

APPLICATION FOR AUTHORIZATION TO INJECT

SWD
684

11/12/97

- I. Purpose: ☐ Secondary Recovery ☐ Pressure Maintenance ☒ Disposal ☐ Storage
Application qualifies for administrative approval? ☒ yes ☐ no

II. Operator: ENRON OIL & GAS COMPANY

Address: P.O. Box 2267, Midland, Texas 79702

LEE REAPY

Contact party: Hal Crabb, III

Phone: (915)686-3723

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 ☒ 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:

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 geological data on the injection zone including appropriate lithologic detail, geological 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 source 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 source 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: Hal Crabb, III

Title Project Production Engineer

Signature: Hal Crabb, III

Date: 14-Oct.-97

* If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be duplicated and resubmitted. Please show the date and circumstance of the earlier submittal.

DISTRIBUTION: Original and one copy to Santa Fe with one copy to the appropriate Division district office.

III. WELL DATA

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

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

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

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

- (1) The name of the injection formation and, if applicable, the field or pool name.
- (2) The injection interval and whether it is perforated or open-hole.
- (3) State if the well was drilled for injection or, if not, the original purpose of the well.
- (4) Give the depths of any other perforated intervals and detail on the sacks of cement or bridge plugs used to seal off such perforations.
- (5) Give the depth to and 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, P. O. Box 2088, Santa Fe, New Mexico 87501 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.

APPLICATION FOR AUTHORIZATION TO INJECT

III. WELL DATA

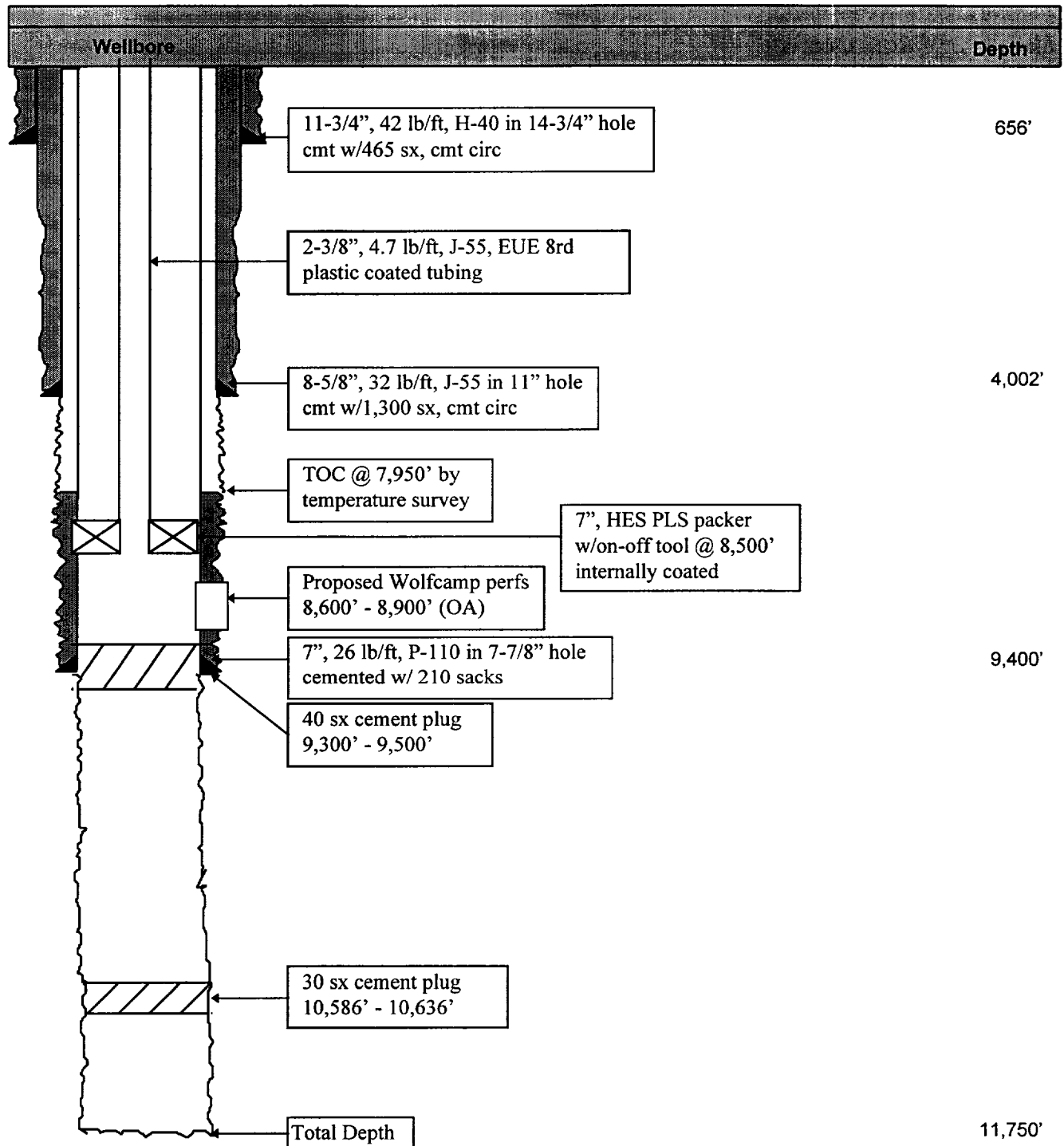
- A. (1) Lease name: Sand Tank "32" State Com.
Well No: 2
Location: Section 32, Township 17 South, Range 30 East
1,650' FSL & 1,650' FEL
- (2) Surface casing: 11-3/4", 42 lb/ft, H-40 @ 656' in 14-3/4" hole
cemented w/465 sacks, circulated
1st intermediate: 8-5/8", 32 lb/ft, J-55 @ 4,002' in 11" hole
cemented w/1,300 sacks, circulated
2nd intermediate: 7", 26 lb/ft, P-110 @ 9,400' in 7-7/8" hole
cemented w/210 sacks
TOC @ 7,950' by temp survey
Open hole 6-1/8" from 9,400' to 11,750'
30 sack cement plug from 10,586' to 10,636'
40 sack cement plug from 9,300' to 9,500'
PBSD - 9,300'
- (3) Injection tubing string: 2-3/8", 4.7 lb/ft, J-55, EUE 8rd @ 8,500'
tubing to be internally plastic coated
- (4) Injection packer: 7", HES PLS @ 8,500' w/ on-off tool (nickel coated)
- B. (1) Name of injection formation: Wolfcamp
Pool or field name: none
- (2) Injection interval: 8,600' - 8,900'
Perforated or open hole: perforated
- (3) Original purpose for drilling well: Morrow test
- (4) Other perforations: none
Open hole interval 9,400' - 11,750' plugged back with 30 sack cement plug
10,586' - 636' and 40 sack plug 9,300' - 9,500'; new PBSD 9,300'
- (5) Oil or gas productive zones in the area:
next higher: Queen
next lower: Morrow

