ENERGY AND MINERALS DEPARTMENT

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501

Revised 7-1-81

APPLICATION FOR AUTHORIZATION TO INJECT

OIL CONSERVATION DIVISION

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

92 MAR 25 AM 10 06

II. Operator: Texaco E & P Inc.

Address: 3300 N. Butler Farmington, NM 87401

Contact party: Ted A. Tipton Phone: 505-325-4397

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: Ted A. Tipton Title Area Manager

Signature: Ted A. Tipton Date: 2-21-92

* 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. _____

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.

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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.

**WELL DATA**

| | |
|---|---|
| **LEASE NAME:** | H. J. Loe Federal B No. 2 |
| **LOCATION:** | T 29 N, R 12 W, Section 23<br>1850′ FNL & 2310′ FEL<br>Unit Letter G<br>San Juan County, New Mexico |

| **CASING DATA:** | Surface | Production |
|---|---|---|
| Size | 13.375" | 5.5" |
| Set At | 289′ | 6408′ |
| Weight | 48 # | 14 & 15.5 # |
| Hole Size | 17.25" | 7.875" |
| Cement | 300 sx | 1st 400 sx<br>2nd 150 sx |
| TOC | Surf (circ) | 1st 4900′ (calc)<br>2nd 1350′ (calc) |

| **TUBING DATA:** | |
|---|---|
| Size | 2 3/8" |
| Set At | 3220′ |
| Weight | 4 # |
| Grade | J-55 |

| **PACKER DATA:** | |
|---|---|
| Name | Guiberson |
| Model | Uni-6 |
| Set At | 3220′ |

**Formation/Field,Pool:** Mesa Verde/Undesignated

**Injection Interval:** 3250′-3400′, 4000′-4200′
Perforations: 4 JSPF, .5 EHD

**Original Purpose of Well:** Well was originally drilled and completed in the Dakota formation on June 24, 1960.

Dakota Perforations & PBTD: 6170′-6278′ , Abandoned using 1 CIBP @ 6150′, 120 sx cement (4557′-3626′), 1 CIBP @ 3204′, 50 sx cement plug (3190′-3122′), 60 sx cement plug (1850′-2368′)

Pictured Cliffs Perforations: 1703′-1715′, 1722′-1730′(open)
Will squeeze using 35 sx cement and pressure test to 1000 psi.

**Productive Intervals:** (recompletion)

| | |
|---|---|
| Fruitland Coal | 511′-1698′ |
| Pictured Cliffs | 1698′-1855′ |
| Dakota | 6170′-6310′ |

# H. J. LOE FEDERAL B No. 2
# CURRENT COMPLETION

**WELL:**
H. J. Loe B Fed. #2

**LOCATION:**
SW/4 NE/4
Sec. 23 T29N R12W

**COMPL. DATE:**
5/24/60

KB - 5669
GL - 5658

**FORMATION TOPS:**
San Jose - Surface
Ojo Alamo - 440'
Kirtland - 540'
Fruitland - 1260'
Pictured Cliffs - 1698'
Cliff House - 3238'

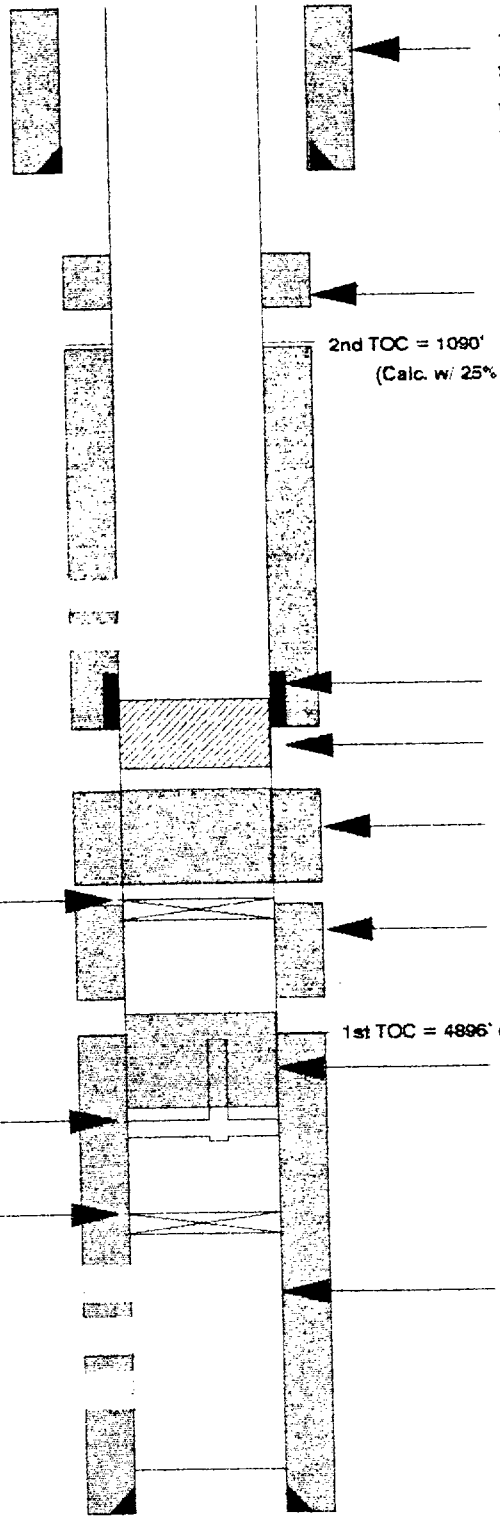
**PICTURED CLIFFS PERFS:**

Will Squeeze perfs.

