2.6.12

SUSPENSE	ENGINEER TW	LOGGED IN 2.6.12	TYPE WFX	APP NO. pTGW 1203753251

NEW MEXICO OIL CONSERVATION DIVISION

-896-

Apache

- Engineering Bureau -

1220 South St. Francis Drive, Santa Fe, NM 87505

ABOVE THIS LINE FOR DIVISION USE ONLY

ADMINISTRATIVE APPLICATION CHECKLIST

THIS CHECKLIST IS MANDATORY FOR ALL ADMINISTRATIVE APPLICATIONS FOR EXCEPTIONS TO DIVISION RULES AND REGULATIONS WHICH REQUIRE PROCESSING AT THE DIVISION LEVEL IN SANTA FE

Application Acronyms:

[NSL-Non-Standard Location] [NSP-Non-Standard Proration Unit] [SD-Simultaneous Dedication]
[DHC-Downhole Commingling] [CTB-Lease Commingling] [PLC-Pool/Lease Commingling]
[PC-Pool Commingling] [OLS - Off-Lease Storage] [OLM-Off-Lease Measurement]
[WFX-Waterflood Expansion] [PMX-Pressure Maintenance Expansion]
[SWD-Salt Water Disposal] [IPI-Injection Pressure Increase]
[EOR-Qualified Enhanced Oil Recovery Certification] [PPR-Positive Production Response]

Fed

[1] **TYPE OF APPLICATION** - Check Those Which Apply for [A]

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

Apache Corporation's
Northeast Drinkard Unit #157
30-025-

Check One Only for [B] or [C]

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

G-3-21S-37E

[C] Injection - Disposal - Pressure Increase - Enhanced Oil Recovery
WFX PMX SWD IPI EOR PPR

R-8541
-8540

[D] Other: Specify ______

[2] **NOTIFICATION REQUIRED TO:** - Check Those Which Apply, or _ Does Not Apply

[A] Working, Royalty or Overriding Royalty Interest Owners

[B] Offset Operators, Leaseholders or Surface Owner

6550'-6850'

[C] Application is One Which Requires Published Legal Notice

1310 psi

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

WFX 784
722

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

[F] Waivers are Attached

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

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

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

Print or Type Name	Signature	Title	Date
BRIAN WOOD (505) 466-8120 FAX 466-9682	B Wood	CONSULTANT	1-30-12 e-mail Address brian@permitswest.com

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? _____ 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-8541

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.

NORTHEAST DRINKARD UNIT #157

VII. Attach data on the proposed operation, including:

30-025-

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: B. Wood DATE: JANUARY 27, 2012

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.

Side 1

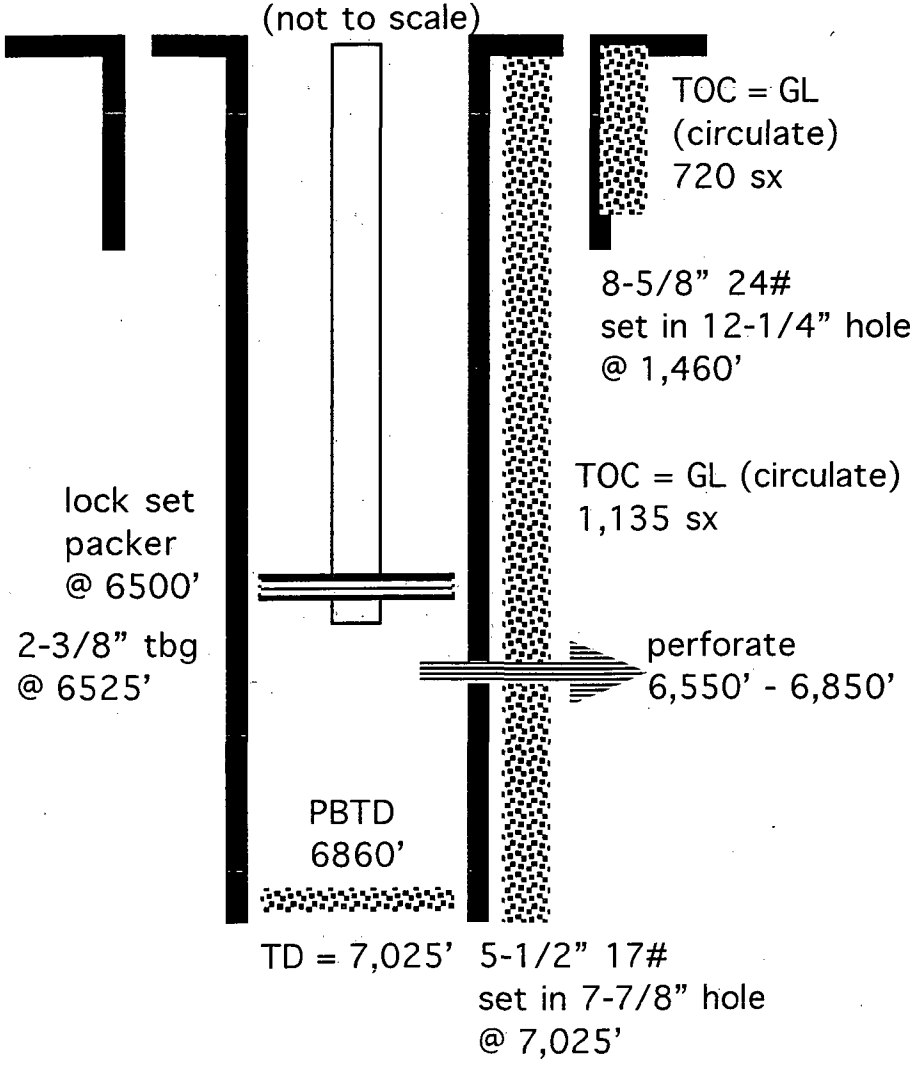
INJECTION WELL DATA SHEET

OPERATOR: APACHE CORPORATION

WELL NAME & NUMBER: NORTHEAST DRINKARD UNIT #157

WELL LOCATION:	SHL: 1855' FNL & 1570' FEL BHL: 1980' FNL & 1400' FEL	G (LOT 7)	3	21 S	37 E
	FOOTAGE LOCATION	UNIT LETTER	SECTION	TOWNSHIP	RANGE

WELLBORE SCHEMATIC



WELL CONSTRUCTION DATA

Surface Casing

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

Cemented with: 720 sx. *or* 1,178 ft³

Top of Cement: SURFACE Method Determined: VISUAL

Intermediate Casing

Hole Size: _____ Casing Size: _____

Cemented with: _____ sx. *or* _____ ft³

Top of Cement: _____ Method Determined: _____

Production Casing

Hole Size: 7-7/8" Casing Size: 5-1/2"

Cemented with: 1,135 sx. *or* 1,991 ft³

Top of Cement: SURFACE Method Determined: VISUAL

Total Depth: 7,025'

Injection Interval

6,550 feet to 6,850'

(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 STE INJECTION

Packer Setting Depth: ≈6,500'

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

Additional Data

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

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

2. Name of the Injection Formation: DRINKARD

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: TUBB (6,245'), BLINEBRY (5,755'), GRAYBURG (3,821')

   UNDER: ABO (6,868'), HARE SIMPSON (8,000')

UNDERGROUND INJECTION CONTROL PROGRAM

Apache
WFX-896

PERMIT SUMMARY PAGE

Nature of Permit
- ✓ New Permit
- ___ Amend Existing Permit
- ___ Injection Pressure Increase
- ___ Renew Discharge Plan
- ___ Other(Specify)_____

Number of Wells
- X Single Well
- _____ Multiple Wells
- _____ Specify Number Wells

Approval Process
- ✓ Administrative
- _____ Hearing
- If Hearing:
  - Case No._____
  - Order No. R-____

Reviewer
- ___ Ezeanyim
- ___ Brooks
- ___ Jones
- ✓ Warnell

Quarter in which Permit Issued
- ___ 1st(October-December)
- X 2nd (January-March)
- ___ 3rd(April-June)
- ___ 4th(July-September)

Type of Permit
- ___ SWD Well
- X Waterflood or Pressure Maintenance Injection Well
- ___ Class III Brine Well
- _____ Other(Specify)

Final Outcome
- X Application Approved
- ___ Application Denied
- ___ Application Returned

896 Permit Number 2-28-12 Permit Date Apache (873 Operator

Area of Review (AOR) Well Data

Area of Review Wells

52 Total Number of Area of Review Wells
2 Plugged and Abandoned Area of Review Wells
36 Active Area of Review Wells

Area of Review Wells to be Repaired

____ P&A Wells
____ Active Wells

Injection/Disposal Well Classification

___ New Wells (Wells were Drilled After March 7, 1982 – New Mexico Primacy Date)
___ Existing Wells (Wells were Drilled Prior to March 7, 1982

APACHE CORPORATION
NORTHEAST DRINKARD UNIT 157W
WATER INJECTION WELL APPLICATION
SHL: 1855' FNL & 1570' FEL
BHL: 1980' FNL & 1400' FEL
SEC. 3, T. 21 S., R. 37 E., LEA COUNTY, NEW MEXICO

I. Purpose is to drill a directional water injection well to increase oil recovery. (The proposed BHL (211' southeast of SHL) is under a railroad.) The well will inject into the Drinkard, which is part of the Eunice; Blinebry-Tubb-Drinkard, North Pool (aka, Eunice; BLI-TU-DR, North and pool code number = 22900). The discovery well was the Gulf Vivian #1 in 1944. The well and zone are part of the Northeast Drinkard Unit (Unit Number 300160, Case Number 9231, Order Number R-8540) which was established in 1987 by Shell. The unit was subsequently operated by Altura, and now, Apache. This is an active water flood.

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 lease NMNM-002512
Lease Size: 708.67 acres (see Exhibit A for C-102 and map)
Closest Lease Line: 576' (from BHL)
Lease Area: N2SE4, SESE, and Lots 1-4, 7, 8, 12, 15, & 16, Sec. 3;
Lot 1 Sec. 4; and W2NE4, SENE, & E2NW4 Sec. 10;
all T. 21 S., R. 37 E.

Unit Size: 4,938 acres
Closest Unit Line: 1,855' (from SHL)
Unit Area:

T. 21 S., R. 37 E.
Section 2: all
Section 3: all
Section 4: Lots 1, 8, 9, & 16
Section 10: all

Section 11: SW4
Section 14: NW4
Section 15: all
Section 22: all
Section 23: all

A. (2) Surface casing (8-5/8" and 24#) will be set at ≈1,460' in a 12-1/4" hole. Cement will be circulated to the surface with ≈720 sacks. Lead with 520 sacks Class C mixed at 13.5 pounds per gallon and 1.75 cubic feet per sack. Tail with 200 sacks Class C mixed at 14.8 pounds per gallon and 1.34 cubic feet per sack. Excess: ≥90%. See attached well bore profile on Form C-108 for more hole, casing, and cement details.

