


**APPLICATION FOR AUTHORIZATION TO INJECT**

- I. PURPOSE: \_\_\_\_\_ Secondary Recovery \_\_\_\_\_ Pressure Maintenance \_\_\_\_\_ ☒ Disposal \_\_\_\_\_ Storage  
Application qualifies for administrative approval? \_\_\_\_\_ ☒ Yes \_\_\_\_\_ No
- II. OPERATOR: \_\_\_\_\_ OXY USA Inc \_\_\_\_\_ NBR 7 State #1 \_\_\_\_\_ 30-025-34992  
ADDRESS: \_\_\_\_\_ P.O. Box 50250 Midland, TX 79710  
CONTACT PARTY: \_\_\_\_\_ David Stewart \_\_\_\_\_ PHONE: \_\_\_\_\_ 432-685-5717
- III. WELL DATA: Complete the data required on the reverse side of this form for each well proposed for injection.  
Additional sheets may be attached if necessary.
- IV. Is this an expansion of an existing project? \_\_\_\_\_ Yes \_\_\_\_\_ ☒ No  
If yes, give the Division order number authorizing the project: \_\_\_\_\_
- V. Attach a map that identifies all wells and leases within two miles of any proposed injection well with a one-half mile radius circle drawn around each proposed injection well. This circle identifies the well's area of review. Attached
- VI. Attach a tabulation of data on all wells of public record within the area of review which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of completion, and a schematic of any plugged well illustrating all plugging detail. Attached
- VII. Attach data on the proposed operation, including:
1. Proposed average and maximum daily rate and volume of fluids to be injected; Avg-3000BWPD – Max-6000BWPD
  2. Whether the system is open or closed; Closed
  3. Proposed average and maximum injection pressure; Avg- 1006 psi – Max-1046 psi
  4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and, Atoka, Bone Spring, Delaware, Morrow from OXY operated leases, see attached.
  5. If injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water (may be measured or inferred from existing literature, studies, nearby wells, etc.). Attached
- \*VIII. Attach appropriate geologic data on the injection zone including appropriate lithologic detail, geologic name, thickness, and depth. Give the geologic name, and depth to bottom of all underground sources of drinking water (aquifers containing waters with total dissolved solids concentrations of 10,000 mg/l or less) overlying the proposed injection zone as well as any such sources known to be immediately underlying the injection interval. Attached
- IX. Describe the proposed stimulation program, if any. Acid stimulation
- \*X. Attach appropriate logging and test data on the well. (If well logs have been filed with the Division, they need not be resubmitted).  
Logs have already been filed..
- \*XI. Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken. Per our field personnel no fresh water wells or windmills were found within one mile of this well, see attached.
- XII. Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground sources of drinking water. Attached
- XIII. Applicants must complete the "Proof of Notice" section on the reverse side of this form. Attached
- XIV. Certification: I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.
- NAME: \_\_\_\_\_ David Stewart \_\_\_\_\_ TITLE: \_\_\_\_\_ Sr. Regulatory Advisor \_\_\_\_\_  
SIGNATURE: \_\_\_\_\_  \_\_\_\_\_ DATE: \_\_\_\_\_ 3/16/16 \_\_\_\_\_  
E-MAIL ADDRESS: \_\_\_\_\_ david\_stewart@oxy.com \_\_\_\_\_
- \* If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be resubmitted. Please show the date and circumstances of the earlier submittal: \_\_\_\_\_

DISTRIBUTION: Original and one copy to Santa Fe with one copy to the appropriate District Office

HOBBS OCD

MAR 18 2016

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### III. WELL DATA

A. The following well data must be submitted for each injection well covered by this application. The data must be both in tabular and schematic form and shall include:

- (1) Lease name; Well No.; Location by Section, Township and Range; and footage location within the section.
- (2) Each casing string used with its size, setting depth, sacks of cement used, hole size, top of cement, and how such top was determined.
- (3) A description of the tubing to be used including its size, lining material, and setting depth.
- (4) The name, model, and setting depth of the packer used or a description of any other seal system or assembly used.

Division District Offices have supplies of Well Data Sheets which may be used or which may be used as models for this purpose. Applicants for several identical wells may submit a "typical data sheet" rather than submitting the data for each well.

B. The following must be submitted for each injection well covered by this application. All items must be addressed for the initial well. Responses for additional wells need be shown only when different. Information shown on schematics need not be repeated.

- (1) The name of the injection formation and, if applicable, the field or pool name.
- (2) The injection interval and whether it is perforated or open-hole.
- (3) State if the well was drilled for injection or, if not, the original purpose of the well.
- (4) Give the depths of any other perforated intervals and detail on the sacks of cement or bridge plugs used to seal off such perforations.
- (5) Give the depth to and the name of the next higher and next lower oil or gas zone in the area of the well, if any.

### XIV. PROOF OF NOTICE

All applicants must furnish proof that a copy of the application has been furnished, by certified or registered mail, to the owner of the surface of the land on which the well is to be located and to each leasehold operator within one-half mile of the well location.

Where an application is subject to administrative approval, a proof of publication must be submitted. Such proof shall consist of a copy of the legal advertisement which was published in the county in which the well is located. The contents of such advertisement must include:

- (1) The name, address, phone number, and contact party for the applicant;
- (2) The intended purpose of the injection well; with the exact location of single wells or the Section, Township, and Range location of multiple wells;
- (3) The formation name and depth with expected maximum injection rates and pressures; and,
- (4) A notation that interested parties must file objections or requests for hearing with the Oil Conservation Division, 1220 South St. Francis Dr., Santa Fe, New Mexico 87505, within 15 days.

