BW - __8__

PERMITS, RENEWALS & MODS

2018

Cash Remittance Report (CRR)

Appendix 8-14 revised 11/27/01

Energy, Minerals & Natural Resources Department
CASH REMITTANCE REPORT (CRR)

CRR0007th

Location Name ① OCD - Environment

Location Code ② 0740

Today's Date: _____ (MONTH) _____ (DAY) ③ 20____ (YEAR)

Collection Period: ____ / ____ / ____ (MM / DD / YYYY) through ____ / ____ / ____ (MM / DD / YYYY) ④

Cost Center ⑤	Revenue Code ⑤	Receipt Amount ⑦	Collected Amount ⑧
0740		100.00	

Total ========→	$ 100.00 ⑨	$ ⑩

Over/Short Amount	$ ⑪

CRR Deposit Amount	$ ⑫

Print Name: Lorraine DeVargas ⑬ Signature: Lorraine DeVargas ⑬

Print Name: _____ ⑬ Signature: _____ ⑬

Distribution: White and Yellow copy to Accounts Receivable-ASD.
Pink copy retained at CRR submitting location.

Official Use Only

Completed by the Accounts Receivable

Date Received: _____ ❶

Notes: _____ ❷

Amount Received: _____ ❸

State Treasurer Deposit Number: _____ ❹

Verified by: _____ ❻

Deposit Date: _____ ❺

EMNRDCRR Revised 4/01

July 9, 2018

Mr. Carl Chavez
New Mexico Oil Conservation Division
Energy Minerals and Natural Resources Department
1220 South St. Francis Drive
Santa Fe, NM 87505

Re: Discharge Permit BW-8 Renewal, Salty Dog Brine Station, Lea County, New Mexico

Dear Mr. Chavez:

On behalf of PAB Services, Inc., Daniel B. Stephens & Associates, Inc. is submitting the enclosed discharge permit application for the renewal of discharge permit BW-8 (DP BW-8) at the Salty Dog Brine Station located in Lea County, New Mexico. Enclosed are the permit application and fee.

Please call me at (505) 353-9137 if you have questions or need additional information.

Sincerely,

DANIEL B. STEPHENS & ASSOCIATES, INC.

John Ayarbe, P.G.
Senior Hydrogeologist

JA/rpf
Enclosure
cc: Jim Griswold (Jim.Griswold@state.nm.us)
Pieter Bergstein (pieter@bergsteinenterprises.com)
Susan North (susan@thestandardenergy.com)

Daniel B. Stephens & Associates, Inc.
6020 Academy Rd., NE, Suite 100 505-822-9400
Albuquerque, NM 87109-3315 FAX 505-822-8877

106192

Daniel B. Stephens & Associates, Inc.
6020 ACADEMY ROAD NE, SUITE 100
ALBUQUERQUE, NM 87109
(505) 822-9400 0789

BANK OF ALBUQUERQUE
95-660-1070

CHECK DATE June 22, 2018

PAY One Hundred and 00/100 Dollars

AMOUNT 100.00

TO Water Quality Management Fund
OCD District 1
1625 N French Drive
Hobbs, NM 88240

TWO SIGNATURES REQUIRED IF OVER $1000

Nancy K Johnson

Security features. Details on back.

DANIEL B. STEPHENS & ASSOCIATES, INC. 106192

Check Date: 6/22/2018

Invoice Number	Date	Voucher	Amount	Discounts	Previous Pay	Net Amount
CkRqst 062218	6/22/2018	0177226	100.00			100.00
Water Quality Management Fund		TOTAL	100.00			100.00
Operating Acct - Bank of Alb 1		230026				

ACKNOWLEDGEMENT OF RECEIPT OF CHECK/CASH

I hereby acknowledge receipt of Check No. 106192 dated 06/22/2018

or cash received on 09/10/2018 in the amount of $ 100.00

from Daniel B. Stephens & Assoc.

for BW-8 Renewal

Submitted by: Carl Chavez Date: 09/10/18

Submitted to ASD by: Lorraine DeVargas Date: 09/10/18

Received in ASD by: _____ Date: _____

Filing Fee _____ New Facility: _____ Renewal: _____

Modification _____ Other * Discharge permit

Organization Code 521.07 Applicable FY _____

To be deposited in the Water Quality Management Fund.

Full Payment _____ or Annual Increment _____

NEW MEXICO ENVIRONMENT DEPARTMENT - ALBUQUERQUE FIELD OFFICE DAILY CHECK RECEIPT LOG

DATE RECEIVED	WALK-IN	MAIL	NAME ON CHECK	DATE OF CHECK	CHECK/MONEY ORDER#	PROGRAM ACCOUNT CODE	AMOUNT OF CHECK	DATE DEPOSITED	DEPOSITED BY:
7/10/18		*	Daniel Stephens & Assoc.	6/22/18	106192		100.00		
TOTAL							100.00		

REVENUE TRANSMITTAL SHEET

Description	Fund	Dept.	Share Acct	Sub Acct	Amount
Liquid Waste	34000	Z3200	496402		
Water Recreation Facilities	40000	Z8501	496402		
Food Permit Fees	99100	Z2600	496402		
OTHER	34100	232900		2329029000	

Chavez, Carl J, EMNRD

From: Ayarbe, John <jayarbe@geo-logic.com>
Sent: Monday, July 9, 2018 10:46 AM
To: Chavez, Carl J, EMNRD
Cc: Brown, Maxey G, EMNRD; Griswold, Jim, EMNRD; Pieter Bergstein (pieter@bergsteinenterprises.com); susan@thestandardenergy.com; McVey, Mike
Subject: Salt Dog Brine Station - DP BW-8 renewal application
Attachments: Salty Dog Permit Renewal_7-02-2018.pdf

Hi Carl,

Attached is an electronic copy of Salty Dog's permit renewal application. We have also sent the following hardcopies:

- Two hardcopies w/ the application fee to Mr. Carl J. Chavez, CHMM, 1220 South St Francis Drive, Santa Fe, New Mexico 87505
- One hardcopy to Maxey G. Brown, 1625 N. French Drive, Hobbs, New Mexico 88240

Please let me know if you have questions.

Thanks,

John P. Ayarbe
Senior Hydrogeologist

Daniel B. Stephens & Associates, Inc.
a Geo-Logic Company
6020 Academy Road NE, Suite 100
Albuquerque, New Mexico 87109
Office: (505) 822-9400 | Direct: (505) 353-9137
Mobile: (505) 280-4339
jayarbe@dbstephens.com or jayarbe@geo-logic.com

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

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources Department

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Revised August 1, 2011

Submit Original
Plus 1 Copy
to Santa Fe
1 Copy to Appropriate
District Office

DISCHARGE PLAN APPLICATION FOR BRINE EXTRACTION FACILITIES

(Refer to the OCD Guidelines for assistance in completing the application)

☐ New ☒ Renewal

I. Facility Name: Salty Dog Brine Station

II. Operator: PAB Services, Inc. (PAB)

Address: PO Box 2724 Lubbock, TX 79408

Contact Person: Pieter Bergstein Phone: (806) 741-1080

III. Location: NW /4 SE /4 Section 5 Township 19S Range 36E
Submit large scale topographic map showing exact location.

IV. Attach the name and address of the landowner of the facility site.

See attached supporting information document.

V. Attach a description of the types and quantities of fluids at the facility.

See attached supporting information document.

VI. Attach a description of all fluid transfer and storage and fluid and solid disposal facilities.

See attached supporting information document.

VII. Attach a description of underground facilities (i.e. brine extraction well).

See attached supporting information document.

VIII. Attach a contingency plan for reporting and clean-up of spills or releases.

See attached supporting information document.

IX. Attach geological/hydrological evidence demonstrating that brine extraction operations will not adversely impact fresh water.

See attached supporting information document.

X. Attach such other information as is necessary to demonstrate compliance with any other OCD rules, regulations and/or orders.

See attached supporting information document.

XI. CERTIFICATION:

I hereby certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.

Name: Pieter Bergstein Title: President/Owner

Signature: Date: 7/2/18

E-mail Address: pieter@bergsteinenterprises.com

Supporting Information for Renewal Application of Discharge Permit BW-8

Prepared for

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

July 2, 2018

Daniel B. Stephens & Associates, Inc.

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

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C Laboratory Analytical Reports for 2017 Semiannual Sampling

D Mechanical Integrity Test Record

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Supporting Information for Renewal Application of Discharge Permit BW-8

This document provides supporting information associated with the Salt Dog Brine Station (Salty Dog) discharge permit renewal application. Salty Dog is seeking renewal of discharge permit BW-8 (DP BW-8) for Brine Supply Well No. 1. This discharge permit was last renewed on November 8, 2013 (NMEMNRD, 2013). Brine Supply Well No. 1 is permitted as a UIC Class III well (API No. 30-025-26307). Salty Dog is located in Lea County, New Mexico (Figure 1). Daniel B. Stephens & Associates, Inc. (DBS&A) has prepared the renewal application for submission to the New Mexico Energy, Minerals and Natural Resources Department Oil Conservation Division (OCD) on behalf of PAB Services, Inc. (PAB).

I. Facility Name

Salty Dog Brine Station

II. Operator

The Salty Dog Brine Station is operated by:

PAB Services, Inc.
P.O. Box 2724
Lubbock, TX 79408
(806) 741-1080

III. Location of Facility

The Salty Dog brine well, Brine Supply Well No.1, is located 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). Figure 1 shows the topography in the area of the Salty Dog facility, which is located approximately 11 miles west of Hobbs, New Mexico.

IV. Landowner

Salty Dog facilities are located on private property owned by (Appendix A):

- Snyder Ranches, Ltd.
  P.O. Box 2158
  Hobbs, NM 88241
  (575) 393-7544

- Squires, Inc.
  P.O. Box 2158
  Hobbs, NM 88241

- PAB Services, Inc.
  P.O. Box 2724
  Lubbock, TX 79408
  (806) 741-1080

V. Types and Quantities of Fluids

Salty Dog produces and sells both fresh water and brine. Fresh water is obtained from the Ogallala Aquifer. Brine is produced from in situ extraction of salt at the brine well. Fresh water is circulated down the casing annulus of the brine well 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 2).

In 2017, monthly fresh water injection volumes ranged from 15,753 to 81,711 barrels (bbl), while monthly brine production ranged from 16,321 and 80,409 bbl (DBS&A, 2018b). Fresh water is metered as it is injected into the brine well, and produced brine is metered as it is pumped from the brine well to brine storage tanks. Fresh water and brine production values are recorded daily on monthly fresh and brine water report forms that are submitted to OCD at the end of each month and in annual Class III well reports. In 2017, the calculated average rate for both fresh water injection and brine production was 1,700 bbl. Appendix B provides monthly fresh

and brine water report forms for 2017. The latest annual Class III well report was submitted to OCD on May 1, 2018 (DBS&A, 2018b).

Total dissolved solids (TDS) concentrations of the fresh water and produced brine are approximately 800 and 300,000 milligrams per liter (mg/L), respectively. Water quality samples of the injected fresh water and produced brine are collected semiannually and submitted to a certified laboratory for analysis. Average chemical and physical characteristics of the injection water and produced brine based 2017 semiannual sampling are shown in Table 1. Appendix C provides laboratory reports associated with the 2017 semiannual sampling; because the brine well was down during the December 2017 monitoring event, the second semiannual brine sample was collected in February 2018. Results of the water quality analyses are reported in the annual Class III well reports (DBS&A, 2018a).

Table 1. Injection Water and Produced Brine Chemical and Physical Characteristics

Constituent	Average Concentration (mg/L [a])	
	Injection Water	Produced Brine
pH (s.u.)	7.76	7.37
Specific gravity (unitless)	0.997	1.19
Chloride	270	180,000 [b]
Sodium	NM	79,500
TDS	775	316,500

Note: Average constituent concentrations calculated from 2017 semiannual monitoring data.
[a] Unless otherwise noted
[b] During the second 2017 semiannual monitoring event, the chloride concentration of the brine water was not analyzed.
mg/L = Milligram per liter
nm = Not measured
s.u. = Standard units
TDS = Total dissolved solids

VI. Description of Fluid Transfer and Storage

Salty Dog is a brine water production and loading station. It consists of fresh water supply wells, a brine production well, and a concrete truck loading pad with two brine filling stations (Figure 1).

Water for brine production comes from two fresh water supply wells (FWS-1 and FWS-2) and one groundwater remediation well (RW-2). Well FWS-1 is the main fresh water supply well. Fresh water from well FWS-1 is pumped to a stainless-steel, 750-bbl aboveground storage tank (AST) located near the north end of the facility and well FWS-1. Water from wells RW-2 and FWS-2 is pumped to two 500-bbl tanks located near the brine well.

Produced brine ready for sale is stored in a bermed tank battery consisting of six 750-bbl ASTs that are constructed of fiberglass. The total capacity of the tank battery is 4,500 bbl. Produced brine is conveyed via a 3-inch-diameter high-density polyethylene (HDPE) pipeline from the brine well to the tank battery. The conveyance pipeline is ⅜ inch thick and runs along the ground surface (Figure 1), where leaks can be easily identified. The areas of the conveyance pipeline and storage tanks are inspected regularly for signs of leaks and deterioration.

Several monitor wells are located downgradient of the brine well and brine storage and handling facilities, providing a mechanism to detect any potential future release to groundwater. The locations of the monitor wells are shown in Figure 3.

VII. Description of Brine Extraction Well

Figure 2 is a generalized schematic of the current configuration of the brine well. The brine well 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. Fresh water dissolves salt from the Salado Formation, and brine is extracted through the center tubing of the well.

In 2017 and 2018, the brine well was repaired because the well tubing had collapsed. The existing well, which was originally drilled to 2,958 feet below ground surface (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 2). The well was operational again in February 2018 (DBS&A, 2018). Before placing the well back in operation, PAB conducted a mechanical integrity test (MIT) on the well; it passed the test. A record of the MIT is provided in Appendix D, along with documentation of the repairs that were made in 2017 and 2018. 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.

Each year fresh water injection and brine production data are used to calculate the size of the brine solution cavern caused by salt dissolution from the Salado Formation. These calculations are reported in the annual Class III well reports. In 2017, brine production activities dissolved an estimated 89,500 bbl of Salado Formation (DBS&A, 2018b). The total estimated size of the brine solution cavern is approximately 883,300 bbl based on historical and present brine production data. In 2012, OCD estimated a volume of 1,022,196 bbl for the Salty Dog solution cavern (NMEMNRD, 2012).

In March 2018, Salty Dog installed five survey monuments near the brine well to monitor for potential subsidence associated with brine production (Figure 4) (DBS&A, 2018d). Construction of the subsidence survey monitoring points followed the design presented in the *Work Plan for Surface Subsidence Monitoring and Solution Cavern Characterization* (DBS&A, 2014), with the exception of minor design changes to accommodate field conditions. Salty Dog will have each monitoring point surveyed semiannually to at least the nearest 0.1 foot (NMEMNRD, 2013). Survey results will be submitted to OCD within 15 days of the survey and will be included in the annual Class III well reports.

VIII. Contingency Plan for Addressing Spills and Releases

The Salty Dog facility is manned by an operator during operational hours. Regular duties of the operator include inspection of conveyance pipelines, valves, hoses, and tanks. In addition, the operator monitors tank fluid levels, brine well operating pressures, and flow meters. These inspection and monitoring activities are conducted to prevent spills by identifying any leaks and deterioration of the conveyance and storage equipment.

The truck load pad where brine is sold is constructed of concrete with a sump. Any spillage during truck loading drains to and is captured at the sump. In addition, the tank battery where brine is stored for sale is bermed. If one of the ASTs were to leak, the release would be contained within the bermed area, and the spilled brine would be removed for disposal by a vacuum truck or possibly other appropriate means.

If an accidental spill or release occurs, the following procedure will be followed:

- The facility manager, Jim Sayre, will be contacted immediately by cell at (575) 361-5072.
- If necessary (i.e., the release is at the brine well or from the brine conveyance line), operation of brine well will be stopped.
- Depending on the size of the spill, a vacuum truck contractor, such as Zia Transports, Inc. ([575] 393-8352) in Hobbs, New Mexico, will be called to collect and remove the released fluid for proper disposal.
- OCD will be notified in accordance with 19.15.29.9 NMAC.
- The facility manager, in consultation with OCD, will determine if further actions are required (e.g., soil removal).

