	3,744.58
			6/23/2020	66.42	3,744.28
			11/21/2020	66.55	3,744.15
			6/02/2021	66.91	3,743.79
			11/28/2021	67.33	3,743.37
			6/9/2022	67.84	3,742.86
DBS-9	48.0–68.0	3,806.26	4/08/2009	53.93	3,752.33
			5/11/2011	54.39	3,751.87
			10/04/2011	54.59	3,751.67
			2/08/2012	54.53	3,751.73
			4/30/2012	54.68	3,751.58
			9/10/2012	54.77	3,751.49
			6/23/2013	55.04	3,751.22
			1/09/2014	55.27	3,750.99
			4/07/2014	55.56	3,750.70
			3/19/2015	55.95	3,750.31
			7/01/2015	56.14	3,750.12
			9/29/2015	56.49	3,749.77
			12/16/2015	56.52	3,749.74
			3/22/2016	56.51	3,749.75
			6/08/2016	56.64	3,749.62
			9/13/2016	56.81	3,749.45
			12/01/2016	56.88	3,749.38
			6/20/2017	57.28	3,748.98
			12/19/2017	57.67	3,748.59

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Table C-1. Historical Fluid Level Measurements
Page 9 of 13

Monitor Well	Screen Interval (feet bgs)	Top of Casing Elevation [a] (feet msl)	Date Measured	Depth to Water (feet btoc)	Groundwater Elevation (feet msl)
DBS-9 (cont.)	48.0–68.0	3,806.26	6/18/2018	57.98	3,748.28
			11/07/2018	58.22	3,748.04
			6/03/2019	58.53	3,747.73
			12/17/2019	59.25	3,747.01
			6/23/2020	59.55	3,746.71
			11/21/2020	59.64	3,746.62
			6/02/2021	59.95	3,746.31
			11/28/2021	60.48	3,745.78
			6/9/2022	60.95	3,745.31
DBS-10	57.2–77.2	3,807.48	6/18/2018	64.46	3,743.02
			11/07/2018	64.66	3,742.82
			6/03/2019	65.11	3,742.37
			12/17/2019	65.80	3,741.68
			6/23/2020	66.03	3,807.48
			11/21/2020	66.23	3,741.25
			6/02/2021	66.52	3,740.96
			11/28/2021	67.03	3,740.45
			6/9/2022	67.28	3,740.20
NW-1s	52.95–72.95	3,817.33	4/08/2009	62.35	3,754.98
NW-1m	99.31–119.31	3,817.35	4/08/2009	62.25	3,755.10
NW-1d	149.45–169.45	3,817.35	4/08/2009	62.04	3,755.31
NW-2s	53.35–73.35	3,812.50	4/08/2009	63.08	3,749.42
NW-2m	93.72–113.72	3,812.45	4/08/2009	63.27	3,749.18
NW-2d	126.87–146.87	3,812.46	4/08/2009	66.41	3,746.05
PMW-1	63–78	3,821.17	6/23/2008	67.51	3,753.66
			4/08/2009	65.97	3,755.20
			5/11/2011	68.70	3,752.47

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NA = Not available

Table C-1. Historical Fluid Level Measurements
Page 10 of 13

Monitor Well	Screen Interval (feet bgs)	Top of Casing Elevation [a] (feet msl)	Date Measured	Depth to Water (feet btoc)	Groundwater Elevation (feet msl)
PMW-1 (cont.)	63–78	3,821.17	10/04/2011	66.95	3,754.22
			2/08/2012	66.69	3,754.48
			4/30/2012	67.27	3,753.90
			9/10/2012	69.77	3,751.40
			6/23/2013	68.40	3,752.77
			1/09/2014	71.24	3,749.93
			4/07/2014	69.97	3,751.20
			3/20/2015	70.78	3,750.39
			7/01/2015	71.41	3,749.76
			9/29/2015	70.76	3,750.41
			12/16/2015	71.03	3,750.14
			3/22/2016	70.30	3,750.87
			6/08/2016	69.65	3,751.52
			9/13/2016	71.08	3,750.09
			12/01/2016	70.97	3,750.20
			6/20/2017	73.06	3,748.11
			12/19/2017	71.19	3,749.98
			6/18/2018	70.97	3,750.20
			11/07/2018	72.52	3,748.65
			6/03/2019	71.76	3,749.41
			12/17/2019	76.25	3,744.92
			6/23/2020	72.03	3,749.14
			11/21/2020	72.19	3,748.98
			6/02/2021	73.10	3,748.07
			11/28/2021	73.49	3,747.68
			6/9/2022	75.97	3,745.20
MW-1	120–140	NA	6/23/2008	59.90	NA

