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RECEIVED OCD  
2014 JUN 24 P 12: 46

June 24, 2014

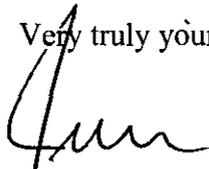
*Case 15178*

Florene Davidson  
Oil Conservation Division  
1220 South St. Francis Drive  
Santa Fe, New Mexico 87505

Dear Florene:

Enclosed for filing, on behalf of BTA Oil Producers, LLC, is an application for a salt water disposal well, together with a proposed advertisement. The advertisement has also been e-mailed to the Division. Please set this matter for the July 24, 2014 Examiner hearing. Thank you.

Very truly yours,



James Bruce

Attorney for BTA Oil Producers, LLC

Persons Notified of Hearing

Oil Conservation Division  
1625 North French Drive  
Hobbs, New Mexico 88240

Commissioner of Public Lands  
P.O. Box 1148  
Santa Fe, New Mexico 87504

Limestone Livestock LLC  
76 Angell Road  
Lovington, New Mexico 88260

BEFORE THE NEW MEXICO OIL CONSERVATION DIVISION

RECEIVED OCD

APPLICATION OF BTA OIL PRODUCERS, LLC  
FOR APPROVAL OF A SALT WATER DISPOSAL  
WELL, LEA COUNTY, NEW MEXICO.

2014 JUN 24 P 12: 46

Case No. 15178

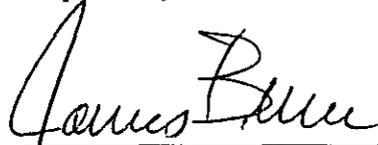
APPLICATION

BTA Oil Producers, LLC applies for an order approving a salt water disposal well, and in support thereof, states:

1. Applicant proposes to convert to injection the 8036 JV-P Brian Well No. 1, located 1980 feet from the south line and 990 feet from the west line of Section 11, Township 23 South, Range 34 East, N.M.P.M., Lea County, New Mexico.
2. Applicant proposes to dispose of produced water into the Bell Canyon and Upper Cherry Canyon members of the Delaware formation at depths of 5300-6375 feet subsurface.
3. A Form C-108 for the subject well is attached hereto as Exhibit A.
4. The granting of this application will prevent waste and protect correlative rights.

**WHEREFORE**, applicant requests that, after notice and hearing, the Division enter its order approving this application.

Respectfully submitted,



James Bruce  
Post Office Box 1056  
Santa Fe, New Mexico 87504  
(505) 982-2043

Attorney for BTA Oil Producers, LLC

Case 15178

**APPLICATION FOR AUTHORIZATION TO INJECT**

- I. PURPOSE: Secondary Recovery Pressure Maintenance XXX Disposal Storage  
Application qualifies for administrative approval? Yes No  
*2014 JUL 24 P 12:45*
- II. OPERATOR: BTA OIL PRODUCERS, LLC  
ADDRESS: 104 SOUTH PECOS, MIDLAND TX 79701  
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: \_\_\_\_\_
- 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.
- VII. Attach data on the proposed operation, including: SWD; Bell Canyon - Cherry Canyon  
Brian 8036 JV-P 1  
30-025-30535
- Proposed average and maximum daily rate and volume of fluids to be injected;
  - Whether the system is open or closed;
  - Proposed average and maximum injection pressure;
  - Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and,
  - 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: *Brian Wood* DATE: MAY 27, 2014  
E-MAIL ADDRESS: brian@permitswest.com
- \* If the information required under Sections VI, VIII, X, and XI above has been previously submitted, please show the date and circumstances of the earlier submittal: \_\_\_\_\_

### III. WELL DATA

A. The following well data must be submitted for each injection well covered by this application. The data must be both in tabular and schematic form and shall include:

- (1) Lease name; Well No.; Location by Section, Township and Range; and footage location within the section.
- (2) Each casing string used with its size, setting depth, sacks of cement used, hole size, top of cement, and how such top was determined.
- (3) A description of the tubing to be used including its size, lining material, and setting depth.
- (4) The name, model, and setting depth of the packer used or a description of any other seal system or assembly used.

Division District Offices have supplies of Well Data Sheets which may be used or which may be used as models for this purpose. Applicants for several identical wells may submit a "typical data sheet" rather than submitting the data for each well.

B. The following must be submitted for each injection well covered by this application. All items must be addressed for the initial well. Responses for additional wells need be shown only when different. Information shown on schematics need not be repeated.

- (1) The name of the injection formation and, if applicable, the field or pool name.
- (2) The injection interval and whether it is perforated or open-hole.
- (3) State if the well was drilled for injection or, if not, the original purpose of the well.
- (4) Give the depths of any other perforated intervals and detail on the sacks of cement or bridge plugs used to seal off such perforations.
- (5) Give the depth to and the name of the next higher and next lower oil or gas zone in the area of the well, if any.

### XIV. PROOF OF NOTICE

All applicants must furnish proof that a copy of the application has been furnished, by certified or registered mail, to the owner of the surface of the land on which the well is to be located and to each leasehold operator within one-half mile of the well location.

Where an application is subject to administrative approval, a proof of publication must be submitted. Such proof shall consist of a copy of the legal advertisement which was published in the county in which the well is located. The contents of such advertisement must include:

- (1) The name, address, phone number, and contact party for the applicant;
- (2) The intended purpose of the injection well; with the exact location of single wells or the Section, Township, and Range location of multiple wells;
- (3) The formation name and depth with expected maximum injection rates and pressures; and,
- (4) A notation that interested parties must file objections or requests for hearing with the Oil Conservation Division, 1220 South St. Francis Dr., Santa Fe, New Mexico 87505, within 15 days.

**NO ACTION WILL BE TAKEN ON THE APPLICATION UNTIL PROPER PROOF OF NOTICE HAS BEEN SUBMITTED.**

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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.

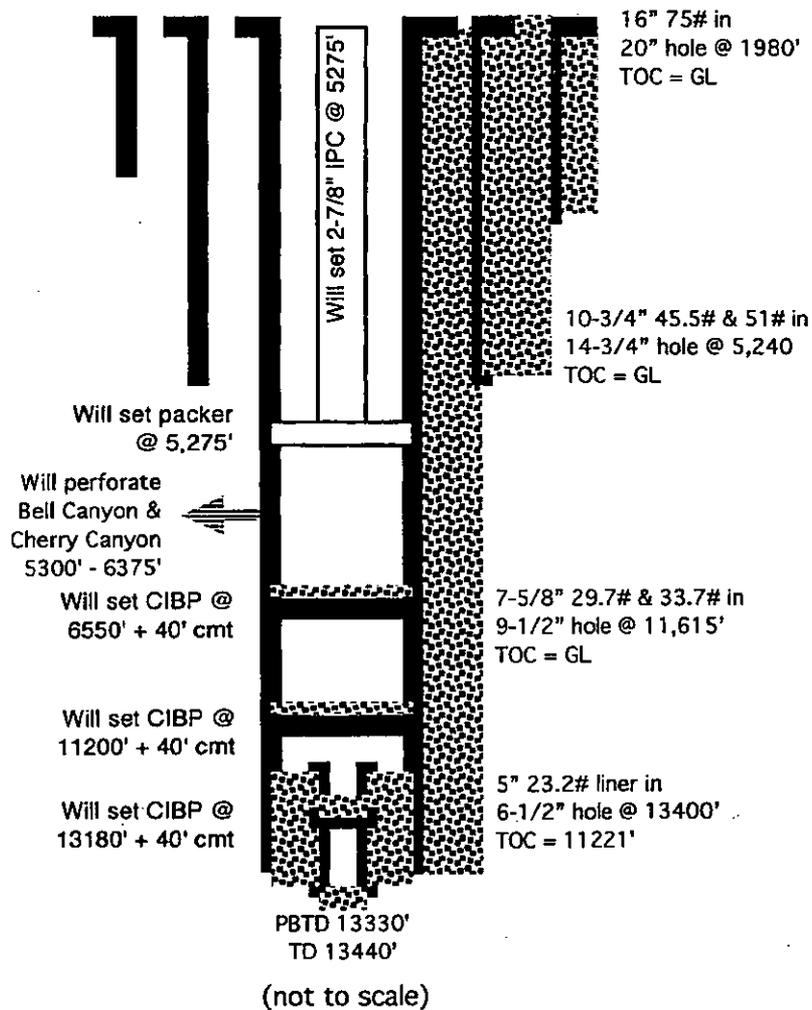
**INJECTION WELL DATA SHEET**

OPERATOR: BTA OIL PRODUCERS, LLC

WELL NAME & NUMBER: BRIAN 8036 JV-P 1

WELL LOCATION: 1980 FSL & 990 FWL                      L                      11                      23 S                      34 E  
 FOOTAGE LOCATION                      UNIT LETTER                      SECTION                      TOWNSHIP                      RANGE

WELLBORE SCHEMATIC



WELL CONSTRUCTION DATA

Surface Casing

Hole Size: 20"                      Casing Size: 16"  
 Cemented with: 3,500 sx.                      or \_\_\_\_\_ ft<sup>3</sup>  
 Top of Cement: SURFACE                      Method Determined: CIRCULATED

Intermediate Casing

Hole Size: 14-3/4"                      Casing Size: 10-3/4"  
 Cemented with: 3,500 sx.                      or \_\_\_\_\_ ft<sup>3</sup>  
 Top of Cement: SURFACE                      Method Determined: CIRCULATED

Production Casing

Hole Size: 9-1/2"                      Casing Size: 7-5/8"  
 Cemented with: 2,300 sx.                      or \_\_\_\_\_ ft<sup>3</sup>  
 Top of Cement: SURFACE                      Method Determined: CIRCULATED

Total Depth: 13,440'

Injection Interval

5,300' feet to 6,375'

(Perforated or ~~Open Hole~~; indicate which)

**INJECTION WELL DATA SHEET**

Tubing Size: 2-7/8" Lining Material: PLASTIC

Type of Packer: 7-5/8" NICKEL PLATED ARROWSET 1-X W/ ON-OFF TOOL

Packer Setting Depth: 5,275'

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

Additional Data

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

If no, for what purpose was the well originally drilled? GAS WELL (ANTELOPE RIDGE; ATOKA)

2. Name of the Injection Formation: BELL CANYON & (upper) CHERRY CANYON

3. Name of Field or Pool (if applicable): SWD; BELL CANYON - CHERRY CANYON (96802)

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.  
Atoka: 12,094' - 12,128', squeezed in 2004 with 250 sx  
Morrow EO: 12,839' - 12,852', squeezed in 2004 with 100 sacks  
Morrow C: 13,246' - 13,284', open, will be isolated below CIBP @ 13,180' + 40' cmt

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

OVER: NONE

UNDER: LOWER CHERRY CANYON (7021'), BRUSHY CANYON (7170'), ATOKA (12009') & MORROW (12390')

BTA Oil Producers, LLC  
Brian 8036 JV-P 1  
1980' FSL & 990' FWL Sec. 11, T. 23 S., R. 34 E.  
Lea County, New Mexico

Page 1

30-025-30535

I. Goal is to plug back a 13,440' deep Antelope Ridge; Atoka (Gas) well and convert it to a commercial saltwater disposal well. The well is no longer economical to operate. Production averaged 11 Mcfd in 2013 and 10 Mcfd to date in 2014. Proposed disposal interval will be 5,300' - 6,375' in the SWD; Bell Canyon - Cherry Canyon (96802). Disposal into the latter will be in the upper portion. See Exhibit A for the C-102 and a map. Note that some on line abstracts mistakenly show the well at 1980' FWL. The correct distance from the west line is 990'. The correct latitude and longitude are shown on the topo map in Exhibit A.

II. Operator: BTA Oil Producers, LLC (OGRID: 260297)  
Operator phone number: (432) 682-3753  
Operator address: 104 South Pecos  
Midland TX 79701  
Contact for Application: Brian Wood (Permits West, Inc.)  
Phone: (505) 466-8120

III. A. (1) Lease: NM State Land Office lease LG-1025-0005  
Lease Size: 240 acres  
Closest Lease Line: 990'  
Lease Area: S2NW4 & SW4 Section 11, T. 23 S., R. 34 E.

A. (2) Surface casing (16", 75#, K-55) was set in 1989 at 1,980' in a 20" hole and cemented to the surface with 3,500 sacks (circulated).

Intermediate casing (10-3/4", 45.5# K-55 & 51# N-80) was set at 5,240' in a 14-3/4" hole and cemented to the surface with 3,500 sacks (circulated).

Production casing (7-5/8" 29.7# D-95 & 33.7# P-110) was set at 11,615' in a 9-5/8" hole and cemented to the surface in 2 stages with 2,300 sacks (circulated).

A 6-1/2" hole was drilled to a TD of 13,440'. A liner (5", 23.2# SFJP) was run from 11,221' to 13,400' and cemented with 350 sacks. Current PBSD is 13,330'.

BTA will set a CIBP at 13180', 11200', and 6550'. Forty feet of cement will be dump bailed onto each CIBP.

