Revised March 23, 2017

RECEIVED:	REVIEWER:	TYPE:	APP NO:

ABOVE THIS TABLE FOR OCD DIVISION USE ONLY

NEW MEXICO OIL CONSERVATION DIVISION
- Geological & 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

Applicant: Apache Corporation **OGRID Number:** 873
Well Name: North Monument G/SA Unit 012 **API:** 30-025-05723
Pool: Eunice - Monument; Grayburg - San Andres **Pool Code:** 23000

SUBMIT ACCURATE AND COMPLETE INFORMATION REQUIRED TO PROCESS THE TYPE OF APPLICATION INDICATED BELOW

1) **TYPE OF APPLICATION:** Check those which apply for [A]
A. Location – Spacing Unit – Simultaneous Dedication
☐ NSL ☐ NSP(PROJECT AREA) ☐ NSP(PRORATION UNIT) ☐ SD

B. Check one only for [I] or [II]
[I] Commingling – Storage – Measurement
☐ DHC ☐ CTB ☐ PLC ☐ PC ☐ OLS ☐ OLM
[II] Injection – Disposal – Pressure Increase – Enhanced Oil Recovery
☒ WFX ☐ PMX ☐ SWD ☐ IPI ☐ EOR ☐ PPR

FOR OCD ONLY
☐ Notice Complete
☐ Application Content Complete

2) **NOTIFICATION REQUIRED TO:** Check those which apply.
A. ☒ Offset operators or lease holders
B. ☒ Royalty, overriding royalty owners, revenue owners
C. ☒ Application requires published notice
D. ☒ Notification and/or concurrent approval by SLO
E. ☐ Notification and/or concurrent approval by BLM
F. ☒ Surface owner
G. ☒ For all of the above, proof of notification or publication is attached, and/or,
H. ☐ No notice required

3) **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.

Brian Wood
Print or Type Name

Signature

1-25-23
Date

505 466-8120
Phone Number

brian@permitswest.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: XXX Secondary Recovery _____ Pressure Maintenance _____ Disposal _____ Storage
Application qualifies for administrative approval? XXX Yes _____ No

II. OPERATOR: APACHE CORPORATION

ADDRESS: 303 VETERANS AIRPARK LANE, SUITE 3000, MIDLAND, TX 79705

CONTACT PARTY: BRIAN WOOD (PERMITS WEST, INC.) PHONE: 505 466-8120

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 XXX No
If yes, give the Division order number authorizing the project: R-9596

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

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

NORTH MONUMENT G/SA UNIT 012
30-025-05723

VII. Attach data on the proposed operation, including:

1. Proposed average and maximum daily rate and volume of fluids to be injected;
2. Whether the system is open or closed;
3. Proposed average and maximum injection pressure;
4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and,
5. If injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water (may be measured or inferred from existing literature, studies, nearby wells, etc.).

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

IX. Describe the proposed stimulation program, if any.

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

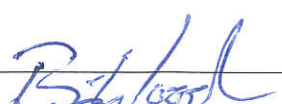
*XI. Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken.

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

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

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

NAME: BRIAN WOOD TITLE: CONSULTANT

SIGNATURE:  DATE: JAN. 23, 2023

E-MAIL ADDRESS: brian@permitswest.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

Side 2

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;

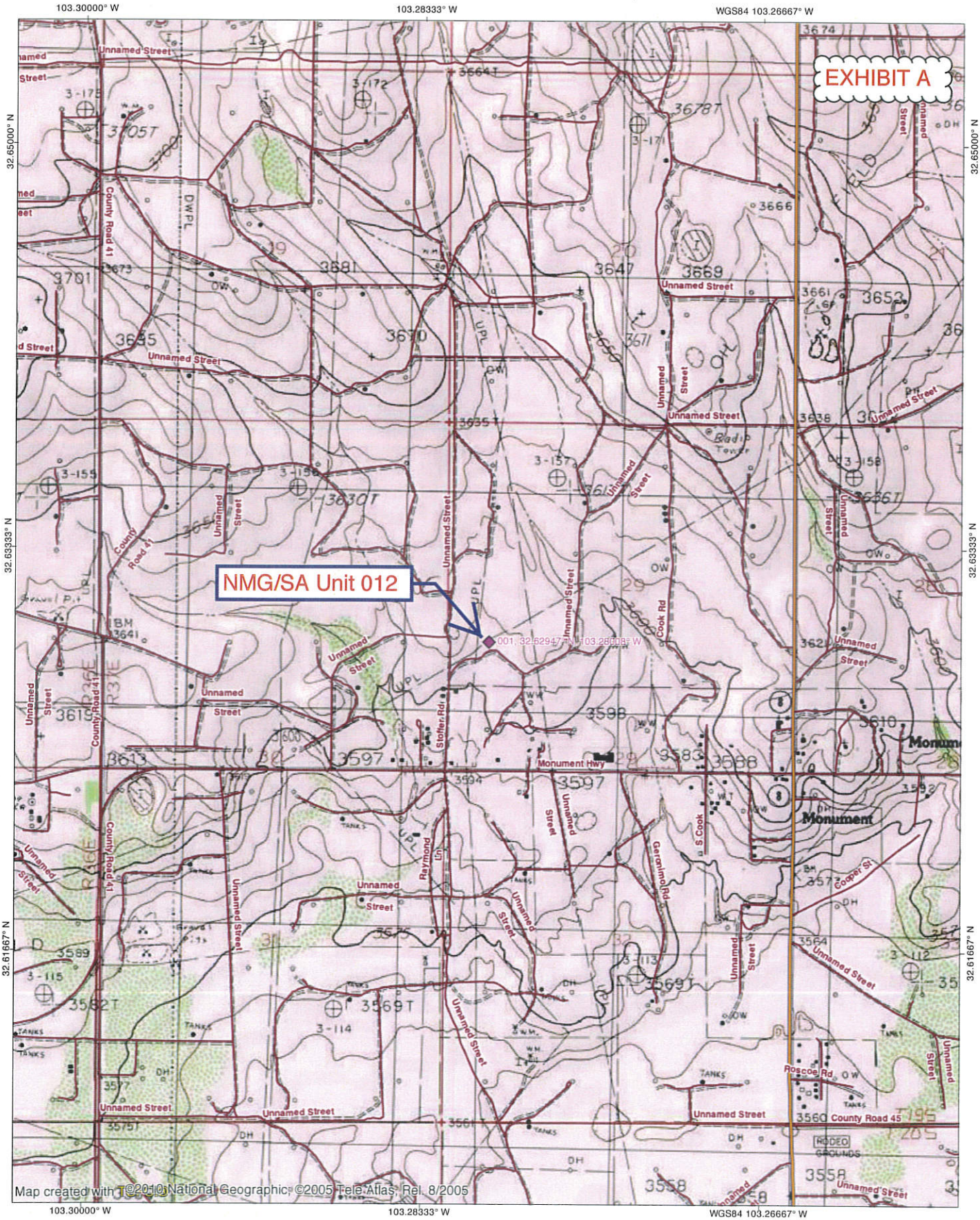
(3) The formation name and depth with expected maximum injection rates and pressures; and,

(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.

TOPO! map printed on 01/15/23 from "Untitled.tpo"



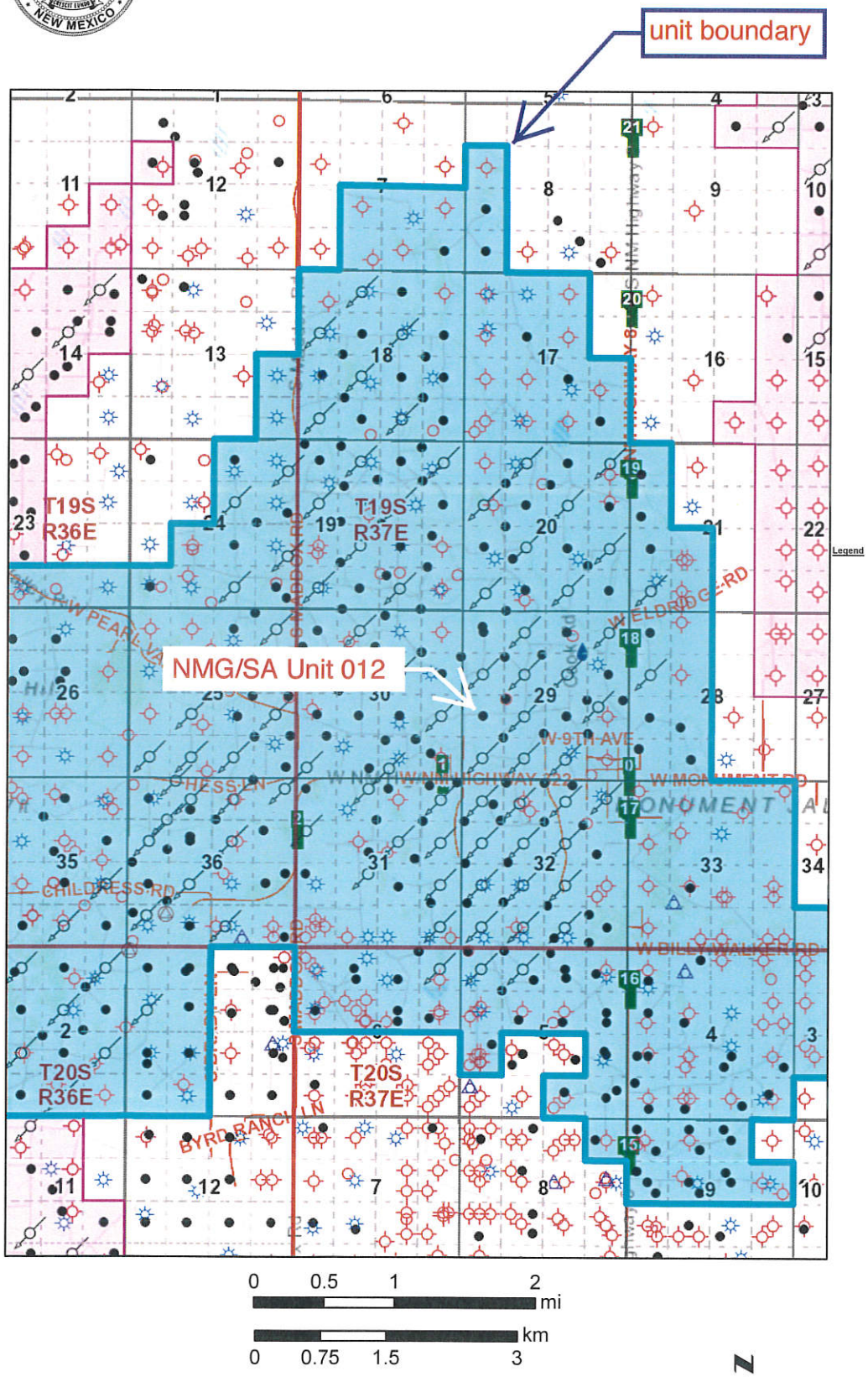
NATIONAL GEOGRAPHIC

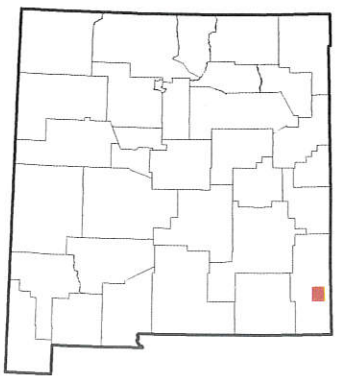
0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 miles
0.0 0.5 1.0 km

TN MN 6° 01/15/23

New Mexico State Land Office

EXHIBIT A





Disclaimer:
The New Mexico State Land Office assumes no responsibility or liability for, or in connection with the accuracy, reliability or use of the information provided herein with respect to State Land Office data or data from other sources.

Data pertaining to New Mexico State Trust Lands are provisional and subject to revision, and do not constitute an official record of title. Official records may be reviewed at the New Mexico State Land Office in Santa Fe, New Mexico.

