DBS&A
a Geo-Logic Company

April 7, 2023

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
July 1 through December 31, 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 December 22 and 23, 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.

Second 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
a Geo-Logic Company

6020 Academy NE, Suite 100
Albuquerque, New Mexico 87109
www.dbstephens.com
DB19.1198

April 7, 2023

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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 July 1 through December 31, 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 December 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.

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 December 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 December 22, 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, December 22, 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	73.65	3,743.35
DBS-2	58.0–78.0	3,820.50	74.95	3,745.55
DBS-3	56.0–76.72	3,816.66	70.95	3,745.71
DBS-4	56.0–76.0	3,820.37	76.42	3,743.95
DBS-5	56.9–76.9	3,820.66	73.50	3,747.16
DBS-6	56.7–76.7	3,812.65	70.64	3,742.01
DBS-8	55.2–75.2	3,810.70	68.55	3,742.15
DBS-9	48.0–68.0	3,806.26	61.89	3,744.37
DBS-10	57.2–77.2	3,807.48	68.06	3,739.42
PMW-1	63–78	3,821.17	77.15	3,744.02
MW-3	NA	3,812.05	69.92	3,742.13
MW-5	112–132	3,808.96	68.02	3,740.94

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 74.44 feet below top of casing (btoc) and 67.85 feet btoc, respectively. Water levels in the former brine pond area declined relative to those of the last monitoring event in June 2022, declining on average by 1.02 feet. Water levels in the brine well area also declined—by 0.50 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 0.0053 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

0.0037 ft/ft this reporting period (Figure 3). Both FWS-1 and RW-2 were pumping during this reporting period.

3.2 Groundwater Sampling

On December 22 and 23, 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. A sample was not 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.

A sample of the produced brine was also collected to meet requirements under DP-BW-8. Analytical results of this sample will be presented in the 2022 annual Class III well report. Brine injection water could not be sampled because the hose and valve were frozen. The forecasted high temperature on December 22, 2022 was 21°F.

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	12/23/2022	**1,200**
DBS-2	12/23/2022	NS
DBS-3	12/23/2022	68
DBS-4	12/23/2022	47
DBS-5	12/23/2022	230
DBS-6	12/22/2022	**360**
DBS-8	12/22/2022	43
DBS-9	12/23/2022	**400**
DBS-10	12/22/2022	**570**
PMW-1	12/23/2022	**12,000**
MW-3	12/22/2022	**5,700**
MW-5	12/22/2022	**710**

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, continued 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 decreased from 13,000 mg/L in June 2022 to 12,000 mg/L in December 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 remained elevated, and was 1,200 mg/L in December 2022.

The chloride concentration at upgradient monitor well DBS-5 was 230 mg/L, just 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 remained stable and below the NMWQCC standard, as did the chloride concentration at cross-gradient monitor well 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 5,700 mg/L this reporting period, increasing from 5,100 mg/L in June 2022. The chloride concentration at DBS-10 increased from 530 mg/L in June 2022 to 570 mg/L in December 2022, while the chloride concentration at MW-5 increased from 590 mg/L (June 2022) to 710 mg/L (December 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 (360 mg/L) (Table 2).

The chloride concentration at upgradient monitor well DBS-9 was 400 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.

Table 3. Groundwater Analytical Results, MW-3

Constituent	Concentration (mg/L [a])	
	NMWQCC Standard	MW-3 (6/10/2022)
Alkalinity, total	NS	192.8
Bicarbonate	NS	192.8
Calcium, total	NS	910
Carbonate	NS	<2.0
Bromide	NS	2.4
Chloride	250	**5,700**
Fluoride	1.6	<1.0
Magnesium, total	NS	130
Nitrate + nitrite (as N)	10.0	<4.0
Orthophosphate (as P)	NS	<5.0 H
pH (s.u.)	6–9	7.56 H
Potassium, total	NS	17
Sodium, total	NS	2,400
Sulfate	600	330
Total dissolved solids	1,000	**11,200 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 the 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	12/22/2022	6.1
RW-2	12/22/2022	NM

[a] Average extraction rate at FW-1 based on totalizer flow meter readings on 6/9/2022 and 12/22/2022.
gpm = Gallons per minute
NM = Not measured; cattle damaged meter.

5.1 Former Brine Pond Area

The average pumping rate at well FWS-1 during this reporting period was 6.1 gallons per minute (gpm) (Table 4). The average pumping rate during the previous reporting period was 8.6 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 downgradient monitor well DBS-1R increased this reporting period, from 940 mg/L (June 2022) to 1,200 mg/L (December 2022). DBS&A recommends that PAB increase the pumping rate at FWS-1 to address the increasing chloride concentration at DBS-1R. The chloride concentration at well DBS-4, located downgradient of well DBS-1R, remained stable and below the NMWQCC standard (Figure 4).

5.2 Brine Well Area

During this reporting period, the totalizer flow meter at extraction well RW-2 was damaged, precluding determination of the well's average pumping rate (Table 4). PAB is aware of the damage to the meter, and is planning to repair it. The average pumping rate during the previous reporting period was 5.8 gpm (Appendix C).

In the brine well area, monitor wells DBS-6, DBS-10, MW-3, and MW-5 exhibit chloride concentrations above the NMWQCC standard (Figure 4). The chloride concentration at MW-3 (located immediately upgradient of RW-2) increased this reporting period, from 5,100 mg/L (June 2022) to 5,700 mg/L (December 2022). The chloride concentrations at the downgradient (MW-5 and DBS-10) and cross-gradient wells (DBS-6) also increased (Appendix C). For example, the chloride concentration at DBS-10 increased from 510 mg/L (June 2022) to 570 mg/L

(December 2022). DBS&A recommends that PAB increase the pumping rate at RW-2 to address the increasing chloride concentrations.

5.3 Facility and Extraction System Maintenance

As noted in Section 5.2, the totalizer flow meter at RW-2 was damaged during this reporting period. PAB is planning to repair it.

On February 2, 2023, 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 February 7, 2023, 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, increasing the pumping rate slightly to address the increasing chloride concentration at downgradient monitor well DBS-1R.
- Continue groundwater extraction at RW-2 to provide hydraulic containment and removal of the chloride plume in the brine well area, increasing the pumping rate slightly to address the increasing chloride concentration at the downgradient and cross-gradient monitor wells.
- 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 2023 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

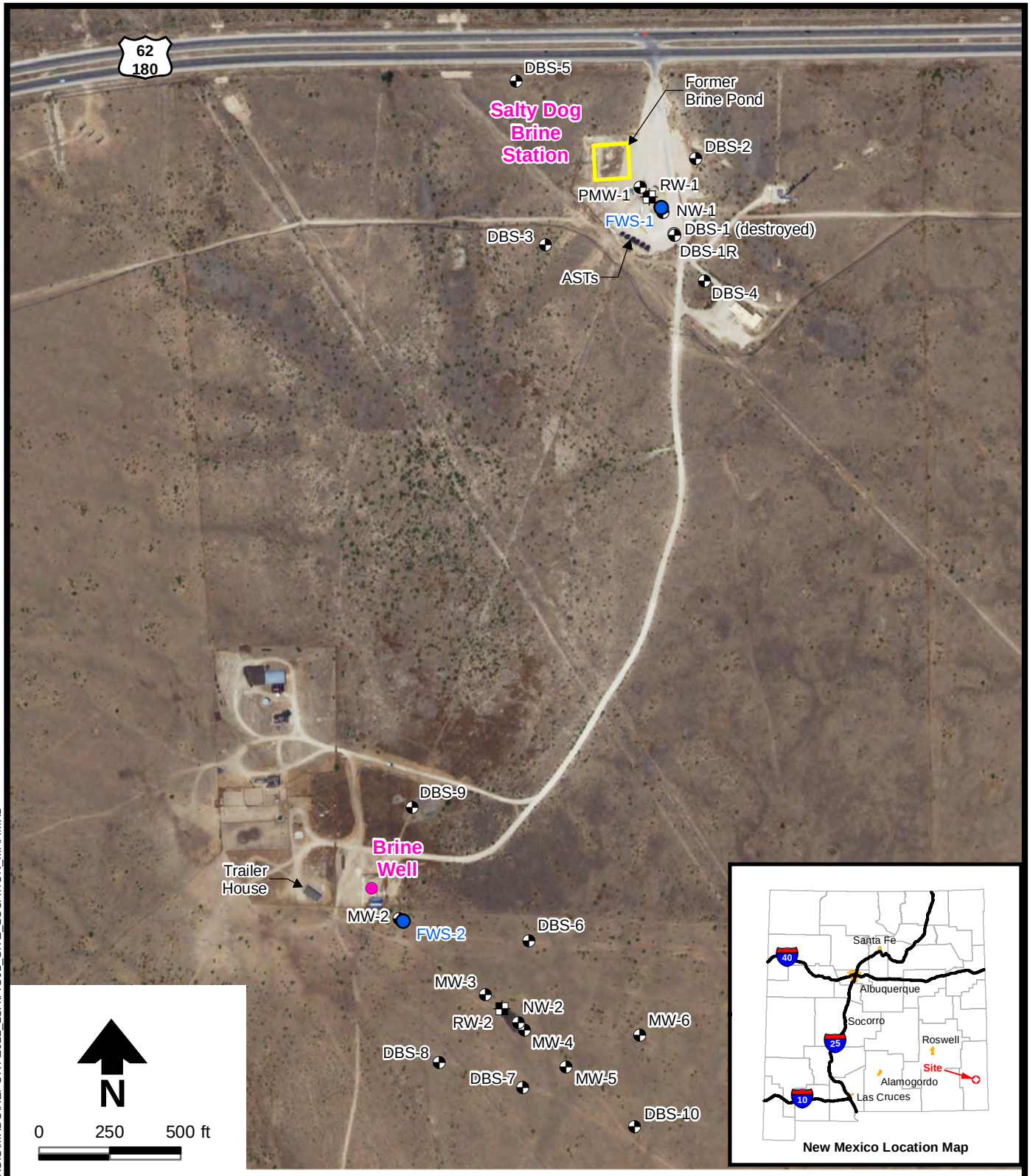
Daniel B. Stephens & Associates (DBS&A). 2009a. *Recovery well installation and pump test report, Salty Dog Brine Station, Lea County, New Mexico*. Prepared for New Mexico Energy, Minerals and Natural Resources Department Oil Conservation Division, Environmental Bureau. November 20, 2009.

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



Note: AST = Aboveground storage tank

Source: Aerial imagery (NAIP, 2022).

