

SEP - 9 1999

APPLICATION FOR AUTHORIZATION TO INJECT

- I. PURPOSE: ☒ Secondary Recovery ☐ Pressure Maintenance ☐ Disposal ☐ Storage  
Application qualifies for administrative approval? ☐ Yes ☐ No
- II. OPERATOR: Thunderbolt Petroleum, LLC  
ADDRESS: P. O. Box 10523 Midland, Tx. 79702  
CONTACT PARTY: Robert Lee PHONE: (915)-682-1251
- III. WELL DATA: Complete the data required on the reverse side of this form for each well processed 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 within 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 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 source drinking water.
- XIII. Applicants must complete the "Proof of Notice" section on the reverse side of this form.
- XIV. Certifications: I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.

NAME: Robert Lee

TITLE: President

SIGNATURE: \_\_\_\_\_

DATE: September 7, 1999

CALMON STATE #1  
CONVERT TO INJECTION  
NMOCD Form C-108 Section III

III. Data on injection well(s)

A. Injection well information (see attached schematic)

Tabular data

1. Lease: Calmon State

Well No: 1

Location: 2310' FSL & 990' FWL, Sec 16 T-18-S  
R-29-E, Eddy County, NM

2. Casing: 8 5/8", 24 #/ft, surface @ 358' in 12 1/4" hole ,  
cemented w/300 sx. TOC @ surface, circulated.

5 1/2", 17 #/ft, production casing @ 3020' in 7 7/8" hole, cemented  
w/ 600 sx. TOC @ surface, circulated.

3. Injection tubing: + or - 68 jts 2 3/8", 4.7 lb/ft, J-55 internally plastic coated  
tubing.

4. Packer: An internally plastic coated Model AD-1 injection packer set @ +/-  
2176'.

B. Other well information

1. Injection formation: Qn-Grbg-SA

Field: Loco Hills

2. Existing perforations: 2265-96, 2492-99, 2560-62, 2608-10 & 2677-79

3. This well was drilled as a Qn-Grbg-SA oil well.

4. There are no other perfed or tested intervals in this well.

5. Within the area of this well there are no shallower productive zones. The  
Morrow is productive at a depth of 10,986'

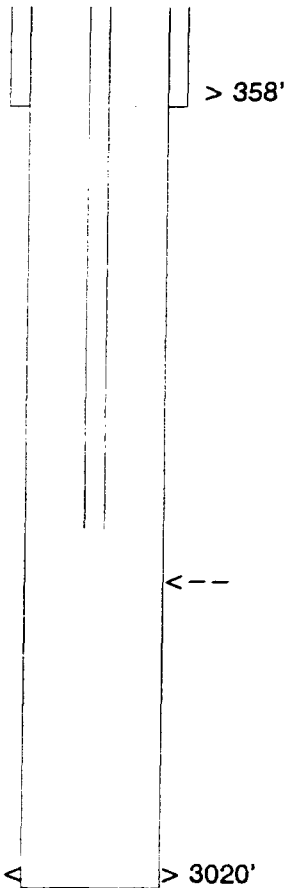
# THUNDERBOLT PETROLEUM, LLC

## CURRENT COMPLETION

WELL: CALMON STATE #1  
FIELD: LOCO HILLS  
INTERVAL: QN-GB-SA  
COMP: 8/26/86  
IP: 80 BOPD & 20 BWPD  
SPUDDED: 7/24/86

LOCATION:  
2310' FSL & 990' FWL  
SEC 16, T-18-S, R-29-E  
EDDY COUNTY, NEW MEXICO  
  
API #: 30-015-25635

ELEVATION: 3540' GL



### SURFACE CASING:

RAN 24#/FT 8 5/8" CSG, SET @ 358', IN 12 1/4" HOLE,  
CMT. W/ 300 SXS., TOC @ SURFACE

### PRESENT COMPLETION INTERVAL:

PERFORATIONS 2265-96, 2492-99, 2560-62  
2608-10, 2677-79  
FRAC W/60,000 GAL & 75,500 # OF SAND

### PRODUCTION CASING:

RAN 17#/FT 5 1/2" CSG, SET @ 3020' IN 7 7/8" HOLE.  
CMT W/600 SXS, TOP OF CEMENT @ SURFACE

TD: 3050'  
PBTD: 3011'