Production casing (5-1/2" and 17#) will be set at ≈7,025' (TD) in a 7-7/8". Cement will be circulated to the surface. Lead with 860 sacks 35:65 Poz mixed at 12.8 pounds per gallon and 1.9 cubic feet per sack. Tail with 275 sacks 50:50 poz mixed at 14.2 pounds per gallon and 1.3 cubic feet per sack. Excess: ≥60%. See attached well bore profile on Form C-108 and histories for more hole, casing, and cement details.

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

A. (3) Tubing specifications are 2-3/8", J-55, 4.7#, and internally plastic coated. Setting depth will be ≈6,525'. (Disposal interval will be ≈6,550' to ≈6,8150'.)

A. (4) A lock set injection packer will be set at ≈6,500' (≈50' above the highest proposed perforation of ≈6,550').

B. (1) Injection zone will be the grainstone and packstone members of the

Drinkard limestone. The zone is part of the Eunice; Blinebry-Tubb-Drinkard, North Pool (NMOCD pool code number = 22900). Estimated fracture gradient is ≈0.56 psi per foot.

B. (2) Injection interval will be ≈6,550' to ≈6,850'. The well will be a cased hole. See attached well profile for more perforation information.

B. (3) The well has not yet been drilled. It will be completed as a water injection well after approval.

B. (4) The well will be perforated from ≈6,550' to ≈6,850' with 2 shots per foot. Shot diameter = 0.40".

B. (5) The next higher oil or gas zone is the Tubb. Its estimated bottom is at ≈6,525'. Injection will occur in the Drinkard. Drinkard top is at ≈6,525'. Injection interval in the Drinkard will be ≈6,550' to ≈6,850'. The Tubb is unitized with the Blinebry and Drinkard. The Blinebry above the Tubb is productive in Sections 2 and 3. The Blinebry is part of the Eunice; Blinebry-Tubb-Drinkard, North Pool (NMOCD pool code number = 22900). Grayburg, above the Blinebry, is productive in Section 3. The Grayburg is part of the Penrose Skelly; Grayburg (NMOCD pool code number = 50350).

The next lower oil or gas zone is the Wantz; Abo (Pool Code = 62700). Its top is at 6,868'. There are four Abo producers in Section 2 and six in Section 3. All ten Abo producing wells are operated by Apache. The Abo is not part of the Northeast Drinkard Unit. The Hare; Simpson is deeper than the Abo and is productive in Sections 2 and 3.

IV. This is not a horizontal or vertical expansion of an existing injection project. The case file for the unit approval (R-8540) includes a discussion of the Drinkard water flood. The water flood (R-8541) was approved at the same

time in 1987.

There have been seven waterflood expansions (WFX) since then (WFX-740, WFX-752, WFX-759, WFX-774, WFX-784, WFX-881, and WFX-882). Closest unit boundary is 1,855' north. There are 14 injection wells within a half mile radius, 13 of which are in the unit. The injection wells are in all four directions (see Exhibit B).

V. Exhibit B shows all 52 existing wells (2 P & A + 14 water injection wells + 36 producing oil wells) within a 2,877' radius, regardless of depth. One of the 14 injection wells (#168) has been drilled, but has not yet perforated. A 2,877' radius is used to include a ≥half mile radius from both the BHL and SHL.

Exhibit C shows all 469 existing wells (352 oil or gas producing wells + 68 injection or disposal wells + 46 P & A wells + 3 water wells) within a two mile radius.

Exhibit D shows all leases (BLM, fee, and State) within a one half mile radius. Details on the leases within a one half mile radius are:

Area	Lessor	Lease Number	Operator
Lots 3 -6 & 13 Sec. 2	NMSLO	B1-1613-0002	Apache
Lot 12 Sec. 2	NMSLO	B0-9745-0004	Apache
Lots 1-4, 7, 8, 12, 15, & 16 Sec. 3	BLM	NMNM-002512	Apache
Lots 5, 6, 9 - 11, & 14 Sec. 3	fee	fee	Apache
S2SE4 Sec. 33*	BLM	NMLC-031695-B	ConocoPhillips
SWSW Sec. 34*	BLM	NMLC-063458	ConocoPhillips

*tracts within area of review, but outside the Northeast Drinkard Unit

Exhibit E shows all lessors (BLM, fee, and state) within a two mile radius. Note that the ranges are offset from the normal pattern (T. 20 S., R. 38 E. is north of T. 21 S., R. 37 E.).

VI. There are 52 approved wells within a 2,877' radius of the SHL or BHL. Fifty-one of the wells have been drilled. Thirty-seven of the 51 drilled wells penetrated the Drinkard. The penetrators include 27 oil wells, 8 water injection wells, and 2 plugged wells. A table abstracting the 37 wells' construction details and history is in Exhibit F. Schematics of the plugged wells are also included in Appendix F. The 52 wells and their distances from the 157 SHL are:

OPERATOR	WELL	API # 30-025-	LOCATION	ZONE(S)	STATUS	TD	DISTANCE FROM SHL
~~Apache~~	~~NEDU 110~~	~~06495~~	~~1980 FN & 1980 FE 3-21s-37e~~	~~Eunice; Blinebry-Tubb-Drinkard, North~~	~~WIW~~	~~5976~~	~~443'~~
Apache	NEDU 154	39439	1310 FN & 1825 FE 3-21s-37e	EBTDN	OW	7025	596'
Apache	NEDU 131	34609	1253 FN & 1244 FE 3-21s-37e	EBTDN	OW	6990	669'
Apache	NEDU 165	39915	1800 FN & 125 FW 2-21s-37e	EBTDN	WIW	7054	730'
Apache	NEDU 111	26670	2232 FN & 2310 FE 3-21s-37e	EBTDN	WIW	6875	846'
Apache	NEDU 125	34425	2727 FN & 1511 FE 3-21s-37e	EBTDN	OW	6910	887'
Apache	NEDU 113	06496	1980 FN & 660 FE 3-21s-37e	EBTDN	WIW	6830	911'
Apache	NEDU 163	39914	2650 FN & 2030 FE 3-21s-37e	EBTDN	OW	7025	936'
Apache	NEDU 158	39440	2562 FN & 590 FE 3-21s-37e	EBTDN	OW	7020	1213'
Apache	NEDU 130	34617	1254 FN & 2625 FW 3-21s-37e	EBTDN	OW	6950	1217'
~~Apache~~	~~NEDU 109~~	~~06510~~	~~660 FN & 1980 FE 3-21s-37e~~	~~EBTDN~~	~~WIW~~	~~6025~~	~~1259'~~

APACHE CORPORATION
NORTHEAST DRINKARD UNIT 157W
WATER INJECTION WELL APPLICATION
SHL: 1855' FNL & 1570' FEL
BHL: 1980' FNL & 1400' FEL
SEC. 3, T. 21 S., R. 37 E., LEA COUNTY, NEW MEXICO

OPERATOR	WELL	API # 30-025-	LOCATION	ZONE(S)	STATUS	TD	DISTANCE FROM SHL
Apache	NEDU 208	06385	4620 FS & 1979 FE 3-21s-37e	EBTDN	OW	6707	1448'
~~Apache~~	~~NEDU 112~~	~~06509~~	~~660 FN & 660 FE 3-21-37e~~	~~EBTDN~~	~~WIW~~	~~6020~~	~~1484'~~
Apache	NEDU 124	34424	2879 FN & 2650 FE 3-21s-37e	EBTDN	OW	6910	1507'
Apache	NEDU 139	35610	330 FN & 1300 FE 3-21s-37e	EBTDN	OW	6990	1534'
Apache	NEDU 211	06381	4620 FS & 660 FE 3-21s-37e	EBTDN	WIW	6780	1655'
~~Apache~~	~~Taylor Glenn 14~~	~~35353~~	~~2310 FN & 2100 FW 3-21s-37e~~	~~Penrose Skelly; Grayburg~~	~~OW~~	~~4200~~	~~1657'~~
Apache	Taylor Glenn 5	06384	3546 FN & 1650 FE 3-21s-37e	Pen. Skel; Gray. Wantz;Abo	OW	8361	1709'
Apache	NEDU 108	24831	1980 FN & 1980 FW 3-21s-37e	EBTDN	P & A	6805	1715'
~~Apache~~	~~NEDU 107~~	~~20315~~	~~1585 FN & 1980 FW 3-21s-37e~~	~~EBTDN~~	~~WIW~~	~~6000~~	~~1729'~~
Apache	NEDU 132	34601	1339 FN & 130 FW 2-21s-37e	EBTDN	OW	6970	1764'
Apache	NEDU 126	34415	2500 FN & 130 FW 2-21s-37e	EBTDN	OW	6940	1820'
Apache	NEDU 138	35609	330 FN & 2619 FW 3-21s-37e	EBTDN	OW	6990	1859'
Apache	Taylor Glenn 4	06383	3376 FN & 764 FE 3-21s-37e	Hare; Simpson	OW	8119	1876'
~~Apache~~	~~Taylor Glenn 20~~	~~38687~~	~~3170 FN & 2310 FW 3-21s-37e~~	~~Penrose Skelly; Grayburg~~	~~OW~~	~~4530~~	~~1913'~~

APACHE CORPORATION
NORTHEAST DRINKARD UNIT 157W
WATER INJECTION WELL APPLICATION
SHL: 1855' FNL & 1570' FEL
BHL: 1980' FNL & 1400' FEL
SEC. 3, T. 21 S., R. 37 E., LEA COUNTY, NEW MEXICO

OPERATOR	WELL	API # 30-025-	LOCATION	ZONE(S)	STATUS	TD	DISTANCE FROM SHL
Apache	NEDU 228	34427	3768 FN & 1493 FE 3-21s-37e	EBTDN	OW	6920	1931'
~~Apache~~	~~NEDU 106~~	~~06410~~	~~660 FN & 1980 FW 3-21s-37e~~	~~EBTDN~~	~~WIW~~	~~6000~~	~~2085'~~
Apache	Taylor Glenn 3	06382	3546 FN & 330 FE 3-21s-37e	Wantz; Abo	OW	8224	2111'
Apache	NEDU 229	34429	3730 FN & 2594 FE 3-21s-37e	EBTDN	OW	6910	2153'
Apache	NEDU 206	06522	3226 FN & 1980 FW 3-21s-37e	EBTDN	WIW	8590	2199'
Apache	NEDU 166	39916	1350 FN & 600 FW 2-21s-37e	EBTDN	OW	7039	2220'
Apache	NEDU 115	06340	5940 FS & 660 FW 2-21s-37e	EBTDN	WIW	8620	2225'
~~Apache~~	~~NEDU 116~~	~~06346~~	~~5790 FS & 660 FW 2-21s-37e~~	~~EBTDN~~	~~P & A~~	~~6010~~	~~2237'~~
Apache	NEDU 167	39917	2545 FN & 660 FW 2-21s-37e	EBTDN	OW	7075	2336'
Apache	NEDU 114	06344	906 FN & 660 FW 2-21s-37e	EBTDN	WIW	6896	2412'
Apache	State Section 2 11	06377	3376 FN & 330 FW 2-21s-37e	Wantz;Abo	P & A	8015	2446'
Apache	NEDU 140	35468	330 FN & 160 FW 2-21s-37e	EBTDN	OW	7000	2449'
~~Apache~~	~~Hawk B 3~~	~~39281~~	~~3630 FS & 890 FE 3-21s-37e~~	~~Penrose Skelly; Grayburg~~	~~no spud OW~~	~~4550~~	~~2473'~~
Apache	NEDU 128	34651	2483 FN & 1277 FW 3-21s-37e	EBTDN	OW	6930	2497'