**DAKOTA PERFS:**
**(ABANDONED)**

PBTD - 3122
TD - 6412

Proposed plug back T.D. 4030'



13.375" 48# K55 csg
Set @ 289' in 17.25" hole
w/ 300 sx. cmt.
TOC = 0 (circ)

Proposed perf at 560' and circulate to surface

SQZ HOLES @ 560'

2nd TOC = 1090'
(Calc. w/ 25% excess)

DV Tool @ 1886'

Proposed 60 sx. Chacra Plug 1850-2368

Plugged back w/ 50 sx. through sqz. hole @ 3190

CIBP @ 3204'

Squeezed csg. leak 3578-4034 w/ 400 sx.

1st TOC = 4896' (Calc. w/ 75% exc.)

Plugged back w/ 120 sx. @ 4500' (parted csg.)

FISH (48' TBG, PKR)

CIBP @ 6150'

5.5", 14 & 15.5#, K55 Csg.
Set @ 6408' in 7.875" hole
1st Stage w/ 400 sx, TOC @ 4896'.
(Calc. w/ 75% excess)
DV Tool @ 1886'.
2nd Stage w/ 150 sx, TOC @ 1090'.
(Calc. w/ 25% excess)

# H. J. LOE FEDERAL B No. 2
# CURRENT COMPLETION

**WELL:**
H. J. Loe B Fed. #2

**LOCATION:**
SW/4 NE/4
Sec. 23 T29N R12W

**COMPL. DATE:**
5/24/60

KB - 5669
GL - 5658

**FORMATION TOPS:**

San Jose - Surface
Ojo Alamo - 440'
Kirtland - 540'
Fruitland - 1260'
Pictured Cliffs - 1698'
Cliff House - 3238'

