

RECEIVED: <u>3/08/2018</u>	REVIEWER:	TYPE: <u>WFX</u>	APP NO: <u>PMAM 1806742733</u>
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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: <u>Apache Corporation</u>	OGRID Number: <u>873</u>
Well Name: <u>East Blinbry Drinkard Unit 24</u>	API: <u>30-025-06530</u>
Pool: <u>Eunice; BLI-TU-DR, North</u>	Pool Code: <u>22900</u>

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

WFX-579

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

MAR 08 2018 AM 08:53

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

FOR OCD ONLY

☐ Notice Complete

☐ Application
Content
Complete

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

Brian Wood

Signature

3-7-18

Date


505 466-8120

Phone Number

brian@permitswest.com

e-mail Address

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-12981
- 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.
EAST BLINEBRY DRINKARD UNIT 24
- VII. Attach data on the proposed operation, including: **30-025-06530**
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. 16, 2018
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: _____

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.

INJECTION WELL DATA SHEET

OPERATOR: APACHE CORPORATIONWELL NAME & NUMBER: 2310' FSL & 1650' FEL EAST BLINEBRY DRINKARD UNIT 24WELL LOCATION: 2310' FSL & 1650' FEL

J

11

21 S

37 E

FOOTAGE LOCATION

UNIT LETTER

SECTION

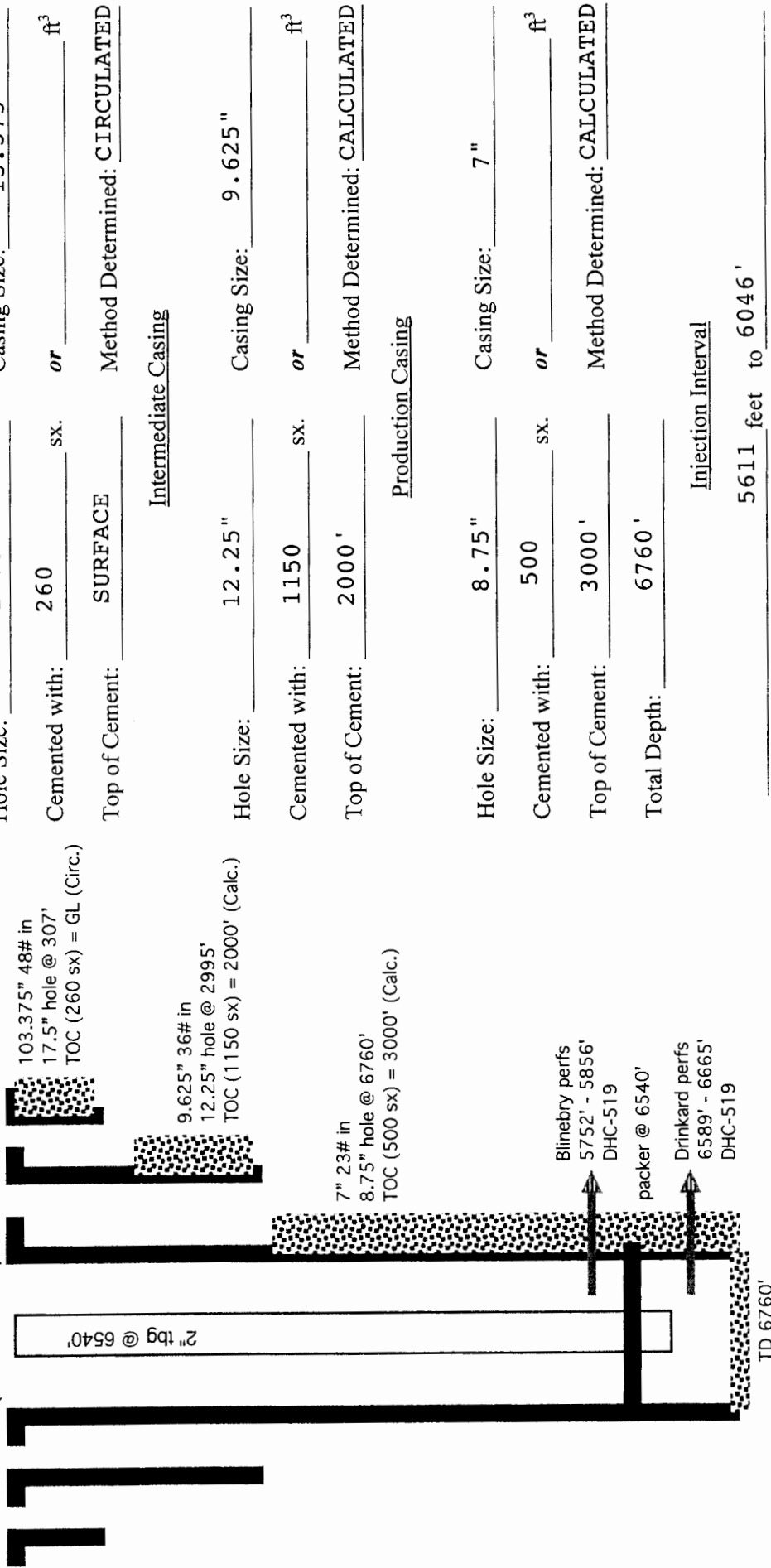
TOWNSHIP

RANGE

WELLBORE SCHEMATICWELL CONSTRUCTION DATASurface Casing

" AS IS"

(not to scale)

Injection Interval

5611 feet to 6046'

(Perforated or Open Hole; indicate which)