# THUNDERBOLT PETROLEUM, LLC

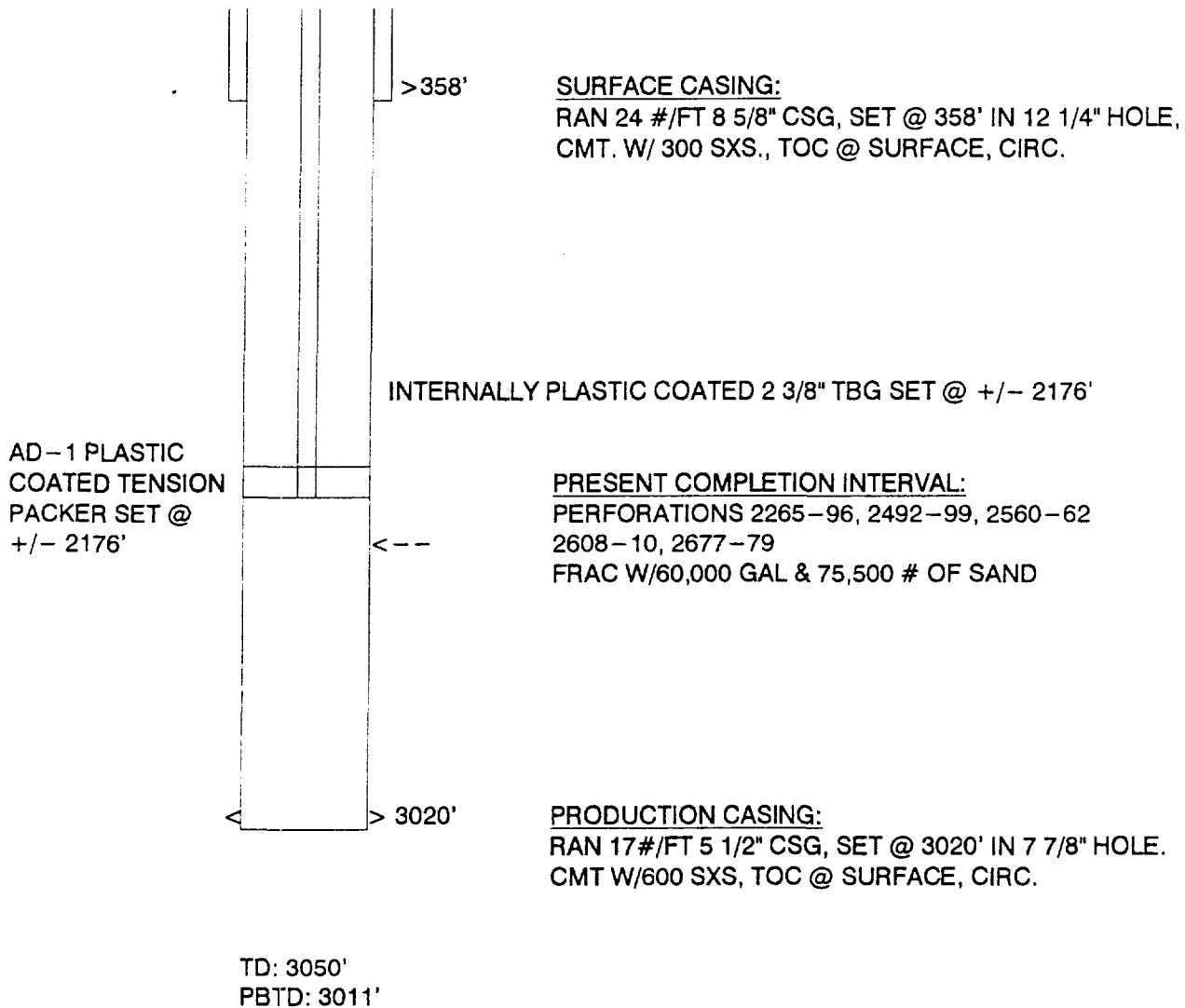
## PROPOSED COMPLETION

WELL: CALMON STATE #1  
FIELD: LOCO HILLS  
INTERVAL: QN-GB-SA  
COMP: 8/26/86  
IP: 80 BOPD & 20 BWPD  
SPUDDED: 7/24/86

LOCATION:  
2310' FSL & 990' FWL  
SEC 16, T-18-S, R-29-E  
EDDY COUNTY, NEW MEXICO

API #: 30-015-25635

ELEVATION: 3540' GL



CALMON STATE #3  
CONVERT TO INJECTION  
NMOCD Form C-108 Section III

III. Data on injection well(s)

A. Injection well information (see attached schematic)

Tabular data

1. Lease: Calmon State  
  
Well No: 3  
  
Location: 990' FSL & 990' FWL, Sec 16 T-18-S  
R-29-E, Eddy County, NM
2. Casing: 8 5/8", 24 #/ft, J-55 surface @ 318' in 12 1/4" hole, cemented  
w/200 sx. TOC @ surface, circulated.  
  
5 1/2", 14 & 17 #/ft, J-55 @ 2895' in 7 7/8" hole, cemented  
w/700 sx. TOC @ surface, circulated.
3. Injection tubing: + or - 68 jts 2 3/8", 4.7 lb/ft, J-55 internally plastic coated  
tubing.
4. Packer: An internally plastic coated Model AD-1 injection packer set  
@ +/- 2180'.

B. Other well information

1. Injection formation: Qn-Grbg-SA  
  
Field: Loco Hills
2. Existing perforations: 2264-74, 2484-90, 2548-51, & 2596-99
3. This well was drilled as a Qn-Grbg-SA oil well.
4. There are no other perfed or tested intervals in this well.
5. Within the area of this well there are no shallower productive zones. The  
Morrow is productive at a depth of 10,986'.

