

7/15/2016 DATE IN	SUSPENSE	MAN ENGINEER	7/15/2016 LOGGED IN	WFX TYPE	PMAM1619746768 APP NO
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ABOVE THIS LINE FOR DIVISION USE ONLY

**NEW MEXICO OIL CONSERVATION DIVISION**  
- Engineering Bureau -  
1220 South St. Francis Drive, Santa Fe, NM 87505



**ADMINISTRATIVE APPLICATION CHECKLIST**

THIS CHECKLIST IS MANDATORY FOR ALL ADMINISTRATIVE APPLICATIONS FOR EXCEPTIONS TO DIVISION RULES AND REGULATIONS WHICH REQUIRE PROCESSING AT THE DIVISION LEVEL IN SANTA FE

**Application Acronyms:**

[NSL-Non-Standard Location] [NSP-Non-Standard Proration Unit] [SD-Simultaneous Dedication]  
[DHC-Downhole Commingling] [CTB-Lease Commingling] [PLC-Pool/Lease Commingling]  
[PC-Pool Commingling] [OLS - Off-Lease Storage] [OLM-Off-Lease Measurement]  
[WFX-Waterflood Expansion] [PMX-Pressure Maintenance Expansion]  
[SWD-Salt Water Disposal] [IPI-Injection Pressure Increase]  
[EOR-Qualified Enhanced Oil Recovery Certification] [PPR-Positive Production Response]

[1] **TYPE OF APPLICATION** - Check Those Which Apply for [A]

[A] Location - Spacing Unit - Simultaneous Dedication  
☐ NSL ☐ NSP ☐ SD

Check One Only for [B] or [C]

[B] Commingling - Storage - Measurement  
☐ DHC ☐ CTB ☐ PLC ☐ PC ☐ OLS ☐ OLM

[C] Injection - Disposal - Pressure Increase - Enhanced Oil Recovery  
☐ WFX ☒ PMX ☐ SWD ☐ IPI ☐ EOR ☐ PPR

[D] Other: Specify Additional Injector within approved project area (R-4934-F)

[2] **NOTIFICATION REQUIRED TO:** - Check Those Which Apply, or Does Not Apply

[A] ☐ Working, Royalty or Overriding Royalty Interest Owners

[B] ☐ Offset Operators, Leaseholders or Surface Owner

[C] ☐ Application is One Which Requires Published Legal Notice

[D] ☐ Notification and/or Concurrent Approval by BLM or SLO  
U.S. Bureau of Land Management - Commissioner of Public Lands, State Land Office

[E] ☐ For all of the above, Proof of Notification or Publication is Attached, and/or

[F] ☐ Waivers are Attached

[3] **SUBMIT ACCURATE AND COMPLETE INFORMATION REQUIRED TO PROCESS THE TYPE OF APPLICATION INDICATED ABOVE.**

[4] **CERTIFICATION:** I hereby certify that the information submitted with this application for administrative approval is **accurate** and **complete** to the best of my knowledge. I also understand that **no action** will be taken on this application until the required information and notifications are submitted to the Division.

**Note:** Statement must be completed by an individual with managerial and/or supervisory capacity.

April Hood

Print or Type Name

Signature

Regulatory Coordinator

Title

Date

April.Hood@Oxy.com  
e-mail Address

-WFX 957  
-Occidental Permian Ltd  
157984  
WEX  
-South Hobbs  
GISA Unit #263  
30-025-43103  
-South Hobbs  
GISA Unit #264  
30-025-43096  
-South Hobbs  
GISA Unit #267  
30-025-43104  
-South Hobbs  
GISA Unit #268  
30-025-43100  
PO4  
-Hobbs GISA Unit #269-  
SAN Andres  
31920

7/14/16



**Occidental Permian LTD.**

A subsidiary of Occidental Petroleum Corporation

5 Greenway Plaza, Suite 110, Houston, Texas 77046-0521

P.O. Box 27570, Houston, Texas 77227-7570

Phone 713.215.7000

July 14, 2016

RECEIVED  
RECEIVED  
2016 JUL 15 A 10: 25  
2016 JUL 15 A 10: 25

State of New Mexico  
Energy, Minerals & Natural Resources Department  
Oil Conservation Division  
1220 S. St. Frances Dr.  
Santa Fe, NM 87505

RE: Pressure Maintenance Project  
South Hobbs G/SA Unit  
Well Nos. 263, 264, 267, and 268  
Section 4, T-19S, R-38E  
Lea County, NM

To Whom It May Concern:

Occidental Permian Ltd. respectfully request administrative approval to commence injection (water, CO<sub>2</sub>, and produced gas) per the authorized Order No. R-4934-F dated July 18, 2013. In support of this request please find the following documentation:

- Administrative Application Checklist
- Form C-108 with miscellaneous data attached
- An Injection Well Data Sheets (4)
- Wellbore Schematics with Deviation Surveys (4)
- Form C-102's (4)
- Maps (2)
- List of Wells Drilled after injection order approval (07/18/2013)
- Copy of the Approved Injection Order R-4934-F

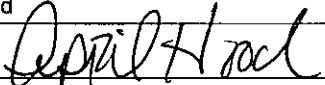
\*\*\* Per Oder No. R-4934-F, this application is eligible for administrative approval without notice or hearing \*\*\*

If you have any questions regarding this application, please contact me at 713-366-5771 or email [april\\_hood@oxy.com](mailto:april_hood@oxy.com).

Sincerely,

April Hood  
Regulatory Coordinator

**APPLICATION FOR AUTHORIZATION TO INJECT**

- I. PURPOSE: Secondary Recovery X Pressure Maintenance Disposal Storage  
Application qualifies for administrative approval? X Yes No
- II. OPERATOR: Occidental Permian LTD.  
ADDRESS: PO Box 4294 Houston, TX 77210  
CONTACT PARTY: April Hood PHONE: 713-366-5771
- 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? X Yes No  
If yes, give the Division order number authorizing the project: R-4934-F (July 18, 2013)
- 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.
- 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.
- VII. Attach data on the proposed operation, including:
1. Proposed average and maximum daily rate and volume of fluids to be injected;
  2. Whether the system is open or closed;
  3. Proposed average and maximum injection pressure;
  4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and,
  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.).
- \*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.
- IX. Describe the proposed stimulation program, if any.
- \*X. Attach appropriate logging and test data on the well. (If well logs have been filed with the Division, they need not be resubmitted).
- \*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.
- 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.
- XIII. Applicants must complete the "Proof of Notice" section on the reverse side of this form.
- 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: April Hood TITLE: Regulatory Coordinator  
SIGNATURE:  DATE: 7/14/10  
E-MAIL ADDRESS: April\_Hood@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: Case No. 14981 Order R-4934-F - Effective July 18, 2013

### 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.

C-108 Application Attachment  
Occidental Permian Ltd.  
South Hobbs G/SA Unit  
Lea County, New Mexico

- V. Two maps are attached.
- VII. The area of review is attached.. If cement tops were not available, the top of cement was calculated using 1.32 cubic feet/sack of cement and 70% fill.
1.      Average Injection Rate            N/A  
          Maximum Injection Rate        9000 BWPD / 15000
  - 2      This will be a closed system.
  3.      Average Surface Injection Pressure    N/A  
          Maximum Surface Injection Pressure  
                Produced Water        1100 PSI  
                CO2                        1250 PSI  
                CO2 w/produced gas    1770 PSI  
          (In accordance with Order No. R-4934-F, effective 7/18/13)
  4.      Source Water – San Andres Produced Water  
          (Analysis previously provided at hearing, Case No. 14981)
- IX. Acid treatment of injection interval may be performed during well workover (approximately 4000 gal. of 15% HCL)
- XII. NA. This is a pressure maintenance project, not a disposal well.
- XIII. Per Order No. R-4934-F, this application is eligible for administrative approval without notice or hearing.

## INJECTION WELL DATA SHEET

OPERATOR: Occidental Permian LTD.WELL NAME & NUMBER: South Hobbs Unit No. 263

WELL LOCATION: 1960 FSL & 829 FWL      L      4      19S      38E

FOOTAGE LOCATION      UNIT LETTER      SECTION      TOWNSHIP      RANGE

WELLBORE SCHEMATICWELL CONSTRUCTION DATASurface Casing

Hole Size: 12 5/8      Casing Size: 9 5/8

Cemented with: 630 sx.      *or*                      ft<sup>3</sup>

Top of Cement: 0      Method Determined: Circulation

Intermediate Casing

Hole Size:                           Casing Size:                     

Cemented with:                      sx.      *or*                      ft<sup>3</sup>

Top of Cement:                           Method Determined:                     

Production Casing

Hole Size: 8 3/4      Casing Size: 7

Cemented with: 1159 sx.      *or*                      ft<sup>3</sup>

Top of Cement: 0      Method Determined: Calculation

Total Depth: 5225

Injection Interval

Perf'd 4734 feet to 4970

(Perforated or Open Hole; indicate which)

### INJECTION WELL DATA SHEET

Tubing Size: 2 7/8 Lining Material: \_\_\_\_\_

Type of Packer: Duoline

Packer Setting Depth: 4694

Other Type of Tubing/Casing Seal (if applicable): \_\_\_\_\_

#### Additional Data

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

If no, for what purpose was the well originally drilled? \_\_\_\_\_

2. Name of the Injection Formation: San Andres

3. Name of Field or Pool (if applicable): Hobbs; Grayburg - San Andres

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. No

5. Give the name and depths of any oil or gas zones underlying or overlying the proposed injection zone in this area: \_\_\_\_\_

Byers (Queen) @ +/- 3680

Glorieta @ +/- 5300



**OCCIDENTAL PETROLEUM CORPORATION**  
**PERMIAN - EOR**  
**ACTUAL WELLBORE SCHEMATIC**

Name: **SHU#263**

**DEVIATED WELL**

Wellbore TD: **5,315**

HOLE SECTION (Size)	Formation	Measured Depth (ft)	WELLBORE ARCHITECTURE	Casing (MD)	Cement Surface	Cement Production	Mud System
<b>Surface (12-5/8")</b>	Red Beds	188		<b>9 5/8" 36# J-55 LTC</b>	Lead - Prem. Plus 13.5 ppg (430 sx / 131.5 bbls) Cmt to surface (135 sx / 41 bbl)		Fresh Water 8.4-8.8 ppg
	Rustler	1,516 <b>1,538</b>			Tail - Prem. Plus 14.8 ppg (200 sx / 47 bbl)		FW / Gel 9.3 ppg
<b>Production (8 3/4")</b>	Top Salt	1,652		<b>7" 26# J-55 LTC 0' - 5,304'</b>		Stage 2: Lead - Interfill C 11.9 ppg (590 sx / 265 bls) Cmt to surface (50 bbl - 111 sx)	Clear Brine 10.0-10.3 ppg
	Base Salt	2,803					
	Queen	3,595				Stage 2: Tail - Prem. Plus 14.2 ppg (210 sx / 58 bls)	
	Grayburg	3,915					
	Basal Grayburg	4,092				Stage 1: Tail - Poz Prem. Plus 14.8 ppg (359 sx / 82 bbls) Full returns (35bls / 169 sx)	Brine/Brine Base Mud 10.2-10.3 ppg
	San Andres	4,194					
<b>Total Depth (TD)</b>		<b>5,315</b>	<b>PBTD 5,304</b>				

ED 6/2/2018

"Red" denotes Actual



**PERFS:**

Top (ft MD)	Bottom (ft MD)	SPF	Phasing	Shots
4964	4970	4	90	28
4952	4960	4	90	36
4943	4948	4	90	24
4925	4934	4	90	40
4914	4922	4	90	36
4894	4912	4	90	76
4880	4886	4	90	28
4865	4876	4	90	48
4852	4858	4	90	28
4832	4848	4	90	68
4818	4828	4	90	44
4794	4813	4	90	80
4786	4790	4	90	20
4765	4782	4	90	72
4754	4758	4	90	20
4744	4750	4	90	28
4734	4740	4	90	28
<b>Totals:</b>	<b>159 ft</b>			<b>704 shots</b>

**TUBING:**

Set injection packer @ **±4694'** MD (this is 40' above top perf, avoiding collars).

**2-7/8"** 6.4# Duo-lined injection tubing

"Injection Packer" = the following injection BHA:

- ArrowSet (or equivalent) 3k psi rated nickel-plated packer sized for 7" 26# casing
- 1.875" ID, F profile
- T-2 on-off tool

## South Hobbs Unit No. 263

			Course		Subsea							Dogleg
MD	INC	AZI	Length	TVD	Depth	N/-S	E/-W	X	Y	Lat	Long	Severity
0	0	0	0	0	3623.2	0	0	861359.5	615775.2	32- 41' 14"	103- 9' 31"	0
104	1	213.3	104	103.9947	3519.205	-0.7585	-0.4983	861359	615774.5	32- 41' 14"	103- 9' 31"	0.96
134	1	214.2	30	133.9902	3489.21	-1.1939	-0.7891	861358.7	615774	32- 41' 14"	103- 9' 31"	0.05
194	1	209.8	60	193.981	3429.219	-2.0812	-1.3436	861358.1	615773.1	32- 41' 14"	103- 9' 31"	0.13
255	1	212.3	61	254.9717	3368.228	-2.9931	-1.8926	861357.6	615772.2	32- 41' 14"	103- 9' 31"	0.07
315	1.1	206.8	60	314.9617	3308.238	-3.9497	-2.432	861357.1	615771.3	32- 41' 14"	103- 9' 31"	0.24
376	1.1	200.6	61	375.9504	3247.25	-5.0204	-2.9021	861356.6	615770.2	32- 41' 14"	103- 9' 31"	0.2
466	0.9	197.1	90	465.9367	3157.263	-6.5046	-3.4138	861356.1	615768.7	32- 41' 14"	103- 9' 31"	0.23
556	0.9	204.1	90	555.9256	3067.274	-7.8254	-3.9103	861355.6	615767.4	32- 41' 14"	103- 9' 31"	0.12
646	0.8	208.5	90	645.9157	2977.284	-9.0228	-4.4987	861355	615766.2	32- 41' 14"	103- 9' 31"	0.13
736	0.7	207	90	735.908	2887.292	-10.0648	-5.0481	861354.4	615765.1	32- 41' 14"	103- 9' 31"	0.11
825	0.8	190.7	89	824.9005	2798.3	-11.1597	-5.4103	861354.1	615764.1	32- 41' 14"	103- 9' 31"	0.26
915	0.6	176.7	90	914.8938	2708.306	-12.2476	-5.4998	861354	615763	32- 41' 14"	103- 9' 31"	0.29
1050	0.7	175.3	135	1049.885	2573.315	-13.7751	-5.3915	861354.1	615761.4	32- 41' 14"	103- 9' 31"	0.07
1095	0.6	177.6	45	1094.882	2528.318	-14.2845	-5.3592	861354.1	615760.9	32- 41' 14"	103- 9' 31"	0.23
1185	0.5	202.4	90	1184.878	2438.322	-15.1184	-5.4891	861354	615760.1	32- 41' 14"	103- 9' 31"	0.28
1275	0.2	240.8	90	1274.877	2348.324	-15.5581	-5.7758	861353.7	615759.7	32- 41' 14"	103- 9' 31"	0.41
1365	0.1	253.2	90	1364.876	2258.324	-15.6574	-5.9881	861353.5	615759.6	32- 41' 14"	103- 9' 31"	0.12
1455	0	244.4	90	1454.876	2168.324	-15.6801	-6.0633	861353.4	615759.5	32- 41' 14"	103- 9' 31"	0.11
1575	0.1	206.6	120	1574.876	2048.324	-15.7737	-6.1102	861353.4	615759.4	32- 41' 14"	103- 9' 31"	0.08
1755	2.5	322.4	180	1754.82	1868.38	-12.8034	-8.5762	861350.9	615762.4	32- 41' 14"	103- 9' 31"	1.41
1935	7.3	322.1	180	1934.11	1689.091	-0.6621	-18.0019	861341.5	615774.5	32- 41' 14"	103- 9' 31"	2.67
2115	10.9	306.5	180	2111.841	1511.359	18.4939	-38.7171	861320.8	615793.7	32- 41' 14"	103- 9' 32"	2.41
2294	14.9	294.3	179	2286.32	1336.88	38.0426	-73.3165	861286.2	615813.3	32- 41' 14"	103- 9' 32"	2.69
2474	20.17	294.75	180	2457.895	1165.305	60.5738	-122.625	861236.9	615835.8	32- 41' 15"	103- 9' 33"	2.93
2654	20	296.24	180	2626.95	996.2504	87.1757	-178.417	861181.1	615862.4	32- 41' 15"	103- 9' 33"	0.3
2834	18.9	297.56	180	2796.676	826.5243	114.2745	-231.873	861127.6	615889.5	32- 41' 15"	103- 9' 34"	0.66
3014	16.92	296.5	180	2967.945	655.2551	139.4527	-281.164	861078.3	615914.7	32- 41' 15"	103- 9' 35"	1.11
3194	14.15	296.42	180	3141.352	481.8479	160.9338	-324.317	861035.2	615936.1	32- 41' 16"	103- 9' 35"	1.54
3374	12.84	295.64	180	3316.379	306.8213	179.3787	-362.054	860997.4	615954.6	32- 41' 16"	103- 9' 35"	0.73
3554	12.08	298.39	180	3492.139	131.0606	196.9892	-396.656	860962.8	615972.2	32- 41' 16"	103- 9' 36"	0.54

## South Hobbs Unit No. 263

3734	13.58	297.34	180	3667.641	-44.4406	215.6512	-431.999	860927.5	615990.9	32- 41' 16	103- 9' 36	0.84
3914	12.22	298.92	180	3843.094	-219.894	234.5698	-467.447	860892	616009.8	32- 41' 16	103- 9' 37	0.78
4094	11.43	298.22	180	4019.273	-396.073	252.216	-499.837	860859.7	616027.4	32- 41' 17	103- 9' 37	0.45
4274	11.56	297.71	180	4195.662	-572.462	269.0361	-531.52	860828	616044.2	32- 41' 17	103- 9' 37	0.09
4454	8.75	295.71	180	4372.825	-749.625	283.3648	-559.828	860799.7	616058.6	32- 41' 17	103- 9' 38	1.57
4634	8.35	296.9	180	4550.825	-927.625	295.2175	-583.82	860775.7	616070.4	32- 41' 17	103- 9' 38	0.24
4813	8.13	298.97	179	4727.977	-1104.78	307.2284	-606.484	860753	616082.4	32- 41' 17	103- 9' 38	0.21
4993	7.91	300.24	180	4906.217	-1283.02	319.6308	-628.319	860731.2	616094.8	32- 41' 17	103- 9' 39	0.16
5173	7.82	302.96	180	5084.524	-1461.32	332.5307	-649.294	860710.2	616107.7	32- 41' 17	103- 9' 39	0.21
5218	7.69	301.29	45	5129.113	-1505.91	335.76	-654.436	860705.1	616111	32- 41' 17	103- 9' 39	0.58
5315	7.69	301.29	97	5225.24	-1602.04	342.5014	-665.528	860694	616117.7	32- 41' 17	103- 9' 39	0

District I  
1425 N. French Dr., Hobbs, NM 88240  
Phone: (575) 393-6161 Fax: (575) 393-0720  
District II  
811 S. First St., Artesia, NM 88210  
Phone: (575) 748-1283 Fax: (575) 748-9720  
District III  
1000 Rio Brazos Road, Aztec, NM 87410  
Phone: (505) 334-6178 Fax: (505) 334-6170  
District IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505  
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico  
Energy, Minerals & Natural Resources Department  
OIL CONSERVATION DIVISION  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

Form C-102  
Revised August 1, 2011  
Submit one copy to appropriate  
District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
Property Code	Property Name	Well Number
	SOUTH HOBBS G/SA UNIT	263
OGRID No.	Operator Name	Elevation
	OCCIDENTAL PERMIAN LTD.	3606.7'

Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North-South line	Feet from the	East-West line	County
L	4	19 SOUTH	38 EAST, N.M.P.M.		1960'	SOUTH	829'	WEST	LEA

Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North-South line	Feet from the	East-West line	County
L	4	19 SOUTH	38 EAST, N.M.P.M.		2257'	SOUTH	249'	WEST	LEA

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.

