BW - ____8____

ANNUAL REPORTS

(2)

2019 Annual Class III Well Report

Salty Dog Brine Station

DP BW-8, API No. 30-025-26307

Lea County, New Mexico

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

April 15, 2020

Daniel B. Stephens & Associates, Inc.

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2019 Annual Class III Well Report
Salty Dog Brine Station
DP BW-8, API No. 30-025-26307
Lea County, New Mexico

1. Introduction

Daniel B. Stephens & Associates, Inc. (DBS&A) has prepared this annual Class III well 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 operation of a brine well (Brine Supply Well #1 [API No. 30-025-26307]) at the Salty Dog Brine Station (the site). The site is located in Lea County, New Mexico, approximately 11 miles west of Hobbs, New Mexico along U.S. Highway 62/180 (US 62/80) (Figure 1). This report summarizes operational and monitoring activities conducted at the site in 2019, and was prepared in accordance with the requirements of discharge permit (DP) BW-8, last renewed on May 17, 2019 (NMEMNRD, 2019). Submittal of this report meets Condition 2.J of the permit.

Appendix A provides an annual certification signed by Mr. Pieter Bergstein stating that continued salt solution mining will not cause cavern collapse, surface subsidence, property damage, or otherwise threaten public health and the environment based on geologic and engineering data.

Salty Dog is a brine water production and loading station, consisting of fresh water supply wells, a brine production well, and a concrete truck loading pad with two brine filling stations. Fresh water is stored in two 1,000-barrel (bbl) aboveground storage tanks (ASTs). Produced brine is pumped from the brine well to a bermed tank battery consisting of six 750-bbl ASTs, where the brine is stored for sale. The brine well is located approximately 0.5 mile southwest of the brine filling station (Figure 1). Figure 2 presents a June 2018 aerial photograph of the brine station showing the layout of the current facility infrastructure.

Brine is produced from the in situ extraction of salt at the brine well, a UIC Class III well (Brine Supply Well #1 [API No. 30-025-26307]). The brine well is approximately 3,000 feet deep and has been in operation since the early 1980s. The Salty Dog brine well is configured for reverse circulation brine recovery, where fresh water is circulated down the casing annulus into the Salado Formation—a Permian Age sedimentary rock unit composed of halite (salt) and other evaporative beds. Fresh water dissolves the salt, and the brine is extracted through the center tubing of the well. Figure 3 provides a generalized schematic of the brine well showing its construction, current tubing depth, and the penetrated geologic units.

The physical location of the brine well is 1,980 feet from south line (FSL) and 1,980 feet from east line (FEL) (NW/4 SE/4, Unit Letter J) in Section 5, Township 19 South, Range 36 East, New Mexico Principal Meridian (NMPM). The brine well was installed in June 1979. The original discharge permit for the brine well (GWB-2) appears to have been issued on December 18, 1982 (OCD, 1994). The discharge permit was last renewed on May 17, 2019 (NMEMNRD, 2019).

Injection water used in brine production is obtained from the Ogallala Aquifer by pumping from two fresh water supply wells (FWS-1 and FWS-2) and groundwater remediation well RW-2. Well FWS-1 is the main fresh water supply well. Well FWS-2, located near the brine well, is used as an auxiliary fresh water well during periods of high brine demand. Well RW-2 is used to remove and provide hydraulic containment of chloride-impacted groundwater in the brine well area; groundwater extracted from this well is also used for brine production. Chloride-impacted groundwater in the former brine pond area is contained and removed by pumping from FWS-1. Depth to regional groundwater is approximately 60 feet below ground surface (bgs). Figure 4 shows the locations of the wells.

2. Brine Well Operational Activities

The following subsections report fluid injection and brine production volumes and well maintenance activities.

2.1 Fluid Injection and Brine Production

Except for an approximately 2-year shutdown between 2011 and 2013 and temporary interruptions for routine maintenance and testing (e.g., February 2009 sonar survey [SOCON, 2009]), the brine well has been in continuous operation since 1980, producing an average of approximately 10,500 barrels per month (bbl/mo) of brine between 1980 and 2009. This production rate is based on 1987, 1996–1999, and 2009 brine production and sales records (Salty Dog, 1988, 1999, and Undated).

Both fluid injection and brine production volumes are metered, and daily volumes are recorded on monthly fresh and brine water report forms (Appendix B). Table 1 summarizes monthly injection and production volumes for the reporting period. Injection water for the brine well comes from two fresh water wells (FWS-1 and FWS-2) and a groundwater remediation well (RW-2) (Figure 4). In 2019, monthly ratios of injected water to produced brine ranged from 0.97 to 1.06.

Table 1. Monthly Water Injection and Brine Production Volumes, 2019

Month	Volume (bbl)		Ratio (injection:production)
	Water Injection	Brine Production	
January	21,810	21,687	1.01
February	15,640	15,538	1.01
March	31,660	31,655	1.00
April	32,290	30,456	1.06
May	27,450	27,125	1.01
June	30,335	29,818	1.02
July	36,170	35,676	1.01
August	52,985	53,420	0.99
September	44,875	44,365	1.01
October	57,505	57,485	1.00
November	43,660	45,105	0.97
December	40,982	40,801	1.00
Annual total	435,672	433,131	—

bbl = Barrels

Based on the data reported in Table 1 and previously reported production records (Salty Dog, 1988, 1999, and Undated; DBS&A, 2014), the estimated cumulative volume of brine production is 6,789,069 bbl.

In 2019, brine production activities at the site dissolved an estimated 65,216 bbl of Salado Formation. This estimate is based on the brine production data reported in Table 1, the average total dissolved solids (TDS) concentrations of the produced brine and injection water reported in Table 2, and an assumed density of the Salado Formation of 2.17 grams per cubic centimeter (g/cm^3). Based on the historical and current brine production data, the total estimated size of the brine solution cavern is approximately 981,061 bbl. In 2012, OCD estimated a volume of 1,022,196 bbl for the Salty Dog solution cavern (NMEMNRD, 2012).

Table 2. Injection Water and Produced Brine Chemical and Physical Characteristics

Constituent	Average Concentration (mg/L [a])	
	Injection Water	Produced Brine
pH (s.u.)	7.59	7.20
Specific gravity (unitless)	0.997	1.203
Chloride	285	195,000
Sodium	200	79,000
TDS	767	327,500

[a] Unless otherwise noted
mg/L = milligram per liter
NM = Not measured
s.u. = Standard units
TDS = Total dissolved solids

2.2 Injection Pressure

Pressure is monitored on the well tubing and on the annulus between the inner tubing and outer casing. These measurements are recorded on the monthly fresh and brine water report forms (Appendix B). In 2019, recorded daily tubing pressure ranged from 100 to 125 pounds per square inch (psi), while annulus pressure ranged from 325 to 375 psi.

2.3 Chemical and Physical Analyses

Condition 2.A of DP BW-8 requires semiannual monitoring of the chemical and physical characteristics of the injection water and produced brine, including pH, density, and TDS and chloride concentrations. The permit also requires that the sodium concentration of the produced brine be analyzed.

Table 2 reports average constituent concentrations calculated from the 2019 semiannual monitoring data. Samples of the injection water and produced brine were collected in June and December 2019. Dissolution of the Salado Formation increases the constituent concentrations and specific gravity of the produced brine relative to the injection water. The average TDS concentration and average specific gravity of the injection water are 767 milligrams per liter (mg/L) and 0.997, respectively, while the same properties of the produced brine are 327,500 mg/L and 1.203, respectively. Appendix C provides the laboratory analytical reports associated with the semiannual monitoring events.

Historical water quality analyses show TDS concentrations of the fresh water and produced brine to be approximately 600 mg/L and 320,000 to 350,000 mg/L, respectively (Martin, 1982; Unichem, 1987).

2.4 Deviations from Normal Operations

There were no deviations from normal operations in 2019.

2.5 Leaks and Spills

There were no leaks or spills in 2019.

2.6 Area of Review

Condition 3.G of DP BW-8 requires Salty Dog to report within 72 hours the discovery of any new wells, conduits, or other devices that are both within a 1-mile radius and may penetrate to the injection zone of the brine well.

The brine station is located on private property in rural southeastern New Mexico, approximately 11 miles west of Hobbs. The majority of the area surrounding the site is undeveloped and owned by the State of New Mexico.

On April 13, 2020, DBS&A conducted an area of review evaluation using the OCD online oil and gas maps application. This application is accessible through the OCD website (http://www.emnrd.state.nm.us/OCD/ocdgis.html). Appendix D provides a map produced from the area of review evaluation. The map shows that there are two previously plugged and abandoned wells (API 30-025-03989 and API 30-025-42773) southwest of the Salty Dog brine well. However, no new brine wells or other penetrations that may penetrate into the injection zone of the Salty Dog brine well are present within a 1-mile radius of the brine well.

2.7 Mechanical Integrity Test

A mechanical integrity test (MIT) was not conducted on the brine well in 2019. The last MIT was performed in 2018.

In December 2017, the brine well was damaged because anhydrite had collapsed the well tubing. The well was subsequently repaired and operational again in February 2018. On February 9, 2018, before placing the well back in operation, PAB conducted an MIT on the well; it passed the test. Gary Robinson of OCD was present during the MIT. A record of the MIT was provided in the 2017 annual Class III well report (DBS&A, 2018a).

Prior to the February 2018 MIT, the last MIT was performed on October 31, 2013, when Salty Dog conducted a Bradenhead test on the brine well. The test showed no problems with the integrity of the well casing. Results of this test were reported to OCD on November 15, 2013.

Pursuant to 20.6.2.5204 New Mexico Administrative Code (NMAC), PAB is required to demonstrate mechanical integrity of the brine well at least once every five years.

3. Other Facility Activities

There were no other facilitiy activities in 2019. Only normal operational activities were performed. In March 2018, PAB services contracted Peterson Drilling and Testing, Inc. and DBS&A to install five subsidence survey monitoring points at the site (DBS&A, 2018b). The five subsidence survey monitoring points include three points located approximately 200 feet from the brine well, one point located approximately 60 feet from the brine well, and one point that is a metal tab welded to the brine well casing (Figure 5). Construction and placement of the monitoring points were conducted in accordance with DBS&A (2014). The monitoring points are surveyed semiannually, and the results are reported in the annual Class III well reports.

4. Subsidence Monitoring and Cavern Characterization

Condition 2.B.1 of DP BW-08 requires Salty Dog to monitor for potential land subsidence in the area of the brine well (OCD, 2019). In March 2018, five subsidence survey monitoring points were installed to meet this condition (Figure 5). Basin Surveys of Hobbs, New Mexico surveyed the monitoring points after their installation (Appendix E). The initial survey was conducted on March 23, 2018 using the nearest U.S. Geological Survey (USGS) benchmark referenced to NMSPCE (NAD 83).

In accordance with Condition 2.B.1 of DP BW-8, Salty Dog has each monitoring point surveyed semiannually to at least the nearest 0.10 foot (OCD, 2019). Basin Surveys conducted the 2019 semiannual surveys on June 10 and December 12, 2019. The survey data are reported in Table 3 and show no indication of land subsidence. The semiannually surveyed elevations are within ±0.02 foot of the initial survey. Appendix E provides the survey reports.

Table 3. Semiannual Surface Subsidence Monitoring, 2019

Survey Monitoring Point	Elevation (feet msl)		
	Initial 3/23/2018	First Semiannual 6/10/2019	Second Semiannual 12/12/2019
SMP-01	3,810.11	3,810.10	3,810.10
SMP-02	3,809.01	3,809.00	3,809.00
SMP-03	3,808.80	3,808.81	3,808.81
SMP-04	3,806.32	3,806.32	3,806.32
SMP-05 (brine well)	3,811.72	3,811.72	3,811.72

msl = Above mean sea level

Condition 2.B.2 of DP BW-08 requires solution cavern characterization using geophysical methods to estimate the size and shape of the solution cavern. During a December 9, 2016 phone call between DBS&A (on behalf of PAB) and OCD (Jim Griswold and Carl Chavez), it was agreed that solution cavern characterization using geophysical methods would be conducted only if surface subsidence was detected during semiannual surveying of the monitoring points. Section 2.1 of this report presents an estimated size for the solution cavern.

5. Groundwater Conditions

Salty Dog is addressing groundwater impacts resulting from releases at the brine well and a former brine pond. A hole in the casing of the brine well at 250 feet bgs was discovered in 1999 (Salty Dog, 1999). The hole released brine, impacting groundwater, and was repaired in August 1999 by installing a casing liner (Salty Dog, 1999). In October 2008, the brine pond was removed and impacted soil was excavated and disposed of (DBS&A, 2008). The area of the former brine pond is shown in Figures 1 and 2.

Two chloride plumes currently exist at the site: one in the area of the brine station (i.e., the former brine pond area) and a second near the brine well. In 2009, PAB initiated groundwater extraction to remove and provide hydraulic containment of brine-impacted groundwater at the brine station and near the brine well (DBS&A, 2009). Groundwater abatement and monitoring activities are being conducted to satisfy an administrative compliance order issued by OCD

(ACO 2008-02) and settlement agreement and stipulated revised final order (NM-OCD 2008-2A) between OCD and Mr. Bergstein.

Groundwater monitoring and extraction data are reported and evaluated in reports submitted to OCD (DBS&A, 2020). The data include water levels and water quality at the site monitor wells. Site monitor wells are shown in Figure 4.

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SOCON Sonar Well Services, Inc. (SOCON). 2009. *ECHO-LOG, Salty Dog, Inc. Brine well No: 1, Hobbs, New Mexico: First SOCON Sonar Well Services survey.* February 5, 2009.

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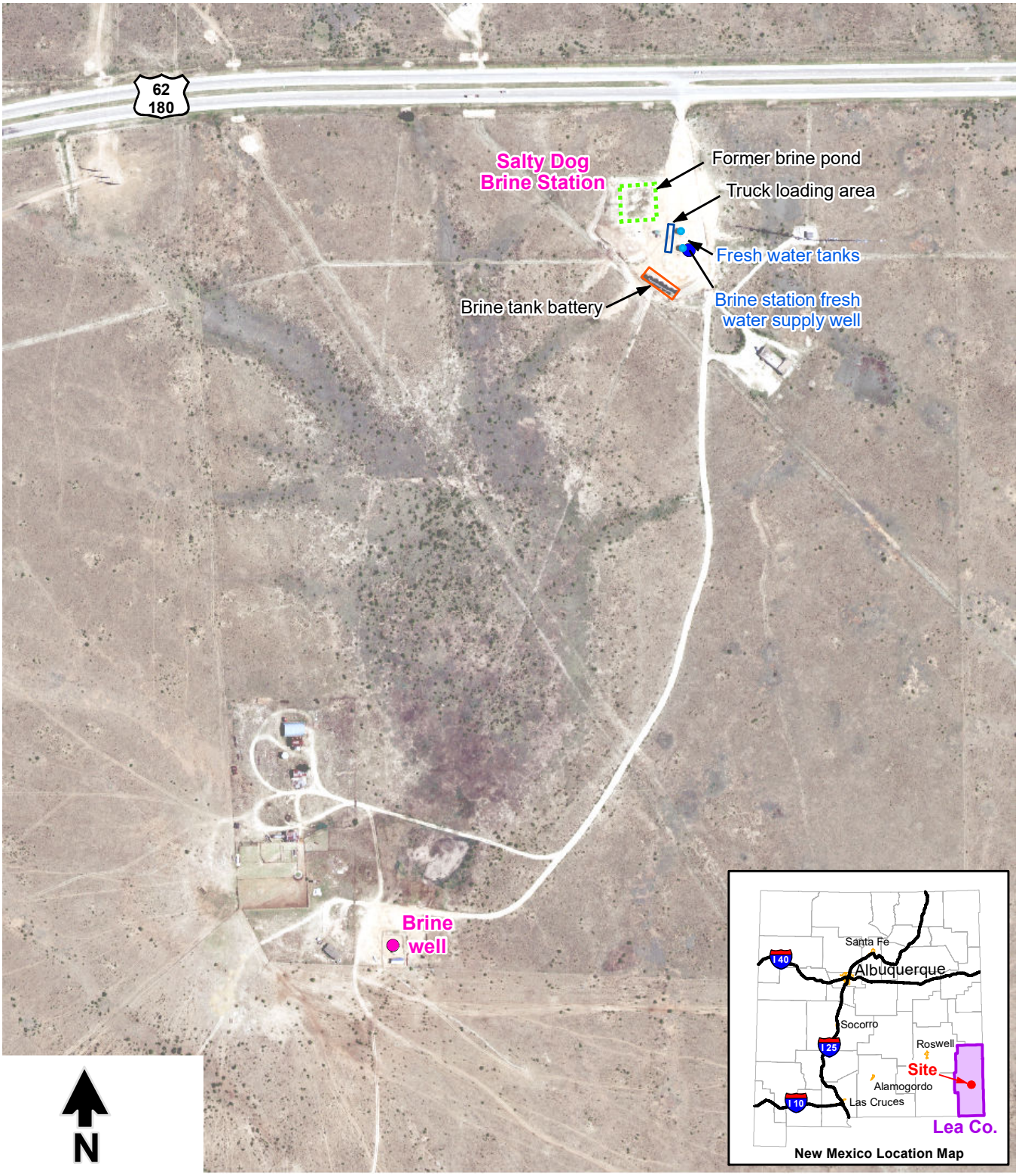
Figures



Source: NAIP aerial imagery dated June 18, 2018

Explanation

- Water supply well
- Brine well
- Fresh water tank

S:\PROJECTS\DB19.1198_SALTY_DOG_2019\GIS\MXDS\ANNUAL REPORT_2019\FIG01_SITE_LOCATION_AND_FACILITIES.MXD

Daniel B. Stephens & Associates, Inc.
3/19/2020
JN DB19.1198.00

SALTY DOG BRINE STATION
Site Location and Facilities

Figure 1

S:\PROJECTS\DB19.1198_SALTY_DOG_2019\GIS\MXDS\ANNUAL REPORT_2019\FIG02_SITE_2018_AERIAL_PHOTO.MXD

Source: NAIP aerial imagery dated June 18, 2018

Figure 2

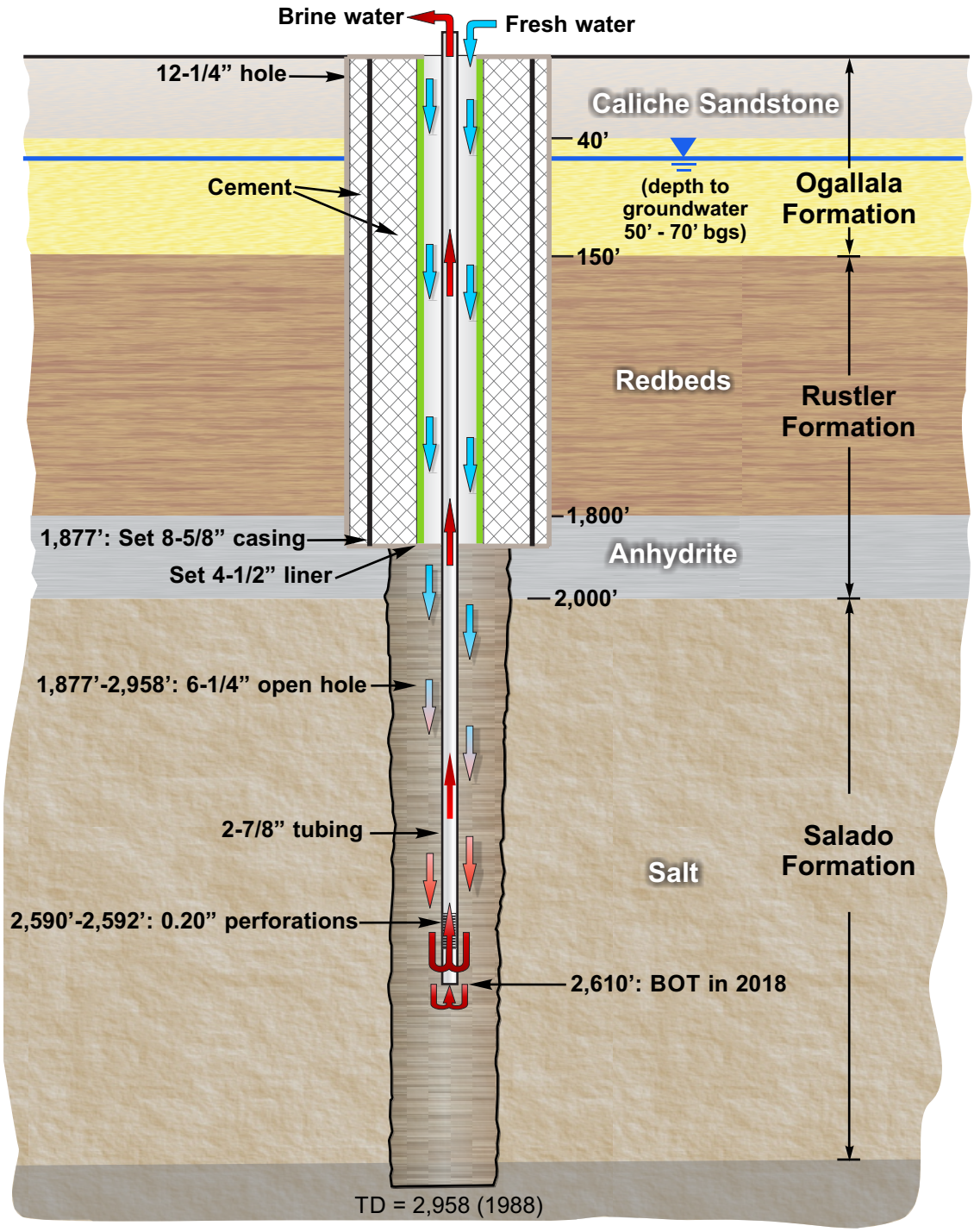
SALTY DOG BRINE STATION

2018 Aerial Photograph of Salty Dog Brine Station

Daniel B. Stephens & Associates, Inc.

3/19/2020 JN DB19.1198.00

Salty Dog Brine Well



Notes:

1. BOT = Bottom of tubing
2. Figure not to scale

Sources:

1. Completion data based on OCD well reports
2. Lithology from Salty Dog (1988)

SALTY DOG BRINE STATION

Generalized Brine Well Schematic

Daniel B. Stephens & Associates, Inc.

3/28/2020 JN DB19.1198

Figure 3

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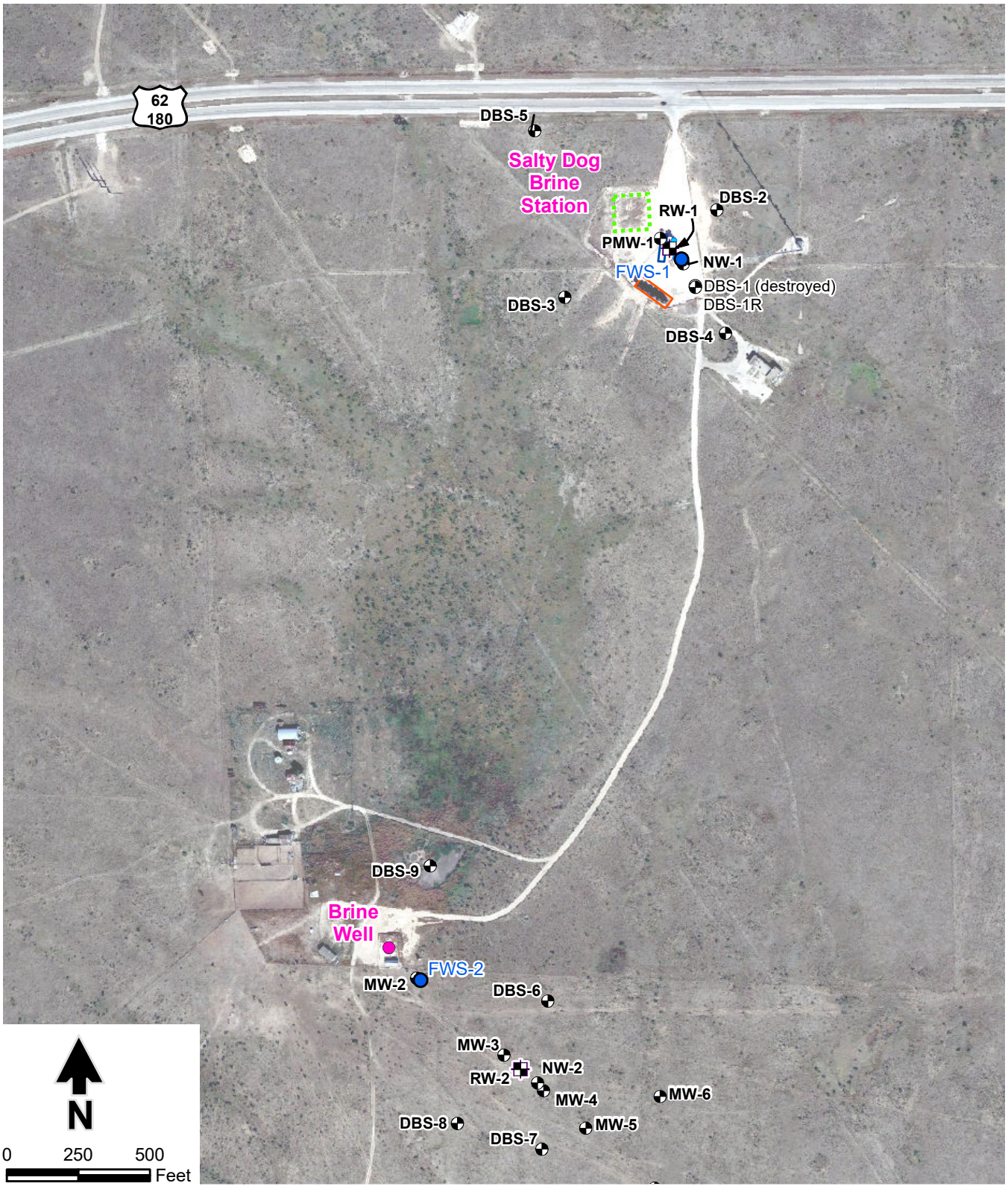

Source: NAIP aerial imagery dated June 18, 2018

Explanation

- Fresh water supply well
- Monitor well
- Recovery well
- Well destroyed
- Brine well
- Brine tank battery
- Truck loading area
- Former brine pond

S:\PROJECTS\DB19.1198_SALTY_DOG_2019\GIS\MXDS\ANNUAL REPORT_2019\FIG04_SITE_MONITOR_AND_EXTRACTION_WELL_LOCS.MXD

Daniel B. Stephens & Associates, Inc.
3/19/2020
JN DB19.1198.00

SALTY DOG BRINE STATION
Monitor and Extraction Well Locations
Figure 4

Source: NAIP aerial imagery dated June 18, 2018

Explanation

◆ Survey monument

SALTY DOG BRINE STATION

Land Subsidence
Survey Monitoring Point Locations

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JN DB19.1198.00

Figure 5

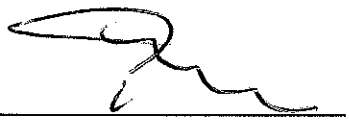
S:\Projects\DB19.1198_Salty_Dog_2019\GIS\MXDs\Annual Report_2019\Fig5_Ltr_Report.mxd

Appendix A

Annual Certification

Annual Certification

PAB Services, Inc. certifies that continued salt solution mining will not cause cavern collapse, surface subsidence, property damage, or otherwise threaten public health and the environment based on geologic and engineering data.