# THUNDERBOLT PETROLEUM, LLC

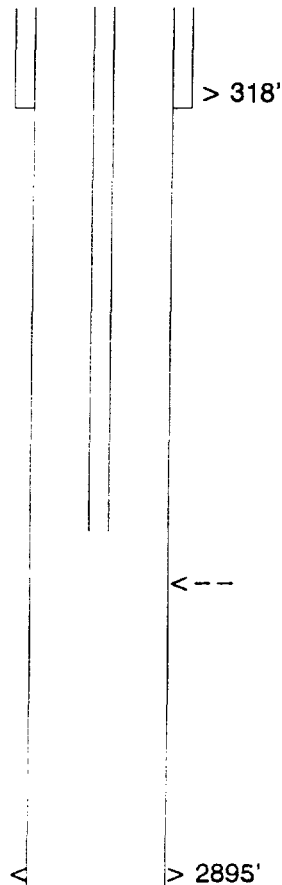
## CURRENT COMPLETION

WELL: CALMON STATE #3  
FIELD: LOCO HILLS  
INTERVAL: QN-GB-SA  
COMP: 8/5/87  
IP: 80 BOPD & 5 BWPD  
SPUDDED: 5/27/87

LOCATION:  
990' FSL & 990' FWL  
SEC 16, T-18-S, R-29-E  
EDDY COUNTY, NEW MEXICO

API #: 30-015-25754

ELEVATION: 3531' GL



### SURFACE CASING:

RAN 24#/FT 8 5/8" CSG, SET @ 318' IN 12 1/4" HOLE,  
CMT. W/ 200 SXS. CMT., TOC @ SURFACE

### PRESENT COMPLETION INTERVAL:

PERFORATIONS 2264-74, 2484-90, 2548-51  
2596-99  
ACIDIZE W/ 2500 GAL.  
FRAC W/77,300 GAL & 129,300 # OF SAND

### PRODUCTION CASING:

RAN 14#/ FT & 17 #/FT 5 1/2" CSG, SET @ 2895',  
IN 7 7/8" HOLE, CMT W/250 SXS, TOC @ SURFACE, CIRC.

TD: 2897'  
PBTD: 2838'

# THUNDERBOLT PETROLEUM, LLC

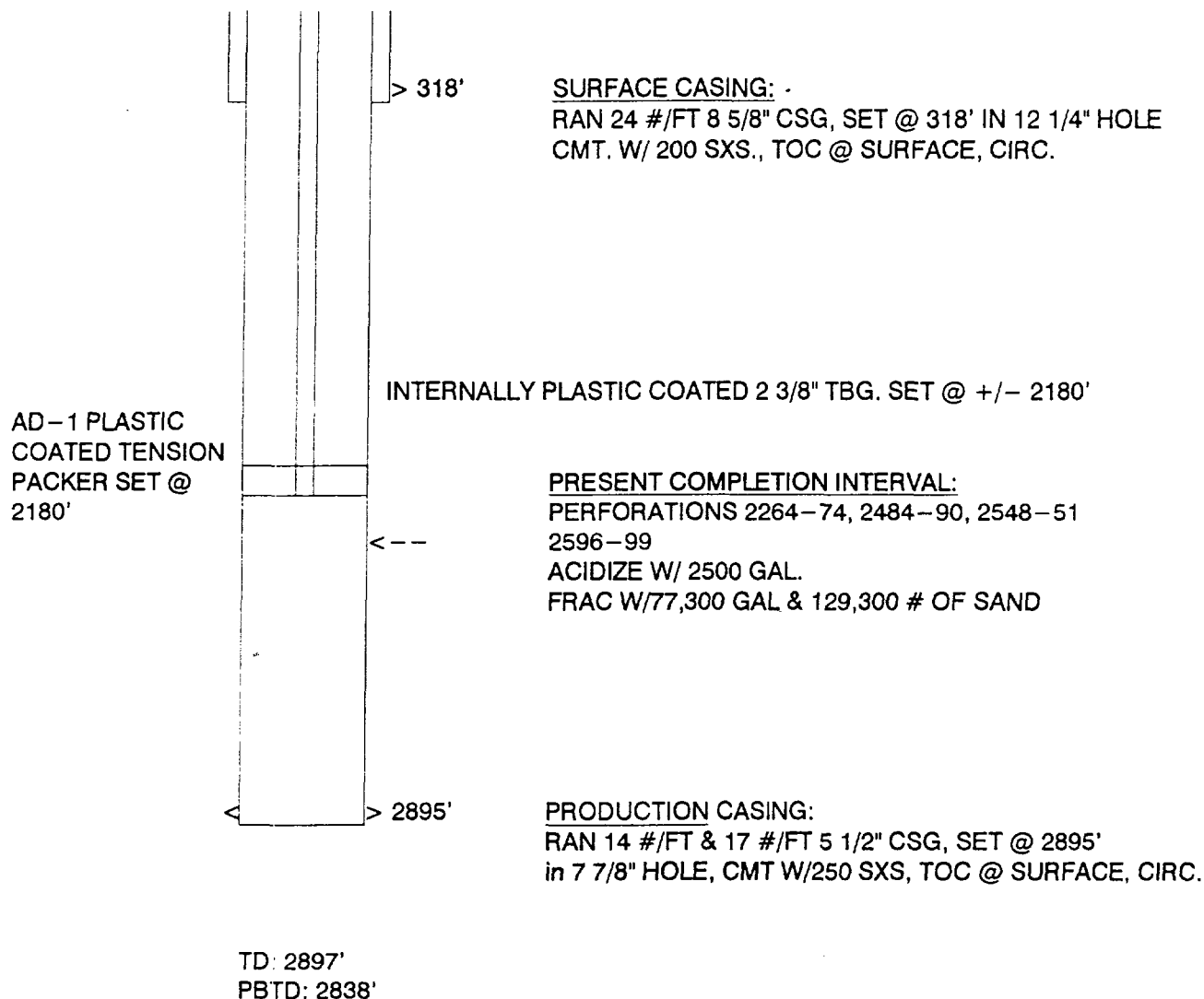
## PROPOSED COMPLETION

WELL: CALMON STATE #3  
FIELD: LOCO HILLS  
INTERVAL: QN-GB-SA  
COMP: 8/5/87  
IP: 80 BOPD & 5 BWPD  
SPUDDED: 5/27/87

LOCATION:  
990' FSL & 990' FWL  
SEC 16, T-18-S, R-29-E  
EDDY COUNTY, NEW MEXICO

API #: 30-015-25754

ELEVATION: 3531' GL





[illegible]