	<p><b>OPERATOR CERTIFICATION</b></p> <p>I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or undivided mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.</p> <p><u>April Hood</u> 3/2/16 Signature Date</p> <p><u>April Hood</u> Printed Name</p> <p><u>april_hood@oxy.com</u> E-mail Address</p> <p><b>SURVEYOR CERTIFICATION</b></p> <p>I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.</p> <p><u>DECEMBER 23, 2015</u> Date of Survey</p> <p><u>Terry J. Asel</u> Signature and Seal of Professional Surveyor</p> <p><u>15079</u> Certificate Number</p> <p>WOL 15123WL-b (Rev. A) (KA)</p>
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## INJECTION WELL DATA SHEET

OPERATOR: Occidental Permian LTD.WELL NAME & NUMBER: South Hobbs Unit No. 264

WELL LOCATION:	<u>1967 FSL &amp; 929 FWL</u>	<u>L</u>	<u>4</u>	<u>19S</u>	<u>38E</u>
	FOOTAGE LOCATION	UNIT LETTER	SECTION	TOWNSHIP	RANGE

WELLBORE SCHEMATICWELL CONSTRUCTION DATASurface Casing

Hole Size:	<u>12 5/8</u>	Casing Size:	<u>9 5/8</u>
Cemented with:	<u>630</u> sx.	or	<u>                    </u> ft <sup>3</sup>
Top of Cement:	<u>0</u>	Method Determined:	<u>Circulation</u>

Intermediate Casing

Hole Size:	<u>                    </u>	Casing Size:	<u>                    </u>
Cemented with:	<u>                    </u> sx.	or	<u>                    </u> ft <sup>3</sup>
Top of Cement:	<u>                    </u>	Method Determined:	<u>                    </u>

Production Casing

Hole Size:	<u>8 3/4</u>	Casing Size:	<u>7</u>
Cemented with:	<u>1145</u> sx.	or	<u>                    </u> ft <sup>3</sup>
Top of Cement:	<u>0</u>	Method Determined:	<u>Calculation</u>
Total Depth:	<u>5275</u>		

Injection Interval

Perf'd	<u>4694</u>	feet to	<u>4935</u>
--------	-------------	---------	-------------

(Perforated or Open Hole; indicate which)

**INJECTION WELL DATA SHEET**

Tubing Size: 2 7/8 Lining Material: \_\_\_\_\_

Type of Packer: Duoline

Packer Setting Depth: 4654

Other Type of Tubing/Casing Seal (if applicable): \_\_\_\_\_

Additional Data

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

If no, for what purpose was the well originally drilled? \_\_\_\_\_

\_\_\_\_\_

2. Name of the Injection Formation: San Andres

3. Name of Field or Pool (if applicable): Hobbs; Grayburg - San Andres

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. No

\_\_\_\_\_

5. Give the name and depths of any oil or gas zones underlying or overlying the proposed injection zone in this area: \_\_\_\_\_

Byers (Queen) @ +/- 3680

Glorieta @ +/- 5300

\_\_\_\_\_

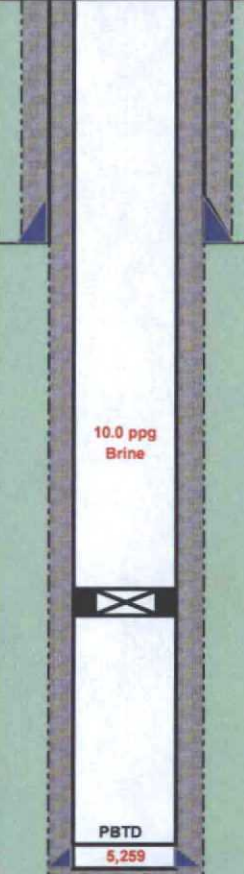
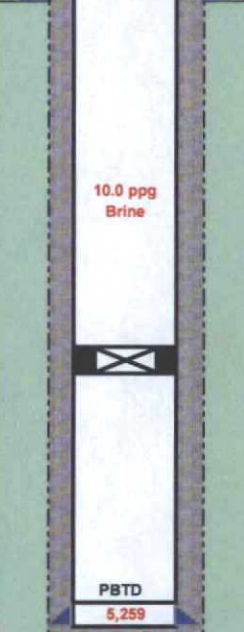


**OCCIDENTAL PETROLEUM CORPORATION**  
**PERMIAN - EOR**  
**ACTUAL WELLBORE SCHEMATIC**

Name: **SHU#264**

**DEVIATED WELL**

Wellbore TD: **5,275**

HOLE SECTION (Size)	Formation	Measured Depth (ft)	WELLBORE ARCHITECTURE	Casing (MD)	Cement Surface	Cement Production	Mud System
<b>Surface (12-5/8")</b>	Red Beds	188		<b>9 5/8" 36# J-55 LTC</b>	Lead - Prem. Plus 13.5 ppg (430 sx / 131.5 bbls) Cmt to surface (114 sx / 35 bbl)		Fresh Water 8.4-8.9 ppg
	Rustler	1,516 <b>1,551</b>			Tail - Prem. Plus 14.8 ppg (200 sx / 47.2 bbl)		
<b>Production (8 3/4")</b>	Top Salt	1,652		<b>7" 26# J-55 LTC 0' - 5,259'</b>		Stage 2: Lead - Interfill C 11.9 ppg (550 sx / 247 bls) Cmt to surface (16 bbl - 24 sx)	Clear Brine 10.0-10.3 ppg
	Base Salt	2,803				Stage 2: Tail - Prem. Plus 14.2 ppg (210 sx / 57 bls)	
	Queen	3,595					
	Grayburg	3,915			<b>Top of DV Tool (3,811')</b>	Stage 1: Tail - Poz Prem. Plus 14.8 ppg (385 sx / 80 bbls) Full returns (40bls / 193 sx)	Brine/Brine Base Mud 10.2-10.3 ppg
	Basal Grayburg	4,092			<b>Top of Flag Joint (4,125')</b>		
	San Andres	4,194			<b>Top of FC (5,214')</b>		
			<b>PBTD 5,259</b>				
	<b>Total Depth (TD)</b>	<b>5,275</b>					

ED 5/8/2016

"Red" denotes Actual

**PERFS:**

Top (ft MD)	Bottom (ft MD)	SPF	Phasing	Shots
4922	4935	4	90	56
4908	4918	4	90	44
4894	4900	4	90	28
4872	4888	4	90	68
4854	4867	4	90	56
4840	4846	4	90	28
4826	4836	4	90	44
4814	4820	4	90	28
4793	4809	4	90	68
4780	4788	4	90	36
4765	4773	4	90	36
4745	4760	4	90	64
4730	4740	4	90	44
4720	4726	4	90	28
4708	4716	4	90	36
4694	4704	4	90	44
<b>Totals:</b>	<b>161 ft</b>			<b>708 shots</b>

**TUBING:**

Set injection packer @ **±4654'** MD (this is 40' above top perf, avoiding collars).

2-7/8" 6.4# Duo-lined injection tubing

"Injection Packer" = the following injection BHA:

- ArrowSet (or equivalent) 3k psi rated nickel-plated packer sized for 7" 26# casing
- 1.875" ID, F profile
- T-2 on-off tool



## South Hobbs Unit No. 264

			Course		Subsea							Dogleg
MD	INC	AZI	Length	TVD	Depth	N/-S	E/-W	X	Y	Lat	Long	Severity
134	0.3	125	0	133.9994	3490.001	-0.2012	0.2874	861459.5	615782.7	32- 41' 14	103- 9' 30	0
194	0.5	121.4	60	193.9979	3430.002	-0.4277	0.6395	861459.8	615782.5	32- 41' 14	103- 9' 30	0.34
255	0.7	93.6	61	254.9946	3369.005	-0.5898	1.2386	861460.4	615782.3	32- 41' 14	103- 9' 30	0.57
315	0.8	103.7	60	314.9895	3309.011	-0.712	2.0113	861461.2	615782.2	32- 41' 14	103- 9' 30	0.28
376	0.9	117.6	61	375.9829	3248.017	-1.0348	2.8496	861462	615781.9	32- 41' 14	103- 9' 30	0.37
466	1.1	97.1	90	465.9694	3158.031	-1.4691	4.3332	861463.5	615781.5	32- 41' 14	103- 9' 30	0.45
556	1	91.9	90	555.9543	3068.046	-1.6019	5.9754	861465.2	615781.3	32- 41' 14	103- 9' 30	0.15
646	1	85.9	90	645.9406	2978.059	-1.5718	7.5437	861466.7	615781.4	32- 41' 14	103- 9' 30	0.12
736	1.1	92	90	735.9255	2888.075	-1.5458	9.1904	861468.4	615781.4	32- 41' 14	103- 9' 30	0.17
825	1.2	104.3	89	824.9077	2799.092	-1.8058	10.9472	861470.1	615781.1	32- 41' 14	103- 9' 30	0.3
915	1.4	108.5	90	914.8845	2709.116	-2.3874	12.9031	861472.1	615780.5	32- 41' 14	103- 9' 30	0.25
1005	1.2	99.1	90	1004.861	2619.139	-2.8853	14.8763	861474.1	615780	32- 41' 14	103- 9' 30	0.32
1095	1.3	98.8	90	1094.84	2529.16	-3.1905	16.8157	861476	615779.7	32- 41' 14	103- 9' 30	0.11
1185	1.3	105.5	90	1184.817	2439.183	-3.6196	18.8084	861478	615779.3	32- 41' 14	103- 9' 30	0.17
1275	0.8	106.2	90	1274.802	2349.199	-4.0677	20.3956	861479.6	615778.9	32- 41' 14	103- 9' 30	0.56
1365	1	117.3	90	1364.79	2259.21	-4.6032	21.6968	861480.9	615778.3	32- 41' 14	103- 9' 30	0.29
1455	0.8	117.6	90	1454.779	2169.221	-5.2545	22.9515	861482.1	615777.7	32- 41' 14	103- 9' 30	0.22
1615	0.4	58.6	160	1614.771	2009.229	-5.481	24.4181	861483.6	615777.4	32- 41' 14	103- 9' 30	0.43
1795	5.8	75	180	1794.442	1829.558	-2.7977	33.7465	861492.9	615780.1	32- 41' 14	103- 9' 30	3.01
1974	9.4	79.7	179	1971.842	1652.158	2.1586	56.8728	861516.1	615785.1	32- 41' 14	103- 9' 29	2.04
2157	13.2	84.3	183	2151.266	1472.734	6.9077	92.3808	861551.6	615789.8	32- 41' 14	103- 9' 29	2.13
2334	16.35	81.44	177	2322.394	1301.606	12.6246	137.1374	861596.3	615795.6	32- 41' 14	103- 9' 28	1.83
2514	16.48	82.32	180	2495.057	1128.943	19.8076	187.4929	861646.7	615802.7	32- 41' 14	103- 9' 28	0.16
2694	15.29	80.91	180	2668.181	955.8189	26.9695	236.2325	861695.4	615809.9	32- 41' 14	103- 9' 27	0.69
2874	13.8	79.68	180	2842.408	781.5923	34.5654	280.7912	861740	615817.5	32- 41' 14	103- 9' 27	0.85
3054	12.27	79.11	180	3017.764	606.2356	42.0252	320.6965	861779.9	615825	32- 41' 14	103- 9' 26	0.85
3233	10.2	77.39	179	3193.325	430.6749	49.0795	354.845	861814	615832	32- 41' 15	103- 9' 26	1.17
3413	8.17	75.06	180	3371.009	252.9915	55.857	382.7588	861841.9	615838.8	32- 41' 15	103- 9' 26	1.15
3593	6.81	75.22	180	3549.469	74.5315	61.8771	405.4364	861864.6	615844.8	32- 41' 15	103- 9' 25	0.76
3773	6.42	70.23	180	3728.271	-104.271	68.0036	425.2257	861884.4	615850.9	32- 41' 15	103- 9' 25	0.39
3952	6.55	66.89	179	3906.127	-282.127	75.3957	444.0335	861903.2	615858.3	32- 41' 15	103- 9' 25	0.22

## South Hobbs Unit No. 264

4132	6.33	65.66	180	4084.991	-460.991	83.515	462.5169	861921.7	615866.4	32- 41' 15"	103- 9' 25"	0.14
4312	6.68	62.85	180	4263.832	-639.832	92.3821	480.8736	861940.1	615875.3	32- 41' 15"	103- 9' 24"	0.26
4491	6.35	68.78	179	4441.678	-817.678	100.7158	499.3654	861958.6	615883.6	32- 41' 15"	103- 9' 24"	0.42
4671	6.02	80.69	180	4620.637	-996.637	105.8459	517.9599	861977.1	615888.8	32- 41' 15"	103- 9' 24"	0.73
4851	5.84	79.34	180	4799.674	-1175.67	109.0669	536.2739	861995.5	615892	32- 41' 15"	103- 9' 24"	0.13
5031	5.48	81.57	180	4978.797	-1354.8	112.0209	553.7755	862013	615895	32- 41' 15"	103- 9' 24"	0.23
5198	5.58	79.94	167	5145.019	-1521.02	114.6082	569.6578	862028.8	615897.5	32- 41' 15"	103- 9' 23"	0.11
5275	5.58	79.94	77	5221.655	-1597.65	115.916	577.0299	862036.2	615898.8	32- 41' 15"	103- 9' 23"	0

District I  
1625 N. French Dr., Hobbs, NM 88240  
Phone: (575) 393-6161 Fax: (575) 393-0720  
District II  
811 S. First St., Artesia, NM 88210  
Phone: (575) 748-1283 Fax: (575) 748-9720  
District III  
1000 Rio Brazos Road, Aztec, NM 87410  
Phone: (505) 334-6178 Fax: (505) 334-6170  
District IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505  
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico  
Energy, Minerals & Natural Resources Department  
**OIL CONSERVATION DIVISION**  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

Form C-102  
Revised August 1, 2011  
Submit one copy to appropriate  
District Office

☐ AMENDED REPORT

**WELL LOCATION AND ACREAGE DEDICATION PLAT**

API Number		Pool Code	Pool Name
Property Code	Property Name <b>SOUTH HOBBS G/SA UNIT</b>		Well Number <b>264</b>
OGRID No.	Operator Name <b>OCCIDENTAL PERMIAN LTD.</b>		Elevation <b>3607.5'</b>

**Surface Location**

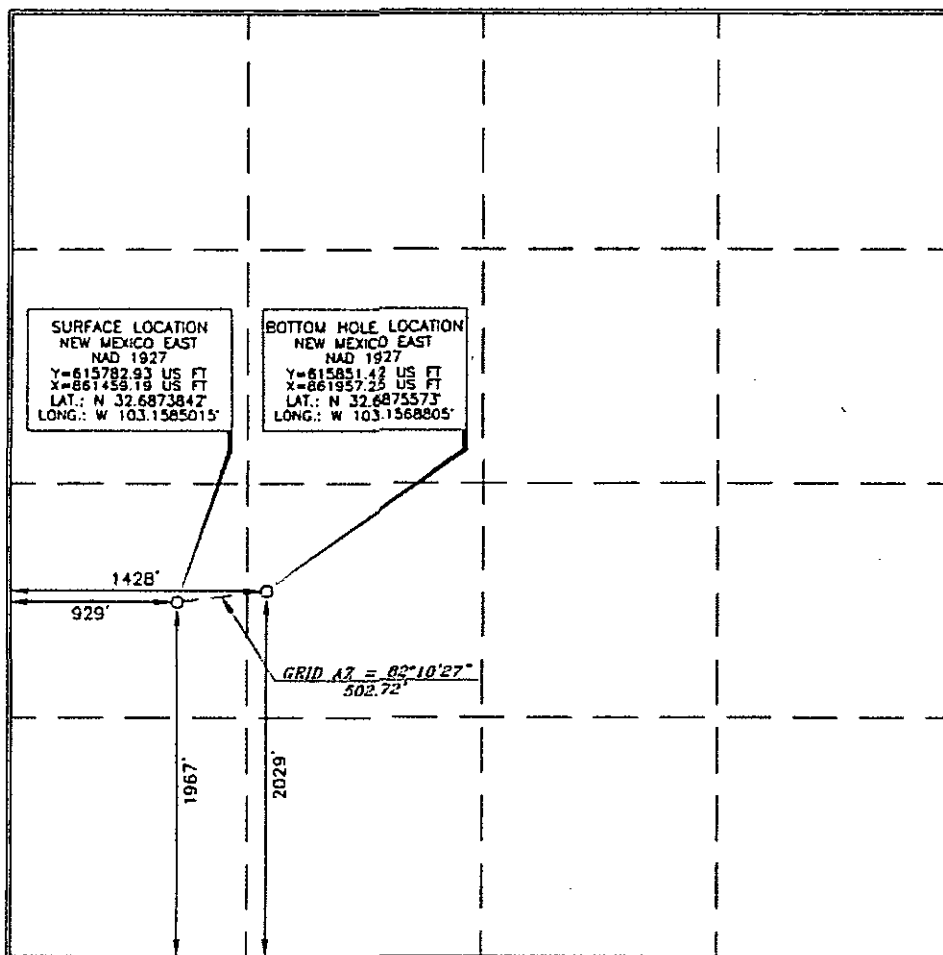
U/L or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
L	4	19 SOUTH	38 EAST, N.M.P.M.		1967'	SOUTH	929'	WEST	LEA

**Bottom Hole Location If Different From Surface**

U/L or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
K	4	19 SOUTH	38 EAST, N.M.P.M.		2029'	SOUTH	1428'	WEST	LEA

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
-----------------	-----------------	--------------------	-----------

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.