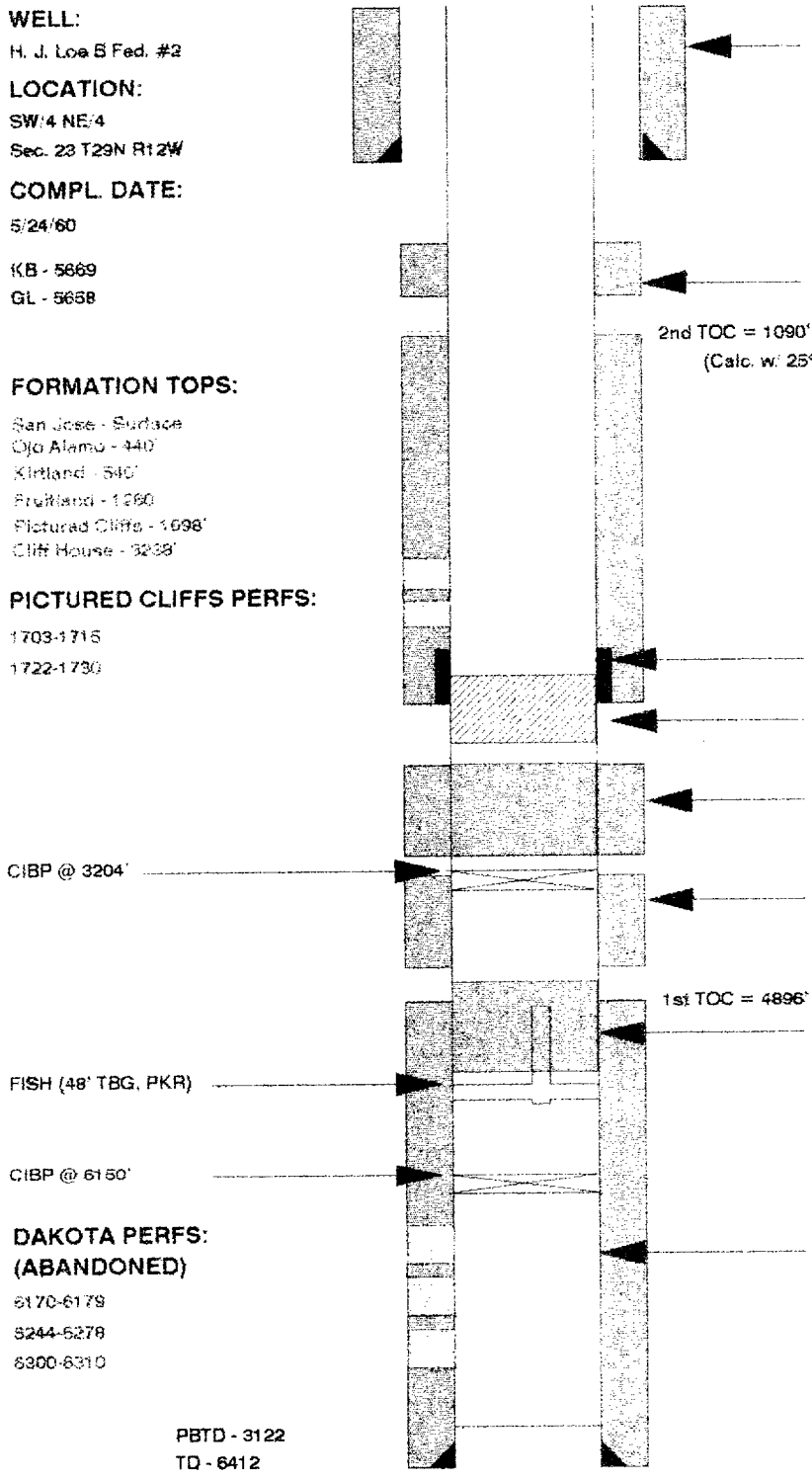
**PICTURED CLIFFS PERFS:**

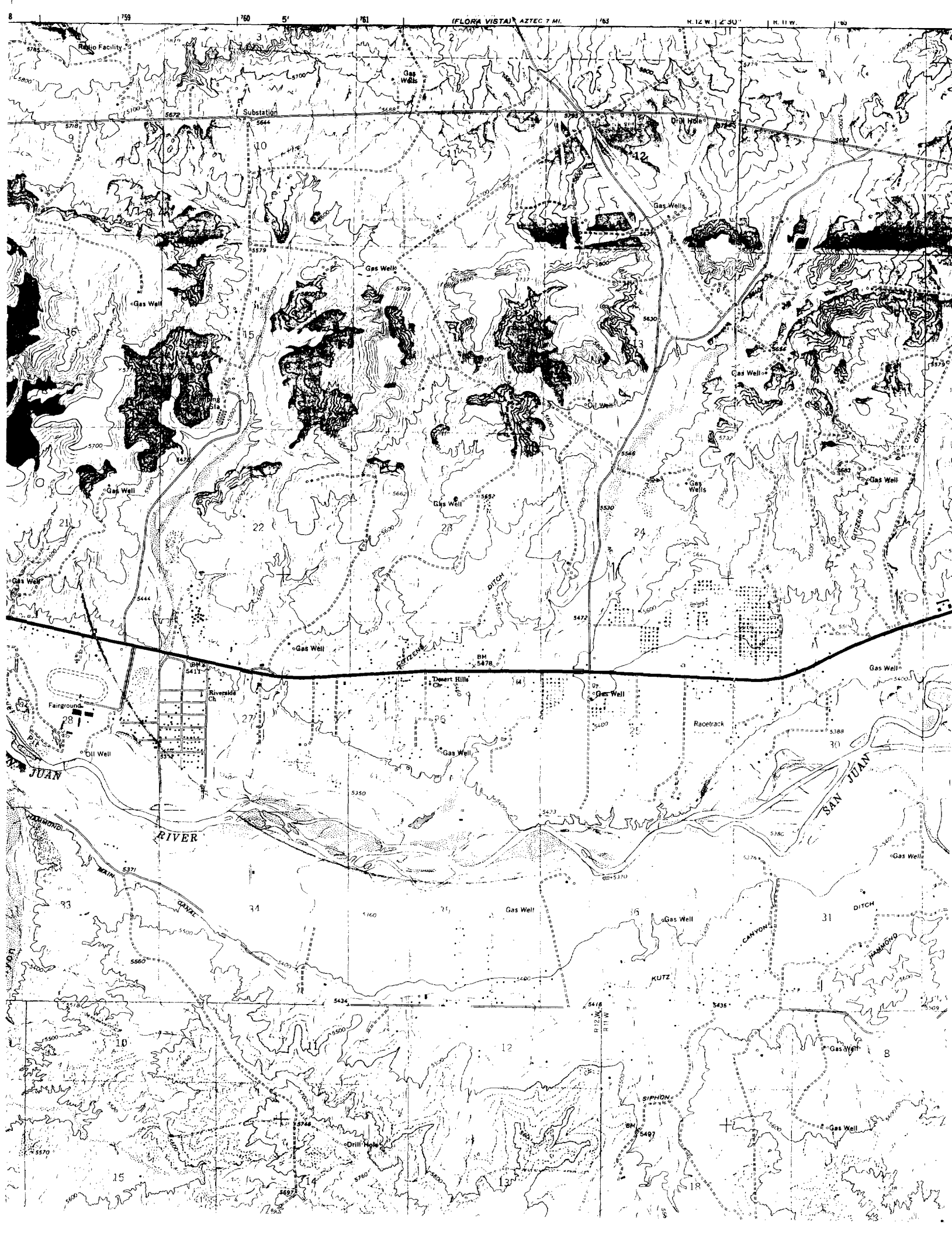
1703-1715
1722-1730

**DAKOTA PERFS:**
**(ABANDONED)**

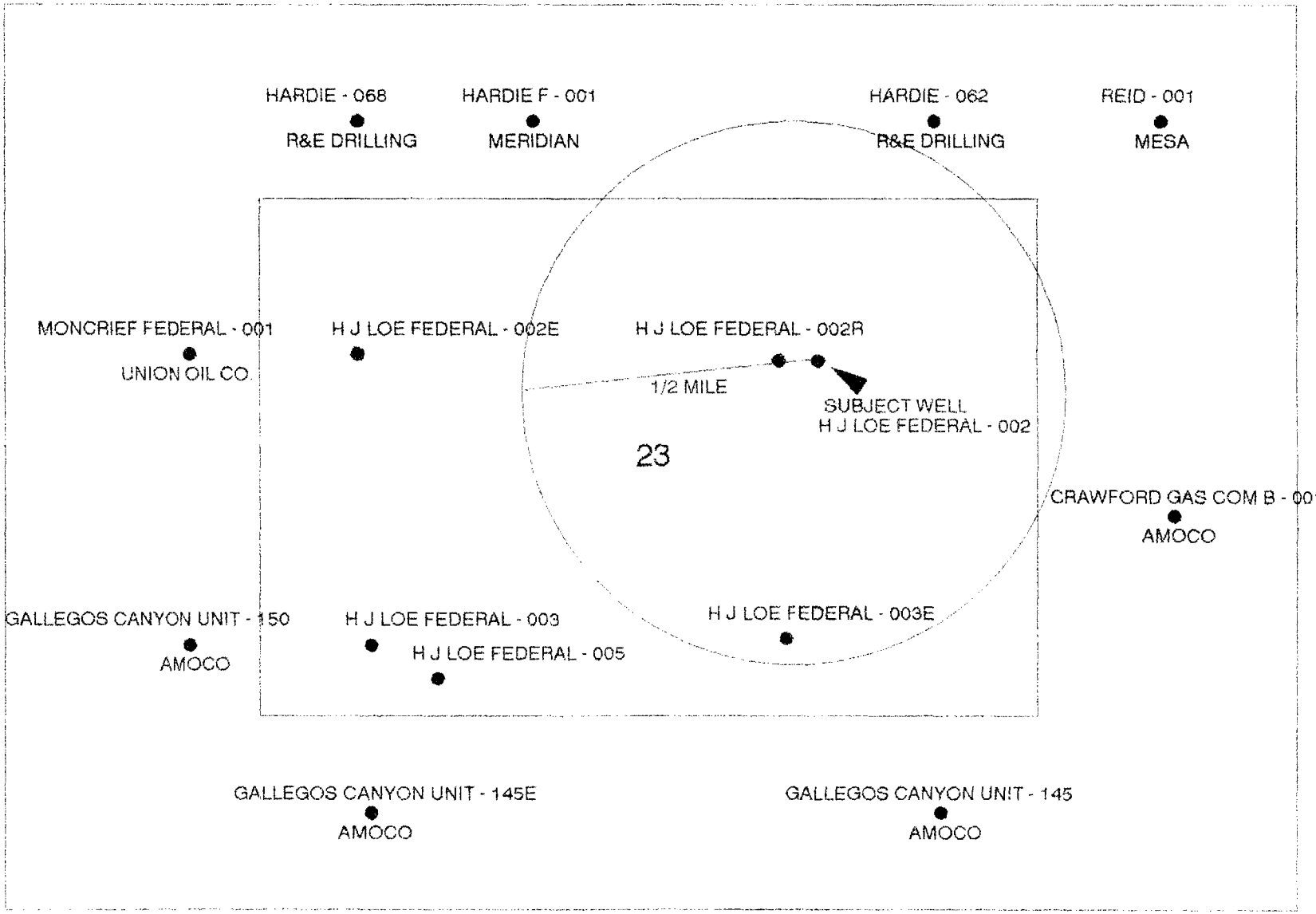
6170-6179
6244-6278
6300-6310

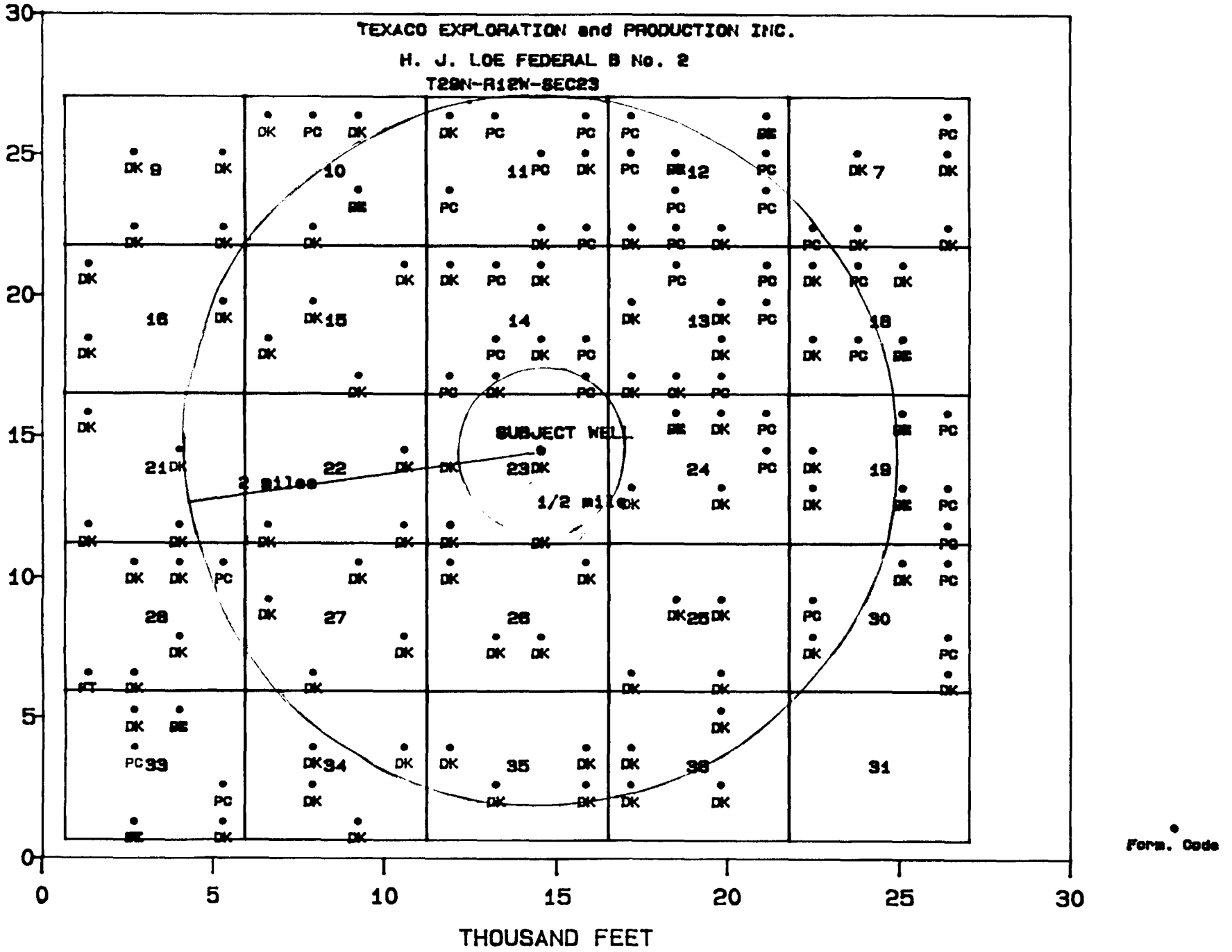
PBTD - 3122
TD - 6412




(FLORA VISTA) AZTEC 7 MI.
Radio Facility
Substation
Drill Hole
Gas Wells
Gas Well
Oil Well
Fairground
Racetrack
Riverside Ch
Desert Hills Chr
CITIZENS
DITCH
MAIN CANAL
CANYON
HAMMOND
KUTZ
SIPHON
SAN JUAN RIVER
BM 5478
BM 5497

# H.J. LOE B FEDERAL LEASE & OFFSETS
## T 29 N - R 12 W




TEXACO EXPLORATION and PRODUCTION INC.
H. J. LOE FEDERAL B No. 2
T28N-R12W-SEC23
SUBJECT WELL
2 Miles
1/2 mile
9
10
11
12
7
16
15
14
13
18
21
22
23
24
19
28
27
26
25
30
33
34
35
36
31
Form. Code
0
5
10
15
20
25
30
THOUSAND FEET

## OFFSET WELLS WITH AREA OF REVIEW

**WELL NAME:** H. J. LOE FEDERAL B No. 2E

**LOCATION:** 1700′ FNL & 1050′ FWL
UNIT LETTER "E"