Salty Dog will report major releases by giving both immediate verbal notices and timely written notices to OCD in accordance with Subsections A and B of 19.15.29.10 NMAC, and will report minor releases by giving timely written notices pursuant to Subsection B of 19.15.29.10 NMAC.

When reporting a release to OCD, the following information will be provided:

- Name, address, and telephone number of the person in charge of the facility as well as the owner or operator of the facility
- The name and address of the facility
- The date, time, location and duration of the discharge
- The source or cause of the discharge
- A description of the discharge, including chemical composition
- The estimated volume of the discharge
- A description of any actions taken to mitigate immediate damage from the discharge

Within one week of the release, Salty Dog will send written notification to OCD in Santa Fe, New Mexico and the OCD District I office in Hobbs, New Mexico verifying the oral notification and providing any appropriate additions or corrections to the information provided in the oral notification. Salty Dog will also submit a completed C-141 Release Notification and Corrective Action Form within 15 days of the release.

For releases that endanger public health and/or the environment, Salty Dog will complete a division-approved corrective action.

IX. Hydrogeologic Site Characteristics

Salty Dog is addressing groundwater impacts resulting from releases at the brine well and a former brine pond. In 1999, a hole was discovered in the casing of the brine well at 250 feet bgs (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).

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). OCD issued an Administrative Compliance Order (ACO) (ACO-2008-02) to Salty Dog to address chloride-impacted groundwater at the site in May 2008.

Groundwater monitoring and extraction data are reported and evaluated in reports submitted to OCD. The data include water levels and water quality (i.e., chloride concentrations) at site monitor wells. Site monitor wells are shown in Figure 3; historical water level and chloride data for the wells are provided in Appendix E. Monitoring data show that the systems are effective at providing hydraulic containment of the chloride plumes (DBS&A, 2018a).

To help prevent a future release, Salty Dog continually monitors pressures on the well tubing and on the annulus between the inner tubing and outer casing. These measurements are recorded daily on the monthly fresh and brine water report forms. Appendix B provides monthly

fresh and brine water report forms for 2017. In additional, mechanical integrity tests are performed after major brine well repairs and at least once every five years pursuant to 20.6.2.5204 NMAC.

Salty Dog no longer stores brine in a pond. Instead, brine is stored in a bermed tank battery with six ASTs. This method of storage allows for easier detection of leaks and containment of a release if a leak were to occur.

The Ogallala Aquifer is protected from potential water quality impact caused by brine production from the Salado Formation. Figure 2 is a generalized schematic of the brine well showing that brine is produced from the Salado Formation located approximately 1,850 below the base of the Ogallala Aquifer. The Ogallala Aquifer and the Salado Formation are separated by the Rustler Formation, which consists of an approximately 1,650-foot sequence of redbeds and 200 feet of anhydrite. The redbeds are composed primarily of low permeability mudstones. The low permeability and large thickness of the redbeds helps to prevent fluid from moving upward from the Salado Formation to the Ogallala Aquifer. The geology, along with continually monitoring of well tubing and annulus pressures and routine mechanical integrity testing, helps to prevent additional water quality impacts to the Ogallala Aquifer.

X. Additional Compliance Information

Salty Dog has maintained compliance with its existing discharge permit (DP BW-8) and is meeting ACO requirements. On May 2, 2018, DBS&A submitted a letter to OCD on behalf of Salty Dog (DBS&A, 2018c). The letter was submitted in response to a February 16, 2018 letter from OCD requesting a review of the DP BW-8 administrative record. As part of this review, several existing documents were uploaded to the OCD website via the Varonis system. All documents required under DP BW-8 are now available online as part of the DP BW-8 administrative record.

Salty Dog is operating groundwater extraction systems at the site to provide hydraulic containment and removal of chloride-impacted groundwater in both the former brine pond area and brine well area. Groundwater levels and groundwater quality are currently monitored semiannually at several monitor wells to assess the effectiveness of the extraction systems.

Monitoring data show that the systems are effective at providing hydraulic containment of the chloride plumes (DBS&A, 2018a). In March 2018, an additional monitor well was installed in the brine well area at the request of OCD (DBS&A, 2018d). The well will be used to better define the downgradient extent of the chloride plume in the brine well area.

Salty Dog submits annual Class III well reports to OCD by June 1 of each year. The annual Class III well reports are based on brine well operational activities from the previous year, and include fresh water injection and brine production volumes, tubing and casing pressure readings, chemical and physical properties of the fresh water and produced brine, descriptions of any deviation from normal operations and any leaks or spills, and results of an area of review survey and any mechanical integrity test. Also reported in the annual Class III well reports are the amount of halite (salt) dissolved from the Salado Formation for the year and the estimated total size of the brine solution cavern. The total estimated size of the brine solution cavern is approximately 883,300 bbl (DBS&A, 2018b).

On February 9, 2018, PAB performed a mechanical integrity test at the brine well. Pressure was applied to the annulus between the inner tubing and outer casing. Gary Robinson from the OCD District 1 office was present during the test. The annulus held pressure, and the brine well passed the test (Appendix D). Pursuant to 20.6.2.5204 NMAC, mechanical integrity tests are performed after major brine well repairs and at least once every five years.

In March 2018, Salty Dog installed five permanent subsidence monitoring points in the vicinity of the brine well (DBS&A, 2018d). The elevations of the subsidence monitoring points will be surveyed on a semiannual basis as required by DP BW-8. If subsidence is measured at or greater than 0.1 foot at any of the subsidence monitoring points, Salty Dog will suspend operations at the brine well and conduct an analysis to determine the cause of the movement and integrity of the brine solution cavern.

References

Daniel B. Stephens & Associates, Inc. (DBS&A). 2008. *Closure report, brine pond and loading area, Salty Dog Brine Station, Lea County, New Mexico*. Prepared for the New Mexico

Energy, Minerals and Natural Resources Department Oil Conservation Division, Environmental Bureau, Santa Fe, New Mexico. December 3, 2008.

DBS&A. 2014. *Work plan for surface subsidence monitoring and solution cavern characterization, Salty Dog Brine Station*. Prepared for New Mexico Energy, Minerals and Natural Resources Department Oil Conservation Division, Environmental Bureau. September 17, 2014.

DBS&A. 2018a. *Semiannual Groundwater Monitoring and O&M Report, July 1 through December 31, 2017, Salty Dog Brine Station, Lea County, New Mexico*. Prepared for the New Mexico Energy, Minerals and Natural Resources Department Oil Conservation Division, Environmental Bureau, Santa Fe, New Mexico. March 30, 2018.

DBS&A. 2018b. *2017 Annual Class III Well Report, Salty Dog Brine Station, DP BW-8, API No. 30-025-26307, Lea County, New Mexico*. Prepared for the New Mexico Energy, Minerals and Natural Resources Department Oil Conservation Division, Environmental Bureau, Santa Fe, New Mexico. May 1, 2018.

DBS&A. 2018c. Letter from DBS&A to Carl Chavez, New Mexico OCD, regarding Response to OCD letter requesting review of administrative record (BW-8) and submittal of required and/or missing information, discharge permit (BW-8) Standard Energy, UIC Class III Brine Well, API No. 30-025-26307. May 2, 2018.

DBS&A. 2018d. Letter report from DBS&A to Carl Chavez, New Mexico OCD, regarding Installation of monitor well and subsidence survey monitoring points, Salty Dog Brine Station (API No. 30-025-26307). June 25, 2018.

New Mexico Energy, Minerals and Natural Resources Department (NMEMNRD). 2012. Presentation from pre-proposal conference, Request for professional & technical services, I&W Brine Cavern project, Carlsbad, New Mexico. May 9, 2012.

NMEMNRD. 2013. Letter from Jami Bailey to Pieter Bergstein, Salty Dog, Inc., regarding Renewal of discharge permit BW-8 for brine supply well #1 in Unit J of Section 5, Township 19 South, Range 36 East NMPM, Lea County, New Mexico. November 8, 2013.

Salty Dog. 1999. Form C-103 report on Brine supply well #1. Submitted September 8, 1999. Approved by OCD December 1, 1999.

Figures

S:\PROJECTS\ES08.0118_SALTY_DOG_2018\GIS\MXD\DP_RENEWAL_BW-08\FIG01_SITE_LOCATION_AND_FACILITIES.MXD

PAB Services
Salty Dog Brine Station
Truck loading area
Fresh water tank
Former brine pond
Brine tank battery
Brine station fresh water supply well
Squires Inc.
Brine well
Snyder Ranches
T18S R36E
T19S R36E

Source: USGS topographic maps of the Monument North and Ironhouse Draw 7.5 Minute Quadrangles

New Mexico Location Map

N
0 600 1,200 Feet

Explanation

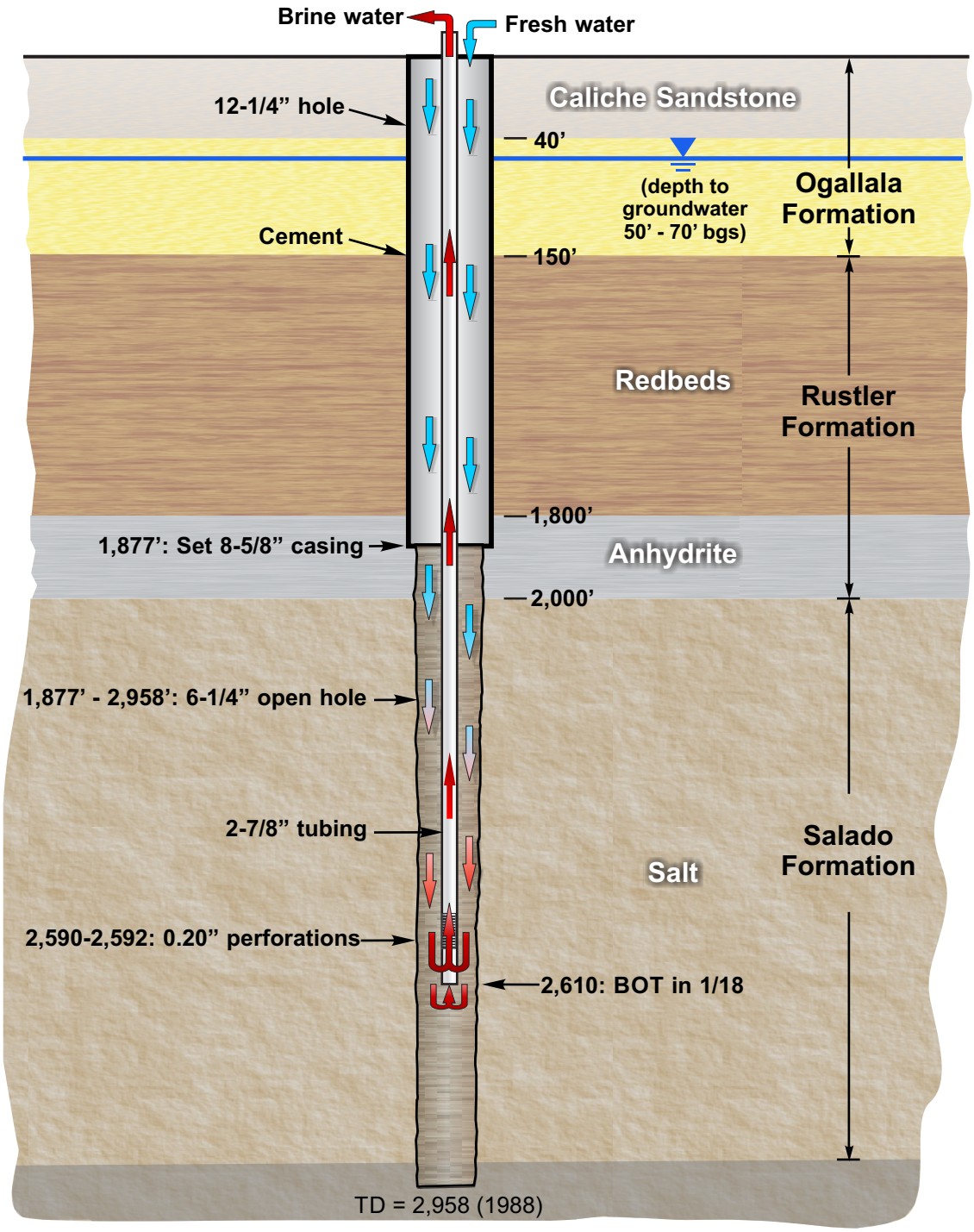
- Water supply well
- Brine well
- Fresh water tank
- Above ground brine pipeline - approximate location
- Property boundary
- Section
- Township and range

Figure 1

SALTY DOG BRINE STATION
Topographic Map of Facility Area

Daniel B. Stephens & Associates, Inc.
6/27/2018 JN ES08.0118.06

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)

S:\Projects\ES08.0118.06_Salty_Dog_2016\GIS\VR_drawings\Fig03_Generalized_brine_well_schematic.cdr

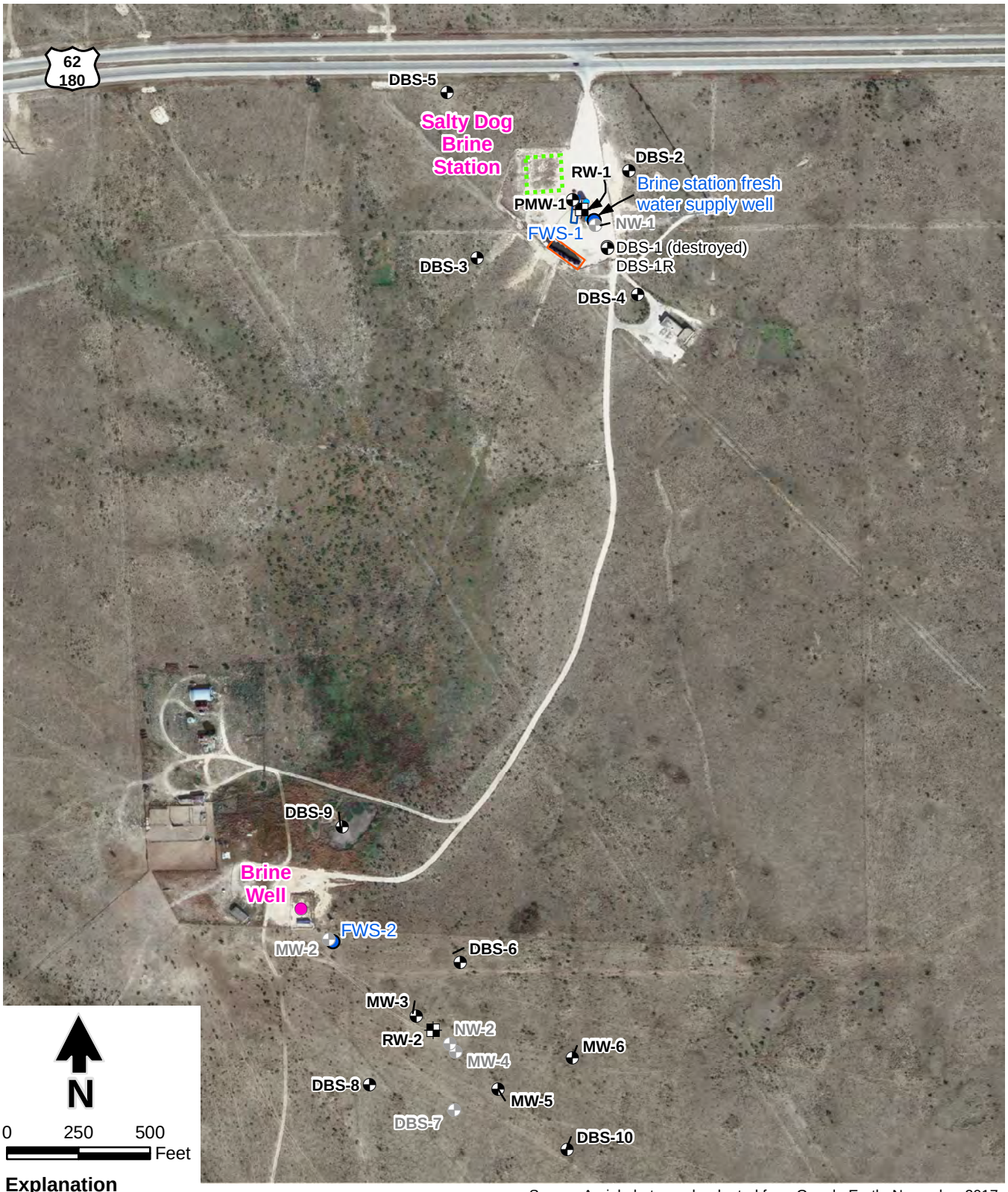
Daniel B. Stephens & Associates, Inc.