# CALMON C-108 ITEM VI

| OPERATOR               | CURRENT WELL NAME                 | API # 30-015 | LOC'N                  | S-T-R                        | STATUS | SPUD DATE | COMP DATE | TD      | PBTD    | ZONE     | CASING PROGRAM   | TOC                                    | COMP. INTERVAL | TREATMENT                | IP                 |
|------------------------|-----------------------------------|--------------|------------------------|------------------------------|--------|-----------|-----------|---------|---------|----------|--|--|----------------|--------------------------|--------------------|
| THUNDERBOLT PETROLEUM  | CALMON STATE #1                   | 25635        | 2310' FSL<br>990' FWL  | SECTION 16<br>T-18-S, R-29-E | PROD.  | 7/24/86   | 8/26/86   | 3050'   | 3011'   | QN-CB-SA | 8 5/8" @ 358' W/ 300 SX<br>5 1/2" @ 3020' W/ 600 SX                                  | SURF.<br>SURF.                         | 2265-2679      | SWF 60 MGAL & 75.5 M#    | 80 BOPD<br>20 BWPB |
| THUNDERBOLT PETROLEUM  | CALMON STATE #2                   | 25693        | 1650' FSL<br>330' FWL  | SECTION 16<br>T-18-S, R-29-E | PROD.  | 12/13/86  | 2/10/87   | 3045'   | 2960'   | QN-CB-SA | 8 5/8" @ 365' W/ 200 SX<br>5 1/2" @ 3023' W/ 700 SX                                  | SURF.<br>750' CBL                      | 2228-2558      | SWF 35 MGAL & 45 M#      | 55 BOPD<br>1 BWPB  |
| THUNDERBOLT PETROLEUM  | CALMON STATE #3                   | 25754        | 990' FSL<br>990' FWL   | SECTION 16<br>T-18-S, R-29-E | PROD.  | 5/27/87   | 8/5/87    | 2897'   | 2838'   | QN-CB-SA | 8 5/8" @ 318' W/ 200 SX<br>5 1/2" @ 2895' W/ 250 SX                                  | SURF.<br>SURF.                         | 2264-2599'     | SWF 77.3 MGAL & 129.3 M# | 80 BOPD<br>5 BWPB  |
| THUNDERBOLT PETROLEUM  | CALMON STATE #4                   | 25770        | 1650' FSL<br>1650' FWL | SECTION 16<br>T-18-S, R-29-E | T & A  | 7/17/87   | 10/2/87   | 2880'   | 2836'   | QN-CB-SA | 8 5/8" @ 350' W/ 300 SX<br>5 1/2" @ 2880' W/ 850 SX                                  | SURF.<br>SURF.                         | 2754-824'      | SWF 30 MGAL & 50 M#      | 55 BOPD<br>3 BWPB  |
| THUNDERBOLT PETROLEUM  | CALMON STATE #5                   | 25811        | 465' FSL<br>467' FWL   | SECTION 16<br>T-18-S, R-29-E | PROD.  | 11/11/87  | 1/31/88   | 2833'   | 2784'   | QN-CB-SA | 8 5/8" @ 332' W/ 250 SX<br>5 1/2" @ 2833' W/ 375 SX                                  | SURF.<br>SURF.                         | 2255-2677'     | SWF 80.228 MGAL & 156 M# | 80 BOPD<br>5 BWPB  |
| THUNDERBOLT PETROLEUM  | CALMON STATE #6                   | 25889        | 467' FSL<br>1650' FWL  | SECTION 16<br>T-18-S, R-29-E | PROD.  | 4/13/88   | 6/13/88   | 2920'   | NA      | QN-CB-SA | 8 5/8" @ 330' W/ 300 SX<br>5 1/2" @ 2920' W/ 625 SX                                  | SURF.<br>SURF.                         | 2507-2620'     | SWF 38 MGAL & 60 M#      | 80 BOPD<br>5 BWPB  |
| TEXAS TRADING CO.      | STATE #1                          | 5759         | 1650' FNL<br>2310' FEL | SECTION 16<br>T-18-S, R-29-E | P&A    | 5/21/40   | 7/30/40   | 3604'   | NA      | QN-CB-SA | 8 1/4" @ 316' W/ 50 SX<br>7" @ 2427' W/ 100 SX                                       | 176' CALC<br>677' CALC                 | 2427-3604      | 400 QUARTS OF NITR<      | 13 BOPD            |
| CHI OPERATING          | EMPIRE 16 STATE COM #1            | 25056        | 1980' FNL<br>660' FWL  | SECTION 16<br>T-18-S, R-29-E | PROD.  | 12/12/84  | 2/14/85   | 11,350' | 11,289' | MORROW   | 13 3/8" @ 344' W/ 400 SX<br>8 5/8" @ 3099' W/ 1300 SX<br>5 1/2" @ 11350' W/ 1175' SX | SURF. CALC<br>SURF. CALC<br>3786' CALC | 10,986-11,032  | NATURAL                  | 4299 MCFFD         |
| WEBB OIL CO.           | AMOCO STATE #1                    | 23584        | 660' FSL<br>1980' FEL  | SECTION 16<br>T-18-S, R-29-E | PROD.  | 4/15/81   | 6/18/81   | 3400'   | 3360'   | QN-CB-SA | 8 5/8" @ 350' W/ 450 SX<br>4 1/2" @ 3400' W/ 880 SX                                  | SURF. CALC<br>SURF. CALC               | 2498.3192'     | SWF 60 MGAL & 60 M#      | 15 BOPD<br>25 BWPB |
| ANADARKO PETROLEUM CO. | FAR WEST LOCO HILLS SAND UNIT #24 | 3422         | 1650' FNL<br>2310' FWL | SECTION 16<br>T-18-S, R-29-E | P&A    | 11/17/39  | 1/8/40    | 2680'   | NA      | QN-CB-SA | 8 1/4" @ 363' W/ 25 SX<br>7" @ 2393' W/ 50 SX  | 291' CALC<br>1518' CALC                | 2393-2680'     | 400 QUARTS OF NITR<      | 64 BOPD            |
| ANADARKO PETROLEUM CO. | STATE L-16                        | 3423         | 660' FNL<br>660' FWL   | SECTION 16<br>T-18-S, R-29-E | P&A    | 9/17/39   | 11/9/39   | 2626'   | NA      | QN-CB-SA | 8 1/4" @ 393' W/ 50 SX<br>7" @ 2292' W/ 100 SX                                       | 249' CALC<br>542' CALC                 | 2292-2626'     | 500 QUARTS OF NITR<      | 105 BOPD           |
| GP II ENERGY INC.      | KEMPER STATE #1                   | 3421         | 1650' FNL<br>990' FWL  | SECTION 16<br>T-18-S, R-29-E | T & A  | 3/15/40   | 5/27/40   | 2661'   | NA      | QN-CB-SA | 8 1/4" @ 354' W/ 125 SX<br>7" @ 2402' W/ 50 SX                                       | SURF. CALC<br>1527' CALC               | 2402-2661'     | 470 QUARTS OF NITR<      | 68 BOPD            |
| GP II ENERGY INC.      | TRAVIS D #18                      | 22685        | 1980' FNL<br>660' FEL  | SECTION 17<br>T-18-S, R-29-E | PROD   | 1/23/79   | 3/2/79    | 2885'   | 2878'   | GRBG     | 8 5/8" @ 376' W/ 275 SX<br>4 1/2" @ 2884' W/ 450 SX                                  | SURF. CALC<br>SURF. CALC               | 2440-2780'     | SWF 75 MGAL & 89 M#      | 68 BOPD<br>50 BWPB |
| SABRE OPERATING CO.    | EMPIRE 21-A FEDERAL #1            | 23776        | 660' FNL<br>1980' FWL  | SECTION 21<br>T-18-S, R-29-E | PROD.  | 5/22/81   | 8/5/81    | 11408'  | 11165'  | MORROW   | 11 3/4" @ 232' W/ 350 SX<br>8 5/8" @ 3210' W/ 1400 SX<br>4 1/2" @ 11408' W/ 670' SX  | SURF. CALC<br>SURF. CALC<br>8058' CALC | 11070-139      | NATURAL                  | 1001 MCFFD         |
| DENTON OIL CO.         | MALCO FED #1                      | NA           | 330' FNL<br>1650' FWL  | SECTION 21<br>T-18-S, R-29-E | D & A  | 8/13/55   | 9/24/55   | 2802'   | NA      | NA       | 8 5/8" @ 365' W/ 25 SX   | 295' CALC                              | NA             | NA                       | NA                 |
| WEBB OIL CO.           | ARCO FEDERAL #1                   | 24590        | 330' FNL<br>2310' FEL  | SECTION 21<br>T-18-S, R-29-E | PROD   | 9/9/83    | 1/2/84    | 3105'   | 3065'   | QU-CB-SA | 8 5/8" @ 360' W/ 350 SX<br>5 1/2" @ 3105' W/ 1275 SX                                 | SURF. CALC<br>SURF. CALC               | 1624-3012'     | SWF 74.5 MGAL & 97 M#    | 42 BOPD<br>38 BWPB |