Side 1

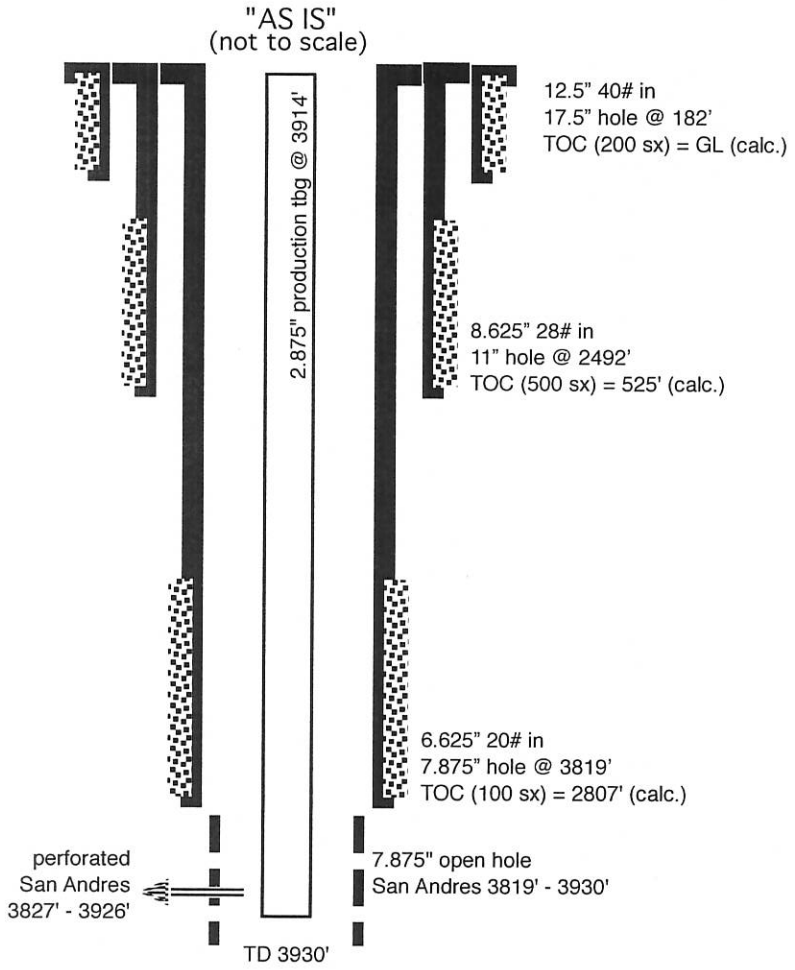
INJECTION WELL DATA SHEET

OPERATOR: APACHE CORPORATION

WELL NAME & NUMBER: NORTH MONUMENT G/SA UNIT 012

WELL LOCATION:	1980' FSL & 660' FWL	L	29	19 S	37 E
	FOOTAGE LOCATION	UNIT LETTER	SECTION	TOWNSHIP	RANGE

WELLBORE SCHEMATIC



WELL CONSTRUCTION DATA

Surface Casing

Hole Size: 17.5" Casing Size: 12.5"

Cemented with: 200 sx. *or* _____ ft³

Top of Cement: SURFACE Method Determined: CALC.

Intermediate Casing

Hole Size: 11" Casing Size: 8.625"

Cemented with: 500 sx. *or* _____ ft³

Top of Cement: 525' Method Determined: CALC.

Production Casing

Hole Size: 7.875" Casing Size: 6.625"

Cemented with: 100 sx. *or* _____ ft³

Top of Cement: 2807' Method Determined: CALC.

Total Depth: 3930' (OPEN HOLE 3819' - 3930')

Injection Interval

3774 feet to 3926'

and

(Perforated or Open Hole; indicate which)

Side 1

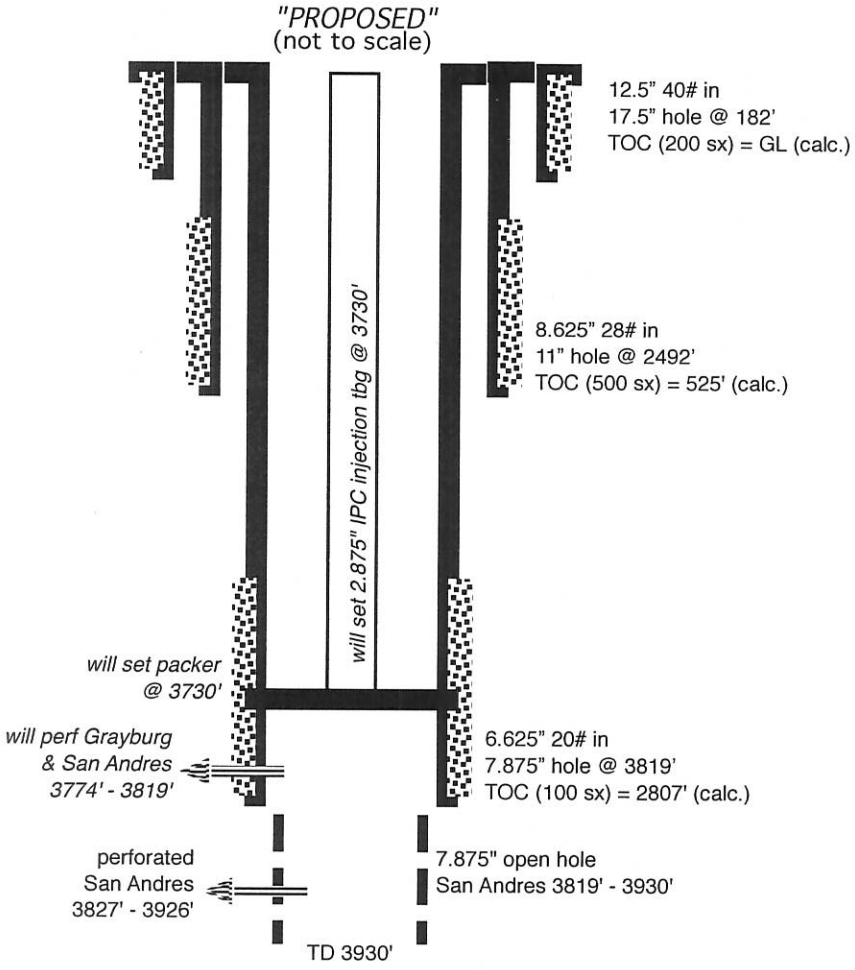
INJECTION WELL DATA SHEET

OPERATOR: APACHE CORPORATION

WELL NAME & NUMBER: NORTH MONUMENT G/SA UNIT 012

WELL LOCATION:	1980' FSL & 660' FWL	L	29	19 S	37 E
	FOOTAGE LOCATION	UNIT LETTER	SECTION	TOWNSHIP	RANGE

WELLBORE SCHEMATIC



WELL CONSTRUCTION DATA

Surface Casing

Hole Size: 17.5" Casing Size: 12.5"

Cemented with: 200 sx. *or* _____ ft³

Top of Cement: SURFACE Method Determined: CALC.

Intermediate Casing

Hole Size: 11" Casing Size: 8.625"

Cemented with: 500 sx. *or* _____ ft³

Top of Cement: 525' Method Determined: CALC.

Production Casing

Hole Size: 7.875" Casing Size: 6.625"

Cemented with: 100 sx. *or* _____ ft³

Top of Cement: 2807' Method Determined: CALC.

Total Depth: 3930' (OPEN HOLE 3819' - 3930')

Injection Interval

3774 feet to 3926'

and

(Perforated or Open Hole; indicate which)

INJECTION WELL DATA SHEET

Tubing Size: 2.875" J-55 6.4# Lining Material: INTERNAL PLASTIC COAT

Type of Packer: LOCK SET INJECTION

Packer Setting Depth: 3730'

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

Additional Data

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

   If no, for what purpose was the well originally drilled? GRAYBURG - SAN ANDRES OIL WELL

2. Name of the Injection Formation: GRAYBURG & SAN ANDRES

3. Name of Field or Pool (if applicable): EUNICE-MONUMENT; GRAYBURG-SAN ANDRES (POOL #23000)

4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail, i.e. sacks of cement or plug(s) used. NO

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

   OVER: YATES (2574'), SEVEN RIVERS (2840'), & QUEEN (3345')

   UNDER: ABO (≈7065')

Affidavit of Publication

EXHIBIT K

STATE OF NEW MEXICO
COUNTY OF LEA

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

Beginning with the issue dated
January 22, 2023
and ending with the issue dated
January 22, 2023.

LEGAL NOTICE
January 22, 2023

Apache Corporation is applying to convert the North Monument G/SA Unit 012 oil well to a water injection well. The well, API 30-025-05723, is at 1980 FSL & 660 FWL, Sec. 29, T. 19 S., R. 37 E., Lea County, NM. This is 0.9 mile northwest of the Monument, NM Post Office. Water will be injected at a maximum pressure of 754 psi into the Grayburg and San Andres formations from 3774' to 3926'. Maximum injection rate will be 700 bwpd. Interested parties must file objections or requests for hearing with the NM Oil Conservation Division, 1220 South Saint Francis Dr., Santa Fe, NM 87505 or ocd.engineer@state.nm.us within 15 days. NMOCD Engineering Bureau phone is 505 476-3441. Additional information can be obtained by contacting: Brian Wood, Permits West, Inc., 37 Verano Loop, Santa Fe, NM 87508. Phone number is (505) 466-8120.
#00275113

Publisher

Sworn and subscribed to before me this
22nd day of January 2023.

Business Manager

My commission expires
January 29, 2027
(Seal)

STATE OF NEW MEXICO
NOTARY PUBLIC
GUSSIE RUTH BLACK
COMMISSION # 1087526
COMMISSION EXPIRES 01/29/2027

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

02108485

00275113

BRIAN WOOD
PERMITS WEST
37 VERANO LOOP
SANTA FE, NM 87508

PERMITS WEST, INC.
PROVIDING PERMITS for LAND USERS
37 Verano Loop, Santa Fe, New Mexico 87508 (505) 466-8120

EXHIBIT L

January 23, 2023

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

TYPICAL NOTICE

Apache Corporation is planning (see attached application) to convert its North Monument G/SA Unit 012 oil well (30-025-05723) to a water injection well. As required by NM Oil Conservation Division (NMOCD) Rules, I am notifying you of the following proposal. This letter is a notice only. No action is needed unless you have questions or objections.

Well Name: North Monument G/SA Unit 012 (NMSLO lease) TD: 3930'
Proposed Injection Zones: Grayburg & San Andres from 3774' to 3926'
Where: 1980' FSL & 660' FWL Sec. 29, T. 19 S., R. 37 E., Lea County, NM
Approximate Location: 0.9 mile northwest of the Monument, NM Post Office
Applicant Name: Apache Corporation (432) 818-1088
Applicant's Address: 303 Veterans Airpark Lane, #3000, Midland, TX 79705

Submittal Information: Application for a water injection well will be filed with the NMOCD. If you have an objection, or wish to request a hearing, then it must be filed with the NMOCD within 15 days of receipt of this letter. The NMOCD Enginering Bureau address is 1220 South St. Francis Dr. Santa Fe, NM 87505. Phone number is (505) 476-3441. E-mail address is: ocd.engineer@state.nm.us

Please call me if you have any questions.

