

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-6199-F)

- WFX 954  
 - Occidental Permian  
 LTD  
 157984  
 - well  
 - North Hobbs  
 Grayburg San  
 Andres unit

[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

#693  
 30-025-43282  
 Pool  
 - Hobbs, Grayburg -  
 San Andres  
 31920

[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

April Hood  
 Signature

Regulatory Coordinator  
 Title

6/16/16  
 Date

April.Hood@Oxy.com  
 e-mail Address



**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

RECEIVED OGD

2016 JUN 17 P 2:37

June 16, 2016

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  
North Hobbs G/SA Unit  
Well No. 693  
Letter L, Section 33, T-18S, R-38E  
Lea County, NM

Mr. Richard Ezeanyim, Chief Engineer:

Occidental Permian Ltd. respectfully request administrative approval to commence injection (water, CO<sub>2</sub>, and produced gas) per the authorized Order No. R-6199-F dated May 22, 2014. In support of this request please find the following documentation:

- Administrative Application Checklist
- Form C-108 with miscellaneous data attached
- An Injection Well Data Sheet
- Form C-102
- Maps (2)

\*\*\* Per Oder No. R-6199-F, this application is eligible for administrative approval without notice or hearing \*\*\*

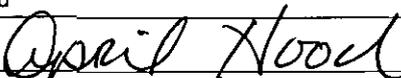
If you have any questions regarding this application, please contact me at 713-366-5771 or email [april\\_hood@oxy.com](mailto:april_hood@oxy.com).

Sincerely,

April Hood  
Regulatory Coordinator

**APPLICATION FOR AUTHORIZATION TO INJECT**

- I. PURPOSE: Secondary Recovery  Pressure Maintenance Disposal  Storage   
Application qualifies for administrative approval?  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?  Yes  No  
If yes, give the Division order number authorizing the project: R-6199-F (May 22, 2014)
- 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:
- Proposed average and maximum daily rate and volume of fluids to be injected;
  - Whether the system is open or closed;
  - Proposed average and maximum injection pressure;
  - Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and,
  - 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: 6/16/14  
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. 15103 Order R-6199-F - Effective May 22, 2014

### 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.  
North 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-6199-F, effective 5/22/14)
  4. Source Water – San Andres Produced Water  
(Analysis previously provided at hearing, Case No. 15103)
- 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-6199-F, this application is eligible for administrative approval without notice or hearing.

### INJECTION WELL DATA SHEET

OPERATOR: Occidental Permian LTD.

WELL NAME & NUMBER: North Hobbs Unit No. 693

WELL LOCATION:	<u>1880 FSL &amp; 1298 FWL</u>	<u>L</u>	<u>33</u>	<u>18S</u>	<u>38E</u>
	FOOTAGE LOCATION	UNIT LETTER	SECTION	TOWNSHIP	RANGE

WELLBORE SCHEMATIC

WELL CONSTRUCTION DATA

Surface Casing

Hole Size: 12 5/8 Casing Size: 9 5/8  
 Cemented with: 690 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: 900 sx. or \_\_\_\_\_ ft<sup>3</sup>  
 Top of Cement: 0 Method Determined: Calculation  
 Total Depth: 5300

Injection Interval

4000 feet to 4500

(Perforated or Open Hole; indicate which)

**INJECTION WELL DATA SHEET**

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

Type of Packer: T&C EU Duoline

Packer Setting Depth: 3950

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

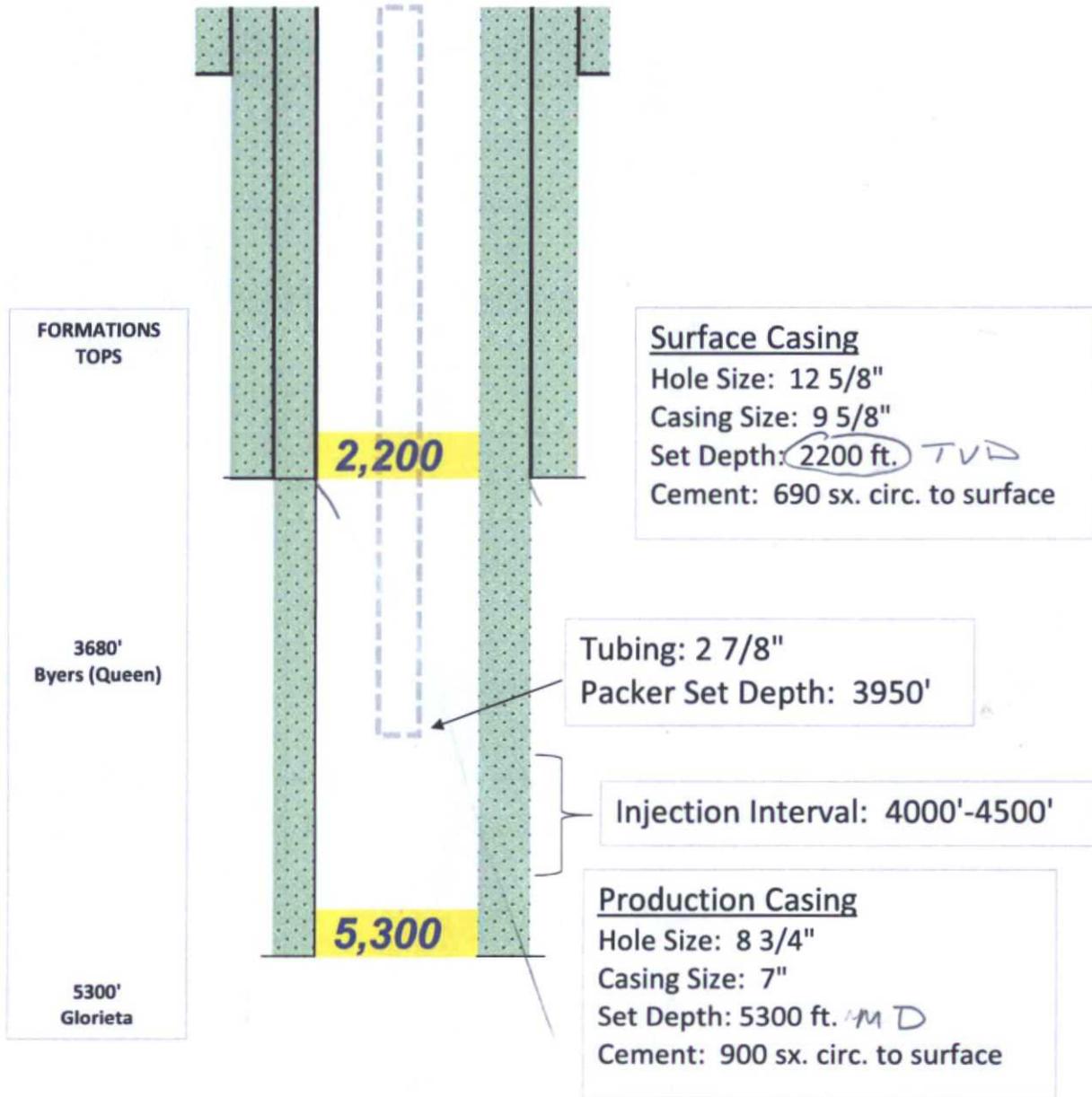
\_\_\_\_\_

Glorieta @ +/- 5300

\_\_\_\_\_

\_\_\_\_\_

NHU 693  
Occidental Permian LTD.





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

Name: NHU-33-693

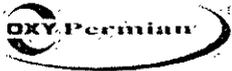
**DEVIATED WELL**

Wellbore TD:

5,740

HOLE SECTION (Size)	Formation	Measured Depth (ft)	WELLBORE ARCHITECTURE	Casing (MD)	Cement Surface	Cement Production	Mud System
Surface (12-5/8")	Red Beds	188		9 5/8" 36# J-55 LTC	Lead - Prem. Plus 13.5 ppg (430 sx/131.5 bbls) Cmt to surface (131 sx / 40 bbl)		Fresh Water 8.6-9.1 ppg
	Rustler	1,516 1,612			Tail - Prem. Plus 14.8 ppg (200 sx / 47 bbl)		
Production (8 3/4")	Top Salt	1,652		7" 26# J-55 LTC 0' - 5,724'		Stage 2: Lead - Interfill C 11.9 ppg (620 sx/273 bls) Cmt to surface (14 bbl - 32 sx)	Clear Brine 10.0-10.3 ppg
	Base Salt	2,803				Stage 2: Tail - Prem. Plus 14.2 ppg (210 sx / 58 bls)	
	Queen	3,595					
	Grayburg	3,915					
	Basal Grayburg	4,092					
	San Andres	4,194					
Total Depth (TD)		5,740	PBTD 5,724			Stage 1: Tail - Poz Prem. Plus 14.8 ppg (520 sx / 107 bbls) Full returns (65 bls / 315 sx)	Brine/Brine Base Mud 10.2-10.3 ppg

ED 6/20/2016  
 "Red" denotes Actual

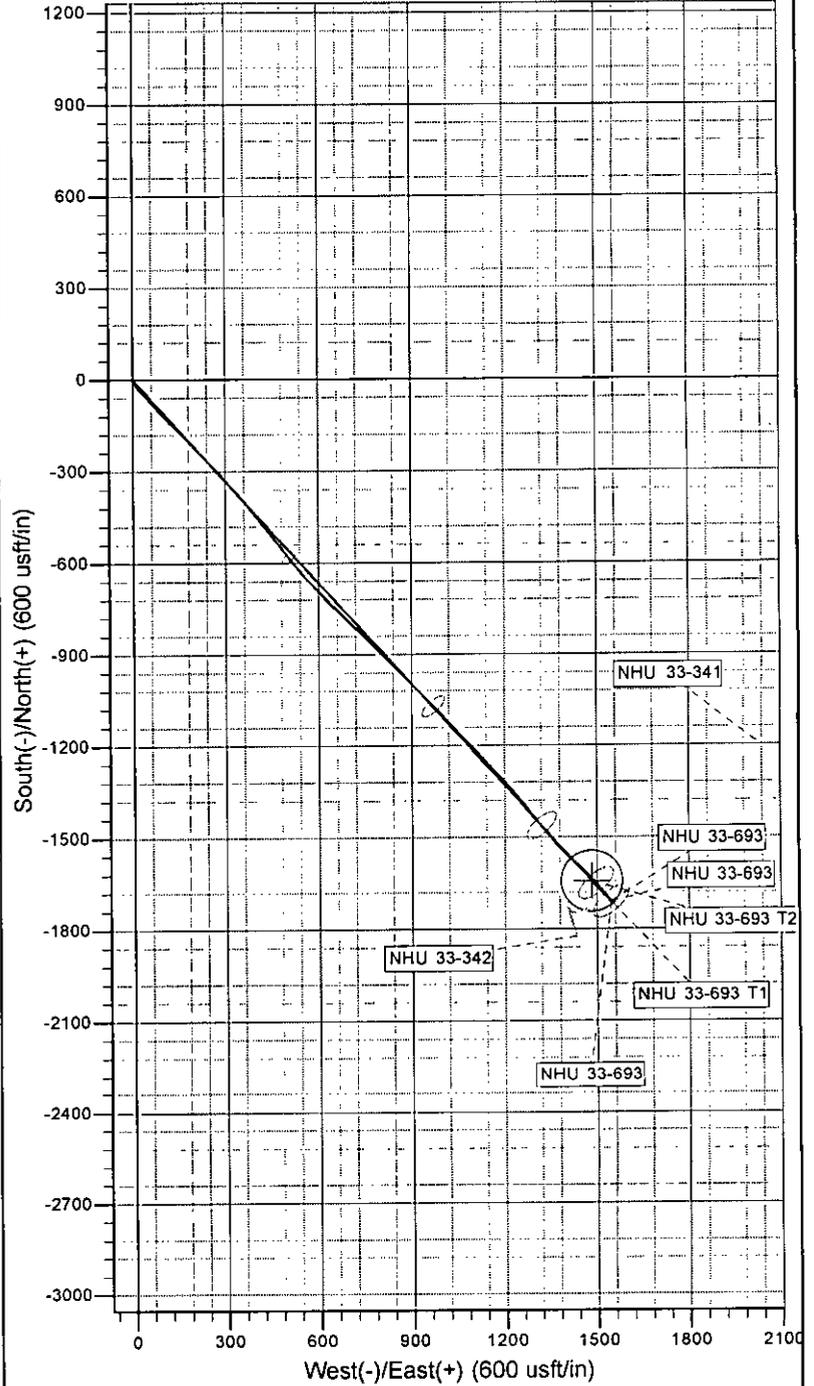
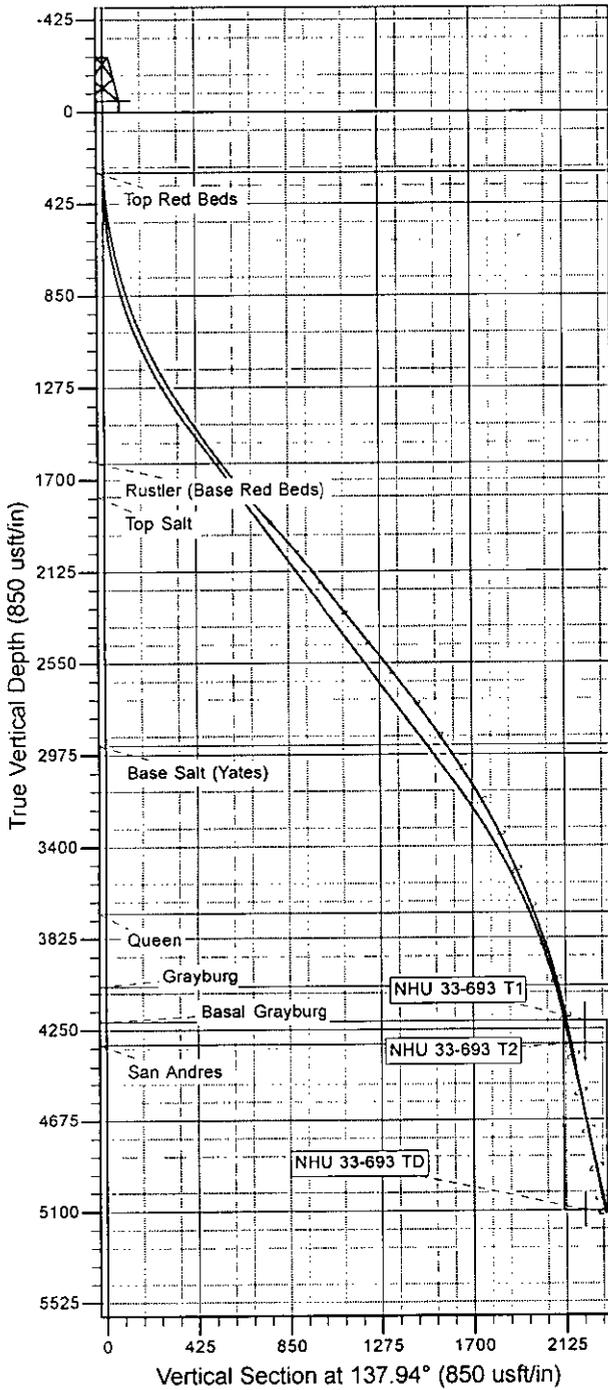