**OPERATOR CERTIFICATION**

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or sustained mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

April Hood 3/1/16  
Signature Date

April Hood  
Printed Name  
april-hood@oxy.com  
E-mail Address

**SURVEYOR CERTIFICATION**

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

15079  
DECEMBER 23, 2015  
Date of Survey

Professional Surveyor  
Signature and Seal of Professional Surveyor

2/19/2016  
Certificate Number 15079

## INJECTION WELL DATA SHEET

OPERATOR: Occidental Permian LTD.WELL NAME & NUMBER: South Hobbs Unit No. 267

WELL LOCATION:	165 FNL & 667 FWL	D	9	19S	38E
	FOOTAGE LOCATION	UNIT LETTER	SECTION	TOWNSHIP	RANGE

WELLBORE SCHEMATICWELL CONSTRUCTION DATASurface Casing

Hole Size:	<u>12 5/8</u>	Casing Size:	<u>9 5/8</u>
Cemented with:	<u>970</u> sx.	or	<u>                    </u> ft <sup>3</sup>
Top of Cement:	<u>0</u>	Method Determined:	<u>Circulation</u>

Intermediate Casing

Hole Size:	<u>                    </u>	Casing Size:	<u>                    </u>
Cemented with:	<u>                    </u> sx.	or	<u>                    </u> ft <sup>3</sup>
Top of Cement:	<u>                    </u>	Method Determined:	<u>                    </u>

Production Casing

Hole Size:	<u>8 3/4</u>	Casing Size:	<u>7</u>
Cemented with:	<u>1080</u> sx.	or	<u>                    </u> ft <sup>3</sup>
Top of Cement:	<u>0</u>	Method Determined:	<u>Calculation</u>
Total Depth:	<u>5239</u>		

Injection Interval

Perf'd	<u>4808</u>	feet to	<u>5052</u>
--------	-------------	---------	-------------

(Perforated or Open Hole; indicate which)

# **INJECTION WELL DATA SHEET**

Tubing Size: 2 7/8 Lining Material: \_\_\_\_\_

Type of Packer: Duoline

Packer Setting Depth: 4775

Other Type of Tubing/Casing Seal (if applicable): \_\_\_\_\_

## **Additional Data**

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

If no, for what purpose was the well originally drilled? \_\_\_\_\_

\_\_\_\_\_

2. Name of the Injection Formation: San Andres

3. Name of Field or Pool (if applicable): Hobbs; Grayburg - San Andres

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. No

\_\_\_\_\_

5. Give the name and depths of any oil or gas zones underlying or overlying the proposed injection zone in this area: \_\_\_\_\_

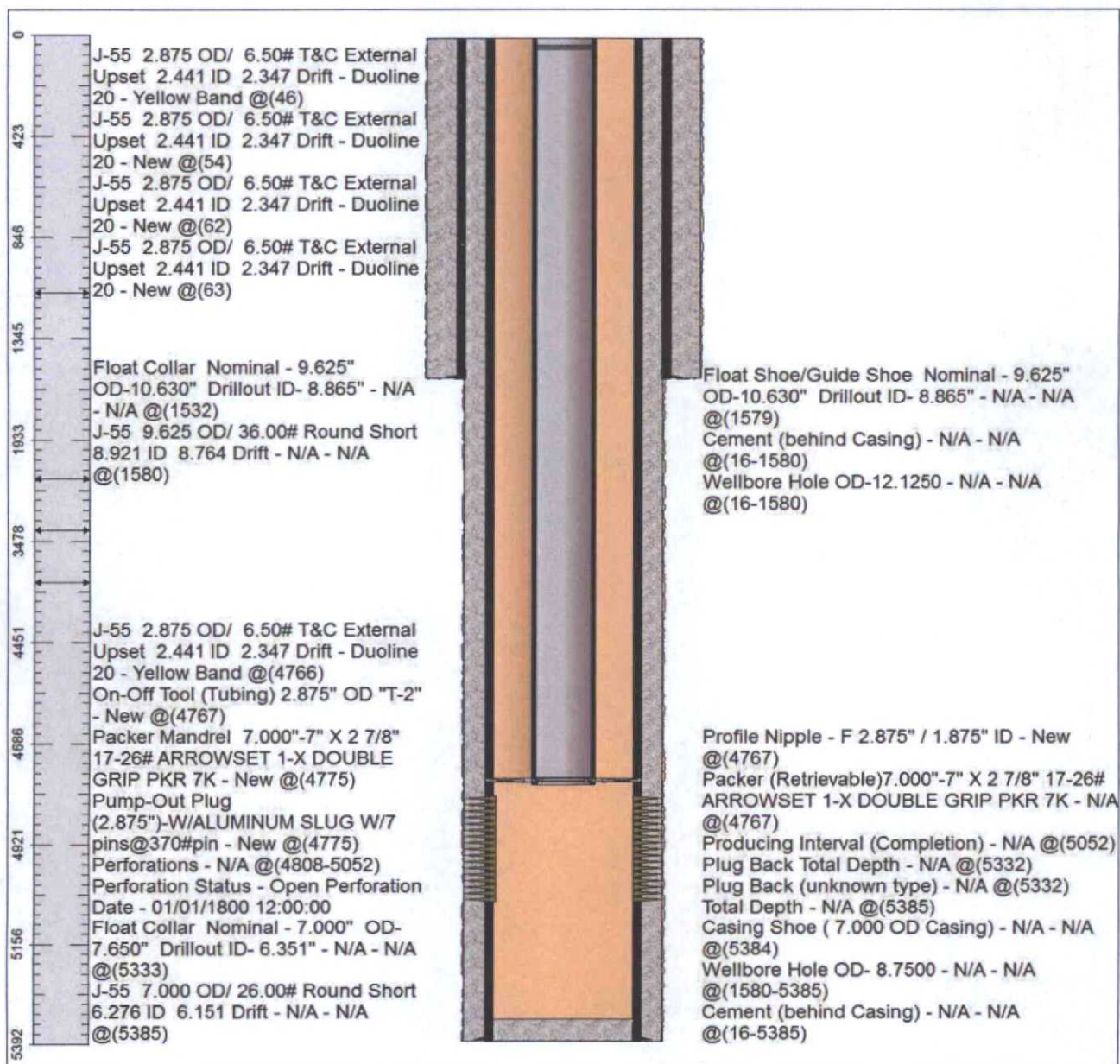
Byers (Queen) @ +/- 3680

Glorieta @ +/- 5300

\_\_\_\_\_

\_\_\_\_\_

# Wellbore Diagram : SHOU-267



## South Hobbs Unit No. 267

MD (ft)	INC (°)	AZI	Course Length	TVD (ft)	Subsea Depth (ft)	N/-S	E/-W	X	Y	Lat	Long	Dogleg Severity (°/100')
0	0	0	0	0	3617.2	0	0	861218.43	613648.17	32- 40' 53.4891 N	103- 9' 33.6984 W	0
102	1.14	293.78	102	101.9933	3515.2067	0.4092	-0.9286	861217.5014	613648.5792	32- 40' 53.4932 N	103- 9' 33.7092 W	1.12
285	1.37	312.23	183	284.95	3332.25	2.6135	-4.2143	861214.2157	613650.7835	32- 40' 53.5154 N	103- 9' 33.7474 W	0.25
469	2.7	338.8	184	468.8335	3148.3665	8.1328	-7.4104	861211.0196	613656.3028	32- 40' 53.5704 N	103- 9' 33.7840 W	0.87
650	7	337.2	181	649.1431	2968.0569	22.2814	-13.2288	861205.2012	613670.4514	32- 40' 53.7110 N	103- 9' 33.8503 W	2.38
817	9.5	332.5	167	814.4037	2802.7963	43.8904	-23.5375	861194.8925	613692.0604	32- 40' 53.9259 N	103- 9' 33.9681 W	1.55
997	12.1	330.2	180	991.201	2625.999	73.4425	-39.7751	861178.6549	613721.6125	32- 40' 54.2201 N	103- 9' 34.1542 W	1.46
1177	13.3	330.1	180	1166.794	2450.406	107.7634	-59.4725	861158.9575	613755.9334	32- 40' 54.5618 N	103- 9' 34.3802 W	0.67
1357	15.5	330.7	180	1341.1284	2276.0716	146.6913	-81.5665	861136.8635	613794.8613	32- 40' 54.9493 N	103- 9' 34.6336 W	1.23
1492	17.49	331.44	135	1470.566	2146.634	180.2435	-100.0946	861118.3354	613828.4135	32- 40' 55.2833 N	103- 9' 34.8460 W	1.48
1667	16.57	333.51	175	1637.8923	1979.3077	225.6762	-123.7979	861094.6321	613873.8462	32- 40' 55.7354 N	103- 9' 35.1174 W	0.63
1847	18.15	334.3	180	1809.6879	1807.5121	273.9136	-147.4058	861071.0242	613922.0836	32- 40' 56.2152 N	103- 9' 35.3873 W	0.89
2027	18.28	335.26	180	1980.6685	1636.5315	324.8144	-171.3778	861047.0522	613972.9844	32- 40' 56.7214 N	103- 9' 35.6612 W	0.18
2207	18.81	332.36	180	2151.3249	1465.8751	376.1615	-196.6548	861021.7752	614024.3315	32- 40' 57.2322 N	103- 9' 35.9502 W	0.59
2386	18.54	331.35	179	2320.9009	1296.2991	426.6998	-223.6868	860994.7432	614074.8698	32- 40' 57.7352 N	103- 9' 36.2599 W	0.24
2566	18.72	327.44	180	2491.4758	1125.7242	476.1601	-252.954	860965.476	614124.3301	32- 40' 58.2277 N	103- 9' 36.5959 W	0.7
2746	17.67	327.35	180	2662.4733	954.7267	523.5078	-283.2385	860935.1915	614171.6778	32- 40' 58.6994 N	103- 9' 36.9440 W	0.58
2926	16.13	327.13	180	2834.6946	782.5054	567.5124	-311.5487	860906.8813	614215.6824	32- 40' 59.1379 N	103- 9' 37.2695 W	0.86
3106	15.47	328.32	180	3007.8933	609.3067	608.9426	-337.7268	860880.7032	614257.1126	32- 40' 59.5507 N	103- 9' 37.5704 W	0.41
3285	15.25	329.29	179	3180.4997	436.7003	649.4981	-362.2865	860856.1435	614297.6681	32- 40' 59.9546 N	103- 9' 37.8525 W	0.19
3465	14.68	330.39	180	3354.3944	262.8056	689.6809	-385.6455	860832.7845	614337.8509	32- 41' 0.3547 N	103- 9' 38.1205 W	0.35
3645	13.89	330.69	180	3528.8275	88.3725	728.3503	-407.4916	860810.9384	614376.5203	32- 41' 0.7397 N	103- 9' 38.3711 W	0.44
3825	14.19	331.27	180	3703.4502	-86.2502	766.5363	-428.6732	860789.7568	614414.7063	32- 41' 1.1198 N	103- 9' 38.6139 W	0.18
4025	13.49	332.54	200	3897.643	-280.443	808.7323	-451.214	860767.216	614456.9023	32- 41' 1.5397 N	103- 9' 38.8722 W	0.38
4185	12.74	333.59	160	4053.4687	-436.2687	841.0931	-467.6669	860750.7631	614489.2631	32- 41' 1.8617 N	103- 9' 39.0604 W	0.49
4365	11.69	332.45	180	4229.3914	-612.1914	875.0379	-484.9297	860733.5003	614523.2079	32- 41' 2.1994 N	103- 9' 39.2580 W	0.6
4545	9.36	329.68	180	4406.3519	-789.1519	903.845	-500.7557	860717.6743	614552.015	32- 41' 2.4861 N	103- 9' 39.4394 W	1.32
4745	8.18	332.1	200	4604.0108	-986.8108	930.4597	-515.6245	860702.8055	614578.6297	32- 41' 2.7511 N	103- 9' 39.6099 W	0.62
4926	6.99	331.84	181	4783.4238	-1166.2238	951.5503	-526.8479	860691.5821	614599.7203	32- 41' 2.9610 N	103- 9' 39.7385 W	0.66
5106	6.77	333.16	180	4962.1277	-1344.9277	970.6731	-536.8071	860681.6229	614618.8431	32- 41' 3.1512 N	103- 9' 39.8525 W	0.15
5286	6.59	334.12	180	5140.9057	-1523.7057	989.4326	-546.1057	860672.3243	614637.6026	32- 41' 3.3379 N	103- 9' 39.9589 W	0.12
5331	6.51	335.88	45	5185.612	-1568.412	994.0841	-548.2753	860670.1547	614642.2541	32- 41' 3.3841 N	103- 9' 39.9837 W	0.48
5385	6.51	335.88	54	5239.2638	-1622.0638	999.6719	-550.7772	860667.6528	614647.8419	32- 41' 3.4397 N	103- 9' 40.0122 W	0

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State of New Mexico  
Energy, Minerals & Natural Resources Department  
OIL CONSERVATION DIVISION  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

Form C-102  
Revised August 1, 2011  
Submit one copy to appropriate  
District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
Property Code	Property Name <b>SOUTH HOBBS G/SA UNIT</b>	Well Number <b>267</b>
OGRID No.	Operator Name <b>OCCIDENTAL PERMIAN LTD.</b>	Elevation <b>3600.7'</b>

Surface Location

UL of lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	9	19 SOUTH	38 EAST, N.M.P.M.		165'	NORTH	667'	WEST	LEA

Bottom Hole Location If Different From Surface

UL of lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	4	19 SOUTH	38 EAST, N.M.P.M.		746'	SOUTH	160'	WEST	LEA
Dedicated Acres		Joint or Infill	Consolidation Code	Order No.					

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.

	<p><b>OPERATOR CERTIFICATION</b></p> <p>I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or undivided mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.</p> <p><i>April Hood</i> 3/21/16 Signature Date</p> <p><b>April Hood</b> Printed Name april.hood@oxy.com E-mail Address</p>
	<p><b>SURVEYOR CERTIFICATION</b></p> <p>I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.</p> <p>DECEMBER 25, 2015 Date of Survey</p> <p><i>Terrell J. Asch</i> 2/20/2016 Signature and Seal of Professional Surveyor Certificate Number 15079</p> <p>WO# 151225WL-d (NA)</p>



## INJECTION WELL DATA SHEET

OPERATOR: Occidental Permian LTD.WELL NAME & NUMBER: South Hobbs Unit No. 268

WELL LOCATION:	<u>179 FNL &amp; 1840 FWL</u>	<u>C</u>	<u>9</u>	<u>19S</u>	<u>38E</u>
	FOOTAGE LOCATION	UNIT LETTER	SECTION	TOWNSHIP	RANGE

WELLBORE SCHEMATICWELL CONSTRUCTION DATASurface Casing

Hole Size:	<u>12 5/8</u>	Casing Size:	<u>9 5/8</u>
Cemented with:	<u>630</u> sx.	or	<u>                    </u> ft <sup>3</sup>
Top of Cement:	<u>0</u>	Method Determined:	<u>Circulation</u>

Intermediate Casing

Hole Size:	<u>                    </u>	Casing Size:	<u>                    </u>
Cemented with:	<u>                    </u> sx.	or	<u>                    </u> ft <sup>3</sup>
Top of Cement:	<u>                    </u>	Method Determined:	<u>                    </u>

Production Casing

Hole Size:	<u>8 3/4</u>	Casing Size:	<u>7</u>
Cemented with:	<u>1065</u> sx.	or	<u>                    </u> ft <sup>3</sup>
Top of Cement:	<u>0</u>	Method Determined:	<u>Calculation</u>
Total Depth:	<u>5238</u>		

Injection Interval

Perfd	<u>4805</u>	feet to	<u>5078</u>
-------	-------------	---------	-------------

(Perforated or Open Hole; indicate which)

**INJECTION WELL DATA SHEET**

Tubing Size: 2 7/8 Lining Material: \_\_\_\_\_

Type of Packer: Duoline

Packer Setting Depth: 4754

Other Type of Tubing/Casing Seal (if applicable): \_\_\_\_\_

**Additional Data**

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

If no, for what purpose was the well originally drilled? \_\_\_\_\_

\_\_\_\_\_

2. Name of the Injection Formation: San Andres

3. Name of Field or Pool (if applicable): Hobbs; Grayburg - San Andres

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.        No

\_\_\_\_\_

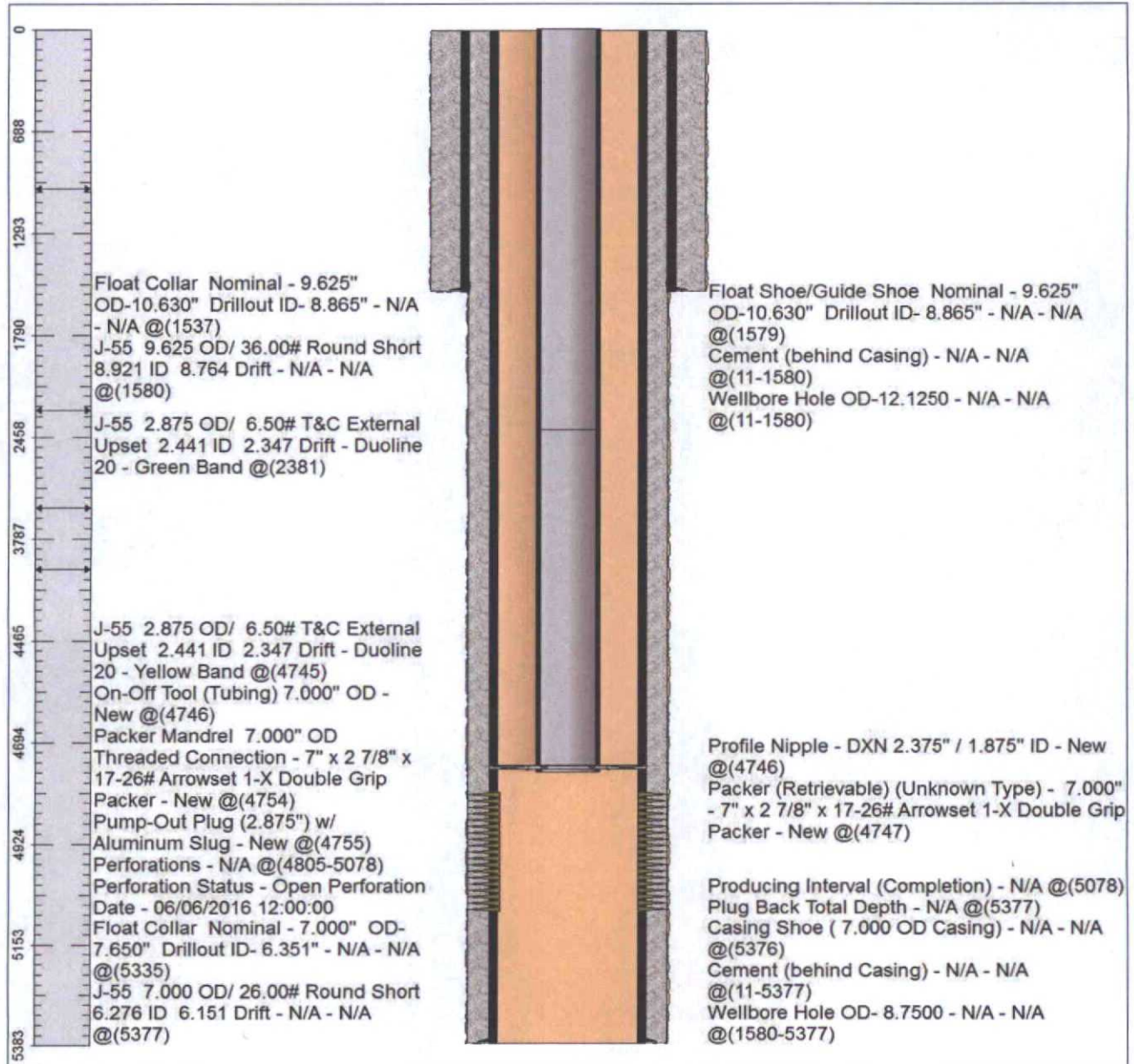
5. Give the name and depths of any oil or gas zones underlying or overlying the proposed injection zone in this area: \_\_\_\_\_