Sincerely,

Brian Wood

EXHIBIT L

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
Domestic Mail Only
For delivery information, visit our website at www.usps.com®.
OFFICIAL USE
Certified Mail Fee
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 Postage and Fees
Sent To
Street and Apt. No., or PO Box No.
City, State, ZIP+4®
PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions
Postmark Here

7022 1670 0001 2804 4109
Empire New Mexico LLC
2200 S Utica Place Suite 150
Tulsa OK 74114
Apache NMGSA 1112

7022 1670 0001 2804 4109
Southwest Royalties
PO Box 53570
Midland TX 79710
Apache NMGSA 1112

7022 1670 0001 2804 4154
Wiser Oil Co.
707 17th St.
Suite 3600
Denver CO 80202
Apache NMGSA 1112

7022 1670 0001 2804 4116
Mewbourne Oil Co.
P. O. Box 5270
Hobbs NM 88241
Apache NMGSA 1112

7022 1670 0001 2804 4116
Wagner Oil Co.
500 Commerce St.
Suite 600
Ft. Worth TX 76102
Apache NMGSA 1112

7022 1670 0001 2804 4161
Wiser Oil Co.
P. O. Box 192
Sistersville WV 26175
Apache NMGSA 1112

7022 1670 0001 2804 4123
NM State Land Office
PO Box 1148
Santa Fe NM 87504
Apache NMGSA 1112

7022 1670 0001 2804 4123
Wiser Oil Co.
110 Gihls Tower East
Midland TX 79702
Apache NMGSA 1112

7022 1670 0001 2804 4130
Wiser Oil Co. c/o El Paso
P. O. Box 1492
El Paso NM 79999
Apache NMGSA 1112

7022 1670 0001 2804 4178
Oil Well Drilling Co.
110 Gihls Tower East
Midland TX 79702
Apache NMGSA 1112

7022 1670 0001 2804 4178
Wiser Oil Co.
611 W. Mahone Suite D
Aretsia NM 88211
Apache NMGSA 1112

7022 1670 0001 2804 4147
Remington Monument, L. L. C.
P. O. Box 13540
Oklahoma City OK 73113
Apache NMGSA 1112

7022 1670 0001 2804 4147
Wiser Oil Co.
8115 Preston Rd.
Suite 400
Dallas TX 75225
Apache NMGSA 1112

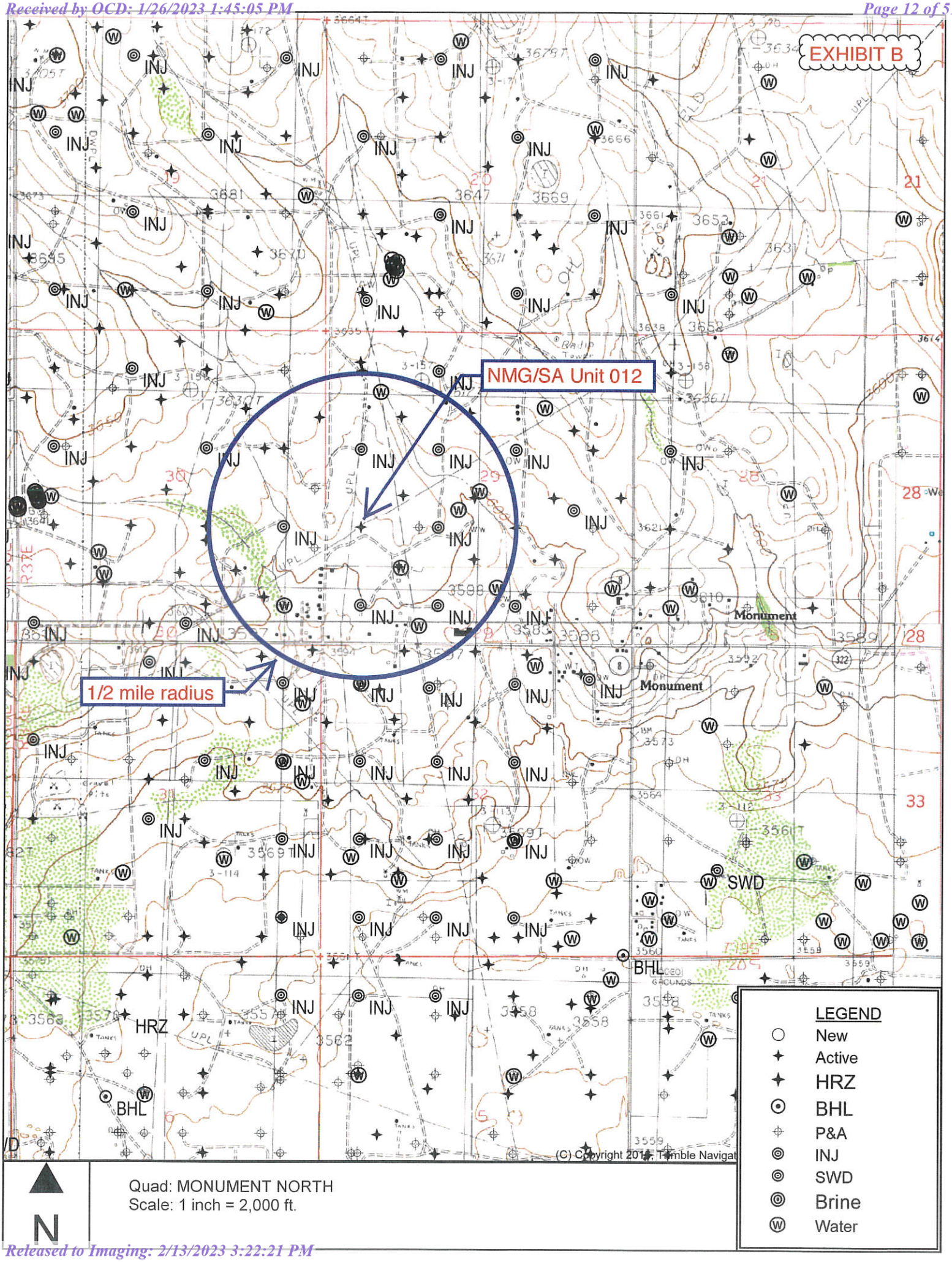


EXHIBIT B
NMG/SA Unit 012
1/2 mile radius
INJ
SWD
HRZ
BHL
Monument
LEGEND
New
Active
HRZ
BHL
P&A
INJ
SWD
Brine
Water
Quad: MONUMENT NORTH
Scale: 1 inch = 2,000 ft.
N
(C) Copyright 2014, Trimble Navigat

SORTED BY DISTANCE FROM NMG/SA UNIT 012

API	OPERATOR	WELL	TYPE	UNIT-SECTION-T19S-R37E	TVD	ZONE @ TD	FEET FROM NMG/SA UNIT 012
3002541726	Apache	N Monument GSA Unit 436	P&A	I-30	3981	Grayburg	852
3002541044	Apache	N Monument GSA Unit 391	O	K-29	4020	San Andres	904
3002535602	Apache	N Monument GSA Unit 319	O	M-29	3939	Grayburg	938
3002525396	Apache	State P Gas Com 003	P&A	K-29	3588	Queen	997
3002538317	Apache	N Monument GSA Unit 363	P&A	I-30	4060	Grayburg	1027
3002505727	Apache	N Monument GSA Unit 005	I	E-29	3946	Grayburg	1318
3002505724	Apache	N Monument GSA Unit 013	I	M-29	3935	Grayburg	1319
3002505754	Apache	N Monument GSA Unit 009	I	I-30	3940	San Andres	1324
3002505725	Apache	N Monument GSA Unit 011	I	K-29	3945	Grayburg	1329
3002505756	Marathon	Elliott State 004	P&A	P-30	3933	Grayburg	1865
3002505721	Apache	N Monument GSA Unit 006	I	F-29	3945	Grayburg	1869
3002505741	Apache	N Monument GSA Unit 008	O	H-30	3954	Grayburg	1873
3002505726	Apache	N Monument GSA Unit 014	I	N-29	3930	Grayburg	1875
3002538454	Apache	N Monument GSA Unit 358	O	F-29	4060	Grayburg	1990
3002539054	Apache	N Monument GSA Unit 371	O	H-30	4040	San Andres	1991
3002535617	Apache	N Monument GSA Unit 317	O	K-29	3960	Grayburg	2016
3002535618	Apache	N Monument GSA Unit 320	O	K-29	3943	Grayburg	2019
3002505757	Apache	N Monument GSA Unit 016	O	P-30	3919	San Andres	2034
3002541046	Apache	N Monument GSA Unit 393	O	J-30	4030	San Andres	2097
3002526170	Apache	Apache State O 005	G	H-30	3570	Queen	2122
3002535129	Apache	N Monument GSA Unit 295	O	C-32	3933	Grayburg	2224

EXHIBIT B

SORTED BY DISTANCE FROM NMG/SA UNIT 012

API	OPERATOR	WELL	TYPE	UNIT-SECTION-T19S-R37E	TVD	ZONE @ TD	FEET FROM NMG/SA UNIT 012
3002535130	Apache	N Monument GSA Unit 296	O	A-31	3974	Grayburg	2235
3002505729	Apache	N Monument GSA Unit 010	O	J-29	3935	San Andres	2634
3002505728	Empire New Mexico	Fred Luthy Com 002	O	D-29	3950	Grayburg	2638
3002505787	Apache	N Monument GSA Unit 004	I	D-32	3920	Grayburg	2639
3002505753	Apache	N Monument GSA Unit 010	O	J-30	3945	Grayburg	2640
3002532381	*Apache*	*Elliott State 006*	*G*	*J-30*	*3700*	*Grayburg*	*2650*