Pieter Bergstein	President
Name	Title
	4/14/20
Signature	Date

Appendix B

2019 Monthly Fresh and Brine Water Report Forms

MONTHLY FRESH & BRINE WATER REPORT

FACILITY/LOCATION SALTY Dog

MONTH/YEAR JAN 19

Date	AMOUNT OF FRESH WATER PUMPED DOWN HOLE BBLS	AMOUNT OF BRINE WATER OUT OF HOLE BBLS SOLD	DAILY TUBING PRESSURES PSI	DAILY CASING PRESSURES PSI	FRESH WATER SOLD
1	355	~~200~~ 350	100	325	
2	1715	1701	100	325	
3	2130	2123	100	325	
4	705	695	100	325	
5	870	865	100	325	
6	355	345	100	325	
7	1345	1335	100	325	
8	675	~~670~~ 665	100	325	
9	1275	1268 ~~1270~~ 1269	100	370	
10	660	640	100	376	
11	1190	1170 ~~100~~	100	375	
12	210	195	100	375	
13	405	395	100	375	
14	540	520 ~~540~~	100	375	
15	720	705	100	375	
16	725	715	100	375	
17	14437 770	750	100	375	
18	715	700	100	375	
19	725	720	100	375	
20	320	310	100	375	
21	~~0~~	~~0~~	100	375	
22	1210	1190	100	375	
23	1185	1170 ~~1176~~	100	375	
24	615	605	100	375	
25	~~0~~	190	100	375	
26	110	100	100	375	
27	~~0~~	~~0~~	100	375	
28	215	210	100	375	
29	310	300	100	375	
30	20857 935	925	100	375	
31	845	~~800~~ 830			
TOTALS	21692				

REPAIRS AND/OR EXPENSES

Date	Company Performing Work/Repairs	Descritpion of Work/Repairs	Estimated Cost	Work Authorized by

MONTHLY FRESH & BRINE WATER REPORT

FACILITY/LOCATION Salty Dog

MONTH/YEAR Feb 2019

Date	AMOUNT OF FRESH WATER PUMPED DOWN HOLE BBLS	AMOUNT OF BRINE WATER OUT OF HOLE BBLS SOLD	DAILY TUBING PRESSURES PSI	DAILY CASING PRESSURES PSI	FRESH WATER SOLD
1	[illegible]	560	100	375	
2	0	0	100	375	
3	100	100	100	375	
4	285	280	100	375	
5	445	440	100	375	
6	670	660	100	375	
7	340	333	100	375	
8	250	240	100	375	
9	225	220	100	375	
10	0	0	100	375	
11	415	400	100	375	
12	275	260	100	375	
13	490	490	100	375	
14	470	440	100	375	
15	400	400	100	375	
16	0	185	100	375	
17	575	560	100	375	
18	2010	1990	100	375	
19	1350	1330 1010	100	375	
20	485	470	100	375	
21	275	260	100	375	
22	1170	1140	100	375	
23	0	0	100	375	
24	310	300	100	375	
25	325	310	100	375	
26	730	700	100	375	
27	1640	1610	100	375	
28	1900	1870	100	375	
29					
30					
31					
TOTALS	1	15538			1

REPAIRS AND/OR EXPENSES

Date	Company Performing Work/Repairs	Descritpion of Work/Repairs	Estimated Cost	Work Authorized by

9170

MONTHLY FRESH & BRINE WATER REPORT

FACILITY/LOCATION	SALTY Dog
MONTH/YEAR	MARCH 2019

Date	AMOUNT OF FRESH WATER PUMPED DOWN HOLE BBLS	AMOUNT OF BRINE WATER OUT OF HOLE BBLS SOLD	DAILY TUBING PRESSURES PSI	DAILY CASING PRESSURES PSI	FRESH WATER SOLD
1	1300	1290	100	375	
2	1490	1480	100	375	
3	905	900	100	375	
4	2150	2140	100	375	
5	780	770	100	375	
6	2170	2160	100	375	
7	675	670	100	375	
8	1040	1035	100	385	
9	305	300	100	375	
10	0	0	100	375	
11	1820	1800	100	375	
12	830	820	100	375	
13	700	690	100	375	
14	2965	2950	100	375	
15	580	570	100	375	
16	205	200	100	375	
17	205	200	100	375	
18	1840	1830	100	375	
19	1175	1170	100	375	
20	455	450	100	375	
21	1490	1480	100	375	
22	0	110	100	375	
23	365	360	100	375	
24	810	800	100	375	
25	815	800	100	375	
26	710	700	100	375	
27	1965	1960	100	375	
28	2085	2070	100	375	
29	1170	1160	100	375	
30	330	320	100	375	
31	330	320	100	375	
TOTALS		39505			

REPAIRS AND/OR EXPENSES

Date	Company Performing Work/Repairs	Descritpion of Work/Repairs	Estimated Cost	Work Authorized by
		39505		

MONTHLY FRESH & BRINE WATER REPORT

FACILITY/LOCATION	SALTY Dog
MONTH/YEAR	APRIL 2019

Date	AMOUNT OF FRESH WATER PUMPED DOWN HOLE BBLS	AMOUNT OF BRINE WATER OUT OF HOLE BBLS SOLD	DAILY TUBING PRESSURES PSI	DAILY CASING PRESSURES PSI	FRESH WATER SOLD
1	810	800	100	375	
2	915	900	100	375	
3	610	600	100	375	
4	1720	1700	100	375	
5	2680	1265	100	375	
6	405	400	100	375	
7	410	400	100	375	
8	1190	1170	100	375	
9	875	860	100	375	
10	455	440	100	375	
11	1370	1360	100	375	
12	1765	1770	100	375	130
13	1775	1763	100	375	
14	615	600	100	375	
15	1090	1070	100	375	
16	2745	2730	100	375	
17	1140	1120	100	375	
18	770	740	100	375	240
19	620	600	100	375	
20	440	420	100	375	
21	0	0	100	375	
22	1590	1570	100	375	
23	1585	1570	100	375	
24	25288 1445	1440	100	375	
25	1040	1023	100	375	
26	2265	2250	100	375	
27	640	620	100	375	
28	110	100	100	375	
29	1075	1060	100	375	
30	120	115	100	375	
31					
TOTALS		30456			

REPAIRS AND/OR EXPENSES

Date	Company Performing Work/Repairs	Descritpion of Work/Repairs	Estimated Cost	Work Authorized by

MONTHLY FRESH & BRINE WATER REPORT

FACILITY/LOCATION SALTY Dog

MONTH/YEAR MAY 2019

Date	AMOUNT OF FRESH WATER PUMPED DOWN HOLE BBLS	AMOUNT OF BRINE WATER OUT OF HOLE BBLS SOLD	DAILY TUBING PRESSURES PSI	DAILY CASING PRESSURES PSI	FRESH WATER SOLD
1	820	200	125	375	0
2	410	400	125	375	0
3	1625	1600	125	375	0
4	410	400	125	375	0
5	800	790	125	375	0
6	1475	1460	125	375	0
7	720	710	125	375	0
8	1140	1130	125	375	0
9	1810	1795	125	375	0
10	945	930	125	375	0
11	0	0	125	375	0
12	1410	1400	125	375	0
13	1520	1510	125	375	0
14	895	880	125	375	120
15	845	830	125	375	0
16	1760	1750	125	375	0
17	495	490	125	375	0
18	1640	1625	125	375	30
19	110	100	125	375	0
20	750	720	125	375	0
21	430	400	125	375	0
22	825	790	125	375	75
23	1220	1200	125	375	205
24	635	620	125	375	75
25	520	500	125	375	0
26	530	520	125	375	0
27	735	720	125	375	0
28	0	190	125	375	0
29	410	455	125	375	0
30	1595	1580	125	375	0
31	860	840	125	375	0
TOTALS		27135			

REPAIRS AND/OR EXPENSES

Date	Company Performing Work/Repairs	Descritpion of Work/Repairs	Estimated Cost	Work Authorized by

MONTHLY FRESH & BRINE WATER REPORT

FACILITY/LOCATION Sally Dog

MONTH/YEAR June 2019

Date	AMOUNT OF FRESH WATER PUMPED DOWN HOLE BBLS	AMOUNT OF BRINE WATER OUT OF HOLE BBLS SOLD	DAILY TUBING PRESSURES PSI	DAILY CASING PRESSURES PSI	FRESH WATER SOLD
1	955	940	125	375	
2	710	700	125	375	
3	210	200	125	375	
4	1760	1740	125	375	
5	1765	1750	125	375	
6	750	740	125	380	
7	1795	1780	125	375	75
8	3230	3200	125	375	120
9	690	680	125	375	
10	815	800	125	375	50
11	750	730	125	375	
12	995	980	125	375	
13	510	500	125	375	
14	640	620	125	375	
15	0	0	125	375	
16	16535 1190	1175	125	375	
17	855	840	125	375	60
18	1095	1080	125	375	210
19	615	600	125	375	130
20	2150	2130	125	375	
21	1325	1310	125	375	80
22	615	600	125	375	
23	0	0	125	375	
24	600	500	125	375	
25	1830	1810	125	375	90
26	1235	1223	125	375	260
27	27938 1275	1260	125	375	20
28	1025	1010	125	375	
29	850	820	125	375	
30	100	100	125	375	
31					
TOTALS	~~29 863~~	29 818			

REPAIRS AND/OR EXPENSES

Date	Company Performing Work/Repairs	Descritpion of Work/Repairs	Estimated Cost	Work Authorized by
		29,818		

033
860
3693

MONTHLY FRESH & BRINE WATER REPORT

FACILITY/LOCATION Salty Dog

MONTH/YEAR

Date	AMOUNT OF FRESH WATER PUMPED DOWN HOLE BBLS	AMOUNT OF BRINE WATER OUT OF HOLE BBLS SOLD	DAILY TUBING PRESSURES PSI	DAILY CASING PRESSURES PSI	FRESH WATER SOLD
1	525	518			
2	3300	3220 (3300)	125	375	190
3	3450 3423	1923 ([illegible])	125	375	
4	510	500 (400)	125	375	
5	715	700	125	375	
6	1125	1110 (610)	125	375	7
7	720	700 (600)	125	375	
8	2625	2600	125	375	
9	2155	2130 ([illegible])	125	375	
10	1320	1300	125	375	
11	670	660	125	375	
12	0	0	125	375	
13	0	0			
14	0	0			120
15	110	100			
16	510	500	125	375	
17	1875	1850	125	375	130
18	2675	2660 (500)	125	375	
19	1650 (1300)	1630 (200)	125	375	100
20	1345	1330 (500)	125	375	
21	915	900	125	375	
22	1120	1100 (100)	125	375	
23	895	880 (800)	125	375	
24	460	440 (100)	125	375	
25	830	815	125	375	
26	1310	1290 (440)	125	375	100
27	510	500	125	375	
28	540	520 (520)	125	375	
29 32826	1420	1400	125	375	
30	1650	1630 (1930)	125	375	
31	1240	1220 (620)	125	375	70
TOTALS		35,676	125	375	

REPAIRS AND/OR EXPENSES

Date	Company Performing Work/Repairs	Descritpion of Work/Repairs	Estimated Cost	Work Authorized by

MONTHLY FRESH & BRINE WATER REPORT

30340

FACILITY/LOCATION SALTY Dog

MONTH/YEAR Aug 2019

Date	AMOUNT OF FRESH WATER PUMPED DOWN HOLE BBLS	AMOUNT OF BRINE WATER OUT OF HOLE BBLS SOLD	DAILY TUBING PRESSURES PSI	DAILY CASING PRESSURES PSI	FRESH WATER SOLD
1	2280	2250	125	375	
2	1000	990	125	375	260
3	1540	1525	125	375	
4	1315	1300	125	375	
5	2865	2850	125	375	
6	1925	1915	125	375	
7	950	945	125	375	
8	2055	2045	125	375	
9	1795	1785	125	375	210
10	1120	1100	125	375	250
11	1120	1110	125	375	
12	535	525	125	375	
13	1230	1215	125	375	120
14	980	965	125	375	130
15	790	780	125	375	
16	220	220	125	375	
17	1630	1600	125	375	
18	1320	1300	125	375	
19	900	890	125	375	
20	2090	2075	125	375	130
21	2975	2955	125	375	
22	2525	2510	125	375	
23	915	900	125	375	70
24	2160	2150	125	375	
25	1915	1900	125	375	245
26	3045	3025	125	375	
27	45625 4925	4900	125	375	
28	2950	2435	125	375	
29	2250	2225	125	375	
30	2250	2235	125	375	130
31	915	900	125	375	215
TOTALS		53420			190

REPAIRS AND/OR EXPENSES

Date	Company Performing Work/Repairs	Descritpion of Work/Repairs	Estimated Cost	Work Authorized by

MONTHLY FRESH & BRINE WATER REPORT

933
860
1693

FACILITY/LOCATION Salty Dog

MONTH/YEAR July, 2019

Date	AMOUNT OF FRESH WATER PUMPED DOWN HOLE BBLS	AMOUNT OF BRINE WATER OUT OF HOLE BBLS SOLD	DAILY TUBING PRESSURES PSI	DAILY CASING PRESSURES PSI	FRESH WATER SOLD
1	625	518	125	375	190
2	3300	3270	125	375	
3	3450 3423	3423	125	375	
4	510	500	125	375	
5	715	700	125	375	
6	1125	1110	125	375	7
7	720	700	125	375	
8	2625	2600	125	375	
9	2155	2130	125	375	
10	1320	1300	125	375	
11	670	660	125	375	
12	0	0			
13	0	0			
14	0	0			120
15	110	100	125	375	
16	510	500	125	375	
17	1875	1850	125	375	130
18	2675	2660	125	375	
19	1650	1630	125	375	100
20	1345	1330	125	375	
21	915	900	125	375	
22	1120	1100	125	375	
23	895	880	125	375	
24	460	440	125	375	
25	930	915	125	375	
26	1310	1290	125	375	100
27	510	500	125	375	
28	540	520	125	375	
29	32826 1420	1400	125	375	
30	1650	1630	125	375	
31	1240	1220	125	375	70
TOTALS		35,676			

REPAIRS AND/OR EXPENSES

Date	Company Performing Work/Repairs	Descritpion of Work/Repairs	Estimated Cost	Work Authorized by

MONTHLY FRESH & BRINE WATER REPORT

30340

FACILITY/LOCATION SALLY Dog

MONTH/YEAR Aug 2019

Date	AMOUNT OF FRESH WATER PUMPED DOWN HOLE BBLS	AMOUNT OF BRINE WATER OUT OF HOLE BBLS SOLD	DAILY TUBING PRESSURES PSI	DAILY CASING PRESSURES PSI	FRESH WATER SOLD
1	2280	2250	125	375	
2	1000	990	125	375	260
3	1540	1525	125	375	
4	1315	1300	125	375	
5	2865	2850	125	375	
6	1925	1915	125	375	
7	950	945	125	375	
8	2055	2045	125	375	
9	1795	1786	125	375	240
10	1120	1100	125	375	250
11	1120	1110	125	375	
12	535	525	125	375	
13	1230	1215	125	375	120
14	980	965	125	375	130
15	790	780	125	375	
16	220	220	125	375	
17	1630	1600	125	375	
18	1320	1300	125	375	
19	900	990	125	375	
20	2090	2075	125	375	130
21	2975	2955	125	375	
22	2525	2510	125	375	
23	915	900	125	375	70
24	2160	2150	125	375	
25	1915	1300	125	375	245
26	3045	3025	125	375	
27	45625 4925	4900	125	375	
28	2450	2435	125	375	
29	2250	2225	125	375	
30	2250	2235	125	375	130
31	915	900	125	375	215
TOTALS		53420			190

REPAIRS AND/OR EXPENSES

Date	Company Performing Work/Repairs	Descritpion of Work/Repairs	Estimated Cost	Work Authorized by

MONTHLY FRESH & BRINE WATER REPORT

FACILITY/LOCATION SALTY Dog

MONTH/YEAR Sept 2019

Date	AMOUNT OF FRESH WATER PUMPED DOWN HOLE BBLS	AMOUNT OF BRINE WATER OUT OF HOLE BBLS SOLD	DAILY TUBING PRESSURES PSI	DAILY CASING PRESSURES PSI	FRESH WATER SOLD
1	1465	1450	100	375	120
2	770	760	125	375	
3	1320	1310	125	375	
4	2090	2075	125	375	
5	2715	2705	125	375	
6	965	955	125	375	
7	0	0	125	375	40
8	0	320	125	375	130
9	1055	1045	125	375	
10	2030	2025	125	375	
11	1835	1820	125	375	
12	3470	3460	125	375	95
13	2725	2705	125	375	190
14	1635	1620	125	375	120
15	630	620	125	375	
16	2965	2955	125	375	
17	2010	1090	125	375	
18	2350	2330	125	375	135
19	32605 3375	3360	125	375	280
20	1920	1910	125	375	125
21	1000	900	125	375	
22	36215 1000	800	125	375	125
23	1895	1885	125	375	
24	1740	1725	125	375	50
25	1395	1385	125	375	100
26	650	625	125	375	125
27	810	795	125	375	
28	42700 0	100	125	375	
29	810	800	125	375	70
30	850	835	125	375	
31					
TOTALS		44,365			

REPAIRS AND/OR EXPENSES

Date	Company Performing Work/Repairs	Descritpion of Work/Repairs	Estimated Cost	Work Authorized by

MONTHLY FRESH & BRINE WATER REPORT

FACILITY/LOCATION Salty Dog

MONTH/YEAR Oct

Date	AMOUNT OF FRESH WATER PUMPED DOWN HOLE BBLS	AMOUNT OF BRINE WATER OUT OF HOLE BBLS SOLD	DAILY TUBING PRESSURES PSI	DAILY CASING PRESSURES PSI	FRESH WATER SOLD
1	1285	1270 120	125	375	125
2	3445	3430	125	375	100
3	1980	1970 295	125	375	255
4	2020	2010	125	375	70
5	1110	1100	125	375	95
6	1055	1040	125	375	250
7	1850	1840	125	375	120
8	2205	2250	125	375	190
9	2320	2300	125	375	125
10	1460	1445	125	375	
11	815	800	125	375	
12	22055 2620	2600	125	375	140
13	2025	2010	125	375	
14	2520	2490	125	375	95
15	2315	2295	125	375	
16	3250	3235	125	375	
17	2280	2265	125	375	
18	1035	1025	125	375	
19	37355 1995	1980	125	375	360
20	690	670	125	375	
21	39880 1835	1825	125	375	
22	710	690	125	375	
23	44305 3750	3735	125	375	106
24	2675	2660	125	375	
25	1735	1720	125	375	
26	915	900	125	375	
27	60615 950	930	125	375	
28	1690	1670	125	375	
29	1980	1970	125	375	170
30	2225	2810	125	375	110
31	57295 745	730	125	375	
TOTALS		57,695			

REPAIRS AND/OR EXPENSES

Date	Company Performing Work/Repairs	Descritpion of Work/Repairs	Estimated Cost	Work Authorized by

MONTHLY FRESH & BRINE WATER REPORT

FACILITY/LOCATION SACH Dog

MONTH/YEAR Nov 2019

Date	AMOUNT OF FRESH WATER PUMPED DOWN HOLE BBLS	AMOUNT OF BRINE WATER OUT OF HOLE BBLS SOLD	DAILY TUBING PRESSURES PSI	DAILY CASING PRESSURES PSI	FRESH WATER SOLD
1	810	~~1100~~ ~~300~~ ~~500~~ ~~200~~	125	375	370
2	715	700 ~~600~~	125	375	
3	1010	1000	125	375	
4	650	625	125	375	
5	2250	2220 ~~350~~	125	375	125
6	420	410 ~~50~~	125	375	
7	200	190 190	125	375	
8	815	805 ~~635~~	125	375	
9	1820	1805	125	375	
10	1215	~~1250~~ 1700	125	375	
11	1290	1275 ~~875~~ ~~650~~	125	375	
12	2680	2665 ~~1425~~ 1465 ~~500~~	125	375	
13	1990	1975 ~~1525~~ ~~1100~~	120	375	
14	1320	1300 ~~1000~~	125	375	
15	1345	1135 ~~435~~	125	375	40
16	1405	1390	125	375	
17	22070 2620	2600 ~~400~~	125	325	
18	1800	1785 100 1000	125	375	
19	2140	2125 ~~925~~	125	375	
20	2460	2445 ~~1225~~ ~~300~~	125	375	120
21	1615	1600 ~~1200~~	125	375	130
22	1425	1410 ~~910~~ ~~900~~	125	375	
23	1230	1720	125	375	185
24	2510	2490	125	375	
25	2520	2505 120 ~~1785~~ ~~660~~	125	375	
26	40120 1985	1970 ~~1220~~ ~~770~~	125	375	310
27	1425	1415 900 ~~1215~~	125	375	
28	515	500	125	375	
29	1185	1170 ~~310~~	125	375	120
30	740	730 ~~110~~	125	375	
31					
TOTALS		43935			

REPAIRS AND/OR EXPENSES

Date	Company Performing Work/Repairs	Descritpion of Work/Repairs	Estimated Cost	Work Authorized by

MONTHLY FRESH & BRINE WATER REPORT

FACILITY/LOCATION	SALTY Dog
MONTH/YEAR	Dec 2019

Date	AMOUNT OF FRESH WATER PUMPED DOWN HOLE BBLS	AMOUNT OF BRINE WATER OUT OF HOLE BBLS SOLD	DAILY TUBING PRESSURES PSI	DAILY CASING PRESSURES PSI	FRESH WATER SOLD
1	710	900	125	375	240
2	1660	1640	125	375	40
3	2400	2390	125	375	
4	2445	2530 1800 230	125	375	
5	1080	1070 210	125	375	370 ~~55~~ 100
6	1030	1015 625 100	125	375	312
7	1085	1070	125	375	70
8	790	780 200	125	375	
9	1240	1225 ~~100 225~~	125	375	
10	1265	1250 ~~700~~ 200	125	375	
11	1415	1400 100	125	375	
12	905	895 ~~1200 440~~	125	375	
13	1205	1190 550 890	125	375	
14	1815	1800 500	125	375	
15	~~[illegible]~~ 1215	1200 ~~300~~	125	375	
16	23486 3351	3331 ~~2031~~	125	375	120
17	1880	1866 ~~1280 1730~~	125	375	
18	1625	1665	125	375	
19	2175	2160 ~~1480 700~~	125	375	
20	870	860 300	125	375	
☆ 21	1315	1300	125	375	
22	1555	1540	125	375	
23	1410	1400	125	375	
24	1320	1300	125	375	
25	205	200	125	375	
26	37122 1360	1345	125	375	
27	630	625	125	375	120
28	800	770	125	375	
29	205	200 200	125	375	
30	545	535 ~~300~~	125	375	
31	1745	1730 1100 ~~2300~~	125	375	120
TOTALS					

REPAIRS AND/OR EXPENSES

Date	Company Performing Work/Repairs	Descritpion of Work/Repairs	Estimated Cost	Work Authorized by

C:\Documents and Settings\Jim\Local Settings\Temporary Internet Files\OLK6A\Monthly FW-BW Report - Original

MONTHLY FRESH & BRINE WATER REPORT

FACILITY/LOCATION SALTY Dog

MONTH/YEAR JAN 2020

Date	AMOUNT OF FRESH WATER PUMPED DOWN HOLE BBLS	AMOUNT OF BRINE WATER OUT OF HOLE BBLS SOLD	DAILY TUBING PRESSURES PSI	DAILY CASING PRESSURES PSI	FRESH WATER SOLD
1	410	400	125	375	
2	1200	1183	125	375	120
3	415	400	125	375	
4	915	900	125	375	
5	1590	1580	125	375	
6	2170	2155	125	375	
7	965	950	125	375	
8	1655	1645	125	375	
9	1440	1425	125	375	
10	1620	1600	125	375	110
11	1215	1200	125	375	
12	710	700	125	375	
13	3000	2085	125	375	
14	1740	1725	125	375	90
15	2015	2440	125	375	130
16	3000	2970	125	375	125
17	730	220	125	375	210
18	510	500	125	375	
19	2220	2200	125	375	110
20	2330	2318	125	375	125
21	1470	1455	125	375	25
22	635	625	125	375	120
23	3500	3476	125	375	85
24	2365	2355	125	375	120
25	1235	1220	125	375	
26	1520	1500	125	375	185
27	1260	1245	125	375	
28	1645	1630	125	375	
29	655	645	125	375	565
30	1300	1483	125	375	
31	800	725	125	375	500
TOTALS		45203			

REPAIRS AND/OR EXPENSES

Date	Company Performing Work/Repairs	Descritpion of Work/Repairs	Estimated Cost	Work Authorized by

Appendix C

Laboratory Analytical Reports

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

September 24, 2019

John Ayarbe

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

RE: Salty Dog OrderNo.: 1906171

Dear John Ayarbe:

Hall Environmental Analysis Laboratory received 14 sample(s) on 6/5/2019 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued June 18, 2019.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. All samples are reported as received unless otherwise indicated.