Byers (Queen) @ +/- 3680

Glorieta @ +/- 5300

\_\_\_\_\_

# Wellbore Diagram : SHOU-268



## South Hobbs Unit No. 268

			Course		Subsea							Dogleg
MD	INC	AZI	Length	TVD	Depth	N/-S	E/-W	X	Y	Lat	Long	Severity
0	0	0	0	0	3616.3	0	0	862392.1	613648.7	32- 40' 53	103- 9' 19	0
162	1.14	238.76	162	161.9893	3454.311	-0.8358	-1.3779	862390.8	613647.9	32- 40' 53	103- 9' 19	0.7
344	1.4	239.7	182	343.9444	3272.356	-2.8965	-4.8455	862387.3	613645.8	32- 40' 53	103- 9' 20	0.14
526	2.5	315.3	182	525.8605	3090.44	-1.1965	-9.5579	862382.6	613647.5	32- 40' 53	103- 9' 20	1.4
708	8.7	338.9	182	706.9203	2909.38	14.4835	-17.3135	862374.8	613663.2	32- 40' 53	103- 9' 20	3.56
904	11.1	336.4	196	899.9885	2716.312	45.607	-30.2053	862361.9	613694.3	32- 40' 53	103- 9' 20	1.24
1084	15.3	333.4	180	1075.196	2541.105	82.7368	-47.7839	862344.3	613731.5	32- 40' 54	103- 9' 20	2.36
1264	17.7	334.4	180	1247.771	2368.529	128.6553	-70.244	862321.9	613777.4	32- 40' 54	103- 9' 20	1.34
1444	19.16	334.65	180	1418.534	2197.766	180.0293	-94.7153	862297.4	613828.8	32- 40' 55	103- 9' 21	0.81
1620	18.76	334.43	176	1584.985	2031.315	231.66	-119.297	862272.8	613880.4	32- 40' 55	103- 9' 21	0.23
1799	19.07	335.22	179	1754.319	1861.981	284.174	-143.976	862248.2	613932.9	32- 40' 56	103- 9' 21	0.22
1979	20.35	336.41	180	1923.77	1692.53	339.5564	-168.827	862223.3	613988.3	32- 40' 56	103- 9' 21	0.75
2159	19.51	331.05	180	2093.003	1523.297	394.546	-195.904	862196.2	614043.3	32- 40' 57	103- 9' 22	1.12
2338	18.37	327.4	179	2262.315	1353.985	444.4671	-225.571	862166.6	614093.2	32- 40' 57	103- 9' 22	0.92
2518	17.58	327.18	180	2433.528	1182.772	491.2072	-255.587	862136.5	614139.9	32- 40' 58	103- 9' 22	0.44
2698	17.58	328.63	180	2605.122	1011.178	537.2615	-284.471	862107.7	614186	32- 40' 58	103- 9' 23	0.24
2878	16.88	329.38	180	2777.044	839.2564	582.9611	-311.933	862080.2	614231.7	32- 40' 59	103- 9' 23	0.41
3057	16	329.24	179	2948.724	667.5762	626.5252	-337.787	862054.3	614275.3	32- 40' 59	103- 9' 23	0.49
3237	14.81	329.6	180	3122.254	494.0463	667.6865	-362.117	862030	614316.4	32- 41' 0.0	103- 9' 24	0.66
3417	13.36	329.9	180	3296.838	319.4625	705.5228	-384.189	862007.9	614354.3	32- 41' 0.3	103- 9' 24	0.81
3597	11.6	330.08	180	3472.578	143.7225	739.2024	-403.647	861988.5	614387.9	32- 41' 0.7	103- 9' 24	0.98
3777	11.88	331.85	180	3648.813	-32.5125	771.2237	-421.414	861970.7	614420	32- 41' 1.0	103- 9' 24	0.25
3957	11.93	333.64	180	3824.942	-208.642	804.23	-438.416	861953.7	614453	32- 41' 1.3	103- 9' 24	0.21
4137	11.91	334.03	180	4001.06	-384.76	837.5982	-454.81	861937.3	614486.3	32- 41' 1.7	103- 9' 25	0.05
4317	11.78	334.65	180	4177.227	-560.927	870.9012	-470.81	861921.3	614519.6	32- 41' 2.0	103- 9' 25	0.1
4496	8.96	331.84	179	4353.287	-736.987	899.7088	-485.214	861906.9	614548.4	32- 41' 2.3	103- 9' 25	1.6
4676	8.13	332.76	180	4531.287	-914.987	923.3833	-497.656	861894.5	614572.1	32- 41' 2.5	103- 9' 25	0.47
4856	8.04	334.19	180	4709.498	-1093.2	946.0316	-508.962	861883.2	614594.8	32- 41' 2.7	103- 9' 25	0.12
5036	8.08	337.95	180	4887.722	-1271.42	969.0886	-519.192	861872.9	614617.8	32- 41' 3.0	103- 9' 25	0.29
5215	8.39	340.05	179	5064.876	-1448.58	993.0237	-528.37	861863.8	614641.8	32- 41' 3.2	103- 9' 26	0.24
5318	8.58	340.27	103	5166.749	-1550.45	1007.319	-533.528	861858.6	614656	32- 41' 3.3	103- 9' 26	0.19
5390	8.58	340.27	72	5237.943	-1621.64	1017.431	-537.154	861855	614666.2	32- 41' 3.4	103- 9' 26	0

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

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☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
Property Code	Property Name	Well Number
	SOUTH HOBBS G/SA UNIT	268
OGRID No.	Operator Name	Elevation
	OCCIDENTAL PERMIAN LTD.	3599.8'

Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
C	9	19 SOUTH	38 EAST, N.M.P.M.		179'	NORTH	1840'	WEST	LEA

Bottom Hole Location If Different From Surface

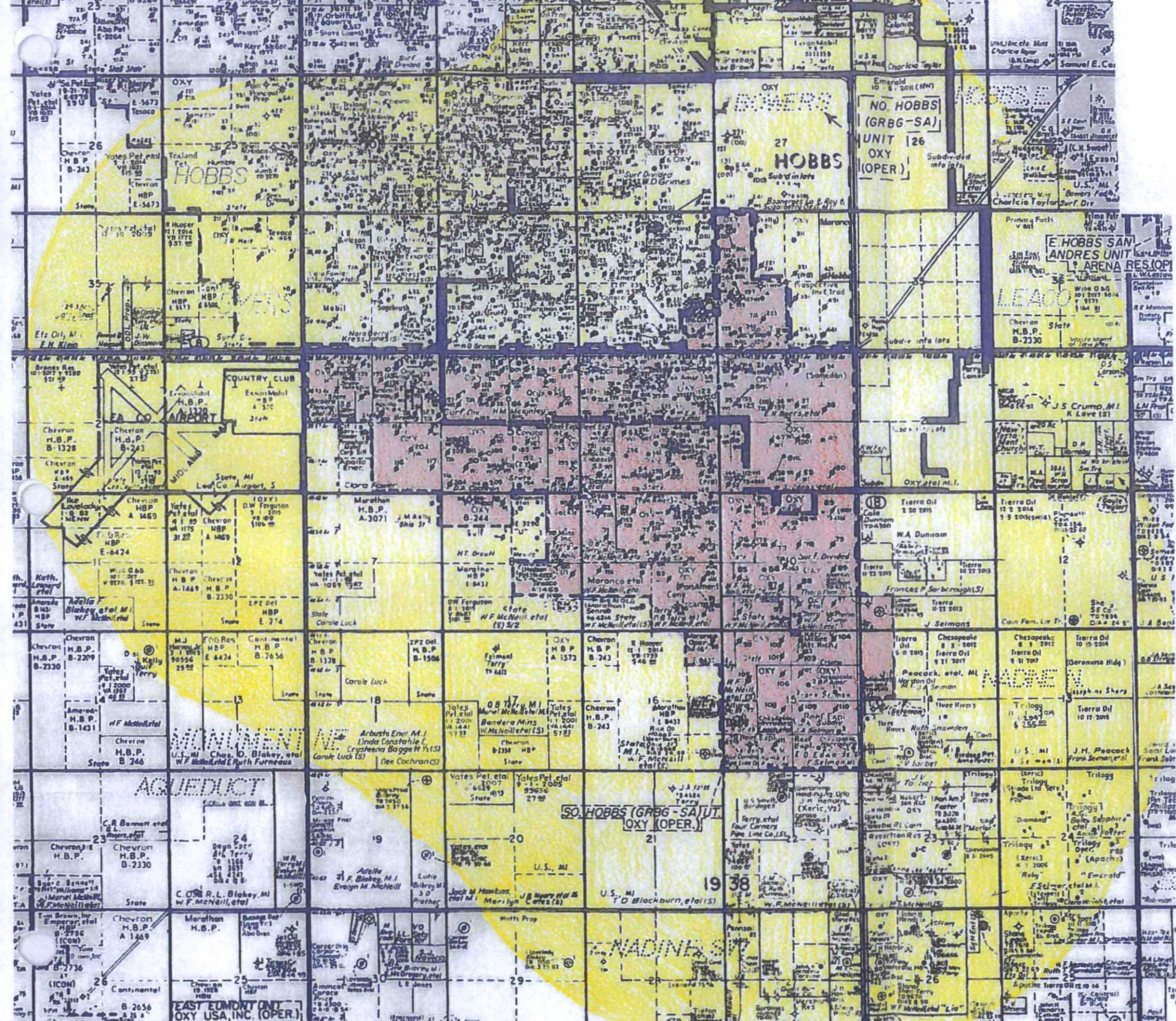
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
N	4	19 SOUTH	38 EAST, N.M.P.M.		751'	SOUTH	1357'	WEST	LEA

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.

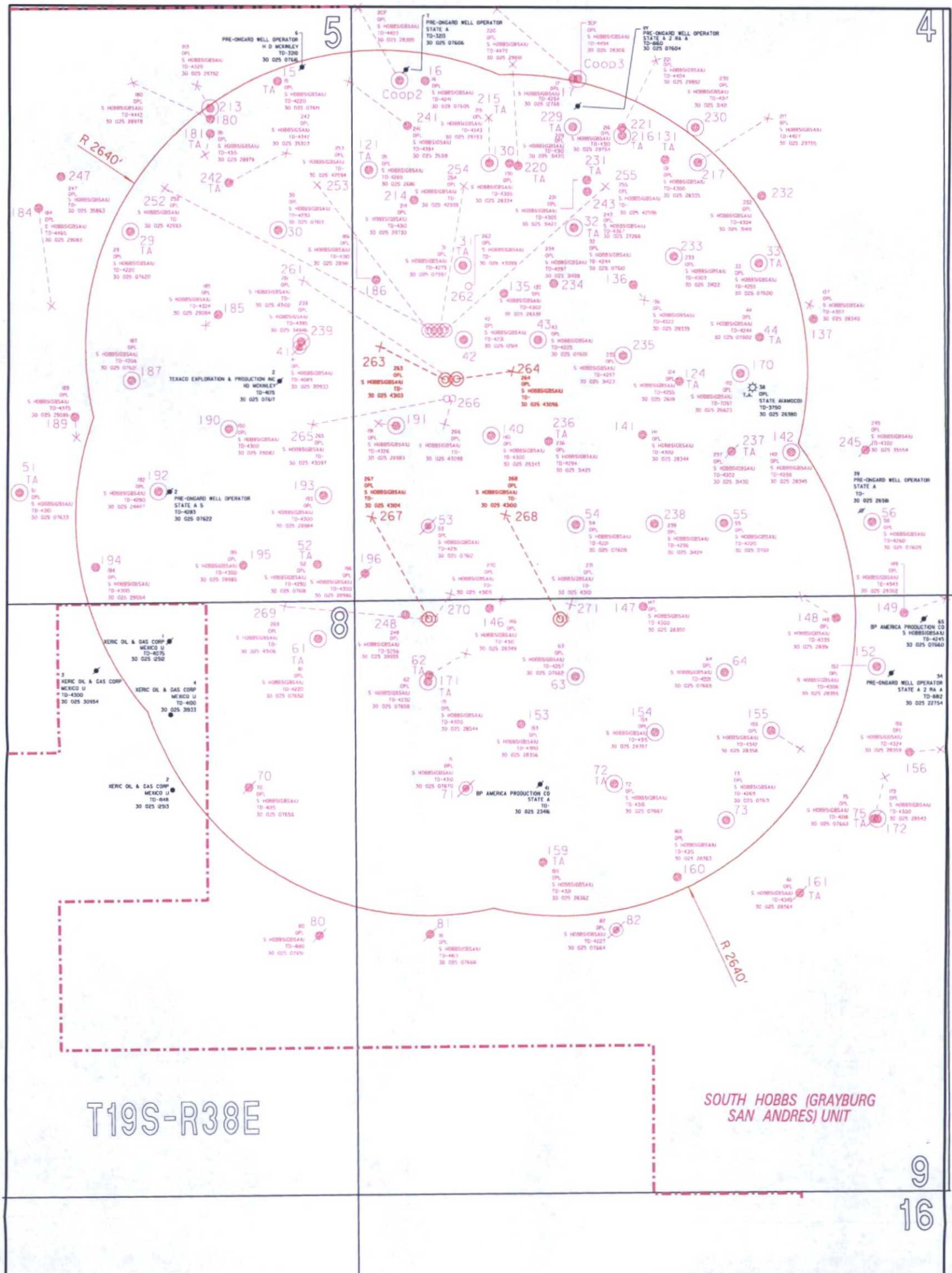
No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.

	<p><b>OPERATOR CERTIFICATION</b></p> <p>I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.</p> <p><u>April Hood</u> 3/1/16 Signature Date Printed Name E-mail Address <u>april-hood@oxy.com</u></p> <p><b>SURVEYOR CERTIFICATION</b></p> <p>I hereby certify that the well location shown on this plat was plotted from a combination of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.</p> <p><u>15079</u> Date of Survey Signature and Seal of Professional Surveyor <u>Tony J. Asel</u> 2/20/16 Certificate Number 15079</p> <p>WO# 151225WL-a (NA)</p>
--	---










UNIT BOUNDARY - - - - -  
PRODUCING WELL - - ●  
INJECTION WELL - - ●  
WELL LOCATIONS - - ○  
PROPOSED CONVERSION WELL - - ○-PC



**Oxy Occidental Permian Ltd.**

Area of Review Plot

**SOUTH HOBBS (GRAYBURG  
SAN ANDRES) UNIT**

WELL NO. 2663,264,267,268

T-19-S, R-38-E  
Lea County, New Mexico

Scale: 1" = 800' 7/14/2016 SOUTH\_HOBBS\_API.dgn  
Plot prepared by JMI  
For Horizon Survey, Inc.

### List of New Wells Drilled in the AOR

Proposed Name	Actual Well Name at Present	Well Type	API	Surf Casing	TOC	Cement	Prod Casing	TOC	Cement	DVT	TD
N/A	SHU 251	Oil Producer	30-025-42592	12.25" @ 1610'	0	700	8.75" @ 4535'	0	790	4080'	4550'
DSR7	SHU 252	WAG Injector	30-025-42593	12.25" @ 1540'	0	610	8.75" @ 5520'	0	960	4624'	5520'
DSR6	SHU 253	WAG Injector	30-025-42594	12.25" @ 1541'	0	610	8.75" @ 4833'	0	820	4023'	4849'
DSR5	SHU 254	WAG Injector	30-025-42595	12.25" @ 1555'	0	610	8.75" @ 4655'	0	790	3925'	4665'
DSR4	SHU 255	WAG Injector	30-025-42596	12.25" @ 1550'	0	470	8.75" @ 5008'	0	890	4158'	5020'
DSR1	SHU 256	WAG Injector	30-025-42647	12.25" @ 1599'	0	490	8.75" @ 5172'	0	850	4328'	5187'
DSR3	SHU 257	WAG Injector	30-025-42646	12.25" @ 1599'	0	480	8.75" @ 5001'	0	850	4174'	5016'
DSR2	SHU 258	WAG Injector	30-025-42648	12.25" @ 1587'	0	480	8.75" @ 4809'	0	810	3978'	4825'
P144	SHU 259	WAG Injector	30-025-42697	12.25" @ 1615'	0	480	8.75" @ 4935'	0	800	4172'	4950'
143	SHU 260	WAG Injector	30-025-42696	12.25" @ 1600'	0	480	8.75" @ 4601'	0	750	3831'	4615'
N/A	SHU 261	Oil Producer	30-025-43102	12.625" @ 1594'	0	630	8.75" @ 5227'	0	1220	4154'	5241'
N/A	SHU 262	Oil Producer	30-025-43099	12.625" @ 1618'	0	630	8.75" @ 5213'	0	1040	3808'	5226'
N/A	SHU 263	WAG Injector	30-025-43103	12.625" @ 1538'	0	630	8.75" @ 5204'	0	1195	3889'	5225'
N/A	SHU 264	WAG Injector	30-025-43096	12.625" @ 1535'	0	630	8.75" @ 5257'	0	1045	3815'	5275'
N/A	SHU 265	Oil Producer	30-025-43097	12.625" @ 1544'	0	630	8.75" @ 5212'	0	1080	4066'	5228'
N/A	SHU 266	Oil Producer	30-025-43098	12.625" @ 1549'	0	630	8.75" @ 5242'	0	1040	3796'	5255'
N/A	SHU 267	WAG Injector	30-025-43104	12.625" @ 1534'	0	970	8.75" @ 5228'	0	1080	3921'	5239'
N/A	SHU 268	WAG Injector	30-025-43100	12.625" @ 1578'	0	630	8.75" @ 5225'	0	1065	3933'	5238'
N/A	SHU 269	Oil Producer	30-025-43106	12.625" @ 1534'	0	630	8.75" @ 5184'	0	342		5220'
N/A	SHU 270	Oil Producer	30-025-43105	12.625" @ 1537'	0	630	8.75" @ 5245'	0	1085	3803'	5260'
N/A	SHU 271	Oil Producer	30-025-43101	12.625" @ 1535'	0	630	8.75" @ 5228'	0	700		5228'



**STATE OF NEW MEXICO  
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT  
OIL CONSERVATION COMMISSION**

**APPLICATION OF OCCIDENTAL PERMIAN LIMITED PARTNERSHIP TO AMEND ORDERS R-4934 AND R-4934-E GOVERNING THE SOUTH HOBBS GRAYBURG-SAN ANDRES PRESSURE MAINTENANCE PROJECT TO ALLOW THE INJECTION OF CARBON DIOXIDE AND PRODUCED GASES, TO MODIFY THE SURFACE INJECTION PRESSURE, TO OBTAIN OTHER RELIEF, AND TO QUALIFY THIS EXPANSION FOR THE RECOVERED OIL TAX RATE PURSUANT TO THE NEW MEXICO ENHANCED OIL RECOVERY ACT, LEA COUNTY, NEW MEXICO.**

**CASE NO. 14981  
ORDER NO. R-4934-F**

**ORDER OF THE COMMISSION**

This case comes before the New Mexico Oil Conservation Commission ("Commission") on the application of Occidental Permian Limited Partnership ("Oxy") to amend Order No. R-4934, as amended. The Commission, having conducted a hearing on May 9 and 10, 2013, at Santa Fe, New Mexico, and having considered the testimony and the record in this case, enters the following findings, conclusions and order.