APACHE CORPORATION
NORTHEAST DRINKARD UNIT 157W
WATER INJECTION WELL APPLICATION
SHL: 1855' FNL & 1570' FEL
BHL: 1980' FNL & 1400' FEL
SEC. 3, T. 21 S., R. 37 E., LEA COUNTY, NEW MEXICO

OPERATOR	WELL	API # 30-025-	LOCATION	ZONE(S)	STATUS	TD	DISTANCE FROM SHL
~~Conoco Phillips~~	~~Warren Unit Blinebry Tubb WF 15~~	~~07875~~	~~660 FS & 660 FE 33-20s-38e~~	~~Warren; Blinebry-Tubb Oil; Gas~~	~~OW~~	~~6050~~	~~2512'~~
Apache	NEDU 129	34938	1100 FN & 1270 FW 3-21s-37e	EBTDN	OW	6980	2536'
Apache	NEDU 213	06368	4620 FS & 660 FW 2-21s-37e	EBTDN	OW	6760	2626'
Apache	NEDU 133	34600	1458 FN & 1098 FW 2-21s-37e	EBTDN	OW	6980	2690'
Apache	NEDU 168	39918	1970 FN & 1125 FW 2-21s-37e	EBTDN	WIW	7052	2695'
~~Apache~~	~~Taylor Glenn 15~~	~~35354~~	~~3448 FN & 1576 FW 3-21s-37e~~	~~Penrose Skelly; Grayburg~~	~~OW~~	~~4450~~	~~2714'~~
~~Apache~~	~~Taylor Glenn 13~~	~~35352~~	~~2310 FN & 990 FW 3-21s-37e~~	~~Penrose Skelly; Grayburg~~	~~OW~~	~~4450~~	~~2740'~~
~~Conoco Phillips~~	~~Warrren Unit Blinebry Tubb WF 16~~	~~07876~~	~~660 FS & 1980 FE 33-20s-38e~~	~~Warren; Blinebry-Tubb Oil; Gas~~	~~WIW~~	~~6050~~	~~2788'~~
Apache	NEDU 143	35944	330 FN & 1330 FW 3-21s-37e	EBTDN	OW	6990	2812'
Apache	State Section 2 8	06374	3546 FN & 660 FW 2-21s-37e	Hare; Simpson	OW	8156	2813'
~~Apache~~	~~Hawk B 3~~	~~38960~~	~~990 FN & 990 FW 3-21s-37e~~	~~Penrose Skelly; Grayburg~~	~~OW~~	~~4550~~	~~2836'~~
Apache	NEDU 127	34426	2600 FN & 1200 FW 2-21s-37e	EBTDN	OW	6850	2877'
~~Conoco Phillips~~	~~Warren Unit Blinebry Tubb WF 14~~	~~07889~~	~~660 FS & 660 FW 34-20s-38e~~	~~Warren; Blinebry-Tubb Oil; Gas~~	~~WIW~~	~~6006~~	~~2887'~~

VII. 1. Average injection rate will be ≈750 bwpd.
Maximum injection rate will be ≈1,000 bwpd.

2. System will be closed. The well will be tied into the existing unit pipeline system. The system consists of a branched injection system with centrifugal injection pumps.

3. Average injection pressure will be ≈1,000 psi
Maximum injection pressure will be ≈1,310 psi (= 0.2 psi/foot x ≈6,550' (highest perforation)).

4. Water source will be water pumped from existing ≈4,000' deep San Andres water supply wells plus produced water from Blinebry, Tubb, and Drinkard zones. The source water and produced water are collected in separate skim tanks. The two water streams (source and produced) are commingled in a storage tank before being piped to the injection wells. Commingling began in the 1970s. A comparison of analyses from the discharge pump and San Andres follows. The complete analyses are in Exhibit G.

	Injection Pump Discharge	San Andres 919-S
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

	Injection Pump Discharge	San Andres 919-S
Sodium	5,799.5 mg/l	3,909.0 mg/l
Strontium	28.0 mg/	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 Drinkard currently produces in the unit. It is the goal of the project to increase production from the Drinkard. According to NMOCD records, at least 2,122 approved wells have targeted or will target the Drinkard in New Mexico.

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 Drinkard is ≈235' thick and consists of tan to dark gray limestone and dolomite. Core filling and replacement anhydrite are common in the limestone. Nodular anhydrite is common in the dolomite. The reservoir portion of the Drinkard consists of skeletal lime grindstone and lime packstone with some dolomitic packstone. Porosity is ≈11%. Permeability is ≈2.45 millidarcies.

There are or have been 256 Drinkard injection wells and 1,853 Drinkard production wells in the state. Adjacent to the Northeast Drinkard Unit are three other Drinkard water floods (the Apache operated West Blinebry Drinkard and East Blinebry Drinkard Units and the Chevron operated Central Drinkard Unit). The Central Drinkard Unit has been under water flood since the 1960s.

Formation tops are:

Quaternary = 0'
Rustler = 1,360'
Yates = 2,700'
Queen = 3,491'
Grayburg = 3,821'
San Andres = 4,070'

Glorieta = 5,314'
Blinebry = 5,755'
Tubb = 6,245'
Drinkard = 6,525'
Abo = 6,868'
Total Depth = 7,025'

There are no water wells within a one mile radius. This conclusion is based on a November 17, 2011 field inspection (Exhibit H) and a review of the State Engineer's records. The closest water well is 5,926' southwest in Section 4 (Exhibit H). That water well is 90' deep. Depth to water is 75'. The Ogallala Formation is not present. No existing underground drinking water sources are above or below the Drinkard within a one mile radius.

There will be >5,000' of vertical separation and the Rustler salt between the bottom of the only likely underground water source (Quaternary) and the top of the Drinkard.

Produced water has been injected or disposed into five zones above the Drinkard within T. 21 S., R. 37 E. and T. 20 S., R. 38 E. The five zones, from top to bottom, are the Grayburg, San Andres, Glorieta, Blinebry, and Tubb.

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

X. Spectral garnma ray, spectral density/compensated neutron, dual laterolog/MSFL, and sonic logs are planned.

XI. Based on a field inspection and a review of the State Engineer's records, there are no water wells within a one mile radius.

XII. Apache is not aware of any geologic or engineering data which may

indicate the Drinkard is in hydrologic connection with any underground sources of water. This was attested to during sworn testimony (page 65, line 14, Order R-8540) presented in 1987. Indeed, no underground sources have been developed within a one mile radius. At least 256 injection or salt water disposal wells have been drilled into the Drinkard in the New Mexico portion of the Permian Basin. Previously approved Drinkard water flood expansions in the unit include:

WFX-740 (October 13, 1998)
WFX-752 (July 6, 1999)
WFX-759 (May 8, 2000)
WFX-774 (June 7, 2001)
WFX-784 (October 29, 2002)
WFX-881 (March 14, 2011)
WFX-882 (March 16, 2011)

XIII. Notice (this application) has been sent (Exhibit I) to the surface owners, lessor (BLM), and all leasehold operators (only Apache and ConocoPhillips) within a half mile. The surface owner at the SHL is Farm & Ranch Limited Partnership. The surface owner at the BHL is Permian Basin Railroads.

A legal ad (see Exhibit J) was published on January 20, 2012.

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

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

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

☐AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
30-025-	22900	EUNICE; BLI-TU-DR, NORTH

Property Code	Property Name	Well Number
22503	NORTHEAST DRINKARD UNIT	157W

OGRID No.	Operator Name	Elevation
873	APACHE CORPORATION	3488'

Surface Location

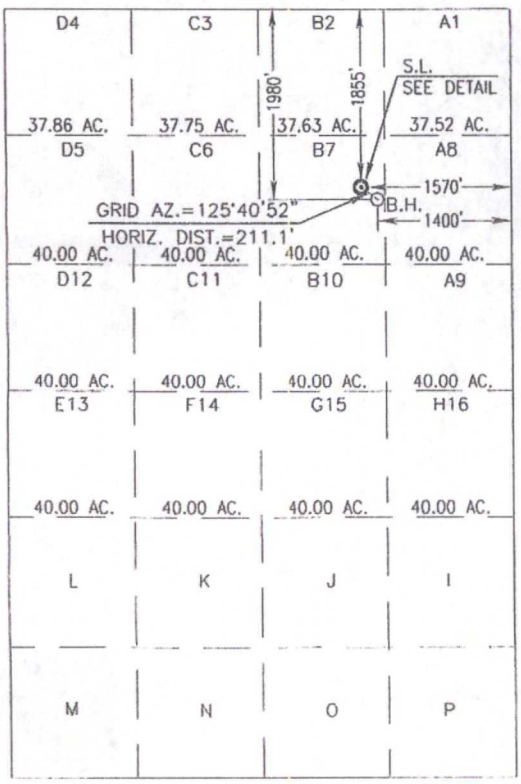
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
7	3	21-S	37-E		1855	NORTH	1570	EAST	LEA

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
7	3	21-S	37-E		1980	NORTH	1400	EAST	LEA

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION



SCALE: 1"=2000'

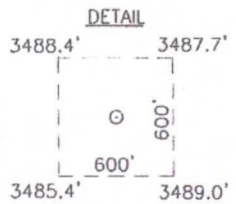
GEODETIC COORDINATES
NAD 27 NME

SURFACE LOCATION
Y=553843.8 N
X=865691.5 E

LAT.=32.517031° N
LONG.=103.146994° W

LAT.=32°31'02" N
LONG.=103°08'49" W

BOTTOM HOLE LOCATION
Y=553720.7 N
X=865863.0 E



OPERATOR CERTIFICATION

I hereby certify that the information herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Signature — Date: 1-15-12