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

Sincerely,

Andy Freeman

Laboratory Manager

4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc.
Client Sample ID: PMW-1
Project: Salty Dog
Collection Date: 6/3/2019 5:20:00 PM
Lab ID: 1906171-001
Matrix: GROUNDWA
Received Date: 6/5/2019 10:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	11000	5000	*	mg/L	1E+	6/12/2019 11:28:50 AM	R60620

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-1R
Project: Salty Dog **Collection Date:** 6/3/2019 5:00:00 PM
Lab ID: 1906171-002 **Matrix:** GROUNDWA **Received Date:** 6/5/2019 10:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CJS**	
Chloride	190	5.0		mg/L	10	6/9/2019 6:14:37 PM	R60519

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc. **Client Sample ID:** DBS-2
Project: Salty Dog **Collection Date:** 6/3/2019 3:50:00 PM
Lab ID: 1906171-003 **Matrix:** GROUNDWA **Received Date:** 6/5/2019 10:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CJS**	
Chloride	42	5.0		mg/L	10	6/9/2019 7:04:15 PM	R60519

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:** 6/3/2019 4:45:00 PM
Lab ID: 1906171-004 **Matrix:** GROUNDWA **Received Date:** 6/5/2019 10:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CJS**	
Chloride	46	5.0		mg/L	10	6/9/2019 9:08:22 PM	R60519

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: 6/3/2019 4:10:00 PM
Lab ID: 1906171-005
Matrix: GROUNDWA
Received Date: 6/5/2019 10:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CJS**	
Chloride	30	5.0		mg/L	10	6/9/2019 8:18:43 PM	R60519

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:** 6/3/2019 4:30:00 PM
Lab ID: 1906171-006 **Matrix:** GROUNDWA **Received Date:** 6/5/2019 10:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CJS**	
Chloride	280	50	*	mg/L	100	6/9/2019 8:55:57 PM	R60519

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:** 6/3/2019 2:05:00 PM
Lab ID: 1906171-007 **Matrix:** GROUNDWA **Received Date:** 6/5/2019 10:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CJS**	
Chloride	180	50		mg/L	100	6/9/2019 8:06:18 PM	R60519

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:** 6/3/2019 1:00:00 PM
Lab ID: 1906171-008 **Matrix:** GROUNDWA **Received Date:** 6/5/2019 10:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CJS**	
Chloride	35	5.0		mg/L	10	6/9/2019 9:33:10 PM	R60519

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: 6/3/2019 12:32:00 PM
Lab ID: 1906171-009
Matrix: GROUNDWA
Received Date: 6/5/2019 10:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CJS**	
Chloride	160	5.0		mg/L	10	6/9/2019 10:22:49 PM	R60519

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:** 6/3/2019 1:30:00 PM
Lab ID: 1906171-010 **Matrix:** GROUNDWA **Received Date:** 6/5/2019 10:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CJS**	
Chloride	510	50	*	mg/L	100	6/9/2019 11:00:02 PM	R60519

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:** 6/3/2019 2:45:00 PM
Lab ID: 1906171-011 **Matrix:** GROUNDWA **Received Date:** 6/5/2019 10:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CJS**	
Chloride	610	50	*	mg/L	100	6/9/2019 11:24:52 PM	R60519

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:** 6/3/2019 3:20:00 PM
Lab ID: 1906171-012 **Matrix:** GROUNDWA **Received Date:** 6/5/2019 10:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
SPECIFIC GRAVITY						Analyst: **JRR**	
Specific Gravity	1.009	0			1	6/12/2019 11:09:00 AM	R60579
EPA METHOD 300.0: ANIONS						Analyst: **CJS**	
Fluoride	ND	10		mg/L	100	6/9/2019 11:37:16 PM	R60519
Chloride	8000	500	*	mg/L	1E+	6/9/2019 11:49:40 PM	R60519
Nitrogen, Nitrite (As N)	ND	10	H	mg/L	100	6/9/2019 11:37:16 PM	R60519
Bromide	ND	10		mg/L	100	6/9/2019 11:37:16 PM	R60519
Nitrogen, Nitrate (As N)	ND	0.50	H	mg/L	5	6/13/2019 2:40:10 PM	R60644
Phosphorus, Orthophosphate (As P)	ND	2.5	H	mg/L	5	6/13/2019 2:40:10 PM	R60644
Sulfate	440	50	*	mg/L	100	6/9/2019 11:37:16 PM	R60519
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	26000	25		µmhos/c	5	6/10/2019 5:44:12 PM	R60535
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	313.7	20.00		mg/L Ca	1	6/10/2019 12:01:18 PM	R60535
Carbonate (As CaCO3)	ND	2.000		mg/L Ca	1	6/10/2019 12:01:18 PM	R60535
Total Alkalinity (as CaCO3)	313.7	20.00		mg/L Ca	1	6/10/2019 12:01:18 PM	R60535
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	16200	200	*D	mg/L	1	6/10/2019 4:44:00 PM	45439
SM4500-H+B / 9040C: PH						Analyst: **JRR**	
pH	7.21		H	pH units	1	6/10/2019 12:01:18 PM	R60535
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **ELS**	
Calcium	1200	50		mg/L	50	6/12/2019 11:16:51 AM	45452
Magnesium	200	5.0		mg/L	5	6/12/2019 9:42:30 AM	45452
Potassium	18	1.0		mg/L	1	6/12/2019 9:40:30 AM	45452
Sodium	3700	50		mg/L	50	6/12/2019 11:16:51 AM	45452

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:** 6/3/2019 10:21:00 AM
Lab ID: 1906171-013 **Matrix:** GROUNDWA **Received Date:** 6/5/2019 10:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
SPECIFIC GRAVITY						Analyst: **JRR**	
Specific Gravity	0.9991	0			1	6/12/2019 11:09:00 AM	R60579
EPA METHOD 300.0: ANIONS						Analyst: **CJS**	
Chloride	370	50	*	mg/L	100	6/10/2019 12:14:30 AM	R60519
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	915	100	*D	mg/L	1	6/10/2019 4:44:00 PM	45439
SM4500-H+B / 9040C: PH						Analyst: **JRR**	
pH	7.56		H	pH units	1	6/6/2019 12:00:11 PM	R60464
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **ELS**	
Sodium	250	5.0		mg/L	5	6/12/2019 11:18:32 AM	45452

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:** 6/3/2019 10:16:00 AM
Lab ID: 1906171-014 **Matrix:** GROUNDWA **Received Date:** 6/5/2019 10:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
SPECIFIC GRAVITY						Analyst: **JRR**	
Specific Gravity	1.206	0			1	6/12/2019 11:09:00 AM	R60579
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	220000	10000	*	mg/L	2E+	6/12/2019 12:18:12 PM	R60620
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	312000	2000	*D	mg/L	1	6/10/2019 4:44:00 PM	45439
SM4500-H+B / 9040C: PH						Analyst: **JRR**	
pH	7.09		H	pH units	1	6/6/2019 12:08:47 PM	R60464
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **ELS**	
Sodium	67000	1000		mg/L	1E+	6/12/2019 11:28:57 AM	45452

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		

Wet Chemistry by Method 2580

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	mV			date / time	
ORP	231	T8	1	06/15/2019 12:00	WG1296217

L1106550-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1106550-01 06/15/19 12:00 • (DUP) R3421337-2 06/15/19 12:00

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mV	mV		%		%
ORP	231	228	1	1.31		20

Laboratory Control Sample (LCS)

(LCS) R3421337-1 06/15/19 12:00

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mV	mV	%	%	
ORP	228	229	100	95.7-104	

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.

Abbreviations and Definitions

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

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1906171**
24-Sep-19

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

Sample ID: **MB** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW** Batch ID: **R60519** RunNo: **60519**
Prep Date: Analysis Date: **6/9/2019** SeqNo: **2047402** 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								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Sulfate	ND	0.50								

Sample ID: **LCS** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW** Batch ID: **R60519** RunNo: **60519**
Prep Date: Analysis Date: **6/9/2019** SeqNo: **2047403** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.54	0.10	0.5000	0	108	90	110			
Chloride	4.7	0.50	5.000	0	93.9	90	110			
Nitrogen, Nitrite (As N)	0.93	0.10	1.000	0	92.8	90	110			
Bromide	2.3	0.10	2.500	0	93.9	90	110			
Sulfate	9.6	0.50	10.00	0	96.5	90	110			

Sample ID: **1906171-002AMS** SampType: **ms** TestCode: **EPA Method 300.0: Anions**
Client ID: **DBS-1R** Batch ID: **R60519** RunNo: **60519**
Prep Date: Analysis Date: **6/9/2019** SeqNo: **2047407** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	6.2	1.0	5.000	1.510	94.7	61.6	129			
Bromide	24	1.0	25.00	0	94.2	81.9	109			
Sulfate	180	5.0	100.0	80.86	98.1	84.2	122			

Sample ID: **1906171-002AMSD** SampType: **msd** TestCode: **EPA Method 300.0: Anions**
Client ID: **DBS-1R** Batch ID: **R60519** RunNo: **60519**
Prep Date: Analysis Date: **6/9/2019** SeqNo: **2047408** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	6.2	1.0	5.000	1.510	94.4	61.6	129	0.257	20	
Bromide	23	1.0	25.00	0	93.8	81.9	109	0.464	20	
Sulfate	180	5.0	100.0	80.86	96.1	84.2	122	1.14	20	

Sample ID: **MB** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW** Batch ID: **R60620** RunNo: **60620**
Prep Date: Analysis Date: **6/12/2019** SeqNo: **2051022** Units: **mg/L**

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

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		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1906171**

24-Sep-19

Client: Daniel B. Stephens & Assoc.

Project: Salty Dog

Sample ID: **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R60620**	RunNo: **60620**
Prep Date:	Analysis Date: **6/12/2019**	SeqNo: **2051022** 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: **R60620**	RunNo: **60620**
Prep Date:	Analysis Date: **6/12/2019**	SeqNo: **2051023** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	95.4	90	110			

Sample ID: **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R60644**	RunNo: **60644**
Prep Date:	Analysis Date: **6/13/2019**	SeqNo: **2052029** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID: **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R60644**	RunNo: **60644**
Prep Date:	Analysis Date: **6/13/2019**	SeqNo: **2052030** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	101	90	110			
Phosphorus, Orthophosphate (As P	4.9	0.50	5.000	0	97.0	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#: **1906171**
24-Sep-19

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

Sample ID: **lcs-1 99.0uS eC**	SampType: **lcs**	TestCode: **SM2510B: Specific Conductance**
Client ID: **LCSW**	Batch ID: **R60535**	RunNo: **60535**
Prep Date:	Analysis Date: **6/10/2019**	SeqNo: **2048171** Units: **µmhos/cm**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	98	5.0	99.00	0	99.4	85	115			

Sample ID: **1906171-012a dup**	SampType: **dup**	TestCode: **SM2510B: Specific Conductance**
Client ID: **MW-3**	Batch ID: **R60535**	RunNo: **60535**
Prep Date:	Analysis Date: **6/10/2019**	SeqNo: **2048185** Units: **µmhos/cm**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	26000	25						1.07	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#: **1906171**
24-Sep-19

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

Sample ID: **MB-45452**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **PBW**	Batch ID: **45452**	RunNo: **60581**
Prep Date: **6/7/2019**	Analysis Date: **6/12/2019**	SeqNo: **2049712** Units: **mg/L**

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

Sample ID: **LCS-45452**	SampType: **LCS**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **LCSW**	Batch ID: **45452**	RunNo: **60581**
Prep Date: **6/7/2019**	Analysis Date: **6/12/2019**	SeqNo: **2049713** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	48	1.0	50.00	0	95.7	80	120			
Magnesium	48	1.0	50.00	0	95.9	80	120			
Potassium	48	1.0	50.00	0	95.5	80	120			
Sodium	47	1.0	50.00	0	94.1	80	120			

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#: **1906171**
24-Sep-19

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

Sample ID: **1906171-012a dup**	SampType: **dup**	TestCode: **SM4500-H+B / 9040C: pH**							
Client ID: **MW-3**	Batch ID: **R60535**	RunNo: **60535**							
Prep Date:	Analysis Date: **6/10/2019**	SeqNo: **2048231**	Units: **pH units**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
pH	7.18									H

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#: **1906171**
24-Sep-19

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

Sample ID: **mb-1 alk**	SampType: **mblk**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R60535**	RunNo: **60535**							
Prep Date:	Analysis Date: **6/10/2019**	SeqNo: **2048188**	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: **R60535**	RunNo: **60535**							
Prep Date:	Analysis Date: **6/10/2019**	SeqNo: **2048189**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	76.60	20.00	80.00	0	95.8	90	110			

Sample ID: **1906171-012a dup**	SampType: **dup**	TestCode: **SM2320B: Alkalinity**							
Client ID: **MW-3**	Batch ID: **R60535**	RunNo: **60535**							
Prep Date:	Analysis Date: **6/10/2019**	SeqNo: **2048191**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	314.7	20.00						0.318	20	

Sample ID: **mb-2 alk**	SampType: **mblk**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R60535**	RunNo: **60535**							
Prep Date:	Analysis Date: **6/10/2019**	SeqNo: **2048211**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: **lcs-2 alk**	SampType: **lcs**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R60535**	RunNo: **60535**							
Prep Date:	Analysis Date: **6/10/2019**	SeqNo: **2048212**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	77.76	20.00	80.00	0	97.2	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#: **1906171**
24-Sep-19

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

Sample ID: **1906171-012ADUP**	SampType: **DUP**	TestCode: **Specific Gravity**							
Client ID: **MW-3**	Batch ID: **R60579**	RunNo: **60579**							
Prep Date:	Analysis Date: **6/12/2019**	SeqNo: **2049587**	Units:						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Gravity	1.011	0						0.238	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#: **1906171**
24-Sep-19

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

Sample ID: **MB-45439**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **45439**	RunNo: **60528**
Prep Date: **6/7/2019**	Analysis Date: **6/10/2019**	SeqNo: **2047649** 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-45439**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **45439**	RunNo: **60528**
Prep Date: **6/7/2019**	Analysis Date: **6/10/2019**	SeqNo: **2047650** 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.
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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: **DBS** Work Order Number: **1906171** RcptNo: **1**

Received By: **Erin Melendrez** **6/5/2019 10:05:00 AM**

Completed By: **Isaiah Ortiz** **6/5/2019 12:34:49 PM**

Reviewed By:

Chain of Custody

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

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
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: 3 (<2 or >12 unless noted)

Adjusted? No

Checked by: TMM 6-5-19

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	15.3	Good	Yes			

Chain-of-Custody Record

Client: DBSA

Mailing Address: 6020 Academy Rd NE 87109

Phone #: 505-822-9400

email or Fax#: MZbrozek@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 #: ES08.0118.16

Project Manager: J. Ayache

Sampler: M. Ebrozek

On Ice: ☑ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): 14.8+0.5(CF)=15.3°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. 1906171	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)	TDS/T See Attached
6.3.19	1720	GW	PMW-1	1 Poly	NA	-001											
	1700		DBS-1R			-002											
	1550		DBS-2			-003											
	1645		DBS-3			-004											
	1610		DBS-4			-005											
	1630		DBS-5			-006											
	1405		DBS-6			-007											
	1300		DBS-8			-008											
	1232		DBS-9			-009											
	1330		DBS-10			-0010											
	1445		MW-5			-011											
	1520		MW-3	4 Poly	HNO3 H2SO4	-017										X	

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
6/5/19	1005			GDO	6/5/19	1005
Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time

Remarks: Temp Approved - ENM 6/5/19

1/2

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: DBSA

Mailing Address: 6020 Academy Rd NE 87123

Phone #: 505-822-9400

email or Fax#: MZbrozek@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 #: ES08.0118.06

Project Manager: J. Ayarbe

Sampler: M. Zbrozek

On Ice: ☒ Yes ☐ No

# of Coolers: 1

Cooler Temp (including CF): 14.8+0.5(CF)=15.3°

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. 1906171	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)	TDS, pH, Spec grav	Na				
6.03.19	1021	GW	Injection	3 poly	1HNO3 2 non	-013							X				X	X				
6.03.19	1016	W	Brine	2 poly	1HNO3	-014							X				X	X				

Analysis Request

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
6/5/19	1005			CDO	6/5/19	1005
Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time

Remarks: Brine Cl analysis from tall unpreserved bottle.

Temp approved-ENM 6/5/19

2/2

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.

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

January 14, 2020

John Ayarbe

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

RE: Salty Dog OrderNo.: 1912A30

Dear John Ayarbe:

Hall Environmental Analysis Laboratory received 14 sample(s) on 12/19/2019 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.

CLIENT: Daniel B. Stephens & Assoc.
Client Sample ID: Brine
Project: Salty Dog
Collection Date: 12/18/2019 7:00:00 AM
Lab ID: 1912A30-001 **Matrix:** AQUEOUS **Received Date:** 12/19/2019 10:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
SPECIFIC GRAVITY						Analyst: **JRR**	
Specific Gravity	1.199	0			1	12/30/2019 1:29:00 PM	R65470
EPA METHOD 300.0: ANIONS						Analyst: **CAS**	
Chloride	170000	10000	*	mg/L	2E+	12/27/2019 2:17:27 PM	R65460
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	343000	2000	*D	mg/L	1	12/24/2019 7:03:00 PM	49489
SM4500-H+B / 9040C: PH						Analyst: **JRR**	
pH	7.30		H	pH units	1	12/20/2019 11:50:28 AM	R65332
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **ELS**	
Sodium	91000	2000		mg/L	2E+	1/9/2020 10:13:26 AM	49581

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: 12/18/2019 12:20:00 PM
Lab ID: 1912A30-002 **Matrix:** AQUEOUS **Received Date:** 12/19/2019 10:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
SPECIFIC GRAVITY						Analyst: **JRR**	
Specific Gravity	0.9956	0			1	12/30/2019 1:29:00 PM	R65470
EPA METHOD 300.0: ANIONS						Analyst: **CAS**	
Chloride	200	50		mg/L	100	12/27/2019 3:08:56 PM	R65460
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	618	40.0	*D	mg/L	1	12/24/2019 7:03:00 PM	49489
SM4500-H+B / 9040C: PH						Analyst: **JRR**	
pH	7.62		H	pH units	1	12/20/2019 11:54:55 AM	R65332
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **ELS**	
Sodium	150	5.0		mg/L	5	1/9/2020 10:01:50 AM	49581

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-1R
Project: Salty Dog
Collection Date: 12/18/2019 9:12:00 AM
Lab ID: 1912A30-003 **Matrix:** AQUEOUS **Received Date:** 12/19/2019 10:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CAS**	
Chloride	210	50		mg/L	100	12/27/2019 3:34:40 PM	R65460

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc.
Client Sample ID: DBS-2
Project: Salty Dog
Collection Date: 12/17/2019 3:58:00 PM
Lab ID: 1912A30-004
Matrix: AQUEOUS
Received Date: 12/19/2019 10:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CAS**	
Chloride	68	5.0		mg/L	10	12/27/2019 3:47:32 PM	R65460

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: 12/17/2019 4:55:00 PM
Lab ID: 1912A30-005 **Matrix:** AQUEOUS **Received Date:** 12/19/2019 10:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CAS**	
Chloride	48	5.0		mg/L	10	12/27/2019 4:13:16 PM	R65460

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: 12/17/2019 3:15:00 PM
Lab ID: 1912A30-006 **Matrix:** AQUEOUS **Received Date:** 12/19/2019 10:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CAS**	
Chloride	35	5.0		mg/L	10	12/27/2019 4:38:59 PM	R65460

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc.
Client Sample ID: DBS-5
Project: Salty Dog
Collection Date: 12/18/2019 8:32:00 AM
Lab ID: 1912A30-007
Matrix: AQUEOUS
Received Date: 12/19/2019 10:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CAS**	
Chloride	160	5.0		mg/L	10	12/27/2019 5:30:27 PM	R65460

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: 12/17/2019 11:30:00 AM
Lab ID: 1912A30-008
Matrix: AQUEOUS
Received Date: 12/19/2019 10:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CAS**	
Chloride	220	50		mg/L	100	12/27/2019 6:09:04 PM	R65460

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc.
Client Sample ID: DBS-8
Project: Salty Dog
Collection Date: 12/17/2019 1:15:00 PM
Lab ID: 1912A30-009
Matrix: AQUEOUS
Received Date: 12/19/2019 10:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CAS**	
Chloride	30	5.0		mg/L	10	12/27/2019 6:21:56 PM	R65460

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: 12/17/2019 2:05:00 PM
Lab ID: 1912A30-010 **Matrix:** AQUEOUS **Received Date:** 12/19/2019 10:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CAS**	
Chloride	220	50		mg/L	100	12/27/2019 7:26:14 PM	R65460

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: 12/17/2019 12:25:00 PM
Lab ID: 1912A30-011 **Matrix:** AQUEOUS **Received Date:** 12/19/2019 10:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CAS**	
Chloride	540	50	*	mg/L	100	12/27/2019 11:17:56 PM	R65460

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: PMW-1
Project: Salty Dog
Collection Date: 12/18/2019 12:10:00 PM
Lab ID: 1912A30-012 **Matrix:** AQUEOUS **Received Date:** 12/19/2019 10:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CAS**	
Chloride	3400	500	*	mg/L	1E+	12/27/2019 11:30:48 PM	R65460

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc. **Client Sample ID:** MW-3
Project: Salty Dog **Collection Date:** 12/18/2019 11:15:00 AM
Lab ID: 1912A30-013 **Matrix:** AQUEOUS **Received Date:** 12/19/2019 10:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
SPECIFIC GRAVITY						Analyst: **JRR**	
Specific Gravity	1.005	0			1	12/30/2019 1:29:00 PM	R65470
EPA METHOD 300.0: ANIONS						Analyst: **CAS**	
Fluoride	ND	1.0		mg/L	10	12/20/2019 12:51:44 AM	A65303
Chloride	7400	250	*	mg/L	500	12/27/2019 11:56:31 PM	A65303
Nitrogen, Nitrite (As N)	ND	10		mg/L	100	12/20/2019 1:04:09 AM	A65303
Bromide	ND	1.0		mg/L	10	12/20/2019 12:51:44 AM	A65303
Nitrogen, Nitrate (As N)	ND	1.0		mg/L	10	12/20/2019 12:51:44 AM	A65303
Phosphorus, Orthophosphate (As P)	ND	5.0		mg/L	10	12/20/2019 12:51:44 AM	A65303
Sulfate	500	5.0	*	mg/L	10	12/20/2019 12:51:44 AM	A65303
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	26000	25		µmhos/c	5	12/20/2019 3:43:18 PM	R65332
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	326.4	20.00		mg/L Ca	1	12/20/2019 11:58:57 AM	R65332
Carbonate (As CaCO3)	ND	2.000		mg/L Ca	1	12/20/2019 11:58:57 AM	R65332
Total Alkalinity (as CaCO3)	326.4	20.00		mg/L Ca	1	12/20/2019 11:58:57 AM	R65332
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	15600	100	*D	mg/L	1	12/24/2019 7:03:00 PM	49489
SM4500-H+B / 9040C: PH						Analyst: **JRR**	
pH	7.12		H	pH units	1	12/20/2019 11:58:57 AM	R65332
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **ELS**	
Calcium	1200	20		mg/L	20	1/9/2020 10:15:16 AM	49581
Magnesium	200	5.0		mg/L	5	1/9/2020 10:06:53 AM	49581
Potassium	18	5.0		mg/L	5	1/9/2020 10:06:53 AM	49581
Sodium	3600	100		mg/L	100	1/9/2020 10:17:05 AM	49581

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc.
Client Sample ID: MW-5
Project: Salty Dog
Collection Date: 12/18/2019 10:32:00 AM
Lab ID: 1912A30-014
Matrix: AQUEOUS
Received Date: 12/19/2019 10:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CAS**	
Chloride	550	50	*	mg/L	100	12/28/2019 12:22:14 AM	R65460

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

December 27, 2019

Hall Environmental Analysis Laboratory

Sample Delivery Group: L1173514

Samples Received: 12/21/2019

Project Number:

Description:

Report To:

4901 Hawkins NE

Albuquerque, NM 87109

Entire Report Reviewed By:

Brittnie L Boyd
Project Manager

TABLE OF CONTENTS

1912A30-013C MW-3 L1173514-01 GW

Collected by	Collected date/time	Received date/time
	12/18/19 11:15	12/21/19 10:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2580	WG1402385	1	12/26/19 16:45	12/26/19 16:45	BAM	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.