# OCCIDENTAL PERMIAN LTD

Project: NORTH HOBBS UNIT  
 Site: SEC. 33, T18S, R38E  
 Well: NHU 33-693  
 Wellpath: NHU 33-693  
 Design: NHU 33-693



Azimuths to Grid North  
 True North:  $-0.63^\circ$   
 Magnetic North:  $6.27^\circ$   
 Magnetic Field  
 Strength: 48369.2nT  
 Dip Angle:  $60.58^\circ$   
 Date: 6/10/2016  
 Model: IGRF2015



## LEGEND

- ✕ NHU 33-693, NHU 33-693, 061616 V2 V0
- ⊠ NHU 33-342, NHU 33-342, NHU 33-342 V0
- △ NHU 33-341, NHU 33-341, NHU 33-341 V0
- ⊞ NHU 33-693
- ⊙ NHU 33-693 MWD SURVEYS

## SECTION DETAILS

No plan data is available

MD	INC	AZI	Course Length	TVD	Subsea Depth	N/-S	E/-W	X	Y	Lat	Long	Dogleg Severity
0	0	0	0	0	0	3652.6	0	0	861764.8	620982.1	32- 42' 5.9103- 9' 26.	0
197	1.1	216	197	196.9879	3455.612	-1.5299	-1.1115	861763.7	620980.6	32- 42' 5.9103- 9' 26.	0.56	
378	4.4	143.9	181	377.7852	3274.815	-8.5485	1.9595	861766.8	620973.5	32- 42' 5.9103- 9' 26.	2.32	
559	10.8	143.6	181	557.102	3095.498	-27.8279	16.1283	861780.9	620954.3	32- 42' 5.7103- 9' 26.	3.54	
741	14.8	135.3	182	734.558	2918.042	-58.0904	42.6108	861807.4	620924	32- 42' 5.4103- 9' 25.	2.41	
905	18.8	138.5	164	891.5299	2761.07	-92.7858	74.8686	861839.7	620889.3	32- 42' 5.0103- 9' 25.	2.5	
1085	24.9	134.6	180	1058.529	2594.071	-141.164	121.1142	861885.9	620840.9	32- 42' 4.5103- 9' 24.	3.48	
1265	29.1	136.5	180	1218.877	2433.723	-199.547	178.2513	861943.1	620782.5	32- 42' 3.9103- 9' 24.	2.38	
1445	34.63	136.96	180	1371.691	2280.909	-268.732	243.338	862008.1	620713.3	32- 42' 3.3103- 9' 23.	3.08	
1555	34.41	136.83	110	1462.323	2190.277	-314.244	285.9346	862050.7	620667.8	32- 42' 2.8103- 9' 23.	0.21	
1754	36.7	141.4	199	1624.239	2028.361	-401.752	361.526	862126.3	620580.3	32- 42' 1.9103- 9' 22.	1.76	
1934	40.39	140.96	180	1764.997	1887.603	-489.114	431.8395	862196.6	620493	32- 42' 1.1103- 9' 21.	2.06	
2113	42.28	142.54	179	1899.398	1753.202	-581.965	504.998	862269.8	620400.1	32- 42' 0.1103- 9' 20.	1.21	
2293	40.3	138.02	180	2034.67	1617.93	-673.329	580.784	862345.6	620308.8	32- 41' 59.103- 9' 19.	1.99	
2473	38.02	133.89	180	2174.255	1478.345	-755.058	659.6937	862424.5	620227	32- 41' 58.103- 9' 18.	1.92	
2653	38.19	135.25	180	2315.896	1336.704	-833.008	738.8196	862503.6	620149.1	32- 41' 57.103- 9' 17.	0.48	
2833	39.24	135.78	180	2456.342	1196.258	-913.329	817.7013	862582.5	620068.8	32- 41' 56.103- 9' 16.	0.61	
3012	37.88	136.17	179	2596.309	1056.291	-993.551	895.2459	862660.1	619988.5	32- 41' 56.103- 9' 16.	0.77	
3192	36.12	136.18	180	2740.058	912.5421	-1071.7	970.2548	862735.1	619910.4	32- 41' 55.103- 9' 15.	0.98	
3372	34.67	136.88	180	2886.787	765.8133	-1147.35	1041.987	862806.8	619834.7	32- 41' 54.103- 9' 14.	0.84	
3552	32.96	137.1	180	3036.332	616.2678	-1220.6	1110.318	862875.1	619761.5	32- 41' 53.103- 9' 13.	0.95	
3732	30.17	137.93	180	3189.686	462.9137	-1290.06	1173.968	862938.8	619692	32- 41' 53.103- 9' 12.	1.57	
3912	25.75	139.07	180	3348.638	303.9625	-1353.2	1229.919	862994.7	619628.9	32- 41' 52.103- 9' 12.	2.47	
4092	22.9	140.44	180	3512.642	139.9578	-1409.76	1277.85	863042.7	619572.3	32- 41' 51.103- 9' 11.	1.61	
4272	21.18	141.84	180	3679.483	-26.8831	-1462.33	1320.248	863085.1	619519.8	32- 41' 51.103- 9' 11.	1	
4452	19.03	140.83	180	3848.505	-195.905	-1510.65	1358.879	863123.7	619471.4	32- 41' 50.103- 9' 10.	1.21	
4632	14.77	132.99	180	4020.714	-368.114	-1549.07	1394.219	863159	619433	32- 41' 50.103- 9' 10.	2.68	
4812	11.07	133.4	180	4196.127	-543.527	-1576.6	1423.568	863188.4	619405.5	32- 41' 50.103- 9' 9.9	2.06	
4992	11.21	134.42	180	4372.735	-720.135	-1600.72	1448.62	863213.4	619381.4	32- 41' 49.103- 9' 9.6	0.13	
5172	11.03	136.66	180	4549.357	-896.757	-1625.49	1472.935	863237.7	619356.6	32- 41' 49.103- 9' 9.3	0.26	
5351	11.25	136.74	179	4724.984	-1072.38	-1650.66	1496.653	863261.5	619331.4	32- 41' 49.103- 9' 9.0	0.12	
5531	11.34	140.08	180	4901.5	-1248.9	-1677.02	1520.043	863284.9	619305.1	32- 41' 49.103- 9' 8.7	0.37	
5666	11.43	141.8	135	5033.844	-1381.24	-1697.71	1536.832	863301.6	619284.4	32- 41' 49.103- 9' 8.5	0.26	
5733.5	11.43	141.8	67.5	5100.005	-1447.4	-1708.22	1545.104	863309.9	619273.9	32- 41' 48.103- 9' 8.4	0	
5740	11.43	141.8	6.5	5106.376	-1453.78	-1709.23	1545.901	863310.7	619272.8	32- 41' 48.103- 9' 8.4	0	

District I  
1625 N. French Dr., Hobbs, NM 88240  
Phone: (575) 393-6161 Fax: (575) 393-0720  
District II  
111 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  
1320 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 <b>30-025-43282</b>	Pool Code <b>31920</b>	Pool Name <b>Hubbs, Grayburg-San Andres</b>
Property Code	Property Name <b>NORTH HOBBS G/SA UNIT</b>	Well Number <b>693</b>
OGRID No. <b>157984</b>	Operator Name <b>OCCIDENTAL PERMIAN LTD.</b>	Elevation <b>3636.1'</b>

**Surface Location**

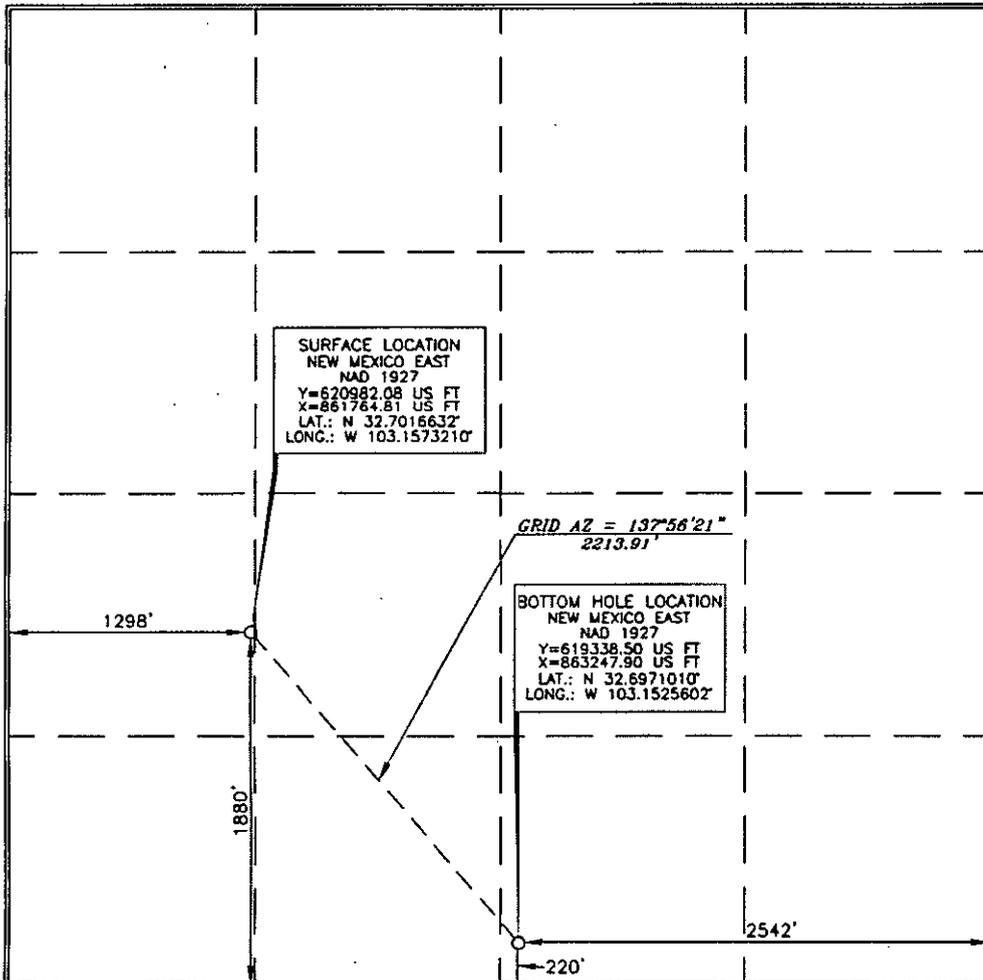
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
<b>L</b>	<b>33</b>	<b>18 SOUTH</b>	<b>38 EAST, N.M.P.M.</b>		<b>1880'</b>	<b>SOUTH</b>	<b>1298'</b>	<b>WEST</b>	<b>LEA</b>