Printed Name: BRIAN WOOD

SURVEYOR CERTIFICATION

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

EXHIBIT A

SEPTEMBER 4, 2010

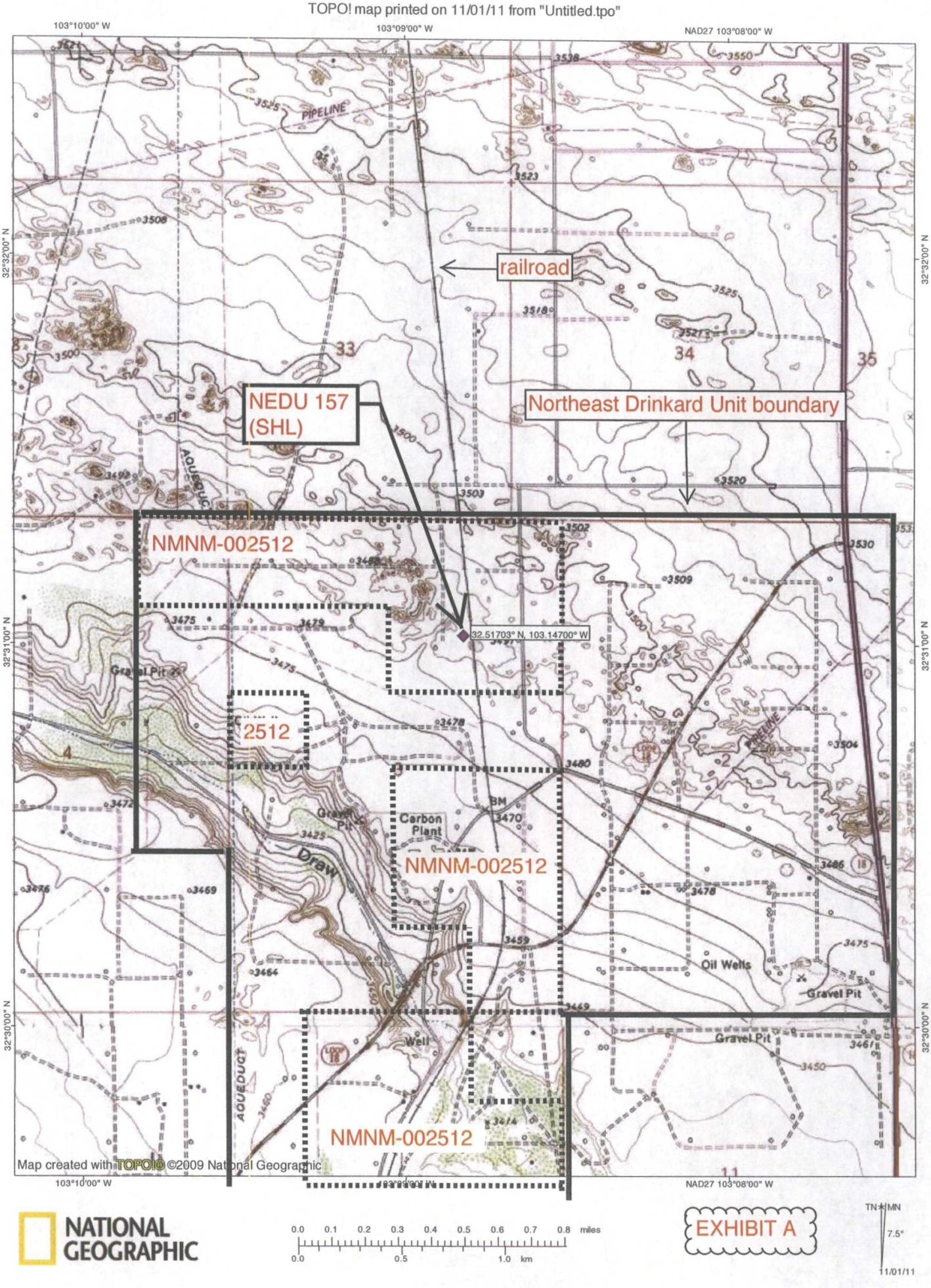
Date Surveyed Rev: 10/12/10 DSS

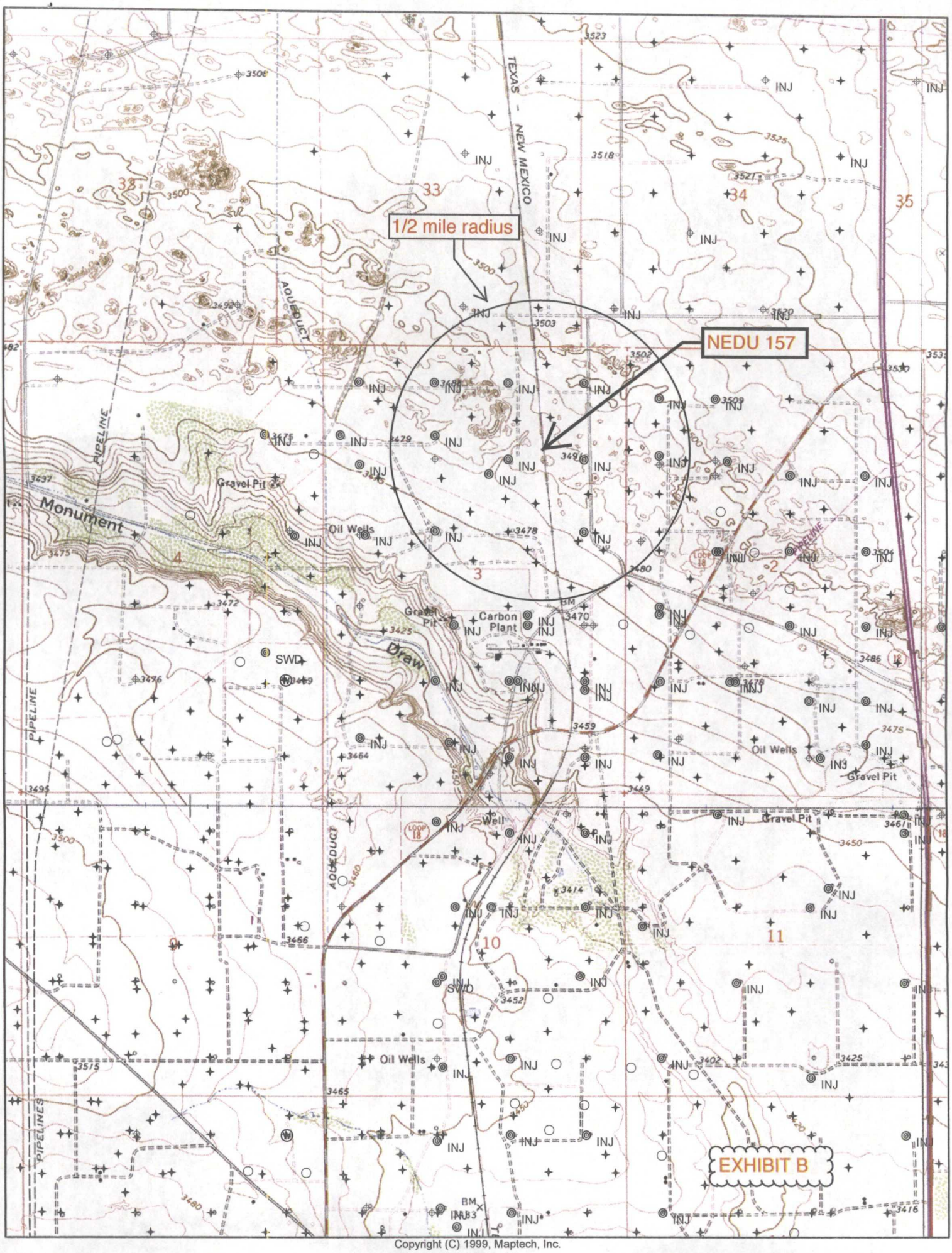
Signature & Seal of Professional Surveyor

Ronald J. Eidson 11/30/2011

10.13.1516

Certificate No. GARY G. EIDSON 12641
RONALD J. EIDSON 3239


TOPO! map printed on 11/01/11 from "Untitled.tpo"
103°10'00" W
103°09'00" W
NAD27 103°08'00" W
32°32'00" N
32°31'00" N
32°30'00" N
railroad
NEDU 157
(SHL)
Northeast Drinkard Unit boundary
NMNM-002512
2512
NMNM-002512
NMNM-002512
32.51703° N, 103.14700° W
Carbon Plant
Gravel Pit
Draw
Oil Wells
Gravel Pit
Well
AQUEDUCT
PIPELINE
Map created with TOPO!® ©2009 National Geographic
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
EXHIBIT A
TN MN
7.5°
11/01/11