SEC 23 T29N-R12W

**SPUD DATE:** OCTOBER 18, 1980
**COMPL DATE:** DECEMBER 31,1980

| CASING: | SIZE | WEIGHT | SET @ | HOLE SIZE | CEMENT | TOC |
|---|---|---|---|---|---|---|
| | 8 5/8" | 24 | 501′ | 12 1/4" | 450 SX (CIRC) | SURF |
| | 4 1/2" | 10.5 | 6340′ | 7 7/8" | 1350 SX (1ST) | SURF |
| | | DV @ 3170′ | | | 1200 SX (2ND) | 3170 |

(cement volumes calculated using 33% excess annular volume)

**TD:** 6340′
**PBTD:** 6312′

**COMPLETION:**

**FORMATION:** DAKOTA
**INTERVAL:** 6188′-6290′ w/ 1 JSPF
**STIMULATION:** 2000 GAL ACID
125,000 # 20/40 SAND
94,000 GAL FRAC FLUID

==========

**WELL NAME:** H. J. LOE FEDERAL B No. 2R

**LOCATION:** 1650′ FNL & 2210′ FEL
UNIT LETTER "G"
SEC 23 T29N-R12W

**SPUD DATE:** OCTOBER 28, 1976
**COMPL DATE:** DECEMBER 31,1976

| CASING: | SIZE | WEIGHT | SET @ | HOLE SIZE | CEMENT | TOC |
