Initial Application Part I

This application is placed in file for record. It MAY or MAY NOT have been reviewed to be determined Administratively Complete

~~1/30/19~~ ~~2/01/19~~ SWD1899 JAN 30 2019 PM02:22

DATE IN ~~1/30/2019~~	SUSPENSE	ENGINEER	LOGGED IN 2/01/19	TYPE SWD	APP NO. pMAM1903245035

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] — SWD - Occidental Permian, LTD 157984

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

Check One Only for [B] or [C]

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

[C] Injection - Disposal - Pressure Increase - Enhanced Oil Recovery — SWD — Hobbs Guzzler #1 30-025-43703
☐ WFX ☐ PMX ☒ SWD ☐ IPI ☐ EOR ☐ PPR

[D] Other: Specify _____ — Pool

[2] **NOTIFICATION REQUIRED TO:** - Check Those Which Apply, or Does Not Apply — SWD; San Andres 96121

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

[B] ☒ Offset Operators, Leaseholders or Surface Owner

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

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

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

[F] ☐ Waivers are Attached

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

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

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

April Hood	April Hood	Regulatory Specialist	01/07/19
Print or Type Name	Signature	Title	Date

April_Hood@Oxy.com
e-mail Address

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL
RESOURCES DEPARTMENT

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

FORM C-108
Revised June 10, 2003

APPLICATION FOR AUTHORIZATION TO INJECT

I. PURPOSE: _____Secondary Recovery _____Pressure Maintenance ___X___Disposal _____Storage
Application qualifies for administrative approval? ___X___Yes _____No

II. OPERATOR: Occidental Permian LTD

ADDRESS: PO Box 4294 Houston, TX 77210

CONTACT PARTY: April Hood PHONE: 713-366-5771

III. WELL DATA: Complete the data required on the reverse side of this form for each well proposed for injection. Additional sheets may be attached if necessary.

IV. Is this an expansion of an existing project? _____Yes ___X___No
If yes, give the Division order number authorizing the project: _____

V. Attach a map that identifies all wells and leases within two miles of any proposed injection well with a one-half mile radius circle drawn around each proposed injection well. This circle identifies the well's area of review. **Attached**

VI. Attach a tabulation of data on all wells of public record within the area of review which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of completion, and a schematic of any plugged well illustrating all plugging detail. **Attached**

VII. Attach data on the proposed operation, including:

1. Proposed average and maximum daily rate and volume of fluids to be injected; **Avg – 20000 BWPD Max – 30000 BWPD**
2. Whether the system is open or closed; **Closed**
3. Proposed average and maximum injection pressure; **Avg – 1200 psi Max – 2000 psi**
4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and, **Grayburg / San Andres from the North Hobbs Unit, Attached**
5. If injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water (may be measured or inferred from existing literature, studies, nearby wells, etc.). **Attached**

*VIII. Attach appropriate geologic data on the injection zone including appropriate lithologic detail, geologic name, thickness, and depth. Give the geologic name, and depth to bottom of all underground sources of drinking water (aquifers containing waters with total dissolved solids concentrations of 10,000 mg/l or less) overlying the proposed injection zone as well as any such sources known to be immediately underlying the injection interval.

Injection Zone:
Lithologic Description: San Andres formation.
Porosity: 9-19%
Sw: 50% to 100%
Injection Interval: 4,780' – 5,900'

Reservoir analysis is based on petrophysical data collected in the Hobbs wells. From the review of the offset geological data (logs and core) and IP tests below 4780' TVD, it is concluded that there are likely no producible hydrocarbons from the propose interval. Additional review of offset geological and historic seismic data suggests no evidence of open or active faults near the proposed location..

IX. Describe the proposed stimulation program, if any. **Acid Stimulation**

*X. Attach appropriate logging and test data on the well. (If well logs have been filed with the Division, they need not be resubmitted).
Logs will be filed after well has been drilled and completed

*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. **Attached**

XII. Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground sources of drinking water.

I have examined the available geologic and engineering data for Hobbs Guzzler #1 SWD well and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground sources of drinking water

Dmitri Pistoun

XIII. Applicants must complete the "Proof of Notice" section on the reverse side of this form. **Attached**

XIV. Certification: I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.

NAME: April Hood TITLE: Regulatory Specialist

SIGNATURE: April Hood DATE: 01/07/19

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: _____

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

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.

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.

Side 1

INJECTION WELL DATA SHEET

OPERATOR: Occidental Permian LTD

WELL NAME & NUMBER: Hobbs Guzzler SWD #1

WELL LOCATION: 440 FSL & 435 FWL | M | 23 | 18S | 37E

FOOTAGE LOCATION | UNIT LETTER | SECTION | TOWNSHIP | RANGE

WELLBORE SCHEMATIC

WELL CONSTRUCTION DATA

Surface Casing

Hole Size: 17 1/2" Casing Size: 13 3/8"

Cemented with: 1,430 sx. *or* _____ ft³

Top of Cement: 0 Method Determined: Circulation

Intermediate Casing

Hole Size: 12 1/4" Casing Size: 9 5/8"

Cemented with: 1,510 sx. *or* _____ ft³

Top of Cement: 0 Method Determined: Circulation

Production Casing

Hole Size: 8 3/4" Casing Size: 7"

Cemented with: 750 sx. *or* _____ ft³

Top of Cement: 0 Method Determined: Circulation

Total Depth: 10,650'

Injection Interval

4,780' feet to 5,900" (Perforated)

(Perforated or Open Hole; indicate which)

Side 2

INJECTION WELL DATA SHEET

Tubing Size: 4 1/2 " Lining Material: Duoline

Type of Packer: 7" (Retrievable) AS1-X Arrowset Packer

Packer Setting Depth: +/- 4,750'

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

Additional Data

1. Is this a new well drilled for injection? _____Yes __ X __No

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

   Well was drilled as SWD into Silurian / Devonian Formation. Well Drilled in May, 2017

2. Name of the Injection Formation: San Andres

3. Name of Field or Pool (if applicable): _ 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. Yes (OH in the Siluran / Devonian)

   7 plugs at following depths will be set: Woodford Plug @ 10603', Barnett Plug @ 8687', Abo Plug @ 7684',

   DRKD Plug @ 7204', TUBB Plug @ 7064, BLBR Plug @ 6266' and GLRT Plug @ 5898'

   Plugs will be set per NMOCD guidance

5. Give the name and depths of any oil or gas zones underlying or overlying the proposed injection zone in this area: No know producing zones at this interval seen at this

WELLBORE DIAGRAM - Current

(updated: 10/31/2018 CER)

Revision 0

WELL#	Hobbs Guzzler SWD #1
API#	30-025-43703
Propety Code#	317546
Zone:	Siluro - Devonian
Spud:	05/19/2017 18:30 PM
RR:	06/14/2017
KB elev	3704.70
GL elev	3687.20

Hobbs Guzzler SWD #1

CEMENT

Conductor pipe

+/- 30" hole w/ 20" pipe set @ 80', cement with concrete mixed w/ pea gravel, dumped in from top after pipe in hole.

Surface Casing

Cement with 895 sx Prem Plus (12.9 ppg, 1.87 cuft/sx) lead, and 545 sx Class C (14.8 ppg, 1.34 cuft/sx) tail.
Bump plug at 13:45 hours on 5/21/2017.
CIRC 480 SXS (160 BBLS) TO SURFACE.

Intermediate Casing

Stage1:
Cement with 585 sx Class C cement (14.8 ppg, 1.132 cuft/sx).
Bump plug at 08:30 hours on 05/27/2017.
No cement was circulated.

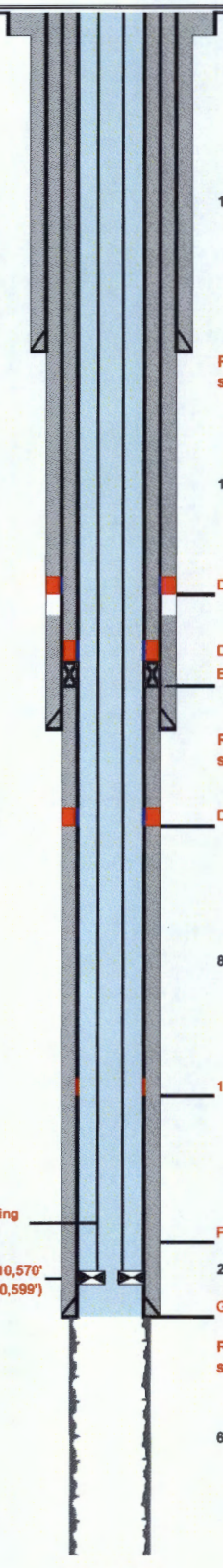
Stage2:
Cement with 875 sx Class C (11.0 ppg, 2.81 cuft/sx) Lead and 295 sxs Class C (14.2 ppg, 1.28 cuft/sx) Tail.
Bump plug at 20:13 hours on 05/27/2017.
CIRC 192 SXS TO SURFACE - 92 BBLS.

Production Casing

Stage1:
Cement with 640 sx NeoCem™ IL (11.0 ppg, 2.91 cuft/sx) Lead and 520 sx NeoCem™ IT (13.2 ppg, 1.46 cuft/sx) Tail.
Bump plug at 22:05 hours on 06/07/2017.
CIRC 135 SXS TO SURFACE - 70 BBLS.

Stage2:
Cement with 50 sxs NeoCem™ Light (9.0 ppg, 3.43 cuft/sx).
Bump plug at 06:03 hours on 06/08/2017.
CIRC 24SXS TO SURFACE - 15 BBLS.

Stage3:
Cement with 275 sxs Premium Plus Cement (10.2 ppg, 3.10 cuft/sx).
Bump plug at 08:48 hours on 06/08/2017.
CIRC 39 SXS TO SURFACE.



DEVIATION SURVEYS

DEPTH DEGREE

17-1/2" hole

Ran 42 Joints of 13-3/8" J-55 54.5# BTC set at 1717'

12-1/4" Hole

DV TOOL 3504' to 3506'

DV TOOL 4591' to 4593'

ECP 4593' to 4617'

Ran 123 Joints of 9-5/8" 36.00# J-55 BTC set at 5020'

DV TOOL 5098' to 5101'

8-3/4" Hole

19.6' FLAG JOINTS 8,990' - 9,010'

246 jnts 4-1/2" L-80, 13# Duoline casing

FLOAT COLLAR 10,567' - 10,568'

7" Optima Injection Packer set @ 10,570' (bottom of the packer @ 10,599')

2 SHOE JOINTS 80.25'

GUIDE SHOE 10,648' - 10,650'

Ran 266 Joints of 7" 26.00# L-80 BTC set at 10650'

6-1/8" Hole

TMD 11,725.0'

WELLBORE DIAGRAM - Proposed

WELL#	Hobbs Guzzler SWD #1
API#	30-025-43703
Propety Code#	317546
Zone:	Siluro - Devonian
Spud:	05/19/2017 18:30 PM
RR:	06/14/2017

(updated: 10/31/2018 CER)
Revision 0

KB elev 3704.70
GL elev 3687.20

Hobbs Guzzler SWD #1

CEMENT

DEPTH DEGREE

Conductor pipe

+/- 30" hole w/ 20" pipe set @ 80', cement with concrete mixed w/ pea gravel, dumped in from top after pipe in hole.

~120 jnts 4-1/2" L-80, 13# Duoline casing

17-1/2" hole

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Cement with 895 sx Prem Plus (12.9 ppg, 1.87 cuft/sx) lead, and 545 sx Class C (14.8 ppg, 1.34 cuft/sx) tail.
Bump plug at 13:45 hours on 5/21/2017.
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DV TOOL 3504' to 3506'

DV TOOL 4591' to 4593'
ECP 4593' to 4617'

Stage2:
Cement with 875 sx Class C (11.0 ppg, 2.81 cuft/sx) Lead and 295 sxs Class C (14.2 ppg, 1.28 cuft/sx) Tail.
Bump plug at 20:13 hours on 05/27/2017.
CIRC 192 SXS TO SURFACE - 92 BBLS.

7" Optima Injection Packer set @ 4,750'

Ran 123 Joints of 9-5/8" 36.00# J-55 BTC set at 5020'

Production Casing

Stage1:
Cement with 640 sx NeoCem™ IL (11.0 ppg, 2.91 cuft/sx) Lead and 520 sx NeoCem™ IT (13.2 ppg, 1.46 cuft/sx) Tail.
Bump plug at 22:05 hours on 06/07/2017.
CIRC 135 SXS TO SURFACE - 70 BBLS.

Perf Interval: From 4790' to 5898' (6 jspf)

DV TOOL 5098' to 5101'

PLUG No.	FORMATION	MD
1	GLRT	5898.04
2	BLBR	6266.36
3	TUBB	7064.78
4	DRKD	7204.15
5	ABO	7684.19
6	BARNETT	8687.56
7	WOODFORD	10603.23

Stage2:
Cement with 50 sxs NeoCem™ Light (9.0 ppg, 3.43 cuft/sx).
Bump plug at 06:03 hours on 06/08/2017.
CIRC 24SXS TO SURFACE - 15 BBLS.

19.6' FLAG JOINTS 8,990' - 9,010'

Stage3:
Cement with 275 sxs Premium Plus Cement (10.2 ppg, 3.10 cuft/sx).
Bump plug at 08:48 hours on 06/08/2017.
CIRC 39 SXS TO SURFACE.

8-3/4" Hole

FLOAT COLLAR 10,567' - 10,568'

7" Optima Injection Packer set @ 10,570'
(bottom of the packer @ 10,599')

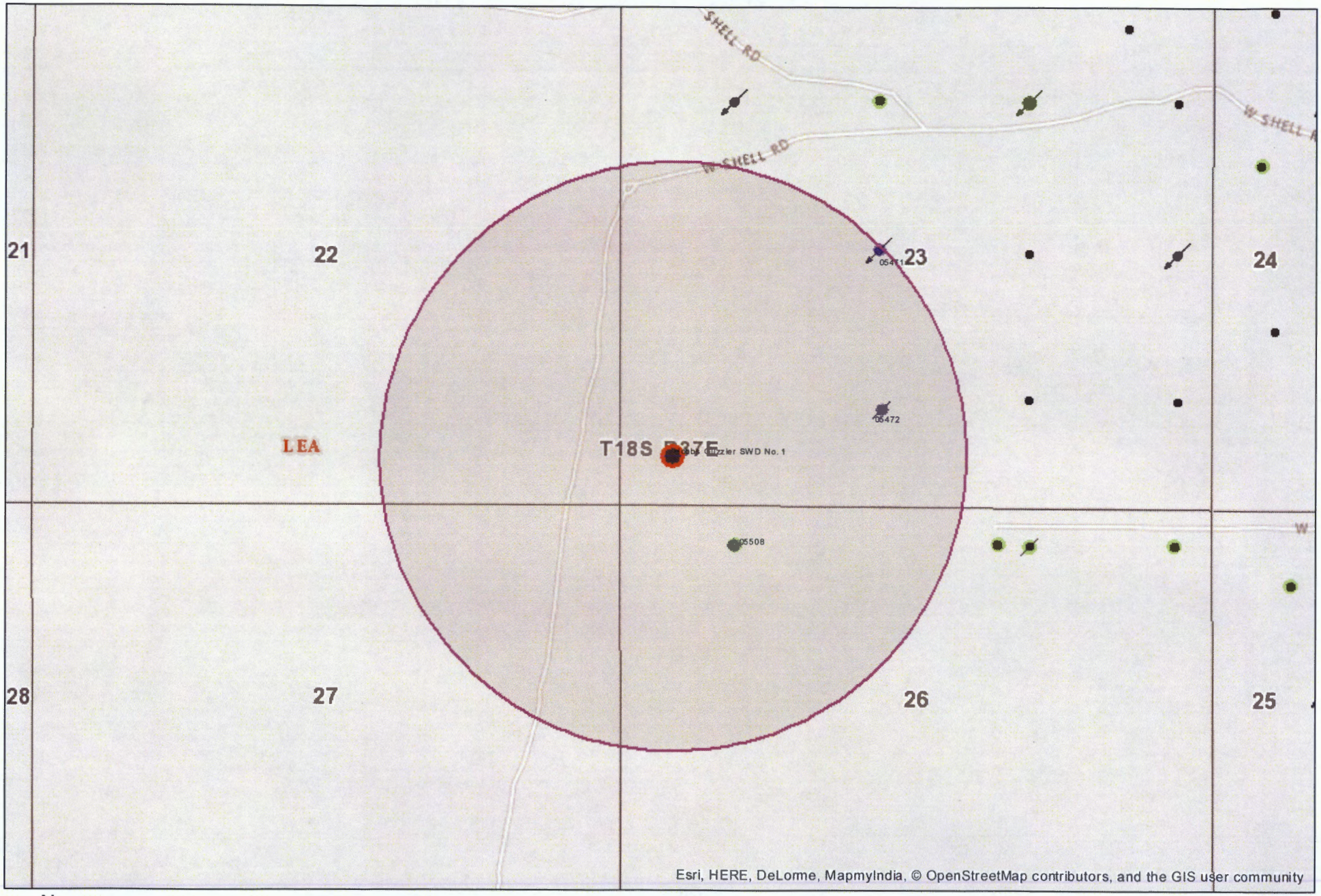
2 SHOE JOINTS 80.25'

GUIDE SHOE 10,648' - 10,650'

Ran 266 Joints of 7" 26.00# L-80 BTC set at 10650'

6-1/8" Hole

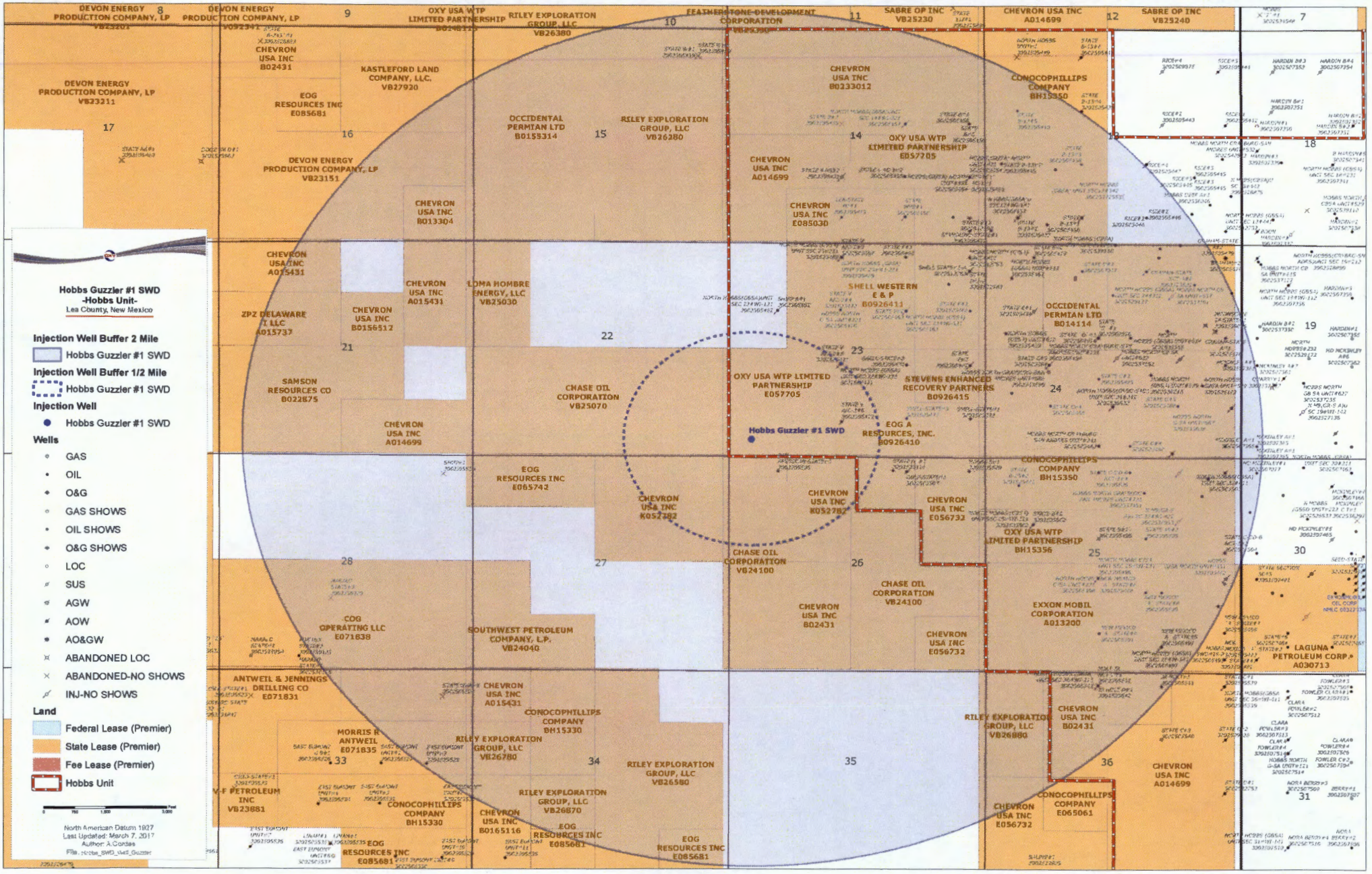
TMD 11,725.0'