Explanation

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

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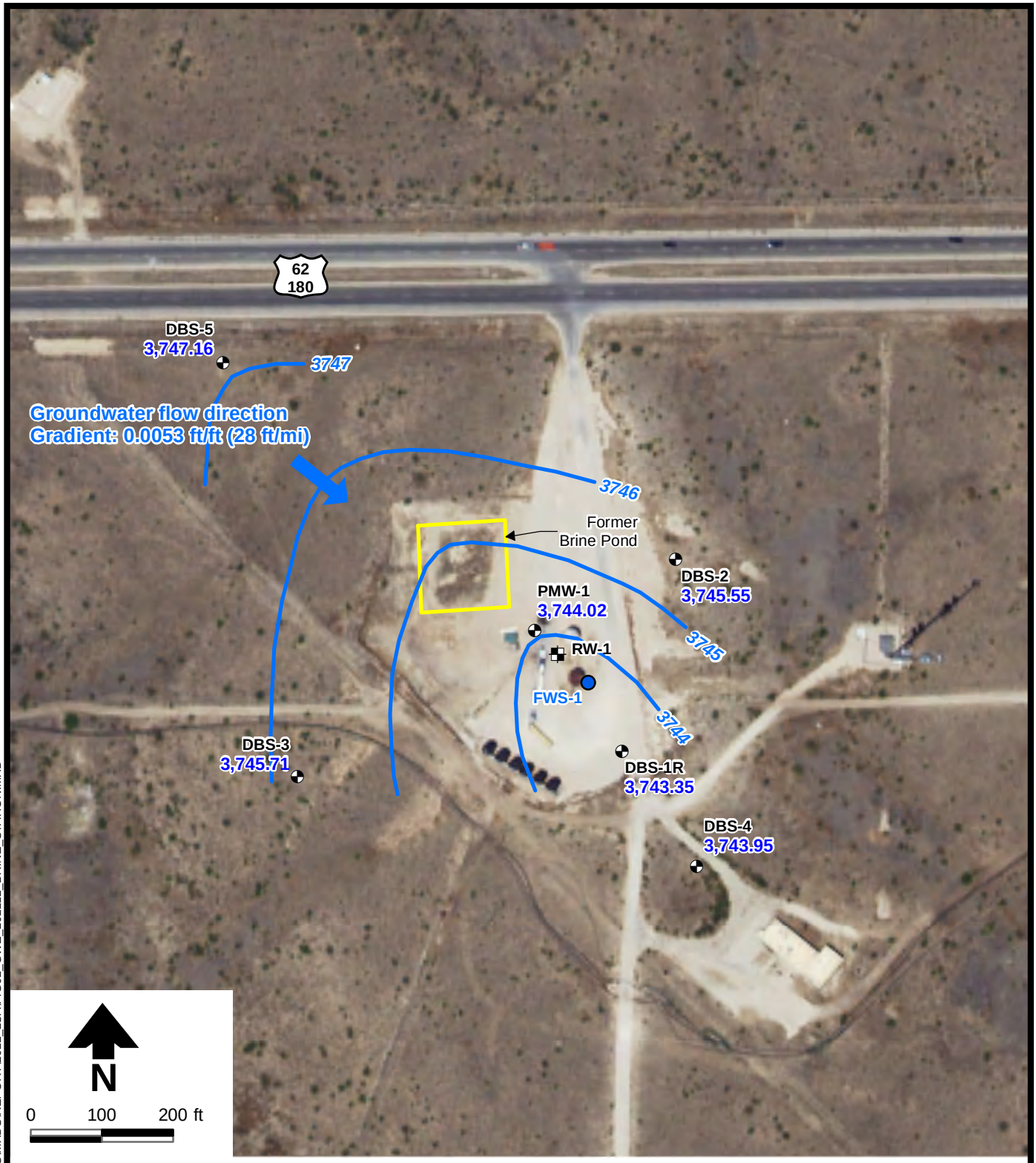
DBS&A a Geo-Logic Company

2/14/2023 DB19.1198

SALTY DOG BRINE STATION

Site Location Map

Figure 1



Explanation

DBS-1R Well designation

3,743.35 Groundwater elevation, ft msl

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

Source: Aerial imagery (NAIP, 2022).

SALTY DOG BRINE STATION

Former Brine Pond Area
Potentiometric Surface Elevations
December 2022

DBS&A a Geo-Logic Company

2/14/2023 DB19.1198

Figure 2

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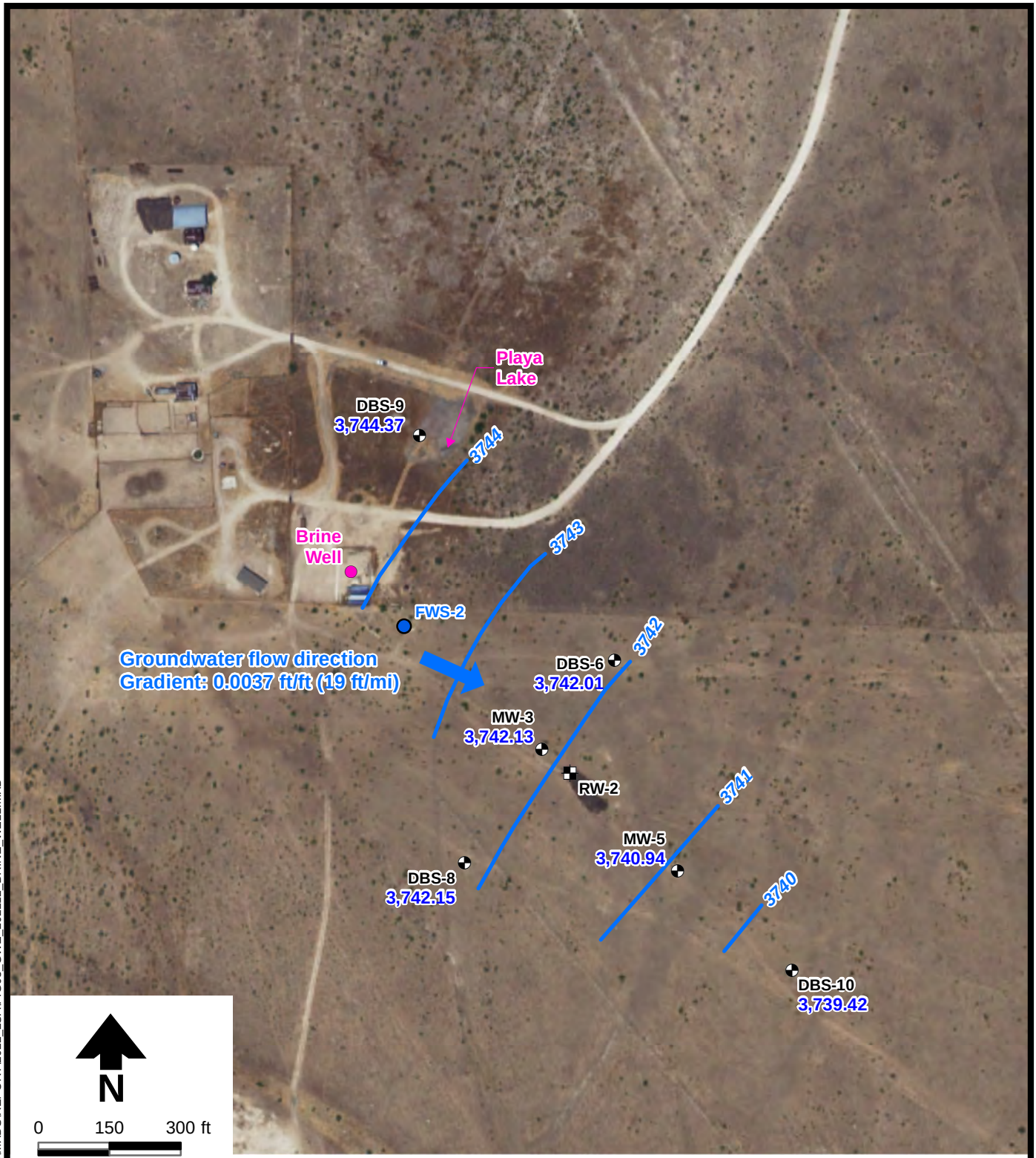

Source: Aerial imagery (NAIP, 2022).

Explanation

MW-3 Well designation

3,742.13 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 December 2022

DBS&A a Geo-Logic Company

4/3/2023 DB19.1198

Figure 3

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Explanation

DBS-3 Well designation

68 Chloride concentration (mg/L)

Monitor well

Fresh water supply well

Recovery well

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

Note: * Insufficient water to sample.

Source: Aerial imagery (NAIP, 2022).

SALTY DOG BRINE STATION

Former Brine Pond Area

Chloride Concentrations in Groundwater

December 2022

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2/14/2023 DB19.1198

Figure 4

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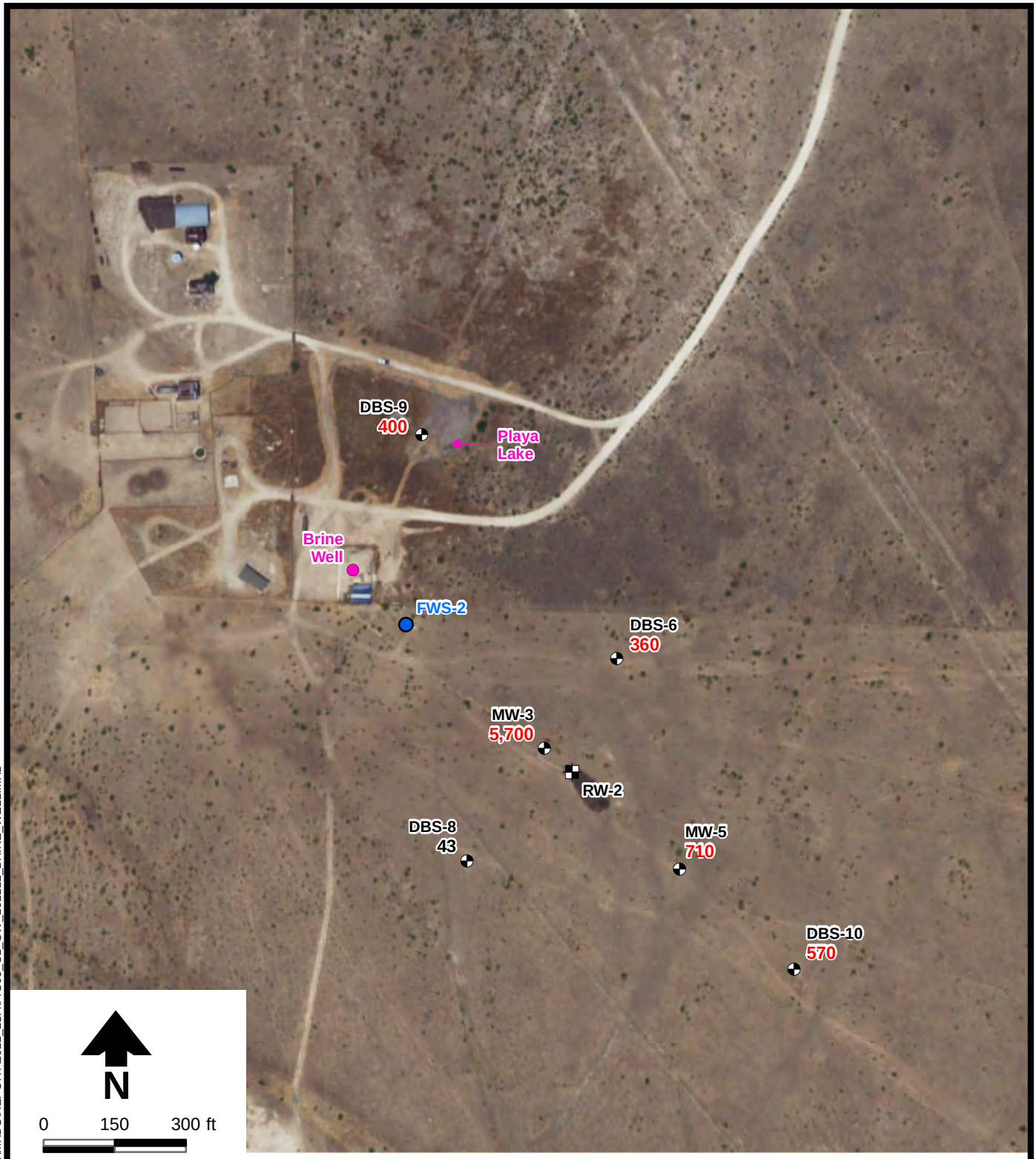

Explanation

DBS-8 Well designation

43 Chloride concentration (mg/L)

Monitor well

Fresh water supply well

Recovery well

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

Source: Aerial imagery (NAIP, 2022).