Hal Crabb, III

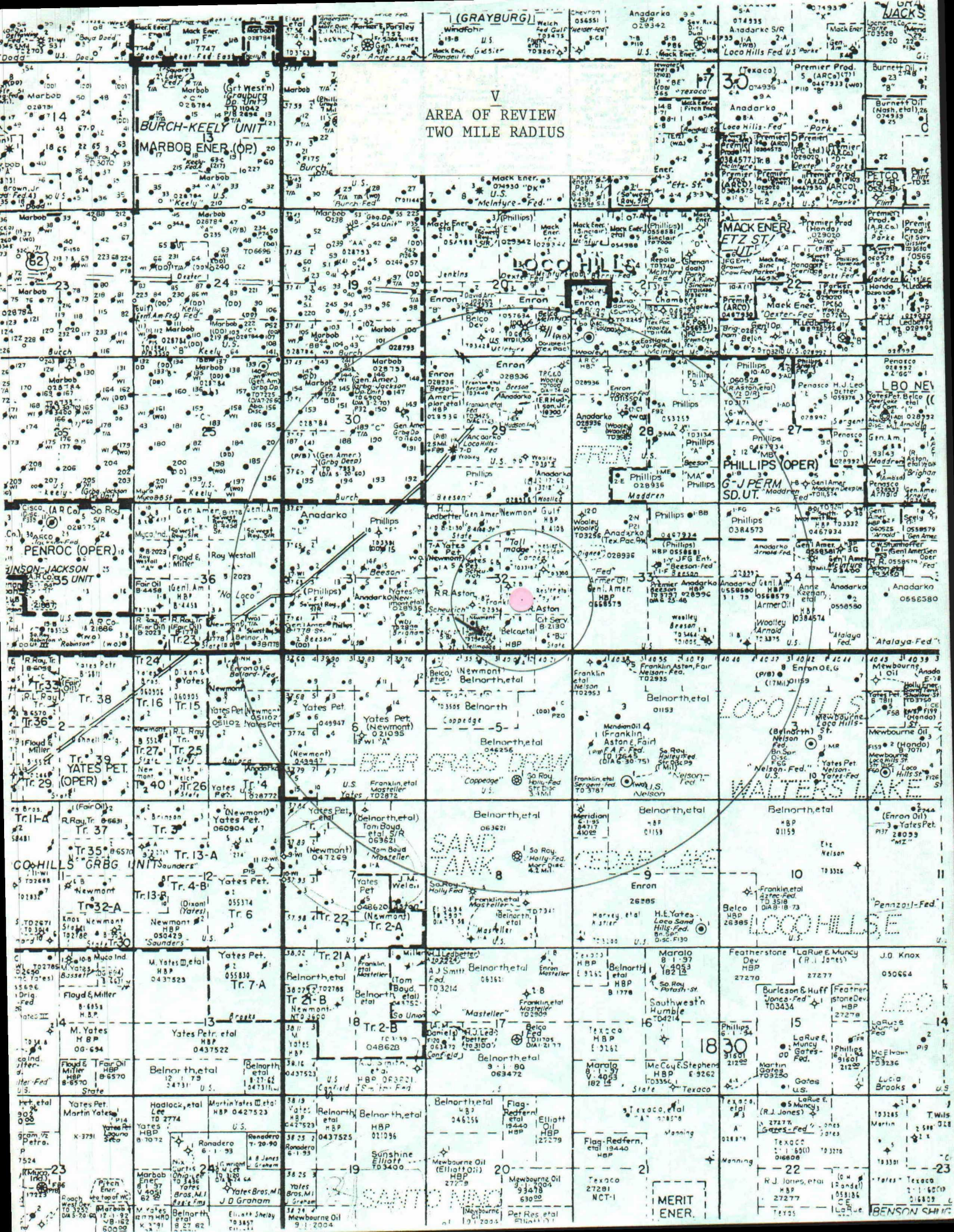
10/14/97

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III
EXHIBIT A
WELL SCHEMATIC



V
AREA OF REVIEW
TWO MILE RADIUS



**APPLICATION FOR AUTHORITY TO INJECT
SAND TANK "32" STATE COM. NO. 2**

VI. Wells penetrating proposed injection zone within area of review (1/2 mile radius)

Number of wells: 1

Well Name: Sand Tank "32" State Com. No. 1

Date Drilled: 08/22/96

Location: 660' FSL & 1,980' FWL
Section 32, T-17-S, R-30-E

Depth: 11,725' TD

Completion: Formation: Morrow (Gas)
Perforations: 11,205 - 11,208'
11,217' -11,222'
11,348' -11,352'
Treatment: Natural (no treatment)

Construction: 11-3/4" 42 lb/ft H-40 ST&C casing @ 666', cmt circ
8-5/8" 32 lb/ft J-55 ST&C casing @ 4,005', cmt circ
5-1/2" 17 lb/ft N-80/L-80/CF-95 casing @ 11,506'
TOC @ 4,725' (ran CBL)
2-7/8" 6.5 lb/ft N-80 tubing @ 11,140'
HES BWB packer w/on-off tool @ 11,140'

Hal Crabb, III

10/14/97

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VI
EXHIBIT A

List of all wells within area of review.

Eddy Co., New Mexico

<u>API</u>	<u>Wellname</u>	<u>Location</u>	<u>Sec.-Twn.-Rng.</u>	<u>Depth</u>
3001504468	Coppedge-Fed. #3	330 FNL & 1980 FWL	18S-30E-5	2866
3001504469	Coppedge-Fed. #4	330 FNL & 2310 FEL	18S-30E-5	2885
3001504420	Scheurich-State #2	2310 FSL & 2310 FEL	17S-30E-32	3160
3001504421	State B #1	1650 FSL & 1650 FWL	17S-30E-32	2934
3001504422	Scheurich-State B#6	2310 FNL & 2310 FWL	17S-30E-32	2893
3001504424	State BX #5	330 FSL & 990 FWL	17S-30E-32	2858
3001504425	State B #7	990 FSL & 2310 FEL	17S-30E-32	2873
3001504426	Tallmadge-State #2	2310 FNL & 2310 FEL	17S-30E-32	2882
3001504427	Tallmadge-State #3	990 FNL & 2310 FEL	17S-30E-32	3135
3001504431	State BU #6	330 FSL & 990 FEL	17S-30E-32	3698
3001504432	Tallmadge-State #4	330 FSL & 2310 FWL	17S-30E-32	2905
3001504434	Scheurich-State B#5	2310 FNL & 1260 FWL	17S-30E-32	2900
3001504436	Scheurich-State B#8	1650 FNL & 1650 FWL	17S-30E-32	3112
3001504437	Scheurich-State B#4	2425 FSL & 1435 FWL	17S-30E-32	2886
3001504439	Tallmadge-State #1	990 FSL & 1650 FWL	17S-30E-32	2870
3001504440	Digneo-Sttate x#1	2250 FNL & 990 FEL	17S-30E-32	3318
3001504447	Taylor-State #1	2310 FNL & 990 FEL	17S-30E-32	3300
3001504461	Scheurich-State B#9	1650 FSL & 990 FWL	17S-30E-32	2922
3001528960	Sand Tank 32 St. #1	660 FSL & 1980 FWL	17S-30E-32	11725

GULF OIL CORP. #1 FEDERAL-GENERAL AMERICAN OIL CO.
EDDY COUNTY NEW MEXICO WILDCAT

Well: GULF OIL CORP. #1 FEDERAL-GENERAL AMERICAN OIL CO Result: (D&A)
Locn:

"E" LOG LIBRARY

(CONTINUED)

15 min SIP 2920%; DST 13,176-241', op 1 hr, weak blow air 30 min, & died, rec 60' drlg mud, NS, FP 0% 15 min SIP 5120%; RB 11,424', swb d 20 BLO/4 hrs, ran 2" 11,392', pkr 11,054', swbd 13 BO/3 hrs, TR/2000 GA 11,149-424', thru open hole, swbd 63 BO & 8 BAW/13 hrs, PB 9210', Perf 160/9100-9140' & 160/9160-9200', ran 2" 9195' w/pkr 9071', swbd 3 BO & 13 BM/99 hrs, swbd 11 BO/5 hrs, Gty 40.0, swbd 15 BO & 2 bllds SW/6 hrs, TR/2000 GA 9100-9200', flwd 157 BO & 16 BAW/4 hrs thru 3/4" ok, Gty 42.0, gas vol 993.3 MCFGPD, flwd 175 BO/21 hrs thru 3/4" ok, TP 75%, for 607-1, tr/6000 GA 9100-9200', swbd 47 BO & 52 bbls SW & AW/24 hrs, swbd 38 BO/24 hrs, swbd 5 BO/24 hrs, swbd 4 BO/24 hrs, swbd 1/2 BO & 1/2 bbls BS/11 1/2 hrs, swbd dry.

Tops: Salt 360', San Andres 2580', Glorietta 4070', Tubb 5540', Abo 6500', Permo-Penn 7532', Miss 11,462', Woodford 12,030', Devonian 12,050', Ellen 13,174'.