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NA = Not available

Table C-1. Historical Fluid Level Measurements
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Monitor Well	Screen Interval (feet bgs)	Top of Casing Elevation [a] (feet msl)	Date Measured	Depth to Water (feet btoc)	Groundwater Elevation (feet msl)
MW-2	127–147	3,812.68	6/23/2008	61.42	3,751.26
			4/07/2009	61.65	3,751.03
MW-3	NA	3,812.05	6/23/2008	62.06	3,749.99
			4/07/2009	62.02	3,750.03
			5/11/2011	62.91	3,749.14
			10/04/2011	62.91	3,749.14
			2/08/2012	62.95	3,749.10
			4/30/2012	63.39	3,748.66
			9/10/2012	63.50	3,748.55
			6/23/2013	63.36	3,748.69
			1/09/2014	63.55	3,748.50
			4/07/2014	63.88	3,748.17
			3/19/2015	64.27	3,747.78
			7/01/2015	64.34	3,747.71
			9/29/2015	67.94	3,744.11
			12/16/2015	64.75	3,747.30
			3/22/2016	64.84	3,747.21
			6/08/2016	64.89	3,747.16
			9/13/2016	66.33	3,745.72
			12/01/2016	66.66	3,745.39
			6/20/2017	65.56	3,746.49
			12/19/2017	65.70	3,746.35
			6/18/2018	66.52	3,745.53
			11/07/2018	66.09	3,745.96
			6/03/2019	68.18	3,743.87
			12/17/2019	67.38	3,744.67
			6/23/2020	69.16	3,742.89

[a] Top of casing elevations surveyed by Pettigrew & Assoc. on May 28, 2009.
[b] Top of casing elevation surveyed by Pettigrew & Assoc. on June 13, 2012.
bgs = Below ground surface btoc = Below top of casing
msl = Above mean sea level NA = Not available

Table C-1. Historical Fluid Level Measurements
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Monitor Well	Screen Interval (feet bgs)	Top of Casing Elevation [a] (feet msl)	Date Measured	Depth to Water (feet btoc)	Groundwater Elevation (feet msl)
MW-3 (cont.)	NA	3,812.05	11/21/2020	67.73	3,744.32
			6/02/2021	69.83	3,742.22
			11/28/2021	68.62	3,743.43
			6/9/2022	70.60	3,741.45
MW-4	111–131	3,811.33	6/23/2008	62.12	3,749.21
			4/07/2009	62.51	3,748.82
MW-5	112–132	3,808.96	6/23/2008	60.60	3,748.36
			4/07/2009	60.79	3,748.17
			5/11/2011	61.17	3,747.79
			10/04/2011	61.72	3,747.24
			2/08/2012	61.23	3,747.73
			4/30/2012	61.50	3,747.46
			9/10/2012	61.65	3,747.31
			6/23/2013	61.75	3,747.21
			1/09/2014	61.90	3,747.06
			4/07/2014	62.18	3,746.78
			3/19/2015	62.96	3,746.00
			6/30/2015	62.71	3,746.25
			9/29/2015	63.92	3,745.04
			12/16/2015	63.02	3,745.94
			3/22/2016	63.14	3,745.82
			6/08/2016	63.47	3,745.49
			9/13/2016	63.66	3,745.30
			12/01/2016	63.70	3,745.26
			6/21/2017	63.62	3,745.34
			12/19/2017	65.02	3,743.94
			6/18/2018	64.32	3,744.64

[a] Top of casing elevations surveyed by Pettigrew & Assoc. on May 28, 2009.
[b] Top of casing elevation surveyed by Pettigrew & Assoc. on June 13, 2012.
bgs = Below ground surface
btoc = Below top of casing
msl = Above mean sea level
NA = Not available