- A. (3) Tubing will be 2-7/8", 6.5#, N-80, IPC. Setting depth will be approximately 5,275'. (Disposal interval will be 5,300' to 6,375'.)
- A. (4) A nickel plated 7-5/8" Arrow set 1-X injection packer with an on/off tool will be set at 5,275' (25' above the top perforation (5,300')).
- B. (1) Disposal zone will be the SWD; Bell Canyon - Cherry Canyon (96802).
- B. (2) Disposal interval will be perforated from 5,300' to 6,375'.
- B. (3) Well was drilled in 1989 as an Antelope Ridge; Atoka gas well. Cumulative production through February 2014 is 22,125 barrels of oil and 3,350,373 Mcf of gas.
- B. (4) The well has previously been perforated in the Atoka (12,094' - 12,128'), Morrow (12,839' - 12,852'), and Morrow C (13,246' - 13,284'). The Atoka (250 sacks) and higher Morrow (100 sacks) were squeezed in 2004. Morrow C is currently open below a packer at 13,185'.
- B. (5) No producing zones are above the Delaware within a half-mile radius. Four producing zones are below the Bell Canyon and within a half-mile.

There is production from the lower Cherry Canyon (Keller 11 State 1Y (30-025-38216) is 1,565' northwest) and from the Brushy Canyon (Newkumet Federal 1 (30-025-32937) is 1,975' northwest). Disposal will be in the Bell Canyon and upper Cherry Canyon. District 1 pool map shows the SWD well is outside the Cherry Canyon and Brushy Canyon

pools. Exhibit B provides more detail on the Delaware geology via a plan view, logs, and cross sections. The proposed disposal interval did not exhibit any shows on mud log shows when BTA drilled the well.

Two producing zones (Atoka and Morrow) are below the Delaware within a half-mile radius.

IV. This is not an expansion of an existing injection project. It is disposal only.

V. Exhibit C shows the 8 existing wells within a half-mile radius. Exhibit D shows all 55 existing wells (29 oil or gas wells + 19 P & A wells + 2 disposal wells + 5 water wells) within a two-mile radius.

Exhibit E shows all leases and lessors (only State and BLM) within a half-mile radius. Exhibit F shows all leases and lessors (only State, fee, and BLM) within a two-mile radius. Details on the leases within a half-mile radius are:

<u>T. 23 S., R. 34 E.</u>	<u>Lessor</u>	<u>Lease Number</u>	<u>Lessee(s)</u>
S2SE Sec. 10	BLM	NMNM-013641	Moore & Petrohawk
SWNE & NWSE Sec. 10	BLM	NMNM-015035	Kent, Nortex, & S. Union
E2NE4 & NESE Sec. 10	BLM	NMNM-035164	ACF, Chessie, Curry, Estoril, Landis, LRF, Mid Continent, Siana, Viersen, & Wildcat
NW2NE4 Sec. 11	NMSLO	LO-5394-0001	BTA
N2NW4 Sec. 11	NMSLO	LG-1126-0000	Hudson
S2NW4 & SW4 Sec. 11	NMSLO	LG-1025-0005	Zarvona
W2SE4 Sec. 11	NMSLO	VB-0178-0003	COG
NWNE Sec. 14	NMSLO	VB-1184-0001	Caza
N2NW4 Sec. 14	BLM	NMNM-024491	Devon, Energen, & Fidelity
NENE Sec. 15	BLM	NMNM-013838	Devon

VI. Eight existing wells are within a 2,640' radius. Six wells penetrated the Delaware. A summary of the penetrators' construction details is attached as Exhibit G. Wells in or near the area of review are:

API	OPERATOR	WELL	TYPE	UNIT & SECTION T23S, R34E	TVD	ZONE(S)	DISTANCE
3002531613	BTA	Hudson State 8016 JV-P 2	gas	E-11	13387	Antelope Ridge; Atoka & Antelope Ridge; Morrow	1320'
3002538530	Chesapeake	Keller 11 State 1	P&A	E-11	3997 (fish)	Antelope Ridge; Bone Spring, North	1475'
3002538216	Chevron	Keller 11 State 1Y	oil	E-11	8900	Antelope Ridge; Cherry Canyon	1565'
3002527516	Amoco	State ME Com 1	P&A	N-11	703 (fish)	Antelope Ridge; Morrow	1650'
3002527644	Amoco	State ME Com 1Y	P&A	N-11	13600	Antelope Ridge; Atoka & Antelope Ridge; Morrow	1680'
3002532937	Siana	Newkumet Federal 1	oil	H-10	8008	Antelope Ridge; Brushy Canyon	1975'
3002527901	Merit	Belco Federal 2	gas	P-10	13350	Antelope Ridge; Atoka & Antelope Ridge; Morrow	2379'
3002527364	BTA	Hudson State 8006 JV-P 1Y	oil	C-11	13410	Antelope Ridge; Atoka & Antelope Ridge; Morrow	2633'
3002527310	BTA	Hudson State 8006 JV-P 1	P&A	C-11	1495 (fish)	Antelope Ridge; Morrow	2819'

- VII. 1. Average injection rate will be  $\approx$ 10,000 bwpd.  
 Maximum injection rate will be 15,000 bwpd.
2. System will be open.
3. Average injection pressure will be  $\approx$ 1,000 psi. Maximum injection pressure will be 1,060 psi (= 0.2 psi/foot x 5,300' (top perforation)).

4. There have been no reports of problems disposing into the Bell Canyon and Cherry Canyon SWD wells in the township. At least 299,185 barrels have been disposed into the Bell Canyon in the APD Federal 1 (30-025-28554) that is 3,068' southeast. At least 403,636 barrels have been disposed in the Cherry Canyon in the Federal 19 #1 (30-025-24676) that is 19,141' southwest. At least 5,335,428 barrels have been disposed in the Bell Canyon and Cherry Canyon in the Caballo State 9 (30-025-34577) that is 10,968' northwest.

Source of the disposal water will be produced water from BTA's Delaware, Bone Spring, Wolfcamp, Atoka, Morrow, and Devonian wells. A summary of water analyses is in Exhibit H.

5. There is no Bell Canyon production in the county. Closest (1,585' northwest in 30-025-38216) Cherry Canyon production is in the Antelope Ridge; Cherry Canyon (2210). Production in that well correlates with the lower Cherry Canyon. BTA plans to dispose into the upper Cherry Canyon (see Exhibit B). The proposed disposal interval did not exhibit any mud log shows when BTA drilled the well. The interval appeared wet on BTA's electric logs.

VIII. The Bell Canyon and Cherry Canyon (>1,135' thick in this well) is an interval of mainly sandstone and limestone, but also has siltstone and shale. There is a several thousand feet thick interval of salt and anhydrites above the top of the Bell Canyon and the surface red beds.

Closest possible underground source of drinking water above the proposed disposal interval is the Quaternary at the surface. According to Office of the State Engineer records (Exhibit I), one water well (CP 00649) is within a mile radius. No evidence of it was found during an April 29 field inspection. Next closest well (CP 01120) is 1.03 miles south. Depth to water in that 397' deep well is 318'. Water is used for livestock and well stimulation.

Formation tops are:

Quaternary = 0'  
Rustler Anhydrite = 1,872'  
Capitan reef = 3,790'  
Delaware sand = 5,293'  
Bell Canyon = 5,300'  
Cherry Canyon M marker = 6,048'  
Lower Cherry Canyon = 7,021'  
Brushy Canyon = 7,170'  
Bone Spring = 8,415'  
Wolfcamp = 10,476'  
Strawn = 11,725'  
Atoka = 12,009'  
Morrow = 12,390'  
PBSD = 13,330'  
Total Depth = 13,440'

There will at least 3,320' of vertical separation and several anhydrite zones between the bottom of the only likely underground fresh water source (Quaternary) and the top of the Bell Canyon. Depth of the deepest water well within a 2-mile radius is 650'. It is 1.76 miles south. The Ogallala is not present. It is more than 17 miles northeast.

A minimum of 6,038,249 barrels of produced water has been disposed into the Bell Canyon and Cherry Canyon at three saltwater disposal wells within a <3.7-mile radius.

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

X. CN-LD, CDL-MSFL, DI-GR, and RFT logs were mailed to OCD on May 19. A CBL will be run from 7,000' to GL.

**BTA Oil Producers, LLC**  
**Brian 8036 JV-P 1**  
**1980' FSL & 990' FWL Sec. 11, T. 23 S., R. 34 E.**  
**Lea County, New Mexico**

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**30-025-30535**

XI. Based on an April 29, 2014 field inspection and a review of the State Engineer's records (Exhibit I), no water wells are within a mile radius.

XII. BTA Oil Producers, LLC is not aware of any geologic or engineering data that may indicate the Bell Canyon or Cherry Canyon are in hydrologic connection with any underground sources of water. There are 29 Bell Canyon and 33 Cherry Canyon active saltwater disposal wells in New Mexico. Closest fault (Guadalupe) is more than 85 miles southwest (Exhibit J).

XIII. A legal ad (see Exhibit K) was published on April 29, 2014. Notice (this application) has been sent (Exhibit L) to the surface owner (Limestone Livestock LLC), lessors (BLM, NM State Land Office), and all lessees (ACF Petroleum, Caza Petroleum, Chessie Exploration, COG, Philip Cooper, Max Curry, Devon, Energen, Estoril Production, Fidelity Exploration, Edward Hudson, Robert Kent, Landis Drilling, LFR Limited, Mid Continent, Larry Moore, Nortex, Petrohawk Operating, Siana Oil & Gas, Southern Union, Viersen Oil & Gas, Wildcat Energy, Zarvona Energy) or leasehold operators or operating right holders (Alliance Income, Asher Resources, E. Barham, Lisa Beck, Leroy Bell, Boerne Land, Chevron, Florence Curry, Steve Degroat, Enline Resources, Global Energy, Hunt Oil, IDC Enterprises, John Jones, Ted Jurgensen, Kerry Oil, Ralph McElvain, Cheryl Mellenthin, Merit Energy, Merrion Oil, J. Neal, Kenneth Nelson, Patterson Petroleum, Petroleum International, PG&E Resource, Rabideau Family Trust, Lamar Roemer, Saratoga Royalty, Charles Sobek, SSI Oil & Gas, Anita Talbot, Cloyce Talbot, Stacy Talbot, Douglas Tatum Petroleum, Fred Taylor, Texas Independent Petroleum, C. Trainer, Transrepublic Resources, Tribo Production, US Canada Ltd. Partnership, Whiting-Park Petroleum, J. Williamson, Lois Williamson, Ralph Worthington IV) or other affected persons within a half-mile.

MEXICO OIL CONSERVATION COMMISS.  
WELL LOCATION AND ACREAGE DEDICATION PLAT

Form C-102  
Supersedes C-128  
Effective 1-1-65

All distances must be from the outer boundaries of the Section.

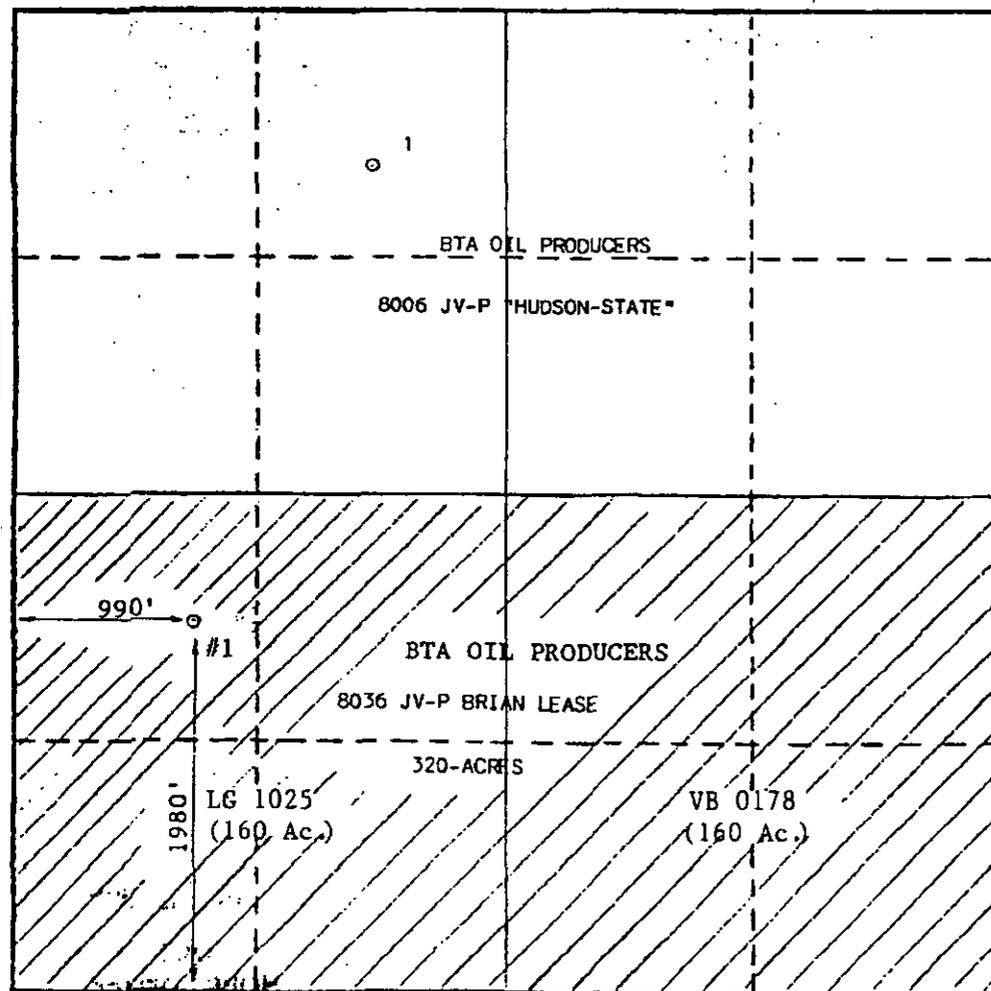
Operator <b>BTA OIL PRODUCERS</b>		Lease <b>8036 JV-P BRIAN</b> ✓			Well No. <b>1</b>
Unit Letter <b>"L"</b>	Section <b>11</b>	Township <b>-23-S</b>	Range <b>-34-E</b>	County <b>LEA</b>	
Actual Footage Location of Wells <b>1980</b> feet from the <b>SOUTH</b> line and <b>990</b> feet from the <b>WEST</b> line					
Ground Level Elev. <b>3364'</b>	Producing Formation <b>ATOKA-MORROW</b>		Pool <b>ANTELOPE RIDGE</b>	Dedicated Acreage: <b>320</b> Acres	

1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).
3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?