In Pinkata
OIL REPORTS:

Date: 3-31-53

Card No: 2C NMC ao

GULF OIL CORP. #1 FEDERAL-GENERAL AMERICAN OIL CO.
EDDY COUNTY NEW MEXICO WILDCAT

Well: GULF OIL CORP. #1 FEDERAL-GENERAL AMER. OIL CO. Result: (D&A)
Locn: NE/part county, Deep test in Grayburg-Jackson Fld, Sec 24-17S-29E, 660' FSL 580' FWL of Section

(DOWNHOLE)

Comp. Info: SIP 1860% DST 7537-70', op 1 hr, rec 10' drlg mud, NS, HP 3940%, FP 0%, 15 min SIP 100%; DST 7570-7607', op 1 hr, rec 10' sul/wtr & 100' SGC drlg mud, no oil HP 3895%, FP 95-140%, 15 min SIP 215 5%; DST 7606-87', op 1 hr, rec 100' drlg mud, NS, FP 0%, 15 min SIP 40%; DST 7838-76', op 1 hr, very lite blow air 30 min & died, rec 10' drlg mud, NS, FP 60%, SIP 0%, HP 3843%; DST 8025-87', op 1 hr rec 170' SGC, NS, FP 60%, SIP 0%; DST 8838-98', op 75 min, fair blo air thruout rec 300' GCM & 100' gas & slt/wtr cut mud, HP 4310%, FP 55%, 15 min SIP 110% DST 8940-9010', op 1 hr, rec 50' drlg mud, NS, FP & SIP 0%, DST 9160-9206' Penn Li; op 1 hr 45 min, gas 7 min, ggd 382,000 CFPD, rec 50' O&GCM, 0% DST 9160-9206' Penn Li; op 1 hr 45 min, gas 7 min, ggd 382,000 CFPD, rec 50' O&GCM, 25% oil & 150' clean oil, Gty 42, no wtr, HP 4610%, FP 370%, 15 min SIP 3450%; DST 9204-38', op 1 hr, rec 75' drlg mud @/tr sul/wtr, no oil, HP 4750%, 15 min SIP 245%. DST 9255-9310' Penn Li; op 1 hr, good blow air thruout, rec 8300' sul/wtr, no oil, HP 4690%, FP 575-3600%, SIP 3600%; DST 9920-70' Penn; op 2 hrs.

In Pinkata
OIL REPORTS:

(Cont'd)

Date: 3-31-53

Card No: 2A NMC ao

GULF OIL CORP. #1 FEDERAL-GENERAL AMERICAN OIL CO.
EDDY COUNTY NEW MEXICO WILDCAT
Well: GULF OIL CORP. #1 FEDERAL-GENERAL AMERICAN OIL CO Result: (D&A)
Locn:

(CONTINUED)

15 min SIP 2920%; DST 13,176-241', op 1 hr, weak blow air 30 min, & died, rec 60' drlg mud, NS, FP 0%; 15 min SIP 5120%; BB 11,424', swb d 20 HLO/4 hrs, ran 2" 11,392', pkr 11,054', swbd 13 BO/3 hrs, TR/2000 GA 11,149-424', thru open hole, swbd 63 BO & 8 BAW/13 hrs, PB 9210', Perf 160/9160-9140' & 160/9160-9200', ran 2" 9195' w/pkr 9071', swbd 3 BO & 13 BM/99 hrs, swbd 11 BO/5 hrs, Gty 40.0, swbd 15 BO & 2 bbls SW/6 hrs, TR/2000 GA 9100-9200', flwd 157 BO & 16 BAW/4 hrs thru 3/4" ok, Gty 42.0, gas vol 993.3 MCF/GPD, flwd 175 BO/21 hrs thru 3/4" ok, TP 75%, for 607-1, tr/6000 GA 9100-9200', swbd 47 BO & 52 bbls SW & AW/24 hrs, swbd 38 BO/24 hrs, swbd 5 BO/24 hrs, swbd 4 BO/24 hrs, swbd 1/2 BO & 1/2 bbls BS/11 1/2 hrs, swbd dry.
Tops: Salt 360', San Andres 2580', Glorietta 4070', Tubbs 5540', Abn 6500', Permo-Penn 7532', Miss 11,462', Woodford 12,030', Devonian 12,050', Ellen 12,174'.

La Barta
OIL REPORTS:

Date: 3-31-53

Card No: 2C

NMC

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GULF OIL CORP. #1 FEDERAL-GENERAL AMERICAN OIL CO.
EDDY COUNTY NEW MEXICO WILDCAT
Well: GULF OIL CORP. #1 FEDERAL-GENERAL AMERICAN OIL CO. Result: (D&A)
Locn: Ne/part county, Deep test in Grayburg-Jackson Fld, Sec 24-173-29E, 660' FSL 560' FWL of Sec.

(CONTINUED)

Comp Info: gas 38 min, rec 190' GCM, Hp 5275%, 30 min SIP 1190%, FP 50%; DST 10,768-825', op 1 hr, lite blow air 30 min & died, rec 90' drlg mud, NS, HP 5670%, FP 40%, 15 min SIP 145%; DST 10,768-825', op 1 hr, rec 90' mud, FP 40%, SIP 145%/15 min; CRD 11, 261-271', rec 2 1/2' gray blk limy frac sh, bldg gas; DST 11, 173-271', Lower Penn Snd; op 2 hrs, gas 6 min, 862,000 CFPD, rec 150' dist, Gty 55, 90' drlg mud, out 20% dist, HP 5925%, FP 725%, 15 min SIP 2060%; CRD 11, 277-334', rec 58' ; 24' hard blk limy sh, 9' blk Carbonaceous sh, bldg gas, 11' blk sh med xln lime, 1 1/2' sli cal. 11 1/2' med xln lime; DST 11, 277-334', gas 12 min, rec 180' HGCM no oil or wtr, HP 6220%, FP 370-620%; DST 11, 344-400', op 2 hrs, gas 13 min, 61,900 CFPD, rec 350' highly GCM, no oil or wtr, HP 6030%, FP 145%, 15 min SIP 860%; DST 11, 400-466' op 1 hr, weak blow air thruout, rec 90' drlg mud, NS, HP 6145%, 15 min SIP 90%; DST 12, 055-125', op 1 hr, weak blow thruout, rec 120' drlg mud, NS, HP 6260%, FP 95%, 15 min SIP 4025%; DST 12, 135-190'; op 2 hrs, good to fair blow thruout, rec 4940' SW, HP 6495%, FP 290-2205%, 15 min SIP 3895%; DST 12, 400-470', op 1 hr, rec 280' drlg mud, NS, FP 150%

La Barta
OIL REPORTS:

Date: 3-31-53

Card No: 2B

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GULF OIL CORP. #1 FEDERAL-GENERAL AMERICAN OIL
EDDY COUNTY NEW MEXICO WILDCAT
Well: GULF OIL CORP. #1 FEDERAL-GENERAL AMER. OIL CO. Result: (D&A)
Locn: NE/part county, Deep test in Grayburg-Jackson Fld, Sec 24-17S-29E, 660'
FSL 560' FWL of Section

(CONTINUED)

Comp. Info: SIP 1890% DST 7537-70', op 1 hr, rec 30' drlg mud, NS, HP 3940%, FP 0%, 15 min SIP 100%; DST 7570-7607; op 1 hr, rec 90' sul/wtr & 100' SGC drlg mud, no oil HP 3895%, FP 95-140%, 15 min SIP 215 5%; DST 7606-87', op 1 hr, rec 100' drlg mud, NS, FP 0%, 15 min SIP 40%; DST 7838-75', op 1 hr, very lite blow air 30 min & died, rec 10' drlg mud, NS, FP 60%, SIP 0%, HP 3843%; DST 8025-87', op 1 hr rec 170' SGCM, NS, FP 60%, SIP 0%; DST 8838-98', op 75 min, fair blo air thruout rec 300' GCM & 100' gas & slt/wtr cut mud, HP 4310%, FP 55%, 15 min SIP 110% DST 8940-9010', op 1 hr, rec 50' drlg mud, NS, FP & SIP 0%, DST 9160-9206' Penn Li; op 1 hr 45 min, gas 7 min, ggd 382,000 CFPD, rec 50' O&GCM, 0% DST 9160-9206' Penn Li; op 1 hr 45 min, gas 7 min, ggd 382,000 CFPD, rec 50' O&GCM, 25% oil & 150' clean oil, Gty 42, no wtr, HP 4610%, FP 370%, 15 min SIP 3450%; DST 9204-38', op 1 hr, rec 75' drlg mud w/tr sul/wtr, no oil, HP 4750%, 15 min SIP 245% DST 9255-9310' Penn Li; op 1 hr, good blow air thruout, rec 8300' sul/wtr, no oil, HP 4690%, FP 575-3600%, SIP 3600%; DST 9920-70' Penn; op 2 hrs.

E. B. Smith
OIL REPORTS:

(Cont'd.)

Date: 3-30-53

Card No: 2A

NMC

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PAUL E. HASKINS

GULF OIL CORP. #1 FEDERAL-GENERAL AMERICAN OIL CO.
EDDY COUNTY NEW MEXICO WILDCAT
Well: GULF OIL CORP. #1 FEDERAL-GENERAL AMERICAN OIL CO. Result: (D&A)
Locn: NE/part county, Deep test in Grayburg-Jackson Fld, Sec 24-17S-29E, 660'
FSL 560' FWL of Sec.