EXHIBIT B

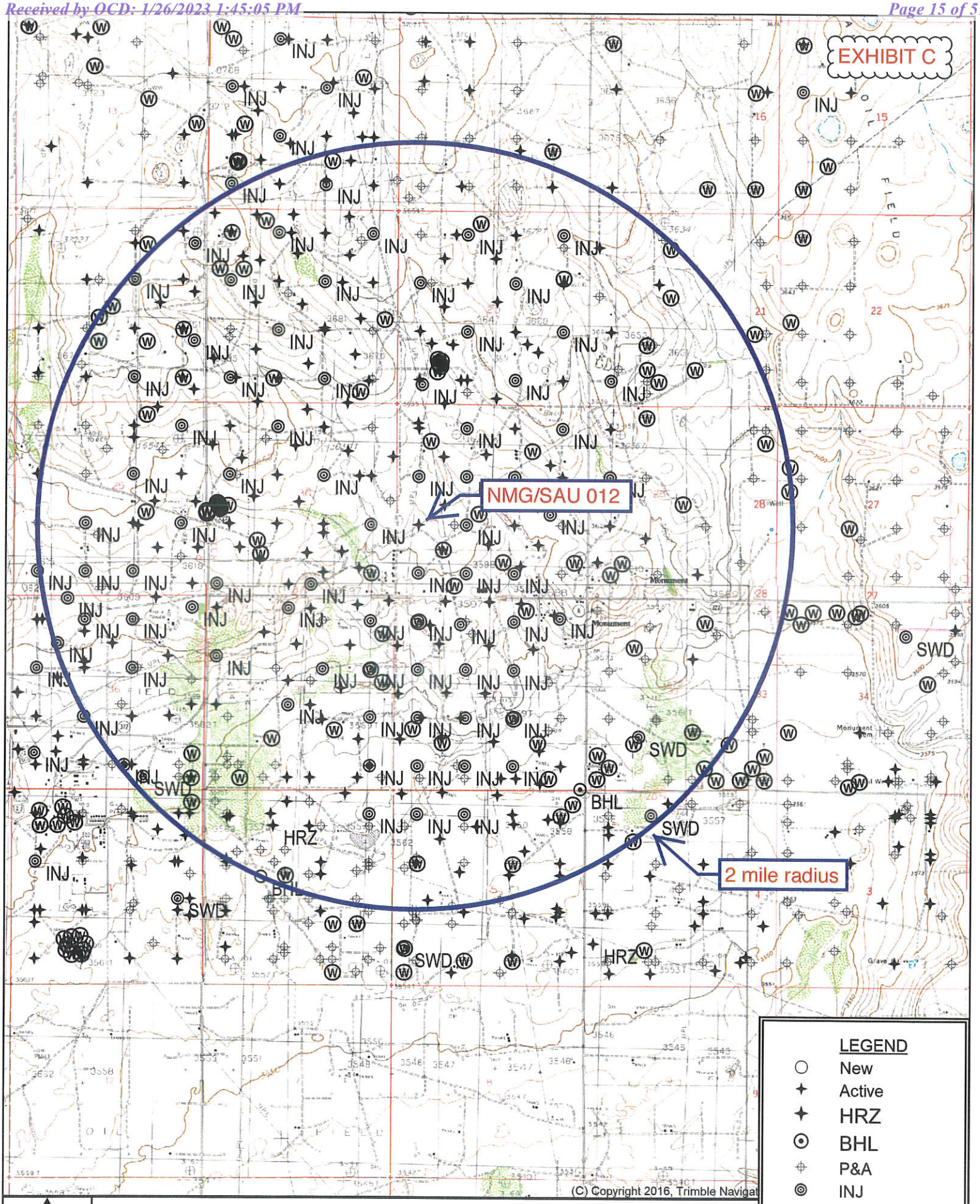
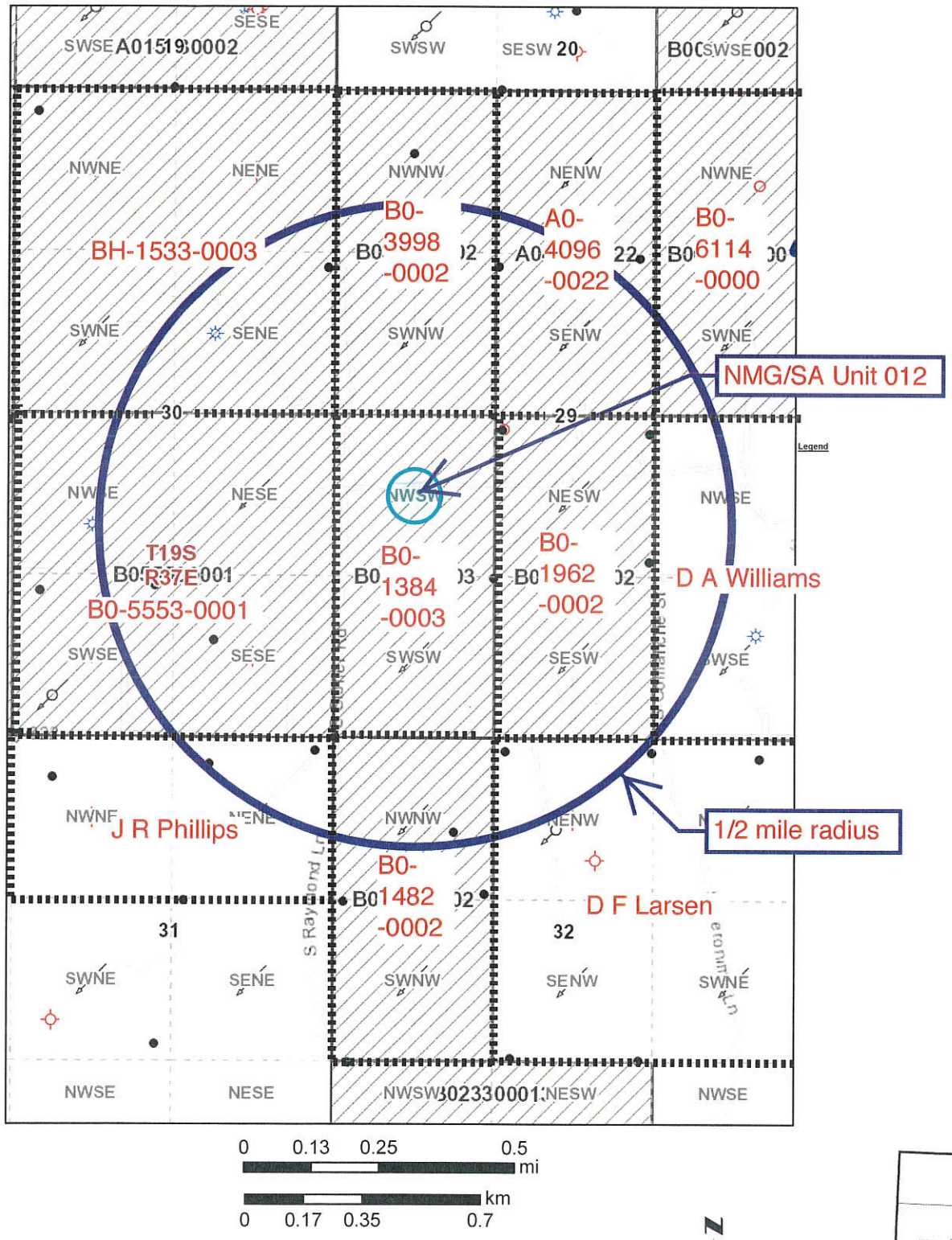
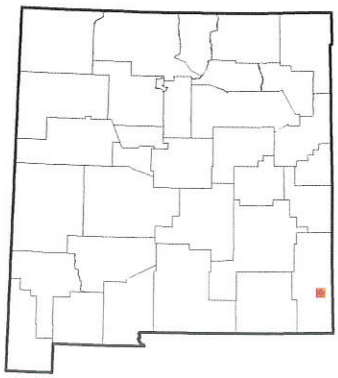


EXHIBIT C
NMG/SAU 012
2 mile radius
INJ
SWD
HRZ
BHL
Monument
FIELD
(C) Copyright 2016, Trimble Navigat
LEGEND
New
Active
HRZ
BHL
P&A
INJ
SWD
Brine
Water
N
Quad: HOBBS
Scale: 1 inch = 3,333 ft.

New Mexico State Land Office

EXHIBIT D





Disclaimer:
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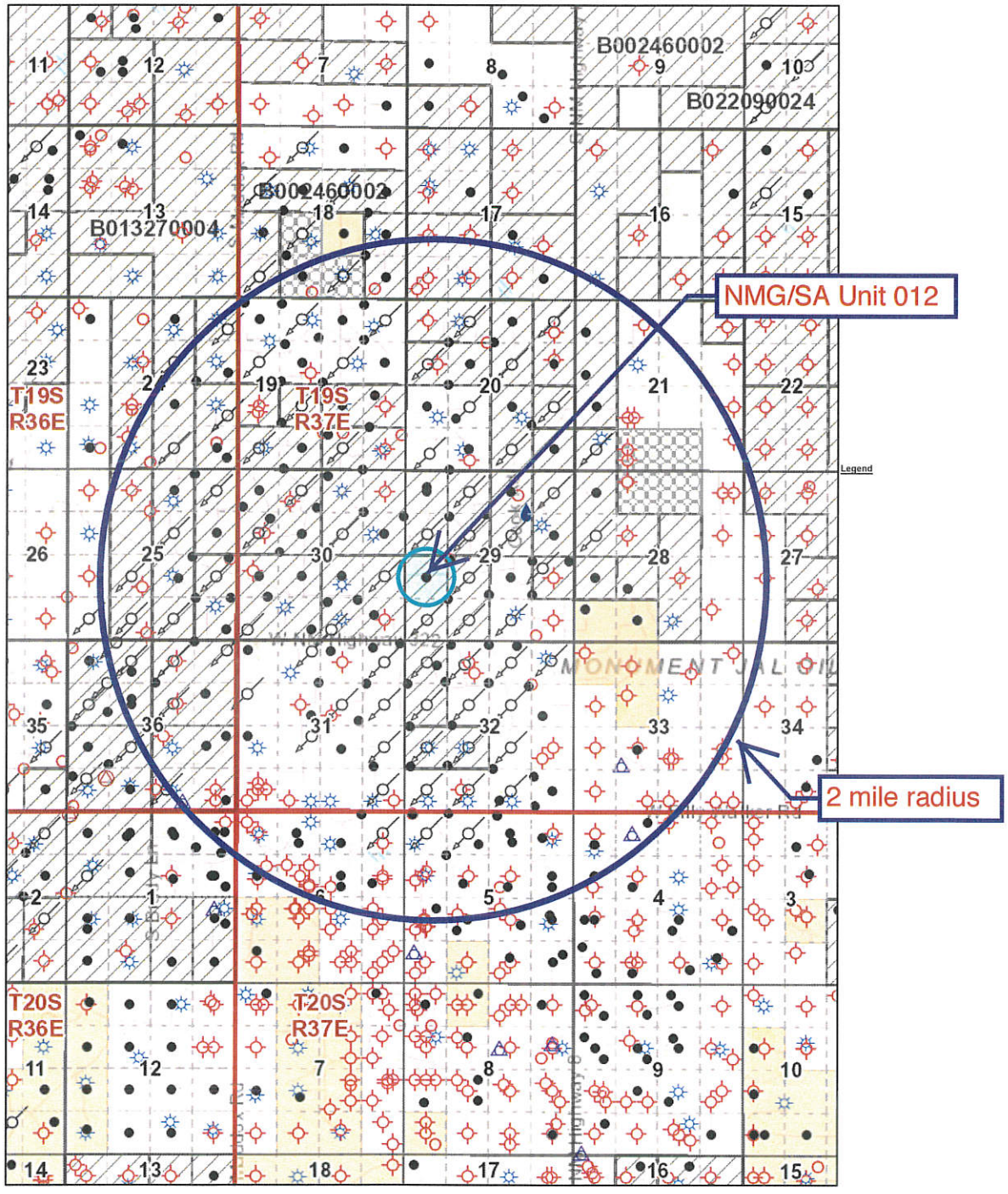
NORTH MONUMENT G/SA UNIT 012 AREA OF REVIEW LEASES

Aliquot Parts in Area of Review (T. 19 S., R. 37 E.)	Lessor	Lease	Lessee(s) of Record	Well Operators (all zones)
E2NW4 Sec. 29	NMSLO	A0-4096-0022	Leaco NM E&P, aka, Apache	Apache
W2NW4 Sec. 29	NMSLO	B0-3998-0002	Southwest Royalties	Apache, Empire NM
SWNE Sec. 29	NMSLO	B0-6114-0000	Oil Well Drilling & Wiser Oil	Apache, Wagner
W2SE4 Sec. 29	fee	D A Williams	Apache	Apache, Mewbourne
E2SW4 Sec. 29	NMSLO	B0-1962-0002	Leaco NM E&P, aka, Apache	Apache
W2SW4 Sec. 29	NMSLO	B0-1384-0003	Leaco NM E&P, aka, Apache	Apache
E2NE4 & SWNE Sec. 30	NMSLO	BH-1533-0003	Leaco NM E&P, aka, Apache	Apache
SE4 Sec. 30	NMSLO	B0-5553-0001	Remington Monument	Apache
NENE Sec. 31	fee	J R Phillips	Apache	Apache
NENW Sec. 32	fee	D F Larsen	Apache	Apache
NWNW Sec. 32	NMSLO	B0-1482-0002	Leaco NM E&P, aka, Apache	Apache

EXHIBIT D

New Mexico State Land Office

EXHIBIT E



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SORTED BY DISTANCE FROM NMG/SA UNIT 012

WELL	SPUD	TVD	POOL	STATUS	HOLE O.D.	CASING O.D.	SET @	CEMENT	TOC	HOW TOC DETERMINED
N Monument GSA Unit 436	8/21/14	3952	Eunice Monument; Grayburg-SA	P&A	12.25	8.625	1275	450 sx	GL	Circ 8 sx
3002541726					7.875	5.5	3981	850 sx	GL	Estimate
I-30-19S-37E										
N Monument GSA Unit 391	5/15/13	4020	Eunice Monument; Grayburg-SA	O	11	8.625	1269	445 sx	GL	Circ
3002541044					7.875	5.5	4020	695 sx	72	CBL
K-29-19S-37E										
N Monument GSA Unit 319	7/17/01	3939	Eunice Monument; Grayburg-SA	O	11	8.625	1320	475 sx	GL	Circ 104 sx
3002535602					7.875	5.5	3939	820 sx	GL	Circ 42 sx
M-29-19S-37E										

EXHIBIT F

SORTED BY DISTANCE FROM NMG/SA UNIT 012

WELL	SPUD	TVD	POOL	STATUS	HOLE O.D.	CASING O.D.	SET @	CEMENT	TOC	HOW TOC DETERMINED
N Monument GSA Unit 363	5/24/07	4060	Eunice Monument; Grayburg-SA	P&A	11	8.625	395	400 sx	GL	Circ
3002538317					7.875	5.5	4060	1050 sx	60	CBL
I-30-19S-37E										
N Monument GSA Unit 005	3/17/36	3946	Eunice Monument; Grayburg-SA	I	13.75	10.75	183	250 sx	GL	Calculated
3002505727					9.875	7.625	1550	300 sx	726	Calculated
E-29-19S-37E					6.75	5.5	3760	500 sx	3211	Calculated
N Monument GSA Unit 013	6/5/36	3935	Eunice Monument; Grayburg-SA	I	17.5	12.25	165	150 sx	GL	Calculated
3002505724					11	8.625	2485	500 sx	535	Calculated
M-29-19S-37E					OH	6.625	3805	100 sx	2915	Calculated