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2/14/2023 DB19.1198

SALTY DOG BRINE STATION

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

Figure 5

Appendix A

Laboratory Analytical Report

DBS&A
a Geo-Logic Company

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

January 20, 2023

John Ayarbe

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

RE: Salty Dog OrderNo.: 2212E17

Dear John Ayarbe:

Hall Environmental Analysis Laboratory received 12 sample(s) on 12/28/2022 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued January 18, 2023.

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. 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. All samples are reported as received unless otherwise indicated.

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 **2212E17**
Date Reported: **1/20/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc. **Client Sample ID:** DBS-1R
Project: Salty Dog **Collection Date:** 12/23/2022 1:11:00 PM
Lab ID: 2212E17-001 **Matrix:** GROUNDWA **Received Date:** 12/28/2022 9:31:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **NAI**	
Chloride	1200	50	*	mg/L	100	12/30/2022 6:06:57 PM	R93667

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	Above Quantitation Range/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 standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2212E17**
Date Reported: **1/20/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc. **Client Sample ID:** DBS-3
Project: Salty Dog **Collection Date:** 12/23/2022 10:52:00 AM
Lab ID: 2212E17-002 **Matrix:** GROUNDWA **Received Date:** 12/28/2022 9:31:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **NAI**	
Chloride	68	5.0		mg/L	10	12/30/2022 6:19:48 PM	R93667

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	Above Quantitation Range/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 standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2212E17**
Date Reported: **1/20/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc. **Client Sample ID:** DBS-4
Project: Salty Dog **Collection Date:** 12/23/2022 12:07:00 PM
Lab ID: 2212E17-003 **Matrix:** GROUNDWA **Received Date:** 12/28/2022 9:31:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **NAI**	
Chloride	47	5.0		mg/L	10	12/30/2022 7:11:17 PM	A93667

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	Above Quantitation Range/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 standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2212E17**
Date Reported: **1/20/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc. **Client Sample ID:** DBS-5
Project: Salty Dog **Collection Date:** 12/23/2022 11:34:00 AM
Lab ID: 2212E17-004 **Matrix:** GROUNDWA **Received Date:** 12/28/2022 9:31:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **NAI**	
Chloride	230	50		mg/L	100	12/30/2022 8:41:24 PM	A93667

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	Above Quantitation Range/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 standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2212E17**
Date Reported: **1/20/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc. **Client Sample ID:** DBS-6
Project: Salty Dog **Collection Date:** 12/22/2022 3:23:00 PM
Lab ID: 2212E17-005 **Matrix:** GROUNDWA **Received Date:** 12/28/2022 9:31:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **NAI**	
Chloride	360	50	*	mg/L	100	12/30/2022 9:07:06 PM	A93667

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	Above Quantitation Range/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 standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2212E17**
Date Reported: **1/20/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc. **Client Sample ID:** DBS-8
Project: Salty Dog **Collection Date:** 12/22/2022 2:50:00 PM
Lab ID: 2212E17-006 **Matrix:** GROUNDWA **Received Date:** 12/28/2022 9:31:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **NAI**	
Chloride	43	5.0		mg/L	10	12/30/2022 9:19:58 PM	A93667

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	Above Quantitation Range/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 standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2212E17**
Date Reported: **1/20/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc. **Client Sample ID:** DBS-9
Project: Salty Dog **Collection Date:** 12/23/2022 9:56:00 AM
Lab ID: 2212E17-007 **Matrix:** GROUNDWA **Received Date:** 12/28/2022 9:31:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **NAI**	
Chloride	400	50	*	mg/L	100	12/30/2022 9:58:34 PM	A93667

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	Above Quantitation Range/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 standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2212E17**
Date Reported: **1/20/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc. **Client Sample ID:** DBS-10
Project: Salty Dog **Collection Date:** 12/22/2022 11:40:00 AM
Lab ID: 2212E17-008 **Matrix:** GROUNDWA **Received Date:** 12/28/2022 9:31:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **NAI**	
Chloride	570	50	*	mg/L	100	12/30/2022 10:50:03 PM	A93667

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	Above Quantitation Range/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 standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2212E17**
Date Reported: **1/20/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc. **Client Sample ID:** MW-5
Project: Salty Dog **Collection Date:** 12/22/2022 1:48:00 PM
Lab ID: 2212E17-009 **Matrix:** GROUNDWA **Received Date:** 12/28/2022 9:31:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **NAI**	
Chloride	710	50	*	mg/L	100	12/30/2022 11:15:46 PM	A93667

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	Above Quantitation Range/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 standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2212E17**
Date Reported: **1/20/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc. **Client Sample ID:** PMW-1
Project: Salty Dog **Collection Date:** 12/23/2022 1:55:00 PM
Lab ID: 2212E17-010 **Matrix:** GROUNDWA **Received Date:** 12/28/2022 9:31:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **NAI**	
Chloride	12000	500	*	mg/L	1E+	1/5/2023 2:59:27 AM	A93728

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	Above Quantitation Range/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 standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2212E17**
Date Reported: **1/20/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc. **Client Sample ID:** MW-3
Project: Salty Dog **Collection Date:** 12/22/2022 5:32:00 PM
Lab ID: 2212E17-011 **Matrix:** GROUNDWA **Received Date:** 12/28/2022 9:31:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
SPECIFIC GRAVITY						Analyst: **CAS**	
Specific Gravity	1.003	0			1	12/30/2022 5:04:00 PM	R93653
EPA METHOD 300.0: ANIONS						Analyst: **NAI**	
Fluoride	ND	1.0		mg/L	10	12/30/2022 11:54:21 PM	A93667
Chloride	5700	250	*	mg/L	500	1/5/2023 3:12:19 AM	A93728
Bromide	2.4	1.0		mg/L	10	12/30/2022 11:54:21 PM	A93667
Phosphorus, Orthophosphate (As P)	ND	5.0	H	mg/L	10	1/7/2023 1:18:49 AM	A93791
Sulfate	330	5.0	*	mg/L	10	12/30/2022 11:54:21 PM	A93667
Nitrate+Nitrite as N	ND	4.0		mg/L	20	1/10/2023 11:07:42 PM	A93860
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JTT**	
Conductivity	21000	100		µmhos/c	10	1/4/2023 11:58:38 AM	R93716
SM2320B: ALKALINITY						Analyst: **SNS**	
Bicarbonate (As CaCO3)	192.8	20.00		mg/L Ca	1	12/28/2022 7:21:11 PM	A93608
Carbonate (As CaCO3)	ND	2.000		mg/L Ca	1	12/28/2022 7:21:11 PM	A93608
Total Alkalinity (as CaCO3)	192.8	20.00		mg/L Ca	1	12/28/2022 7:21:11 PM	A93608
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **SNS**	
Total Dissolved Solids	11200	200	*D	mg/L	1	12/30/2022 4:07:00 PM	72374
SM4500-H+B / 9040C: PH						Analyst: **SNS**	
pH	7.56		H	pH units	1	12/28/2022 7:21:11 PM	R93608
EPA METHOD 200.7: TOTAL METALS						Analyst: **VP**	
Calcium	910	10		mg/L	10	1/9/2023 6:49:07 PM	72387
Magnesium	130	5.0		mg/L	5	1/9/2023 6:45:40 PM	72387
Potassium	17	1.0		mg/L	1	1/3/2023 3:02:27 PM	72387
Sodium	2400	50		mg/L	50	1/12/2023 1:19:00 PM	72387

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	Above Quantitation Range/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 standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2212E17**
Date Reported: **1/20/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc. **Client Sample ID:** Brine
Project: Salty Dog **Collection Date:** 12/23/2022 1:55:00 PM
Lab ID: 2212E17-012 **Matrix:** AQUEOUS **Received Date:** 12/28/2022 9:31:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
SPECIFIC GRAVITY						Analyst: **CAS**	
Specific Gravity	1.192	0			1	12/30/2022 5:04:00 PM	R93653
EPA METHOD 300.0: ANIONS						Analyst: **NAI**	
Chloride	180000	5000	*	mg/L	1E+	1/5/2023 3:25:11 AM	A93728
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **SNS**	
Total Dissolved Solids	320000	2000	*D	mg/L	1	12/30/2022 4:07:00 PM	72374
SM4500-H+B / 9040C: PH						Analyst: **SNS**	
pH	7.09		H	pH units	1	12/28/2022 7:43:49 PM	R93608
EPA METHOD 200.7: TOTAL METALS						Analyst: **VP**	
Sodium	95000	1000		mg/L	1E+	1/13/2023 11:14:02 AM	72387

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 standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Pace Analytical®

ANALYTICAL REPORT

January 05, 2023

Hall Environmental Analysis Laboratory

Sample Delivery Group:	L1571472
Samples Received:	12/29/2022
Project Number:	
Description:	

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

Entire Report Reviewed By: John V Hawkins

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

2212E17-011C L1571472-01 GW			Collected by	Collected date/time 12/22/22 17:32	Received date/time 12/29/22 09:00	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2580	WG1983561	1	01/05/23 13:51	01/05/23 13:51	ARD	Mt. Juliet, TN

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

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 Hawkins
Project Manager

2212LM-011C
Collected date/time: 12/22/22 17:32

SAMPLE RESULTS - 01

L1571472

Wet Chemistry by Method 2580

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	mV			date / time	
ORP	300	T8	1	01/05/2023 13:51	WG1983561

L1570777-15 Original Sample (OS) • Duplicate (DUP)

(OS) L1570777-15 01/05/23 13:51 • (DUP) R3878319-3 01/05/23 13:51

Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	DUP Qualifier	DUP Diff Limits mV
ORP	372	369	1	3.00		20

L1570777-16 Original Sample (OS) • Duplicate (DUP)

(OS) L1570777-16 01/05/23 13:51 • (DUP) R3878319-4 01/05/23 13:51

Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	DUP Qualifier	DUP Diff Limits mV
ORP	371	371	1	0.000		20

L1571472-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1571472-01 01/05/23 13:51 • (DUP) R3878319-5 01/05/23 13:51

Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	DUP Qualifier	DUP Diff Limits mV
ORP	300	301	1	0.200		20

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

(LCS) R3878319-1 01/05/23 13:51 • (LCSD) R3878319-2 01/05/23 13:51

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	98.0	99.4	94.1	101	96.0	90.0-110			5.30	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

J037

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975
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					

L157472

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS
1	2212E17-011C	MW-3	125HDP	Groundwater	12/22/2022 5:32:00 PM	1	Oxidation Reduction Potential

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		
Sufficient volume sent:	Y N		
RAD Screen <0.5 mR/hr:	Y N		

0201 7708 9777 3873

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:	Date: 12/28/2022	Time: 10:23 AM	Received By:	Date: 12/29/22	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 2.5+0=2.5 °C KFM Attempt to Cool ?
Comments:

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2212E17**

20-Jan-23

Client: Daniel B. Stephens & Assoc.