(CONTINUED)

Comp Info: gas 38 min, rec 190' GCM, HP 5275%, 30 min SIP 1130%, FP 50%; DST 10,768-825', op 1 hr, lite blow air 30 min & died, rec 90' drlg mud, NS, HP 5670%, FP 40%, 15 min SIP 145%; DST 10,768-825'; op 1 hr, rec 90' mud, FP 40%, SIP 145%/15 min; CRD 11, 261-271', rec 2 1/2' gray blk limy frac sh, bldg gas; DST 11, 173-271', Lower Penn Snd; op 2 hrs, gas 6 min, 852,000 CFPD, rec 150' ddst, Gty 55, 90' drlg mud, cut 20% dist, HP 5925%, FP 725%, 15 min SIP 2060%; CRD 11, 277-334', rec 58' ; 24' hard blk limy sh, 9' blk carbonaceous sh, bldg gas, 11' blk sh med xln lime, 1 1/2' sli cal. 1 1/2' med xln lime; DST 11, 271-344', gas 12 min, rec 180' HGCM no oil or wtr, HP 6220%, FP 370-620%; DST 11, 344-400', op 2 hrs, gas 13 min, 61,900 CFPD, rec 350' highly GCM, no oil or wtr, HP 6030%, FP 145%, 15 min SIP 860%; DST 11, 400-466' op 1 hr, weak blow air thruout, rec 90' drlg mud, NS, HP 6145%, 15 min SIP 90%; DST 12, 055-125', op 1 hr, weak blow thruout, rec 120' drlg mud, NS, HP 6260%, FP 95%, 15 min SIP 4025%; DST 12, 135-190'; op 2 hrs, good to fair blow thruout, rec 4940' SW, HP 6495%, FP 290-2205%, 15 min SIP 3895%; DST 12, 400-470', op 1 hr, rec 280' drlg mud, NS, FP 150%

E. B. Smith
OIL REPORTS:

(Cont'd.)

Date: 3-31-53

Card No: 2B

NMC

ao

PAUL E. HASKINS

EDDY COUNTY

GULF OIL CORP. #1 FEDERAL-GENERAL AMERICAN OIL CO.

NEW MEXICO

WILDCAT

Well: GULF OIL CORP. #1 FEDERAL-GENERAL AMERICAN OIL CO Result: (D&A)

Locn: NE/part county, Deep test in Grayburg-Jackson Fld, Sec 24-17S-29E, 660'

FSL 560' FWL of Section

Spud: 4-25-52 Comp: 3-19-53; Elev: 3600' DF TD: 13,341', PBD 9210'

Casing: 13 3/8" 310'/600 sx, 9 5/8" 3452'/2350sx, 7" 11,149'/515 sx

Prod Zone: None

IP: None

Comp Info: DST 6249-6337', op 1 hr, rec 480' mud, NS, FP 70-285%, SIP
 C%; DST 7102-54', op 1 hr, weak blow air 30 min & died, rec 35' mud,
 NS, FP 30%, 15 min SIP 120%; DST 7205-7340', op 90 min, gas 35 min,
 5100 CFDP, dec to small blow at end of tst, rec 205' GCM, NS, FP 60%
 15 min SIP 370%; DST 7340-80', op 1 hr, weak blow air 12 min & died,
 rec 150' drlg mud, sli gas cut, no oil or wtr, FP 3750%, FP 55%, SIP
 C%, CRD 7416-42', rec 3' dolo w/sli gas odor, 6" fine xln dolo w/fine
 poro & sli bldg & good odor, 2" fine sln dolo w/good odor, 1 1/2' dolo
 w/fair vug poro w/good stn & odor, 1' dolo w/fair poro frac & oil
 stn, 11' dolo w/scatt sh partings & oil stn, 1 1/2' dolo w/good vug
 poro odor & stn, 1' dolo w/fair poro & stn bldg oil, 6" dolo w/fair
 poro & stn & 6" dolo, fine vug poro w/good odor, 4 1/2' fine xln dolo w/
 scatt sh partings & 1 1/2' gray dolo w/some odor & stn; DST 7392-7442',
 op 2 hrs, rec 300' SGCM, FP 90%, 15 min SIP 520%; DST 7442-92',
 op 1 hr, gas 11 min, rec 750' sul/wtr w/sli tr oil, FP 0-150%, 15 min

J. R. Baker (CONTINUED)
 OIL REPORTS: Date: 3-31-53

Card No: 2 NMC ao

EDDY COUNTY

GULF OIL CORP. #1 FEDERAL-GENERAL AMERICAN OIL CO.

NEW MEXICO

WILDCAT

Well: GULF OIL CORP. #1 FEDERAL-GENERAL AMERICAN OIL CO Result: (D&A)

Locn: NE/part county, Deep test in Grayburg-Jackson Fld, Sec 24-17S-29E, 660'

FSL 560' FWL of Section

Spud: 4-25-52 Comp: 3-19-53; Elev: 3600' DF TD: 13,341', PBD 9210'

Casing: 13 3/8" 310'/600 sx, 9 5/8" 3452'/2350sx, 7" 11,149'/515 sx

Prod Zone: None

IP: None

Comp Info: DST 6249-6337', op 1 hr, rec 480' mud, NS, FP 70-285%, SIP
 C%; DST 7102-54', op 1 hr, weak blow air 30 min & died, rec 35' mud,
 NS, FP 30%, 15 min SIP 120%; DST 7205-7340', op 90 min, gas 35 min,
 5100 CFDP, dec to small blow at end of tst, rec 205' GCM, NS, FP 60%
 15 min SIP 370%; DST 7340-80', op 1 hr, weak blow air 12 min & died,
 rec 150' drlg mud, sli gas cut, no oil or wtr, HP 3750%, FP 55%, SIP
 C%, CRD 7416-42', rec 3' dolo w/sli gas odor, 6" fine xln dolo w/fine
 poro & sli bldg & good odor, 2" fine sln dolo w/good odor, 1 1/2' dolo
 w/fair vug poro w/good stn & odor, 1' dolo w/fair poro frac & oil
 stn, 11' dolo w/scatt sh partings & oil stn, 1 1/2' dolo w/good vug
 poro odor & stn, 1' dolo w/fair poro & stn bldg oil, 6" dolo w/fair
 poro & stn & 6" dolo, fine vug poro w/good odor, 4 1/2' fine xln dolo w/
 scatt sh partings & 1 1/2' gray dolo w/some odor & stn; DST 7392-7442',
 op 2 hrs, rec 300' SGCM, FP 90%, 15 min SIP 520%; DST 7442-92',
 op 1 hr, gas 11 min, rec 750' sul/wtr w/sli tr oil, FP 0-150%, 15 min

J. R. Baker (CONTINUED)
 OIL REPORTS: Date: 3-31-53

Card No: 2 NMC ao

EDDY COUNTY NEW MEXICO GRAYBURG (ATOKA-PENN) FLD

Well: MORAN OIL PROD. & DRLG. CORP. 1 Dodd (Formerly filed as Result: D&A D
Loc'n: 1 Atoka-Penn)
20 mi E/Artesia; 1980 FSL 1880 FEL sec 22-17S-29E.