INJECTION WELL DATA SHEET

OPERATOR: APACHE CORPORATIONWELL NAME & NUMBER: EAST BLINEBRY DRINKARD UNIT 24WELL LOCATION: 2310' FSL & 1650' FEL

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11

21 S

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FOOTAGE LOCATION

UNIT LETTER

SECTION

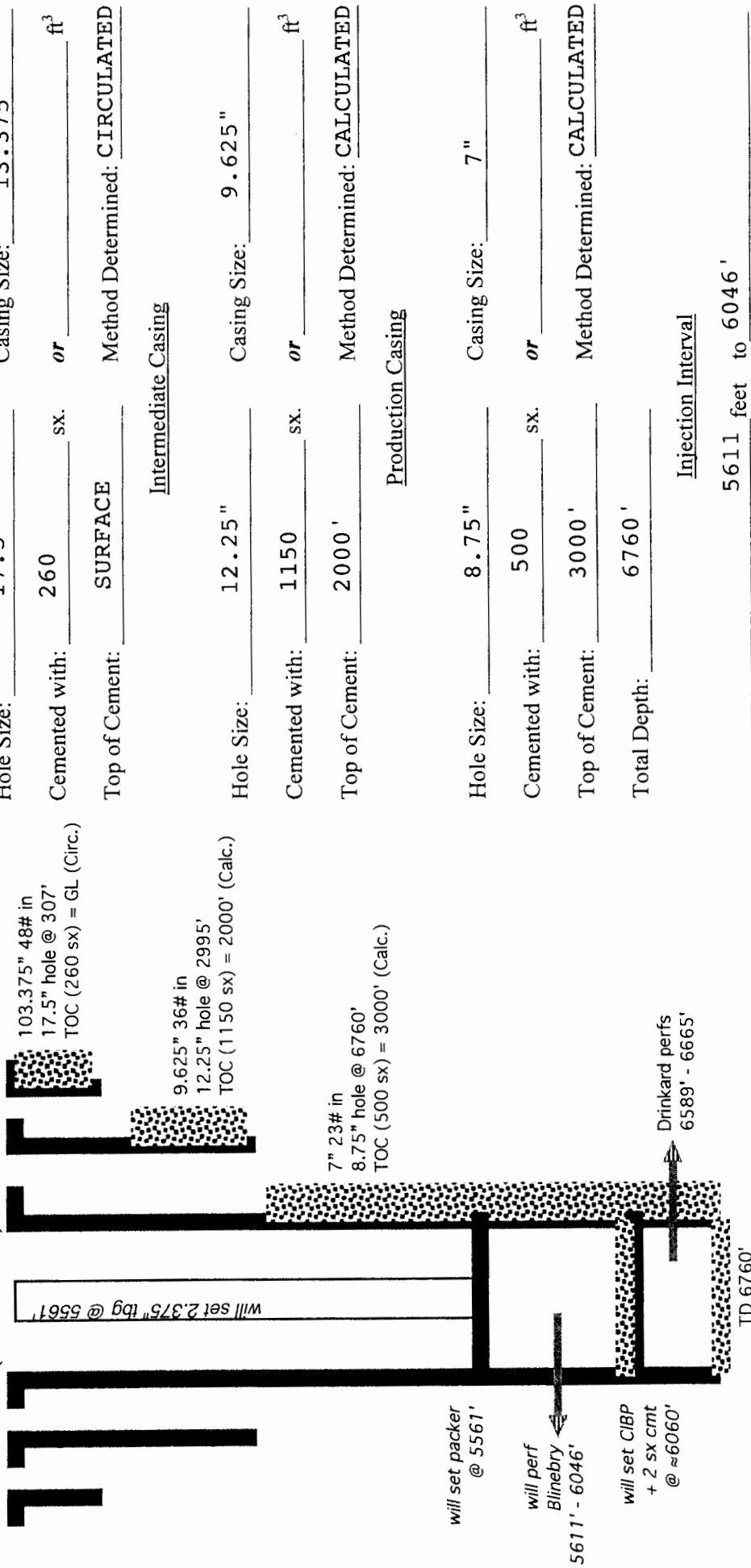
TOWNSHIP

RANGE

WELLBORE SCHEMATICWELL CONSTRUCTION DATASurface Casing

PROPOSED

(not to scale)



(Perforated or Open Hole; indicate which)

|||||||||

INJECTION WELL DATA SHEET

Tubing Size: 2-3/8" J-55 4.7# Lining Material: INTERNAL PLASTIC COAT

Type of Packer: LOCK SET INJECTION

Packer Setting Depth: ≈5561'

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

Additional Data

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

If no, for what purpose was the well originally drilled? BLINEBRY & DRINKARD OIL WELL

2. Name of the Injection Formation: BLINEBRY
3. Name of Field or Pool (if applicable): EUNICE; BLI-TU-DR, NORTH (POOL CODE 22900)

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 (2615'), 7 RIVERS (2873'), QUEEN (3424'), GRAYBURG (3771'),
SAN ANDRES (3978')
- UNDER: TUBB (6147'), DRINKARD (6476'), ABO (6748')

APACHE CORPORATION
EAST BLINEBRY DRINKARD UNIT 24
2310' FSL & 1650' FEL
SEC. 11, T. 21 S., R. 37 E., LEA COUNTY, NM

PAGE 1

30-025-06530

I. Goal is to convert a 6760' TD oil well to a water injection well to increase oil recovery. The well will inject (5611' - 6046') into the Blinebry, which is part of the Eunice; Blinebry-Tubb-Drinkard, North Pool (aka, Eunice; BLI-TU-DR, North and pool code = 22900).

Well and zone are in the East Blinebry Drinkard Unit (Case Numbers 13503 and 13504, Order Numbers R-12394 and R-12395) that was established in 2005 by Apache. There have been 6 subsequent WFX approvals (WFX-819, -842, -904, -909, -963, & -969). This is an active water flood. Twenty-four water injectors are in the Unit. Injection increase to 2100 psi was authorized (IPI-292) in 2008.

II. Operator: Apache Corporation (OGRID #873)
Operator phone number: (432) 818-1167
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: BLM (NMNM-125057)
Lease Size: 1200 acres (see Exhibit A for maps and C-102)
Closest Lease Line: 990'
Lease Area: E2 & NW4 Section 11, T. 21 S., R. 37 E. et al
Unit Size: 2080 acres BLM Unit #: NMNM-112723X
Closest Unit Line: 990'
Unit Area: T. 21 S., R. 37 E.
Section 1: Lots 11-15, W2SE4, & SW4
Section 11: E2 & NW4
Sections 12: W2 & W2E2
Section 13: W2, W2NW4, & NWSE
Section 14: NE4 & E2SE4

A. (2) Surface casing (13.375") is set at 307' in a 17.5" hole and cemented to GL (circulated) with 260 sacks.

Intermediate casing (9.625") is set at 2995' in a 12.25" hole and cemented to 2000' (calculated) with 1150 sacks.