**THE COMMISSION FINDS THAT:**

1. Due public notice has been given, and the Commission has jurisdiction of this case and its subject matter.
2. Under Order No. R-4934, issued in Case No. 5372 on December 3, 1974, the Commission authorized the injection of water into the Grayburg and San Andres formations and adopted Special Rules and Regulations for the South Hobbs Grayburg-San Andres Pressure Maintenance Project for certain acreage in Townships 18 and 19 South, Range 38 East, Lea County, New Mexico.
3. In May of 1984, under Order No. R-4934-E, the New Mexico Oil Conservation Division ("Division") amended the Special Rules and Regulations governing the South Hobbs Grayburg-San Andres Pressure Maintenance Project to what they are currently today.
4. Occidental Permian Limited Partnership is the current operator of the South Hobbs Grayburg-San Andres Pressure Maintenance Project. The acreage subject to the current waterflood operations consists of the following acreage in Lea County, New Mexico (hereinafter the "South Hobbs Project Area"):

TOWNSHIP 18 SOUTH, RANGE 38 EAST, NMPM

Section 33: SE/4 SE/4  
Section 34: SW/4 and W/2 NW/4

TOWNSHIP 19 SOUTH, RANGE 38 EAST, NMPM

Sections 3, 4, and 5: All  
Section 6: N/2 and SE/4  
Section 8: N/2 NW/4, E/2 NE/4, and N/2 SE/4  
Section 9: N/2, N/2 SW/4, and SE/4  
Section 10: All  
Section 11: SW/4 SW/4  
Section 14: W/2 NW/4  
Section 15: All  
Section 16: NE/4 NE/4

5. In April of 2009, under Administrative Order IPI-340, the Division approved Oxy's request to utilize 1100 psi as the maximum surface injection pressure for water in the South Hobbs Project Area.

6. Oxy is also the operator of the North Hobbs Grayburg San Andres Unit, which is adjacent to and to the north of the South Hobbs Project Area. The North Hobbs Grayburg San Andres Unit and the South Hobbs Project Area are collectively referred to as the "Hobbs Field".

7. Under Order No. R-6199-B, entered in Case No. 12722 on October 22, 2001, the Division authorized the conversion of a portion of the North Hobbs Grayburg San Andres Unit (the "Phase I Area") from a waterflood pressure maintenance project to a carbon dioxide gas tertiary recovery injection project in the Grayburg and San Andres formations.

8. Oxy now seeks authority to convert the South Hobbs Project Area to a similar carbon dioxide gas tertiary recovery injection project, and therefore requests the following relief from the Commission:

- (a) to approve the injection of carbon dioxide (CO<sub>2</sub>), and the reinjection of produced CO<sub>2</sub>, water and gases including methane, natural gas liquids and hydrogen sulfide (H<sub>2</sub>S) in the South Hobbs Project Area;
- (b) to provide for a surface injection pressure limit for CO<sub>2</sub>, produced gases and water based on friction pressure losses down the tubing and the lower density of gas as compared to water as follows: 1100 psi for water injection, 1250 psi for CO<sub>2</sub> only injection, and 1770 psi for produced gas injection;
- (c) to the extent that a limiting gas-oil ratio applies to an enhanced oil recovery project, to increase that limit above that allowed by 19.15.20.13 NMAC to 75,000 cubic feet of gas per barrel of oil produced;

- (d) to allow an exception to the one-year commencement of injection required by 19.15.26.12.C NMAC for the South Hobbs Project Area;
- (e) to provide that for any approved injection well that commences injection operations more than five years after approval of this request, that Oxy submit a statement that there have been no substantive changes to the area-of-review information submitted to the Division with its Application, or a statement describing any substantive changes;
- (f) to provide for a five-year frequency for the mechanical integrity tests required for temporarily-abandoned wells that are equipped with real-time pressure monitoring devices pursuant to 19.15.25.13.E NMAC;
- (g) to modify the packer setting depth required by Rule 10 of the Special Rules for the South Hobbs Grayburg-San Andres Unit Pressure Maintenance Project to allow for the packer to be set anywhere above the uppermost injection perforations or casing shoe, provided the packer is set below the top of the Grayburg Formation;
- (h) to remove the requirement in Rule 15 of the Special Rules for the South Hobbs Grayburg-San Andres Unit Pressure Maintenance Project that a cement bond log be run prior to placing a well on injection or at any time the rods and/or tubing are pulled from any producing well;
- (i) to allow for the administrative approval of additional injection wells into the Grayburg and San Andres formations underlying the South Hobbs Project Area; and
- (j) to qualify this expansion of injection authority for the recovered oil tax rate pursuant to the New Mexico Enhanced Oil Recovery Act, NMSA 1978, Sections 7-29A-1 to 7-29A-5 (Laws 1992, Chapter 38, Sections 1 through 5) ("Recovery Act"), and the rules of the Commission, 19.15.6 NMAC ("Rules").

9. The Division appeared at the hearing, examined Oxy's witnesses, and offered a Pre-Hearing Statement with sworn written testimony from Richard Ezeanyim, a registered petroleum engineer and a Bureau Chief within the Division.

10. Malcolm Coombes, a surface owner within the South Hobbs Project Area, submitted a Pre-Hearing Statement and opposed the application because the project would endanger human health and safety and possibly harm the value of his land. Mr. Coombes appeared at the hearing through counsel. After examining Oxy's initial witness, Mr. Coombes, through his counsel, indicated that he had no objection to Oxy's application and did not participate further in the case.

11. Big Al Oil & Gas submitted a letter protesting the application but did not appear at the hearing or offer any testimony or exhibits. The Economic Development Corporation of Lea County submitted a resolution in support of the application.

12. Oxy presented seven witnesses in support of its application: Richard Foppiano, a petroleum engineer employed by Oxy with expertise in oil and gas regulatory matters and health and safety issues; Jerad Brockman, Oxy's project manager for the South Hobbs Project Area with expertise in oil and gas production engineering; Randy Stillwell, a senior geologic advisor for Oxy with expertise in petroleum geology; Scott Hodges, Oxy's operations supervisor for the South Hobbs Project Area; Krishna Chokkarapu, a facilities and construction engineer employed by Oxy with special expertise in the design and engineering of CO2 and produced gas surface facilities for EOR projects; Kelley Montgomery, Oxy's regulatory consultant with expertise in oil and gas production engineering and environmental engineering; and Pat Sparks, Oxy's petroleum landman who directed a team of brokers to address the notice requirements for the application. These witnesses discussed and presented power-point slides, maps, diagrams, and other material that comprised a total of seventeen exhibits.

13. Oxy's witnesses provided testimony and presented exhibits addressing the following topics:

- (a) Oxy's extensive experience with oil and gas operations, including the handling of H2S and CO2 flooding operations in the Permian Basin;
- (b) How enhanced oil recovery projects utilize the injection of CO2, water and produced gases to recover additional oil that is not recovered by primary and secondary recovery operations;
- (c) How enhanced oil recovery projects are designed and implemented;
- (d) How the gas injection operations necessary for enhanced oil recovery projects differ from acid gas disposal operations;
- (e) The capital costs and associated development plans to convert the South Hobbs Project Area from a secondary waterflood project to an enhanced oil recovery project;
- (f) The injection and production well patterns Oxy intends to utilize in the South Hobbs Project Area;
- (g) The location and nature of the additional surface facilities Oxy intends to install in the South Hobbs Project Area;
- (h) The projected timetable for the installation of key components of the enhanced oil recovery project and the anticipated commencement date of CO2 injection operations;

- (i) The effect that an enhanced oil recovery project has on the gas-oil ratio over time;
- (j) How step rate tests were utilized to determine the appropriate surface injection pressure limits for water, CO2 and produced gases;
- (k) The injection pressure control devices Oxy intends to utilize on its injection wells;
- (l) The redundant pressure controls Oxy intends to utilize in the South Hobbs Project Area;
- (m) Oxy's supervisory control and data acquisition (SCADA) system, and how it will be utilized to provide constant monitoring of temperature, water content, pressures, H2S levels and gas content in the South Hobbs Project Area;
- (n) How Oxy intends to monitor the reservoir pressure to ensure that it remains just above the miscibility pressure;
- (o) The need for additional flexibility in the packer setting depth than what is currently allowed by Rule 10 of the Special Rules for the South Hobbs Grayburg-San Andres Unit Pressure Maintenance Project;
- (p) The geology underlying the South Hobbs Project Area, the location of the fresh water zones and the impermeable barriers that exist between the injection interval and the fresh water zones;
- (q) That a Division approved H2S contingency plan is in place that includes the South Hobbs Project Area;
- (r) Oxy's downhole corrosion mitigation efforts, including the use of corrosion resistant tubing, packers and inert packer fluid in the annulus;
- (s) Oxy's mechanical integrity program for the design, engineering, construction and maintenance of CO2 and produced gas injection facilities for enhanced oil recovery projects;
- (t) The NACE Standard MRO175 set forth in NMAC 19.15.11.14 and Oxy's compliance with that standard for the injection facilities in the South Hobbs Project Area;
- (u) The additional corrosion inhibition and mitigation efforts Oxy will utilize for the installation, construction and maintenance of the injection facilities in the South Hobbs Project Area;
- (v) The production history of the South Hobbs Project Area and the forecasted additional oil, gas and water production;

(w) The condition of the existing injection wells and design plans for additional injection wells in the South Hobbs Project Area;

(x) Oxy's plans to obtain additional information and address, as necessary, the cementing condition of the Herradura Well No. 3 (API No. 30-022-35933), a Chevron operated well in the southeast corner of the South Hobbs Project Area;

(y) The extensive knowledge of the wells within the area of review, the amount of time and effort devoted to the area of review analysis, and the absence of a need to update the area of review analysis for any injection wells that commence injection over the next five years;

(z) The time frame for mechanical integrity tests for temporarily-abandoned wells under NMAC 19.15.25.12 and the absence of a need for more frequent testing for wells equipped with real-time pressure monitoring devices;

(aa) The extensive knowledge concerning the cementing conditions for wells within the South Hobbs Project Area, the current cement bond log requirements under Rule 15 of the Special Rules for the South Hobbs Grayburg-San Andres Unit Pressure Maintenance Project, and the absence of a need to run cement bond logs any time the rods and/or tubing are pulled from any producing well in the project area;

(bb) The methodology, time frame and effort involved to ascertain the parties entitled to notice of the hearing on Oxy's application;

(cc) The number and identification of the parties notified of the hearing either by certified mail or by newspaper publication; and

(dd) Oxy's meetings with the City of Hobbs concerning its proposed tertiary recovery project in the South Hobbs Project Area.

14. The Division's Environmental Bureau has approved a hydrogen sulfide contingency plan that covers the South Hobbs Project Area.

15. The geologic evidence established the following with respect to the Grayburg and San Andres formations underlying the South Hobbs Project Area and the adjacent North Hobbs Grayburg San Andres Unit :

(a) These formations consist of a layered, anticlinal structure that acts as a natural trapping mechanism for oil, as well as any injected fluids.

(b) These formations are separated from the fresh water zones by over 3,500 feet.

(c) The upper portion of the Grayburg formation consists of 150 to 200 feet of impermeable anhydrite and limestone.

(d) Various additional layers of impermeable anhydrite, salt, shale and limestone exist between these injection formations and the fresh water zones.

(e) No geologic faults or other natural means exist in this area by which injected fluids could communicate with the shallower fresh water zones.

16. With respect to the proposed injection wells and the existing wells within the area of review for the South Hobbs Project Area, the evidence established that:

(a) The existing injection wells in the South Hobbs Project Area are sufficiently cased and cemented to prevent the migration of injection fluids out of the proposed injection interval.

(b) Oxy's design for additional injection wells in the South Hobbs Project Area will provide sufficient casing and cement to prevent the migration of injection fluids out of the proposed injection interval.

(c) With the possible exception of the Chevron operated Herradura Well No. 3 (API No. 30-022-35933), the remaining wells within the area of review are sufficiently cased and cemented to prevent migration of the injection fluids out of the proposed injection interval.

(d) Oxy does not intend to commence injection within one-half mile of the Chevron operated Herradura Well No. 3 (API No. 30-022-35933) until further evaluation of the cement in this well and Oxy is able to demonstrate to the Division that sufficient casing and cement exists to prevent migration of the injection fluids out of the proposed injection interval.

17. The Division has reviewed Oxy's application and found the proposed tertiary recovery project will prevent waste, protect correlative rights, is in the interest of conservation, and will provide a reasonable level of protection to human health and the environment.

18. The evidence demonstrates it is prudent to implement tertiary recovery operations in the Grayburg and San Andres formations underlying the South Hobbs Project Area and that implementing this project will result in the recovery of additional oil that may otherwise not be recovered and wasted.

19. The evidence presented to the Commission over the course of two days demonstrates that Oxy's proposed tertiary recovery operations in the Grayburg and San

Andres formations underlying the South Hobbs Project Area will not pose an unreasonable threat to groundwater, the public health or the environment.

20. Oxy's request to implement a tertiary recovery project utilizing the injection of CO<sub>2</sub> from outside sources, and produced water and produced gases from the Hobbs Field should be approved.

21. With respect to Oxy's requested maximum surface injection pressures for water, CO<sub>2</sub> and produced gases, the evidence demonstrates:

(a) Division Order IPI-340 approved a maximum surface injection pressure of 1100 psi for water after an evaluation of step rate tests performed by Oxy in 2008.

(b) Water is more dense than CO<sub>2</sub> and produced gases, thereby justifying higher surface injection pressures for these gases than that allowed for water.

(c) Oxy's proposed maximum surface injection pressures of 1250 psi for CO<sub>2</sub> and 1770 psi for produced gases are based on the step rate tests performed in 2008 and take into account the hydrostatic pressure differences between the substances.

(d) Oxy's proposed maximum surface injection pressures of 1250 psi for CO<sub>2</sub> and 1770 psi for produced gases will allow injection operations to be conducted well below the bottomhole parting pressures evidenced by the step-rate tests performed in 2008.

(e) Oxy's requested maximum surface injection pressures for water, CO<sub>2</sub> and produced gases should be approved.

22. With respect to Oxy's request for an exception to the limiting gas-oil ratio set forth in NMAC 19.15.20.13, Oxy provided testimony that Rules 19.15.20.12 (Depth Bracket Allowables) and 19.15.20.13 (Gas Oil Ratio Limitation) should not apply to enhanced oil recovery projects.

23. With respect to Oxy's request for an exception to the one-year commencement of injection required by NMAC 19.15.26.12.C, the evidence establishes that due to the time frames associated with the design, procurement and construction of the necessary facilities, injection operations in the South Hobbs Project Area are not expected to commence before September of 2015. Accordingly, it is reasonable to allow for a three year period of time to commence injection operations.

24. Based on the extensive area of review analysis performed by Oxy, as well as the low level of activity in the subject area by other operators, the Commission finds it is unnecessary to update the existing area of review analysis for a period of five years.



However, if any well commences injection operations more than five years after the date of this order, Oxy should submit a statement to the Division that there have been no substantive changes to the area-of-review information submitted, or a statement describing any substantive changes.

25. Pursuant to NMAC 19.15.25.13.E, and based on the evidence presented on Oxy's SCADA system and proposed real time pressure monitoring devices, the Commission finds it is appropriate to conduct mechanical integrity tests on temporarily-abandoned wells equipped with real-time pressure monitoring devices once every five years.

26. Pursuant to NMAC 19.15.25.14, and based on the evidence presented on Oxy's SCADA system and proposed real-time pressure monitoring devices, the Commission finds it is appropriate to conduct mechanical integrity tests on injection wells in the South Hobbs Project Area once every two years as recommended by the Division.

27. The geologic and other evidence presented demonstrates Oxy should be allowed to set packers in injection wells in the South Hobbs Project Area anywhere above the uppermost injection perforations or casing shoes, so long as the packer is set below the top of the Grayburg formation.

28. With respect to Oxy's request to modify the cement bond log requirements under Rule 15 of the Special Rules for the South Hobbs Grayburg-San Andres Unit Pressure Maintenance Project, the Commission finds that a cement bond log should be run prior to placing a well on injection, but agrees there is no need to run a cement bond log on a producing well each time the rods and/or tubing are pulled.

29. The Commission further finds that the remaining four additional requirements proposed by the Division in its prehearing statement are appropriate for the South Hobbs Project Area.

30. With respect to Oxy's request that its proposed expanded injection authority qualify for the recovered oil tax rate pursuant to the Recovery Act, the evidence establishes that:

(a) Oxy's planned enhanced oil recovery project in the South Hobbs Project Area should result in the recovery of an additional 33.2 million barrels of oil that may otherwise not be recovered, thereby preventing waste.

(b) The South Hobbs Project Area has been so depleted that it is prudent to apply enhanced recovery techniques to maximize the ultimate recovery of crude oil;

(c) The application is economically and technically reasonable and has not been prematurely filed; and

(d) The proposed tertiary recovery project meets all of the criteria for certification as a qualified "enhanced recovery project" under the Recovery Act and the Rules. NMSA 1978, Section 7-29A-4; 19.15.6.8.E NMAC.

31. The proposed tertiary recovery project will prevent waste, protect correlative rights, and should be approved with certain conditions.

**THE COMMISSION CONCLUDES THAT:**

1. The Commission is empowered to regulate the injection of natural gas or of any other substance into any pool in this state for the purpose of repressuring, cycling, pressure maintenance, secondary or any other enhanced recovery operations and to regulate the disposition of water produced or used in connection with drilling for or producing of oil or gas, and to regulate the disposition of nondomestic waste resulting from the treatment of natural gas or the refinement of crude oil to protect public health and the environment. NMSA 1978 § 70-2-12(B)(14, 15, 22). The Commission has a statutory duty to prevent waste and protect correlative rights. NMSA 1978 § 70-2-11(A).

2. Oxy has provided substantial evidence to support the approval of the authority to inject CO<sub>2</sub>, and produced water and produced gases into the South Hobbs Project Area subject to the conditions provided in this Order, which conditions are necessary to prevent waste and protect correlative rights and public health and the environment.

3. The Commission concludes Rules 19.15.20.12 (Depth Bracket Allowables) and 19.15.20.13 (Gas Oil Ratio Limitation) do not apply to enhanced oil recovery projects, and therefore, neither a limiting gas-oil ratio nor an oil allowable shall apply to this tertiary recovery project.

4. Rule 19.15.26.12(C) allows an extension of the one year deadline for injection authority for good cause. Oxy has provided substantial evidence concerning the size and complexity of the project to show good cause and to support the Commission extension of the deadline for initial injection to three years.

5. The Commission and the Division have the authority to certify "enhanced recovery projects" that are eligible for a "recovered oil tax rate" under the Enhanced Oil Recovery Act, NMSA 1978, Sections 7-29A-1 to -5 (1992) and under the Rules, 19.15.6 NMAC. The South Hobbs Grayburg-San Andres Unit Pressure Maintenance Project, as expanded by this Order, meets the requirements for certification as an enhanced recovery project and a tertiary recovery project under the Recovery Act and the Rules. The South Hobbs Project Area shall be designated as the area to be affected by the enhanced recovery project.

**IT IS THEREFORE ORDERED THAT:**

1. The provisions of this order shall govern the tertiary recovery project described herein. The provisions of Orders Nos. R-4934 and R-4934-E remain applicable to the ongoing waterflood operations for the South Hobbs Grayburg-San Andres Unit Pressure Maintenance Project, except to the extent that the governing provisions are inconsistent with this order.

