BW – 8

REPORTS

From:	Chavez, Carl J, EMNRD
To:	"Ayarbe, John"
Cc:	"Pieter Bergstein (pieter@bergsteinenterprises.com)"; "susan@bergsteinenterprises.com"; Zbrozek, Michael
Subject:	RE: SUBMITTAL of First Semiannual 2020 GW Monitoring and O&M
Date:	Monday, September 14, 2020 8:00:00 AM

John,

Received. OCD is reviewing the document and updating the admin. record.

OCD will contact you if there are any questions.

Thank you.

Mr. Carl J. Chavez, CHMM (#13099)
New Mexico Oil Conservation Division (Albuquerque Office)
Energy Minerals and Natural Resources Department
5200 Oakland Avenue, NE
Albuquerque, New Mexico 87113
Ph. (505) 660-7923
E-mail: CarlJ.Chavez@state.nm.us
"Why not prevent pollution, minimize waste to reduce operating costs, reuse or recycle, and move forward with the rest of the Nation?" (To see how, go to:
http://www.emnrd.state.nm.us/OCD **and see "Publications")**

From: Ayarbe, John <jayarbe@geo-logic.com>
Sent: Saturday, September 12, 2020 8:55 AM
To: Chavez, Carl J, EMNRD <CarlJ.Chavez@state.nm.us>
Cc: 'Pieter Bergstein (pieter@bergsteinenterprises.com)' <pieter@bergsteinenterprises.com>; 'susan@bergsteinenterprises.com' <susan@bergsteinenterprises.com>; Zbrozek, Michael <mzbrozek@geo-logic.com>
Subject: [EXT] SUBMITTAL of First Semiannual 2020 GW Monitoring and O&M

Hi Carl,

Attached is the Semiannual Groundwater Monitoring and O&M Report for the Salty Dog Brine Station for the period January 1 through June 30, 2020. I'm submitting the report to you on behalf of PAB Services, Inc.

Please let me know if you have questions.

Sincerely,

John P. Ayarbe
Senior Hydrogeologist

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

6020 Academy Road NE, Suite 100
Albuquerque, New Mexico 87109
Office: (505) 822-9400 | Direct: (505) 353-9137
Mobile: (505) 280-4339
jayarbe@dbstephens.com or jayarbe@geo-logic.com

www.dbstephens.com | www.geo-logic.com

September 11, 2020

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

Re: Semiannual Groundwater Monitoring and O&M Report
January 1 through June 30, 2020
Salty Dog Brine Station, Lea County, New Mexico

Dear Mr. Chavez:

On behalf of PAB Services, Inc., Daniel B. Stephens & Associates, Inc. (DBS&A) is submitting the enclosed groundwater monitoring and operation and maintenance (O&M) report for the Salty Dog brine station located in Lea County, New Mexico. Semiannual groundwater monitoring activities were completed at the site on June 23 and 24, 2020.

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.
Jim Sayre, Salty Dog, Inc.

First Semiannual 2020 Groundwater Monitoring and O&M Report

Salty Dog Brine Station

Lea County, New Mexico

Prepared for **New Mexico Energy, Minerals and Natural Resources Department**
Oil Conservation Division

September 11, 2020

Daniel B. Stephens & Associates, Inc.

6020 Academy NE, Suite 100 • Albuquerque, New Mexico 87109

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Semiannual Groundwater Monitoring and O&M Report
January 1 through June 30, 2020
Salty Dog Brine Station, Lea County, New Mexico

1. Introduction

Daniel B. Stephens & Associates, Inc. (DBS&A) has prepared this groundwater monitoring and operation and maintenance (O&M) report for submission to the New Mexico Energy, Minerals and Natural Resources Department Oil Conservation Division (OCD) Environmental Bureau on behalf of PAB Services, Inc. (PAB) for the Salty Dog brine station (the site) located in Lea County, New Mexico (Figure 1). The report summarizes activities conducted at the site during the reporting period of January 1 through June 30, 2020. 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).

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 contains 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 contains 10 monitor wells (MW-2 through MW-6, DBS-6 through

DBS-10), 1 nested well (NW-2), 1 fresh water supply well (FWS-2), and 1 recovery well (RW-2) (Figure 1).

In April 2012, DBS&A installed groundwater extraction systems at the site to provide hydraulic containment and removal of chloride-impacted groundwater in the former brine pond and brine well areas (DBS&A, 2009a and 2009b). The extraction systems consist of wells, submersible pumps, conveyance lines, electrical power, and controls to extract impacted groundwater. Extracted groundwater is conveyed to the on-site ASTs for reinjection at the brine well. Although groundwater extraction at well RW-1 was stopped in 2015, pumping at well FWS-1 provides hydraulic containment and removal of chloride-impacted groundwater in the former brine pond area; well FWS-1 is located approximately 50 feet southeast of RW-1. Extraction at RW-1 was stopped because the water level at the well had declined and was near the bottom of the well. Pumping at RW-2 provides hydraulic containment and removal of chloride-impacted groundwater in the brine well area.

2. Scope of Work

The scope of work for semiannual groundwater monitoring conducted in June 2020 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 collected and 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 groundwater constituents in addition to chloride. In consultation with Carl Chavez (OCD), DBS&A selected monitor well MW-3 for this additional analysis. Appendices A and B provide the laboratory report and field notes, respectively.

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

3. Monitoring Activities

3.1 Fluid Level Measurement

On June 23, 2020, 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 water level measurements and groundwater elevations. Appendix C provides historical groundwater level data.

Table 1. Fluid Level Measurements, June 23, 2020

Monitor Well	Screen Interval (feet bgs)	Top of Casing Elevation [a] (feet msl)	Depth to Water (feet btoc)	Groundwater Elevation (feet msl)
DBS-1R	58.0–78.0	3,817.00 [b]	68.66	3,748.34
DBS-2	58.0–78.0	3,820.50	71.54	3,748.96
DBS-3	56.0–76.72	3,816.66	66.81	3,749.85
DBS-4	56.0–76.0	3,820.37	72.36	3,748.01
DBS-5	56.9–76.9	3,820.66	69.16	3,751.50
DBS-6	56.7–76.7	3,812.65	68.29	3,744.36
DBS-8	55.2–75.2	3,810.70	66.42	3,744.28
DBS-9	48.0–68.0	3,806.26	59.55	3,747.71
DBS-10	57.2–77.2	3,807.48	66.03	3,741.45
PMW-1	63–78	3,821.17	72.03	3,749.14
MW-3	NA	3,812.05	69.16	3,742.89
MW-5	112–132	3,808.96	66.26	3,742.70

[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

During this monitoring event, the average depths to water beneath the former brine pond area and brine well area were 70.09 feet below ground surface (bgs) and 65.95 feet bgs, respectively. On average, water levels in the former brine pond area rose by approximately 1.25 feet since the last monitoring event in December 2019, while water levels in the brine well area declined by 0.61 foot.

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 0.0036 foot per foot (ft/ft) during 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 0.0071 ft/ft during this reporting period (Figure 3).

In May 2020, FWS-1 was taken offline for maintenance. FWS-1 was not pumping when groundwater levels were measured; as a result, the hydraulic gradient had flattened in the area of the pumping well and a cone of depression was not present (Figure 2). Well RW-2 was pumping during the period of the groundwater monitoring event. The potentiometric surface shows groundwater flowing toward RW-2 (Figure 3). Little groundwater was extracted from well FWS-2 during this reporting period.

3.2 Groundwater Sampling

On June 23 and 24, 2020, groundwater samples were collected from monitor wells DBS-1R, DBS-2 through DBS-6, DBS-8 through DBS-10, MW-3, MW-5, and PMW-1. The samples were collected following standard sampling procedures developed from EPA guidance. Before sampling, each well was purged of a minimum of three casing volumes using a dedicated bailer to ensure that a representative groundwater sample was collected. While purging, DBS&A measured water quality field parameters consisting of temperature, specific conductance, and pH. Sample containers were filled, labeled, and placed in an ice-filled cooler. Groundwater samples were submitted under chain of custody to HEAL for analysis.

Samples of the brine well injection water and the produced brine were also collected to meet requirements under DP-BW-8. Analytical results of these samples will be presented in the 2020 annual Class III well report.

4. Analytical Results

Table 2 summarizes 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 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, June 2020

Monitor Well	Date	Chloride Concentration (mg/L)
NMWQCC Standard		*250*
DBS-1R	6/23/2020	220
DBS-2	6/24/2020	66
DBS-3	6/24/2020	50
DBS-4	6/23/2020	35
DBS-5	6/23/2020	190
DBS-6	6/24/2020	230
DBS-8	6/24/2020	34
DBS-9	6/24/2020	**360**
DBS-10	6/24/2020	**560**
PMW-1	6/23/2020	**11,000**
MW-3	6/24/2020	**6,400**
MW-5	6/24/2020	**660**

Bold indicates that value exceeds the applicable standard.
All samples analyzed using EPA method 300.0.
NMWQCC = New Mexico Water Quality Control Commission
mg/L = Milligrams per liter

4.1 Former Brine Pond Area Wells

Well PMW-1, located just upgradient of FWS-1, continues to exhibit chloride concentrations above the New Mexico Water Quality Control Commission (NMWQCC) standard of 250 milligrams per liter (mg/L) (Figure 4). Chloride concentration had decreased to 3,400 mg/L in December 2019, but rebounded to 11,000 mg/L during the June 2020 monitoring event (Appendix C).

The chloride concentration at well DBS-1R, located downgradient of well PMW-1, was 220 mg/L during this reporting period—below the NMWQCC standard (Figure 4). The chloride concentration at upgradient monitor well DBS-5 was 190 mg/L. The chloride plume in the former brine pond area remains bounded by the existing monitor well network (Figure 4). The chloride concentration at downgradient monitor well DBS-4 remains below the NMWQCC standard, as do chloride concentrations at the two cross-gradient monitor wells, DBS-2 and DBS-3.

4.2 Brine Well Area Wells

Since the last monitoring event in December 2019, minor changes in chloride concentrations were observed at the monitor wells in the brine well area (Appendix C). Monitor wells 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 chloride concentration at cross-gradient monitor well DBS-6, which had exceeded the NMWQCC standard until June 2017, remained below the NMWQCC standard during this reporting period at 230 mg/L.

The chloride concentration at upgradient monitor well DBS-9 was 360 mg/L during this reporting period—exceeding the NMWQCC standard. Chloride concentration has fluctuated at DBS-9 (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 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 (6/23/2020)
Alkalinity, total	NS	292.3
Bicarbonate	NS	292.3
Calcium, total	NS	970
Carbonate	NS	<2.0
Bromide	NS	1.6
Chloride	250	**6,400**
Fluoride	1.6	<1.0
Magnesium, total	NS	160
Nitrate (as N)	1.0	<4.0
Nitrite (as N)	10.0	<4.0
Orthophosphate (as P)	NS	<5.0
pH (s.u.)	6–9	7.44
Potassium, total	NS	16
Sodium, total	NS	2,700
Sulfate	600	350
Total dissolved solids	1,000	**11,200**

Bold indicates that value exceeds New Mexico Water Quality Control Commission (NMWQCC) standard.
[a] Unless otherwise noted
NS = No standard
s.u. = Standard units

5. Groundwater Extraction System O&M

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

Table 4. Average Groundwater Extraction Rates

Recovery Well	Date	Average Extraction Rate [a] (gpm)
FWS-1	6/23/2020	21.2
RW-2	6/23/2020	16.7

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

5.1 Former Brine Pond Area

Based on Salty Dog production records from December 2019 through June 2020, the average pumping rate at well FWS-1 during this reporting period was 21.2 gallons per minute (gpm) (Table 3). Pumping at FWS-1 decreased slightly from the previous reporting period due to a decline in brine sales, as well as maintenance performed on the pump. The average pumping rate during the previous reporting period was 27.7 gpm (Appendix C).

In the former brine pond area, monitor well PMW-1 is currently the only well to exhibit a chloride concentration above the NMWQCC standard (Figure 4). Pumping at FWS-1 is preventing the downgradient migration of chloride-impacted groundwater. The chloride concentrations at wells DBS-1R and DBS-4, both located downgradient of well PMW-1, are below the NMWQCC standard (Figure 4).

5.2 Brine Well Area

During this reporting period, the average pumping rate at well RW-2 was 16.7 gpm (Table 3), which is slightly higher than the average pumping rate during the previous reporting period. The average pumping rate during the previous reporting period was 14.9 gpm (Appendix C). According to PAB site manager Adam Sitton, well RW-2 became the primary pumping well in late April 2020 due to operational issues with the FWS-1 pump.

Downgradient monitor wells DBS-10 and MW-5 exhibit chloride concentrations above the NMWQCC standard (Figure 5). The chloride concentration at DBS-10 increased slightly from

540 mg/L (December 2019) to 560 mg/L (June 2020), while the chloride concentration at MW-5 increased from 550 mg/L (December 2019) to 660 mg/L (June 2020) (Appendix C). The chloride concentration at cross-gradient monitor well DBS-6 met the NMWQCC standard during this reporting period (Table 2). Water quality samples collected at this well have exceeded the NMWQCC standard in the past (Appendix C).