Hobbs Guzzler SWD No. 1

Hobbs Guzzler SWD No. 1
Area of Review

																TOTAL TVD										
1	30-025-05471	Occidental Permian LTD	North Hobbs G/SA Unit	231	I	Active	2310	S	2310	W	K	23	18	S	37	E	21690	4500	4500	12 1/4" 8 3/8"	8 5/8" 5 1/2"	310' 4330'	350 300	Surface 2630'	Circ Temp Survey	4120' - 4256' 4330' - 4500'	Perforations Open Hole	**WELL DOES NOT PENETRATE 4,780' to 5,900' INTERVAL**
2	30-025-05508	Cactus Drilling Company	Pan American State	1		PA	335	N	990	W	D	26	18	S	37	E		4359	4359									**WELL DOES NOT PENETRATE 4,780' to 5,900' INTERVAL**
3	30-025-05472	Occidental Permian LTD	North Hobbs G/SA Unit	241		PA	990	S	2310	W	N	23	18	S	37	E	06/19/1959	4390	4390									**WELL DOES NOT PENETRATE 4,780' to 5,900' INTERVAL**


Hobbs Guzzler #1 SWD
-Hobbs Unit-
Lea County, New Mexico
Injection Well Buffer 2 Mile
Hobbs Guzzler #1 SWD
Injection Well Buffer 1/2 Mile
Hobbs Guzzler #1 SWD
Injection Well
Hobbs Guzzler #1 SWD
Wells
GAS
OIL
O&G
GAS SHOWS
OIL SHOWS
O&G SHOWS
LOC
SUS
AGW
AOW
AO&GW
ABANDONED LOC
ABANDONED-NO SHOWS
INJ-NO SHOWS
Land
Federal Lease (Premier)
State Lease (Premier)
Fee Lease (Premier)
Hobbs Unit
North American Datum 1927
Last Updated: March 7, 2017
Author: A.Cordas
DEVON ENERGY PRODUCTION COMPANY, LP VB23201
DEVON ENERGY PRODUCTION COMPANY, LP V092341
OXY USA WTP LIMITED PARTNERSHIP B024812
RILEY EXPLORATION GROUP, LLC VB26380
FEATHERSTONE DEVELOPMENT CORPORATION VB23301
SABRE OP INC VB25230
CHEVRON USA INC A014699
SABRE OP INC VB25240
CHEVRON USA INC B02431
KASTLEFORD LAND COMPANY, LLC, VB27920
CHEVRON USA INC B0233012
CONOCOPHILLIPS COMPANY BH15350
DEVON ENERGY PRODUCTION COMPANY, LP VB23211
EOG RESOURCES INC E085681
OCCIDENTAL PERMIAN LTD B0155314
RILEY EXPLORATION GROUP, LLC VB26280
OXY USA WTP LIMITED PARTNERSHIP E057705
CHEVRON USA INC A014699
DEVON ENERGY PRODUCTION COMPANY, LP VB23151
CHEVRON USA INC B013304
CHEVRON USA INC E085030
CHEVRON USA INC A015431
CHEVRON USA INC A015431
LOMA HOMBRE ENERGY, LLC VB25030
SHELL WESTERN E & P B0926411
OCCIDENTAL PERMIAN LTD B014114
ZPZ DELAWARE I, LLC A015737
CHEVRON USA INC B0156512
SAMSON RESOURCES CO B022675
CHASE OIL CORPORATION VB25070
OXY USA WTP LIMITED PARTNERSHIP E057705
STEVENS ENHANCED RECOVERY PARTNERS B0926415
Hobbs Guzzler #1 SWD
EOG A RESOURCES, INC. B0926410
CHEVRON USA INC A014699
EOG RESOURCES INC E065742
CONOCOPHILLIPS COMPANY BH15350
CHEVRON USA INC K052782
CHEVRON USA INC B052782
CHEVRON USA INC E056732
OXY USA WTP LIMITED PARTNERSHIP BH15396
CHASE OIL CORPORATION VB24100
CHASE OIL CORPORATION VB24100
CHEVRON USA INC B02431
EXXON MOBIL CORPORATION A013200
COG OPERATING LLC E071838
SOUTHWEST PETROLEUM COMPANY, L.P. VB24040
CHEVRON USA INC E056732
LAGUNA PETROLEUM CORP. A030713
ANTWEIL & JENNINGS DRILLING CO E071831
CHEVRON USA INC A015431
CONOCOPHILLIPS COMPANY BH15330
MORRIS R ANTWEIL E071835
RILEY EXPLORATION GROUP, LLC VB26780
RILEY EXPLORATION GROUP, LLC VB26580
RILEY EXPLORATION GROUP, LLC VB26380
CHEVRON USA INC B02431
V-F PETROLEUM INC VB23681
CONOCOPHILLIPS COMPANY BH15330
RILEY EXPLORATION GROUP, LLC VB26870
CHEVRON USA INC A014699
CHEVRON USA INC B0165116
EOG RESOURCES INC E085681
CHEVRON USA INC E056732
CONOCOPHILLIPS COMPANY E065061
EOG RESOURCES INC E085681
EOG RESOURCES INC E085681

BAKER HUGHES

Permian Basin Area Laboratory
2101 Market Street,
Midland, Texas 79703

Upstream Chemicals

REPORT DATE: 2/28/2017

COMPLETE WATER ANALYSIS REPORT SSP v.2010

CUSTOMER:	OCCIDENTAL PERMIAN EOR	**ACCOUNT REP:**	SHANNON LEE
DISTRICT:	NEW MEXICO	**SAMPLE ID:**	201601014862
AREA/LEASE:	HOBBS	**SAMPLE DATE:**	4/5/2016
SAMPLE POINT NAME	NHSAU CTB CHARGE PUMP 1 B	**ANALYSIS DATE:**	4/8/2016
SITE TYPE:	FACILITY	**ANALYST:**	HECTOR MARTINEZ
SAMPLE POINT DESCRIPTION:	OUTLET		

OCCIDENTAL PERMIAN EOR, HOBBS, NHSAU CTB CHARGE PUMP 1 B

FIELD DATA

Initial Temperature (°F):	250
Final Temperature (°F):	80
Initial Pressure (psi):	100
Final Pressure (psi):	15
pH:	
pH at time of sampling:	6.9

ALKALINITY BY TITRATION:	mg/L	meq/L
Bicarbonate (HCO_3^-):	3721.0	61.0
Carbonate (CO_3^{2-}):	ND	
Hydroxide (OH^-):	ND	

aqueous CO_2 (ppm):	85.0
aqueous H_2S (ppm):	450.0
aqueous O2 (ppb):	ND
Calculated TDS (mg/L):	15769
Density/Specific Gravity (g/cm³):	1.0085
Measured Specific Gravity	1.0131
Conductivity (mmhos):	ND
Resistivity:	ND
MCF/D:	No Data
BOPD:	No Data
BWPD:	No Data

ANALYSIS OF SAMPLE

ANIONS:	mg/L	meq/L
Chloride (Cl^-):	5751.1	162.2
Sulfate (SO_4^{2-}):	1550.7	32.3
Borate (H_3BO_3):	12.5	0.2
Fluoride (F^-):	ND	
Bromide (Br^-):	ND	
Nitrite (NO_2^-):	ND	
Nitrate (NO_3^-):	ND	
Phosphate (PO_4^{3-}):	ND	
Silica (SiO_2):	ND	

ORGANIC ACIDS:	mg/L	meq/L
Formic Acid:	ND	
Acetic Acid:	ND	
Propionic Acid:	ND	
Butyric Acid:	ND	
Valeric Acid:	ND	

Anion/Cation Ratio: 1.14

CATIONS:	mg/L	meq/L
Sodium (Na^+):	3114.9	135.6
Potassium (K^+):	138.1	3.5
Magnesium (Mg^{2+}):	340.1	28.0
Calcium (Ca^{2+}):	1132.9	56.5
Strontium (Sr^{2+}):	18.2	0.4
Barium (Ba^{2+}):	0.5	0.0
Iron (Fe^{2+}):	1.3	0.0
Manganese (Mn^{2+}):	0.0	0.0
Lead (Pb^{2+}):	ND	
Zinc (Zn^{2+}):	0.0	0.0
Aluminum (Al^{3+}):	ND	
Chromium (Cr^{3+}):	ND	
Cobalt (Co^{2+}):	ND	
Copper (Cu^{2+}):	ND	
Molybdenum (Mo^{2+}):	ND	
Nickel (Ni^{2+}):	ND	
Tin (Sn^{2+}):	ND	
Titanium (Ti^{2+}):	ND	
Vanadium (V^{2+}):	ND	
Zirconium (Zr^{2+}):	ND	
Total Hardness:	4254	N/A

ND = Not Determined

SCALE PREDICTIONS BASED ON FIELD PROVIDED DATA; FUTHER MODELING MAY BE REQUIRED FOR VALIDATION OF SCALE PREDICTION RESULTS.

Conditions		Barite ($BaSO_4$)		Calcite ($CaCO_3$)		Gypsum ($CaSO_4 \cdot 2H_2O$)		Anhydrite ($CaSO_4$)	
Temp	Press.	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)
80°F	15 psi	1.23	0.272	1.61	708.236	-0.04	0.000	-0.28	0.000
99°F	24 psi	1.08	0.264	1.64	714.200	-0.04	0.000	-0.20	0.000
118°F	34 psi	0.95	0.256	1.71	729.395	-0.03	0.000	-0.11	0.000
137°F	43 psi	0.85	0.248	1.80	747.203	-0.01	0.000	0.00	0.000
156°F	53 psi	0.77	0.240	1.90	765.588	0.02	22.548	0.12	123.251
174°F	62 psi	0.71	0.232	2.00	783.823	0.05	64.875	0.25	237.853
193°F	72 psi	0.67	0.227	2.13	801.657	0.08	111.078	0.38	339.982
212°F	81 psi	0.64	0.222	2.25	820.220	0.12	158.861	0.52	428.326
231°F	91 psi	0.62	0.220	2.39	837.871	0.16	206.282	0.66	502.696
250°F	100 psi	0.62	0.219	2.52	854.662	0.20	251.755	0.81	563.721

Conditions		Celestite ($SrSO_4$)		Halite (NaCl)		Iron Sulfide (FeS)		Iron Carbonate ($FeCO_3$)	
Temp	Press.	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)
80°F	15 psi	-0.23	0.000	-3.54	0.000	3.29	0.700	0.64	0.709
99°F	24 psi	-0.22	0.000	-3.57	0.000	3.19	0.700	0.73	0.751
118°F	34 psi	-0.21	0.000	-3.58	0.000	3.16	0.700	0.85	0.793
137°F	43 psi	-0.18	0.000	-3.59	0.000	3.17	0.700	0.98	0.826
156°F	53 psi	-0.14	0.000	-3.59	0.000	3.20	0.700	1.11	0.851
174°F	62 psi	-0.09	0.000	-3.59	0.000	3.25	0.700	1.23	0.869
193°F	72 psi	-0.02	0.000	-3.59	0.000	3.33	0.700	1.37	0.883
212°F	81 psi	0.05	1.393	-3.58	0.000	3.42	0.700	1.49	0.893
231°F	91 psi	0.13	3.389	-3.57	0.000	3.52	0.700	1.61	0.900
250°F	100 psi	0.22	5.194	-3.56	0.000	3.63	0.700	1.73	0.905

Note 1: When assessing the severity of the scale problem, both the saturation index (SI) and amount of scale must be considered

Note 2: Precipitation of each scale is considered separately. Total scale will be less than the sum of the amounts of the eight (8) scales.

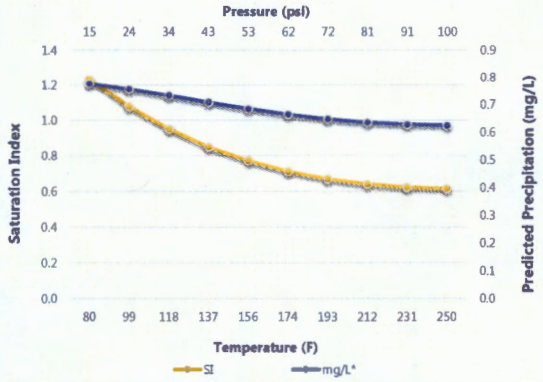
Note 3: Saturation Index predictions on this sheet use pH and alkalinity; $\%CO_2$ is not included in the calculations.

ScaleSoftPitzer™
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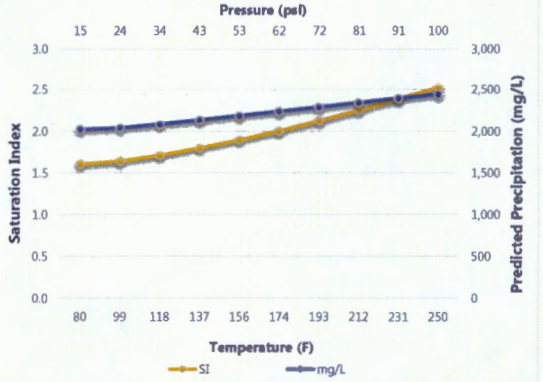
Comments:

SAMPLE ID: 201601014862 OCCIDENTAL PERMIAN EOR, HOBBS, NHSAU CTB CHARGE PUMP 1 B

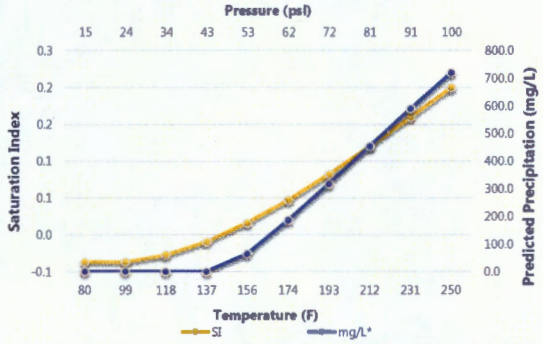
Barite (BaSO4)



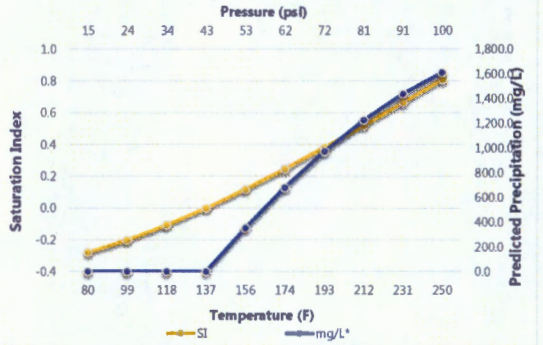
Calcite (CaCO3)



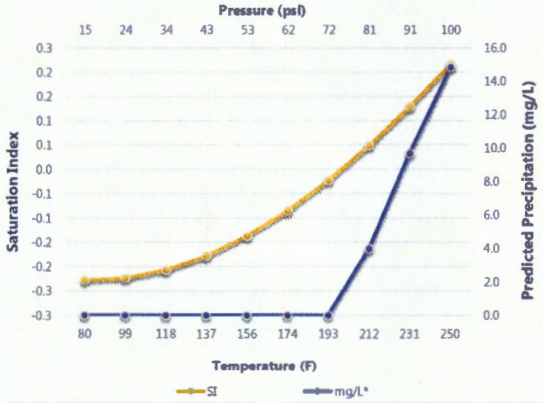
Gypsum (CaSO4·2H2O)



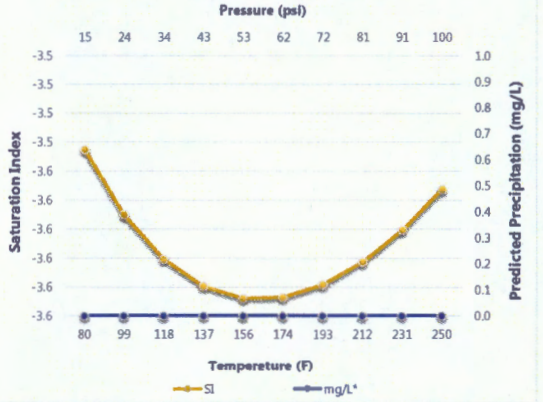
Anhydrite (CaSO4)



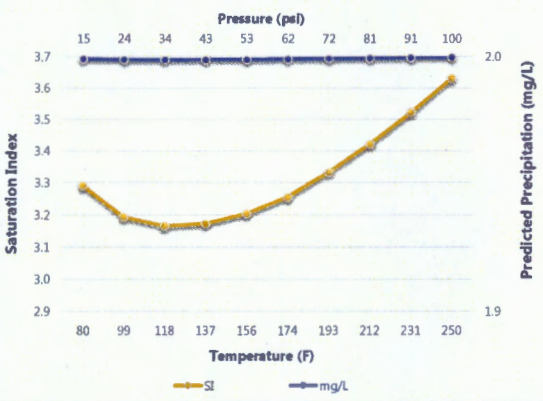
Celestite (SrSO4)



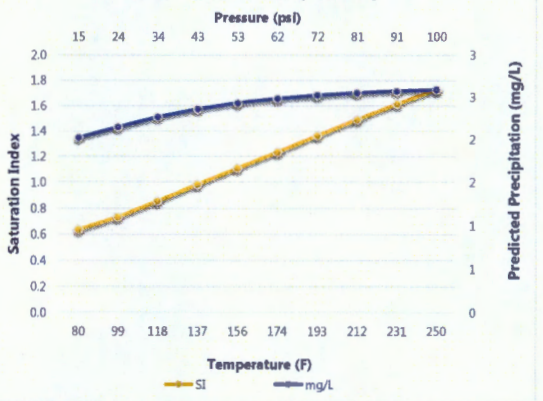
Halite (NaCl)



Iron Sulfide (FeS)



Iron Carbonate (FeCO3)



SCALE PREDICTIONS BASED ON FIELD PROVIDED DATA; FUTHER MODELING MAY BE REQUIRED FOR VALIDATION OF SCALE PREDICTION RESULTS.

BAKER HUGHES

Permian Basin Area Laboratory
2101 Market Street,
Midland, Texas 79703

Upstream Chemicals

REPORT DATE: 2/28/2017

COMPLETE WATER ANALYSIS REPORT SSP v.2010

CUSTOMER:	OCCIDENTAL PERMIAN EOR	**ACCOUNT REP:**	SHANNON LEE
DISTRICT:	NEW MEXICO	**SAMPLE ID:**	201601015029
AREA/LEASE:	HOBBS	**SAMPLE DATE:**	4/5/2016
SAMPLE POINT NAME	NHSAU N INJ BTRY CHARGE PUMP	**ANALYSIS DATE:**	4/11/2016
SITE TYPE:	FACILITY	**ANALYST:**	HECTOR MARTINEZ
SAMPLE POINT DESCRIPTION:	OUTLET		

OCCIDENTAL PERMIAN EOR, HOBBS, NHSAU N INJ BTRY CHARGE PUMP

FIELD DATA	
Initial Temperature (°F):	250
Final Temperature (°F):	80
Initial Pressure (psi):	100
Final Pressure (psi):	15
pH:	
pH at time of sampling:	6.5

ALKALINITY BY TITRATION:	mg/L	meq/L
Bicarbonate (HCO_3^-):	2965.0	48.6
Carbonate (CO_3^{2-}):	ND	
Hydroxide (OH^-):	ND	

aqueous CO_2 (ppm):	250.0
aqueous H_2S (ppm):	119.0
aqueous O2 (ppb):	ND
Calculated TDS (mg/L):	13063
Density/Specific Gravity (g/cm³):	1.0068
Measured Specific Gravity	1.0106
Conductivity (mmhos):	ND
Resistivity:	ND
MCF/D:	No Data
BOPD:	No Data
BWPD:	No Data

ANALYSIS OF SAMPLE — ANIONS:	mg/L	meq/L
Chloride (Cl^-):	5221.3	147.3
Sulfate (SO_4^{2-}):	686.3	14.3
Borate (H_3BO_3):	12.3	0.2
Fluoride (F^-):	ND	
Bromide (Br^-):	ND	
Nitrite (NO_2^-):	ND	
Nitrate (NO_3^-):	ND	
Phosphate (PO_4^{3-}):	ND	
Silica (SiO_2):	ND	

ORGANIC ACIDS:	mg/L	meq/L
Formic Acid:	ND	
Acetic Acid:	ND	
Propionic Acid:	ND	
Butyric Acid:	ND	
Valeric Acid:	ND	
Anion/Cation Ratio:	1.07	

CATIONS:	mg/L	meq/L
Sodium (Na^+):	2976.3	129.5
Potassium (K^+):	129.7	3.3
Magnesium (Mg^{2+}):	311.9	25.7
Calcium (Ca^{2+}):	753.7	37.6
Strontium (Sr^{2+}):	17.0	0.4
Barium (Ba^{2+}):	0.6	0.0
Iron (Fe^{2+}):	1.3	0.0
Manganese (Mn^{2+}):	0.0	0.0
Lead (Pb^{2+}):	ND	
Zinc (Zn^{2+}):	0.0	0.0
Aluminum (Al^{3+}):	ND	
Chromium (Cr^{3+}):	ND	
Cobalt (Co^{2+}):	ND	
Copper (Cu^{2+}):	ND	
Molybdenum (Mo^{2+}):	ND	
Nickel (Ni^{2+}):	ND	
Tin (Sn^{2+}):	ND	
Titanium (Ti^{2+}):	ND	
Vanadium (V^{2+}):	ND	
Zirconium (Zr^{2+}):	ND	
Total Hardness:	3189	N/A

ND = Not Determined

SCALE PREDICTIONS BASED ON FIELD PROVIDED DATA; FUTHER MODELING MAY BE REQUIRED FOR VALIDATION OF SCALE PREDICTION RESULTS.