2. Oxy is authorized to implement a tertiary recovery project by the injection of CO<sub>2</sub>, and produced water and produced gases from the Hobbs Field into the Grayburg and San Andres formations underlying the following acreage, which shall be known as the South Hobbs Project Area:

**TOWNSHIP 18 SOUTH, RANGE 38 EAST, NMPM**

Section 33: SE/4 SE/4

Section 34: SW/4 and W/2 NW/4

**TOWNSHIP 19 SOUTH, RANGE 38 EAST, NMPM**

Sections 3, 4, and 5: All

Section 6: N/2 and SE/4

Section 8: N/2 NW/4, E/2 NE/4, and N/2 SE/4

Section 9: N/2, N/2 SW/4, and SE/4

Section 10: All

Section 11: SW/4 SW/4

Section 14: W/2 NW/4

Section 15: All

Section 16: NE/4 NE/4

3. The injection of CO<sub>2</sub>, water and produced gases is initially authorized for the 30 existing injection wells and 23 additional injection wells listed on Exhibit "A" attached to this order. Application for approval of additional injection wells in the South Hobbs Project Area shall be filed in accordance with NMAC 19.15.26.8 and may be approved administratively by the Division Director without notice and hearing.

4. The injection authority granted herein for the wells shown on Exhibit "A" shall terminate three years after the date of this order if the operator has not commenced tertiary injection operations in the South Hobbs Project Area; provided, however, the Division, upon written request by the operator, may grant an extension for good cause. Furthermore, in accordance with NMAC 19.15.26.12.C (Abandonment of Injection Operations); whenever there is a one-year period of non-injection into all wells in the project area, the Division shall consider the project abandoned and the authority to inject shall automatically terminate.

5. For any injection well shown on Exhibit "A" in which tertiary injection operations commence more than five years after the date of this order, the operator shall submit to the Division either: (i) a statement certifying that there have been no

no substantive changes in the information furnished in support of the subject application concerning the status or construction of any well that penetrates the injection interval within the one half (1/2) mile area of review around the injection well; or (ii) a statement describing any substantive changes. This statement shall be submitted to the Division's Santa Fe office within a period no more than twelve months and no less than sixty days before injection operations commence in the well.

6. The injection wells or pressurization system within the South Hobbs Project Area shall be equipped with a pressure control device or acceptable substitute that will limit the surface injection pressure to no more than:

1100 psig for injection of water only;  
1250 psig for injection of CO<sub>2</sub> only; and  
1770 psig for injection of produced gases.

7. The Division Director may administratively authorize an increase in surface injection pressure upon a showing by the operator that such higher pressure will not result in the fracturing of the injection formation or confining strata.

8. The operator shall take all necessary steps to ensure that the injected gases and fluids enter only the Grayburg and/or San Andres formations and are not permitted to escape to other formations or to the surface from injection, production, or plugged and abandoned wells.

9. A one-way automatic safety valve shall be installed at the surface of all injection wells to prevent flow-back of the injected gas during an emergency, start-up or shut-down operations.

10. Injection shall be accomplished through fiberglass-lined tubing and a nickel plated packer. The packer shall be set as close as practical to the uppermost injection perforations or casing shoe (of any open hole completion), so long as the packer set point remains below the top of the Grayburg formation.

11. The casing-tubing annulus shall be filled with an inert packer fluid containing biocide and corrosion inhibitors. A gauge or approved leak-detection device shall be attached to the annulus in order to determine leakage in the casing, tubing or packer.

12. The operator shall use a special type of cement on all new injection wells that is designed to withstand the corrosive environment. The cement design shall contain more than three percent (3%) tricalcium aluminate (C3A) in this High Sulfate Resistance (HSR) environment.

13. The operator is no longer required to run a cement bond log on a producing well each time the rods and/or tubing are pulled from the well. However, prior to placing any well on injection, a cement bond log shall be run on said well and copies of all cement bond logs shall be sent to the Division's Hobbs District Office. If any well

is found to have inadequate casing cement bond, such measures as may be necessary to prevent leakage or migration of fluids within the wellbore shall be taken before placing the well on injection.

14. Prior to commencing injection operations, the casing in each of the injection wells within the South Hobbs Project Area shall be pressure tested throughout the interval from the surface down to the proposed packer setting depth to assure the integrity of such casing.

15. A mechanical integrity test shall be conducted on all injection wells once every two years.

16. Pursuant to NMAC 19.15.25.13.E, a mechanical integrity test shall be conducted on all temporarily-abandoned wells equipped with real-time pressure monitoring devices once every five years.

17. Injection operations shall be conducted in a closed loop system, and the trucking of fluids is not allowed.

18. Oxy shall not commence injection operations anywhere within one-half (1/2) mile of the Chevron operated Herradura Well No. 3 (API No. 30-022-35933) until Oxy provides a cement bond log to the Division's Hobbs District Office demonstrating that adequate cement exists in this well to prevent migration of the injection fluids out of the proposed injection interval.

19. The operator shall immediately notify the supervisor of the Division's Hobbs District Office of the failure of the tubing, casing or packer in any of the injection wells, or the leakage of water, oil or gas from or around any producing or plugged and abandoned well within the project area, and shall promptly take all steps necessary to correct such failure or leakage.

20. Oxy shall maintain recorded data from its SCADA system for the South Hobbs Project Area for inspection by the Division for a reasonable period of time to be determined and agreed upon through consultation between Oxy and the Division's Hobbs District Office.

21. No limiting gas-oil ratio or oil allowable applies to this enhanced oil recovery project.

22. The hydrogen sulfide contingency plan for the South Hobbs Project Area shall be reviewed and amended as necessary pursuant to 19.15.11.9.F NMAC.

23. The South Hobbs Grayburg-San Andres Unit Pressure Maintenance Project is hereby certified as an enhanced recovery project and as a tertiary recovery project pursuant to the Recovery Act and the Rules. The South Hobbs Project Area is designated as the area to be affected by the enhanced recovery project. To be eligible for

the recovered oil tax rate, the operator shall advise the Division of the date and time CO2 injection commences within the project area. At that time, the Division will certify the project to the New Mexico Taxation and Revenue Department.

24. At such time as a positive production response occurs, and within seven years from the date the project was certified to the New Mexico Taxation and Revenue Department, the applicant must apply to the Division for certification of a positive production response pursuant to the Recovery Act, NMSA 1978 Section 7-29A-3, and the Rules, 19.15.6.E NMAC. This application shall identify the area benefiting from enhanced oil recovery operations and the specific wells eligible for the recovered oil tax rate. The Division may review the application administratively or set it for hearing. Based upon the evidence presented, the Division will certify to the New Mexico Taxation and Revenue Department those wells that are eligible for the recovered oil tax rate. Oxy must also report annually to the Division to confirm that the project is still a viable EOR project as approved. 19.15.6.F NMAC.

25. Jurisdiction of this case is retained for the entry of such further orders as the Commission may deem necessary.

DONE at Santa Fe, New Mexico, on this 18<sup>th</sup> day of July, 2013.

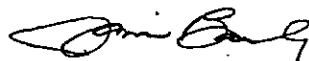
STATE OF NEW MEXICO  
OIL CONSERVATION COMMISSION



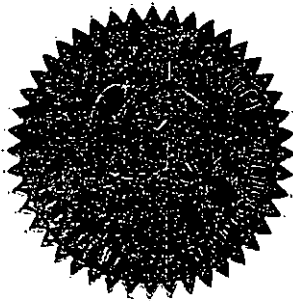
ROBERT BALCH, Member



TERRY WARNELL, Member



JAMI BAILEY, Chair



SEAL

Exhibit "A"

List of Injectors in South Hobbs Unit Project  
53 Total Injectors

No.	API Number	Section	Unit Letter	Township & Range	Footage Location	Proposed Injectants Purchased CO2/Water or Produced Gas/CO2/Water	Current Status
SHU 128	30-025-28332	3	D	19-S ; 38-E	335 FNL & 520 FWL	Purchased CO2/Water	Active Injector
SHU 240	30-025-35342	34	M	18-S ; 38-E	571 FSL & 1302 FWL	Purchased CO2/Water	Active Producer
SHU 36	30-025-07588	3	F	19-S ; 38-E	1980 FNL & 1980 FWL	Purchased CO2/Water	Active Injector
SHU 37	30-025-07584	3	G	19-S ; 38-E	1980' FNL & 2310' FEL	Purchased CO2/Water	P&A'd Injector
SHU 188	30-025-28982	5	K	19-S ; 38-E	1493 FSL & 1802 FWL	Produced Gas/CO2/Water	Active Producer
SHU 189	30-025-29085	5	J	19-S ; 38-E	1685 FSL & 2475 FEL	Produced Gas/CO2/Water	Active Producer
SHU 190	30-025-29082	5	I	19-S ; 38-E	1568 FSL & 1105 FEL	Produced Gas/CO2/Water	Active Producer
SHU 191	30-025-28983	4	L	19-S ; 38-E	1585 FSL & 395 FWL	Produced Gas/CO2/Water	Active Producer
SHU 140	30-025-28343	4	L	19-S ; 38-E	1485 FSL & 1245 FWL	Produced Gas/CO2/Water	Active Producer
SHU 141	30-025-28344	4	X	19-S ; 38-E	1478 FSL & 2595 FWL	Produced Gas/CO2/Water	Active Producer
SHU 142	30-025-28345	4	O	19-S ; 38-E	1310 FSL & 1370 FEL	Produced Gas/CO2/Water	Active Producer
SHU 145	30-025-28348	3	N	19-S ; 38-E	577 FSL & 1984 FWL	Purchased CO2/Water	Active Producer
SHU 71	30-025-07670	9	E	19-S ; 38-E	1650 FNL & 990 FWL	Produced Gas/CO2/Water	TA'd Injector
SHU 63	30-025-07662	9	C	19-S ; 38-E	660 FNL & 1980 FWL	Produced Gas/CO2/Water	Active Injector
SHU 154	30-025-28357	9	B	19-S ; 38-E	1163 FNL & 2600 FEL	Produced Gas/CO2/Water	Active Producer
SHU 155	30-025-28358	9	B	19-S ; 38-E	1158 FNL & 1568 FEL	Produced Gas/CO2/Water	Active Producer
SHU 156	30-025-28359	9	H	19-S ; 38-E	1370 FNL & 330 FEL	Produced Gas/CO2/Water	Active Producer
SHU 83	30-025-07668	9	J	19-S ; 38-E	1980 FSL & 1980 FEL	Produced Gas/CO2/Water	TA'd Injector
SHU 91	30-025-20047	9	P	19-S ; 38-E	990 FSL & 330 FEL	Produced Gas/CO2/Water	TA'd Producer
COOP 2	30-025-28305	4	O	19-S ; 38-E	645 FNL & 453 FWL	Purchased CO2/Water	Active Injector
COOP 3	30-025-28306	4	C	19-S ; 38-E	645 FNL & 2045 FWL	Purchased CO2/Water	Active Injector
COOP 4	30-025-28307	4	A	19-S ; 38-E	494 FNL & 1025 FEL	Purchased CO2/Water	Active Injector
COOP 5	30-025-28308	34	L	18-S ; 38-E	1980 FSL & 645 FWL	Purchased CO2/Water	Active Injector
COOP 6	30-025-28309	34	E	18-S ; 38-E	1950 FNL & 535 FWL	Purchased CO2/Water	Active Injector
COOP 9	30-025-28968	34	A	18-S ; 38-E	717 FNL & 651 FWL	Purchased CO2/Water	Active Injector
COOP 10	30-025-28969	34	L	18-S ; 38-E	2564 FSL & 1607 FWL	Purchased CO2/Water	Active Injector
COOP 11	30-025-28970	34	L	18-S ; 38-E	2500 FSL & 1660 FWL	Purchased CO2/Water	Active Injector
COOP 12	30-025-28971	34	N	18-S ; 38-E	636 FSL & 2348 FWL	Purchased CO2/Water	Active Injector
COOP 13	30-025-28972	3	B	19-S ; 38-E	505 FNL & 2580 FEL	Purchased CO2/Water	Active Injector
SHU 209	30-025-29522	8	D	19-S ; 38-E	265 FNL & 1090 FEL	Produced Gas/CO2/Water	Active Injector
SHU 92R	TBD	10	M	19-S ; 38-E	660 FSL & 600 FWL	Produced Gas/CO2/Water	Proposed New Drill - Vertical
SHU 95R	TBD	10	O	19-S ; 38-E	990 FSL & 2310 FEL	Produced Gas/CO2/Water	Proposed New Drill - Vertical
VP1	TBD	6	G	19-S ; 38-E	TBD	Purchased CO2/Water	Proposed New Drill - Vertical
VP2	TBD	6	F	19-S ; 38-E	TBD	Purchased CO2/Water	Proposed New Drill - Vertical
VS2	TBD	15	G	19-S ; 38-E	TBD	Produced Gas/CO2/Water	Proposed New Drill - Vertical
VS3	TBD	15	F	19-S ; 38-E	TBD	Produced Gas/CO2/Water	Proposed New Drill - Vertical
DSR1	TBD	4	J	19-S ; 38-E	TBD	Produced Gas/CO2/Water	Proposed New Drill - Directional
DSR2	TBD	4	I	19-S ; 38-E	TBD	Produced Gas/CO2/Water	Proposed New Drill - Directional
DSR3	TBD	4	J	19-S ; 38-E	TBD	Produced Gas/CO2/Water	Proposed New Drill - Directional
DSR4	TBD	4	K	19-S ; 38-E	TBD	Produced Gas/CO2/Water	Proposed New Drill - Directional
DSR5	TBD	4	K	19-S ; 38-E	TBD	Produced Gas/CO2/Water	Proposed New Drill - Directional
DSR6	TBD	4	K	19-S ; 38-E	TBD	Produced Gas/CO2/Water	Proposed New Drill - Directional
DSR7	TBD	4	K	19-S ; 38-E	TBD	Produced Gas/CO2/Water	Proposed New Drill - Directional
DSR8	TBD	5	L	19-S ; 38-E	TBD	Produced Gas/CO2/Water	Proposed New Drill - Directional
DSR9	TBD	5	L	19-S ; 38-E	TBD	Produced Gas/CO2/Water	Proposed New Drill - Directional
DSR10	TBD	5	L	19-S ; 38-E	TBD	Produced Gas/CO2/Water	Proposed New Drill - Directional
DSR11	TBD	5	L	19-S ; 38-E	TBD	Produced Gas/CO2/Water	Proposed New Drill - Directional
DSR12	TBD	10	O	19-S ; 38-E	TBD	Produced Gas/CO2/Water	Proposed New Drill - Directional
DSR13	TBD	10	O	19-S ; 38-E	TBD	Produced Gas/CO2/Water	Proposed New Drill - Directional
DSR14	TBD	10	O	19-S ; 38-E	TBD	Produced Gas/CO2/Water	Proposed New Drill - Directional
Z03	TBD	5	L	19-S ; 38-E	TBD	Produced Gas/CO2/Water	Proposed New Drill - Directional
143	TBD	4	J	19-S ; 38-E	TBD	Produced Gas/CO2/Water	Proposed New Drill - Directional
P144	TBD	4	J	19-S ; 38-E	TBD	Produced Gas/CO2/Water	Proposed New Drill - Directional



# New Mexico Office of the State Engineer

## Water Column/Average Depth to Water



























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(quarters are smallest to largest) (NAD83 UTM in meters)

(In feet)

POD													Depth Well	Depth Water	Water Column
POD Number	Sub- Code	basin	County	Q 6	Q 16	Q 4	Sec	Tws	Rng	X	Y				
L 00188	R	L	LE	1	2	4	03	19S	38E	675229	3618287*		148		
L 00227		L	LE	2	1	1	04	19S	38E	672597	3619044*		180	62	118
L 00228		L	LE	1	2	1	04	19S	38E	672800	3619051*		180	150	30
L 00229		L	LE	3	1	1	04	19S	38E	672397	3618844*		187	155	32
L 00231		L	LE	3	2	1	04	19S	38E	672800	3618851*		183	150	33
L 00532		L	LE	3	4	1	10	19S	38E	674442	3616865*		110	80	30
L 00532	R	L	LE	3	4	1	10	19S	38E	674442	3616865*		110	80	30
L 00532 POD2		L	LE	4	4	1	10	19S	38E	674642	3616865*		125	44	81
L 00532 POD2	R	L	LE	4	4	1	10	19S	38E	674642	3616865*		125	44	81
L 00532 S		L	LE	1	3	2	10	19S	38E	674845	3617072*		126	39	87
L 00532 S	R	L	LE	1	3	2	10	19S	38E	674845	3617072*		126	39	87
L 00937		L	LE	3	1	1	03	19S	38E	674008	3618872*		100		
L 00991 POD1		L	LE		2	05	19S	38E	671899	3618730*		80			
L 00995 POD1		L	LE	1	1	4	05	19S	38E	671604	3618225*		62	26	36
L 01010 POD1		L	LE	1	2	2	05	19S	38E	671994	3619037*		95	45	50
L 01016 POD1		L	LE		4	4	03	19S	38E	675336	3617785*		76		
L 01017 POD1		L	LE	3	4	2	05	19S	38E	672000	3618434*		63		
L 01060		L	LE	4	4	1	05	19S	38E	671394	3618421*		50	30	20
L 01071		L	LE	2	3	2	05	19S	38E	671797	3618628*		65	30	35
L 01104 POD1		L	LE	4	3	2	04	19S	38E	673409	3618455*		60	33	27
L 01105 POD1		L	LE		2	04	19S	38E	673511	3618757*		80	45	35	
L 01115 POD1		L	LE		4	2	05	19S	38E	672101	3618535*			61	
L 01162 POD1		L	LE	3	3	1	05	19S	38E	670791	3618414*		65	30	35
L 01172 POD1		L	LE		2	3	03	19S	38E	674525	3618175*		110	40	70
L 01181 POD1		L	LE		4	2	05	19S	38E	672101	3618535*		87	26	61
L 01345		L	LE				04	19S	38E	673120	3618340*		76	56	20

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(In feet)