2 mile radius

NEDU 157

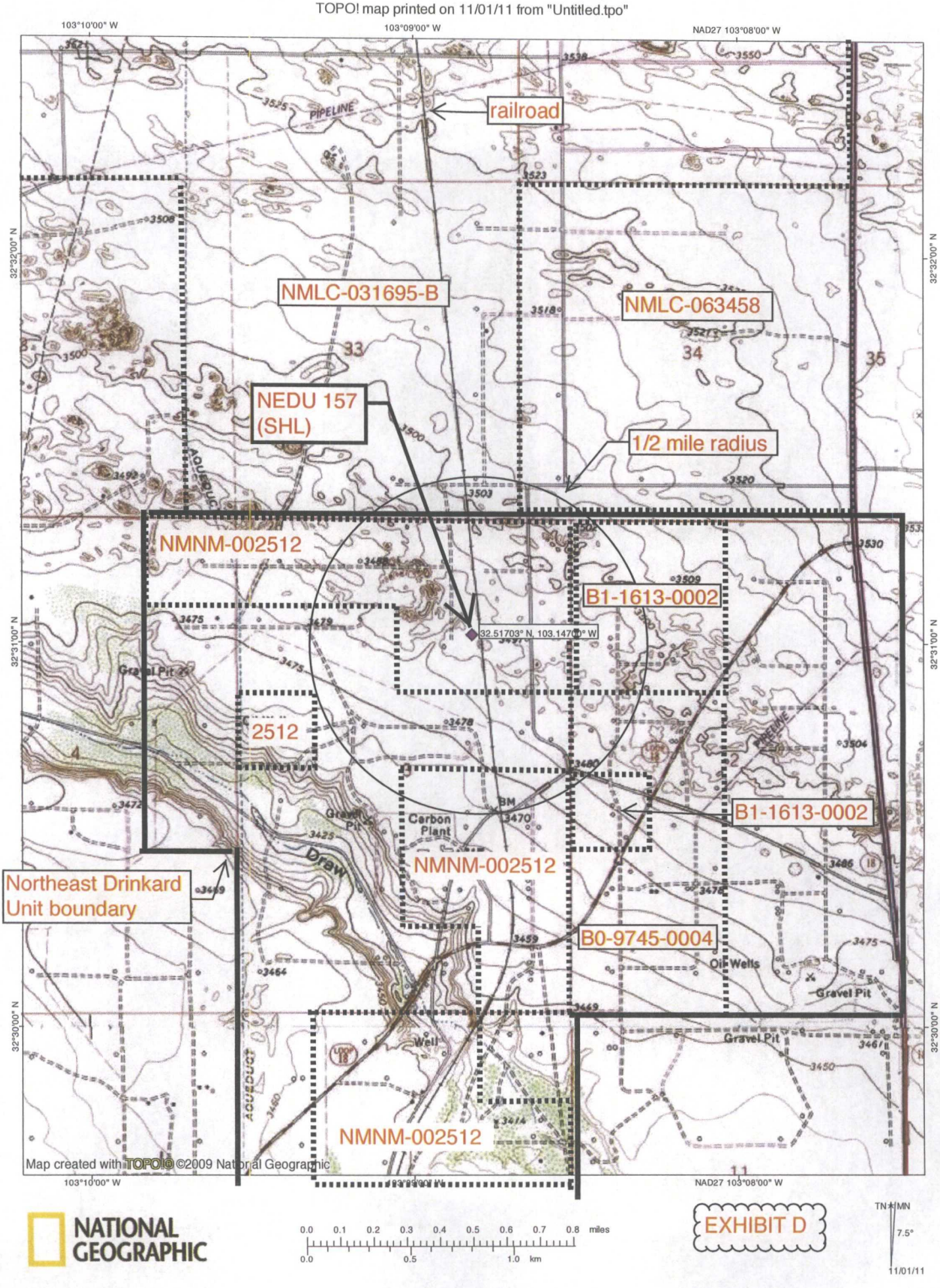
EXHIBIT C

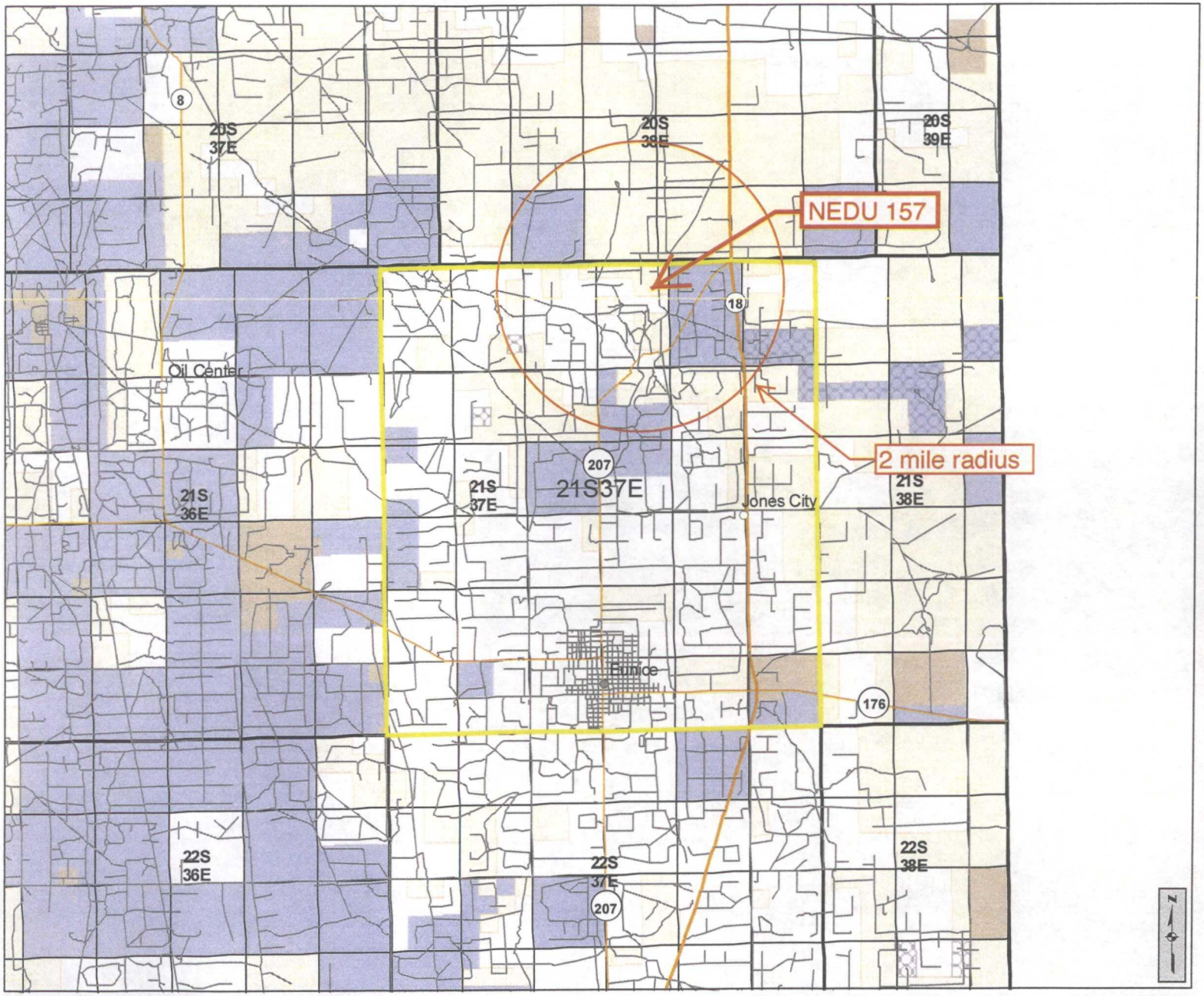
SCALE 1:29268

0 1 MILES

0 1000 2000 YARDS

0 1 2 KILOMET


TOPO! map printed on 11/01/11 from "Untitled.tpo"
103°10'00" W
103°09'00" W
NAD27 103°08'00" W
32°32'00" N
32°31'00" N
32°30'00" N
railroad
NMLC-031695-B
NMLC-063458
NEDU 157
(SHL)
1/2 mile radius
NMNM-002512
B1-1613-0002
32.51703° N, 103.14700° W
2512
B1-1613-0002
NMNM-002512
Northeast Drinkard
Unit boundary
B0-9745-0004
NMNM-002512
Map created with TOPO!© ©2009 National Geographic
NATIONAL GEOGRAPHIC
EXHIBIT D
11/01/11



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-111-P)

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

New Mexico State Land Office

Oil, Gas, and Minerals

0 0.375 0.75 1.5 2.25 3 Miles

Universal Transverse Mercator Projection, Zone 13
1983 North American Datum

EXHIBIT E

Land Office Geographic Information Center
logic@slo.state.nm.us

Created On: 1/27/2012 1:30:53 PM

www.nmstatelands.org

Apache CORPORATION

LEASE NAME	North East Drinkard Unit
WELL #	108
API #	30-025-24831
COUNTY	Lea, NM

CURRENT WELLBORE SKETCH

1980 FNL & 1980 FWL
3-21s-37e
spud 10-19-74
P&A 2-20-09

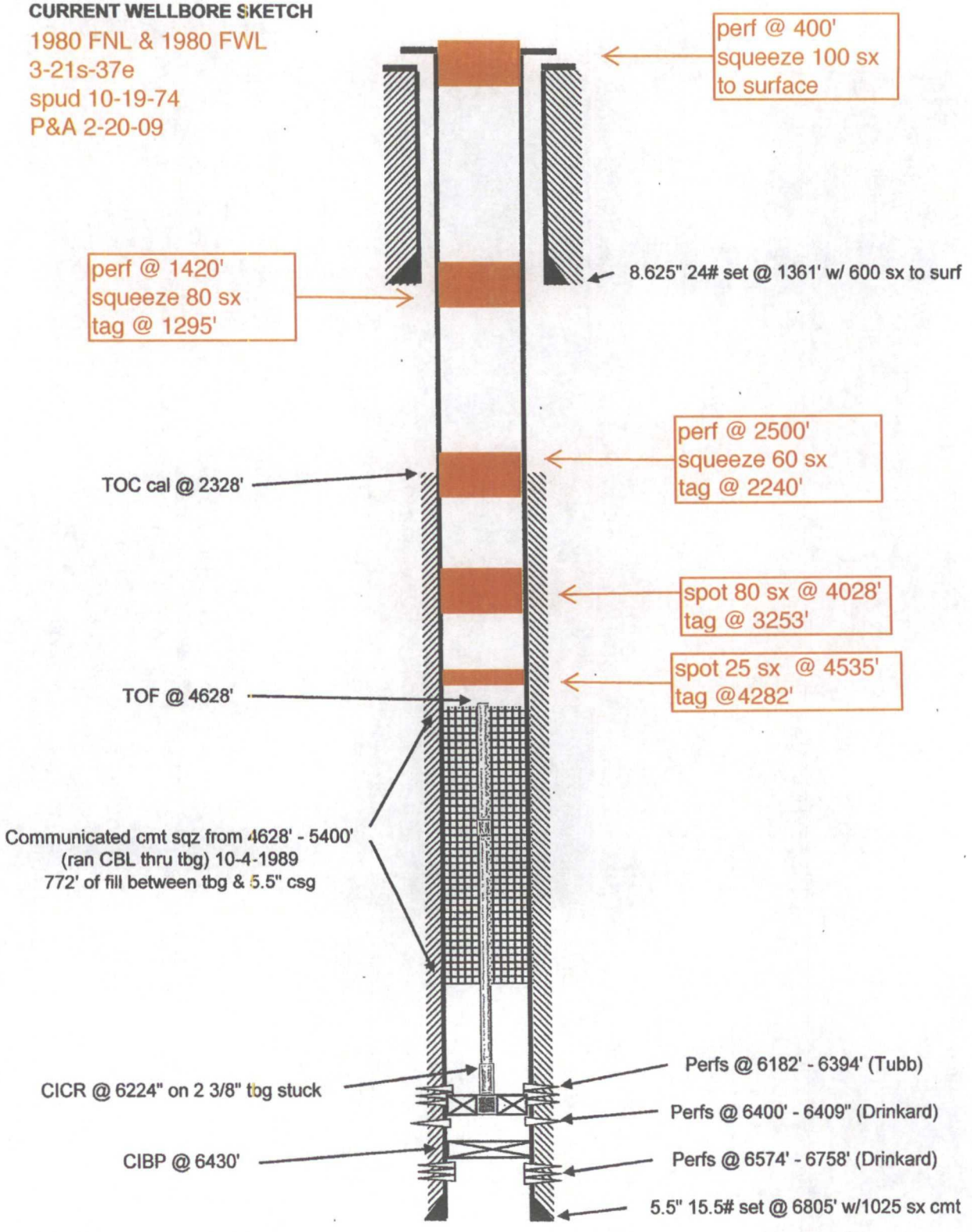


EXHIBIT F

Apache's
State Section 2 #11
API 30-025-06377
3376 FSL & 330 FWL 2-21s-37e
Spud 1-12-52 (as oil well) and Plug 4-10-02 (as oil well)