Yes  No If answer is "yes," type of consolidation Communitization

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) \_\_\_\_\_

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission.



CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.

*Dorothy Houghton*  
Name

DOROTHY HOUGHTON  
Position

Regulatory Administrator  
Company

BTA OIL PRODUCERS  
Date

1/9/89

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 knowledge and belief.

EXHIBIT A

JANUARY 11, 1989

Date Surveyed

Registered Professional Engineer  
and/or Land Surveyor

*Max A. Schumann, Jr.*  
MAX A. SCHUMANN, JR.

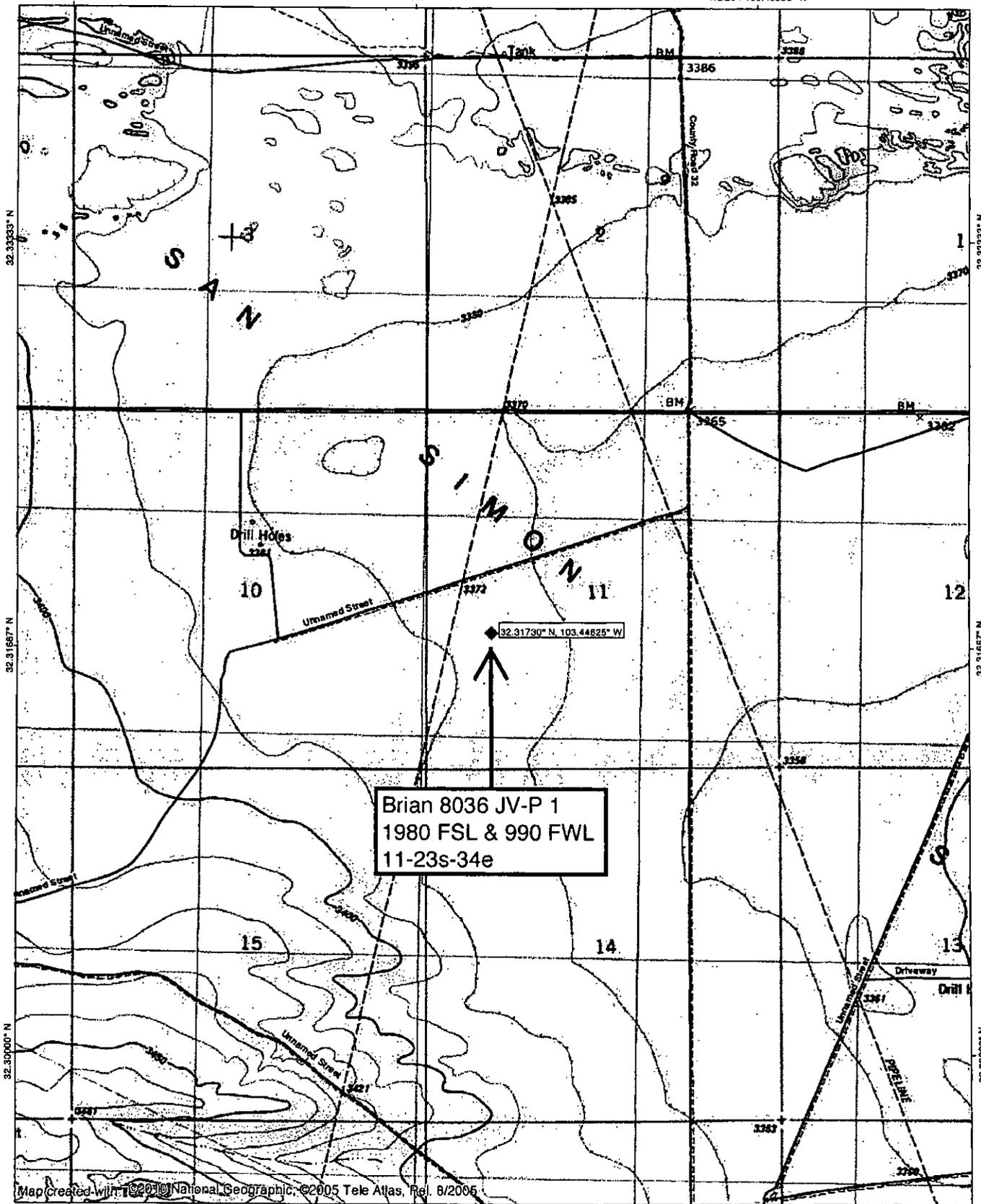
Certificate No.

1510

103.46667° W

103.45000° W

WGS84 103.43333° W



Map created with 102010 National Geographic, ©2005 Tele Atlas, Rel. 8/2005

103.46667° W

103.45000° W

WGS84 103.43333° W

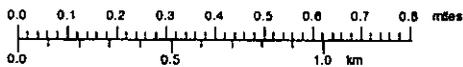


EXHIBIT A

TN MN

7"

05/01/14

### 8036 JV-P Brian #1 SWD

BTA Oil Producers, LLC respectfully requests permission to convert the 8036 JV-P Brian #1 wellbore to a salt water disposal well. The proposed injection interval will be in the upper portion of the Delaware formation including the Bell Canyon and upper Cherry Canyon members. The enclosed cross-section includes, from left to right (SW to SE), an active injection well and three Delaware (lower Cherry Canyon) producing wells located in the adjacent section 10, a Delaware (Brushy Canyon) producing well in section 11, and the 8036 JV-P Brian #1 wellbore. As shown on the cross-section, the proposed injection interval is above the correlative producing intervals in the offset Delaware completions. Additionally, the proposed injection interval has not exhibited any mudlog shows and appears wet on electrical logs.