**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
<b>0</b>	<b>33</b>	<b>18 SOUTH</b>	<b>38 EAST, N.M.P.M.</b>		<b>220'</b>	<b>SOUTH</b>	<b>2542'</b>	<b>EAST</b>	<b>LEA</b>

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

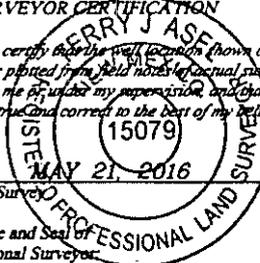
I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or selected mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this 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.

David Hood 6/1/16  
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.



Date of Survey  
Signature and Seal of Professional Surveyor

Terry J. Asf 5/24/2016  
Certificate Number 15079

District I  
1625 N. French Dr., Hobbs, NM 88240  
District II  
1301 W. Grand Avenue, Artesia, NM 88210  
District III  
1000 Rio Brazos Rd., Aztec, NM 87410  
District IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505

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 October 12, 2005  
Submit to Appropriate District Office  
State Lease- 4 Copies  
Fee Lease- 3 Copies

AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-025-05492	Pool Code 31920	Pool Name Hobbs; Grayburg-San Andres
Property Code 19520	Property Name NORTH HOBBS G/SA UNIT	Well Number 431
OGRID No. 157984	Operator Name OCCIDENTAL PERMIAN LTD.	Elevation 3658.6'

Surface Location

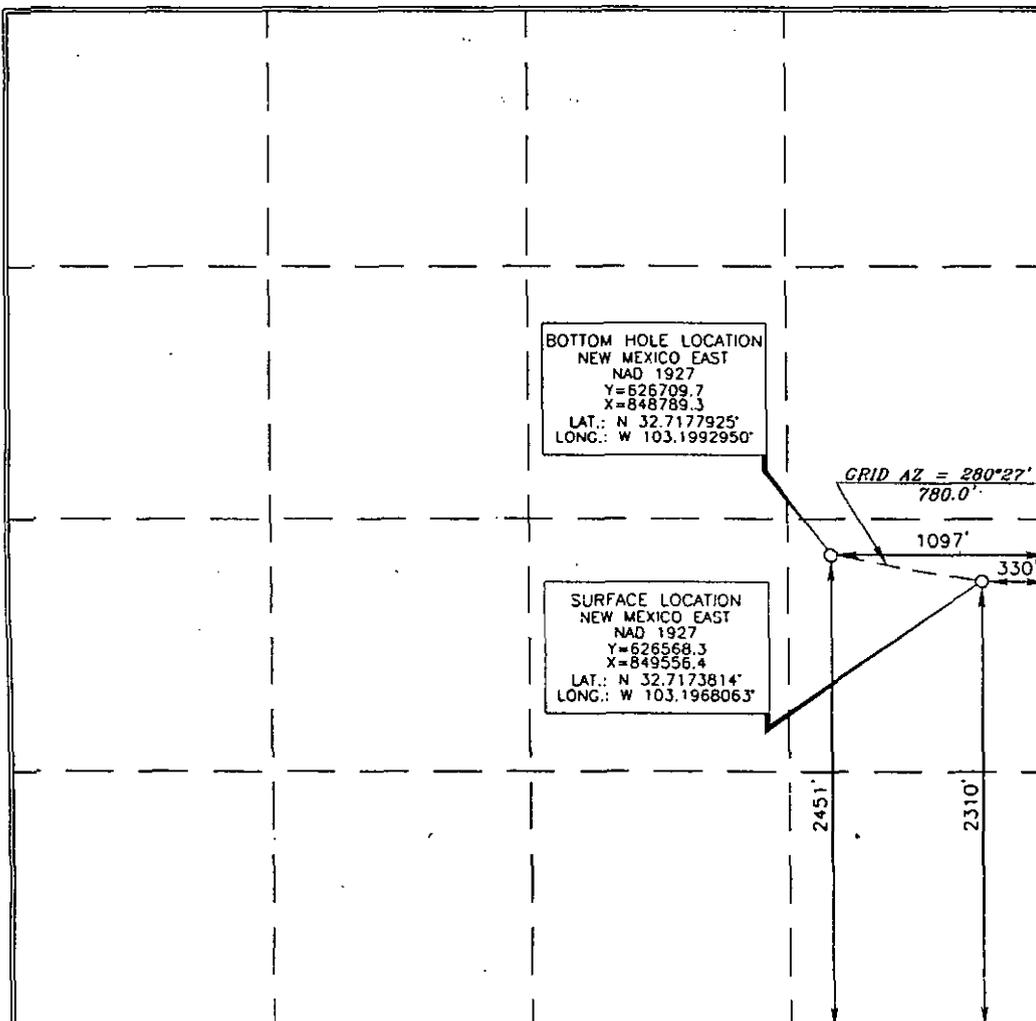
UL or lot no.	Section	Township	Range	Lot idn	Feet from the	North/South line	Feet from the	East/West line	County
I	25	18 SOUTH	37 EAST, N.M.P.M.		2310'	SOUTH	330'	EAST	LEA

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
I	25	18 SOUTH	37 EAST, N.M.P.M.		2451'	SOUTH	1097'	EAST	LEA

Dedicated Acres 40	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 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.

*Mark Stephens* 10/2/10  
Signature Date

Mark Stephens  
Printed Name

SURVEYOR CERTIFICATION

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

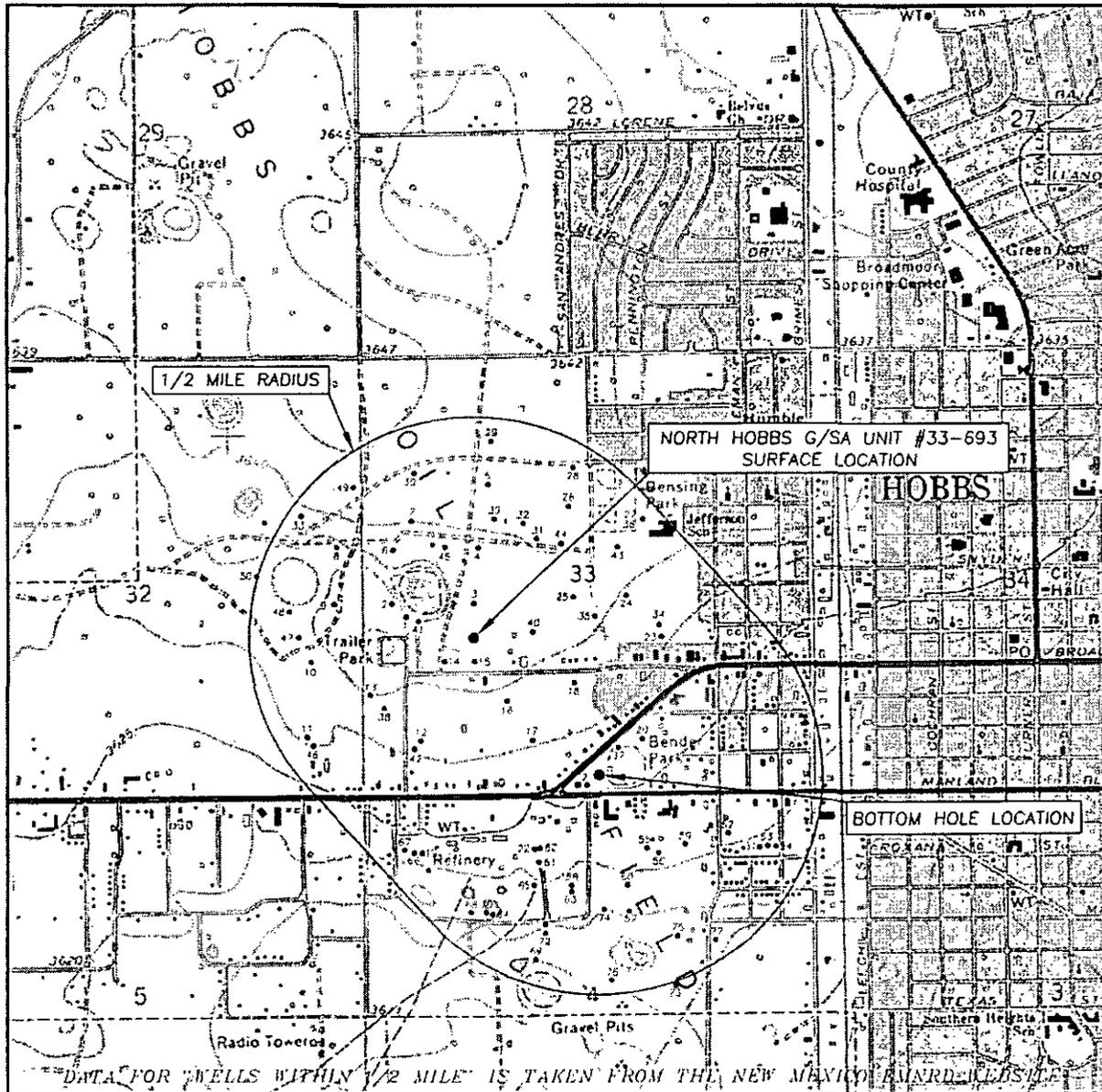
OCTOBER 4, 2010  
Date of Survey

Signature and Seal of Professional Surveyor

*Jerry A. ...* 10/8/2010  
Certificate Number 15079



OCCIDENTAL PERMIAN LTD. PAGE 1 OF 3  
 NHU 33-693  
 1/2 MILE RADIUS MAP



SCALE: 1" = 2000'

CONTOUR INTERVAL: 10'

SEC. 33 TWP. 18-S RGE. 38-E

SURVEY N.M.P.M.

SEE PAGE 2 & 3 OF 3 FOR WELL NAMES

COUNTY LEA

DESCRIPTION 1880' FSL & 1298' FWL

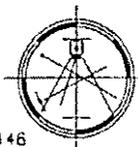
ELEVATION 3636.1'

OPERATOR OCCIDENTAL PERMIAN LTD.

LEASE NORTH HOBBS G/SA UNIT #33-693

U.S.G.S. TOPOGRAPHIC MAP  
 HOBBS WEST, N.M.

Asel Surveying  
 P.O. BOX 393 - 310 W. TAYLOR  
 HOBBS, NEW MEXICO - 575-393-9146



Mr. McMillan,

Within the attached AOR, there have been no new wells drilled since May, 2014.