6-10-18 JN ES08.0118.06

SALTY DOG BRINE STATION

Generalized Brine Well Schematic

Figure 2



Explanation

- Fresh water supply well
- Monitor well
- Recovery well
- Well destroyed
- Well not monitored
- Brine well
- Brine tank battery
- Truck loading area
- Former brine pond

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

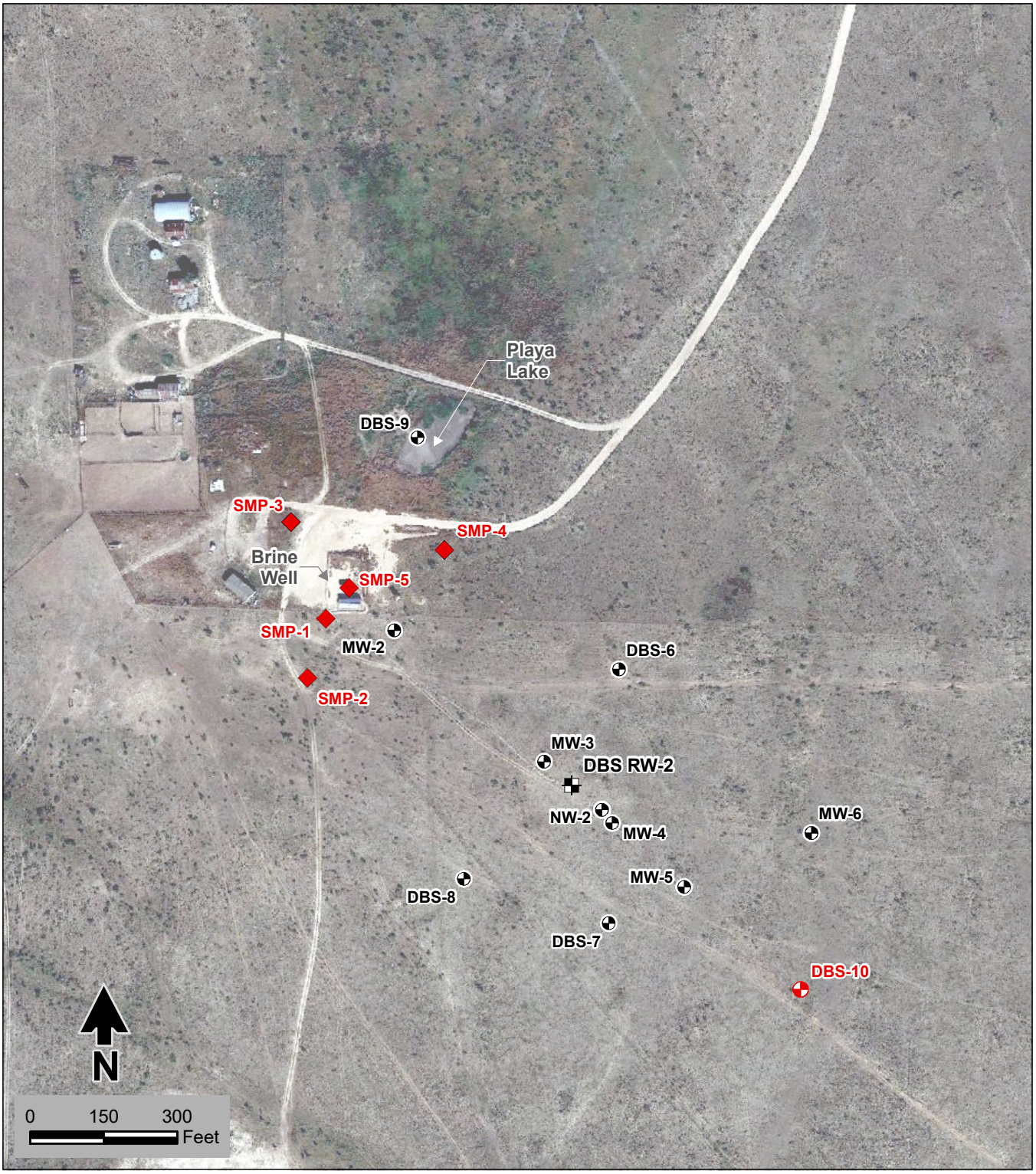
S:\PROJECTS\ES08.0118_SALTY_DOG_2018\GIS\MXD\DP_RENEWAL_BW-08\FIG03_SITE_MONITOR_AND_EXTRACTION_WELL_LOCS.MXD

Daniel B. Stephens & Associates, Inc.
6/24/2018
JN ES08.0118.06

SALTY DOG BRINE STATION

Monitor and Extraction Well Locations

Figure 3



Explanation

- Recovery well
- Monitor well

New facility

- Monitor well
- Survey monument

Source: Google Earth aerial photograph dated November 2017

SALTY DOG BRINE STATION

Playa Lake and Brine Well Area New Facilities

Daniel B. Stephens & Associates, Inc.

6/21/2018

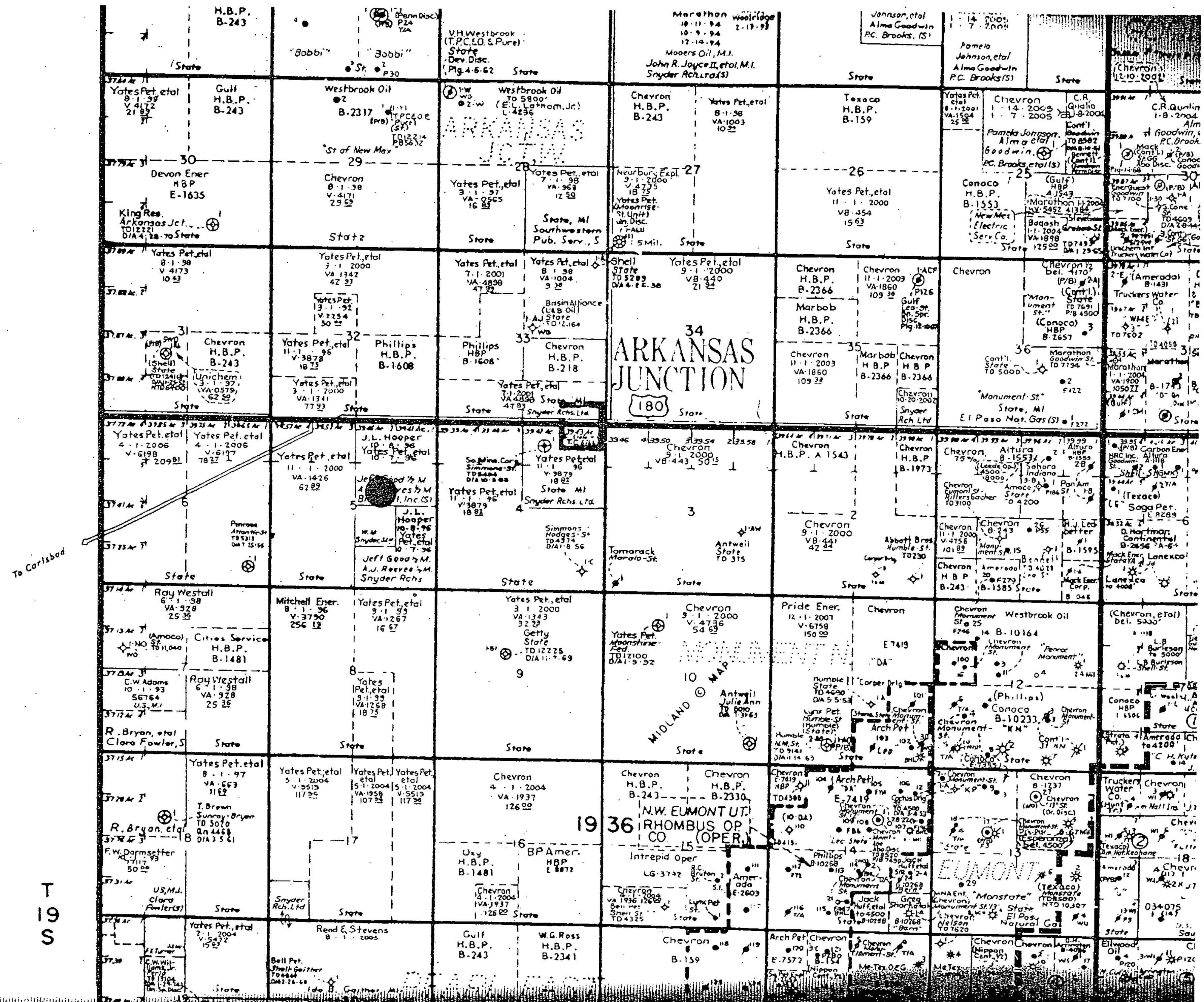
JN ES08.0118.01

Figure 4

S:\Projects\ES08.0118_Salty_Dog_2018\GIS\MXD\DP_Renewal_BW-08\Fig04_Brine_Well_New_Facilities.mxd

Appendix A

Property Ownership Map



ARKANSAS JUNCTION
180
MIDLAND © MAP
To Carlsbad
T 19 S
N.W. EUMONT UT.
RHOMBUS OP CO (OPER.)
EUMONT
Yates Pet., etal
Chevron H.B.P. B-243
Gulf H.B.P. B-243
Westbrook Oil
Devon Ener HBP E-1635
King Res. Arkansas Jct.
Texaco H.B.P. B-159
Conoco H.B.P. B-1553
Marathon
Phillips H.B.P. B-1608
Unichem
Marbob H.B.P. B-2366
J.L. Hooper
Ray Westall
Mitchell Ener.
Cities Service H.B.P. B-1481
Getty State
Pride Ener.
Antweil
Tamarack
Intrepid Oper
Read & Stevens
W.G. Ross H.B.P. B-2341
Gulf H.B.P. B-243
State

Appendix B

2017 Monthly Fresh and Brine Water Report Forms

53769

MONTHLY FRESH & BRINE WATER REPORT

FACILITY/LOCATION SALTY Dog

MONTH/YEAR JAN 2017

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	980	900	100	325	90
2	400	330			190
3	2750	2695			505
4	2375	2335			
5	2350	2346			80
6	1100	1065			
7	900	875			
8	600	560			
9	1000	952			560
10	2900	2885			740
11	2300	2235			335
12	900	924			42
13	1450	1410			285
14	1150	1130			390
15	1500	1485			65
16	1200	1175			435
17	2595	2580			390
18	1625	1605			455
19	1010	1000			280
20	3575	3522			50
21	1325	1350			130
22	1250	1210			
23	2630	2600			120
24	1760	1760			130
25	2250	2210			30 30
26	1490	1470			60
27	2630	2600			
28	2110	2095			
29	3675	3655			
30	1905	1790			80
31	2360	2310			
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 SALAY D09

MONTH/YEAR Feb 2017

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	840	800	100	375	160
2	3720	3610			30
3	1970	1945			
4	2590	2570			
5	2000	1990			
6	700	575			125
7	2075	1910			195
8	3250	3175 ~~1890~~			90
9	720	670			30
10	1010	950			130
11	1120	1000			
12	500	300			
13	~~0~~	130			70
14	2310	2225			55
15	1870	1735			60
16	2120	2040			70
17	1710	1660			230
18	830	795			
19	2999	2890			
20	3795	3680			125
21	1720	1620			275
22	2080	1905 ~~1850~~			
23	1000	850			30
24	2020	1096			50
25	~~800~~	660			
26	210	175			
27	1270	1230			
28	450	370			130
29					
30					
31					
TOTALS					

15,270

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

Date	AMOUNT OF FRESH WATER PUMPED DOWN HOLE BBLS	AMOUNT OF BRINE WATER OUT OF HOLE BRLS SOLD	DAILY TUBING PRESSURES PSI	DAILY CASING PRESSURES PSI	FRESH WATER SOLD
1	850	810	100	325	30
2	480	468			100
3	400	360			90
4	1200	1120			150 ~~105~~
5	2570	2,500			
6	3000	2900			95
7	1070	1030			195
8	3590	3545			210
9 (10710)	2050	2001 ~~2005~~			50 ~~30~~
10	3200	3150			
11	1400	1335			
12	600	530			
13	1290	1245			105
14	600	500			345
15	1050	1010			40
16	1200	1170			170
17	900	815			90
18	1395	1355			520
19	2900	2880			
20	5250	5160			30
21	3120	3085 ~~3100~~			30
22	2390	2345			
23	1695	1630			
24	1400	1350			30
25	230	220			
26	4100	4091			
27	~~0~~	~~0~~			35
28	2401	2360			60
29	4000	3927			50
30	1310	1297			10
31	1530	1490			80
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 APRIL 17

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	680	660	100	375	
2	200	200			
3	2060	2030			30
4	1010	910			
5	2400	2380			340
6	1990	1960			290
7	820	770			170
8	1100	1050			
9	800	720			
10	3170	3103			30
11	1620	1585			280
12	2070	2007			60
13	800	780			250
14	1250	1240			242
15	1160	1120			0
16	1500	1480			0
17	2900	2806			245
18	3300	3260			125
19	2256	2200			165
20	2800	2743			180
21	3220	2691			
22	1930	1900			70
23	1500	1470			
24	2280	2260			830
25	1760	1730			160
26	700	640			
27	1995	1946			230
28	3000	2829			290
29	3000	3020			
30	1160	1040			
31					
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 MAY 2017

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	2300	2150			330
2	1985	1955			350
3	2110	2098			195
4	3000	2975 ~~770~~			250
5	2380	2340			30
6	1250	1210			260
7	600	580			430
8	2040	2000			155
9	700 FROC	15308 680			210
10	960	925			36
11	780	745			65
12	2470	2422			30
13	~~0~~	230			80
14	700	670			
15	1470	1440 ~~420~~ ~~210~~			260
16	26594 4230	4171			405
17	910	860			215 ~~200~~
18	1375	1340			20
19	1680	1620			25
20	1380	1370			
21	910	890			
22	2470	2410			126
23	2365	2347			240
24	1875	1830			540
25	4610	4585			170
26	1595	1556			225
27	~~0~~	435			80
28	1765	1780			
29	700	630 ~~500~~			
30	700	680			285
31	2210	2180			40
TOTALS					

AVE 413

21600 AVG 1,661

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 2017

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	780	756	100	375	500
2	600	556			70
3	470	450			30
4	~~0~~	135			~~0~~
5	1280	1250			50
6	900	875			200
7	1600	1580 ~~470~~			310 ~~25~~
8	710	689			30
9	1580	1510			90
10	600	590			155
11	350	250			110
12	1900	1860			30
13	2150	2134			140
14	820	770			150
15	3640	3595			65
16	1770	1705			75
17	820	710			25
18	1980	1920			
19	3690	3665			350
20	3020	2990 ~~350~~			30
21	3070	2924 ~~350~~			145
22	2810	2750 ~~1900~~			240
23	~~0~~	339			275
24	~~0~~	300			~~0~~
25	1800	1770			~~0~~
26	1280	1265			270
27	1920	1905			235
28	2182	2169			505
29	3150	3125			155
30	1500	1470			230
31					
TOTALS					

29302

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 2017

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	2550	2520	100	375	
2	1900	1880	100	375	
3	2395	2380	100	375	125
4	2105	2084	100	375	130
5	4190	4145	100	375	60
6	2670	2640	100	375	130
7	1950	1930	100	350	30
8	800	778	100	375	
9	1170	1150	100	375	
10	2710	2690	100	375	255
11	2455	2437	100	375	60
12	1860	1820	100	375	60
13	1660	1640	100	350	
14	2690	2669	100	350	105
15	5045	5005	100	360	55
16	2400	2380	100	375	
17	2045	2006	100	375	60
18	1975	1915	100	375	60
19	1280	1259	100	375	80
20	1390	1350	100	375	100
21	1620	1594	100	375	80
22	1380	1350	100	375	
23	1515	1490	100	350	
24	~~4095~~ 4095	4060	100	350	230
25	1165	1135	100	375	120
26	1685	1655	100	375	
27	2800	2775	100	375	140
28	1050	1010	100	375	35
29	1210	1180	100	375	310
30	1050	1010	100	375	50
31	2100	2070	100	375	100
TOTALS		62,145			