EXHIBIT B

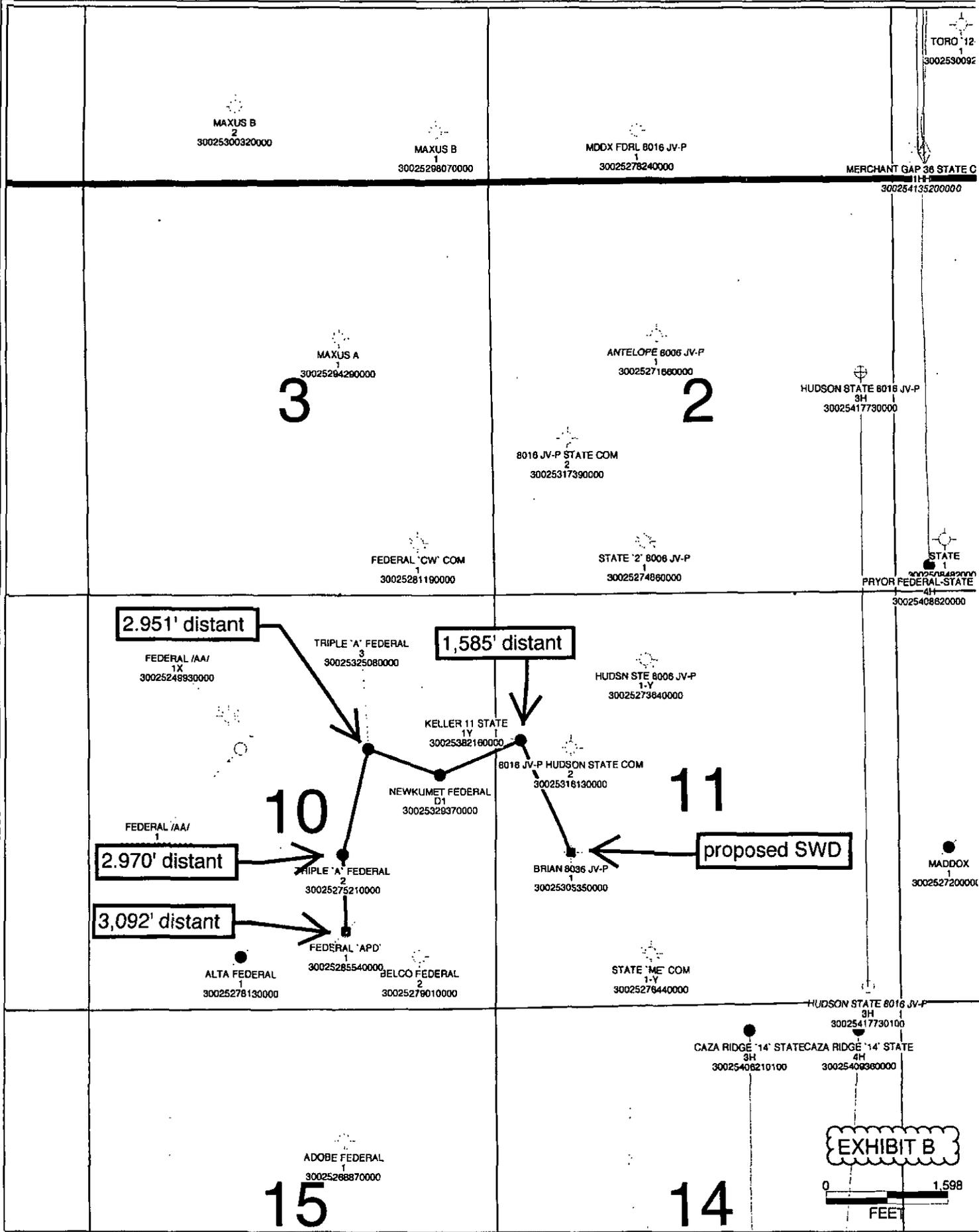


EXHIBIT B



Subsea Depth(ft)  
-1500 -

Subsea Depth(ft)  
-1500

-1700 -

-1700

-1900 -

-1900

-2100 -

-2100

-2300 -

-2300

-2500 -

-2500

-2700 -

-2700

-2900 -

-2900

-3100 -

-3100

-3300 -

-3300

-3500 -

-3500

-3700 -

-3700

-3900 -

-3900

-4100 -

-4100

-4300 -

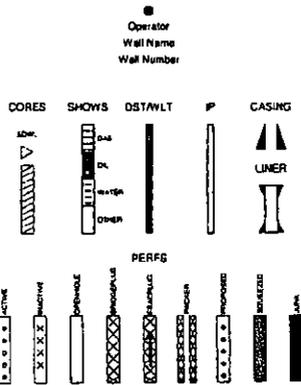
-4300

**BTA OIL PRODUCERS**

NEW MEXICO

BRIAN SWD STRUCTURAL X-SECTION

LEA COUNTY, NEW MEXICO



By: BMM

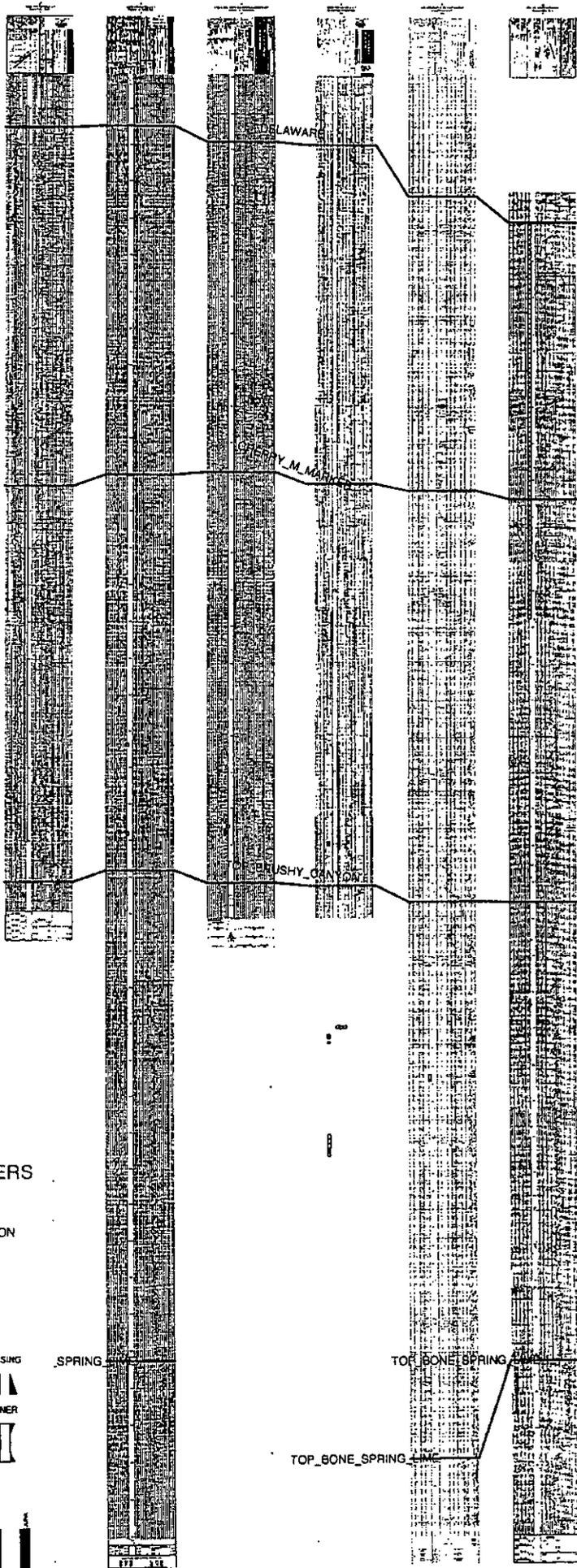
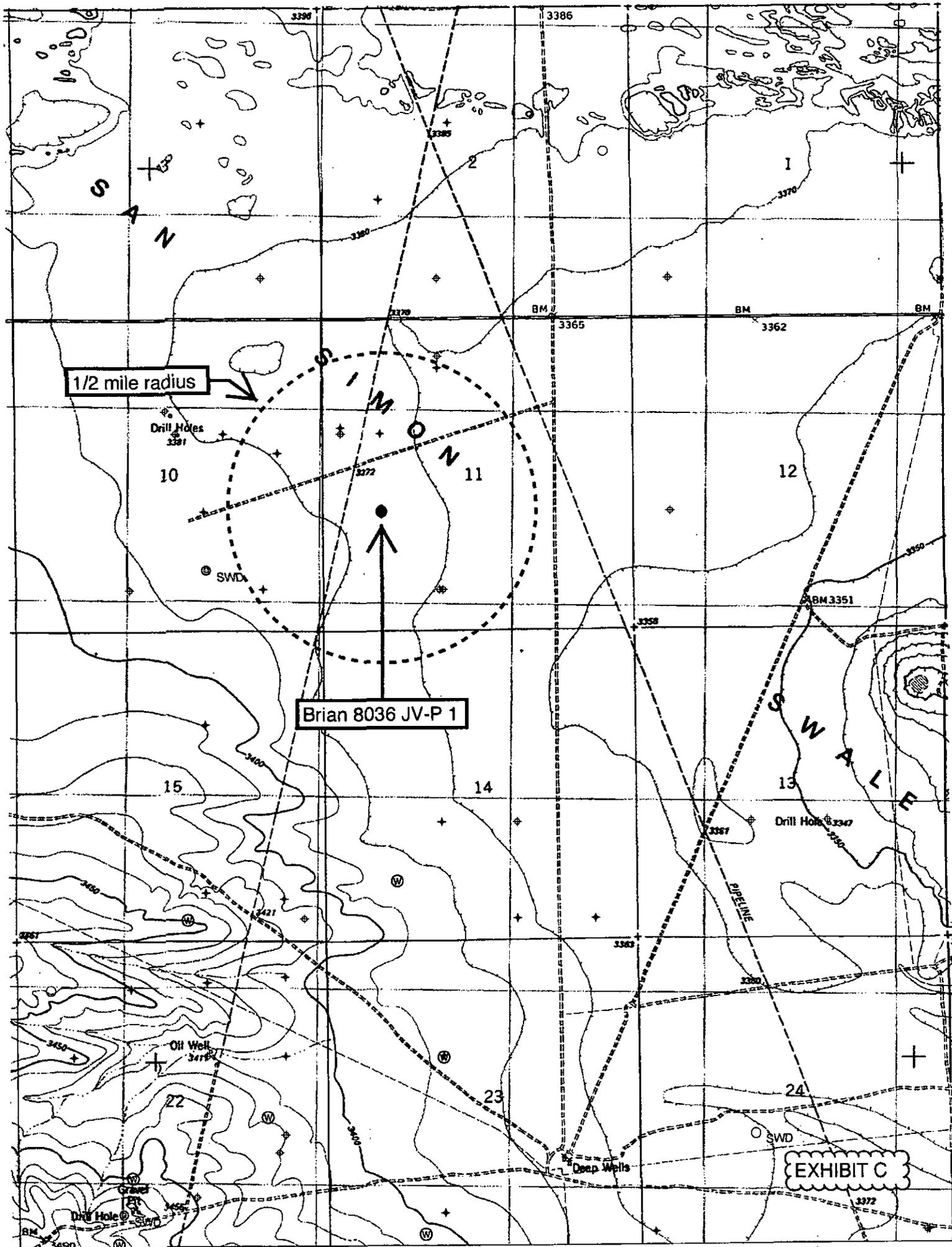


EXHIBIT B

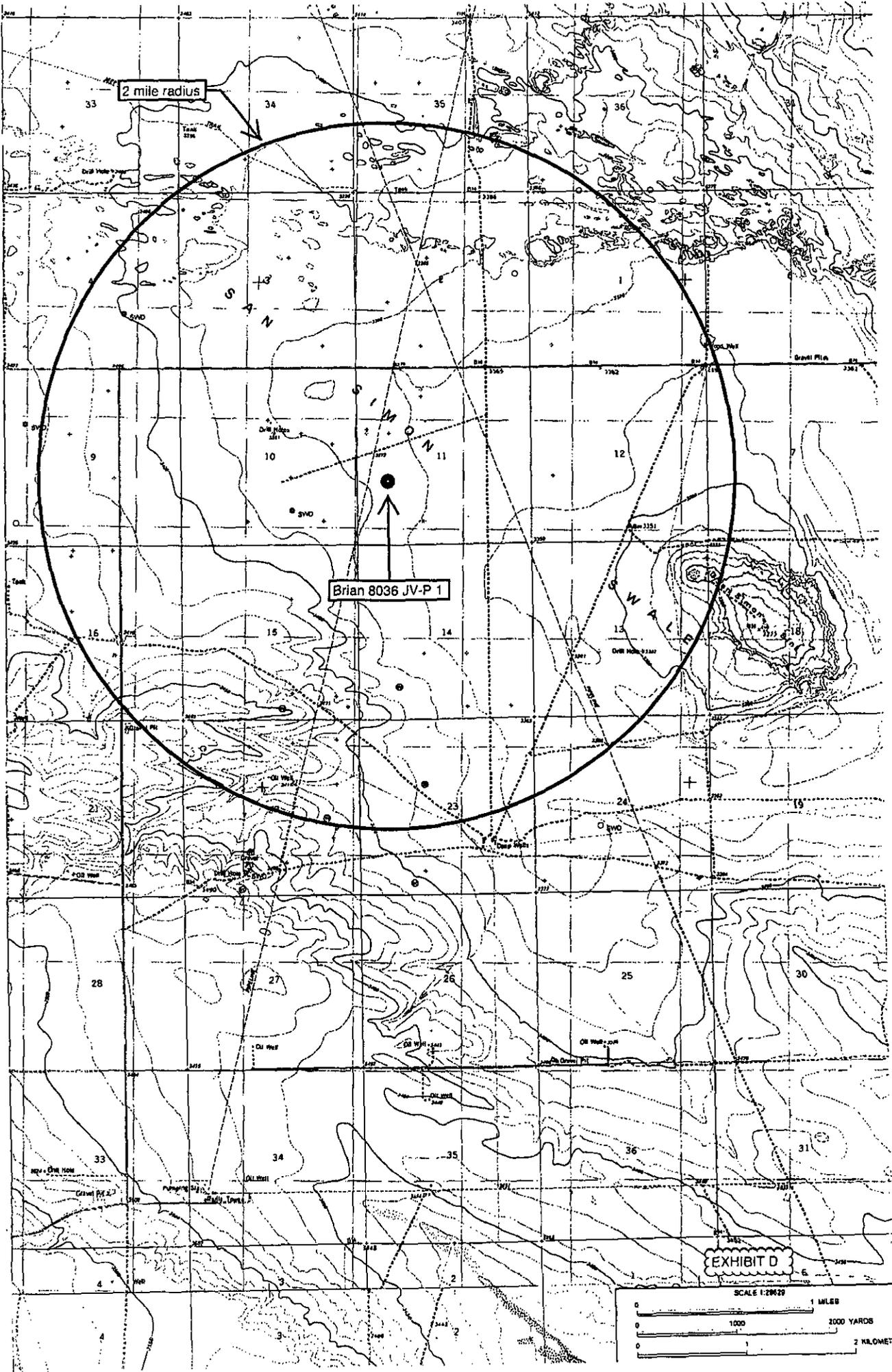
-5500



1/2 mile radius

Brian 8036 JV-P 1

EXHIBIT C

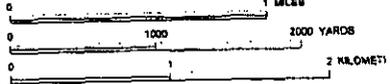


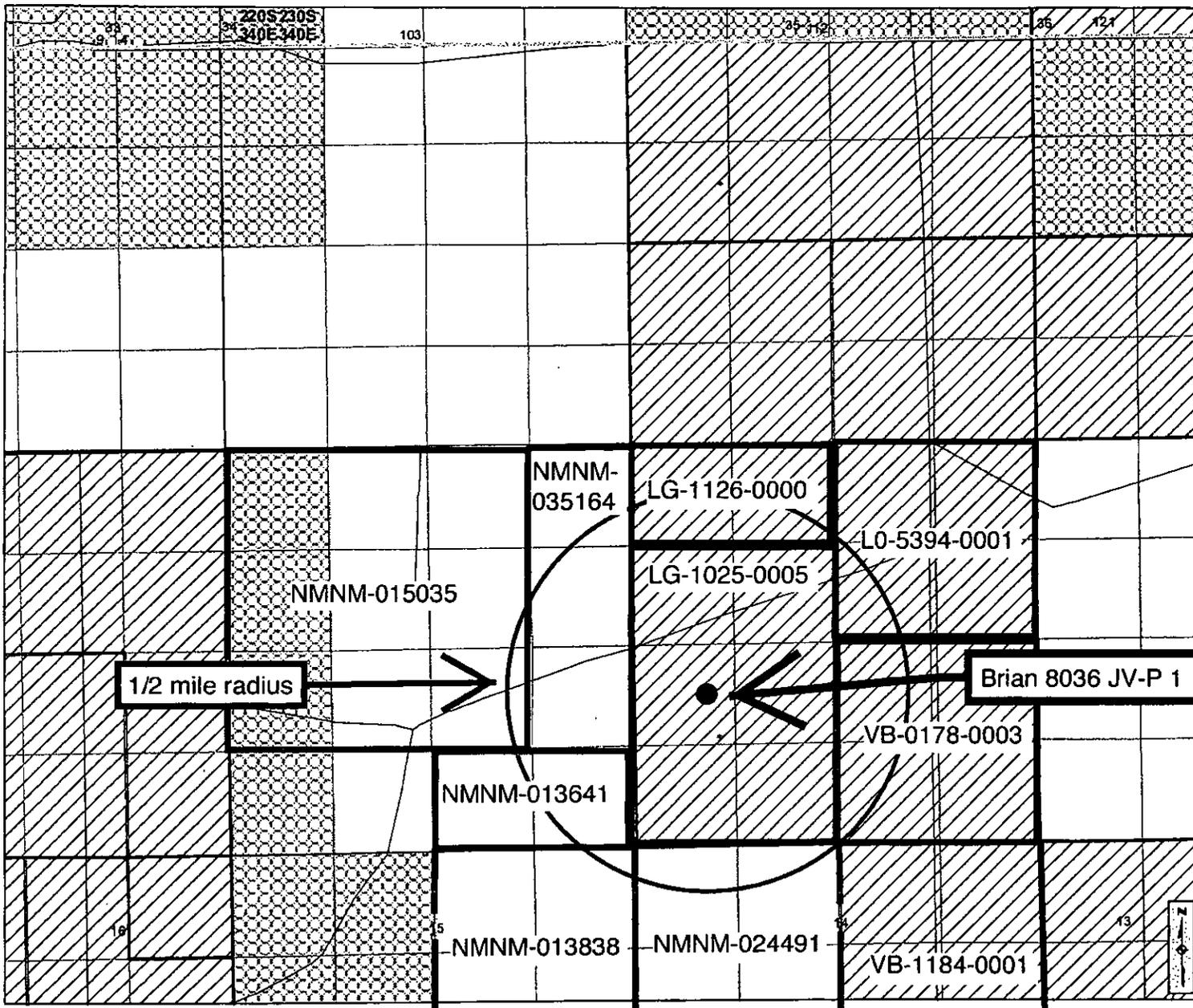
2 mile radius

Brian 8036 JV-P 1

EXHIBIT D

SCALE 1:25000





**Cartographic Features**

- County Boundaries
- County Seats
- City, Town or Village
- SLO District Offices
- SLO District Boundary
- Hwy Mileposts
- Interstate
- NM Hwy
- US Hwy
- Local Road
- Continental Divide

**Federal Minerals Ownership**

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

**State Trust Lands**

- Surface Estate
- Subsurface Estate
- Surface and Subsurface Estate

**State Leases**

- Oil and Gas Leases
- Agricultural Leases
- Commercial Leases
- Minerals Leases
- Not Available for Oil and Gas Leasing
- Oil and Gas Leasing Influenced by Restriction

**Oil and Gas Related Features**

- Oil and Gas Unit Boundary
- Participating Areas in Units
- Geologic Regions
- Volcanic Vents
- NMOCD Order R-111-P Potash Enclave Outline

**NMOCD Oil and Gas Wells**

- CO<sub>2</sub>
- Injection
- Oil
- Water
- Gas
- Miscellaneous
- Salt Water Disposal
- DA or PA