Brittnie L Boyd
Project Manager

Wet Chemistry by Method 2580

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	mV			date / time	
ORP	35.0	T8	1	12/26/2019 16:45	WG1402385

L1173514-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1173514-01 12/26/19 16:45 • (DUP) R3486097-2 12/26/19 16:45

Analyte	Original Result	DUP Result	Dilution	DUP Diff	DUP Qualifier	DUP Diff Limits
	mV	mV		mV		mV
ORP	35.0	34.0	1	2.90		20

Laboratory Control Sample (LCS)

(LCS) R3486097-1 12/26/19 16:45

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	mV	mV	%	%	
ORP	105	104	99.0	86.0-105	

Guide to Reading and Understanding Your Laboratory Report

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

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

Abbreviations and Definitions

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

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

Pace 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

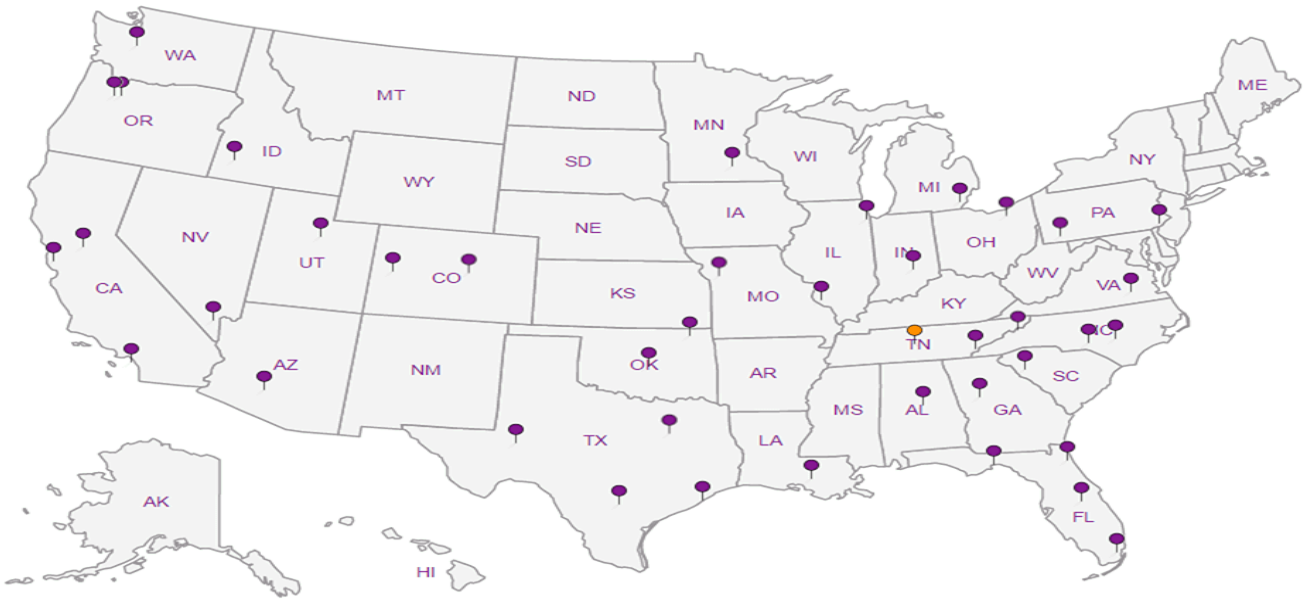
Third Party Federal Accreditations

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: www.hallenvironmental.com

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

B020

L1173514

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS
1	1912A30-013C	MW-3	125HDP	Aqueous	12/18/2019 11:15:00 AM	1	ORP -01

COC SI

RAD SCREEN: <0.5 mR/hr

SPECIAL INSTRUCTIONS / COMMENTS: Tracking # 5704 6067 3065 Containers Received 2

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

Relinquished By:	Date: 12/19/2019	Time: 3:44 PM	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By: W Tay Gn	Date: 12/21/19	Time: 0830

TAT: Standard [X] **RUSH** Next BD [ ] 2nd BD [ ] 3rd BD [ ]

REPORT TRANSMITTAL DESIRED:

[ ] HARDCOPY (extra cost) [ ] FAX [ ] EMAIL [ ] ONLINE

FOR LAB USE ONLY

Temp of samples 0.2-.3+0.5 °C Attempt to Cool ? Y

Comments:

Pace Analytical National Center for Testing & Innovation
Cooler Receipt Form

Client:	L1173514	
Cooler Received/Opened On: 12/21/19 Temperature: 0.5		
Received By: WILLIE TAYLOR 1030		
Signature: Willie Taylor		

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#: **1912A30**

14-Jan-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: **A65303**	RunNo: **65303**
Prep Date:	Analysis Date: **12/19/2019**	SeqNo: **2243077** 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								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	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: **A65303**	RunNo: **65303**
Prep Date:	Analysis Date: **12/19/2019**	SeqNo: **2243078** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.55	0.10	0.5000	0	109	90	110			
Chloride	4.8	0.50	5.000	0	96.2	90	110			
Nitrogen, Nitrite (As N)	0.95	0.10	1.000	0	94.9	90	110			
Bromide	2.5	0.10	2.500	0	98.6	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	101	90	110			
Phosphorus, Orthophosphate (As P	4.9	0.50	5.000	0	97.8	90	110			
Sulfate	9.7	0.50	10.00	0	97.3	90	110			

Sample ID: **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R65460**	RunNo: **65460**
Prep Date:	Analysis Date: **12/27/2019**	SeqNo: **2248796** 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: **R65460**	RunNo: **65460**
Prep Date:	Analysis Date: **12/27/2019**	SeqNo: **2248797** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	94.3	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#: **1912A30**
14-Jan-20

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

Sample ID: **lcs-1 99.9uS eC**	SampType: **lcs**	TestCode: **SM2510B: Specific Conductance**
Client ID: **LCSW**	Batch ID: **R65332**	RunNo: **65332**
Prep Date:	Analysis Date: **12/20/2019**	SeqNo: **2244258** Units: **µmhos/cm**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	98	5.0	99.90	0	98.6	85	115			

Sample ID: **1912a30-013a dup**	SampType: **dup**	TestCode: **SM2510B: Specific Conductance**
Client ID: **MW-3**	Batch ID: **R65332**	RunNo: **65332**
Prep Date:	Analysis Date: **12/20/2019**	SeqNo: **2244266** Units: **µmhos/cm**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	26000	25						2.39	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#: **1912A30**

14-Jan-20

Client: Daniel B. Stephens & Assoc.

Project: Salty Dog

Sample ID: **MB-49581** SampType: **MBLK** TestCode: **EPA 6010B: Total Recoverable Metals**

Client ID: **PBW** Batch ID: **49581** RunNo: **65605**

Prep Date: **12/31/2019** Analysis Date: **1/7/2020** SeqNo: **2253387** 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-49581** SampType: **LCS** TestCode: **EPA 6010B: Total Recoverable Metals**

Client ID: **LCSW** Batch ID: **49581** RunNo: **65605**

Prep Date: **12/31/2019** Analysis Date: **1/7/2020** SeqNo: **2253389** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	50	1.0	50.00	0	99.6	80	120			
Magnesium	49	1.0	50.00	0	98.1	80	120			
Potassium	49	1.0	50.00	0	97.3	80	120			

Sample ID: **MB-49581** SampType: **MBLK** TestCode: **EPA 6010B: Total Recoverable Metals**

Client ID: **PBW** Batch ID: **49581** RunNo: **65667**

Prep Date: **12/31/2019** Analysis Date: **1/9/2020** SeqNo: **2255586** Units: **mg/L**

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

Sample ID: **LCS-49581** SampType: **LCS** TestCode: **EPA 6010B: Total Recoverable Metals**

Client ID: **LCSW** Batch ID: **49581** RunNo: **65667**

Prep Date: **12/31/2019** Analysis Date: **1/9/2020** SeqNo: **2255590** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sodium	49	1.0	50.00	0	97.0	80	120			

Sample ID: **1912A30-002BMS** SampType: **MS** TestCode: **EPA 6010B: Total Recoverable Metals**

Client ID: **Injection** Batch ID: **49581** RunNo: **65667**

Prep Date: **12/31/2019** Analysis Date: **1/9/2020** SeqNo: **2255604** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sodium	200	5.0	50.00	145.3	99.9	75	125			

Sample ID: **1912A30-002BMSD** SampType: **MSD** TestCode: **EPA 6010B: Total Recoverable Metals**

Client ID: **Injection** Batch ID: **49581** RunNo: **65667**

Prep Date: **12/31/2019** Analysis Date: **1/9/2020** SeqNo: **2255605** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sodium	190	5.0	50.00	145.3	98.4	75	125	0.378	20	

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		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1912A30**
14-Jan-20

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

Sample ID: **1912a30-013a dup**	SampType: **dup**			TestCode: **SM4500-H+B / 9040C: pH**						
Client ID: **MW-3**	Batch ID: **R65332**			RunNo: **65332**						
Prep Date:	Analysis Date: **12/20/2019**			SeqNo: **2244279**		Units: **pH units**				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
pH	7.12									H

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#: **1912A30**
14-Jan-20

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

Sample ID: **mb-1 alk**	SampType: **mblk**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R65332**	RunNo: **65332**							
Prep Date:	Analysis Date: **12/20/2019**	SeqNo: **2244235**	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: **R65332**	RunNo: **65332**							
Prep Date:	Analysis Date: **12/20/2019**	SeqNo: **2244236**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	79.24	20.00	80.00	0	99.0	90	110			

Sample ID: **1912a30-013a dup**	SampType: **dup**	TestCode: **SM2320B: Alkalinity**							
Client ID: **MW-3**	Batch ID: **R65332**	RunNo: **65332**							
Prep Date:	Analysis Date: **12/20/2019**	SeqNo: **2244238**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	327.2	20.00						0.220	20	

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		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1912A30**
14-Jan-20

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

Sample ID: **1912A30-001ADUP**	SampType: **DUP**	TestCode: **Specific Gravity**							
Client ID: **Brine**	Batch ID: **R65470**	RunNo: **65470**							
Prep Date:	Analysis Date: **12/30/2019**	SeqNo: **2249072**	Units:						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Gravity	1.197	0						0.159	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#: **1912A30**

14-Jan-20

Client: Daniel B. Stephens & Assoc.

Project: Salty Dog

Sample ID: **MB-49489**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **49489**	RunNo: **65394**
Prep Date: **12/23/2019**	Analysis Date: **12/24/2019**	SeqNo: **2246446** 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-49489**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **49489**	RunNo: **65394**
Prep Date: **12/23/2019**	Analysis Date: **12/24/2019**	SeqNo: **2246447** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1030	20.0	1000	0	103	80	120			

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: **DBS** Work Order Number: **1912A30** RcptNo: 1

Received By: **Desiree Dominguez** **12/19/2019 10:05:00 AM** DD

Completed By: **Erin Melendrez** **12/19/2019 2:52:19 PM** EM

Reviewed By: DM 12/19/19

Chain of Custody

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

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 ☐
	Samples 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: YG 12/19/19

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	-0.1	Good				

Chain-of-Custody Record

Client: Daniel B. Stephens

Mailing Address: ABQ office

Phone #: 505-822-9400

email or Fax#: JAyoube@geologic.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 Ph1 T2

Project Manager: John Ayoube

Sampler: Y. Morga

On Ice: ☒ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): -0.1 -0.0 = -0.1 (°C)

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

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 1912A30	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)	Specific gravity, TDS, pH	Sodium 6010B	Cl only 300.0
12-18-19	0700	GW	Brine	3 poly	Varies	-001											X	X	X
"	1330		Injection	3 poly	varies	-002											X	X	X
"	0912		DBS-1R	1 poly	N/A	-003													X
12-17-19	1558		DBS-2			-004													X
"	1655		DBS-3			-005													X
"	1515		DBS-4			-006													X
12-18-19	0832		DBS-5			-007													X
12-17-19	11:30		DBS-6			-008													X
"	13:15		DBS-8			-009													X
"	14:05		DBS-9			-010													X
"	12:35		DBS-10			-011													X
12-18-19	12:10		PMW-1		N/A	-012													X

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
12-19-19	10:05			CDO	12/19/19	10:05
Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time

Remarks: Page 1 of 2 NOT FROZEN

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: ABQ office

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.Ph 72

Project Manager: John Aylsbe

Sampler:

On Ice: ☒ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): -0.1 -0.0 = 0.1 (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 1912A30	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 All 200	Cl, F, Br, NO_3, NO_2, PO_4, SO_4 ORP	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)	Cl only 300.0	Specific gravity	Specific Conductivity	Bicarbonate, Carbonate, Total Alkalinity	TDS, pH	Ca, Mg, K, Na, Gold B
12-19	1115	GW	MW-3 ✓	4 Poly	Rates	-013							X	X			X	X	X	X	X	X
"	1032	GW	MW-5 ✓	1 Poly	N/A	-014										X						

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
12-19-19	1005			CDO	12/19/19	10:05
Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time

Remarks: Page 2 of 2 NOT FROZEN

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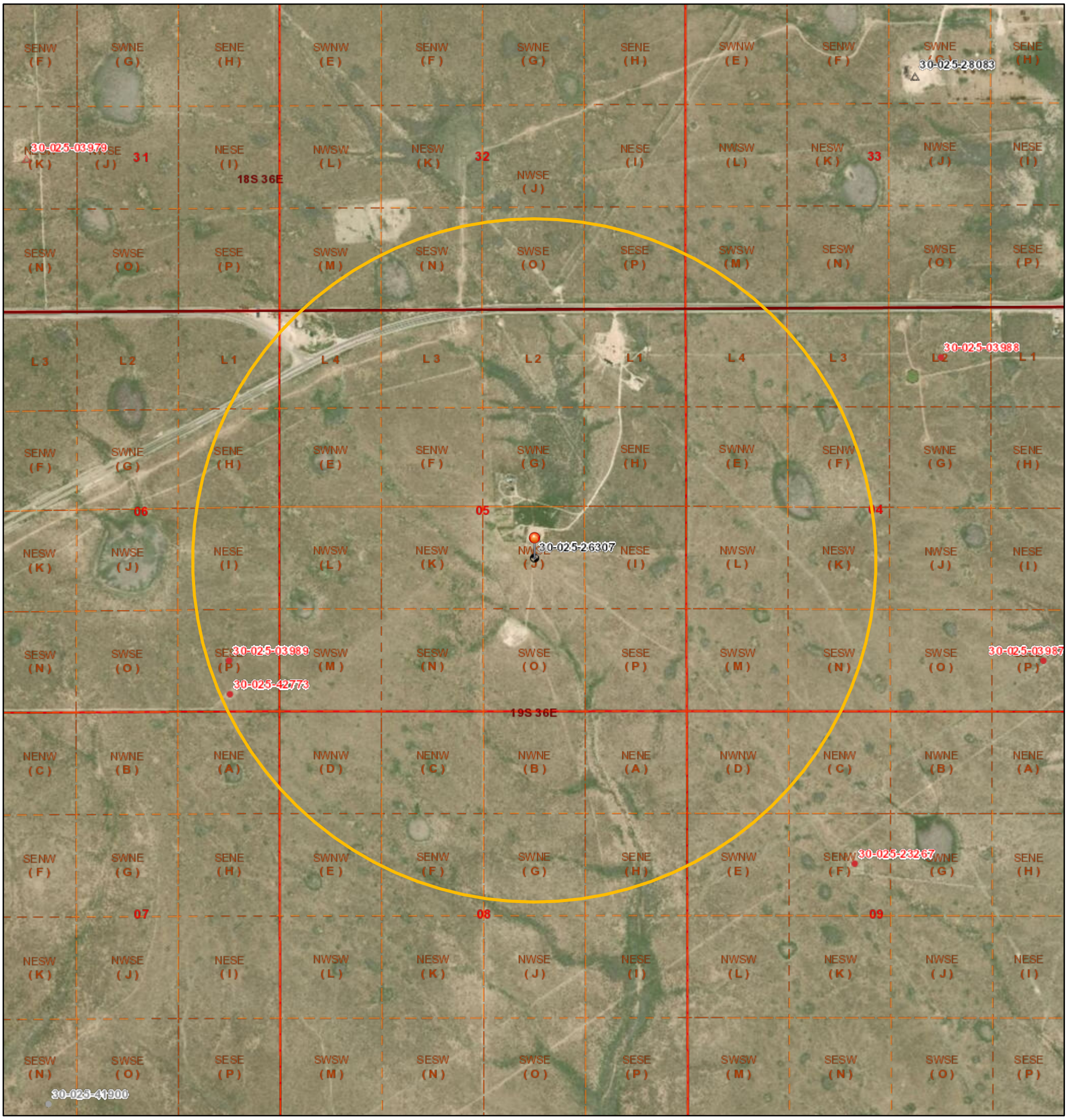
Appendix D

Area of Review Evaluation

OCD Well Locations



4/13/2020, 11:07:26 AM

1:18,056

0 0.17 0.35 0.7 mi

0 0.28 0.55 1.1 km

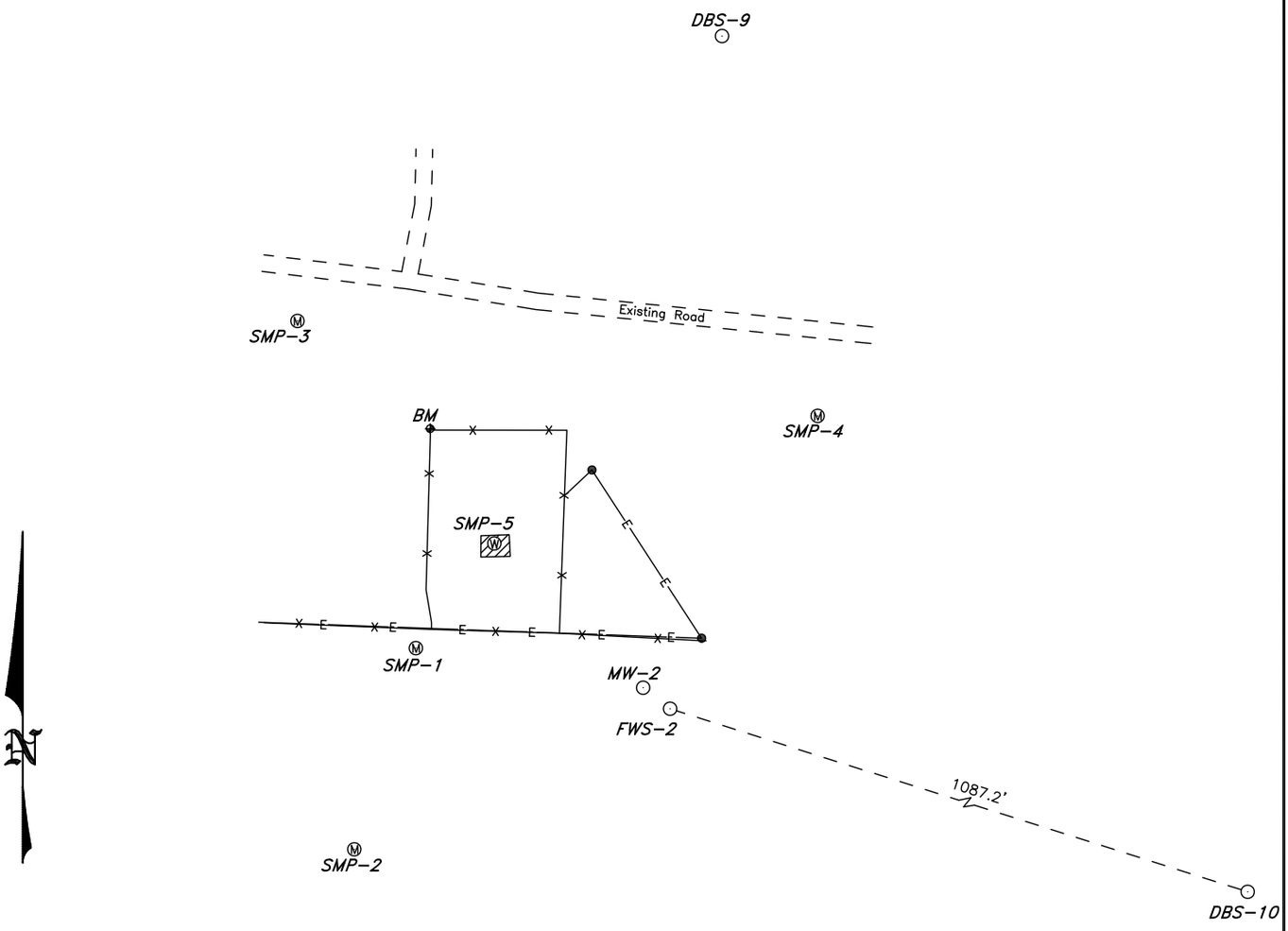
Wells - Large Scale

- undefined
- Miscellaneous
- CO2, Active
- CO2, Cancelled
- CO2, New
- CO2, Plugged
- CO2, Temporarily Abandoned
- Gas, Active
- Gas, Cancelled
- Gas, New
- Gas, Plugged
- Gas, Temporarily Abandoned
- Injection, Active
- Injection, Cancelled
- Injection, New
- Injection, Plugged
- Injection, Temporarily Abandoned
- Oil, Active
- Oil, Cancelled
- Oil, New
- Oil, Plugged
- Oil, Temporarily Abandoned
- Salt Water Injection, Active
- Salt Water Injection, Cancelled
- Salt Water Injection, New
- Salt Water Injection, Plugged
- Salt Water Injection, Temporarily Abandoned
- Water, Active
- Water, Cancelled
- Water, New
- Water, Plugged
- Water, Temporarily Abandoned
- OCD District Offices
- PLSS First Division
- PLSS Second Division
- PLSS Townships

Appendix E

2019 Survey Data for Land Surface Subsidence Monitoring

SECTION 5, TOWNSHIP 19 SOUTH, RANGE 36 EAST, N.M.P.M.,
LEA COUNTY, NEW MEXICO.



ALL COORDINATES ARE BASED ON NMSPCE (NAD83)

NAME	SECTION CALLS	NORTHING	EASTING	LATITUDE	LONGITUDE	ELEVATION TOP CASING	ELEVATION CONCRETE
SMP-1	2153' FSL & 2020' FEL	615475.977	836301.437	N32°41'17.960"	W103°22'28.520"	3810.10'	3810.38'
SMP-2	2032' FSL & 2058' FEL	615354.850	836264.338	N32°41'16.795"	W103°22'28.966"	3809.00'	3809.41'
SMP-3	2350' FSL & 2089' FEL	615673.004	836230.083	N32°41'19.945"	W103°22'29.334"	3808.81'	3809.18'
SMP-4	2291' FSL & 1776' FEL	615615.830	836543.487	N32°41'19.352"	W103°22'25.673"	3806.32'	3806.72'
SMP-5	2216' FSL & 1972' FEL	615539.029	836348.733	N32°41'18.609"	W103°22'27.960"	3811.72'	
DBS-9	2520' FSL & 1831' FEL	615844.539	836485.906	N32°41'21.593"	W103°22'26.317"		
DBS-10	1389' FSL & 1060' FEL	614720.368	837270.028	N32°41'10.428"	W103°22'17.269"	3807.48'	3805.44'
BENCH MARK		615608.14	836310.07	N32°41'19.27"	W103°22'28.40"	3808.62'	

I HEREBY CERTIFY THAT THIS PLAT WAS PREPARED FROM FIELD NOTES OF AN ACTUAL SURVEY AND MEETS OR EXCEEDS ALL REQUIREMENTS FOR LAND SURVEYS AS SPECIFIED BY THIS STATE.

GARY L. JONES, N.M. P.S. No. 7977
T.H. McLAUGHLIN, N.M. P.S. No. 5074

GARY L. JONES NEW MEXICO 7977 REGISTERED PROFESSIONAL LAND SURVEYOR

200 0 200 400 FEET

DANIEL B. STEPHENS & ASSOCIATES, INC

REF: SALTY DOG BRINE FACILITY

MONITOR WELLS AND SUSTENANCE MONITORING POINTS
LOCATED IN SECTION 5, TOWNSHIP 19 SOUTH, RANGE 36 EAST,
N.M.P.M., LEA COUNTY, NEW MEXICO.

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1120 N. West County Rd.
Hobbs, New Mexico 88241
(575) 393-7316 – Office
(575) 392-2206 – Fax
basinsurveys.com

W.O. Number: 34616	Drawn By: K. GOAD	Date: 06-12-2019	Survey Date: 06-10-2019	Sheet 1 of 1 Sheets

SECTION 5, TOWNSHIP 19 SOUTH, RANGE 36 EAST, N.M.P.M.,
LEA COUNTY, NEW MEXICO.