Conditions		Barite ($BaSO_4$)		Calcite ($CaCO_3$)		Gypsum ($CaSO_4 \cdot 2H_2O$)		Anhydrite ($CaSO_4$)	
Temp	**Press.**	**Index**	**Amt (ptb)**	**Index**	**Amt (ptb)**	**Index**	**Amt (ptb)**	**Index**	**Amt (ptb)**
80°F	15 psi	1.06	0.319	1.01	407.934	-0.48	0.000	-0.72	0.000
99°F	24 psi	0.91	0.306	1.05	415.297	-0.48	0.000	-0.65	0.000
118°F	34 psi	0.78	0.291	1.14	435.993	-0.47	0.000	-0.55	0.000
137°F	43 psi	0.68	0.276	1.24	460.212	-0.45	0.000	-0.45	0.000
156°F	53 psi	0.60	0.262	1.38	485.124	-0.43	0.000	-0.33	0.000
174°F	62 psi	0.54	0.249	1.52	511.091	-0.40	0.000	-0.20	0.000
193°F	72 psi	0.50	0.239	1.66	534.452	-0.36	0.000	-0.06	0.000
212°F	81 psi	0.48	0.232	1.80	555.361	-0.32	0.000	0.08	44.483
231°F	91 psi	0.46	0.229	1.95	573.946	-0.27	0.000	0.23	111.766
250°F	100 psi	0.46	0.228	2.10	590.306	-0.23	0.000	0.38	166.624

Conditions		Celestite ($SrSO_4$)		Halite (NaCl)		Iron Sulfide (FeS)		Iron Carbonate ($FeCO_3$)	
Temp	**Press.**	**Index**	**Amt (ptb)**	**Index**	**Amt (ptb)**	**Index**	**Amt (ptb)**	**Index**	**Amt (ptb)**
80°F	15 psi	-0.51	0.000	-3.59	0.000	2.13	0.714	0.22	0.382
99°F	24 psi	-0.51	0.000	-3.61	0.000	2.05	0.712	0.32	0.498
118°F	34 psi	-0.49	0.000	-3.63	0.000	2.06	0.713	0.47	0.622
137°F	43 psi	-0.46	0.000	-3.63	0.000	2.11	0.713	0.61	0.717
156°F	53 psi	-0.42	0.000	-3.64	0.000	2.20	0.714	0.78	0.789
174°F	62 psi	-0.37	0.000	-3.64	0.000	2.31	0.715	0.94	0.837
193°F	72 psi	-0.30	0.000	-3.63	0.000	2.42	0.716	1.09	0.870
212°F	81 psi	-0.23	0.000	-3.62	0.000	2.54	0.717	1.23	0.891
231°F	91 psi	-0.15	0.000	-3.61	0.000	2.66	0.717	1.36	0.906
250°F	100 psi	-0.06	0.000	-3.60	0.000	2.79	0.718	1.49	0.917

Note 1: When assessing the severity of the scale problem, both the saturation index (SI) and amount of scale must be considered

Note 2: Precipitation of each scale is considered separately. Total scale will be less than the sum of the amounts of the eight (8) scales.

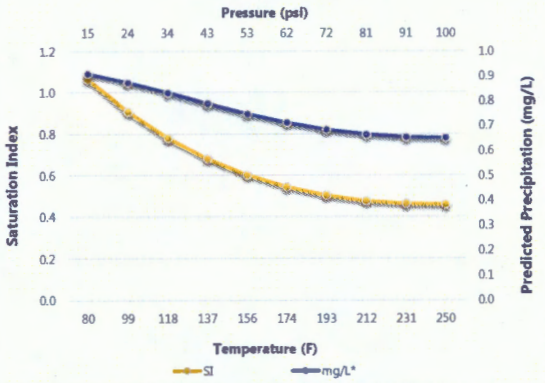
Note 3: Saturation Index predictions on this sheet use pH and alkalinity; $\%CO_2$ is not included in the calculations.

ScaleSoftPitzer™
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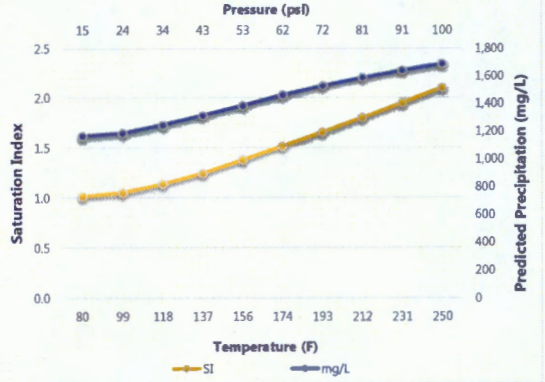
Comments:

SAMPLE ID: 201601015029 OCCIDENTAL PERMIAN EOR, HOBBS, NHSAU N INJ BTRY CHARGE PUMP

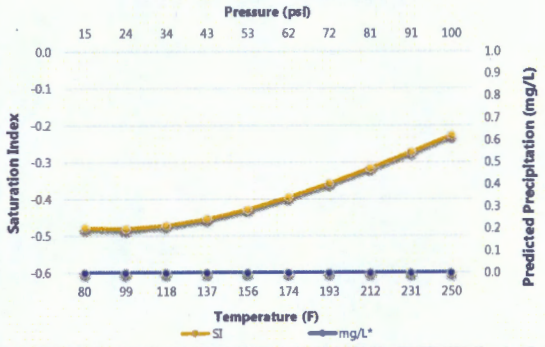
Barite (BaSO4)



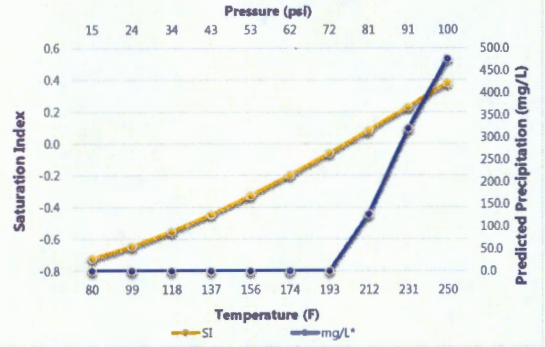
Calcite (CaCO3)



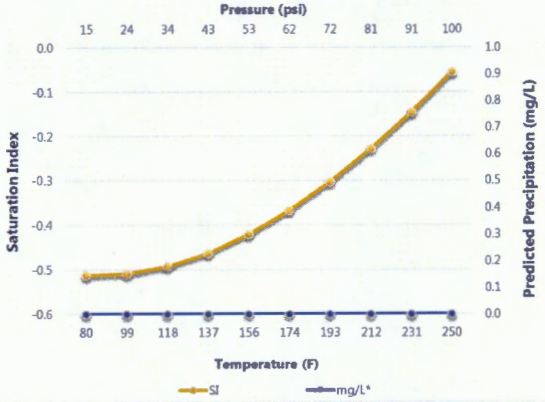
Gypsum (CaSO4·2H2O)



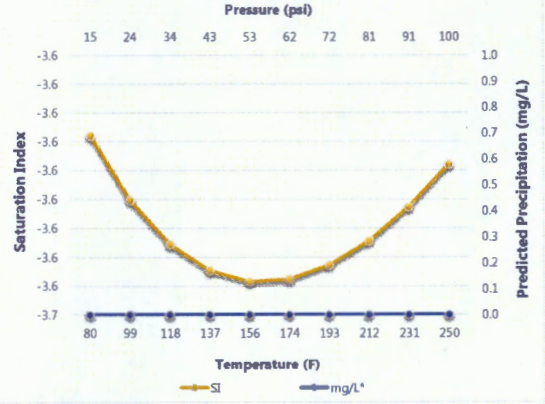
Anhydrite (CaSO4)



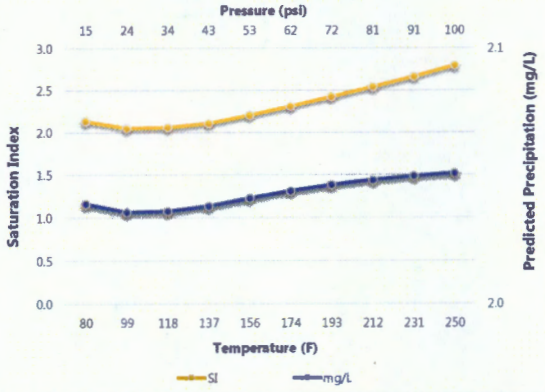
Celestite (SrSO4)



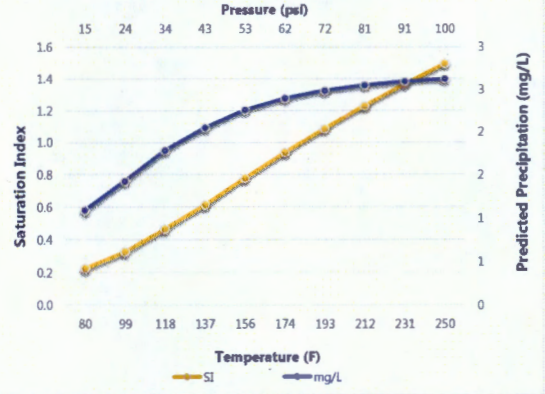
Halite (NaCl)



Iron Sulfide (FeS)



Iron Carbonate (FeCO3)



SCALE PREDICTIONS BASED ON FIELD PROVIDED DATA; FUTHER MODELING MAY BE REQUIRED FOR VALIDATION OF SCALE PREDICTION RESULTS.

BAKER HUGHES

Permian Basin Area Laboratory
2101 Market Street,
Midland, Texas 79703

Upstream Chemicals

REPORT DATE: 3/15/2017

COMPLETE WATER ANALYSIS REPORT SSP v.2010

CUSTOMER:	OCCIDENTAL PERMIAN EOR	**ACCOUNT REP:**	SHANNON LEE
DISTRICT:	NEW MEXICO	**SAMPLE ID:**	201701011085
AREA/LEASE:	HOBBS	**SAMPLE DATE:**	3/9/2017
SAMPLE POINT NAME	NHSAU RANCH HOUSE	**ANALYSIS DATE:**	3/15/2017
SITE TYPE:	FACILITY	**ANALYST:**	FR
SAMPLE POINT DESCRIPTION:	SEE COMMENTS		

OCCIDENTAL PERMIAN EOR, HOBBS, NHSAU RANCH HOUSE

FIELD DATA	
Initial Temperature (°F):	135
Final Temperature (°F):	80
Initial Pressure (psi):	1800
Final Pressure (psi):	15
pH:	
pH at time of sampling:	7.5

ALKALINITY BY TITRATION:	mg/L	meq/L
Bicarbonate (HCO_3^-):	97.6	1.6
Carbonate (CO_3^{2-}):	ND	
Hydroxide (OH^-):	ND	

aqueous CO_2 (ppm):	20.0
aqueous H_2S (ppm):	0.0
aqueous O2 (ppb):	ND
Calculated TDS (mg/L):	354
Density/Specific Gravity (g/cm³):	0.9974
Measured Specific Gravity	1.0006
Conductivity (mmhos):	ND
Resistivity:	ND
MCF/D:	No Data
BOPD:	No Data
BWPD:	No Data

ANALYSIS OF SAMPLE — ANIONS:	mg/L	meq/L
Chloride (Cl^-):	48.0	1.4
Sulfate (SO_4^{2-}):	62.0	1.3
Borate (H_3BO_3):	0.7	0.0
Fluoride (F^-):	ND	
Bromide (Br^-):	ND	
Nitrite (NO_2^-):	ND	
Nitrate (NO_3^-):	ND	
Phosphate (PO_4^{3-}):	ND	
Silica (SiO_2):	ND	

ORGANIC ACIDS:	mg/L	meq/L
Formic Acid:	ND	
Acetic Acid:	ND	
Propionic Acid:	ND	
Butyric Acid:	ND	
Valeric Acid:	ND	
Anion/Cation Ratio:		0.60

CATIONS:	mg/L	meq/L
Sodium (Na^+):	50.0	2.2
Potassium (K^+):	3.3	0.1
Magnesium (Mg^{2+}):	11.7	1.0
Calcium (Ca^{2+}):	71.2	3.6
Strontium (Sr^{2+}):	0.8	0.0
Barium (Ba^{2+}):	0.1	0.0
Iron (Fe^{2+}):	7.2	0.3
Manganese (Mn^{2+}):	0.0	0.0
Lead (Pb^{2+}):	ND	
Zinc (Zn^{2+}):	2.1	0.1
Aluminum (Al^{3+}):	0.0	0.0
Chromium (Cr^{3+}):	ND	
Cobalt (Co^{2+}):	ND	
Copper (Cu^{2+}):	0.2	0.0
Molybdenum (Mo^{2+}):	ND	
Nickel (Ni^{2+}):	ND	
Tin (Sn^{2+}):	ND	
Titanium (Ti^{2+}):	ND	
Vanadium (V^{2+}):	ND	
Zirconium (Zr^{2+}):	ND	
Lithium (LI):	ND	
Total Hardness:	227	N/A

ND = Not Determined

SCALE PREDICTIONS BASED ON FIELD PROVIDED DATA; FUTHER MODELING MAY BE REQUIRED FOR VALIDATION OF SCALE PREDICTION RESULTS.

Conditions		Barite ($BaSO_4$)		Calcite ($CaCO_3$)		Gypsum ($CaSO_4 \cdot 2H_2O$)		Anhydrite ($CaSO_4$)	
Temp	Press.	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)
80°F	15 psi	0.14	0.013	-0.08	0.000	-1.68	0.000	-1.93	0.000
86°F	213 psi	0.07	0.007	-0.21	0.000	-1.69	0.000	-1.91	0.000
92°F	412 psi	0.02	0.002	-0.17	0.000	-1.69	0.000	-1.90	0.000
98°F	610 psi	-0.04	0.000	-0.13	0.000	-1.70	0.000	-1.88	0.000
104°F	808 psi	-0.09	0.000	-0.09	0.000	-1.70	0.000	-1.86	0.000
111°F	1007 psi	-0.14	0.000	-0.05	0.000	-1.71	0.000	-1.84	0.000
117°F	1205 psi	-0.18	0.000	-0.01	0.000	-1.71	0.000	-1.81	0.000
123°F	1403 psi	-0.23	0.000	0.04	0.529	-1.71	0.000	-1.79	0.000
129°F	1602 psi	-0.27	0.000	0.08	1.151	-1.71	0.000	-1.76	0.000
135°F	1800 psi	-0.30	0.000	0.12	1.784	-1.71	0.000	-1.73	0.000

Conditions		Celestite ($SrSO_4$)		Halite (NaCl)		Iron Sulfide (FeS)		Iron Carbonate ($FeCO_3$)	
Temp	Press.	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)
80°F	15 psi	-1.96	0.000	-7.20	0.000	-7.67	0.000	0.69	3.582
86°F	213 psi	-1.96	0.000	-7.21	0.000	-7.88	0.000	0.59	3.215
92°F	412 psi	-1.97	0.000	-7.22	0.000	-7.87	0.000	0.65	3.435
98°F	610 psi	-1.97	0.000	-7.23	0.000	-7.86	0.000	0.71	3.634
104°F	808 psi	-1.98	0.000	-7.24	0.000	-7.84	0.000	0.77	3.812
111°F	1007 psi	-1.98	0.000	-7.24	0.000	-7.82	0.000	0.83	3.973
117°F	1205 psi	-1.98	0.000	-7.25	0.000	-7.80	0.000	0.89	4.115
123°F	1403 psi	-1.98	0.000	-7.25	0.000	-7.78	0.000	0.95	4.242
129°F	1602 psi	-1.97	0.000	-7.26	0.000	-7.76	0.000	1.01	4.355
135°F	1800 psi	-1.97	0.000	-7.26	0.000	-7.73	0.000	1.06	4.454

Note 1: When assessing the severity of the scale problem, both the saturation index (SI) and amount of scale must be considered

Note 2: Precipitation of each scale is considered separately. Total scale will be less than the sum of the amounts of the eight (8) scales.

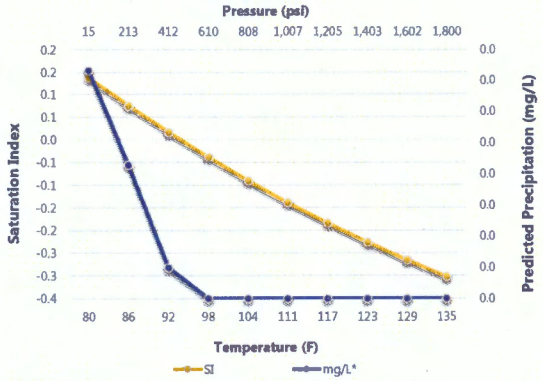
Note 3: Saturation Index predictions on this sheet use pH and alkalinity; $\%CO_2$ is not included in the calculations.