|---|---|---|---|---|---|---|
| | 8 5/8" | 24 | 298′ | 11" | 150 SX (CIRC) | SURF |
| | 5 1/2" | 15.5 | 6358′ | 7 7/8" | 625 SX (1ST) | 2307′ |
| | | DV @ 3166′(DV DID NOT OPEN) | | | 0 SX (2ND) | |

(cement volumes calculated using 50% excess annular volume)

**TD:** 6358′
**PBTD:** 6320′

**COMPLETION:**

**FORMATION:** DAKOTA
**INTERVAL:** 6174′-6312′
**STIMULATION:** 130,000 # 20/40 SAND
121,500 GAL FRAC FLUID
350 scf $CO_2$

## OFFSET WELLS WITH AREA OF REVIEW

**WELL NAME:** H. J. LOE FEDERAL B No. 1

**LOCATION:** 990' FNL & 990' FEL
UNIT LETTER "A"
SEC 23 T29N-R12W

**SPUD DATE:** DECEMBER 9, 1959
**COMPL DATE:** DECEMBER 13,1959

| CASING: | SIZE | WEIGHT | SET @ | HOLE SIZE | CEMENT | TOC |
|---|---|---|---|---|---|---|
| | 8 5/8" | 24 | 207' | 11" | 250 SX (CIRC) | SURF |
| | 4 1/2" | 9.5 | 1775' | 6 3/4" | 200 SX | 430' |

(cement volumes calculated using 33% excess annular volume)