Thank you,

Conor McGinnis – Production Engineer

Signature: 

Date: 6/29/2016

NHU 33-693 1/2 MILE WELL LIST  
PAGE 2 OF 3

Point	Well
1	Legacy State A 33 #12
2	NHU #131
3	NHU #33-231
4	NHU #221
5	NHU #222
6	NHU #121
7	NHU #123
8	NHU #32-421
9	NHU #32-431
10	NHU #32-542
11	NHU #32-441
12	NHU #33-141
13	NHU #33-142
14	NHU #33-513
15	NHU #33-232
16	NHU #33-524
17	NHU #33-241
18	NHU #33-234
19	SHU #16
20	NHU #33-341
21	NHU #33-342
22	SHU #17
23	NHU #33-331
24	NHU #534
25	NHU #233
26	NHU #523
27	NHU #321
28	NHU #213
29	NHU #33-521
30	NHU #33-511
31	NHU #33-949
32	NHU #33-948
33	NHU #32-424
34	Conoco State #3
35	NHU #33-535
36	NHU #33-545
37	NHU #33-734
38	NHU #33-844
39	NHU #33-526
40	D.H. Marker Conoco State #2
41	Conoco State #8
42	Conoco State #9
43	Conoco State #11

44 State G #3  
45 State G #4  
46 State 32 #7  
47 State 32 #8  
48 State 32 #10  
49 NHU #32-422  
50 NHU #32-423 & NHU #33-341  
51 SHU #19  
52 SHU COOP #4  
53 SHU #218  
54 SHU #246  
55 SHU #18  
56 BYERS B #34  
57 SHU #217  
58 SHU #221  
59 SHU #224  
60 SHU #230  
61 PRE-ONGARD WELL #11Y  
62 SHU COOP #3  
63 SHU #216  
64 SHU #220  
65 SHU #229  
66 PRE-ONGARD WELL #7  
67 SHU COOP #2  
68 SHU #215  
69 SHU #32  
70 SHU #130  
71 SHU #231  
72 SHU #243  
73 SHU #33  
74 SHU #131  
75 SHU #232  
76 SHU #233  
77 SHU #132

# Affidavit of Publication

STATE OF NEW MEXICO  
COUNTY OF LEA

I, Todd Bailey, Editor of the Hobbs News-Sun, a newspaper published at Hobbs, New Mexico, solemnly swear that the clipping attached hereto was published in the regular and entire issue of said newspaper, and not a supplement thereof for a period of 10 issue(s).

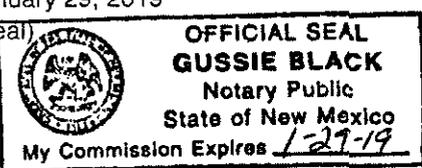
Beginning with the issue dated  
June 02, 2016  
and ending with the issue dated  
June 12, 2016.

Editor

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

Business Manager

My commission expires  
January 29, 2019

(Seal)  
  
OFFICIAL SEAL  
GUSSIE BLACK  
Notary Public  
State of New Mexico  
My Commission Expires 1-29-19

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

**LEGAL NOTICE**  
June 2 through June 17, 2016

**NOTICE OF APPLICATION TO DRILL**

Occidental Permian Ltd. P.O. Box 4294, Houston, TX 77210-4294 is applying to the City of Hobbs for a permit to drill an injection well. The applicant proposes to drill North Hobbs Grayburg/San Andres Unit Well No. 33-693 located in the Southwest quarter of Section 33, Township 18 South, Range 38 East, Lea County, NM. Comments, grievances, or request for an appeal may be made in writing to Mr. Kevin Robinson, Development Director, City of Hobbs, 200 E. Broadway St., Hobbs, NM 88240. Additional information may be obtained by contacting Mr. Scott Hodges, Occidental Permian Ltd., at (575) 397-8211, 1017 W. Stanolind Rd., Hobbs, NM 88240. #30972

67111848

00175850

APRIL HOOD  
OCCIDENTAL PERMIAN  
5 GREENWAY PLAZA, STE 110  
HOUSTON, TX 77046

NHU 33-693 1/2 MILE WELL LIST  
PAGE 2 OF 2

Point	Well
1	Legacy State A 33 #12
2	NHU #131
3	NHU #33-231
4	NHU #221
5	NHU #222
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7	NHU #123
8	NHU #32-421
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13	NHU #33-142
14	NHU #33-513
15	NHU #33-232
16	NHU #33-524
17	NHU #33-241
18	NHU #33-234
19	SHU #16
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24	NHU #534
25	NHU #233
26	NHU #523
27	NHU #321
28	NHU #213
29	NHU #33-521
30	NHU #33-511
31	NHU #33-949
32	NHU #33-948
33	NHU #32-424
34	Conoco State #3
35	NHU #33-535
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39	NHU #33-526
40	D.H. Marker Conoco State #2
41	Conoco State #8
42	Conoco State #9
43	Conoco State #11
44	State G #3
45	State G #4
46	State 32 #7
47	State 32 #8
48	State 32 #10
49	NHU #32-422
50	NHU #32-423 & NHU #33-341

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

APPLICATION OF OCCIDENTAL PERMIAN LTD  
TO AMEND ORDER NO. R-6199-B TO EXPAND THE  
NORTH HOBBS GRAYBURG-SAN ANDRES UNIT  
PHASE I TERTIARY RECOVERY PROJECT,  
TO MODIFY CERTAIN OPERATING REQUIREMENTS,  
AND TO CERTIFY THIS EXPANSION FOR  
THE RECOVERED OIL TAX RATE PURSUANT  
TO THE NEW MEXICO ENHANCED OIL  
RECOVERY ACT, LEA COUNTY, NEW MEXICO.

CASE NO. 15103  
ORDER NO. R-6199-F

ORDER OF THE COMMISSION

This case comes before the New Mexico Oil Conservation Commission ("Commission") on the application of Occidental Permian Ltd. ("Oxy") to amend Order No. R-6199-B, as amended. The Commission, having conducted a hearing on March 13, 2014, at Santa Fe, New Mexico, and having considered the testimony and the record in the 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. On October 3, 1979, the Commission entered Orders No. R-6198 and R-6199 in Case Nos. 6652 and 6653 that statutorily unitized the North Hobbs Unit and approved a pressure maintenance project by the injection of water into the Grayburg and San Andres formations underlying the following acreage in Lea County, New Mexico:

TOWNSHIP 18 SOUTH, RANGE 37 EAST, NMPM

Section 13: W/2, SE/4  
Section 14: All  
Section 23: All  
Section 24: All  
Section 25: All  
Section 26: E/2 NE/4, NW/4 NE/4  
Section 36: E/2, E/2 NW/4

TOWNSHIP 18 SOUTH, RANGE 38 EAST, NMPM

Section 17: S/2 NW/4, SW/4

Section 18: NE/4 and S/2  
Section 19: All  
Section 20: All  
Section 21: SW/4, W/2 SE/4, SE/4 SE/4  
Section 27: All  
Section 28: All  
Section 29: All  
Section 30: All  
Section 31: All  
Section 32: All  
Section 33: W/2, NE/4, W/2 SE/4, and NE/4 SE/4  
Section 34: E/2, E/2 NW/4

3. On October 22, 2011, the Energy, Minerals and Natural Resources Department Oil Conservation Division ("Division") entered Order No. R-6199-B authorizing a carbon dioxide gas tertiary recovery project within a portion of the North Hobbs Unit called the "Phase I Area" by injection of carbon dioxide (CO<sub>2</sub>), produced water, and produced gas through certain existing wells and yet to be drilled wells in the quarter-quarter sections identified on Exhibits A and B to that Order.

4. Since the entry of Order No. R-6199-B, the Division has approved additional injection wells in the Phase I area of the North Hobbs Unit through various administrative and hearing orders.

5. Oxy is the current operator of the North Hobbs Unit and now seeks the following relief from the Commission as provided in an Application filed with the Commission on February 11, 2014 ("Application"):

- (a) to expand the approved geographic area for the carbon dioxide gas tertiary recovery injection project to include the following acreage:

TOWNSHIP 18 SOUTH, RANGE 37 EAST, NMPM

Section 13: W/2, SE/4  
Section 14: All  
Section 23: All  
Section 24: All  
Section 25: All  
Section 26: E/2 NE/4, NW/4 NE/4  
Section 36: E/2, E/2 NW/4

TOWNSHIP 18 SOUTH, RANGE 38 EAST, NMPM

Section 17: S/2 NW/4, SW/4  
Section 18: NE/4 and S/2  
Section 19: All  
Section 20: All  
Section 21: SW/4, W/2 SE/4, SE/4 SE/4  
Section 28: All

Section 29: All  
Section 30: All  
Section 31: All  
Section 32: All  
Section 33: W/2, NE/4, W/2 SE/4, and NE/4 SE/4

- (b) to expand the injection authority to include new wells in the quarter-quarter sections identified on Exhibit A to the Application and the existing producing or temporarily abandoned wells identified on Exhibit B to the Application;
- (c) to confirm that the well limitation for quarter-quarter sections set forth in NMAC 19.15.15.9(A) does not apply to active tertiary recovery projects, such as the North Hobbs Unit project;
- (d) to grant an exception to NMAC 19.15.15.13(A) (unorthodox well locations) to allow wells to be closer than 10 feet to a quarter-quarter section line or subdivision inner boundary within the North Hobbs Unit area;
- (e) to grant an exception to the notice requirements set forth in NMAC 19.15.26.8.C and 19.15.26.8.F to allow for administrative approval of additional injection wells in the expanded North Hobbs Unit area without notice and hearing;
- (f) to provide that for any injection well covered by this application that does not commence injection within 5 years after approval of this request, Oxy may submit within a period no more than twelve months and no less than sixty days before injection operations commence in the well either (i) a statement certifying that there have been no substantive changes to the information furnished in support of this 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;
- (g) to eliminate the existing limiting gas-oil ratio of 6,000 cubic feet of gas per barrel of oil and to provide that no limiting gas-oil ratio or oil allowable applies to this expanded enhanced oil recovery project;
- (h) to modify the packer setting depth required by R-6199-B Ordering Paragraph (3) 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;

- (i) to provide a five-year frequency for mechanical integrity tests for temporarily abandoned wells equipped with real-time pressure monitoring devices pursuant to NMAC 19.15.25.13.E; and
- (j) to certify the approved expansion of the tertiary recovery project for the recovered oil tax rate pursuant to the New Mexico Enhanced Oil Recovery Act, Sections 7-29A-1 to 7-29A-5 NMSA, 1978 (Laws 1992, Chapter 38, Section 1 through 5) ("Recovery Act") and the rules of the Commission, 19.15.6 NMAC ("Rules").

6. At the hearing, upon the request of Oxy, the Commission adopted and took notice of the record from Case No. 14981, which resulted in Order No. R-4934-F approving a tertiary recovery project in the adjacent South Hobbs Project Area. The Commission also noted that several persons had filed written notices of appearance in this proceeding including Cornelia England, Gerald Carl Golden, Sharon Aileen Mehs (Lee) and Thomas R. Mehs.

