

RECEIVED: <u>4/30/2018</u>	REVIEWER:	TYPE: <u>WFX</u>	APP NO: <u>PWAM1812037132</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

<b>Applicant:</b> <u>Apache Corporation</u>	<b>OGRID Number:</b> <u>873</u>
<b>Well Name:</b> <u>East Blinebry Drinkard Unit 51</u>	<b>API:</b> <u>30-025-06584</u>
<b>Pool:</b> <u>Eunice; BLI-TU-DR, North</u>	<b>Pool Code:</b> <u>22900</u>

**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

WFX-982

APR 30 2018 AM 10:11

- 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

4-28-18

Date

Print or Type Name

505 466-8120

Phone Number

Signature

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          R-12981  
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.

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 51**  
**30-025-06584**

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.

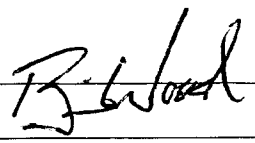
\*X. Attach appropriate logging and test data on the well. (If well logs have been filed with the Division, they need not be resubmitted).

\*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: MAR. 31, 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:

**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.

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NOTICE: Surface owners or offset operators must file any objections or requests for hearing of administrative applications within 15 days from the date this application was mailed to them.

## INJECTION WELL DATA SHEET

OPERATOR: APACHE CORPORATIONWELL NAME & NUMBER: EAST BLINEBRY DRINKARD UNIT 51WELL LOCATION: 1980' FNL & 1650' FEL

G

14

21 S

37 E

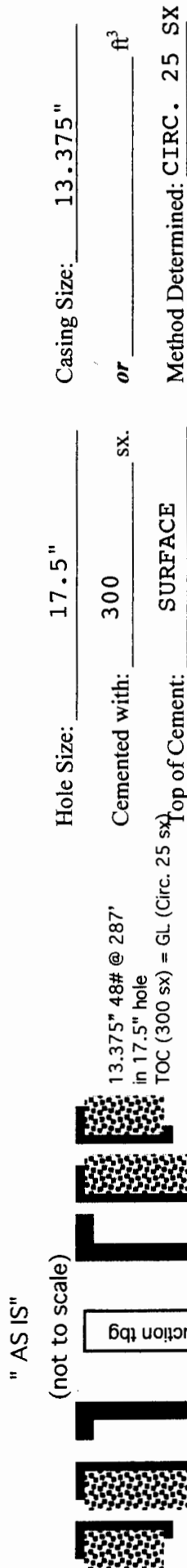
FOOTAGE LOCATION

UNIT LETTER

SECTION

TOWNSHIP

RANGE

WELLBORE SCHEMATICWELL CONSTRUCTION DATASurface CasingIntermediate Casing

Hole Size: 11" Casing Size: 8.625"

Cemented with: 1600 sx. or ft<sup>3</sup>

TOC (1600 sx) = GL (circ. 70 sx)

Top of Cement: SURFACE Method Determined: CIRC. 70 SX

5.5" 15.5# @ 5850'

in 7.875" hole

TOC (375 sx) = 4000' (no report)

Production Casing

Hole Size: 7.875" Casing Size: 5.5"

Cemented with: 375 sx. or ft<sup>3</sup>

TOC (375 sx) = 4000' Method Determined: NO REPORT

Blinebry perfs  
5614' - 5832'

packer

Injection Interval

TD 5850'

5589 feet to 5850'

(Perforated or Open Hole; indicate which)

■■■■■■■■■■

## INJECTION WELL DATA SHEET

OPERATOR: APACHE CORPORATIONWELL NAME & NUMBER: EAST BLINEBRY DRINKARD UNIT 51WELL LOCATION: 1980' FNL & 1650' FEL

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FOOTAGE LOCATION

UNIT LETTER

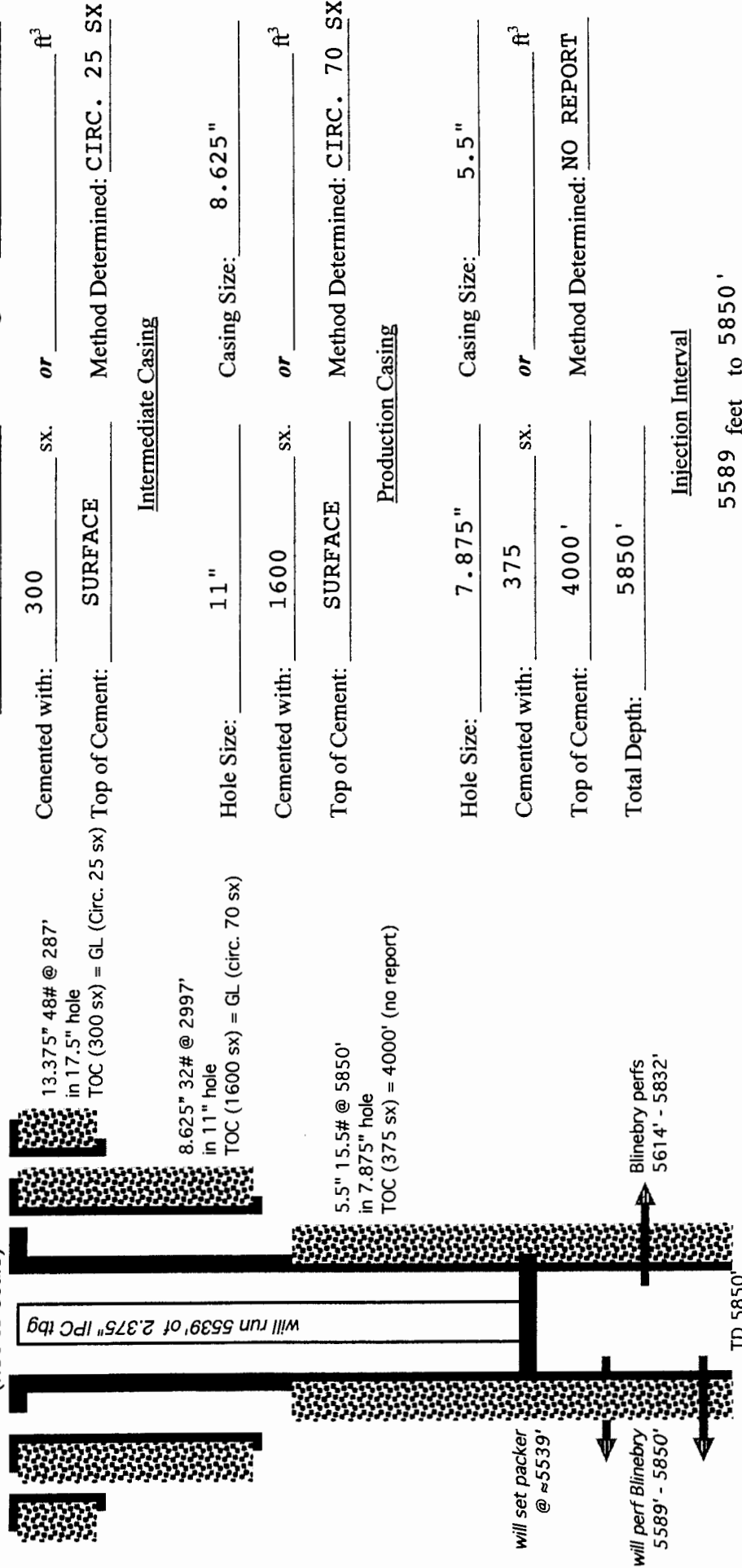
SECTION

TOWNSHIP

RANGE

WELLBORE SCHEMATICWELL CONSTRUCTION DATASurface Casing**"PROPOSED"**

(not to scale)



(Perforated or Open Hole; indicate which)

■■■■■■■■■■

INJECTION WELL DATA SHEETTubing Size: 2-3/8" J-55 4.7# Lining Material: INTERNAL PLASTIC COATType of Packer: LOCK SET INJECTIONPacker Setting Depth: ≈5539'

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

Additional Data

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

If no, for what purpose was the well originally drilled? BLINEBRY 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. YES  
BLINEBRY (5614' - 5832')
5. Give the name and depths of any oil or gas zones underlying or overlying the proposed injection zone in this area: \_\_\_\_\_  
OVER: SEVEN RIVERS (2855'), QUEEN (3360'), GRAYBURG (3720'),  
SAN ANDRES (3964')
- UNDER: TUBB (6006'), DRINKARD (6450'), ABO (6740')

APACHE CORPORATION  
EAST BLINEBRY DRINKARD UNIT 51  
1980' FNL & 1650' FEL  
SEC. 14, T. 21 S., R. 37 E., LEA COUNTY, NM

PAGE 1

30-025-06584

I. Goal is to convert a 5850' deep oil well to a water injection well to increase oil recovery. The well will inject (5589' - 5850') 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 formed in 2005 by Apache. Eight subsequent WFX approvals (WFX-819, -842, -904, -909, -963, -969, -977, and -978) have been issued to date. 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: fee (Smith)  
Lease Size: 80 acres (see Exhibit A for maps and C-102)  
Closest Lease Line: 330'  
Lease Area: W2NE4 Section 14, T. 21 S., R. 37 E. et al  
Unit Size: 2080 acres BLM Unit #: NMNM-112723X  
Closest Unit Line: 660'  
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", 48#, H-40) is set at 287' in a 17.5" hole and cemented to GL with 300 sacks. Circulated out 25 sacks.

Intermediate casing (8.625", 32#, J-55) is set at 2997' in an 11" hole and cemented to GL with 1600 sacks. Circulated out 70 sacks.

Production casing (5.5", 15.5#, J-55) is set at 5850' in a 7.875" hole and cemented to 4000' with 375 sacks. How the TOC was determined has not been reported.

Casing will be hydraulically pressure tested 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  $\approx$ 5539'. (Disposal interval will be 5589' - 5850'.)
- A. (4) A lock set injection packer will be set at  $\approx$ 5539' ( $\approx$ 50' above the highest proposed perforation of 5589').
- B. (1) Injection zone will be the Blinebry carbonate. It is part of the Eunice; Blinebry-Tubb-Drinkard, North Pool. Fracture gradient is  $\approx$ 0.56 psi/ft.
- B. (2) Injection interval will be from 5589' to 5850' in a cased hole. Well has been perforated in the Blinebry (5614' - 5832').
- B. (3) Well was drilled and completed in 1957 as a Blinebry oil well.
- B. (4) Well is currently, and has only been, perforated in Blinebry (5614' - 5832'). Well will be perforated in Blinebry from 5589' to 5850' with 2 shots per foot. Shot diameter = 0.40".
- B. (5) Next higher potential oil or gas zone in the area of review is the Grayburg. Its bottom is at 3963'. Injection will occur in the Blinebry. Highest perforation will be 5589'.