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

5.3 Facility and System Maintenance

In May and June 2020, PAB serviced the pump at fresh water supply well FWS-1. The pump was not operating when groundwater monitoring was conducted during this reporting period. The pump was restored to normal operation in July 2020.

On July 20, 2020, Basin Surveys 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 August 7, 2020, and will be included in the 2020 annual Class III well report.

6. Recommendations

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

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

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

In addition, DBS&A and PAB will complete the following activities at the site in 2020 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.
- Prepare a 2020 annual Class III well report for submittal to OCD.

References

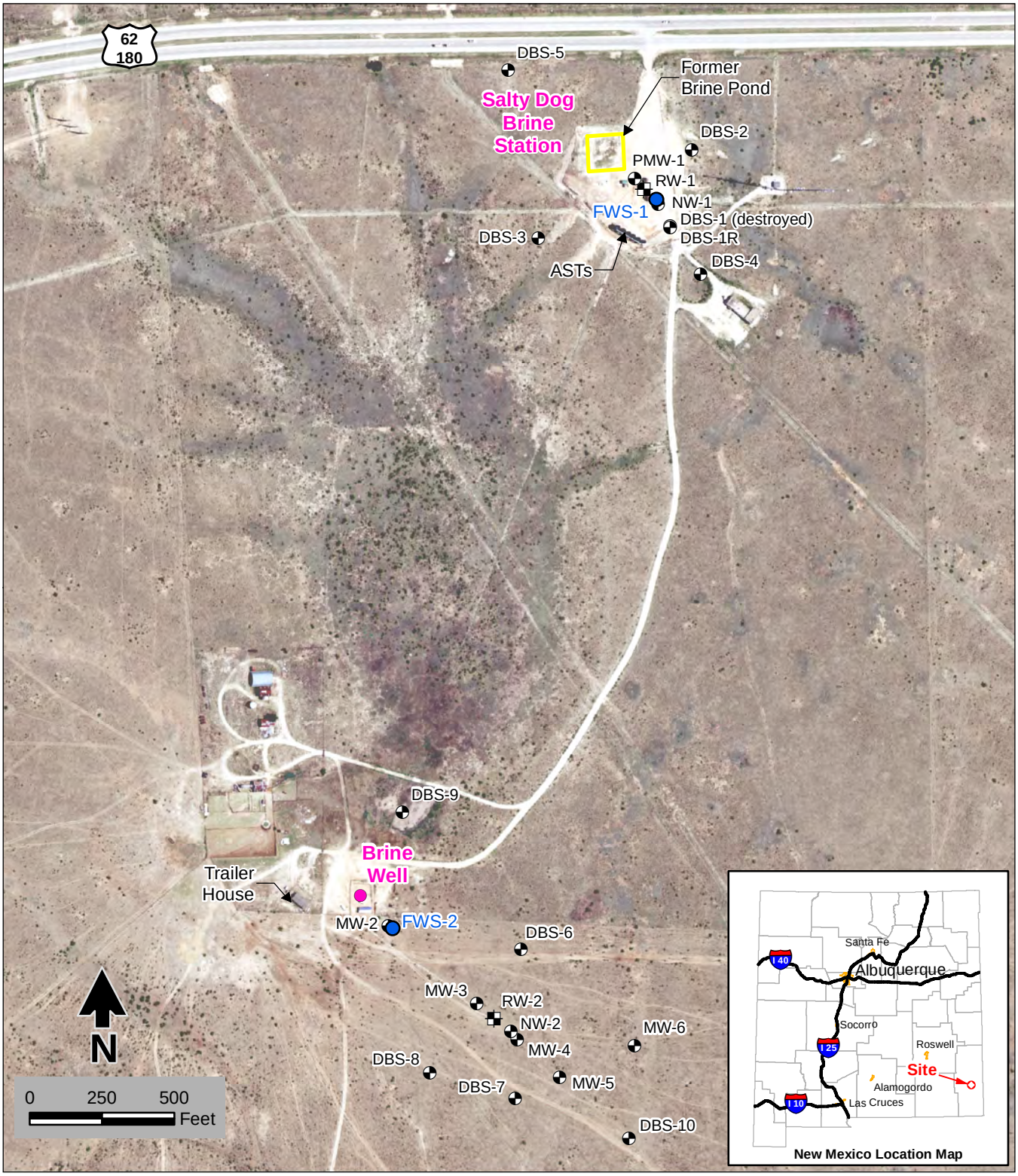
Daniel B. Stephens & Associates (DBS&A). 2009a. *Recovery well installation and pump test report, Salty Dog Brine Station, Lea County, New Mexico.* Prepared for New Mexico Energy, Minerals and Natural Resources Department Oil Conservation Division, Environmental Bureau. November 20, 2009.

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

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

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

Figures



Explanation

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

Note: AST = Aboveground storage tank

Source: NAIP aerial imagery dated June 18, 2018

S:\PROJECTS\DB19.1198_SALTY_DOG_2019\GIS\MXDS\REPORT2020_1SA\FIG01_SITE_LOCATION_MAP.MXD

Daniel B. Stephens & Associates, Inc.

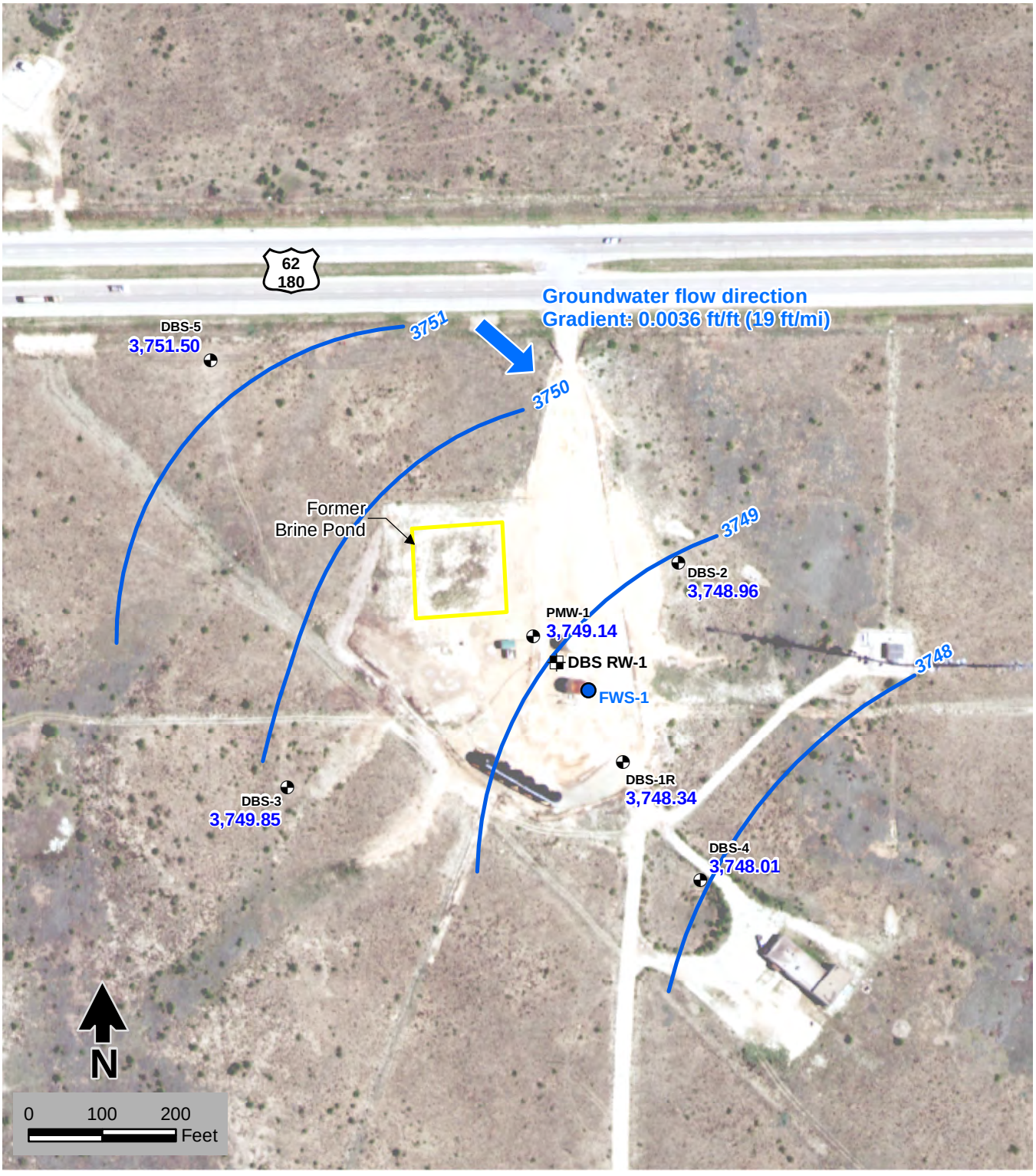
8/11/2020

JN DB19.1198.00

SALTY DOG BRINE STATION

Site Location Map

Figure 1



Source: NAIP aerial imagery dated June 18, 2018

Explanation

DBS-1R Well designation

3,748.34 Groundwater elevation, ft msl

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

SALTY DOG BRINE STATION

Former Brine Pond Area Potentiometric Surface Elevations June 2020

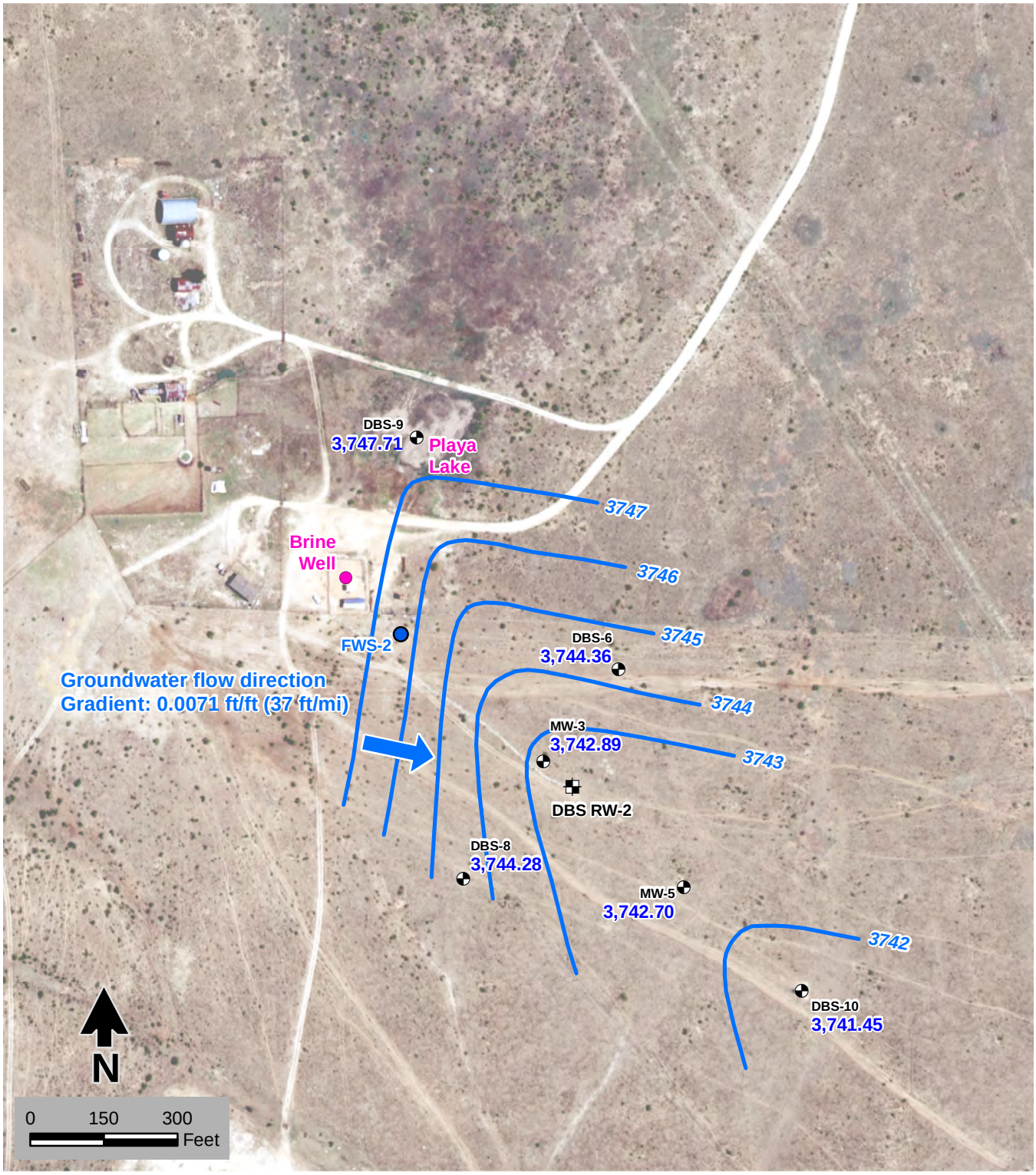
Daniel B. Stephens & Associates, Inc.