H0154

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: August 2017

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	1245	1320	100	375	155
2	4360	4340	100	375	130
3	1320	1310	100	375	
4	1500	1490	100	375	
5	1860	1850	100	375	
6	775	760	100	375	120
7	1840	1825	100	375	280
8	5895	5485	100	375	
9	1720	1705	100	375	190
10	1240	1220	100	375	106
11	1810	1800	100	375	27
12	1950	1940	100	375	120
13	1425	1410	100	375	130
14	1500	1495	100	375	160
15	1100	1090	100	375	520
16	2215	2200	100	375	155
17	2315	2305	100	375	180
18	1775	1760	100	375	
19	~~0~~	100	100	375	190
20	~~0~~	260	100	375	
21	~~0~~	340	100	375	
22	2595	2580	100	375	410
23	1475	1460	100	375	175
24	860	840	100	375	60
25	1180	1160	100	375	
26	1075	1045	100	325	250
27	2150	2120	100	375	
28	2746	2706	100	375	323
29	50916 2910	3000	100	375	491
30	54586 3670	3610	100	375	210
31	3380	3337			
TOTALS		57966			

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 17

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	4520	4505	100	375	
2	3100	3050	100	375	
3	1645	1600	100	375	
4	2000	1970	100	375	100
5	2965	2920	100	375	30
16585 6	2590	2540	100	375	190
7	4275	4254	100	375	280
8	1460	1425	100	375	100
9	2880	2810	100	375	360
27534 10	2495	2460	100	375	130
11	2366	2344	100	375	37
12	3150	3115	100	375	810
13	3340	3312	100	375	280
37660 14	1390	1365	100	375	840
15	3080	3050	100	375	355
16	800	770	100	375	
44090 17	2650	2600	100	375	
18	1790	1745	100	375	700
19	4700	4682	100	375	90
20	2095	2045	100	375	
21	1680	1620	100	375	70
22	3595	3355	100	375	25
23	2870	2800	100	375	130
63867 24	3580	3538	100	375	130
25	2175	2135	100	375	40
26	3350	3303	100	375	162
27	3195	3165	100	375	28
28	2475	2439	100	375	186
29	3720	3790	100	375	30
30	1760	1710	100	375	
31					
TOTALS		80,409			

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 2017

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	620	600	100	375	25
2	2100	2055	100	375	121
3	1375	1335	100	375	200
4	1250	1220	100	375	208
5	2570	2540	100	375	30
6	3200	3170	100	375	285
7	2900	2880	100	375	
8	510	440	100	375	
9	3370	3310	100	375	165
10	1895	1860	100	375	225
11	1360	1320	100	375	190
12	1000	910	100	375	30
13	700	550	100	375	30
14	610	560	100	375	130
15	615	520	100	375	
16	2420	2405	100	375	140
17	1950	1915	100	375	60
18	420	395	100	375	30
19	1760	1730	100	375	30
20	1340	1315	100	375	168
21	2080	2040	100	375	50
22	1530	1500	100	375	
23	2065	2035	100	375	28
24	1700	1656	100	375	650
25	1950	1923	100	375	368
26	2340	2311	100	375	30
27	600	500	100	375	290
28	210	690	100	375	
29	2150	2130	100	375	
30	895	840	100	375	30
31	800	717	100	375	160
TOTALS	46949	47366			

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 2017

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	2500	2450	100	375	290
2	1050	1007	100	375	330
3	830	703	100	375	200
4	560	500	100	375	400
5	690	660	100	375	0
6	1480	1408	100	375	160
7	1210	1152	100	375	570
8	1260	1700	100	375	790
9	1380	1351	100	375	60
10	2200	1930	100	375	90
11	1290	1230	100	375	130
12	500	440	100	375	
13	1970	1930	100	375	250
14	3030	3000	100	375	430
15	1310	1286	100	375	225
16	4000	3720	100	375	120
17	1785	1760	100	375	240
18	1850	1820	100	375	165
19	1295	1780	100	375	40
20	3220	3210	100	375	415
21	2600	2580	100	375	320
22	1245	1230	100	375	
23	2525	2500	100	375	
24	800	780	100	375	
25	1920	1900	100	375	240
26	1040	1010	100	375	
27	1500	1470	100	375	90
28	1170	1155	100	375	320
29	1150	1110	100	375	120
30	2000	1975	100	375	30
31					
TOTALS		48827			

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 December 2017

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	2056	2010	100	325	60
2	2040	2010	100		
3	1360	1340			
4	1000	955			55
5	920	855			285
6	1870	1855			
7	1610	1570			90
8	2620	2590			
9	680	640			
10	200	120			
11	700	611 ~~200~~			230
12	300	210			
13	~~0~~	100			630
14	333	325			
15	~~0~~	110			130
16	~~0~~	~~0~~			
17	~~0~~	~~0~~			80
18	70	60			240
19	~~0~~	~~0~~			290
20	~~0~~	130			30
21	~~0~~	~~0~~			
22	~~0~~	~~0~~			60
23	~~0~~	~~0~~			
24	~~0~~	~~0~~			
25	~~0~~	350			
26	~~0~~	220			
27	~~0~~	260			
28	~~0~~	~~0~~			
29	~~0~~	~~0~~			
30	~~0~~	~~0~~			
31	~~0~~	~~0~~			
TOTALS					

13825

REPAIRS AND/OR EXPENSES

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

Appendix C

Laboratory Analytical Reports for 2017 Semiannual Sampling

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

July 17, 2017

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.: 1706B95

Dear John Ayarbe:

Hall Environmental Analysis Laboratory received 13 sample(s) on 6/21/2017 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 #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1706B95**
Date Reported: **7/17/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc.
Client Sample ID: PMW-1
Project: Salty Dog
Collection Date: 6/20/2017 2:30:00 PM
Lab ID: 1706B95-001 **Matrix:** AQUEOUS **Received Date:** 6/21/2017 4:29:00 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	13000	500	*	mg/L	1E	7/3/2017 7:36:52 PM	R43998

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: 6/20/2017 3:17:00 PM
Lab ID: 1706B95-002
Matrix: AQUEOUS
Received Date: 6/21/2017 4:29:00 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	320	50	*	mg/L	100	6/29/2017 1:02:14 PM	R43888

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: 6/20/2017 3:50:00 PM
Lab ID: 1706B95-003
Matrix: AQUEOUS
Received Date: 6/21/2017 4:29:00 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	59	5.0		mg/L	10	6/29/2017 1:14:38 PM	R43888

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: 6/20/2017 4:15:00 PM
Lab ID: 1706B95-004
Matrix: AQUEOUS
Received Date: 6/21/2017 4:29:00 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	35	5.0		mg/L	10	6/29/2017 1:39:27 PM	R43888

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-5
Project: Salty Dog
Collection Date: 6/20/2017 4:50:00 PM
Lab ID: 1706B95-005
Matrix: AQUEOUS
Received Date: 6/21/2017 4:29:00 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	170	5.0		mg/L	10	6/29/2017 2:04:17 PM	R43888

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:** 6/20/2017 5:15:00 PM
Lab ID: 1706B95-006 **Matrix:** AQUEOUS **Received Date:** 6/21/2017 4:29:00 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	39	5.0		mg/L	10	6/29/2017 2:53:56 PM	R43888

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:** 6/21/2017 7:40:00 AM
Lab ID: 1706B95-007 **Matrix:** AQUEOUS **Received Date:** 6/21/2017 4:29:00 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	200	50		mg/L	100	6/29/2017 3:31:10 PM	R43888

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: 6/21/2017 8:10:00 AM
Lab ID: 1706B95-008
Matrix: AQUEOUS
Received Date: 6/21/2017 4:29:00 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	240	50		mg/L	100	6/29/2017 3:55:59 PM	R43888

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:** 6/21/2017 9:05:00 AM
Lab ID: 1706B95-009 **Matrix:** AQUEOUS **Received Date:** 6/21/2017 4:29:00 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	33	5.0		mg/L	10	6/29/2017 4:08:23 PM	R43888

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: 6/21/2017 10:55:00 AM
Lab ID: 1706B95-010
Matrix: AQUEOUS
Received Date: 6/21/2017 4:29:00 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	10000	500	*	mg/L	1E	7/3/2017 7:49:16 PM	R43998

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: 6/21/2017 10:15:00 AM
Lab ID: 1706B95-011
Matrix: AQUEOUS
Received Date: 6/21/2017 4:29:00 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	870	50	*	mg/L	100	6/29/2017 6:00:04 PM	R43888

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: Injection
Project: Salty Dog
Collection Date: 6/21/2017 11:20:00 AM
Lab ID: 1706B95-012
Matrix: AQUEOUS
Received Date: 6/21/2017 4:29:00 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
SPECIFIC GRAVITY						Analyst: **JRR**	
Specific Gravity	0.9944	0			1	6/28/2017 1:27:00 PM	R43862
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	270	50	*	mg/L	100	6/29/2017 6:24:54 PM	R43888
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	773	20.0	*	mg/L	1	6/25/2017 1:47:00 PM	32462
SM4500-H+B: PH						Analyst: **JRR**	
pH	7.93		H	pH units	1	6/27/2017 1:13:43 PM	R43848

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:** 6/21/2017 11:15:00 AM
Lab ID: 1706B95-013 **Matrix:** AQUEOUS **Received Date:** 6/21/2017 4:29:00 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
SPECIFIC GRAVITY						Analyst: **JRR**	
Specific Gravity	1.200	0			1	6/28/2017 1:27:00 PM	R43862
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	180000	10000	*	mg/L	2E	6/29/2017 6:49:43 PM	R43888
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	324000	2000	*D	mg/L	1	6/25/2017 1:47:00 PM	32462
SM4500-H+B: PH						Analyst: **JRR**	
pH	7.57		H	pH units	1	6/27/2017 1:18:06 PM	R43848
EPA METHOD 200.7: METALS						Analyst: **pmf**	
Sodium	100000	2000		mg/L	2E	7/5/2017 5:41:32 PM	A44011

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1706B95**

17-Jul-17

Client: Daniel B. Stephens & Assoc.

Project: Salty Dog

Sample ID	**MB-A**	SampType:	**MBLK**	TestCode:	**EPA Method 200.7: Metals**					
Client ID:	**PBW**	Batch ID:	**A44011**	RunNo:	**44011**					
Prep Date:		Analysis Date:	**7/5/2017**	SeqNo:	**1387942**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sodium	ND	1.0								

Sample ID	**LCSLL-A**	SampType:	**LCSLL**	TestCode:	**EPA Method 200.7: Metals**					
Client ID:	**BatchQC**	Batch ID:	**A44011**	RunNo:	**44011**					
Prep Date:		Analysis Date:	**7/5/2017**	SeqNo:	**1387943**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sodium	ND	1.0	0.5000	0	98.2	50	150			

Sample ID	**LCS-A**	SampType:	**LCS**	TestCode:	**EPA Method 200.7: Metals**					
Client ID:	**LCSW**	Batch ID:	**A44011**	RunNo:	**44011**					
Prep Date:		Analysis Date:	**7/5/2017**	SeqNo:	**1387944**	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	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#: **1706B95**

17-Jul-17

Client: Daniel B. Stephens & Assoc.

Project: Salty Dog

Sample ID	**MB**	SampType:	**mblk**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBW**	Batch ID:	**R43888**	RunNo:	**43888**					
Prep Date:		Analysis Date:	**6/29/2017**	SeqNo:	**1383528**	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:	**R43888**	RunNo:	**43888**					
Prep Date:		Analysis Date:	**6/29/2017**	SeqNo:	**1383529**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	94.9	90	110			

Sample ID	**MB**	SampType:	**mblk**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBW**	Batch ID:	**R43998**	RunNo:	**43998**					
Prep Date:		Analysis Date:	**7/3/2017**	SeqNo:	**1387038**	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:	**R43998**	RunNo:	**43998**					
Prep Date:		Analysis Date:	**7/3/2017**	SeqNo:	**1387039**	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	95.8	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#: **1706B95**

17-Jul-17

Client: Daniel B. Stephens & Assoc.

Project: Salty Dog

Sample ID	**1706B95-012ADUP**	SampType:	**DUP**	TestCode:	**Specific Gravity**					
Client ID:	**Injection**	Batch ID:	**R43862**	RunNo:	**43862**					
Prep Date:		Analysis Date:	**6/28/2017**	SeqNo:	**1382491**	Units:				

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Gravity	0.9947	0						0.0302	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#: **1706B95**

17-Jul-17

Client: Daniel B. Stephens & Assoc.

Project: Salty Dog

Sample ID	**MB-32462**	SampType:	**MBLK**	TestCode:	**SM2540C MOD: Total Dissolved Solids**					
Client ID:	**PBW**	Batch ID:	**32462**	RunNo:	**43772**					
Prep Date:	**6/23/2017**	Analysis Date:	**6/25/2017**	SeqNo:	**1378753**	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-32462**	SampType:	**LCS**	TestCode:	**SM2540C MOD: Total Dissolved Solids**					
Client ID:	**LCSW**	Batch ID:	**32462**	RunNo:	**43772**					
Prep Date:	**6/23/2017**	Analysis Date:	**6/25/2017**	SeqNo:	**1378754**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	987	20.0	1000	0	98.7	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: 1706B95 | RcptNo: 1

Received By: **Erin Melendrez** 6/21/2017 4:29:00 PM

Completed By: **Erin Melendrez** 6/22/2017 8:33:59 AM

Reviewed By: AJS 6/22/17

Chain of Custody

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

Log In

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

Special Handling (if applicable)

16. 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: _____

17. Additional remarks:

18. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.8	Good	Not Present			

Chain-of-Custody Record

Client: DBS&A

Mailing Address: 6020 Academy RD NE Suite 100

Phone #:

email or Fax#: JAYARBE@DBSTEPHENS.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:
On Ice: ☒ Yes ☐ No
Sample Temperature: 2.3

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. 1706B95	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)	Chloride	TDS, specgravity, pH	Na Sodium		Air Bubbles (Y or N)
6.20.17	1430	GW	PMW-1	1 Poly	none	-001								✓								
6.20.17	1517		~~PMT~~ DBS-1R			-002								✓								
6.20.17	1550		DBS-2			-003								✓								
6.20.17	1615		DBS-4			-004								✓								
6.20.17	1650		DBS-5			-005								✓								
6.20.17	1715		DBS-3			-006								✓								
6.21.17	0740		DBS-9			-007								✓								
6.21.17	0810		DBS-6			-008								✓								
6.21.17	0905		DBS-8			-009								✓								
6.21.17	1055		MW-3			-010								✓								
6.21.17	1015		MW-5			-011								✓								
6.21.17	1120		INJECTION			-012								✓					✓			
6.21.17	1115		BRINE	2 Poly	None/HNO3	-013								✓					✓	✓		

Date:	Time:	Relinquished by:	Received by:	Date	Time
6.21.17	1629			6/21/17	1629
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

March 01, 2018

John Ayarbe

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

RE: Salty Dog OrderNo.: 1802942

Dear John Ayarbe:

Hall Environmental Analysis Laboratory received 1 sample(s) on 2/16/2018 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 #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **1802942**
Date Reported: **3/1/2018**

CLIENT: Daniel B. Stephens & Assoc.
Client Sample ID: Brine
Project: Salty Dog
Collection Date: 2/15/2018 1:00:00 PM
Lab ID: 1802942-001 **Matrix:** AQUEOUS **Received Date:** 2/16/2018 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
SPECIFIC GRAVITY						Analyst: **JRR**	
Specific Gravity	1.185	0			1	2/20/2018 12:44:00 PM	R49250
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	309000	2000	*D	mg/L	1	2/21/2018 7:01:00 PM	36630
SM4500-H+B: PH						Analyst: **JRR**	
pH	7.16		H	pH units	1	2/19/2018 11:44:03 AM	R49228
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **MED**	
Sodium	59000	1000		mg/L	1E	2/23/2018 10:50:04 AM	36576

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#: **1802942**

02-Mar-18

Client: Daniel B. Stephens & Assoc.

