

BW - 8

**MONITORING
REPORTS**

DATE:

2002

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OCT 07 2002
Environmental Bureau
Oil Conservation Division

ZIA SALTY DOG

REMEDATION INVESTIGATION

SEPTEMBER 2002

September 20, 2002

Wayne Price
NMOCD Environmental
Box 6429
1220 S. Saint Francis Drive
Santa Fe, NM 87504

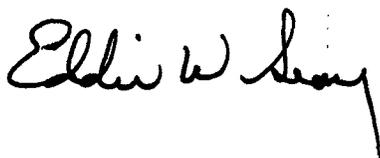
RE: Salty Dog Brine

Mr. Price:

As you requested, Salty Dog has completed the two additional wells. One well as a recovery well and the other as an extension of the monitor well plume. All pertinent data is enclosed in this report. I will be recommending to Mr. Bergstein that an additional monitor well be drilled, since the MW #3 showed elevated chlorides.

If you have any questions or need additional information, please call.

Sincerely,



Eddie W. Seay, Agent
601 W. Illinois
Hobbs, NM 88242
(505)392-2236

**Salty Dog
Remediation Site**

Drilling started on August 27, 2002, OCD notified. Carl Smelcer with Griffin Water Well Service installed both wells. The well logs and completion information is within.

Remediation Well #2

This well is being installed to pump additional salt water from the formation. The well is located 25 ft. SE of MW#1. A nine inch hole was drilled to TD of 150' and 5" PVC casing with 40' of well screen was installed. Diagram of well completion and log is within.

Monitor Well #3

MW#3 was installed to extend and try and find the outer limits of the salt water plume. This well is located 150' SE of MW#2. A 6" hole was drilled to TD of 147'. 2 in. PVC with 15 ft. of well screen was installed in the well. The log and well diagram are within.

The two wells were completed on September 6, 2002. On September 11, 2002, bail samples were obtained from new wells, the analytical is within. On September 13, a development pump and water containers were taken to location to develop and properly sample wells. The OCD was notified of this sampling exercise.

Monitor Well #3, installed a 1 1/2" pump in the well at 110'. Water level was 59.49' at ground level, and TD was at 147'. Three casing volumes for this well would have been 33 gallons. We extracted 45 gal. from the well and samples. Analytical is within.

Recovery Well #2, installed a 1 1/2" pump in the well at 110'. Water level was 58.79' from ground level, and TD was 150'. Three casing volumes would be 225 gallons. We extracted 240 gal. from the well and sampled. Analytical is within.

The new recovery well #2 will be tied into the recovery well #1 and used within the brine system. Salty Dog will continue to monitor all wells quarterly or as OCD requires, and keep up with volumes extracted.

It is my recommendation that Zia Salty Dog drill an additional MW Southeast to determine the extent of the plume.

Within are:

- 1) Logs
- 2) Well Diagram
- 3) Analytical
- 4) Photos

Salty Dog Brine

● ww

● ww

□ B ● Rec. #1

● mw #1

● Rec #3

● mw #2

● mw #3

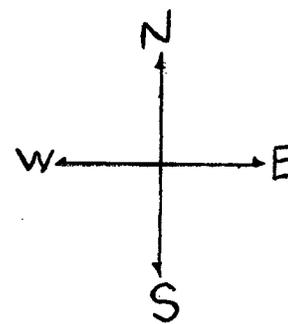
● new recovery well + monitor well

● existing mw

● Recovery well #1

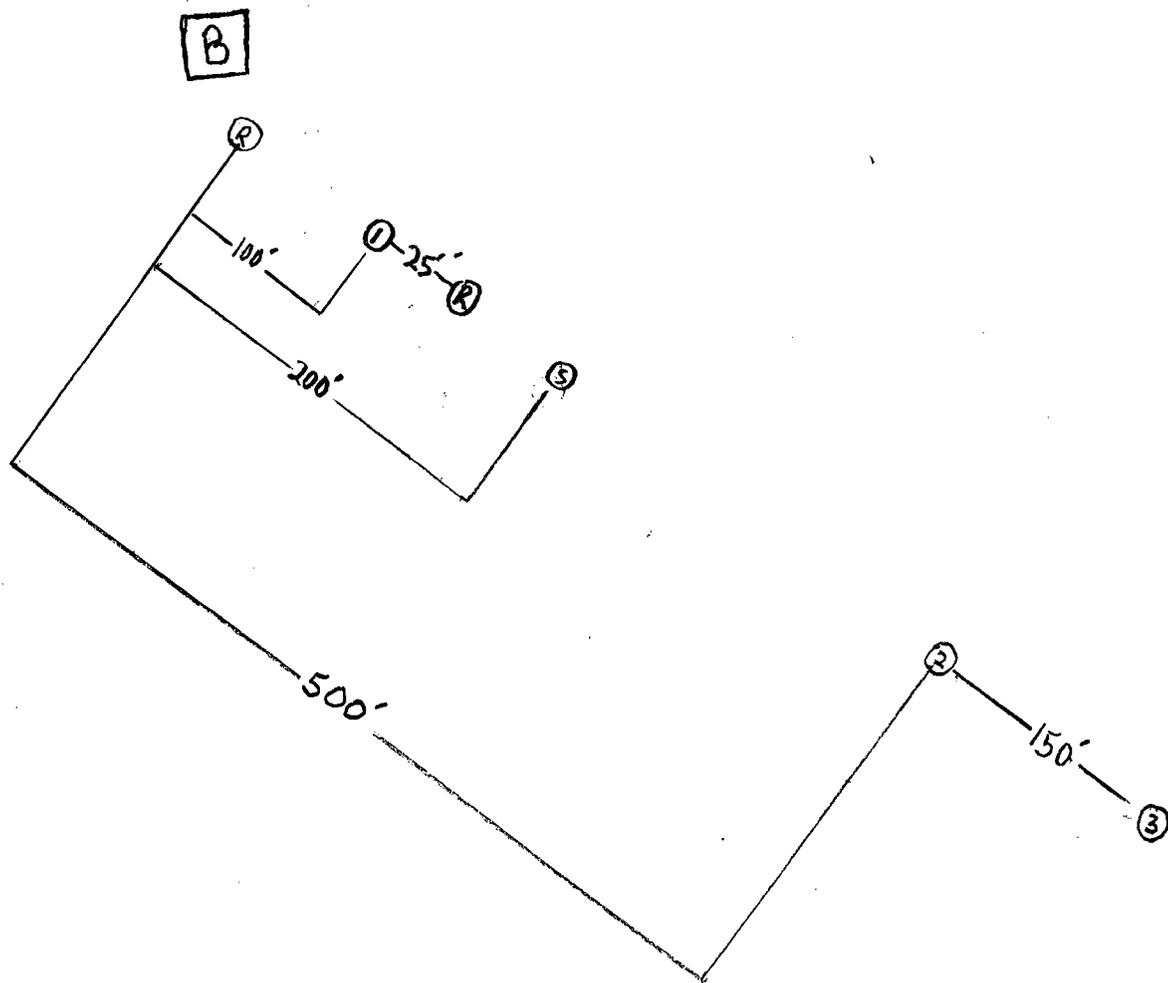
● water wells

□ Brine well



③

③



□ Brine Well

Ⓡ Recovery wells

① Monitor Well #1

Ⓢ Test Borings

② Monitor Well #2

③ Water Wells

Rem. W # 2

WELL RECORD

Owner of well SALTY DOG INC.

Street or post office address _____

City and State _____

Drilling contractor GRIFFIN Well Serv. License No. WD-603

Address _____

Drilling began 9/3/02 Completed 9/5/02 Type tool 190T Hole size 9"

Elevation of land surface ~~3229~~ at well is 3822 ft. total depth of well 150 ft.

GPS-cord. 32° 41' 18" N 103° 22' 27" W UNIT J OF SEC 5 19 36

Depth in feet	Thickness in ft.	Description of water bearing formation	GPM
<u>58</u>	<u>92</u>	<u>SANDSTONE Red-BRN. SOFT</u>	<u>50</u>

CASING

Diameter (inches)	Pounds (per foot)	Threads (per in.)	Depth in feet Top---Bottom	Length (feet)	Type of shoe	Peforation (from- to)
<u>5 1/2</u>	<u>PVC</u>	<u>NA</u>	<u>152</u>		<u>NA</u>	<u>110-150</u>