**New Mexico State Land Office  
Oil, Gas and Minerals**

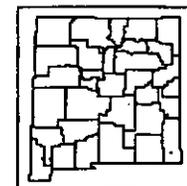
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Miles

Universal Transverse Mercator Projection, Zone 13  
1983 North American Datum

**EXHIBIT E**

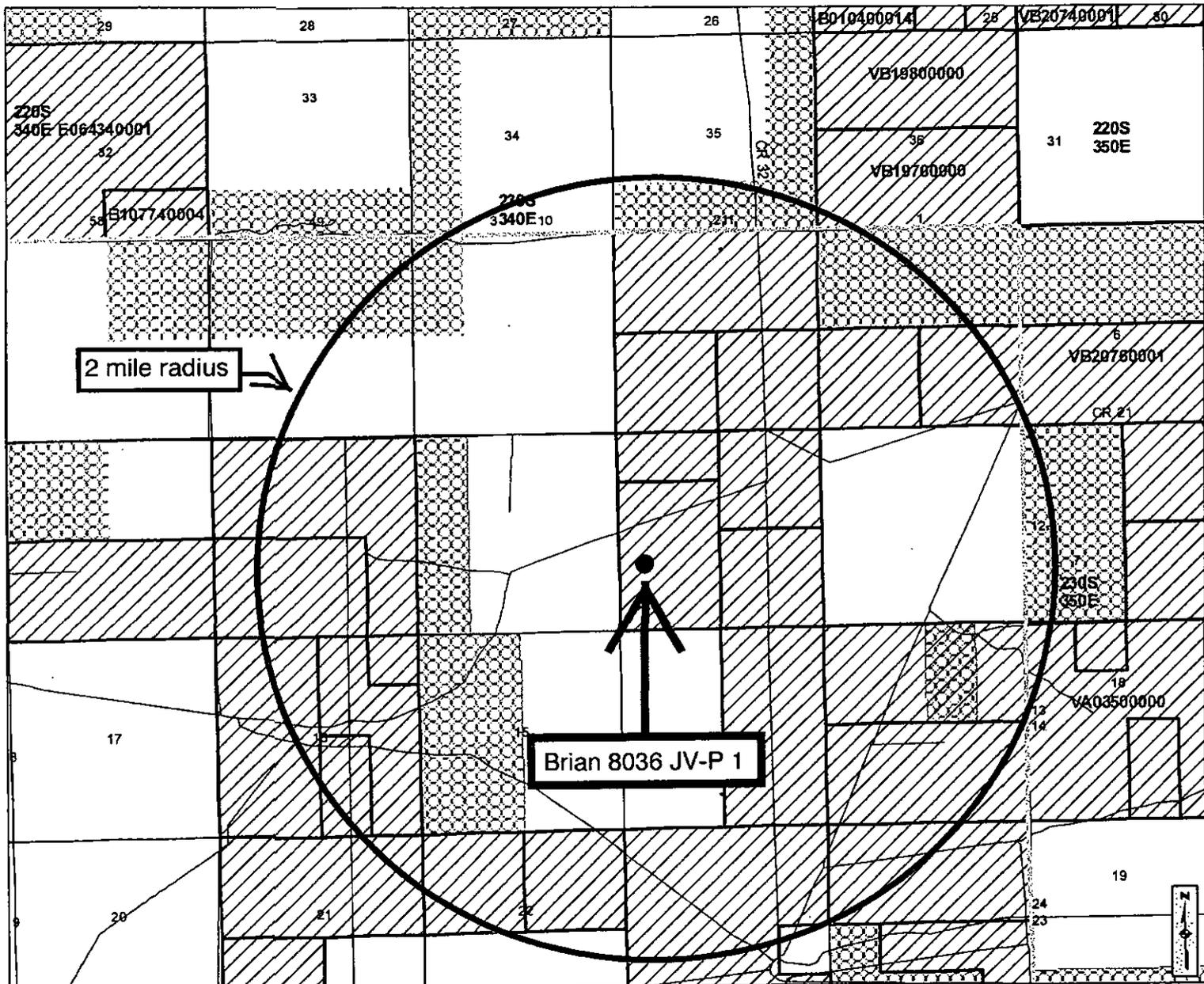
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Land Office Geographic Information Center  
logc@slo.state.nm.us



[www.nmstatelands.org](http://www.nmstatelands.org)

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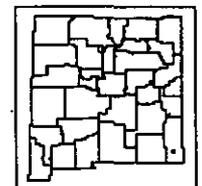


- Cartographic Features**
- County Boundaries
  - County Seats
  - City, Town or Village
  - ▲ SLO District Offices
  - SLO District Boundary
  - Hwy Mileposts
  - Interstate
  - US Hwy
  - NM Hwy
  - Local Road
  - Continental Divide
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- All Minerals
  - Coal Only
  - Oil and Gas Only
  - Oil, Gas and Coal Only
  - Other Minerals
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  - Subsurface Estate
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  - Participating Areas in Units
  - Geologic Regions
  - Volcanic Vents
  - NMOC Order R-11 I-P
  - Potash Enclave Outline
- NMOC Oil and Gas Wells**
- ⊛ CO<sub>2</sub>
  - Injection
  - Oil
  - ◆ Water
  - ⊛ Gas
  - Miscellaneous
  - △ Salt Water Disposal
  - ◇ DA or PA

**New Mexico State Land Office**  
**Oil, Gas and Minerals**  
 0 0.1 0.2 0.4 0.6 0.8  
 Miles  
 Universal Transverse Mercator Projection, Zone 13  
 1983 North American Datum

**EXHIBIT F**

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 logic@sls.state.nm.us



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Sorted by distance from Brian 8036 JV-P 1

WELL	SPUD	TVD	POOL(S)	TYPE	HOLE O. D.	CASING O. D.	SET @	CEMENT	TOC	HOW DETERMINED
Hudson State 8016 JV-P 2	10/16/92	13386	Antelope Ridge; Atoka & Morrow	gas	17.5	13.375	1998	2300 sx	GL	circulated
30-25-31613					12.25	9.625	4987	2600 sx	GL	circulated
E-11-23s-34e					8.75	7	11700	1900 sx	GL	circulated
Keller 11 State 1Y	12/20/06	8900	Antelope Ridge; Cherry Canyon	oil	17.5	13.375	1474	1335 sx	GL	circulated 190 sx
30-025-38216					11	9.625	3429	100 sx	no report	no report
E-11-23s-34e					8.75	7.625	4325	200 sx	4257	tagged
					7.5	5.5	8900	370 sx	2000	estimated
State ME Com 1Y	11/15/81	13600	Antelope Ridge; Atoka & Morrow	P & A	26	20	1787	4850 sx	GL	circulated 100 sx
30-025-27644					17.5	16	2460	950 sx	1865	temperature
N-11-23s-34e					14.75	13.375	5100	1940 sx	1695	TOL
					12.25	9.625	11790	4000 sx	300	temperature
					8.5	7	13360	500 sx	11291	TOL
Newkumet Federal 1	8/29/95	8008	Antelope Ridge; Brushy Canyon	oil	17.5	13.375	650	685 sx	GL	circulated 80 sx

EXHIBIT G

Sorted by distance from Brian 8036 JV-P 1

30-025-32937					12.25	9.625	2400	1000 sx	600	temperature
H-10-23s-34e					8.75	7	4950	825 sx	4060	temperature
					6.25	4.5	8000	535 sx	4750	plan
Belco Federal 2	11/13/82	13350	Antelope Ridge; Atoka & Morrow	gas	26	20	965	2800 sx	GL	circulated 200 sx
30-025-27901					17.5	13.375	3714	2300 sx	GL	circulated 525 sx
P-10-23s-34e					12.5	10.75	4845	1200 sx	GL	circulated 340 sx
						7.625	11721	2550 sx	GL	circulated 52 sx
						5.5	13350	245 sx	no report	no report
Hudson State 8006 JV-P 1Y	4/18/81	13410	Antelope Ridge; Atoka & Morrow	gas	26	20	1500	2300	GL	circulated
30-025-27364					17.5	13.375	4800	3900	130	no report
C-11-23s-34e					12.25	9.625	11700	3400	GL	circulated
					6.5	7.625	12748	300		
					6.5	5	13410	225		



# Amoco Production Company

ENGINEERING CHART

SHEET NO. 01

FILE \_\_\_\_\_

APPN \_\_\_\_\_

SUBJECT STATE "ME" CCH. NO. 1-Y 30-025-27644

DATE 1/20/83

ANTELOPE RIDGE MORROW

BY MSU  
APR 4/83

660' FSL & 2030' FWL, UNIT N, T-23-S, R-34-E

LEA COUNTY, NEW MEXICO

spud: 11/15/81

COMPLETED: 8/6/82

25 SX @ 63'

ELEV.: 3388' RDB

P & A: 2-18-87

3364' GL

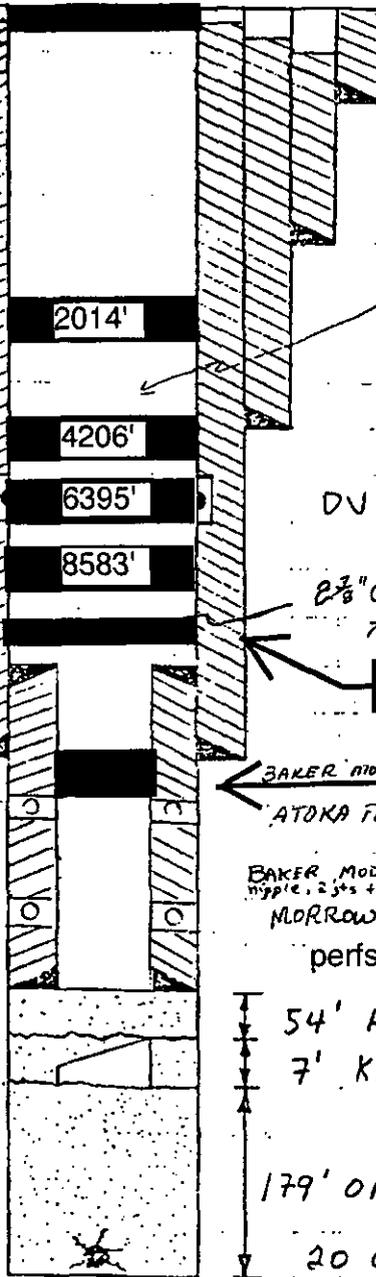
20" CSA 1761'  
133# K-55 BUTTRESS  
CMT. W/ 4850 SXS.  
CIRC. 26" HOLE

16" CSA 2459'  
84# K-55 BUTTRESS  
CMT. W/ 950 SXS.  
TCMT. 1865'  
17 1/2" HOLE

13 3/8" CSA 5100', 54.5#, 61#,  
77# K-55, J-55, N-80, ST&C  
CMT. W/ 1940 SXS.  
14 3/4" HOLE  
TLA 1695'

9 5/8" CSA 11,790'  
53.5# S-95 LT&C  
CMT. W/ 4000 SXS.  
TCMT. 300'  
12 1/4" HOLE

7" LINER SET AT 13,360'  
34.58# P-110, FL-45  
CMT. W/ 500 SXS. CIRC.  
8 1/2" HOLE  
TLA 11,292'



plugs are 75 sx  
unless shown  
otherwise

2 3/8" CS Hybrid long string N-80

DV TOOL SA 5722'

2 3/8" CS Hybrid short string N-80 w/ EL on top of  
tool on bottom of 1.81" profile nipple.

45 SX @ 11528'

BAKER MODEL A CIBP & 35' cmt @ 11900'

ATOKA PERFS: 12012-98, 12102-20, 12136-40, 12142-46,  
12150-200, 12256-74, 12352-58,  
12372-78, 12818-94  
BAKER MODEL F-1 PKR SA 12950' w/ EL on top of tool w/ 1.81" profile  
nipple, 2 3/8" tailpipe w/ 1.81" E-nipple on bottom  
MORROW PERFS: 13214-250 w/ 4 JSPF  
perfs 12101' - 13020'

54' RED DYE CMT.

7' KICK OFF SUB

179' OF CLASS 'H' CMT.