**TD:** 1775'
**PBTD:** 1761'

**COMPLETION:**

**FORMATION:** PICTURED CLIFFS
**INTERVAL:** 1730'-1748'
**STIMULATION:** N/A

**ABANDONMENT CONDITIONS**

10 SX CMT PLUG-SURFACE
25 SX CMT PLUG-PICTURED CLIFFS
(SEE WELLBORE DIAGRAM)

DATE: 2/10/92

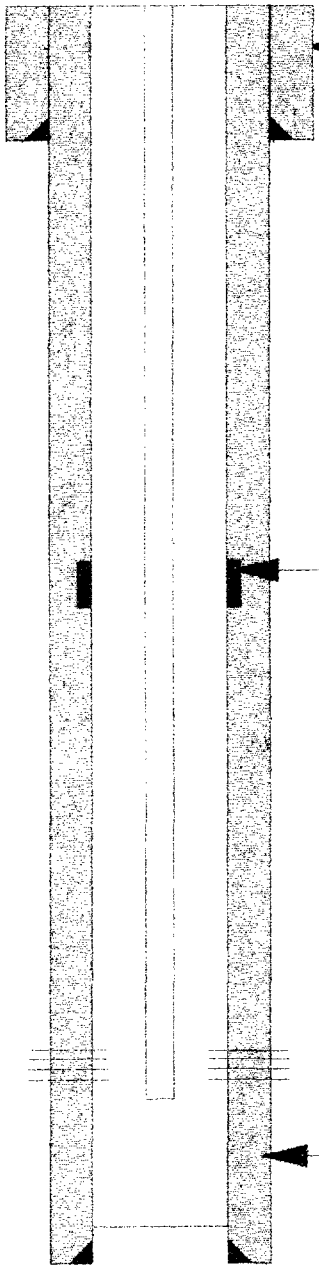
# H. J. LOE FEDERAL B No. 2E
# CURRENT COMPLETION

WELL:
H. J. Loe Fed B No. 2E

LOCATION:
Unit E, 1700' FNL & 1050' FWL
Sec. 23, T29N, R12W
San Juan County

Spud Date:
10/18/80

COMPL. DATE:
5/24/80



8.625", 24#, K55 Csg.
Set @ 501' in 12.25" hole
w/ 450 sx. cmt.
TOC = 0 (circ)

DV Tool @ 3170'

2-3/8" Tubing
@ 6291'

DAKOTA PERFS:
6138' - 6290'
1 JSPF

4.5", 10.5#, K55 Csg.
Set @ 6340' in 7.875" hole
w/ 1350 sx. cmt.
TOC = 0 (Circ.)
1st Stage: Cmt to DV Tool
2nd Stage: Cmt to Surface

PBTD - 6312'
TD - 6340'

DATE: 2/11/92

# H. J. LOE FEDERAL B No. 2R
# CURRENT COMPLETION

**WELL:**
H. J. Loe Federal B No. 2R

**LOCATION:**
Unit G, 1650' FNL & 2210' FEL
Sec. 29, T29N, R12W
San Juan County

**SPUD DATE:**
10/28/76

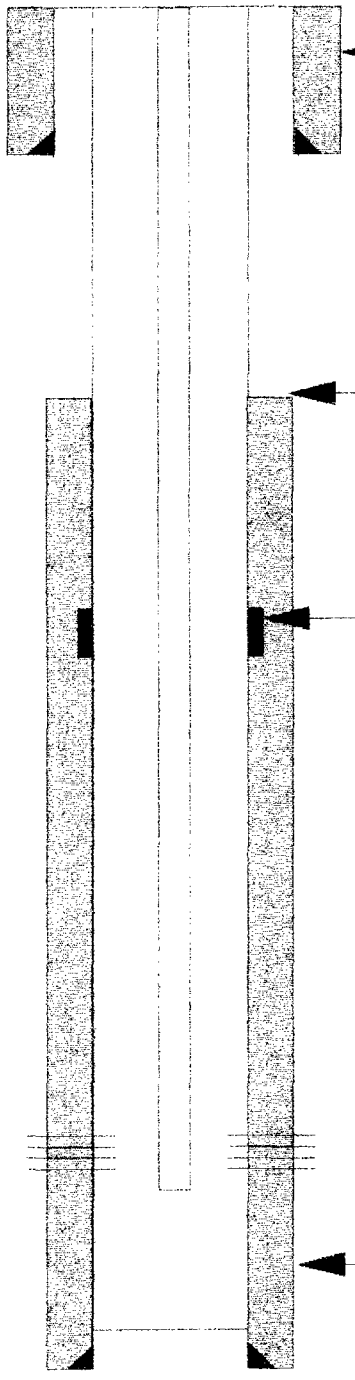
**COMPL. DATE:**
12/19/76

**FORMATION TOPS:**

Fruitland 1338'
Pictured Cliffs 1708'
Chacra 2690'
Mesa Verde 3240'
Mancos 4458'
Dakota 6173'

**DAKOTA PERFS:**
6174' - 6312'

PBTD - 6320'
TD - 6358'



8.625", 24#, K55 Csg.
Set @ 298' in 11.0" hole
w/ 150 sx. cmt.
TOC = 0 (circ)

TOC @ 2307'
(Calc. w/ 50% excess)

DV Tool @ 3166'
Did Not Open
No 2nd Stage

5.5", 15.5#, K55 Csg.
Set @ 6358' in 7.875" hole
w/ 625 sx. cmt.