Table C-1. Historical Fluid Level Measurements
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Monitor Well	Screen Interval (feet bgs)	Top of Casing Elevation [a] (feet msl)	Date Measured	Depth to Water (feet btoc)	Groundwater Elevation (feet msl)
MW-5 (cont.)	112–132	3,808.96	11/07/2018	64.34	3,744.62
			06/03/2019	65.30	3,743.66
			12/17/2019	65.57	3,743.39
			6/23/2020	66.26	3,742.70
			11/21/2020	66.00	3,742.96
			6/02/2021	66.70	3,742.26
			11/28/2021	66.85	3,742.11
			6/9/2022	67.59	3,741.37
MW-6	NA	3,810.17	6/23/2008	62.17	3,748.00
			4/07/2009	62.41	3,747.76

[a] Top of casing elevations surveyed by Pettigrew & Assoc. on May 28, 2009.
[b] Top of casing elevation surveyed by Pettigrew & Assoc. on June 13, 2012.
bgs = Below ground surface btoc = Below top of casing
msl = Above mean sea level NA = Not available

Table C-2. Historical Chloride Groundwater Analytical Data
Page 1 of 14

Monitor Well	Date	Chloride Concentration (mg/L) [a]
	NMWQCC Standard	*250*
DBS-1	4/08/2009	**320**
	5/12/2011	**940**
	10/04/2011	Well destroyed
DBS-1R	5/01/2012	**3,000**
	9/11/2012	**3,200**
	6/25/2013	**3,300**
	1/10/2014	**1,000**
	4/08/2014	**1,700**
	3/20/2015	**1,200**
	7/01/2015	**860**
	9/30/2015	**670**
	12/17/2015	**760**
	3/23/2016	**560**
	6/09/2016	**570**
	09/14/2016	**360**
	12/01/2016	**360**
	6/20/2017	**320**
	12/20/2017	190
	6/19/2018	190
	11/08/2018	180
	6/03/2019	190
	12/18/2019	210
	6/23/2020	220
	11/21/2020	**530**
	6/02/2021	**2,200**
	11/28/2021	**2,100**
	6/9/2022	**940**

Bold indicates that value exceeds the applicable standard.

[a] All samples analyzed using EPA method 300.0, unless otherwise noted.

[b] Samples analyzed using Standard Method 4500-Cl B.

mg/L = Milligrams per liter

NS = Not sampled

Table C-2. Historical Chloride Groundwater Analytical Data
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Monitor Well	Date	Chloride Concentration (mg/L) [a]
	NMWQCC Standard	*250*
DBS-2	4/08/2009	14
	5/12/2011	25
	10/05/2011	18
	2/09/2012	22
	5/01/2012	24
	9/11/2012	44
	6/25/2013	36
	1/10/2014	45
	4/08/2014	22
	3/20/2015	29
	6/30/2015	28
	9/30/2015	40
	12/17/2015	35
	3/23/2016	46
	6/09/2016	41
	9/14/2016	41
	12/02/2016	53
	6/20/2017	59
	12/20/2017	37
	6/18/2018	47
	11/08/2018	47
	6/03/2019	42
	12/17/2019	68
	6/24/2020	66
	11/21/2020	81
	6/02/2021	85

Bold indicates that value exceeds the applicable standard.

[a] All samples analyzed using EPA method 300.0, unless otherwise noted.

[b] Samples analyzed using Standard Method 4500-Cl B.

mg/L = Milligrams per liter

NS = Not sampled

Table C-2. Historical Chloride Groundwater Analytical Data
Page 3 of 14

Monitor Well	Date	Chloride Concentration (mg/L) [a]
	NMWQCC Standard	*250*
DBS-2 (cont.)	11/28/2021	100
	6/9/2022	NS
DBS-3	4/08/2009	36
	5/12/2011	35
	10/05/2011	34
	2/09/2012	34
	5/01/2012	33
	9/11/2012	34
	6/24/2013	32
	1/10/2014	34
	4/08/2014	32
	3/20/2015	35
	6/30/2015	35
	9/30/2015	34
	12/17/2015	34
	3/23/2016	36
	6/09/2016	35
	9/14/2016	37
	12/02/2016	37
	6/20/2017	39
	12/20/2017	42
	6/18/2018	47
	11/08/2018	46
	6/03/2019	46
	12/17/2019	48
	6/24/2020	50
	11/21/2020	49

Bold indicates that value exceeds the applicable standard.