7. Oxy presented five witnesses in support of its Application: Jerad Brockman, Oxy's project manager 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; Kelley Montgomery, Oxy's regulatory consultant with expertise in oil and gas production engineering; and Pat Sparks, Oxy's petroleum landman with expertise in petroleum land matters. Oxy's witnesses provided testimony and presented exhibits addressing the following topics:

- (a) Oxy's current operations and facilities within the Phase I area of the North Hobbs Unit and the planned expansion of gas injection operations;
- (b) The injection and production well patterns in the expanded Phase I Area, the need to exceed four wells per forty acre spacing unit, and the potential need to locate wells closer than ten feet to the quarter-quarter section lines;
- (c) The capital costs and projected timeline for installation of key components of the expansion of gas injection in the Phase I area;
- (d) The production history of the North Hobbs Unit and the additional oil anticipated from the Phase I area expansion project;
- (e) The need for additional flexibility in the packer setting depth than what is currently allowed by Order No. R-6199-B;
- (f) The geology underlying the North Hobbs Unit, the location of the fresh water zones and the impermeable barriers that exist between the injection interval and the fresh water zones;

- (g) The gas injection facilities and pressure control devices Oxy utilizes in the Phase I area;
- (h) The supervisory control and data acquisition (SCADA) system Oxy utilizes to provide real time monitoring of pressures, temperature, water content, H2S levels and gas content in the North Hobbs Unit;
- (i) How Oxy monitors for H2S releases in the existing and proposed expanded Phase I area;
- (j) Oxy's mechanical integrity program for the design, engineering, construction and maintenance of CO2 and produced gas injection facilities for enhanced oil recovery projects like the North Hobbs Unit;
- (k) 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 existing and proposed expanded Phase I Area;
- (l) The additional corrosion inhibition and mitigation efforts Oxy will utilize for the installation, construction and maintenance of the injection facilities in the proposed expanded Phase I Area;
- (m) Oxy's downhole corrosion mitigation efforts, including the use of corrosion resistant tubing, packers and inert packer fluid in the annulus of wells in the existing and proposed expanded Phase I Area;
- (n) 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;
- (o) The location of existing gas injection wells in the Phase I Area and the proposed locations for the expansion efforts;
- (p) The condition of the existing injection wells and design plans for additional injection wells in the Phase I Area;
- (q) Oxy's plans to add additional cement behind the production casing across the fresh water zone in the North Hobbs Unit Well No. 231 (API No. 30-025-07545) in the SE/4 NW/4 (Unit F) of Section 33 of Township 18 South, Range 38 East, prior to using this well for gas injection;
- (r) The area of review analysis conducted by Oxy and the conditions of the wells within the area of review;

- (s) 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;
- (t) The methodology, time frame and effort involved to ascertain the parties entitled to notice of the hearing on Oxy's application; and
- (u) The parties notified of the hearing either by certified mail or by newspaper publication.

8. The Division's Environmental Bureau has approved a hydrogen sulfide contingency plan that covers the North Hobbs Unit Area.

9. The geologic evidence establishes the following with respect to the Grayburg and San Andres formations underlying the North Hobbs 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.

10. With respect to the existing wells and the proposed injection wells within the area of review for the expanded Phase I Area of the North Hobbs Unit, the evidence establishes that:

- (a) The existing injection wells in the expanded Phase I Area of the North Hobbs Unit are sufficiently cased and cemented to prevent the migration of injection fluids out of the proposed injection interval. Nonetheless, Oxy intends to add additional cement behind the production casing across the fresh water zone for the North Hobbs Unit Well No. 231 (API No. 30-025-07545) in the SE/4 NW/4 (Unit F) of Section 33 of Township 18 South, Range 38 East, prior to using this well for gas injection.

- (b) Oxy's design for additional injection wells in the expanded Phase I Area of the North Hobbs Unit will provide sufficient casing and cement to prevent the migration of injection fluids out of the proposed injection interval.

11. The evidence demonstrates it is prudent to expand the geographic area for the tertiary recovery operations in the Grayburg and San Andres formations underlying the North Hobbs Unit as proposed by Oxy and that expansion of the Phase I Area of the North Hobbs Unit will result in the recovery of additional oil that may otherwise not be recovered and wasted.

12. The evidence presented to the Commission demonstrates that Oxy's proposed expansion of the tertiary recovery operations in the Grayburg and San Andres formations underlying the North Hobbs Unit will not pose an unreasonable threat to groundwater, the public health or the environment.

13. Oxy's request to expand the geographic area for the injection of CO<sub>2</sub>, water, and produced gases in the North Hobbs Unit should be approved.

14. The well limitation for quarter-quarter sections set forth in NMAC 19.15.15.9(A) does not apply to active tertiary recovery projects and Oxy should be allowed to locate wells closer than 10 feet to a quarter-quarter section line or subdivision inner boundary within the North Hobbs Unit.

15. Based on the extensive area of review analysis performed by Oxy, and the previous reviews conducted by Oxy and the Division in connection with previous applications to expand the injection authority in the Phase I Area of the North Hobbs Unit, 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.

16. 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.

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

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

- (a) Oxy's planned enhanced oil recovery project in the expanded Phase I Area of the North Hobbs Unit should result in the recovery of an additional 54 million barrels of oil that may otherwise not be recovered, thereby preventing waste.
- (b) The proposed expanded Phase I Area of the North Hobbs Unit has been depleted to the point 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 oil recovery project" under the Recovery Act and the Rules. NMSA 1978, Section 7-29A-4; NMAC 19.15.6.8.E.

19. The proposed tertiary recovery project in the expanded Phase I Area of the North Hobbs Unit will prevent waste, protect correlative rights, and should be approved with certain conditions.

**THE COMMISSION CONCLUDES THAT:**

1. The Commission is empowered to regulate and permit 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. NMSA 1978, Section 70-2-12(B)(14). The Commission has a further statutory duty to prevent waste and protect correlative rights. NMSA 1978, Section 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 North 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 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 North Hobbs Grayburg-San Andres Unit Pressure Maintenance Project, as described 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 North

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 No. R-6199-B, R-6199-C, R-6199-D and R-6199-E remain applicable to the ongoing operations in the North Hobbs Unit, except to the extent that they are inconsistent with this Order.

(2) Oxy is authorized to expand the geographic area of the current tertiary recovery project in the Phase I Area of the North Hobbs Unit by the injection of CO<sub>2</sub>, water, and produced gases into the Grayburg and San Andres formations underlying the following acreage:

**TOWNSHIP 18 SOUTH, RANGE 37 EAST, NMPM**

Section 13: W/2, SE/4  
Section 14: All  
Section 23: All  
Section 24: All  
Section 25: All  
Section 26: E/2NE/4, NW/4 NE/4  
Section 36: E/2, E/2 NW/4

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

Section 17: S/2 NW/4, SW/4  
Section 18: NE/4 and S/2  
Section 19: All  
Section 20: All  
Section 21: SW/4, W/2 SE/4, SE/4 SE/4  
Section 28: All  
Section 29: All  
Section 30: All  
Section 31: All  
Section 32: All  
Section 33: W/2, NE/4, W/2 SE/4, and NE/4 SE/4

(3) The injection of CO<sub>2</sub>, water and produced gases is authorized for the wells and locations identified on Exhibits "A" and "B" attached to this Order. Application for approval of additional injection wells in the expanded Phase I Area of the North Hobbs Unit 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) For any injection well or location identified on Exhibits "A" or "B" to this Order 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 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.

(5) The well limitation for quarter-quarter sections set forth in NMAC 19.15.15.9(A) does not apply to active tertiary recovery projects and Oxy is authorized to locate wells closer than 10 feet to a quarter-quarter section line or subdivision inner boundary within the North Hobbs Unit.

(6) No limiting gas oil ratio or oil allowable applies to this enhanced oil recovery project.

(7) The injection wells or pressurization system within the expanded Phase I Area of the North Hobbs Unit 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;
- 1250 psig for injection of CO<sub>2</sub>; and
- 1770 psig for injection of produced gases.

(8) 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.

(9) 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.

(10) 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.

(11) 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.

(12) 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.

(13) 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.

(14) The operator is not 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.

(15) Prior to commencing injection operations, the casing in each of the injection wells within the expanded Phase I Area of the North Hobbs Unit shall be pressure tested throughout the interval from the surface down to the proposed packer setting depth to assure the integrity of such casing.

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

(17) 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.

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

(19) Oxy shall not commence gas injection operations in the North Hobbs Unit Well No. 231 (API No. 30-025-07545) in the SE/4 NW/4 (Unit F) of Section 33 of Township 18 South, Range 38 East, until Oxy adds additional cement behind the production casing across the fresh water zone and provides a cement bond log to the Division's Hobbs District office.

(20) The operator shall immediately notify the supervisor of the Division's Hobbs District Office of the failure of any 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.

(21) Oxy shall maintain recorded data from its SCADA system for the North Hobbs Unit 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.

(22) The hydrogen sulfide contingency plan for the North Hobbs Unit shall be reviewed and amended as necessary pursuant to NMAC 19.15.11.9.F.

(23) The North Hobbs Grayburg-San Andres Unit Pressure Maintenance Project is hereby certified as an enhanced oil recovery project and as a tertiary recovery project pursuant to the Recovery Act and Rules, and the expanded Phase I Area of the North Hobbs Unit is designated as the area to be affected by the enhanced oil recovery project. To be eligible for the recovered oil tax credit, the operator shall advise the Division of the date and time CO2 injection commences within the expanded Phase I Area and 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 NMAC 19.15.6.8.E. 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. Pursuant to NMAC 19.15.6.8.F, Oxy must also report annually to the Division to confirm that the project remains a viable enhanced oil recovery project.

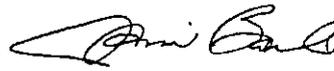
(25) Jurisdiction of this case is retained for the entry of such further orders as the Commission may deem necessary.

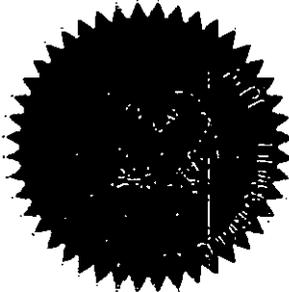
DONE at Santa Fe, New Mexico, on this 22nd day of May, 2014.

STATE OF NEW MEXICO  
OIL CONSERVATION COMMISSION

  
ROBERT BALCH, Member

  
TERRY WARNELL, Member

  
JAMI BAILEY, Chair



SEAL

Exhibit A  
 List of Proposed Project Injectors by Qtr/Qtr Section

Well Name	API Number	Surface Location			Footage Location	Injection Interval	Proposed Injectant
		Section	Unit Letter	Township & Range			
TBD	TBD	14	A	18-5; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	14	B	18-5; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	14	C	18-5; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	14	D	18-5; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	14	E	18-5; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	14	F	18-5; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	14	G	18-5; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	14	H	18-5; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	14	I	18-5; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	14	J	18-5; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	14	K	18-5; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	14	L	18-5; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	14	M	18-5; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	14	N	18-5; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	14	O	18-5; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	14	P	18-5; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	23	A	18-5; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	23	B	18-5; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	23	C	18-5; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	23	D	18-5; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	23	E	18-5; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	23	F	18-5; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	23	G	18-5; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	23	H	18-5; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	23	I	18-5; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	23	J	18-5; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	23	K	18-5; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	23	L	18-5; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	23	M	18-5; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	23	N	18-5; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	23	O	18-5; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	23	P	18-5; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	26	A	18-5; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	26	B	18-5; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	26	H	18-5; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	13	C	18-5; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	13	D	18-5; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	13	E	18-5; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	13	F	18-5; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	13	J	18-5; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	13	I	18-5; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	13	K	18-5; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	13	L	18-5; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water

Exhibit A  
 List of Proposed Project Injectors by Qtr/Qtr Section

Well Name	API Number	Surface Location			Footage Location	Injection Interval	Proposed Injectant
		Section	Unit Letter	Township & Range			
TBD	TBD	13	M	18-S; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	13	N	18-S; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	13	O	18-S; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	13	P	18-S; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	24	A	18-S; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	24	B	18-S; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	24	C	18-S; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	24	D	18-S; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	24	E	18-S; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	24	F	18-S; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	24	G	18-S; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	24	H	18-S; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	24	I	18-S; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	24	J	18-S; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	24	K	18-S; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	24	L	18-S; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	24	M	18-S; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	24	N	18-S; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	24	O	18-S; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	24	P	18-S; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	25	A	18-S; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	25	B	18-S; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	25	C	18-S; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	25	D	18-S; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	25	E	18-S; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	25	F	18-S; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	25	G	18-S; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	25	H	18-S; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	25	I	18-S; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	25	J	18-S; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	25	K	18-S; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	25	L	18-S; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	25	M	18-S; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	25	N	18-S; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	25	O	18-S; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	25	P	18-S; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	36	A	18-S; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	36	B	18-S; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	36	C	18-S; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	36	F	18-S; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	36	G	18-S; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	36	H	18-S; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	36	I	18-S; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water