Project: Salty Dog

Sample ID: **MB-72387**	SampType: **MBLK**	TestCode: **EPA Method 200.7: Total Metals**
Client ID: **PBW**	Batch ID: **72387**	RunNo: **93679**
Prep Date: **12/30/2022**	Analysis Date: **1/3/2023**	SeqNo: **3381321** 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: **LCSLL-72387**	SampType: **LCSLL**	TestCode: **EPA Method 200.7: Total Metals**
Client ID: **BatchQC**	Batch ID: **72387**	RunNo: **93679**
Prep Date: **12/30/2022**	Analysis Date: **1/3/2023**	SeqNo: **3381322** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0	0.5000	0	103	50	150			
Magnesium	ND	1.0	0.5000	0	107	50	150			
Potassium	ND	1.0	0.5000	0	103	50	150			
Sodium	ND	1.0	0.5000	0	106	50	150			

Sample ID: **LCS-72387**	SampType: **LCS**	TestCode: **EPA Method 200.7: Total Metals**
Client ID: **LCSW**	Batch ID: **72387**	RunNo: **93679**
Prep Date: **12/30/2022**	Analysis Date: **1/3/2023**	SeqNo: **3381323** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	51	1.0	50.00	0	101	85	115			
Magnesium	52	1.0	50.00	0	103	85	115			
Potassium	50	1.0	50.00	0	100	85	115			
Sodium	50	1.0	50.00	0	100	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/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 standard limits. If undiluted results may be estimated.		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2212E17**

20-Jan-23

Client: Daniel B. Stephens & Assoc.

Project: Salty Dog

Sample ID: **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R93667**	RunNo: **93667**
Prep Date:	Analysis Date: **12/30/2022**	SeqNo: **3380579** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Sample ID: **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R93667**	RunNo: **93667**
Prep Date:	Analysis Date: **12/30/2022**	SeqNo: **3380580** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	5.0	0.50	5.000	0	100	90	110			

Sample ID: **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **A93667**	RunNo: **93667**
Prep Date:	Analysis Date: **12/30/2022**	SeqNo: **3380620** 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								
Sulfate	ND	0.50								

Sample ID: **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **A93667**	RunNo: **93667**
Prep Date:	Analysis Date: **12/30/2022**	SeqNo: **3380621** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.50	0.10	0.5000	0	100	90	110			
Chloride	5.1	0.50	5.000	0	102	90	110			
Bromide	2.6	0.10	2.500	0	104	90	110			
Sulfate	10	0.50	10.00	0	102	90	110			

Sample ID: **2212E17-004AMS**	SampType: **ms**	TestCode: **EPA Method 300.0: Anions**
Client ID: **DBS-5**	Batch ID: **A93667**	RunNo: **93667**
Prep Date:	Analysis Date: **12/30/2022**	SeqNo: **3380627** 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	109	78.6	114			
Bromide	28	1.0	25.00	1.422	105	89.4	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 standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/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#: **2212E17**

20-Jan-23

Client: Daniel B. Stephens & Assoc.

Project: Salty Dog

Sample ID: **2212E17-004AMSD**	SampType: **msd**	TestCode: **EPA Method 300.0: Anions**
Client ID: **DBS-5**	Batch ID: **A93667**	RunNo: **93667**
Prep Date:	Analysis Date: **12/30/2022**	SeqNo: **3380628** 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	109	78.6	114	0.147	20	
Bromide	28	1.0	25.00	1.422	105	89.4	110	0.0254	20	

Sample ID: **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **A93728**	RunNo: **93728**
Prep Date:	Analysis Date: **1/4/2023**	SeqNo: **3383396** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Sample ID: **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **A93728**	RunNo: **93728**
Prep Date:	Analysis Date: **1/4/2023**	SeqNo: **3383397** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	96.0	90	110			

Sample ID: **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **A93791**	RunNo: **93791**
Prep Date:	Analysis Date: **1/6/2023**	SeqNo: **3386005** Units: **mg/L**

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

Sample ID: **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **A93791**	RunNo: **93791**
Prep Date:	Analysis Date: **1/6/2023**	SeqNo: **3386006** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phosphorus, Orthophosphate (As P)	4.7	0.50	5.000	0	93.2	90	110			

Sample ID: **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **A93860**	RunNo: **93860**
Prep Date:	Analysis Date: **1/10/2023**	SeqNo: **3388320** Units: **mg/L**

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

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 standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/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#: **2212E17**

20-Jan-23

Client: Daniel B. Stephens & Assoc.

Project: Salty Dog

Sample ID: **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **A93860**	RunNo: **93860**							
Prep Date:	Analysis Date: **1/10/2023**	SeqNo: **3388321**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N	3.4	0.20	3.500	0	96.3	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/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 standard limits. If undiluted results may be estimated.		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2212E17**

20-Jan-23

Client: Daniel B. Stephens & Assoc.

Project: Salty Dog

Sample ID:	**lcs-1 99.4uS eC**	SampType:	**LCS**	TestCode:	**SM2510B: Specific Conductance**					
Client ID:	**LCSW**	Batch ID:	**R93716**	RunNo:	**93716**					
Prep Date:		Analysis Date:	**1/4/2023**	SeqNo:	**3382829**	Units:	**µmhos/cm**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	100	10	99.40	0	101	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 standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/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#: **2212E17**

20-Jan-23

Client: Daniel B. Stephens & Assoc.

Project: Salty Dog

Sample ID: **2212E17-011A DUP**	SampType: **dup**	TestCode: **SM4500-H+B / 9040C: pH**							
Client ID: **MW-3**	Batch ID: **R93608**	RunNo: **93608**							
Prep Date:	Analysis Date: **12/28/2022**	SeqNo: **3377830**	Units: **pH units**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
pH	7.54							0.265		H

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/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 standard limits. If undiluted results may be estimated.		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2212E17**

20-Jan-23

Client: Daniel B. Stephens & Assoc.

Project: Salty Dog

Sample ID: **mb-2 alk**	SampType: **mblk**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **A93608**	RunNo: **93608**							
Prep Date:	Analysis Date: **12/28/2022**	SeqNo: **3377798**	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: **A93608**	RunNo: **93608**							
Prep Date:	Analysis Date: **12/28/2022**	SeqNo: **3377799**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	78.88	20.00	80.00	0	98.6	90	110			

Sample ID: **2212E17-011A DUP**	SampType: **dup**	TestCode: **SM2320B: Alkalinity**							
Client ID: **MW-3**	Batch ID: **A93608**	RunNo: **93608**							
Prep Date:	Analysis Date: **12/28/2022**	SeqNo: **3377807**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	193.1	20.00						0.166	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 standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/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#: **2212E17**

20-Jan-23

Client: Daniel B. Stephens & Assoc.

Project: Salty Dog

Sample ID: **MB-72374**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **72374**	RunNo: **93734**
Prep Date: **12/29/2022**	Analysis Date: **12/30/2022**	SeqNo: **3383491** 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-72374**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **72374**	RunNo: **93734**
Prep Date: **12/29/2022**	Analysis Date: **12/30/2022**	SeqNo: **3383492** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	992	20.0	1000	0	99.2	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/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 standard limits. If undiluted results may be estimated.		

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: 2212E17 | RcptNo: 1

Received By: Cheyenne Cason 12/28/2022 9:31:00 AM

Completed By: Tracy Casarrubias 12/28/2022 10:01:28 AM

Reviewed By: 12/28/22

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: 4 (<2 or >12 unless noted)

Adjusted? NO

Checked by: JM 12/28/22

Special Handling (if applicable)

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

Person Notified:	John Ayarbe	Date:	12/28/2022
By Whom:	Tracy Casarrubias	Via:	☐ eMail ☑ Phone ☐ Fax ☐ In Person
Regarding:	Anion Analysysis on sample 011.		
Client Instructions:	I did got get a response. Voice mail was left.		

16. Additional remarks:

COC incomplete. Address not filled in correctly. - TMC 12/28/22

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	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 #: DB19.1198.00 Ph 8 T2

Project Manager: John Ayarbe

Sampler: York Morgan

On Ice: ☒ Yes ☐ No

# of Coolers: 1 IR Yogi

Cooler Temp(Including CF): 1.0-0=1.0 (°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. 2212E12E17	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
12-23-22	1314	GW	DBS-1R	1 Plastic	None	001											X
"	1052		DBS-3			002											X
"	1217		DBS-4			003											X
"	1134		DBS-5			004											X
12-22-22	1523		DBS-6			005											X
"	1450		DBS-8			006											X
12-23-22	0956		DBS-9			007											X
12-22-22	1140		DBS-10			008											X
12-22-22	1348		MW-5			009											X
12-23-22	1355		PMW-1			010											X
			York Morgan														

Date	Time	Relinquished by	Received by	Via	Date	Time
12-27-22	1510			UPS Store - Hobbs		
				UPS	12/28/22	0931

Remarks: Page 1 of 2

Chain-of-Custody Record

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

Client: DBS+A

Mailing Address:

Phone #:

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 #:

Project Manager: J Ayarbe

Sampler: Y Bozan

On Ice: ☒ Yes ☐ No

# of Coolers: 1 IR Yogi

Cooler Temp(including CF): 1.0-0=1.0 (°C)

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2212E17
12-20-22	1732	GW	MW-3	4 plastic	Varies	011
12-20-22	1353	GW	Brine	3 plastic	Varies	012

Analysis Request

Sample Name	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_4 300.0	~~8260 (VOA)~~ ORP	8270 (Semi-VOA)	Total Coliform (Present/Absent)	Specific gravity, TDS, pH	Cl only 300.0	Sodium 6010B	Specific Conductance	Ca, Mg, K, Na 6010B	Total alkalinity, Bicarbonate, Carbonate
MW-3							X	X			X			X	X	X
Brine											X	X	X			

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
12-22-22	1610	Yogi Bozan	UPS Store-Hobbs			
Date:	Time:	Relinquished by:	Received by: Carrie	Via: UPS	12/28/22	0931

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: 12-22-22

Project Manager: John Ayarbe Sheet # 1 of 1

Brine

1355 12-23-22

Time	Well ID	previous (06/22)	Depth to Water	Total Depth	Comments: (well dia., sampled, condition)
1010	DBS-1R	72.80	73.65	74.42	12-23 13:11
1021	DBS-2	74.89	74.95	75.35	No Sample/Almost dry —
1037	DBS-3	69.57	70.95	74.76	1052 12-23
1028	DBS-4	75.30	76.42	78.81	1217 12-23
0950	DBS-5	71.99	73.50	75.38	12-23 1134
1453	DBS-6	69.79	70.64	76.02	1523 12/22
1354	DBS-7	68.29	69.07		WL only —
1356	DBS-8	67.84	68.55	69.91	12/22 1450
1057	DBS-9	60.95	61.89	67.55	12/23 0956
1118	DBS-10	67.28	68.06	78.11	12/22 1440
1531	MW-2	68.46	69.22	=	WL only —
1533	MW-3	70.60	69.92	147.13	4 Containers 1732 12/22
1450	MW-4	70.44	69.84		WL only —
1215	MW-5	67.59	68.02	128.78	12/22 1348
1211	MW-6	69.04	69.77		WL only —
1016	PMW-1	75.97	77.15	77.73	12/23 1355

Comments: - FWS-2 has no tablizer. New electrical & plumbing since last visit. Frozen valve @ top of well head.

- 5299904 bbl @ 1325 on Fresh water station 10/23/22 No Sample - line is frozen

Daniel B. Stephens & Associates, Inc.