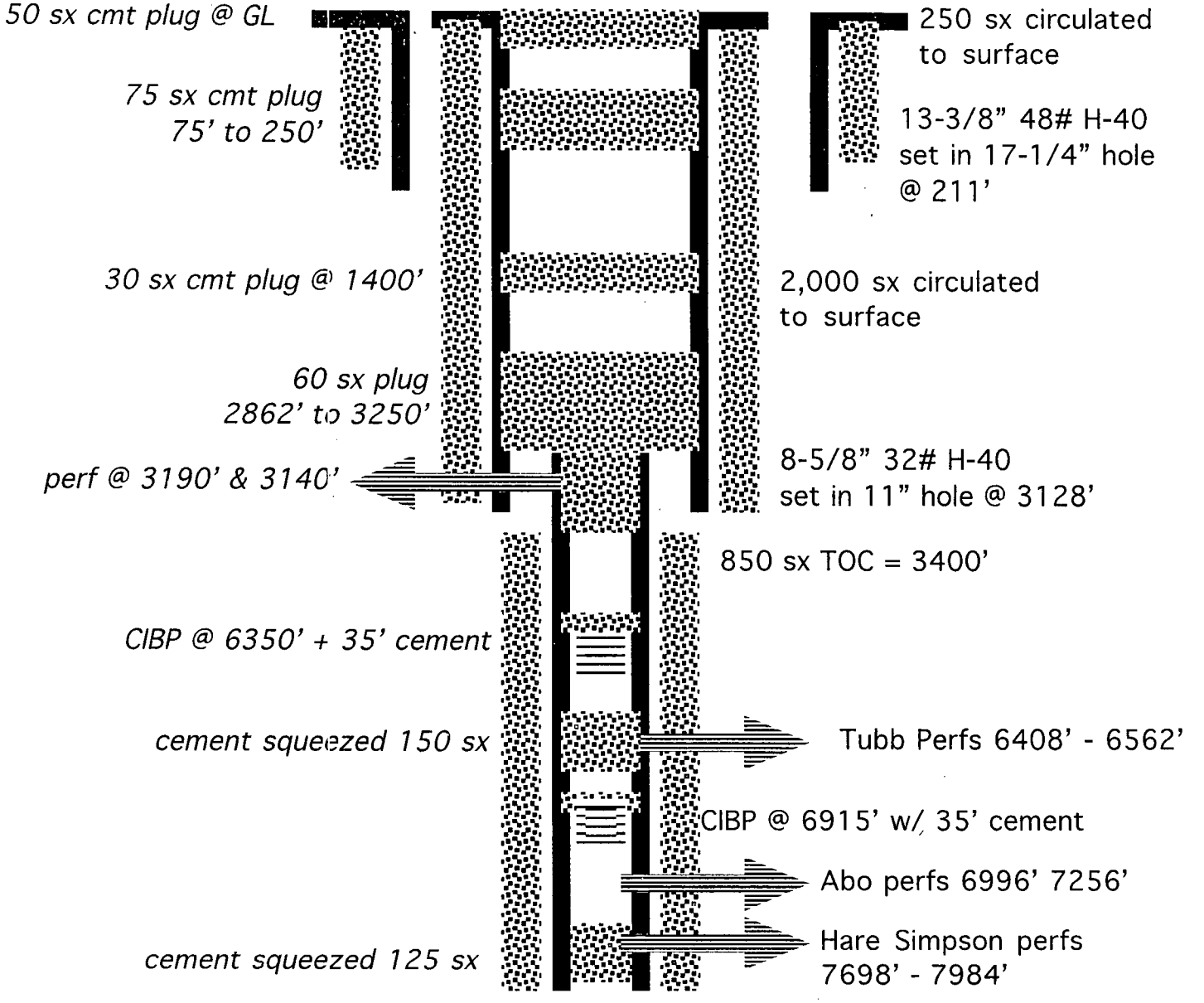


EXHIBIT F (not to scale)

PERMITS WEST, INC.
PROVIDING PERMITS for LAND USERS

WELL	SPUD	TD	POOL	WELL TYPE	HOLE O.D.	CASING O.D.	SET @	CEMENT	TOC	HOW DETERMINED	WHERE
NEDU 154	10/25/11	7025	EBTDN	OW	12.25	8.625	1409	720 sx Class C	GL	circ. 154 sx	B 3-21s-37e
30-025-39439					7.785	5.5	7025	1340 Class C	GL	circ. 152 sx	
NEDU 131	7/10/99	6990	EBTDN	OW	12.25	8.625	1365	460 Class C	GL	circ. 109 sx	A 3-21s-37e
30-025-34609					7.785	5.5	6990	1525 sx Poz C & H	GL	circ. 125 sx	
NEDU 165	11/15/10	7054	EBTDN	WIW	12.25	8.625	1461	720 sx Class C	GL	visual	D 2-21s-37e
30-025-39915					7.785	5.5	7054	1135 sx Class C	98'	CBL	
NEDU 111	4/18/80	6875	EBTDN	WIW	12.25	8.625	1395	674 sx Class C	GL	circ. 75 sx	G 3-21s-37e
30-025-26670					7.785	5.5	6875	2782 sx Class C	GL	circ. 170 sx	
NEDU 125	11/14/98	6910	EBTDN	OW	11	8.625	1300	410 sx PBCZ	GL	circ. 120 sx	J 3-21s-37e
30-025-34425					7.785	5.5	6910	900 sx Class C & 475 sx 50/50 poz premium	GL	circ. 86 sx	
NEDU 113	4/15/58	6830	EBTDN	WIW	17.5	13.375	211	250 sx	GL	visual	H 3-21s-37e
30-025-06496					12.25	9.625	3029	1210 sx	820	temp. survey	
					8.75	7	6829	770 sx	3038	temp. survey	
NEDU 163	11/30/10	7025	EBTDN	OW	12.25	8.625	1380	675 Class C	GL	circ. 180 sx	B 3-21s-37e
30-025-39914					7.875	5.5	7025	850 sx Class	GL	circ. 106 sx	
NEDU 158	11/7/10	7020	EBTDN	OW	12.25	8.625	1419	720 sx Class C	GL	circ. 170 sx	A 3-21s-37e
30-025-39440					7.785	5.5	7020	1250 sx Class C	GL	circ. 124 sx	

EXHIBIT F

WELL	SPUD	TD	POOL	WELL TYPE	HOLE O.D.	CASING O.D.	SET @	CEMENT	TOC	HOW DETERMINED	WHERE
NEDU 130	6/25/99	6950	EBTDN	OW	12.25	8.625	1365	460 sx Class C	GL	circ. 27 sx	F 3-21s-37e
30-025-34617					7.785	5.5	6950	900 sx 35/65 poz C & 500 sx 50/50 poz H	GL	circ. 220 sx	
NEDU 208	7/27/52	6707	EBTDN	OW	17	13.375	225	250 sx neat	not reported		J 3-21s-37e
30-025-06385					11	8.625	3147	1700 sx 4% & 300 sx neat	GL	circ. 280 sx	
					7.785	5.5	6660	300 sx 4% & 300 sx neat	GL	circ. 25 sx	
NEDU 124	10/31/98	6910	EBTDN	OW	11	8.625	1309	410 sx PBCZ	GL	circ. 76 sx	K 3-21s-37e
30-025-34424					7.785	5.5	6910	925 Sx Class C & 500 sx 50/50 poz	GL	circ. 86 sx	
NEDU 139	8/2/01	6990	EBTDN	OW	17.25	8.625	1400	460 sx	GL	visual	A 3-21s-37e
30-025-35610					7.785	5.5	6990	1375 sx	GL	visual	
NEDU 211	1/4/50	6780	EBTDN	WIW	17.5	13.375	222	300 sx regular	GL	circ. 260 sx	I 3-21s-37e
30-025-06381					11	8.625	2920	2200 sx	not reported		
					7.785	5.5	6665	600 sx regular			

EXHIBIT F

WELL	SPUD	TD	POOL	WELL TYPE	HOLE O.D.	CASING O.D.	SET @	CEMENT	TOC	HOW DETERMINED	WHERE
Taylor Glenn 5	5/14/52	8361	Penrose Skelly; Grayburg	OW	17.25	13.375	225	250 sx neat	GL	circ. 90 sx	J 3-21s-37e
30-025-06384			Wantz; Abo (now squeezed off)		11	8.625	3147	1800 sx 4% & 400 sx neat	GL	circ. 400 sx	
					7.785	5.5	8355	550 sx 4% & 300 sx neat	2943	top of liner	
NEDU 108	10/19/74	6805	EBTDN	P & A	12.25	8.625	1361	500 sx light & 100 sx Class C	GL	visual	C 3-21s-37e
30-025-24831					7.785	5.5	6805	1025 sx 50-50 poz Class C	2328	calculated	
NEDU 132	5/29/99	6970	EBTDN	OW	12.25	8.625	1323	380 sx	GL	circ. 92 sx	E 2-21s-37e
30-025-34601					7.785	5.5	6970	1250 sx	GL	circ. 25 sx	
NEDU 126	8/15/98	6940	EBTDN	OW	11	8.625	1396	410 sx PBCZ	GL	circ. 106 sx	E 2-21s-37e
30-025-34415					7.785	5.5	6940	850 sx Class C & 350 sx 50/50 poz	GL	ciirc. 50 sx	
NEDU 138	7/18/01	6990	EBTDN	OW	12.25	8.625	1400	325 sx 35/65 poz C & 135 sx Class C	GL	circ. 47 sx	c 3-21s-37e
30-025-35609					7.785	5.5	6990	975 sx 35/65 poz C & 525 sx 50/50 poz H	GL	circ. 85 sx	

EXHIBIT F

WELL	SPUD	TD	POOL	WELL TYPE	HOLE O.D.	CASING O.D.	SET @	CEMENT	TOC	HOW DETERMINED	WHERE
Taylor Glenn 4	3/10/52	8119	Hare; Simpson	OW	17.25	13.375	200	250 sx neat	GL	circ. 50 sx	A 3-21s-37e
30-025-06383					11	8.625	3147	1800 sx 4% & 400 sx neat	GL	circ. 300 sx	
					7.785	5.5	8115	500 sx 4% & 300 sx regukar & 75 sx perlite	GL	circ. 75 sx	
NEDU 228	10/18/98	6920	EBTDN	OW	11	8.625	1365	410 sx PBCZ	GL	circ. 98 sx	J 3-21s-37e
30-025-34427					7.785	5.5	6900	775 sx Class C & 425 sx 50/50 poz premium	180	CBL	
Taylor Glenn 3	11/11/51	8224	Wantz; Abo	OW	17.5	13.375	219	250 sx neat	not reported		A 3-21s-37e
30-025-06382					11	8.625	3150	1700 sx 4% & 300 sx neat	GL	circ. 350 sx	
					7.785	5.5	8102	500 sx 4% & 70 sx strata-crete & 300 sx neat	GL	circ. 10 sx	
NEDU 229	11/198	6910	EBTDN	OW	11	8.625	1309	410 sx PBCZ	GL	circ. 126 sx	J 3-21s-37e
30-025-34429					7.785	5.5	6910	850 sx Class C & 475 sx 50/50 poz premium	GL	circ. 170 sx	

EXHIBIT F

WELL	SPUD	TD	POOL	WELL TYPE	HOLE O.D.	CASING O.D.	SET @	CEMENT	TOC	HOW DETERMINED	WHERE
NEDU 206			EBTDN	WIW	17	13.375	301	250 sx	no report		K 3-21s-37e
30-025-06522					11	8.625	3879	4300 sx	no report		
					7.785	5.5	8060	675 sx	no report		
NEDU 166	12/19/10	7039	EBTDN	OW	12.25	8.625	1502	680 sx Class C	GL	circ. 88 sx	D 2-21s-37e
30-025-39916					7.785	5.5	7039	1225 sx Class C	GL	circ. 55 sx	
NEDU 115	1/17/50	8620	EBTDN	WIW	17.5	13.375	152	165 sx Halliburton	GL	not reported	E 2-21s-37e
30-025-06340					12	9.625	3005	1600 sx 3%	GL	not reported	
					7.785	5.5	8519	550 sx Halliburton	4255	temperature survey	
NEDU 167	12/9/10	7075	EBTDN	OW	12.25	8.625	1511	700 sx Class C	GL	ciirc. 32 sx	D 2-21s-37e
30-025-39917					7.785	5.5	7075	1315 sx Class C	GL	circ.25 sx	
NEDU 114	10/29/74	6896	EBTDN	WIW	17.25	13.375	208	240 sx Halliburton	GL	visual	D 2-21s-37e
30-025-06344					11	8.625	3008	1750 sx Halliburton	GL	visual	
					7.785	5.5	6030	225 sx Halliburton	4780	temperature survey	
					4.75	3.5	6896	100 sx Class C	no report		