NO ACTION WILL BE TAKEN ON THE APPLICATION UNTIL PROPER PROOF OF NOTICE HAS BEEN SUBMITTED.

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NOTICE: Surface owners or offset operators must file any objections or requests for hearing of administrative applications within 15 days from the date this application was mailed to them.



INJECTION WELL DATA SHEET

OPERATOR: \_\_\_\_\_ OXY USA Inc \_\_\_\_\_

WELL NAME & NUMBER: \_\_\_\_\_ NBR 7 State #1 30-025-34992 \_\_\_\_\_

WELL LOCATION: \_\_\_\_\_ 660 FSL 990 FWL \_\_\_\_\_ M \_\_\_\_\_ 7 \_\_\_\_\_ 22S \_\_\_\_\_ 33E \_\_\_\_\_  
FOOTAGE LOCATION UNIT LETTER SECTION TOWNSHIP RANGE

WELLBORE SCHEMATIC

PROPOSED WELL CONSTRUCTION DATA

Surface Casing

Hole Size: 17-1/2" Casing Size: 13-3/8" @ 772'  
Cemented with: 915 sx. or 1208 ft<sup>3</sup>  
Top of Cement: Surface Method Determined: Circ

Intermediate Casing

Hole Size: 12-1/4" Casing Size: 9-5/8" @ 4622'  
Cemented with: 1650 sx. or 2178 ft<sup>3</sup>  
Top of Cement: Surface Method Determined: Circ

Production Casing

Hole Size: 8-1/2" Casing Size: 7" @ 12223'  
Cemented with: 2504 sx. or 2978 ft<sup>3</sup>  
Top of Cement: Surface Method Determined: Circ

Production Casing

Hole Size: 6-1/8" Casing Size: 5" @ 11932-15140'  
Cemented with: 427 sx. or 448 ft<sup>3</sup>  
Top of Cement: 11932' Method Determined: Circ

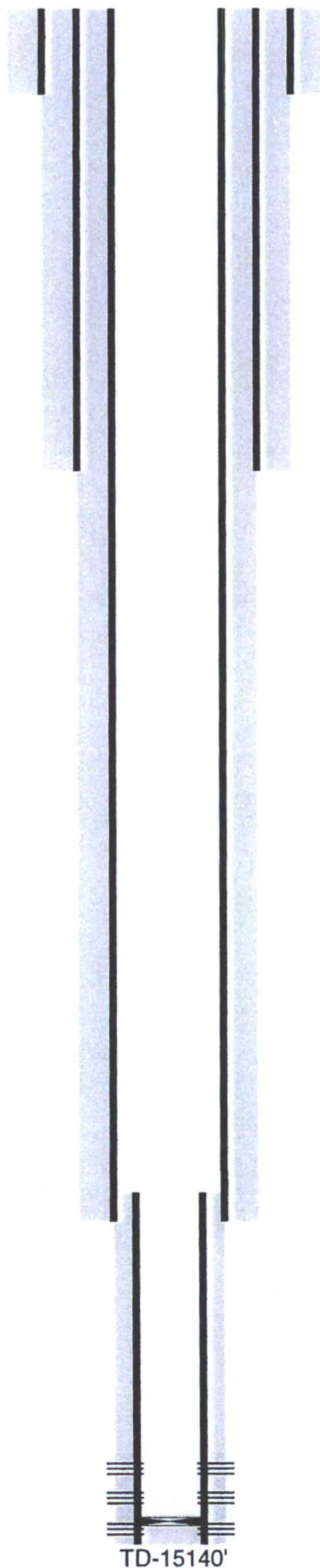
Injection Interval

5230 feet to 6478 feet

(Perforated or Open Hole; indicate which)