Next lower oil or gas zone in the area of review is the Tubb, part of the same Eunice; Blinebry-Tubb-Drinkard, North Pool and same Unit. Tubb top is at  $\approx$ 6006'. Deepest perforation will be 5850'.



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 27 existing wells (21 gas or oil wells + 4 injectors + 2 P&A) within a half-mile radius, regardless of depth. Exhibit C shows all 612 existing wells (413 oil or gas wells + 93 injection or disposal wells + 65 P&A wells + 40 water supply wells + 1 brine well) within a two-mile radius.

Exhibit D shows all leases (BLM, fee) within a half-mile. Exhibit E shows all lessors (BLM, fee, and state) within a 2-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
S2SE4 Sec. 11	BLM	NMNM-125057	Apache, BP, Chevron	Apache
SESW Sec. 11	fee	Nolan	Apache	Apache
SWSW Sec. 12	fee	Chesher	Apache	Apache
NWNW Sec. 13	fee	Gulf Bunin	Apache	Apache
SWNW & W2SW4 Sec. 13	BLM	NMNM-125057	Apache, BP, Chevron	Apache
E2E2 Sec. 14	BLM	NMNM-125057	Apache, BP, Chevron	Apache
W2NE4 Sec. 14	fee	Smith	Apache	Apache
E2NW4 Sec. 14	fee	Andrews	Apache	Apache
W2NW4 Sec. 14	fee	Owen	Apache	Apache
N2SW & SESW Sec. 14	fee	Eubank	J R Cone	J R Cone
W2SE Sec. 14	fee	Naomi Keenum	Chevron	Chevron

VI. Twenty-seven wells are within a half-mile, and all penetrated the Blinebry. They include 21 oil wells, 4 injectors, and 2 P&A wells. A table abstracting the

construction details and histories of the penetrators is in Exhibit F. Exhibit G has diagrams of the P&A wells.

- 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 existing San Andres water supply wells. A comparison of nearby analyses and San Andres follows. No compatibility problems have reported from the 17,047,373 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 90 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, 417' 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.

One hundred five Blinebry injection wells are in New Mexico. 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 2-mile distant Central Drinkard Unit has been water flooded since the 1960s.

Formation depths are:

Quaternary = 0'  
Rustler = 1319'  
Tansill = 2450'  
Yates = 2610'  
Seven Rivers = 2855'  
Queen = 3360'  
Penrose = 3576'  
Grayburg = 3720'  
San Andres = 3964'  
Glorieta = 5200'  
Paddock = 5260'  
Blinebry = 5589'  
*injection interval = 5589' - 5850'*  
Blinebry marker = 5664'  
Total Depth = 5850'  
Tubb = 6006'

According to Office of the State Engineer records (Exhibit H), 20 fresh water wells are within a mile radius. Deepest of the 20 wells is 136'. Two water wells within ¾ mile were sampled (Exhibit H).

The same records show the deepest water well within 2 miles is 8130'. Three water wells within a 2-mile radius penetrated the Blinebry. All three are oil wells that were plugged back and converted to San Andres water supply wells for Apache water floods. Two are active and one is P&A (30-025-06606). Otherwise, deepest water well within 2-miles is 136'. The three deep water wells and their OSE and NMOCD identifying numbers are:

CP 00729 POD1 = 30-025-06606  
CP 00731 POD 1 = 30-025-06742  
CP 00732 POD1 = 30-025-06737

There will be 4,270' of vertical separation and hundreds of feet of salt and anhydrite between the bottom of the only likely underground fresh water source (redbeds) and the top of the injection interval. Well is 1.7 miles south of the Ogallala aquifer (Exhibit H).

There are 214 injection wells and 8 disposal wells in the Blinebry-Tubb-Drinkard, San Andres, Grayburg, Queen, Seven Rivers, or Yates in T. 21 S., R. 37 E.

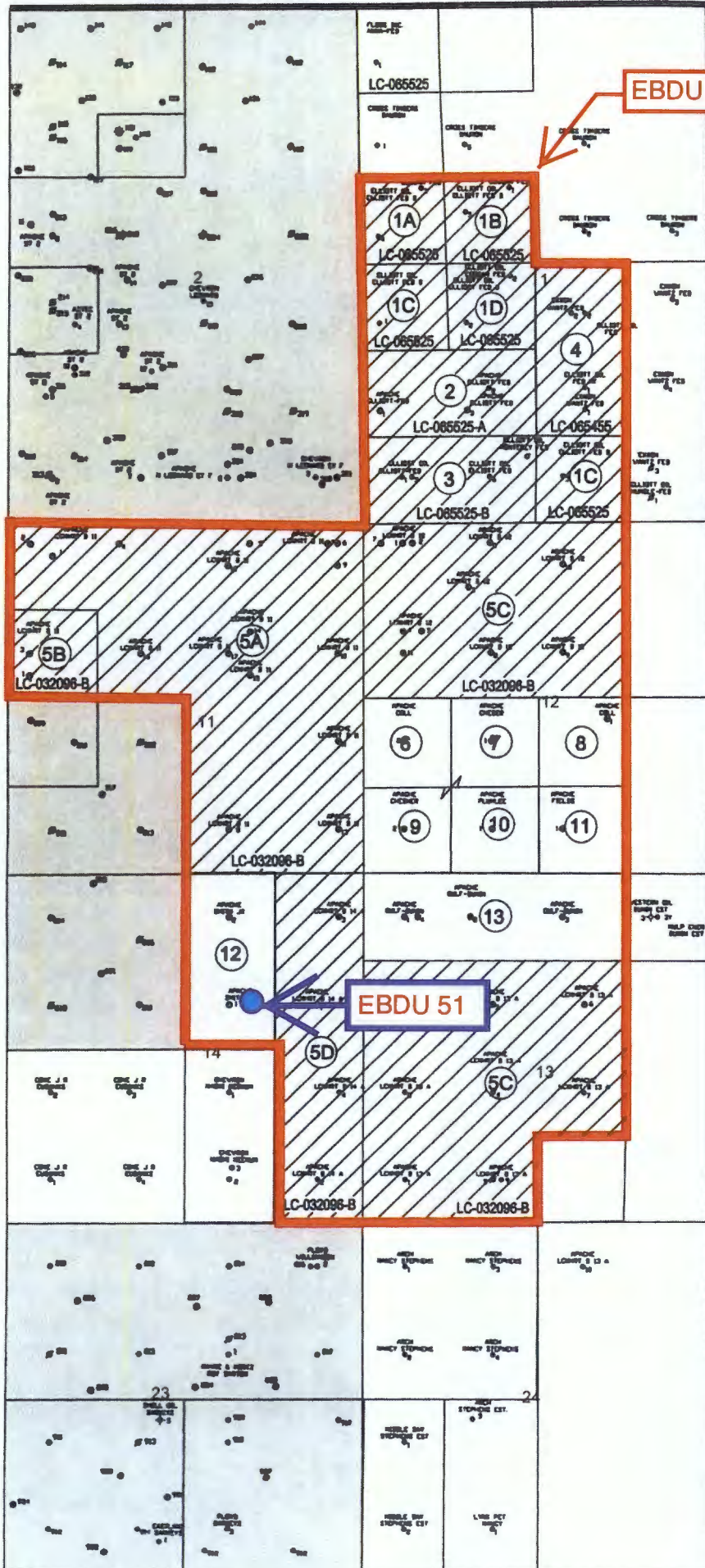
- IX. The well will be stimulated with acid to clean out scale or fill.
- X. An induction electrical log is on file with NMOCD.
- XI. Analyses from two fresh water wells within  $\frac{3}{4}$  mile are in Exhibit H.
- XII. Apache (Exhibit I) is not aware of any geologic or engineering data that may indicate the injection interval is in hydrologic connection with any underground sources of water. Closest Quaternary faults are  $\approx$ 109 miles southwest (Exhibit I). There are 105 Blinebry injection wells in New Mexico. Previous water flood expansion approvals in the Unit are WFX-819, -842, -904, -909, -963, -969, -977, and -978.

APACHE CORPORATION  
EAST BLINEBRY DRINKARD UNIT 51  
1980' FNL & 1650' FEL  
SEC. 14, T. 21 S., R. 37 E., LEA COUNTY, NM

PAGE 7

30-025-06584

XIII. A legal ad (see Exhibit J) was published on March 21, 2018. Notice (this application) has been sent (Exhibit K) to the surface owner (James Bryant), government lessors (BLM), lessees (BP, Chevron USA), and all operators (Chevron USA, J R Cone) within a half-mile regardless of depth.