COLORS AND TYPE OF MATERIALS ENCOUNTERED

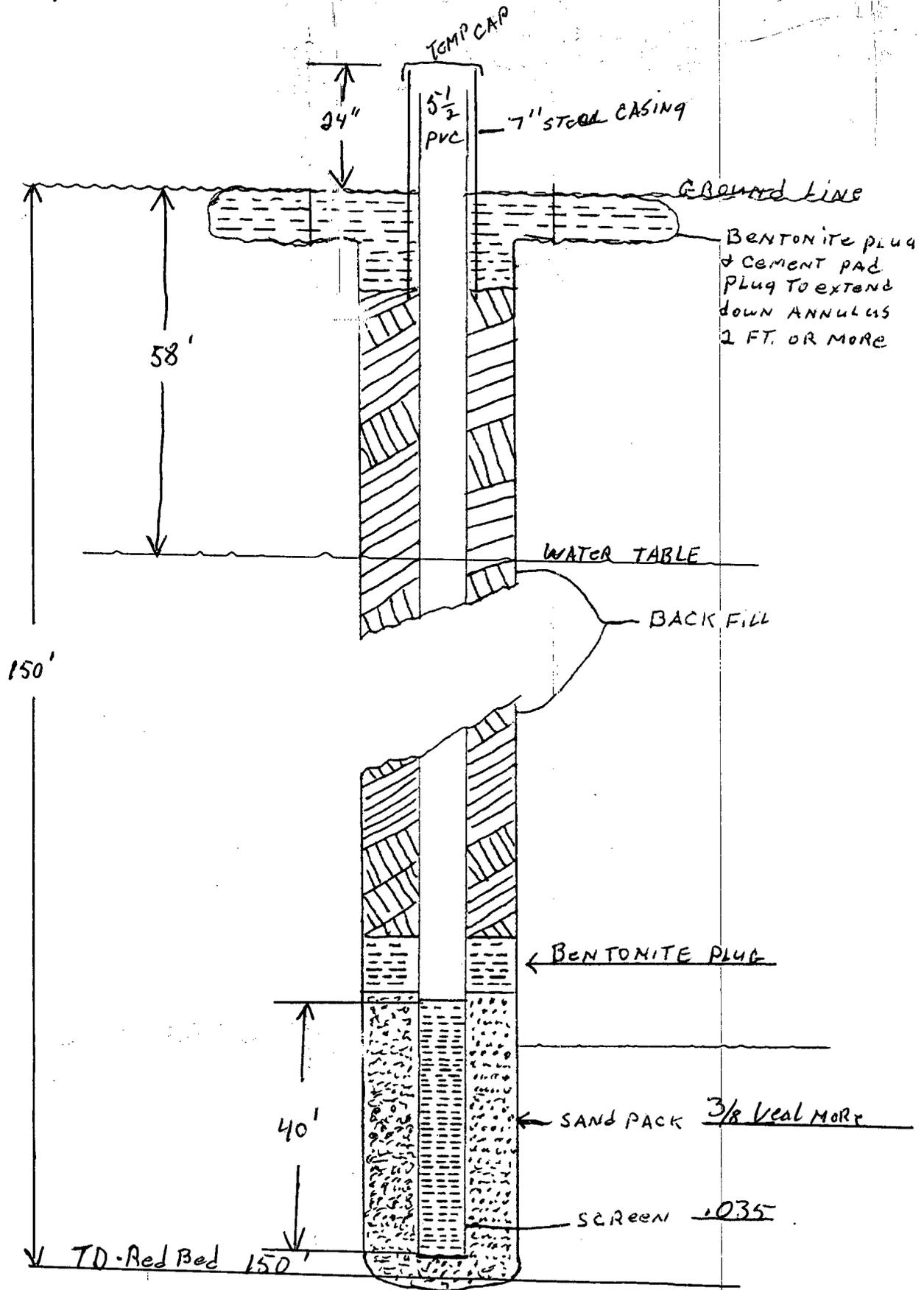
From---to	in feet	color and type of material encountered
<u>0 1</u>	<u>1</u>	<u>TOP SOIL AND BROKEN CALiche</u>
<u>1 21</u>	<u>20</u>	<u>CALiche INDURATED - GREY-WHT</u>
<u>21 44</u>	<u>23</u>	<u>QUARTZITE - Red-BRN. - HARD</u>
<u>44 46</u>	<u>2</u>	<u>CLAY - GREY</u>
<u>46 53</u>	<u>7</u>	<u>SANDSTONE - BRN. SOFT</u>
<u>53 55</u>	<u>2</u>	<u>CLAY - Red-BRN.</u>
<u>55 58</u>	<u>3</u>	<u>SANDSTONE - Red-BRN</u>
<u>58 130</u>	<u>72</u>	<u>SANDSTONE - Red-BRN - LOT Red CLAY IN SANDSTONE w/B</u>
<u>130 133</u>	<u>3</u>	<u>CLAY - Red-BRN.</u>
<u>133 150</u>	<u>18</u>	<u>SANDSTONE - Red-BRN. w/B</u>
	<u>TD</u>	<u>Red Bed</u>

The undersigned hereby certifies that, to the best of his knowledge and belief, the forgoing is true and correct record of the above described hole.