Project: Salty Dog

Sample ID	**MB-36576**	SampType:	**MBLK**	TestCode:	**EPA 6010B: Total Recoverable Metals**				
Client ID:	**PBW**	Batch ID:	**36576**	RunNo:	**49241**				
Prep Date:	**2/16/2018**	Analysis Date:	**2/20/2018**	SeqNo:	**1588828**	Units:	**mg/L**		

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

Sample ID	**LCS-36576**	SampType:	**LCS**	TestCode:	**EPA 6010B: Total Recoverable Metals**				
Client ID:	**LCSW**	Batch ID:	**36576**	RunNo:	**49241**				
Prep Date:	**2/16/2018**	Analysis Date:	**2/20/2018**	SeqNo:	**1588829**	Units:	**mg/L**		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sodium	46	1.0	50.00	0	92.6	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#: **1802942**

02-Mar-18

Client: Daniel B. Stephens & Assoc.

Project: Salty Dog

Sample ID	**1802942-001ADUP**	SampType:	**DUP**	TestCode:	**Specific Gravity**					
Client ID:	**Brine**	Batch ID:	**R49250**	RunNo:	**49250**					
Prep Date:		Analysis Date:	**2/20/2018**	SeqNo:	**1588971**	Units:				

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Gravity	1.183	0						0.118	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#: **1802942**

02-Mar-18

Client: Daniel B. Stephens & Assoc.

Project: Salty Dog

Sample ID	**MB-36630**	SampType:	**MBLK**	TestCode:	**SM2540C MOD: Total Dissolved Solids**					
Client ID:	**PBW**	Batch ID:	**36630**	RunNo:	**49297**					
Prep Date:	**2/20/2018**	Analysis Date:	**2/21/2018**	SeqNo:	**1590748**	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-36630**	SampType:	**LCS**	TestCode:	**SM2540C MOD: Total Dissolved Solids**					
Client ID:	**LCSW**	Batch ID:	**36630**	RunNo:	**49297**					
Prep Date:	**2/20/2018**	Analysis Date:	**2/21/2018**	SeqNo:	**1590749**	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: 1802942 | RcptNo: 1

Received By: **Sophia Campuzano** 2/16/2018 9:30:00 AM

Completed By: **Erin Melendrez** 2/16/2018 11:23:26 AM

Reviewed By: SKC 02/16/18

Labeled: MW 2/16/18

Chain of Custody

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

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 ☐	# of preserved bottles checked for pH: 3 (<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: AC

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	1.0	Good	Yes			

Chain-of-Custody Record

Client: DBSA

Mailing Address: Albuquerque N.M. 87109
6020 Academy Road NE Suite 100

Phone #: 505-822-9400

email or Fax#:

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

Accreditation
☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:
☐ Standard ☐ Rush _____

Project Name:
SALTY Dog

Project #:
ES0804118.16

Project Manager:
JPyARK@dbstephens.com

Sampler:

On Ice: ☒ Yes ☐ No

Sample Temperature: 1.6

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.	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)
15 per John		see 02/16/18				1802942																
2-16-18	1 PM	W	BS/NP	2 PLASTIC	Nitric Acid	-001																
							TDS				SPECIFIC GRAVITY											
							PH & METALS															
							SODIUM						NA									

Date:	Time:	Relinquished by:	Received by:	Date	Time	Remarks:
2-16-18	1600	JIM SAYRE		2/15/18	1600	
2/15/18	1900		Courier	02/16/18	0930	

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

January 11, 2018

John Ayarbe

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

RE: Salty Dog OrderNo.: 1712D25

Dear John Ayarbe:

Hall Environmental Analysis Laboratory received 12 sample(s) on 12/21/2017 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 #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1712D25**
Date Reported: **1/11/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc.
Client Sample ID: DBS-6
Project: Salty Dog
Collection Date: 12/19/2017 2:15:00 PM
Lab ID: 1712D25-001 **Matrix:** AQUEOUS **Received Date:** 12/21/2017 10:18:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	200	50		mg/L	100	12/29/2017 11:06:16 PM	R48148

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:** 12/19/2017 3:10:00 PM
Lab ID: 1712D25-002 **Matrix:** AQUEOUS **Received Date:** 12/21/2017 10:18:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	28	5.0		mg/L	10	12/29/2017 11:18:40 PM	R48148

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:** 12/19/2017 3:45:00 PM
Lab ID: 1712D25-003 **Matrix:** AQUEOUS **Received Date:** 12/21/2017 10:18:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	850	50	*	mg/L	100	12/29/2017 11:55:54 PM	R48148

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:** Injection
Project: Salty Dog **Collection Date:** 12/19/2017 4:35:00 PM
Lab ID: 1712D25-004 **Matrix:** AQUEOUS **Received Date:** 12/21/2017 10:18:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
SPECIFIC GRAVITY						Analyst: **JRR**	
Specific Gravity	1.000	0			1	12/27/2017 2:04:00 PM	R48036
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	270	50	*	mg/L	100	12/30/2017 12:20:44 AM	R48148
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	776	40.0	*D	mg/L	1	12/27/2017 6:16:00 PM	35709
SM4500-H+B: PH						Analyst: **JRR**	
pH	7.59		H	pH units	1	12/27/2017 12:16:12 PM	R48063

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:** 12/20/2017 9:00:00 AM
Lab ID: 1712D25-005 **Matrix:** AQUEOUS **Received Date:** 12/21/2017 10:18:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	8300	500	*	mg/L	1E	1/6/2018 11:36:49 PM	R48275

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: DBS-9
Project: Salty Dog
Collection Date: 12/20/2017 9:35:00 AM
Lab ID: 1712D25-006
Matrix: AQUEOUS
Received Date: 12/21/2017 10:18:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	230	50		mg/L	100	12/30/2017 2:24:50 AM	A48148

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: 12/20/2017 10:00:00 AM
Lab ID: 1712D25-007
Matrix: AQUEOUS
Received Date: 12/21/2017 10:18:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	32	5.0		mg/L	10	12/30/2017 2:37:15 AM	A48148

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: 12/20/2017 10:35:00 AM
Lab ID: 1712D25-008
Matrix: AQUEOUS
Received Date: 12/21/2017 10:18:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	37	5.0		mg/L	10	12/30/2017 3:26:54 AM	A48148

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-5
Project: Salty Dog
Collection Date: 12/20/2017 10:50:00 AM
Lab ID: 1712D25-009
Matrix: AQUEOUS
Received Date: 12/21/2017 10:18:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	170	5.0		mg/L	10	12/30/2017 3:51:44 AM	A48148

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:** 12/20/2017 11:05:00 AM
Lab ID: 1712D25-010 **Matrix:** AQUEOUS **Received Date:** 12/21/2017 10:18:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	42	5.0		mg/L	10	12/30/2017 4:16:33 AM	A48148

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: 12/20/2017 11:40:00 AM
Lab ID: 1712D25-011
Matrix: AQUEOUS
Received Date: 12/21/2017 10:18:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	190	50		mg/L	100	12/30/2017 4:53:47 AM	A48148

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:** 12/20/2017 12:10:00 PM
Lab ID: 1712D25-012 **Matrix:** AQUEOUS **Received Date:** 12/21/2017 10:18:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	12000	500	*	mg/L	1E	12/30/2017 5:18:36 AM	A48148

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#: **1712D25**

11-Jan-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:	**R48148**	RunNo:	**48148**					
Prep Date:		Analysis Date:	**12/29/2017**	SeqNo:	**1544631**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Sample ID	**LCS-b**	SampType:	**lcs**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSW**	Batch ID:	**R48148**	RunNo:	**48148**					
Prep Date:		Analysis Date:	**12/29/2017**	SeqNo:	**1544634**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	92.4	90	110			

Sample ID	**MB**	SampType:	**mblk**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBW**	Batch ID:	**A48148**	RunNo:	**48148**					
Prep Date:		Analysis Date:	**12/30/2017**	SeqNo:	**1544693**	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:	**A48148**	RunNo:	**48148**					
Prep Date:		Analysis Date:	**12/30/2017**	SeqNo:	**1544694**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	91.7	90	110			

Sample ID	**MB**	SampType:	**mblk**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBW**	Batch ID:	**R48275**	RunNo:	**48275**					
Prep Date:		Analysis Date:	**1/6/2018**	SeqNo:	**1550433**	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:	**R48275**	RunNo:	**48275**					
Prep Date:		Analysis Date:	**1/6/2018**	SeqNo:	**1550434**	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	97.9	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#: **1712D25**

11-Jan-18

Client: Daniel B. Stephens & Assoc.

Project: Salty Dog

Sample ID	**1712D25-004ADUP**	SampType:	**DUP**	TestCode:	**Specific Gravity**					
Client ID:	**Injection**	Batch ID:	**R48036**	RunNo:	**48036**					
Prep Date:		Analysis Date:	**12/27/2017**	SeqNo:	**1539533**	Units:				

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Gravity	0.9988	0						0.170	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#: **1712D25**

11-Jan-18

Client: Daniel B. Stephens & Assoc.

Project: Salty Dog

Sample ID	**MB-35709**	SampType:	**MBLK**	TestCode:	**SM2540C MOD: Total Dissolved Solids**					
Client ID:	**PBW**	Batch ID:	**35709**	RunNo:	**48046**					
Prep Date:	**12/26/2017**	Analysis Date:	**12/27/2017**	SeqNo:	**1539713**	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-35709**	SampType:	**LCS**	TestCode:	**SM2540C MOD: Total Dissolved Solids**					
Client ID:	**LCSW**	Batch ID:	**35709**	RunNo:	**48046**					
Prep Date:	**12/26/2017**	Analysis Date:	**12/27/2017**	SeqNo:	**1539714**	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: 1712D25 | RcptNo: 1

Received By: Sophia Campuzano 12/21/2017 10:16:00 AM

Completed By: Dennis Suazo 12/21/2017 2:27:14 PM

Reviewed By: SRC 12/21/17

Chain of Custody

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

Log In

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

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

Adjusted? _____

Checked by: _____

Special Handling (if applicable)

16. 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: _____

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	5.7	Good	Not Present			

Chain-of-Custody Record

Client: DBSA

Mailing Address: 6020 Academy RD NE Suite 100

Phone #: 505-822-9400

email or Fax#: JAYARBE@DBSTEPHENS.COM

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

Accreditation
☐ NELAP ☐ Other

☐ EDD (Type)

Turn-Around Time:
☒ Standard ☐ Rush

Project Name: SALTY DOG

Project #: ES08-0118.16

Project Manager: J. Ayarbe

Sampler: M. Zbrozek

On Ice: ☒ Yes ☐ No

Sample Temperature: 5.7

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. 1712D25	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)	TDS, Specgrav, pH				Air Bubbles (Y or N)
12.19.17	1415	GW	DBS-6	1 poly		001								X								
	1510		DBS-8			002								X								
	1545		MW-5			003								X								
	1635		Injection			004								X				X				
12.20.17	0900		MW-3			005								X								
	0935		DBS-9			006								X								
	1000		DBS-4			007								X								
	1035		DBS-2			008								X								
	1050		DBS-5			009								X								
	1105		DBS-3			010								X								
	1140		DBS-1R			011								X								
	1210		PMW-1			012								X								

Date:	Time:	Relinquished by:	Received by:	Date	Time
12/21/17	1019			12/21/17	1018
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.

Appendix D

Mechanical Integrity Test Record


NOON
1
2
3
4
5
6 PM
7
8
9
10
11
6 AM
Graphic Controls LLC
CHART NO. MC MP-1000
METER
CHART PUT ON
TAKEN OFF
LOCATION
REMARKS
2-9-18
Start 7:30 am
End 10:01 pm
Brine Well Test
Smoky Dog Inc.
Brine Supply Well #1
30-025- 26307-00-00
J 5-19s-36E
Cal date 1-31-18
Ser.# 15698
1000#
12 Hour
Gary Robinson -OCD
Inv. My Standard
PRINTED IN U.S.A.

American Valve & Meter, Inc.

1113 W. BROADWAY

P.O. BOX 166 HOBBS,
NM 88240

To:Rental DATE:01/31/18

This is to certify that:

I, RLLarmon ,Technician for American Valve & Meter Inc. has checked the calibration of the following instrument. These points

12 "_Pressure recorder Ser#15698

Pressure #			* Pressure #		
Test	Found	Left	Test	Found	Left
- 0	-	- 0	-	-	-
- 500	- S	- 500	-	-	-
- 700	- A	- 700	-	-	-
- 1000	- M	- 1000	-	-	-
- 200	- E	- 200	-	-	-
- 0	-	- 0	-	-	-

Remarks:_____

_____

_____

Signature: _____

Submit 1 Copy To Appropriate District Office
District I – (575) 393-6161
1625 N. French Dr., Hobbs, NM 88240
District II – (575) 748-1283
811 S. First St., Artesia, NM 88210
District III – (505) 334-6178
1000 Rio Brazos Rd., Aztec, NM 87410
District IV – (505) 476-3460
1220 S. St. Francis Dr., Santa Fe, NM 87505

HOBBS OCD
DEC 18 2017
RECEIVED

State of New Mexico
Energy, Minerals and Natural Resources

OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-103
Revised August 1, 2011

WELL API NO. 30-025-26307
5. Indicate Type of Lease STATE ☐ FEE ☑
6. State Oil & Gas Lease No. 25087

SUNDRY NOTICES AND REPORTS ON WELLS
(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)

7. Lease Name or Unit Agreement Name: Brine Supply Well
1. Type of Well: Oil Well ☐ Gas Well ☑ Other Brine Well
8. Well Number 001
2. Name of Operator: Salty Dog Inc
9. OGRID Number 184208
3. Address of Operator: PO Box 190 Lubbock Tx 79408
10. Pool name or Wildcat: BSW & Salado
4. Well Location
Unit Letter J : 1980 feet from the South line and 1980 feet from the East line
Section 5 Township 19S Range 36E NMPM County Lea
11. Elevation (Show whether DR, RKB, RT, GR, etc.)

12. Check Appropriate Box to Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
PERFORM REMEDIAL WORK	☑	PLUG AND ABANDON	☐	REMEDIAL WORK	☐	ALTERING CASING	☐
TEMPORARILY ABANDON	☐	CHANGE PLANS	☐	COMMENCE DRILLING OPNS.	☐	P AND A	☐
PULL OR ALTER CASING	☐	MULTIPLE COMPL	☐	CASING/CEMENT JOB	☐		
DOWNHOLE COMMINGLE	☐						
OTHER:	☐			OTHER:	☐		

13. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). SEE RULE 19.15.7.14 NMAC. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

Rig up pulling unit swab well to find salt plug

Spud Date: 12-18-17 Rig Release Date:

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNATURE JM Sayre TITLE Manager DATE 12-18-17

Type or print name Jim Sayre E-mail address: jim@thestandardenergy.com PHONE: 575-393-8352

For State Use Only

APPROVED BY: Mary Brown TITLE AO/II DATE 12-18-2017

Conditions of Approval (if any):

Submit 1 Copy To Appropriate District Office
District I – (575) 393-6161
1625 N. French Dr., Hobbs, NM 88240
District II – (575) 748-1283
811 S. First St., Artesia, NM 88210
District III – (505) 334-6178
1000 Rio Brazos Rd., Aztec, NM 87410
District IV – (505) 476-3460
1220 S. St. Francis Dr., Santa Fe, NM 87505

HOBBS OCD
JAN 08 2018
RECEIVED

State of New Mexico
Energy, Minerals and Natural Resources

OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-103
Revised August 1, 2011

WELL API NO. 30-025-26307
5. Indicate Type of Lease STATE ☐ FEE ☑
6. State Oil & Gas Lease No. 25087

SUNDRY NOTICES AND REPORTS ON WELLS
(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)

7. Lease Name or Unit Agreement Name: Brine Supply Well
1. Type of Well: Oil Well ☐ Gas Well ☑ Other Brine Well
8. Well Number 01
2. Name of Operator PAB Services DBA Salty Dog Inc
9. OGRID Number 184208
3. Address of Operator PO Box 190 Lubbock Texas 79408
10. Pool name or Wildcat BSW + Salado
4. Well Location
Unit Letter J : 1980 feet from the South line and 1980 feet from the East line
Section 5 Township 19S Range 36E NMPM Lea County
11. Elevation *(Show whether DR, RKB, RT, GR, etc.)*

12. Check Appropriate Box to Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
PERFORM REMEDIAL WORK	☑	PLUG AND ABANDON	☐	REMEDIAL WORK	☐	ALTERING CASING	☐
TEMPORARILY ABANDON	☐	CHANGE PLANS	☐	COMMENCE DRILLING OPNS.	☐	P AND A	☐
PULL OR ALTER CASING	☐	MULTIPLE COMPL	☐	CASING/CEMENT JOB	☐		
DOWNHOLE COMMINGLE	☐						
OTHER:	☐			OTHER:	☐		

13. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). SEE RULE 19.15.7.14 NMAC. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

Rig up pulling Unit
Pull tubing
Replace Damaged Tubing
go back into Hole

C.O.A. – CHART TEST –
RUN PKR 1800'+/-. TEST CASING TO 300#+ FOR 30 mins.
OR DO CAVERN TEST OF 300#+ FOR 4 Hours.