EXHIBIT F

WELL	SPUD	TD	POOL	WELL TYPE	HOLE O.D.	CASING O.D.	SET @	CEMENT	TOC	HOW DETERMINED	WHERE
State Section 2 #11	1/12/52	8015	Wantz, Abo	P & A	17.25	13.375	211	250 sx	GL	visual	D 2-21s-37e
30-025-06377					11	8.725	3140	2000 sx	GL	visual	
					7.785	5.5	8014	850 sx	3400	no report	
NEDU 140	4/23/01	7000	EBTDN	OW	12.25	8.625	1398	460 sx Class C	GL	circ. 81 sx	D 2-21s-37e
30-025-35468					7.785	5.5	7000	875 sx 35/65 poz C & 500 sx 50/50 poz H	GL	circ. 75 sx	
NEDU 128	7/25/99	6930	EBTDN	OW	12.25	8.625	1336	460 sx Class C	GL	circ. 100 sx	E 3-21s-37e
30-025-34651					7.785	5.5	6930	1000 sx 35/65 poz C & 500 sx 50/50 poz H	GL	circ. 129 sx	
NEDU 129	7/28/00	6980	EBTDN	OW	12.25	8.625	1321	460 sx	GL	circ. 87 sx	D 3-21s-37e
30-025-34938					7.875	5.5	6980	1275 sx	GL	circ. 110 sx	
NEDU 213	10/27/49	6760	EBTDN	OW	17.5	13.375	213	300 sx regular	GL	circ. 30 sx	D 2-21s-37e
30-025-06368					11	8.625	2926	2200 sx	GL	circ. 200 sx	
					7.875	5.5	6651	600 sx	no report		
NEDU 133	6/12/99	6980	EBTDN	OW	12.25	8.625	1333	460 sx Class C	GL	circ. 109 sx	E 2-21s-37e
30-025-34600					7.875	5.5	6980	1660 sx poz C & H	GL	circ.162 sx	
NEDU 168	11/22/10	7052	EBTDN	WIW	12.25	8.625	1500	720 sx Class C	GL	circ. 93 sx	D 2-21s-37e
30-025-39918					7.785	5.5	7052	1340 sx Class C	GL		circ. 171 sx

EXHIBIT F

WELL	SPUD	TD	POOL	WELL TYPE	HOLE O.D.	CASING O.D.	SET @	CEMENT	TOC	HOW DETERMINED	WHERE
NEDU 143	8/8/02	6990	EBTDN	OW	12.25	8.625	1259	600 sx Class C	GL	circ. 114 sx	C 3-21s-37e
30-025-35944					7.875	5.5	6990	1450 sx Class C	GL	circ. 119 sx	
State Section 2 #8	9/16/51	8156	Hare; Simpson	OW	17.25	13.375	219	250 sx regular	GL	circ. (no quantity reported)	L 2-21s-37e
30-025-06374					11	8.625	3149	2000 sx 4% & regular	GL	circ. (no quantity reported)	
					7.875	5.5	8018	875 sx	no report		
NEDU 127	8/29/98	6850	EBTDN	OW	11	8.625	1390	410 sx pbcz	GL	circ. 78 sx	L 2-21s-37e
30-025-34426					7.785	5.5	6980	1200 sx Class C & poz	GL	circ. 90 sx	

EXHIBIT F

Baker Petrolite

from WFX-784

South Permian Basin Region
10520 West I-20 East
Odessa, TX 79765
(915) 498-9191
Lab Team Leader - Sheila Hernandez
(915) 495-7240

Water Analysis Report by Baker Petrolite

Company:	APACHE CORPORATION	Sales RDT:	33102
Region:	PERMIAN BASIN	Account Manager:	MIKE EDWARDS (505) 910-9517
Area:	EUNICE, NM	Sample #:	223099
Lease/Platform:	NORTHEAST DRINKARD UNIT	Analysis ID #:	28971
Entity (or well #):	WATER INJECTION STATION	Analysis Cost	$40.00
Formation:	UNKNOWN		
Sample Point:	INJECTION PUMP DISCHARGE		

Summary	
Sampling Date:	10/3/02
Analysis Date:	10/4/02
Analyst:	SHEILA HERNANDE
TDS (mg/l or g/m3):	20702.9
Density (g/cm3, tonne/m3):	1.015
Anion/Cation Ratio:	1.000000
Carbon Dioxide:	60 PPM
Oxygen:	
Comments:	

Analysis of Sample 223099 @ 75 °F

Anions	mg/l	meq/l	Cations	mg/l	meq/l
Chloride:	10086.0	284.49	Sodium:	5799.5	252.26
Bicarbonate:	671.0	11.	Magnesium:	439.0	36.11
Carbonate:	0.0	0.	Calcium:	1099.0	54.84
Sulfate	2465.0	51.32	Strontium:	28.0	0.64
Phosphate:			Barium:	0.1	0.
Borate:			Iron:	0.3	0.01
Silicate:			Potassium:	115.0	2.94
			Aluminum:		
Hydrogen Sulfide:		90 PPM	Chromium:		
pH at time of sampling:		7.5	Copper:		
pH at time of analysis:			Lead:		
pH used in Calculation:		7.5	Manganese:		
			Nickel:		

Conditions		Values Calculated at the Given Conditions - Amounts of Scale in lb/1000 bbl										
Temp	Gauge Press.	Calcite $CaCO_3$		Gypsum $CaSO_4 \cdot 2H_2O$		Anhydrite $CaSO_4$		Celestite $SrSO_4$		Barite $BaSO_4$		CO_2 Press
°F	psi	Index	Amount	Index	Amount	Index	Amount	Index	Amount	Index	Amount	psi
80	0	1.18	75.54	-0.08	0.00	-0.14	0.00	0.07	2.75	0.75	0.00	0.21
100	0	1.25	85.15	-0.09	0.00	-0.09	0.00	0.07	3.09	0.60	0.00	0.3
120	0	1.33	95.11	-0.10	0.00	-0.02	0.00	0.09	3.78	0.47	0.00	0.42
140	0	1.41	105.41	-0.10	0.00	0.08	128.07	0.11	4.46	0.36	0.00	0.56

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

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

Note 3: The reported CO2 pressure is actually the calculated CO2 fugacity. It is usually nearly the same as the CO2 partial pressure.

EXHIBIT G

UNICHEM

A Division of BJ Services Company

Lab Test No. 23748

Apache

Sample Date: 3/10/99

Water Analysis

Listed below please find water analysis report from: NEDU #919-S

WFX-774 application indicates this is San Andres source water

Specific Gravity:		1.009
Total Dissolved Solids:		13273
pH:		6.49
Conductivity (µmhos):		
Ionic Strength:		0.265

Cations:		mg/l
Calcium	(Ca++):	608
Magnesium	(Mg++):	244
Sodium	(Na+):	3909
Iron	(Fe++):	0.00
Dissolved Iron	(Fe++):	
Barium	(Ba++):	0.38
Strontium	(Sr):	19
Manganese	(Mn++):	0.01
Resistivity:		

Anions:		
Bicarbonate	(HCO3-):	562
Carbonate	(CO3--):	
Hydroxide	(OH-):	0
Sulfate	(SO4--):	1750
Chloride	(Cl-):	6200

Gases:		ppm		
Carbon Dioxide	(CO2):	80.00	Oxygen	(O2):
Hydrogen Sulfide	(H2S):	408.00		

Scale Index (positive value indicates scale tendency) a blank indicates some tests were not run

Temperature		CaCO3 SI	CaSO4 SI
86F	30.0C	-0.14	-17.28
104F	40.0C	0.09	-17.28
122F	50.0C	0.35	-17.28
140F	60.0C	0.57	-16.80
168F	70.0C	0.87	-15.02
176F	80.0C	1.20	-15.51

Comments:

cc: Jerry White
Jay Brown

P.O. Box 61427 • Midland, TX 79711 • 4312 S. County Rd. 1298, Midland, TX 79765
Office: (915) 563-0241 • Fax: (915) 563 0243

EXHIBIT G

New Mexico Office of the State Engineer

Currently Active Points of Diversion

(with Ownership Information)

(acre ft per annum) (quarters are 1=NW 2=NE 3=SW 4=SE) (quarters are smallest to largest) (NAD83 UTM in meters)

WR File Nbr	Sub basin	Use	Diversion	Owner	County	POD Number	Grant	Source	q q q 6 4 1 6 4	Sec	Tws	Rng	X	Y	Distance
CP 00552		STK	3	MILLARD DECK	LE	CP 00552	closest water well is 5,926' from SHL	Shallow	2 4	04	21S	37E	672700	3598022*	1807
CP 00553		STK	3	MILLARD DECK	LE	CP 00553		Shallow	2 4	04	21S	37E	672700	3598022*	1807
CP 01037		EXP	0	MCNEILL RANCH	LE	CP 01037 POD1			2 2 2	10	21S	37E	674322	3597345	1953