Driller Carl L Smiles

Date 9/9/02

Rem. well # 2



M W #3

WELL RECORD

Owner of well SALTY DOG INC

Street or post office address _____

City and State _____

Drilling contractor GRIFFIN WELL SERV. License No. WD-603

Address _____

Drilling began 9/5/02 Completed 9/6/02 Type tool ROT Hole size 6"

Elevation of land surface _____ at well is 3818 ft. total depth of well 147 ft.

GPS-cord. 32° 41' 14 N 103° 22' 22 W - Sec. 5 UNIT 5 19 36

Depth in feet Thickness in ft. Description of water bearing formation GPM

58 89 Red-BRN SANDSTONE "SOFT" 2

CASING

Diameter Pounds Threads Depth in feet Length Type of shoe Peforation

(inches) (per foot) (per in.) Top----Bottom (feet) NA (from- to)

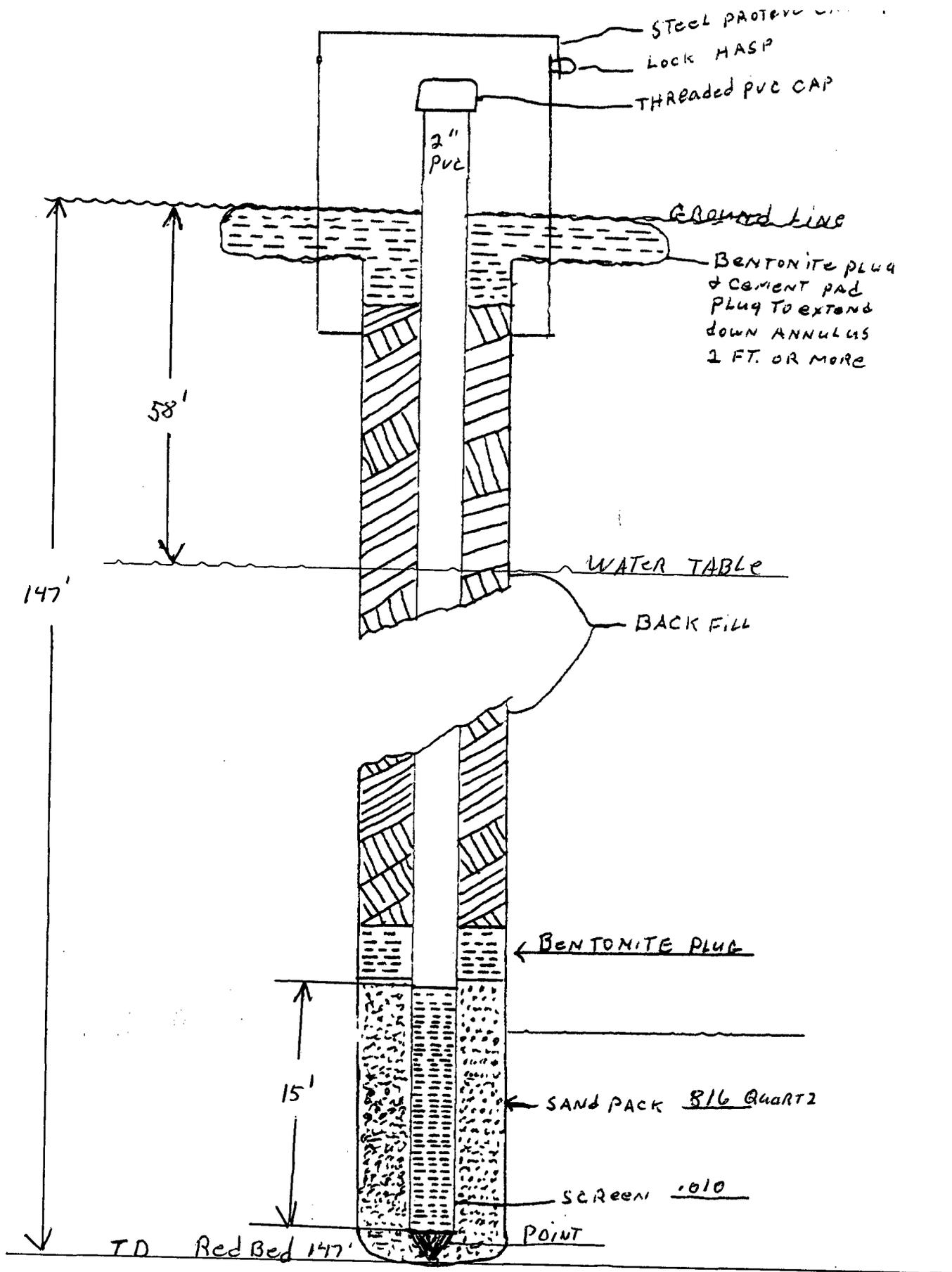
2 PVC NA 149 FT NA 132-147

COLORS AND TYPE OF MATERIALS ENCOUNTERED

From---	to	in feet	color and type of material encountered
0	1	1	TOP SOIL + broken CALiche
1	19	18	CALiche INDURATED Grey WHT.
19	42	23	QUARTZITE - Red-BRN. HARD
42	45	3	CLAY - Grey
45	51	6	SANDSTONE BRN. SOFT
51	53	2	CLAY - Grey
53	58	5	SANDSTONE BRN. SOFT
58	122	64	SANDSTONE BRN. SOFT W/B
122	123	1	CLAY - Grey
123	147	24	SANDSTONE - Red-BRN. SOFT W/B
	147	TD	Red Bed.

The undersigned hereby certifies that, to the best of his knowledge and belief, the forging is true and correct record of the above described hole.

Driller Carl L Amley Date 9/9/02





PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603

PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
 EDDIE SEAY CONSULTING
 ATTN: EDDIE SEAY
 601 W. ILLINOIS
 HOBBS, NM 88242
 FAX TO:

Receiving Date: 09/11/02
 Reporting Date: 09/13/02
 Project Number: SALTY DOG
 Project Name: SALTY DOG BRINE
 Project Location: W. HOBBS

Analysis Date: 9/12/02
 Sampling Date: 09/11/02
 Sample Type: GROUNDWATER
 Sample Condition: COOL & INTACT
 Sample Received By: AH
 Analyzed By: AH

LAB NUMBER	SAMPLE ID	Cl ⁻ (mg/L)
H7021-1	RECOVERY WELL #2	3999