Condition of Approval: notify OCD Hobbs office 24 hours prior of running MIT Test & Chart

Spud Date: 1-9-18
Rig Release Date:

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNATURE [signature] TITLE MANAGER DATE 1-8-18
Type or print name Jim Sayre E-mail address: jim@thestandardenergy.com PHONE: 575-393-8352

For State Use Only

APPROVED BY: **Accepted for Record Only** DATE
Conditions of Approval (if any):
[signature] 1/8/2018

816 West County Road
Hobbs, NM 88240
Office – 575-393-8352
Fax – 575-393-8353

Feb. 27, 2018

To Mike Zbrocek

SALTY DOG BRINE

Jim Sayre

Patsy Hunt
Billing clerk
patsy@thestandardenergy.com

Standard Energy Services

Salty Dog Brine Station

Lea County, NM

Prod. Csg.: 5-1/2" liner (1999) to 1829'. 8-5/8" csg. surf-1877'.

Prod. Tbg.: 3000' (chem-cut bottom 3 DC's---EOT approx. 2910')

Bottom Salt: 2900' +/-

12/26/17 07:45 Arrive on location. SICP=400#. Open well to brine tanks to bleed pressure.

09:45 Met w/ Jim Sayers-Standard Supt. Discussed workover plan. Drove to Standard yard-Hobbs. Found 12 jts. additional 2-7/8" PH-6 production tbg.

Daily Cost:

Supervision:	(1 x $1000)	$1000
Daily Cost		$1,000
Cum Cost		$1,000

12/27-1/8 Continue to flow well down to bleed pressure.

Daily Cost:	$0
Total Cost	$1,000

1/9/18

10:30-11:30 MIRU Standard Energy Services well service rig.

11:30-13:30 MIRU Rotary Wireline for chemical cut on 2-7/8" prod. tbg. Open up well, casing flowing.

BHA: 2-1/8" jet cutter, 1' shock sub, 18" CCL, 7' wt. bar (1-7/16"), 1' rope socket

Zero at GL. RIH. Tagged up at 1036' (little sticky). Latch elevators and pull 20K into tbg., tagged at 1036'. Pulled 70K into tbg, tagged at 1036'. POOH LD 2-1/8" jet cutter. PU 1-7/8" jet cutter, RIH. No tag or weight loss at 1036'. Tagged up at 1870' (collars at 1863', 1832').

Note: Previous Rotary wireline report from before Christmas showed tag at 1900' with 1-9/16" perf gun.

Pulled 70K into tbg., tagged at 1891'. Slacked off to 35K (15K over string wt.). Made jet cut at 1888'. Tbg. started flowing. POOH RD Rotary Wireline. Pulled 70K into tbg., no part. Slack off. Pulled 35K into tbg., parted.

13:30-15:15	WO slip-type elevators. LD 8' tbg. sub & 2-7/8" EUE x PH-6 XO. Confirmed PH-6 box looking up. POOH standing back: 16 stds. 2-7/8" PH-6 XO (PH-6 box s 2-7/8" AOH pin) 12 stds. 2-7/8" PH-6 1 jt. 2-7/8" cutoff (28.00')
16:15-18:00	RBIH 1 std. tbg. & valve. SI well. Tally 15 stands PH-6. Spot drill collar trailer outside firewall to winch line in. Fuel rig.
18:00-19:45	PU 4-3/4" bit, bit sub & 3 x 3-1/2" DC's (Total BHA=93.26'). RIH w/ 6 stds PH-6. SI well due to firewall being full.
19:45-21:30	Continue to vacuum water inside firewall. Unload separate reverse pit from Hobbs.
21:30-22:00	Continue RIH w/ remaining 11 stds. PH-6. SI BOP. SI top tbg. valve.
22:00-22:30	RU reverse pit to pump. Release rig crew.

Daily Costs:

Supervision	$1800
Pulling Unit: 8:00 am-12:00 am; 16 hrs.	$4800
Reverse Pit delivery	$1000
Reverse Pit rental	$1000
Reverse Unit Swivel	$N/C
Reverse Unit Pump	$N/C
Reverse Unit Operator: (2 x $900)	$1800
Reverse Unit Operator Mileage: (2 x $200)	$400
Downhole tools- Purchase:	
Bit	$500
Bit sub	$1200
XO	$1200
3 x 3-1/2" Drill Collars ($900/ea)	$2700
Rental Tools: Drill Collar Lift Subs	$50

Workstring, 65 jts. 2-7/8" PH-6: $6.00/ft * 2022.15'	$12,133
Tbg. delivery	$1000
Light Plant delivery	$250
Light plant rental	$200
Total Cost:	$30,033
Cum Cost:	$31,033

1/10/17

06:00-09:45	Firewall water levels pumped down. Rig crew and Yellowjacket fisherman arrived on location. WO forklift and pipe racks.
09:45-11:00	Break out firewall. Set piperacks. Move 65 jts. 2-7/8" 8.70 PH-6 yellow-band inspected pipe from Saguaro Petroleum inventory onto racks. Tally 65 jts. Push back up firewall. Spot vacuum truck.
11:00-12:50	PU 24 jts. 2-7/8" PH-6. RIH. Tagged up on jt. #25 20' in at 1896'. PU 1 jt. NU BIW stripper on top of BOP. PU swivel. RU floor.
12:50-16:40	Drill last 11' of jt. #25 tag joint to 1907'. 2K WOB. Jumping and torqueing on bottom, sticky on pick-ups.
16:40-05:45	Make connection. Drill f/ 1907'-1937'. Top 20' of Kelly drilled fairly quickly, bottom 10' much slower. While drilling at 1827' (slowest drilling), worked pipe to try to make hole. Lost 6' hole. Had to rotate ¼ turns to regain made hole.
05:45-6:00	Make connection. Drill f/ 1937'-1938'.

Daily Costs:

Supervision	$1800
Pulling Unit: 06:00 1/10- 06:00 1/11, (24 hrs.)	$7200
Reverse Pit rental	$500
Reverse Unit Swivel	$3000
Reverse Unit Pump	$2600
Reverse Unit Operator: (2 x $900)	$1800
Reverse Unit Mileage: (2 x $200)	$400
Rental Tools: BIW stripper, BOP	$300

Light plant rental	$200
Pipe rack delivery	$500
Pipe rack rental	$100
Backhoe	$320
Total Cost:	$18,630
Cum Cost:	$49,663

1/11/17

06:00-10:50 Cont. Drlg. 1938'-1964.

10:50-17:20 Make connection. Drill f/ 1964'-2000'.

Str. Wt.=15k, PU Wt.=16K-17K, Slackoff Wt.=11K-12K.

17:20-06:00 Make connection, (Jt. #29). Drill f/ 2000'-2417' (Jt. # 42 half-way down), made 417' in 24 hrs. Drilling improved on Jts. #30-#36. Jts. #37-#38 slid in hole with rotation. Jt. #39 drilled much slower than previous jts., bottom of Jt. #39 drilled with a lot of torque until last 3'—free fall. Flow from well has decreased significantly and went to zero for a short time before regaining.

Daily Costs:

Supervision	$1800
Pulling Unit: 06:00 1/11- 06:00 1/12, (24 hrs.)	$7200
Reverse Pit rental	$0
Reverse Unit Swivel	$3000
Reverse Unit Pump	$2600
Reverse Unit Operator: (2 x $900)	$1800
Reverse Unit Mileage: (2 x $200)	$400
Rental Tools: BIW stripper, BOP	$300
Light plant rental	$170
Trash Trailer/Porta-Potty	$195
Trash Trailer Delivery	$200

Pipe rack rental	$100
Total Cost:	$17,765
Cum Cost:	$67,428

1/12/17

06:00-06:35 Drill f/ 2417'-2464' (Jt. #43). Last 10' of Jt. #43 stalled out swivel w/ only 2 points on bit. Able to slide ahead with full returns. Attempt to work pipe 10' up and down to work out torque, no success.

06:35-07:00 PUH 50' to 2414' and regained rotation with some torque.

07:00-09:50 Attempt to rotate/drill back to bottom w/ 2 points on bit, gained all torque back in 10'. Stopped rotation. Slid back to original TD with full returns.

09:50-11:00 Continue sliding in hole w/ full circulation to 2810' (Jt. #54).

Hanging wt= 15K Slackoff wt= 11K-13K

11:00-13:00 Circulate well 15 mins. RU Sandline for no-go run. PU 1-3/4" mandrel 1-1/4" sinker bar, 1-9/16" spang jars, and lift sub (22' BHA). RIH & tag top of DC's at 2717'. POOH. No lost weight GIH and no gained wt. POOH.

13:00-14:45 WO Phoenix Technology Services for inclination/azimuth survey.

14:45-17:45 RU PTS. RIH w/ 1'3/4" OD x 18' centralized survey tool. Tagged up at 2120' (Jt. #32 from workstring tally)

Depth	Inclination	Azimuth	DLS
1800'	1.61°	267°	0
1900'	1.75°	62°	3.2
2000'	2.69°	251°	4.4
2100	5.7°	323°	5.7

POOH w/ survey tool. Break out both 2' centralizer subs on top and bottom of tool assembly. RIH. Tool tagged at same 2120'. POOH. RD wireline.

17:45-18:15 Make up new swabbing assembly.

18:15-21:00 RU floor and LD 12 stds. of original 2-7/8" AOH prod. tbg.

21:00-23:00 RU for swab for brine quality test at current 2810' SLM TD.

2-7/8" swab cups would not fit in 8.70# pipe. PU 2-3/8" cups. 1st Run dry. 2nd run fluid sample from end of swab run weighed 9.9# but had lots of iron from swab line and contaminated the sample and didn't appear to have sufficient chlorides. Parted sandline on 3rd run at approx. 1500'. Secure tbg. end of sandline to blocks. Left tbg. open. Shut in csg. SDON.

Daily Costs:

Supervision	$1800
Pulling Unit: 06:00 1/12- 24:00 1/12, (18 hrs.)	$5400
Reverse Pit rental	$0
Reverse Unit Swivel	$3000
Reverse Unit Pump	$2600
Reverse Unit Operator: (2 x $900)	$1800
Reverse Unit Mileage: (2 x $200)	$400
Rental Tools: BIW stripper, BOP	$300
Light plant rental	$170
Trash Trailer/Porta-Potty	$65
Pipe rack rental	$100
Total Cost:	$15,635
Cum Cost:	$83,063

1/13/17

06:00-11:00	Daylight crew arrived on location. WO daylight. Pull sandline out of 2-7/8" tbg. Pull 3500'+ sandline off of drum—no good. Can't get cable spooler until Monday. Decided to move ahead with replacing Larkin tbg. head.
11:00-11:30	Break for lunch.
11:30-13:30	Prepare floor and RU to run 5-1/2" pkr. into top joint of 5-1/2" csg. to isolate flow to be able to cut off old 5-1/2" Larkin 2K tbg. head and weld on new bell nipple and tbg. head. Strip BOP & tbg. slips over top jt. tbg.
13:30-17:15	PU 32-A tension pkr. on new jt. 2-7/8" PH-6. Screw into top jt. of PH-6 workstring. RIH 15' & set pkr. Stopped flow from csg. Terry Abernathy-Welder arrived on location. Clean/grind areas around bottom of tubing head. Discovered that female wellhead was not made up on to top of 5-1/2" bell

nipple pin but straight onto 5-1/2" csg. pin looking up and not welded up. Backed off existing Larkin 2K female tbg. head. Cleaned threads. Found that top 1-2 threads were corroded on 5-1/2" csg. pin. Screw on new WSI 2K female Larkin head onto Teflon and thread sealant 5-1/2" csg. pin. Screw on adapter flange onto bowl of tbg. head. NU BOP. Release 32-A pkr. POOH LD pkr. & XO's. SI pipe rams. Stab tbg. valve and close. Clean up tools.

Shut down until Monday afternoon to spool new sandline onto drum.

Daily Costs:

Supervision	$1200
Pulling Unit: 06:00 - 17:15 (11-1/4 hrs)	$3375
Reverse Pit rental	$0
Reverse Unit Swivel	$0
Reverse Unit Pump	$
Reverse Unit Operator: (1 x $900)	$900
Reverse Unit Mileage: (2 x $200)	$0
Rental Tools: BIW stripper, BOP	$300
Light plant rental	$170
Trash Trailer/Porta-Potty	$65
Pipe rack rental	$100
Welder	$500
Tbg. Head: 5-1/2" x 2-7/8"	$900
Rental Pkr. & XO's	$800
Packer Man & Mileage	$1000
Wireline: Tbg. Cut (Service Charge)	$1000
Total Cost:	$10,310
Cum Cost:	$93,373

1/14/17 Day off.

1/15/17

12:00-14:00	Horizon re-spooled 8000' sandline onto drum.
14:00-16:00	Made 8 swab runs approximately of approx. 9.9# brine, black water. SDON.

Daily Costs:

Supervision	$0
Pulling Unit: 12:00 – 19:00, (7 hrs)	$2100
Reverse Pit rental	$0
Reverse Unit Swivel (released on 1/14)	$0
Reverse Unit Pump (released on 1/14)	$0
Reverse Unit Operator: (released on 1/14)	$0
Reverse Unit Mileage:	$0
Rental Tools: BIW stripper, BOP	$100
Light plant rental	$170
Trash Trailer/Porta-Potty	$65
Pipe rack rental	$100
Total Cost:	$2,535
Cum Cost:	$95,908

1/16/17

07:30	Arrived on location.
07:30-13:15	Made 18 swab runs. Water still black until 10th run and started clearing up. ChemTech chemical man said that black coloration was not iron or biologicals. Water clarifier clear up sample and dropped out very fine tan-colored sand. Last 4 run samples weighed 10.15#.
13:15-13:30	Call into and decision from Peter to proceed ahead with shooting off pipe to complete well.
13:45-15:15	MIRU Rotary Wireline. PU 2-1/16" tbg. cutter. RIH to cut off collars at approx.. 2720'. Tagged up at 2145'. Worked to 2180' with no further progress. POOH. LD 2-1/16" cutter and PU 1-7/8" cutter. RIH. Tagged up at 2175'.
15:15-16:15	WO hot oiler to help pump cutter further down.

16:15-16:30 RU hot oiler. Pressure up to 500# on tbg. No further additional hole made on 1-7/8" tbg. cutter. POOH w/ cutter. RD hot oiler and release. Decided to skip cutting tubing and attempt to perforate tbg.

16:30-17:00 PU 1-9/16" OD x 3', (4spf, 8 holes) tbg. perforating gun. RIH. Tagged up at 2135'. POOH.

17:00-17:30 Remove wireline sheave from rig blocks and hand from derrick. PU 1-7/16" rope socket and CCL (2' 2" overall BHA). RIH. Tagged up at 2138'. Latched elevators on tbg. & PU 10'. Worked wireline tools to 2136' (made 8' hole). PU additional 10'. Worked wireline tools to 2141' (made 15' hole). Pulled full joint into derrick. Worked wireline tools to 2140'. POOH.

17:30-19:30 POOH standing back 2 stands 2-7/8" tbg. RU wireline. RIH w/ same wireline BHA. Tagged up at 2140' (WLM).

*proves that joint of tbg. 2 stds. Up was not crimped

*proves that there is no obstruction (junk) inside tbg.

POOH RD Rotary Wireline. Released rig crew. SDON.