ALL COORDINATES ARE BASED ON NMSPCE (NAD83)

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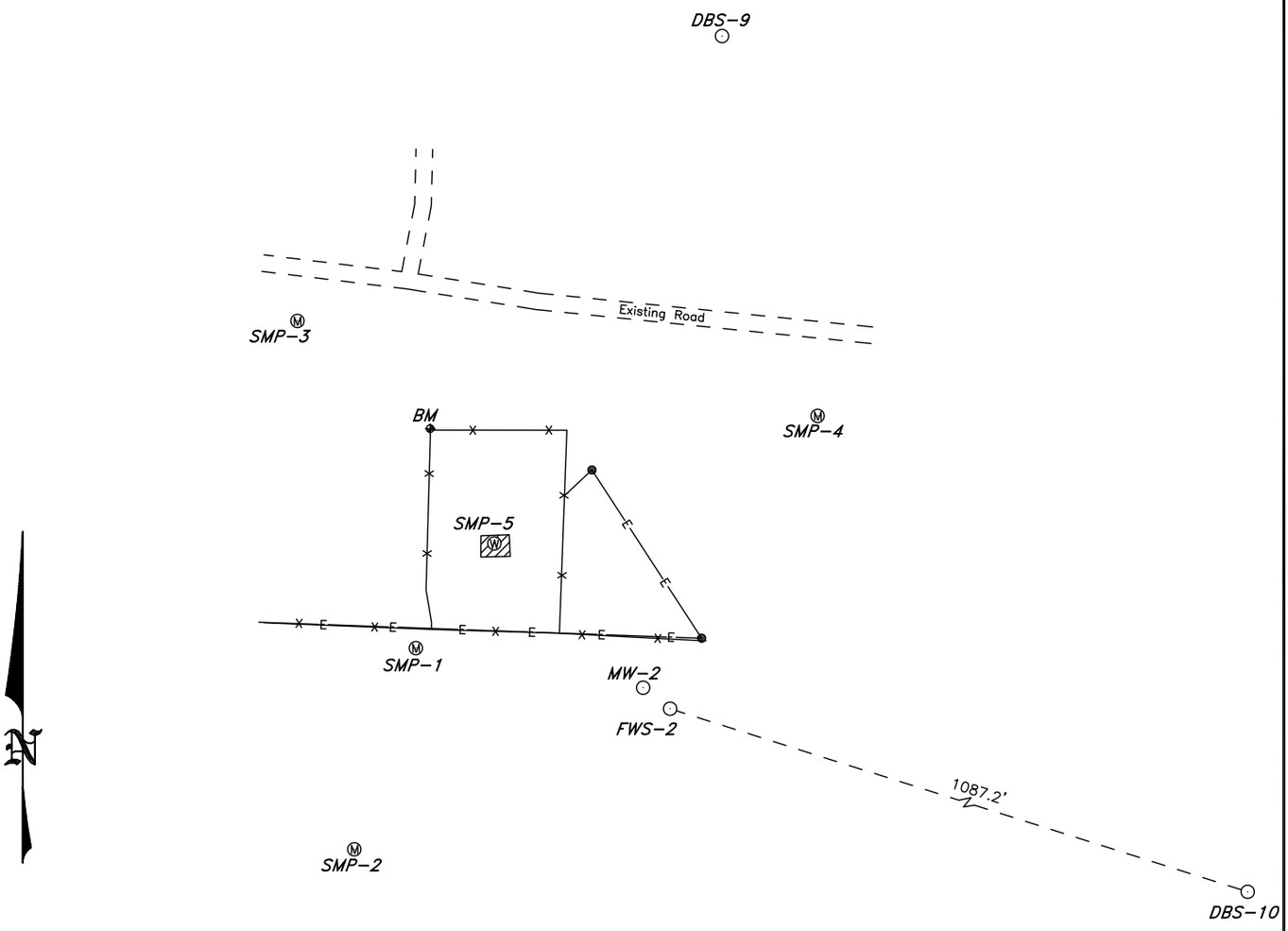
W.O. Number: 34616	Drawn By: K. GOAD	Date: 06-12-2019	Survey Date: 06-10-2019	Sheet 1 of 1 Sheets

SECTION 5, TOWNSHIP 19 SOUTH, RANGE 36 EAST, N.M.P.M.,
LEA COUNTY, NEW MEXICO.



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200 0 200 400 FEET

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DANIEL B. STEPHENS & ASSOCIATES, INC

REF: SALTY DOG BRINE FACILITY

MONITOR WELLS AND SUSTENANCE MONITORING POINTS
LOCATED IN SECTION 5, TOWNSHIP 19 SOUTH, RANGE 36 EAST,
N.M.P.M., LEA COUNTY, NEW MEXICO.

W.O. Number: 34986	Drawn By: K. GOAD	Date: 12-16-2019	Survey Date: 12-12-2019	Sheet 1 of 1 Sheets

Chavez, Carl J, EMNRD

From: Ayarbe, John <jayarbe@geo-logic.com>
Sent: Friday, May 3, 2019 12:13 PM
To: Chavez, Carl J, EMNRD
Cc: 'Pieter Bergstein (pieter@bergsteinenterprises.com)'; 'susan@thestandardenergy.com'; Zbrozek, Michael
Subject: [EXT] 2018 Annual Class III Well Report - Salty Dog Brine Station
Attachments: Salty Dog 2018 Annual Report_5-03-2019.pdf

Hi Carl,

Attached is an electronic copy of the 2018 Annual Class III Well Report for the Salty Dog brine station. The report was prepared in accordance with the requirements of discharge permit (DP) BW-8.

Please let me know if you have questions.

Thanks,

John P. Ayarbe
Senior Hydrogeologist

Daniel B. Stephens & Associates, Inc.
a Geo-Logic Company
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2018 Annual Class III Well Report

Salty Dog Brine Station

DP BW-8, API No. 30-025-26307

Lea County, New Mexico

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

May 3, 2019

Daniel B. Stephens & Associates, Inc.

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2018 Annual Class III Well Report
Salty Dog Brine Station
DP BW-8, API No. 30-025-26307
Lea County, New Mexico

1. Introduction

Daniel B. Stephens & Associates, Inc. (DBS&A) has prepared this annual Class III well 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 operation of a brine well (Brine Supply Well #1 [API No. 30-025-26307]) at the Salty Dog Brine Station (the site). The site is located in Lea County, New Mexico, approximately 11 miles west of Hobbs, New Mexico along U.S. Highway 62/180 (US 62/80) (Figure 1). This report summarizes operational and monitoring activities conducted at the site in 2018, and was prepared in accordance with the requirements of discharge permit (DP) BW-8, last renewed on November 8, 2013 (NMEMNRD, 2013). The submittal of this report meets Condition 2.J of the permit.

Appendix A provides an annual certification signed by Mr. Pieter Bergstein stating that continued salt solution mining will not cause cavern collapse, surface subsidence, property damage, or otherwise threaten public health and the environment based on geologic and engineering data.

Salty Dog is a brine water production and loading station, consisting of fresh water supply wells, a brine production well, and a concrete truck loading pad with two brine filling stations. Fresh water is stored in two 1,000-barrel (bbl) aboveground storage tanks (ASTs). Produced brine is pumped from the brine well to a bermed tank battery consisting of six 750-bbl ASTs, where the brine is stored for sale. The brine well is located approximately 0.5 mile southwest of the brine filling station (Figure 1). Figure 2 presents a November 2017 aerial photograph of the brine station showing the layout of the current facility infrastructure.

Brine is produced from the in situ extraction of salt at the brine well, a UIC Class III well (Brine Supply Well #1 [API No. 30-025-26307]). The brine well is approximately 3,000 feet deep and has been in operation since the early 1980s. The Salty Dog brine well is configured for reverse circulation brine recovery, where fresh water is circulated down the casing annulus into the Salado Formation—a Permian Age sedimentary rock unit composed of halite (salt) and other evaporative beds. Fresh water dissolves the salt, and the brine is extracted through the center tubing of the well. Figure 3 provides a generalized schematic of the brine well showing its construction, current tubing depth, and the penetrated geologic units.

The physical location of the brine well is 1,980 feet from south line (FSL) and 1,980 feet from east line (FEL) (NW/4 SE/4, Unit Letter J) in Section 5, Township 19 South, Range 36 East, New Mexico Principal Meridian (NMPM). The brine well was installed in June 1979. The original discharge permit for the brine well (GWB-2) appears to have been issued on December 18, 1982 (OCD, 1994). The discharge permit was last renewed on November 8, 2013 (NMEMNRD, 2013). A permit renewal application was submitted to OCD in July 2018 (DBS&A, 2018c). OCD deemed the application administrative complete on October 11, 2018 (OCD, 2018).

Injection water used in brine production is obtained from the Ogallala Aquifer by pumping from two fresh water supply wells (FWS-1 and FWS-2) and groundwater remediation well RW-2. Well FWS-1 is the main fresh water supply well. Well FWS-2, located near the brine well, is used as an auxiliary fresh water well during periods of high brine demand. Well RW-2 is used to remove and provide hydraulic containment of chloride-impacted groundwater in the brine well area; groundwater extracted from this well is used for brine production. Chloride-impacted groundwater in the former brine pond area is contained and removed by pumping from FWS-1. Depth to regional groundwater is approximately 60 feet below ground surface (bgs). Figure 4 shows the locations of the wells.

2. Brine Well Operational Activities

The following subsections report fluid injection and brine production volumes and well maintenance activities.

2.1 Fluid Injection and Brine Production

Except for an approximately 2-year shutdown between 2011 and 2013 and temporary interruptions for routine maintenance and testing (e.g., February 2009 sonar survey [SOCON, 2009]), the brine well has been in continuous operation since 1980, producing an average of approximately 10,500 barrels per month (bbl/mo) of brine between 1980 and 2009. This production rate is based on 1987, 1996–1999, and 2009 brine production and sales records (Salty Dog, 1988, 1999, and Undated).

Both fluid injection and brine production volumes are metered, and daily volumes are recorded on monthly fresh and brine water report forms (Appendix B). Table 1 summarizes monthly injection and production volumes for the reporting period. Injection water for the brine well comes from two fresh water wells (FWS-1 and FWS-2) and a groundwater remediation well (RW-2) (Figure 4). In 2018, monthly ratios of injected water to produced brine ranged from 0.93 to 1.30.

Table 1. Monthly Water Injection and Brine Production Volumes, 2018

Month	Volume (bbl)		Ratio (injection:production)
	Water Injection	Brine Production	
January	—	—	—
February	15,753	12,125	1.30
March	36,001	35,715	1.01
April	15,840	16,120	0.98
May	16,765	15,925	1.05
June	22,045	21,555	1.02
July	—	28,520	—
August	37,310	36,805	1.01
September	20,300	20,025	1.01
October	16,769	17,192	0.98
November	24,745	26,605	0.93
December	28,082	28,556	0.98
Annual total	233,610	259,143	—

bbl = Barrels

Based on the data reported in Table 1 and previously reported production records (Salty Dog, 1988, 1999, and Undated; DBS&A, 2014), the estimated cumulative volume of brine production is 6,355,938 bbl.

In 2018, brine production activities at the site dissolved an estimated 32,541 bbl of Salado Formation. This estimate is based on the brine production data reported in Table 1, the average total dissolved solids (TDS) concentrations of the produced brine and injection water reported in Table 2, and an assumed density of the Salado Formation of 2.17 grams per cubic centimeter (g/cm^3). Based on the historical and current brine production data, the total estimated size of the brine solution cavern is approximately 915,845 bbl. In 2012, OCD estimated a volume of 1,022,196 bbl for the Salty Dog solution cavern (NMEMNRD, 2012).

Table 2. Injection Water and Produced Brine Chemical and Physical Characteristics

Constituent	Average Concentration (mg/L [a])	
	Injection Water	Produced Brine
pH (s.u.)	7.86	7.11
Specific gravity (unitless)	0.9972	1.179
Chloride	415	190,000
Sodium	NM	71,500
TDS	1,011	273,500

[a] Unless otherwise noted
mg/L = milligram per liter
NM = Not measured
s.u. = Standard units
TDS = Total dissolved solids

2.2 Injection Pressure

Pressure is monitored on the well tubing and on the annulus between the inner tubing and outer casing. These measurements are recorded on the monthly fresh and brine water report forms (Appendix B). In 2018, recorded daily tubing pressure was 100 pounds per square inch (psi), while annulus pressure ranged from 325 to 375 psi.

2.3 Chemical and Physical Analyses

Condition 2.A of DP BW-8 requires quarterly monitoring of the chemical and physical characteristics of the injection water and produced brine, including pH, density, and TDS and chloride concentrations. The permit also requires that the sodium concentration of the produced brine be analyzed. Since DP BW-8 was issued, PAB requested that the monitoring frequency be reduced from quarterly to semiannually. In consultation with OCD, PAB initiated semiannual monitoring in 2017.

Table 2 reports average constituent concentrations calculated from the 2018 semiannual monitoring data. Samples of the injection water and produced brine were collected in June and November 2018. Dissolution of the Salado Formation increases the constituent concentrations and specific gravity of the produced brine relative to the injection water. The average TDS concentration and average specific gravity of the injection water are 1,011 milligrams per liter (mg/L) and 0.9972, respectively, while the same properties of the produced brine are 273,500 mg/L and 1.179, respectively. Appendix C provides the laboratory analytical reports associated with the semiannual monitoring events.

Historical water quality analyses show TDS concentrations of the fresh water and produced brine to be approximately 600 mg/L and 320,000 to 350,000 mg/L, respectively (Martin, 1982; Unichem, 1987).

2.4 Deviations from Normal Operations

In December 2017, the brine well was damaged because anhydrite had collapsed the well tubing, stopping brine production (Sayre, 2017). Between December 2017 and February 2018, PAB had the well repaired. The existing well, which was originally drilled to 2,958 feet bgs, was redrilled and cleaned out to 2,791 feet bgs. New tubing was then installed to a depth of 2,610 feet bgs. The tubing was perforated with 0.20-inch-diameter holes from 2,590 to 2,592 feet bgs (Figure 3). A drilling and repair log and C-103 forms were submitted to OCD (DBS&A, 2018a). The brine well was operational again in February 2018.

In October 2018, PAB stopped pumping fresh water from wells FWS-2 and RW-2, as they replaced the pumps at the two wells. During this period, fresh water for injection was supplied by pumping from FWS-1 exclusively.

2.5 Leaks and Spills

There were no leaks or spills in 2018.

2.6 Area of Review

Condition 3.L of DP BW-8 requires Salty Dog to report within 72 hours the discovery of any new wells, conduits, or other devices that are both within a 1-mile radius and may penetrate to the injection zone of the brine well.

The brine station is located on private property in rural southeastern New Mexico, approximately 11 miles west of Hobbs. The majority of the area surrounding the site is undeveloped and owned by the State of New Mexico.

On February 28, 2019, DBS&A conducted an area of review evaluation using the OCD online oil and gas maps application. This application is accessible through the OCD website (http://www.emnrd.state.nm.us/OCD/ocdgis.html). Appendix D provides a map produced from the area of review evaluation. The map shows that there are no new brine wells or other penetrations within a 1-mile radius of the site that may penetrate into the injection zone of the Salty Dog brine well.

2.7 Mechanical Integrity Test

In December 2017, the brine well was damaged because anhydrite had collapsed the well tubing. The well was subsequently repaired and operational again in February 2018 (see Section 2.4). On February 9, 2018, before placing the well back in operation, PAB conducted a mechanical integrity test (MIT) on the well; it passed the test. Gary Robinson of OCD was present during the MIT. A record of the MIT was provided in the 2017 annual Class III well report (DBS&A, 2018a).

Prior to the February 2018 MIT, the last MIT was performed on October 31, 2013, when Salty Dog conducted a Bradenhead test on the brine well. The test showed no problems with the integrity of the well casing. Results of this test were reported to OCD on November 15, 2013.

Pursuant to 20.6.2.5204 New Mexico Administrative Code (NMAC), PAB is required to demonstrate mechanical integrity of the brine well at least once every five years.

3. Other Facility Activities

In March 2018, PAB services contracted Peterson Drilling and Testing, Inc. and DBS&A to install a new monitor well and five subsidence survey monitoring points at the site (DBS&A, 2018b). As requested by OCD, the new monitor well, designated DBS-10, was installed in the brine well area, approximately 300 feet downgradient of existing monitor well MW-5. In accordance with the existing groundwater monitoring program, DBS-10 is monitored semiannually, and the monitoring reported in the semiannual groundwater monitoring and operation and maintenance (O&M) reports. The five subsidence survey monitoring points include three points located approximately 200 feet from the brine well, one point located approximately 60 feet from the brine well, and one point that is a metal tab welded to the brine well casing (Figure 5). Construction and placement of the monitoring points were conducted in accordance with DBS&A (2014). The monitoring points are surveyed semiannually, and the results are reported in the annual Class III well reports.

During the second semiannual groundwater monitoring event in November 2018, DBS&A discovered that the totalizer flow meter at well FWS-1 was broken. PAB replaced the flow meter in December 2018.

PAB has had difficulty maintaining pumping in the brine well area. In October 2018, the 3-horsepower pump at RW-2 burned out and was subsequently replaced with a bladder pump. PAB installed a bladder pump in an effort to prevent pump burnout.

4. Subsidence Monitoring and Cavern Characterization

Condition 2.B.1 of DP BW-08 requires Salty Dog to monitor for potential land subsidence in the area of the brine well (OCD, 2013). In March 2018, five subsidence survey monitoring points were installed to meet this condition (Figure 5). Basin Surveys of Hobbs, New Mexico surveyed the monitoring points after their installation (Appendix E). The initial survey was conducted on March 23, 2018 using the nearest U.S. Geological Survey (USGS) benchmark referenced to NMSPCE (NAD 83).

In accordance with Condition 2.B.1 of DP BW-8, Salty Dog has each monitoring point surveyed semiannually to at least the nearest 0.10 foot (OCD, 2013). Basin Surveys conducted the 2018 semiannual surveys on June 19 and December 15, 2018. The survey data are reported in Table 3 and show no indication of land subsidence. The semiannually surveyed elevations are within ±0.02 foot of the initial survey. Appendix E provides the survey reports.

Table 3. Semiannual Surface Subsidence Monitoring, 2018

Survey Monitoring Point	Elevation (feet msl)		
	Initial 3/23/2018	First Semiannual 6/19/2018	Second Semiannual 12/15/2018
SMP-01	3,810.11	3,810.10	3,810.10
SMP-02	3,809.01	3,809.02	3,809.00
SMP-03	3,808.80	3,808.82	3,808.81
SMP-04	3,806.32	3,806.33	3,806.32
SMP-05 (brine well)	3,811.72	3,811.71	3,811.72

msl = Above mean sea level

Condition 2.B.2 of DP BW-08 requires solution cavern characterization using geophysical methods to estimate the size and shape of the solution cavern. During a December 9, 2016 phone call between DBS&A (on behalf of PAB) and OCD (Jim Griswold and Carl Chavez), it was agreed that solution cavern characterization using geophysical methods would be conducted only if surface subsidence was detected during semiannual surveying of the monitoring points. Section 2.1 of this report presents an estimated size for the solution cavern.

5. Groundwater Conditions

Salty Dog is addressing groundwater impacts resulting from releases at the brine well and a former brine pond. A hole in the casing of the brine well at 250 feet bgs was discovered in 1999 (Salty Dog, 1999). The hole released brine, impacting groundwater, and was repaired in August 1999 by installing a casing liner (Salty Dog, 1999). In October 2008, the brine pond was removed and impacted soil was excavated and disposed of (DBS&A, 2008). The area of the former brine pond is shown in Figures 1 and 2.

Two chloride plumes currently exist at the site: one in the area of the brine station (i.e., the former brine pond area) and a second near the brine well. In 2009, PAB initiated groundwater extraction to remove and provide hydraulic containment of brine-impacted groundwater at the brine station and near the brine well (DBS&A, 2009). Groundwater abatement and monitoring activities are being conducted to satisfy an administrative compliance order issued by OCD (ACO 2008-02) and settlement agreement and stipulated revised final order (NM-OCD 2008-2A) between OCD and Mr. Bergstein.

Groundwater monitoring and extraction data are reported and evaluated in reports submitted to OCD (DBS&A, 2019). The data include water levels and water quality at the site monitor wells. Site monitor wells are shown in Figure 4.

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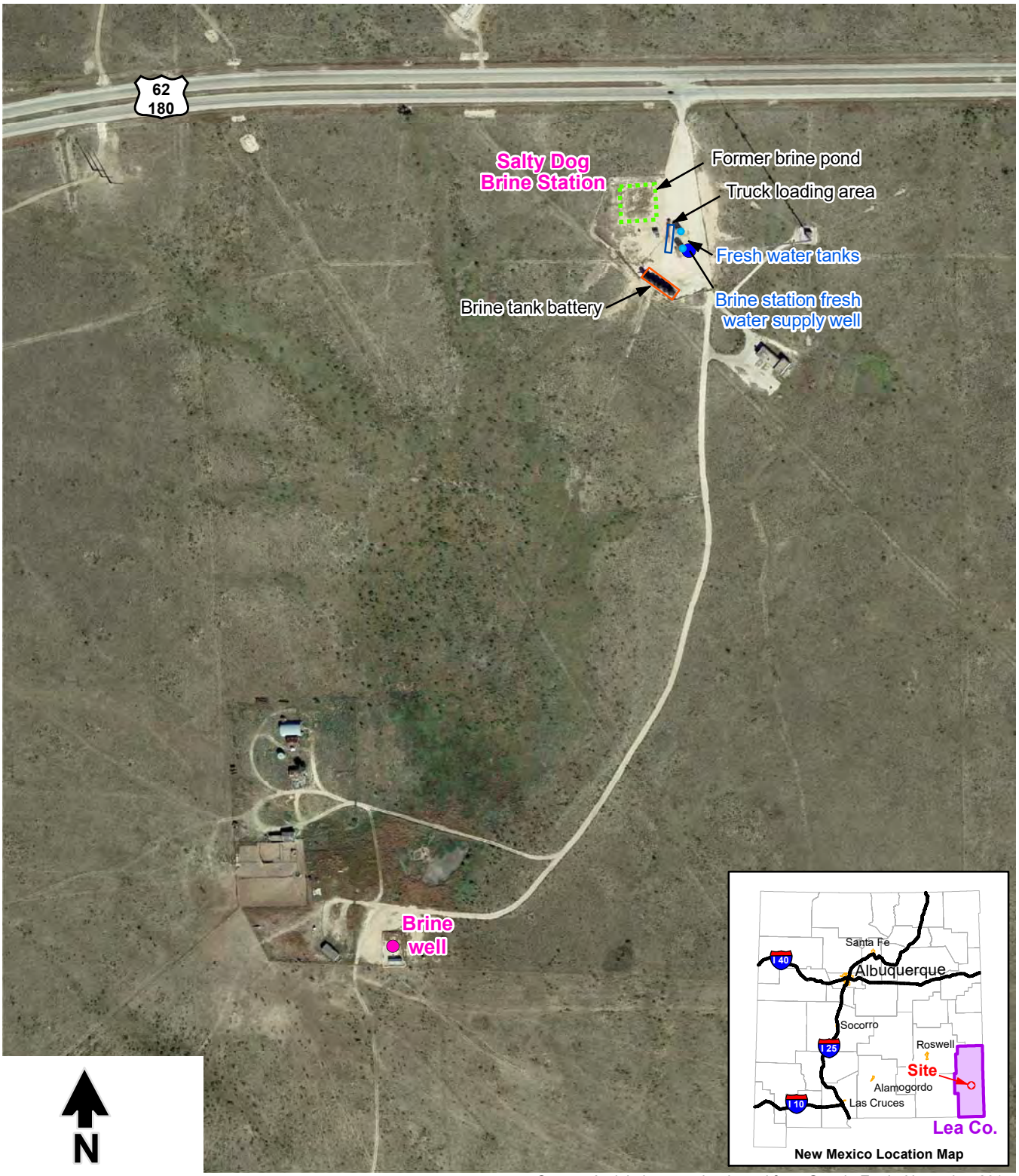
Figures



Source: Aerial photograph adapted from Google Earth, November 2017.

S:\PROJECTS\ES08.0118_SALTY_DOG_2018\GIS\MXD\ANNUAL_2018\FIG01_SITE_LOCATION_AND_FACILITIES.MXD

Daniel B. Stephens & Associates, Inc.
4/30/2019
JN ES08.0118

SALTY DOG BRINE STATION
Site Location and Facilities

Figure 1

S:\PROJECTS\ES08.0118_SALTY_DOG_2018\GIS\MXD\ANNUAL_2018\FIG02_SITE_2018_AERIAL_PHOTO.MXD

Source: Aerial photograph adapted from Google Earth, November 2017.