H7021-2	MW #3	768
Quality Control		970
True Value QC		1000
% Recovery		97.0
Relative Percent Difference		1.0
METHOD: Standard Methods		4500-Cl ⁻ B

Amy Hill
 Chemist

9-13-02
 Date

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PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
 EDDIE SEAY CONSULTING
 ATTN: EDDIE SEAY
 601 W. ILLINOIS
 HOBBS, NM 88242
 FAX TO:

Receiving Date: 09/13/02
 Reporting Date: 09/18/02
 Project Number: SALTY DOG BRINE
 Project Name: ZIA-SALTY DOG BRINE
 Project Location: WEST HOBBS

Sampling Date: 09/13/02
 Sample Type: GROUNDWATER
 Sample Condition: COOL & INTACT
 Sample Received By: AH
 Analyzed By: AH

LAB NUMBER	SAMPLE ID	Na (mg/L)	Ca (mg/L)	Mg (mg/L)	K (mg/L)	Conductivity (mS/cm)	T-Alkalinity (mgCaCO ₃ /L)
ANALYSIS DATE:		09/18/02	09/17/02	09/17/02	09/17/02	09/17/02	09/17/02
H7029-1	MW #3	563	323	79	5.52	2533	98
H7029-2	REC. #2	5670	289	51	26.6	22655	253
Quality Control		NR	42.4	48.0	4.62	1489	NR
True Value QC		NR	50.0	50.0	5.00	1413	NR
% Recovery		NR	84.9	96.1	92.4	105	NR
Relative Percent Difference		NR	11.8	4.4	9.0	0.3	NR

METHODS:	SM3500-Ca-D	3500-Mg E	8049	120.1	310.1
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	Cl ⁻ (mg/L)	SO ₄ (mg/L)	CO ₃ (mg/L)	HCO ₃ (mg/L)	pH (s.u.)	TDS (mg/L)	
ANALYSIS DATE:		09/17/02	09/17/02	09/17/02	09/17/02	09/18/02	
H7029-1	MW #3	1600	12.2	0	120	7.10	2570
H7029-2	REC. #2	9197	81.8	0	309	7.30	16000
Quality Control		1080	49.3	NR	975	6.97	NR
True Value QC		1000	50.0	NR	1000	7.00	NR
% Recovery		108	98.7	NR	97.5	99.6	NR
Relative Percent Difference		1.1	0.2	NR	2.5	0.3	8.8

METHODS:	SM4500-Cl-B	375.4	310.1	310.1	150.1	160.1
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Amy Hill
 Chemist

9-18-02
 Date

PLEASE NOTE: **Liability and Damages.** Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. Cardinal shall be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above-stated reasons or otherwise.