Record Count: 3

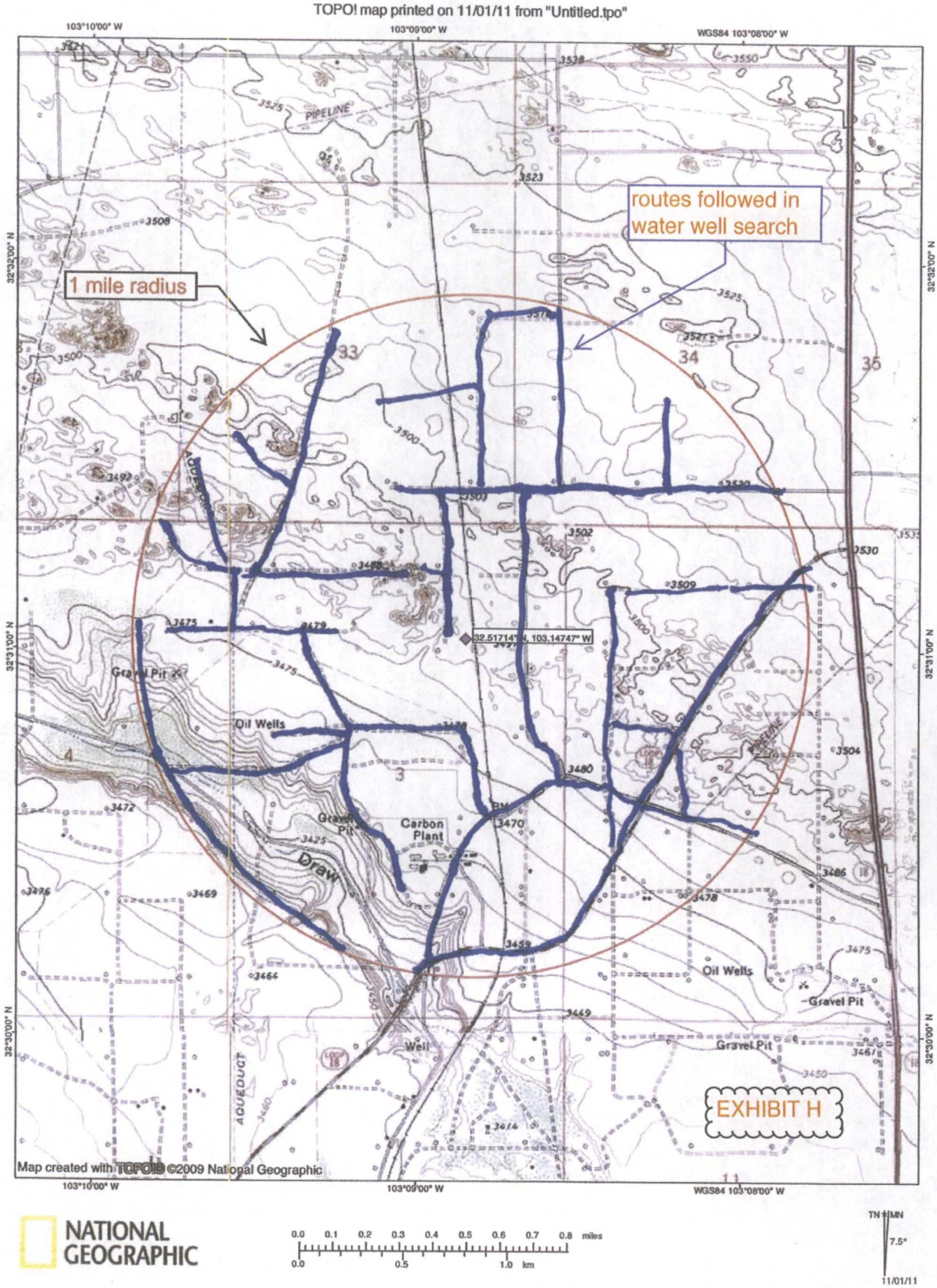
UTMNAD83 Radius Search (in meters):

Easting (X): 674005.38 **Northing (Y):** 3599272.76 **Radius:** 2000

Sorted by: Distance

EXHIBIT H

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


TOPO! map printed on 11/01/11 from "Untitled.tpo"
103°10'00" W
103°09'00" W
WGS84 103°08'00" W
32°32'00" N
32°31'00" N
32°30'00" N
routes followed in water well search
1 mile radius
32.51714° N, 103.14747° W
Gravel Pit
Oil Wells
Carbon Plant
Draw
Well
PIPELINE
AQUEDUCT
Oil Wells
Gravel Pit
Gravel Pit
EXHIBIT H
Map created with TOPO! ©2009 National Geographic
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
7.5°
11/01/11

PERMITS WEST, INC.

PROVIDING PERMITS for LAND USERS

37 Verano Loop, Santa Fe, New Mexico 87508 (505) 466-8120

January 27, 2012

Robert McCasland
Farm & Ranch Limited Partnership
P. O. Box 206
Eunice, NM 88231

Dear Mr. McCasland:

Apache Corporation is applying (see attached application) to drill its Northeast Drinkard Unit #157 well as a water injection well. As required by NM Oil Conservation Division 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: Northeast Drinkard Unit #157 (BLM lease NMNM-002512) TD = 7,025'
Proposed Injection Zone: Drinkard (from 6,550' to 6,850')
SHL: 1855' FNL & 1570' FWL BHL: 1980 FNL & 1400 FEL
both Sec. 3, T. 21 S., R. 37 E., Lea County, NM
Approximate Location: ≈5 air miles north of Eunice, NM
Applicant Name: Apache Corporation (432) 818-1167
Applicant's Address: 303 Veterans Airpark Lane, #3000, Midland, TX 79705

Submittal Information: Application for a salt water injection well will be filed with the NM Oil Conservation Division (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 New Mexico Oil Conservation Division address is 1220 South St. Francis Dr. Santa Fe, NM 87505. Their phone number is (505) 476-3440.

Please call me if you have any questions.

Sincerely,

Brian Wood

U.S. Postal Service™
CERTIFIED MAIL™ RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)
For delivery information visit our website at www.usps.com®
OFFICIAL USE

Postage	$ 1.50
Certified Fee	2.95
Return Receipt Fee (Endorsement Required)	2.35
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$ 6.80

QUICKSEND CPU SANTA FE, NM 87506 JAN 28 2012 USPS — Postmark Here

Sent To: Farm + Ranch
Street, Apt. No.; or PO Box No.
City, State, ZIP+4

EXHIBIT I

PERMITS WEST, INC.

PROVIDING PERMITS for LAND USERS

37 Verano Loop, Santa Fe, New Mexico 87508 (505) 466-8120

January 27, 2012

Todd Cecil, Vice President
Real Estate Development
Permian Basin Railways
2534 Rim Oak
San Antonio, TX 78232

Dear Mr. Cecil:

Apache Corporation is applying (see attached application) to drill its Northeast Drinkard Unit #157 well as a water injection well. As required by NM Oil Conservation Division 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: Northeast Drinkard Unit #157 (BLM lease NMNM-002512) TD = 7,025'
Proposed Injection Zone: Drinkard (from 6,550' to 6,850')
SHL: 1855' FNL & 1570' FWL BHL: 1980 FNL & 1400 FEL
both Sec. 3, T. 21 S., R. 37 E., Lea County, NM
Approximate Location: ≈5 air miles north of Eunice, NM
Applicant Name: Apache Corporation (432) 818-1167
Applicant's Address: 303 Veterans Airpark Lane, #3000, Midland, TX 79705

Submittal Information: Application for a salt water injection well will be filed with the NM Oil Conservation Division (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 New Mexico Oil Conservation Division address is 1220 South St. Francis Dr. Santa Fe, NM 87505. Their phone number is (505) 476-3440.

Please call me if you have any questions.

Sincerely,

Brian Wood

7011 2970 0003 9317 7098

U.S. Postal Service™
CERTIFIED MAIL™ RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)
For delivery information visit our website at www.usps.com®
OFFICIAL USE

Postage	$ 1.50
Certified Fee	2.95
Return Receipt Fee (Endorsement Required)	2.35
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$ 6.80

QUICKSEND CPU SANTA FE, NM 87506 JAN 28 2012 USPS — Postmark Here

Sent To: Permian RR
Street, Apt. No.; or PO Box No.
City, State, ZIP+4

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

January 27, 2012

BLM
620 E. Greene St.
Carlsbad, NM 88220

Apache Corporation is applying (see attached application) to drill its Northeast Drinkard Unit #157 well as a water injection well. As required by NM Oil Conservation Division 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: Northeast Drinkard Unit #157 (BLM lease NMNM-002512) TD = 7,025'
Proposed Injection Zone: Drinkard (from 6,550' to 6,850')
SHL: 1855' FNL & 1570' FWL BHL: 1980 FNL & 1400 FEL
both Sec. 3, T. 21 S., R. 37 E., Lea County, NM
Approximate Location: ≈5 air miles north of Eunice, NM
Applicant Name: Apache Corporation (432) 818-1167
Applicant's Address: 303 Veterans Airpark Lane, #3000, Midland, TX 79705

Submittal Information: Application for a salt water injection well will be filed with the NM Oil Conservation Division (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 New Mexico Oil Conservation Division address is 1220 South St. Francis Dr. Santa Fe, NM 87505. Their phone number is (505) 476-3440.

Please call me if you have any questions.

Sincerely,

Brian Wood

U.S. Postal Service™
CERTIFIED MAIL™ RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)
For delivery information visit our website at www.usps.com®
OFFICIAL USE

Postage	$ 1.70
Certified Fee	2.95
Return Receipt Fee (Endorsement Required)	2.35
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$ 7.00

QUICKSEND CPU SANTA FE, NM 87508 Postmark Here JAN 28 2012 USPS

Sent To: BLM
Street, Apt. No.; or PO Box No.
City, State, ZIP+4

EXHIBIT I

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

January 27, 2012

Tom Scarborough
ConocoPhillips Company
P. O. Box 2197
Houston, TX 77252

Dear Mr. Scarborough:

Apache Corporation is applying (see attached application) to drill its Northeast Drinkard Unit #157 well as a water injection well. As required by NM Oil Conservation Division 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: Northeast Drinkard Unit #157 (BLM lease NMNM-002512) TD = 7,025'
Proposed Injection Zone: Drinkard (from 6,550' to 6,850')
SHL: 1855' FNL & 1570' FWL BHL: 1980 FNL & 1400 FEL
both Sec. 3, T. 21 S., R. 37 E., Lea County, NM
Approximate Location: ≈5 air miles north of Eunice, NM
Applicant Name: Apache Corporation (432) 818-1167
Applicant's Address: 303 Veterans Airpark Lane, #3000, Midland, TX 79705

Submittal Information: Application for a salt water injection well will be filed with the NM Oil Conservation Division (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 New Mexico Oil Conservation Division address is 1220 South St. Francis Dr. Santa Fe, NM 87505. Their phone number is (505) 476-3440.

Please call me if you have any questions.

Sincerely,

Brian Wood

7011 2970 0003 9317 2128

U.S. Postal Service™
CERTIFIED MAIL™ RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)
For delivery information visit our website at www.usps.com®
OFFICIAL USE

Postage	$ 1.54
Certified Fee	2.95
Return Receipt Fee (Endorsement Required)	2.35
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$ 6.84

QUICKSEND CPU SANTA FE, NM 87508 JAN 28 2012 Postmark Here USPS

Sent To: ConocoPhillips
Street, Apt. No.; or PO Box No.
City, State, ZIP+4

PS Form 3800, August 2006 See Reverse for Instructions

Affidavit of Publication

State of New Mexico,
County of Lea.

I, CINDY BENTLE
ADMINISTRATIVE ASSISTANT
of the Hobbs News-Sun, a newspaper published at Hobbs, New Mexico, do 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 20, 2012
and ending with the issue dated
January 20, 2012

ADMINISTRATIVE ASSISTANT
Sworn and subscribed to before me
this 27th day of
January, 2012

Notary Public

My commission expires
February 09, 2013
(Seal)

DORA A. YANEZ NOTARY PUBLIC STATE OF NEW MEXICO

This newspaper is duly qualified to publish legal notices or advertisments within the meaning of Section 3, Chapter 167, Laws of 1937 and payment of fees for said publication has been made.

LEGAL LEGAL

LEGAL NOTICE
JANUARY 20, 2012

Apache Corporation is applying to drill the Northeast Drinkard Unit #157W well as a water injection well. The well is staked at 1855 FNL & 1570 FEL Sec. 3 T. 21 S. R. 37 E. Lea County, NM. Bottom hole location will be 1980 FNL & 1400 FEL 3-21s-37e. This is 5 miles north of Eunice, NM. It will inject water into the Drinkard (maximum injection pressure = 1,310 psi) from 6,550' to 6,850'. Injection will be at a maximum rate of 1,000 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 within 15 days. 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.
#27098

02108485 00086234
BRIAN WOOD
PERMITS WEST
37 VERANO LOOP
SANTA FE, NM 87508

EXHIBIT J