DATE: 2/10/92

# H. J. LOE FEDERAL B No.1
# PLUGGED & ABANDONED

**WELL:**
H. J. LOE FEDERAL B No. 1

**LOCATION:**
Unit A, 990' FNL & 990' FEL
Sec. 23, T29N, R12W
San Juan County

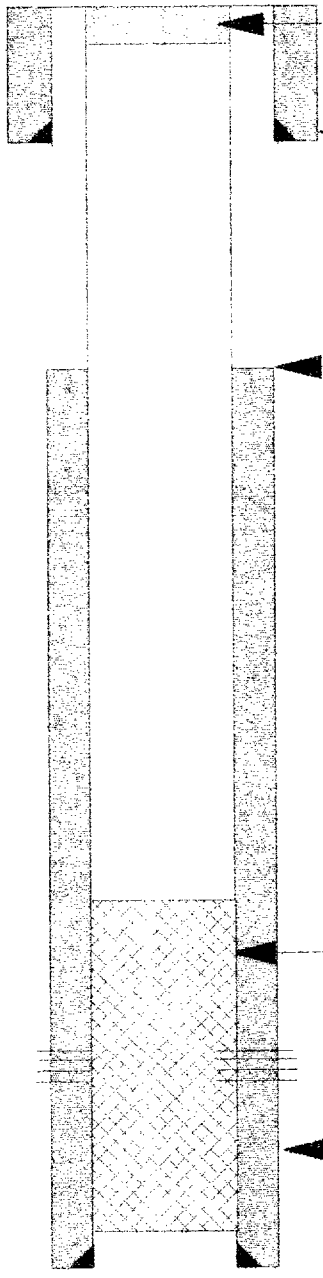
**SPUD DATE:**
12/09/59

**COMPL. DATE:**
12/13/59

**PLUGGED & ABANDONED:**
12/13/59

**PERFORATIONS:**
1730' - 1748'

PBTD - 1761'
TD - 1775'



Spot Cement Plug
w/ 10 sx. cmt.
on top of 4.5" Csg.

8.625", 24#, K55 Csg.
Set @ 207' in 11.0" hole
w/ 250 sx. cmt.
TOC = 0 (circ)

TOC @ 523'
(Calc. w/ 33% excess)

Spot Cement Plug
w/ 25 sx. cmt.
1761' - 1441'

4.5", 9.5#, K55 Csg.
Set @ 1775' in 6.75" hole
w/ 200 sx. cmt.

**VII. Attach data on the proposed operation, including:**

**1. Proposed average and maximum daily rate and volume of fluid to be injected daily.**

Primary source of water will come from the fruitland coal development on the Loe lease. Secondary water may be truck in from neighboring leases. Average daily injection is anticipated to be 200 BPD, with a maximum volume expected not to exceed 1000 BPD.

**2. Whether the system is open or closed.**

The system will be a closed injection system. The primary source of water will be from Fruitland coal wells on the Loe lease, with the capabilities of trucking in water from neighboring leases.

**3. Proposed average and maximum injection pressure.**

After the interval is completed a Step Rate Test will be performed to determine the formation parting pressure. The initial surface injection pressure is not expected to exceed 1800 psi.

**4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water.**

The primary source of injection water will be from the Fruitland coal formation. Water from other conventional formations may also be injected. Enclosed are water analysis from the Fruitland coal, obtained during drilling operations on the Loe lease, and a Mesa Verde water sample. The fluids appear to be compatible, and exhibit no traits that would pose any operational or environmental problems.

**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.**

Attached

| | |
|---|---|
| Company: TEXACO EXPL. AND PROD. | |
| County: SAN JUAN | Field: SAN JUAN |
| State: NM | Location: 27-5 |
| Lab #: 1 | Formation: MV |
| Date: 12/19/90 | Depth: 0 |

# Unichem Intl. Water Analysis Report

| Sum + | mg/L | meq/L | Sum - | mg/L | meq/L |
|---|---|---|---|---|---|
| Potassium | 0.0 | 0.00 | Sulfate | 58.3 | 1.21 |
| Sodium | 1,810.0 | 78.73 | Chloride | 2,400.0 | 67.70 |
| Calcium | 11.8 | 0.59 | Carbonate | 0.0 | 0.00 |
| Magnesium | 2.5 | 0.21 | Bicarbonate | 659.0 | 10.80 |
| Iron | 0.0 | 0.00 | Hydroxide | 0.0 | 0.00 |
| Barium | 10.0 | 0.15 | - | 0.0 | 0.00 |
| Strontium | 0.0 | 0.00 | - | 0.0 | 0.00 |
| **CATIONS** | **1,834.3** | **79.68** | **ANIONS** | **3,117.3** | **79.71** |

## Solids

| | | |
|---|---|---|
| Total Dissolved Solids @180C | 4,946 | mg/L |
| Total Solids, calculated less carbonate | 4,622 | mg/L |
| Total Solids, calculated | 4,952 | mg/L |
| Total Solids, NaCl equivalents | 4,485 | mg/L |

## System Conditions

| | | |
|---|---|---|
| System Operation | | Normal |
| Sample Temperature, 'F | 90 | F |
| Sample pH, standard units | 7.2 | Units |

## Dissolved Gases

| | | |
|---|---|---|
| Dissolved Oxygen | 0.0 | ppm |
| Carbon Dioxide | 0.0 | mg/L |
| Total Sulfide, (TS) | 0.0 | mg/L |
| Sulfide Ion, (S) | 0 | mg/L |
| Dissolved Hydrogen Sulfide, (TS-S) | 0 | mg/L |