9/10/2020

JN DB19.1198.00

Figure 2

S:\PROJECTS\DB19.1198_SALTY_DOG_2019\GIS\MXDS\REPORT2020_1SAIFIG02_GWE_202006_BRINE_STATION.MXD



Source: NAIP aerial imagery dated June 18, 2018

Explanation

MW-3 Well designation

3,742.89 Groundwater elevation, ft msl

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

SALTY DOG BRINE STATION

Playa Lake and Brine Well Area Potentiometric Surface Elevations June 2020

Daniel B. Stephens & Associates, Inc.

9/10/2020

JN DB19.1198.00

Figure 3

S:\PROJECTS\DB19.1198_SALTY_DOG_2019\GIS\MXDS\REPORT\2020_1SA\FIG03_GWE_202006_BRINE_WELL.MXD

Source: NAIP aerial imagery dated June 18, 2018

Explanation

DBS-2 Well designation

66 Chloride concentration (mg/L)

Monitor well

Recovery well

Fresh water supply well

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

SALTY DOG BRINE STATION

Former Brine Pond Area
Chloride Concentrations in Groundwater
June 2020

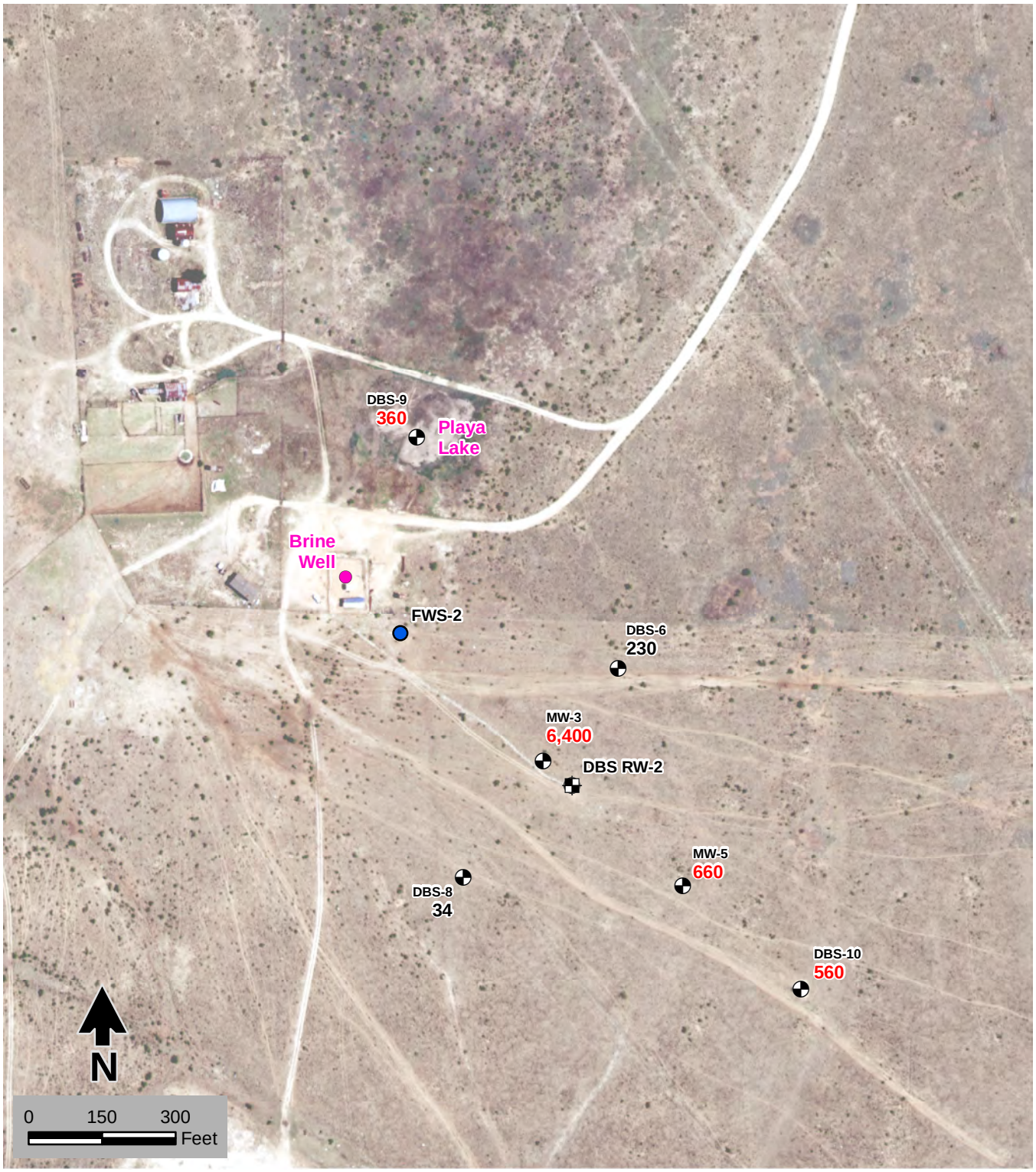
Daniel B. Stephens & Associates, Inc.

8/12/2020

JN DB19.1198.00

Figure 4

S:\PROJECTS\DB19.1198_SALTY_DOG_2019\GIS\MXDS\REPORT\2020_1S\AIFIG04_CL_GW_202006_BRINE_STATION.MXD



Explanation

DBS-6 Well designation

230 Chloride concentration (mg/L)

Monitor well

Recovery well

Fresh water supply well

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

Source: NAIP aerial imagery dated June 18, 2018

SALTY DOG BRINE STATION

Playa Lake and Brine Well Area
Chloride Concentrations in Groundwater
June 2020

Daniel B. Stephens & Associates, Inc.

8/12/2020

JN DB19.1198.00

Figure 5

S:\PROJECTS\DB19.1198_SALTY_DOG_2019\GIS\MXDS\REPORT2020_1SA\FIG05_CL_GW_202006_BRINE_WELL.MXD

Appendix A

Laboratory Analytical Report

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

July 09, 2020

John Ayarbe

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

RE: Salty Dog OrderNo.: 2006E69

Dear John Ayarbe:

Hall Environmental Analysis Laboratory received 14 sample(s) on 6/26/2020 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **2006E69**
Date Reported: **7/9/2020**

CLIENT: Daniel B. Stephens & Assoc.
Client Sample ID: DBS-1R
Project: Salty Dog
Collection Date: 6/23/2020 5:38:00 PM
Lab ID: 2006E69-001 **Matrix:** GROUNDWA **Received Date:** 6/26/2020 11:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	220	50		mg/L	100	7/1/2020 9:56:11 PM	A70083

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	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc.
Client Sample ID: DBS-2
Project: Salty Dog
Collection Date: 6/24/2020 8:55:00 AM
Lab ID: 2006E69-002
Matrix: GROUNDWA
Received Date: 6/26/2020 11:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	66	5.0		mg/L	10	7/1/2020 10:09:02 PM	A70083

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	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc. **Client Sample ID:** DBS-3
Project: Salty Dog **Collection Date:** 6/24/2020 10:16:00 AM
Lab ID: 2006E69-003 **Matrix:** GROUNDWA **Received Date:** 6/26/2020 11:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	50	5.0		mg/L	10	7/1/2020 10:34:47 PM	A70083

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	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc. **Client Sample ID:** DBS-4
Project: Salty Dog **Collection Date:** 6/23/2020 6:50:00 PM
Lab ID: 2006E69-004 **Matrix:** GROUNDWA **Received Date:** 6/26/2020 11:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	35	5.0		mg/L	10	7/1/2020 11:00:31 PM	A70083

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	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc. **Client Sample ID:** DBS-5
Project: Salty Dog **Collection Date:** 6/23/2020 5:10:00 PM
Lab ID: 2006E69-005 **Matrix:** GROUNDWA **Received Date:** 6/26/2020 11:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	190	5.0		mg/L	10	7/1/2020 11:52:00 PM	A70083

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	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc. **Client Sample ID:** DBS-6
Project: Salty Dog **Collection Date:** 6/24/2020 3:00:00 PM
Lab ID: 2006E69-006 **Matrix:** GROUNDWA **Received Date:** 6/26/2020 11:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	230	50		mg/L	100	7/2/2020 12:30:37 AM	A70083

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	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc. **Client Sample ID:** DBS-8
Project: Salty Dog **Collection Date:** 6/24/2020 12:45:00 PM
Lab ID: 2006E69-007 **Matrix:** GROUNDWA **Received Date:** 6/26/2020 11:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	34	5.0		mg/L	10	7/2/2020 12:43:29 AM	A70083

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	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc.
Client Sample ID: DBS-9
Project: Salty Dog
Collection Date: 6/24/2020 10:55:00 AM
Lab ID: 2006E69-008
Matrix: GROUNDWA
Received Date: 6/26/2020 11:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	360	50	*	mg/L	100	7/2/2020 1:22:08 AM	A70083

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	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc.
Client Sample ID: DBS-10
Project: Salty Dog
Collection Date: 6/24/2020 11:26:00 AM
Lab ID: 2006E69-009
Matrix: GROUNDWA
Received Date: 6/26/2020 11:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	560	50	*	mg/L	100	7/2/2020 1:47:51 AM	A70083

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	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc. **Client Sample ID:** PWM-1
Project: Salty Dog **Collection Date:** 6/23/2020 6:21:00 PM
Lab ID: 2006E69-010 **Matrix:** GROUNDWA **Received Date:** 6/26/2020 11:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	11000	500	*	mg/L	1E+	7/2/2020 2:26:26 AM	A70083

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	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc.
Client Sample ID: MW-5
Project: Salty Dog
Collection Date: 6/24/2020 2:35:00 PM
Lab ID: 2006E69-011
Matrix: GROUNDWA
Received Date: 6/26/2020 11:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	660	50	*	mg/L	100	7/2/2020 3:30:44 AM	A70083

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	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc. **Client Sample ID:** MW-3
Project: Salty Dog **Collection Date:** 6/24/2020 4:38:00 PM
Lab ID: 2006E69-012 **Matrix:** GROUNDWA **Received Date:** 6/26/2020 11:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
SPECIFIC GRAVITY						Analyst: **CAS**	
Specific Gravity	0.9969	0			1	7/1/2020 2:10:00 PM	R70056
EPA METHOD 300.0: ANIONS						Analyst: **CJS**	
Fluoride	ND	1.0		mg/L	10	7/2/2020 12:31:13 PM	R70134
Chloride	6400	250	*	mg/L	500	7/8/2020 12:53:31 AM	A70164
Bromide	1.6	1.0		mg/L	10	7/2/2020 12:31:13 PM	R70134
Phosphorus, Orthophosphate (As P)	ND	5.0	H	mg/L	10	7/2/2020 12:31:13 PM	R70134
Sulfate	350	5.0	*	mg/L	10	7/2/2020 12:31:13 PM	R70134
Nitrate+Nitrite as N	ND	4.0		mg/L	20	7/8/2020 1:43:08 AM	A70164
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	19000	50		µmhos/c	5	6/30/2020 11:57:39 AM	R70035
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	292.3	20.00		mg/L Ca	1	6/30/2020 11:13:19 AM	R70035
Carbonate (As CaCO3)	ND	2.000		mg/L Ca	1	6/30/2020 11:13:19 AM	R70035
Total Alkalinity (as CaCO3)	292.3	20.00		mg/L Ca	1	6/30/2020 11:13:19 AM	R70035
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	11200	20.0	*H	mg/L	1	7/6/2020 6:07:00 PM	53476
SM4500-H+B / 9040C: PH						Analyst: **JRR**	
pH	7.44		H	pH units	1	6/29/2020 4:27:55 PM	R69980
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **ELS**	
Calcium	970	10		mg/L	10	6/30/2020 1:41:26 PM	53392
Magnesium	160	10		mg/L	10	6/30/2020 1:41:26 PM	53392
Potassium	16	1.0		mg/L	1	6/30/2020 12:41:42 PM	53392
Sodium	2700	50		mg/L	50	7/1/2020 12:09:54 PM	53392

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	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc. **Client Sample ID:** Brine
Project: Salty Dog **Collection Date:** 6/24/2020 5:20:00 PM
Lab ID: 2006E69-013 **Matrix:** GROUNDWA **Received Date:** 6/26/2020 11:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
SPECIFIC GRAVITY						Analyst: **CAS**	
Specific Gravity	1.191	0			1	7/1/2020 2:10:00 PM	R70056
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	210000	10000	*	mg/L	2E+	7/8/2020 1:30:44 AM	A70164
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	279000	2000	*HD	mg/L	1	7/6/2020 6:07:00 PM	53476
SM4500-H+B / 9040C: PH						Analyst: **JRR**	
pH	7.17		H	pH units	1	6/29/2020 4:42:22 PM	R69980
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **ELS**	
Sodium	78000	2000		mg/L	2E+	7/1/2020 12:12:44 PM	53392