Spud: 3-31-71; Comp: 4-28-71; Elev: 3551' grd; TD: 10,880'

Casing: 13 3/8" 282' / 250 sx, 8 5/8" 3500' / 400 sx

Comp Info: No cores or DST's reported; C/Co. Rig

Top: NR

API No.: 30-015-20408

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Petroleum Information Corporation

CORPORATION

A Subsidiary of A.C. Nielsen Company

Date: 7-28-71

Card No.: 3 rm

EDDY S E NEW MEXICO REISSUE EMPIRE SOUTH DG

FINA OIL & CHEMICAL
1 MUSKEGON "16" STATE COM (API 30-015-27108)

STATUS: GAS

LOC'N: SEC 16 T17S R29E SE SW 660 FSL 1980 FWL SEC, 6 MI W LOCO HILLS, TX ;
(VERTICAL)

SPUD: 10/04/92 COMP: 12/31/92 EL: 3589 KB 3577 GR DTD: 10905 (MISSISSIPPIAN) PBTD: 10875
CONTR: PETERSON DRLG RIG #4

CSG/LNR/TBG: 13 3/8 @ 440 W/500 SX, 9 5/8 @ 2650 W/1100 SX, 5 1/2 @ 10905 W/2610 SX, 2 3/8 @ 10480;

RESULT: IPF 1634 MCFGPD, CAOF 2105, GTY 46.3, GAS GTY .682, GLR 761, SITP 3200, BHSIP 3213 PROD ZONE - MORROW 10645-10684 NO CORES OR DSTS RPTD

COMP INFO: LOG TYPES: CBL, CDL, CNL, DLL, GRL, MCL; PRODUCING INTERVAL(S)
DATA: PERF (MORROW M) 10738-10749 W/48 SHOTS, PERF (MORROW L) 10794-10812 W/76 SHOTS, PERF (MORROW U) 10645-10684 W/56 SHOTS GROSS, 10645-10647, 10659-10661, 10675-10684, ACID (10645-10684) W/ 2500 GALS, 7 1/2% HCL, SDFR (10738-10749) W/ 2000 GALS, 7 1/2% HCL ACID (10794-10812) W/ 2000 GALS, 7 1/2% HCL, SDFR (10794-10812) W/ 22000 LBS SAND, 20/40 SD POINT TEST: 96/64 CK 707 MCFD, TP 2690, BHFP 2706, 1ST THRU 4TH PT TEST IN 60 MINS 96/64 CK 1032 MCFD, TP 2220, BHFP 2240, 96/64 CK 1431 MCFD, TP 1870, BHFP 1899,

(OVER)

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DATE 07/12/93 CARD #00001-N MEX

→ over →

Find/ET 2 ush 2476 16
96/64 CK 1634 MCFD, TP 1480, BHFP 1520, BHSIP 3213, CAOF 2105 MCFD, RESV: MORROW, RIG
REL: 11/01/92

LOG TOPS: SALT 720, YATES 910, QUEEN 1738, SAN ANDRES 2394, ABO 6050, WOLFCAMP 7140,
CISCO 8772, CANYON 9558, STRAWN 9918, ATOKA 10170, MISSISSIPPIAN 10822;

DATE 07/12/93 CARD #00001-N MEX

EDDDY COUNTY NEW MEXICO GRBG FIELD
Well: ATLANTIC RICHFIELD CO.1 Robinson Gas Com. Result: GAS DG
Locn: 4mi W/LoCo Hills, Sec27-17S-29E-1850 FNL-660 FWL Sec
Spud: 2-13-77, Comp: 5-18-77, Elev: 3547' GL, TD: 11,063 (MSSF) PB: 10,999
Casing: 20-190'/350sx, 13 3/8" 750'/650sx, 8 5/8" 3470'/975sx, 5 1/2
11,062-1020sx
Prod Zone: (MRRW) T/Pay 10,911', Prod thru Perfs 10,911-929'
IPCAOF: 7198 MCFGPD, Gty (Gas) .672, GOR 50,976, (Cond) 53.3, SIWHP 3535,
SIBHP (NR)
Comp Info: Ran DILL, CNDL, FDC logs; Perf (Cisco) 9179-84 w/2 SPF, S/145
BW/10mins, Sqz/100sx, Perf (Abo) 6482-86, 6490-96, w/2 SPF, A/4000
gals, S/88 BLW+76 BW w/tr oil 11hrs, Sqz/100sx, DO to 10,999, Perf
(MRRW) @10,911-10,929 w/1 SPI (OA) CAOF 7198 MCFGPD, (MRRW) 4PT: F/
1403 MCFGPD, 9/64ch, 90mins, TP 3260, F/1836 MCFGPD, 10/64ch, 60mins, T/
3152, F/2311 MCFGPD, 12/64ch, 60mins, TP 3015, F/3014 MCFGPD, 14/64ch,
60mins, TP 2779, BHT 138 deg, C/Ard Drlg
Tops: (EL) NR
API No: 30-015-22037

Replaces card#5, dated 6-15-77
to amend location, orig reported as
1850 FNL, 660 FEL Sec
Date: 11-11-81 Card No 47 mja



Petroleum Information

CORPORATION

(Incorporated in the State of New Mexico)

EDDY

S E NEW MEXICO

EDDY CO UNDESIGNATED

U

MACK ENERGY

STATUS: SER

WD-1 MUSKEGON '16' STATE COM (API 30-015-27108-0001)

LOC'N: SEC 16 T17S R29E SE SW 660 FSL 1980 FWL SEC, 6 MI W LOCO HILLS, NM ;
(VERTICAL) OWWO: OLD INFO: FORMERLY FINA OIL & CHEMICAL 1 MUSKEGON '16' STATE COM.
ELEV 3577 GR, 3589 KB. SPUD 10/4/92. 13 3/8 @ 440 W/500 SX, 9 5/8 @ 2650 W/1100 SX, 5 1/2 @
10905 W/2610 SX. LOG TOPS: STRAWN 9918, ATOKA 10170, MISSISSIPPIAN 10822. OTD 10905. PB
10875. COMP 12/31/92. IPCAOF 2105 MCFGPD. PROD ZONE: MORROW 10645-10812;

SPUD: 06/07/96 **COMP:** 06/19/96 **EL:** 3577 GR **DTD:** 10905 (MISSISSIPPIAN) **PBTD:** 10570
CONTR: NOT RPTD

CSG/LNR/TBG: 2 7/8 @ 8852;

RESULT: WDW DISP ZONE - CISCO 8917-9231 (GROSS)

COMP INFO: PROD TEST(S): PERF (MORROW U) 10645-10684 PERF (MORROW M)
10738-10749 PERF (MORROW L) 10794-10812 10645-10684, 10738-10749, 10794-10812, BRPG
10570 PERF (CISCO), 8917-8918, 8924-8934, 8943-8947, 8978-8982, 9030-9032, 9180-9191,
9217-9231, W/98 SHOTS, ACID (8917-9231) W/ 4000 GALS, 15% NE,

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DATE 08/26/96 CARD #00001-N MEX

EDDY

S E NEW MEXICO

EMPIRE SOUTH

D

FINA OIL & CHEMICAL

STATUS: TA

1 MUSKEGON "16" STATE COM (API 30-015-27108)

LOC'N: SEC 16 T17S R29E SE SW 660 FSL 1980 FWL SEC, 6 MI W LOCO HILLS, TX ;
(VERTICAL)

SPUD: 10/05/92 **COMP:** 04/27/93 **EL:** 3577 GR **DTD:** 11500 (MORROW) **CONTR:** PETERSON DRLG
RIG #4

CSG/LNR/TBG: CSG-NO DETAILS;

RESULT: TEMP ABND NO CORES OR DSTS RPTD

COMP INFO: RIG REL: 11/10/92

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DATE 05/10/93 CARD #00003-N MEX

**APPLICATION FOR AUTHORIZATION TO INJECT
SAND TANK "32" FED. COM. NO. 2**

VII. DATA FOR PROPOSED OPERATION

1. proposed average daily rate: 300 BWPD
proposed maximum daily rate: 1,000 BWPD
2. open system
3. proposed average injection pressure: 500 psig
proposed maximum injection pressure: 1,800 psig
4. source of injection water: produced water from nearby Enron operated Sand Tank Morrow and Atoka wells.
water analysis: a tabulation of all wells disposing into this zone, along with available water analysis, is attached as Exhibit I.
5. chemical analysis of formation water of disposal zone is attached as Exhibit II.

VIII. geological data of injection zone

lithologic detail: dolomite, very fine - fine crystalline, dense in part, off white, buff to light gray
geological name: Wolfcamp
thickness: 1,754'
depth to top: 8,200'
depth to bottom of underground sources of drinking water above proposed injection interval: Rustler @ 230', Triassic @ 60'
below proposed injection interval: none

IX. Proposed stimulation program: 2,500 gallons 15% HCL acid

X. Logging and test data on SWD well: severe lost circulation encountered when drilling through Wolfcamp 8,600' to 8,900'. Well logs have already been filed with OCD. Logging program included CNL/LDT, DIL.

XI. Chemical analysis of water from fresh water wells within one mile of disposal well: State Engineer's Office, State of New Mexico records indicate there are no fresh water wells within area of review (as per conversation 07/17/97 w/Ken Fresquez)

XII. I have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the diposal zone and any underground source of drinking water.

XIII. Commercial Intent: Initially, only water from Enron operated wells will be disposed of in the subject well. It is possible in the future that Enron will take water from other leases in the area operated by others.