EXHIBIT F

SORTED BY DISTANCE FROM NMG/SA UNIT 012

WELL	SPUD	TVD	POOL	STATUS	HOLE O.D.	CASING O.D.	SET @	CEMENT	TOC	HOW TOC DETERMINED
N Monument GSA Unit 009	4/13/36	3940	Eunice Monument; Grayburg-SA	I	15.5	13	144	150 sx	GL	Calculated
3002505754					12	9.625	1294	500 sx	GL	Calculated
I-30-19S-37E					8.75	7	3790	400 sx	1875	Calculated
N Monument GSA Unit 011	4/24/36	3945	Eunice Monument; Grayburg-SA	I	17.5	12.5	203	150 sx	GL	Calculated
3002505725					11	8.625	2520	500 sx	570	Calculated
K-29-19S-37E					7.875	6.625	3808	100 sx	2918	Calculated
Elliott State 004	8/16/54	3933	Eumont; Yates-7 Rvrs-Queen	P&A	13.75	12.5	150	150 sx	GL	Circ
3002505756					12.5	9.625	1271	500 sx	GL	Circ
P-30-19S-37E					8.75	7	3779	400 sx	2283	CBL

EXHIBIT F

SORTED BY DISTANCE FROM NMG/SA UNIT 012

WELL	SPUD	TVD	POOL	STATUS	HOLE O.D.	CASING O.D.	SET @	CEMENT	TOC	HOW TOC DETERMINED
N Monument GSA Unit 006	1/24/36	3945	Eunice Monument; Grayburg-SA	I	17.5	12.5	162	150 sx	GL	Calculated
3002505721					11	9.625	2510	450 sx	595	Calculated
F-29-19S-37E					8.75	7	3815	100 sx	2976	Calculated
					5.5 - 4.75	open hole	N/A	N/A	N/A	N/A
N Monument GSA Unit 008	4/21/36	3954	Eunice Monument; Grayburg-SA	O	17.5	12.5	185	150 sx	GL	Not reported
3002505741					11	8.625	2496	500 sx	GL	Not reported
H-30-19S-37E					7.875	6.625	3820	100 sx	GL	Not reported
N Monument GSA Unit 014	8/26/36	3930	Eunice Monument; Grayburg-SA	I	17.5	12.5	180	190 sx	GL	Calculated
3002505726					11	8.625	2508	500 sx	5411	Calculated
N-29-19S-37E					7.875	6.625	3806	100 sx	2794	Calculated

EXHIBIT F

SORTED BY DISTANCE FROM NMG/SA UNIT 012

WELL	SPUD	TVD	POOL	STATUS	HOLE O.D.	CASING O.D.	SET @	CEMENT	TOC	HOW TOC DETERMINED
N Monument GSA Unit 358	11/19/07	4060	Eunice Monument; Grayburg-SA	O	12.25	8.625	1274	650 sx	GL	Circ
3002538454					7.875	5.5	4060	650 sx	35	CBL
F-29-19S-37E										
N Monument GSA Unit 371	3/21/10	4040	Eunice Monument; Grayburg-SA	O	12.25	8.625	1304	650 sx	GL	Circ
3002539054					7.875	5.5	4040	715 sx	GL	Circ
H-30-19S-37E										
N Monument GSA Unit 317	8/2/01	3960	Eunice Monument; Grayburg-SA	O	11	8.625	1324	550 sx	GL	Circ 140 sx
3002535617					7.875	5.5	3960	910 sx	GL	Circ 60 sx
K-29-19S-37E										

EXHIBIT F

SORTED BY DISTANCE FROM NMG/SA UNIT 012

WELL	SPUD	TVD	POOL	STATUS	HOLE O.D.	CASING O.D.	SET @	CEMENT	TOC	HOW TOC DETERMINED
N Monument GSA Unit 320	7/25/01	3943	Eunice Monument; Grayburg-SA	O	11	8.625	1320	450 sx	GL	Circ 125 sx
3002535618					7.875	5.5	3943	1050 sx	GL	Circ 26 sx
K-29-19S-37E										
N Monument GSA Unit 016	5/28/56	3850	Eunice Monument; Grayburg-SA	O	13.75	9.625	1282	950 sx	GL	Circ
3002505757					8.75	5.5	3938	210 sx	Not reported	Not reported
P-30-19S-37E										
N Monument GSA Unit 393	5/28/13	4030	Eunice Monument; Grayburg-SA	O	11	8.625	1287	460 sx	GL	Circ 145 sx
3002541046					7.875	5.5	4030	790 sx	GL	Circ 115 sx
O-30-19S-37E										

EXHIBIT F

SORTED BY DISTANCE FROM NMG/SA UNIT 012

WELL	SPUD	TVD	POOL	STATUS	HOLE O.D.	CASING O.D.	SET @	CEMENT	TOC	HOW TOC DETERMINED
N Monument GSA Unit 295	9/29/00	3933	Eunice Monument; Grayburg-SA	O	11	8.625	1315	475 sx	GL	Circ 8 sx
3002535129					7.875	5.5	3930	350 sx	GL	Circ 108 sx
C-32-19S-37E										
N Monument GSA Unit 296	10/12/00	3974	Eunice Monument; Grayburg-SA	O	11	8.625	1250	475 sx	GL	Circ 98 sx
3002535130					7.875	5.5	3952	400 sx	GL	Circ 90 sx
A-31-19S-37E										
N Monument GSA Unit 010	5/15/36	3935	Eunice Monument; Grayburg-SA	O	13.375	10.75	189	200 sx	GL	Calculated
3002505729					9.875	7.625	1378	300 sx	GL	Calculated
J-29-19S-37E					6.75	5.5	3751	300 sx	159	Calculated

EXHIBIT F

SORTED BY DISTANCE FROM NMG/SA UNIT 012

WELL	SPUD	TVD	POOL	STATUS	HOLE O.D.	CASING O.D.	SET @	CEMENT	TOC	HOW TOC DETERMINED
Fred Luthy Com 002	4/21/36	3950	Eumont; Yates-7Rvrs-Queen	O	14.375	10.75	192	200 sx	GL	Calculated
3002505728					9.75	7.625	1351	300 sx	400	Cslculated
D-29-19S-37E					6.75	5.5	3784	300 sx	2525	Calculated
N Monument GSA Unit 004	7/31/36	3920	Eunice Monument; Grayburg-SA	I	17.5	12.5	202	200 sx	GL	Circ
3002505787					11	8.625	2490	500 sx	540	Calculated
D-32-19S-37E					7.875	6.625	3794	100 sx	2004	Calculated
N Monument GSA Unit 010	2/7/36	3945	Eunice Monument; Grayburg-SA	O	15	13	115	100 sx	No report	No report
3002505753					12	9.625	2420	450 sx	No report	No report
J-30-19S-37E					8.75	7	3787	60 sx	3345	CBL

EXHIBIT F

SORTED BY DISTANCE FROM NMG/SA UNIT 012

WELL	SPUD	TVD	POOL	STATUS	HOLE O.D.	CASING O.D.	SET @	CEMENT	TOC	HOW TOC DETERMINED
Elliott State 006	1/28/94	3700	Eumont; Yates-7 Rvrs-Queen	G	OH	14	40	REDIMIX	No report	No report
3002532381					12.25	8.625	1176	580 sx	GL	Circ 170 sx
J-30-19S-37E					7.875	5.5	3700	955 sx	GL	Circ 249 sx

EXHIBIT F

EXHIBIT F

Marathon Oil Co – Elliott State #4

Wellbore Diagram – P&A'd 2/28/2006

API: 30-025-05756

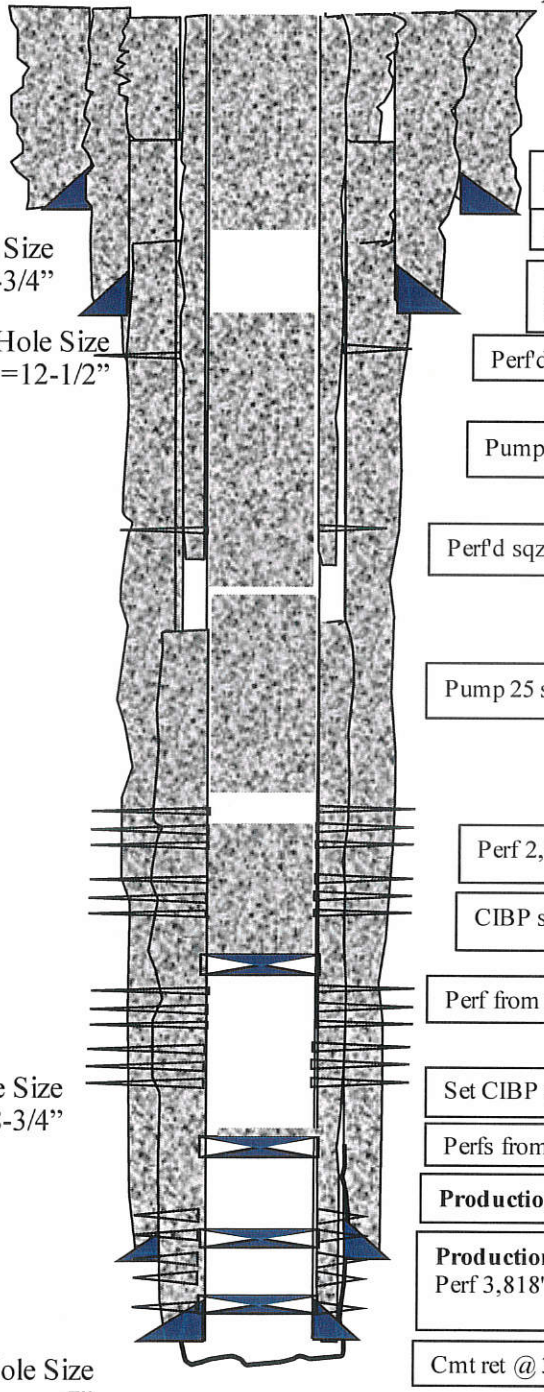
Spud: 5/25/36
GL: 3,606'
KB: 3,616'

Date : 11/7/22

A. Murray

Surface Location

660' FNL & 660' FWL,
Sec 19, T19S, R37E, Lea County, NM



Hole Size =13-3/4"

Hole Size =12-1/2"

Hole Size =8-3/4"

Hole Size =7"

Pump 20 sx C cmt from 211' to surface. 2/28/06

Surface Casing 13" 50# @ 150' w/ 150 sx to surf

Intermediate Casing
9-5/8" 36# @ 1,271' w/ 500 sx to surf

Perf'd 7" at 1,300'. Sqz 160 sx of cmt to surface thru perforations. 3/23/1954

Pump 25 sx C cmt from 1,329' to 1,996'. Tagged cmt at 1,048'. 2/28/06

Perf'd sqz holes in 5" at 1,817'-1,820'. Sqz w/ 585 sx. 3/1979

Pump 25 sx C cmt from 2,206' to 2,538'. Tagged cmt at 1,752'. 2/27/06

Perf 2,585'-3068' in 4/1994.

CIBP set at 3,052'. Pumped 25 sx C cement from 2,720'-3,052'. 2/27/06

Perf from 3,110'-3,563'. 9/2/1954

Set CIBP at 3,620'. Cement on top to 3,610'. 9/2/1954

Perfs from 3,772'- 3,812'. 6/29/1954

Production Casing 1 - 7" 24# @ 3,779' w/ 400 sx TOC @ 969'

Production Casing 2 - 5" 15# @ 3,928' w/ 300 sx TOC @ 2,283' by CBL. 6/29/1954
Perf 3,818'-3,842'. Sqz'd perfs w/ 130 sx of cmt.. 6/29/1954

Cmt ret @ 3,812' & 3,843'.