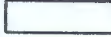


EBDU boundary

EAST BLINEBRY DRINKARD UNIT  
LEA COUNTY, NEW MEXICO

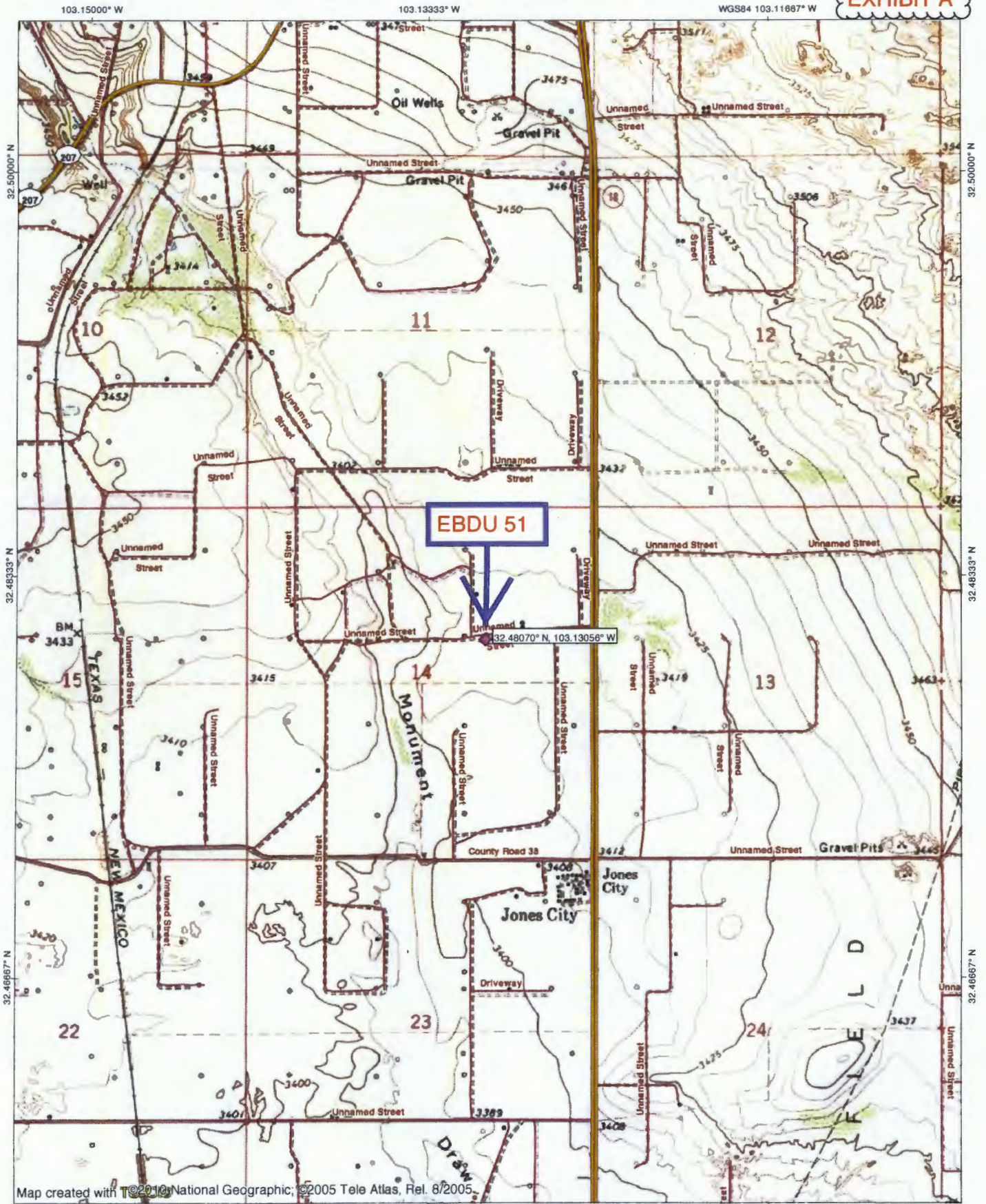
LEGEND

⑪ UNIT TRACT NUMBER

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







Map created with ©2010 National Geographic; ©2005 Tele Atlas, Rel. 8/2005.



TN 41 MN

8.5°

03/30/18

NEW MEXICO OIL CONSERVATION COMMISSION  
Well Location and Acreage Dedication Plat

Form C-128  
Revised 5/1/57

EXHIBIT A

Section A.

Date September 19, 1957

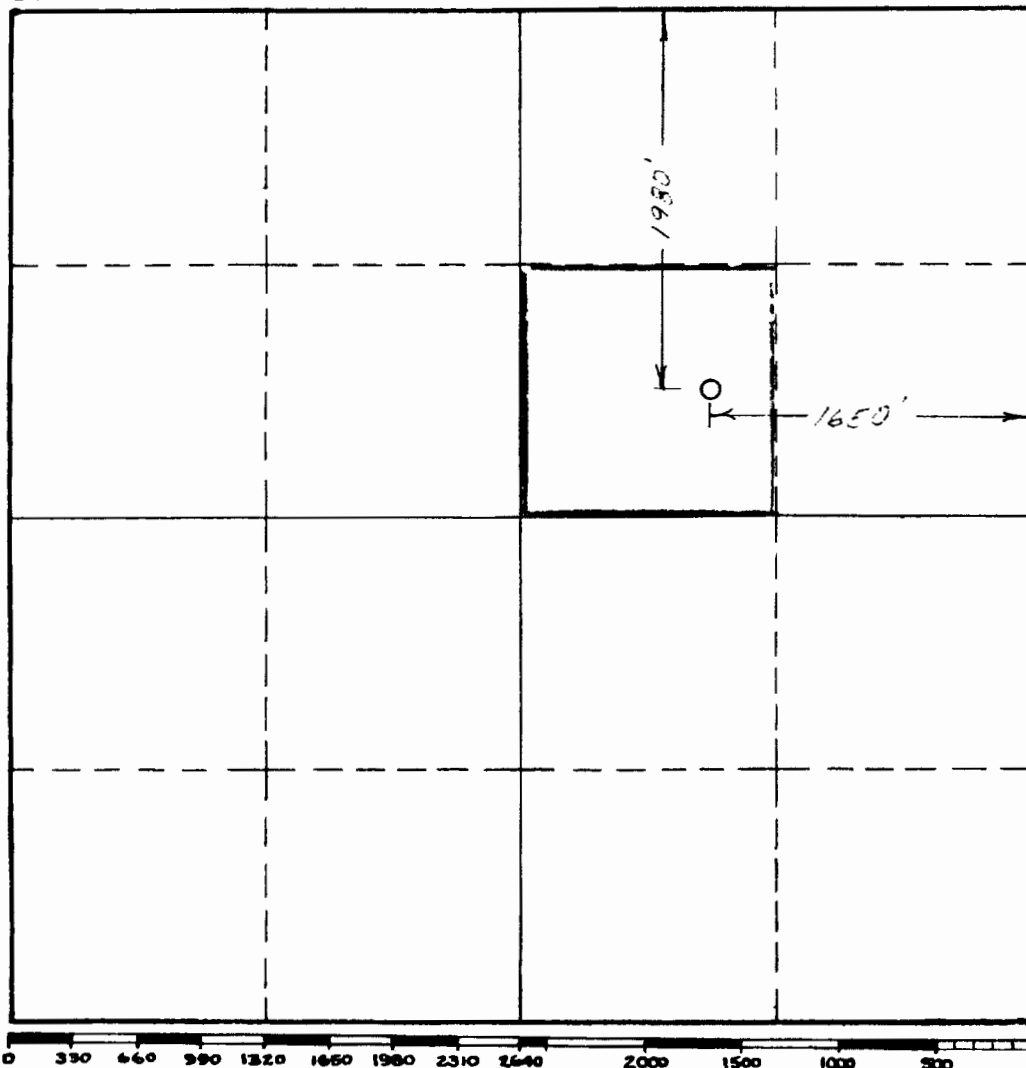
Operator Shell Oil Company Lease J. R. Smith  
Well No. 1 Unit Letter G Section 14 Township -21-3 Range -37-E NMPM  
Located 1980 Feet From north Line, 1650 Feet From east Line  
County Lea G. L. Elevation not available Dedicated Acreage 40 Acres  
Name of Producing Formation Blinberry Pool Terry-Blinberry

1. Is the Operator the only owner\* in the dedicated acreage outlined on the plat below?  
Yes X No       .
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



This is to certify that the information in Section A above is true and complete to the best of my knowledge and belief.

Shell Oil Company

(Operator)

Rex C. Cabaniss

(Representative)

Box 1257, Hobbs, New Mexico

Address

This is to 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 9-20-57

Leslie O. Shepard  
Registered Professional  
Engineer and/or Land Surveyor.

Certificate No. 1467

(See instructions for completing this form.)



EXHIBIT B

1/2 mile radius

EBDU 51

Monument

LEGEND

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

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

(C) Copyright 2016, Trimble

SORTED BY DISTANCE FROM EBDU 51

API	WHO	WELL	WELL TYPE	UNIT- SECTION- T21S-R37E	TVD	ZONE	FEET FROM EBDU 51
3002506582	Apache	EBDU 049	O	G-14	7573	Eunice; Bli-Tu-Dr, N	332
3002539275	Apache	EBDU 089	O	G-14	6905	Eunice; Bli-Tu-Dr, N	783
3002539057	Apache	EBDU 081	O	B-14	6925	Eunice; Bli-Tu-Dr, N	855
3002506573	Apache	EBDU 043	O	H-14	6648	Eunice; Bli-Tu-Dr, N	995
3002538113	Apache	EBDU 060	O	B-14	6875	Eunice; Bli-Tu-Dr, N	1064
3002538280	Apache	EBDU 061	O	I-14	6875	Eunice; Bli-Tu-Dr, N	1095
3002537724	Apache	NEDU 630	O	F-14	6751	Eunice; Bli-Tu-Dr, N	1328
3002506577	Chevron	Naomi Keenum 001	P&A	J-14	7325	Eunice; Bli-Tu-Dr, N	1361
3002506583	Apache	EBDU 050	O	B-14	6631	Eunice; Bli-Tu-Dr, N	1361
3002506580	Apache	NEDU 617	O	F-14	6613	Eunice; Bli-Tu-Dr, N	1627
3002536810	Apache	EBDU 052	O	B-14	8001	Eunice; Bli-Tu-Dr, N	1779
3002506575	Apache	EBDU 045	I	A-14	5900	Eunice; Bli-Tu-Dr, N	1871
3002506576	Apache	Lockhart B-14 A 004	P&A	I-14	5880	Eunice; Bli-Tu-Dr, N	1872
3002539675	Apache	EBDU 084	O	E-13	7325	Eunice; Bli-Tu-Dr, N	1900
3002506581	Apache	NEDU 616	I	C-14	7743	Eunice; Bli-Tu-Dr, N	1905
3002538501	Apache	EBDU 070	O	D-13	6950	Eunice; Bli-Tu-Dr, N	2011
3002539674	Apache	EBDU 080	O	A-14	6815	Eunice; Bli-Tu-Dr, N	2031
3002537249	Apache	NEDU 529	O	C-14	6875	Eunice; Bli-Tu-Dr, N	2077
3002538233	Apache	EBDU 062	O	P-14	6975	Eunice; Bli-Tu-Dr, N	2145
3002506571	J R Cone	Eubanks 003	G	K-14	7525	Blinebry Oil & Gas (Oil) and Drinkard	2214
3002534741	Apache	NEDU 621	O	F-14	6820	Eunice; Bli-Tu-Dr, N	2262