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	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc. **Client Sample ID:** Injection
Project: Salty Dog **Collection Date:** 6/24/2020 5:00:00 PM
Lab ID: 2006E69-014 **Matrix:** GROUNDWA **Received Date:** 6/26/2020 11:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
SPECIFIC GRAVITY						Analyst: **CAS**	
Specific Gravity	0.9900	0			1	7/1/2020 2:10:00 PM	R70056
EPA METHOD 300.0: ANIONS						Analyst: **CJS**	
Chloride	500	50	*	mg/L	100	7/2/2020 1:58:05 PM	R70134
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	1210	20.0	*H	mg/L	1	7/6/2020 6:07:00 PM	53476
SM4500-H+B / 9040C: PH						Analyst: **JRR**	
pH	7.96		H	pH units	1	6/29/2020 4:46:16 PM	R69980
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **ELS**	
Sodium	310	5.0		mg/L	5	7/1/2020 12:15:24 PM	53392

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	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

July 07, 2020

Hall Environmental Analysis Laboratory

Sample Delivery Group:	L1234733
Samples Received:	06/30/2020
Project Number:	
Description:	

Report To: Jackie Bolte
4901 Hawkins NE
Albuquerque, NM 87109

Entire Report Reviewed By:

Jason Romer
Project Manager

TABLE OF CONTENTS

2006E69-012C MW-3 L1234733-01 GW

			Collected by	Collected date/time	Received date/time
				06/24/20 16:38	06/30/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2580	WG1504198	1	07/06/20 06:00	07/06/20 06:00	AKA	Mt. Juliet, TN

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

Jason Romer
Project Manager

Wet Chemistry by Method 2580

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	mV			date / time	
ORP	289		1	07/06/2020 06:00	WG1504198

L1234733-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1234733-01 07/06/20 06:00 • (DUP) R3546210-3 07/06/20 06:00

Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	DUP Qualifier	DUP Diff Limits mV
ORP	289	289	1	0.400		20

L1235746-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1235746-05 07/06/20 06:00 • (DUP) R3546210-4 07/06/20 06:00

Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	DUP Qualifier	DUP Diff Limits mV
ORP	229	228	1	1.00		20

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

(LCS) R3546210-1 07/06/20 06:00 • (LCSD) R3546210-2 07/06/20 06:00

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	228	224	226	98.4	99.3	86.0-105			1.90	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
	The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* 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 National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
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	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

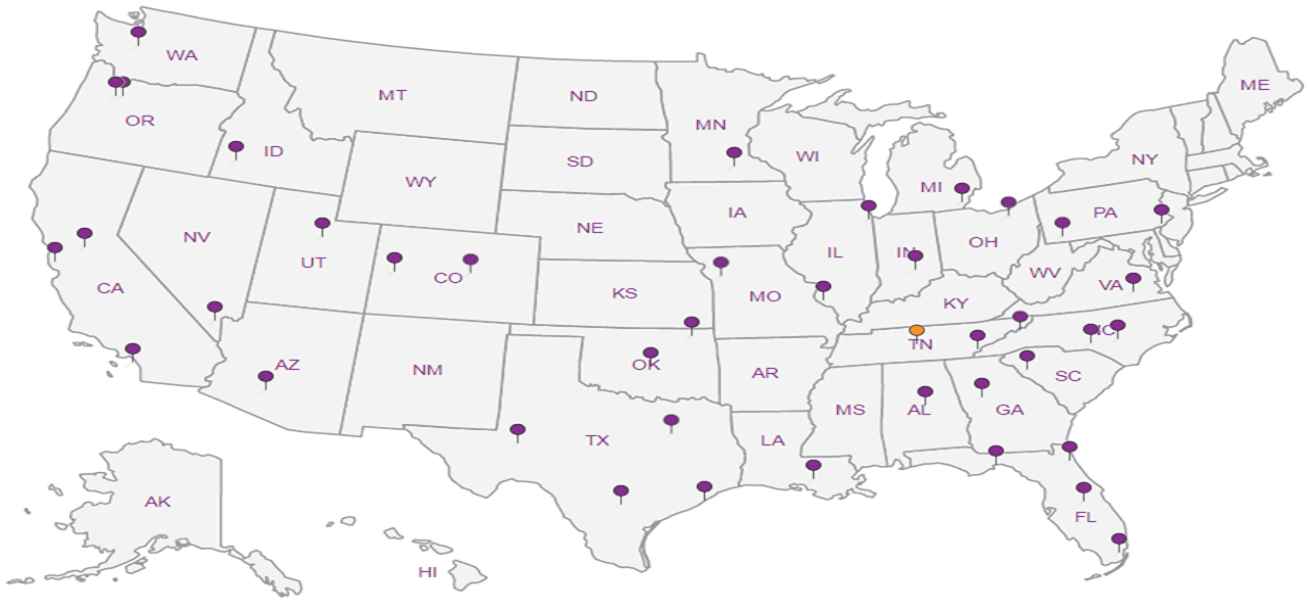
Third Party Federal Accreditations

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

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



HALL ENVIRONMENTAL ANALYSIS LABORATORY

CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 1

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

L1234733

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			D021

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS
1	2006E69-012C	MW-3	125HDP	Groundwater	6/24/2020 4:38:00 PM	1	ORP .01

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.

ok

Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Em	6/29/2020	10:30 AM			
			[signature]	6-30-20	0845

TAT: Standard ☐ (circled) RUSH Next BD ☐ 2nd BD ☐ 3rd BD ☐

REPORT TRANSMITTAL DESIRED:
☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

FOR LAB USE ONLY
Temp of samples 4.2±0=4.2 Attempt to Cool ?
Comments:

Pace Analytical National Center for Testing & Innovation
Cooler Receipt Form

Client: HOLLENFARM	CL234733	
Cooler Received/Opened On: 6/30/20 Temperature:	4.2	
Received By: joey brent		
Signature:		

Receipt Check List	NP	Yes	No
COC Seal Present / Intact?	✓		
COC Signed / Accurate?		✓	
Bottles arrive intact?		✓	
Correct bottles used?		✓	
Sufficient volume sent?		✓	
If Applicable			
VOA Zero headspace?			
Preservation Correct / Checked?			

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2006E69**

09-Jul-20

Client: Daniel B. Stephens & Assoc.

Project: Salty Dog

Sample ID: **MB** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**

Client ID: **PBW** Batch ID: **A70083** RunNo: **70083**

Prep Date: Analysis Date: **7/1/2020** SeqNo: **2434998** 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: **A70083** RunNo: **70083**

Prep Date: Analysis Date: **7/1/2020** SeqNo: **2434999** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.9	0.50	5.000	0	97.8	90	110			

Sample ID: **MB** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**

Client ID: **PBW** Batch ID: **R70134** RunNo: **70134**

Prep Date: Analysis Date: **7/2/2020** SeqNo: **2437168** Units: **mg/L**

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

Sample ID: **LCS** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**

Client ID: **LCSW** Batch ID: **R70134** RunNo: **70134**

Prep Date: Analysis Date: **7/2/2020** SeqNo: **2437169** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.51	0.10	0.5000	0	103	90	110			
Chloride	4.9	0.50	5.000	0	98.4	90	110			
Bromide	2.5	0.10	2.500	0	102	90	110			
Phosphorus, Orthophosphate (As P	4.8	0.50	5.000	0	96.9	90	110			
Sulfate	9.8	0.50	10.00	0	98.3	90	110			

Sample ID: **2006E69-012AMS** SampType: **ms** TestCode: **EPA Method 300.0: Anions**

Client ID: **MW-3** Batch ID: **R70134** RunNo: **70134**

Prep Date: Analysis Date: **7/2/2020** SeqNo: **2437180** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	4.4	1.0	5.000	0	87.3	70.2	118			
Bromide	27	1.0	25.00	1.588	101	87.5	104			
Sulfate	480	5.0	100.0	354.7	121	91.2	105			S

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2006E69**
09-Jul-20

Client: Daniel B. Stephens & Assoc.
Project: Salty Dog

Sample ID: **2006E69-012AMSD** SampType: **msd** TestCode: **EPA Method 300.0: Anions**
Client ID: **MW-3** Batch ID: **R70134** RunNo: **70134**
Prep Date: Analysis Date: **7/2/2020** SeqNo: **2437181** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	4.4	1.0	5.000	0	87.5	70.2	118	0.229	20	
Bromide	26	1.0	25.00	1.588	99.5	87.5	104	1.31	20	
Sulfate	460	5.0	100.0	354.7	106	91.2	105	3.26	20	S

Sample ID: **MB** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW** Batch ID: **A70164** RunNo: **70164**
Prep Date: Analysis Date: **7/8/2020** SeqNo: **2438254** Units: **mg/L**

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

Sample ID: **LCS** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW** Batch ID: **A70164** RunNo: **70164**
Prep Date: Analysis Date: **7/8/2020** SeqNo: **2438255** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.9	0.50	5.000	0	97.3	90	110			
Nitrate+Nitrite as N	3.5	0.20	3.500	0	98.6	90	110			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2006E69**
09-Jul-20

Client: Daniel B. Stephens & Assoc.
Project: Salty Dog

Sample ID: **lcs-1 99.5uS eC**	SampType: **lcs**		TestCode: **SM2510B: Specific Conductance**		
Client ID: **LCSW**	Batch ID: **R70035**		RunNo: **70035**		
Prep Date:	Analysis Date: **6/30/2020**		SeqNo: **2433192**	Units: **µmhos/cm**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	99	10	99.50	0	99.7	85	115			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2006E69**

09-Jul-20

Client: Daniel B. Stephens & Assoc.

Project: Salty Dog

Sample ID: **MB-53392** SampType: **MBLK** TestCode: **EPA 6010B: Total Recoverable Metals**

Client ID: **PBW** Batch ID: **53392** RunNo: **70033**

Prep Date: **6/29/2020** Analysis Date: **6/30/2020** SeqNo: **2432951** 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								

Sample ID: **LCS-53392** SampType: **LCS** TestCode: **EPA 6010B: Total Recoverable Metals**

Client ID: **LCSW** Batch ID: **53392** RunNo: **70033**

Prep Date: **6/29/2020** Analysis Date: **6/30/2020** SeqNo: **2432952** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	52	1.0	50.00	0	104	80	120			
Magnesium	53	1.0	50.00	0	106	80	120			
Potassium	51	1.0	50.00	0	102	80	120			

Sample ID: **MB-53392** SampType: **MBLK** TestCode: **EPA 6010B: Total Recoverable Metals**

Client ID: **PBW** Batch ID: **53392** RunNo: **70048**

Prep Date: **6/29/2020** Analysis Date: **7/1/2020** SeqNo: **2433650** Units: **mg/L**

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

Sample ID: **LCS-53392** SampType: **LCS** TestCode: **EPA 6010B: Total Recoverable Metals**

Client ID: **LCSW** Batch ID: **53392** RunNo: **70048**

Prep Date: **6/29/2020** Analysis Date: **7/1/2020** SeqNo: **2433651** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sodium	50	1.0	50.00	0	100	80	120			

Sample ID: **2006E69-014BMS** SampType: **MS** TestCode: **EPA 6010B: Total Recoverable Metals**

Client ID: **Injection** Batch ID: **53392** RunNo: **70048**

Prep Date: **6/29/2020** Analysis Date: **7/1/2020** SeqNo: **2433659** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sodium	340	5.0	50.00	309.5	58.5	75	125			S

Sample ID: **2006E69-014BMSD** SampType: **MSD** TestCode: **EPA 6010B: Total Recoverable Metals**

Client ID: **Injection** Batch ID: **53392** RunNo: **70048**

Prep Date: **6/29/2020** Analysis Date: **7/1/2020** SeqNo: **2433660** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sodium	350	5.0	50.00	309.5	76.0	75	125	2.54	20	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2006E69**

09-Jul-20

Client: Daniel B. Stephens & Assoc.