Figure 2

SALTY DOG BRINE STATION

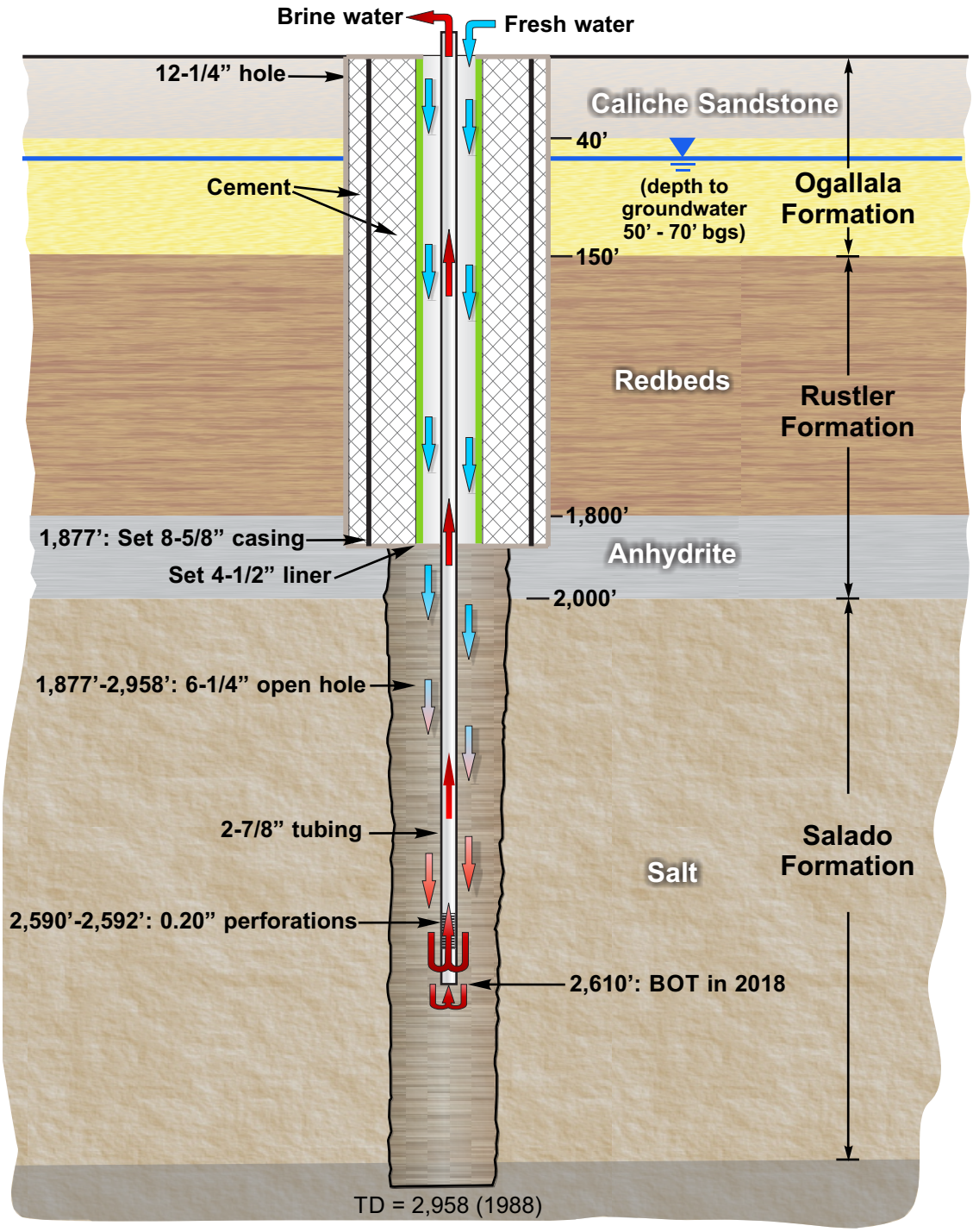
2017 Aerial Photograph of Salty Dog Brine Station

Daniel B. Stephens & Associates, Inc.

4/30/2019

JN ES08.0118

Salty Dog Brine Well



Notes:

1. BOT = Bottom of tubing
2. Figure not to scale

Sources:

1. Completion data based on OCD well reports
2. Lithology from Salty Dog (1988)

SALTY DOG BRINE STATION

Generalized Brine Well Schematic

Daniel B. Stephens & Associates, Inc.

5-1-19 JN ES08.0118

Figure 3

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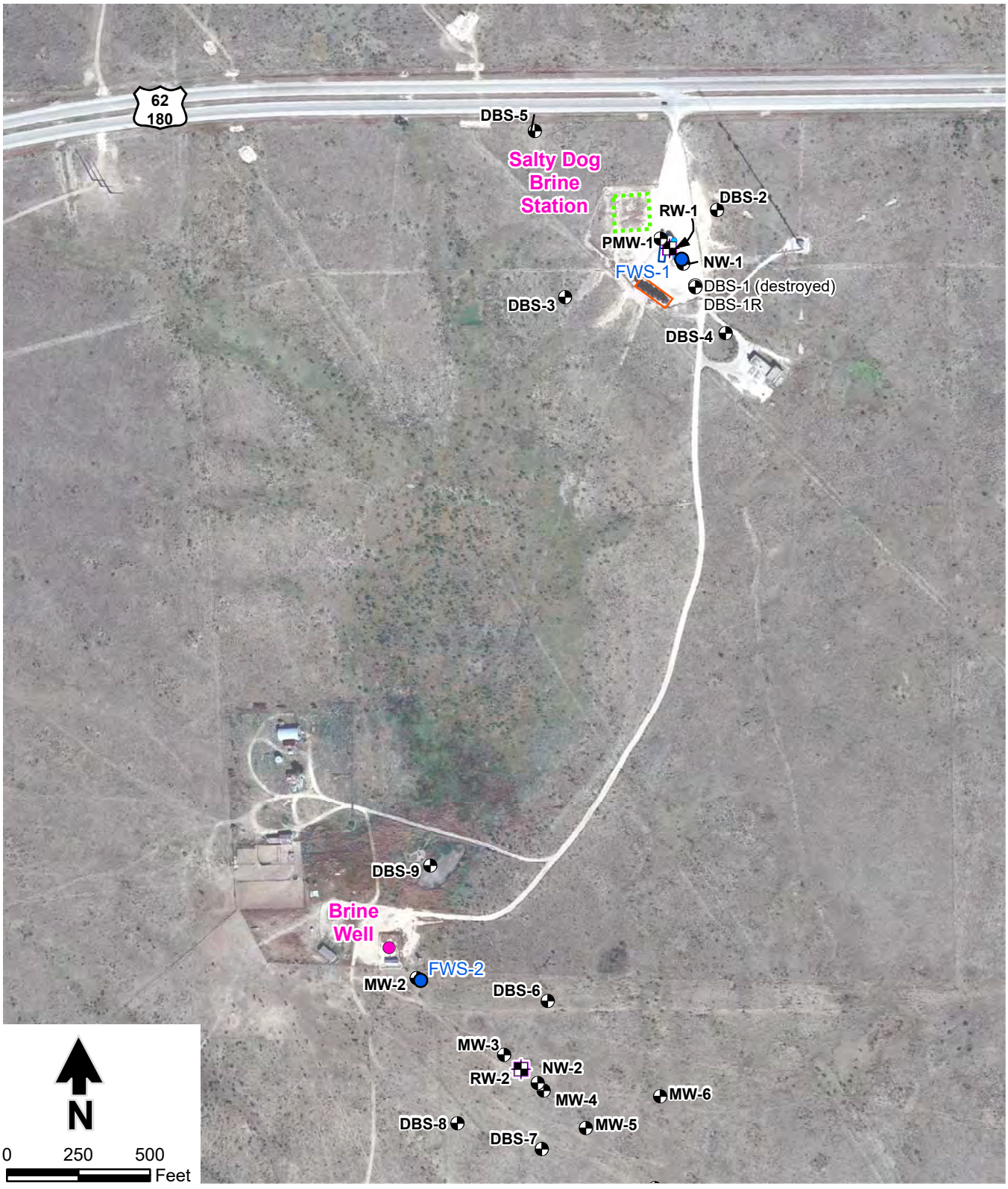


Source: Aerial photograph adapted from Google Earth, November 2017.

Explanation

- Fresh water supply well
- Monitor well
- Recovery well
- Well destroyed
- Brine well
- Brine tank battery
- Truck loading area
- Former brine pond

SALTY DOG BRINE STATION

Monitor and Extraction Well Locations

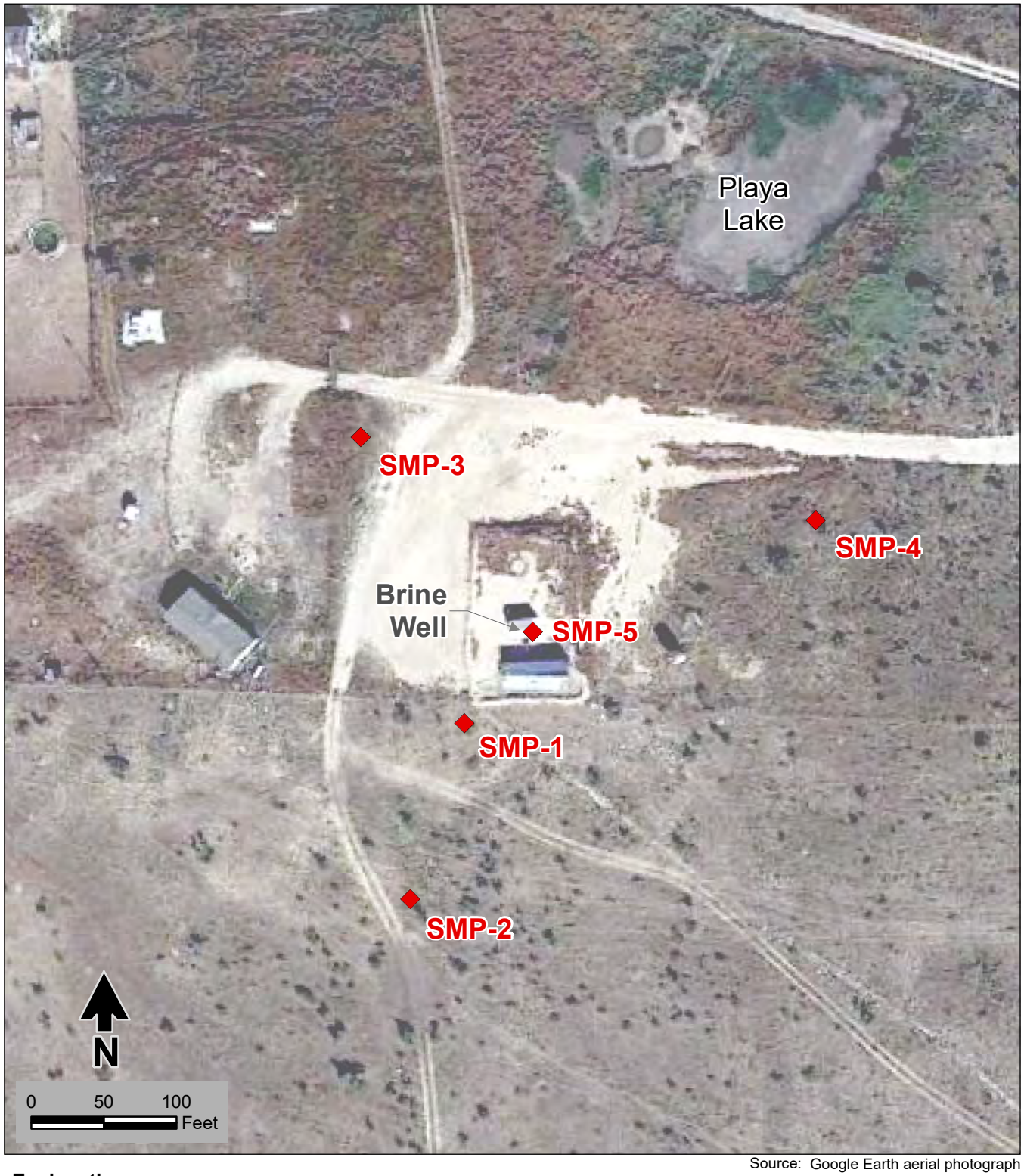
Daniel B. Stephens & Associates, Inc.

5/1/2019

JN ES08.0118.06

Figure 4

S:\PROJECTS\ES08.0118_SALTY_DOG_2018\GIS\MXD\ANNUAL_2018\FIG04_SITE_MONITOR_AND_EXTRACTION_WELL_LOCS.MXD



Source: Google Earth aerial photograph dated November 2017

Explanation

◆ Survey monument

SALTY DOG BRINE STATION

Land Subsidence
Survey Monitoring Point Locations

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5/1/2019
JN ES08.0118

Figure 5

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Appendix A

Annual Certification

Annual Certification

PAB Services, Inc. certifies that continued salt solution mining will not cause cavern collapse, surface subsidence, property damage, or otherwise threaten public health and the environment based on geologic and engineering data.

Peter Bernstein President
Name

President
Title

Signature

4/2/19
Date

Appendix B

2018 Monthly Fresh and Brine Water Report Forms

Terry Payton

From: Patsy Hunt <patsy@thestandardenergy.com>
Sent: Wednesday, February 14, 2018 3:24 PM
To: terry@thestandardenergy.com
Subject: RE: MONTHLY SWD REPORTS 2-8-18

I asked Jim about this and he said no that there was nothing to report. It was down all month long.

NO JAN 2018 REPORT

From: Terry Payton [mailto:terry@thestandardenergy.com]
Sent: Wednesday, February 14, 2018 12:00 PM
To: patsy@thestandardenergy.com; Jim Sayre
Subject: RE: MONTHLY SWD REPORTS 2-8-18

Did you do a report for Salty Dog for January? Daniel B Stephens needs copies of these monthly reports for Salty Dog, and I haven't seen one for January.

Thanks!

Terry Payton
Financial Officer
Bergstein Enterprises, Ltd.
PO Box 191
Lubbock, TX 79408
Office: 806-741-1080
Fax: 806-741-1301

"Standard Energy Services is a Platinum Safety Award winning company."

From: Patsy Hunt [mailto:patsy@thestandardenergy.com]
Sent: Thursday, February 8, 2018 10:06 AM
To: terry@thestandardenergy.com
Subject: MONTHLY SWD REPORTS 2-8-18

Patsy Hunt
patsy@thestandardenergy.com
Billing Clerk - Hobbs Yard
Standard Energy Services
PO Box 513
Hobbs, NM 88241
Ph. 575-393-8352
Fax 575-393-8353

" Standard Energy Services is a Platinum Safety Award winning company."

28,000

MONTHLY FRESH & BRINE WATER REPORT

FACILITY/LOCATION SALT Dog

MONTH/YEAR Feb 2018

Date	AMOUNT OF FRESH WATER PUMPED DOWN HOLE BBLS	AMOUNT OF BRINE WATER OUT OF HOLE BBLS SOLD	DAILY TUBING PRESSURES PSI	DAILY CASING PRESSURES PSI	FRESH WATER SOLD
1	0	0			
2	0	0			
3	0	0			
4	0	0			
5	0	0			
6	0	0			
7	0	0			
8	0	0			
9	0	0			
10	0	0			
11	590	570	100	350	
12	620	590	100	350	
13	440	400	100	350	
14	1010	990	100	350	
15	410	380	100	350	
16	300	250	100	350	
17	0	0	100	350	
18	320	295	100	350	
19	50	20	100	350	
20	720	690	100	350	
21	320	290	100	350	
22	230	200	100	350	
23	1800	1725	100	350	
24	1275	1200	100	350	
25					
26	2380	2345	100	365	
27		680	100	365	
28	1560	1500 200	100	365	
29					
30					
31					
TOTALS		12,145			

REPAIRS AND/OR EXPENSES

Date	Company Performing Work/Repairs	Descritpion of Work/Repairs	Estimated Cost	Work Authorized by

MONTHLY FRESH & BRINE WATER REPORT

FACILITY/LOCATION Salty Dog

MONTH/YEAR March 2014

Date	AMOUNT OF FRESH WATER PUMPED DOWN HOLE BBLS	AMOUNT OF BRINE WATER OUT OF HOLE BBLS SOLD	DAILY TUBING PRESSURES PSI	DAILY CASING PRESSURES PSI	FRESH WATER SOLD
T 1	3375	3300	100	350	
F 2	950	920	100	350	
S 3	840	820	100	350	
S 4	1000	980	100	350	
M 5	4590	4545	100	350	
T 6	1445	1400	100	350	
W 7	750	720	100	375	
T 8	520	500	100	375	
F 9	1626	1700	100	375	
S 10	695	680	100	375	
S 11	200	190	100	350	
M 12	390	380	100	350	
T 13	450	468	100	350	
W 14	600	590	100	350	
T 15	3400	3436	100	350	
F 16	1560	1550	100	375	
S 17	510	500	100	375	
S 18	250	220	100	375	
M 19	310	366	100	350	
T 20	870	863	100	350	
W 21	1200	1180	100	350	
T 22	620	610 610	100	350	
F 23	100	100 100	100	350	
S 24	~~0~~	~~0~~	100	350	
S 25	310	300 300	100	375	
M 26	1040	1030	100	375	
T 27	1475	1467	100	375	
W 28	2175	2170	100	375	
T 29	785	780	100	375	
F 30	2450	2440	100	375	
S 31	1515	1510	100	375	
TOTALS		35,709			

REPAIRS AND/OR EXPENSES

Date	Company Performing Work/Repairs	Descritpion of Work/Repairs	Estimated Cost	Work Authorized by

MONTHLY FRESH & BRINE WATER REPORT

FACILITY/LOCATION Salty Dog

MONTH/YEAR April 18

Date	AMOUNT OF FRESH WATER PUMPED DOWN HOLE BBLS	AMOUNT OF BRINE WATER OUT OF HOLE BBLS SOLD	DAILY TUBING PRESSURES PSI	DAILY CASING PRESSURES PSI	FRESH WATER SOLD
1	~~0~~	~~0~~	100	375	
2	450	440	100	375	
3	~~0~~	200	100	375	
4	~~0~~	30	100	375	
5	265	250	100	375	
6	285	280	100	375	
7	1455	1445	100	375	
8	~~0~~	55 ~~55~~	100	375	
9	780	710	100	375	
10	1040	1030	100	375	
11	1260	1250	100	375	
12	110	100	100	375	
13	170	160	100	375	
14	920	910	100	375	
15	680	670	100	375	
16	290	280	100	375	
17	700	690	100	375	
18	400	380 ~~380~~	100	375	
19	555	550	100	375	
20	895	890	100	375	
21	~~0~~	120	100	375	
22	~~0~~	100	100	375	
23	1390	1370	100	375	
24	190	180	100	375	
25	700	680	100	375	
26	1330	1310	100	375	
27	950	920	100	375	
28	565	550 ~~440~~	100	375	
29	~~0~~	120	100	375	
30	460	430	100	375	
31					
TOTALS	15840				

REPAIRS AND/OR EXPENSES

Date	Company Performing Work/Repairs	Descritpion of Work/Repairs	Estimated Cost	Work Authorized by

MONTHLY FRESH & BRINE WATER REPORT

FACILITY/LOCATION SALTY Dog

MONTH/YEAR MAY 2018

	AMOUNT OF FRESH WATER PUMPED DOWN HOLE	AMOUNT OF BRINE WATER OUT OF HOLE	DAILY TUBING PRESSURES	DAILY CASING PRESSURES	FRESH WATER
Date	BBLS	BBLS SOLD	PSI	PSI	SOLD
1	340	330	100	375	
2	~~0~~	120	100	375	
3	~~0~~	100	100	375	
4	370	360	100	375	
5	410	400	100	375	
6	205	200	100	375	
7	375	365	100	375	
8	245	240	100	375	
9	775	770	100	375	
10	310	300	100	375	
11	600	585 110	100	375	
12	1090	1070	100	375	
13	90	80	100	375	
14	400	390	100	375	
15	~~0~~	140	100	375	
16	345	340	100	375	
17	820	810	100	375	
18	915	900	100	375	
19	390	380	100	375	
20	650	640	100	375	
21	248	240	100	375	
22	670	650	100	375	
23	1020	1005	100	375	
24	1200	1190	100	375	
25	1225	1200	100	375	
26	1085	1080	100	375	
27	~~0~~	~~0~~	100	375	
28	210	200	100	375	
29	2000	1090	100	375	
30	550	540 100	100	375	
31	230	210	100	375	
TOTALS					

REPAIRS AND/OR EXPENSES

Date	Company Performing Work/Repairs	Descritpion of Work/Repairs	Estimated Cost	Work Authorized by

MONTHLY FRESH & BRINE WATER REPORT

FACILITY/LOCATION SALTY Dog

MONTH/YEAR June 2018

Date	AMOUNT OF FRESH WATER PUMPED DOWN HOLE BBLS	AMOUNT OF BRINE WATER OUT OF HOLE BBLS SOLD	DAILY TUBING PRESSURES PSI	DAILY CASING PRESSURES PSI	FRESH WATER SOLD
1	470	460	100	375	
2	~~0~~	~~0~~	100	375	
3	490	470	100	375	
4	630	625	100	375	
5	1170	1155	100	375	
6	430	420	100	375	
7	900	890	100	375	
8	635	620	100	375	
9	325	310	100	375	
10	~~0~~	~~0~~	100	375	
11	~~0~~	~~0~~	100	375	
12	150	145 ~~145~~	100	375	
13	215	200	100	375	
14	160	150	100	375	
15	~~0~~	45	100	375	
16	~~0~~	~~0~~	100	375	
17	225	210	100	375	
18	1285	1255	100	375	
19	1470	1455	100	375	
20	455	440	100	375	
21	685	675	100	375	
22	2900	2880	100	375	
23	965	950	100	375	
24	515	510	100	375	
25	970	935 ~~470~~	100	375	
26	935	900	100	375	
27	1795 ~~1795~~	1765	100	375	
28	2770	2720 ~~2720~~	100	360	
29	1300	1270	100	350	
30	200	100	100	375	
31					
TOTALS	22045	21,555			

REPAIRS AND/OR EXPENSES

Date	Company Performing Work/Repairs	Descritpion of Work/Repairs	Estimated Cost	Work Authorized by

MONTHLY FRESH & BRINE WATER REPORT

FACILITY/LOCATION Salty Dog

MONTH/YEAR July 2018

	AMOUNT OF FRESH WATER PUMPED DOWN HOLE	AMOUNT OF BRINE WATER OUT OF HOLE	DAILY TUBING PRESSURES	DAILY CASING PRESSURES	FRESH WATER
Date	BBLS	BBLS SOLD	PSI	PSI	SOLD
1		200	100	350	
2		870	100	350	
3		900	100	350	
4		1145	100	350	
5		270	100	350	
6		335	100	350	
7		250	100	350	
8		300	100	350	
9		590	100	350	
10		790 ~~730~~	100	350	
11		1570	100	350	175
12		380	100	350	
13					
14		1360	100	350	
15		510	100	350	
16		560	100	350	
17		1960	100	350	120
18		1120	100	350	280
19		2140	100	350	90
20		1745	100	350	120
21		740	100	350	
22		100	100	350	
23		1370	100	350	
24		1385	100	350	
21390 25		800	100	350	
26		2190 ~~2190~~	100	350	140
27		1100 ~~1100~~	100	350	
28		660 ~~660~~			250
29		950 100			130
29210 30		1920			140
31		120			
TOTALS		28,330			

REPAIRS AND/OR EXPENSES

Date	Company Performing Work/Repairs	Descritpion of Work/Repairs	Estimated Cost	Work Authorized by

MONTHLY FRESH & BRINE WATER REPORT

FACILITY/LOCATION Salty Dog

MONTH/YEAR Aug

Date	AMOUNT OF FRESH WATER PUMPED DOWN HOLE BBLS	AMOUNT OF BRINE WATER OUT OF HOLE BBLS SOLD	DAILY TUBING PRESSURES PSI	DAILY CASING PRESSURES PSI	FRESH WATER SOLD
1	1,540	1560	100	350	
2	2290	2260	100	350	240
3	2120	2090	100	350	
4	1085	1050	100	350	
5	1050	1020	100	350	
6	350	330	100	350	130
7	880	840	100	350	130
8	740	730	100	350	
9	720	700	100	350	100
10	700	695	100	350	2
11	990	970	100	350	
12	820	800	100	350	
13	600	590	100	350	240
14	1700	1690	100	350	25
15	1520	1510	100	350	
16	540	520	100	350	
17	1250	1240	100	350	
18	2030	2020	100	350	
19	1120	1100	100	350	
20	210	200	100	350	20
21	470	465	100	350	190
22	2010	2000	100	350	
23	1865	1855	100	350	
24	955	945	100	350	160
25	650	640	100	350	
26	1675	1665	100	350	
27	1360	1350	100	350	
28	1670	1635	100	350	110
29	2320	2295	100	350	
30	1730	1700	100	350	
31	700	520	100	350	
TOTALS		37105			

2960

30855

REPAIRS AND/OR EXPENSES

Date	Company Performing Work/Repairs	Descritpion of Work/Repairs	Estimated Cost	Work Authorized by
		37105		

MONTHLY FRESH & BRINE WATER REPORT

FACILITY/LOCATION SALTY Dog

MONTH/YEAR Sep 2016

Date	AMOUNT OF FRESH WATER PUMPED DOWN HOLE BBLS	AMOUNT OF BRINE WATER OUT OF HOLE BBLS SOLD	DAILY TUBING PRESSURES PSI	DAILY CASING PRESSURES PSI	FRESH WATER SOLD
1	440	430	100	350	
2	0	0	100	350	
3	0	0	100	375	
4	0	0	100	375	
5	0	0	100	375	
6	0	0	100	375	
7	0	0	100	375	120
8	0	0	100	375	
9	0	0	100	375	
10	140	135	100	350	
11	1190	1175	100	350	
12	740	730	100	350	130
13	1235	1220	100	350	75
14	570	560	100	350	
15	670	650	100	350	
16	350	320	100	350	
17	350	330	100	350	
18	965	940	100	350	40
19	1605	1590	100	350	25
20	1540	1520	100	350	310
21	2770	2755	100	325	11
22	950	980	100	350	
23	0	0	100	350	
24	330	320 320	100	350	
25	615	610	100	350	
26	1490	1480	100	350	
27	1010	1000	100	350	
28	1315	1300	100	350	
29	1190	1170	100	350	
30	835	810	100	350	
31					
TOTALS		19965			

REPAIRS AND/OR EXPENSES

Date	Company Performing Work/Repairs	Descritpion of Work/Repairs	Estimated Cost	Work Authorized by

10965

MONTHLY FRESH & BRINE WATER REPORT

FACILITY/LOCATION Salty Dog

MONTH/YEAR Oct 2016

	AMOUNT OF FRESH WATER PUMPED DOWN HOLE	AMOUNT OF BRINE WATER OUT OF HOLE	DAILY TUBING PRESSURES	DAILY CASING PRESSURES	FRESH WATER
Date	BBLS	BBLS SOLD	PSI	PSI	SOLD
1	1090	1070	100	350	~~0~~
2	870	850	100	350	~~0~~
3	410	400	100	350	~~0~~
4	615	600	100	350	~~0~~
5	210	200	100	350	~~0~~
6	~~0~~	~~0~~	100	350	~~0~~
7	100	100	100	350	~~0~~
8	110	110 110	100	350	25
9	133	130	100	350	145
10	300	295	100	350	
11	360	360	100	350	
12	325	920	100	350	120
13	~~0~~	0	100	350	
14	100	100	100	350	
15	351	350	100	350	195
16	910	905	100	350	110
17	105	105	100	350	
18	185	180	100	350	
19	635	630	100	350	
20	275	270	100	350	180
21	365	360	100	350	
22	850	845 100	100	350	
23	340	330	100	350	
24	280	275	100	350	
25	1055	1050	100	325	
26	1660	1650	100	325	
27	1025	1020	100	325	
28	465	460	100	325	
29	1085	1080	100	325	155
30	1780	1777	100	325	
31	780	770	100	325	
TOTALS		17,192			