SORTED BY DISTANCE FROM EBDU 51

3002536804	Apache	NEDU 626	O	F-14	6850	Eunice; Bli-Tu-Dr, N	2304
3002506556	Apache	EBDU 037	I	E-13	6750	Eunice; Bli-Tu-Dr, N	2321
3002506478	Apache	EBDU 017	I	O-11	7577	Eunice; Bli-Tu-Dr, N	2334
3002524854	Chevron	Naomi Keenum 003	O	O-14	6768	Drinkard	2477
3002538536	Apache	EBDU 071	O	D-13	7000	Eunice; Bli-Tu-Dr, N	2637
3002506578	Chevron	Naomi Keenum 002	O	O-14	7195	Tubb (Oil)	2661



EXHIBIT C

EBDU 51

2 mile radius

LEGEND

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

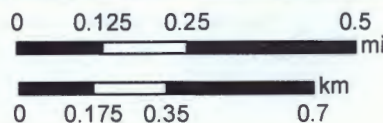
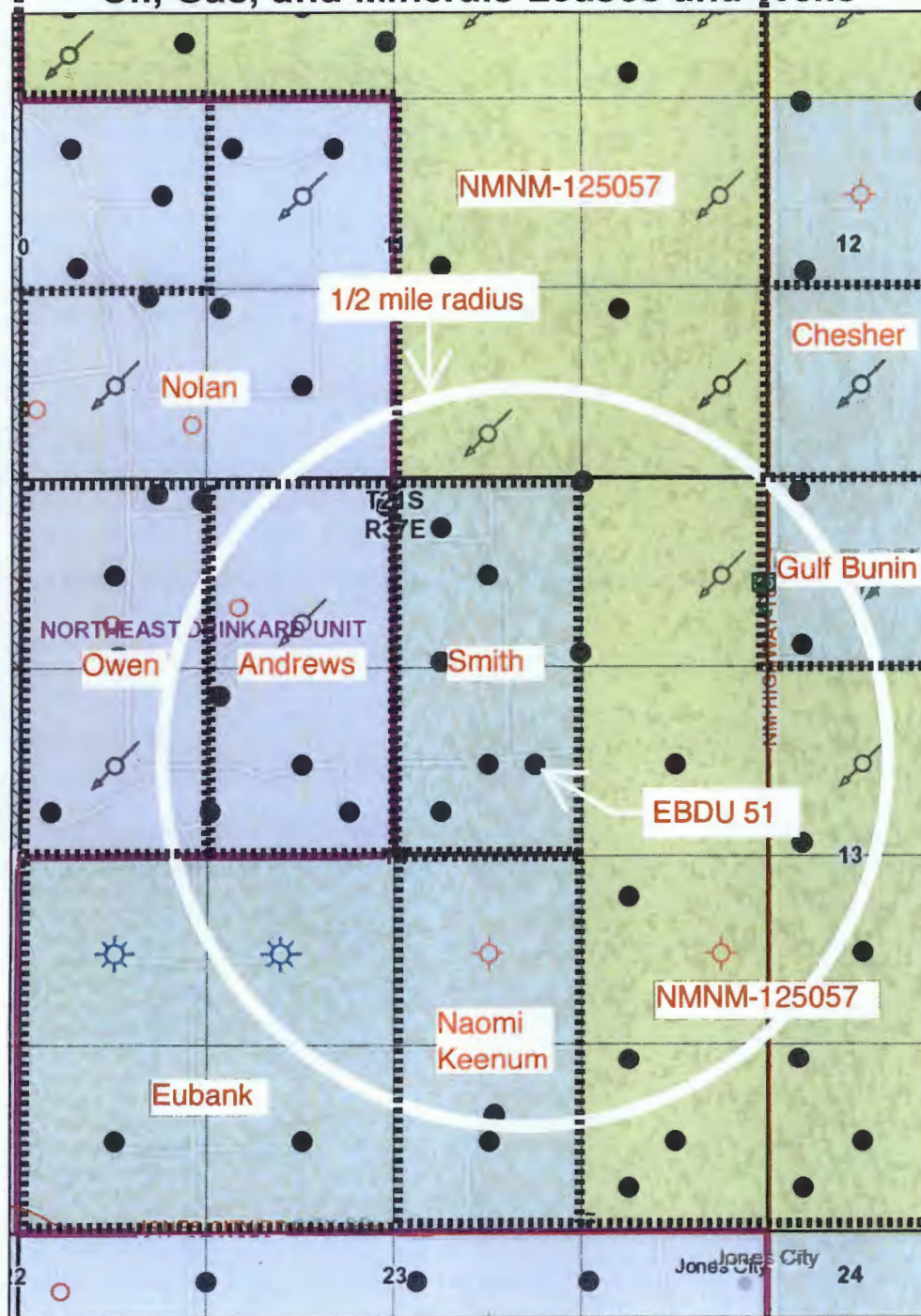
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(C) Copyright 2016, Trimble





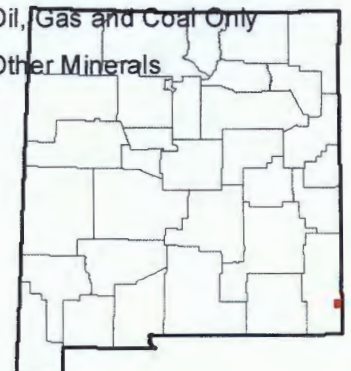
## Oil, Gas, and Minerals Leases and Wells



- Override 1
- Villages
- Smaller Towns
- Larger Towns
- Cities
- State Boundary
- Continental Divide
- County Boundaries
- Townships
- Sections
- Subdivisions
- Carbon Dioxide
- Gas
- Injection
- Oil
- Salt Water Disposal
- Water Storage
- Miscellaneous
- Plugged / Dry / Abandoned
- Cancelled / Not Drilled
- Highway Mileposts
- Detailed Roads
- Unit Agreement Boundaries
- Participating Areas in Units
- Commercial Leases
- Minerals Leases
- Oil and Gas Leases
- Agricultural Leases
- Energy Leases
- Potash District
- All Minerals
- Coal Only
- Oil and Gas Only
- Oil, Gas and Coal Only
- Other Minerals

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.

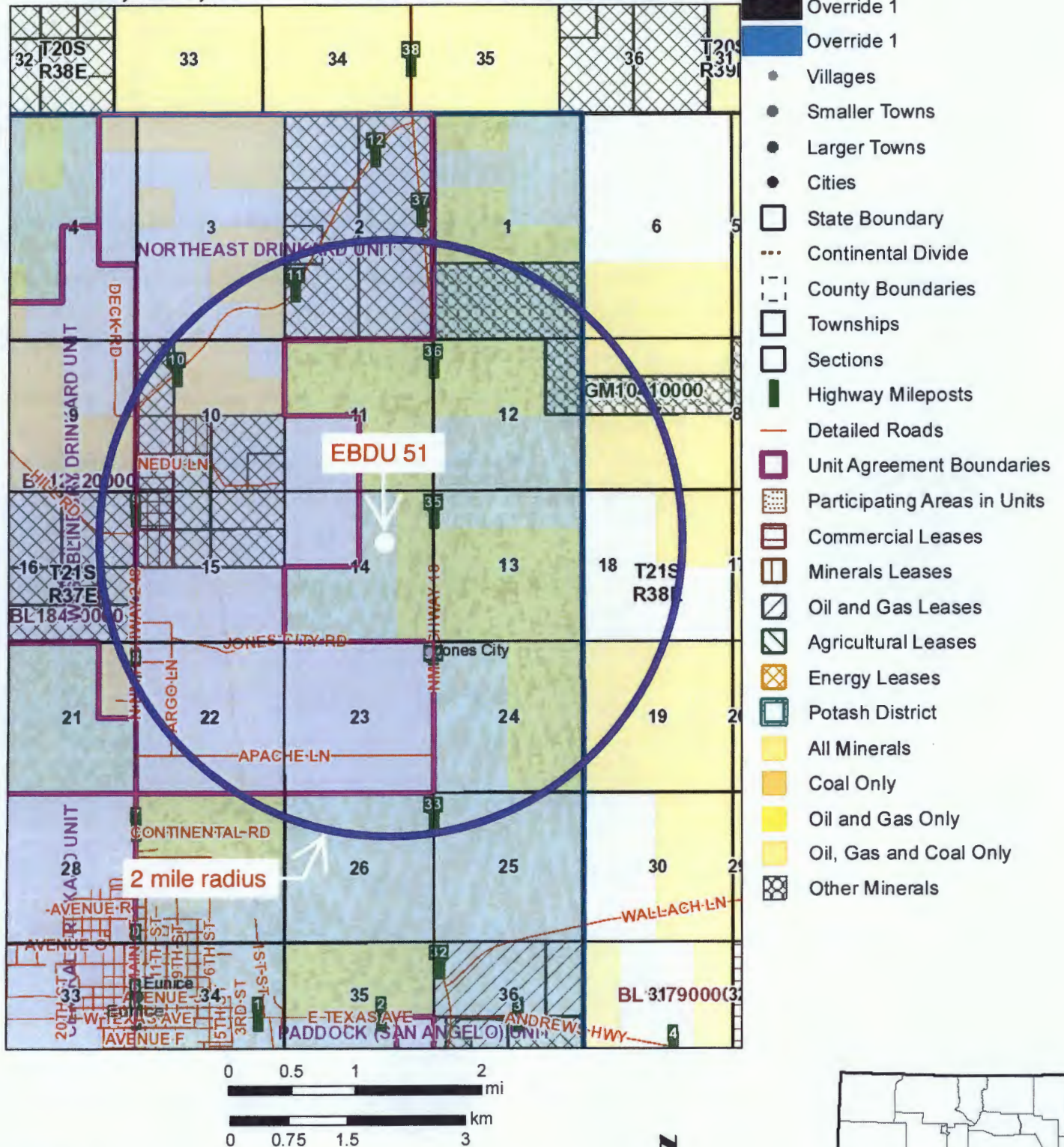
Data pertaining to New Mexico State Trust Lands are provisional and subject to revision, and do not constitute an official record of title. Official records may be reviewed at the New Mexico State Land Office in Santa Fe, New Mexico.