Project: Salty Dog

Sample ID: **mb-1 alk**	SampType: **mblk**	TestCode: **SM2320B: Alkalinity**
Client ID: **PBW**	Batch ID: **R70035**	RunNo: **70035**
Prep Date:	Analysis Date: **6/30/2020**	SeqNo: **2433180** Units: **mg/L CaCO3**

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

Sample ID: **lcs-1 alk**	SampType: **lcs**	TestCode: **SM2320B: Alkalinity**
Client ID: **LCSW**	Batch ID: **R70035**	RunNo: **70035**
Prep Date:	Analysis Date: **6/30/2020**	SeqNo: **2433181** Units: **mg/L CaCO3**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	76.16	20.00	80.00	0	95.2	90	110			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2006E69**
09-Jul-20

Client: Daniel B. Stephens & Assoc.
Project: Salty Dog

Sample ID: **MB-53476**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **53476**	RunNo: **70120**
Prep Date: **7/2/2020**	Analysis Date: **7/6/2020**	SeqNo: **2436557** 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-53476**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **53476**	RunNo: **70120**
Prep Date: **7/2/2020**	Analysis Date: **7/6/2020**	SeqNo: **2436558** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1010	20.0	1000	0	101	80	120			

Qualifiers:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: **Daniel B. Stephens & Assoc.** Work Order Number: **2006E69** RcptNo: 1

Received By: **Juan Rojas** **6/26/2020 11:15:00 AM**

Completed By: **Emily Mocho** **6/29/2020 9:13:31 AM**

Reviewed By: DAD 6/29/20
6/29/20 DAD

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 ☐
   Not frozen
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: JO 6/29/20

Special Handling (if applicable)

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

Person Notified: Date:
By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:
Client Instructions:

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	-0.7	Good	Not Present			

Chain-of-Custody Record

Client: Daniel B Stephens

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 Ph3 T1

Project Manager: John Ayarbe

Sampler: York Morgan

On Ice: ☑ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): -0.7-0=-0.7 (°C)

Not Frozen

HEAL No. 2006E69

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.	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)	Cl only 300.0
6-23-20	1738	GW	DBS-1R	1 Poly	N/A	-001											X
6-24-20	0855		DBS-2			-002											X
"	1016		DBS-3			-003											X
6-23-20	1850		DBS-4			-004											X
"	1710		DBS-5			-005											X
6-24-20	1500		DBS-6			-006											X
"	1245		DBS-8			-007											X
"	1055		DBS-9			-008											X
"	1126		DBS-10			-009											X
6-23-20	1821		RMW-1			-010											X
6-24-20	1435	↓	MW-5	↓	↓	-011											X

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
6-25-20	1250	York Morgan	UPS			
Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
				UPS	6/26/20	11:15

Remarks: Page 1 of 2

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

Chain-of-Custody Record

Client: DBS&A

Mailing Address:

Phone #: 505-522-9400

email or Fax#:

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:
☒ Standard ☐ Rush

Project Name: Salty Dog

Project #: DB19.1198.00 Ph1 T2

Project Manager: J. Ayarbe

Sampler: Y. Moya

On Ice: ☒ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): -0.7-0=-0.7(°C)

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

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.
6-24-20	1638	GW	MW-3	4 Poly	varies	-012
	1720		Brine	2 Poly		-013
	1700		Injection	2 Poly		-014

Not Frozen

Analysis Request

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 Conductivity	Total Alkalinity, Bicarbonate, Carbonate	Ca, Mg, K, Na 6010B
						X	X			X			X	X	X
										X	X	X			
										X	X	X			

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
6.25.20	1250	Y. Moya		UPS	6/26/20	11:15
Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time

Remarks: Page 2 of 2

Appendix B

Field Notes

Daniel B. Stephens & Associates, Inc.

GROUNDWATER ELEVATION DATA SHEET

Project Name: Salty Dog Sampler: Y. Moya

Project #: DB19.1198 Sample Date: 6-23-20

Project Manager: John Ayarbe Sheet # 1 of 1

Well ID	previous (06/19)	Depth to Water	Total Depth	Comments: (well dia., sampled, condition)
DBS-1R	68.25	68.66	74.42	1605
DBS-2	70.94	71.54	75.35	1600
DBS-3	66.10	66.81	74.76	1633
DBS-4	71.66	72.36	78.81	1555
DBS-5	68.44	~~66.96~~ 69.16	75.38	1640
DBS-6	67.24	68.29	76.02	1504
DBS-7	65.99	66.86		WL only 1524
DBS-8	65.52	66.42	69.91	1527
DBS-9	58.53	59.55	67.55	1549
DBS-10	65.11	66.03	78.11	13:45
MW-2	65.45	67.04	=	1541 WL only
MW-3	68.18	69.16	147.13	1533
MW-4	68.12	69.07		WL only 1509
MW-5	65.30	66.26	128.78	13:50
MW-6	66.70	67.71		WL only 1537 Wasps - sprayed
PMW-1	71.76	~~70.64~~ 72.03	77.73	1619

Comments: Totalizers FWS 1 = 2814600 BBL Not Pumping 16:14 6-23-20
RW-2 = 263135.6 BBL Pumping 15:05 6-24-20

Daniel B. Stephens & Associates, Inc.

GROUNDWATER MONITORING DATA SHEET

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

Sampler: Y. Mozan
Sample Date: 6-23-20
Sample Time: 1738

Well #: DBS-1R

Well Diameter: 2" (inches) Height of Water Column: 5.76 (feet)
Depth to NAPL: --- (feet btoc) Casing Volume: 0.92 (gal)
Depth to Water: 68.66 (feet btoc) Purge Volume: 2.77 (gal)
Total Depth of Well: 74.42 (feet) Purge Method: ~~Grab~~ 4" 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)
Initial	7.64	19.5	1302	120.3	6.04	Turbid.
1	7.62	18.9	1281	119.2	6.51	"
2	7.58	18.9	1278	119.3	6.41	"
3	7.67	19.2	1254	114.0	6.47	"

Sample Description: 1 poly

Physical Observations: Yellowish Brown, Turbid, No odor

Analytical Method(s): Chloride

Daniel B. Stephens & Associates, Inc.

GROUNDWATER MONITORING DATA SHEET

Project Name: Salty Dog Sampler: N. Morgan

Project #: DB19.1198.00 Sample Date: 6.24.20

Project Manager: John Ayarbe Sample Time: 0855

Well #: DBS-2

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

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

Depth to Water: 71.54 (feet btoc) Purge Volume: 1.83 (gal)

Total Depth of Well: 75.35 (feet) Purge Method: ~~Grab~~ 48" 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)
Initial	7.59	19.3	650	112.4	5.47	Turbid
1	7.32	19.1	652	114.3	5.10	"
2	7.26	19.1	656	152.7	5.27	"
3	7.32	19.1	679	147.0	4.83	"

Sample Description: 1 poly

Physical Observations: Turbid, light reddish brown, No odor

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: Y. Moya
Sample Date: 6.24.20
Sample Time: 1016

Well #: DBS-3

Well Diameter: 2" (inches) Height of Water Column: 7.95 (feet)
Depth to NAPL: --- (feet btoc) Casing Volume: 1.27 (gal)
Depth to Water: 66.81 (feet btoc) Purge Volume: 3.80 (gal)
Total Depth of Well: 74.76 (feet) Purge Method: ~~Grab~~ 4" 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)
Initial	7.70	19.3	571	193.1	7.00	Turb.
1	7.50	19.4	572	190.8	6.45	"
2	7.34	19.4	572	191.6	6.51	"
3	7.44	19.6	571	177.9	6.56	"

Sample Description: 1 poly

Physical Observations: Light reddish brown, turbid, no odor

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: Y. Morgan
Sample Date: 6-23-20
Sample Time: 1850

Well #: DBS-4

Well Diameter: 2" (inches)
Depth to NAPL: --- (feet btoc)
Depth to Water: 72.36 (feet btoc)
Total Depth of Well: 78.81 (feet)

Height of Water Column: 6.45 (feet)
Casing Volume: 1.03 (gal)
Purge Volume: 3.10 (gal)
Purge Method: ~~Grab~~ 4" 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)
Initial	8.18	19.3	689	56.2	6.76	Turbid
1	7.94	19.1	555.6	69.7	6.95	"
2	7.79	19.1	550.9	81.2	6.97	"
3	7.62	19.1	550.8	95.9	6.73	"

Sample Description: 1 poly

Physical Observations: Light reddish brown, No odor, turbid

Analytical Method(s): Chloride

Daniel B. Stephens & Associates, Inc.

GROUNDWATER MONITORING DATA SHEET

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

Sampler: K Morgan
Sample Date: 6-23-20
Sample Time: 1710

Well #: DBS-5

Well Diameter: 2" (inches) Height of Water Column: 6.22 (feet)
Depth to NAPL: --- (feet btoc) Casing Volume: 0.995 (gal)
Depth to Water: 69.16 (feet btoc) Purge Volume: 2.99 (gal)
Total Depth of Well: 75.38 (feet) Purge Method: ~~Grab~~ 48" bailer - poly

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

Groundwater Parameters:

Casing Volume	pH	Temp (°F)	Conductivity (µS/cm)	ORP (mv)	D.O. (mg/L)	Turbidity (NTU)
Initial	6.13	20.0	1277	122.2	5.75	Turb. d
1	6.08	19.7	1277	109.5	5.80	"
2	5.84	19.9	1241	105.9	5.63	"
3	7.07	20.2	1241	88.0	5.95	"

Sample Description: 1 poly

Physical Observations: Yellowish Brown, Turb. d, No odor

Analytical Method(s): Chloride

Daniel B. Stephens & Associates, Inc.

GROUNDWATER MONITORING DATA SHEET

Project Name: Salty Dog Sampler: V. Morgan

Project #: DB19.1198.00 Sample Date: 6-24-20

Project Manager: John Ayarbe Sample Time: 1500

Well #: DBS-6

Well Diameter: 2" (inches) Height of Water Column: 7.73 (feet)

Depth to NAPL: --- (feet btoc) Casing Volume: 1.24 (gal)

Depth to Water: 68.29 (feet btoc) Purge Volume: 3.71 (gal)

Total Depth of Well: 76.02 (feet) Purge Method: ~~Grab~~ 48" Poly Bailer

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

Groundwater Parameters:

Casing Volume	pH 7.57	Temp ~~°F~~ °C	Conductivity (µS/cm)	ORP (mv)	D.O. (mg/L)	Turbidity (NTU)
Initial	~~[illegible]~~	19.6	1275	139.9	5.68	Slightly turbid
1	7.29	19.6	1249	133.6	6.07	Turbid
2	7.17	19.5	1235	140.0	5.89	"
3	7.30	19.7	1206	139.8	5.71	"

Sample Description: 1 poly

Physical Observations: Light reddish brown, turbid, No odor

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: Y. Morgan
Sample Date: 6-24-20
Sample Time: 1245

Well #: DBS-8
Well Diameter: 2" (inches)
Depth to NAPL: --- (feet btoc)
Depth to Water: 66.42 (feet btoc)
Total Depth of Well: 69.91 (feet)

Height of Water Column: 3.49 (feet)
Casing Volume: 0.56 (gal)
Purge Volume: 1.70 (gal)
Purge Method: ~~Grab~~ 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)
Initial	8.02	20.3	628	169.7	6.67	Turbid
1	7.75	20.0	598	168.7	5.97	"
2	7.66	19.9	597	145.2	5.04	"
3	7.45	20.0	594	120.6	4.24	"

Sample Description: 1 poly

Physical Observations: No odor, Turbid, light reddish brown

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: V. Morgan
Sample Date: 6.24.20
Sample Time: 1055

Well #: DBS-9

Well Diameter: 2" (inches) Height of Water Column: 8.00 (feet)
Depth to NAPL: --- (feet btoc) Casing Volume: 1.28 (gal)
Depth to Water: 59.55 (feet btoc) Purge Volume: 3.84 (gal)
Total Depth of Well: 67.55 (feet) Purge Method: ~~Grab~~ 4" 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)
Initial	7.40	18.7	2071	187.0	5.77	Slight
1	7.22	18.5	1830	187.3	6.42	Turbid
2	7.20	18.6	1666	186.1	6.30	"
3	7.21	18.6	1695	185.7	6.41	"

Sample Description: 1 poly

Physical Observations: Light reddish brown, turbid, No odor

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: Y. Morgan
Sample Date: 6-24-20
Sample Time: 1126

Well #: DBS-10

Well Diameter: 2" (inches)
Depth to NAPL: --- (feet btoc)
Depth to Water: 66.03 (feet btoc)
Total Depth of Well: 78.11 (feet)

Height of Water Column: 12.08 (feet)
Casing Volume: 1.93 (gal)
Purge Volume: 5.80 (gal)
Purge Method: ~~Grab~~ Bailer-Poly

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

Groundwater Parameters:

Casing Volume	pH	Temp °C	Conductivity (µS/cm)	ORP (mv)	D.O. (mg/L)	Turbidity (NTU)
Initial	7.39	19.8	2493	178.4	5.49	Turbid
1	7.11	19.5	2156	175.8	5.30	"
2	7.10	19.4	2195	175.2	5.11	"
3	7.25	19.5	2306	182.4	4.94	"

Sample Description: 1 poly

Physical Observations: Light reddish brown, turbid, No odor

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: Y. Morgan
Sample Date: 6-24-20
Sample Time: 1638

Well #: MW-3

Well Diameter: 2" (inches)
Depth to NAPL: --- (feet btoc)
Depth to Water: 69.16 (feet btoc)
Total Depth of Well: 147.13 (feet)

Height of Water Column: 77.97 (feet)
Casing Volume: 12.48 (gal)
Purge Volume: 37.43 (gal)
Purge Method: ~~Grab~~ 48" Poly bailer

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

Groundwater Parameters:

Casing Volume	pH	Temp °C	Conductivity (µS/cm)	ORP (mv)	D.O. (mg/L)	Turbidity (NTU)
Initial	7.67	20.0	1875	178.7	4.38	Non-turbid
1	7.40	19.3	2249	144.8	3.81	"
2	6.97	19.2	14648	163.7	3.64	"
3	7.19	19.4	16816	145.5	3.44	"

4 poly

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

Physical Observations: Non-turbid, No odor,

Analytical Method(s): Chloride etc.