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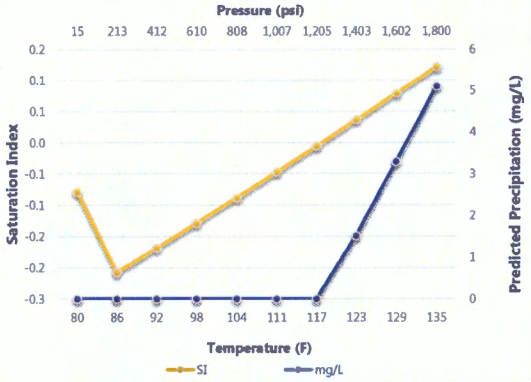
Comments:

SAMPLE ID: 201701011085 OCCIDENTAL PERMIAN EOR, HOBBS, NHSAU RANCH HOUSE

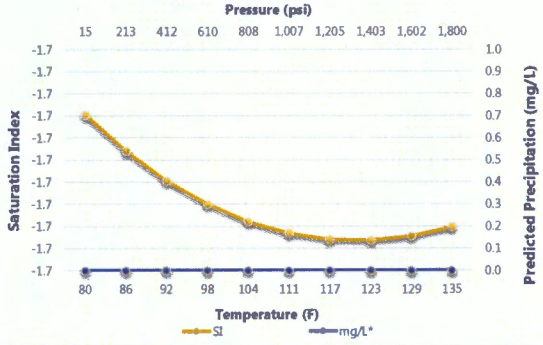
Barite (BaSO4)



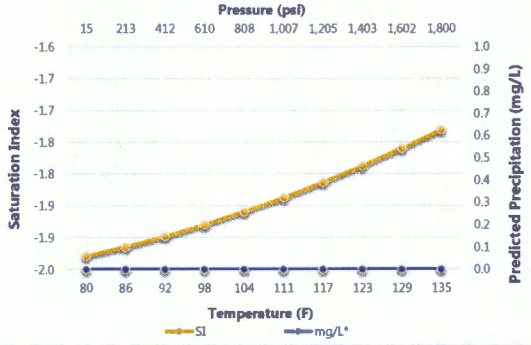
Calcite (CaCO3)



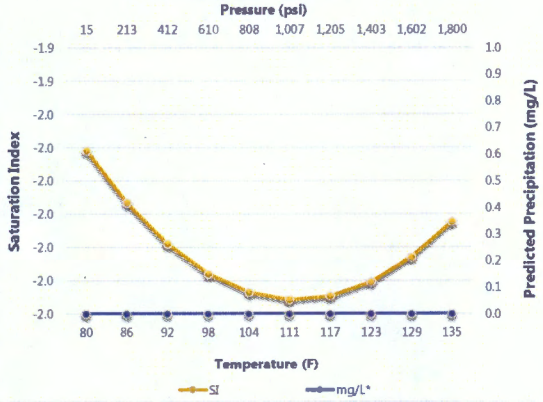
Gypsum (CaSO4·2H2O)



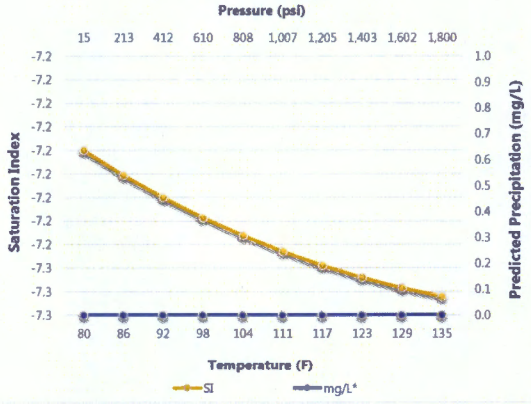
Anhydrite (CaSO4)



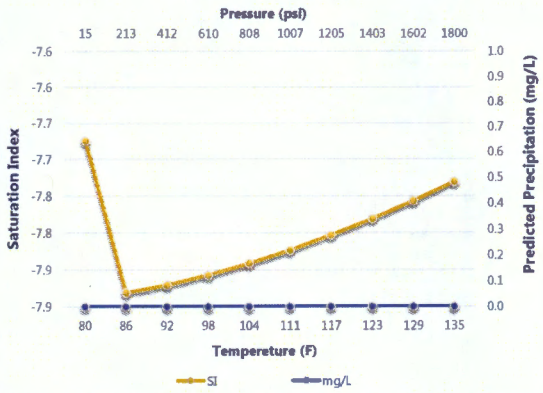
Celestite (SrSO4)



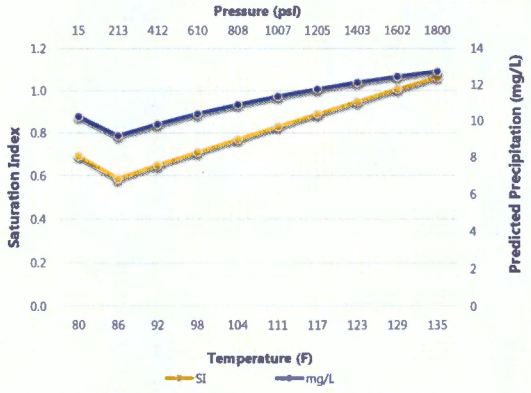
Halite (NaCl)



Iron Sulfide (FeS)



Iron Carbonate (FeCO3)



SCALE PREDICTIONS BASED ON FIELD PROVIDED DATA; FUTHER MODELING MAY BE REQUIRED FOR VALIDATION OF SCALE PREDICTION RESULTS.

BAKER HUGHES

Permian Basin Area Laboratory
2101 Market Street,
Midland, Texas 79703

Upstream Chemicals

REPORT DATE: 3/15/2017

COMPLETE WATER ANALYSIS REPORT SSP v.2010

CUSTOMER:	OCCIDENTAL PERMIAN EOR	**ACCOUNT REP:**	SHANNON LEE
DISTRICT:	NEW MEXICO	**SAMPLE ID:**	201701011083
AREA/LEASE:	HOBBS	**SAMPLE DATE:**	3/9/2017
SAMPLE POINT NAME	NHSAU WINDMILL 1	**ANALYSIS DATE:**	3/15/2017
SITE TYPE:	FACILITY	**ANALYST:**	FR
SAMPLE POINT DESCRIPTION:	SEE COMMENTS		

OCCIDENTAL PERMIAN EOR, HOBBS, NHSAU WINDMILL 1

FIELD DATA	
Initial Temperature (°F):	135
Final Temperature (°F):	80
Initial Pressure (psi):	1800
Final Pressure (psi):	15
pH:	
pH at time of sampling:	8.8

ALKALINITY BY TITRATION:	mg/L	meq/L
Bicarbonate (HCO_3):	61.0	1.0
Carbonate (CO_3^{2-}):	ND	
Hydroxide (OH^-):	ND	

aqueous CO_2 (ppm):	0.0
aqueous H_2S (ppm):	0.0
aqueous O2 (ppb):	ND
Calculated TDS (mg/L):	307
Density/Specific Gravity (g/cm³):	0.9973
Measured Specific Gravity	1.0005
Conductivity (mmhos):	ND
Resistivity:	ND
MCF/D:	No Data
BOPD:	No Data
BWPD:	No Data

ANALYSIS OF SAMPLE — ANIONS:	mg/L	meq/L
Chloride (Cl^-):	53.0	1.5
Sulfate (SO_4^{2-}):	75.0	1.6
Borate (H_3BO_3):	1.0	0.0
Fluoride (F^-):	ND	
Bromide (Br^-):	ND	
Nitrite (NO_2^-):	ND	
Nitrate (NO_3^-):	ND	
Phosphate (PO_4^{3-}):	ND	
Silica (SiO_2):	ND	

ORGANIC ACIDS:	mg/L	meq/L
Formic Acid:	ND	
Acetic Acid:	ND	
Propionic Acid:	ND	
Butyric Acid:	ND	
Valeric Acid:	ND	
Anion/Cation Ratio:		0.71

CATIONS:	mg/L	meq/L
Sodium (Na^+):	65.0	2.8
Potassium (K^+):	1.9	0.0
Magnesium (Mg^{2+}):	11.0	0.9
Calcium (Ca^{2+}):	37.9	1.9
Strontium (Sr^{2+}):	0.6	0.0
Barium (Ba^{2+}):	0.1	0.0
Iron (Fe^{2+}):	1.6	0.1
Manganese (Mn^{2+}):	0.0	0.0
Lead (Pb^{2+}):	0.2	0.0
Zinc (Zn^{2+}):	0.4	0.0
Aluminum (Al^{3+}):	0.1	0.0
Chromium (Cr^{3+}):	ND	
Cobalt (Co^{2+}):	ND	
Copper (Cu^{2+}):	0.0	0.0
Molybdenum (Mo^{2+}):	0.2	0.0
Nickel (Ni^{2+}):	ND	
Tin (Sn^{2+}):	ND	
Titanium (Ti^{2+}):	ND	
Vanadium (V^{2+}):	ND	
Zirconium (Zr^{2+}):	ND	
Lithium (Li^+):	ND	
Total Hardness:	141	N/A

ND = Not Determined

SCALE PREDICTIONS BASED ON FIELD PROVIDED DATA; FUTHER MODELING MAY BE REQUIRED FOR VALIDATION OF SCALE PREDICTION RESULTS.

Conditions		Barite ($BaSO_4$)		Calcite ($CaCO_3$)		Gypsum ($CaSO_4 \cdot 2H_2O$)		Anhydrite ($CaSO_4$)	
Temp	Press.	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)
80°F	15 psi	0.13	0.009	0.70	2.537	-1.83	0.000	-2.08	0.000
86°F	213 psi	0.07	0.005	0.67	2.201	-1.84	0.000	-2.07	0.000
92°F	412 psi	0.01	0.001	0.67	2.286	-1.85	0.000	-2.05	0.000
98°F	610 psi	-0.04	0.000	0.67	2.377	-1.85	0.000	-2.03	0.000
104°F	808 psi	-0.09	0.000	0.66	2.475	-1.86	0.000	-2.01	0.000
111°F	1007 psi	-0.14	0.000	0.66	2.580	-1.86	0.000	-1.99	0.000
117°F	1205 psi	-0.19	0.000	0.66	2.692	-1.86	0.000	-1.97	0.000
123°F	1403 psi	-0.23	0.000	0.65	2.810	-1.86	0.000	-1.94	0.000
129°F	1602 psi	-0.27	0.000	0.65	2.935	-1.86	0.000	-1.91	0.000
135°F	1800 psi	-0.30	0.000	0.64	3.066	-1.86	0.000	-1.88	0.000

Conditions		Celestite ($SrSO_4$)		Halite (NaCl)		Iron Sulfide (FeS)		Iron Carbonate ($FeCO_3$)	
Temp	Press.	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)
80°F	15 psi	-1.93	0.000	-7.04	0.000	-6.95	0.000	1.08	1.021
86°F	213 psi	-1.93	0.000	-7.05	0.000	-7.03	0.000	1.08	1.012
92°F	412 psi	-1.94	0.000	-7.06	0.000	-7.08	0.000	1.10	1.022
98°F	610 psi	-1.94	0.000	-7.06	0.000	-7.13	0.000	1.12	1.031
104°F	808 psi	-1.95	0.000	-7.07	0.000	-7.18	0.000	1.14	1.039
111°F	1007 psi	-1.95	0.000	-7.08	0.000	-7.22	0.000	1.15	1.046
117°F	1205 psi	-1.95	0.000	-7.08	0.000	-7.26	0.000	1.17	1.053
123°F	1403 psi	-1.94	0.000	-7.09	0.000	-7.30	0.000	1.18	1.058
129°F	1602 psi	-1.94	0.000	-7.09	0.000	-7.33	0.000	1.19	1.063
135°F	1800 psi	-1.93	0.000	-7.10	0.000	-7.37	0.000	1.20	1.068

Note 1: When assessing the severity of the scale problem, both the saturation index (SI) and amount of scale must be considered

Note 2: Precipitation of each scale is considered separately. Total scale will be less than the sum of the amounts of the eight (8) scales.

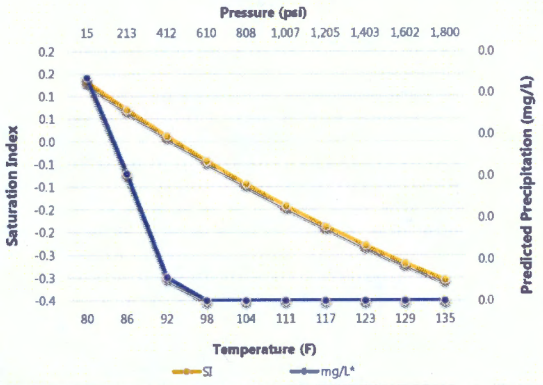
Note 3: Saturation Index predictions on this sheet use pH and alkalinity; $\%CO_2$ is not included in the calculations.

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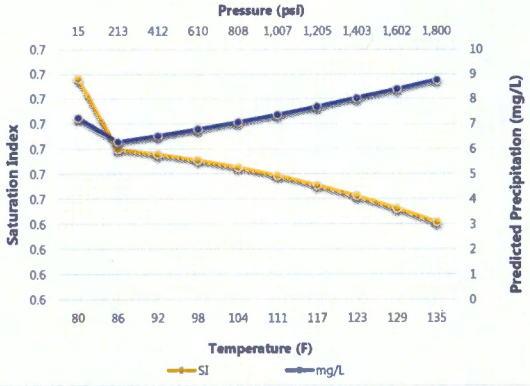
Comments:

SAMPLE ID: 201701011083 OCCIDENTAL PERMIAN EOR, HOBBS, NHSAU WINDMILL 1

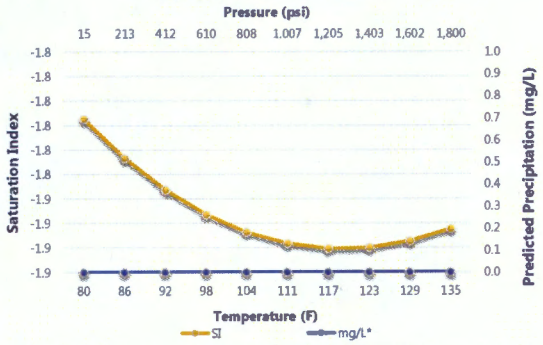
Barite (BaSO4)



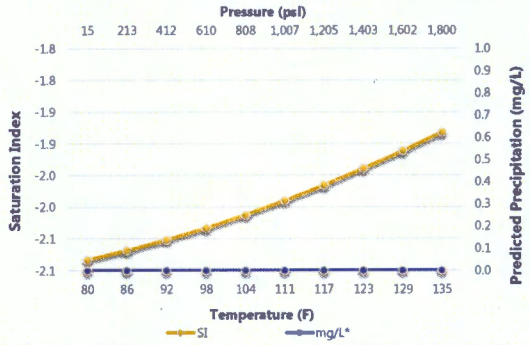
Calcite (CaCO3)



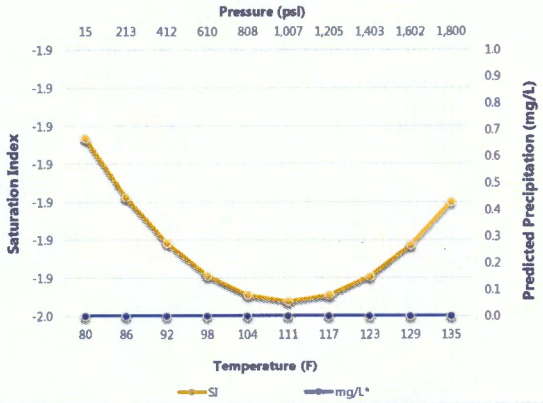
Gypsum (CaSO4·2H2O)



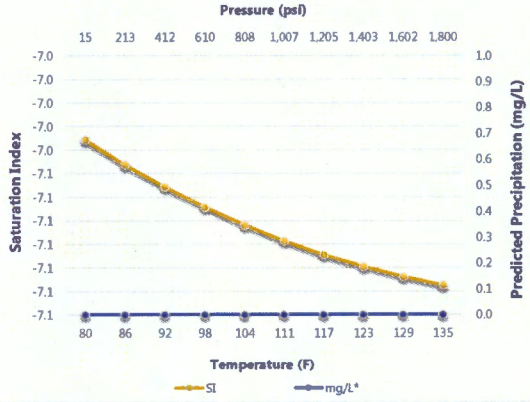
Anhydrite (CaSO4)



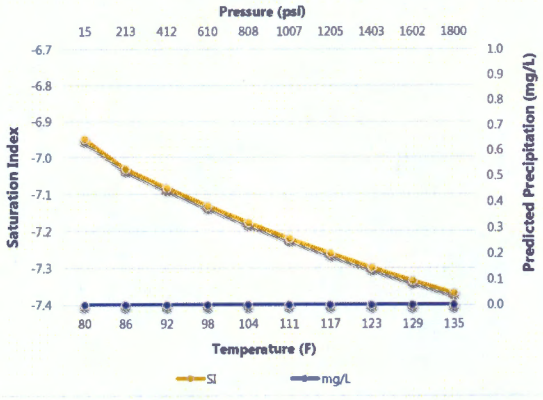
Celestite (SrSO4)



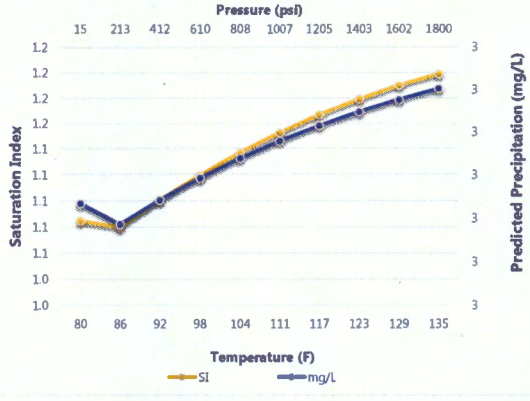
Halite (NaCl)



Iron Sulfide (FeS)



Iron Carbonate (FeCO3)



SCALE PREDICTIONS BASED ON FIELD PROVIDED DATA; FUTHER MODELING MAY BE REQUIRED FOR VALIDATION OF SCALE PREDICTION RESULTS.

BAKER HUGHES

Permian Basin Area Laboratory
2101 Market Street,
Midland, Texas 79703

Upstream Chemicals

REPORT DATE: 3/15/2017

COMPLETE WATER ANALYSIS REPORT SSP v.2010

CUSTOMER:	OCCIDENTAL PERMIAN EOR	**ACCOUNT REP:**	SHANNON LEE
DISTRICT:	NEW MEXICO	**SAMPLE ID:**	201701011084
AREA/LEASE:	HOBBS	**SAMPLE DATE:**	3/9/2017
SAMPLE POINT NAME	NHSAU WINDMILL 2	**ANALYSIS DATE:**	3/15/2017
SITE TYPE:	FACILITY	**ANALYST:**	FR
SAMPLE POINT DESCRIPTION:	SEE COMMENTS		

OCCIDENTAL PERMIAN EOR, HOBBS, NHSAU WINDMILL 2

FIELD DATA

Initial Temperature (°F):	135
Final Temperature (°F):	80
Initial Pressure (psi):	1800
Final Pressure (psi):	15
pH:	
pH at time of sampling:	7.6

ALKALINITY BY TITRATION:	mg/L	meq/L
Bicarbonate (HCO_3^-):	97.6	1.6
Carbonate (CO_3^{2-}):	ND	
Hydroxide (OH^-):	ND	

aqueous CO_2 (ppm):	10.0
aqueous H_2S (ppm):	0.0
aqueous O2 (ppb):	ND
Calculated TDS (mg/L):	305
Density/Specific Gravity (g/cm³):	0.9973
Measured Specific Gravity	1.0005
Conductivity (mmhos):	ND
Resistivity:	ND
MCF/D:	No Data
BOPD:	No Data
BWPD:	No Data

ANALYSIS OF SAMPLE

ANIONS:	mg/L	meq/L
Chloride (Cl^-):	29.0	0.8
Sulfate (SO_4^{2-}):	44.0	0.9
Borate (H_3BO_3):	0.7	0.0
Fluoride (F^-):	ND	
Bromide (Br^-):	ND	
Nitrite (NO_2^-):	ND	
Nitrate (NO_3^-):	ND	
Phosphate (PO_4^{3-}):	ND	
Silica (SiO_2):	ND	

ORGANIC ACIDS:	mg/L	meq/L
Formic Acid:	ND	
Acetic Acid:	ND	
Propionic Acid:	ND	
Butyric Acid:	ND	
Valeric Acid:	ND	
Anion/Cation Ratio:		0.52

CATIONS:	mg/L	meq/L
Sodium (Na^+):	65.0	2.8
Potassium (K^+):	4.6	0.1
Magnesium (Mg^{2+}):	8.6	0.7
Calcium (Ca^{2+}):	54.4	2.7
Strontium (Sr^{2+}):	0.6	0.0
Barium (Ba^{2+}):	0.1	0.0
Iron (Fe^{2+}):	0.6	0.0
Manganese (Mn^{2+}):	0.1	0.0
Lead (Pb^{2+}):	0.0	0.0
Zinc (Zn^{2+}):	0.1	0.0
Aluminum (Al^{3+}):	0.0	0.0
Chromium (Cr^{3+}):	ND	
Cobalt (Co^{2+}):	ND	
Copper (Cu^{2+}):	0.0	0.0
Molybdenum (Mo^{2+}):	0.0	0.0
Nickel (Ni^{2+}):	ND	
Tin (Sn^{2+}):	ND	
Titanium (Ti^{2+}):	ND	
Vanadium (V^{2+}):	ND	
Zirconium (Zr^{2+}):	ND	
Lithium (Li):	ND	
Total Hardness:	172	N/A

ND = Not Determined

SCALE PREDICTIONS BASED ON FIELD PROVIDED DATA; FUTHER MODELING MAY BE REQUIRED FOR VALIDATION OF SCALE PREDICTION RESULTS.