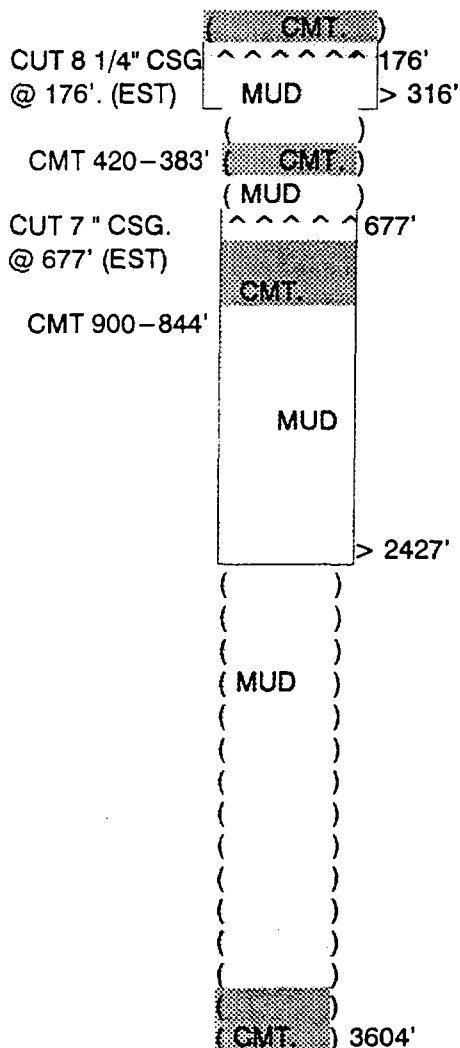
# TEXAS TRADING COMPANY P & A WELLBORE DIAGRAM