## Oil, Gas, and Minerals Leases and Wells



Disclaimer:  
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Sorted by distance from Apache EBDU 51

WELL	SPUD	TVD	POOL	WELL TYPE	HOLE O.D.	CASING O.D.	SET @	CEMENT	TOC	HOW TOC DETERMINED
EBDU 049	3/14/52	7573	Eunice; Bli-Tu-Dr, N	O	17.25	13.375	205	250 sx	GL	Circ 65 sx
30-025-06582					11	8.625	3000	2400 sx	GL	Circ
G-14-21S-37E					7.875	5.5	6808	300 sx	5423	CBL
EBDU 089	8/23/09	6905	Eunice; Bli-Tu-Dr, N	O	12.25	8.625	1345	650 sx	GL	Circ
30-025-39275					7.875	5.5	6905	1150 sx	GL	Circ
G-14-21S-37E										
EBDU 081	9/26/08	6925	Eunice; Bli-Tu-Dr, N	O	12.25	8.625	1375	700 sx	GL	Circ
30-025-39057					7.875	5.5	6925	1600 sx	114	CBL
B-14-21S-37E										
EBDU 043	10/23/52	6648	Eunice; Bli-Tu-Dr, N	O	No report	13.375	250	250 sx	GL	Circ
30-025-06573					No report	9.625	3149	1570 sx	550	Temp Survey
H-14-21S-37E					8.75	7	6583	625 sx	3250	Temp Survey

Sorted by distance from Apache EBDU 51

[illegible]



Sorted by distance from Apache EBDU 51

[illegible]

Sorted by distance from Apache EBDU 51

[illegible]

Sorted by distance from Apache EBDU 51

[illegible]

Sorted by distance from Apache EBDU 51

[illegible]

Sorted by distance from Apache EBDU 51

[illegible]

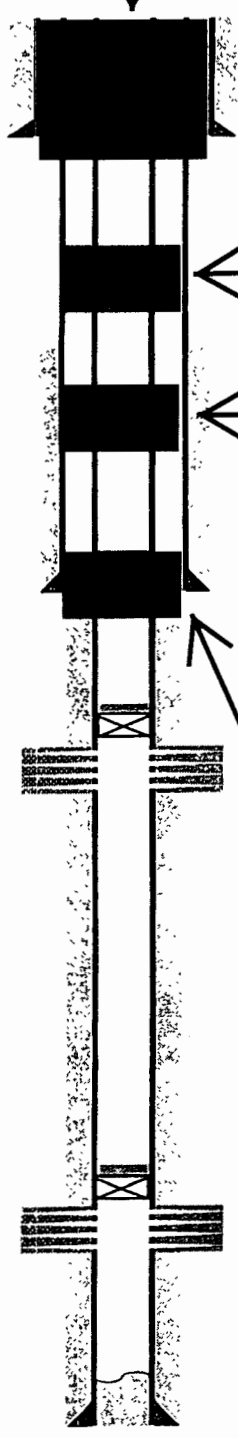
perf csg @ 253'  
pump 150 sx cmt  
GL - 253'

**LOCKHART B-14A #4**  
API - 30-025-06576  
1980' FSL & 330' FEL  
Sec. 14 T-21S R-37E  
Lea County, New Mexico  
Spud Date - 1956



**Completions**

Date	Zone	Perfs
1956	Blaine	5716 - 5831
2001	Queen	3496 - 3557



**Surface Casing**  
10-3/4" @ 203' w/ 250 sx cmt, circ

sqz 45 sx  
taq @ 1230'

perf csg @ 2510'  
pump 30 sx cmt  
2562' - 2260'

**Intermediate Casing**  
7-5/8" 0'-2,948' w/ 1,060 sxs cmt, TOC 1,670' Calc

CIBP @ 3,455' w/ 35' cmt (set 06/02/98)  
Perfs @ 3496 - 3557

perf csg @ 2998'  
pump 25 sx cmt  
2838' - 3050'

CIBP @ 5,670' w/ 35' cmt (set 06/02/98)  
Perfs @ 5716 - 5831

**Production Casing**  
5-1/2" @ 5,874' w/ 500 sx, TOC 2,988' calc w/ 70% fill



spud 8-18-56  
P&A 9-10-07

Updated 05/30/07  
Jim Newman, Triple N

Well: Naomi Keenum

Field Blinebry/Drinkard

Reservoir: Blinebry Oil & Gas/Drinkar

**Location:**

1980' FS & 1980' EL  
Section 14 Unit Letter: J  
Township: 21S  
Range: 37E  
County Lea State: NM

**Elevations:**

GL: 3413'  
KB: '12  
DF: '

spot 100 sx  
1200' - 2091'

This wellbore diagram is based on the most recent information regarding wellbore configuration and equipment that could be found in the Midland Office well files and computer databases as of the update date below. Verify what is in the hole with the well file in the Eunice Field Office. Discuss w/ WEO Engineer, W0 Rep, OS, ALS, & FS prior to rigging up on well regarding any hazards or unknown issues pertaining to the well.

**Wellbore Diagram**

**Well ID Info:**

Cheveno FA7682  
API No: 30-025-06577  
L5/L6: UCU462200  
WBS:  
Initial Compl. Date: 1/24/53

EXHIBIT G

spot 125 sx

GL - 1200'

Surf. Csg: 12 3/4", 50#, H-40  
Set: @ 200' w/ 250 sks  
Size Hole: 17 1/4"  
Circ: Yes TOC: Surface  
TOC By: Circulated

spot 100 sx

2091' - 3050'

Csg: 8 5/8", 28,32#, H-40, J-55  
Set: @ 2999' w/ 2025 sks  
Size Hole: 11"  
Circ: Yes TOC: 3098  
TOC By: Circulated

spot 25 sx

5049' - 5289'

Perfs: Status:  
5721'- 5829' Blinebry - Open

6525-27' Drinkard - open  
6554-56' Drinkard - open  
6573-75' Drinkard - open  
6597-99' Drinkard - open  
6618-20' Drinkard - open  
6636-38' Drinkard - open

Junk in the well @ 6627

CMT @6690'  
CIBP @ 6700'

6850-6900' Drinkard - abandoned  
6920-6980' Drinkard - abandoned  
7000-7080' Drinkard - abandoned  
7110-7170' Drinkard - abandoned

CMT @ 7179'  
CIBP @ 7190'

7200-7300' Drinkard - abandoned

Prod. Csg: 5 1/2", 17, 15 5, 14#, N-80,J-55,H-40  
Set: @ 7325' w/ 695 sks  
Size Hole: 7 7/8"  
Circ: Yes TOC: Surface  
TOC By: Circulated

COTD: 6627'

PBTD: 6690'

TD: 7325'

Updated: 8/7/2009

By: N. Southern

CMT @ 7315'

spud 12-16-52

P&A 7-18-15



## 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	Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	DepthWell	DepthWater	Water Column
CP 00239 POD1	CP	LE		1	1	2	23	21S	37E	675485	3594152*	1121	89	61	28
CP 00562	CP	LE		1	2	2	23	21S	37E	675887	3594159*	1122	136	65	71
CP 00235 POD1	CP	LE		2	2	1	23	21S	37E	675283	3594144*	1178	81		
CP 01185 POD2	CP	LE			1	3	14	21S	37E	674623	3594674	1193	70		
CP 01574 POD2	CP	LE		1	3	3	14	21S	37E	674666	3594578	1207	68	57	11
CP 01185 POD1	CP	LE			1	3	14	21S	37E	674598	3594689	1208	70		
CP 01185 POD4	CP	LE			1	3	14	21S	37E	674633	3594610	1218	70		
CP 01110 POD1	CP	LE			1	3	14	21S	37E	674586	3594648	1239	70		
CP 01110 POD2	CP	LE			1	3	14	21S	37E	674586	3594648	1239	70		
CP 01110 POD3	CP	LE			1	3	14	21S	37E	674586	3594648	1239	70		
CP 01110 POD4	CP	LE			1	3	14	21S	37E	674586	3594648	1239	20		
CP 01110 POD5	CP	LE			1	3	14	21S	37E	674586	3594648	1239	20		
CP 01185 POD3	CP	LE			1	3	14	21S	37E	674592	3594620	1247	70		
CP 00235 POD2	CP	LE		1	2	1	23	21S	37E	675083	3594144*	1257	96	65	31
CP 00134 POD1	CP	LE		1	1	1	24	21S	37E	676289	3594166*	1259	85		
CP 01574 POD1	CP	LE		2	4	4	15	21S	37E	674559	3594598	1287	68	57	11
CP 00137 POD1	CP	LE		2	2	1	13	21S	37E	676862	3595783*	1307	65		
CP 00235 POD8	CP	LE		3	1	2	23	21S	37E	675485	3593952*	1319	94	58	36
CP 00236 POD1	CP	LE		3	1	2	23	21S	37E	675485	3593952*	1319	83		
CP 00235 POD6	CP	LE		2	1	1	23	21S	37E	674881	3594137*	1368	85	65	20
CP 00240 POD1	CP	LE		4	2	1	23	21S	37E	675283	3593944*	1369			
CP 00241 POD1	CP	LE		4	2	1	23	21S	37E	675283	3593944*	1369	79		
CP 00700	CP	LE			2		23	21S	37E	675794	3593851*	1413	75	65	10
CP 00235 POD3	CP	LE		1	1	1	23	21S	37E	674681	3594137*	1491	90	61	29
CP 00235 POD10	CP	LE		1	3	2	23	21S	37E	675492	3593749*	1519	92	60	32
CP 00235 POD11	CP	LE		1	3	2	23	21S	37E	675492	3593749*	1519	97	60	37
CP 00237 POD1	CP	LE		1	3	2	23	21S	37E	675492	3593749*	1519	84		
CP 00235 POD5	CP	LE		1	4	1	23	21S	37E	675090	3593742*	1621	90	70	20
CP 00235 POD7	CP	LE		3	1	1	23	21S	37E	674681	3593937*	1647	85	65	20
CP 00238 POD1	CP	LE		3	3	2	23	21S	37E	675492	3593549*	1718	81		