Conditions		Barite ($BaSO_4$)		Calcite ($CaCO_3$)		Gypsum ($CaSO_4 \cdot 2H_2O$)		Anhydrite ($CaSO_4$)	
Temp	**Press.**	**Index**	**Amt (ptb)**	**Index**	**Amt (ptb)**	**Index**	**Amt (ptb)**	**Index**	**Amt (ptb)**
80°F	15 psi	-0.10	0.000	-0.08	0.000	-1.91	0.000	-2.16	0.000
86°F	213 psi	-0.16	0.000	-0.21	0.000	-1.92	0.000	-2.14	0.000
92°F	412 psi	-0.22	0.000	-0.17	0.000	-1.92	0.000	-2.13	0.000
98°F	610 psi	-0.27	0.000	-0.13	0.000	-1.93	0.000	-2.11	0.000
104°F	808 psi	-0.32	0.000	-0.09	0.000	-1.93	0.000	-2.09	0.000
111°F	1007 psi	-0.37	0.000	-0.05	0.000	-1.93	0.000	-2.06	0.000
117°F	1205 psi	-0.42	0.000	-0.01	0.000	-1.93	0.000	-2.04	0.000
123°F	1403 psi	-0.46	0.000	0.04	0.462	-1.93	0.000	-2.01	0.000
129°F	1602 psi	-0.50	0.000	0.08	1.010	-1.93	0.000	-1.99	0.000
135°F	1800 psi	-0.53	0.000	0.12	1.570	-1.93	0.000	-1.96	0.000

Conditions		Celestite ($SrSO_4$)		Halite (NaCl)		Iron Sulfide (FeS)		Iron Carbonate ($FeCO_3$)	
Temp	**Press.**	**Index**	**Amt (ptb)**	**Index**	**Amt (ptb)**	**Index**	**Amt (ptb)**	**Index**	**Amt (ptb)**
80°F	15 psi	-2.18	0.000	-7.30	0.000	-8.61	0.000	-0.26	0.000
86°F	213 psi	-2.19	0.000	-7.31	0.000	-8.81	0.000	-0.37	0.000
92°F	412 psi	-2.19	0.000	-7.32	0.000	-8.80	0.000	-0.31	0.000
98°F	610 psi	-2.20	0.000	-7.33	0.000	-8.79	0.000	-0.24	0.000
104°F	808 psi	-2.20	0.000	-7.33	0.000	-8.78	0.000	-0.18	0.000
111°F	1007 psi	-2.20	0.000	-7.34	0.000	-8.77	0.000	-0.12	0.000
117°F	1205 psi	-2.20	0.000	-7.35	0.000	-8.75	0.000	-0.06	0.000
123°F	1403 psi	-2.20	0.000	-7.35	0.000	-8.73	0.000	-0.01	0.000
129°F	1602 psi	-2.19	0.000	-7.36	0.000	-8.71	0.000	0.05	0.046
135°F	1800 psi	-2.19	0.000	-7.36	0.000	-8.68	0.000	0.11	0.093

Note 1: When assessing the severity of the scale problem, both the saturation index (SI) and amount of scale must be considered

Note 2: Precipitation of each scale is considered separately. Total scale will be less than the sum of the amounts of the eight (8) scales.

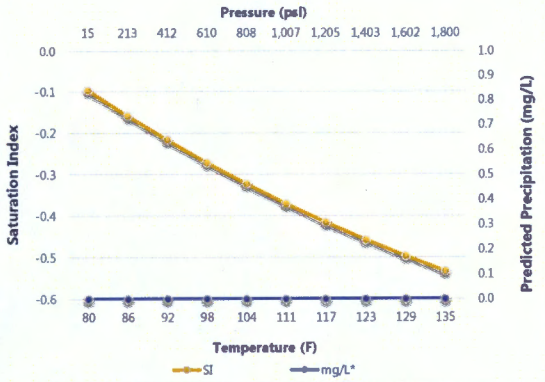
Note 3: Saturation Index predictions on this sheet use pH and alkalinity; $\%CO_2$ is not included in the calculations.

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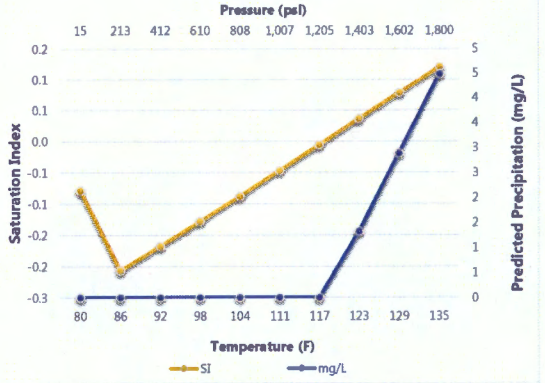
Comments:

SAMPLE ID: 201701011084 OCCIDENTAL PERMIAN EOR, HOBBS, NHSAU WINDMILL 2

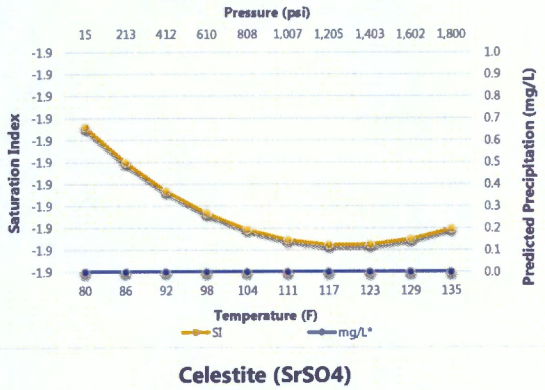
Barite (BaSO4)



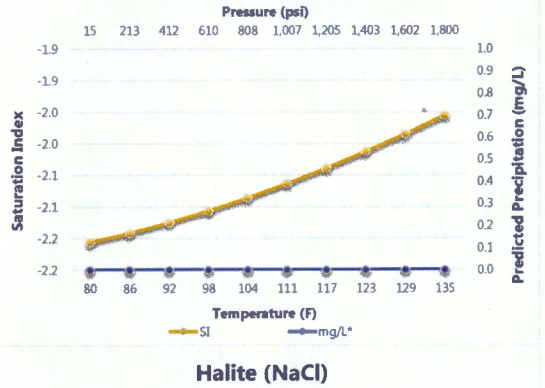
Calcite (CaCO3)



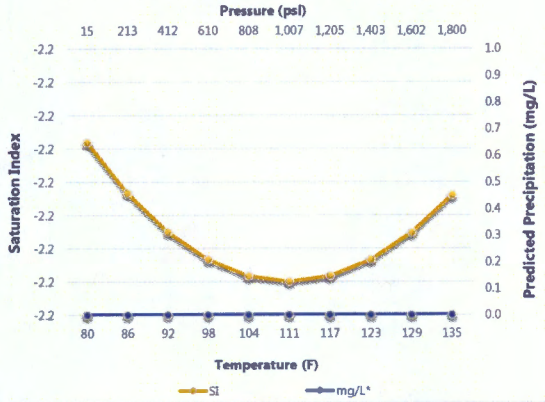
Gypsum (CaSO4·2H2O)



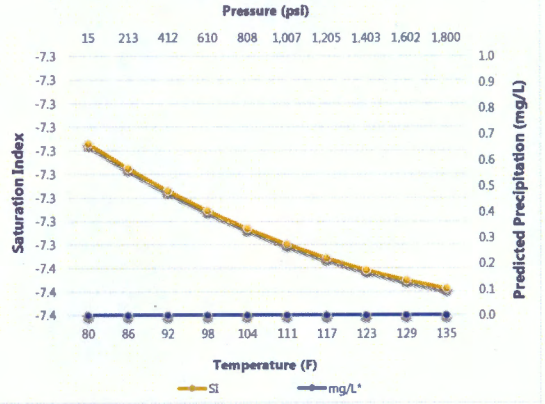
Anhydrite (CaSO4)



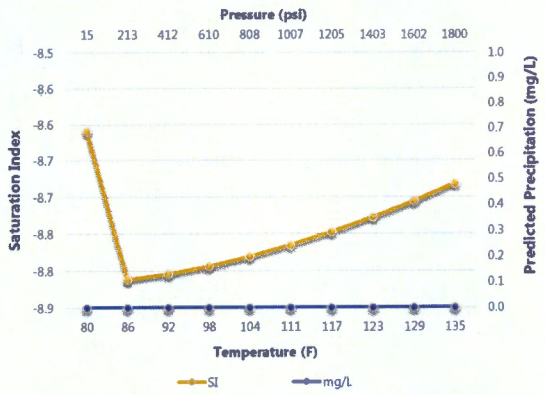
Celestite (SrSO4)



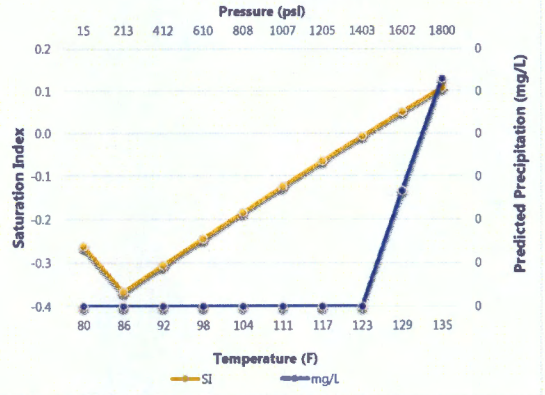
Halite (NaCl)



Iron Sulfide (FeS)



Iron Carbonate (FeCO3)



SCALE PREDICTIONS BASED ON FIELD PROVIDED DATA; FUTHER MODELING MAY BE REQUIRED FOR VALIDATION OF SCALE PREDICTION RESULTS.

Affidavit of Publication

STATE OF NEW MEXICO
COUNTY OF LEA

I, Daniel Russell, Publisher of the Hobbs News-Sun, a newspaper published at Hobbs, New Mexico, solemnly swear that the clipping attached hereto was published in the regular and entire issue of said newspaper, and not a supplement thereof for a period of 2 issue(s).

Beginning with the issue dated
January 05, 2019
and ending with the issue dated
January 06, 2019.

Daniel Russell
Publisher

Sworn and subscribed to before me this
6th day of January 2019.

Jessie Black
Business Manager

My commission expires
January 29, 2023
(Seal)

OFFICIAL SEAL
JESSIE BLACK
Notary Public
State of New Mexico
My Commission Expires 1-29-23

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

LEGALS

LEGAL NOTICE
JANUARY 5 through 22, 2019

NOTICE OF APPLICATION FOR FLUID DISPOSAL

Occidental Permian Ltd., P.O. Box 4294, Houston, TX 77210-4294 is applying for a disposal permit of produced water into a zone that is non productive of oil and gas. The applicant proposes to drill the Hobbs Guzzler SWD Well No. 1 located in Section 23, Township 18 South, Range 37 East, 440' FSL and 435' FWL in Lea County NM. Disposal will be in the San Andres formation from 4,780' – 5900' with a maximum injection rate of 30,000 BWPD and maximum injection pressure of 2000 PSI.

Interested parties must file objections or requests of hearings with the NM Oil Conservation Division, 1220 South Saint Francis Dr., Santa Fe, NM 87505 within 15 days of this application. Additional information may be obtained by contacting Mr. Scott Hodges, Occidental Permian Ltd., at (575) 397-8211, 1017 W. Stanolind Rd. Hobbs, NM 88240
#33608

67111848 00223034

TALENT ACQUISITION
OCCIDENTAL PERMIAN
5 GREENWAY PLAZA, STE 110
HOUSTON, TX 77046

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

Service List – C108 Application
Hobbs Guzzler SWD No. 1

Surface Owner Clerk:

State Land Office
PO Box 1148
Santa Fe, NM 87504

A C Ranch
817 N. Grimes
Hobbs, NM 88240

District Office:

NMOCD District 1
1625 N. French Drive
Hobbs, NM 88240

Offset Operators:

EOG A Resources, Inc
105 S. 4th Street
Arexia, NM 88210

Chevron USA, Inc
PO Box 1635
Houston, TX 77251

Oakspring Energy Holdings, LLC
3540 S. Blvd
Suite, 205
Edmond, OK 73013

**** OXY is also it's own offset operator in sections ***

I certify that the above listed parties were mailed copies of C-108, Application of Fluid Disposal.

April Hood
Regulatory Specialist

1/29/19
Date

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

January 7, 2019

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

RE: Amended SWD Application
Hobbs Guzzler SWD
Well No. 1
Letter M, Section 23, T-18S, R-37E
Lea County, NM

To Whom it May Concern:

Occidental Permian Ltd. respectfully request administrative approval, without hearing, to dispose produced water into the San Andres formation.

Please see the attached application as proof of notice.

If you have any questions regarding this application, please contact me at 713-366-5771 or email april_hood@oxy.com.

Sincerely,

April Hood

April Hood
Regulatory Specialist

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- ☐ Return Receipt (electronic) $
- ☐ Certified Mail Restricted Delivery $
- ☐ Adult Signature Required $
- ☐ Adult Signature Restricted Delivery $

Postage
$

Total Posta
$

Sent To — A C Ranch

Street and — 817 N. Grimes

City, State, — Hobbs, NM 88240

Postmark Here

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

7018 1630 0000 8832 5291

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- ☐ Return Receipt (electronic) $
- ☐ Certified Mail Restricted Delivery $
- ☐ Adult Signature Required $
- ☐ Adult Signature Restricted Delivery $

Postage
$

Total Post
$

Sent To — State Land Office

Street and — P.O. Box 1148

City, State, — Santa Fe, NM 87504

Postmark Here

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

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- ☐ Return Receipt (electronic) $
- ☐ Certified Mail Restricted Delivery $
- ☐ Adult Signature Required $
- ☐ Adult Signature Restricted Delivery $

Postage
$

Total Pc
$

Sent To — Oakspring Energy Holdings, LLC

Street a — 3540 S. Blvd., Suite 205

City, Sta — Edmond, OK 73013

Postmark Here

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

7018 1630 0000 8832 5246

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- ☐ Certified Mail Restricted Delivery $
- ☐ Adult Signature Required $
- ☐ Adult Signature Restricted Delivery $

Postage
$

Tot
$

Se — EOG A Resources, Inc

Str — 105 S. 4th Street

Cit — Artexia, NM 88210

Postmark Here

See Reverse for Instructions

7018 1630 0000 8832 5284

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
Domestic Mail Only

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Extra Services & Fees *(check box, add fee as appropriate)*
- ☐ Return Receipt (hardcopy) $
- ☐ Return Receipt (electronic) $
- ☐ Certified Mail Restricted Delivery $
- ☐ Adult Signature Required $
- ☐ Adult Signature Restricted Delivery $

Postage
$

Total Posta
$

Sent To — NMOCD District 1

Street and — 1625 N. French Drive

City, State, — Hobbs, NM 88240

Postmark Here

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

State Land Office

P.O. Box 1148

Santa Fe, NM 87504

9590 9402 4494 8248 5783 13

2. Article Number *(Transfer from service label)*

7018 1830 0000 8832 5291

COMPLETE THIS SECTION ON DELIVERY

A. Signature

X

☐ Agent
☐ Addressee

B. Received by *(Printed Name)*

C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☐ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☐ Return Receipt for Merchandise
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2015 PSN 7530-02-000-9053 Domestic Return Receipt

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

A C Ranch

817 N. Grimes

Hobbs, NM 88240

9590 9402 4494 8248 5782 90

2. Article Number *(Transfer from service label)*

7018 1830 0000 8832 5277

COMPLETE THIS SECTION ON DELIVERY

A. Signature

X Paul Stevens

☐ Agent
☐ Addressee

B. Received by *(Printed Name)* Paul Stevens

C. Date of Delivery 1-11-19

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☐ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☐ Return Receipt for Merchandise
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2015 PSN 7530-02-000-9053 Domestic Return Receipt

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1

NMOCD District 1

1625 N. French Drive

Hobbs, NM 88240

9590 9402 4494 8248 5783 06

2. Article Number *(Transfer from service label)*

7018 1830 0000 8832 5284

COMPLETE THIS SECTION ON DELIVERY

A. Signature

X

☐ Agent
☐ Addressee

B. Received by *(Printed Name)*

C. Date of Delivery 1-10-19

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☐ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☐ Return Receipt for Merchandise
☐ Signature Confirmation
☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2015 PSN 7530-02-000-9053 Domestic Return Receipt

USPS Tracking® FAQs > (https://www.usps.com/faqs/uspstracking-faqs.htm)

Track Another Package +

Tracking Number: 70181830000088325246 Remove ×

Expected Delivery on

THURSDAY
10 JANUARY 2019 ⓘ by **8:00pm** ⓘ

Feedback

Delivered

January 10, 2019 at 8:08 am
Delivered, Left with Individual
ARTESIA, NM 88210

Get Updates ⌄

Text & Email Updates ⌄

Tracking History ⌄

Product Information ⌄

See Less ⌃

Tracking Number: 70181830000088325253 Remove ×

Your item has been delivered to an agent at 4:33 am on January 14, 2019 in HOUSTON, TX 77210.

Delivered

January 14, 2019 at 4:33 am
Delivered, To Agent
HOUSTON, TX 77210

Get Updates ⌄

See More ⌄

Feedback

Can't find what you're looking for?

Go to our FAQs section to find answers to your tracking questions.

FAQs (https://www.usps.com/faqs/uspstracking-faqs.htm)

Hood, April

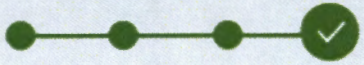
From: TrackingUpdates@fedex.com
Sent: Tuesday, January 29, 2019 9:09 AM
To: Hood, April
Subject: [EXTERNAL] FedEx Shipment 774323215454 Delivered

Your package has been delivered

Tracking # 774323215454

Ship date:
Mon, 1/28/2019

April Hood
Houston, TX 77046
US



Delivery date:
Tue, 1/29/2019 9:07 am

Oakspring Energy Holdings LLC
3540 S. Blvd.
Suite 205
EDMOND, OK 73013
US

Shipment Facts

Our records indicate that the following package has been delivered.

Tracking number:	774323215454
Status:	Delivered: 01/29/2019 09:07 AM Signed for By: Signature Release on file
Reference:	Guzzler SWD C108 Amendment
Signed for by:	Signature Release on file
Delivery location:	EDMOND, OK
Service type:	FedEx Priority Overnight®

Packaging type:	FedEx® Envelope
Number of pieces:	1
Weight:	0.50 lb.
Special handling/Services:	Residential Delivery
	Deliver Weekday
Standard transit:	1/29/2019 by 10:30 am

Please do not respond to this message. This email was sent from an unattended mailbox. This report was generated at approximately 9:08 AM CST on 01/29/2019.

All weights are estimated.

To track the latest status of your shipment, click on the tracking number above.

Standard transit is the date and time the package is scheduled to be delivered by, based on the selected service, destination and ship date. Limitations and exceptions may apply. Please see the FedEx Service Guide for terms and conditions of service, including the FedEx Money-Back Guarantee, or contact your FedEx Customer Support representative.

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Thank you for your business.

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

State of New Mexico
Energy Minerals and Natural Resources
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-101
Revised July 18, 2013

☒ AMENDED REPORT

APPLICATION FOR PERMIT TO DRILL, RE-ENTER, DEEPEN, PLUGBACK, OR ADD A ZONE

1. Operator Name and Address	2. OGRID Number
Occidental Permian LTD PO Box 4294 Houston, TX 77210	157984
	3. API Number 30-025-43703

4. Property Code	5. Property Name	6. Well No.
317546	Hobbs Guzzler SWD	1

7. Surface Location

UL - Lot	Section	Township	Range	Lot Idn	Feet from	N/S Line	Feet From	E/W Line	County
M	23	18S	37E		440	S	435	W	Lea

8. Proposed Bottom Hole Location

UL - Lot	Section	Township	Range	Lot Idn	Feet from	N/S Line	Feet From	E/W Line	County
M	23	18S	37E		440	S	435	W	Lea

9. Pool Information

Pool Name	Pool Code

Additional Well Information

11. Work Type	12. Well Type	13. Cable/Rotary	14. Lease Type	15. Ground Level Elevation
Plugback	SWD		State	3687
16. Multiple	**17. Proposed Depth**	**18. Formation**	**19. Contractor**	**20. Spud Date**
N	5900	San Andres		

Depth to Ground water	Distance from nearest fresh water well	Distance to nearest surface water

☒ **We will be using a closed-loop system in lieu of lined pits**

21. Proposed Casing and Cement Program

Type	Hole Size	Casing Size	Casing Weight/ft	Setting Depth	Sacks of Cement	Estimated TOC
Surf	17 1/2	13 3/8	54.5	1680	1430	0
Int1	12 1/4	9 5/8	36	5650	1510	0
Prod	8 3/4	7	26	10620	750	0

Casing/Cement Program: Additional Comments

22. Proposed Blowout Prevention Program

Type	Working Pressure	Test Pressure	Manufacturer
Annular	5000	3000	

23. I hereby certify that the information given above is true and complete to the best of my knowledge and belief. **I further certify that I have complied with 19.15.14.9 (A) NMAC ☒ and/or 19.15.14.9 (B) NMAC ☒, if applicable.** Signature: April Hood	OIL CONSERVATION DIVISION Approved By:
Printed name: April Hood	Title: Petroleum Engineer
Title: Regulatory Specialist	Approved Date: 11/30/18 Expiration Date: 11/30/20
E-mail Address: April_Hood@oxy.com	
Date: 11/14/18 Phone: 713-366-5771	Conditions of Approval Attached

JAN 30 2019 PM02:22

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

January 29, 2019

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

RE: Amended SWD Application
Hobbs Guzzler SWD
Well No. 1
Letter M, Section 23, T-18S, R-37E
Lea County, NM

To Whom it May Concern:

Occidental Permian Ltd. respectfully request administrative approval, without hearing, to dispose produced water into the San Andres formation. 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 with Wellbore Schematic
- Area of Review and Data Table of Surrounding Wells
- Publication
- Service List with Proof of Certified Mailing attached
- Amended Drilling Permit
- Form C-102

If you have any questions regarding this application, please contact me at 713-366-5771 or email april_hood@oxy.com.