WELL: STATE #1  
FIELD: LOCO HILLS  
INTERVAL: QN-GB-SA  
COMP: 7/30/40  
IP: 13 BOPD  
SPUDDER: 5/21/40

LOCATION:  
1650' FNL & 2310' FEL  
SEC 16, T-18-S, R-29-E  
EDDY COUNTY, NEW MEXICO

API #: 05759

ELEVATION: 3513' GL



## SURFACE CASING:

RAN 8 1/4" CSG, SET @ 316'  
CMT. W/ 50 SXS., TOC @ 176' (EST.)

## COMPLETION INTERVAL:

OPENHOLE: 2427'-2685'  
SHOT W/ 400 QTS OF NITRO FROM 2545'-2685'

IN 1950 THE WELL WAS DEEPEMED TO 3301'  
THE WELL WAS P & A'ED IN 6/51. THE PLUGGING  
REPORT S HOWS THE TD= 3604'

## PRODUCT ION CASING:

RAN 7" CS 3, SET @ 2427'.  
CMT W/10 SXS, TOP OF CEMENT @ 677' EST.

## OPENHOLE:

2427' TO 3604'

PLUGGED 6/51.

## PLUGS:

PLUG #1- 10 SXS. FROM 3604-3554' (EST.)  
PLUG #2- 10 SXS. 900'-844' (EST.)  
PLUG #3- 10 SXS. 420'-383' (EST.)  
SURFACE PLUG- 5 SXS.

TD: 2686' ORIGINALLY. WELL WAS DEEPEMED TO 3301' IN 1950.  
THE PLUGGING REPORT SHOWS THE TD @ 6/51= 3604'

CALP&A1

# DENTON OIL CO.

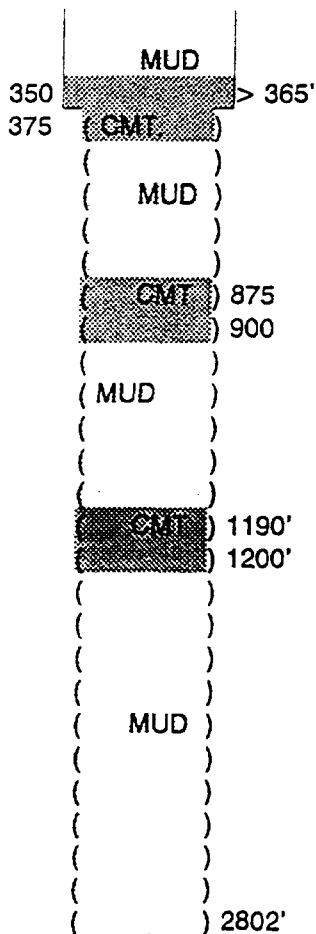
## P & A WELLBORE DIAGRAM

WELL: MALCO FEDERAL #1  
FIELD: LOCO HILLS  
INTERVAL: D & A  
COMP: D & A'ED  
IP: NA  
SPUDDED: 8/13/55

LOCATION:  
330' FNL & 1650' FWL  
SEC 21, T-18-S, R-29-E  
EDDY COUNTY, NEW MEXICO

API #: NA

ELEVATION: 3525' GL



### SURFACE CASING:

RAN 8 1/4" CSG, SET @ 365'  
CMT. W/ 25 SXS., TOC @ 295' (EST.)

PLUGGED 9/55

### PLUGS:

PLUG #1 - 55 SXS. FROM 1200 - 1190'  
PLUG #2 - 125 SXS. FROM 900' - 875'  
PLUG #3 - 125 SXS. FROM 375' - 350'  
NO SURFACE MARKER SHOWN ON P & A REPORT

TD: 2802'.

CALP&A2

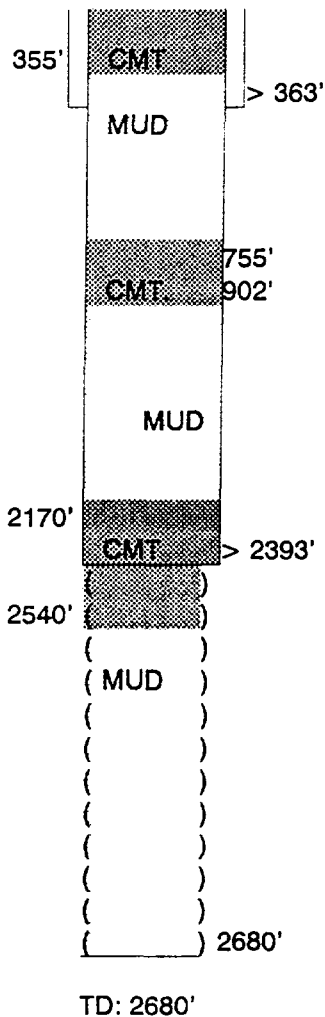
# ANADARKO PRODUCTION COMPANY

## P & A WELLBORE DIAGRAM

WELL: FAR WEST LOCO HILLS SAND UNIT #24  
 FIELD: LOCO HILLS  
 INTERVAL: QN-GB-SA  
 COMP: 1/8/40  
 IP: 64 BOPD  
 SPUDDED: 11/17/39

LOCATION:  
 1650' FNL & 2310' FWL  
 SEC 16, T-18-S, R-29-E  
 EDDY COUNTY, NEW MEXICO  
 API #: 03422

ELEVATION: 3539' GL



SURFACE CASING:  
 RAN 8 1/4" CSG, SET @ 363'  
 CMT. W/ 25 SXS., TOC @ 291' (EST.)