POD-Number	Sub-Code	basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
L 01369		L	LE	2	1	1	05	19S	38E	670984	3619017*	80	37	43
L 01397	R	L	LE	4	4	3	03	19S	38E	674630	3617671*	80	50	30
L 01397 POD2		L	LE	4	4	3	03	19S	38E	674630	3617671*	90	48	42
L 01411	R	L	LE	2	1	1	03	19S	38E	674208	3619072*	147	70	77
L 01418		L	LE				2 05	19S	38E	671899	3618730*	77	37	40
L 01432		L	LE				4 2 05	19S	38E	672101	3618535*	75	37	38
L 01458		L	LE	3	4	1	05	19S	38E	671194	3618421*	110	24	86
L 01518 POD1		L	LE				03	19S	38E	674732	3618368*	110	53	57
L 01520 POD1		L	LE				2 1 05	19S	38E	671288	3618924*	100	30	70
L 01579 POD1		L	LE	4	4	4	03	19S	38E	675435	3617684*	70	41	29
L 01583 POD1		L	LE				2 2 05	19S	38E	672095	3618938*	65	30	35
L 01592 POD1		L	LE	1	2	2	04	19S	38E	673605	3619065*	82	50	32
L 01833 POD1		L	LE				3 2 05	19S	38E	671698	3618529*	66	28	38
L 01941		L	LE				1 05	19S	38E	671093	3618716*	70	28	42
L 01971		L	LE	4	4	1	05	19S	38E	671394	3618421*	60	28	32
L 01998		L	LE	1	1	2	05	19S	38E	671591	3619030*	100	50	50
L 02175		L	LE				1 1 05	19S	38E	670885	3618918*	80	27	53
L 02233		L	LE				1 3 05	19S	38E	670899	3618112*	104	28	76
L 02262		L	LE	1	1	2	10	19S	38E	674839	3617475*	130		
L 02263		L	LE	2	1	1	05	19S	38E	670984	3619017*	112	28	84
L 02265		L	LE	3	2	2	05	19S	38E	671994	3618837*	50	50	0
L 02298		L	LE	2	4	2	05	19S	38E	672200	3618634*	63	30	33
L 02320		L	LE	3	3	3	03	19S	38E	674028	3617664*	65	40	25
L 02328		L	LE				2 1 08	19S	38E	671315	3617314*	100	22	78
L 02410		L	LE	1	1	1	05	19S	38E	670784	3619017*	80	26	54
L 02411		L	LE				2 2 09	19S	38E	673732	3617355*	92	44	48
L 02425		L	LE				3 2 05	19S	38E	671698	3618529*	80	40	40
L 02433		L	LE	1	4	2	05	19S	38E	672000	3618634*	60	30	30
L 02536		L	LE				3 2 04	19S	38E	673310	3618556*	96	46	50

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(NAD83 UTM in meters)

(In feet)

POD Number	POD Sub-Code	basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
L 02560	L	LE		3	3	2	05	19S	38E	671597	3618428*	60	34	26
L 02570	L	LE		4	4	4	03	19S	38E	675435	3617684*	80	45	35
L 02589	L	LE		2	4	1	05	19S	38E	671394	3618621*	105		
L 02590	L	LE		2	4	1	05	19S	38E	671394	3618621*	60	30	30
L 02591	L	LE		4	2	2	05	19S	38E	672194	3618837*	85	40	45
L 02594	L	LE					2 05	19S	38E	671899	3618730*	115	65	50
L 02640	L	LE		1	3	10		19S	38E	674147	3616556*	95	50	45
L 02646	L	LE		2	2	2	05	19S	38E	672194	3619037*	80	35	45
L 02736	L	LE					2 05	19S	38E	671899	3618730*	100	56	44
L 02797	L	LE		3	4	03		19S	38E	674933	3617779*	100	50	50
L 02800	L	LE		4	4	4	04	19S	38E	673825	3617657*	85	40	45
L 02839	L	LE		1	3	2	05	19S	38E	671597	3618628*	60	29	31
L 02865	L	LE		2	3	2	03	19S	38E	675020	3618683*	125	54	71
L 02868	L	LE		1	4	4	03	19S	38E	675235	3617884*	103	42	61
L 02966	L	LE		2	2	2	05	19S	38E	672194	3619037*	43	27	16
L 02982	L	LE		3	4	2	04	19S	38E	673612	3618462*	100	35	65
L 02985	L	LE		3	3	1	05	19S	38E	670791	3618414*	122	40	82
L 03082	L	LE					2 05	19S	38E	671899	3618730*	80	28	52
L 03084	L	LE		2	4	3	03	19S	38E	674630	3617871*	95	40	55
L 03127	L	LE		2	1	2	05	19S	38E	671791	3619030*	100	40	60
L 03183	L	LE		4	2	1	05	19S	38E	671387	3618823*			
L 03183 POD2	R	L	LE	2	2	1	05	19S	38E	671387	3619023*	120	35	85
L 03223	L	LE		2	3	2	05	19S	38E	671797	3618628*	42	27	15
L 03330	L	LE		3	4	4	03	19S	38E	675235	3617684*	100	40	60
L 03337	L	LE		4	3	1	05	19S	38E	670991	3618414*	124	32	92
L 03342	R	L	LE	2	1	2	10	19S	38E	675039	3617475*	100		
L 03342 POD2	L	LE		2	1	2	10	19S	38E	675039	3617475*	150	62	88
L 03714	L	LE		4	3	4	03	19S	38E	675032	3617678*	85	40	45
L 03747	L	LE					1 05	19S	38E	671093	3618716*	100	38	62

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POD		Q Q Q										Depth		Water
Sub-	Code	basin	County	64	16	4	Sec	Tws	Rng	X	Y	Well	Water	Column
POD Number														
L 03760	L	LE		2	2	1	05	19S	38E	671387	3619023*	100	30	70
L 03808	L	LE		4	3	4	03	19S	38E	675032	3617678*	100	40	60
L 03865	L	LE		2	2	2	05	19S	38E	672194	3619037*	50	29	21
L 03879	L	LE		2	1		05	19S	38E	671288	3618924*	60	40	20
L 03880	L	LE			1		05	19S	38E	671093	3618716*	60	40	20
L 03897	L	LE			1		05	19S	38E	671093	3618716*	60	40	20
L 04063	L	LE		4	2		05	19S	38E	672101	3618535*	70	35	35
L 04078	L	LE					05	19S	38E	671509	3618312*	65	40	25
L 04114	L	LE		1	1	1	05	19S	38E	670784	3619017*	85	24	61
L 04138	L	LE		2	2	4	08	19S	38E	672233	3616621*	85	30	55
L 04141	L	LE			1		05	19S	38E	671093	3618716*	70	35	35
L 04181	L	LE		4	3	03		19S	38E	674531	3617772*	75	48	27
L 04215	L	LE		2	4	2	05	19S	38E	672200	3618634*	75	35	40
L 04280	L	LE		4	1	1	05	19S	38E	670984	3618817*	80	45	35
L 04316	L	LE		4	3	03		19S	38E	674531	3617772*	72	49	23
L 04317	L	LE		4	3	03		19S	38E	674531	3617772*	72	50	22
L 04612	L	LE		4	2	2	05	19S	38E	672194	3618837*	100	32	68
L 04616	L	LE		2	4	3	03	19S	38E	674630	3617871*	100	36	64
L 04635	L	LE		2	2	1	03	19S	38E	674611	3619079*	100	44	56
L 04657	L	LE		2	1		05	19S	38E	671288	3618924*	70	30	40
L 04758	L	LE		1	1	2	05	19S	38E	671591	3619030*	85	42	43
L 04867	L	LE		2	3	1	05	19S	38E	670991	3618614*	70	25	45
L 05166	L	LE			1		05	19S	38E	671093	3618716*	100	50	50
L 05304	L	LE			2		05	19S	38E	671899	3618730*	85	35	50
L 05560	L	LE		2	1	1	05	19S	38E	670984	3619017*	115	33	82
L 05677	L	LE		1	3	2	10	19S	38E	674845	3617072*	125	44	81
L 05677	R	L	LE	1	3	2	10	19S	38E	674845	3617072*	125	44	81
L 05687	L	LE		4	2	2	05	19S	38E	672194	3618837*	100	35	65
L 05707	L	LE		2	4	04		19S	38E	673719	3618161*	121	50	71

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POD Number	POD Sub- Code	basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
L 05777	L	LE		3	4	2	05	19S	38E	672000	3618434*	100	40	60
L 06097	L	LE			4	2	04	19S	38E	673713	3618563*	100	65	35
L 06192	L	LE			2	3	03	19S	38E	674525	3618175*	125	60	65
L 06308	L	LE			2	1	05	19S	38E	671288	3618924*	95	36	59
L 06309	L	LE		4	2	1	05	19S	38E	671387	3618823*	80	35	45
L 06718	L	LE				3	05	19S	38E	671107	3617910*	80	28	52
L 06747	L	LE			4	1	05	19S	38E	671295	3618522*	80	28	52
L 06806	L	LE			4	2	05	19S	38E	672101	3618535*	85	35	50
L 06902	L	LE			1	3	03	19S	38E	674122	3618168*	150	53	97
L 07043	L	LE				1	05	19S	38E	671093	3618716*	150	28	122
L 07104	L	LE				2	05	19S	38E	671899	3618730*	120	30	90
L 07176	L	LE		3	3	1	03	19S	38E	674014	3618469*	100	52	48
L 07207	L	LE		3	2	1	05	19S	38E	671187	3618823*		31	
L 07238	L	LE		2	1	2	10	19S	38E	675039	3617475*	120	48	72
L 07242	R	L	LE	2	2	2	09	19S	38E	673831	3617454*	130	60	70
L 07242 POD2	L	LE		2	2	2	09	19S	38E	673831	3617454*	141	65	76
L 07247	L	LE			1	2	05	19S	38E	671692	3618931*	71	36	35
L 07297	L	LE		3	4	4	03	19S	38E	675235	3617684*	150	45	105
L 07393	L	LE			4	1	05	19S	38E	671295	3618522*	120	32	88
L 07467	L	LE			4	4	05	19S	38E	672114	3617730*	100	38	62
L 07521	L	LE		3	1	2	04	19S	38E	673202	3618858*	300		
L 07522	L	LE		4	1	1	03	19S	38E	674208	3618872*	350		
L 07538	L	LE		3	1	2	05	19S	38E	671591	3618830*	360		
L 07539	L	LE		3	2	2	05	19S	38E	671994	3618837*	360		
L 07540	L	LE		1	1	1	04	19S	38E	672397	3619044*	350		
L 07608	L	LE		2	3	2	05	19S	38E	671797	3618628*	75	28	47
L 07625	L	LE		1	4	2	05	19S	38E	672000	3618634*	100	48	52
L 07661	L	LE			2	3	03	19S	38E	674525	3618175*	150	65	85
L 07758	L	LE		1	2	4	03	19S	38E	675229	3618287*	130	58	72

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
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POD Number	POD		Q Q Q							X	Y	Depth Well	Depth Water	Water Column
	Sub-Code	basin	County	64	16	4	Sec	Tws	Rng					
L 07782	L	LE	1	2	1	05	19S	38E	671187	3619023*		150	45	105
L 07856	L	LE		2	3	05	19S	38E	671302	3618119*		100	48	52
L 07888	L	LE	4	3	1	05	19S	38E	670991	3618414*		110	48	62
L 08037	L	LE		4	1	05	19S	38E	671295	3618522*		100	50	50
L 08158	L	LE	4	4	2	04	19S	38E	673812	3618462*		130	44	86
L 08167	L	LE	2	1	1	10	19S	38E	674234	3617461*		130	38	92
L 08183	L	LE	2	4	2	05	19S	38E	672200	3618634*		94		
L 08235	L	LE		1	05	19S	38E	671093	3618716*		135	70	65	
L 08317	L	LE	1	1	1	04	19S	38E	672397	3619044*		150	50	100
L 08375	L	LE	3	4	2	10	19S	38E	675247	3616879*		150	84	66
L 08649	L	LE		2	05	19S	38E	671899	3618730*		100	29	71	
L 09839	L	LE	3	1	3	03	19S	38E	674021	3618067*		150	60	90
L 10023	L	LE	4	3	3	05	19S	38E	671005	3617608*		125	20	105
L 10159	L	LE	4	1	3	05	19S	38E	670998	3618011*		150	20	130
L 10555	L	LE	3	3	1	05	19S	38E	670791	3618414*		70		
L 10556	L	LE	3	3	1	05	19S	38E	670791	3618414*		55		
L 11327	L	LE	4	1	1	05	19S	38E	670984	3618817*		80	38	42
L 12887 POD1	L	LE	4	4	1	03	19S	38E	674553	3618484		133	75	58
L 12991 POD1	L	LE	4	3	2	10	19S	38E	675120	3616932		172		
L 13221 POD1	L	LE	3	3	1	05	19S	38E	670741	3618396		151		
L 13231 POD1	L	LE	1	2	2	10	19S	38E	675240	3617531		160		
L 13409 POD4	L	LE	2	2	1	05	19S	38E	671379	3619119			42	
L 13515 POD1	L	LE	2	3	2	04	19S	38E	673433	3618372		50	43	7
L 13515 POD2	L	LE	2	3	2	04	19S	38E	673432	3618372		55	43	12
L 13515 POD3	L	LE	2	3	2	04	19S	38E	673174	3618367		50	43	7
L 13515 POD4	L	LE	2	3	2	04	19S	38E	673201	3618355		50		
L 13515 POD5	L	LE	2	3	2	04	19S	38E	673201	3618355				
L 13515 POD6	L	LE	2	3	2	04	19S	38E	673429	3618710		50		
L 13806 POD1	L	LE	1	4	1	09	19S	38E	672794	3616993		150		

\*UTM location was derived from PLSS - see Help

(A CLW##### in the  
POD suffix indicates the  
POD has been replaced  
& no longer serves a  
water right file.)

(R=POD has  
been replaced,  
O=orphaned,  
C=the file is  
closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)

(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

POD Number	POD Sub	Code	basin	County	64	16	4	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
L 13806 POD2	L	LE			1	4	1	09	19S	38E	672794	3616993	150		
L 13936 POD1	L	LE			1	3	3	05	19S	38E	670763	3617848	150		
L 13936 POD2	L	LE			1	3	3	05	19S	38E	670763	3617848	150		

Average Depth to Water: **43 feet**

Minimum Depth: **20 feet**

Maximum Depth: **155 feet**

Record Count: 174

**PLSS Search:**

Section(s): 3-5, 8-10

Township: 19S

Range: 38E

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

Contamination of these shallow drinking water sources from injection into the deeper San Andres is virtually impossible through natural vertical communication. Immediately overlying the lower Grayburg/San Andres reservoir section at Hobbs is a nearly 200' thick section of impermeable anhydrite and tight limestones of the upper Grayburg formation. Between this barrier and the fresh water zones lies another impermeable zone, a 1000'+ thick section of salt and anhydrite of the Rustler and Salado formations. The top of these formations are found at a depth of approximately 1500', immediately underlying the Triassic "Red Beds". In addition, there is no geologic evidence to suggest that there are any faults in the Hobbs area that would provide a connection between the San Andres formation and the overlying shallow drinking water sources. There are no underground sources of drinking water found below the proposed injection interval.

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



Randy Stilwell

Senior Geologic Advisor

3-12-2013

Date

# MITCHELL ANALYTICAL LABORATORY

2638 Faudree  
Odessa, Texas 79765-8538  
561-5579

Company: **Nalco Company**

Well Number:	DA Cochran Windmill S of House	Sample Temp:	70
Lease:	OXY	Date Sampled:	3/25/2013
Location:	55ft. close to inj. #209	Sampled by:	Bobby Hunt
Date Run:	3/27/2013	Employee #:	27-022
Lab Ref #:	13-mar-n69275	Analyzed by:	GR

## 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

		Mg/L	Eq. Wt.	MEq/L
Calcium	(Ca++)	72.36	20.10	3.60
Magnesium	(Mg++)	13.08	12.20	1.07
Sodium	(Na+)	40.60	23.00	1.77
Barium	(Ba++)	<b>NOT ANALYZED</b>		
Manganese	(Mn+)	.13	27.50	.00
Strontium	(Sr++)	<b>NOT ANALYZED</b>		

## Anions

		Mg/L	Eq. Wt.	MEq/L
Hydroxyl	(OH-)	.00	17.00	.00
Carbonate	(CO <sub>3</sub> =)	.00	30.00	.00
BiCarbonate	(HCO <sub>3</sub> -)	195.52	61.10	3.20
Sulfate	(SO <sub>4</sub> =)	46.00	48.80	.94
Chloride	(Cl-)	82.09	35.50	2.31
Total Iron	(Fe)	0.24	18.60	.01
Total Dissolved Solids		450.02		
Total Hardness as CaCO <sub>3</sub>		234.53		
Conductivity MICROMHOS/CM		692		

pH	7.100	Specific Gravity 60/60 F.	1.000
----	-------	---------------------------	-------

CaSO<sub>4</sub> Solubility @ 80 F.      18.71MEq/L,      CaSO<sub>4</sub> scale is unlikely

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

70.0	-.927	100.0	-.577	130.0	-.067
80.0	-.797	110.0	-.337	140.0	-.067
90.0	-.577	120.0	-.337	150.0	.163

*Nalco Company*



# MITCHELL ANALYTICAL LABORATORY

2638 Faudree  
Odessa, Texas 79765-8538  
561-5579

Company: **Nalco Company**

Well Number:	Malcomb Combs Windmill	Sample Temp:	70
Lease:	OXY	Date Sampled:	3/25/2013
Location:	Inj. #239	Sampled by:	Bobby Hunt
Date Run:	3/27/2013	Employee #:	27-022
Lab Ref #:	13-mar-n69274	Analyzed by:	GR

## 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> )	86.11	20.10	4.28
Magnesium	(Mg <sup>++</sup> )	16.88	12.20	1.38
Sodium	(Na <sup>+</sup> )	30.32	23.00	1.32
Barium	(Ba <sup>++</sup> )	<b>NOT ANALYZED</b>		
Manganese	(Mn <sup>+</sup> )	.00	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> )	219.96	61.10	3.60
Sulfate	(SO <sub>4</sub> <sup>=</sup> )	28.00	48.80	.57
Chloride	(Cl <sup>-</sup> )	100.11	35.50	2.82
Total Iron	(Fe)	0.14	18.60	.01
Total Dissolved Solids		481.52		
Total Hardness as CaCO <sub>3</sub>		284.48		
Conductivity MICROMHOS/CM		875		

pH	7.070	Specific Gravity 60/60 F.	1.000
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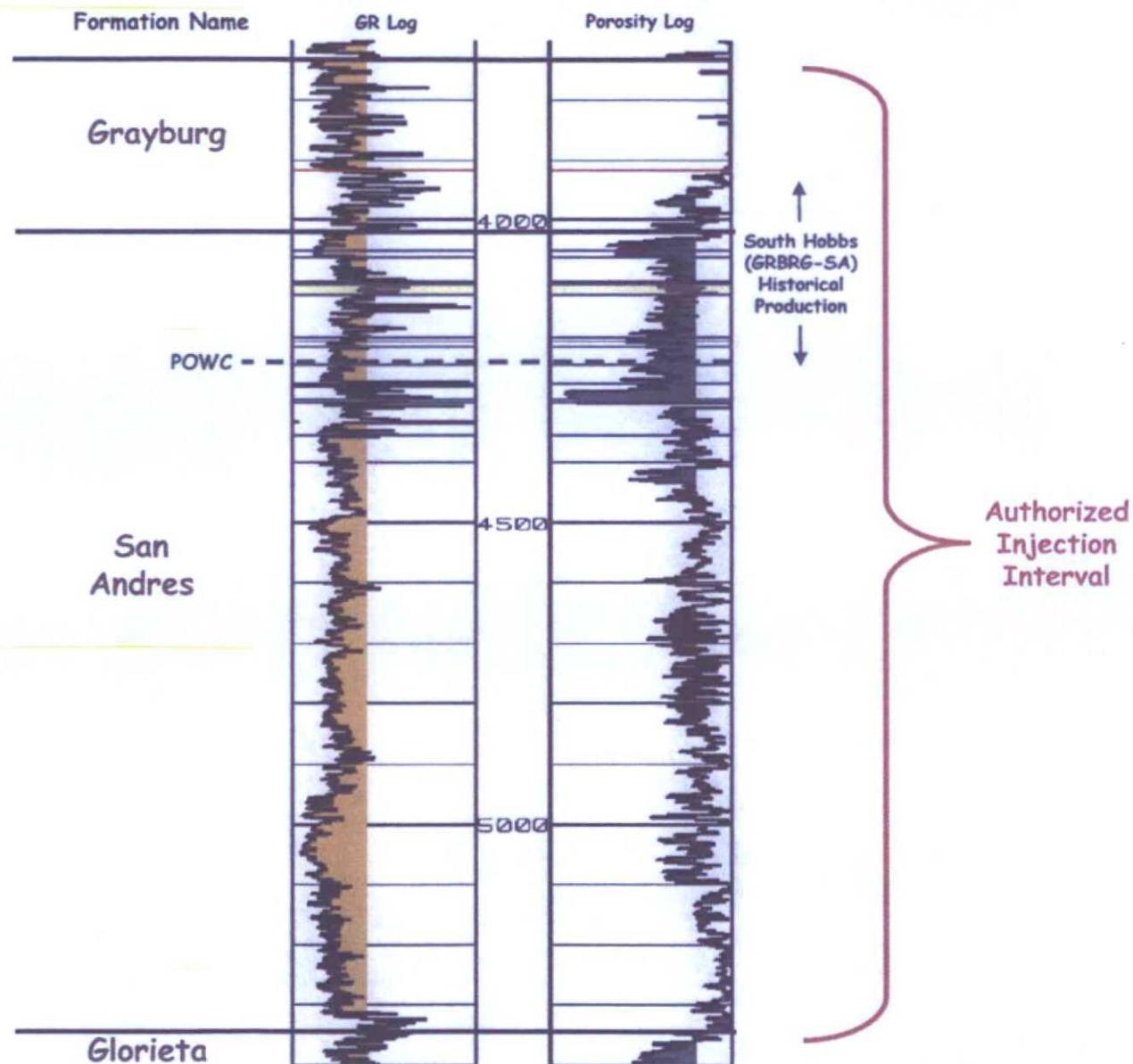
CaSO<sub>4</sub> Solubility @ 80 F. 18.22MEq/L, CaSO<sub>4</sub> scale is unlikely