Daniel B. Stephens & Associates, Inc.

GROUNDWATER MONITORING DATA SHEET

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

Sampler: Y. Morgan
Sample Date: 6-24-20
Sample Time: 1435

Well #: MW-5
Well Diameter: 2" (inches)
Depth to NAPL: --- (feet btoc)
Depth to Water: 66.26 (feet btoc)
Total Depth of Well: 128.78 (feet)

Height of Water Column: 62.52 (feet)
Casing Volume: 10.00 (gal)
Purge Volume: 30.00 (gal)
Purge Method: ~~Grab~~ 4" poly bailer

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

Groundwater Parameters:

Casing Volume	pH	Temp °C	Conductivity (µS/cm)	ORP (mv)	D.O. (mg/L)	Turbidity (NTU)
Initial	7.72	20.1	1892	164.1	4.70	Non-turbid
1	7.14	20.3	2221	108.3	3.73	"
2	7.50	19.8	2362	199.7	4.51	Slightly turbid
3	7.15	20.0	2513	111.5	6.87	"

Sample Description: 1 poly

Physical Observations: Turbid, No odor, Light reddish brown

Analytical Method(s): Chloride

Daniel B. Stephens & Associates, Inc.

GROUNDWATER MONITORING DATA SHEET

Project Name: Salty Dog
Sampler: V. Morgan
Project #: DB19.1198.00
Sample Date: 6-23-20
Project Manager: John Ayarbe
Sample Time: 1821

Well #: PMW-1
Well Diameter: 2" (inches) Height of Water Column: 5.70 (feet)
Depth to NAPL: --- (feet btoc) Casing Volume: 0.91 (gal)
Depth to Water: 72.03 (feet btoc) Purge Volume: 2.74 (gal)
Total Depth of Well: 77.73 (feet) Purge Method: ~~Grab~~ 48" 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)
Initial	7.17	19.9	29953	136.9	6.12	Slightly Turbid
1	7.19	19.4	29012	127.7	6.24	Turbid
2	7.13	19.7	29670	113.7	5.36	"
3	7.08	19.8	28847	108.8	5.01	"

Sample Description: 1 poly

Physical Observations: Very light brown, turbid, No odor

Analytical Method(s): Chloride

Daniel B. Stephens & Associates, Inc.

GROUNDWATER MONITORING DATA SHEET

Project Name: Salty Dog Sampler: Y. Morgan

Project #: DB19.1198.00 Sample Date: 6-24-20

Project Manager: John Ayarbe Sample Time: 1712 1720

Well # ~~Injection~~ Brine

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

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

Depth to Water: _____ (feet btoc) Purge Volume: _____ (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)
Initial	6.87	32.2	240,653	143.6	0.42	Non turbid
1						
2						
3						

Sample Description: ~~3 poly~~ only 2 poly

Physical Observations: NF Non turbid, No color, No odor

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

Daniel B. Stephens & Associates, Inc.

GROUNDWATER MONITORING DATA SHEET

Project Name: Salty Dog
Sampler: L. Morgan
Project #: DB19.1198.00
Sample Date: 6-24-20
Project Manager: John Ayarbe
Sample Time: ~~1000~~ 1700
Well #: ~~Blank~~ Injection
Well Diameter: 2" (inches) Height of Water Column: N/A (feet)
Depth to NAPL: --- (feet btoc) Casing Volume: (gal)
Depth to Water: N/A (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	7.87	24.9	2223	99.1	4.40	Non turbid
1						
2						
3						

Sample Description: ~~3 poly~~ only 2 poly

Physical Observations: From Fill Port east of 2 XL Brown tanks per Jim, Non turbid, No color, No odor

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

Daniel B. Stephens & Associates, Inc.

GROUNDWATER METER CALIBRATION SHEET

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

Sampler: Y. Morgan
Date: 6-23-20

pH	Temp (°C)	Comments
(4) 4.03	~~4.03~~ 25.8	
(7) 7.03	~~7.03~~ 24.7	
(10) 10.06	~~10.06~~ 23.9	
SpCon (µs/cm)	**Temp (°C)**	**Comments**
(1413) 1430 → 1413	24.9	
ORP (mv)	**Temp (°C)**	**Comments**
221.7	25.7	
Dissolved O_2	**Temp (°C)**	**Comments**
(%) 85.9 → 86.6	26.7	
(mg/L) 6.83	20.0	
Pressure	**Temp (°C)**	**Comments**
(mmHg) 623	20.0	

Comments: YSI Pro Plus

Daniel B. Stephens & Associates, Inc.

GROUNDWATER METER CALIBRATION SHEET

Project Name: Salty Dog
Project #: DBR.1198
Project Manager: J. Ayotte
Sampler: Y. Morgan
Date: 6.24.20

pH	Temp (°C)	Comments
(4) 4.03	23.3	
(7) 7.01	24.0	
(10) 10.06	22.5	
SpCon (µs/cm)	Temp (°C)	Comments
(1413) 1452 → 1413	23.3	
ORP (mv)	Temp (°C)	Comments
199.6 → 200	21.4	
Dissolved O_2	Temp (°C)	Comments
(%) 85.5 → 86.1	24.1	
(mg/L) 3.80	23.0	
Pressure	Temp (°C)	Comments
(mmHg) 664.6	23.6	

Comments: YSI Pro Plus
2nd Sampling Day

Tailgate Safety Meeting

Project ID: Salty Dog
Location: Hobbs, NM
Project Coordinator: Mike Zbrozek
Day: Tuesday
Date: 6.23.20 6.24.20
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 - Mud
- ✓ Lifting/Slips/Trips/Falls
- ✓ Heat/Cold Stress (Inc. Sunburn)
- Other: Dehydration, Snakes, Spiders

First Aid
- ✓ Facilities/Kits/Eyewashes

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

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

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

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

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

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

Emergency Facilities (and Directions)
- Name: Hobbs, NM
- Address:
- Tel. No.: 911

Safety Meeting Attendees:

Name	Signature	Name	Signature
6.23.20 York Morgan	York Morgan		
6-24-20 York Morgan	York Morgan		

Chain-of-Custody Record

Client: DBSaA

Mailing Address:

Phone #: 505-822-9400

email or Fax#:

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance

☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:

☐ Standard ☐ Rush

Project Name: Salty Dog

Project #: DB19.1198.00 PH1 TQ

Project Manager: J Aguirre

Sampler: Y Morga

On Ice: ☐ Yes ☐ No

# of Coolers:

Cooler Temp(including CF): (°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.	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	Total Alkalinity, Bicarbonate, Carbonate	Ca, Mg, K, Na 6010B
6-24-20	1638	GW	MW-3 ✓	4 Poly	Various								X	X			X			X	X	X
↓	1700	↓	Brine ✓	2 Poly	↓												X	X	X			
↓	1700	↓	Injection ✓	2 Poly	↓												X	X	X			

YP Morga

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
6.25.20	1253	YP Morga				

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.

Chain-of-Custody Record

Client: Daniel B. Stephens

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 PH3 T1

Project Manager: John Ayarbe

Sampler: Kyle Morgan

On Ice: ☐ Yes ☐ No

# of Coolers:

Cooler Temp(including CF): (°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.	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)	Cl only 300.0
6/23/20	1738	GW	DBS-1R	1 Poly	N/A												X
6/24/20	0955		DBS-2														X
"	1010		DBS-3														X
6/23/20	1853		DBS-4														X
"	1710		DBS-5														X
6/24/20	1500		DBS-6														X
"	1245		DBS-8														X
"	1055		DBS-9														X
"	1120		DBS-10														X
6/23/20	1821		PMW-1														X
6/24/20	1435		MW-5														X

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
6/25/20	1250	Kyle Morgan	UPS			
Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time

Remarks: Page 1 of 2

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

DB19.1198

Salty Dog Sampling, Y. Morgan 6-23-20

High 90°, Low 66°, Partly Cloudy
Recent rain, 10-15 mph wind

- 0730 Leave Silver City
- 1320 Arrive Salty Dog. Call Jim Sayre - OK Gauge WLs at wells
- H&S Tailgate meeting
- Wasp nest in 3rd well - almost strung
- 1400 Leave site to Hobbs for Wasp spray
- 1500 Return onsite
- 1640 - Finish gauging all wells Could not find PWS-2 Totalizer
- Calibrate YSI Pro Plus meter
- 1710 - Collect DBS-5 (1PL)
- Using poly bailers - disposable - So sampling order not important
- 1738 Collect DBS-1R (1PL)
- 1821 Collect PMW-1 (1PL)
- 1850 Collect DBS-4 (1PL)
- 1910 Leave site
- 1945 - Unload @ hotel - Hobbs

Yze Morgan

DB19.1198

Salty Dog Sampling, Y. Morgan 6-24-20

High 91°, Low 64°, 5-10 mph, Rain last PM, Mostly Sunny

- 0730 Ice in Hobbs
- 0750 onsite, Tailgate Safety Calibrate YSI meter
- 0855 Collect DBS-2
- 0920 - Jim Sayre onsite. Having problems w/ Pump/well @ Brine well. Pumping exclusively from KW-2
Very few trucks running now
- 1016 - Collect DBS-3
- 1055 - Collect DBS-9
- 1126 - Collect DBS-10
- 1245 - Collect DBS-8
- 1435 - Collect MW-5
- 1500 - Collect DBS-6
- 1638 - Collect MW-3 - 4 poly cont.
- 1700 - Collect Injection - 2 poly cont.
- 1720 - Collect Brine - 2 poly From Fill ports @ Station
- 1800 - Unload @ hotel

Yze Mgn

Appendix C

Historical Data

Table C-1. Historical Fluid Level Measurements
Salty Dog Brine Station, Lea County, New Mexico
Page 1 of 9

Monitor Well	Screen Interval (feet bgs)	Top of Casing Elevation [a] (feet msl)	Date Measured	Depth to Water (feet btoc)	Groundwater Elevation (feet msl)
DBS-1	56.0–76.0	3,817.09	4/08/2009	62.38	3,754.71
			5/11/2011	64.70	3,752.39
			10/04/2011	Well destroyed	
DBS-1R	58.0–78.0	3,817.00 [b]	4/30/2012	63.60	3,753.40
			9/10/2012	65.65	3,751.35
			6/23/2013	64.40	3,752.60
			1/09/2014	67.23	3,749.77
			4/07/2014	66.36	3,750.64
			3/20/2015	67.17	3,749.83
			7/01/2015	67.92	3,749.08
			9/29/2015	67.07	3,749.93
			12/16/2015	67.54	3,749.46
			3/22/2016	66.61	3,750.39
			6/08/2016	66.23	3,750.77
			9/13/2016	67.43	3,749.57
			12/01/2016	67.31	3,749.69
			6/20/2017	69.60	3,747.40
			12/19/2017	67.80	3,749.20
			6/18/2018	67.45	3,749.55
			11/07/2018	68.71	3,748.29
			6/03/2019	68.25	3,748.75
			12/17/2019	70.41	3,746.59
			6/23/2020	68.66	3,748.34
DBS-2	58.0–78.0	3,820.50	4/08/2009	65.45	3,755.05
			5/11/2011	66.80	3,753.70
			10/04/2011	65.87	3,754.63
			2/08/2012	65.96	3,754.54
			4/30/2012	66.26	3,754.24
			9/10/2012	67.45	3,753.05
			6/23/2013	67.03	3,753.47
			1/09/2014	69.08	3,751.42
			4/07/2014	68.67	3,751.83

[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
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msl = Above mean sea level
NA = Not available

Table C-1. Historical Fluid Level Measurements
Salty Dog Brine Station, Lea County, New Mexico
Page 2 of 9

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	3/20/2015	69.32	3,751.18
			6/30/2015	69.29	3,751.21
			9/29/2015	69.41	3,751.09
			12/16/2015	69.71	3,750.79
			3/22/2016	69.13	3,751.37
			6/08/2016	68.91	3,751.59
			9/13/2016	69.76	3,750.74
			12/01/2016	69.73	3,750.77
			6/20/2017	71.33	3,749.17
			12/19/2017	70.42	3,750.08
			6/18/2018	70.25	3,750.25
			11/07/2018	71.07	3,749.43
			6/03/2019	70.94	3,749.56
			12/17/2019	72.43	3,748.07
			6/23/2020	71.54	3,748.96
DBS-3	56.0–76.72	3,816.66	4/08/2009	60.67	3,755.99
			5/11/2011	61.25	3,755.41
			10/04/2011	61.25	3,755.41
			2/08/2012	61.11	3,755.55
			4/30/2012	61.41	3,755.25
			9/10/2012	61.81	3,754.85
			6/23/2013	62.08	3,754.58
			1/09/2014	63.30	3,753.36
			4/07/2014	63.43	3,753.23
			3/20/2015	63.93	3,752.73
			6/30/2015	63.99	3,752.67
			9/29/2015	64.17	3,752.49
			12/16/2015	64.41	3,752.25
			3/22/2016	63.88	3,752.78
			6/08/2016	63.92	3,752.74
			9/13/2016	64.56	3,752.10
			12/01/2016	64.59	3,752.07