Sincerely,

April Hood

April Hood
Regulatory Specialist

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

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

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

☐ **AMENDED REPORT**

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
30-025-43703	31920	Hobbs; Grayburg - San Andres

Property Code	Property Name	Well Number
327546	HOBBS GUZZLER SWD	1

OGRID No.	Operator Name	Elevation
157984	OCCIDENTAL PERMIAN LTD.	3687.2'

Surface Location

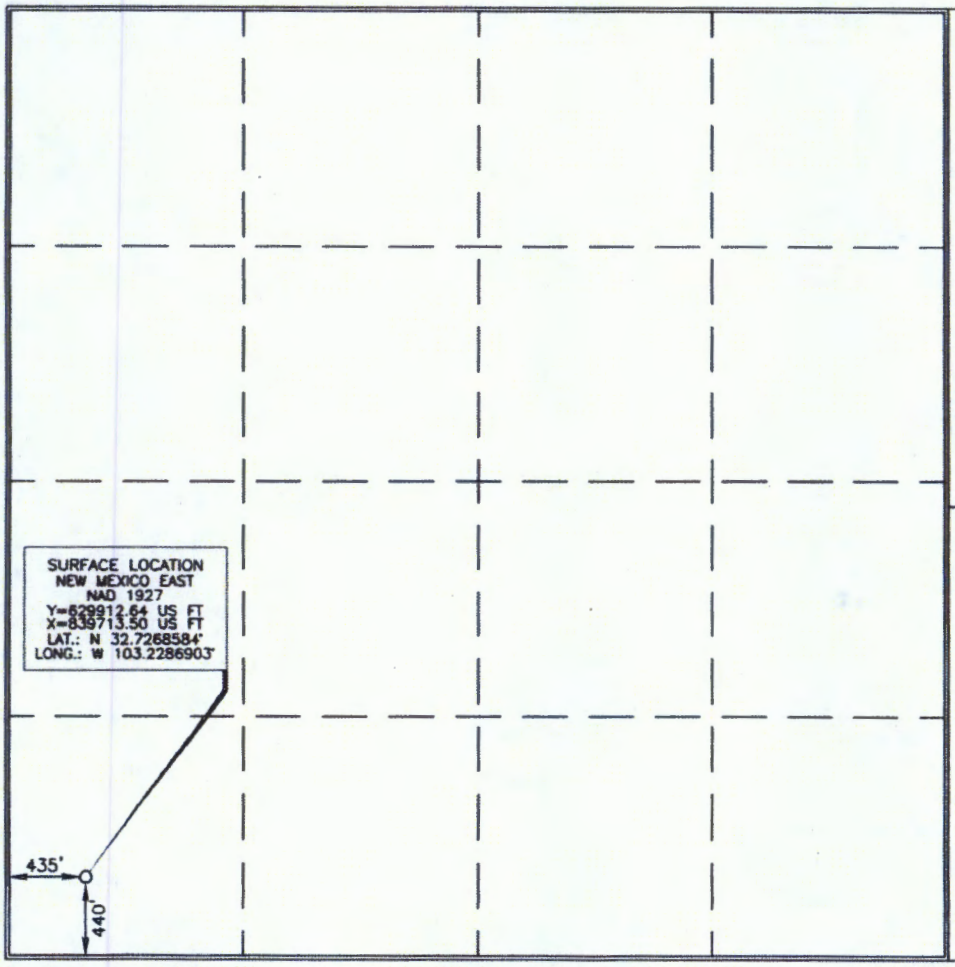
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	23	18 SOUTH	37 EAST, N.M.P.M.		440'	SOUTH	435'	WEST	LEA

Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.

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



OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or 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.

April Hood 3/30/17
Signature Date

APRIL HOOD
Printed Name

April_Hood@oxy.com
Email 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.

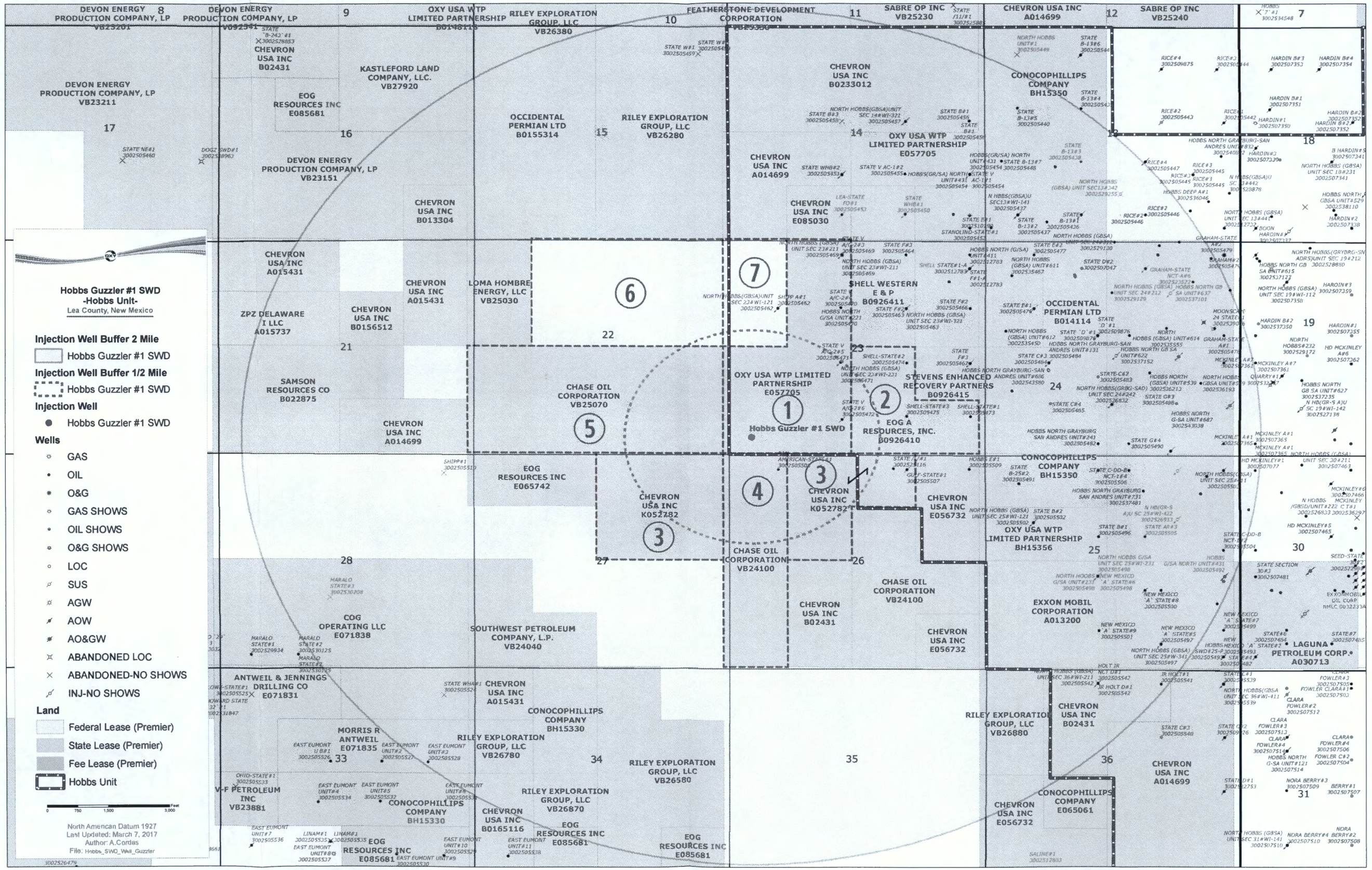
FEBRUARY 21, 2017
Date of Survey

Signature and Seal of Professional Surveyor:

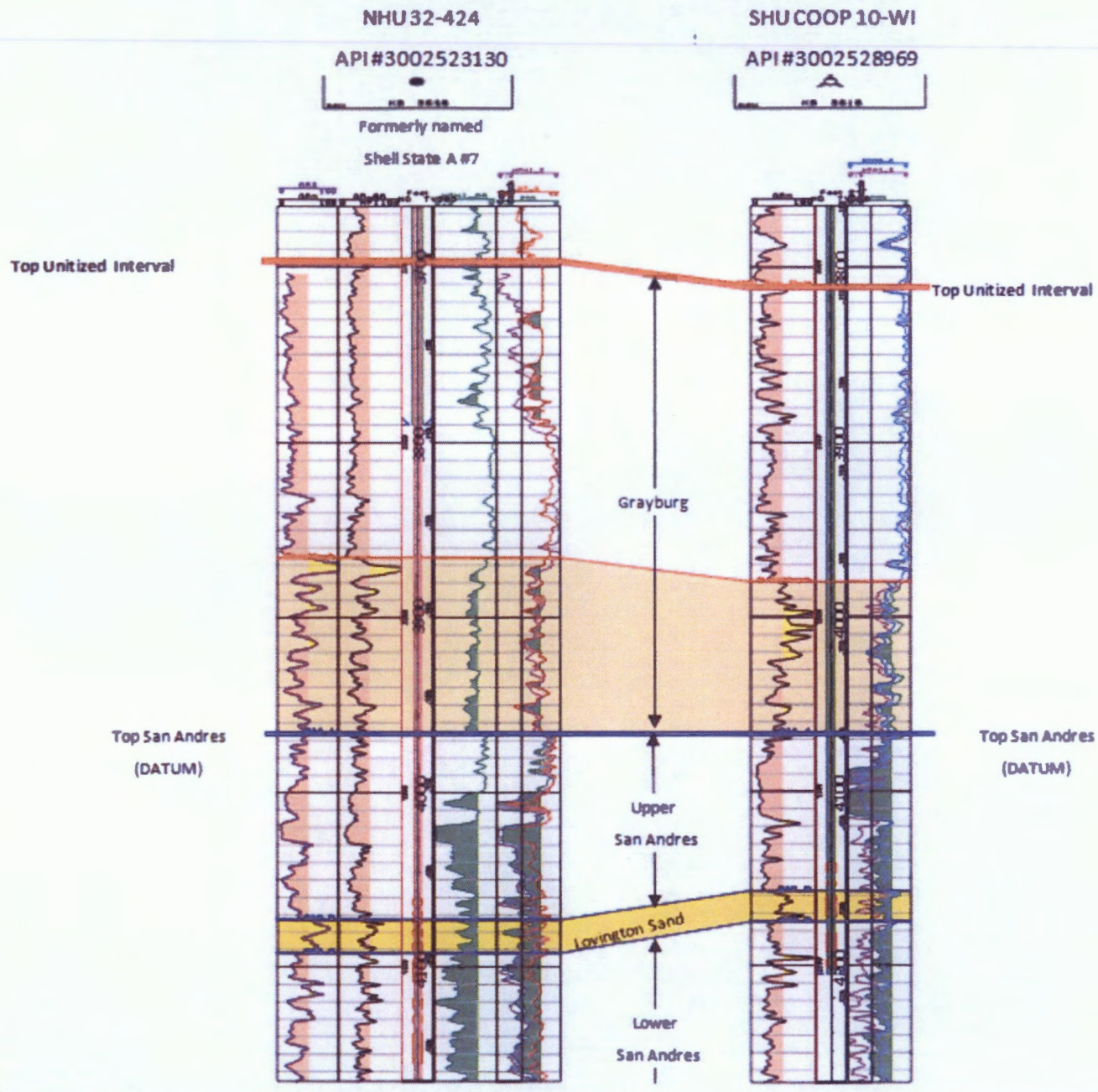
TERRY J. ASEL — NEW MEXICO — 15079 — REGISTERED PROFESSIONAL LAND SURVEYOR

Terry J. Asel 3/3/2017
Certificate Number 15079

WO# 170221WL (Rev. A) (KA)


Hobbs Guzzler #1 SWD
-Hobbs Unit-
Lea County, New Mexico
Injection Well Buffer 2 Mile
Hobbs Guzzler #1 SWD
Injection Well Buffer 1/2 Mile
Hobbs Guzzler #1 SWD
Injection Well
Hobbs Guzzler #1 SWD
Wells
GAS
OIL
O&G
GAS SHOWS
OIL SHOWS
O&G SHOWS
LOC
SUS
AGW
AOW
AO&GW
ABANDONED LOC
ABANDONED-NO SHOWS
INJ-NO SHOWS
Land
Federal Lease (Premier)
State Lease (Premier)
Fee Lease (Premier)
Hobbs Unit
0 750 1,500 3,000 Feet
North American Datum 1927
Last Updated: March 7, 2017
Author: A.Cordas
File: Hobbs_SWD_Well_Guzzler
DEVON ENERGY PRODUCTION COMPANY, LP VB25201
DEVON ENERGY PRODUCTION COMPANY, LP VB23211
DEVON ENERGY PRODUCTION COMPANY, LP VB23151
CHEVRON USA INC B02431
EOG RESOURCES INC E085681
KASTLEFORD LAND COMPANY, LLC. VB27920
OCCIDENTAL PERMIAN LTD B0155314
RILEY EXPLORATION GROUP, LLC VB26380
RILEY EXPLORATION GROUP, LLC VB26280
OXY USA WTP LIMITED PARTNERSHIP B014113
FEATHERSTONE DEVELOPMENT CORPORATION VB25330
SABRE OP INC VB25230
SABRE OP INC VB25240
CHEVRON USA INC A014699
CHEVRON USA INC B0233012
CONOCOPHILLIPS COMPANY BH15350
OXY USA WTP LIMITED PARTNERSHIP E057705
CHEVRON USA INC E085030
CHEVRON USA INC B013304
CHEVRON USA INC A015431
ZPZ DELAWARE I LLC A015737
CHEVRON USA INC B0156512
LOMA HOMBRE ENERGY, LLC VB25030
SHELL WESTERN E & P B0926411
OCCIDENTAL PERMIAN LTD B014114
SAMSON RESOURCES CO B022875
CHASE OIL CORPORATION VB25070
OXY USA WTP LIMITED PARTNERSHIP E057705
Hobbs Guzzler #1 SWD
STEVENS ENHANCED RECOVERY PARTNERS B0926415
EOG A RESOURCES, INC. B0926410
CHEVRON USA INC A014699
EOG RESOURCES INC E065742
CHEVRON USA INC K052782
CHEVRON USA INC K052782
CHEVRON USA INC E056732
CONOCOPHILLIPS COMPANY BH15350
OXY USA WTP LIMITED PARTNERSHIP BH15356
CHASE OIL CORPORATION VB24100
CHEVRON USA INC B02431
CHASE OIL CORPORATION VB24100
CHEVRON USA INC E056732
EXXON MOBIL CORPORATION A013200
LAGUNA PETROLEUM CORP. A030713
COG OPERATING LLC E071838
SOUTHWEST PETROLEUM COMPANY, L.P. VB24040
ANTWEIL & JENNINGS DRILLING CO E071831
CHEVRON USA INC A015431
CONOCOPHILLIPS COMPANY BH15330
MORRIS R ANTWEIL E071835
RILEY EXPLORATION GROUP, LLC VB26780
RILEY EXPLORATION GROUP, LLC VB26580
V-F PETROLEUM INC VB23881
CONOCOPHILLIPS COMPANY BH15330
RILEY EXPLORATION GROUP, LLC VB26870
CHEVRON USA INC B0165116
EOG RESOURCES INC E085681
EOG RESOURCES INC E085681
EOG RESOURCES INC E085681
RILEY EXPLORATION GROUP, LLC VB26880
CHEVRON USA INC B02431
CHEVRON USA INC A014699
CONOCOPHILLIPS COMPANY E065061
CHEVRON USA INC E056732

South Hobbs Unit COOP #10-WI Type Log



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

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION DIVISION FOR THE PURPOSE OF CONSIDERING:

CASE NO. 12722
ORDER NO. R-6199-B

APPLICATION OF OCCIDENTAL PERMIAN LIMITED PARTNERSHIP TO AMEND DIVISION ORDER NO. R-6199 CONCERNING THE EXPANSION OF ITS NORTH HOBBS GRAYBURG SAN ANDRES UNIT PRESSURE MAINTENANCE PROJECT, AND TO QUALIFY THE PROJECT FOR THE RECOVERED OIL TAX RATE PURSUANT TO THE ENHANCED OIL RECOVERY ACT, LEA COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This case came on for hearing at 8:15 a.m. on September 6, 2001, at Santa Fe, New Mexico, before Examiner David R. Catanach. This case was subsequently reopened on the record at the October 18, 2001 hearing before Examiner David R. Catanach, to allow the applicant to present additional evidence.

NOW, on this 22nd day of October, 2001, the Division Director, having considered the testimony, the record, and the recommendations of the Examiner,

FINDS THAT:

(1) Due public notice has been given, and the Division has jurisdiction of this case and its subject matter.

(2) By Division Order No. R-6198 entered in Case No. 6652 on November 30, 1979, the Division, upon application of Shell Oil Company, approved the North Hobbs Grayburg San Andres Unit comprising 10,649.53 acres, more or less, described as follows in Lea County, New Mexico:

TOWNSHIP 18 SOUTH, RANGE 37 EAST, NMPM

Section 13:	SE/4, W/2
Section 14:	All
Sections 23 through 25:	All

Section 26:	E/2 NE/4, NW/4 NE/4
Section 36 :	E/2 NW/4, E/2

TOWNSHIP 18 SOUTH, RANGE 38 EAST, NMPM

Section 17:	S/2 NW/4, SW/4
Section 18:	NE/4, S/2
Sections 19 and 20:	All
Section 21:	SW/4, S/2 SE/4, NW/4 SE/4
Sections 27 through 32:	All
Section 33:	W/2, NE/4, W/2 SE/4, NE/4 SE/4
Section 34:	E/2 NW/4, E/2

(3) By Order No. R-6199 entered in Case No. 6653 on November 30, 1979, the Division authorized Shell Oil Company to institute a pressure maintenance project within its North Hobbs Grayburg San Andres Unit by the injection of water into the Grayburg and San Andres formations, Hobbs Grayburg-San Andres Pool, through 70 initial injection wells.

(4) The applicant, Occidental Permian Limited Partnership ("Oxy"), the current operator of the North Hobbs Grayburg San Andres Unit, seeks to amend Division Order No. R-6199 to authorize the implementation of a carbon dioxide (CO_2) tertiary recovery injection project within a portion of the North Hobbs Grayburg San Andres Unit, generally described as follows and hereinafter referred to as the "Phase I Area":

TOWNSHIP 18 SOUTH, RANGE 37 EAST, NMPM

Section 13:	SW4, S/2 NW/4, S/2 SE/4
Section 14:	SE/4, S/2 NE/4
Section 23:	E/2
Section 24:	All
Section 25:	N/2, SE/4
Section 36:	NE/4

TOWNSHIP 18 SOUTH, RANGE 38 EAST, NMPM

Section 18:	S/2
Section 19:	All
Section 20:	W/2, SE/4
Section 28:	SW/4, S/2 NW/4
Sections 29 and 30:	All
Section 31:	N/2
Section 32:	N/2, N/2 S/2

Section 33: NW/4

(5) Oxy further seeks:

(a) authorization to convert an additional 60 wells to injection wells within the Phase I Area. These wells will be either new drills or conversions of existing wells;

(b) authorization to inject CO_2 and produced water into certain injection wells within the Phase I Area, and authorization to inject CO_2, produced water, and produced gases including methane, natural gas liquids and hydrogen sulfide within certain injection wells within the Phase I Area;

(c) to establish maximum surface injection pressure limitations for all injection wells within the Phase I Area as follows:

1100 psig for injection of water;
1250 psig for injection of CO_2;
1770 psig for injection of produced gas; and

(d) to increase the limiting gas-oil ratio to 6,000 cubic feet of gas per barrel of oil.

(6) Oxy further seeks to qualify the proposed tertiary recovery project as an "Enhanced Oil Recovery Project" pursuant to the "Enhanced Oil Recovery Act" (NMSA 1978 Sections 7-29A-1 through 7-29A-5).