GROUNDWATER MONITORING DATA SHEET

Project Name: Salty Dog Sampler: York Morgan

Project #: DB19.1198.00 Sample Date: 12-23-22

Project Manager: John Ayarbe Sample Time: 13:11

Well #: DBS-1R

Well Diameter: 2" (inches) Height of Water Column: 0.27 (feet)

Depth to NAPL: --- (feet btoc) Casing Volume: 0.12 (gal)

Depth to Water: 73.65 (feet btoc) Purge Volume: 0.37 (gal)

Total Depth of Well: 74.42 (feet) Purge Method: Grab 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)
12:58	Initial	7.45	15.5	3928	110.6	~~15.4~~ 10.08	very
1302	1	7.43	17.0	3807	112.9	9.70	"
1307	2	7.39	16.5	3718	117.0	9.50	"
13:11	3	7.37	17.6	3581	118.8	8.62	"

Sample Description: 1 poly

Physical Observations:

Analytical Method(s): Chloride

T:\Admin\Templates\Att 1.5-1_GROUNDWATER MONITORING DATA SHEET_rev1.pdf

Daniel B. Stephens & Associates, Inc.

GROUNDWATER MONITORING DATA SHEET

Project Name: Salty Dog Sampler: York Morgan

Project #: DB19.1198.00 Sample Date: 12-23-22

Project Manager: John Ayarbe Sample Time: N/A

Well #: DBS-2

Well Diameter: 2" (inches) Height of Water Column: 0.4' (feet)

Depth to NAPL: --- (feet btoc) Casing Volume: 0.06 (gal)

Depth to Water: 74.95 (feet btoc) Purge Volume: 0.2 (gal)

Total Depth of Well: 75.35 (feet) Purge Method: Grab 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)	Conductivity (µS/cm)	ORP (mv)	D.O. (mg/L)	Turbidity (NTU)
1230 Initial	Not enough water to Sample					
1						
2						
3						

Sample Description: ~~1 poly~~ N/A

Physical Observations: Bailer keeps coming up dry - No water to Sample

Analytical Method(s): ~~Chloride~~

Daniel B. Stephens & Associates, Inc.

GROUNDWATER MONITORING DATA SHEET

Project Name: Salty Dog Sampler: York Morgan

Project #: DB19.1198.00 Sample Date: 12.23.22

Project Manager: John Ayarbe Sample Time: 1052

Well #: DBS-3

Well Diameter: 2" (inches) Height of Water Column: ~~12.87~~ 3.81 (feet)

Depth to NAPL: --- (feet btoc) Casing Volume: ~~2.06~~ 0.61 (gal)

Depth to Water: ~~70.95~~ 71.89 (feet btoc) Purge Volume: ~~6.18~~ 1.82 (gal)

Total Depth of Well: 74.76 (feet) Purge Method: Grab 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 7.69	Temp (°C)	Conductivity (µS/cm)	ORP (mv)	D.O. (mg/L)	Turbidity (NTU)
1030	Initial	~~12.3~~	12.3	672	100.4	11.91	moderate
1038	1	7.70	17.0	615	83.2	8.38	very
1045	2	7.67	13.7	648	95.9	11.88	"
1052	3	7.72	15.8	608	78.2	9.02	"

Sample Description: 1 poly

Physical Observations: very turbid, short WC

Analytical Method(s): Chloride

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Daniel B. Stephens & Associates, Inc.

GROUNDWATER MONITORING DATA SHEET

Project Name: Salty Dog
Sampler: York Morgan
Project #: DB19.1198.00
Sample Date: 12-23-22
Project Manager: John Ayarbe
Sample Time: 1217

Well #: DBS-4

Well Diameter: 2" (inches)
Height of Water Column: 2.39 (feet)
Depth to NAPL: --- (feet btoc)
Casing Volume: 0.38 (gal)
Depth to Water: 76.42 (feet btoc)
Purge Volume: 1.15 (gal)
Total Depth of Well: 78.81 (feet)
Purge Method: Grab 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)
1155	Initial	7.61	17.7	591	111.8	8.60	Moderate
1204	1	7.53	18.0	585	114.7	8.73	very
1210	2	~~7.75~~ 7.56	17.5	582	114.4	8.88	"
1217	3	~~7.73~~	17.3	579	113.1	8.78	"
		7.53					

Sample Description: 1 poly

Physical Observations:

Analytical Method(s): Chloride

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Daniel B. Stephens & Associates, Inc.

GROUNDWATER MONITORING DATA SHEET

Project Name: Salty Dog Sampler: York Morgan

Project #: DB19.1198.00 Sample Date: 12-23-22

Project Manager: John Ayarbe Sample Time: 1134

Well #: DBS-5

Well Diameter: 2" (inches) Height of Water Column: 1.88 (feet)

Depth to NAPL: --- (feet btoc) Casing Volume: 0.3 (gal)

Depth to Water: 73.50 (feet btoc) Purge Volume: 0.9 (gal)

Total Depth of Well: 75.38 (feet) Purge Method: Grab 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)~~	Conductivity (µS/cm)	ORP (mv)	D.O. (mg/L)	Turbidity (NTU)
1113	Initial	7.49	10.7	1556	113.6	10.77	very
1120	1	7.46	13.3	1540	113.6	10.45	"
1129	2	7.41	17.1	1652	115.5	7.05	"
1134	3	7.49	15.8	1446	99.0	8.33	"

Sample Description: 1 poly

Physical Observations:

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: York Morgan
Sample Date: 12-22-22
Sample Time: 1523

Well #: DBS-6

Well Diameter: 2" (inches) Height of Water Column: 5.38 (feet)
Depth to NAPL: --- (feet btoc) Casing Volume: 0.86 (gal)
Depth to Water: 70.64 (feet btoc) Purge Volume: 2.6 (gal)
Total Depth of Well: 76.02 (feet) Purge Method: Grab 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)~~	Conductivity (µS/cm)	ORP (mv)	D.O. (mg/L)	Turbidity (NTU)
1503	Initial	7.16	17.7	1458	124.9	6.11	very
1511	1	7.22	17.7	1568	118.1	5.65	very
1517	2	7.23	18.0	1600	116.0	5.99	"
1523	3	7.24	17.6	1598	116.7	5.71	"

Sample Description: 1 poly Turbid

Physical Observations: Short WC

Analytical Method(s): Chloride

Daniel B. Stephens & Associates, Inc.

GROUNDWATER MONITORING DATA SHEET

Project Name: Salty Dog
Sampler: York Morgan
Project #: DB19.1198.00
Sample Date: 12-22-22
Project Manager: John Ayarbe
Sample Time: 1450

Well #: DBS-8

Well Diameter: 2" (inches) Height of Water Column: 1.36 (feet)
Depth to NAPL: --- (feet btoc) Casing Volume: 0.22 (gal)
Depth to Water: 68.55 (feet btoc) Purge Volume: 0.66 (gal)
Total Depth of Well: 69.91 (feet) Purge Method: Grab 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)~~	Conductivity (µS/cm)	ORP (mv)	D.O. (mg/L)	Turbidity (NTU)
1422	Initial	7.43	11.7	712	101.7	6.47	very
1433	1	7.37	15.7	637	106.9	5.84	"
1442	2	7.36	17.7	618	108.7	5.70	"
1450	3	7.36	17.2	616	109.0	5.36	"

Sample Description: 1 poly

Physical Observations: Very turbid. very short water column - going dry while purging - but recovers quickly. Doing because meter froze & quit working. Had to move it inside warm truck.

Analytical Method(s): Chloride

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Daniel B. Stephens & Associates, Inc.

GROUNDWATER MONITORING DATA SHEET

Project Name: Salty Dog Sampler: York Morgan

Project #: DB19.1198.00 Sample Date: 12-23-22

Project Manager: John Ayarbe Sample Time: 0956

Well #: DBS-9

Well Diameter: 2" (inches) Height of Water Column: 5.66 (feet)

Depth to NAPL: --- (feet btoc) Casing Volume: 0.9 (gal)

Depth to Water: 61.89 (feet btoc) Purge Volume: 2.75 (gal)

Total Depth of Well: 67.55 (feet) Purge Method: Grab 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)
0930	Initial	7.95	9.7°	3824	65.0	10.67	Slight
0938	1	8.07 ~~14.6~~	14.6	2163	83.8	12.04	Very
0948	2	7.72	16.7	1648	103.1	9.48	"
0956	3	7.58	16.4	1700	113.7	9.88	"

Sample Description: 1 poly

Physical Observations: Turbid, Sheet WC
WL meter Frozen

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: York Morgan
Sample Date: 12.22.22
Sample Time: 1145

Well #: DBS-10

Well Diameter: 2" (inches) Height of Water Column: 10.05 (feet)
Depth to NAPL: --- (feet btoc) Casing Volume: 1.61 (gal)
Depth to Water: 68.06 (feet btoc) Purge Volume: 4.82 (gal)
Total Depth of Well: 78.11 (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)	Conductivity (µS/cm)	ORP (mv)	D.O. (mg/L)	Turbidity (NTU)
1130 Initial	6.95	15.5	2184	121.1	6.12	Very
1124 1	6.76	15.5	2145	128.8	6.03	"
1130 2	6.84	18.0	2183	128.3	5.32	"
1140 3	6.90	18.1	2173	127.3	6.27	"

Sample Description: 1 poly

Physical Observations: Turbid, pen/rope/YSI Freezing during use

Analytical Method(s): Chloride

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Daniel B. Stephens & Associates, Inc.

GROUNDWATER MONITORING DATA SHEET

Project Name: Salty Dog Sampler: York Morgan

Project #: DB19.1198.00 Sample Date: 12-22-22

Project Manager: John Ayarbe Sample Time: 1732

Well #: MW-3

Well Diameter: 2" (inches) Height of Water Column: 77.21 (feet)

Depth to NAPL: --- (feet btoc) Casing Volume: 12.36 (gal)

Depth to Water: 69.92 (feet btoc) Purge Volume: 37.06 (gal)

Total Depth of Well: 147.13 (feet) Purge Method: Grab Poly Bailer 84"

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) 2038	ORP (mv)	D.O. (mg/L)	Turbidity (NTU)
1534	Initial	7.55	16.1	~~9.94~~	107.4	5.71	None
1606	1	7.57	15.6	~~4.87~~ 2611	104.2	4.83	None
1641	2	7.11	19.0	12018	108.8	4.79	"
1737	3	7.26	18.2	16247	109.5	6.54	"

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

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: York Morgan

Project #: DB19.1198.00 Sample Date: 12-22-22

Project Manager: John Ayarbe Sample Time: 1348

Well #: MW-5

Well Diameter: 2" (inches) Height of Water Column: 60.76 (feet)

Depth to NAPL: --- (feet btoc) Casing Volume: 9.72 (gal)

Depth to Water: 68.02 (feet btoc) Purge Volume: 29.2 (gal)

Total Depth of Well: 128.78 (feet) Purge Method: Grab Poly Bailer 84"

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)
1246	Initial	7.88	15.5	2021	115.0	6.23	None
1240	1	7.18	12.2	2257	118.3	7.27	"
1321	2	7.09	15.3	2269	126.4	8.21	"
1378	3	7.14	15.1	2530	103.2	6.29	"

Sample Description: 1 poly

Physical Observations: Non-turb'd

Analytical Method(s): Chloride

Daniel B. Stephens & Associates, Inc.