OXY USA Inc. - Current  
NBR 7 State #1  
API No. 30-025-34992



17-1/2" hole @ 772'  
13-3/8" csg @ 772'  
w/ 915sx-TOC-Surf-Circ

12-1/4" hole @ 4622'  
9-5/8" csg @ 4622'  
w/ 1650sx-TOC-Surf-Circ

8-1/2" hole @ 12223'  
7" csg @ 12223'  
w/ 2504sx-TOC-Surf-Circ

6-1/8" hole @ 15140'  
5" liner @ 11932-15140'  
w/ 427sx-TOC-11932'-Circ

CIBP @ 15025' w/ 15' cmt

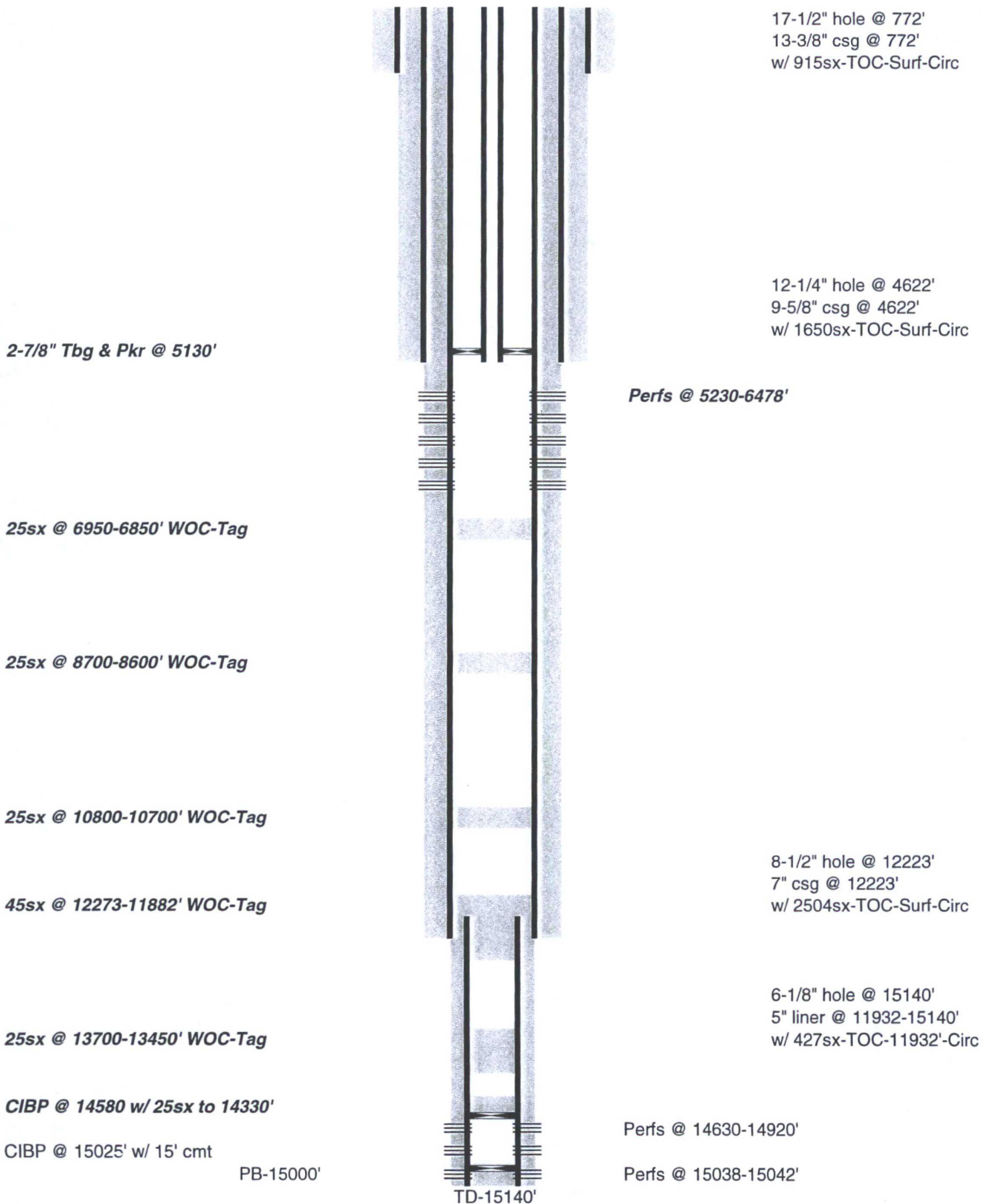
PB-15000'

TD-15140'

Perfs @ 14630-14920'

Perfs @ 15038-15042'

OXY USA Inc. - Proposed  
NBR 7 State #1  
API No. 30-025-34992



INJECTION WELL DATA SHEET

Tubing Size: 2-7/8" 6.5# J55 Lining Material: Duo Line

Type of Packer: Nickel Plated Arrow Set

Packer Setting Depth: 5130'

Other Type of Tubing/Casing Seal (if applicable): N/A

Additional Data

1. Is this a new well drilled for injection? Yes X No

If no, for what purpose was the well originally drilled? Oil Well

2. Name of the Injection Formation: Delaware - Bell/Cherry Canyon

3. Name of Field or Pool (if applicable): SWD Delaware

4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail, i.e. sacks of cement or plug(s) used. Yes

14630-14920' - 15038-15042' - CIBP @ 15025' w/ 15' cmt

See attached for Proposed Plugback procedure

5. Give the name and depths of any oil or gas zones underlying or overlying the proposed injection zone in this area: Delaware/Bone Springs/Atoka/Morrow







\*Wellbore does not penetrate the injection interval.

Penroc Oil Corp - P&A 10/89  
State 7 SST #1  
API No. 30-025-27466

10sx @ surface

60sx @ 1100-954' Calc

60sx @ 4800-4699' Tagged  
120sx @ 4900-4800' Tagged

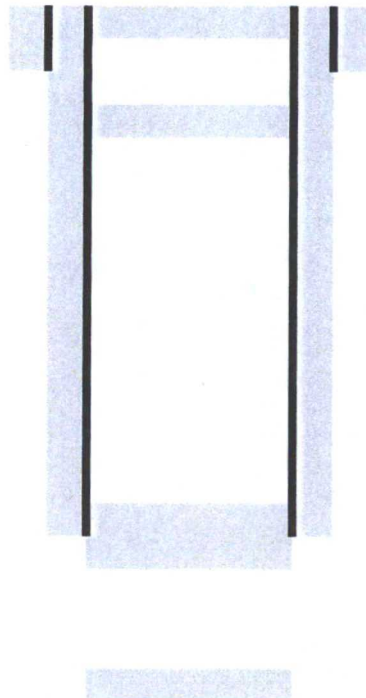
60sx @ 6034-5933' Tagged

25sx @ 8740-8600' Calc

50sx @ 11810-11630' Tagged

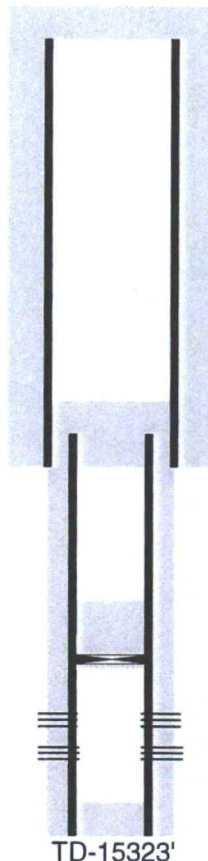
CIBP @ 14000' w/ 50sx to 13545' Calc

PB-15200'