PBTD = 3,812'
TD = 3,933'

EXHIBIT F

LEASE NAME	NMGSAU
WELL #	#363
API #	30-025-38317
COUNTY	LEA, NM

WELL BORE INFO.

I-30-19s-37e
spud: 5-24-07
P&A: 7-28-22

11" HOLE
8 5/8" 24# @ 395'
W/ 400 SX TO SURF

7 7/8" HOLE
5 1/2" 17# @ 4060'
W/ 1050 SX CIRC TO SURF

CIBP @ 3620' W/ 35' CMT
CIBP @ 3860'
CIBP @ 3910'
PBTD @ 3620'
TD @ 4060'

PERFS @ 3668'-3796'
PERFS @ 3864'-3894'
PERFS @ 3922'-3948'
PERFS @

DEPTH SX/CMT

FINAL P&A WB DIAGRAM

0
169
338
508
677
846
1015
1184
1353
1523
1692
1861
2030
2199
2368
2538
2707
2876
3045
3214
3383
3553
3722
3891
4060

SURF
58 SX
445'

PLUG #3
7/28/2022 PUH & SPOTTED 58 SX CLASS "C" CMT FROM 445' TO SURFACE INSIDE 5 1/2" CSG. RDMO, CUT OFF WH, INSTALL DRY HOLE MARKER, CLEAN LOCATION, P&A COMPLETE 7/28/2022.

SURFACE SHOE, WATER BOARD, & SURF PLUG

1141'
25 SX
1400'

PLUG #2.
7/27/2022 PUH & SPOTTED 25 SX CLASS "C" CMT @ 1400' TAGGED TOC @ 1141'.

TOP OF SALT (PER SALT MAP)

3375'
25 SX
3590'

PLUG #1.
7/27/2022 MIRU P&A RIG. RIH W/TBG & VERIFIED CIBP, CIRC'D W/MLF, & SPOTTED 25 SX CLASS "C" CMT FROM 3590'-3375'.

GRAYBURG & PERNROSE

EXHIBIT F

LEASE NAME	North Monument G/SA Unit
WELL #	436
API #	30-025-41726
COUNTY	LEA

Apache

WELL BORE INFO.

I-30-19s-37e
spud: 8-21-14
P&A: 6-15-21

0

398

796

1194

12 1/4" Hole
8 5/8" 24# @ 1275'
w/ 450 sx. CIRC to surf

1592

1991

2389

2787

3185

3583

CIBP @ 3750' w/ 35' cmt

7 7/8" Hole
5 1/2" 17# @ 3981'
w/ 850 sx CIRC to surf

3981

PBTD @ 3750'
TD @ 3981'

FINAL P&A WB DIAGRAM

4. PUH & CIRC 40 sx Class "C" cmt from 260' to surf. RDMO, cut off WH, install dry hole marker, clean location, P&A completed 06-15-21. (Water Board)

3. PUH & spotted 25 sx Class "C" cmt from 1325'-1075', tagged TOC @ 1070'. (Rustler & Surf Shoe)

2. PUH & spotted 35 sx Class "C" cmt from 2841'-2519', tagged TOC @ 2507'.(Yates & 7 Rvrs)

1. MIRU P&A rig. RIH w/ tbg & verified CIBP @ 3750', CIRC w/ MLF & spotted 35 sx Class "C" cmt from 3750'-3301' (Grayburg, Penrose, & Queen)

Perfs @ 3810'-3910'

Martin Water Laboratories, Inc.
WATER CONSULTANTS SINCE 1953
BACTERIAL AND CHEMICAL ANALYSES

P.O. BOX 1468
MONAHANS, TEXAS 79756
PH. 943-3234 or 563-1040

709 W. INDIANA
MIDLAND, TEXAS 79701
PHONE 683-4521

EXHIBIT G

To: Ms. Denise Wann
P. O. Drawer "D"
Monument, NM 88265

Laboratory No. 1290205
Sample received 12-20-90
Results reported 1-2-91

Company: Amerada Hess Corporation
County: Lea, NM
Field: Eunice Monument
Lease: As Listed

Subject: To determine the amount of precipitated barium sulfate in submitted mixtures of waters.

Mixture of Waters	Precipitated Barium Sulfate as $BaSO_4$, mg/l
1. 90% EMSU water supply well #460 & 10% Larsen #4	0.2
2. 60% EMSU water supply well #460 & 40% Larsen #4	0.2
3. 50% EMSU water supply well #460 & 50% Larsen #4	0.0
4. 40% EMSU water supply well #460 & 60% Larsen #4	0.3
5. 90% EMSU water supply well #460 & 10% State F #3	0.4
6. 60% EMSU water supply well #460 & 40% State F #3	0.0
7. 50% EMSU water supply well #460 & 50% State F #3	0.4
8. 40% EMSU water supply well #460 & 60% State F #3	3.4
9. 90% EMSU water supply well #460 & 10% State F #4	0.0
10. 60% EMSU water supply well #460 & 40% State F #4	0.3
11. 50% EMSU water supply well #460 & 50% State F #4	0.3
12. 40% EMSU water supply well #460 & 60% State F #4	0.5
13. 90% EMSU water supply well #460 & 10% State K #1	0.2
14. 60% EMSU water supply well #460 & 40% State K #1	0.2
15. 50% EMSU water supply well #460 & 50% State K #1	*
16. 40% EMSU water supply well #460 & 60% State K #1	0.0
17. 90% EMSU water supply well #461 & 10% Larsen #4	0.4
18. 60% EMSU water supply well #461 & 40% Larsen #4	0.0
19. 50% EMSU water supply well #461 & 50% Larsen #4	0.2
20. 40% EMSU water supply well #461 & 60% Larsen #4	0.0
21. 90% EMSU water supply well #461 & 10% State F #3	0.0
22. 60% EMSU water supply well #461 & 40% State F #3	0.1
23. 50% EMSU water supply well #461 & 50% State F #3	0.2
24. 40% EMSU water supply well #461 & 60% State F #3	0.2
25. 90% EMSU water supply well #461 & 10% State F #4	0.0
26. 60% EMSU water supply well #461 & 40% State F #4	0.0
27. 50% EMSU water supply well #461 & 50% State F #4	0.0
28. 40% EMSU water supply well #461 & 60% State F #4	0.3

*No sample submitted at this mixture. We did not consider it necessary to make an extra mixture of these waters because of the absence of any detectable barium sulfate in the other combinations.

EXHIBIT G

Ms. Denise Wann, Amerada Hess Corporation - Laboratory No. 1290205 (Page 2)

Mixture of Waters	Precipitated Barium Sulfate as $BaSO_4$, mg/l
29. 90% EMSU water supply well #461 & 10% State K #1	0.0
30. 60% EMSU water supply well #461 & 40% State K #1	0.0
31. 50% EMSU water supply well #461 & 50% State K #1	0.0
32. 40% EMSU water supply well #461 & 60% State K #1	0.0

Remarks: The above results clearly need to be qualified. We have reported the results acquired, but our detectable limits are estimated to be approximately 0.5 mg/l; and when we get a reading below that level, we do not consider it conclusive evidence that any barium sulfate is present. Therefore, only a single sample herein showed what we consider to be a reasonable quantity of barium sulfate in the mixed waters. This was 3.4 mg/l that was detected in the combination of 40 percent of well #460 and 60 percent of State "F" #3. It is our carefully considered conclusion that these results do not indicate any significant incompatibility between the waters that were mixed herein. We would only consider it advisable to maintain some observation over conditions in a system handling the mixture of these waters for the possibility of any barium sulfate deposits or precipitates. We do not consider the results to indicate that any of the waters mixed herein are actually sufficiently incompatible to prevent their mixing.

Waylan C. Martin, M.A.

EXHIBIT H

New Mexico Office of the State Engineer

Water Column/Average Depth to Water

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

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

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

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

POD Number	Code	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Twws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
L 02596		L	LE			3	29	19S	37E	661556	3611315*	291	50	20	30
L 05611 POD3		L	LE	2	2	3	29	19S	37E	661850	3611620*	514	80	28	52
L 03905		L	LE		4	4	30	19S	37E	660953	3611109*	566	35	20	15
L 03906		L	LE		4	4	30	19S	37E	660953	3611109*	566	35	20	15
L 03954		L	LE		4	4	30	19S	37E	660953	3611109*	566	35	20	15
L 03995		L	LE		4	4	30	19S	37E	660953	3611109*	566	35	20	15
L 05995		L	LE		4	4	30	19S	37E	660953	3611109*	566	40	23	17
L 06496		L	LE	3	4	3	29	19S	37E	661656	3611018*	587	50	27	23
L 03922		L	LE				29	19S	37E	661958	3611717*	643	42	22	20
L 03949		L	LE				29	19S	37E	661958	3611717*	643	36	18	18
L 03956		L	LE				29	19S	37E	661958	3611717*	643	40	20	20
L 04799		L	LE				29	19S	37E	661958	3611717*	643	150		
L 10498		L	LE				29	19S	37E	661958	3611717*	643	60		
L 01251		L	LE	4	1	1	29	19S	37E	661434	3612218*	706	51	38	13
L 01252		L	LE	1	3	4	29	19S	37E	662058	3611223*	770	43		
L 05314		L	LE	1	3	4	29	19S	37E	662058	3611223*	770	34	14	20
L 06492		L	LE		1	1	32	19S	37E	661362	3610712*	805	50	27	23
L 09631		L	LE		1	4	29	19S	37E	662153	3611526*	807	35		
L 09632		L	LE		1	4	29	19S	37E	662153	3611526*	807	35		
L 09633		L	LE		1	4	29	19S	37E	662153	3611526*	807	35		
L 01271		L	LE	4	2	2	31	19S	37E	661059	3610606*	955	38	20	18
L 03380		L	LE	2	1	2	32	19S	37E	662265	3610822*	1152	40	35	5
L 01273		L	LE	3	4	4	19	19S	37E	660827	3612617*	1216	62	45	17
L 05579		L	LE		4	2	31	19S	37E	660966	3610304*	1271	35	27	8
L 14366 POD2		L	LE	2	3	3	20	19S	37E	661473	3612797	1286	32		
L 14366 POD1		L	LE	2	3	3	20	19S	37E	661500	3612840	1331	32		
L 05306		L	LE	4	4	2	31	19S	37E	661065	3610203*	1343	30	20	10
L 05500		L	LE	2	4	4	29	19S	37E	662661	3611229*	1346	55		

EXHIBIT H

L 13926 POD2	L	LE	2	3	3	20	19S	37E	661495	3612857	1348	32	21	11
L 13522 POD2	L	LE	3	3	3	30	19S	37E	660018	3611255	1353	30	21	9
L 13926 POD3	L	LE	2	3	3	20	19S	37E	661485	3612865	1356	32	21	11
L 13926 POD1	L	LE	2	3	3	20	19S	37E	661484	3612874	1364	32	21	11
L 13522 POD1	L	LE	3	3	3	30	19S	37E	659988	3611366	1366	28	21	7
L 13521 POD1	L	LE	4	4	3	20	19S	37E	661504	3612887	1379	34	22	12
L 14366 POD3	L	LE	2	3	3	20	19S	37E	661477	3612899	1388	32		

Average Depth to Water: **23 feet**

Minimum Depth: **14 feet**

Maximum Depth: **45 feet**

Record Count: 35

UTMNAD83 Radius Search (in meters):

Easting (X): 661346 **Northing (Y):** 3611517 **Radius:** 1610

***UTM location was derived from PLSS - see Help**

1/17/23 8:27 AM

WATER COLUMN/ AVERAGE DEPTH TO WATER

Analytical Report
Lab Order **2211086**
Date Reported: **11/14/2022**

Hall Environmental Analysis Laboratory, Inc.