COMPLETION INTERVAL:  
 OPENHOLE: 2393' - 2680'  
 SHOT W/ 400 QTS OF NITRO FROM 2525' - 2650'

PRODUCTION CASING:  
 RAN 7" CSG, SET @ 2393'.  
 CMT W/50 SXS, TOP OF CEMENT @ 1518' EST.

OPENHOLE:  
 2393' TO 2680'

PLUGGED 5/83

PLUGS:  
 PLUG #1 - 100 SXS. 2540 - 2170'. TAGGED @ 2200'  
 PLUG #2 - PERF SQZ HOLE @ 892. PUMP 48 SXS CMT.  
 22 SXS OUTSIDE CSG. PLUG FROM 902' - 650'.  
 TAGGED @ 755'.  
 PLUG #3 - PERF SQZ HOLE @ 355'. PUMP 88 SXS CMT.  
 20 SXS OUTSIDE CSG. PLUG FROM 355' - 0'.

CALP&A3

# ANADARKO PRODUCTION COMPANY

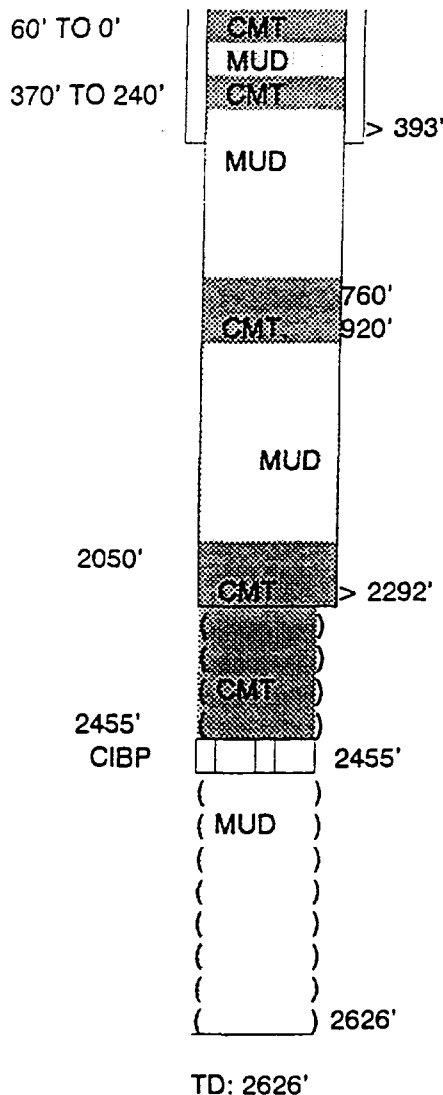
## P & A WELLBORE DIAGRAM

WELL: STATE L-16  
FIELD: LOCO HILLS  
INTERVAL: QN-GB-SA  
COMP: 11/9/39  
IP: 105 BOPD  
SPUDDED: 9/17/39

**LOCATION:**  
660' FNL & 660' FWL  
SEC 16, T-18-S, R-29-E  
EDDY COUNTY, NEW MEXICO

API #: 03423

ELEVATION: 3501' GL



**SURFACE CASING:**

RAN 8 1/4" CSG, SET @ 393'  
CMT. W/ 50 SXS., TOC @ 249' (EST.)

COMPLETION INTERVAL:

OPENHOLE: 2292'-2626'  
SHOT W/ 500 QTS OF NITRO FROM 2452'-2626'

**PRODUCTION CASING:**

RAN 7" CSG, SET @ 2292'.  
CMT W/100 SXS, TOP OF CEMENT @ 542' EST.

OPENHOLE:

2292' TO 2626'

PLUGGED 10/85

**PLUGS:**

CIBP SET @ 2455  
PLUG #1- 50 SXS. 2455-2087'. TAGGED @ 2050'  
PLUG #2- PERF SQZ HOLES @ 920. PUMP 50 SXS.  
PLUG FROM 920'-760'. 25 SXS OUTSIDE CSG.  
TAGGED @ 760'.  
PLUG #3- PERF SQZ HOLES @ 370. PUMP 50 SXS.  
PLUG FROM 370-240'. 25 SXS OUTSIDE CSG.  
SURFACE PLUG AT 60' TO 0'

CALP&amp;A4



CALMON STATE Nos.1 & 3

CONVERT TO INJECTION

NMOCD Form C-108 Sections VII thru XII

VII. Data on proposed operation.

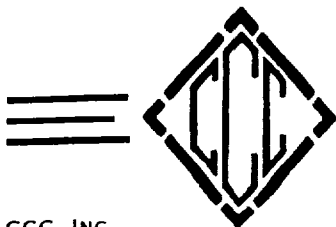
1. Proposed average injection rate: 150 BWPD per well  
Proposed maximum injection rate: 300 BWPD per well
2. The system will be a closed system.
3. Proposed average injection pressure: 300 PSI  
Proposed maximum injection pressure: 450 PSI
4. The proposed injection fluid is produced water from this lease and the Yates Petroleum operated West Loco Hills Unit, located about three miles to the east. The attached water analysis indicates these waters have a moderate scaling tendency. It is planned to treat the waters and prevent scale from forming.
5. A chemical analysis of the formation water in the proposed injection horizon is attached.