18-1/2" hole @ 352'  
16" csg @ 352'  
w/ 470sx-TOC-Surf-Circ

14-3/4" hole @ 4750'  
10-3/4" csg @ 4750'  
w/ 3130sx-TOC-Surf-Circ



9-1/2" hole @ 12080'  
7-5/8" csg @ 8740-12080'  
w/ 600sx-TOC-8653'-Calc

6-1/4" hole @ 15323'  
5" liner @ 11776-15323'  
w/ sx-TOC-

Perfs @ 14424-14902'

TD-15323'



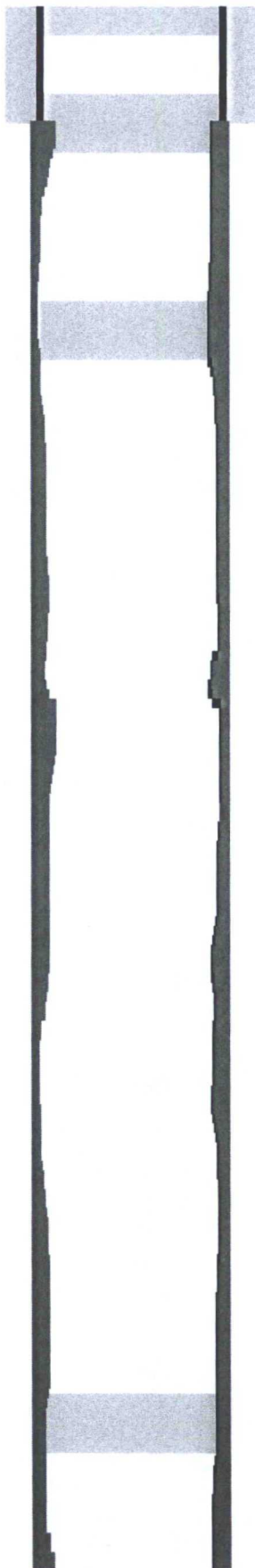
Cabot Corp. - P&A 8/62  
State K #1  
API No. 30-025-01796

10sx @ surface

20sx @ 443-340'

20SX @ 1085-990'

100SX @ 4999-4525'



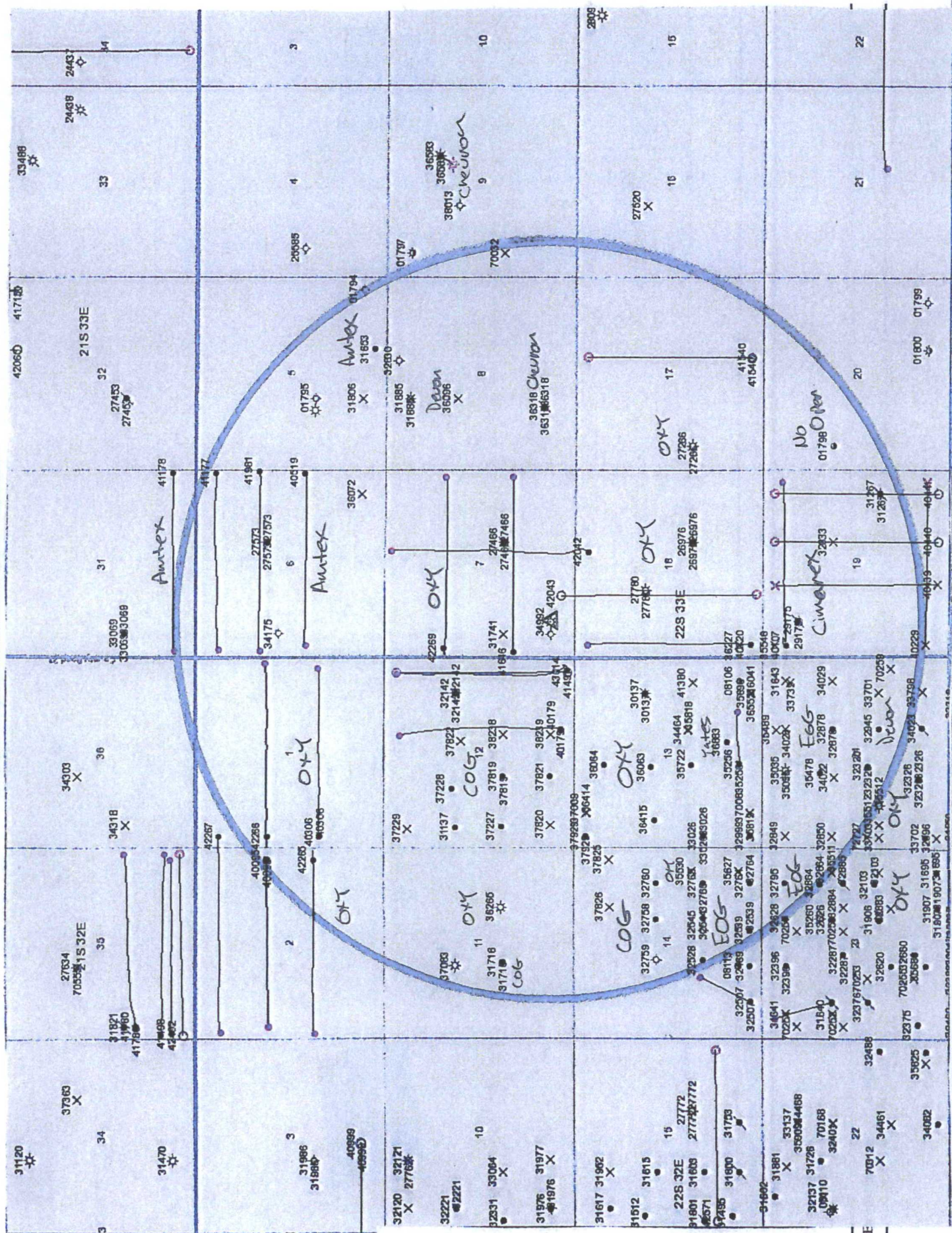
11" hole @ 388'  
8-5/8" csg @ 388'  
w/ 300sx-TOC-Surf-Circ