Exhibit A  
 List of Proposed Project Injectors by Qtr/Qtr Section

Well Name	API Number	Surface Location			Injection Interval	Proposed Injectant	
		Section	Unit Letter	Township & Range			
TBD	TBD	36	J	18-S; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	18	M	18-S; 38-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	18	N	18-S; 38-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	18	O	18-S; 38-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	18	P	18-S; 38-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	19	A	18-S; 38-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	19	B	18-S; 38-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	19	C	18-S; 38-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	19	D	18-S; 38-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	19	E	18-S; 38-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	19	F	18-S; 38-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	19	G	18-S; 38-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	19	H	18-S; 38-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	19	K	18-S; 38-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	19	L	18-S; 38-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	30	D	18-S; 38-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	30	E	18-S; 38-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	30	F	18-S; 38-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	30	I	18-S; 38-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	30	J	18-S; 38-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	30	K	18-S; 38-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	30	L	18-S; 38-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	30	M	18-S; 38-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	30	N	18-S; 38-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	30	O	18-S; 38-E	TBD	3698' - 4500'	Purchased CO2/Water
TBD	TBD	30	P	18-S; 38-E	TBD	3698' - 4500'	Purchased CO2/Water
TBD	TBD	31	A	18-S; 38-E	TBD	3698' - 4500'	Purchased CO2/Water
TBD	TBD	31	B	18-S; 38-E	TBD	3698' - 4500'	Purchased CO2/Water
TBD	TBD	31	C	18-S; 38-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	31	D	18-S; 38-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	31	E	18-S; 38-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	31	F	18-S; 38-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	31	G	18-S; 38-E	TBD	3698' - 4500'	Purchased CO2/Water
TBD	TBD	31	H	18-S; 38-E	TBD	3698' - 4500'	Purchased CO2/Water
TBD	TBD	31	I	18-S; 38-E	TBD	3698' - 4500'	Purchased CO2/Water
TBD	TBD	31	J	18-S; 38-E	TBD	3698' - 4500'	Purchased CO2/Water
TBD	TBD	31	K	18-S; 38-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	31	L	18-S; 38-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	31	M	18-S; 38-E	TBD	3698' - 4500'	Purchased CO2/Water
TBD	TBD	31	N	18-S; 38-E	TBD	3698' - 4500'	Purchased CO2/Water
TBD	TBD	31	O	18-S; 38-E	TBD	3698' - 4500'	Purchased CO2/Water
TBD	TBD	31	P	18-S; 38-E	TBD	3698' - 4500'	Purchased CO2/Water
TBD	TBD	17	E	18-S; 38-E	TBD	3698' - 4500'	Purchased CO2/Water

Exhibit A  
 List of Proposed Project Injectors by Qtr/Qtr Section

Well Name	API Number	Surface Location			Footage Location	Injection Interval	Proposed Injectant
		Section	Unit Letter	Township & Range			
TBD	TBD	17	K	18-5; 38-E	TBD	3698' - 4500'	Purchased CO2/Water
TBD	TBD	17	L	18-5; 38-E	TBD	3698' - 4500'	Purchased CO2/Water
TBD	TBD	17	M	18-5; 38-E	TBD	3698' - 4500'	Purchased CO2/Water
TBD	TBD	17	N	18-5; 38-E	TBD	3698' - 4500'	Purchased CO2/Water
TBD	TBD	20	C	18-5; 38-E	TBD	3698' - 4500'	Purchased CO2/Water
TBD	TBD	20	D	18-5; 38-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	20	E	18-5; 38-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	20	F	18-5; 38-E	TBD	3698' - 4500'	Purchased CO2/Water
TBD	TBD	20	L	18-5; 38-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
NHU-29A	TBD	28	I	18-5; 38-E	TBD	3698' - 4500'	Purchased CO2/Water
NHU-28A	TBD	28	K	18-5; 38-E	TBD	3698' - 4500'	Purchased CO2/Water
NHU-28B	TBD	28	L	18-5; 38-E	TBD	3698' - 4500'	Purchased CO2/Water

Exhibit B  
 List of Proposed Project Injectors (Existing Wells)

Well Name	API Number	Surface Location			Footage Location	Current Status	Injection Interval	Proposed Injectant
		Section	Unit Letter	Township & Range				
NHU 28-231	30-025-07421	28	K	18-S; 38-E	1325' FSL & 1375' FWL	Water Injector	3698' - 4500'	Purchased CO2/Water
NHU 28-232	30-025-28882	28	K	18-S; 38-E	2300 FSL & 1350 FWL	Water Injector	3698' - 4500'	Purchased CO2/Water
NHU 33-412	30-025-28268	33	H	18-S; 38-E	2181 FNL & 498 FEL	Water Injector	3698' - 4500'	Purchased CO2/Water
NHU 33-432	30-025-28269	33	I	18-S; 38-E	1842 FSL & 1029 FEL	Water Injector	3698' - 4500'	Purchased CO2/Water
NHU 32-431	30-025-07537	32	I	18-S; 38-E	2310 FSL & 330 FEL	Water Injector	3698' - 4500'	Purchased CO2/Water
NHU 32-432	30-025-26974	32	I	18-S; 38-E	1400 FSL & 1300 FEL	Water Injector	3698' - 4500'	Purchased CO2/Water
NHU 32-132	30-025-27139	32	L	18-S; 38-E	1400 FSL & 1300 FWL	Water Injector	3698' - 4500'	Purchased CO2/Water
NHU 32-142	30-025-28265	32	M	18-S; 38-E	610 FSL & 1210 FWL	Water Injector	3698' - 4500'	Purchased CO2/Water
NHU 32-341	30-025-07539	32	O	18-S; 38-E	330 FSL & 2310 FEL	Water Injector	3698' - 4500'	Purchased CO2/Water
NHU 32-342	30-025-28266	32	O	18-S; 38-E	457 FSL & 1437 FEL	Water Injector	3698' - 4500'	Purchased CO2/Water
NHU 33-342	30-025-28267	33	O	18-S; 38-E	125 FSL & 2730 FWL	Water Injector	3698' - 4500'	Purchased CO2/Water
NHU 33-441	30-025-07498	31	P	18-S; 38-E	330 FSL & 330 FEL	TA	3698' - 4500'	Purchased CO2/Water
NHU 33-142	30-025-28411	33	M	18-S; 38-E	1250 FSL & 185 FWL	Water Injector	3698' - 4500'	Purchased CO2/Water
NHU 33-312	30-025-29199	33	B	18-S; 38-E	151 FNL & 1702 FEL	Water Injector	3698' - 4500'	Purchased CO2/Water
NHU 33-211	30-025-07564	33	C	18-S; 38-E	330 FNL & 2310 FWL	Water Injector	3698' - 4500'	Purchased CO2/Water
NHU 33-212	30-025-29026	33	C	18-S; 38-E	205 FNL & 1420 FWL	Water Injector	3698' - 4500'	Purchased CO2/Water
NHU 33-222	30-025-26975	33	F	18-S; 38-E	1570 FNL & 1470 FWL	Water Injector	3698' - 4500'	Purchased CO2/Water
NHU 33-322	30-025-27169	33	G	18-S; 38-E	1435 FNL & 1670 FEL	Water Injector	3698' - 4500'	Purchased CO2/Water
NHU 33-323	30-025-28952	33	G	18-S; 38-E	2525 FNL & 1453 FEL	Producer	3698' - 4500'	Purchased CO2/Water
NHU 33-534	30-025-34373	33	J	18-S; 38-E	2415 FSL & 1200 FEL	Water Injector	3698' - 4500'	Purchased CO2/Water
NHU 33-731	30-025-07545	33	F	18-S; 38-E	2310 FSL & 1320 FWL	Water Injector	3698' - 4500'	Purchased CO2/Water
NHU 33-232	30-025-27169	33	K	18-S; 38-E	1435 FNL & 1670 FEL	Water Injector	3698' - 4500'	Purchased CO2/Water

# MITCHELL ANALYTICAL LABORATORY

2638 Faudree  
Odessa, Texas 79765-8538  
561-5579

Company: **Nalco Company**

Well Number:	Going Lane Office	Sample Temp:	70
Lease:	OXY	Date Sampled:	10/24/2013
Location:		Sampled by:	Bobby Hunt
Date Run:	10/31/2013	Employee #:	27-022
Lab Ref #:	13-nov-n72697	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> )	57.89	20.10	2.88
Magnesium	(Mg <sup>++</sup> )	21.03	12.20	1.72
Sodium	(Na <sup>+</sup> )	116.11	23.00	5.05
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> )	342.16	61.10	5.60
Sulfate	(SO <sub>4</sub> <sup>=</sup> )	56.00	48.80	1.15
Chloride	(Cl <sup>-</sup> )	103.11	35.50	2.90

Total Iron	(Fe)	0	18.60	.00
Total Dissolved Solids		696.30		
Total Hardness as CaCO <sub>3</sub>		230.95		
Conductivity MICROMHOS/CM		976		

pH	7.600	Specific Gravity 60/60 F.	1.000
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CaSO<sub>4</sub> Solubility @ 80 F.                      19.15MEq/L,                      CaSO<sub>4</sub> scale is unlikely

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

70.0	-.280	100.0	.070	130.0	.580
80.0	-.150	110.0	.310	140.0	.580
90.0	.070	120.0	.310	150.0	.810

*Nalco Company*

# MITCHELL ANALYTICAL LABORATORY

2638 Faudrée  
Odessa, Texas 79765-8538  
561-5579

Company: **Nalco Company**

Well Number:	Section 13 Wind Mill Well	Sample Temp:	70
Lease:	OXY	Date Sampled:	10/24/2013
Location:		Sampled by:	Bobby Hunt
Date Run:	10/31/2013	Employee #:	27-022
Lab Ref #:	13-nov-n72698	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> )	85.87	20.10	4.27
Magnesium	(Mg <sup>++</sup> )	8.59	12.20	.70
Sodium	(Na <sup>+</sup> )	19.63	23.00	.85
Barium	(Ba <sup>++</sup> )	<b>NOT ANALYZED</b>		
Manganese	(Mn <sup>+</sup> )	.01	27.50	.00
Strontium	(Sr <sup>++</sup> )	<b>NOT ANALYZED</b>		

### *Anions*

Hydroxyl	(OH <sup>-</sup> )	.00	17.00	.00
Carbonate	(CO <sub>3</sub> <sup>=</sup> )	.00	30.00	.00
BiCarbonate	(HCO <sub>3</sub> <sup>-</sup> )	232.18	61.10	3.80
Sulfate	(SO <sub>4</sub> <sup>=</sup> )	44.00	48.80	.90
Chloride	(Cl <sup>-</sup> )	40.04	35.50	1.13

Total Iron	(Fe)	0	18.60	.00
Total Dissolved Solids		430.32		
Total Hardness as CaCO <sub>3</sub>		249.89		
Conductivity MICROMHOS/CM		642		

pH	7.410	Specific Gravity 60/60 F.	1.000
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CaSO<sub>4</sub> Solubility @ 80 F.      18.38MEq/L,      CaSO<sub>4</sub> scale is unlikely

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

70.0	-.468	100.0	-.118	130.0	.392
80.0	-.338	110.0	.122	140.0	.392
90.0	-.118	120.0	.122	150.0	.622

*Nalco Company*

# MITCHELL ANALYTICAL LABORATORY

2638 Faudree  
Odessa, Texas 79765-8538  
561-5579

Company: **Nalco Company**

Well Number:	Smith Irrigation System	Sample Temp:	70
Lease:	OXY	Date Sampled:	10/24/2013
Location:		Sampled by:	Bobby Hunt
Date Run:	10/31/2013	Employee #:	27-022
Lab Ref #:	13-nov-n72699	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> )	191.67	20.10	9.54
Magnesium	(Mg <sup>++</sup> )	35.97	12.20	2.95
Sodium	(Na <sup>+</sup> )	102.74	23.00	4.47
Barium	(Ba <sup>++</sup> )	<b>NOT ANALYZED</b>		
Manganese	(Mn <sup>+</sup> )	.03	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> )	268.84	61.10	4.40
Sulfate	(SO <sub>4</sub> <sup>=</sup> )	124.00	48.80	2.54
Chloride	(Cl <sup>-</sup> )	355.39	35.50	10.01
Total Iron	(Fe)	0	18.60	.00
Total Dissolved Solids		1,078.64		
Total Hardness as CaCO <sub>3</sub>		626.65		
Conductivity MICROMHOS/CM		1,825		

pH	7.730	Specific Gravity 60/60 F.	1.001
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CaSO<sub>4</sub> Solubility @ 80 F.      16.80MEq/L,      CaSO<sub>4</sub> scale is unlikely