Production casing (7") is set at 6760' in an 8.75" hole and cemented to 3000' (calculated) with 500 sacks.

A CIBP will be set at $\approx 6060'$ and topped with 2 sacks cement. Mechanical integrity of the casing will be assured by hydraulically pressure testing to 500 psi for 30 minutes.

- A. (3) Tubing will be 2-3/8" J-55 (4.7# IPC or 5.3# fiber lined). Setting depth will be $\approx 5561'$. (Disposal interval will be 5611' - 6046'.)
- A. (4) A lock set injection packer will be set at $\approx 5561'$ ($\approx 50'$ above the highest proposed perforation of 5611').
- B. (1) Injection zone will be the Blinebry carbonate. It is part of the Eunice; Blinebry-Tubb-Drinkard, North Pool. Fracture gradient is ≈ 0.56 psi/ft.
- B. (2) Injection interval will be from 5611' to 6046' in a cased hole. Well is now perforated in the Blinebry (5752' - 5856') and the Drinkard from 6589' to 6665'.
- B. (3) Well was originally drilled in 1960 as a Blinebry and Drinkard oil well.
- B. (4) Well will be perforated from 5611' to 6046' with 2 shots per foot. Shot diameter = 0.40". Perforation and isolation history is below:

Depth	Zone	Action
5611 - 6046	Blinebry	proposed injection interval
5752 - 5856	Blinebry	open perfs
6060	Blinebry	proposed CIBP + 2 sx cmt
6540	Drinkard	packer
6589 - 6665	Drinkard	open perfs

- B. (5) Next higher oil or gas zone in the area of review is the San Andres. Its bottom is at 5235'. Injection will occur in the Blinebry. Highest perforation will be 5611'.

Next lower oil or gas zone in the area of review is the Tubb, part of the same Eunice; Blinebry-Tubb-Drinkard, North Pool. Tubb top is at 6147'. Deepest perforation will be 6046'.

IV. This is not a horizontal or vertical expansion of an existing injection project. Case files 13503 and 13504 describe the water flood.

V. Exhibit B shows and tabulates all 32 existing wells (21 oil wells + 10 injectors + 1 P & A wells) within a half-mile radius, regardless of depth. Exhibit C shows all 637 existing wells (425 oil or gas wells + 118 injection or disposal wells + 59 P&A wells + 34 water supply wells + 1 brine well) within a two-mile radius.

Exhibit D shows all leases (BLM, fee) within a half-mile radius. Exhibit E shows all lessors (BLM, fee, and state) within a two-mile radius. Leases within a half-mile are:

Aliquot Parts in Area of Review (T21S, R37E)	Lessor	Lease	Lessee(s) of Record	Blinebry, Tubb, &/or Drinkard operator
E2, E2NW4, & SWNW Sec. 11	BLM	NM-125057	Apache, BP, Chevron	Apache
E2SW4 Sec. 11	fee	J H Nolan	Apache	Apache
NWSW Sec. 11	fee	Gutman	Apache	Apache
W2NW4 Sec. 12	BLM	NM-125057	Apache, BP, Chevron	Apache
NWSW Sec. 12	fee	Coll	Apache	Apache
SWSW Sec. 12	fee	Chesher	Apache	Apache
NENE Sec. 14	BLM	NM-125057	Apache, BP, Chevron	Apache
NWNE Sec. 14	fee	Smith	Apache	Apache
NENW Sec. 14	fee	Andrews	Apache	Apache

VI. Thirty-two existing wells are within a half-mile. All 32 wells penetrated the Blinebry. The penetrators include 21 oil wells, 10 injectors, and 1 P&A well. A table abstracting the well construction details and histories of the penetrators is in Exhibit F. P&A well diagram is in Exhibit G.

- VII. 1. Average injection rate will be \approx 400 bwpd.
Maximum injection rate will be 500 bwpd.
2. System is closed. Well will be tied into the existing unit pipeline system.
3. Average injection pressure will be \approx 2000 psi. Maximum injection pressure will be 2100 psi (IPI-292).
4. Water source will be water pumped from an existing San Andres water supply well. A comparison of nearby analyses and San Andres follows. No compatibility problems have reported from the 16,803,534 barrels that have been injected in the Unit to date.

	<u>NEDU Injection Pump Discharge</u>	<u>San Andres 919-S</u>
Anion/Cation Ratio	1.0	N/A
Barium	0.1 mg/l	0.38 mg/l
Bicarbonate	671.0 mg/l	562.0 mg/l
Calcium	1,099.0 mg/l	608.0 mg/l
Carbon Dioxide	80.0 ppm	80.0 ppm
Chloride	10,086.0 mg/l	6,200.0 mg/l
Hydrogen Sulfide	90.0 ppm	408.0 ppm
Iron	0.3 mg/l	0.0 mg/l
Magnesium	439.0 mg/l	244.0 mg/l
Manganese	N/A	0.01 mg/l
pH	7.5	6.49
Potassium	115.0 mg/l	N/A
Sodium	5,799.5 mg/l	3,909.0 mg/l
Strontium	28.0 mg/l	19.0 mg/l
Sulfate	2,465.0 mg/l	1,750.0 mg/l
Total Dissolved Solids	20,702.9 mg/l	13,273.0 mg/l

5. The Unit has 91 oil wells. Project goal is to increase production.

VIII. The Unit is on the north end of a north-northwest to south-southeast trending anticline. It is part of the Penrose Skelly trend and parallels the west edge of the Central Basin Platform. Dips are 1° to 2°. The injection interval is Leonardian in age, 435' thick, and consists of tan to dark gray shallow marine carbonates, many of which have been dolomitized. Core filling and replacement anhydrite is common in the limestone. Nodular anhydrite is common in the dolomite. Five per cent porosity cut off is used to determine pay zones. Impermeable shale and carbonates vertically confine the interval.