6-3/4" OH @ 388-4999'

TD-4999'



# NBR 7 State #1 - 2 Mile AOR





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NBR 7 State #1 – Proposed salt-water disposal well  
C-108, part VIII- geological data

The injection zone is in the lower Bell Canyon Formation and upper Cherry Canyon Formation from a depth of 5230' to 6478'; total thickness of the injection interval is about 1250'. The top of the Bell Canyon is at 4780', and the top of the Cherry Canyon is at 5706'. In the disposal well, these two formations are mainly fine-grained to very fine-grained sandstone with interbedded limestone layers. The sandstone layers have porosities of about 15% to 22%. No measurements of permeability based on core measurement are available, but the resistivity log shows an invasion profile consistent with good permeability. The sandstone layers are poorly consolidated by calcareous cement. The limestone layers have porosities less than about 8% and are impermeable, so they will not be perforated for injection. Neither the Bell Canyon nor the Cherry Canyon is productive of oil and gas within one mile of the proposed disposal well.

A 3700'-thick layer of impermeable anhydrite and salt (Salado and Castille formations) lies above the top of the Bell Canyon Formation.

Above the anhydrite and salt layer, the Santa Rosa Sandstone (Triassic, Dockum Group) is a potential source of drinking water near the disposal well. The depth to the base of this aquifer is about 360'. Although there are no freshwater wells within one mile of the proposed disposal well, two wells about 2 miles southwest of the proposed disposal well found water with total dissolved solids less than 10,000 mg/l in the Santa Rosa Sandstone. Water analyses of these two wells are included in this application.

There are no known sources of drinking water immediately underlying the disposal zone.





## *New Mexico Office of the State Engineer* **Water Column/Average Depth to Water**

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No records found.

PLSS Search:

**Section(s):** 5, 6, 7, 8, 17, 18 **Township:** 22S **Range:** 33E



## *New Mexico Office of the State Engineer* **Water Column/Average Depth to Water**

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No records found.

PLSS Search:

**Section(s):** 1, 12, 13 **Township:** 22S **Range:** 32E

# MITCHELL ANALYTICAL LABORATORY

2638 Faudree  
Odessa, Texas 79765-8538  
561-5579

Company: **Nalco Company**

Well Number:	Mills Water Well	Sample Temp:	70
Lease:	OXY	Date Sampled:	2/3/2016
Location:	Overflow Line on Water Tank	Sampled by:	Leo Sandmann
Date Run:	2/3/2016	Employee #:	
Lab Ref #:	16-feb-n83184	Analyzed by:	GEORGE

## Dissolved Gases

		Mg/L	Eq. Wt.	MEq/L
Hydrogen Sulfide	(H <sub>2</sub> S)	.00	16.00	.00
Carbon Dioxide	(CO <sub>2</sub> )	<b>NOT ANALYZED</b>		
Dissolved Oxygen	(O <sub>2</sub> )	<b>NOT ANALYZED</b>		

## Cations

Calcium	(Ca <sup>++</sup> )	534.98	20.10	26.62
Magnesium	(Mg <sup>++</sup> )	136.25	12.20	11.17
Sodium	(Na <sup>+</sup> )	4.99	23.00	.22
Barium	(Ba <sup>++</sup> )	<b>NOT ANALYZED</b>		
Manganese	(Mn <sup>+</sup> )	.01	27.50	.00
Strontium	(Sr <sup>++</sup> )	<b>NOT ANALYZED</b>		

## Anions

Hydroxyl	(OH <sup>-</sup> )	.00	17.00	.00
Carbonate	(CO <sub>3</sub> <sup>=</sup> )	.00	30.00	.00
BiCarbonate	(HCO <sub>3</sub> <sup>-</sup> )	122.20	61.10	2.00
Sulfate	(SO <sub>4</sub> <sup>=</sup> )	1,000.00	48.80	20.49
Chloride	(Cl <sup>-</sup> )	535.59	35.50	15.09
Total Iron	(Fe)	0.21	18.60	.01
Total Dissolved Solids		2,334.23		
Total Hardness as CaCO <sub>3</sub>		1,896.08		
Conductivity MICROMHOS/CM		4,000		

pH	7.290	Specific Gravity 60/60 F.	1.002
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CaSO <sub>4</sub> Solubility @ 80 F.	17.25MEq/L,	CaSO <sub>4</sub> scale is likely
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### CaCO<sub>3</sub> Scale Index

70.0	-.072	100.0	.278	130.0	.788
80.0	.058	110.0	.518	140.0	.788
90.0	.278	120.0	.518	150.0	1.018

*Nalco Company*

# MITCHELL ANALYTICAL LABORATORY

2638 Faudree  
Odessa, Texas 79765-8538  
561-5579

Company: **Nalco Company**

Well Number: Mills Water Well  
Lease: OXY  
Location: Spigot on Wellhead  
Date Run: 2/3/2016  
Lab Ref #: 16-feb-n83183

Sample Temp: 70  
Date Sampled: 2/3/2016  
Sampled by: Leo Sandmann  
Employee #:   
Analyzed by: GEORGE

## Dissolved Gases

		Mg/L	Eq. Wt.	MEq/L
Hydrogen Sulfide (H <sub>2</sub> S)		.00	16.00	.00
Carbon Dioxide (CO <sub>2</sub> )	<b>NOT ANALYZED</b>			
Dissolved Oxygen (O <sub>2</sub> )	<b>NOT ANALYZED</b>			