20 CURIE NEUTRON SOURCE  
FISH LEFT AT 13,600'

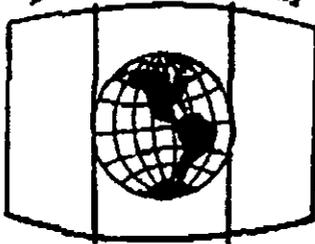
TD: 13,600'

PBD: 13,360'

EXHIBIT G

Produced Water

Well	Antelope Ridge Unit 5	Curry State 2	Triple A Federal 3	Triple A Federal 3	Triple A Federal 2	Newkumet Federal 1	Lisa Federal 1	Thistle Unit 5	Supron 14 Federal Com 1	Supron 14 Federal Com 1	Rio Blanco 4 Federal Com 1
API #	30-025-24916	30-025-28647	30-025-32508	30-025-32508	30-025-27521	30-025-32937	30-025-27813	30-025-34580	30-025-26719	30-025-26719	30-025-34515
Unit-Section In T23S, R34E	L-33	C-22	G-10	G-10	J-10	H-10	N-10	F-34-23s-33e	K-14	K-14	F-4
Formation	Bell Canyon	Cherry Canyon	Cherry Canyon	Cherry Canyon	Cherry Canyon	Cherry & Brushy Canyon	Bone Spring	Wolfcamp	Atoka	Morrow	Devonian
Parameter mg/l											
barium		0		0	0	0		0			1.6
bicarbonate	208	132	23	46	185	98	67	704	63	549	228
calcium	31262	27755	35849	32600	27355	27200	29200	10500	10	608	1361
calcium carbonate	98989	85076		93000	84325	93000	87500	25000	36	1750	
carbonate					0			0			0
chloride	212522	171961	192000	184649	172961	164764	193830	78366	24	17755	41669
H2S	6	0			0	0	0	0	0	0	210
iron	34	26	5	18		18	62	212	22	25	7
magnesium	5080	3829	3305	2795	3890	6075	3524	14500	3	56	162
pH	5.8	5.92		6.03	6.04	6.02	5.84	6.7	6.93	6.58	6.1
potassium								43			350
resistivity											
sodium	92544	72597	76579		73621						25492
sodium &/or potassium				77132		64452	85635		28	11036	
strontium			1162								34
sufate	200	250	124	274	275	687	296	1350	11	246	1011
TDS	341883	276524		297497	278287	263276	312552	105950	139	30249	70316



P. O. BOX 668  
 HOBBS, NEW MEXICO 88240  
 (505) 393-1917

Bell Canyon water  
 from 30-025-24916  
 & SWD-578

**WATER ANALYSIS REPORT**

Company: Strata Production Date: 11-22-94  
 Lease: Papa Gyo ← aka, Papagayo Date Sampled: 11-15-94  
 Well: Fed. #1 Analysis No: E112  
 Sample Point: Wellhead

ANALYSIS		mg/L	meq/L
1. pH		5.8	
2. Specific Gravity		1.220	
<b>DISSOLVED GASSES</b>			
3. H <sub>2</sub> S		6.0 PPM	
4. Dissolved Oxygen		N/A	
5. Dissolved CO <sub>2</sub>		576.0 PPM	
<b>CATIONS</b>			
6. Calcium	Ca	31262.4	1560.0
7. Magnesium (calculated)	Mg	5080.8	418.0
8. Sodium (calculated)	Na	92544.7	4025.4
<b>ANIONS</b>			
9. Methyl Orange Alkalinity	CaCO <sub>3</sub>	171.0	
10. Bicarbonate	HCO <sub>3</sub>	208.6	3.4
11. Chloride	Cl	212552.9	5995.8
12. Sulfate	SO <sub>4</sub>	200.0	4.2
13. Total Dissolved Solids		341883.4	
14. Total Hardness	CaCO <sub>3</sub>	98989.0	
15. Total Iron	Fe	34.0	

**PROBABLE MINERAL COMPOSITION**

Compound	Equiv wt	X	meq/L	=	mg/L
Ca(HCO <sub>3</sub> ) <sub>2</sub>	81.0		3.4	=	277
CaSO <sub>4</sub>	68.1		4.2	=	283
CaCl <sub>2</sub>	55.5		1552.4	=	86144
MgCl <sub>2</sub>	47.6		418.0	=	19899
NaCl	58.4		4025.4	=	235246

**SCALE TENDENCY REPORT**

**Calcium Carbonate Scaling Tendency**

S.I. = at 80 degrees F S.I. = at 100 degrees F  
 S.I. = at 120 degrees F S.I. = at 140 degrees F

**Calcium Sulfate Scaling Tendency**

S. = at 80 degrees F S. = at 100 degrees F  
 S. = at 120 degrees F S. = at 140 degrees F

Calculation for MPY loss: 24.0 MPY

REMARKS: Don Canada / Copy / File Scaling Tendencies out of calculation range.

**EXHIBIT H**

# Seaco Products Co.

Cherry Canyon water  
from 30-025-28647  
& SWD-588

## WATER ANALYSIS REPORT

### SAMPLE

Oil Co. : J. C. WILLIAMSON  
Lease : Curry State  
Well No. : #1 2  
Salesman :

Sample Loc. :  
Date Analyzed: 26-January-1996  
Date Sampled :

### ANALYSIS

1. pH 5.920
2. Specific Gravity 60/60 F. 1.196
3. CaCO<sub>3</sub> Saturation Index @ 80 F. +2.227  
@ 140 F. +3.147

#### Dissolved Gasses

- |                     | MG/L | EQ. WT. | *MEQ/L         |
|---------------------|------|---------|----------------|
| 4. Hydrogen Sulfide |      |         | Not Present    |
| 5. Carbon Dioxide   |      |         | Not Determined |
| 6. Dissolved Oxygen |      |         | Not Determined |

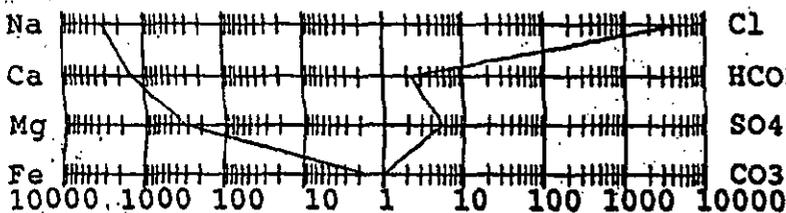
#### Cations

7. Calcium (Ca <sup>++</sup> )	27,755	/ 20.1 =	1,380.85
8. Magnesium (Mg <sup>++</sup> )	3,829	/ 12.2 =	313.85
9. Sodium (Na <sup>+</sup> )	72,597	/ 23.0 =	3,156.39
10. Barium (Ba <sup>++</sup> ) (Calculated)	0	/ 68.7 =	0.00

#### Anions

11. Hydroxyl (OH <sup>-</sup> )	0	/ 17.0 =	0.00
12. Carbonate (CO <sub>3</sub> <sup>2-</sup> )	0	/ 30.0 =	0.00
13. Bicarbonate (HCO <sub>3</sub> <sup>-</sup> )	132	/ 61.1 =	2.16
14. Sulfate (SO <sub>4</sub> <sup>2-</sup> )	250	/ 48.8 =	5.12
15. Chloride (Cl <sup>-</sup> )	171,961	/ 35.5 =	4,843.97
16. Total Dissolved Solids	276,524		
17. Total Iron (Fe)	26	/ 18.2 =	1.43
18. Total Hardness As CaCO <sub>3</sub>	85,076		
19. Resistivity @ 75 F. (Calculated)	0.001 /cm.		

#### LOGARITHMIC WATER PATTERN \*meq/L.



#### PROBABLE MINERAL COMPOSITION COMPOUND EQ. WT. X \*meq/L = mg/L.

Ca(HCO <sub>3</sub> ) <sub>2</sub>	81.04	2.16	175
CaSO <sub>4</sub>	68.07	5.12	349
CaCl <sub>2</sub>	55.50	1,373.56	76,233
Mg(HCO <sub>3</sub> ) <sub>2</sub>	73.17	0.00	0
MgSO <sub>4</sub>	60.19	0.00	0
MgCl <sub>2</sub>	47.62	313.85	14,946
NaHCO <sub>3</sub>	84.00	0.00	0
NaSO <sub>4</sub>	71.03	0.00	0
NaCl	58.46	3,156.56	184,532

#### Calcium Sulfate Solubility Profile



\*Milli Equivalents per Liter

This water is somewhat corrosive due to the pH observed on analysis.  
The corrosivity is increased by the content of mineral salts in solution.

EXHIBIT H

WATER SAMPLES



# Water Analysis Report

2/28/01

91071115035-

Address:

Cherry Canyon water  
from 30-025-32508

Customer: Paterson  
Attention: Joe Bascus

Lease: Triple A

Formation:

Target Name: Triple A 3

Sample Point: Triple A 3

Sample Date: 02/16/2001

Test Date: 02/28/2001

**Water Analysis(mg/L)**

Calcium	35849
Magnesium	3305
Barium	23
Strontium	1162
Sodium(calc.)	76579
Bicarbonate Alkalinity	
Sulfate	124
Chloride	182000

**Appended Data(mg/L)**

CO2	
H2S	
Iron	5

**Physical Properties**

Ionic Strength(calc.)	6.45
pH(calc.)	
Temperature(°F)	90
Pressure(psis)	50
Density	

**Additional Data**

Specific Gravity	
Total Dissolved Solids(Mg/L)	
Total Hardness(CaCO3 Eq Mg/L)	103168

Dew Point	
Lead	
Zinc	

**Calcite Calculation Information**

Calculation Method	Value
CO2 in Brine(mg/L)	

Remarks:

**SI & PTB Results**

Scale Type	SI	PTB
Calcite (Calcium Carbonate)		
Gypsum (Calcium Sulfate)	-0.40	
Hemihydrate (Calcium Sulfate)	-0.35	
Anhydrite (Calcium Sulfate)	0.00	
Barite (Barium Sulfate)	1.48	13.10
Celestite (Strontium Sulfate)	0.49	37.40

EXHIBIT H

P. O. BOX 1488  
 MONAHANS, TEXAS 79756  
 PH. 943-3234 OR 583-1040

Cherry Canyon water  
 Martin Water Laboratories, from 30-025-32508  
 & SWD-588

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

RESULT OF WATER ANALYSES

TO: Mr. Fred W. Taylor LABORATORY NO. 295181  
P. O. Box 16, Midland, TX 79702 SAMPLE RECEIVED 2-18-95  
 RESULTS REPORTED 2-22-95

COMPANY J. C. Williamson LEASE As listed  
 FIELD OR POOL Antelope Ridge  
 SECTION      BLOCK      SURVEY      COUNTY Lea STATE NM

SOURCE OF SAMPLE AND DATE TAKEN:

NO. 1 Raw water - taken from Antelope Ridge Warehouse water well.  
 NO. 2 Produced water - taken from Triple "A" #3. ← Cherry Canyon  
 NO. 3       
 NO. 4      Cherry Canyon

REMARKS: 2. Delaware

CHEMICAL AND PHYSICAL PROPERTIES				
	NO. 1	NO. 2	NO. 3	NO. 4
Specific Gravity at 60° F.	1.0037	1.1914		
pH When Sampled				
pH When Received	8.07	6.03		
Bicarbonate as HCO <sub>3</sub>	212	46		
Supersaturation as CaCO <sub>3</sub>				
Undersaturation as CaCO <sub>3</sub>				
Total Hardness as CaCO <sub>3</sub>	316	93.000		
Calcium as Ca	82	32.600		
Magnesium as Mg	27	2.795		
Sodium and/or Potassium	49	77.132		
Sulfate as SO <sub>4</sub>	92	274		
Chloride as Cl	108	184.649		
Iron as Fe	1.1	18.0		
Barium as Ba		0		
Turbidity, Electric				
Color as Pt				
Total Solids, Calculated	570	297.497		
Temperature °F.				
Carbon Dioxide, Calculated				
Dissolved Oxygen				
Hydrogen Sulfide	0.0	0.0		
Resistivity, ohm-cm at 77° F.	12.70	0.046		
Suspended Oil				
Filterable Solids as mg/l				
Volume Filtered, ml				

Results Reported As Milligrams Per Liter

Additional Determinations And Remarks It is our understanding these waters are to be utilized for drilling purposes. We see no evidence that would cause any need for concern in the water from the water well. However, the water from Triple "A" #3 shows an abnormally high calcium and magnesium; and if a high-pH drilling brine is anticipated, it is necessary to add significantly more treatment to raise the pH above 9.0 in that magnesium and some calcium would precipitate as hydroxides before getting the pH on up to the level normally used for drilling purposes. Otherwise, we see no need for concern regarding the use of this water from Triple "A" #3.

EXHIBIT H

EXHIBIT: WATER SAMPLES

By Waylan C. Martin, M.A.

Cherry Canyon water  
from 30-025-27521  
& SWD-588

# Seaco Products Co.

## WATER ANALYSIS REPORT

### SAMPLE

Oil Co.: T. C. WILLIAMSON  
Lease: Fed  
Well No.: # 2 AAA  
Salesman:

Sample Loc.:  
Date Analyzed: 26-January-1996  
Date Sampled:

### ANALYSIS

1. pH 6.040
2. Specific Gravity 60/60 F. 1.201
3. CaCO<sub>3</sub> Saturation Index @ 80 F. +2.487  
@ 140 F. +3.407

#### Dissolved Gasses

	MG/L	EQ. WT.	*MEQ/L
4. Hydrogen Sulfide			Not Present
5. Carbon Dioxide			Not Determined
6. Dissolved Oxygen			Not Determined

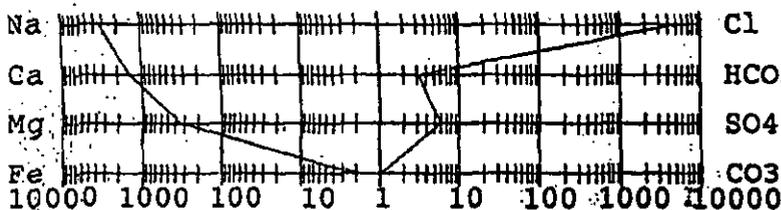
#### Cations

7. Calcium (Ca <sup>++</sup> )	27,355	/ 20.1 =	1,360.95
8. Magnesium (Mg <sup>++</sup> )	3,890	/ 12.2 =	318.85
9. Sodium (Na <sup>+</sup> ) (Calculated)	73,621	/ 23.0 =	3,200.91
10. Barium (Ba <sup>++</sup> )	0	/ 68.7 =	0.00

#### Anions

11. Hydroxyl (OH <sup>-</sup> )	0	/ 17.0 =	0.00
12. Carbonate (CO <sub>3</sub> <sup>2-</sup> )	0	/ 30.0 =	0.00
13. Bicarbonate (HCO <sub>3</sub> <sup>-</sup> )	185	/ 61.1 =	3.03
14. Sulfate (SO <sub>4</sub> <sup>2-</sup> )	275	/ 48.8 =	5.64
15. Chloride (Cl <sup>-</sup> )	172,961	/ 35.5 =	4,872.14
16. Total Dissolved Solids	278,287		
17. Total Iron (Fe)	31	/ 18.2 =	1.70
18. Total Hardness As CaCO <sub>3</sub>	84,325		
19. Resistivity @ 75 F. (Calculated)	0.001 /cm.		