1 mile =  
1610 m



<u>CP 00235 POD4</u>	CP	LE	1	3	1	23	21S	37E	674688	3593735*		1809	100	80	20
<u>CP 00235 POD9</u>	CP	LE	3	4	1	23	21S	37E	675090	3593542*		1810	94	58	36
<u>CP 01575 POD2</u>	CP	LE	2	2	1	22	21S	37E	673615	3594181		2314	35	35	0
<u>CP 01141 POD4</u>	CP	LE				15	21S	37E	673556	3594239		2341	45		
<u>CP 01141 POD2</u>	CP	LE				15	21S	37E	673543	3594250		2348	40		
<u>CP 01141 POD3</u>	CP	LE				15	21S	37E	673520	3594272		2359	40		
<u>CP 01575 POD1</u>	CP	LE	1	2	1	22	21S	37E	673544	3594204		2367	40	35	5
<u>CP 01222 POD3</u>	CP	LE	2	4	4	23	21S	37E	676036	3592871		2416	60	48	12
<u>CP 00731 POD1</u>	CP	LE		2	1	22	21S	37E	673577	3594015*		2429	8130		
<u>CP 00252 POD1</u>	CP	LE	4	2	4	22	21S	37E	674493	3593125*		2434	106	78	28
<u>CP 00729 POD1</u>	CP	LE	4	1	3	15	21S	37E	673259	3594711*		2466	8015		
<u>CP 00286 POD1</u>	CP	LE	2	1	2	10	21S	37E	674019	3597338*		2651	70		
<u>CP 00732 POD1</u>	CP	LE		4	1	22	21S	37E	673584	3593613*		2652	6633		
<u>CP 00881</u>	CP	LE		4	4	22	21S	37E	674402	3592824*		2742	95	53	42
<u>CP 00251 POD1</u>	CP	LE	2	3	4	22	21S	37E	674099	3592915*		2818	103		
<u>CP 00554</u>	CP	LE		2	2	16	21S	37E	672744	3595610*		2941	80	70	10
<u>CP 00017 POD1</u>	CP	LE	2	1	2	27	21S	37E	674106	3592513*		3157	101		

Average Depth to Water: **60 feet**

Minimum Depth: **35 feet**

Maximum Depth: **80 feet**

**Record Count:** 47

**UTMNAD83 Radius Search (in meters):**

**Easting (X):** 675664

**Northing (Y):** 3595259

**Radius:** 3220

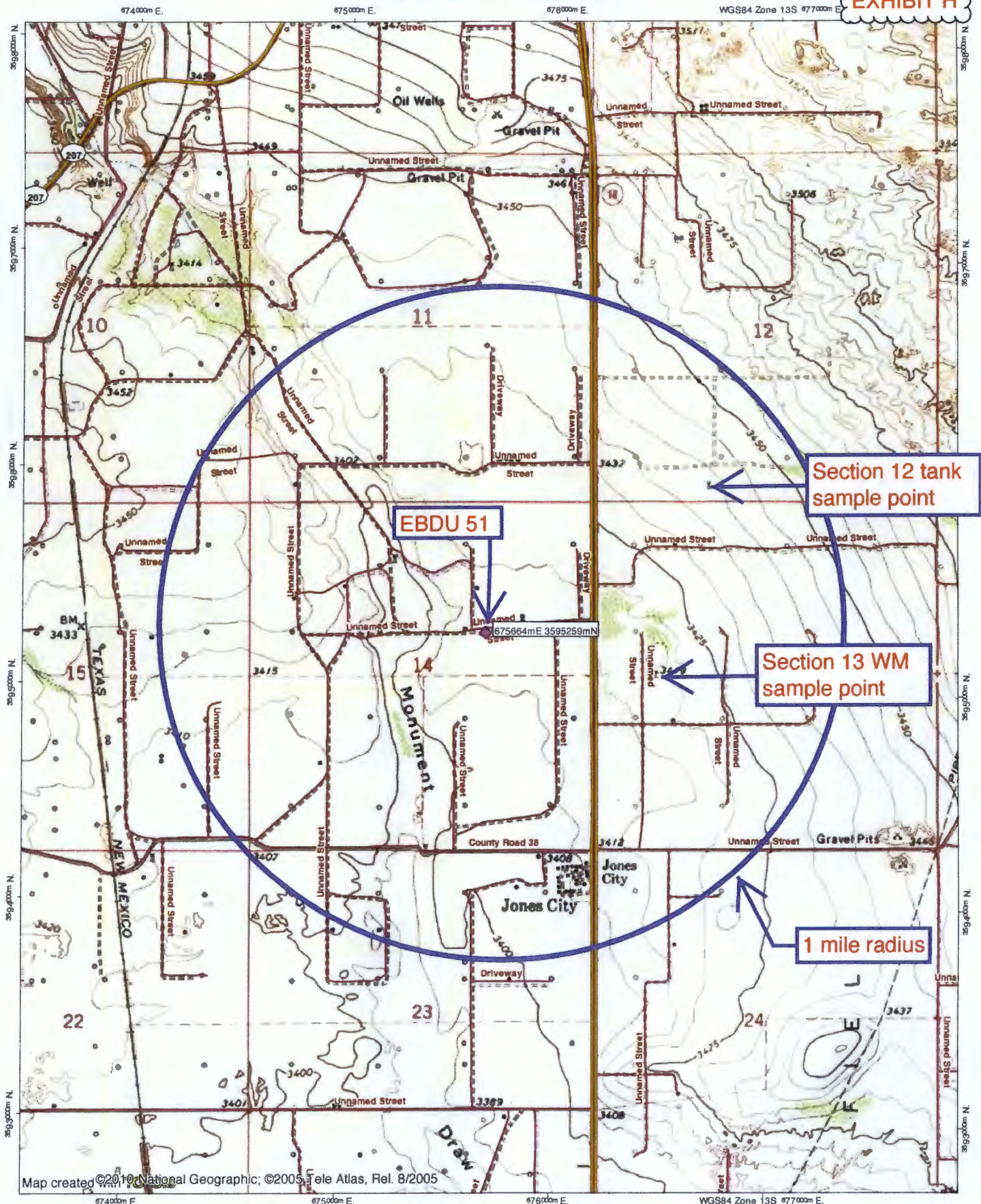
**\*UTM location was derived from PLSS - see Help**

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

3/31/18 9:32 AM

WATER COLUMN/ AVERAGE DEPTH TO  
WATER

EXHIBIT H



Map created ©2010 National Geographic; ©2005 Tele Atlas, Rel. 8/2005



**Hall Environmental Analysis Laboratory, Inc.**

<b>CLIENT:</b> Permits West	<b>3/4 mile NE</b>	<b>Client Sample ID:</b> Section 12 Tank
<b>Project:</b> Apache EBDU 24 et al	<b>of EBDU 51</b>	<b>Collection Date:</b> 8/18/2017 10:28:00 AM
<b>Lab ID:</b> 1708C75-001	<b>Matrix:</b> AQUEOUS	<b>Received Date:</b> 8/22/2017 2:00:00 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 300.0: ANIONS</b>						
Chloride	670	25	*	mg/L	50	Analyst: <b>MRA</b> 8/31/2017 6:31:12 PM
<b>EPA METHOD 1664B</b>						
N-Hexane Extractable Material	ND	10.7		mg/L	1	Analyst: <b>MAB</b> 9/1/2017
<b>SM2540C MOD: TOTAL DISSOLVED SOLIDS</b>						
Total Dissolved Solids	1770	20.0	*	mg/L	1	Analyst: <b>SRM</b> 8/25/2017 5:04:00 PM

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	Page 1 of 7
	D	Sample Diluted Due to Matrix	E	Value above quantitation range	
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range	
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit	
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified	

**Hall Environmental Analysis Laboratory, Inc.**

<b>CLIENT:</b> Permits West	1/2 mile ESE	<b>Client Sample ID:</b> Section 13 WM
<b>Project:</b> Apache EBDU 24 et al	of EBDU 51	<b>Collection Date:</b> 8/18/2017 11:19:00 AM
<b>Lab ID:</b> 1708C75-002	<b>Matrix:</b> AQUEOUS	<b>Received Date:</b> 8/22/2017 2:00:00 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 300.0: ANIONS</b>						
Chloride	280	10	*	mg/L	20	8/25/2017 12:24:29 AM
<b>EPA METHOD 1664B</b>						
N-Hexane Extractable Material	ND	9.95		mg/L	1	9/1/2017
<b>SM2540C MOD: TOTAL DISSOLVED SOLIDS</b>						
Total Dissolved Solids	930	20.0	*	mg/L	1	8/25/2017 5:04:00 PM

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	Page 2 of 7
	D	Sample Diluted Due to Matrix	E	Value above quantitation range	
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range	
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit	
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified	

**Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Permits West**Client Sample ID:** Decky Pond**Project:** Apache EBDU 24 et al**Collection Date:** 8/18/2017 2:20:00 PM**Lab ID:** 1708C75-003**Matrix:** AQUEOUS**Received Date:** 8/22/2017 2:00:00 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>MRA</b>
Chloride	360	10	*	mg/L	20	8/25/2017 12:49:18 AM
<b>EPA METHOD 1664B</b>						Analyst: <b>MAB</b>
N-Hexane Extractable Material	ND	9.93		mg/L	1	9/1/2017
<b>SM2540C MOD: TOTAL DISSOLVED SOLIDS</b>						Analyst: <b>SRM</b>
Total Dissolved Solids	1040	20.0	*	mg/L	1	8/25/2017 5:04:00 PM

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	Page 3 of 7
	D	Sample Diluted Due to Matrix	E	Value above quantitation range	
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range	
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit	
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified	

**Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Permits West**Client Sample ID:** Section 15 Tank**Project:** Apache EBDU 24 et al**Collection Date:** 8/18/2017 5:17:00 PM**Lab ID:** 1708C75-004**Matrix:** AQUEOUS**Received Date:** 8/22/2017 2:00:00 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>MRA</b>
Chloride	660	25	*	mg/L	50	9/5/2017 6:57:19 PM
<b>EPA METHOD 1664B</b>						Analyst: <b>MAB</b>
N-Hexane Extractable Material	ND	10.1		mg/L	1	9/1/2017
<b>SM2540C MOD: TOTAL DISSOLVED SOLIDS</b>						Analyst: <b>SRM</b>
Total Dissolved Solids	1730	40.0	*D	mg/L	1	8/25/2017 5:04:00 PM

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	Page 4 of 7
	D	Sample Diluted Due to Matrix	E	Value above quantitation range	
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range	
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit	
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified	

## QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1708C75

11-Sep-17

**Client:** Permits West  
**Project:** Apache EBDU 24 et al

Sample ID	MB-33659	SampType:	MBLK	TestCode:	EPA Method 1664B					
Client ID:	PBW	Batch ID:	33659	RunNo:	45373					
Prep Date:	9/1/2017	Analysis Date:	9/1/2017	SeqNo:	1437730	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
N-Hexane Extractable Material	ND	10.0								