There are 105 Blinebry injection wells in the state. The East Blinebry Drinkard Unit shares its west border with Apache's Northeast Drinkard Unit. Three other similar water floods (West Blinebry Drinkard Unit, Northeast Drinkard Unit, and Warren Blinebry Unit) are within a mile of the East Blinebry Drinkard Unit. The slightly more distant (2 miles) Central Drinkard Unit has been under water flood since the 1960s.

Formation depths are:

Quaternary = 0'
Rustler = 1345'
Salado = 1433'
Tansill = 2469'
Yates = 2615'
Seven Rivers = 2873'
Queen = 3424'
Penrose = 3591'
Grayburg = 3771'
San Andres = 3978'
Glorieta = 5236'
Blinebry = 5611'
injection interval = 5611' - 6046'
Blinebry marker = 5686'
Tubb = 6147'
Drinkard = 6476'
Abo = 6748'
TD = 6760'

According to Office of the State Engineer records (Exhibit H), one fresh water well, 65' deep, is within a mile radius. That 100-year old well could not be found during an August 18, 2017 field inspection. However, a water well 4000' southeast was found and sampled. The sampled well is not in the State Engineer's records.

The same records show the deepest water well within 2 miles is 8015'. However, it is not a fresh water well. It is a now P&A oil well (30-025-06606) that was converted to a water supply well for unit water floods. Water source was the San Andres (4016' - 4941'). Otherwise, deepest water well within 2-miles is 136'.

There will be >4,000' of vertical separation and hundreds of feet of salt and anhydrite between the bottom of the only likely underground fresh water source (Quaternary redbeds) and the top of the injection interval. Well is a 9/10 mile southwest of the Ogallala aquifer.

There are 213 active or new injection wells and 8 active disposal wells in either the Blinebry-Tubb-Drinkard, San Andres, Grayburg, Queen, Seven Rivers, or Yates in T. 21 S., R. 37 E.

- IX. The well will be stimulated with acid to clean out scale or fill.
- X. SP, resistivity, gamma ray, sonic, and induction logs are on file with NMOCD.
- XI. One water well was found within a mile. Analyses from four fresh water wells within $\frac{3}{4}$ mile to 2 miles away are in Exhibit H.
- XII. Apache (Exhibit I) is not aware of any geologic or engineering data that may indicate the injection interval is in hydrologic connection with any underground sources of water. Closest Quaternary faults are \approx 110 miles southwest (Exhibit I). There are 105 Blinebry injection wells in New Mexico. Previously approved water flood expansions in the Unit include WFX-819, -842, -904, -909, -963, and -969.

APACHE CORPORATION
EAST BLINEBRY DRINKARD UNIT 24
2310' FSL & 1650' FEL
SEC. 11, T. 21 S., R. 37 E., LEA COUNTY, NM

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XIII. A legal ad (see Exhibit J) was published on January 7, 2018. Notice (this application) has been sent (Exhibit K) to the surface owner (J. A, Bryant), BLM, and lessees (BP, Chevron) within a half-mile. Apache operates all wells within a half-mile regardless of depth.