(7) Oxy presented evidence that demonstrates:

(a) the North Hobbs Grayburg San Andres Unit is currently undergoing secondary recovery waterflood operations that commenced in 1979;

(b) pre-unitization primary oil recovery from the unit area was 160 million barrels of oil. Under waterflood operations, an additional 115 million barrels of oil will be recovered;

(c) current production from the North Hobbs Grayburg San Andres Unit is 6,100 barrels of oil and 226,000 barrels of water per day from 144 active producing wells; and

(d) total oil production from the unit as of January, 2001, has been 231 million barrels of oil.

(8) According to evidence presented by Oxy, its plan of operation within the proposed tertiary recovery injection project includes:

(a) utilizing water-alternating-gas (WAG) injection by injecting alternating slugs of pure CO_2 and produced water within the eastern half of the Phase I Area;

(b) utilizing water-alternating-gas (WAG) injection by injecting slugs of produced gas and CO_2 with alternating slugs of water within the western half of the Phase I Area;

(c) utilizing a 160-acre nine-spot injection pattern for those producing intervals identified as San Andres Zones No. 1 & 2, and utilizing a five-spot injection pattern for that producing interval identified as the San Andres Zone No. 3; and

(d) utilizing approximately 103 wells for injection within the Phase I Area.

(9) Oxy testified that implementing tertiary recovery operations within the Phase I Area of the North Hobbs Grayburg San Andres Unit should result in the recovery of an additional 76 million barrels of oil that may otherwise not be recovered, thereby preventing waste.

(10) Project costs are estimated to be $510 million. This amount is detailed as follows:

Initial construction:	$130 million
CO_2 purchase:	$190 million
Well and surface operating expenses:	$ 77 million
Additional lifting expenses:	$ 22 million

Chemicals:	$ 27 million
Gas reinjection expenses:	$ 64 million

(11) Implementation of the proposed tertiary recovery injection project will extend the life of the Hobbs Grayburg-San Andres Pool by more than 20 years.

(12) Oxy further offered testimony that CO_2 injection operations may be expanded in the future to include additional areas within the North Hobbs Grayburg San Andres Unit.

(13) The evidence and testimony presented in this case demonstrates that it is prudent to implement tertiary recovery operations within the Phase I Area of the North Hobbs Grayburg San Andres Unit, and that implementing this project will result in the recovery of additional oil and gas from the project area that may otherwise not be recovered, thereby preventing waste.

(14) The proposed tertiary recovery project should be approved.

(15) The evidence presented demonstrates that:

(a) the application for approval of the proposed tertiary recovery project has not been prematurely filed either for economic or technical reasons;

(b) the area affected by the proposed project has been so depleted by primary and previous enhanced recovery operations that it is prudent to apply tertiary recovery techniques to maximize the ultimate recovery of crude oil from the pool; and

(c) the proposed tertiary recovery project meets all the criteria for certification by the Division as a qualified "Enhanced Oil Recovery Project" pursuant to the "Enhanced Oil Recovery Act" (NMSA 1978 Sections 7-29A-1 through 7-29A-5).

(16) The approved project area should initially comprise the Phase I Area of the North Hobbs Grayburg San Andres Unit, as identified in Finding No. (4); provided however, the "project area" and/or the producing wells eligible for the enhanced oil recovery (EOR) tax rate may be contracted and reduced based upon the evidence presented by the applicant in its demonstration of a positive production response.

(17) To be eligible for the EOR tax rate, the operator should advise the Division of the date CO_2 injection commences within the tertiary recovery project. At that time, the Division will certify the project to the New Mexico Taxation and Revenue Department.

(18) 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. This application shall identify the area benefiting from enhanced oil recovery operations and the specific wells eligible for the EOR 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 EOR tax rate.

(19) Oxy testified that hydrogen sulfide gas (H_2S) will be an injected fluid within the western half of the Phase I Area. Oxy further testified that it has presented its H2S safety plan to the Bureau Chief of the Division's Environmental Bureau, and that this plan has been determined to be acceptable by the Division.

(20) The evidence presented by Oxy further demonstrates that the proposed gas-oil ratio limitation of 6,000 cubic feet of gas per barrel of oil is necessary to effectively implement the proposed tertiary recovery injection project.

(21) The proposed gas-oil ratio limitation of 6,000 cubic feet of gas per barrel of oil should be approved only for that portion of the Hobbs Grayburg-San Andres Pool contained within the North Hobbs Grayburg San Andres Unit.

(22) Oxy proposes to utilize 103 injection wells within the Phase I Area of the North Hobbs Grayburg San Andres Unit. Of these 103 wells, forty-three (43) are active injection wells that have previously been permitted for injection, twenty-four (24) are new wells that will be drilled for injection, and thirty-six (36) are either existing producing wells, temporarily abandoned producing wells or temporarily abandoned injection wells.

(23) At this time, Oxy proposes to permit 60 wells for injection within the proposed tertiary recovery injection project.

(24) The evidence presented demonstrates that several of the 36 existing wells that Oxy proposes to permit for injection have previously been granted Division approval to inject within the North Hobbs Grayburg San Andres Unit; however, the evidence

presented by Oxy is insufficient to determine whether the injection authority for these wells is still valid.

(25) All of the 36 existing wells should be permitted for injection, and that portion of any Division order that previously granted injection authority for any of these wells should be superseded by this order.

(26) Prior to commencing injection operations into the North Hobbs Grayburg San Andres Unit No. 311 located 1309 feet from the North line and 2310 feet from the East line (Unit B) of Section 19, Township 18 South, Range 38 East, NMPM, Oxy should perform remedial cement operations on the production liner in a manner prescribed by the supervisor of the Division's Hobbs District Office in order to assure that this well will not serve as a conduit for injected fluid to migrate from the proposed injection interval.

(27) The evidence presented demonstrates that there is a well located within the ½-mile area of review that may not be either temporarily abandoned or plugged and abandoned so as to confine the injected fluid to the proposed injection interval. Oxy should not be authorized to inject into any of its injection wells that are located within ½ mile of the Conoco Inc. North Hobbs Unit No. 1 **(API No. 30-025-05449)** located 660 feet from the North and West lines (Unit D) of Section 13, Township 18 South, Range 37 East, NMPM, until such time as Conoco Inc. complies with a Division directive to bring the well into compliance, either by properly temporarily abandoning the well or permanently plugging and abandoning the well.

(28) The operator should take all steps necessary to ensure that the injected fluids enter only the proposed injection interval and are not permitted to escape to other formations or onto the surface from injection, production, or plugged and abandoned wells.

(29) Injection should be accomplished through 2 7/8 inch or 3 1/2 inch internally fiberglass-lined tubing installed in a packer set within 100 feet of the uppermost injection perforation in each well. The casing-tubing annulus should be filled with an inert fluid and a gauge or approved leak-detection device should be attached to the annulus in order to determine leakage in the casing, tubing, or packer.

(30) The injection wells or pressurization system should be equipped with a pressure control device or acceptable substitute that will limit the surface injection pressure to:

1100 psig for injection of water;
1250 psig for injection of CO_2; and
1770 psig for injection of produced gas.

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

(32) The operator should give advance notice to the supervisor of the Division's Hobbs District Office of the date and time (i) injection equipment will be installed, (ii) the mechanical integrity pressure tests will be conducted on the proposed injection wells, and (iii) remedial cement work will be conducted on the North Hobbs Grayburg San Andres Unit No. 311, so that these operations may be witnessed.

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

(34) The proposed tertiary recovery project should be approved and the project should be governed by Division Rules No. 701 through 708.

(35) The injection authority granted herein for the wells shown on Exhibits "A" and "B" should terminate eighteen months after the date of this order if the operator has not commenced tertiary injection operations into the Phase I Area of the North Hobbs Grayburg San Andres Unit; provided, however, the Division, upon written request by the operator, may grant an extension for good cause.

(36) For any injection well shown on Exhibit "A" or "B" in which injection operations begin more than thirty-six months after the date of this order, the operator should submit to the Division either: (i) a statement certifying that there have been no 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 ½-mile area of review around the injection well; or (ii) a statement describing any changes in the status or construction of any well that penetrates the injection interval within the ½-mile area of review. This statement should be submitted to the Division's Santa Fe office within the period no more than twelve months and no less than sixty days before injection operations commence in the well.

IT IS THEREFORE ORDERED THAT:

(1) Division Order No. R-6199, issued in Case No. 6653 on November 30, 1979, is hereby amended to allow Occidental Permian Limited Partnership to implement

a tertiary recovery injection project within the Phase I Area, being a portion of the North Hobbs Grayburg San Andres Unit, described below, by the injection of CO_2, water and produced gas into the Grayburg and/or San Andres formations, Hobbs Grayburg-San Andres Pool, through the 60 wells shown on Exhibits "A" and "B" attached to this order, and through an additional 43 wells that have previously been approved for injection within the North Hobbs Grayburg San Andres Unit Pressure Maintenance Project:

TOWNSHIP 18 SOUTH, RANGE 37 EAST, NMPM

Section 13:	SW4, S/2 NW/4, S/2 SE/4
Section 14:	SE/4, S/2 NE/4
Section 23:	E/2
Section 24:	All
Section 25:	N/2, SE/4
Section 36:	NE/4

TOWNSHIP 18 SOUTH, RANGE 38 EAST, NMPM

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

(2) The operator shall take all necessary steps to ensure that the injected fluid enters only the proposed injection interval and is not permitted to escape to other formations or onto the surface from injection, production, or plugged and abandoned wells.

(3) Injection shall be accomplished through 2 7/8 inch or 3 1/2 inch internally fiberglass-lined tubing installed in a packer set within 100 feet of the uppermost injection perforation in each well. The casing-tubing annulus shall be filled with an inert fluid and a gauge or approved leak-detection device shall be attached to the annulus in order to determine leakage in the casing, tubing, or packer.

(4) The injection wells or pressurization system within the Phase I Area shall be equipped with a pressure control device or acceptable substitute that will limit the surface injection pressure to no more than:

1100 psig for injection of water;
1250 psig for injection of CO_2; and
1770 psig for injection of produced gas.

(5) 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.

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

(7) Prior to commencing injection operations into the North Hobbs Grayburg San Andres Unit No. 311 located 1309 feet from the North line and 2310 feet from the East line (Unit B) of Section 19, Township 18 South, Range 38 East, NMPM, Oxy shall perform remedial cement operations on the production liner in a manner prescribed by the supervisor of the Division's Hobbs District Office in order to assure that this well will not serve as a conduit for injected fluid to migrate from the proposed injection interval.

(8) Oxy shall not commence injection into any of its injection wells that are located within ½ mile of the Conoco Inc. North Hobbs Unit No. 1 **(API No. 30-025-05449)** located 660 feet from the North and West lines (Unit D) of Section 13, Township 18 South, Range 37 East, NMPM, until such time as Conoco Inc. complies with a Division directive to bring the well into compliance, either by properly temporarily abandoning the well or permanently plugging and abandoning the well.

(9) The operator shall give advance notice to the supervisor of the Division's Hobbs District Office of the date and time (i) injection equipment will be installed, (ii) the mechanical integrity pressure tests will be conducted, and (iii) remedial work will be conducted on the North Hobbs Grayburg San Andres Unit No. 311, so that these operations may be witnessed.

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

(11) The project is hereby designated the North Hobbs Grayburg San Andres Unit Phase I Tertiary Recovery Project, and the applicant shall conduct injection

operations in accordance with Division Rules No. 701 through 708, and shall submit monthly progress reports in accordance with Division Rules No. 706 and 1115.

(12) The North Hobbs Grayburg San Andres Unit Phase I Tertiary Recovery Project is hereby certified as an "Enhanced Oil Recovery Project." The project area shall initially comprise the Phase I Area, described in Ordering Paragraph No. (1), provided however, the project area and/or the producing wells eligible for the enhanced oil recovery (EOR) tax rate may be contracted and reduced based upon the evidence presented by the applicant in its demonstration of a positive production response.

(13) To be eligible for the EOR tax rate, the operator shall advise the Division of the date and time CO_2 injection commences within the tertiary recovery project. At that time, the Division will certify the project to the New Mexico Taxation and Revenue Department.

(14) 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. This application shall identify the area benefiting from enhanced oil recovery operations and the specific wells eligible for the EOR 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 EOR tax rate.

(15) The injection authority granted herein for the wells shown on Exhibits "A" and "B" shall terminate eighteen months after the date of this order if the operator has not commenced tertiary injection operations into the Phase I Area of the North Hobbs Grayburg San Andres Unit; provided, however, the Division, upon written request by the operator, may grant an extension for good cause.

(16) For any injection well shown on Exhibit "A" or "B" in which injection operations begin more than thirty-six months after the date of this order, the operator shall submit to the Division either: (i) a statement certifying that there have been no 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 ½-mile area of review around the injection well; or (ii) a statement describing any changes in the status or construction of any well that penetrates the injection interval within the ½-mile area of review. This statement shall be submitted to the Division's Santa Fe office within the period no more than twelve months and no less than sixty days before injection operations commence in the well.

(17) The limiting gas-oil ratio for that portion of the Hobbs Grayburg San Andres Pool contained within the North Hobbs Grayburg San Andres Unit is hereby established at 6,000 cubic feet of gas per barrel of oil.

(18) In addition to those wells shown on Exhibits "A" and "B" that are authorized to inject CO_2, water and produced gases, the following-described previously permitted injection wells are also authorized to inject all of these fluids:

Well Name & Number	Well Location
NHGSAU No. 112	Unit D, Section 19, T-18S, R-38E
NHGSAU No. 142	Unit M, Section 19, T-18S, R-38E
NHGSAU No. 231	Unit K, Section 19, T-18S, R-38E
NHGSAU No. 212	Unit C, Section 24, T-18S, R-37E
NHGSAU No. 413	Unit A, Section 24, T-18S, R-37E
NHGSAU No. 432	Unit H, Section 24, T-18S, R-37E
NHGSAU No. 442	Unit P, Section 24, T-18S, R-37E
NHGSAU No. 422	Unit H, Section 25, T-18S, R-37E
NHGSAU No. 112	Unit D, Section 30, T-18S, R-38E
NHGSAU No. 222	Unit F, Section 30, T-18S, R-38E
NHGSAU No. 232	Unit K, Section 30, T-18S, R-38E
NHGSAU No. 233	Unit K, Section 30, T-18S, R-38E
NHGSAU No. 333	Unit J, Section 30, T-18S, R-38E

The 30 other previously permitted injection wells are authorized to inject CO_2 and water only.

(19) Jurisdiction is hereby retained for the entry of such further orders as the Division may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

SEAL

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

Lori Wrotenbery

LORI WROTENBERY
Director

Exhibit "A"
Division Order No. R-6199-B
North Hobbs Grayburg San Andres Unit Tertiary Recovery Project
Approved Injection Wells (New Wells To Be Drilled)

Well Name & Number	API Number	Well Location	Injection Interval	Packer Depth
NHGBSAU No. 118 **	N/A	Footage Undetermined, Unit J or P, Section 18, T-18S, R-38E	4,000'-4,500'	3,900'
NHGBSAU No. 118 **	N/A	Footage Undetermined, Unit L or N, Section 18, T-18S, R-38E	4,000'-4,500'	3,900'
NHGBSAU No. 118 **	N/A	Footage Undetermined, Unit M or N, Section 18, T-18S, R-38E	4,000'-4,500'	3,900'
NHGBSAU No. 112 **	N/A	Footage Undetermined, Unit D, Section 19, T-18S, R-38E	4,000'-4,500'	3,900'
NHGBSAU No. 142 **	N/A	Footage Undetermined, Unit N, Section 19, T-18S, R-38E	4,000'-4,500'	3,900'
NHGBSAU No. 120	N/A	Footage Undetermined, Unit D or F, Section 20, T-18S, R-38E	4,000'-4,500'	3,900'
NHGBSAU No. 312 **	N/A	Footage Undetermined, Unit B, Section 24, T-18S, R-38E	4,000'-4,500'	3,900'
NHGBSAU No. 331 **	N/A	Footage Undetermined, Unit J, Section 24, T-18S, R-38E	4,000'-4,500'	3,900'
NHGBSAU No. 124 **	N/A	Footage Undetermined, Unit G, Section 24, T-18S, R-38E	4,000'-4,500'	3,900'
NHGBSAU No. 124 **	N/A	Footage Undetermined, Unit F, Section 24, T-18S, R-38E	4,000'-4,500'	3,900'
NHGBSAU No. 125 **	N/A	Footage Undetermined, Unit A or B, Section 25, T-18S, R-38E	4,000'-4,500'	3,900'
NHGBSAU No. 323	N/A	Footage Undetermined, Unit G, Section 29, T-18S, R-38E	4,000'-4,500'	3,900'
NHGBSAU No. 342	N/A	Footage Undetermined, Unit O, Section 29, T-18S, R-38E	4,000'-4,500'	3,900'
NHGBSAU No. 442	N/A	Footage Undetermined, Unit P, Section 29, T-18S, R-38E	4,000'-4,500'	3,900'
NHGBSAU No. 129	N/A	Footage Undetermined, Unit E, Section 29, T-18S, R-38E	4,000'-4,500'	3,900'
NHGBSAU No. 222 **	N/A	Footage Undetermined, Unit F, Section 30, T-18S, R-38E	4,000'-4,500'	3,900'
NHGBSAU No. 422	N/A	Footage Undetermined, Unit H, Section 30, T-18S, R-38E	4,000'-4,500'	3,900'
NHGBSAU No. 442	N/A	Footage Undetermined, Unit P, Section 30, T-18S, R-38E	4,000'-4,500'	3,900'
NHGBSAU No. 312	N/A	Footage Undetermined, Unit B, Section 31, T-18S, R-38E	4,000'-4,500'	3,900'
NHGBSAU No. 222	N/A	Footage Undetermined, Unit F, Section 32, T-18S, R-38E	4,000'-4,500'	3,900'
NHGBSAU No. 323	N/A	Footage Undetermined, Unit G, Section 32, T-18S, R-38E	4,000'-4,500'	3,900'
NHGBSAU No. 331	N/A	2310' FSL & 2310' FEL, Unit J, Section 32, T-18S, R-38E	4,000'-4,500'	3,900'
NHGBSAU No. 431	N/A	Footage Undetermined, Unit I, Section 20, T-18S, R-38E	4,000'-4,500'	3,900'
NHGBSAU No. 342	N/A	Footage Undetermined, Unit O, Section 30, T-18S, R-38E	4,000'-4,500'	3,900'

** **Denotes wells that are authorized to inject CO_2, water, and produced gas. All other wells are authorized to inject CO_2 and water only.**

Exhibit "B"
Division Order No. R-6199-B
North Hobbs Grayburg San Andres Unit Tertiary Recovery Project
Approved Injection Wells (Existing Wells)