## Cations

Calcium (Ca <sup>++</sup> )		70.11	20.10	3.49
Magnesium (Mg <sup>++</sup> )		57.44	12.20	4.71
Sodium (Na <sup>+</sup> )		88.00	23.00	3.83
Barium (Ba <sup>++</sup> )	<b>NOT ANALYZED</b>			
Manganese (Mn <sup>+</sup> )		.01	27.50	.00
Strontium (Sr <sup>++</sup> )	<b>NOT ANALYZED</b>			

## Anions

Hydroxyl (OH <sup>-</sup> )		.00	17.00	.00
Carbonate (CO <sub>3</sub> <sup>=</sup> )		24.00	30.00	.80
BiCarbonate (HCO <sub>3</sub> <sup>-</sup> )		219.96	61.10	3.60
Sulfate (SO <sub>4</sub> <sup>=</sup> )		92.00	48.80	1.89
Chloride (Cl <sup>-</sup> )		204.22	35.50	5.75
Total Iron (Fe)		0.29	18.60	.02
Total Dissolved Solids		756.03		
Total Hardness as CaCO <sub>3</sub>		410.78		
Conductivity MICROMHOS/CM		1,203		

pH	7.560	Specific Gravity 60/60 F.	1.001
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CaSO <sub>4</sub> Solubility @ 80 F.	19.22MEq/L,	CaSO <sub>4</sub> scale is unlikely
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## CaCO<sub>3</sub> Scale Index

70.0	-.383	100.0	-.033	130.0	.477
80.0	-.253	110.0	.207	140.0	.477
90.0	-.033	120.0	.207	150.0	.707

*Nalco Company*



**Endura Products Corp.**

P.O. Box 3394 Midland, Texas 79706  
 Phone (915) 684-4233 \* Fax (915) 684-4277

**WATER ANALYSIS**

Date 8/19/95 Nutro Rep **TERRY SOLANSKY**  
 Sampling Point/Date **WELL HEAD - 8/18/95**  
 Company **POGO PRODUCING**  
 Field Lease **COVINGTON**

Code **W-0147**  
 State **NEW MEXICO**  
 County **EDDY**  
 Well **A-1**

**DISSOLVED SOLIDS**

<u>CATIONS</u>	mg/l	me/l
Sodium, Na- (Calc.)	78,338	3,406
Total Hardness as Ca--	1,400	0
Calcium, Ca--	840	42
Magnesium, Mg--	341	28
Barium, Ba--	0	0
Iron (Total) Fe---	60	3

**ANIONS**

Chlorides, Cl-	119,000	3,352
Sulfate, SO4-	4,200	88
Carbonate, CO3-	0	0
Bicarbonate, HCO3-	2,366	39
Sulfide, S--	0	0
Total Dissolved Solids (Calc.)	205,145	

**OTHER PROPERTIES**

pH-	6.800
Specific Gravity, 60-/60 F	1.109
TURBIDITY	100

**SCALING INDICIES**

<u>TEMP, F</u>	<u>CA CO3</u>	<u>CASO4*2H2O</u>	<u>CA SO4</u>	<u>BA SO4</u>
80	0.9037	-0.4808	-0.7533	-29.3552
120	1.3079	-0.4920	-0.5840	-29.5395
160	1.9281	-0.5147	-0.4340	-29.7651

## MITCHELL ANALYTICAL LABORATORY

2638 Faudree  
Odessa, Texas 79765-8538  
561-5579

Company: **Nalco Company**

*Bone Springs*

Well Number: WBR Federal #7  
Lease: OXY  
Location:  
Date Run: 4/11/2008  
Lab Ref #: 08-apr-n39441

Sample Temp: 70  
Date Sampled: 4/7/2008  
Sampled by: Casey Summers  
Employee #:  
Analyzed by: DOM

*Dissolved Gases*

		Mg/L	Eq. Wt.	MEq/L
Hydrogen Sulfide (H <sub>2</sub> S)		.00	16.00	.00
Carbon Dioxide (CO <sub>2</sub> )	<b>NOT ANALYZED</b>			
Dissolved Oxygen (O <sub>2</sub> )	<b>NOT ANALYZED</b>			

*Cations*

Calcium (Ca++)		369.84	20.10	18.40
Magnesium (Mg++)		24.40	12.20	2.00
Sodium (Na+)		58,806.10	23.00	2,556.79
Barium (Ba++)	<b>NOT ANALYZED</b>			
Manganese (Mn+)		.15	27.50	.01

*Anions*

Hydroxyl (OH-)		.00	17.00	.00
Carbonate (CO <sub>3</sub> =)		.00	30.00	.00
BiCarbonate (HCO <sub>3</sub> -)		1,490.84	61.10	24.40
Sulfate (SO <sub>4</sub> =)		725.00	48.80	14.86
Chloride (Cl-)		90,099.00	35.50	2,538.00
Total Iron (Fe)		1.19	18.60	.06
Total Dissolved Solids		151,516.52		
Total Hardness as CaCO <sub>3</sub>		1,024.64		
Conductivity MICROMHOS/CM		205,100		

pH 7.200

Specific Gravity 60/60 F.

1.105

CaSO<sub>4</sub> Solubility @ 80 F.