GROUNDWATER MONITORING DATA SHEET

Project Name: Salty Dog Sampler: York Morgan

Project #: DB19.1198.00 Sample Date: 12-23-22

Project Manager: John Ayarbe Sample Time: 1355

Well #: PMW-1

Well Diameter: 2" (inches) Height of Water Column: 0.58 (feet)

Depth to NAPL: --- (feet btoc) Casing Volume: 0.09 (gal)

Depth to Water: 77.15 (feet btoc) Purge Volume: 0.28 (gal)

Total Depth of Well: 77.73 (feet) Purge Method: Grab 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)	Conductivity (µS/cm)	ORP (mv)	D.O. (mg/L)	Turbidity (NTU)
1355 Initial	N/A					
1						
2						
3						

Sample Description: 1 poly - @ 30% Full
Not Enough water in " " for Field parameters to fill 1 Sample Container

Physical Observations:

Analytical Method(s): Chloride

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Daniel B. Stephens & Associates, Inc.

GROUNDWATER MONITORING DATA SHEET

Project Name: Salty Dog Sampler: York Morgan

Project #: DB19.1198.00 Sample Date: 12-23-22

Project Manager: John Ayarbe Sample Time: 1340

Well #: 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: — (gal)

Total Depth of Well: — (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)
1340 Initial	6.31	16.6	239714	159.6	0.73	None
1						
2						
3						

Sample Description: 3 poly – grab @ truck fill valve. Previous location @ well head of brine well has wires & hazards from heater, light, freezing

Physical Observations: yesterday

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

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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: 12.23.22

Project Manager: John Ayarbe Sample Time: N/A

Well #: 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: (gal)

Total Depth of Well: (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						
1						
2						
3						

Sample Description: ~~2 poly~~ No sample, valve & hose are locked and frozen solid - high temp today is 21°F Jason confirmed no other place to grab sample

Physical Observations:

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

Daniel B. Stephens & Associates, Inc.

GROUNDWATER METER CALIBRATION SHEET

Project Name: Salty Dog
Project #: DB19.1198
Project Manager: J. Agarbe

Sampler: Y. Magaña
Date: 12-22-22
12-23-22

pH	Temp (°C)	Comments
(4)		
(7) 7.03	+5.3	
(10)		
SpCon (µs/cm)	Temp (°C)	Comments
(1413) 1400 → 1413	+4.2	
ORP (mv)	Temp (°C)	Comments
214.1 → 220	+6.0	
Dissolved O_2	Temp (°C)	Comments
(%) —	—	Water inside sensor Frozen
(mg/L)		
Pressure	Temp (°C)	Comments
(mmHg)		

Comments: Difficulty w/ Freezing solutions

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Tailgate Safety Meeting

Daniel B. Stephens & Associates, Inc.

Project ID: Salty Dog
Location: Hobbs NM
Project Manager: J. Ayoke
Health & Safety Officer: Y. Morgan
Day: Thurs / Fri
Date: 12-22-22 / 12-23-22
Team Leader: Y. Morgan
No. of Personnel Present: 1

Check Topics Discussed

Scheduled Activities: GWM

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

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:
- Address: Hobbs
- Tel. No.: 911

Safety Meeting Attendees:

Name	Signature	Name	Signature
York Morgan	York Morgan		
York Morgan	York Morgan		

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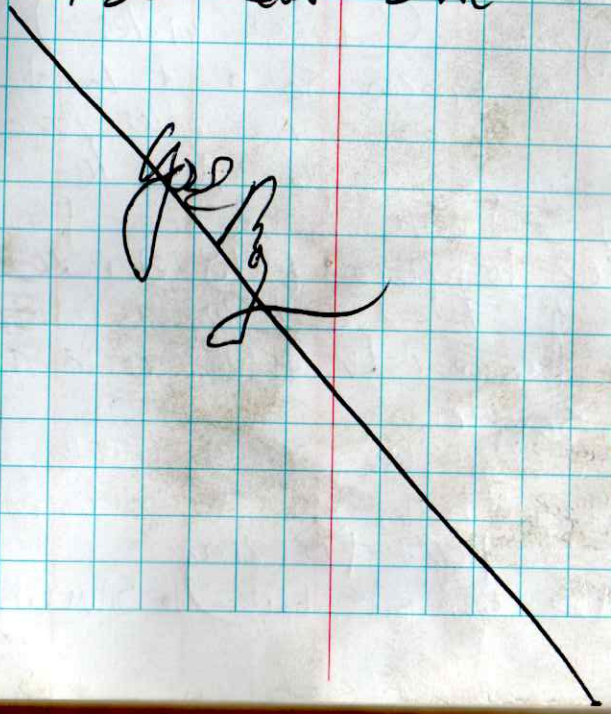
Salty Dog — Y. Morgan — 12-22-22

- 9° – 25° winds 20 mph, clear, windchill = -2°F
- Late start due to cold
- 0830 – ice for samples, fuel, dep in Hobbs
- 0900 – Arrive onsite – Tailgate Safety, paperwork organized
- Call Jason – no news
- Big pools of ~~water~~ ice onsite appear to be fresh water
- Calib rate pH meter –
- Gauge wells
- 2 Standard personal are putting heater inside pump building @ Brine well. Pipes are totally frozen. Not pumping
- Unforeseen issues w/ windchill:
  - GW turns to ice on gloves, rope, paperwork
  - pens freezing
  - pH meter difficult to calibrate/use
  - hands numb in seconds
- using 84' poly bailers & work w/ high purge volumes
- Frequent breaks to thaw hands
- pH meter quit working – too cold Delayed – moved to inside warm truck

Salty Dog — Y Morgan — Cont. 12-22-22

- Gauged all wells
- Sampled 5 wells including the 2 w/ large purge volumes
- weather – relatively delays cold day.
- Checked Brine well house at end of day – heater & light set up inside – It is pumping again. Crew worked on it most of the day
- 1750 – Leave site



Salty Dog   V. Morgan   12-23-22

0830 - check out of hotel - late waiting for temps to climb
- Low 8° high 25°
- Check calibration on meter - good. Doing w/ frozen cal. solution
- Tailgate safety
- Can not find flow meter anywhere around brine station
- DBS-2 - not enough water to sample. Nearly dry. No sample. Several other wells are similar
- Injection ("Fresh water") line is frozen solid & locked. Called Jason - no other place to get a sample. Also, he confirmed there is no other flow meter to replace FWS-2 meter
* Let him know & he will reinstall a flow meter & whatever we need. No sample
- Very short WCs @ some wells. Sand in bailers from bottom of wells. Kept freezing
- 1430 - leave site back to Silver City

Appendix C

Historical Data

Table C-1. Historical Fluid Level Measurements
Page 1 of 12

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	4/8/2009	62.38	3,754.71
			5/11/2011	64.70	3,752.39
			10/4/2011	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
			1/9/2014	67.23	3,749.77
			4/7/2014	66.36	3,750.64
			3/20/2015	67.17	3,749.83
			7/1/2015	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
			6/8/2016	66.23	3,750.77
			9/13/2016	67.43	3,749.57
			12/1/2016	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
			11/7/2018	68.71	3,748.29
			6/3/2019	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
			6/2/2021	69.95	3,747.05
			11/28/2021	70.06	3,746.94
			6/9/2022	72.80	3,744.20
			12/22/2022	73.65	3,743.35
DBS-2	58.0–78.0	3,820.50	4/8/2009	65.45	3,755.05
			5/11/2011	66.80	3,753.70

Notes are provided at the end of the table.

Table C-1. Historical Fluid Level Measurements
Page 2 of 12

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	10/4/2011	65.87	3,754.63
			2/8/2012	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
			1/9/2014	69.08	3,751.42
			4/7/2014	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
			6/8/2016	68.91	3,751.59
			9/13/2016	69.76	3,750.74
			12/1/2016	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
			11/7/2018	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
			6/2/2021	72.43	3,748.07
			11/28/2021	72.81	3,747.69
			6/9/2022	74.89	3,745.61
			12/22/2022	74.95	3,745.55
DBS-3	56.0–76.72	3,816.66	4/8/2009	60.67	3,755.99
			5/11/2011	61.25	3,755.41
			10/4/2011	61.25	3,755.41

Notes are provided at the end of the table.

Table C-1. Historical Fluid Level Measurements
Page 3 of 12

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	2/8/2012	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
			1/9/2014	63.30	3,753.36
			4/7/2014	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
			6/8/2016	63.92	3,752.74
			9/13/2016	64.56	3,752.10
			12/1/2016	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
			11/7/2018	66.11	3,750.55
			6/3/2019	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
			6/2/2021	67.50	3,749.16
			11/28/2021	68.12	3,748.54
			6/9/2022	69.57	3,747.09
			12/22/2022	70.95	3,745.71
DBS-4	56.0–76.0	3,820.37	4/8/2009	66.27	3,754.10
			5/11/2011	67.23	3,753.14
			10/4/2011	66.67	3,753.70
			2/8/2012	66.76	3,753.61

Notes are provided at the end of the table.

Table C-1. Historical Fluid Level Measurements
Page 4 of 12

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	4/30/2012	67.02	3,753.35
			9/10/2012	67.78	3,752.59
			6/23/2013	67.70	3,752.67
			1/9/2014	69.37	3,751.00
			4/7/2014	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
			6/8/2016	69.62	3,750.75
			9/13/2016	70.35	3,750.02
			12/1/2016	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
			11/7/2018	71.61	3,748.76
			6/3/2019	71.66	3,748.71
			12/17/2019	72.90	3,747.47
			6/23/2020	72.36	3,748.01
			11/21/2020	72.33	3,748.04
			6/2/2021	73.05	3,747.32
			11/28/2021	73.57	3,746.80
			6/9/2022	75.30	3,745.07
			12/22/2022	76.42	3,743.95
DBS-5	56.9–76.9	3,820.66	4/8/2009	62.99	3,757.67
			5/11/2011	63.45	3,757.21
			10/4/2011	63.41	3,757.25
			2/8/2012	63.46	3,757.20
			4/30/2012	63.70	3,756.96

Notes are provided at the end of the table.

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	9/10/2012	63.92	3,756.74
			6/23/2013	64.30	3,756.36
			1/9/2014	65.28	3,755.38
			4/7/2014	65.48	3,755.18
			3/20/2015	65.90	3,754.76
			7/1/2015	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
			6/8/2016	66.16	3,754.50
			9/13/2016	66.64	3,754.02
			12/1/2016	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
			11/7/2018	68.47	3,752.19
			6/3/2019	68.44	3,752.22
			12/17/2019	69.13	3,751.53
			6/23/2020	66.26	3,754.40
			11/21/2020	69.08	3,751.58
			6/2/2021	69.88	3,750.78
			11/28/2021	70.60	3,750.06
			6/9/2022	71.99	3,748.67
			12/22/2022	73.50	3,747.16
DBS-6	56.7–76.7	3,812.65	4/7/2009	62.75	3,749.90
			5/11/2011	63.11	3,749.54
			10/4/2011	63.16	3,749.49
			2/8/2012	63.20	3,749.45
			4/30/2012	63.43	3,749.22
			9/10/2012	63.60	3,749.05

Notes are provided at the end of the table.