Well Name & Number	API Number	Well Location	Injection Interval	Packer Depth
NHGBSAU No. 341 **	30-025-05446	660' FSL & 1980' FEL, Unit O, Section 13, T-18S, R-37E	4,000'-4,263'	3,900'
NHGBSAU No. 441 **	30-025-12732	330' FSL & 330' FEL, Unit P, Section 13, T-18S, R-37E	4,000'-4,258'	3,900'
NHGBSAU No. 232 **	30-025-29172	2501' FSL & 1410' FWL, Unit K, Section 19, T-18S, R-38E	4,000'-4,420'	3,900'
NHGBSAU No. 141 **	30-025-05485	1315' FSL & 1315' FWL, Unit M, Section 24, T-18S, R-37E	4,000'-4,270'	3,900'
NHGBSAU No. 331 **	30-025-05488	1320' FSL & 1325' FEL, Unit J, Section 24, T-18S, R-37E	4,000'-4,210'	3,900'
NHGBSAU No. 411 **	30-025-23522	990' FNL & 990' FEL, Unit A, Section 24, T-18S, R-37E	4,000'-4,283'	3,900'
NHGBSAU No. 414 **	30-025-28879	10' FNL & 1280' FEL, Unit A, Section 24, T-18S, R-37E	4,000'-4,370'	3,900'
NHGBSAU No. 431 **	30-025-05487	2310' FSL & 330' FEL, Unit I, Section 24, T-18S, R-37E	4,000'-4,300'	3,900'
NHGBSAU No. 411 **	30-025-05503	330' FNL & 330' FEL, Unit A, Section 25, T-18S, R-37E	4,000'-4,259'	3,900'
NHGBSAU No. 242	30-025-28413	100' FSL & 1400' FWL, Unit N, Section 29, T-18S, R-38E	4,000'-4,370'	3,900'
NHGBSAU No. 321	30-025-07431	2310' FNL & 1650' FEL, Unit G, Section 29, T-18S, R-38E	4,000'-4,309'	3,900'
NHGBSAU No. 113 **	30-025-29064	1310' FNL & 195' FWL, Unit D, Section 30, T-18S, R-38E	4,000'-4,370'	3,900'
NHGBSAU No. 312	30-025-29197	530' FNL & 1448' FEL, Unit B, Section 30, T-18S, R-38E	4,000'-4,431'	3,900'
NHGBSAU No. 331	30-025-07472	2335' FSL & 2310' FEL, Unit J, Section 30, T-18S, R-38E	4,000'-4,238'	3,900'
NHGBSAU No. 444	30-025-28959	215' FSL & 1255' FEL, Unit P, Section 30, T-18S, R-38E	4,000'-4,370'	3,900'
NHGBSAU No. 131	30-025-07527	2310' FSL & 330' FWL, Unit L, Section 32, T-18S, R-38E	4,000'-4,250'	3,900'
NHGBSAU No. 422	30-025-29074	1385' FNL & 110' FEL, Unit H, Section 32, T-18S, R-38E	4,000'-4,370'	3,900'
NHGBSAU No. 111	30-025-12505	330' FNL & 330' FWL, Unit D, Section 33, T-18S, R-38E	4,000'-4,237'	3,900'
NHGBSAU No. 141 **	30-025-05437	660' FSL & 660' FWL, Unit M, Section 13, T-18S, R-37E	4,000'-4,235'	3,900'
NHGBSAU No. 221 **	30-025-05439	1980' FNL & 1980' FWL, Unit F, Section 13, T-18S, R-37E	4,000'-4,160'	3,900'
NHGBSAU No. 321 **	30-025-05457	2310' FNL & 1650' FEL, Unit G, Section 14, T-18S, R-37E	4,000'-4,350'	3,900'
NHGBSAU No. 121 **	30-025-05502	1650' FNL & 990' FWL, Unit E, Section 25, T-18S, R-37E	4,000'-4,261'	3,900'
NHGBSAU No. 341 **	30-025-05497	660' FSL & 1650' FEL, Unit O, Section 25, T-18S, R-37E	4,000'-4,220'	3,900'
NHGBSAU No. 411	30-025-07454	990' FNL & 990' FEL, Unit A, Section 29, T-18S, R-38E	4,000'-4,335'	3,900'
NHGBSAU No. 321 **	30-025-05540	1650' FNL & 1650' FEL, Unit G, Section 36, T-18S, R-37E	4,000'-4,300'	3,900'
NHGBSAU No. 121 **	30-025-05440	1980' FNL & 660' FWL, Unit E, Section 13, T-18S, R-37E	4,000'-4,235'	3,900'
NHGBSAU No. 241 **	30-025-05436	660' FSL & 1980' FWL, Unit N, Section 13, T-18S, R-37E	4,000'-4,320'	3,900'
NHGBSAU No. 341 **	30-025-05450	660' FSL & 1650' FEL, Unit O, Section 14, T-18S, R-37E	4,000'-4,350'	3,900'
NHGBSAU No. 342 **	30-025-07342	330' FSL & 2310' FEL, Unit O, Section 18, T-18S, R-38E	4,000'-4,286'	3,900'
NHGBSAU No. 311 **	30-025-07369	1309' FNL & 2310' FEL, Unit B, Section 19, T-18S, R-38E	4,000'-4,296'	3,900'
NHGBSAU No. 411 **	30-025-07370	1300' FNL & 1300' FEL, Unit A, Section 19, T-18S, R-38E	4,000'-4,342'	3,900'
NHGBSAU No. 233	30-025-27214	1610' FSL & 1850' FWL, Unit K, Section 20, T-18S, R-38E	4,000'-4,510'	3,900'
NHGBSAU No. 321 **	30-025-05463	1650' FNL & 1650' FEL, Unit G, Section 23, T-18S, R-37E	4,000'-4,265'	3,900'
NHGBSAU No. 341 **	30-025-05475	990' FSL & 1650' FEL, Unit O, Section 23, T-18S, R-37E	4,000'-4,302'	3,900'
NHGBSAU No. 121 **	30-025-05476	1650' FNL & 990' FWL, Unit E, Section 24, T-18S, R-37E	4,000'-4,319'	3,900'
NHGBSAU No. 121 **	30-025-07514	1980' FNL & 990' FWL, Unit E, Section 31, T-18S, R-38E	4,000'-4,300'	3,900'

** **Denotes wells that are authorized to inject CO_2, water and produced gas. All other wells are authorized to inject CO_2 and water only.**

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 COMMISSISION 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 (CO2), 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 CO2, 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 CO2, 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 CO2, 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 CO2, 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 CO2; 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 value 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				Injection Interval	Proposed Injectant
		Section	Unit Letter	Township & Range	Footage Location		
TBD	TBD	14	A	18-S ; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	14	B	18-S ; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	14	C	18-S ; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	14	D	18-S ; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	14	E	18-S ; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	14	F	18-S ; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	14	G	18-S ; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	14	H	18-S ; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	14	I	18-S ; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	14	J	18-S ; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	14	K	18-S ; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	14	L	18-S ; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	14	M	18-S ; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	14	N	18-S ; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	14	O	18-S ; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	14	P	18-S ; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	23	A	18-S ; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	23	B	18-S ; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	23	C	18-S ; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	23	D	18-S ; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	23	E	18-S ; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	23	F	18-S ; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	23	G	18-S ; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	23	H	18-S ; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	23	I	18-S ; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	23	J	18-S ; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	23	K	18-S ; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	23	L	18-S ; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	23	M	18-S ; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	23	N	18-S ; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	23	O	18-S ; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	23	P	18-S ; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	26	A	18-S ; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	26	B	18-S ; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	26	H	18-S ; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	13	C	18-S ; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	13	D	18-S ; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	13	E	18-S ; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	13	F	18-S ; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	13	I	18-S ; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	13	J	18-S ; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	13	K	18-S ; 37-E	TBD	3698' - 4500'	Produced Gas/CO2/Water
TBD	TBD	13	L	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	Footage Location		
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

Page 2 of 4

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

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Exhibit B
List of Proposed Project Injectors (Existing Wells)

Well Name	API Number	Surface Location				Current Status	Injection Interval	Proposed Injectant
		Section	Unit Letter	Township & Range	Footage Location			
NHU 28-231	30-025-07421	28	K	18-S ; 38-E	1325' FsL & 1325' 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 33-422	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 31-441	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
[illegible] 33-222	30-025-26975	33	F	18-S ; 38-E	1520 FNL & 1470 FWL	Water Injector	3698' - 4500'	Purchased CO2/Water
[illegible] 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	30-025-28951	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 & 2200 FEL	Water Injector	3698' - 4500'	Purchased CO2/Water
NHU 33-231	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

Goetze, Phillip, EMNRD

From: Goetze, Phillip, EMNRD
Sent: Tuesday, August 13, 2019 10:27 AM
To: 'Kelley_Montgomery@oxy.com'
Cc: McMillan, Michael, EMNRD; 'April_Hood@oxy.com'; Jones, William V, EMNRD
Subject: Hobbs Guzzler SWD No. 1 - Additional Information Requirement
Attachments: Hobbs Guzzler_ San Andres_OXY.pdf

RE: Hobbs Guzzler SWD No. 1; 30-025-43702; Appl. no. pMAM1903249035; application to plugback and dispose in San Andres Fm

Kelley:

Per our conversation yesterday regarding this application, I have reviewed the content and find that additional geologic information will be required. It seems my memory of this application was incorrect and that a supplemental effort will be required. Mike first identified an issue with the submittal of the application in January and I concur that the information contained in the application does not satisfy the unique situation for this well (see attachment). Since the well is within a statutory unit established by Commission Order R-6198 with a defined "unitized interval" and Oxy has proposed to utilize the lower San Andres formation for disposal, the supporting documentation should be more comprehensive as to ensure that the injection will not impact the North Hobbs ER project. A few lines on page one of the C-108 application would not stand at Commission and the Division does not have access to the data used to assess these findings. Therefore, Division is requesting an expanded effort to support the summary found under Section VIII of the C-108 application. Please provide a geological and engineering summary by a qualified person that includes, at a minimum:

1. Correlation of the type log to logs in the immediate area of the Hobbs Guzzler (or if there is a log for the Guzzler that is shallower than the log submitted to the Division) summarized in a cross-section showing the injection zone is not within the "unitized interval";
2. That a confining layer, or other means of vertically isolating the migration of injection fluids, is present;
3. More detail of the content of the reservoir analysis referenced in the application; and
4. Examples of the IP tests used for the assessment.

Additionally, Oxy needs to address the conflict in the application for the proposed lower limit of the injection interval. The re-completion well diagram shows seven plugs with the shallowest being 5898 feet deep, also the depth of the deepest perforation. It references the plug location as isolation for the Glorieta Formation. Yet, the mud log provided in the Division well record has a formation top for the Glorieta as 5486 feet (TVD). If the lower limit of the San Andres is 5486 feet, then the order can only be issued for the San Andres interval with a total depth 5486 feet and not the application's proposed depth of 5900 feet. This would also require a modification of the well design to include a CIBP with cement cap that is no deeper than 100 feet from 5486 feet (or less than or equal to 5586 feet).

Other items are noted about the application:

- Section X of the C-108 states that logs will be filed after the well has been drilled and completed. Is this a fact or an oversight?
- The proposed MSIP is 2000 psi. The method to determine the MSIP for administrative orders is 0.2 psi/ft, thus making the MSIP 956 psi (0.2 psi x 4780 ft).
- The well construction shows the 9 5/8-inch casing set at 5020 feet and the 7-inch production casing set to 10650 feet. Is Oxy proposing perforating the shoe of the 9 5/8-inch casing as well as the location of the DV tool at 5098 feet in the 7-inch casing?

Take some time and review this request. Please contact me with any questions you may have concerning the content of this e-mail. PRG

Phillip Goetze, PG
Engineering Bureau, Oil Conservation Division
New Mexico Energy, Minerals and Natural Resources Department
1220 South St. Francis Drive, Santa Fe, NM 87505
Direct: 505.476.3466
E-mail: phillip.goetze@state.nm.us

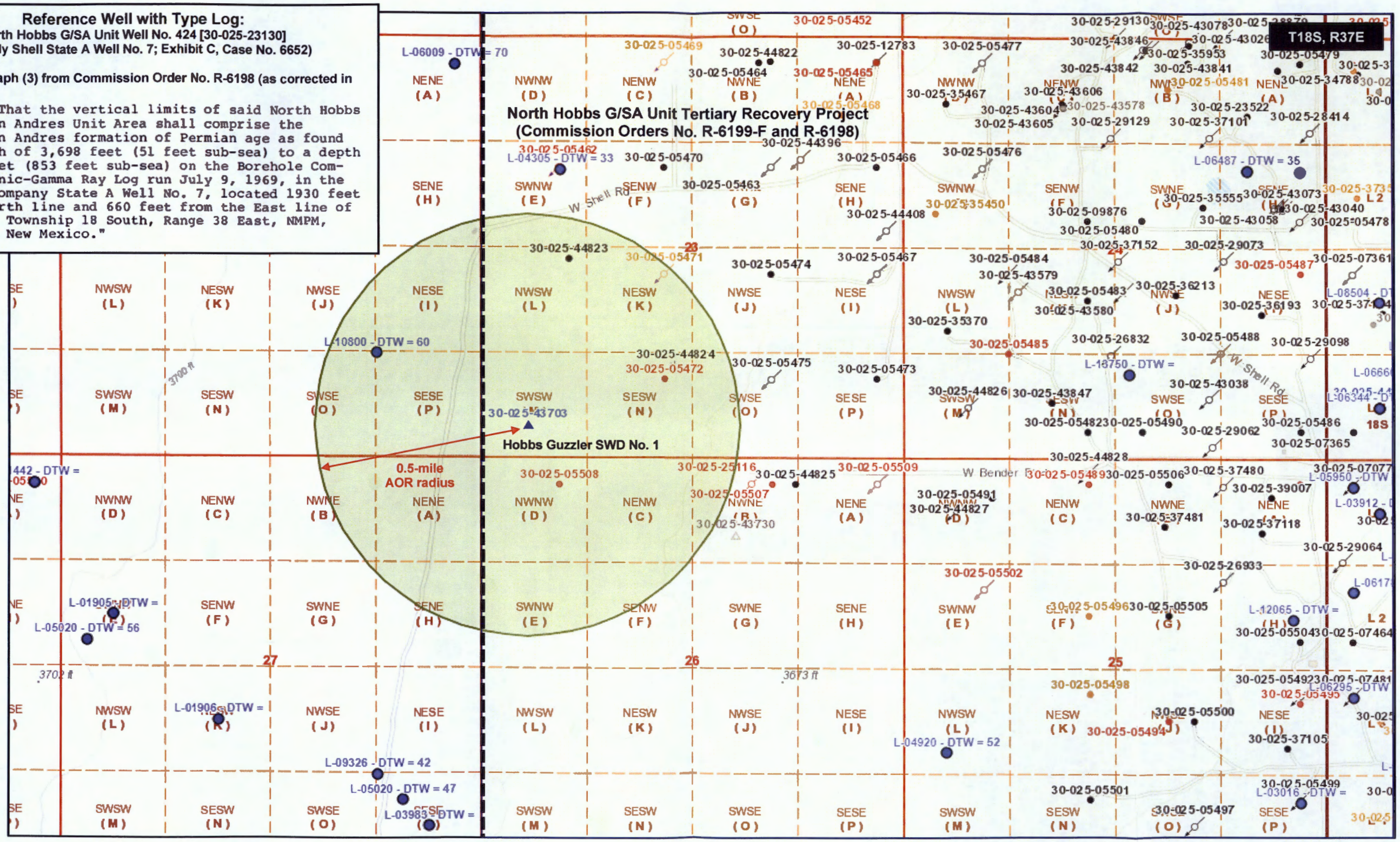


Pending Application for San Andres Disposal Well
C-108 Application to Recomplete Hobbs Guzzler SWD No. 1 in San Andres Fm – Occidental Permian LTD

Reference Well with Type Log:
North Hobbs G/SA Unit Well No. 424 [30-025-23130]
(formerly Shell State A Well No. 7; Exhibit C, Case No. 6652)

Ordering Paragraph (3) from Commission Order No. R-6198 (as corrected in R-6198-A):

"(3) That the vertical limits of said North Hobbs Grayburg-San Andres Unit Area shall comprise the Grayburg-San Andres formation of Permian age as found from a depth of 3,698 feet (51 feet sub-sea) to a depth of 4,500 feet (853 feet sub-sea) on the Borehole Compensated Sonic-Gamma Ray Log run July 9, 1969, in the Shell Oil Company State A Well No. 7, located 1930 feet from the North line and 660 feet from the East line of Section 32, Township 18 South, Range 38 East, NMPM, Lea County, New Mexico."



Pending applications manually plotted; approved SWD Orders from OCD GIS database
Prepared by P. Goetze;08/12/2019 (draft)

TOWNSHIP 18 SOUTH, RANGE 38 EAST, NMPM
Section 17: S/2 NW/4 and SW/4
Section 18: NE/4 and S/2
Sections 19 and 20: All
Section 21: SW/4, S/2 SE/4 and NW/4 SE/4
Sections 27 through 32: All
Section 33: W/2, NE/4, W/2 SE/4 and NE/4 SE/4
Section 34: E/2 NW/4 and E/2

and that the above described lands shall be designated as the North Hobbs Grayburg-San Andres Unit Area.

(3) That the vertical limits of said North Hobbs Grayburg-San Andres Unit Area shall comprise the Grayburg-San Andres formation of Permian age as found from a depth of 3,698 feet (51 feet sub-sea) to a depth of 4,500 feet (853 feet sub-sea) on the Borehole Compensated Sonic-Gamma Ray Log run July 9, 1969, in the Shell Oil Company State A Well No. 1, located 1930 feet from the North line and 660 feet from the East line of Section 32, Township 18 South, Range 38 East, NMPM, Lea County, New Mexico.

R-6198-A
NPT correct well "7"

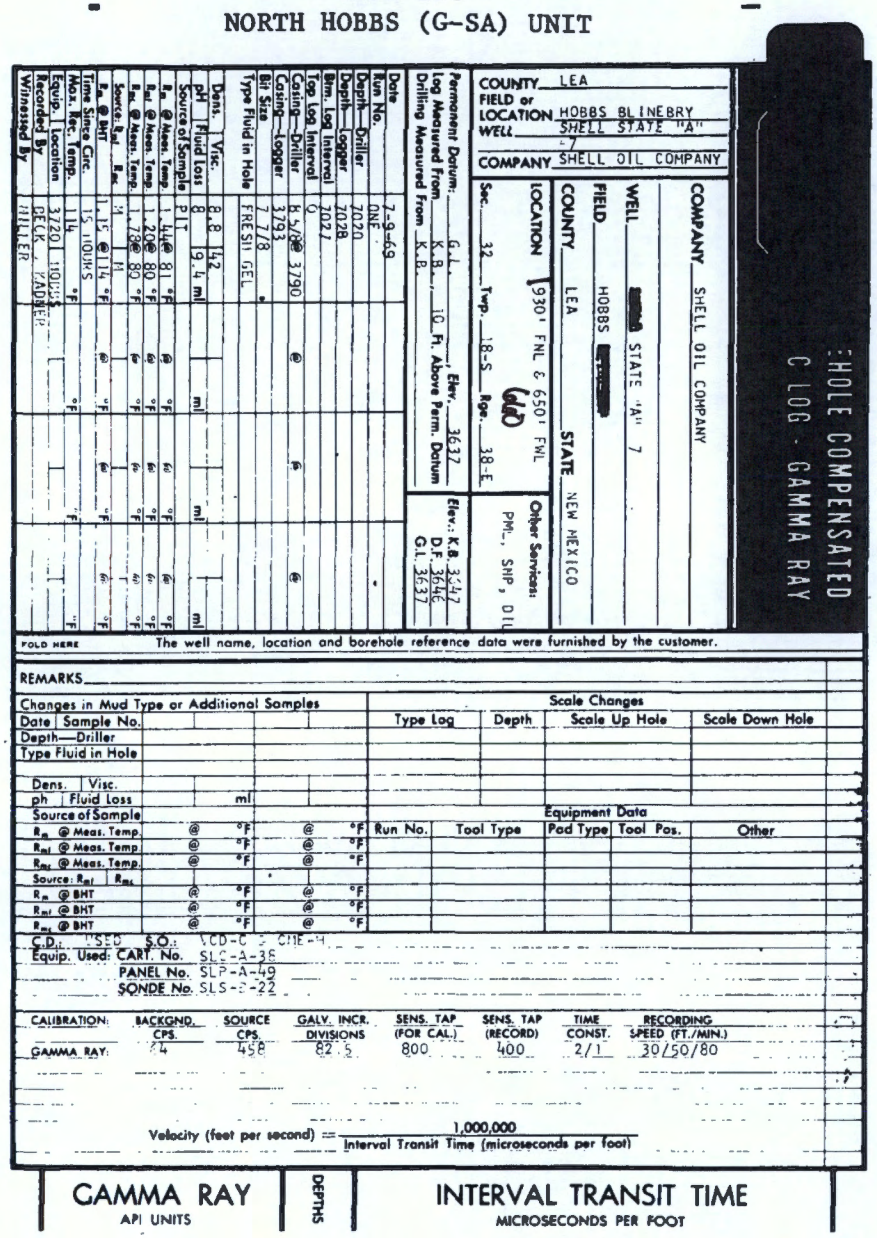
(4) That the applicant shall institute a pressure maintenance project for the secondary recovery of oil, gas, gaseous substances, sulfur contained in gas, condensate, distillate and all associated and constituent liquid or liquified hydrocarbons within and produced from the unit area, and said pressure maintenance project is the subject of Case No. 6653.

(5) That the North Hobbs Grayburg-San Andres Unit Agreement and the North Hobbs Grayburg-San Andres Unit Operating Agreement are approved and adopted and incorporated by reference into this Order subject to compliance with the appropriate ratification provisions of Section 70-7-8, NMSA 1978.

(6) That when the persons owning the required percentage of interest in the unit area have approved or ratified the Unit Agreement and the Unit Operating Agreement, the interests of all persons within the unit area are unitized whether or not such persons have approved the Unit Agreement or the Unit Operating Agreement in writing.

(7) That the applicant as Unit Operator shall notify in writing the Division Director of any removal or substitution of said Unit Operator by any other working interest owner within the unit area.

TYPE LOG
NORTH HOBBS (G-SA) UNIT



FOLD HERE

The well name, location and borehole reference data were furnished by the customer.

REMARKS

| Changes in Mud Type or Additional Samples | | |