NEW MEXICO OIL CONSERVATION COMMISSION

EXHIBIT A

WELL LOCATION AND ACREAGE DEDICATION PLAT

SEE INSTRUCTIONS FOR COMPLETING THIS FORM ON THE REVERSE SIDE

NOTES OFFICE 000

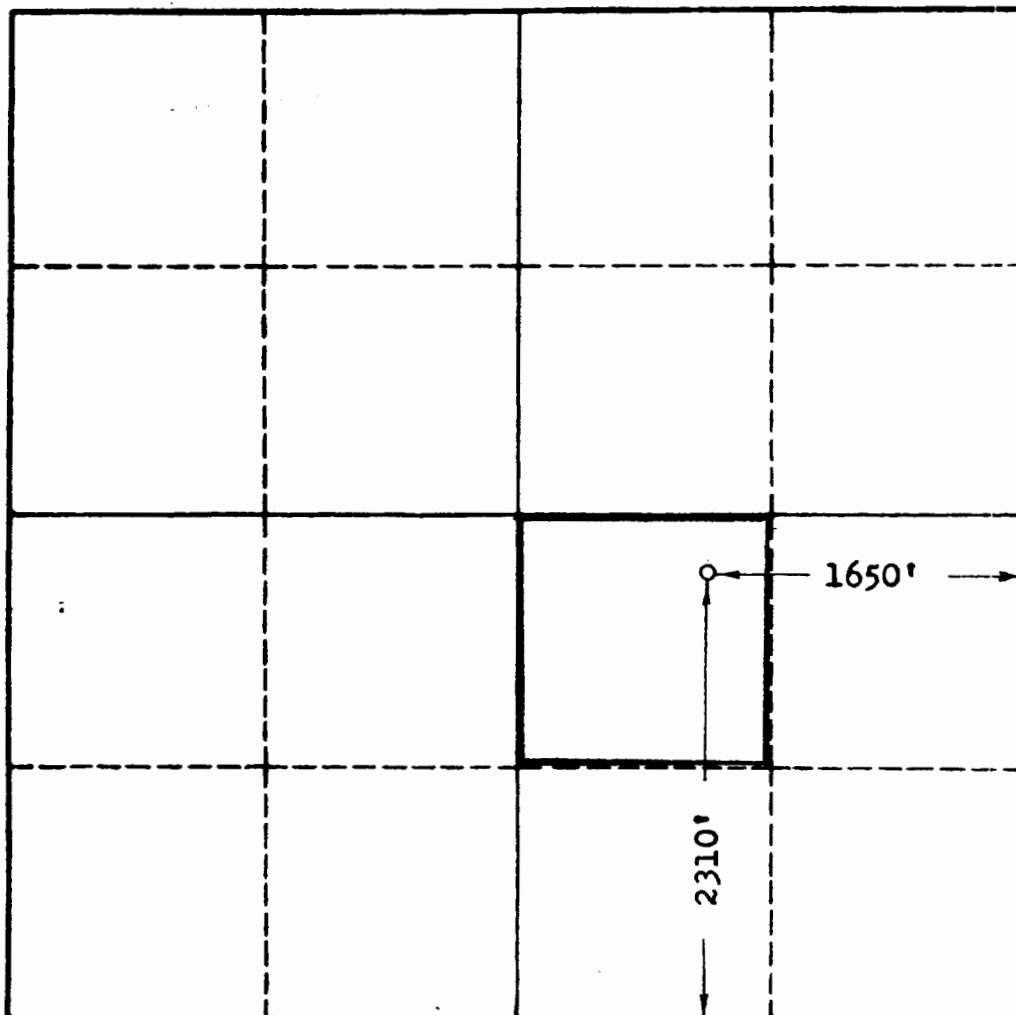
SECTION A

Operator Continental Oil Co.			Lease Lockhart B-11			Date 1960 JAN 19 AM 10:30			Notes #15-TB-D		
Unit Letter J	Section 11	Township 21 South	Range 37 East	County Lea County							
Actual Footage Location of Well: 1650 feet from the East line and 2310 feet from the South line											
Ground Level Elev.		Producing Formation Blinebry & Drinkard		Pool Terry Blinebry & Drinkard				Dedicated Acreage: 40 Acres			

1. Is the Operator the only owner in the dedicated acreage outlined on the plat below? YES XX NO ____ ("Owner" means the person who has the right to drill into and to produce from any pool and to appropriate the production either for himself or for himself and another. (65-3-29 (e) NMSA 1935 Comp.)
2. If the answer to question one is "no," have the interests of all the owners been consolidated by communitization agreement or otherwise? YES ____ NO ____ . If answer is "yes," Type of Consolidation ____
3. If the answer to question two is "no," list all the owners and their respective interests below:

Owner	Land Description

SECTION B



CERTIFICATION

I hereby certify that the information in SECTION A above is true and complete to the best of my knowledge and belief.

J. R. Parker

Name

J. R. Parker

Position

District Superintendent

Company

Continental Oil Company

Date

January 18, 1960

I hereby certify that the well location shown on the plat in SECTION B 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 knowledge and belief.

Date Surveyed

-1-5-60-

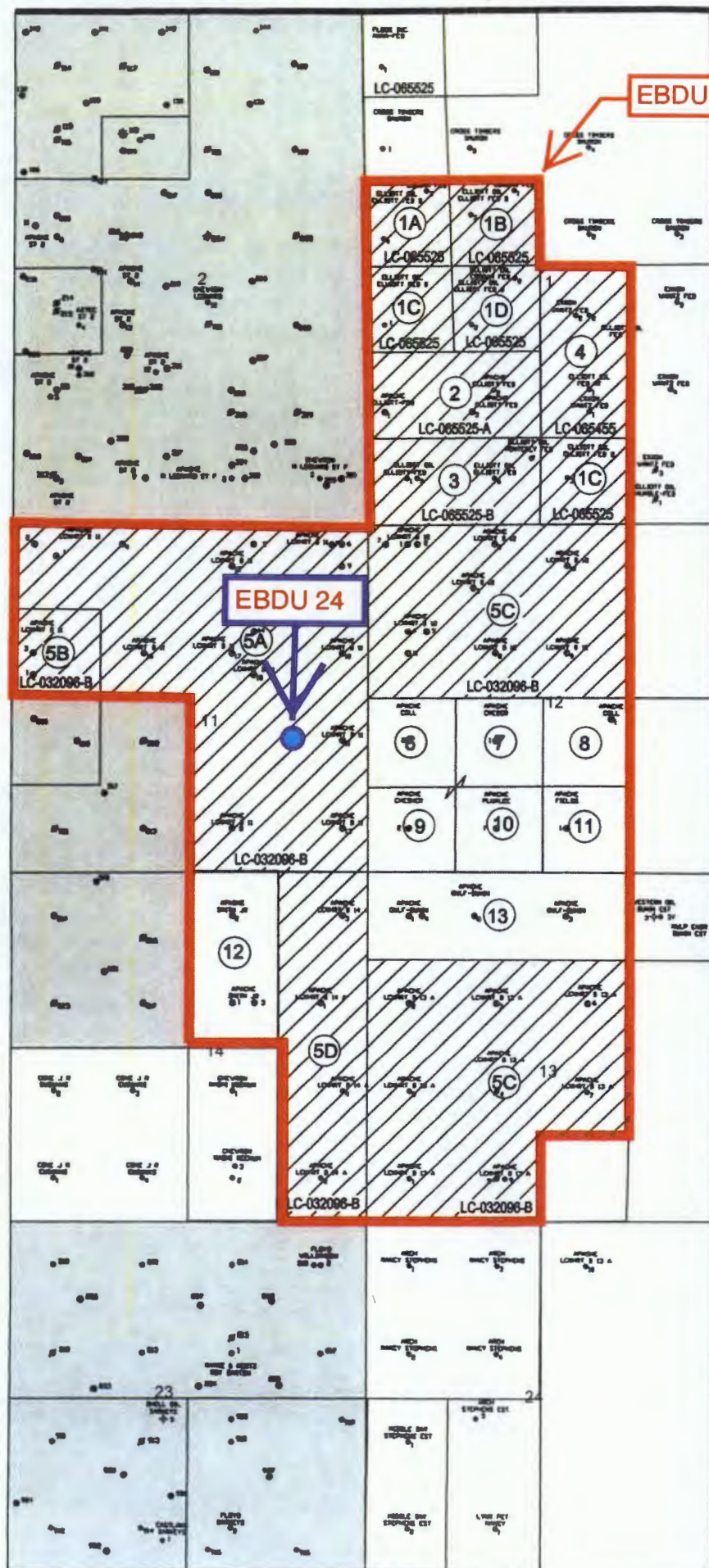
Registered Professional Engineer
and/or Land Surveyor, JOHN W. WEST

John W. West

Certificate No.