#### LOGARITHMIC WATER PATTERN \*meq/L.



#### PROBABLE MINERAL COMPOSITION COMPOUND EQ. WT. X \*meq/L = mg/L.

Na	Cl	Ca(HCO <sub>3</sub> ) <sub>2</sub>	81.04	3.03	245
Ca	HCO <sub>3</sub>	CaSO <sub>4</sub>	68.07	5.64	384
Mg	SO <sub>4</sub>	CaCl <sub>2</sub>	55.50	1,352.28	75,052
Fe	CO <sub>3</sub>	Mg(HCO <sub>3</sub> ) <sub>2</sub>	73.17	0.00	0
		MgSO <sub>4</sub>	60.19	0.00	0
		MgCl <sub>2</sub>	47.62	318.85	15,184
		NaHCO <sub>3</sub>	84.00	0.00	0
		NaSO <sub>4</sub>	71.03	0.00	0
		NaCl	58.46	3,201.01	187,131

#### Calcium Sulfate Solubility Profile



\*Milli Equivalents per Liter

This water is slightly corrosive due to the pH observed on analysis.  
The corrosivity is increased by the content of mineral salts in solution.

EXHIBIT H

P.O. BOX 98  
MIDLAND, TX. 79702  
PHONE (432) 683-4821

Marlin Water L... Historic Cherry Canyon &  
Brushy Canyon water  
RESULT OF WATER ANALY from 30-025-32937

708 W. INDIANA  
MIDLAND, TEXAS 79701  
FAX (432) 682-8819

TO: ATTN: Lezlie  
2605 Garden City Hwy. Midland, TX 79701

LABORATORY NO. 507-81  
SAMPLE RECEIVED 5-4-07  
RESULTS REPORTED 5-10-07

COMPANY Guage Treating Chemicals LEASE Siana Operating, LLC

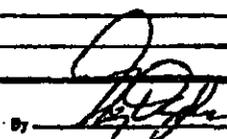
FIELD OR POOL \_\_\_\_\_  
SECTION \_\_\_\_\_ BLOCK \_\_\_\_\_ SURVEY \_\_\_\_\_ COUNTY \_\_\_\_\_ STATE \_\_\_\_\_

SOURCE OF SAMPLE AND DATE TAKEN:  
NO. 1 APD Fed #1. 5-3-07  
NO. 2 \_\_\_\_\_  
NO. 3 \_\_\_\_\_  
NO. 4 \_\_\_\_\_

REMARKS: \_\_\_\_\_

CHEMICAL AND PHYSICAL PROPERTIES				
	NO. 1	NO. 2	NO. 3	NO. 4
Specific Gravity at 60° F.	1.1680			
pH When Sampled				
pH When Received	6.02			
Bicarbonata as HCO <sub>3</sub>	98			
Supersaturation as CaCO <sub>3</sub>				
Undersaturation as CaCO <sub>3</sub>				
Total Hardness as CaCO <sub>3</sub>	93.000			
Calcium as Ca	27.200			
Magnesium as Mg	6.075			
Sodium and/or Potassium	64.452			
Sulfate as SO <sub>4</sub>	687			
Chloride as Cl	164.764			
Iron as Fe	18.8			
Barium as Ba	0			
Turbidity, Electric				
Color as Pt				
Total Solids, Calculated	263.276			
Temperature °F.				
Carbon Dioxide, Calculated	156			
Dissolved Oxygen				
Hydrogen Sulfide	0.0			
Resistivity, ohmcm at 77° F.	0.049			
Suspended Oil				
<del>Phosphate</del> Corrosiveness	Severe			
<del>Barium Sulfate</del> Barium Sulfate Scaling Tendency	None			
CaCO <sub>3</sub> S.I. @ 77° F. (Stiff-Davis)	1.68			
CaCO <sub>3</sub> S.I. @ 122° F. (Stiff-Davis)	2.92			
Calcium Sulfate Scaling Tendency	None			
Results Reported As Milligrams Per Liter				
Additional Determinations And Remarks				
CaCO <sub>3</sub> S.I. - A positive fig. signifies a scaling potential proportionate to the magnitude of the number, and a negative fig. signifies no scaling potential.				
Please feel free to contact us for any details or discussions concerning these results.				

Form No. 3



Greg Ogden, B.S.

EXHIBIT H

Bone Spring water  
from 30-025-27813  
& SWD-588

TO: Mr. Max Curry  
804 Palomino, Midland, TX 79705  
COMPANY San Simon SWD  
FIELD Antelope Ridge  
SEC 10 BLK SURVEY T-23S & R-34E CO. Ica, NM  
NO. 1 Produced water - taken from Federal #1. 5-29-97  
NO. 2  
NO. 3  
NO. 4

LAB. NO.  
DATE REC 5-29-97  
RR

USA Federal #1

REMARKS: Bone Springs  
Specific Gravity @ 60oF. 1.1964  
pH When Sampled  
pH When Received 5.84  
Bicarbonate, as HC03 67  
Supersaturated, as CaC03  
Undersaturated, as CaC03  
Total Hardness, as CaC03 87500  
Calcium, as Ca 29200  
Magnesium, as Mg 3524  
Sodium and/or Potassium 85635  
Sulfate, as SO4 296  
Chloride, as Cl 193830  
Iron, as Fe 62.4  
Barium, as Ba  
Turbidity  
Color  
Total Solids, Calc. 312552  
Temperature, oF.  
Carbon Dioxide  
Oxygen  
Hydrogen Sulfide 0.0  
Resistivity, ohms/m @ 77oF. 0.045  
Suspended Oil  
Filtrable Solids  
Volume Filtered, ml

Remarks: In comparing this water with our records in this field, we find it clearly does not resemble what we would expect from a natural Bone Springs. In further comparing with our records, we find it has characteristics that are decidedly similar to what we would expect from the Brushy Canyon or Cherry Canyon interval.

RESULTS REPORTED AS MILLIGRAMS PER LITER  
MARTIN WATER LABS., INC.

EXHIBIT H

WATER SAMPLES



Laboratory Services, Inc.  
4016 Fiesta Drive  
Hobbs, New Mexico 88240  
Telephone: (805) 397-3713

Wolfcamp water  
from 30-025-34580

Water Analysis

COMPANY Santa Fe Snyder

SAMPLE Thistle #5

SAMPLED BY R. Hicks-Pro Well

DATE TAKEN 2/23/00 7:00 am

REMARKS

Barium as Ba	0
Carbonate alkalinity PPM	0
Bicarbonate alkalinity PPM	704
pH at Lab	6.7
Specific Gravity @ 60°F	1.09
Magnesium as Mg	14,500
Total Hardness as CaCO3	25,000
Chlorides as Cl	78,366
Sulfate as SO4	1,380
Iron as Fe	212.5
Potassium	43.8
Hydrogen Sulfide	0
Rw	0.092 @ 34° C
Total Dissolved Solids	105,950
Calcium as Ca	10,500
Nitrate	187

Results reported as Parts per Million unless stated

Langellar Saturation Index 1.58

Analysis by: Vickie Walker  
Date: 2/23/00

EXHIBIT H

**C108-Item VII #5**  
**Disposal Formation Water Analysis**  
**Devonian Formation**  
**Rio Blanco 4-1**  
**Sec 4-T23S-R34E**

Devonian water  
 from 30-025-34515  
 & SWD-1077

North Permian Basin Region  
 P.O. Box 740  
 Sundown, TX 79372-0740  
 (806) 229-8121  
 Lab Team Leader - Sheila Hernandez  
 (432) 495-7240

## Water Analysis Report by Baker Petrolite

Company:	DEVON ENERGY CORPORATION	Sales RDT:	33517.1
Region:	PERMIAN BASIN	Account Manager:	SHAWNA MATTHEWS (505) 910-9393
Area:	ARTESIA, NM	Sample #:	326817
Lease/Platform:	RIO BLANCO	Analysis ID #:	47310
Entity (or well #):	4-1	Analysis Cost:	\$40.00
Formation:	DEVONIAN		
Sample Point:	SEPARATOR		

Summary		Analysis of Sample 326817 @ 75 °F					
Sampling Date:	12/16/04	Anions	mg/l	meq/l	Cations	mg/l	meq/l
Analysis Date:	12/22/04	Chloride:	41669.0	1175.33	Sodium:	25492.9	1108.88
Analyst:	SALLY MOORE	Bicarbonate:	228.1	3.74	Magnesium:	162.0	13.33
TDS (mg/l or g/m3):	70316.5	Carbonate:	0.0	0.0	Calcium:	1361.0	87.91
Density (g/cm3, tonne/m3):	1.053	Sulfate:	1011.0	21.05	Strontium:	34.0	0.78
Anion/Cation Ratio:	1	Phosphate:			Barium:	1.5	0.02
		Borate:			Iron:	7.0	0.25
Carbon Dioxide:	100 PPM	Silicate:			Potassium:	350.0	8.95
Oxygen:		Hydrogen Sulfide:		210 PPM	Aluminum:		
Comments:		pH at time of sampling:		6.1	Chromium:		
		pH at time of analysis:			Copper:		
		pH used in Calculation:		6.1	Lead:		
					Manganese:		
					Nickel:		

Conditions		Values Calculated at the Given Conditions - Amounts of Scale in lb/1000 bbl										
Temp	Gauge Press.	Calcite CaCO <sub>3</sub>		Gypsum CaSO <sub>4</sub> ·2H <sub>2</sub> O		Anhydrite CaSO <sub>4</sub>		Celestite SrSO <sub>4</sub>		Barite BaSO <sub>4</sub>		CO <sub>2</sub> Press
		Index	Amount	Index	Amount	Index	Amount	Index	Amount	Index	Amount	
80	0	-0.70	0.00	-0.68	0.00	-0.72	0.00	-0.49	0.00	1.27	0.65	1.54
100	0	-0.59	0.00	-0.72	0.00	-0.69	0.00	-0.50	0.00	1.09	0.65	1.96
120	0	-0.47	0.00	-0.76	0.00	-0.65	0.00	-0.50	0.00	0.93	0.65	2.4
140	0	-0.34	0.00	-0.78	0.00	-0.58	0.00	-0.50	0.00	0.80	0.65	2.85

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 CO<sub>2</sub> pressure is actually the calculated CO<sub>2</sub> fugacity. It is usually nearly the same as the CO<sub>2</sub> partial pressure.

EXHIBIT H

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

Martin Water Laboratories, Inc.

Atoka & Morrow  
water from  
30-025-26719

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

RESULT OF WATER ANALYSES

TO: Mr. Stan Smith LABORATORY NO. 3948  
P. O. Box 1350, Midland, TX 79702 SAMPLE RECEIVED 3-2-94  
RESULTS REPORTED 3-4-94

COMPANY Hunt Oil Company LEASE Supron Federal #14-1  
FIELD OR POOL Antelope Ridge  
SECTION      BLOCK      SURVEY      COUNTY Lea STATE NM

SOURCE OF SAMPLE AND DATE TAKEN:  
NO. 1 Produced (Atoka) water - taken from Supron Federal #14-1.  
NO. 2 Produced (Morrow) water - taken from Supron Federal #14-1.  
NO. 3       
NO. 4     



REMARKS:

CHEMICAL AND PHYSICAL PROPERTIES				
	NO. 1	NO. 2	NO. 3	NO. 4
Specific Gravity at 60° F.	1.0012	1.0257		
pH When Sampled				
pH When Received	6.93	6.58		
Bicarbonate as HCO <sub>3</sub>	63	549		
Supersaturation as CaCO <sub>3</sub>				
Undersaturation as CaCO <sub>3</sub>				
Total Hardness as CaCO <sub>3</sub>	36	1,750		
Calcium as Ca	10	608		
Magnesium as Mg	3	56		
Sodium and/or Potassium	28	11,036		
Sulfate as SO <sub>4</sub>	11	246		
Chloride as Cl	24	17,755		
Iron as Fe	22.5	25.8		
Barium as Ba				
Turbidity, Electric				
Color as Pt				
Total Solids, Calculated	139	30,249		
Temperature °F.				
Carbon Dioxide, Calculated				
Dissolved Oxygen				
Hydrogen Sulfide	0.0	0.0		
Resistivity, ohm-cm at 77° F.	52.50	0.250		
Suspended Oil				
Filtrable Solids as mg/l				
Volume Filtered, ml				

Results Reported As Milligrams Per Liter

Additional Determinations And Remarks It is apparent in the above results that the Atoka water is essentially all condensed water vapor whereas the Morrow water herein correlates well with what we would expect from natural Morrow in this field.

**RECEIVED**

MAR - 7 1994

HUNT OIL COMPANY  
Drilling & Production  
Midland, Texas

By Waylan C. Martin, M.A.