107.67MEq/L,

CaSO<sub>4</sub> scale is unlikely

*CaCO<sub>3</sub> Scale Index*

70.0	.434	100.0	.754	130.0	1.314
80.0	.524	110.0	1.014	140.0	1.314
90.0	.754	120.0	1.014	150.0	1.654

*Nalco Company*

PETROLITE

Petrolite Corporation  
510 West Texas  
Artesia, NM 88210-2041

## TRETOLITE DIVISION

(505) 746-3588  
Fax (505) 746-3580

Reply to:  
P.O. Box FF  
Artesia, NM  
88211-7531

## WATER ANALYSIS REPORT

Company : POGO PRODUCING  
Address : MIDLAND, TX  
Lease : COVINGTON "A"  
Well : #9  
Sample Pt. : WELLHEAD

Date : 3/17/94  
Date Sampled : 3/16/94  
Analysis No. : 632

ANALYSIS		mg/L	* meq/L
-----		----	-----
1.	pH	5.7	
2.	H <sub>2</sub> S	NEG	
3.	Specific Gravity	1.160	
4.	Total Dissolved Solids	254252.3	
5.	Suspended Solids	NR	
6.	Dissolved Oxygen	NR	
7.	Dissolved CO <sub>2</sub>	NR	
8.	Oil In Water	NR	
9.	Phenolphthalein Alkalinity (CaCO <sub>3</sub> )		
10.	Methyl Orange Alkalinity (CaCO <sub>3</sub> )		
11.	Bicarbonate	HCO <sub>3</sub> 122.0	HCO <sub>3</sub> 2.0
12.	Chloride	Cl 157833.0	Cl 4452.3
13.	Sulfate	SO <sub>4</sub> 75.0	SO <sub>4</sub> 1.6
14.	Calcium	Ca 19800.0	Ca 988.0
15.	Magnesium	Mg 3705.0	Mg 304.8
16.	Sodium (calculated)	Na 72717.3	Na 3163.0
17.	Iron	Fe NR	
18.	Barium	Ba NR	
19.	Strontium	Sr NR	
20.	Total Hardness (CaCO <sub>3</sub> )	64700.0	

## PROBABLE MINERAL COMPOSITION

*milli equivalents per Liter				Compound	Equiv wt	X meq/L	= mg/L
988	*Ca <-----	*HCO3	2	Ca (HCO3) 2	81.0	2.0	162
	/----->			CaSO4	68.1	1.6	106
305	*Mg <-----	*SO4	2	CaCl2	55.5	984.5	54628
	<-----/			Mg (HCO3) 2	73.2		
3163	*Na <-----	*Cl	4452	MgSO4	60.2		
				MgCl2	47.6	304.8	14511
Saturation Values Dist. Water 20 C				NaHCO3	84.0		
CaCO3		13 mg/L		Na2SO4	71.0		
CaSO4 * 2H2O		2090 mg/L		NaCl	58.4	3163.0	184845
BaSO4		2.4 mg/L					

Petrolite Oilfield Chemicals Group

Respectfully submitted,  
A. MILLER





BJ Services

**WATER ANALYSIS**Permian Region Laboratory  
(915) 530-2867

Operator: Latigo  
Well: Bootleg #2  
Formation:  
Field:  
County:  
Depth:

Date: 8/21/2006  
District: Artesia  
Requested:  
Technician: Bid Thompson  
Source:  
PFS Test #:  
M:Water Analysis

Customer:

pH: 5.03  
Specific Gravity: 1.055

Temp (F): 73  
H2S:

**CATIONS**

Sodium (calc.)

mg/l	me/l	ppm
28341	1232.8	26864
2887	144.1	2737
194	16.0	184
< 25	—	—
< 10	—	—
3	0.1	3

Magnesium

Barium

Potassium

Iron

**ANIONS**

Chloride

Sulfate

Carbonate

Bicarbonate

48000	1354.0	45498
1600	33.3	1517
< 1	—	—
342	5.6	324

Total Dissolved Solids(calc.)

81367 77125

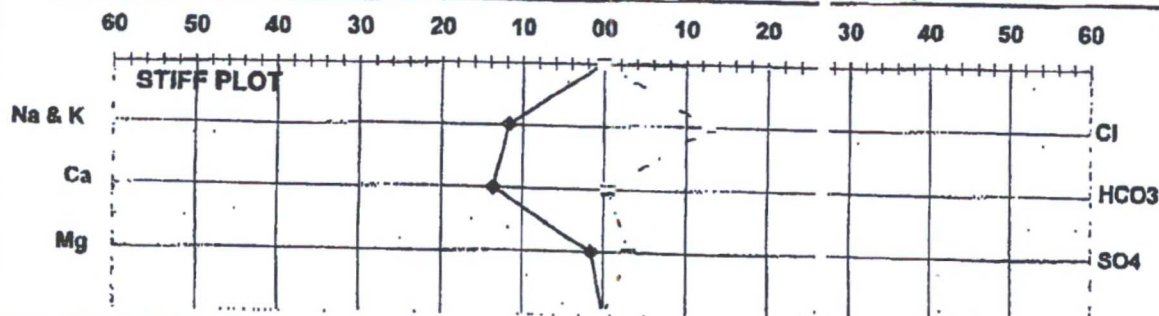
Total Hardness as CaCO3

8010 160.1 7593

**COMMENTS:****SCALE ANALYSIS:**

CaCO3 Factor 986287.52  
CaSO4 Factor 4619520

Calcium Carbonate Scale Probability Possible  
Calcium Sulfate Scale Probability Possible





MAR 18 2016

RECEIVED

February 27, 2016

NBR 7 State #1 – Proposed salt-water disposal well  
C-108, part XII

I have examined the geologic and engineering data for the area around the NBR 7 State #1 proposed salt-water disposal well, API 30-025-34992, located in section 7-T22S- R33E, Lea County, New Mexico. The proposed salt-water injection zone is from 5230' to 6478'. The base of the only known freshwater aquifer is at a depth of approximately 360' in two wells 1.9 miles southwest of the proposed disposal well. There are no known faults or other permeable zones capable of allowing injected salt water to move up into the freshwater aquifer. An impermeable layer of anhydrite and salt that is over 3700' thick separates the freshwater from the injection zone. The casing and cement in the NBR 7 State #1 well are sufficient to prevent upward movement of water from injection zone within this well.