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

70.0	.265	100.0	.615	130.0	1.125
80.0	.395	110.0	.855	140.0	1.125
90.0	.615	120.0	.855	150.0	1.355

*Nalco Company*

# MITCHELL ANALYTICAL LABORATORY

2638 Faudree  
Odessa, Texas 79765-8538  
561-5579

Company: **Nalco Company**

Well Number:	NM OCD Sprinkler System Well	Sample Temp:	70
Lease:	OXY	Date Sampled:	10/24/2013
Location:		Sampled by:	Bobby Hunt
Date Run:	10/31/2013	Employee #:	27-022
Lab Ref #:	13-nov-n72700	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> )	105.89	20.10	5.27
Magnesium	(Mg <sup>++</sup> )	12.15	12.20	1.00
Sodium	(Na <sup>+</sup> )	54.56	23.00	2.37
Barium	(Ba <sup>++</sup> )	<b>NOT ANALYZED</b>		
Manganese	(Mn <sup>+</sup> )	.02	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> )	268.84	61.10	4.40
Sulfate	(SO <sub>4</sub> <sup>=</sup> )	54.00	48.80	1.11
Chloride	(Cl <sup>-</sup> )	111.12	35.50	3.13
Total Iron	(Fe)	0	18.60	.00
Total Dissolved Solids		606.58		
Total Hardness as CaCO <sub>3</sub>		314.54		
Conductivity MICROMHOS/CM		858		

pH                      7.960    Specific Gravity 60/60 F.    1.000

CaSO<sub>4</sub> Solubility @ 80 F.                      18.02MEq/L,                      CaSO<sub>4</sub> scale is unlikely

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

70.0	.237	100.0	.587	130.0	1.097
80.0	.367	110.0	.827	140.0	1.097
90.0	.587	120.0	.827	150.0	1.327

*Nalco Company*



C-108 Review Checklist: Received 6/17/2016 Add. Request: 4/25 Reply Date: 7/6 Suspended: \_\_\_\_\_ [Ver 15]

ORDER TYPE: WFX PMX / SWD Number: \_\_\_\_\_ Order Date: \_\_\_\_\_ Legacy Permits/Orders: R-6199-F

Well No. 643 Well Name(s): NORTH HOBBS GRADYBURG

API: 30-0 25-43242 Spud Date: TBD New or Old: N (UIC Class II Primacy 03/07/1982)

Footages 5-71880F54 1258 FWC Lot 33 or Unit L Sec 33 Tsp 1KS Rge 3E County Lea  
B-722029 2542 FWC

General Location: Hobbs City Limits Pool: Hobbs, Gradyburg - SAN ANTONIO Pool No.: 31920

BLM 100K Map: H057 Operator: Occidental Petroleum Ltd OGRID: 5784 Contact: April Regulatory Hold's coordinator

COMPLIANCE RULE 5.9: Total Wells: 671 Inactive: 1 Fincl Assur: Y Compl. Order? NA IS 5.9 OK? Y Date: 7-7-2016

WELL FILE REVIEWED  Current Status: Proposed

WELL DIAGRAMS: NEW: Proposed  or RE-ENTER: Before Conv.  After Conv.  Logs in Imaging: \_\_\_\_\_

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

Well Construction Details		Sizes (in)	Setting	Cement	Cement Top and Determination Method
		Borehole / Pipe	Depths (ft)	Sx or Cf	
Planned ___ or Existing ___ Surface		<u>12 5/8 / 5 7/8</u>	<u>1612</u>	<u>761</u>	<u>Surface / Visual</u>
Planned ___ or Existing ___ Interm/Prod		<u>8 3/4 / 7</u>	<u>5724</u>	<u>1350</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>4000-4500</u>			
			Inj Length	Completion/Operation Details:	
			<u>500</u>	Drilled TD <u>5724</u>	PBTD <u>5678</u>
Injection Lithostratigraphic Units:		Depths (ft)	Injection or Confining Units	Tops	NEW TD _____
Adjacent Unit: Litho. Struc. Por.			<u>Queen</u>	<u>3555</u>	NEW PBTD _____
Confining Unit: Litho. Struc. Por.			<u>S.A.</u>	<u>4194</u>	NEW Open Hole <input type="checkbox"/> or NEW Perfs <input checked="" type="checkbox"/>
Proposed Inj Interval TOP:					Tubing Size <u>2 7/8</u> in. Inter Coated? <u>Y</u>
Proposed Inj Interval BOTTOM:					Proposed Packer Depth _____ ft
Confining Unit: Litho. Struc. Por.					Min. Packer Depth <u>3500</u> (100-ft limit)
Adjacent Unit: Litho. Struc. Por.					Proposed Max. Surface Press. _____ psi
AOR: Hydrologic and Geologic Information				Admin. Inj. Press. _____ (0.2 psi per ft)	
POTASH: R-111-P <u>NA</u> Noticed? _____ BLM Sec Ord <input type="checkbox"/> WIPP <input type="checkbox"/> Noticed? _____ Salt/Salado T: _____ B: _____				NW: Cliff House fm _____	
FRESH WATER: Aquifer <u>Gradyburg</u> Max Depth <u>370</u>				HYDRO AFFIRM STATEMENT By Qualified Person <input type="checkbox"/>	
NMOSE Basin: <u>LLA</u> CAPITAN REEF: thru adj <input checked="" type="checkbox"/> (NA) No. Wells within 1-Mile Radius? _____				FW Analysis _____	
Disposal Fluid: Formation Source(s) <u>Produced H2O</u> Analysis? <u>Y</u> On Lease <input type="checkbox"/> Operator Only <input type="checkbox"/> or Commercial <input checked="" type="checkbox"/>					
Disposal Int: Inject Rate (Avg/Max BWPD): <u>92/15K</u> Protectable Waters? _____ Source: _____ System: Closed or Open					
HC Potential: Producing Interval? <u>Y</u> Formerly Producing? _____ Method: Logs/DST/P&A/Other _____ 2-Mile Radius Pool Map <input type="checkbox"/>					
AOR Wells: 1/2-M Radius Map? <u>Y</u> Well List? <u>Y</u> Total No. Wells Penetrating Interval: _____ Horizontals? <u>NA</u>					
Penetrating Wells: No. Active Wells <u>7</u> Num Repairs? _____ on which well(s)? _____ Diagrams? <u>Part of R-6199-F</u>					
Penetrating Wells: No. P&A Wells _____ Num Repairs? _____ on which well(s)? _____ Diagrams? _____					
NOTICE: Newspaper Date _____ Mineral Owner _____ Surface Owner _____ N. Date _____					
RULE 26.7(A): Identified Tracts? _____ Affected Persons: _____ N. Date _____					

see order R-6199-F

Order Conditions: Issues: \_\_\_\_\_  
Add Order Cond: \_\_\_\_\_



# New Mexico Office of the State Engineer

## Water Column/Average Depth to Water

(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	Q 64	Q 16	Q 4	Sec.	Tws.	Rng	X	Y	Depth Well	Depth Water	Water Column
L 00101	L	LE		1	35	18S	38E			675900	3620409*	127		
L 00108	R	L	LE	4	2	2	35	18S	38E	676998	3620531*	88	48	40
L 00132	L	LE					35	18S	38E	676316	3620005*	125		
L 00143 POD2	L	LE		3	1	3	33	18S	38E	672383	3619648*	108		
L 00195	L	LE		3	4	35	18S	38E		676518	3619416*	100	97	3
L 00220	L	LE		4	3	1	35	18S	38E	675798	3620107*	211	130	81
L 00220 S	L	LE		1	3	1	35	18S	38E	676403	3620121*	211	158	53
L 00220 S10	L	LE		4	2	4	33	18S	38E	673791	3619669*	80		
L 00220 S5	L	LE			3	4	34	18S	38E	674908	3619388*	210	65	145
L 00221	L	LE		3	3	1	35	18S	38E	675598	3620107*	205	170	35
L 00225 POD3	L	LE		1	1	2	35	18S	38E	676395	3620724*	180	42	138
L 00571	L	LE		3	4	4	35	18S	38E	676820	3619323*	105	48	57
L 00571	R	L	LE	3	4	4	35	18S	38E	676820	3619323*	105	48	57
L 00940	L	LE		3	2	1	34	18S	38E	674382	3620490*	206	133	73
L 00940	R	L	LE	3	2	1	34	18S	38E	674382	3620490*	206	133	73
L 00941	L	LE		3	2	1	34	18S	38E	674382	3620490*	205	133	72
L 00941	R	L	LE	3	2	1	34	18S	38E	674382	3620490*	205	133	72
L 00942	L	LE		3	2	1	34	18S	38E	674382	3620490*	210	133	77
L 00942	R	L	LE	3	2	1	34	18S	38E	674382	3620490*	210	133	77
L 00943	L	LE		3	2	1	34	18S	38E	674382	3620490*	206	133	73
L 00943	R	L	LE	3	2	1	34	18S	38E	674382	3620490*	206	133	73
L 00944	L	LE		4	2	1	34	18S	38E	674382	3620490*	206	140	66
L 00944	R	L	LE	4	2	1	34	18S	38E	674382	3620490*	206	140	66
L 00945	L	LE		4	2	1	34	18S	38E	674582	3620490*	206		
L 01040	L	LE		2	4	35	18S	38E		676913	3619827*	90	50	40
L 01051	L	LE		1	1	1	35	18S	38E	675590	3620710*	171	86	85

\*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	Q 6	Q 16	Q 4	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
L 01058	L	LE		4	2	4	35	18S	38E	677012	3619726*	83	56	27
L 01082	L	LE		2	2	1	34	18S	38E	674582	3620690*	135	65	70
L 01101 POD1	L	LE		1	1	1	35	18S	38E	675590	3620710*	120		
L 01150 POD1	L	LE		1	1	1	35	18S	38E	675691	3620611*	135	65	70
L 01179 POD1	L	LE		3	3	3	35	18S	38E	675612	3619301*	72	56	16
L 01184 POD1	L	LE					35	18S	38E	676316	3620005*	77	66	11
L 01196 POD1	L	LE		4	4	4	33	18S	38E	673799	3619266*	100	56	44
L 01228 POD1	L	LE			2	35	18S	38E	676705	3620423*	120	70	50	
L 01229 POD1	L	LE		4	3	3	35	18S	38E	675812	3619301*	90	62	28
L 01340	L	LE		4	1	34	18S	38E	674490	3620188*	102	80	22	
L 01352	L	LE		3	4	1	35	18S	38E	676000	3620114*	120	80	40
L 01366	L	LE		2	1	4	35	18S	38E	676610	3619918*	80	60	20
L 01367	L	LE		1	1	4	35	18S	38E	676410	3619918*	90	64	26
L 01420	L	LE		3	3	4	35	18S	38E	676417	3619315*	105	55	50
L 01451	L	LE		3	1	1	35	18S	38E	675590	3620510*	142	100	42
L 01452	L	LE		3	1	1	35	18S	38E	675590	3620510*	126	47	79
L 01497	L	LE		4	2	35	18S	38E	676906	3620229*	85	60	25	
L 01512 POD1	L	LE		4	2	3	35	18S	38E	676207	3619711*	94	65	29
L 01528 POD1	L	LE		3	4	35	18S	38E	676518	3619416*	85	85	0	
L 01635 POD1	L	LE		2	2	2	34	18S	38E	675387	3620703*	103		
L 01701 POD1	L	LE		4	3	33	18S	38E	672894	3619353*	104	50	54	
L 01778	L	LE		1	1	3	35	18S	38E	675605	3619904*	214	70	144
L 01786 POD1	L	LE		1	2	2	33	18S	38E	673576	3620676*	104	55	49
L 01805	L	LE		3	1	35	18S	38E	675699	3620208*	211	81	130	
L 02007	L	LE		1	2	4	34	18S	38E	675202	3619897*	162	70	92
L 02097 POD2	L	LE		1	1	1	34	18S	38E	673979	3620683*	214	68	146
L 02150	L	LE		3	4	4	35	18S	38E	676820	3619323*	100		
L 02210	L	LE		3	2	3	35	18S	38E	676007	3619711*	113	65	48
L 02223 POD2	L	LE		2	3	2	33	18S	38E	673381	3620265*	212	60	152