Hal Crabb, III

10/14/97

m:\word\projects\st322ocd.doc

**APPLICATION FOR AUTHORIZATION TO INJECT
SAND TANK "32" FED. COM. NO. 2
WATER ANALYSIS**

VII.4
EXHIBIT A

WELL NAME	FORMATION	BWPD	WATER ANALYSIS?
Duggan "12" Fed. Com. No. 1	Morrow	0.5	no
Ranger "7" Fed. Com. No. 1	Morrow	1	yes
Sand Tank "1" Fed. Com. No. 1	Morrow	10	yes
Sand Tank "5" Fed. Com. No. 1	Strawn	0.3	yes
Sand Tank "6" Fed. Com. No. 1	Atoka	0	yes
	Morrow	200	yes
Sand Tank "7" Fed. Com. No. 1	Morrow	2	yes
	Chester	1	yes
Sand Tank "32" St. Com. No. 1	Morrow	0	no
Sand Tank "36" Fed. Com. No. 1	Morrow	0.5	yes
TOTAL		215.3	

P.O. BOX 1488
MONAHANS, TEXAS 79756
PH. 243-3234 OR 563-1040

Martin Water Laboratories, Inc.

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

RESULT OF WATER ANALYSES

TO: Mr. C.B. Lackey
P.O. Box 2267, Midland, TX 79702-2267

LABORATORY NO. 59791
SAMPLE RECEIVED 5-12-97
RESULTS REPORTED 5-16-97

COMPANY Enron Oil & Gas Company LEASE Ranger 7 Federal Com. #1
FIELD OR POOL Sand Dunes
SECTION BLOCK SURVEY COUNTY STATE

SOURCE OF SAMPLE AND DATE TAKEN:

NO. 1 Produced water - taken from Ranger 7 Federal Com. #1.

NO. 2 _____

NO. 3 _____

NO. 4 _____

REMARKS: _____ MORROW

[illegible]

Results Reported As Milligrams Per Liter

Additional Determinations And Remarks	It is apparent herein this is essentially all condensed water vapor.
---------------------------------------	--

Figure 22.3

By Waylan C. Martin, M.A.

RESULT OF WATER ANALYSES

TO: Mr. Jerry Ball LABORATORY NO. 197203
P. O. Box 2267, Midland, TX 79702 SAMPLE RECEIVED 1-31-97
RESULTS REPORTED 1-31-97

COMPANY Enron Oil & Gas Company LEASE Sand Tank #6-1

FIELD OR POOL _____

SECTION _____ BLOCK _____ SURVEY _____ COUNTY Eddy STATE NM

SOURCE OF SAMPLE AND DATE TAKEN:

NO. 1 Produced (Atoka) water - taken from Sand Tank #6-1.

NO. 2 Produced (Morrow) water - taken from Sand Tank #6-1.

NO. 3 _____

NO. 4 _____

REMARKS: _____

CHEMICAL AND PHYSICAL PROPERTIES				
	NO. 1	NO. 2	NO. 3	NO. 4
Specific Gravity at 60° F.	1.0040	1.0247		
pH When Sampled				
pH When Received	6.24	6.65		
Bicarbonate as HCO ₃	329	891		
Supersaturation as CaCO ₃	0	120		
Undersaturation as CaCO ₃	--	--		
Total Hardness as CaCO ₃	170	2,450		
Calcium as Ca	48	760		
Magnesium as Mg	12	134		
Sodium and/or Potassium	1,293	12,278		
Sulfate as SO ₄	104	366		
Chloride as Cl	1,846	19,880		
Iron as Fe	137	32.8		
Barium as Ba	0			
Turbidity, Electric				
Color as Pt				
Total Solids, Calculated	3,632	34,308		
Temperature °F.				
Carbon Dioxide, Calculated	361	365		
Dissolved Oxygen,				
Hydrogen Sulfide	0.0	0.0		
Resistivity, ohms/m at 77° F.	1.61	0.232		
Suspended Oil				
Filtrable Solids as mg/l				
Volume Filtered, ml				

Results Reported As Milligrams Per Liter

Additional Determinations And Remarks The objective herein is to evaluate compatibility between these two waters. A careful study has revealed no evidence of any potential scaling or precipitation that would be expected to result from mixing these waters in any proportions; therefore, we clearly consider them compatible.

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

RESULT OF WATER ANALYSES

TO: Mr. C.B. Lackey
P.O. Box 2267, Midland, TX 79702-2267

LABORATORY NO.	<u>59792</u>
SAMPLE RECEIVED	<u>5-12-97</u>
RESULTS REPORTED	<u>5-16-97</u>

COMPANY Enron Oil & Gas Company LEASE Sand Tank
FIELD OR POOL Sand Tank
SECTION _____ BLOCK _____ SURVEY _____ COUNTY _____ STATE _____

SOURCE OF SAMPLE AND DATE TAKEN:

NO.1 Produced water - taken from Sand Tank 1 Federal #1.

NO.2 Produced water - taken from Sand Tank 6 Federal #1.

NO.3 _____

NO.4 _____

REMARKS: _____ Morrow

CHEMICAL AND PHYSICAL PROPERTIES				
	NO. 1	NO. 2	NO. 3	NO. 4
Specific Gravity at 60° F.	0.0226	0.0263		
pH When Sampled				
pH When Received	7.18	7.77		
Bicarbonate as HCO ₃	695	976		
Supersaturation as CaCO ₃				
Undersaturation as CaCO ₃				
Total Hardness as CaCO ₃	2,750	2,300		
Calcium as Ca	920	780		
Magnesium as Mg	109	85		
Sodium and/or Potassium	11,387	12,136		
Sulfate as SO ₄	390	339		
Chloride as Cl	18,815	19,525		
Iron as Fe	89.7	10.5		
Barium as Ba				
Turbidity, Electric				
Color as Pt				
Total Solids, Calculated	32,316	33,842		
Temperature °F.				
Carbon Dioxide, Calculated				
Dissolved Oxygen,				
Hydrogen Sulfide	0.0	0.0		
Resistivity, ohms/m at 77° F.	0.242	0.235		
Suspended Oil				
Filtrable Solids as mg/l				
Volume Filtered, ml				

Results Reported As Milligrams Per Liter

Additional Determinations And Remarks The above results from Sand Tank 1 Federal #1 show a significant increase in sodium chloride as compared to the water from this well received on 12-14-96 and reported on laboratory #1296109. The characteristics of the water at this time are essentially identical to those from Sand Tank 6 Federal #1 reported herein. The water from Sand Tank 6 Federal #1 shows no significant change as compared to the Morrow water from this well reported on laboratory #197203 (1-31-97).

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

RESULT OF WATER ANALYSES

TO: Mr. C. B. Lackey LABORATORY NO. 296217
P O Box 2267, Midland, TX 79702 SAMPLE RECEIVED 2-28-96
 RESULTS REPORTED 3-4-96

COMPANY Enron Oil & Gas Company LEASE Sand Tank 5 Federal Com. #1
FIELD OR POOL Sand Dunes
SECTION 5 BLOCK 2 SURVEY T-18S & R-38 COUNTY Eddy STATE NM

SOURCE OF SAMPLE AND DATE TAKEN:

NO.1 Produced water —taken from Sand Tank 5 Federal Com. #1.

NO. 2 _____

NO. 3 _____

NO. 4 _____

REMARKS: Strawn

CHEMICAL AND PHYSICAL PROPERTIES				
	NO. 1	NO. 2	NO. 3	NO. 4
Specific Gravity at 60° F.	1.0288			
pH When Sampled				
pH When Received	5.99			
Bicarbonate as HCO ₃	195			
Supersaturation as CaCO ₃				
Undersaturation as CaCO ₃				
Total Hardness as CaCO ₃	8,200			
Calcium as Ca	2,840			
Magnesium as Mg	267			
Sodium and/or Potassium	10,450			
Sulfate as SO ₄	206			
Chloride as Cl	21,661			
Iron as Fe	692			
Barium as Ba	0			
Turbidity, Electric				
Color as Pt				
Total Solids, Calculated	35,619			
Temperature °F				
Carbon Dioxide, Calculated				
Dissolved Oxygen				
Hydrogen Sulfide	0.0			
Resistivity, ohm/cm at 77° F.	0.222			
Suspended Oil				
Filtrable Solids as mg/l				
Volume Filtered, ml				

Results Reported As Milligrams Per Liter

Additional Determinations And Remarks - The above water has similar ratios of salts to our nearest records of Strawn some 5 miles to the north, but the levels of the salts are substantially lower than we would expect from natural Strawn. Therefore, it is possible that this is Strawn water diluted to about one third its normal salt levels by a low-salinity water.