EXHIBIT H



# New Mexico Office of the State Engineer

## Active & Inactive Points of Diversion

(with Ownership Information)

1359 meters =  
4,457 feet

WR File Nbr	Sub basin	Use	Diverston	Owner	County	POD Number	Code	Grant	Source	q q q			X	Y	Distance		
										6416	4	Sec				Tws	Rng
<u>E 07010</u>	MUL			0 PETE ALONZO	TO	<u>E 07010 POD1</u>		TOWN OF TAJIQUE	Shallow				646400	0570970	1359		
<u>CP 00649</u>		PRO		0 MID AMERICAN PETROLEUM COMPANY	LE	<u>CP 00649</u>				4	1	10	23S	34E	644956 3577051*	1359	
<u>CP 01120</u>		STK		3 LIMESTONE LIVESTOCK LLC	LE	<u>CP 01120 POD1</u>			Shallow	2	3	3	14	23S	34E	646366 3574753	1916
<u>CP 00637</u>		PRO		3 KELLER RV, LLC	LE	<u>CP 00637</u>			Shallow	3	3	4	15	23S	34E	645293 3574541*	2335
<u>CP 00606</u>		PRO		0 NATOMAS NORTH AMERCIA INC.	LE	<u>CP 00606</u>			Shallow	4	1	23	23S	34E	646613 3573854*	2835	
<u>CP 01074</u>		DOL		0 ATKINS ENGR ASSOC INC	LE	<u>CP 01074 POD1</u>				4	4	4	35	22S	34E	647389 3579313	2877
<u>CP 00323</u>		PRO		0 SHELL OIL COMPANY	LE	<u>CP 00323</u>				3	2	22	23S	34E	645406 3573837*	2956	
<u>CP 00618</u>		PRO		0 ESTORIL PRODUCING CO.	LE	<u>CP 00618</u>			Shallow	1	2	4	22	23S	34E	645713 3573539*	3175

(R=POD has been replaced and no longer serves this file, (quarters are 1=NW 2=NE 3=SW 4=SE)  
C=the file is closed) (quarters are smallest to largest) (NAD83 UTM in meters)

**Record Count: 8**

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

Easting (X): 646260

Northing (Y): 3576667

Radius: 3220

3220 meters x 3.28 feet/meter = 10,562 feet

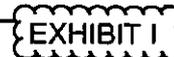
10,562 feet = 2.0003 miles

**Sorted by:** Distance

\*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.

5/2/14 9:20 AM





# New Mexico Office of the State Engineer Water Column/Average Depth to Water

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

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

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

(NAD83 UTM in meters)

(In feet)

POD Number	POD Sub-Code	basin	County	Q1	Q2	Q3	Q4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
<del>E 07616</del>	<del>POD1</del>	<del>TO</del>									<del>646466</del>	<del>8570970</del>	<del>800</del>	<del>500</del>	<del>900</del>	<del>200</del>
CP 01120	POD1	LE		2	3	3	14	23S	34E		646366	3574753	1916	397	318	79
CP 00637		LE		3	3	4	15	23S	34E		645293	3574541*	2335	430	430	0
CP 00606		LE			4	1	23	23S	34E		646613	3573854*	2835	650	265	385
CP 00618		LE		1	2	4	22	23S	34E		645713	3573539*	3175	428	295	133

Average Depth to Water: **321 feet**  
Minimum Depth: **265 feet**  
Maximum Depth: **430 feet**

**Record Count: 5**

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

Easting (X): 646260

Northing (Y): 3576667

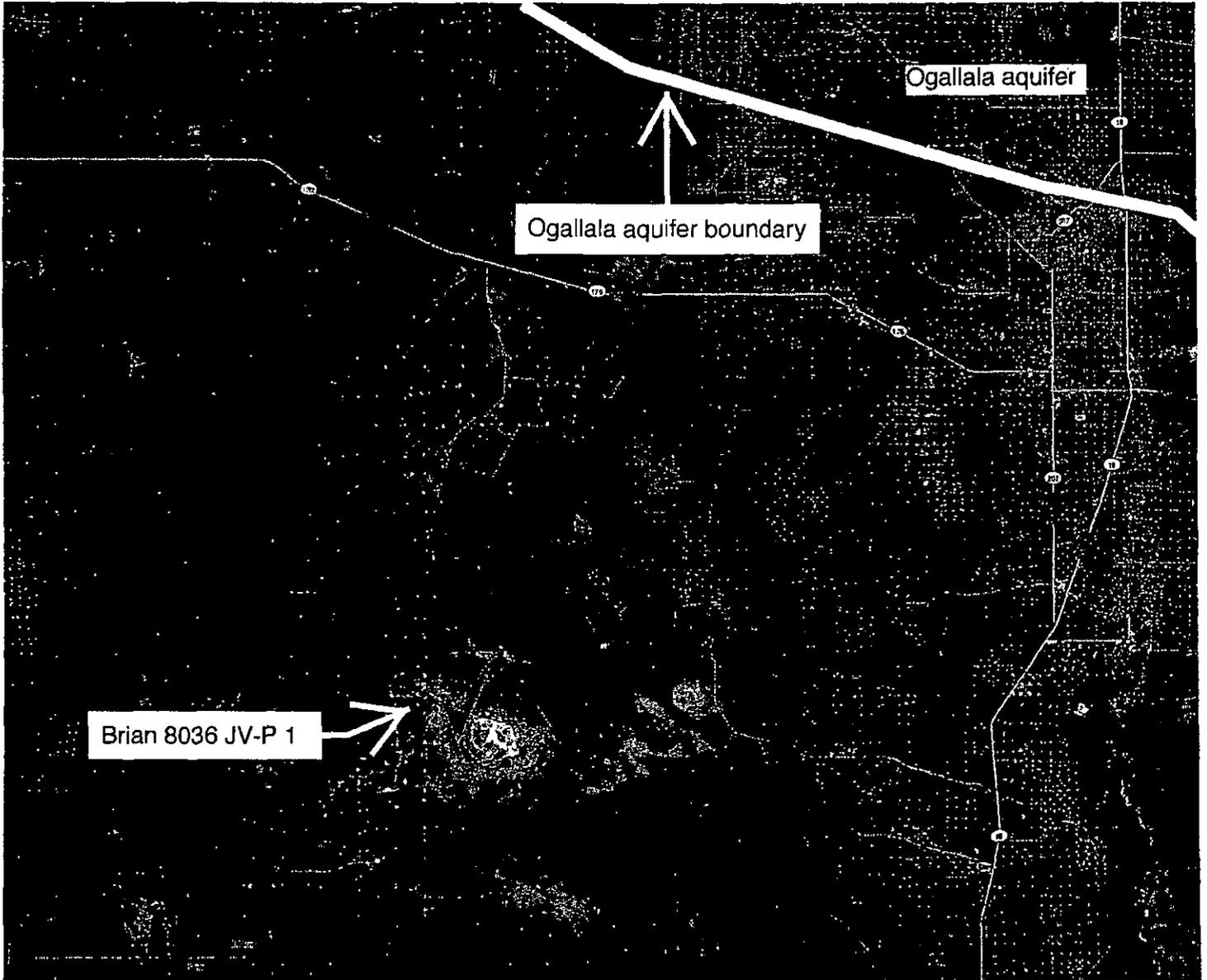
Radius: 3220

\*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.

# Brian 8036 JV-P 1

Ogallala aquifer boundary



Copyright 2010 Esri. All rights reserved. Sun May 18 2014 03:32:09 PM.

EXHIBIT I



### Geologic Hazards Science Center

## EHP Quaternary Faults

Search for fault:  Select a state or region map:

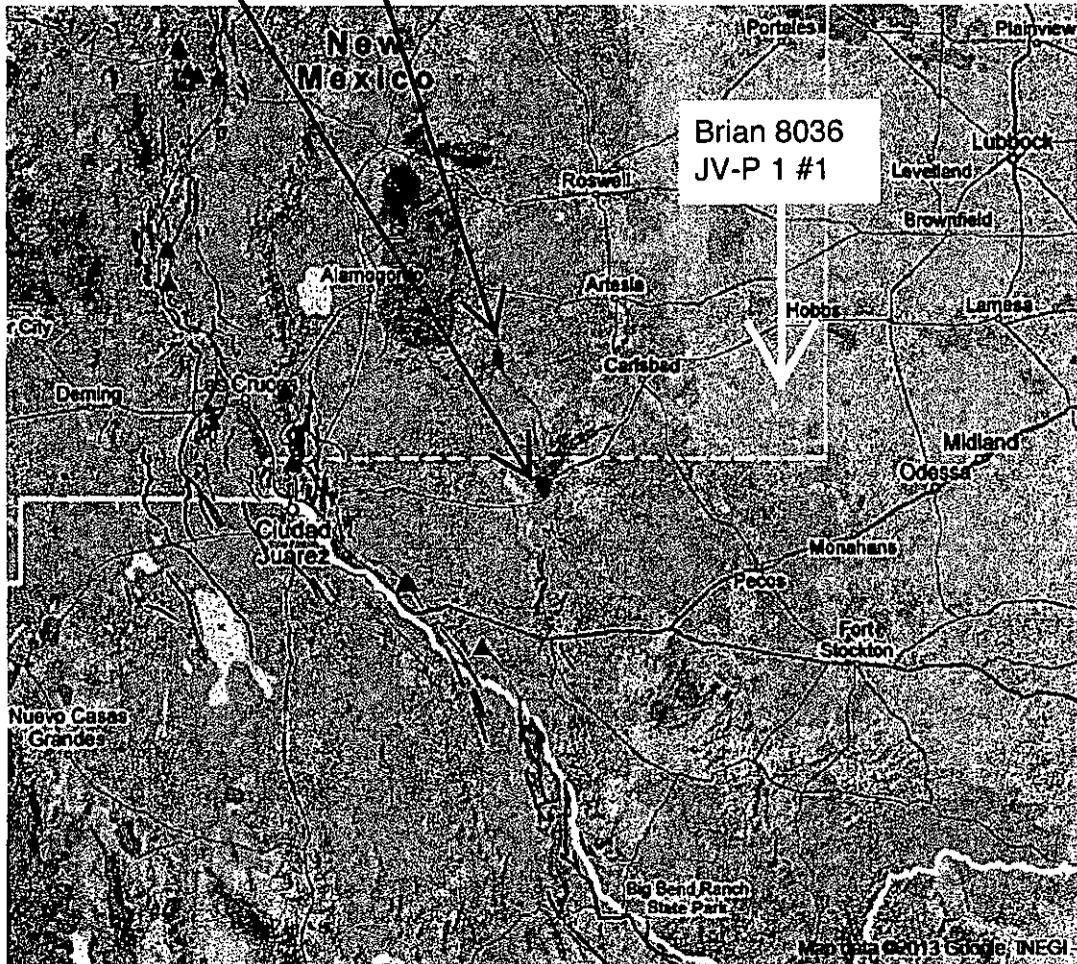


EXHIBIT J

# Affidavit of Publication

State of New Mexico,  
County of Lea.

I, DANIEL RUSSELL  
PUBLISHER

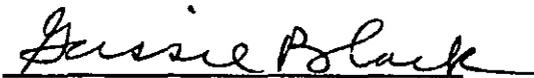
of the Hobbs News-Sun, a  
newspaper published at Hobbs, New  
Mexico, do solemnly swear that the  
clipping attached hereto was  
published in the regular and entire  
issue of said newspaper, and not a  
supplement thereof for a period

of 1 issue(s).  
Beginning with the issue dated  
April 29, 2014  
and ending with the issue dated  
April 29, 2014



PUBLISHER

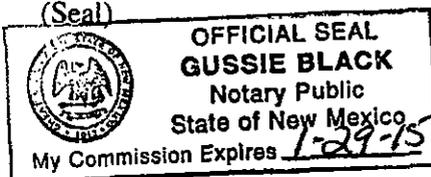
Sworn and subscribed to before me  
this 29th day of  
April, 2014



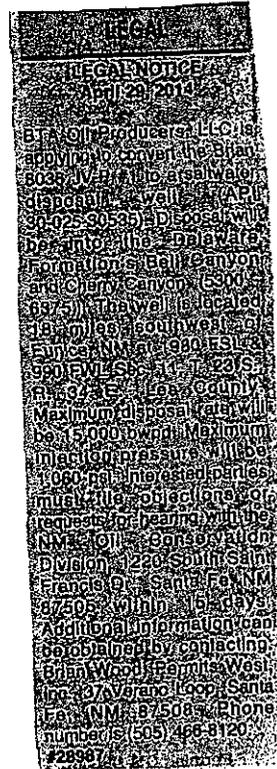
Notary Public

My commission expires  
January 29, 2015

(Seal)



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  
publication has been made.



02108485

00135325

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

EXHIBIT K

PROPOSED ADVERTISEMENT

Case No. 15178:

*Application of BTA Oil Producers, LLC for approval of a water disposal well, Lea County, New Mexico.* Applicant seeks an order approving disposal of produced water into the Bell Canyon and Upper Cherry Canyon members of the Delaware formation at depths of 5300-6375 feet subsurface in the 8036 JV-P Brian Well No. 1, located 1980 feet from the south line and 990 feet from the west line of Section 11, Township 23 South, Range 34 East, NMPM. The well is located approximately 19 miles southwest of Eunice, New Mexico.

RECEIVED OCD  
2014 JUN 24 P 12:46