[a] Top of casing elevations surveyed by Pettigrew & Assoc. on May 28, 2009.
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Table C-1. Historical Fluid Level Measurements
Salty Dog Brine Station, Lea County, New Mexico
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Monitor Well	Screen Interval (feet bgs)	Top of Casing Elevation [a] (feet msl)	Date Measured	Depth to Water (feet btoc)	Groundwater Elevation (feet msl)
DBS-3 (cont.)	56.0–76.72	3,816.66	6/20/2017	65.52	3,751.14
			12/19/2017	65.54	3,751.12
			6/18/2018	65.60	3,751.06
			11/07/2018	66.11	3,750.55
			6/03/2019	66.10	3,750.56
			12/17/2019	66.96	3,749.70
			6/23/2020	66.81	3,749.85
DBS-4	56.0–76.0	3,820.37	4/08/2009	66.27	3,754.10
			5/11/2011	67.23	3,753.14
			10/04/2011	66.67	3,753.70
			2/08/2012	66.76	3,753.61
			4/30/2012	67.02	3,753.35
			9/10/2012	67.78	3,752.59
			6/23/2013	67.70	3,752.67
			1/09/2014	69.37	3,751.00
			4/07/2014	69.23	3,751.14
			3/20/2015	69.81	3,750.56
			6/30/2015	69.85	3,750.52
			9/29/2015	70.00	3,750.37
			12/16/2015	70.25	3,750.12
			3/22/2016	69.74	3,750.63
			6/08/2016	69.62	3,750.75
			9/13/2016	70.35	3,750.02
			12/01/2016	70.38	3,749.99
			6/20/2017	71.67	3,748.70
			12/19/2017	71.08	3,749.29
			6/18/2018	70.98	3,749.39
			11/07/2018	71.61	3,748.76
			6/03/2019	71.66	3,748.71
			12/17/2019	72.90	3,747.47
			6/23/2020	72.36	3,748.01

[a] Top of casing elevations surveyed by Pettigrew & Assoc. on May 28, 2009.
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bgs = Below ground surface btoc = Below top of casing
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Table C-1. Historical Fluid Level Measurements
Salty Dog Brine Station, Lea County, New Mexico
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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	56.9–76.9	3,820.66	4/08/2009	62.99	3,757.67
			5/11/2011	63.45	3,757.21
			10/04/2011	63.41	3,757.25
			2/08/2012	63.46	3,757.20
			4/30/2012	63.70	3,756.96
			9/10/2012	63.92	3,756.74
			6/23/2013	64.30	3,756.36
			1/09/2014	65.28	3,755.38
			4/07/2014	65.48	3,755.18
			3/20/2015	65.90	3,754.76
			7/01/2015	66.18	3,754.48
			9/29/2015	66.25	3,754.41
			12/16/2015	66.47	3,754.19
			3/22/2016	66.08	3,754.58
			6/08/2016	66.16	3,754.50
			9/13/2016	66.64	3,754.02
			12/01/2016	66.72	3,753.94
			6/20/2017	67.60	3,753.06
			12/19/2017	67.88	3,752.78
			6/18/2018	68.04	3,752.62
			11/07/2018	68.47	3,752.19
			6/03/2019	68.44	3,752.22
			12/17/2019	69.13	3,751.53
			6/23/2020	66.26	3,754.40
DBS-6	56.7–76.7	3,812.65	4/07/2009	62.75	3,749.90
			5/11/2011	63.11	3,749.54
			10/04/2011	63.16	3,749.49
			2/08/2012	63.20	3,749.45
			4/30/2012	63.43	3,749.22
			9/10/2012	63.60	3,749.05
			6/23/2013	63.74	3,748.91
			1/09/2014	64.00	3,748.65

[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.
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Table C-1. Historical Fluid Level Measurements
Salty Dog Brine Station, Lea County, New Mexico
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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	4/07/2014	64.22	3,748.43
			3/19/2015	64.78	3,747.87
			7/01/2015	64.81	3,747.84
			9/29/2015	65.48	3,747.17
			12/16/2015	65.26	3,747.39
			3/22/2016	65.38	3,747.27
			6/08/2016	65.37	3,747.28
			9/13/2016	65.51	3,747.14
			12/01/2016	65.51	3,747.14
			6/20/2017	65.81	3,746.84
			12/19/2017	66.29	3,746.36
			6/18/2018	66.45	3,746.20
			11/07/2018	66.62	3,746.03
			6/03/2019	67.24	3,745.41
			12/17/2019	67.95	3,744.70
			6/23/2020	68.29	3,744.36
DBS-7	55.1–75.1	3,810.21	4/07/2009	61.74	3,748.47
DBS-8	55.2–75.2	3,810.70	4/07/2009	61.20	3,749.50
			5/11/2011	61.67	3,749.03
			10/04/2011	61.71	3,748.99
			2/08/2012	61.77	3,748.93
			4/30/2012	62.00	3,748.70
			9/10/2012	62.15	3,748.55
			6/23/2013	62.28	3,748.42
			1/09/2014	62.47	3,748.23
			4/07/2014	62.67	3,748.03
			3/19/2015	63.19	3,747.51
			6/30/2015	63.25	3,747.45
			9/29/2015	63.82	3,746.88
			12/16/2015	63.58	3,747.12
			3/22/2016	63.76	3,746.94
			6/08/2016	63.72	3,746.98

[a] Top of casing elevations surveyed by Pettigrew & Assoc. on May 28, 2009.
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Table C-1. Historical Fluid Level Measurements
Salty Dog Brine Station, Lea County, New Mexico
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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	9/13/2016	63.83	3,746.87
			12/01/2016	63.79	3,746.91
			6/20/2017	64.09	3,746.61
			12/19/2017	64.53	3,746.17
			6/18/2018	64.70	3,746.00
			11/07/2018	64.82	3,745.88
			6/03/2019	65.52	3,745.18
			12/17/2019	66.12	3,744.58
			6/23/2020	66.42	3,744.28
DBS-9	48.0–68.0	3,806.26	4/08/2009	53.93	3,752.33
			5/11/2011	54.39	3,751.87
			10/04/2011	54.59	3,751.67
			2/08/2012	54.53	3,751.73
			4/30/2012	54.68	3,751.58
			9/10/2012	54.77	3,751.49
			6/23/2013	55.04	3,751.22
			1/09/2014	55.27	3,750.99
			4/07/2014	55.56	3,750.70
			3/19/2015	55.95	3,750.31
			7/01/2015	56.14	3,750.12
			9/29/2015	56.49	3,749.77
			12/16/2015	56.52	3,749.74
			3/22/2016	56.51	3,749.75
			6/08/2016	56.64	3,749.62
			9/13/2016	56.81	3,749.45
			12/01/2016	56.88	3,749.38
			6/20/2017	57.28	3,748.98
			12/19/2017	57.67	3,748.59
			6/18/2018	57.98	3,748.28
			11/07/2018	58.22	3,748.04
			6/03/2019	58.53	3,747.73

[a] Top of casing elevations surveyed by Pettigrew & Assoc. on May 28, 2009.
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Table C-1. Historical Fluid Level Measurements
Salty Dog Brine Station, Lea County, New Mexico
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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-9 (cont.)	48.0–68.0	3,806.26	12/17/2019	59.25	3,747.01
			6/23/2020	59.55	3,746.71
DBS-10	57.2–77.2	3,807.48	6/18/2018	64.46	3,743.02
			11/07/2018	64.66	3,742.82
			6/03/2019	65.11	3,742.37
			12/17/2019	65.80	3,741.68
			6/23/2020	66.03	3,807.48
NW-1s	52.95–72.95	3,817.33	4/08/2009	62.35	3,754.98
NW-1m	99.31–119.31	3,817.35	4/08/2009	62.25	3,755.10
NW-1d	149.45–169.45	3,817.35	4/08/2009	62.04	3,755.31
NW-2s	53.35–73.35	3,812.50	4/08/2009	63.08	3,749.42
NW-2m	93.72–113.72	3,812.45	4/08/2009	63.27	3,749.18
NW-2d	126.87–146.87	3,812.46	4/08/2009	66.41	3,746.05
PMW-1	63–78	3,821.17	6/23/2008	67.51	3,753.66
			4/08/2009	65.97	3,755.20
			5/11/2011	68.70	3,752.47
			10/04/2011	66.95	3,754.22
			2/08/2012	66.69	3,754.48
			4/30/2012	67.27	3,753.90
			9/10/2012	69.77	3,751.40
			6/23/2013	68.40	3,752.77
			1/09/2014	71.24	3,749.93
			4/07/2014	69.97	3,751.20
			3/20/2015	70.78	3,750.39
			7/01/2015	71.41	3,749.76
			9/29/2015	70.76	3,750.41
			12/16/2015	71.03	3,750.14
			3/22/2016	70.30	3,750.87
			6/08/2016	69.65	3,751.52
			9/13/2016	71.08	3,750.09
			12/01/2016	70.97	3,750.20
			6/20/2017	73.06	3,748.11

[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.
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Table C-1. Historical Fluid Level Measurements
Salty Dog Brine Station, Lea County, New Mexico
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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)
PMW-1 (cont.)	63–78	3,821.17	12/19/2017	71.19	3,749.98
			6/18/2018	70.97	3,750.20
			11/07/2018	72.52	3,748.65
			6/03/2019	71.76	3,749.41
			12/17/2019	76.25	3,744.92
			6/23/2020	72.03	3,749.14
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
			4/07/2009	61.65	3,751.03
MW-3	NA	3,812.05	6/23/2008	62.06	3,749.99
			4/07/2009	62.02	3,750.03
			5/11/2011	62.91	3,749.14
			10/04/2011	62.91	3,749.14
			2/08/2012	62.95	3,749.10
			4/30/2012	63.39	3,748.66
			9/10/2012	63.50	3,748.55
			6/23/2013	63.36	3,748.69
			1/09/2014	63.55	3,748.50
			4/07/2014	63.88	3,748.17
			3/19/2015	64.27	3,747.78
			7/01/2015	64.34	3,747.71
			9/29/2015	67.94	3,744.11
			12/16/2015	64.75	3,747.30
			3/22/2016	64.84	3,747.21
			6/08/2016	64.89	3,747.16
			9/13/2016	66.33	3,745.72
			12/01/2016	66.66	3,745.39
			6/20/2017	65.56	3,746.49
			12/19/2017	65.70	3,746.35
			6/18/2018	66.52	3,745.53
			11/07/2018	66.09	3,745.96
			6/03/2019	68.18	3,743.87

[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
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Table C-1. Historical Fluid Level Measurements
Salty Dog Brine Station, Lea County, New Mexico
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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	12/17/2019	67.38	3,744.67
			6/23/2020	69.16	3,742.89
MW-4	111–131	3,811.33	6/23/2008	62.12	3,749.21
			4/07/2009	62.51	3,748.82
MW-5	112–132	3,808.96	6/23/2008	60.60	3,748.36
			4/07/2009	60.79	3,748.17
			5/11/2011	61.17	3,747.79
			10/04/2011	61.72	3,747.24
			2/08/2012	61.23	3,747.73
			4/30/2012	61.50	3,747.46
			9/10/2012	61.65	3,747.31
			6/23/2013	61.75	3,747.21
			1/09/2014	61.90	3,747.06
			4/07/2014	62.18	3,746.78
			3/19/2015	62.96	3,746.00
			6/30/2015	62.71	3,746.25
			9/29/2015	63.92	3,745.04
			12/16/2015	63.02	3,745.94
			3/22/2016	63.14	3,745.82
			6/08/2016	63.47	3,745.49
			9/13/2016	63.66	3,745.30
			12/01/2016	63.70	3,745.26
			6/21/2017	63.62	3,745.34
			12/19/2017	65.02	3,743.94
			6/18/2018	64.32	3,744.64
			11/07/2018	64.34	3,744.62
			06/03/2019	65.30	3,743.66
			12/17/2019	65.57	3,743.39
			6/23/2020	66.26	3,742.70
MW-6	NA	3,810.17	6/23/2008	62.17	3,748.00
			4/07/2009	62.41	3,747.76

[a] Top of casing elevations surveyed by Pettigrew & Assoc. on May 28, 2009.
[b] Top of casing elevation surveyed by Pettigrew & Assoc. on June 13, 2012.
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NA = Not available