N.M. - P.E. & L.S. NO. 676

0 330 660 990 1320 1650 1980 2310 2640 2000 1500 1000 500 0



EBDU boundary

EAST BLINEBRY DRINKARD UNIT LEA COUNTY, NEW MEXICO

LEGEND

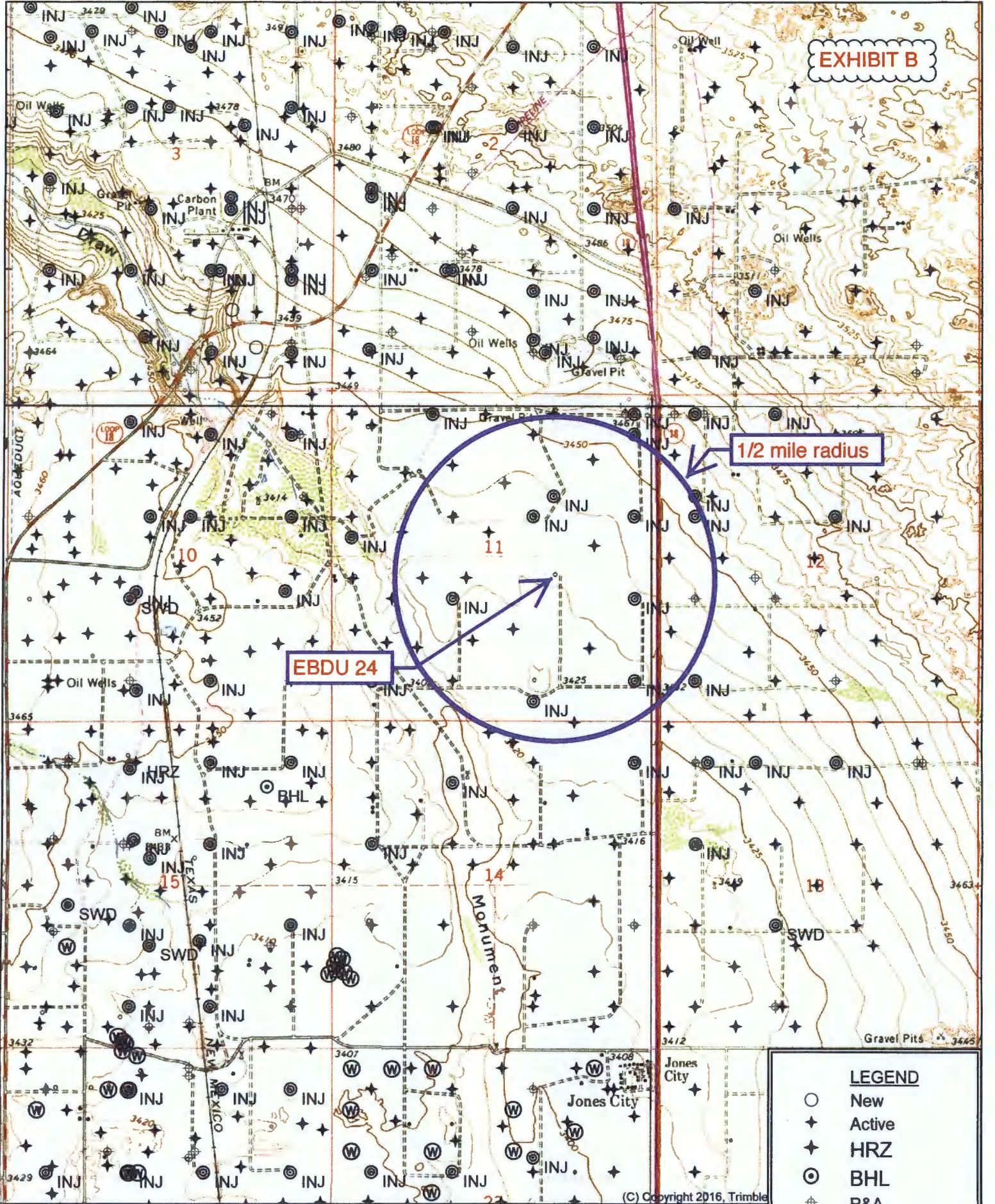
⑪ UNIT TRACT NUMBER

	ACREAGE	PERCENTAGE
FEDERAL LANDS	1640.00	78.85
PATENTED (FEE) LANDS	440.00	21.15
TOTALS	2080.00	100%





EXHIBIT B



EBDU 24

1/2 mile radius

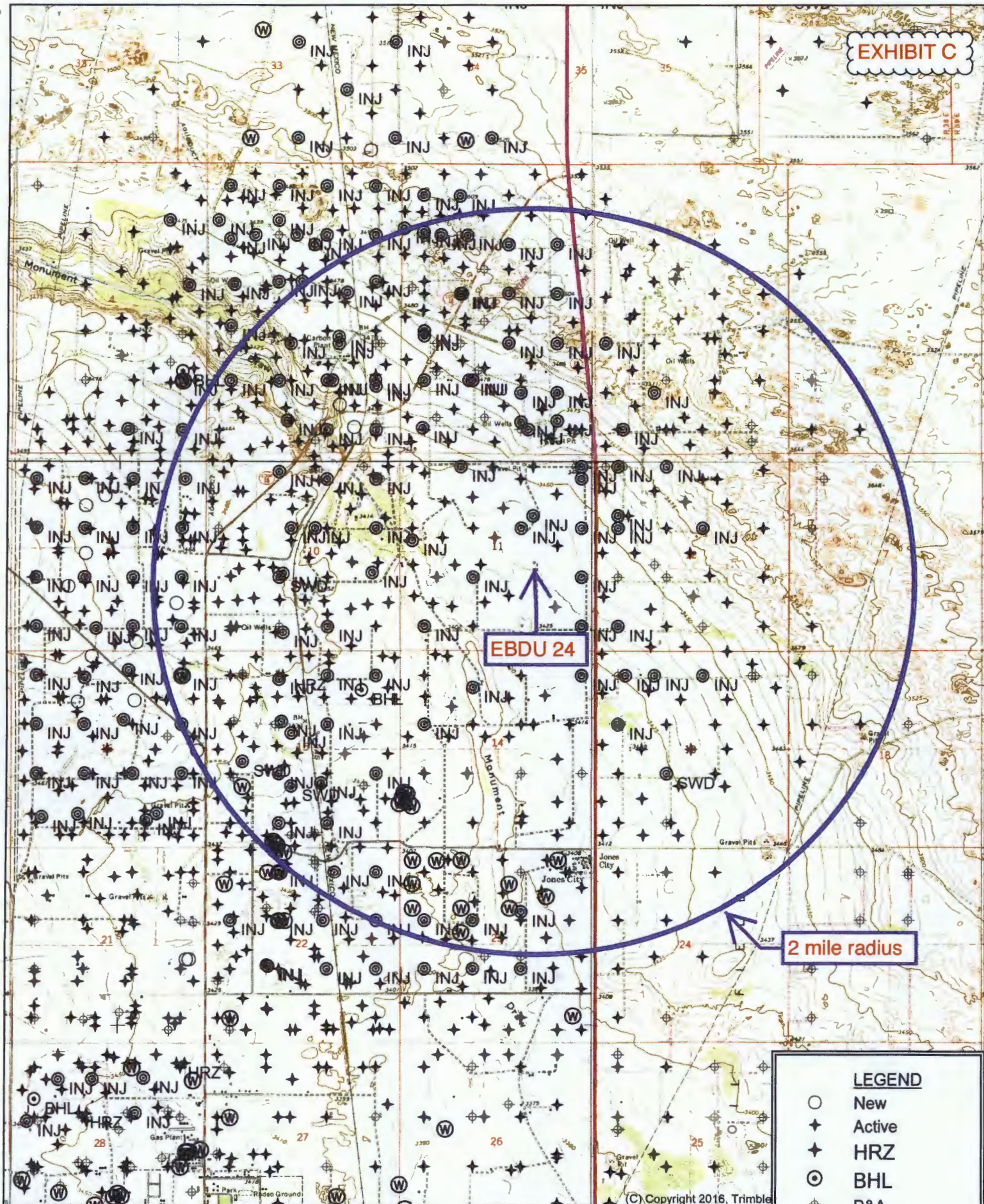