Sample ID	LCS-33659	SampType:	LCS	TestCode:	EPA Method 1664B					
Client ID:	LCSW	Batch ID:	33659	RunNo:	45373					
Prep Date:	9/1/2017	Analysis Date:	9/1/2017	SeqNo:	1437731	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
N-Hexane Extractable Material	33.8	10.0	40.00	0	84.5	78	114			

## Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
PQL Practical Quantitative Limit	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified



## QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

**Client:** Permits West  
**Project:** Apache EBDU 24 et al

Sample ID <b>MB</b>	SampType: mblk		TestCode: EPA Method 300.0: Anions							
Client ID: <b>PBW</b>	Batch ID: <b>R45189</b>		RunNo: <b>45189</b>							
Prep Date:	Analysis Date: <b>8/24/2017</b>		SeqNo: <b>1432143</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Sample ID <b>LCS</b>	SampType: lcs		TestCode: EPA Method 300.0: Anions							
Client ID: <b>LCSW</b>	Batch ID: <b>R45189</b>		RunNo: <b>45189</b>							
Prep Date:	Analysis Date: <b>8/24/2017</b>		SeqNo: <b>1432144</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	5.0	0.50	5.000	0	100	90	110			

Sample ID <b>MB</b>	SampType: mblk		TestCode: EPA Method 300.0: Anions							
Client ID: <b>PBW</b>	Batch ID: <b>R45380</b>		RunNo: <b>45380</b>							
Prep Date:	Analysis Date: <b>8/31/2017</b>		SeqNo: <b>1437942</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Sample ID <b>LCS</b>	SampType: lcs		TestCode: EPA Method 300.0: Anions							
Client ID: <b>LCSW</b>	Batch ID: <b>R45380</b>		RunNo: <b>45380</b>							
Prep Date:	Analysis Date: <b>8/31/2017</b>		SeqNo: <b>1437943</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	92.8	90	110			

Sample ID <b>MB</b>	SampType: mblk		TestCode: EPA Method 300.0: Anions							
Client ID: <b>PBW</b>	Batch ID: <b>A45445</b>		RunNo: <b>45445</b>							
Prep Date:	Analysis Date: <b>9/5/2017</b>		SeqNo: <b>1439920</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Sample ID <b>LCS-b</b>	SampType: lcs		TestCode: EPA Method 300.0: Anions							
Client ID: <b>LCSW</b>	Batch ID: <b>A45445</b>		RunNo: <b>45445</b>							
Prep Date:	Analysis Date: <b>9/5/2017</b>		SeqNo: <b>1439922</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	91.9	90	110			

## Qualifiers:

- |   |   |
|---|---|
| * Value exceeds Maximum Contaminant Level.              | B Analyte detected in the associated Method Blank           |
| D Sample Diluted Due to Matrix                          | E Value above quantitation range                            |
| H Holding times for preparation or analysis exceeded    | J Analyte detected below quantitation limits                |
| ND Not Detected at the Reporting Limit                  | P Sample pH Not In Range                                    |
| PQL Practical Quantitative Limit                        | RL Reporting Detection Limit                                |
| S % Recovery outside of range due to dilution or matrix | W Sample container temperature is out of limit as specified |



# QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

EXHIBIT H  
WO#: 1708C75

11-Sep-17

Client: Permits West  
Project: Apache EBDU 24 et al

Sample ID	MB-33526	SampType:	MBLK	TestCode:	SM2540C MOD: Total Dissolved Solids
Client ID:	PBW	Batch ID:	33526	RunNo:	45227
Prep Date:	8/23/2017	Analysis Date:	8/25/2017	SeqNo:	1432473 Units: mg/L
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit %RPD RPDLimit Qual
Total Dissolved Solids	ND	20.0			

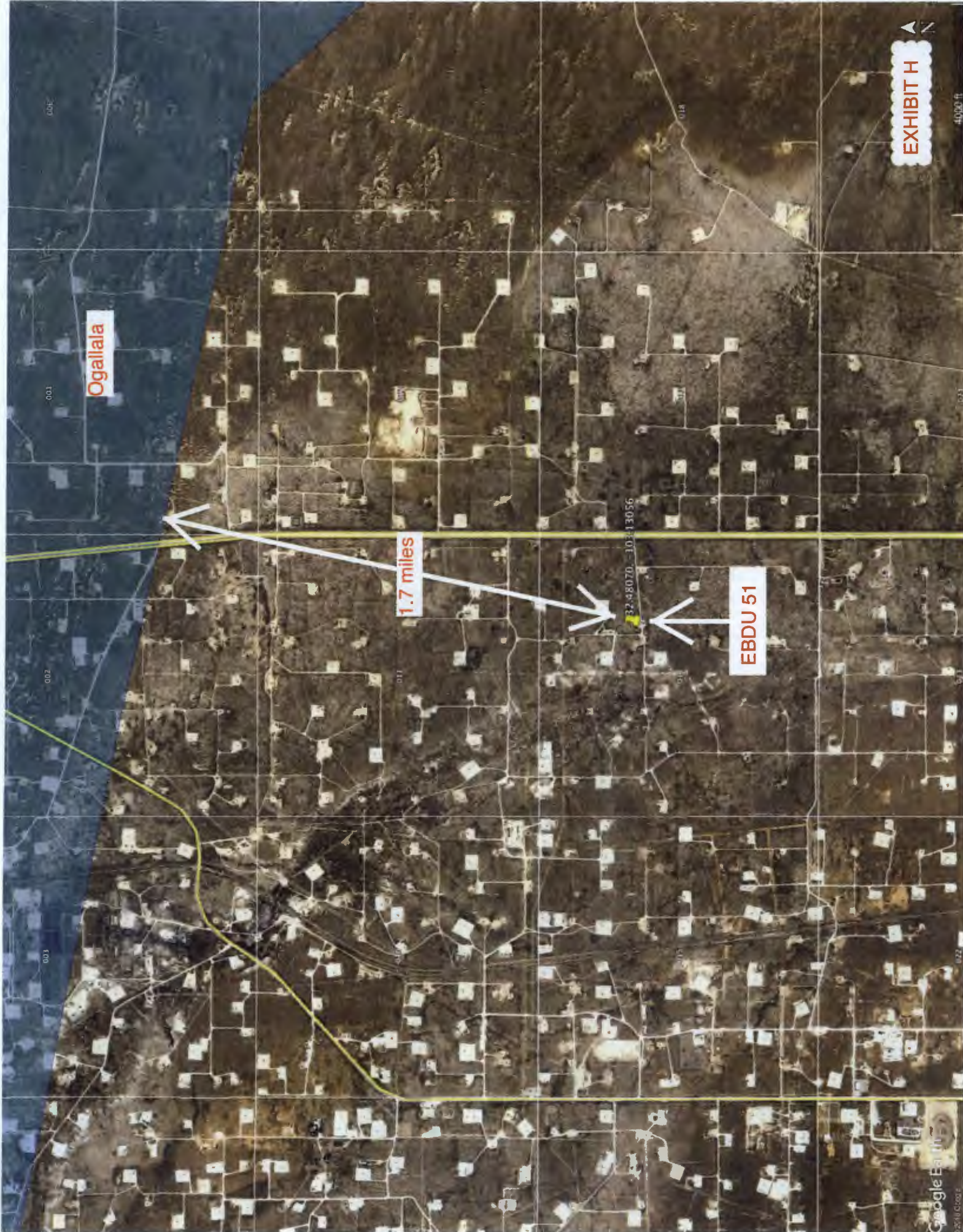
Sample ID	LCS-33526	SampType:	LCS	TestCode:	SM2540C MOD: Total Dissolved Solids
Client ID:	LCSW	Batch ID:	33526	RunNo:	45227
Prep Date:	8/23/2017	Analysis Date:	8/25/2017	SeqNo:	1432474 Units: mg/L
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit %RPD RPDLimit Qual
Total Dissolved Solids	1030	20.0	1000	0	103 80 120

Sample ID	1708C75-004AMS	SampType:	MS	TestCode:	SM2540C MOD: Total Dissolved Solids
Client ID:	Section 15 Tank	Batch ID:	33526	RunNo:	45227
Prep Date:	8/23/2017	Analysis Date:	8/25/2017	SeqNo:	1432494 Units: mg/L
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit %RPD RPDLimit Qual
Total Dissolved Solids	3830	40.0	2000	1728	105 80 120 D

Sample ID	1708C75-004AMSD	SampType:	MSD	TestCode:	SM2540C MOD: Total Dissolved Solids
Client ID:	Section 15 Tank	Batch ID:	33526	RunNo:	45227
Prep Date:	8/23/2017	Analysis Date:	8/25/2017	SeqNo:	1432495 Units: mg/L
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit %RPD RPDLimit Qual
Total Dissolved Solids	3850	40.0	2000	1728	106 80 120 0.625 5 D

## Qualifiers:

- |   |   |
|---|---|
| * Value exceeds Maximum Contaminant Level.              | B Analyte detected in the associated Method Blank           |
| D Sample Diluted Due to Matrix                          | E Value above quantitation range                            |
| H Holding times for preparation or analysis exceeded    | J Analyte detected below quantitation limits                |
| ND Not Detected at the Reporting Limit                  | P Sample pH Not In Range                                    |
| PQL Practical Quantitative Limit                        | RL Reporting Detection Limit                                |
| S % Recovery outside of range due to dilution or matrix | W Sample container temperature is out of limit as specified |



Ogallala

1.7 miles

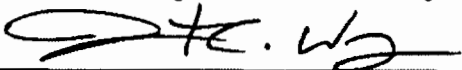
EBDU 51

32.48070, -103.13056

EXHIBIT H

Form C-108  
Affirmative Statement  
Apache Corporation  
East Blinebry Drinkard Unit  
Section 14, T-21-S, R-37-E  
Lea County, New Mexico

The extractions from the seismic data show no evidence of faulting at (or above) the Glorieta in this area and surface mapping from the USGS confirms that no faults are known at the surface. In addition, we have no empirical evidence that our injection operations at EBDU are affected by faulting at the Glorieta level, the evaporites, or the surface. Available geologic and engineering data has been examined and no evidence of open faults or hydrological connection between the injection zone and any underground sources of drinking water has been found.