EXHIBIT I

CLIENT: Permits West
Project: NMGSAU
Lab ID: 2211086-001 **Matrix:** AQUEOUS

Client Sample ID: Sec 29
Collection Date: 11/1/2022 12:50:00 PM
Received Date: 11/2/2022 11:33:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 1664B						Analyst: **dms**	
N-Hexane Extractable Material	ND	9.46		mg/L	1	11/9/2022 4:42:00 PM	71367
EPA METHOD 300.0: ANIONS						Analyst: **JTT**	
Chloride	210	50		mg/L	100	11/3/2022 8:38:51 AM	R92333
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **SNS**	
Total Dissolved Solids	720	40.0	*D	mg/L	1	11/8/2022 10:21:00 AM	71300

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

EXHIBIT I

Analytical Report
Lab Order **2211086**
Date Reported: **11/14/2022**

CLIENT: Permits West
Project: NMGSAU
Lab ID: 2211086-002 **Matrix:** AQUEOUS

Client Sample ID: Sec 30
Collection Date: 11/1/2022 1:30:00 PM
Received Date: 11/2/2022 11:33:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 1664B						Analyst: **dms**	
N-Hexane Extractable Material	ND	9.50		mg/L	1	11/9/2022 4:42:00 PM	71367
EPA METHOD 300.0: ANIONS						Analyst: **JTT**	
Chloride	110	5.0		mg/L	10	11/3/2022 8:51:16 AM	R92333
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **SNS**	
Total Dissolved Solids	512	20.0	*	mg/L	1	11/8/2022 10:21:00 AM	71300

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

EXHIBIT I

Analytical Report
Lab Order **2211086**
Date Reported: **11/14/2022**

CLIENT: Permits West
Project: NMGSAU
Lab ID: 2211086-003 **Matrix:** AQUEOUS

Client Sample ID: Sec 19
Collection Date: 11/1/2022 10:20:00 AM
Received Date: 11/2/2022 11:33:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 1664B						Analyst: **dms**	
N-Hexane Extractable Material	ND	9.44		mg/L	1	11/9/2022 4:42:00 PM	71367
EPA METHOD 300.0: ANIONS						Analyst: **JTT**	
Chloride	110	5.0		mg/L	10	11/3/2022 9:16:05 AM	R92333
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **SNS**	
Total Dissolved Solids	515	20.0	*	mg/L	1	11/8/2022 10:21:00 AM	71300

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

PERMITS WEST
PROVIDING PERMITS for LAND USERS
37 Verano Loop, Santa Fe, New Mexico 87508 505-466-8120

EXHIBIT J

NM Oil Conservation Division
1220 S. St. Francis Dr.
Santa Fe, NM 87505

Re: Geology Statement
Apache Corporation
North Monument G/SA Unit #012
Section 29, T. 19S, R. 37E
Lea County, New Mexico

To whom it may concern:

Publicly available geologic and engineering data related to the proposed well have been thoroughly reviewed, and no evidence for open faults or any other hydrologic connection between the proposed Grayburg and San Andres injection zone and any underground sources of drinking water has been found. Please see the attached seismic risk assessment for additional information.

Sincerely,

Cory Walk

Cory Walk
Geologist

EXHIBIT J

Seismic Risk Assessment

Apache Corporation

North Monument G/SA Unit #012

Section 29, Township 19 South, Range 37 East

Lea County, New Mexico

Cory Walk, M.S.

Cory Walk

Geologist

Permits West Inc.

January 10, 2023

Apache Corporation
North Monument G/SA Unit #012

SEISMIC RISK ASSESSMENT PAGE 1

EXHIBIT J

GENERAL INFORMATION

North Monument G/SA Unit #012 is located in the SW ¼, section 29, T19S, R37E, about 0.9 miles northwest of Monument, NM in the Central Basin Platform of the greater Permian Basin. Apache Corporation proposes to convert this existing oil well to a water injection well. The proposed injection zone is within the Grayburg and San Andres Formations through a cased hole from 3,774'-3,926' below ground surface. The Grayburg and San Andres are primarily carbonate reservoirs with some sandstones present. This report assesses any potential concerns relating to induced seismicity along deep penetrating Precambrian faults or the connection between the injection zone and known underground potable water sources.

SEISMIC RISK ASSESSMENT

Historical Seismicity

Searching the USGS earthquake catalog resulted in no (0) earthquakes above a magnitude 2.5 within 6 miles (9.7 km) of the proposed injection site since 1970 (Fig 1). According to this dataset, the nearest historical earthquake occurred June 28, 2020 about 11.8 miles (~19.0 km) northwest and had a magnitude of 2.7.

Basement Faults and Subsurface Conditions

A structure contour map (Fig. 1) of the Precambrian basement shows the North Monument G/SA Unit #012 is approximately 4.7 miles from the nearest basement-penetrating fault inferred by Ewing et al (1990) and about 59 miles from the nearest surface fault.

Snee and Zoback (2018) state, "In the western part of Eddy County, New Mexico, S_{Hmax} is ~north–south (consistent with the state of stress in the Rio Grande Rift; Zoback and Zoback, 1980) but rotates to ~east-northeast–west-southwest in southern Lea County, New Mexico, and the northernmost parts of Culberson and Reeves counties, Texas." Around the North Monument G/SA Unit #012 site, Snee and Zoback indicate a **S_{Hmax} direction of N105°E and an A_φ of 0.85, indicating a normal/strike-slip faulting stress regime**.

Induced seismicity is a growing concern of deep injection wells. Snee and Zoback (2018) show that due to its orientation, the nearest Precambrian fault has a low probability of slipping (Fig. 2). Also, the proposed injection zone is much shallower in the Grayburg and San Andres Formations and therefore would not affect the deep Precambrian faults. In addition to the existing fault orientation, the vertical (approx. 6600') and horizontal (4.7 miles) separation between the proposed water injection zone and any deep Precambrian faults is large enough to infer that there is no immediate concern or potential of induced seismicity as a result from this injection well.

GROUNDWATER SOURCES

Three principal aquifers are used for potable groundwater in southern Lea County; these geologic units include the Triassic Santa Rosa formation, Tertiary Ogallala formation, and Quaternary alluvium. Nicholson and Clebsch (1961) state, "Potable ground water is not available below the Permian and Triassic unconformity but, because this boundary is not easily defined, the top of the Rustler anhydrite

PERMITS WEST

EXHIBIT J

formation is regarded as the effective lower limit of 'potable' ground water." Around the North Monument G/SA Unit #012 well, the top of a thick anhydrite unit interpreted to represent the Rustler Formation lies at a depth of ~1340 feet bgs.

STRATIGRAPHY

A thick permeability barrier (Rustler Anhydrite and Salado Fm; 1500+ ft thick) exists above the targeted Grayburg and San Andres injection zone. Well data indicates ~2,400 ft of rock separating the top of the injection zone from the previously stated lower limit of potable water at the top of the Rustler anhydrite formation.

CONCLUDING STATEMENT

All available geologic and engineering data evaluated around the North Monument G/SA Unit #012 well show no potential structural or stratigraphic connection between the Grayburg and San Andres injection zone and any subsurface potable water sources. The shallow injection zone, spatial location and orientation of nearby faults also removes any major concern of inducing seismic activity.

Apache Corporation
North Monument G/SA Unit #012

SEISMIC RISK ASSESSMENT PAGE 3

EXHIBIT J

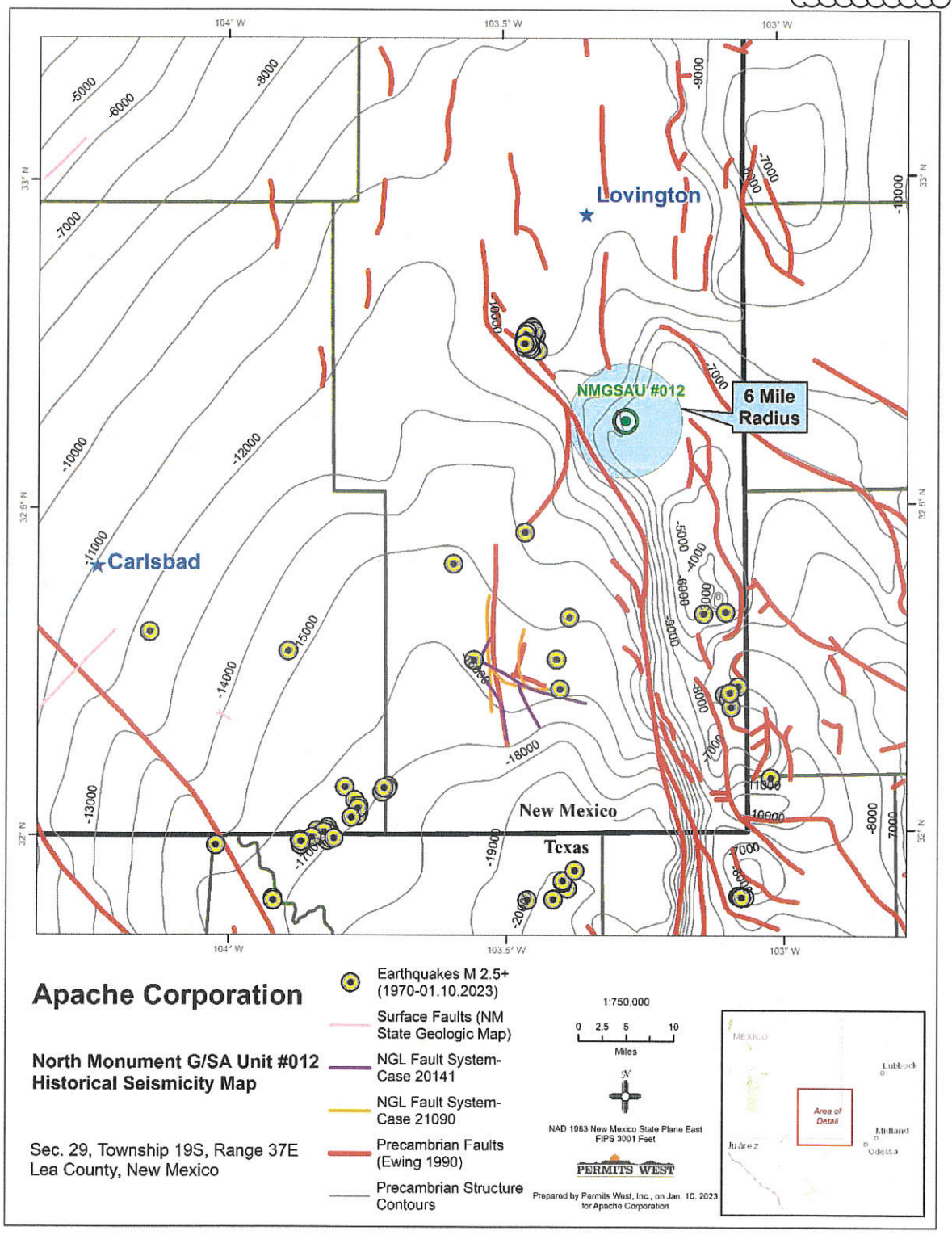


Figure 1. Structural contour map of the Precambrian basement in feet below sea level. Red lines represent the locations of Precambrian basement-penetrating faults (Ewing et al., 1990). The North Monument G/SA Unit #012 well lies ~4.7 miles east of the closest deeply penetrating fault, ~59 miles from the nearest surface fault and ~11.8 miles from the closest historic earthquake.