Daily Costs:

Supervision	$1200
Pulling Unit: 07:30 – 19:30, (12 hrs)	$3600
Reverse Pit rental	$0
Reverse Unit Swivel (released on 1/14)	$0
Reverse Unit Pump (released on 1/14)	$0
Reverse Unit Operator: (released on 1/14)	$0
Reverse Unit Mileage:	$0
Rental Tools: BIW stripper, BOP	$100
Light plant rental	$170
Trash Trailer/Porta-Potty	$65
Pipe rack rental	$100
Wireline: Tbg. cut / perforate attempt	$6,200
Total Cost:	$11,520
Cum Cost:	$107,428

1/17/18

07:30-09:30 Crew arrived on location. POOH standing back 15 stds. (16 stds out total) PH-6 YB . Shut down to catch up on water flow.

09:30-10:15 Haul off water in reserve pit.

10:15-10:45 POOH standing back 27 stds (54 jts. that were PU) PH-6 YB, 1 std. old PH-6 (28 stds. total).

10:45-16:00 POOH LD old PH-6 in singles.

Note: 18 jts. of 32 jts. total of old PH-6 prod. tbg. found bent or corkscrewed.

Stand back 1 std DC's. Pull to 4-3/4" bit. Bit in good shape.

16:00-19:30 RBIH w/ DC's. Tally & PU 26 jts. original 2-7/8" AOH. PU AOH x PH-6 XO. RIH w/ 16 stds. of PH-6 YB tbg.

19:30-22:00 POOH LD 12 stds PH-6 YB tbg. in singles. RIH w/ 12 stds. remaining new PH-6 YB tbg. in derrick. Tagged up w/ 15' out on last stand (12 stds. RIH were longer than 12 stds. of singles LD). LD 1 jt.

Rig crew soaked and no change of dry clothes. 20°F overnight.

Stab tbg. valve on tbg. SI pipe rams. SDON. Release rig crew.

Daily Costs:

Supervision	$1800
Pulling Unit: 06:00, 17th – 22:00 (17 hrs)	$4800
Reverse Pit rental	$0
Reverse Unit Swivel (released on 1/14, start 1/17)	$3000
Reverse Unit Pump (released on 1/14, start 1/17)	$2500
Reverse Unit Pump Delivery	$1,000
Reverse Unit Operator: (released on 1/14, start 1/17)	$1800
Reverse Unit Mileage: (2 x $200)	$400
Rental Tools: BIW stripper, BOP	$100
Light plant rental	$170
Trash Trailer/Porta-Potty	$65
Pipe rack rental	$100
Total Cost:	$15,735

Cum Cost: $123,163

1/18/18

06:00 -09:30	Crew arrived on location. PU power swivel. RU floor to start drilling. Tagged 15' in on jt. #58 (1894'). Previous tag was 1926'.
09:30-11:45	Jt. #58 down (1910'). PU jt. #59. Rotate slowly down w/ 500# torque, 2 pts.
11:45-11:55	Jt. #59 down (1941'). PU jt. #60. Rotate slowly down w/ 500# torque, 2 pts.
11:55-12:20	Jt. #60 down (1972'). PU back to top of jt. due to torqueing at bottom. Slid/rotated back down.
12:20-12:40	Jt. #61 down (2003'). PU jt. #62. Rotate slowly down w/ 500# torque, 2 pts.
12:40-12:50	Jt. #62 down (2034). PU jt. #63. Rotate slowly down w/500# torque, 2 pts.
12:50-17:05	Jt. #63 down (2066'). PU jt. #64. Rotate slowly down w/ 500# torque, 2 pts.
17:05-18:35	Jt. #64 down (2097)'. PU jt. #65. Rotate slowly down w/ 500# torque, 2 pts.
	Note: No night crew available, daylight crew staying over.
18:35-19:05	Jt. #65 down (2128'). PU jt. #66. Rotate slowly down w/ 500# torque, 2 pts.
19:05-19:30	Jt. #66 down (2159'). PU jt. #67. Rotate slowly down w/ 500# torque, 2 pts.
19:30-19:45	Jt. #67 down (2190'). PU jt. #68. Rotate slowly down w/ 500# torque, 2 pts.
19:45-21:10	Jt. #68 down (2221') PU jt. #69. Rotate slowly down w/ 500# torque, 2 pts.
21:10-22:00	Made a few feet w/ jt. #69. Pull jt. out of hole, break out. SI pipe rams. Stab tbg. valve. SDON.

Daily Costs:

Supervision	$1800
Pulling Unit: 06:00, 17th – 22:00 (16 hrs)	$4800
Reverse Pit rental	$0
Reverse Unit Swivel	$3000
Reverse Unit Pump: (2 x $700)	$1400
Reverse Unit Operator: (2 x $900)	$1800
Reverse Unit Mileage: (2 x $200)	$400
Rental Tools: BIW stripper, BOP	$100
Light plant rental	$170

Slip-type elevators	$740
Trash Trailer/Porta-Potty	$65
Pipe rack rental	$100
Roustabouts: (pick up bent pipe)	$400
Total Cost:	$14,775
Cum Cost:	$137,938

1/19/18

07:00 -09:10	Make up jt. #69. Reconnect pump hoses. Tag 2' in on jt. Drlg. w/ 2-3 pts., 700# torque.
09:10-10:10	Jt. #69 down (2252'). PU jt. #70. Top 15' drilled slow to 2237', then took off.
10:10-10:25	Jt. #70 down (2283'). PU jt. #71.
10:25-16:00	Jt. #71 down (2314'). PU jt. #72. Drlg. w/ 2-3 pts., 400#-600# torque.
16:00-16:05	Jt. #72 down (2346'). PU jt. #73. Slide/rotate jt. #73 down.
16:05-16:15	Jt. #73 down (2377'). PU jt. #74. Slide/rotate jt. #74 down.
16:15-16:25	Jt. #74 down (2408'). PU jt. #75. Slide/rotate jt. #75 down.
16:25-16:30	Jt. #75 down (2439'). PU jt. #76. Slide/rotate jt. #76 down.
16:30-18:45	Jt. #76 down (2470'). PU jt. #77. Slid jt. 20' in, then drlg. w/ 600# torque.
18:45-20:15	Jt. #77 down (2501'). PU jt. #78. Slid top 15' of jt. in. Drlg. ahead.
20:15-20:50	Jt. #78 down (2532'). PU jt. #79. Drill/rotate down w/ 500# torque, 2 pts.
20:50-04:00	Jt. # 79 down (2563'). PU Jt. #80. Drill Jts. #80-#86 (2781') down w/ 450#-600# torque. Str. wt.=22K. Intermittent ledges, slackoffs up to 5-6'.
04:00-04:30	PU Jt. #87. Drill 1st 10' in at 450#-600# torque, torque increased to 600#-1100#.
04:30-05:10	PU off bottom, did not lose torque. Break out and LD Jt. #87. PU 10' on jt. #86 dragging 6K over. Start rotation. Torque=500#-800#. Stop rotation. Slid 10' back to floor taking 4 pts. coming back down. Decision to not risk bending pipe at satisfactory depth. Crew change at 05:00.
05:10-05:45	RU for swab for brine test.
05:45-06:00	RIH for 1st swab run.

Daily Costs:

Supervision	$1800
Pulling Unit: 06:00, 17th – 06:00, 18th (24 hrs)	$7200
Reverse Pit rental	$0
Reverse Unit Swivel	$3000
Reverse Unit Pump: (2 x $700)	$1400
Reverse Unit Operator: (2 x $900)	$1800
Reverse Unit Mileage: (2 x $200)	$400
Rental Tools: BIW stripper, BOP	$100
Light plant rental	$170
Slip-type elevators	$90
Trash Trailer/Porta-Potty	$65
Pipe rack rental	$100
Total Cost:	$16,125
Cum Cost:	$154, 063

1/20/17

06:00-09:00	Make 7 total swab runs. Runs #4, #5,#6=10.1 ppg brine, rusty. Run #7 dry run. Run #8 made dry run to bottom with only 1-3/4" swab mandrel hanger on weight bar. RIH measuring raps. Calculated TD=2670' to top of DC's.
09:00-10:30	Rotary Wireline arrived on location. RD swab. RU wireline. PU 1-7/8" tbg. cutter. RIH. Tagged up at 2615'. Cut tbg. @ 2610'. POOH. PU 2' x 1-9/16" tbg. gun (8 holes w/ 0.2" hole diameter). RIH. Tagged up at 2615'. Collar @ 2595'. PU to 2590' & shoot 8 holes at 2590'-2592'. POOH RD wireline.
10:30-12:00	RD floor. Land tbg. in 2-7/8" x 5-1/2" Larkin tbg. head. Release rental equipment. Clean up location.

END OF REPORT

Appendix E

Historical Groundwater Level and Groundwater Quality Data

Historical Fluid Level Measurements
Salty Dog Brine Station, Lea County, New Mexico
Page 1 of 8

Monitor Well	Screen Interval (ft bgs)	Top of Casing Elevation [a] (ft msl)	Date Measured	Depth to Water (ft btoc)	Groundwater Elevation (ft msl)
DBS-1	56.0–76.0	3,817.09	4/08/2009	62.38	3,754.71
			5/11/2011	64.70	3,752.39
			10/04/2011	Well destroyed	
DBS-1R	58.0–78.0	3,817.00 [b]	4/30/2012	63.60	3,753.40
			9/10/2012	65.65	3,751.35
			6/23/2013	64.40	3,752.60
			1/09/2014	67.23	3,749.77
			4/07/2014	66.36	3,750.64
			3/20/2015	67.17	3,749.83
			7/01/2015	67.92	3,749.08
			9/29/2015	67.07	3,749.93
			12/16/2015	67.54	3,749.46
			3/22/2016	66.61	3,750.39
			6/08/2016	66.23	3,750.77
			9/13/2016	67.43	3,749.57
			12/01/2016	67.31	3,749.69
			6/20/2017	69.60	3,747.40
			12/19/2017	67.80	3,749.20
DBS-2	58.0–78.0	3,820.50	4/08/2009	65.45	3,755.05
			5/11/2011	66.80	3,753.70
			10/04/2011	65.87	3,754.63
			2/08/2012	65.96	3,754.54
			4/30/2012	66.26	3,754.24
			9/10/2012	67.45	3,753.05
			6/23/2013	67.03	3,753.47
			1/09/2014	69.08	3,751.42
			4/07/2014	68.67	3,751.83
			3/20/2015	69.32	3,751.18
			6/30/2015	69.29	3,751.21
			9/29/2015	69.41	3,751.09
			12/16/2015	69.71	3,750.79
			3/22/2016	69.13	3,751.37

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

Historical Fluid Level Measurements
Salty Dog Brine Station, Lea County, New Mexico
Page 2 of 8

Monitor Well	Screen Interval (ft bgs)	Top of Casing Elevation [a] (ft msl)	Date Measured	Depth to Water (ft btoc)	Groundwater Elevation (ft msl)
DBS-2 (cont.)	58.0–78.0	3,820.50	6/08/2016	68.91	3,751.59
			9/13/2016	69.76	3,750.74
			12/01/2016	69.73	3,750.77
			6/20/2017	71.33	3,749.17
			12/19/2017	70.42	3,750.08
DBS-3	56.0–76.72	3,816.66	4/08/2009	60.67	3,755.99
			5/11/2011	61.25	3,755.41
			10/04/2011	61.25	3,755.41
			2/08/2012	61.11	3,755.55
			4/30/2012	61.41	3,755.25
			9/10/2012	61.81	3,754.85
			6/23/2013	62.08	3,754.58
			1/09/2014	63.30	3,753.36
			4/07/2014	63.43	3,753.23
			3/20/2015	63.93	3,752.73
			6/30/2015	63.99	3,752.67
			9/29/2015	64.17	3,752.49
			12/16/2015	64.41	3,752.25
			3/22/2016	63.88	3,752.78
			6/08/2016	63.92	3,752.74
			9/13/2016	64.56	3,752.10
			12/01/2016	64.59	3,752.07
			6/20/2017	65.52	3,751.14
			12/19/2017	65.54	3,751.12
DBS-4	56.0–76.0	3,820.37	4/08/2009	66.27	3,754.10
			5/11/2011	67.23	3,753.14
			10/04/2011	66.67	3,753.70
			2/08/2012	66.76	3,753.61
			4/30/2012	67.02	3,753.35
			9/10/2012	67.78	3,752.59
			6/23/2013	67.70	3,752.67

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ft msl = Feet above mean sea level NA = Not available

Historical Fluid Level Measurements
Salty Dog Brine Station, Lea County, New Mexico
Page 3 of 8

Monitor Well	Screen Interval (ft bgs)	Top of Casing Elevation [a] (ft msl)	Date Measured	Depth to Water (ft btoc)	Groundwater Elevation (ft msl)
DBS-4 (cont.)	56.0–76.0	3,820.37	1/09/2014	69.37	3,751.00
			4/07/2014	69.23	3,751.14
			3/20/2015	69.81	3,750.56
			6/30/2015	69.85	3,750.52
			9/29/2015	70.00	3,750.37
			12/16/2015	70.25	3,750.12
			3/22/2016	69.74	3,750.63
			6/08/2016	69.62	3,750.75
			9/13/2016	70.35	3,750.02
			12/01/2016	70.38	3,749.99
			6/20/2017	71.67	3,748.70
			12/19/2017	71.08	3,749.29
DBS-5	56.9–76.9	3,820.66	4/08/2009	62.99	3,757.67
			5/11/2011	63.45	3,757.21
			10/04/2011	63.41	3,757.25
			2/08/2012	63.46	3,757.20
			4/30/2012	63.70	3,756.96
			9/10/2012	63.92	3,756.74
			6/23/2013	64.30	3,756.36
			1/09/2014	65.28	3,755.38
			4/07/2014	65.48	3,755.18
			3/20/2015	65.9	3,754.76
			7/01/2015	66.18	3,754.48
			9/29/2015	66.25	3,754.41
			12/16/2015	66.47	3,754.19
			3/22/2016	66.08	3,754.58
			6/08/2016	66.16	3,754.50
			9/13/2016	66.64	3,754.02
			12/01/2016	66.72	3,753.94
			6/20/2017	67.60	3,753.06
			12/19/2017	67.88	3,752.78

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ft msl = Feet above mean sea level
NA = Not available

Historical Fluid Level Measurements
Salty Dog Brine Station, Lea County, New Mexico
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Monitor Well	Screen Interval (ft bgs)	Top of Casing Elevation [a] (ft msl)	Date Measured	Depth to Water (ft btoc)	Groundwater Elevation (ft msl)
DBS-6	56.7–76.7	3,812.65	4/07/2009	62.75	3,749.90
			5/11/2011	63.11	3,749.54
			10/04/2011	63.16	3,749.49
			2/08/2012	63.20	3,749.45
			4/30/2012	63.43	3,749.22
			9/10/2012	63.60	3,749.05
			6/23/2013	63.74	3,748.91
			1/09/2014	64.00	3,748.65
			4/07/2014	64.22	3,748.43
			3/19/2015	64.78	3,747.87
			7/01/2015	64.81	3,747.84
			9/29/2015	65.48	3,747.17
			12/16/2015	65.26	3,747.39
			3/22/2016	65.38	3,747.27
			6/08/2016	65.37	3,747.28
			9/13/2016	65.51	3,747.14
			12/01/2016	65.51	3,747.14
			6/20/2017	65.81	3,746.84
			12/19/2017	66.29	3,746.36
DBS-7	55.1–75.1	3,810.21	4/07/2009	61.74	3,748.47
DBS-8	55.2–75.2	3,810.70	4/07/2009	61.20	3,749.50
			5/11/2011	61.67	3,749.03
			10/04/2011	61.71	3,748.99
			2/08/2012	61.77	3,748.93
			4/30/2012	62.00	3,748.70
			9/10/2012	62.15	3,748.55
			6/23/2013	62.28	3,748.42
			1/09/2014	62.47	3,748.23
			4/07/2014	62.67	3,748.03
			3/19/2015	63.19	3,747.51
			6/30/2015	63.25	3,747.45

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ft msl = Feet above mean sea level NA = Not available