Table C-2. Historical Chloride Groundwater Analytical Data
Salty Dog Brine Station, Lea County, New Mexico
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Monitor Well	Date	Chloride Concentration (mg/L) [a]
NMWQCC Standard		*250*
DBS-1	4/08/2009	**320**
	5/12/2011	**940**
	10/04/2011	Well destroyed
DBS-1R	5/01/2012	**3,000**
	9/11/2012	**3,200**
	6/25/2013	**3,300**
	1/10/2014	**1,000**
	4/08/2014	**1,700**
	3/20/2015	**1,200**
	7/01/2015	**860**
	9/30/2015	**670**
	12/17/2015	**760**
	3/23/2016	**560**
	6/09/2016	**570**
	09/14/2016	**360**
	12/01/2016	**360**
	6/20/2017	**320**
	12/20/2017	190
	6/19/2018	190
	11/08/2018	180
	6/03/2019	190
	12/18/2019	210
	6/23/2020	220
DBS-2	4/08/2009	14
	5/12/2011	25
	10/05/2011	18
	2/09/2012	22
	5/01/2012	24
	9/11/2012	44
	6/25/2013	36
	1/10/2014	45

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

Table C-2. Historical Chloride Groundwater Analytical Data
Salty Dog Brine Station, Lea County, New Mexico
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Monitor Well	Date	Chloride Concentration (mg/L) [a]
	NMWQCC Standard	*250*
DBS-2 (cont.)	4/08/2014	22
	3/20/2015	29
	6/30/2015	28
	9/30/2015	40
	12/17/2015	35
	3/23/2016	46
	6/09/2016	41
	9/14/2016	41
	12/02/2016	53
	6/20/2017	59
	12/20/2017	37
	6/18/2018	47
	11/08/2018	47
	6/03/2019	42
	12/17/2019	68
	6/24/2020	66
DBS-3	4/08/2009	36
	5/12/2011	35
	10/05/2011	34
	2/09/2012	34
	5/01/2012	33
	9/11/2012	34
	6/24/2013	32
	1/10/2014	34
	4/08/2014	32
	3/20/2015	35
	6/30/2015	35
	9/30/2015	34
	12/17/2015	34
	3/23/2016	36
	6/09/2016	35

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

Table C-2. Historical Chloride Groundwater Analytical Data
Salty Dog Brine Station, Lea County, New Mexico
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Monitor Well	Date	Chloride Concentration (mg/L) [a]
	NMWQCC Standard	*250*
DBS-3 (cont.)	9/14/2016	37
	12/02/2016	37
	6/20/2017	39
	12/20/2017	42
	6/18/2018	47
	11/08/2018	46
	6/03/2019	46
	12/17/2019	48
	6/24/2020	50
DBS-4	4/08/2009	38
	5/12/2011	33
	10/05/2011	32
	2/09/2012	32
	5/01/2012	31
	9/11/2012	32
	6/25/2013	31
	1/10/2014	32
	4/08/2014	30
	3/20/2015	33
	6/30/2015	31
	9/30/2015	33
	12/17/2015	35
	3/23/2016	38
	6/09/2016	35
	9/14/2016	37
	12/02/2016	41
	6/20/2017	35
	12/20/2017	32
	6/19/2018	39
	11/08/2018	35
	6/03/2019	30

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[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

Table C-2. Historical Chloride Groundwater Analytical Data
Salty Dog Brine Station, Lea County, New Mexico
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Monitor Well	Date	Chloride Concentration (mg/L) [a]
NMWQCC Standard		*250*
DBS-4 (cont.)	12/17/2019	35
	6/23/2020	35
DBS-5	4/08/2009	65
	5/12/2011	140
	10/05/2011	140
	2/09/2012	140
	4/30/2012	150
	9/11/2012	160
	6/24/2013	160
	1/10/2014	180
	4/08/2014	160
	3/20/2015	140
	7/01/2015	140
	9/30/2015	150
	12/17/2015	160
	3/23/2016	150
	6/09/2016	150
	9/14/2016	170
	12/02/2016	170
	6/20/2017	170
	12/20/2017	170
	6/18/2018	180
	11/08/2018	170
	6/03/2019	**280**
	12/18/2019	160
	6/24/2020	190
DBS-6	4/07/2009	**380**
	5/12/2011	**410**
	10/05/2011	**400**
	2/09/2012	**380**
	4/30/2012	**400**

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

Table C-2. Historical Chloride Groundwater Analytical Data
Salty Dog Brine Station, Lea County, New Mexico
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Monitor Well	Date	Chloride Concentration (mg/L) [a]
	NMWQCC Standard	*250*
DBS-6 (cont.)	9/11/2012	**390**
	6/24/2013	**340**
	1/10/2014	**390**
	4/07/2014	**400**
	3/19/2015	**370**
	7/01/2015	**360**
	9/30/2015	**370**
	12/17/2015	**380**
	3/23/2016	**310**
	6/09/2016	**300**
	9/14/2016	**290**
	12/02/2016	**300**
	6/21/2017	240
	12/19/2017	200
	6/19/2018	210
	11/08/2018	190
	6/03/2019	180
	12/17/2019	220
	6/24/2020	230
DBS-7	4/07/2008	**570**
DBS-8	4/07/2009	58
	5/12/2011	36
	10/05/2011	140
	2/09/2012	41
	4/30/2012	41
	9/10/2012	42
	6/24/2013	45
	1/09/2014	38
	4/07/2014	36
	3/19/2015	36
	7/01/2015	34

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[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

Table C-2. Historical Chloride Groundwater Analytical Data
Salty Dog Brine Station, Lea County, New Mexico
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Monitor Well	Date	Chloride Concentration (mg/L) [a]
NMWQCC Standard		*250*
DBS-8 (cont.)	9/30/2015	35
	12/17/2015	33
	3/23/2016	35
	6/09/2016	34
	9/14/2016	34
	12/02/2016	33
	6/21/2017	33
	12/19/2017	28
	6/19/2018	33
	11/08/2018	30
	6/03/2019	35
	12/17/2019	30
	6/24/2020	34
DBS-9	4/08/2009	210
	5/12/2011	**600**
	10/05/2011	**440**
	2/09/2012	**290**
	4/30/2012	**330**
	9/11/2012	**320**
	6/24/2013	200
	1/10/2014	170
	4/07/2014	220
	3/19/2015	**260**
	7/01/2015	210
	9/30/2015	**260**
	12/17/2015	230
	3/23/2016	200
	6/09/2016	190
	9/14/2016	190
	12/02/2016	180
	6/21/2017	200

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

Table C-2. Historical Chloride Groundwater Analytical Data
Salty Dog Brine Station, Lea County, New Mexico
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Monitor Well	Date	Chloride Concentration (mg/L) [a]
NMWQCC Standard		*250*
DBS-9 (cont.)	12/20/2017	230
	6/19/2018	**260**
	6/03/2019	160
	12/17/2019	220
	6/24/2020	**360**
DBS-10	6/19/2018	**690**
	11/08/2018	**590**
	6/03/2019	**510**
	12/17/2019	**540**
	6/24/2020	**560**
NW-1s	4/08/2009	**630**
NW-1m	4/08/2009	57
NW-1d	4/08/2009	38
NW-2s	4/08/2009	**410**
NW-2m	4/08/2009	**570**
NW-2d	4/08/2009	**4,700**
PMW-1	2/27/2008	**9,500** [b]
	5/30/2008	**8,600** [b]
	6/23/2008	**12,700**
	4/08/2009	**11,000**
	5/12/2011	**13,000**
	10/05/2011	**12,000**
	2/09/2012	**12,000**
	5/01/2012	**12,000**
	9/11/2012	**14,000**
	6/25/2013	**14,000**
	1/10/2014	**11,000**
	4/08/2014	**12,000**
	3/20/2015	**8,500**
	7/01/2015	**8,600**
	9/30/2015	**9,700**

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

Table C-2. Historical Chloride Groundwater Analytical Data
Salty Dog Brine Station, Lea County, New Mexico
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Monitor Well	Date	Chloride Concentration (mg/L) [a]
NMWQCC Standard		*250*
PMW-1 (cont.)	12/17/2015	**9,800**
	3/23/2016	**8,200**
	6/09/2016	**8,500**
	9/14/2016	**9,300**
	12/01/2016	**8,300**
	6/20/2017	**13,000**
	12/20/2017	**12,000**
	6/19/2018	**9,600**
	11/08/2018	**10,000**
	6/03/2019	**11,000**
	12/18/2019	**3,400**
	6/23/2020	**11,000**
MW-1	5/30/2008	75 [b]
	6/23/2008	243
MW-2	2/27/2008	120 [b]
	5/30/2008	80 [b]
	6/23/2008	**1,480**
	4/07/2009	**1,200**
	6/19/2018	**390**
MW-3	2/27/2008	**348** [b]
	5/30/2008	**360** [b]
	6/23/2008	**1,090**
	4/07/2009	**17,000**
	5/12/2011	**16,000**
	10/05/2011	**14,000**
	2/09/2012	**15,000**
	4/30/2012	**14,000**
	9/10/2012	**16,000**
	6/24/2013	**12,000**
	1/10/2014	**10,000**
	4/07/2014	**12,000**

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[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

Table C-2. Historical Chloride Groundwater Analytical Data
Salty Dog Brine Station, Lea County, New Mexico
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Monitor Well	Date	Chloride Concentration (mg/L) [a]
	NMWQCC Standard	*250*
MW-3 (cont.)	3/19/2015	**9,700**
	7/01/2015	**10,000**
	9/30/2015	**9,600**
	12/17/2015	**5,100**
	3/23/2016	**8,200**
	6/09/2016	**9,400**
	9/14/2016	**9,100**
	12/02/2016	**11,000**
	6/21/2017	**10,000**
	12/20/2017	**8,300**
	6/19/2018	**7,300**
	11/08/2018	**8,000**
	6/03/2019	**8,000**
	12/18/2019	**7,400**
	6/24/2020	**6,400**
MW-4	2/27/2008	**476** [b]
	5/30/2008	**512** [b]
	6/23/2008	**5,730**
	4/07/2009	**6,600**
MW-5	2/27/2008	**1,280** [b]
	5/30/2008	**1,220** [b]
	6/23/2008	**1,260**
	4/07/2009	**1,300**
	5/12/2011	**1,500**
	10/05/2011	**1,500**
	2/09/2012	**1,500**
	4/30/2012	**1,400**
	9/10/2012	**1,500**
	6/24/2013	**1,300**
	1/10/2014	**1,300**
	4/07/2014	**1,300**

Bold indicates that value exceeds the applicable standard.
[a] All samples analyzed using EPA method 300.0, unless otherwise noted.
[b] Samples analyzed using Standard Method 4500-Cl B.
mg/L = Milligrams per liter

Table C-2. Historical Chloride Groundwater Analytical Data
Salty Dog Brine Station, Lea County, New Mexico
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Monitor Well	Date	Chloride Concentration (mg/L) [a]
	NMWQCC Standard	*250*
MW-5 (cont.)	3/19/2015	**1,200**
	7/01/2015	**1,200**
	9/30/2015	**1,000**
	12/17/2015	**1,000**
	3/23/2016	**980**
	6/09/2016	**970**
	9/14/2016	**1,000**
	12/02/2016	**710**
	6/21/2017	**870**
	12/19/2017	**850**
	6/19/2018	**840**
	11/08/2018	**680**
	6/03/2019	**610**
	12/18/2019	**550**
	6/24/2020	**660**
MW-6	2/27/2008	32 [b]
	5/30/2008	36 [b]
	6/23/2008	31.4
	4/07/2009	25
Ranch Headquarters Supply Well	6/23/2008	35.4
Brine Station Fresh Water Supply Well	2/27/2008	**630** [b]
	5/30/2008	**590** [b]
	6/23/2008	**650**

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[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

Table C-3. Historical Average Groundwater Extraction Rates
Salty Dog Brine Station, Lea County, New Mexico
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Recovery Well	Date	Average Extraction Rate [a] (gpm)
RW-1	4/07/2012	Groundwater extraction started
	5/01/2012	2.1
	9/11/2012	2.9
	6/25/2013	4.1
	11/15/2013	3.6
	3/20/2015 [b]	2.4
	6/30/2015	—
FWS-1	12/17/2015	—
	3/22/2016	12.8
	6/08/2016	33.9
	9/13/2016	5.4
	12/02/2016	39.7
	6/20/2017	32.7
	12/19/2017	37.3
	6/18/2018	15.4
	11/08/2018	22.4
	6/03/2019 [c]	23.9
	12/18/2019	27.7
	6/23/2020	21.2
RW-2	4/06/2012	Groundwater extraction started
	5/01/2012	2.5
	9/11/2012	4.3
	12/14/2012	3.9
	6/25/2013 [d]	—
	9/21/2013 [e]	2.9
	9/30/2015	68

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

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

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

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

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

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

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

gpm = Gallons per minute

Table C-3. Historical Average Groundwater Extraction Rates
Salty Dog Brine Station, Lea County, New Mexico
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Recovery Well	Date	Average Extraction Rate [a] (gpm)
RW-2 (cont.)	12/17/2015	44
	3/22/2016	32
	6/08/2016	9.0
	9/13/2016	5.7
	12/01/2016 [f]	—
	6/20/2017 [f]	—
	12/19/2017	12.4
	6/19/2018	5.2
	10/10/2018 [g]	3.4
	6/3/2019	7.0
	12/18/2019	14.9
	6/23/2020	16.7

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

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

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

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

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

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

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

gpm = Gallons per minute