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

70.0	-.830	100.0	-.480	130.0	.030
80.0	-.700	110.0	-.240	140.0	.030
90.0	-.480	120.0	-.240	150.0	.260

Nalco Company

# South Hobbs Unit Detailed Type Log



# South Hobbs Unit COOP #10-WI Type Log

NHU32-424

API #3002523130



Formerly named

Shell State A #7

SHU COOP 10-WI

API #3002528969



Top Unitized Interval

Top Unitized Interval

Grayburg

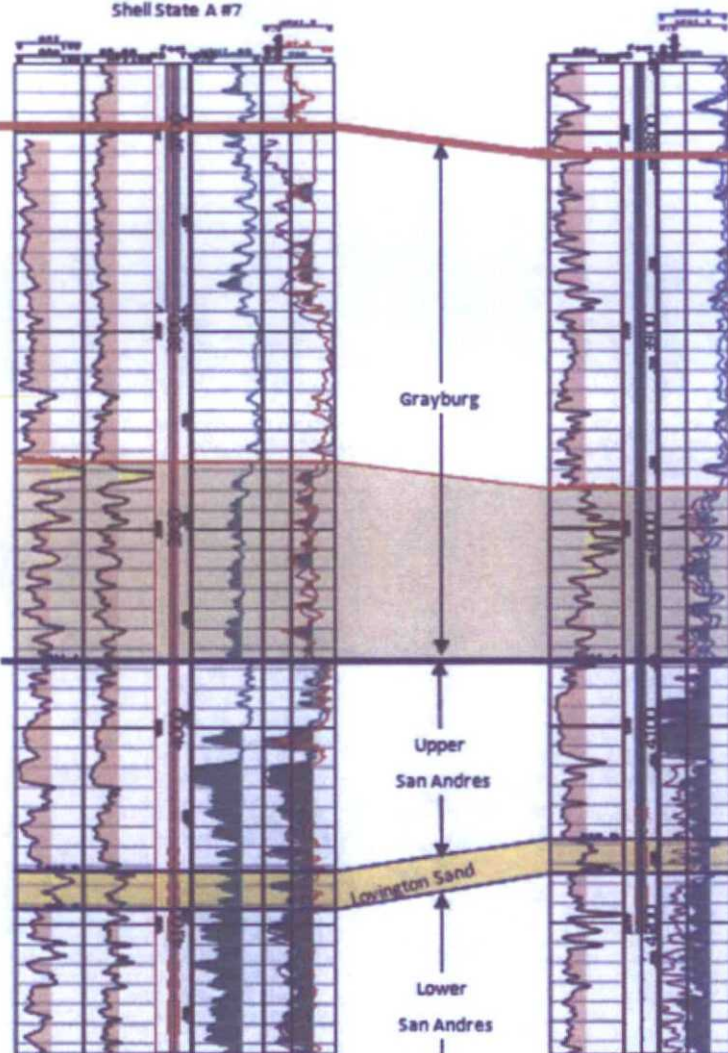
Top San Andres  
(DATUM)

Top San Andres  
(DATUM)

Upper  
San Andres

Lovington Sand

Lower  
San Andres





# C-108 Review Checklist: Area Order

## Supplemental Checklist for Multiple Well Application

ORDER TYPE: VFX / PMX Number: \_\_\_\_\_ SUPPLEMENTAL PAGE 3 of 3

Relevant Hearing Order(s): R-4934-r

MULTIPLE WELL APPLICATION: 3 of 3 Well No. 268 Well Name(s): SOUTH HOBBS  
API: 30-0 25-4310-0 Spud Date: 5/10/2014 New or Old: N (UIC Class II Primacy 03/07/1982)  
Footages 8 17562 18406 4 Lot \_\_\_\_\_ or Unit E Sec 9 Tsp 19S Rge 38E County LEL  
WELL FILE REVIEWED ☐ Current Status: drilled / not complete  
WELL DIAGRAMS: NEW: Proposed ☐ or RE-ENTER: Before Conv. ☐ After Conv. ☐ Logs in Imaging: \_\_\_\_\_  
Planned Rehab Work to Well: \_\_\_\_\_

Well Construction Details	Sizes (in) Borehole / Pipe	Setting Depths (ft)	Cement Sx or Cf	Cement Top and Determination Method
Planned ___ or Existing ___ Surface	<u>12 78 19 94</u>	<u>1589578</u>	<u>630</u>	<u>SURFACE / USG</u>
Planned ___ or Existing ___ Interm/Prod	<u>8 24 17</u>	<u>5377</u>	<u>389</u>	<u>1065</u>
Planned ___ or Existing ___ Interm/Prod				
Planned ___ or Existing ___ Prod/Liner				
Planned ___ or Existing ___ Liner				
Planned ___ or Existing ___ OH / PERF	<u>4805 / 5078</u>		<u>273</u>	

Completion/Operation Details: Drilled TD 5390 PBTD \_\_\_\_\_ NEW TD \_\_\_\_\_ NEW PBTD \_\_\_\_\_  
NEW Open Hole ☐ or NEW Perfs ☒ Tubing Size 2 7/8 in. Coated? Y Prop. Packer Depth 4754 ft Min. Depth 4754 (100-ft limit)  
Proposed Max. Surface Press. R-4934-r psi Admin. Inj. Press. \_\_\_\_\_ (0.2 psi per ft) ANY AREA IPI APPROVAL: \_\_\_\_\_  
Specific Requirement(s) for Well: \_\_\_\_\_

MULTIPLE WELL APPLICATION: \_\_\_\_\_ of \_\_\_\_\_ Well No. \_\_\_\_\_ Well Name(s): \_\_\_\_\_  
API: 30-0 \_\_\_\_\_ Spud Date: \_\_\_\_\_ New or Old: \_\_\_\_\_ (UIC Class II Primacy 03/07/1982)  
Footages \_\_\_\_\_ Lot \_\_\_\_\_ or Unit \_\_\_\_\_ Sec \_\_\_\_\_ Tsp \_\_\_\_\_ Rge \_\_\_\_\_ County \_\_\_\_\_  
WELL FILE REVIEWED ☐ Current Status: \_\_\_\_\_  
WELL DIAGRAMS: NEW: Proposed ☐ or RE-ENTER: Before Conv. ☐ After Conv. ☐ Logs in Imaging: \_\_\_\_\_  
Planned Rehab Work to Well: \_\_\_\_\_

Well Construction Details	Sizes (in) Borehole / Pipe	Setting Depths (ft)	Cement Sx or Cf	Cement Top and Determination Method
Planned ___ or Existing ___ Surface			Stage Tool	
Planned ___ or Existing ___ Interm/Prod				
Planned ___ or Existing ___ Interm/Prod				
Planned ___ or Existing ___ Prod/Liner				
Planned ___ or Existing ___ Liner				
Planned ___ or Existing ___ OH / PERF			Inj Length	

Completion/Operation Details: Drilled TD \_\_\_\_\_ PBTD \_\_\_\_\_ NEW TD \_\_\_\_\_ NEW PBTD \_\_\_\_\_  
NEW Open Hole ☐ or NEW Perfs ☐ Tubing Size \_\_\_\_\_ in. Coated? \_\_\_\_\_ Prop. Packer Depth \_\_\_\_\_ ft Min. Depth \_\_\_\_\_ (100-ft limit)  
Proposed Max. Surface Press. \_\_\_\_\_ psi Admin. Inj. Press. \_\_\_\_\_ (0.2 psi per ft) ANY AREA IPI APPROVAL: \_\_\_\_\_  
Specific Requirement(s) for Well: \_\_\_\_\_

C-108 Review Checklist: Received 7/15/2016 Add. Request: \_\_\_\_\_ Reply Date: \_\_\_\_\_ Suspended: \_\_\_\_\_ [Ver 15]ORDER TYPE: WEX PMX / SWD Number: \_\_\_\_\_ Order Date: \_\_\_\_\_ Legacy Permits/Orders: 12-4434-FWell No. 263 Well Name(s): South Hobbs GISA UnitAPI: 30-0 2543103 Spud Date: 5/20/2016 New or Old: N (UIC Class II Primacy 03/07/1982)Footages B-7 2257FSL 249FSL Lot \_\_\_\_\_ or Unit 4 Sec 143 Tsp 38E Rge LEC County LECGeneral Location: Hobbs City Limits Pool: \_\_\_\_\_ Pool No.: \_\_\_\_\_BLM 100K Map: Hobbs Operator: Permian Ltd OGRID: 157984 Contact: April HoodCOMPLIANCE RULE 5.9: Total Wells: 671 Inactive: 1 Fincl Assur: Y Compl. Order? N/A IS 5.9 OK? Y Date: 7/18/2016WELL FILE REVIEWED ☒ Current Status: drilledWELL DIAGRAMS: NEW: Proposed ☐ or RE-ENTER: Before Conv. ☐ After Conv. ☐ Logs in Imaging: N/A

Planned Rehab Work to Well: \_\_\_\_\_

Well Construction Details		Sizes (in) Borehole / Pipe	Setting Depths (ft)	Cement Sx or Cf	Cement Top and Determination Method
Planned ___ or Existing ___ Surface	<u>12 5/8 / 9 5/8</u>	<u>1538</u>	Stage Tool	<u>630</u>	<u>SURFACE/VISUAL</u>
Planned ___ or Existing ___ Interm/Prod	<u>8 3/4 / 7</u>	<u>524-5307</u>	<u>3809</u>	<u>1159</u>	<u>SURFACE/VISUAL</u>
Planned ___ or Existing ___ Interm/Prod					
Planned ___ or Existing ___ Prod/Liner					
Planned ___ or Existing ___ Liner					
Planned ___ or Existing ___ OH/PERF	<u>4734 4424</u>		Inj Length <u>236'</u>		

Injection Lithostratigraphic Units:	Depths (ft)	Injection or Confining Units	Tops
Adjacent Unit: Litho. Struc. Por.	<u>12-13</u>		
Confining Unit: Litho. Struc. Por.			
Proposed Inj Interval TOP:			
Proposed Inj Interval BOTTOM:			
Confining Unit: Litho. Struc. Por.			
Adjacent Unit: Litho. Struc. Por.	<u>12-13</u>		

Completion/Operation Details:	
Drilled TD <u>5316 (MD)</u>	PBTD <u>5304 (MD)</u>
NEW TD _____	NEW PBTD _____
NEW Open Hole <input type="checkbox"/> or NEW Perfs <input checked="" type="checkbox"/>	
Tubing Size <u>2 7/8</u> in.	Inter Coated? <input checked="" type="checkbox"/>
Proposed Packer Depth: <u>4694</u> ft	
Min. Packer Depth <u>4694</u> (100-ft limit)	
Proposed Max. Surface Press. _____ psi	
Admin. Inj. Press. _____ (0.2 psi per ft)	

**AOR: Hydrologic and Geologic Information**

POTASH: R-111-P \_\_\_\_\_ Noticed? \_\_\_\_\_ BLM Sec Ord ☐ WIPP ☐ Noticed? \_\_\_\_\_ Salt/Salado T: \_\_\_\_\_ B: \_\_\_\_\_ NW: Cliff House fm \_\_\_\_\_

FRESH WATER: Aquifer Quaternary Max Depth 155 HYDRO AFFIRM STATEMENT By Qualified Person ☐

NMOSE Basin: LEC CAPITAN REEF: thru adj NA No. Wells within 1-Mile Radius? \_\_\_\_\_ FW Analysis \_\_\_\_\_

Disposal Fluid: Formation Source(s) produced H2O Analysis? Y On Lease ☒ Operator Only ☐ or Commercial ☐

Disposal Int: Inject Rate (Avg/Max BWPD): 15K Protectable Waters? NA Source: \_\_\_\_\_ System: Closed or Open

HC Potential: Producing Interval? Y Formerly Producing? \_\_\_\_\_ Method: Logs/DST/P&A/Other \_\_\_\_\_ 2-Mile Radius Pool Map ☐

AOR Wells: 1/2-M Radius Map? Y Well List? Y Total No. Wells Penetrating Interval: \_\_\_\_\_ Horizontals? \_\_\_\_\_

Penetrating Wells: No. Active Wells 5 Num Repairs? \_\_\_\_\_ on which well(s)? \_\_\_\_\_ Diagrams? \_\_\_\_\_

Penetrating Wells: No. P&A Wells \_\_\_\_\_ Num Repairs? \_\_\_\_\_ on which well(s)? \_\_\_\_\_ Diagrams? \_\_\_\_\_

NOTICE: Newspaper Date N/A Mineral Owner N/A Surface Owner MA N. Date \_\_\_\_\_

RULE 26.7(A): Identified Tracts? NA Affected Persons: \_\_\_\_\_ N. Date \_\_\_\_\_

Order Conditions: Issues: \_\_\_\_\_

Add Order Cond: \_\_\_\_\_

1100 PSI -> 1250 CO2, 1770 produced GAS  
Per 12-4434-F



# C-108 Review Checklist: Area Order

## Supplemental Checklist for Multiple Well Application

ORDER TYPE: WFX / PMX Number: \_\_\_\_\_

SUPPLEMENTAL PAGE 2 of 3

Relevant Hearing Order(s): \_\_\_\_\_

MULTIPLE WELL APPLICATION: 2 of 4 Well No. 264 Well Name(s): South Hobbs GISA Unit  
API: 30-0 25-43096 Spud Date: 5/31/2006 New or Old: N (UIC Class II Primacy 03/07/1982)  
Footages B 2029 FSL, 1428 FWL Lot L 4 or Unit 155 Sec 4 Tsp 155 Rge 38E County LL  
WELL FILE REVIEWED ☐ Current Status: drilled, not completed  
WELL DIAGRAMS: NEW: ☒ Proposed ☐ or RE-ENTER: Before Conv. ☐ After Conv. ☐ Logs in Imaging: MA  
Planned Rehab Work to Well: \_\_\_\_\_

Well Construction Details	Sizes (in) Borehole / Pipe	Setting Depths (ft)	Cement Sx or Cf	Cement Top and Determination Method
Planned ___ or Existing ___ Surface	<u>12 5/8 / 9 5/8</u>	<u>1535</u>	<u>6.30</u>	<u>Surface / Visual</u>
Planned ___ or Existing ___ Interm/Prod	<u>8 3/4 / 7</u>	<u>5275</u>	<u>3.815</u>	<u>Surface / Visual</u>
Planned ___ or Existing ___ Interm/Prod				
Planned ___ or Existing ___ Prod/Liner				
Planned ___ or Existing ___ Liner				
Planned ___ or Existing ___ OH / <input checked="" type="radio"/> PERF	<u>46 1/4</u>	<u>4435</u>	<u>241'</u>	Hydrologic Information and AOR Well Summary on Coversheet

Completion/Operation Details: Drilled TD 5275 PBDT 5229 NEW TD \_\_\_\_\_ NEW PBDT \_\_\_\_\_  
NEW Open Hole ☐ or NEW Perfs ☒ Tubing Size 2 7/8 in. Coated? Y Prop. Packer Depth 4654 ft Min. Depth 4654 (100-ft limit)  
Proposed Max. Surface Press. 5000-4434-F psi Admin. Inj. Press. \_\_\_\_\_ (0.2 psi per ft) ANY AREA IPI APPROVAL: 11-4434-F  
Specific Requirement(s) for Well: Circulate Cement Surface / Production to Surface

MULTIPLE WELL APPLICATION: 3 of 4 Well No. 267 Well Name(s): South Hobbs GISA Unit  
API: 30-0 25-43094 Spud Date: 5/31/2006 New or Old: N (UIC Class II Primacy 03/07/1982)  
Footages B 746 FSL, 160 FWL Lot B or Unit 155 Sec 4 Tsp 155 Rge 38E County LL  
WELL FILE REVIEWED ☒ Current Status: drilled / not completed  
WELL DIAGRAMS: NEW: ☒ Proposed ☐ or RE-ENTER: Before Conv. ☐ After Conv. ☐ Logs in Imaging: MA  
Planned Rehab Work to Well: \_\_\_\_\_

Well Construction Details	Sizes (in) Borehole / Pipe	Setting Depths (ft)	Cement Sx or Cf	Cement Top and Determination Method
Planned ___ or Existing ___ Surface	<u>12 5/8 / 9 5/8</u>	<u>1534</u>	<u>6.70</u>	<u>Surface / Visual</u>
Planned ___ or Existing ___ Interm/Prod	<u>8 3/4 / 7</u>	<u>5385</u>	<u>3.921</u>	<u>Surface / Visual</u>
Planned ___ or Existing ___ Interm/Prod				
Planned ___ or Existing ___ Prod/Liner				
Planned ___ or Existing ___ Liner				
Planned ___ or Existing ___ OH / <input checked="" type="radio"/> PERF	<u>46 1/4 - 50 5/2</u>			Hydrologic Information and AOR Well Summary on Coversheet

Completion/Operation Details: Drilled TD 5385 PBDT 5332 NEW TD \_\_\_\_\_ NEW PBDT \_\_\_\_\_  
NEW Open Hole ☐ or NEW Perfs ☒ Tubing Size 2 7/8 in. Coated? Y Prop. Packer Depth 4725 ft Min. Depth 4725 (100-ft limit)  
Proposed Max. Surface Press. \_\_\_\_\_ psi Admin. Inj. Press. \_\_\_\_\_ (0.2 psi per ft) ANY AREA IPI APPROVAL: \_\_\_\_\_  
Specific Requirement(s) for Well: \_\_\_\_\_