TO: Mr. Hal Crabb
P.O. Box 2267, Midland, TX 79702

LABORATORY NO. 697153
SAMPLE RECEIVED 6-24-97
RESULTS REPORTED 6-25-97

COMPANY Enron Oil & Gas Company

LEASE Sand Tank

FIELD OR POOL Sand Tank

SECTION _____ BLOCK _____ SURVEY _____ COUNTY Eddy STATE NM

SOURCE OF SAMPLE AND DATE TAKEN:

NO. 1 Produced water - taken from Sand Tank 6 Federal Com. #1. 6-23-97

NO.2 Produced water - taken from Sand Tank 36 State Com. #1. 6-23-97

NO. 3

NO. 4

REMARKS: _____ Morrow

CHEMICAL AND PHYSICAL PROPERTIES				
	NO. 1	NO. 2	NO. 3	NO. 4
Specific Gravity at 60° F.	1.0357	1.0022		
pH When Sampled				
pH When Received	6.90	6.87		
Bicarbonate as HCO ₃	787	427		
Supersaturation as CaCO ₃				
Undersaturation as CaCO ₃				
Total Hardness as CaCO ₃	3,275	50		
Calcium as Ca	1,060	10		
Magnesium as Mg	152	6		
Sodium and/or Potassium	15,557	214		
Sulfate as SO ₄	394	5		
Chloride as Cl	25,560	114		
Iron as Fe	946	247		
Barium as Ba		0		
Turbidity, Electric				
Color as Pt				
Total Solids, Calculated	43,510	776		
Temperature °F.				
Carbon Dioxide, Calculated				
Dissolved Oxygen,				
Hydrogen Sulfide	0.0	0.0		
Resistivity, ohms/m at 77° F.	0.185	10.99		
Suspended Oil				
Filtrable Solids as mg/l				
Volume Filtered, ml				

Results Reported As Milligrams Per Liter

Additional Determinations And Remarks In comparing these waters with our records in this field, we find the water from Federal Com. #1 correlates well with being essentially all natural Morrow. However, the water from State #1 is indicated to be essentially all condensed water vapor.

RESULT OF WATER ANALYSES

TO: Mr. J. C. Ball LABORATORY NO. 59737
P.O. Box 2267, Midland, TX 79702 SAMPLE RECEIVED 5-7-97
RESULTS REPORTED 5-9-97

COMPANY Enron Oil & Gas Company LEASE Sand Tank 7 Federal #1
FIELD OR POOL Sand Tank
SECTION _____ BLOCK _____ SURVEY _____ COUNTY Eddy STATE NM

SOURCE OF SAMPLE AND DATE TAKEN:

NO. 1 Produced (Chester) water - taken from Sand Tank 7 Federal #1. 5-7-97

NO. 2 Produced (Morrow) water - taken from Sand Tank 7 Federal #1. 5-7-97

NO. 3 _____

NO. 4 _____

REMARKS:

CHEMICAL AND PHYSICAL PROPERTIES				
	NO. 1	NO. 2	NO. 3	NO. 4
Specific Gravity at 60° F.	1.0269	1.0026		
pH When Sampled				
pH When Received	7.13	6.97		
Bicarbonate as HCO ₃	610	256		
Supersaturation as CaCO ₃				
Undersaturation as CaCO ₃				
Total Hardness as CaCO ₃	3,400	180		
Calcium as Ca	1,000	34		
Magnesium as Mg	219	23		
Sodium and/or Potassium	12,461	461		
Sulfate as SO ₄	438	10		
Chloride as Cl	20,945	682		
Iron as Fe	101	125		
Barium as Ba	0	0		
Turbidity, Electric				
Color as Pt				
Total Solids, Calculated	35,672	1,465		
Temperature °F.				
Carbon Dioxide, Calculated				
Dissolved Oxygen,				
Hydrogen Sulfide	0.0	0.0		
Resistivity, ohms/m at 77° F.	0.224	4.00		
Suspended Oil				
Filtrable Solids as mg/l				
Volume Filtered, ml				

Results Reported As Milligrams Per Liter

Additional Determinations And Remarks The objective herein is to evaluate compatibility between these two waters. In studying the individual waters and combination of these waters, we find no evidence of any precipitation or scaling potential would be expected to result from mixing these waters in any proportion, therefore indicating these waters are compatible.

ROSWELL GEOLOGICAL SOCIETY SYMPOSIUM

VII.5

EXHIBIT B

Author: Wilbur D. Wilson
Affiliation: Sun Oil Company
Date: November 7, 1966

Field Name: Henshaw-Wolfcamp
Location: Sections 13, 23-26, T-16-S, R-30-E
County & State: Eddy County, New Mexico

Discovery Well: Shell #1 Henshaw Deep Unit, NW/4 Section 24, T-16-S, R-30-E
IPF 171 BOPD + 3% BS&W, GOR 1377,
Complete 12/2/60

Exploration Method Leading to Discovery: 100% seismic

Pay Zone:

Formation Name: Lower Wolfcamp Depth & Datum Discovery Well: 8822' (-4984)
Lithology Description: Limestone, brown-tan, very fine granular, crystalline

Approximate average pay: _____ gross _____ 20 net Productive Area _____ 960 _____ acres

Type Trap: Porosity closure associated with a regional northeast-southwest trending
Lower Wolfcamp - Upper Pennsylvanian carbonate complex.

Reservoir Data:

4.5 % Porosity, 9 Md Permeability, 43 % Sw, _____ % So
Oil: 36 Sour
Gas: Sweet .9093 (calc) gravity
Water: 12,050 Na+K, 920 Ca, 267 Mg, 14,800 Cl, 7,300 SO₄, 1,404 CO₂, or HCO₃, _____ Fe
Specific Gravity 1.014 Resistivity .342 ohms @ 80 °F SP Gr @ 68°F
Initial Field Pressure: 3420 psi @ -4995 datum Reservoir Temp. 129 °F
Type of Drive: Solution gas & partial water drive

Normal Completion Practices: Run DST in prospective pay zone and set casing through producing
interval. Perforating both selective (1 SPF) to mass interval shooting.

Type completion: Flowing Normal Well Spacing _____ 80 _____ Acres

Deepest Horizon Penetrated & Depth: Granite 13,072

Other Producing Formations in Field: None

Production Data:

YEAR	TYPE	No. of wells @ yr. end		PRODUCTION OIL IN BARRELS GAS IN M M C F		YEAR	TYPE	No. of wells @ yr. end		PRODUCTION OIL IN BARRELS GAS IN M M C F	
		Prod.	S.I. or Abd.	ANNUAL	CUMULATIVE			Prod.	S.I. or Abd.	ANNUAL	CUMULATIVE
1960	OIL	1	0	1,561	1,561	1964	OIL	6	1	260,327	713,353
	GAS						GAS				
1961	OIL	3	0	68,451	70,012	1965	OIL	11	2	314,328	1,027,681
	GAS						GAS				
1962	OIL	4	1	138,172	208,184		OIL				
	GAS						GAS				
1963	OIL	6	1	244,842	453,026		OIL				
	GAS						GAS				

XIV
PROOF OF NOTICE
EXHIBIT A

LEASEHOLD OPERATORS:

1. Yates Petroleum Corp.
105 South Fourth Street
Artesia, New Mexico 88210
Attention: Robert Bullock

2. Enron Oil & Gas Co.
P.O. Box 2267
Midland, Texas 79702
Attention: Pat Tower

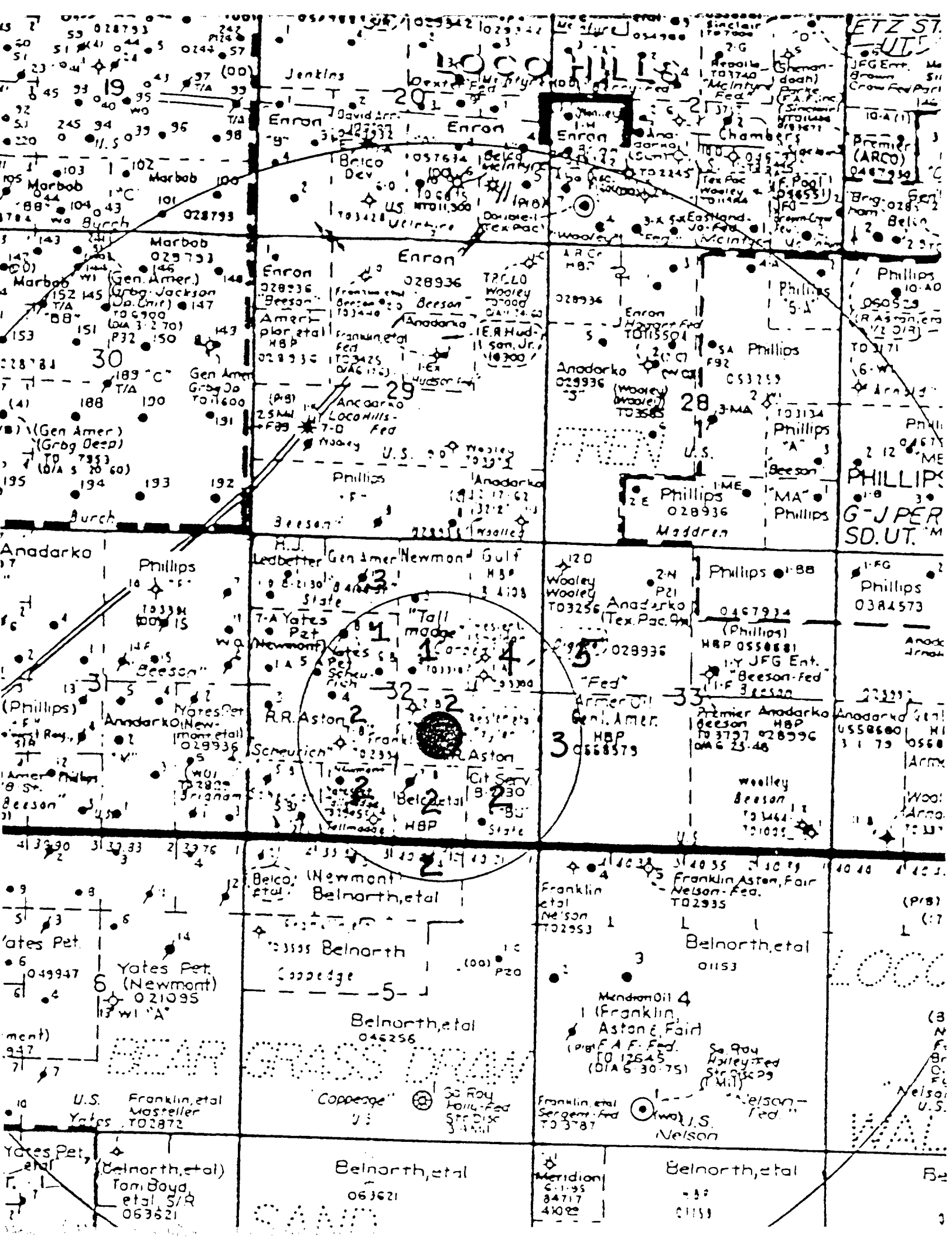
3. Phillips Petroleum Company
4001 Penbrook
Odessa, Texas 79762
Attention: J.S. Welin

4. Chevron USA, Inc.
P.O. Box 1150
Midland, Texas 79702
Attention: Ray Vaden

5. Anadarko Petroleum Corp.
P.O. Box 1330
Houston, Texas 77251-1330
Attention: Patrick Smith
Land Department

SURFACE OWNER:

State of New Mexico
Commissioner of Public Lands
310 Old Santa Fe Trail
Santa Fe, New Mexico 87501



Affidavit of Publication

No. 15966

STATE OF NEW MEXICO,

County of Eddy:

Gary D. Scott being duly sworn, says: That he is the Publisher of The Artesia Daily Press, a daily newspaper of general circulation, published in English at Artesia, said county and state, and that the hereto attached Legal Notice

was published in a regular and entire issue of the said Artesia Daily Press, a daily newspaper duly qualified for that purpose within the meaning of Chapter 167 of the 1937 Session Laws of

the state of New Mexico for 1 consecutive weeks on the same day as follows:

First Publication August 14, 1997

Second Publication _____

Third Publication _____

Fourth Publication _____

Subscribed and sworn to before me this 14th day of August 19 97

Barbara Ann Means
Notary Public, Eddy County, New Mexico

My Commission expires September 23, 1999

Copy of Publication

LEGAL NOTICE

NOTICE OF APPLICATION FOR OIL AND GAS WASTE DISPOSAL WELL PERMIT

Enron Oil & Gas Company-Operator, P.O. Box 2267, Midland, Texas 79702. Phone (915) 686-3723. Contact party for Enron Oil & Gas Company-Operator: Hal Crabb, III is seeking administrative approval from the New Mexico Oil Conservation Division to utilize a well located 660' FSL & 1,980' FWL, Section 32, Township 17 South, Range 30 East, Eddy County, New Mexico known as the Sand Tank "32" State Com. No. 2 for water disposal. Proposed injection is in the Wolfcamp formation through perforations 8600'-8900'. Proposed average injection rate of 300 BWPD at 500 psig. Interested parties must file objections or requests for hearing with the Oil Conservation Division, P.O. Box 2088, Santa Fe, New Mexico 87501 within fifteen days of this notice. Published in the Artesia Daily Press, Artesia, N.M. August 14, 1997.

15966

P 497 360 007

US Postal Service

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Yates Petroleum Corp.	
Street & Number	
105 South Fourth Street	
Post Office, State, & ZIP Code	
Artesia, New Mexico 88210	
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TOTAL Postage & Fees	\$ 2.36
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P 497 360 003

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State of New Mexico	
Street & Number	
310 Old Santa Fe Trail	
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Santa Fe, New Mexico 87501	
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P 497 360 006

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Phillips Petroleum Co.	
Street & Number	
4001 Penbrook	
Post Office, State, & ZIP Code	
Odessa, Texas 79762	
Postage	\$ 1.01
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P 497 360 005

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Chevron USA, Inc.	
Street & Number	
P.O. Box 1150	
Post Office, State, & ZIP Code	
Midland, Texas 79702	
Postage	\$ 1.01
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PS Form 3800, April 1995

P 497 360 004

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Sent to	
Anadarko Petroleum Corp.	
Street & Number	
P.O. Box 1330	
Post Office, State, & ZIP Code	
Houston, Texas 77251-1330	
Postage	\$ 1.01
Certified Fee	1.35
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	\$ 2.36
Postmark or Date	
10/14/97	

PS Form 3800, April 1995

CHECKLIST for ADMINISTRATIVE INJECTION APPLICATIONS

Operator: ENRON O&G COMPANY Well: SAND TANK '32' STATE COAL No 2

Contact: LEE KOURK Title: ENGINEER Phone: 915-686-3775

DATE IN 10-27-97 RELEASE DATE 11-12-97 DATE OUT 11-25-97

Proposed Injection Application is for: ☐ WATERFLOOD ☐ Expansion ☐ Initial

Original Order: R- ☐ Secondary Recovery ☐ Pressure Maintenance

SENSITIVE AREAS

☒ SALT WATER DISPOSAL ☐ Commercial Well

☐ WIPP ☐ Capitan Reef

Data is complete for proposed well(s)? Yes Additional Data Req'd _____

AREA of REVIEW WELLS

1 Total # of AOR

0 # of Plugged Wells

1/1-3 Tabulation Complete

☐ Schematics of P & A's

1/1-3 Cement Tops Adequate

☐ AOR Repair Required

INJECTION FORMATION

Injection Formation(s) WOLF CAMP Compatible Analysis Yes

Source of Water or Injectate AREA PRODUCTION

PROOF of NOTICE

☒ Copy of Legal Notice

☒ Information Printed Correctly

☒ Correct Operators

☒ Copies of Certified Mail Receipts

NO Objection Received

☐ Set to Hearing _____ Date

NOTES:

APPLICATION QUALIFIES FOR ADMINISTRATIVE APPROVAL? Yes

COMMUNICATION WITH CONTACT PERSON:

1st Contact: ☒ Telephoned ☐ Letter 11-20-97 Date VERBAL APPROVAL Nature of Discussion

2nd Contact: ☐ Telephoned ☐ Letter _____ Date _____ Nature of Discussion _____

3rd Contact: ☐ Telephoned ☐ Letter _____ Date _____ Nature of Discussion _____