- VIII. The proposed injection interval is located in the Qn-Grbg-SA Sand formation. This Permian age horizon is nearly 4500' thick in this area. The top of the Queen formation is at a depth of about 2000' with the base of the San Andres at a depth of about 6500'.

There are no fresh water wells within one mile of the proposed injection wells. The nearest water well is nearly 1 1/2 miles away in Section 10 TWP-18-S, RNG-29-E. This well produces water from a depth of 245'. The chlorides for the water from this well is about 2500 ppm.

- IX. No additional zones are anticipated to be opened at this time.
- X. Logs have previously been submitted to the OCD.
- XI. There are no fresh water wells of record within one mile of the proposed injection well.
- XII. An examination of this area has determined there are no open faults or other hydrologic connection between the disposal zone and any underground drinking water.

# Cochran Chemical Company, Inc.



DE-EMULSIFIERS • WATERFLOOD CHEMICALS • PARAFFIN SOLVENTS • SCALE REMOVER & INHIBITORS

P. O. DRAWER 1341

PHONE (405) 257-2825

CCC, INC.  
P.O. Box 5421  
MIDLAND, TEXAS 79704  
(915) 682-7860

WEWOKA, OKLAHOMA  
74884

September 3, 1999

Mr. Robert Lee  
Thunderbolt Petroleum  
P.O. Box 10523  
Midland, TX 79702

Re: Compatibility Test - Calmon Lse.  
Yates Lse.

Dear Robert,

The following are my test results on the two waters:

- No. 1 Produced water - taken from Calmon lease 8/31/99.  
No. 2 Produced water - taken from Yates lease 8/31/99.

## CHEMICAL AND PHYSICAL PROPERTIES

|                                      | NO. 1  | NO. 2    |
|--------------------------------------|--------|----------|
| Specific Gravity at 60° F            | 1.1178 | 1.0475   |
| pH When Sampled                      | -      | -        |
| pH When Received                     | 6.92   | 7.46     |
| Bicarbonate as HCO <sub>3</sub>      | 329    | 1074     |
| Supersaturation as CaCO <sub>3</sub> | 20     | 100      |
| Undersaturation as CaCO <sub>3</sub> | -      | -        |
| Total Hardness as CaCO <sub>3</sub>  | 28000  | 9900     |
| Calcium as Ca                        | 7600   | 2120     |
| Magnesium as Mg                      | 2187   | 1118     |
| Sodium and/or Potassium              | 52651  | 20582    |
| Sulfate as SO <sub>4</sub>           | 1920   | 5478     |
| Chloride as Cl                       | 99427  | 34089    |
| Iron as Fe                           | 5.4    | 6.2      |
| Barium as Ba                         |        |          |
| Total Solids, Calculated             | 164114 | 64461    |
| Temperature °F.                      | -      | -        |
| Carbon Dioxide, Calculated           | 69     | 56       |
| Dissolved Oxygen,                    | -      | -        |
| Hydrogen Sulfide                     | 11.0   | 318      |
| Resistivity, ohms/m at 77° F.        | 0.065  | 0.134    |
| Filtrable solids as mg/l             |        |          |
| Volume Filtered, ml                  |        |          |
| Calcium Carbonate Scaling Tendency   | None   | None     |
| Calcium Sulfate Scaling Tendency     | Mild   | Moderate |

*Results Reported As Milligrams Per Liter*

# Affidavit of Publication

# Copy of Publication:

NO. 16698

STATE OF NEW MEXICO

County of Eddy:

Gary 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 county and state, and that the here to 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/days on the same  
day as follows:

First Publication August 25 1999

Second Publication \_\_\_\_\_

Third Publication \_\_\_\_\_

Fourth Publication \_\_\_\_\_

Gary Scott  
Notary Public, Eddy County, New Mexico

My Commission expires September 23, 1999

## LEGAL NOTICE

This is to advise all parties concerned. Thunderbolt Petroleum, LLC intends to convert the following wells to salt water injection wells for the purpose of waterflooding the Calmon Lease located in the SW/4 Section 16, Section 16, T-18-S, R-29-E, Eddy County, New Mexico: Calmon State #1 2310' FSL & 990' FWL Section 16, T-18-S, R-29-E Eddy County, New Mexico Calmon State #3 990' FSL & 990' FWL Section 16, T-18-S, R-29-E Eddy County, New Mexico. The formation to be injected into is the Qn-Grbg-SA at a depth of 2260' to 2700'. The maximum expected injection rate is 150 BWPD per well at a maximum injection pressure of 450 psi. Questions can be addressed to: Thunderbolt Petroleum, LLC P.O. Box 10523 Midland, Texas 79702 Attention: Mr. Robert Lee Phone #(915) 682-1251. Interested parties must file objections or requests for hearing within 15 days of this notice to the: Oil Conservation Division P.O. Box 2088 Santa Fe, New Mexico 87504-2088. Published in the Artesia Daily Press, Artesia, N.M. August 25, 1999.

Legal 16698