LEGEND

- New
- ◆ Active
- ◆ HRZ
- ⊙ BHL
- ⊕ P&A
- ⊙ INJ
- ⊙ SWD
- ⊙ Water

Quad: EUNICE
Scale: 1 inch = 2,000 ft.



(C) Copyright 2016, Trimble



EBDU 24

2 mile radius

LEGEND

- New
- ✦ Active
- ✦ HRZ
- ⊙ BHL
- ⊕ P&A
- ⊙ INJ
- ⊙ SWD
- ⊙ Water

Quad: JAL
Scale: 1 inch = 3,333 ft.





Land Status

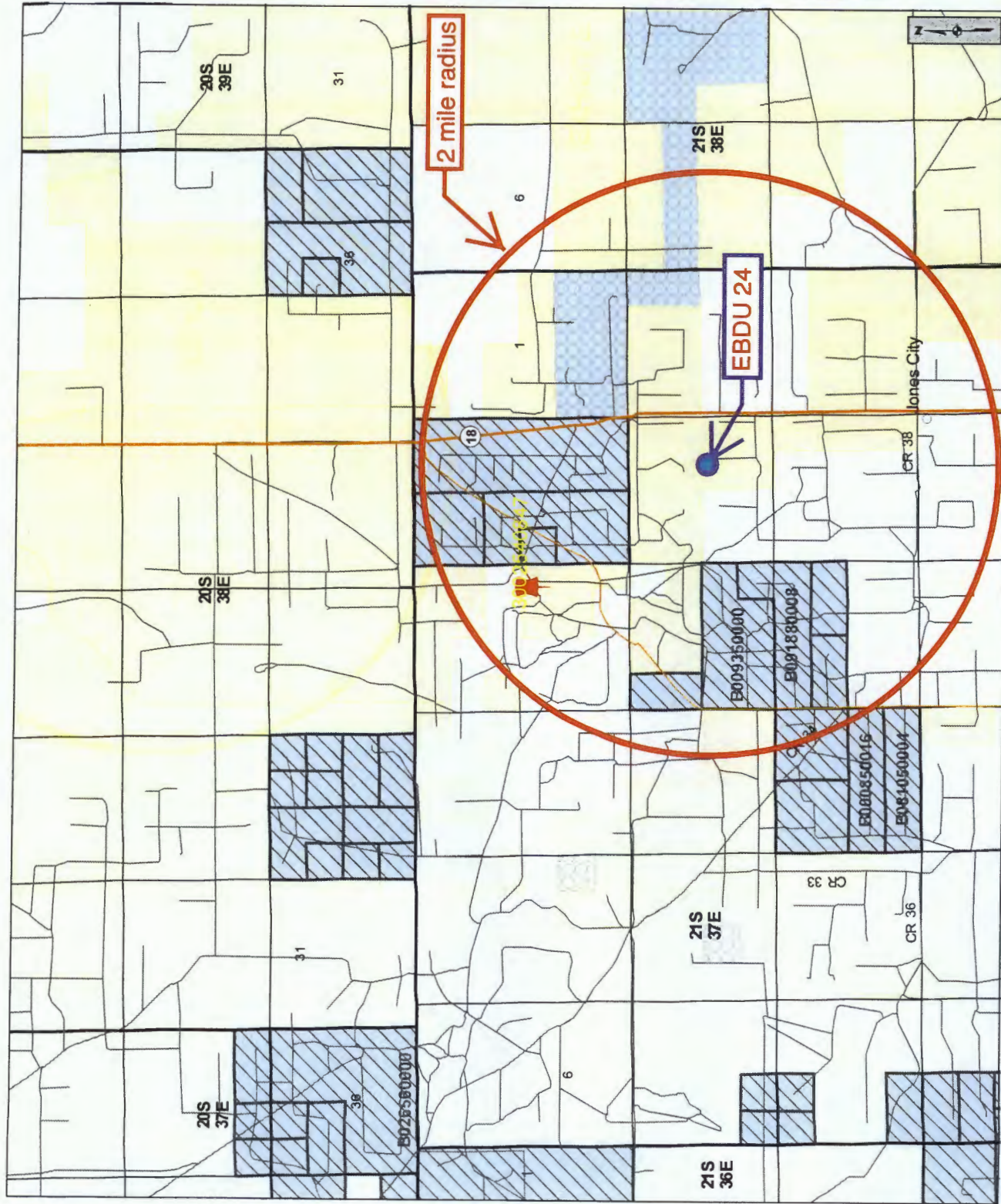


Disclaimer:

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.