[a] All samples analyzed using EPA method 300.0, unless otherwise noted.

[b] Samples analyzed using Standard Method 4500-Cl B.

mg/L = Milligrams per liter

NS = Not sampled

Table C-2. Historical Chloride Groundwater Analytical Data
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Monitor Well	Date	Chloride Concentration (mg/L) [a]
	NMWQCC Standard	*250*
DBS-3 (cont.)	6/03/2021	52
	11/28/2021	53
	6/9/2022	57
DBS-4	4/08/2009	38
	5/12/2011	33
	10/05/2011	32
	2/09/2012	32
	5/01/2012	31
	9/11/2012	32
	6/25/2013	31
	1/10/2014	32
	4/08/2014	30
	3/20/2015	33
	6/30/2015	31
	9/30/2015	33
	12/17/2015	35
	3/23/2016	38
	6/09/2016	35
	9/14/2016	37
	12/02/2016	41
	6/20/2017	35
	12/20/2017	32
	6/19/2018	39
	11/08/2018	35
	6/03/2019	30
	12/17/2019	35
	6/23/2020	35

Bold indicates that value exceeds the applicable standard.

[a] All samples analyzed using EPA method 300.0, unless otherwise noted.

[b] Samples analyzed using Standard Method 4500-Cl B.

mg/L = Milligrams per liter

NS = Not sampled

Table C-2. Historical Chloride Groundwater Analytical Data
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Monitor Well	Date	Chloride Concentration (mg/L) [a]
	NMWQCC Standard	*250*
DBS-4 (cont.)	11/21/2020	37
	6/03/2021	39
	11/28/2021	40
	6/9/2022	44
DBS-5	4/08/2009	65
	5/12/2011	140
	10/05/2011	140
	2/09/2012	140
	4/30/2012	150
	9/11/2012	160
	6/24/2013	160
	1/10/2014	180
	4/08/2014	160
	3/20/2015	140
	7/01/2015	140
	9/30/2015	150
	12/17/2015	160
	3/23/2016	150
	6/09/2016	150
	9/14/2016	170
	12/02/2016	170
	6/20/2017	170
	12/20/2017	170
	6/18/2018	180
	11/08/2018	170
	6/03/2019	**280**
	12/18/2019	160

Bold indicates that value exceeds the applicable standard.

[a] All samples analyzed using EPA method 300.0, unless otherwise noted.

[b] Samples analyzed using Standard Method 4500-Cl B.

mg/L = Milligrams per liter

NS = Not sampled

Table C-2. Historical Chloride Groundwater Analytical Data
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Monitor Well	Date	Chloride Concentration (mg/L) [a]
	NMWQCC Standard	*250*
DBS-5 (cont.)	6/24/2020	190
	11/21/2020	190
	6/03/2021	170
	11/28/2021	200
	6/9/2022	200
DBS-6	4/07/2009	**380**
	5/12/2011	**410**
	10/05/2011	**400**
	2/09/2012	**380**
	4/30/2012	**400**
	9/11/2012	**390**
	6/24/2013	**340**
	1/10/2014	**390**
	4/07/2014	**400**
	3/19/2015	**370**
	7/01/2015	**360**
	9/30/2015	**370**
	12/17/2015	**380**
	3/23/2016	**310**
	6/09/2016	**300**
	9/14/2016	**290**
	12/02/2016	**300**
	6/21/2017	240
	12/19/2017	200
	6/19/2018	210
	11/08/2018	190
	6/03/2019	180

Bold indicates that value exceeds the applicable standard.

[a] All samples analyzed using EPA method 300.0, unless otherwise noted.

[b] Samples analyzed using Standard Method 4500-Cl B.

mg/L = Milligrams per liter

NS = Not sampled

Table C-2. Historical Chloride Groundwater Analytical Data
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Monitor Well	Date	Chloride Concentration (mg/L) [a]
	NMWQCC Standard	*250*
DBS-6 (cont.)	12/17/2019	220
	6/24/2020	230
	11/21/2020	230
	6/03/2021	**250**
	11/28/2021	**270**
	6/9/2022	**290**
DBS-7	4/07/2008	**570**
DBS-8	4/07/2009	58
	5/12/2011	36
	10/05/2011	140
	2/09/2012	41
	4/30/2012	41
	9/10/2012	42
	6/24/2013	45
	1/09/2014	38
	4/07/2014	36
	3/19/2015	36
	7/01/2015	34
	9/30/2015	35
	12/17/2015	33
	3/23/2016	35
	6/09/2016	34
	9/14/2016	34
	12/02/2016	33
	6/21/2017	33
	12/19/2017	28
	6/19/2018	33

Bold indicates that value exceeds the applicable standard.