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-6 (cont.)	56.7–76.7	3,812.65	6/23/2013	63.74	3,748.91
			1/9/2014	64.00	3,748.65
			4/7/2014	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
			6/8/2016	65.37	3,747.28
			9/13/2016	65.51	3,747.14
			12/1/2016	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
			11/7/2018	66.62	3,746.03
			6/3/2019	67.24	3,745.41
			12/17/2019	67.95	3,744.70
			6/23/2020	68.29	3,744.36
			11/21/2020	68.38	3,743.27
			6/2/2021	68.72	3,743.93
			11/28/2021	69.27	3,743.38
			6/9/2022	69.79	3,742.86
			12/22/2022	70.64	3,742.01
DBS-7	55.1–75.1	3,810.21	4/7/2009	61.74	3,748.47
DBS-8	55.2–75.2	3,810.70	4/7/2009	61.20	3,749.50
			5/11/2011	61.67	3,749.03
			10/4/2011	61.71	3,748.99
			2/8/2012	61.77	3,748.93
			4/30/2012	62.00	3,748.70
			9/10/2012	62.15	3,748.55

Notes are provided at the end of the table.

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-8 (cont.)	55.2–75.2	3,810.70	6/23/2013	62.28	3,748.42
			1/9/2014	62.47	3,748.23
			4/7/2014	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
			6/8/2016	63.72	3,746.98
			9/13/2016	63.83	3,746.87
			12/1/2016	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
			11/7/2018	64.82	3,745.88
			6/3/2019	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
			6/2/2021	66.91	3,743.79
			11/28/2021	67.33	3,743.37
			6/9/2022	67.84	3,742.86
			12/22/2022	68.55	3,742.15
DBS-9	48.0–68.0	3,806.26	4/8/2009	53.93	3,752.33
			5/11/2011	54.39	3,751.87
			10/4/2011	54.59	3,751.67
			2/8/2012	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

Notes are provided at the end of the table.

Table C-1. Historical Fluid Level Measurements
Page 8 of 12

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	1/9/2014	55.27	3,750.99
			4/7/2014	55.56	3,750.70
			3/19/2015	55.95	3,750.31
			7/1/2015	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
			6/8/2016	56.64	3,749.62
			9/13/2016	56.81	3,749.45
			12/1/2016	56.88	3,749.38
			6/20/2017	57.28	3,748.98
			12/19/2017	57.67	3,748.59
			6/18/2018	57.98	3,748.28
			11/7/2018	58.22	3,748.04
			6/3/2019	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
			6/2/2021	59.95	3,746.31
			11/28/2021	60.48	3,745.78
			6/9/2022	60.95	3,745.31
			12/22/2022	61.89	3,744.37
DBS-10	57.2–77.2	3,807.48	6/18/2018	64.46	3,743.02
			11/7/2018	64.66	3,742.82
			6/3/2019	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
			6/2/2021	66.52	3,740.96
			11/28/2021	67.03	3,740.45

Notes are provided at the end of the table.

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-10 (cont.)	57.2–77.2	3,807.48	6/9/2022	67.28	3,740.20
			12/22/2022	68.08	3,739.42
NW-1s	52.95–72.95	3,817.33	4/8/2009	62.35	3,754.98
NW-1m	99.31–119.31	3,817.35	4/8/2009	62.25	3,755.10
NW-1d	149.45–169.45	3,817.35	4/8/2009	62.04	3,755.31
NW-2s	53.35–73.35	3,812.50	4/8/2009	63.08	3,749.42
NW-2m	93.72–113.72	3,812.45	4/8/2009	63.27	3,749.18
NW-2d	126.87–146.87	3,812.46	4/8/2009	66.41	3,746.05
PMW-1	63–78	3,821.17	6/23/2008	67.51	3,753.66
			4/8/2009	65.97	3,755.20
			5/11/2011	68.70	3,752.47
			10/4/2011	66.95	3,754.22
			2/8/2012	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
			1/9/2014	71.24	3,749.93
			4/7/2014	69.97	3,751.20
			3/20/2015	70.78	3,750.39
			7/1/2015	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
			6/8/2016	69.65	3,751.52
			9/13/2016	71.08	3,750.09
			12/1/2016	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
			11/7/2018	72.52	3,748.65

Notes are provided at the end of the table.

Table C-1. Historical Fluid Level Measurements
Page 10 of 12

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	6/3/2019	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
			6/2/2021	73.10	3,748.07
			11/28/2021	73.49	3,747.68
			6/9/2022	75.97	3,745.20
			12/22/2022	77.15	3,744.02
MW-1	120–140	NA	6/23/2008	59.90	NA
MW-2	127–147	3,812.68	6/23/2008	61.42	3,751.26
			4/7/2009	61.65	3,751.03
MW-3	NA	3,812.05	6/23/2008	62.06	3,749.99
			4/7/2009	62.02	3,750.03
			5/11/2011	62.91	3,749.14
			10/4/2011	62.91	3,749.14
			2/8/2012	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
			1/9/2014	63.55	3,748.50
			4/7/2014	63.88	3,748.17
			3/19/2015	64.27	3,747.78
			7/1/2015	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
			6/8/2016	64.89	3,747.16
			9/13/2016	66.33	3,745.72
			12/1/2016	66.66	3,745.39
			6/20/2017	65.56	3,746.49

Notes are provided at the end of the table.

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	12/19/2017	65.70	3,746.35
			6/18/2018	66.52	3,745.53
			11/7/2018	66.09	3,745.96
			6/3/2019	68.18	3,743.87
			12/17/2019	67.38	3,744.67
			6/23/2020	69.16	3,742.89
			11/21/2020	67.73	3,744.32
			6/2/2021	69.83	3,742.22
			11/28/2021	68.62	3,743.43
			6/9/2022	70.60	3,741.45
			12/22/2022	69.92	3,742.13
MW-4	111–131	3,811.33	6/23/2008	62.12	3,749.21
			4/7/2009	62.51	3,748.82
MW-5	112–132	3,808.96	6/23/2008	60.60	3,748.36
			4/7/2009	60.79	3,748.17
			5/11/2011	61.17	3,747.79
			10/4/2011	61.72	3,747.24
			2/8/2012	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
			1/9/2014	61.90	3,747.06
			4/7/2014	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
			6/8/2016	63.47	3,745.49
			9/13/2016	63.66	3,745.30

Notes are provided at the end of the table.

Table C-1. Historical Fluid Level Measurements
Page 12 of 12

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	12/1/2016	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
			11/7/2018	64.34	3,744.62
			06/3/2019	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
			6/2/2021	66.70	3,742.26
			11/28/2021	66.85	3,742.11
			6/9/2022	67.59	3,741.37
			12/22/2022	68.02	3,740.94
MW-6	NA	3,810.17	6/23/2008	62.17	3,748.00
			4/7/2009	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 13

Monitor Well	Date	Chloride Concentration (mg/L) [a]
	NMWQCC Standard	*250*
DBS-1	4/8/2009	**320**
	5/12/2011	**940**
	10/4/2011	Well destroyed
DBS-1R	5/1/2012	**3,000**
	9/11/2012	**3,200**
	6/25/2013	**3,300**
	1/10/2014	**1,000**
	4/8/2014	**1,700**
	3/20/2015	**1,200**
	7/1/2015	**860**
	9/30/2015	**670**
	12/17/2015	**760**
	3/23/2016	**560**
	6/9/2016	**570**
	9/14/2016	**360**
	12/1/2016	**360**
	6/20/2017	**320**
	12/20/2017	190
	6/19/2018	190
	11/8/2018	180
	6/3/2019	190
	12/18/2019	210
	6/23/2020	220
	11/21/2020	**530**
	6/2/2021	**2,200**
	11/28/2021	**2,100**
	6/9/2022	**940**
	12/23/2022	**1,200**
DBS-2	4/8/2009	14
	5/12/2011	25

Notes are provided at the end of the table.

Table C-2. Historical Chloride Groundwater Analytical Data
Page 2 of 13

Monitor Well	Date	Chloride Concentration (mg/L) [a]
	NMWQCC Standard	*250*
DBS-2 (cont.)	10/5/2011	18
	2/9/2012	22
	5/1/2012	24
	9/11/2012	44
	6/25/2013	36
	1/10/2014	45
	4/8/2014	22
	3/20/2015	29
	6/30/2015	28
	9/30/2015	40
	12/17/2015	35
	3/23/2016	46
	6/9/2016	41
	9/14/2016	41
	12/2/2016	53
	6/20/2017	59
	12/20/2017	37
	6/18/2018	47
	11/8/2018	47
	6/3/2019	42
	12/17/2019	68
	6/24/2020	66
	11/21/2020	81
	6/2/2021	85
	11/28/2021	100
	6/9/2022	NS
	12/23/2022	NS
DBS-3	4/8/2009	36
	5/12/2011	35
	10/5/2011	34

Notes are provided at the end of the table.

Table C-2. Historical Chloride Groundwater Analytical Data
Page 3 of 13

Monitor Well	Date	Chloride Concentration (mg/L) [a]
	NMWQCC Standard	*250*
DBS-3 (cont.)	2/9/2012	34
	5/1/2012	33
	9/11/2012	34
	6/24/2013	32
	1/10/2014	34
	4/8/2014	32
	3/20/2015	35
	6/30/2015	35
	9/30/2015	34
	12/17/2015	34
	3/23/2016	36
	6/9/2016	35
	9/14/2016	37
	12/2/2016	37
	6/20/2017	39
	12/20/2017	42
	6/18/2018	47
	11/8/2018	46
	6/3/2019	46
	12/17/2019	48
	6/24/2020	50
	11/21/2020	49
	6/3/2021	52
	11/28/2021	53
	6/9/2022	57
	12/23/2022	68
DBS-4	4/8/2009	38
	5/12/2011	33
	10/5/2011	32
	2/9/2012	32

Notes are provided at the end of the table.

Table C-2. Historical Chloride Groundwater Analytical Data
Page 4 of 13

Monitor Well	Date	Chloride Concentration (mg/L) [a]
	NMWQCC Standard	*250*
DBS-4 (cont.)	5/1/2012	31
	9/11/2012	32
	6/25/2013	31
	1/10/2014	32
	4/8/2014	30
	3/20/2015	33
	6/30/2015	31
	9/30/2015	33
	12/17/2015	35
	3/23/2016	38
	6/9/2016	35
	9/14/2016	37
	12/2/2016	41
	6/20/2017	35
	12/20/2017	32
	6/19/2018	39
	11/8/2018	35
	6/3/2019	30
	12/17/2019	35
	6/23/2020	35
	11/21/2020	37
	6/3/2021	39
	11/28/2021	40
	6/9/2022	44
	12/23/2022	47
DBS-5	4/8/2009	65
	5/12/2011	140
	10/5/2011	140
	2/9/2012	140
	4/30/2012	150

Notes are provided at the end of the table.

Table C-2. Historical Chloride Groundwater Analytical Data
Page 5 of 13

Monitor Well	Date	Chloride Concentration (mg/L) [a]
	NMWQCC Standard	*250*
DBS-5 (cont.)	9/11/2012	160
	6/24/2013	160
	1/10/2014	180
	4/8/2014	160
	3/20/2015	140
	7/1/2015	140
	9/30/2015	150
	12/17/2015	160
	3/23/2016	150
	6/9/2016	150
	9/14/2016	170
	12/2/2016	170
	6/20/2017	170
	12/20/2017	170
	6/18/2018	180
	11/8/2018	170
	6/3/2019	**280**
	12/18/2019	160
	6/24/2020	190
	11/21/2020	190
	6/3/2021	170
	11/28/2021	200
	6/9/2022	200
	12/23/2022	230
DBS-6	4/7/2009	**380**
	5/12/2011	**410**
	10/5/2011	**400**
	2/9/2012	**380**
	4/30/2012	**400**
	9/11/2012	**390**

Notes are provided at the end of the table.