Justin Wagner  
Geologist I

8/14/2017

Date



EXHIBIT I

EBDU 51

32.48070, -103.13056

109 miles

Quaternary faults

Google Earth

© 2015 Google

Map data © Google





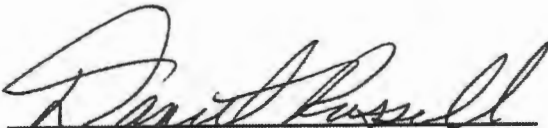
# Affidavit of Publication

EXHIBIT J

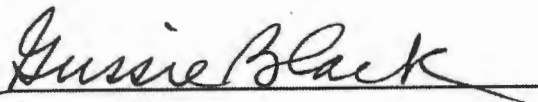
STATE OF NEW MEXICO  
COUNTY OF LEA

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).

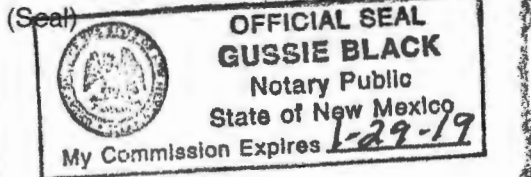
Beginning with the issue dated  
March 21, 2018  
and ending with the issue dated  
March 21, 2018.

  
Publisher

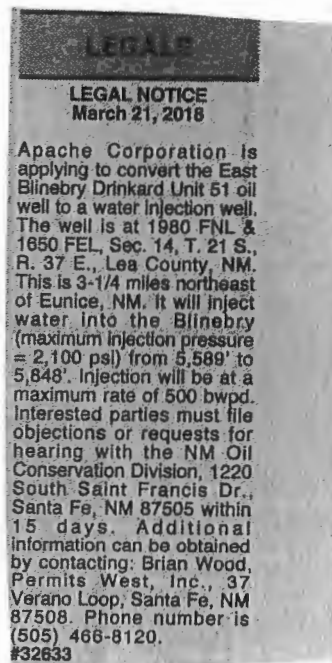
Sworn and subscribed to before me this  
21st day of March 2018.

  
Business Manager

My commission expires  
January 29, 2019



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

00208807

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

March 31, 2018

James Allen Bryant  
8204 Indigo Court NE  
Albuquerque NM 87122

TYPICAL LETTER

Apache Corporation is applying (see attached application) to convert its East Blinebry Drinkard Unit 51 oil well to a water injection well. As required by NM Oil Conservation Division (NMOCD) Rules, I am notifying you of the following proposed water injection well. This letter is a notice only. No action is needed unless you have questions or objections.

Well Name: East Blinebry Drinkard Unit 51 (fee lease) TD = 5,850'  
Proposed Injection Zone: Blinebry from 5,589' to 5,850'  
Where: 1980' FNL & 1650' FEL Sec. 14, T. 21 S., R. 37 E., Lea County, NM  
Approximate Location: 3-1/4 air miles NE of Eunice, NM  
Applicant Name: Apache Corporation (432) 818-1062  
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. NMOCD address is 1220 South St. Francis Dr. Santa Fe, NM 87505. Phone is (505) 476-3440.

Please call me if you have any questions.

Sincerely,

  
Brian Wood

7017 0190 0001 1435 0283

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Certified Mail Fee \$ 3.45	<div style="text-align: center;">Postmark Here APR 22 2016</div>
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<input checked="" type="checkbox"/> Return Receipt (hardcopy) \$ 2.75	
<input type="checkbox"/> Return Receipt (electronic) \$	
<input type="checkbox"/> Certified Mail Restricted Delivery \$	
<input type="checkbox"/> Adult Signature Required \$	
<input type="checkbox"/> Adult Signature Restricted Delivery \$	
Postage \$ 1.84	
Total Postage and Fees \$ 8.04	
Sent To BP American Production Co 787 North Eldridge Parkway Houston TX 77079 City, State, ZIP+4 <sup>®</sup> Apache EBDU 51	
PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions	

7017 0190 0001 1435 0337

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OFFICIAL USE	
Certified Mail Fee \$ 3.45	<div style="text-align: center;">Postmark Here APR 22 2016</div>
Extra Services & Fees (check box, add fee as appropriate)	
<input checked="" type="checkbox"/> Return Receipt (hardcopy) \$ 2.75	
<input type="checkbox"/> Return Receipt (electronic) \$	
<input type="checkbox"/> Certified Mail Restricted Delivery \$	
<input type="checkbox"/> Adult Signature Required \$	
<input type="checkbox"/> Adult Signature Restricted Delivery \$	
Postage \$ 1.84	
Total Postage and Fees \$ 8.04	
Sent To BLM 620 E. Greene Carlsbad NM 88220 City, State, ZIP+4 <sup>®</sup> Apache EBDU 51	
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Certified Mail Fee \$ 3.48	<div style="text-align: center;">Postmark Here APR 22 2016</div>
Extra Services & Fees (check box, add fee as appropriate)	
<input checked="" type="checkbox"/> Return Receipt (hardcopy) \$ 2.75	
<input type="checkbox"/> Return Receipt (electronic) \$	
<input type="checkbox"/> Certified Mail Restricted Delivery \$	
<input type="checkbox"/> Adult Signature Required \$	
<input type="checkbox"/> Adult Signature Restricted Delivery \$	
Postage \$ 1.84	
Total Postage and Fees \$ 8.04	
Sent To James Allen Bryant c/o Lucy Bryant 8204 Indigo CT NE Albuquerque NM 87122 City, State, ZIP+4 <sup>®</sup> Apache EBDU 51	
PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions	

7017 0190 0001 1435 0316

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OFFICIAL USE	
Certified Mail Fee \$ 3.45	<div style="text-align: center;">Postmark Here APR 22 2016</div>
Extra Services & Fees (check box, add fee as appropriate)	
<input checked="" type="checkbox"/> Return Receipt (hardcopy) \$ 2.75	
<input type="checkbox"/> Return Receipt (electronic) \$	
<input type="checkbox"/> Certified Mail Restricted Delivery \$	
<input type="checkbox"/> Adult Signature Required \$	
<input type="checkbox"/> Adult Signature Restricted Delivery \$	
Postage \$ 1.84	
Total Postage and Fees \$ 8.04	
Sent To Chevron USA 6301 Deauville Midland TX 79706 City, State, ZIP+4 <sup>®</sup> Apache EBDU 51	
PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions	

7017 0190 0001 1435 0366

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For delivery information, visit our website at <a href="http://www.usps.com">www.usps.com</a>	
OFFICIAL USE	
Certified Mail Fee \$ 3.45	<div style="text-align: center;">Postmark Here APR 22 2016</div>
Extra Services & Fees (check box, add fee as appropriate)	
<input checked="" type="checkbox"/> Return Receipt (hardcopy) \$ 2.75	
<input type="checkbox"/> Return Receipt (electronic) \$	
<input type="checkbox"/> Certified Mail Restricted Delivery \$	
<input type="checkbox"/> Adult Signature Required \$	
<input type="checkbox"/> Adult Signature Restricted Delivery \$	
Postage \$ 1.84	
Total Postage and Fees \$ 8.04	
Sent To J R Cons Operating, LLC PO Box 10217 Lubbock TX 79408 City, State, ZIP+4 <sup>®</sup> Apache EBDU 51	
PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions	

EXHIBIT K

**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.

Article Addressed to:

BLM  
620 E. Greene  
Carlsbad NM 88220

Apache EBDU 51

9590 9402 3732 7335 6657 38

Article Number (Transfer from service label)  
017 0190 0001 1435 0337

Form 3811, July 2015 PSN 7530-02-000-9053

**COMPLETE THIS SECTION ON DELIVERY**

A. Signature  
☒ Agent  
☐ Addressee

B. Received by (Printed Name)  
APR 0 9 2015

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  
☐ Insured Mail  
☐ Insured Mail Restricted Delivery (over \$500)

☐ Priority Mail Express®  
☐ Registered Mail™  
☐ Registered Mail Restricted Delivery  
☐ Return Receipt for Merchandise  
☐ Signature Confirmation™  
☐ Signature Confirmation Restricted Delivery

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Article Addressed to:

James Allen Bryant c/o Lucy Bryant  
8204 Indigo CT NE  
Albuquerque NM 87122

Apache EBDU 51

9590 9402 3732 7335 6657 14

Article Number (Transfer from service label)  
017 0190 0001 1435 0337

Form 3811, July 2015 PSN 7530-02-000-9053

**COMPLETE THIS SECTION ON DELIVERY**

A. Signature  
☒ Agent  
☐ Addressee

B. Received by (Printed Name)  
Lucille Bryant

C. Date of Delivery  
4/5/19

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  
☐ Insured Mail  
☐ Insured Mail Restricted Delivery (over \$500)

☐ Priority Mail Express®  
☐ Registered Mail™  
☐ Registered Mail Restricted Delivery  
☐ Return Receipt for Merchandise  
☐ Signature Confirmation™  
☐ Signature Confirmation Restricted Delivery

**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.

Article Addressed to:

J R Cone Operating, LLC  
PO Box 10217  
Lubbock TX 79408

Apache EBDU 51

9590 9402 3732 7335 6657 07

Article Number (Transfer from service label)  
7017 0190 0001 1435 0368

Form 3811, July 2015 PSN 7530-02-000-9053

**COMPLETE THIS SECTION ON DELIVERY**

A. Signature  
☒ Agent  
☐ Addressee

B. Received by (Printed Name)  
JIM CONE

C. Date of Delivery  
4-5-18

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  
☐ Insured Mail  
☐ Insured Mail Restricted Delivery (over \$500)

☐ Priority Mail Express®  
☐ Registered Mail™  
☐ Registered Mail Restricted Delivery  
☐ Return Receipt for Merchandise  
☐ Signature Confirmation™  
☐ Signature Confirmation Restricted Delivery

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Article Addressed to:

Chevron USA  
6301 Deauville  
Midland TX 79706

Apache EBDU 51

9590 9402 3732 7335 6657 21

Article Number (Transfer from service label)  
7017 0190 0001 1435 0313

Form 3811, July 2015 PSN 7530-02-000-9053

**COMPLETE THIS SECTION ON DELIVERY**

A. Signature  
☒ Agent  
☐ Addressee

B. Received by (Printed Name)  
C. Lawrence

C. Date of Delivery  
4/5/18

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  
☐ Insured Mail  
☐ Insured Mail Restricted Delivery (over \$500)

☐ Priority Mail Express®  
☐ Registered Mail™  
☐ Registered Mail Restricted Delivery  
☐ Return Receipt for Merchandise  
☐ Signature Confirmation™  
☐ Signature Confirmation Restricted Delivery

EXHIBIT K