One abandoned well, the Cabot Corporation State of New Mexico K #1 (API 30-025-01796), is about 300' west of the NBR State 7 #1. This well was drilled to a total depth of 4999', and it penetrated into the top 230' of the Bell Canyon Formation. The well did not encounter hydrocarbons, and it was plugged in 1962. When the State K #1 was plugged, a cement plug was set 348' to 443' to protect the freshwater zone. This plug extended about 24' into the base of the conductor, which was set at 372'. The State K #1 well has the same 3700' of impermeable anhydrite and salt layer seen in the NBR 7 State #1 well, and this layer also protects the freshwater zone in the State K #1. When the State K #1 was plugged, a 20-sack plug was set at 990' to 1085' to seal the top of the anhydrite, which is at 1050'. A 100-sack plug was set at 4525' to 4999' to seal the base of the anhydrite (at 4778') to TD (at 4999'). If water injected into the NBR 7 State #1 were to reach the State K #1 well, it is very unlikely that it could move upward to reach the freshwater zone. As an additional safeguard against this, the highest perforations in the NBR 7 State #1 will be at 5230'. This would put the highest injection point in the disposal well 230' below the total depth of the State K #1. This 230' interval includes a total of about 75' of impermeable limestone layers.

Based on the above information, I have examined the available geologic and engineering data for the NBR 7 State #1 SWD well and find no evidence of open faults or other hydrological connection between the disposal zone and any underground sources of drinking water.



Richard J. Erickson  
Senior Geological Advisor  
Occidental Petroleum Corporation

**C-108 Service List  
OXY USA Inc  
NBR 7 State #1**

New Mexico Oil Conservation Division  
1625 N. French Dr.  
Hobbs, NM 88240

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

United States Dept of Interior  
Bureau of Land Management  
620 E. Greene Street  
Carlsbad, NM 88220

**Surface Owner**

State Land Office  
P.O. Box 1148  
Santa Fe, NM 87504

Merchant Livestock Co., Inc. - Tenant  
P.O. Box 1105  
Eunice, NM 88231

**Offset Operators within 1/2 mile**

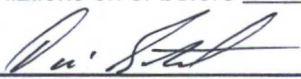
OXY USA Inc.  
P.O. Box 50250  
Midland, TX 79710

COG Operating LLC  
600 W. Illinois Ave,  
Midland, TX 79701

**Potash Lessee(s) within 2 miles**

Intrepid Potash NM LLC  
707 17th St., Ste.4200  
Denver, CO 80202-3432

Copies of this application were mailed to the following individuals, companies and organizations on or before 3/16/14.

  
\_\_\_\_\_  
David Stewart  
OXY USA Inc.

**Affidavit of Publication**

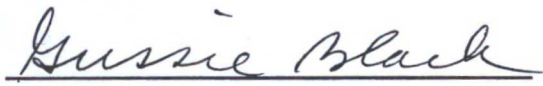
STATE OF NEW MEXICO  
COUNTY OF LEA

I, Daniel Russell, Publisher of the Hobbs News-Sun, a newspaper published at Hobbs, New Mexico, solemnly swear that the clipping attached hereto was published in the regular and entire issue of said newspaper, and not a supplement thereof for a period of 1 issue(s).

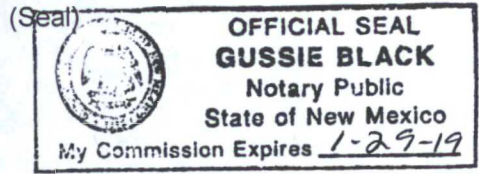
Beginning with the issue dated  
March 12, 2016  
and ending with the issue dated  
March 12, 2016.

  
\_\_\_\_\_  
Publisher

Sworn and subscribed to before me this  
12th day of March 2016.

  
\_\_\_\_\_  
Business Manager

My commission expires  
January 29, 2019



This newspaper is duly qualified to publish legal notices or advertisements within the meaning of Section 3, Chapter 167, Laws of 1937 and payment of fees for said

LEGAL	LEGAL
<b>LEGAL NOTICE</b> March 12, 2016	
<b>Notice Of Application For Fluid Disposal</b>	
<b>Applicant:</b> OXY USA Inc. P.O. Box 50250 Midland, TX 79710 ATTN: David Stewart 432-685-5717	
<b>Purpose – Well:</b> Disposal of Produced Water Into A Zone Non Productive of Oil & Gas NBR 7 State #1 660 FSL 990 FWL SWSW (M) Sec 7 T22S R33E Lea County, NM	
<b>Formation:</b> Delaware – Bell/Cherry Canyon 5230-6478' Maximum Injection Rate – 6000 BWPD Maximum Injection Pressure – 1046 psi	
<b>Interested parties must file objections or requests for hearing with the Oil Conservation Division, 1220 South St. Francis Dr., Santa Fe, New Mexico 87505 within 15 days of this application.</b> #30750	

67108498

00171766

DOUGLAS LOWRIE  
OCCIDENTAL PERMIAN LTD  
PO BOX 50250  
MIDLAND, TX 79710



SENDER: COMPLETE THIS SECTION

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4. Restricted Delivery? (Extra Fee) Yes No

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If YES, enter delivery address below:

3. Service Type

4. Restricted Delivery? (Extra Fee) Yes No

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Print your name and address on the reverse so that we can return the card to you.

Attach this card to the back of the mailpiece, or on the front if space permits.

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