Table C-2. Historical Chloride Groundwater Analytical Data
Page 6 of 13

Monitor Well	Date	Chloride Concentration (mg/L) [a]
	NMWQCC Standard	*250*
DBS-6 (cont.)	6/24/2013	**340**
	1/10/2014	**390**
	4/7/2014	**400**
	3/19/2015	**370**
	7/1/2015	**360**
	9/30/2015	**370**
	12/17/2015	**380**
	3/23/2016	**310**
	6/9/2016	**300**
	9/14/2016	**290**
	12/2/2016	**300**
	6/21/2017	240
	12/19/2017	200
	6/19/2018	210
	11/8/2018	190
	6/3/2019	180
	12/17/2019	220
	6/24/2020	230
	11/21/2020	230
	6/3/2021	**250**
	11/28/2021	**270**
	6/9/2022	**290**
	12/22/2022	**360**
DBS-7	4/7/2008	**570**
DBS-8	4/7/2009	58
	5/12/2011	36
	10/5/2011	140
	2/9/2012	41
	4/30/2012	41
	9/10/2012	42

Notes are provided at the end of the table.

Table C-2. Historical Chloride Groundwater Analytical Data
Page 7 of 13

Monitor Well	Date	Chloride Concentration (mg/L) [a]
	NMWQCC Standard	*250*
DBS-8 (cont.)	6/24/2013	45
	1/9/2014	38
	4/7/2014	36
	3/19/2015	36
	7/1/2015	34
	9/30/2015	35
	12/17/2015	33
	3/23/2016	35
	6/9/2016	34
	9/14/2016	34
	12/2/2016	33
	6/21/2017	33
	12/19/2017	28
	6/19/2018	33
	11/8/2018	30
	6/3/2019	35
	12/17/2019	30
	6/24/2020	34
	11/21/2020	34
	6/3/2021	35
	11/28/2021	35
	6/9/2022	37
	12/22/2022	43
DBS-9	4/8/2009	210
	5/12/2011	**600**
	10/5/2011	**440**
	2/9/2012	**290**
	4/30/2012	**330**
	9/11/2012	**320**
	6/24/2013	200

Notes are provided at the end of the table.

Table C-2. Historical Chloride Groundwater Analytical Data
Page 8 of 13

Monitor Well	Date	Chloride Concentration (mg/L) [a]
	NMWQCC Standard	*250*
DBS-9 (cont.)	1/10/2014	170
	4/7/2014	220
	3/19/2015	**260**
	7/1/2015	210
	9/30/2015	**260**
	12/17/2015	230
	3/23/2016	200
	6/9/2016	190
	9/14/2016	190
	12/2/2016	180
	6/21/2017	200
	12/20/2017	230
	6/19/2018	**260**
	6/3/2019	160
	12/17/2019	220
	6/24/2020	**360**
	11/21/2020	**280**
	6/3/2021	**290**
	11/28/2021	**300**
	6/9/2022	**350**
	12/23/2022	**400**
DBS-10	6/19/2018	**690**
	11/8/2018	**590**
	6/3/2019	**510**
	12/17/2019	**540**
	6/24/2020	**560**
	11/21/2020	**620**
	6/3/2021	**560**
	11/28/2021	**560**

Notes are provided at the end of the table.

Table C-2. Historical Chloride Groundwater Analytical Data
Page 9 of 13

Monitor Well	Date	Chloride Concentration (mg/L) [a]
	NMWQCC Standard	*250*
DBS-10 (cont.)	6/9/2022	**530**
	12/22/2022	**570**
NW-1s	4/8/2009	**630**
NW-1m	4/8/2009	57
NW-1d	4/8/2009	38
NW-2s	4/8/2009	**410**
NW-2m	4/8/2009	**570**
NW-2d	4/8/2009	**4,700**
PMW-1	2/27/2008	**9,500** [b]
	5/30/2008	**8,600** [b]
	6/23/2008	**12,700**
	4/8/2009	**11,000**
	5/12/2011	**13,000**
	10/5/2011	**12,000**
	2/9/2012	**12,000**
	5/1/2012	**12,000**
	9/11/2012	**14,000**
	6/25/2013	**14,000**
	1/10/2014	**11,000**
	4/8/2014	**12,000**
	3/20/2015	**8,500**
	7/1/2015	**8,600**
	9/30/2015	**9,700**
	12/17/2015	**9,800**
	3/23/2016	**8,200**
	6/9/2016	**8,500**
	9/14/2016	**9,300**
	12/1/2016	**8,300**
	6/20/2017	**13,000**
	12/20/2017	**12,000**

Notes are provided at the end of the table.

Table C-2. Historical Chloride Groundwater Analytical Data
Page 10 of 13

Monitor Well	Date	Chloride Concentration (mg/L) [a]
	NMWQCC Standard	*250*
PMW-1 (cont.)	6/19/2018	**9,600**
	11/8/2018	**10,000**
	6/3/2019	**11,000**
	12/18/2019	**3,400**
	6/23/2020	**11,000**
	11/21/2020	**8,200**
	6/2/2021	**6,800**
	11/28/2021	**9,800**
	6/9/2022	**13,000**
	12/23/2022	**12,000**
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**
	4/7/2009	**1,200**
	6/19/2018	**390**
MW-3	2/27/2008	**348** [b]
	5/30/2008	**360** [b]
	6/23/2008	**1,090**
	4/7/2009	**17,000**
	5/12/2011	**16,000**
	10/5/2011	**14,000**
	2/9/2012	**15,000**
	4/30/2012	**14,000**
	9/10/2012	**16,000**
	6/24/2013	**12,000**
	1/10/2014	**10,000**
	4/7/2014	**12,000**
	3/19/2015	**9,700**

Notes are provided at the end of the table.

Table C-2. Historical Chloride Groundwater Analytical Data
Page 11 of 13

Monitor Well	Date	Chloride Concentration (mg/L) [a]
	NMWQCC Standard	*250*
MW-3 (cont.)	7/1/2015	**10,000**
	9/30/2015	**9,600**
	12/17/2015	**5,100**
	3/23/2016	**8,200**
	6/9/2016	**9,400**
	9/14/2016	**9,100**
	12/2/2016	**11,000**
	6/21/2017	**10,000**
	12/20/2017	**8,300**
	6/19/2018	**7,300**
	11/8/2018	**8,000**
	6/3/2019	**8,000**
	12/18/2019	**7,400**
	6/24/2020	**6,400**
	11/21/2020	**7,100**
	6/3/2021	**4,400**
	11/28/2021	**6,100**
	6/10/2022	**5,100**
	12/22/2022	**5,700**
MW-4	2/27/2008	**476** [b]
	5/30/2008	**512** [b]
	6/23/2008	**5,730**
	4/7/2009	**6,600**
MW-5	2/27/2008	**1,280** [b]
	5/30/2008	**1,220** [b]
	6/23/2008	**1,260**
	4/7/2009	**1,300**
	5/12/2011	**1,500**
	10/5/2011	**1,500**
	2/9/2012	**1,500**

Notes are provided at the end of the table.

Table C-2. Historical Chloride Groundwater Analytical Data
Page 12 of 13

Monitor Well	Date	Chloride Concentration (mg/L) [a]
	NMWQCC Standard	*250*
MW-5 (cont.)	4/30/2012	**1,400**
	9/10/2012	**1,500**
	6/24/2013	**1,300**
	1/10/2014	**1,300**
	4/7/2014	**1,300**
	3/19/2015	**1,200**
	7/1/2015	**1,200**
	9/30/2015	**1,000**
	12/17/2015	**1,000**
	3/23/2016	**980**
	6/9/2016	**970**
	9/14/2016	**1,000**
	12/2/2016	**710**
	6/21/2017	**870**
	12/19/2017	**850**
	6/19/2018	**840**
	11/8/2018	**680**
	6/3/2019	**610**
	12/18/2019	**550**
	6/24/2020	**660**
	11/21/2020	**710**
	6/3/2021	**640**
	11/28/2021	**680**
	6/10/2022	**590**
	12/22/2022	**710**
MW-6	2/27/2008	32 [b]
	5/30/2008	36 [b]
	6/23/2008	31.4
	4/7/2009	25

Notes are provided at the end of the table.

Table C-2. Historical Chloride Groundwater Analytical Data
Page 13 of 13

Monitor Well	Date	Chloride Concentration (mg/L) [a]
	NMWQCC Standard	*250*
Ranch Headquarters Supply Well	6/23/2008	35.4
	6/10/2022	**54**
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	4/7/2012	Groundwater extraction started
	5/1/2012	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
	6/8/2016	33.9
	9/13/2016	5.4
	12/2/2016	39.7
	6/20/2017	32.7
	12/19/2017	37.3
	6/18/2018	15.4
	11/8/2018	22.4
	6/3/2019 [c]	23.9
	12/18/2019	27.7
	6/23/2020	21.2
	11/21/2020	7.6
	6/2/2021	5.7
	11/28/2021	3.9
	6/9/2022	8.6
	12/22/2022	6.1
RW-2	4/6/2012	Groundwater extraction started
	5/1/2012	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

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.)	12/17/2015	44
	3/22/2016	32
	6/8/2016	9.0
	9/13/2016	5.7
	12/1/2016 [f]	—
	6/20/2017 [f]	—
	12/19/2017	12.4
	6/19/2018	5.2
	10/10/2018 [g]	3.4
	6/3/2019	7.0
	12/18/2019	14.9
	6/23/2020	16.7
	11/21/2020	3.9
	6/2/2021	11.5
	11/28/2021	17.6
	6/9/2022	5.8
	12/22/2022 [h]	—

[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.

[h] Not measured due to damaged meter.

gpm = Gallons per minute

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

COMMENTS

Action 207581

COMMENTS

Operator: SALTY DOG INC P.O. Box 513 Hobbs, NM 88240	OGRID: 184208
	Action Number: 207581
	Action Type: [UF-DP] Brine Facility Discharge Plan (DISCHARGE PLAN BRINE EXTRACTION)

COMMENTS

Created By	Comment	Comment Date
cchavez	Semi-Annual GW Monitoring Report Jul-Dec 2022	4/14/2023

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Santa Fe, NM 87505

CONDITIONS

Action 207581

CONDITIONS

Operator: SALTY DOG INC P.O. Box 513 Hobbs, NM 88240	OGRID: 184208
	Action Number: 207581
	Action Type: [UF-DP] Brine Facility Discharge Plan (DISCHARGE PLAN BRINE EXTRACTION)

CONDITIONS

Created By	Condition	Condition Date
cchavez	The following COAs apply: 1. Replace RW-2 Totalizer Flow Meter within 90-days of this sundry review. 2. Install FWS-2 Totalizer Flow Meter on well head same as No.1 above. 3. Retrofit DBS-10 (if feasible or install new RW downgradient) with water recovery system to capture and prevent Chlorides from escaping GW capture. Don't think RW-2 plume capture is possible as DBS-10 is ~ 500 ft. hydrogeologically downgradient from RW-1 with Cl above RLs. 4. Similar to No. 3 above, retrofit DBS-4 (~ 200 ft. hydrogeologicaly downgradient from DBS-1R) and GW plume capture radius of FWS-1 is not great enough to capture Cl plume.	4/14/2023