\*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 02223	POD3	L	LE	4	1	2	35	18S	38E	676595	3620524*	220	80	140	
L 02232		L	LE			3	33	18S	38E	672693	3619547*	112	56	56	
L 02264		L	LE			2	33	18S	38E	673483	3620367*	93	56	37	
L 02272		L	LE	4	2	2	33	18S	38E	673776	3620476*	105	60	45	
L 02277		L	LE				35	18S	38E	676316	3620005*	76	55	21	
L 02288		L	LE	3	3	1	35	18S	38E	675598	3620107*	143			
L 02316		L	LE			1	2	33	18S	38E	673275	3620569*	110	46	64
L 02323		L	LE	1	1	2	34	18S	38E	674784	3620697*	136	90	46	
L 02353		L	LE				35	18S	38E	676316	3620005*	80	55	25	
L 02485		L	LE			2	3	35	18S	38E	676108	3619812*	126	70	56
L 02512		L	LE	1	3	2	33	18S	38E	673181	3620265*	150	55	95	
L 02616		L	LE			2	2	35	18S	38E	676899	3620632*	95	70	25
L 02626		L	LE	1	4	2	35	18S	38E	676805	3620328*	100	80	20	
L 02637		L	LE	1	3	4	35	18S	38E	676417	3619515*	65	63	2	
L 02836		L	LE	3	3	4	33	18S	38E	673196	3619259*	129	53	76	
L 02915		R	L	LE	3	3	2	35	18S	38E	676403	3620121*	120		
L 03003		L	LE	4	4	4	35	18S	38E	677020	3619323*	87	61	26	
L 03159		L	LE	2	2	3	34	18S	38E	674597	3619883*	120	70	50	
L 03162		L	LE	4	1	1	35	18S	38E	675790	3620510*	126	80	46	
L 03299		L	LE	1	4	4	33	18S	38E	673599	3619466*	110	61	49	
L 03320		L	LE	1	4	4	35	18S	38E	676820	3619523*	100	52	48	
L 03347		L	LE	4	3	4	35	18S	38E	676617	3619315*	110	65	45	
L 03348		L	LE	4	3	4	35	18S	38E	676617	3619315*	105	65	40	
L 03573		L	LE			4	34	18S	38E	675109	3619589*	98	75	23	
L 03675		L	LE	4	4	4	35	18S	38E	677020	3619323*	100	70	30	
L 03858		L	LE	3	3	4	35	18S	38E	676417	3619315*	100	65	35	
L 04244		L	LE	4	4	4	35	18S	38E	677020	3619323*	80	60	20	
L 04307		L	LE	4	3	1	35	18S	38E	675798	3620107*	130	65	65	
L 04440		L	LE	1	1	3	35	18S	38E	675605	3619904*	111	70	41	

\*UTM location was derived from PLSS - see Help

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(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 04750	L	LE		4	2	3	33	18S	38E	672986	3619655*	86	45	41
L 04891	L	LE		1	1	35	18S	38E		675691	3620611*	235	90	145
L 05357	L	LE		3	2	3	34	18S	38E	674397	3619683*	152	70	82
L 05702 POD1	L	LE		3	2	1	35	18S	38E	675993	3620517*	220	70	150
L 05702 POD2	L	LE		1	2	1	35	18S	38E	675993	3620717*	220	70	150
L 06078	L	LE		3	1	35	18S	38E		675699	3620208*	100		
L 06268	L	LE		2	2	2	34	18S	38E	675387	3620703*	125	85	40
L 06574	L	LE		3	3	1	33	18S	38E	672376	3620051*	120	52	68
L 06675	R	L	LE	3	3	4	35	18S	38E	676417	3619315*	120	65	55
L 06675 POD2	L	LE		3	4	35	18S	38E		676518	3619416*	150	85	65
L 07388	L	LE		3	35	18S	38E			675914	3619603*	125	58	67
L 07523	L	LE		1	4	4	33	18S	38E	673599	3619466*	350		
L 07524	L	LE		4	1	1	34	18S	38E	674179	3620483*	350		
L 07525	L	LE		2	4	3	34	18S	38E	674604	3619480*	350		
L 07550	L	LE		3	35	18S	38E			675914	3619603*	140	85	55
L 07836	L	LE		2	3	35	18S	38E		676108	3619812*	130	95	35
L 08223	L	LE		3	33	18S	38E			672693	3619547*	120	52	68
L 08564	L	LE		3	3	33	18S	38E		672492	3619346*	125	50	75
L 08787	L	LE		1	3	35	18S	38E		675706	3619805*	137	65	72
L 09852	L	LE		3	2	4	35	18S	38E	676812	3619726*	138	64	74
L 10116	L	LE		4	4	35	18S	38E		676921	3619424*	150	86	64
L 10393	L	LE		1	4	3	35	18S	38E	676015	3619508*	180	92	88
L 10663	L	LE		2	35	18S	38E			676705	3620423*	222	55	167
L 10938	L	LE		4	3	33	18S	38E		672894	3619353*	183		
L 11274	L	LE		2	1	2	33	18S	38E	673374	3620668*	230		
L 13158 POD1	L	LE		3	3	2	35	18S	38E	676399	3620057	142	122	20
L 13158 POD2	L	LE		3	3	2	35	18S	38E	676432	3620081	142	122	20
L 13158 POD3	L	LE		3	3	2	35	18S	38E	676428	3620035	142	122	20
L 13342 POD1	L	LE		3	3	1	34	18S	38E	674044	3620065	100		

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(In feet)

POD Number	POD Sub-Code	basin	County	64	16	4	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
L 13342 POD2	L	LE	3	3	1	34	18S	38E	674059	3620064	105			
L 13342 POD3	L	LE	3	3	1	34	18S	38E	674049	3620067	103			
L 13342 POD4	L	LE	3	3	1	34	18S	38E	674049	3620052	35			
L 13342 POD5	L	LE	3	3	1	34	18S	38E	674040	3620048	35			
L 13342 POD6	L	LE	1	1	3	34	18S	38E	674097	3619973	35			
L 13342 POD7	L	LE	1	1	3	34	18S	38E	674095	3619970	35			
L 13342 POD8	L	LE	2	1	3	34	18S	38E	674100	3619967	45			
L 13342 POD9	L	LE	2	1	3	34	18S	38E	674103	3619964	35			
L 13483 POD1	L	LE	1	3	1	35	18S	38E	675526	3620329	140	120	20	

Average Depth to Water: 77 feet

Minimum Depth: 42 feet

Maximum Depth: 170 feet

Record Count: 122

PLSS Search:

Section(s): 33-35

Township: 18S

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.

## **North Hobbs Unit**

### **C-108 Application**

#### **Geologic Information**

Injection will occur in the upper-Permian age San Andres formation. In the Hobbs Field the top of the San Andres formation is found at depths ranging from 3950' to over 4300' below the surface. The San Andres formation in the Hobbs area can be over 1300' in thickness down to the underlying Glorieta formation; however, the hydrocarbon accumulation at the Hobbs Field is limited to the upper several hundreds of feet of the San Andres. This upper San Andres formation at Hobbs consists almost entirely of dolomite, with minor amounts of siltstone, shale and limestone. And although the Unitized interval of the Hobbs Field does extend another 100-150' above the San Andres, into the overlying lower Grayburg formation, this interval consists of poorer quality reservoir siltstones and dolomites and is not the focus of current injection operations.

Shallow, underground sources of drinking water in the Hobbs area include the Tertiary age Ogallala and undifferentiated Cretaceous formations, commonly known together as the High Plains aquifer. The Ogallala formation, which consists of unconsolidated sands, silts, clay and gravel, can be found at depths beginning at approximately 40 feet, beneath a hard, semi-impermeable layer of caliche. The undifferentiated Cretaceous formation is found immediately underlying the Ogallala and consists of sandstones interbedded with shale and limestone. These fresh-water-bearing horizons extend down to an approximate depth of 200-250' which is the top of the Triassic "Red Beds".

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 -1600', 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.

  
\_\_\_\_\_

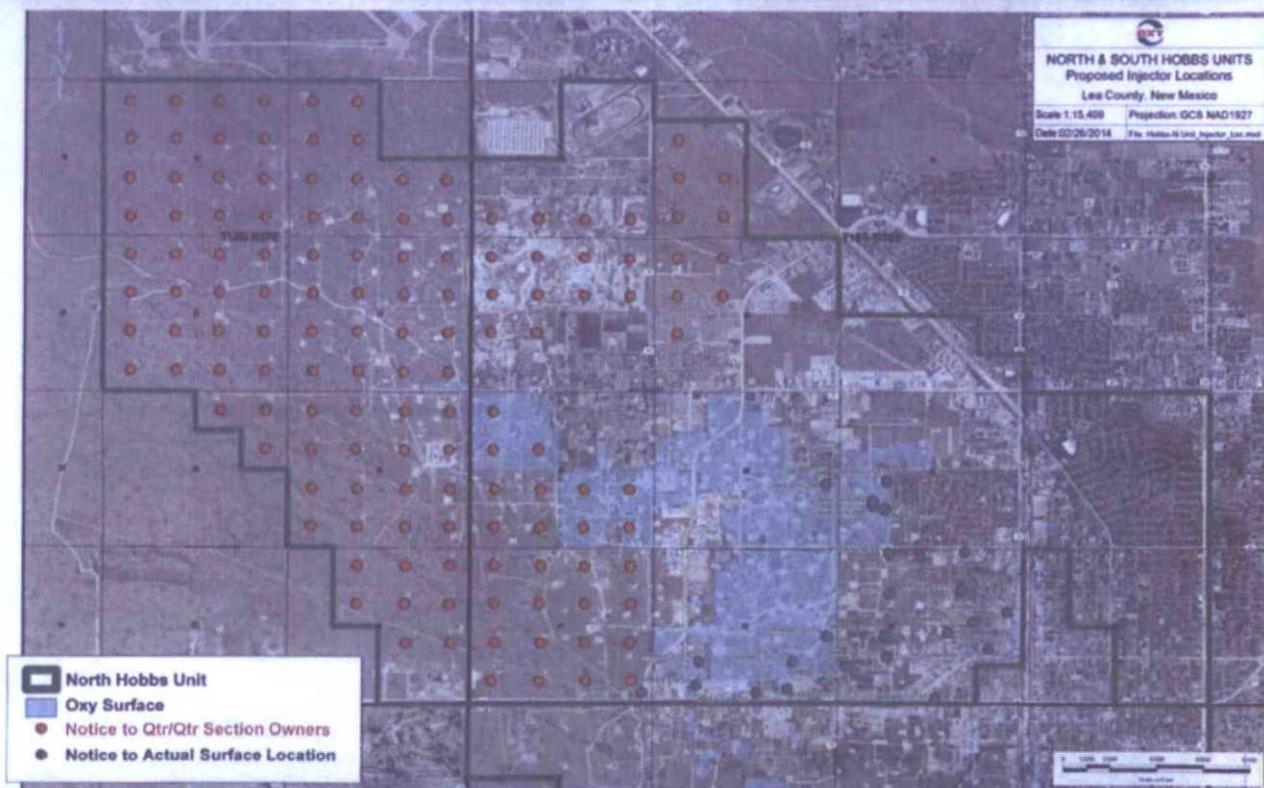
Randy Stilwell

Senior Geologic Advisor

  
\_\_\_\_\_

Date

# North Hobbs Unit Surface Notice



T17S R37E

T17S R38E

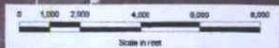
T18S R37E

T19S R37E

T19S R38E

**LEGEND**

- North Hobbs Project Area
- North Hobbs Offset Lands
- North Hobbs Unit
- South Hobbs Unit



**NORTH & SOUTH HOBBS UNIT:**  
Lea County, New Mexico

Scale: 1:18,000    Projection: GCS NAD192  
Date: 03/03/2014    File: Exhibit N-Hobbs\_Offset Land



# North Hobbs Unit Surface Notice