[a] All samples analyzed using EPA method 300.0, unless otherwise noted.

[b] Samples analyzed using Standard Method 4500-Cl B.

mg/L = Milligrams per liter

NS = Not sampled

Table C-2. Historical Chloride Groundwater Analytical Data
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Monitor Well	Date	Chloride Concentration (mg/L) [a]
	NMWQCC Standard	*250*
DBS-8 (cont.)	11/08/2018	30
	6/03/2019	35
	12/17/2019	30
	6/24/2020	34
	11/21/2020	34
	6/03/2021	35
	11/28/2021	35
	6/9/2022	37
DBS-9	4/08/2009	210
	5/12/2011	**600**
	10/05/2011	**440**
	2/09/2012	**290**
	4/30/2012	**330**
	9/11/2012	**320**
	6/24/2013	200
	1/10/2014	170
	4/07/2014	220
	3/19/2015	**260**
	7/01/2015	210
	9/30/2015	**260**
	12/17/2015	230
	3/23/2016	200
	6/09/2016	190
	9/14/2016	190
	12/02/2016	180
	6/21/2017	200
	12/20/2017	230

Bold indicates that value exceeds the applicable standard.

[a] All samples analyzed using EPA method 300.0, unless otherwise noted.

[b] Samples analyzed using Standard Method 4500-Cl B.

mg/L = Milligrams per liter

NS = Not sampled

Table C-2. Historical Chloride Groundwater Analytical Data
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Monitor Well	Date	Chloride Concentration (mg/L) [a]
	NMWQCC Standard	*250*
DBS-9 (cont.)	6/19/2018	**260**
	6/03/2019	160
	12/17/2019	220
	6/24/2020	**360**
	11/21/2020	**280**
	6/03/2021	**290**
	11/28/2021	**300**
	6/9/2022	**350**
DBS-10	6/19/2018	**690**
	11/08/2018	**590**
	6/03/2019	**510**
	12/17/2019	**540**
	6/24/2020	**560**
	11/21/2020	**620**
	6/03/2021	**560**
	11/28/2021	**560**
	6/9/2022	**530**
NW-1s	4/08/2009	**630**
NW-1m	4/08/2009	57
NW-1d	4/08/2009	38
NW-2s	4/08/2009	**410**
NW-2m	4/08/2009	**570**
NW-2d	4/08/2009	**4,700**
PMW-1	2/27/2008	**9,500** [b]
	5/30/2008	**8,600** [b]
	6/23/2008	**12,700**
	4/08/2009	**11,000**

Bold indicates that value exceeds the applicable standard.

[a] All samples analyzed using EPA method 300.0, unless otherwise noted.

[b] Samples analyzed using Standard Method 4500-Cl B.

mg/L = Milligrams per liter

NS = Not sampled

Table C-2. Historical Chloride Groundwater Analytical Data
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Monitor Well	Date	Chloride Concentration (mg/L) [a]
	NMWQCC Standard	*250*
PMW-1 (cont.)	5/12/2011	**13,000**
	10/05/2011	**12,000**
	2/09/2012	**12,000**
	5/01/2012	**12,000**
	9/11/2012	**14,000**
	6/25/2013	**14,000**
	1/10/2014	**11,000**
	4/08/2014	**12,000**
	3/20/2015	**8,500**
	7/01/2015	**8,600**
	9/30/2015	**9,700**
	12/17/2015	**9,800**
	3/23/2016	**8,200**
	6/09/2016	**8,500**
	9/14/2016	**9,300**
	12/01/2016	**8,300**
	6/20/2017	**13,000**
	12/20/2017	**12,000**
	6/19/2018	**9,600**
	11/08/2018	**10,000**
	6/03/2019	**11,000**
	12/18/2019	**3,400**
	6/23/2020	**11,000**
	11/21/2020	**8,200**
	6/02/2021	**6,800**
	11/28/2021	**9,800**
	6/9/2022	**13,000**

Bold indicates that value exceeds the applicable standard.