New Mexico State Land Office

Oil, Gas, and Minerals

0 0.2 0.4 0.8 1.2 1.6 Miles
Universal Transverse Mercator Projection, Zone 13
1983 North American Datum

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 here, in State Land Office data layers or any other data layer.

Land Office Geographic Information Center
logc@sls.state.nm.us

Created On: 3/11/2013 1:48:40 PM

EXHIBIT E

Point Locations

- County Seat
- SLO District Offices
- City, Town or Village
- Volcanic Vents
- Highway Mileposts

NMOCD Oil and Gas Wells

- Oil
- Gas
- Injection
- Water
- Carbon Dioxide
- DA or PA
- Miscellaneous
- Salt Water Disposal

Federal Minerals

- All Minerals
- Coal Only
- Oil and Gas Only
- Oil, Gas and Coal Only
- Other Minerals

State Trust Lands

- Surface Estate
- Subsurface Estate
- Both Estates

NMSLO Leasing

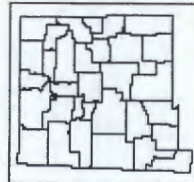
- Option Agreement
- Commercial Lease
- Minerals Lease
- Oil and Gas Lease
- Agricultural Lease

- Not Available for Oil and Gas Leasing
- Restriction Influences Oil and Gas Leasing

Other Boundaries

- Continental Divide
- State Boundary
- County Boundaries
- Oil and Gas Unit Boundary
- Participating Areas in Units
- Geologic Regions
- Potash Enclave (NMOCD R-11-1-P)

For detailed legend of the Geologic Map of New Mexico, please see <http://geomf.nmt.edu>



www.nmt.state.nm.us

SORTED BY DISTANCE FROM EBDU 24

API	OPERATOR	WELL	WELL STATUS	T21S-R37E- UNIT-SECTION	TVD	ZONE	FEET FROM EBDU 24
3002538771	Apache	EBDU 067	O	H-11	6960	Eunice; Bli-Tu-Dr, N	539
3002506536	Apache	EBDU 026	I	G-11	7500	Eunice; Bli-Tu-Dr, N	945
3002539644	Apache	EBDU 086	O	F-11	7112	Eunice; Bli-Tu-Dr, N	1138
3002538234	Apache	EBDU 063	O	J-11	6968	Eunice; Bli-Tu-Dr, N	1198
3002506529	Apache	EBDU 023	I	G-11	5925	Eunice; Bli-Tu-Dr, N	1213
3002539406	Apache	EBDU 087	O	P-11	6950	Eunice; Bli-Tu-Dr, N	1273
3002506481	Apache	EBDU 020	I	I-11	6780	Eunice; Bli-Tu-Dr, N	1393
3002537728	Apache	NEDU 424	O	K-11	6955	Eunice; Bli-Tu-Dr, N	1423
3002539380	Apache	EBDU 073	O	G-11	6978	Eunice; Bli-Tu-Dr, N	1588
3002506480	Apache	EBDU 019	I	H-11	6775	Eunice; Bli-Tu-Dr, N	1589
3002538761	Apache	EBDU 066	O	A-11	7000	Eunice; Bli-Tu-Dr, N	1670
3002537673	Apache	NEDU 528	O	N-11	6900	Eunice; Bli-Tu-Dr, N	1684
3002506534	Apache	NEDU 512	I	K-11	7492	Eunice; Bli-Tu-Dr, N	1688
3002539379	Apache	EBDU 074	O	L-12	7000	Eunice; Bli-Tu-Dr, N	1746
3002506531	Apache	EBDU 025	O	F-11	7450	Eunice; Bli-Tu-Dr, N	1855
3002539012	Apache	EBDU 075	O	L-12	6985	Eunice; Bli-Tu-Dr, N	2010
3002506478	Apache	EBDU 017	I	O-11	7577	Eunice; Bli-Tu-Dr, N	2116
3002537729	Apache	NEDU 530	O	K-11	6900	Eunice; Bli-Tu-Dr, N	2142
3002506528	Apache	EBDU 022	I	P-11	5900	Eunice; Bli-Tu-Dr, N	2201
3002506523	Apache	EBDU 021	O	B-11	5932	Eunice; Bli-Tu-Dr, N	2229
3002539865	Apache	EBDU 099	O	C-11	7204	Eunice; Bli-Tu-Dr, N	2244

SORTED BY DISTANCE FROM EBDU 24

3002506552	Apache	EBDU 046	P&A	L-12	5950	Eunice; Bli-Tu-Dr, N	2359
3002539674	Apache	EBDU 080	O	A-14	6815	Eunice; Bli-Tu-Dr, N	2395
3002506533	Apache	NEDU 513	O	N-11	6711	Eunice; Bli-Tu-Dr, N	2398
3002539645	Apache	EBDU 098	O	D-12	7211	Eunice; Bli-Tu-Dr, N	2449
3002506546	Apache	EBDU 036	I	E-12	5965	Eunice; Bli-Tu-Dr, N	2479
3002539678	Apache	EBDU 101	O	E-11	7211	Eunice; Bli-Tu-Dr, N	2513
3002534885	Apache	NEDU 517	O	N-11	6860	Eunice; Bli-Tu-Dr, N	2526
3002506482	Apache	EBDU 014	O	B-11	7831	Eunice; Bli-Tu-Dr, N	2533
3002506479	Apache	EBDU 018	I	A-11	5880	Eunice; Bli-Tu-Dr, N	2569
3002506539	Apache	EBDU 030	I	E-12	8202	Eunice; Bli-Tu-Dr, N	2614
3002539034	Apache	EBDU 090	O	L-12	7012	Eunice; Bli-Tu-Dr, N	2614
3002520218	Apache	NEDU 510	O	L-11	7200	Eunice; Bli-Tu-Dr, N	2662