REPAIRS AND/OR EXPENSES

Date	Company Performing Work/Repairs	Descritpion of Work/Repairs	Estimated Cost	Work Authorized by

MONTHLY FRESH & BRINE WATER REPORT

FACILITY/LOCATION	SALTY Dog
MONTH/YEAR	NOV 18

Date	AMOUNT OF FRESH WATER PUMPED DOWN HOLE BBLS	AMOUNT OF BRINE WATER OUT OF HOLE BBLS SOLD	DAILY TUBING PRESSURES PSI	DAILY CASING PRESSURES PSI	FRESH WATER SOLD
1	280	273	100	325	60
2	600	590	100	325	5
3	205	200	100	325	
4	335	330	100	325	10
5	895	885	100	325	25
6	880	865	100	325	130
7	~~200~~	2010	100	325	
8	615	600	100	325	40
9	865	850	100	325	250
10	1395	1385	100	325	
11	2120	2110	100	325	
12	3210	3195	100	325	40
13	1700	1685	100	325	
14	1720	1710	100	325	260
15	1365	1350 ~~1380~~	100	325	300
16	1810	1797	100	325	
17	875	855 ~~855~~	100	325	130
18	~~0~~	100	100	325	
19	950	930 ~~850~~	100	325	
20	375	360	100	325	40
21	~~0~~	180	100	325	
22	~~0~~	100	100	325	
23	370	360	100	325	
24	~~0~~	0	100	325	
25	510	500	100	325	
26	805	790	100	325	
27	510	500	100	325	
28	630	615	100	325	
29	80	70 70	100	325	130
30	1425	1410	100	325	
31					
TOTALS		25740			

REPAIRS AND/OR EXPENSES

Date	Company Performing Work/Repairs	Descritpion of Work/Repairs	Estimated Cost	Work Authorized by

MONTHLY FRESH & BRINE WATER REPORT

FACILITY/LOCATION Solt Dog

MONTH/YEAR December 2018

	AMOUNT OF FRESH WATER PUMPED DOWN HOLE	AMOUNT OF BRINE WATER OUT OF HOLE	DAILY TUBING PRESSURES	DAILY CASING PRESSURES	FRESH WATER
Date	BBLS	BBLS SOLD	PSI	PSI	SOLD
1	3650	3600	100	325	
2	1700	1680	100	325	
3	1320	1310	100	325	
4	2420	2400	100	325	
5	190	180	100	325	
6		1085	100	325	
7	442	440	100	325	
8	0	0	100	325	
9	0	100	100	325	
10	0	110	100	325	
11	680	660	100	325	
12	1020	1010	100	325	
13	1040	1034	100	325	
14	1035	1030	100	325	
15	0	0	100	325	
16	285	280	100	325	
17	755	742	100	325	
18	2900	2870	100	325	
19	1000	990	100	350	
20	830	800	100	350	
21	1650	1620	100	350	
22	310	320	100	350	
23	1740	1720	100	350	
24	0	0	100	350	
25	210	200	100	350	
26	760	755	100	350	
27	1040	1020	100	350	
28	1920	1900	100	350	
29	0	0	100	350	
30	715	700	100	350	
31	0	0	100	350	
TOTALS					

REPAIRS AND/OR EXPENSES

Date	Company Performing Work/Repairs	Descritpion of Work/Repairs	Estimated Cost	Work Authorized by

Appendix C

Laboratory Analytical Reports

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

July 05, 2018

John Ayarbe

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

RE: Salty Dog OrderNo.: 1806C36

Dear John Ayarbe:

Hall Environmental Analysis Laboratory received 14 sample(s) on 6/20/2018 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1806C36**
Date Reported: **7/5/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc.
Client Sample ID: DBS-5
Project: Salty Dog
Collection Date: 6/18/2018 5:00:00 PM
Lab ID: 1806C36-001
Matrix: AQUEOUS
Received Date: 6/20/2018 11:26:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	180	5.0		mg/L	10	6/26/2018 2:07:17 PM	R52265

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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc.
Client Sample ID: DBS-3
Project: Salty Dog
Collection Date: 6/18/2018 5:20:00 PM
Lab ID: 1806C36-002
Matrix: AQUEOUS
Received Date: 6/20/2018 11:26:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	47	5.0		mg/L	10	6/26/2018 3:24:25 PM	R52265

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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc.
Client Sample ID: DBS-2
Project: Salty Dog
Collection Date: 6/18/2018 5:45:00 PM
Lab ID: 1806C36-003
Matrix: AQUEOUS
Received Date: 6/20/2018 11:26:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	47	5.0		mg/L	10	6/26/2018 3:50:09 PM	R52265

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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc.
Client Sample ID: DBS-4
Project: Salty Dog
Collection Date: 6/19/2018 9:40:00 AM
Lab ID: 1806C36-004
Matrix: AQUEOUS
Received Date: 6/20/2018 11:26:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	39	5.0		mg/L	10	6/26/2018 4:15:52 PM	R52265

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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc.
Client Sample ID: DBS-9
Project: Salty Dog
Collection Date: 6/19/2018 10:05:00 AM
Lab ID: 1806C36-005
Matrix: AQUEOUS
Received Date: 6/20/2018 11:26:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	260	50	*	mg/L	100	6/26/2018 4:54:26 PM	R52265

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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc.
Client Sample ID: DBS-8
Project: Salty Dog
Collection Date: 6/19/2018 10:45:00 AM
Lab ID: 1806C36-006
Matrix: AQUEOUS
Received Date: 6/20/2018 11:26:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	33	5.0		mg/L	10	6/26/2018 5:33:01 PM	R52265

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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc.
Client Sample ID: DBS-10
Project: Salty Dog
Collection Date: 6/19/2018 11:15:00 AM
Lab ID: 1806C36-007
Matrix: AQUEOUS
Received Date: 6/20/2018 11:26:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	690	50	*	mg/L	100	6/26/2018 6:11:36 PM	R52265

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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc.
Client Sample ID: DBS-6
Project: Salty Dog
Collection Date: 6/19/2018 11:45:00 AM
Lab ID: 1806C36-008
Matrix: AQUEOUS
Received Date: 6/20/2018 11:26:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	210	50		mg/L	100	6/26/2018 6:37:19 PM	R52265

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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc.
Client Sample ID: MW-5
Project: Salty Dog
Collection Date: 6/19/2018 1:25:00 PM
Lab ID: 1806C36-009
Matrix: AQUEOUS
Received Date: 6/20/2018 11:26:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	840	50	*	mg/L	100	6/26/2018 7:03:02 PM	R52265

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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc.
Client Sample ID: MW-3
Project: Salty Dog
Collection Date: 6/19/2018 2:05:00 PM
Lab ID: 1806C36-010
Matrix: AQUEOUS
Received Date: 6/20/2018 11:26:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	7300	500	*	mg/L	1E	7/2/2018 10:41:16 PM	R52405

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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc.
Client Sample ID: DBS-1R
Project: Salty Dog
Collection Date: 6/19/2018 2:35:00 PM
Lab ID: 1806C36-011
Matrix: AQUEOUS
Received Date: 6/20/2018 11:26:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	190	50		mg/L	100	6/26/2018 8:20:12 PM	R52265

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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc.
Client Sample ID: PMW-1
Project: Salty Dog
Collection Date: 6/19/2018 3:20:00 PM
Lab ID: 1806C36-012
Matrix: AQUEOUS
Received Date: 6/20/2018 11:26:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	9600	500	*	mg/L	1E	7/2/2018 10:53:41 PM	R52405

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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc.
Client Sample ID: Brine
Project: Salty Dog
Collection Date: 6/19/2018 2:40:00 PM
Lab ID: 1806C36-013
Matrix: AQUEOUS
Received Date: 6/20/2018 11:26:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
SPECIFIC GRAVITY						Analyst: **JRR**	
Specific Gravity	1.163	0			1	6/26/2018 11:53:00 AM	R52241
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	170000	5000	*	mg/L	1E	6/26/2018 9:11:39 PM	R52265
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	238000	2000	*D	mg/L	1	6/26/2018 7:58:00 PM	38867
SM4500-H+B / 9040C: PH						Analyst: **JRR**	
pH	6.76		H	pH units	1	6/21/2018 12:10:03 PM	R52161
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **MED**	
Sodium	61000	1000		mg/L	1E	6/29/2018 6:03:12 PM	38878

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
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 Detection Limit
W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc.
Client Sample ID: Injection
Project: Salty Dog
Collection Date: 6/19/2018 2:55:00 PM
Lab ID: 1806C36-014
Matrix: AQUEOUS
Received Date: 6/20/2018 11:26:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
SPECIFIC GRAVITY						Analyst: **JRR**	
Specific Gravity	0.9954	0			1	6/26/2018 11:53:00 AM	R52241
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	460	50	*	mg/L	100	6/26/2018 10:03:05 PM	R52265
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	1040	20.0	*	mg/L	1	6/26/2018 7:58:00 PM	38867
SM4500-H+B / 9040C: PH						Analyst: **JRR**	
pH	7.96		H	pH units	1	6/21/2018 12:14:20 PM	R52161

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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806C36**

05-Jul-18

Client: Daniel B. Stephens & Assoc.

Project: Salty Dog

Sample ID	**MB**	SampType:	**MBLK**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBW**	Batch ID:	**R52265**	RunNo:	**52265**					
Prep Date:		Analysis Date:	**6/26/2018**	SeqNo:	**1712501**	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:	**R52265**	RunNo:	**52265**					
Prep Date:		Analysis Date:	**6/26/2018**	SeqNo:	**1712502**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	5.1	0.50	5.000	0	103	90	110			

Sample ID	**MB**	SampType:	**mblk**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBW**	Batch ID:	**R52405**	RunNo:	**52405**					
Prep Date:		Analysis Date:	**7/2/2018**	SeqNo:	**1719515**	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:	**R52405**	RunNo:	**52405**					
Prep Date:		Analysis Date:	**7/2/2018**	SeqNo:	**1719516**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	94.4	90	110			

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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806C36**

05-Jul-18

Client: Daniel B. Stephens & Assoc.

Project: Salty Dog

Sample ID	**MB-38878**	SampType:	**MBLK**		TestCode:	**EPA 6010B: Total Recoverable Metals**				
Client ID:	**PBW**	Batch ID:	**38878**		RunNo:	**52388**				
Prep Date:	**6/25/2018**	Analysis Date:	**6/29/2018**		SeqNo:	**1716681**	Units:	**mg/L**		

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

Sample ID	**LCS-38878**	SampType:	**LCS**		TestCode:	**EPA 6010B: Total Recoverable Metals**				
Client ID:	**LCSW**	Batch ID:	**38878**		RunNo:	**52388**				
Prep Date:	**6/25/2018**	Analysis Date:	**6/29/2018**		SeqNo:	**1716683**	Units:	**mg/L**		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sodium	51	1.0	50.00	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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1806C36**
05-Jul-18

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

Sample ID	**1806C36-013ADUP**	SampType:	**DUP**		TestCode:	**Specific Gravity**				
Client ID:	**Brine**	Batch ID:	**R52241**		RunNo:	**52241**				
Prep Date:		Analysis Date:	**6/26/2018**		SeqNo:	**1711825**	Units:			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Gravity	1.160	0						0.207	20	

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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806C36**

05-Jul-18

Client: Daniel B. Stephens & Assoc.

Project: Salty Dog

Sample ID	**MB-38867**	SampType:	**MBLK**	TestCode:	**SM2540C MOD: Total Dissolved Solids**					
Client ID:	**PBW**	Batch ID:	**38867**	RunNo:	**52256**					
Prep Date:	**6/25/2018**	Analysis Date:	**6/26/2018**	SeqNo:	**1712029**	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-38867**	SampType:	**LCS**	TestCode:	**SM2540C MOD: Total Dissolved Solids**					
Client ID:	**LCSW**	Batch ID:	**38867**	RunNo:	**52256**					
Prep Date:	**6/25/2018**	Analysis Date:	**6/26/2018**	SeqNo:	**1712030**	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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: DBS | Work Order Number: 1806C36 | RcptNo: 1

Received By: **Michelle Garcia** 6/20/2018 11:26:00 AM Michelle Garcia

Completed By: **Ashley Gallegos** 6/20/2018 1:19:28 PM

Reviewed By: 6/20/18

Labeled by: JAB 06/20/18

Chain of Custody

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

Log In

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

# of preserved bottles checked for pH: 1 (<2 or >12 unless noted)
Adjusted? Yes
Checked by: JB

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: ~~All~~ For 3005 analysis: Added approx. 0.5 mL HNO3 to 013B 1of for preferred pH. Held for 24 hours prior to analysis

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.4	Not Good				

Chain-of-Custody Record

Client: DBS&A

Mailing Address: 6020 Academy Rd NE
ABQ

Phone #: 505-822-9400

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

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

Accreditation
☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:
☑ Standard ☐ Rush _____

Project Name: Salty Dog

Project #: ES08.0118.06

Project Manager: J. Ayarbe

Sampler: M. Ebiotek

On Ice: ☑ Yes ☐ No

Sample Temperature: 3.4

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 Request ID	Container Type and #	Preservative Type	HEAL No. 1800C316	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles (Y or N)
6.18	1700	GW	DBS-5	1 poly	NA	-001								X								
	1720		DBS-3			-002								X								
	1745		DBS-2			-003								X								
6.19.18	0940		DBS-4			-004								X								
	1005		DBS-9			-005								X								
	1045		DBS-8			-006								X								
	1115		DBS-10			-007								X								
	1145		DBS-6			-008								X								
	1325		MW-5			-009								X								
	1405		MW-3			-010								X								
	1435		DBS-1R			-011								X								
	1520		PMW-1			-012								X								

Date	Time	Relinquished by:	Received by:	Date	Time
6/20/18	1126			06/20/18	1126
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks:

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: DBSA

Mailing Address: 6020 Academy RD NE

Phone #: 505-822-9400

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

QA/QC Package: MZbrozek@geo-logic.com

☐ Standard ☐ Level 4 (Full Validation)

Accreditation

☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:

☑ Standard ☐ Rush _____

Project Name: SALTY DOG

Project #: ES06.0118.06

Project Manager: J. Ayarbe

Sampler: M. Zbrozek

On Ice: ☑ Yes ☐ No

Sample Temperature: 3.4°

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 Request ID	Container Type and #	Preservative Type	HEAL No. 1810C36	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F^-, Cl^-, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Na^+	TDS, pH, Spec Grav		Air Bubbles (Y or N)
10.19.18	1440	GW	Brine	3 poly	1 HNO_3	-013								X				X	X		
10.19.18	1455	GW	Injection	2 poly	NA	-014								X					X		

Date:	Time:	Relinquished by:	Received by:	Date	Time
10/20/18	1126			10/20/18	1126
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks:

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.

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

November 27, 2018

John Ayarbe

Daniel B. Stephens & Assoc.
6020 Academy NE Suite 100
Albuquerque, NM 87109
TEL: (505) 822-9400
FAX (505) 822-8877

RE: Salty Dog OrderNo.: 1811579

Dear John Ayarbe:

Hall Environmental Analysis Laboratory received 13 sample(s) on 11/9/2018 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.

CLIENT: Daniel B. Stephens & Assoc. **Lab Order:** 1811579
Project: Salty Dog

Lab ID: 1811579-001 **Collection Date:** 11/8/2018 10:00:00 AM
Client Sample ID: DBS-8 **Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **smb**	
Chloride	30	5.0		mg/L	10	11/13/2018 12:34:44 PM	R55635

Lab ID: 1811579-002 **Collection Date:** 11/8/2018 10:30:00 AM
Client Sample ID: DBS-10 **Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **smb**	
Chloride	590	50	*	mg/L	100	11/13/2018 1:13:18 PM	R55635

Lab ID: 1811579-003 **Collection Date:** 11/8/2018 11:10:00 AM
Client Sample ID: DBS-6 **Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **smb**	
Chloride	190	50		mg/L	100	11/13/2018 1:39:01 PM	R55635

Lab ID: 1811579-004 **Collection Date:** 11/8/2018 11:40:00 AM
Client Sample ID: MW-5 **Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **smb**	
Chloride	680	50	*	mg/L	100	11/13/2018 2:04:45 PM	R55635

Lab ID: 1811579-005 **Collection Date:** 11/8/2018 12:30:00 PM
Client Sample ID: MW-3 **Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **smb**	
Chloride	8000	500	*	mg/L	1E	11/19/2018 2:05:58 PM	R55763

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 Detection Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc. **Lab Order:** 1811579
Project: Salty Dog

Lab ID: 1811579-006 **Collection Date:** 11/8/2018 1:10:00 PM
Client Sample ID: DBS-3 **Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **smb**	
Chloride	46	5.0		mg/L	10	11/13/2018 3:09:03 PM	R55635

Lab ID: 1811579-007 **Collection Date:** 11/8/2018 1:45:00 PM
Client Sample ID: DBS-4 **Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **smb**	
Chloride	35	5.0		mg/L	10	11/13/2018 4:00:29 PM	R55635

Lab ID: 1811579-008 **Collection Date:** 11/8/2018 1:55:00 PM
Client Sample ID: DBS-2 **Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **smb**	
Chloride	47	5.0		mg/L	10	11/13/2018 4:26:13 PM	R55635

Lab ID: 1811579-009 **Collection Date:** 11/8/2018 2:15:00 PM
Client Sample ID: DBS-5 **Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **smb**	
Chloride	170	5.0		mg/L	10	11/13/2018 5:17:39 PM	R55635

Lab ID: 1811579-010 **Collection Date:** 11/8/2018 2:35:00 PM
Client Sample ID: DBS-1R **Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **smb**	
Chloride	180	5.0		mg/L	10	11/13/2018 6:09:06 PM	R55635

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 Detection Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc. **Lab Order:** 1811579
Project: Salty Dog

Lab ID: 1811579-011 **Collection Date:** 11/8/2018 2:50:00 PM
Client Sample ID: Injection **Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
SPECIFIC GRAVITY						Analyst: **JRR**	
Specific Gravity	0.9989	0			1	11/16/2018 1:26:00 PM	R55711
EPA METHOD 300.0: ANIONS						Analyst: **smb**	
Chloride	370	50	*	mg/L	100	11/13/2018 6:47:41 PM	R55635
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	981	20.0	*	mg/L	1	11/19/2018 4:51:00 PM	41562
SM4500-H+B / 9040C: PH						Analyst: **JRR**	
pH	7.75		H	pH units	1	11/15/2018 11:52:16 AM	R55698

Lab ID: 1811579-012 **Collection Date:** 11/8/2018 3:30:00 PM
Client Sample ID: PMW-1 **Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **smb**	
Chloride	10000	500	*	mg/L	1E	11/13/2018 7:13:23 PM	R55635

Lab ID: 1811579-013 **Collection Date:** 11/8/2018 4:10:00 PM
Client Sample ID: Brine **Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
SPECIFIC GRAVITY						Analyst: **JRR**	
Specific Gravity	1.195	0			1	11/16/2018 1:26:00 PM	R55711
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	210000	10000	*	mg/L	2E	11/14/2018 6:22:42 PM	R55641
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	309000	2000	*D	mg/L	1	11/19/2018 4:51:00 PM	41562
SM4500-H+B / 9040C: PH						Analyst: **JRR**	
pH	7.46		H	pH units	1	11/15/2018 11:56:49 AM	R55698
EPA METHOD 200.7: METALS						Analyst: **pmf**	
Sodium	82000	1000		mg/L	1E	11/19/2018 4:03:44 PM	41554

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 Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1811579**

27-Nov-18

Client: Daniel B. Stephens & Assoc.

Project: Salty Dog

Sample ID	**MB-41554**	SampType:	**MBLK**	TestCode:	**EPA Method 200.7: Metals**					
Client ID:	**PBW**	Batch ID:	**41554**	RunNo:	**55720**					
Prep Date:	**11/15/2018**	Analysis Date:	**11/16/2018**	SeqNo:	**1856689**	Units:	**mg/L**			

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

Sample ID	**LLLCS-41554**	SampType:	**LCSLL**	TestCode:	**EPA Method 200.7: Metals**					
Client ID:	**BatchQC**	Batch ID:	**41554**	RunNo:	**55720**					
Prep Date:	**11/15/2018**	Analysis Date:	**11/16/2018**	SeqNo:	**1856690**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sodium	ND	1.0	0.5000	0	150	50	150			

Sample ID	**LCS-41554**	SampType:	**LCS**	TestCode:	**EPA Method 200.7: Metals**					
Client ID:	**LCSW**	Batch ID:	**41554**	RunNo:	**55720**					
Prep Date:	**11/15/2018**	Analysis Date:	**11/16/2018**	SeqNo:	**1856691**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sodium	51	1.0	50.00	0	103	85	115			

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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1811579**

27-Nov-18

Client: Daniel B. Stephens & Assoc.

Project: Salty Dog

Sample ID	**1811579-006AMS**	SampType:	**MS**		TestCode:	**EPA Method 300.0: Anions**				
Client ID:	**DBS-3**	Batch ID:	**R55635**		RunNo:	**55635**				
Prep Date:		Analysis Date:	**11/13/2018**		SeqNo:	**1853450**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	95	5.0	50.00	45.70	99.0	77.5	116			

Sample ID	**1811579-006AMSD**	SampType:	**MSD**		TestCode:	**EPA Method 300.0: Anions**				
Client ID:	**DBS-3**	Batch ID:	**R55635**		RunNo:	**55635**				
Prep Date:		Analysis Date:	**11/13/2018**		SeqNo:	**1853451**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	93	5.0	50.00	45.70	94.7	77.5	116	2.30	20	

Sample ID	**MB**	SampType:	**MBLK**		TestCode:	**EPA Method 300.0: Anions**				
Client ID:	**PBW**	Batch ID:	**R55635**		RunNo:	**55635**				
Prep Date:		Analysis Date:	**11/13/2018**		SeqNo:	**1853461**	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:	**R55635**		RunNo:	**55635**				
Prep Date:		Analysis Date:	**11/13/2018**		SeqNo:	**1853462**	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	97.6	90	110			

Sample ID	**MB**	SampType:	**mblk**		TestCode:	**EPA Method 300.0: Anions**				
Client ID:	**PBW**	Batch ID:	**R55641**		RunNo:	**55641**				
Prep Date:		Analysis Date:	**11/14/2018**		SeqNo:	**1853987**	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:	**R55641**		RunNo:	**55641**				
Prep Date:		Analysis Date:	**11/14/2018**		SeqNo:	**1853988**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	96.6	90	110			

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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1811579**

27-Nov-18

Client: Daniel B. Stephens & Assoc.

Project: Salty Dog

Sample ID	**MB**	SampType:	**MBLK**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBW**	Batch ID:	**R55763**	RunNo:	**55763**					
Prep Date:		Analysis Date:	**11/19/2018**	SeqNo:	**1858894**	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:	**R55763**	RunNo:	**55763**					
Prep Date:		Analysis Date:	**11/19/2018**	SeqNo:	**1858896**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	93.6	90	110			

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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1811579**

27-Nov-18

Client: Daniel B. Stephens & Assoc.

Project: Salty Dog

Sample ID	**1811579-011ADUP**	SampType:	**DUP**	TestCode:	**Specific Gravity**					
Client ID:	**Injection**	Batch ID:	**R55711**	RunNo:	**55711**					
Prep Date:		Analysis Date:	**11/16/2018**	SeqNo:	**1856564**	Units:				

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Gravity	0.9950	0						0.391	20	

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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1811579**

27-Nov-18

Client: Daniel B. Stephens & Assoc.