[a] All samples analyzed using EPA method 300.0, unless otherwise noted.

[b] Samples analyzed using Standard Method 4500-Cl B.

mg/L = Milligrams per liter

NS = Not sampled

Table C-2. Historical Chloride Groundwater Analytical Data
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Monitor Well	Date	Chloride Concentration (mg/L) [a]
	NMWQCC Standard	*250*
MW-1	5/30/2008	75 [b]
	6/23/2008	243
MW-2	2/27/2008	120 [b]
	5/30/2008	80 [b]
	6/23/2008	**1,480**
	4/07/2009	**1,200**
	6/19/2018	**390**
MW-3	2/27/2008	**348** [b]
	5/30/2008	**360** [b]
	6/23/2008	**1,090**
	4/07/2009	**17,000**
	5/12/2011	**16,000**
	10/05/2011	**14,000**
	2/09/2012	**15,000**
	4/30/2012	**14,000**
	9/10/2012	**16,000**
	6/24/2013	**12,000**
	1/10/2014	**10,000**
	4/07/2014	**12,000**
	3/19/2015	**9,700**
	7/01/2015	**10,000**
	9/30/2015	**9,600**
	12/17/2015	**5,100**
	3/23/2016	**8,200**
	6/09/2016	**9,400**
	9/14/2016	**9,100**
	12/02/2016	**11,000**

Bold indicates that value exceeds the applicable standard.

[a] All samples analyzed using EPA method 300.0, unless otherwise noted.

[b] Samples analyzed using Standard Method 4500-Cl B.

mg/L = Milligrams per liter

NS = Not sampled

Table C-2. Historical Chloride Groundwater Analytical Data
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Monitor Well	Date	Chloride Concentration (mg/L) [a]
	NMWQCC Standard	*250*
MW-3 (cont.)	6/21/2017	**10,000**
	12/20/2017	**8,300**
	6/19/2018	**7,300**
	11/08/2018	**8,000**
	6/03/2019	**8,000**
	12/18/2019	**7,400**
	6/24/2020	**6,400**
	11/21/2020	**7,100**
	6/03/2021	**4,400**
	11/28/2021	**6,100**
	6/10/2022	**5,100**
MW-4	2/27/2008	**476** [b]
	5/30/2008	**512** [b]
	6/23/2008	**5,730**
	4/07/2009	**6,600**
MW-5	2/27/2008	**1,280** [b]
	5/30/2008	**1,220** [b]
	6/23/2008	**1,260**
	4/07/2009	**1,300**
	5/12/2011	**1,500**
	10/05/2011	**1,500**
	2/09/2012	**1,500**
	4/30/2012	**1,400**
	9/10/2012	**1,500**
	6/24/2013	**1,300**
	1/10/2014	**1,300**
	4/07/2014	**1,300**

Bold indicates that value exceeds the applicable standard.

[a] All samples analyzed using EPA method 300.0, unless otherwise noted.

[b] Samples analyzed using Standard Method 4500-Cl B.

mg/L = Milligrams per liter

NS = Not sampled

Table C-2. Historical Chloride Groundwater Analytical Data
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Monitor Well	Date	Chloride Concentration (mg/L) [a]
	NMWQCC Standard	*250*
MW-5 (cont.)	3/19/2015	**1,200**
	7/01/2015	**1,200**
	9/30/2015	**1,000**
	12/17/2015	**1,000**
	3/23/2016	**980**
	6/09/2016	**970**
	9/14/2016	**1,000**
	12/02/2016	**710**
	6/21/2017	**870**
	12/19/2017	**850**
	6/19/2018	**840**
	11/08/2018	**680**
	6/03/2019	**610**
	12/18/2019	**550**
	6/24/2020	**660**
	11/21/2020	**710**
	6/03/2021	**640**
	11/28/2021	**680**
	6/10/2022	**590**
MW-6	2/27/2008	32 [b]
	5/30/2008	36 [b]
	6/23/2008	31.4
	4/07/2009	25
Ranch Headquarters Supply Well	6/23/2008	35.4
	6/10/2022	**54**

Bold indicates that value exceeds the applicable standard.