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Apache Corporation
North Monument G/SA Unit #012

SEISMIC RISK ASSESSMENT PAGE 4

EXHIBIT J

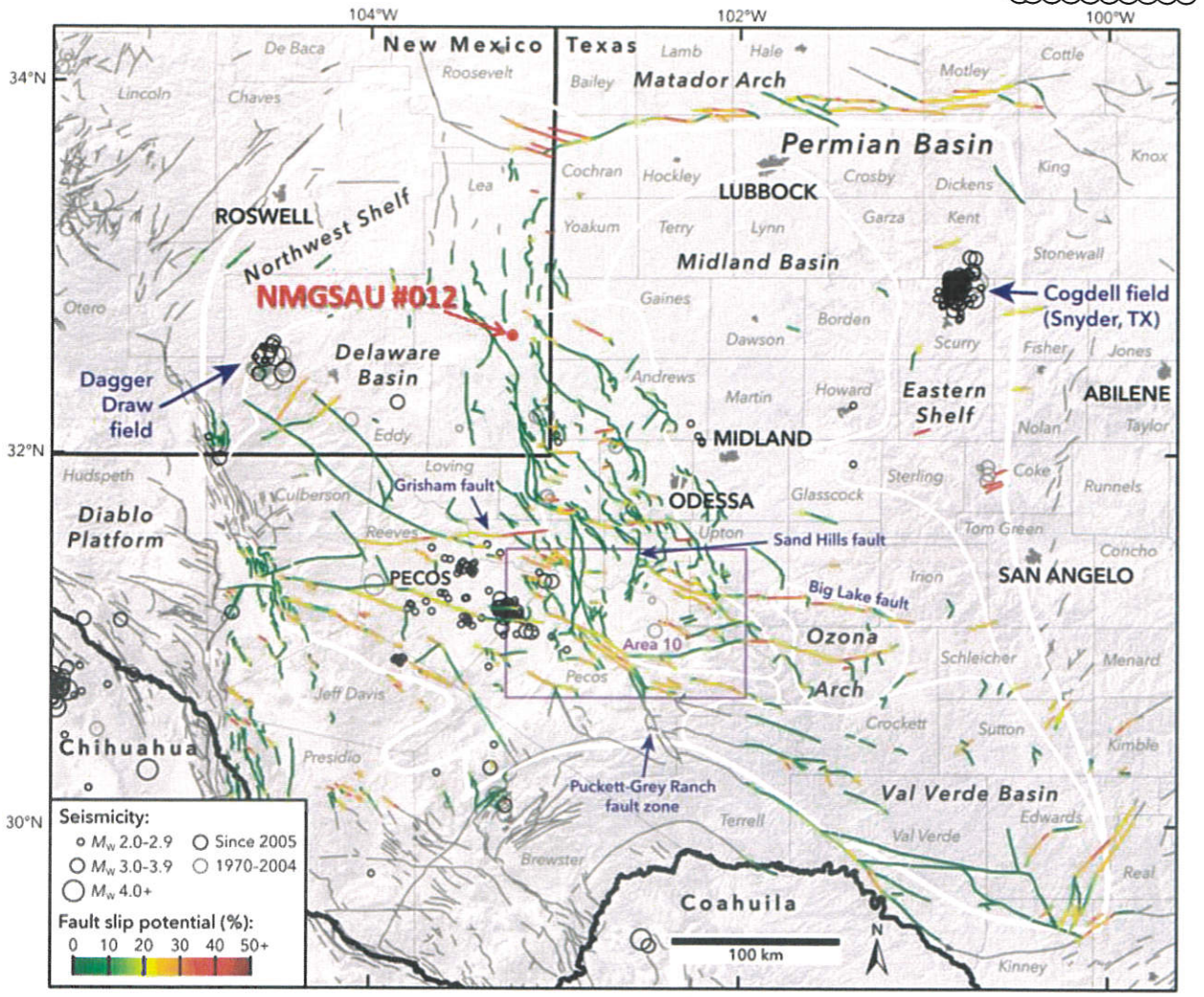

Figure 2. Modified from Snee and Zoback (2018). The nearest deep Precambrian fault lies ~4.7 miles west of the proposed injection well and has a low probability (0%) of slip. Also, the proposed injection zone is much shallower in the Grayburg and San Andres and therefore removes any major concern of inducing seismicity on any known fault.

PERMITS WEST

EXHIBIT J

References Cited

Ewing, T. E., 1990, The tectonic map of Texas: Austin, Bureau of Economic Geology, The University of Texas at Austin.

Geologic Map of New Mexico, New Mexico Bureau of Geology and Mineral Resources, 2003, Scale 1:500,000.

Nicholson, A., Jr., and Clebsch, A., Jr., 1961, Geology and ground-water conditions in southern Lea County, New Mexico: New Mexico Bureau of Mines and Mineral Resources, Ground-Water Report 6, 123 pp., 2 plates.

Snee, J.-E.L., Zoback, M.D., 2018, State of stress in the Permian Basin, Texas and New Mexico: Implications for induced seismicity: Leading Edge, v. 37, p. 127–134.

APACHE CORPORATION
NORTH MONUMENT G/SA UNIT 012
1980' FSL & 660' FWL
SEC. 29, T. 19 S., R. 37 E., LEA COUNTY, NM

PAGE 1

30-025-05723

I. Goal is to convert an oil well to a water injection well. The well is 3930' deep and is producing (3827' – 3926') open hole from the San Andres. Total open hole is 3819' to 3930'. The injection interval will be 3774' – 3926' in the Grayburg and San Andres. The Grayburg and San Andres are part of the Eunice – Monument; Grayburg – San Andres Pool (code = 23000).

The well and zones are part of the North Monument G/SA Unit (Unit #300156, Case 10253, Order R-9494) that was established in 1991 by Amerada Hess Corp. The waterflood was approved in Case 10252, Order R-9596, also in 1991. The well was approved (WFX-773) as a water injector in 2001, but never converted. Apache became Unit operator in 2006.

The well was formerly known as the North Monument G/SA Unit Block 11 #12, and before that was known as the State P #1. Apache operates 14 wells with the nomenclature of "North Monument G/SA Unit 012". Apache, internally, refers to the well as NMGSAU 1112.

II. Operator: Apache Corporation (OGRID #873)
Operator phone number: (432) 818-1088
Operator address: 303 Veterans Airpark Lane, Suite 3000
Midland, TX 79705
Contact for Application: Brian Wood (Permits West, Inc.)
Phone: (505) 466-8120

III. A. (1) Lease: NMSLO B0-1384-0003
Lease Size: 80.00 acres (see Exhibit A for maps)
Closest Lease Line: 660'
Lease Area: W2SW4 Section 29, T. 19 S., R. 37 E.
Unit Size: 13,385 acres
Closest Unit Line: 7260' east

A. (2) Surface casing (12.5", 40#) is set at 182' in a 17.5" hole and cemented with 200 sacks to GL (calculated).

PERMITS WEST, INC.
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Intermediate casing (8.625", 28#) is set at 2492' in an 11" hole and cemented with 500 sacks to 525' (calculated).

Production casing (6.625", 20#) is set at 3819' in a 7.875" hole and cemented with 100 sacks to 2807' (calculated).

The well is open hole (7.875") in the San Andres from 3819' to 3930'.

Mechanical integrity of the casing will be assured by hydraulically pressure testing to 500 psi for 30 minutes.

A. (3) Tubing will be IPC, 2.875", J-55, 6.4#. Setting depth will be 3730'. (Top perforation will be 3774'.)

A. (4) A lock set injection packer will be set at 3730' (44' above the highest perforation of 3774').

B. (1) Injection will be in the Grayburg and San Andres zones in the Eunice - Monument; Grayburg - San Andres Pool (pool code = 23000).

B. (2) Injection interval will be 3774' - 3926'.

B. (3) Well was originally drilled in 1936 as a Grayburg - San Andres oil well.

B. (4) The well is cased from GL to 3819' and open hole from 3819' to 3930'. There are no existing perforations above the open hole.

B. (5) Next higher oil or gas zone within the area of review is the Queen at 3345' - 3450'. Injection interval will be 3774' - 3926'. Next lower oil or gas zone within the area of review is the Abo. Its top is at ≈7065'.

IV. This is not a horizontal or vertical expansion of an existing injection project. Records for the unit approval (R-9494, Case 10253) include a discussion of the Grayburg - San Andres water flood. The water flood (R-9596, Case 10252) was

approved at the same time in 1991. At least four water flood expansions (WFX-716, -739, -773, and -942) have been approved. Closest unit boundary is 7260' east. Seven injection wells are within a half-mile radius (see Exhibit B).

V. Exhibit B shows and tabulates all 26 existing wells (15 producers + 7 injectors + 4 P&A) within a half-mile (2640') radius, regardless of depth. Exhibit C shows all 531 existing wells (202 oil or gas producing wells + 79 injection or disposal wells + 116 P & A wells + 2 waterflood supply wells + 132 freshwater wells) within a two-mile radius.

Exhibit D shows and tabulates all leases (fee and NMSLO) within a half-mile radius. Exhibit E shows all lessors (BLM, fee, and NMSLO) within a two-mile radius.

VI. Twenty-six wells are within a half-mile. Twenty-four of the 26 wells penetrated the Grayburg and/or San Andres. The 24 penetrators include 14 oil or gas wells, 7 water injectors, and 3 P&A wells. Exhibit F tabulates the penetrators and diagrams the P&A wells.

VII. 1. Average injection rate will be ≈600 bwpd. Maximum will be 700 bwpd.

2. System will be closed. The well will tie into the existing Unit pipeline system.

3. Average injection pressure will be ≈350 psi. Maximum injection pressure will be 754 psi (= 0.2 psi/foot x 3774' (top perforation)).

4. Water source will be two existing ≈5125' deep lower San Andres water supply wells (#018 and #624) plus produced water from the Grayburg and San Andres. Both water streams (source and produced) are commingled before being piped to injection wells. An analysis (Exhibit G) from the hearing concluded the waters are compatible.

5. Grayburg and San Andres are productive within one mile of the well.

VIII. The Grayburg Formation is interbedded mudstone, wackestone, packstone, grainstone, and dolomite. The San Andres Formation is a massive dolomite with some siltstone and sandstone strata. There is a not a clear marker between the Grayburg and San Andres in the Unit. The porous dolomites are the productive part of the formations. Notable depths are:

Quaternary = 0'
Ogallala = 15'
Rustler = 1271'
Top Salt = 1391'
Base Salt = 2414'
Tansill = 2482'
Yates = 2574'
Seven Rivers = 2840'
Queen = 3345'
Penrose = 3450'
Grayburg = 3650'
injection interval = 3774' - 3926'
San Andres = 3812'
TD = 3930'

State Engineer records (Exhibit H) show 35 water wells are within a 1-mile radius. Deepest of the 35 is 150'. All bottom in the red beds.

NMG/SA Unit 012 penetrates the Ogallala aquifer and is >9 miles northeast of the Capitan Reef. No existing underground drinking water source is below the San Andres within a mile radius. Produced water has been injected into 3 zones (Yates, Seven Rivers, Queen) above the Grayburg within T. 19 S., R. 37 E. via nine wells. Produced water has been disposed into 3 zones (San Andres, Delaware, Bone Spring) below the Grayburg within T. 19 S., R. 37 E. via five SWD wells. Over 395,075,017 barrels of water have been injected in the NMG/SA Unit to date.

IX. The well will be stimulated with acid to clean out scale or fill.

X. No log is on file with NMOCD.

XI. Three windmills within a 1.1 mile radius were sampled during a November 1, 2022, field inspection. Analyses from the windmills are in Exhibit I. (Floyd Cody, Manager of the Monument Municipal Domestic Water Consumers Association says most well owners abandoned their wells when the utility came on-line.)

XII. Apache (Exhibit J) is not aware of any geologic or engineering data that may indicate the Grayburg or San Andres are in hydrologic connection with any underground source of water. There are 1,606 Grayburg injectors and 1,178 San Andres injectors in New Mexico. Previously approved Unit water flood expansions include WFX-716, -739, -773, and -942.

XIII. A legal ad (see Exhibit K) was published on January 22, 2023. Notice (this application) has been sent (Exhibit L) to the surface owners (NM State Land Office), lessees of record (Oil Well Drilling, Remington Monument, Southwest Royalties, and Wiser Oil), government lessors (NMSLO), and all other well operators (Empire NM, Mewbourne, and Wagner) within the ½ mile area of review.

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 Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

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

COMMENTS

Action 180006

COMMENTS

Operator: APACHE CORPORATION 303 Veterans Airpark Ln Midland, TX 79705	OGRID: 873
	Action Number: 180006
	Action Type: [C-108] Fluid Injection Well (C-108)

COMMENTS

Created By	Comment	Comment Date
mgebremichael	Record maintenance approved under WFX-1054	2/13/2023

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 Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

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

CONDITIONS

Action 180006

CONDITIONS

Operator: APACHE CORPORATION 303 Veterans Airpark Ln Midland, TX 79705	OGRID: 873
	Action Number: 180006
	Action Type: [C-108] Fluid Injection Well (C-108)

CONDITIONS

Created By	Condition	Condition Date
mgebremichael	None	2/13/2023