Project: Salty Dog

Sample ID	**MB-41562**	SampType:	**MBLK**	TestCode:	**SM2540C MOD: Total Dissolved Solids**					
Client ID:	**PBW**	Batch ID:	**41562**	RunNo:	**55750**					
Prep Date:	**11/15/2018**	Analysis Date:	**11/19/2018**	SeqNo:	**1857855**	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-41562**	SampType:	**LCS**	TestCode:	**SM2540C MOD: Total Dissolved Solids**					
Client ID:	**LCSW**	Batch ID:	**41562**	RunNo:	**55750**					
Prep Date:	**11/15/2018**	Analysis Date:	**11/19/2018**	SeqNo:	**1857856**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1020	20.0	1000	0	102	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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: DBS | Work Order Number: 1811579 | RcptNo: 1

Received By: Ashley Gallegos 11/9/2018 8:46:00 AM

Completed By: Ashley Gallegos 11/12/2018 9:49:32 AM

Reviewed By: ENM 11/12/18

CB: JO 11/12/18

Chain of Custody

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

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 ☐
   Approved by client.
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. VOA vials have zero headspace? Yes ☐ No ☐ No VOA Vials ☑
10. Were any sample containers received broken? Yes ☐ No ☑
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐ # of preserved bottles checked for pH: 1 (<2 or >12 unless noted)
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐ Adjusted? 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 ☐ Checked by JO 11/12/18

Special Handling (if applicable)

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

Person Notified:	Mike Z	Date:	11/12/2018
By Whom:	Ashley Gallegos/Isaiah Orti	Via:	☐ eMail ☑ Phone ☐ Fax ☑ In Person
Regarding:	High temp. No sample for DBS-11 received sample DBS-6 not listed on chain.		
Client Instructions:	Proceed with analysis. ~~Chage~~ Change sample DBS-11 to read DBS-6		

16. Additional remarks: JO 11/12/18

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	7.8	Good	Not Present			

Chain-of-Custody Record

1/2

Client: DBSA

Mailing Address:

Phone #: 505-822-9400

email or Fax#: MZbrozek@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 #: E508.0118.18

Project Manager: J. Ayache

Sampler: M. Zbrozek

On Ice: ☒ Yes ☐ No

# of Coolers: 1 CF = +1.0

Cooler Temp (including CF): 7.8

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. 1811579	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)	TDS, pH, Spec Gravity
11.8.18	1000	GW	DBS-8	1 poly		-001							X				
	1030		DBS-10			-002							X				
	1110		DBS-NL6 IO 11/12/18			-003							X				
	1140		MW-5			-004							X				
	1230		MW-3			-005							X				
	1310		DBS-3			-006							X				
	1345		DBS-4			-007							X				
	1355		DBS-2			-008							X				
	1415		DBS-5			-009							X				
	1435		DBS-1R			-010							X				
	~~1550~~ 1450		Injection			-011							X				X
	1530		PMW-1			-012							X				

Date	Time	Relinquished by	Received by	Via	Date	Time
11.9.18	0846			CDO	11/09/18	0846

Remarks: Temp approved

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: DBSA

Mailing Address:

Phone #: 505-822-9100

email or Fax#: MZlotek@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 #: ES08.0118.18

Project Manager: J. Ayarbe

Sampler: M. Zlotek

On Ice: ☑ Yes ☐ No

# of Coolers: 1 CF = +1.0

Cooler Temp (including CF): 7.8

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. 1811SD	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	F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)	Na^+	TDS, Spec Grav, pH
11.8.18	1610	W	Brine	2 poly	HNO_3	-013							X				X	X

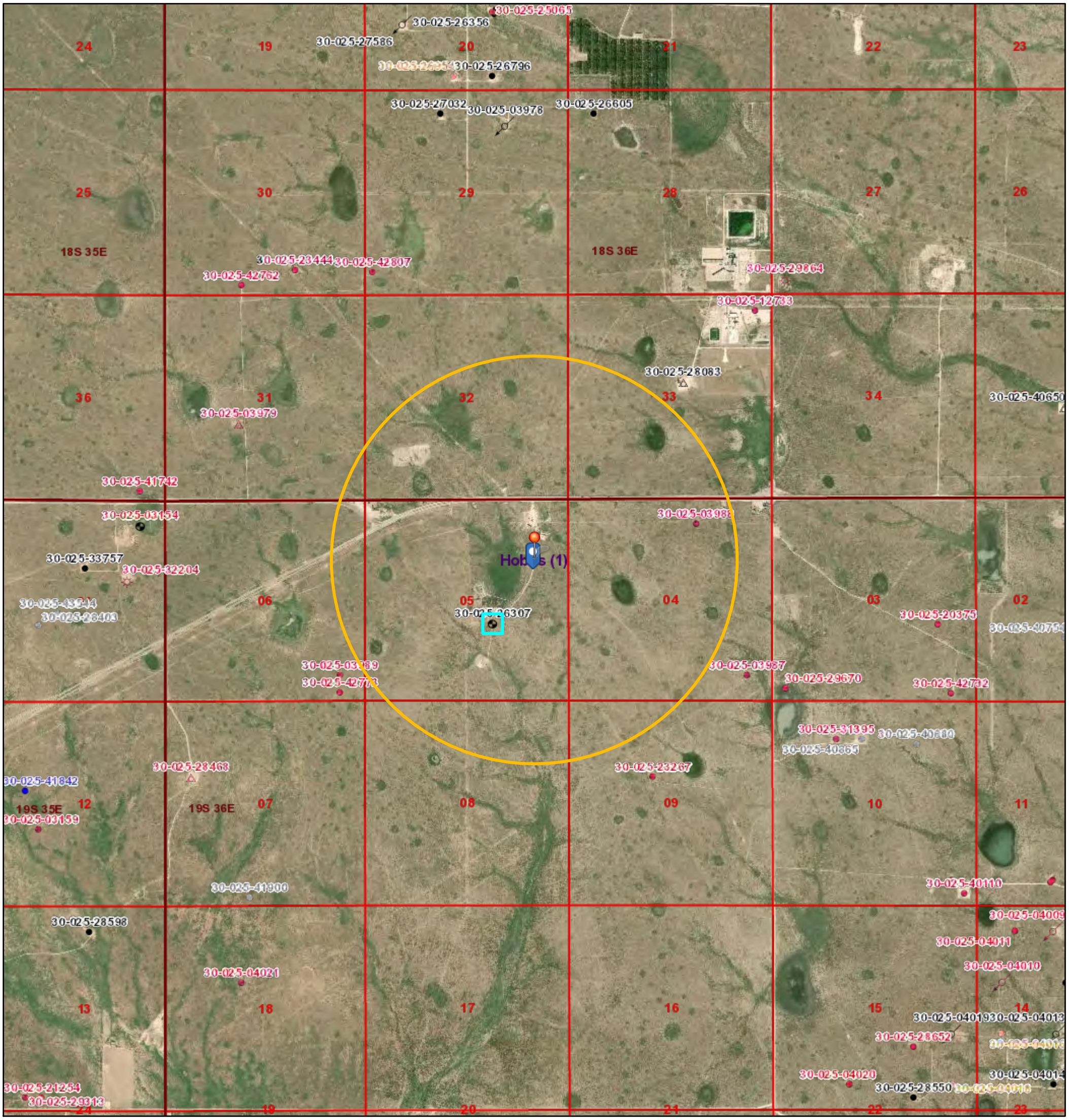
Date	Time	Relinquished by	Received by	Via	Date	Time	Remarks
11.9.18	846			CDO	11/09/18	0841	Temp approved
							RA

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

Appendix D

Area of Review Evaluation

OCD Well Locations



2/28/2019, 8:20:40 AM

1:36,112

0 0.35 0.7 1.4 mi

0 0.5 1 2 km

Well Locations - Large Scale

- Miscellaneous
- CO2 Active
- CO2 Cancelled
- CO2 New
- CO2, Plugged
- CO2, Temporarily Abandoned
- Gas Active
- Gas, Cancelled, Never Drilled
- Gas, New
- Gas, Plugged
- Gas, Temporarily Abandoned
- Injection, Active
- Injection, Cancelled
- Injection, New
- Injection, Plugged
- Injection, Temporarily Abandoned
- Oil, Active
- Oil, Cancelled
- Oil, New
- Oil, Plugged
- Oil, Temporarily Abondoned
- Salt Water Injection, Active
- Salt Water Injection, Cancelled
- Salt Water Injection, New
- Salt Water Injection, Plugged
- Salt Water InjectionTemporarily Abandoned
- Water, Active
- Water, Cancelled
- Water, New
- Water, Plugged
- Water, Temporarily Abandoned

Well Locations - Small Scale

- Active
- New
- Plugged
- Cancelled
- Temporarily Abandoned
- OCD Districts
- OCD District Offices
- PLSS First Division

OCD, Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, BLM

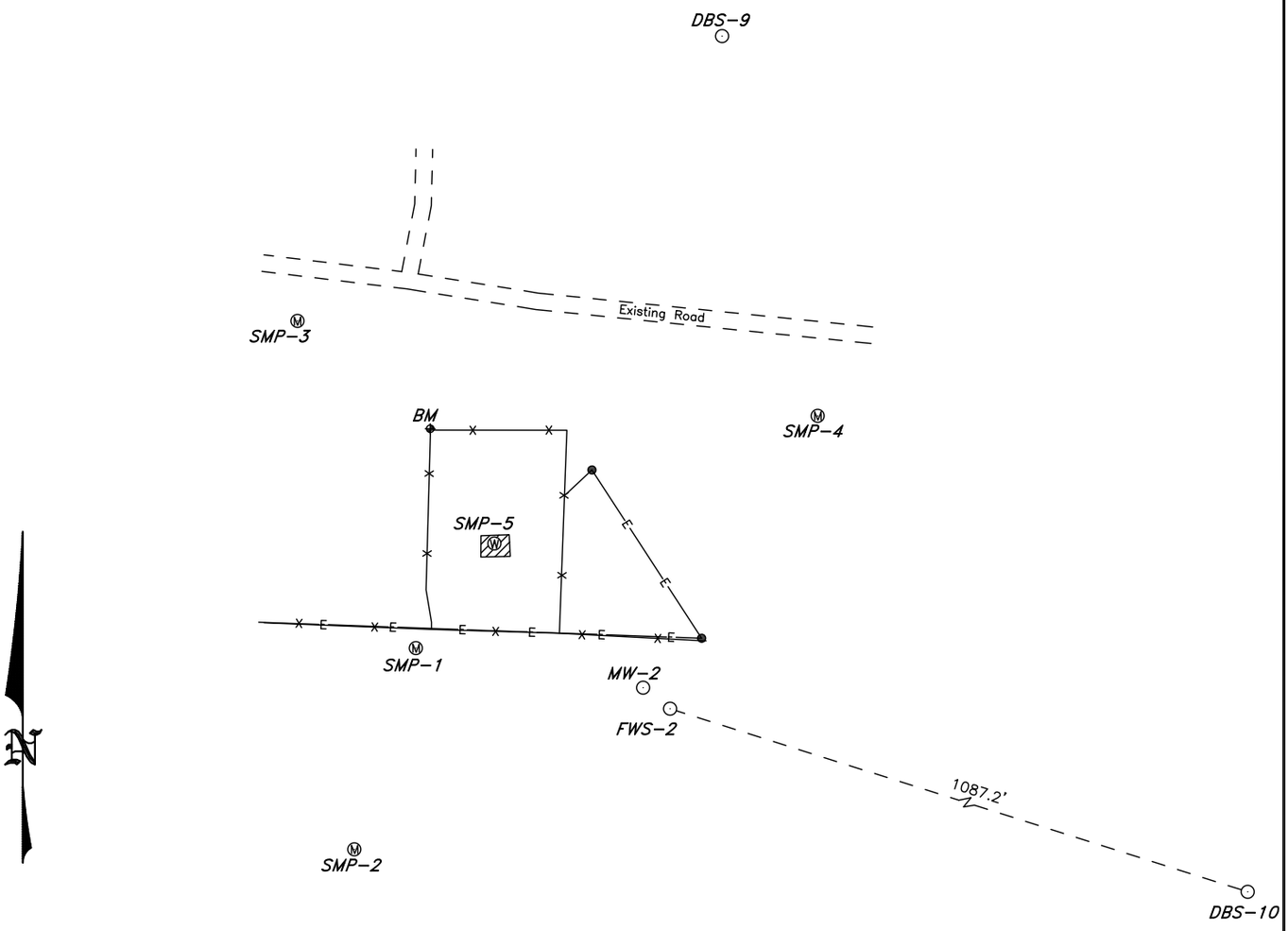
New Mexico Oil Conservation Division

NM OCD Oil and Gas Map. http://nm-emnrd.maps.arcgis.com/apps/webappviewer/: New Mexico Oil Conservation Division

Appendix E

2018 Survey Data for Land Surface Subsidence Monitoring

SECTION 5, TOWNSHIP 19 SOUTH, RANGE 36 EAST, N.M.P.M.,
LEA COUNTY, NEW MEXICO.



ALL COORDINATES ARE BASED ON NMSPCE (NAD83)

NAME	SECTION CALLS	NORTHING	EASTING	LATITUDE	LONGITUDE	ELEVATION TOP CASING	ELEVATION CONCRETE
SMP-1	2153' FSL & 2020' FEL	615475.977	836301.437	N32°41'17.960"	W103°22'28.520"	3810.11'	3810.37'
SMP-2	2032' FSL & 2058' FEL	615354.850	836264.338	N32°41'16.795"	W103°22'28.966"	3809.01'	3809.39'
SMP-3	2350' FSL & 2089' FEL	615673.004	836230.083	N32°41'19.945"	W103°22'29.334"	3808.80'	3809.17'
SMP-4	2291' FSL & 1776' FEL	615615.830	836543.487	N32°41'19.352"	W103°22'25.673"	3806.32'	3806.73'
SMP-5	2216' FSL & 1972' FEL	615539.029	836348.733	N32°41'18.609"	W103°22'27.960"	3811.72'	
DBS-9	2520' FSL & 1831' FEL	615844.539	836485.906	N32°41'21.593"	W103°22'26.317"		
DBS-10	1389' FSL & 1060' FEL	614720.368	837270.028	N32°41'10.428"	W103°22'17.269"	3807.48'	3805.44'
BENCH MARK		615608.14	836310.07	N32°41'19.27"	W103°22'28.40"		

I HEREBY CERTIFY THAT THIS PLAT WAS PREPARED FROM FIELD NOTES OF AN ACTUAL SURVEY AND MEETS OR EXCEEDS ALL REQUIREMENTS FOR LAND SURVEYS AS SPECIFIED BY THIS STATE.

GARY L. JONES N.M. P.S. No. 7977
T.X. P.L.S. No. 5074

GARY L. JONES NEW MEXICO 7977 REGISTERED PROFESSIONAL LAND SURVEYOR

200 0 200 400 FEET

DANIEL B. STEPHENS & ASSOCIATES, INC

REF: SALTY DOG BRINE FACILITY

MONITOR WELLS AND SUSTENANCE MONITORING POINTS
LOCATED IN SECTION 5, TOWNSHIP 19 SOUTH, RANGE 36 EAST,
N.M.P.M., LEA COUNTY, NEW MEXICO.

basin surveys
focused on excellence in the oilfield
P.O. Box 1786
1120 N. West County Rd.
Hobbs, New Mexico 88241
(575) 393-7316 – Office
(575) 392-2206 – Fax
basinsurveys.com

W.O. Number: 33610	Drawn By: K. GOAD	Date: 03-29-2018	Survey Date: 03-23-2018	Sheet 1 of 1 Sheets

SECTION 5, TOWNSHIP 19 SOUTH, RANGE 36 EAST, N.M.P.M.,
LEA COUNTY, NEW MEXICO.

ALL COORDINATES ARE BASED ON NMSPCE (NAD83)

NAME	SECTION CALLS	NORTHING	EASTING	LATITUDE	LONGITUDE	ELEVATION TOP CASING	ELEVATION CONCRETE
SMP-1	2153' FSL & 2020' FEL	615475.977	836301.437	N32°41'17.960"	W103°22'28.520"	3810.11'	3810.37'
SMP-2	2032' FSL & 2058' FEL	615354.850	836264.338	N32°41'16.795"	W103°22'28.966"	3809.01'	3809.39'
SMP-3	2350' FSL & 2089' FEL	615673.004	836230.083	N32°41'19.945"	W103°22'29.334"	3808.80'	3809.17'
SMP-4	2291' FSL & 1776' FEL	615615.830	836543.487	N32°41'19.352"	W103°22'25.673"	3806.32'	3806.73'
SMP-5	2216' FSL & 1972' FEL	615539.029	836348.733	N32°41'18.609"	W103°22'27.960"	3811.72'	
DBS-9	2520' FSL & 1831' FEL	615844.539	836485.906	N32°41'21.593"	W103°22'26.317"		
DBS-10	1389' FSL & 1060' FEL	614720.368	837270.028	N32°41'10.428"	W103°22'17.269"	3807.48'	3805.44'
BENCH MARK		615608.14	836310.07	N32°41'19.27"	W103°22'28.40"		

I HEREBY CERTIFY THAT THIS PLAT WAS PREPARED FROM FIELD NOTES OF AN ACTUAL SURVEY AND MEETS OR EXCEEDS ALL REQUIREMENTS FOR LAND SURVEYS AS SPECIFIED BY THIS STATE.

GARY L. JONES, N.M. P.S. No. 7977
T.H. McLEOD, N.M.P.S. No. 5074

GARY L. JONES NEW MEXICO 7977 REGISTERED PROFESSIONAL LAND SURVEYOR

200 0 200 400 FEET

DANIEL B. STEPHENS & ASSOCIATES, INC

REF: SALTY DOG BRINE FACILITY

MONITOR WELLS AND SUSTENANCE MONITORING POINTS
LOCATED IN SECTION 5, TOWNSHIP 19 SOUTH, RANGE 36 EAST,
N.M.P.M., LEA COUNTY, NEW MEXICO.

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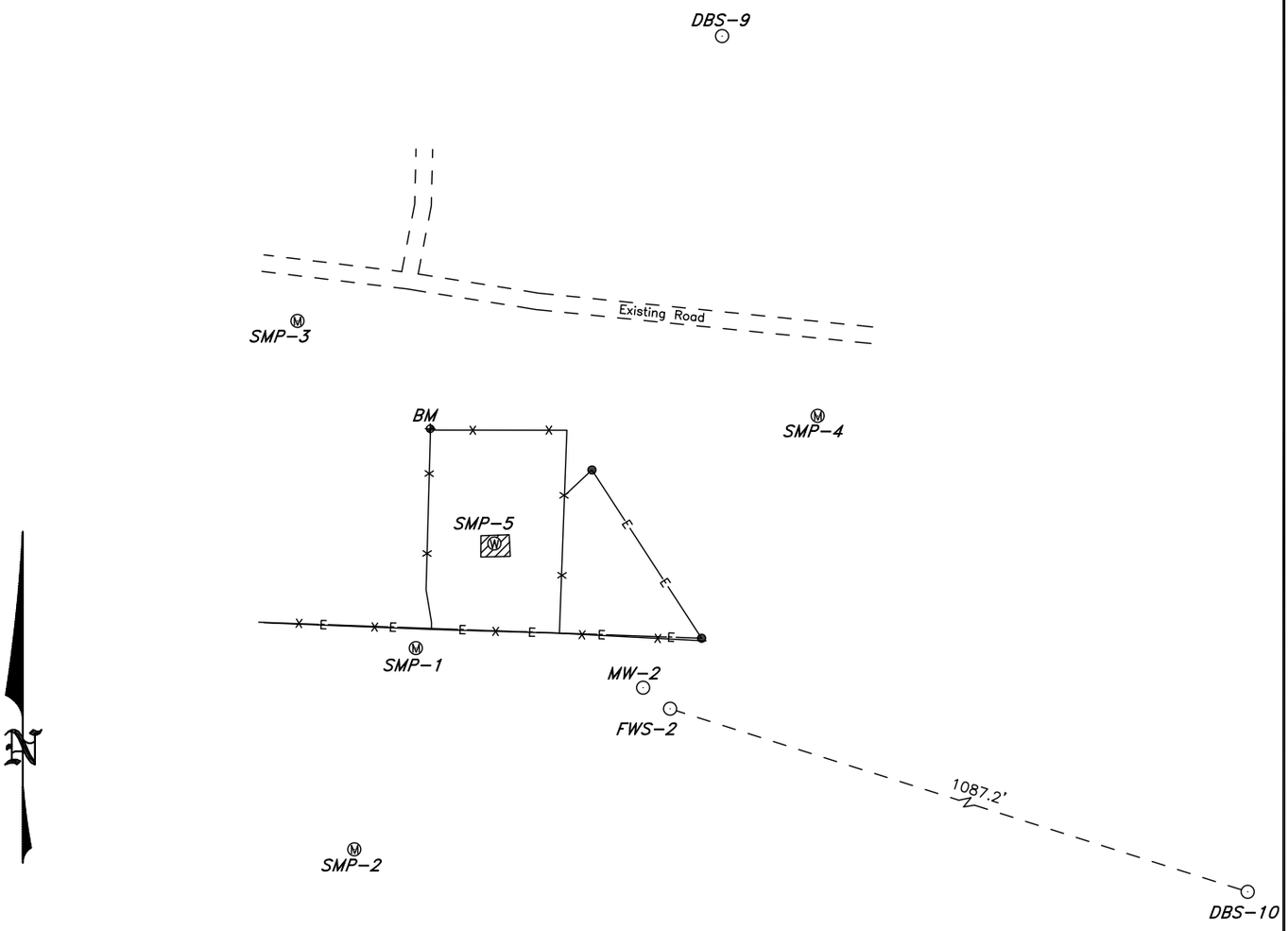
W.O. Number: 33610	Drawn By: K. GOAD	Date: 03-29-2018	Survey Date: 03-23-2018	Sheet 1 of 1 Sheets

SECTION 5, TOWNSHIP 19 SOUTH, RANGE 36 EAST, N.M.P.M.,
LEA COUNTY, NEW MEXICO.



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SMP-2	2032' FSL & 2058' FEL	615354.850	836264.338	N32°41'16.795"	W103°22'28.966"	3809.02'	3809.39'
SMP-3	2350' FSL & 2089' FEL	615673.004	836230.083	N32°41'19.945"	W103°22'29.334"	3808.82'	3809.17'
SMP-4	2291' FSL & 1776' FEL	615615.830	836543.487	N32°41'19.352"	W103°22'25.673"	3806.33'	3806.73'
SMP-5	2216' FSL & 1972' FEL	615539.029	836348.733	N32°41'18.609"	W103°22'27.960"	3811.71'	
DBS-9	2520' FSL & 1831' FEL	615844.539	836485.906	N32°41'21.593"	W103°22'26.317"		
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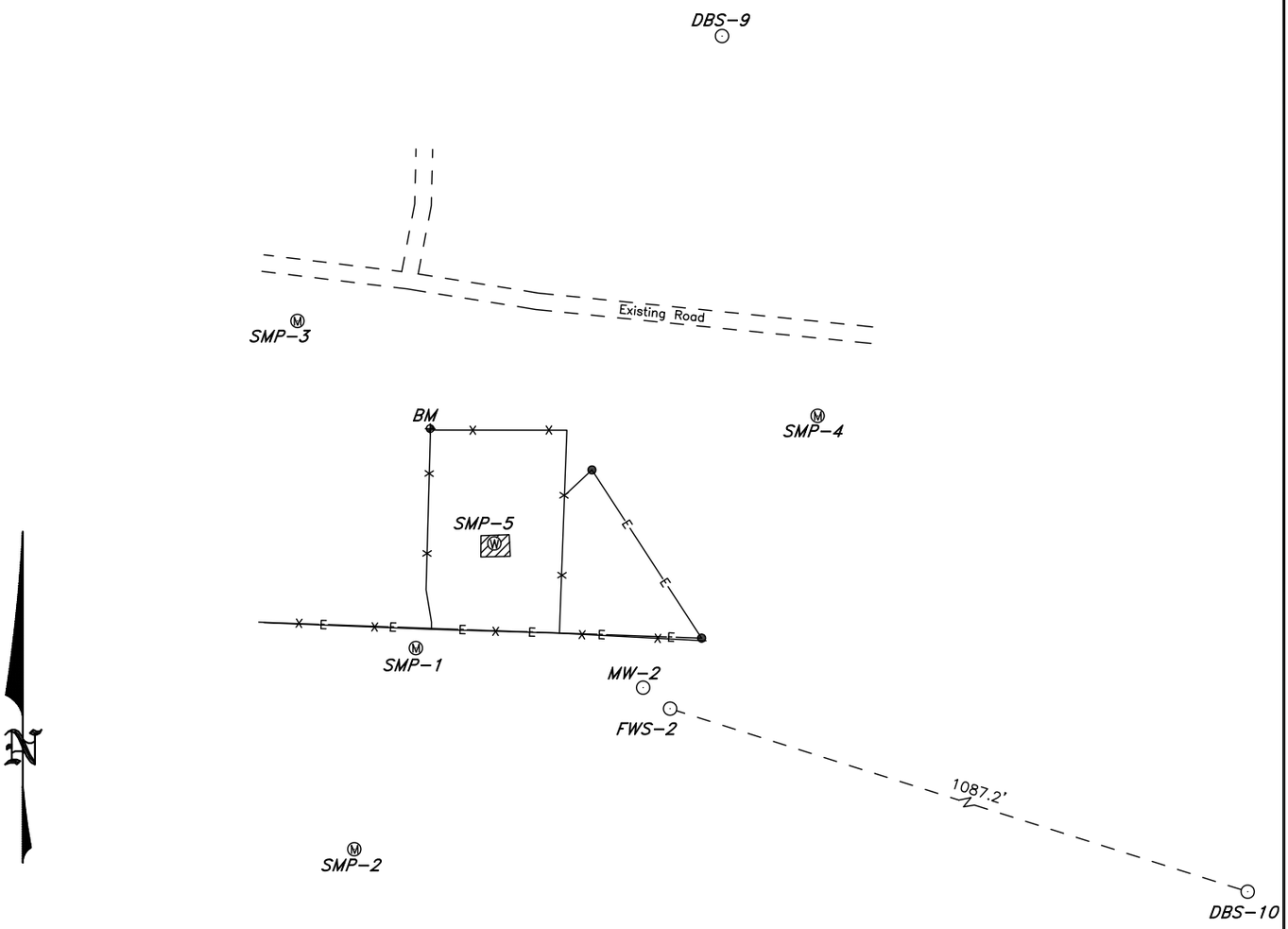
N.M.P.M., LEA COUNTY, NEW MEXICO.

W.O. Number: 33811	Drawn By: K. GOAD	Date: 06-19-2018	Survey Date: 06-15-2018	Sheet 1 of 1 Sheets

SECTION 5, TOWNSHIP 19 SOUTH, RANGE 36 EAST, N.M.P.M.,
LEA COUNTY, NEW MEXICO.



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W.O. Number: 34246	Drawn By: K. GOAD	Date: 12-24-2018	Survey Date: 12-15-2018	Sheet 1 of 1 Sheets

SECTION 5, TOWNSHIP 19 SOUTH, RANGE 36 EAST, N.M.P.M.,
LEA COUNTY, NEW MEXICO.

ALL COORDINATES ARE BASED ON NMSPCE (NAD83)

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