[a] All samples analyzed using EPA method 300.0, unless otherwise noted.

[b] Samples analyzed using Standard Method 4500-Cl B.

mg/L = Milligrams per liter

NS = Not sampled

Table C-2. Historical Chloride Groundwater Analytical Data
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Monitor Well	Date	Chloride Concentration (mg/L) [a]
NMWQCC Standard		*250*
Brine Station Fresh Water Supply Well	2/27/2008	**630** [b]
	5/30/2008	**590** [b]
	6/23/2008	**650**

Bold indicates that value exceeds the applicable standard.

[a] All samples analyzed using EPA method 300.0, unless otherwise noted.

[b] Samples analyzed using Standard Method 4500-Cl B.

mg/L = Milligrams per liter

NS = Not sampled

Table C-3. Historical Average Groundwater Extraction Rates
Page 1 of 2

Recovery Well	Date	Average Extraction Rate [a] (gpm)
RW-1	4/07/2012	Groundwater extraction started
	5/01/2012	2.1
	9/11/2012	2.9
	6/25/2013	4.1
	11/15/2013	3.6
	3/20/2015 [b]	2.4
	6/30/2015	—
FWS-1	12/17/2015	—
	3/22/2016	12.8
	6/08/2016	33.9
	9/13/2016	5.4
	12/02/2016	39.7
	6/20/2017	32.7
	12/19/2017	37.3
	6/18/2018	15.4
	11/08/2018	22.4
	6/03/2019 [c]	23.9
	12/18/2019	27.7
	6/23/2020	21.2
	11/21/2020	7.6
	6/02/2021	5.7
	11/28/2021	3.9
	6/9/2022	8.6
RW-2	4/06/2012	Groundwater extraction started
	5/01/2012	2.5
	9/11/2012	4.3
	12/14/2012	3.9
	6/25/2013 [d]	—
	9/21/2013 [e]	2.9
	9/30/2015	68
	12/17/2015	44
	3/22/2016	32

Notes are provided at the end of the table.

Table C-3. Historical Average Groundwater Extraction Rates
Page 2 of 2

Recovery Well	Date	Average Extraction Rate [a] (gpm)
RW-2 (cont.)	6/08/2016	9.0
	9/13/2016	5.7
	12/01/2016 [f]	—
	6/20/2017 [f]	—
	12/19/2017	12.4
	6/19/2018	5.2
	10/10/2018 [g]	3.4
	6/03/2019	7.0
	12/18/2019	14.9
	6/23/2020	16.7
	11/21/2020	3.9
	6/02/2021	11.5
	11/28/2021	17.6
	6/9/2022	5.8

[a] Average extraction rates based on totalizer flow meter readings and/or fresh water production records.

[b] Pumping at RW-1 stopped because pumping of FWS-1 lowered groundwater levels at RW-1, precluding groundwater extraction at RW-1. Pumping at FWS-1 provides hydraulic containment and removal of chloride-impacted groundwater in the former brine pond area.

[c] New meter on December 3, 2019; well stopped pumping on May 11, 2019.

[d] New pump installed in RW-2 and started on June 25, 2013.

[e] Meter and pump were removed from RW-2 on approximately September 21, 2013 by facility manager to install a new, larger-capacity pump.

[f] Meter was inoperable because it was damaged. Meter was replaced in November 2017.

[g] Meter read on November 8, 2018, but well had not been pumped since October 10, 2018; average extraction rate between June 18 and October 10, 2018 is reported.

gpm = Gallons per minute

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State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
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Santa Fe, NM 87505

COMMENTS

Action 146675

COMMENTS

Operator: SALTY DOG INC P.O. Box 513 Hobbs, NM 88240	OGRID: 184208
	Action Number: 146675
	Action Type: [UF-DP] Brine Facility Discharge Plan (DISCHARGE PLAN BRINE EXTRACTION)

COMMENTS

Created By	Comment	Comment Date
cchavez	First Semi-Annual GW Monitor Rpt.	10/14/2022

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CONDITIONS

Action 146675

CONDITIONS

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CONDITIONS

Created By	Condition	Condition Date
cchavez	Similar to DBS-2, continue to assess wells where water level trends indicate the potential to drop below well screen and assess the need to deepen key wells exhibiting significant GW levels above WQCC Stds.	10/14/2022