Historical Fluid Level Measurements
Salty Dog Brine Station, Lea County, New Mexico
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Monitor Well	Screen Interval (ft bgs)	Top of Casing Elevation [a] (ft msl)	Date Measured	Depth to Water (ft btoc)	Groundwater Elevation (ft msl)
DBS-8 (cont.)	55.2–75.2	3,810.70	9/29/2015	63.82	3,746.88
			12/16/2015	63.58	3,747.12
			3/22/2016	63.76	3,746.94
			6/08/2016	63.72	3,746.98
			9/13/2016	63.83	3,746.87
			12/01/2016	63.79	3,746.91
			6/20/2017	64.09	3,746.61
			12/19/2017	64.53	3,746.17
DBS-9	48.0–68.0	3,806.26	4/08/2009	53.93	3,752.33
			5/11/2011	54.39	3,751.87
			10/04/2011	54.59	3,751.67
			2/08/2012	54.53	3,751.73
			4/30/2012	54.68	3,751.58
			9/10/2012	54.77	3,751.49
			6/23/2013	55.04	3,751.22
			1/09/2014	55.27	3,750.99
			4/07/2014	55.56	3,750.70
			3/19/2015	55.95	3,750.31
			7/01/2015	56.14	3,750.12
			9/29/2015	56.49	3,749.77
			12/16/2015	56.52	3,749.74
			3/22/2016	56.51	3,749.75
			6/08/2016	56.64	3,749.62
			9/13/2016	56.81	3,749.45
			12/01/2016	56.88	3,749.38
			6/20/2017	57.28	3,748.98
			12/19/2017	57.67	3,748.59
NW-1s	52.95–72.95	3,817.33	4/08/2009	62.35	3,754.98
NW-1m	99.31–119.31	3,817.35	4/08/2009	62.25	3,755.10
NW-1d	149.45–169.45	3,817.35	4/08/2009	62.04	3,755.31
NW-2s	53.35–73.35	3,812.50	4/08/2009	63.08	3,749.42

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

Historical Fluid Level Measurements
Salty Dog Brine Station, Lea County, New Mexico

Monitor Well	Screen Interval (ft bgs)	Top of Casing Elevation [a] (ft msl)	Date Measured	Depth to Water (ft btoc)	Groundwater Elevation (ft msl)
NW-2m	93.72–113.72	3,812.45	4/08/2009	63.27	3,749.18
NW-2d	126.87–146.87	3,812.46	4/08/2009	66.41	3,746.05
PMW-1	63–78	3,821.17	6/23/2008	67.51	3,753.66
			4/08/2009	65.97	3,755.20
			5/11/2011	68.70	3,752.47
			10/04/2011	66.95	3,754.22
			2/08/2012	66.69	3,754.48
			4/30/2012	67.27	3,753.90
			9/10/2012	69.77	3,751.40
			6/23/2013	68.40	3,752.77
			1/09/2014	71.24	3,749.93
			4/07/2014	69.97	3,751.20
			3/20/2015	70.78	3,750.39
			7/01/2015	71.41	3,749.76
			9/29/2015	70.76	3,750.41
			12/16/2015	71.03	3,750.14
			3/22/2016	70.30	3,750.87
			6/08/2016	69.65	3,751.52
			9/13/2016	71.08	3,750.09
			12/01/2016	70.97	3,750.20
			6/20/2017	73.06	3,748.11
			12/19/2017	71.19	3,749.98
MW-1	120–140	NA	6/23/2008	59.90	NA
MW-2	127–147	3,812.68	6/23/2008	61.42	3,751.26
			4/07/2009	61.65	3,751.03
MW-3	NA	3,812.05	6/23/2008	62.06	3,749.99
			4/07/2009	62.02	3,750.03
			5/11/2011	62.91	3,749.14
			10/04/2011	62.91	3,749.14
			2/08/2012	62.95	3,749.10
			4/30/2012	63.39	3,748.66

[a] Top of casing elevations surveyed by Pettigrew & Assoc. on May 28, 2009.
[b] Top of casing elevation surveyed by Pettigrew & Assoc. on June 13, 2012.
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Historical Fluid Level Measurements
Salty Dog Brine Station, Lea County, New Mexico
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Monitor Well	Screen Interval (ft bgs)	Top of Casing Elevation [a] (ft msl)	Date Measured	Depth to Water (ft btoc)	Groundwater Elevation (ft msl)
MW-3 (cont.)	NA	3,812.05	9/10/2012	63.50	3,748.55
			6/23/2013	63.36	3,748.69
			1/09/2014	63.55	3,748.50
			4/07/2014	63.88	3,748.17
			3/19/2015	64.27	3,747.78
			7/01/2015	64.34	3,747.71
			9/29/2015	67.94	3,744.11
			12/16/2015	64.75	3,747.30
			3/22/2016	64.84	3,747.21
			6/08/2016	64.89	3,747.16
			9/13/2016	66.33	3,745.72
			12/01/2016	66.66	3,745.39
			6/20/2017	65.56	3,746.49
			12/19/2017	65.70	3,746.35
MW-4	111–131	3,811.33	6/23/2008	62.12	3,749.21
			4/07/2009	62.51	3,748.82
MW-5	112–132	3,808.96	6/23/2008	60.60	3,748.36
			4/07/2009	60.79	3,748.17
			5/11/2011	61.17	3,747.79
			10/04/2011	61.72	3,747.24
			2/08/2012	61.23	3,747.73
			4/30/2012	61.50	3,747.46
			9/10/2012	61.65	3,747.31
			6/23/2013	61.75	3,747.21
			1/09/2014	61.90	3,747.06
			4/07/2014	62.18	3,746.78
			3/19/2015	62.96	3,746.00
			6/30/2015	62.71	3,746.25
			9/29/2015	63.92	3,745.04
			12/16/2015	63.02	3,745.94
			3/22/2016	63.14	3,745.82

[a] Top of casing elevations surveyed by Pettigrew & Assoc. on May 28, 2009.
[b] Top of casing elevation surveyed by Pettigrew & Assoc. on June 13, 2012.
ft bgs = Feet below ground surface ft btoc = Feet below top of casing
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Historical Fluid Level Measurements
Salty Dog Brine Station, Lea County, New Mexico
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Monitor Well	Screen Interval (ft bgs)	Top of Casing Elevation [a] (ft msl)	Date Measured	Depth to Water (ft btoc)	Groundwater Elevation (ft msl)
MW-5 (cont.)	112–132	3,808.96	6/08/2016	63.47	3,745.49
			9/13/2016	63.66	3,745.30
			12/01/2016	63.70	3,745.26
			6/21/2017	63.62	3,745.34
			12/19/2017	65.02	3,743.94
MW-6	NA	3,810.17	6/23/2008	62.17	3,748.00
			4/07/2009	62.41	3,747.76

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

ft bgs = Feet below ground surface
ft msl = Feet above mean sea level
ft btoc = Feet below top of casing
NA = Not available

Chloride Groundwater Analytical Data
Salty Dog Brine Station, Lea County, New Mexico
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Monitor Well	Date	Chloride Concentration (mg/L) [a]
	NMWQCC Standard	*250*
DBS-1	4/08/2009	**320**
	5/12/2011	**940**
	10/04/2011	Well destroyed
DBS-1R	5/01/2012	**3,000**
	9/11/2012	**3,200**
	6/25/2013	**3,300**
	1/10/2014	**1,000**
	4/08/2014	**1,700**
	3/20/2015	**1,200**
	7/01/2015	**860**
	9/30/2015	**670**
	12/17/2015	**760**
	3/23/2016	**560**
	6/09/2016	**570**
	09/14/2016	**360**
	12/01/2016	**360**
	6/20/2017	**320**
	12/20/2017	190
DBS-2	4/08/2009	14
	5/12/2011	25
	10/05/2011	18
	2/09/2012	22
	5/01/2012	24
	9/11/2012	44
	6/25/2013	36
	1/10/2014	45
	4/08/2014	22
	3/20/2015	29
	6/30/2015	28
	9/30/2015	40
	12/17/2015	35

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

Chloride Groundwater Analytical Data
Salty Dog Brine Station, Lea County, New Mexico

Monitor Well	Date	Chloride Concentration (mg/L) [a]
NMWQCC Standard		*250*
DBS-2 (cont.)	3/23/2016	46
	6/09/2016	41
	9/14/2016	41
	12/02/2016	53
	6/20/2017	59
	12/20/2017	37
DBS-3	4/08/2009	36
	5/12/2011	35
	10/05/2011	34
	2/09/2012	34
	5/01/2012	33
	9/11/2012	34
	6/24/2013	32
	1/10/2014	34
	4/08/2014	32
	3/20/2015	35
	6/30/2015	35
	9/30/2015	34
	12/17/2015	34
	3/23/2016	36
	6/09/2016	35
	9/14/2016	37
	12/02/2016	37
	6/20/2017	39
	12/20/2017	42
DBS-4	4/08/2009	38
	5/12/2011	33
	10/05/2011	32
	2/09/2012	32
	5/01/2012	31
	9/11/2012	32

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[a] All samples analyzed using EPA method 300.0, unless otherwise noted.
[b] Samples analyzed using Standard Method 4500-Cl B.
mg/L = Milligrams per liter

Chloride Groundwater Analytical Data
Salty Dog Brine Station, Lea County, New Mexico

Monitor Well	Date	Chloride Concentration (mg/L) [a]
NMWQCC Standard		*250*
DBS-4 (cont.)	6/25/2013	31
	1/10/2014	32
	4/08/2014	30
	3/20/2015	33
	6/30/2015	31
	9/30/2015	33
	12/17/2015	35
	3/23/2016	38
	6/09/2016	35
	9/14/2016	37
	12/02/2016	41
	6/20/2017	35
	12/20/2017	32
DBS-5	4/08/2009	65
	5/12/2011	140
	10/05/2011	140
	2/09/2012	140
	4/30/2012	150
	9/11/2012	160
	6/24/2013	160
	1/10/2014	180
	4/08/2014	160
	3/20/2015	140
	7/01/2015	140
	9/30/2015	150
	12/17/2015	160
	3/23/2016	150
	6/09/2016	150
	9/14/2016	170
	12/02/2016	170
	6/20/2017	170

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[a] All samples analyzed using EPA method 300.0, unless otherwise noted.
[b] Samples analyzed using Standard Method 4500-Cl B.
mg/L = Milligrams per liter

Chloride Groundwater Analytical Data
Salty Dog Brine Station, Lea County, New Mexico

Monitor Well	Date	Chloride Concentration (mg/L) [a]
	NMWQCC Standard	*250*
DBS-5 (cont.)	12/20/2017	170
DBS-6	4/07/2009	**380**
	5/12/2011	**410**
	10/05/2011	**400**
	2/09/2012	**380**
	4/30/2012	**400**
	9/11/2012	**390**
	6/24/2013	**340**
	1/10/2014	**390**
	4/07/2014	**400**
	3/19/2015	**370**
	7/01/2015	**360**
	9/30/2015	**370**
	12/17/2015	**380**
	3/23/2016	**310**
	6/09/2016	**300**
	9/14/2016	**290**
	12/02/2016	**300**
	6/21/2017	240
	12/19/2017	200
DBS-7	4/07/2008	**570**
DBS-8	4/07/2009	58
	5/12/2011	36
	10/05/2011	140
	2/09/2012	41
	4/30/2012	41
	9/10/2012	42
	6/24/2013	45
	1/09/2014	38
	4/07/2014	36
	3/19/2015	36

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

Chloride Groundwater Analytical Data
Salty Dog Brine Station, Lea County, New Mexico

Monitor Well	Date	Chloride Concentration (mg/L) [a]
NMWQCC Standard		*250*
DBS-8 (cont.)	7/01/2015	34
	9/30/2015	35
	12/17/2015	33
	3/23/2016	35
	6/09/2016	34
	9/14/2016	34
	12/02/2016	33
	6/21/2017	33
	12/19/2017	28
DBS-9	4/08/2009	210
	5/12/2011	**600**
	10/05/2011	**440**
	2/09/2012	**290**
	4/30/2012	**330**
	9/11/2012	**320**
	6/24/2013	200
	1/10/2014	170
	4/07/2014	220
	3/19/2015	**260**
	7/01/2015	210
	9/30/2015	**260**
	12/17/2015	230
	3/23/2016	200
	6/09/2016	190
	9/14/2016	190
	12/02/2016	180
	6/21/2017	200
	12/20/2017	230
NW-1s	4/08/2009	**630**
NW-1m	4/08/2009	57
NW-1d	4/08/2009	38

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[b] Samples analyzed using Standard Method 4500-Cl B.
mg/L = Milligrams per liter

Chloride Groundwater Analytical Data
Salty Dog Brine Station, Lea County, New Mexico

Monitor Well	Date	Chloride Concentration (mg/L) [a]
	NMWQCC Standard	*250*
NW-2s	4/08/2009	**410**
NW-2m	4/08/2009	**570**
NW-2d	4/08/2009	**4,700**
PMW-1	2/27/2008	**9,500** [b]
	5/30/2008	**8,600** [b]
	6/23/2008	**12,700**
	4/08/2009	**11,000**
	5/12/2011	**13,000**
	10/05/2011	**12,000**
	2/09/2012	**12,000**
	5/01/2012	**12,000**
	9/11/2012	**14,000**
	6/25/2013	**14,000**
	1/10/2014	**11,000**
	4/08/2014	**12,000**
	3/20/2015	**8,500**
	7/01/2015	**8,600**
	9/30/2015	**9,700**
	12/17/2015	**9,800**
	3/23/2016	**8,200**
	6/09/2016	**8,500**
	9/14/2016	**9,300**
	12/01/2016	**8,300**
	6/20/2017	**13,000**
	12/20/2017	**12,000**
MW-1	5/30/2008	75 [b]
	6/23/2008	243
MW-2	2/27/2008	120 [b]
	5/30/2008	80 [b]
	6/23/2008	**1,480**
	4/07/2009	**1,200**

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[b] Samples analyzed using Standard Method 4500-Cl B.
mg/L = Milligrams per liter

Chloride Groundwater Analytical Data
Salty Dog Brine Station, Lea County, New Mexico
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Monitor Well	Date	Chloride Concentration (mg/L) [a]
NMWQCC Standard		*250*
MW-3	2/27/2008	**348** [b]
	5/30/2008	**360** [b]
	6/23/2008	**1,090**
	4/07/2009	**17,000**
	5/12/2011	**16,000**
	10/05/2011	**14,000**
	2/09/2012	**15,000**
	4/30/2012	**14,000**
	9/10/2012	**16,000**
	6/24/2013	**12,000**
	1/10/2014	**10,000**
	4/07/2014	**12,000**
	3/19/2015	**9,700**
	7/01/2015	**10,000**
	9/30/2015	**9,600**
	12/17/2015	**5,100**
	3/23/2016	**8,200**
	6/09/2016	**9,400**
	9/14/2016	**9,100**
	12/02/2016	**11,000**
	6/21/2017	**10,000**
	12/20/2017	**8,300**
MW-4	2/27/2008	**476** [b]
	5/30/2008	**512** [b]
	6/23/2008	**5,730**
	4/07/2009	**6,600**
MW-5	2/27/2008	**1,280** [b]
	5/30/2008	**1,220** [b]
	6/23/2008	**1,260**
	4/07/2009	**1,300**
	5/12/2011	**1,500**

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[b] Samples analyzed using Standard Method 4500-Cl B.
mg/L = Milligrams per liter

Chloride Groundwater Analytical Data
Salty Dog Brine Station, Lea County, New Mexico
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Monitor Well	Date	Chloride Concentration (mg/L) [a]
NMWQCC Standard		*250*
MW-5 (cont.)	10/05/2011	**1,500**
	2/09/2012	**1,500**
	4/30/2012	**1,400**
	9/10/2012	**1,500**
	6/24/2013	**1,300**
	1/10/2014	**1,300**
	4/07/2014	**1,300**
	3/19/2015	**1,200**
	7/01/2015	**1,200**
	9/30/2015	**1,000**
	12/17/2015	**1,000**
	3/23/2016	**980**
	6/09/2016	**970**
	9/14/2016	**1,000**
	12/02/2016	**710**
	6/21/2017	**870**
	12/19/2017	**850**
MW-6	2/27/2008	32 [b]
	5/30/2008	36 [b]
	6/23/2008	31.4
	4/07/2009	25
Ranch Headquarters Supply Well	6/23/2008	35.4
Brine Station Fresh Water Supply Well	2/27/2008	**630** [b]
	5/30/2008	**590** [b]
	6/23/2008	**650**

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[b] Samples analyzed using Standard Method 4500-Cl B.
mg/L = Milligrams per liter