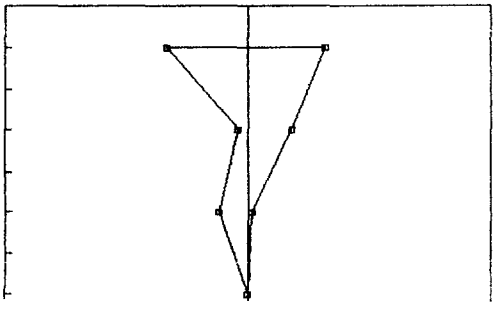
## Other Properties

| | | |
|---|---|---|
| Specific Gravity, measured | 1.0040 | |
| Specific Gravity, calculated | 1.0037 | |
| Resistivity, measured | 0 | ohm/m^3 |
| Ionic strength | 0.081 | |

## Microbiological

| | |
|---|---|
| Sulfate Reducing Bacteria | nd |
| Aerobic Bacteria | nd |

## Water Analysis Pattern



Approved: T.J. MOORE
02/04/92 v2.00

| | |
|---|---|
| Company: TEXACO EXPL. AND PROD. | |
| County: SAN JUAN | Field: BASIN FRUITLAND |
| State: NM | Location: H-J-LOE FED B #5 |
| Lab #: 1 | Formation: FRUITLAND COAL |
| Date: 12/19/90 | Depth: 0 |

# Unichem Intl. Water Analysis Report

| Sum + | mg/L | meq/L | Sum - | mg/L | meq/L |
|---|---|---|---|---|---|
| Potassium | 0.0 | 0.00 | Sulfate | 0.0 | 0.00 |
| Sodium | 10,536.0 | 458.29 | Chloride | 16,330.0 | 460.61 |
| Calcium | 416.0 | 20.76 | Carbonate | 0.0 | 0.00 |
| Magnesium | 165.0 | 13.57 | Bicarbonate | 1,952.0 | 31.99 |
| Iron | 0.0 | 0.00 | Hydroxide | 0.0 | 0.00 |
| Barium | 0.0 | 0.00 | - | 0.0 | 0.00 |
| Strontium | 0.0 | 0.00 | - | 0.0 | 0.00 |
| **CATIONS** | **11,117.0** | **492.62** | **ANIONS** | **18,282.0** | **492.60** |

## Solids

| | | |
|---|---|---|
| Total Dissolved Solids @180C | 28,118 | mg/L |
| Total Solids, calculated less carbonate | 28,423 | mg/L |
| Total Solids, calculated | 29,399 | mg/L |
| Total Solids, NaCl equivalents | 27,889 | mg/L |

## System Conditions

| | | |
|---|---|---|
| System Operation | | Normal |
| Sample Temperature, 'F | 90 | F |
| Sample pH, standard units | 7.43 | Units |

## Dissolved Gases

| | | |
|---|---|---|
| Dissolved Oxygen | 0.0 | ppm |
| Carbon Dioxide | 0.0 | mg/L |
| Total Sulfide, (TS) | 0.0 | mg/L |
| Sulfide Ion, (S) | 0 | mg/L |
| Dissolved Hydrogen Sulfide, (TS-S) | 0 | mg/L |

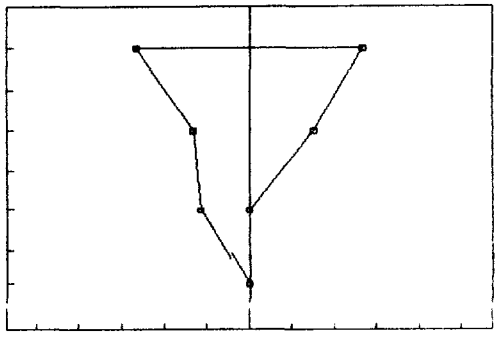
## Other Properties

| | | |
|---|---|---|
| Specific Gravity, measured | 1.0200 | |
| Specific Gravity, calculated | 1.0206 | |
| Resistivity, measured | 0 | ohm/m^3 |
| Ionic strength | 0.510 | |

## Microbiological

| | |
|---|---|
| Sulfate Reducing Bacteria | nd |
| Aerobic Bacteria | nd |

## Water Analysis Pattern



Approved: T.J. MOORE
02/04/92 v2.00

**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 one as well as any such source known to be immediately underlying the injection interval.**

The proposed injection interval for the subject well are sandstones within the Mesa Verde Group. The Mesa Verde Group is Createous in age. The sandstone intervals vary in thickness from 10 feet to 100 feet. These Mesa Verde intervals are composed of fine grained, angular, highly cemented sands with an average porosity of 12 percent. Typically these sandstones are interrupted by layers of shale and coal. The known fresh water zones for this area of the San Juan Basin are the Nacimiento, and the Ojo Alamo formations. The Nacimiento sandstone is at its surface outcrop. The Ojo Alamo is found at approximately 400 feet. There are no known aquifers underlying the Mesa Verde Group that would be considered as "fresh" (less than 10,000 mg/l).

**IX. Describe the proposed stimulation program, if any.**

The Mesa Verde interval will be perforated between 3250'-3400', and 4000'-4200'. This interval will be tested for injectivity and evaluated. At this time it will be determined if fracture stimulation is necessary. If the Mesa Verde is fractured the job will be performed using a linear gel system, and an estimated 250,000 pounds of propant.

**X. Attach appropriate logging and test data on the well.**

Electric well logs were submitted upon the initial completion of the well (Schlumberger Induction Log 6402'-287'). A CBL-VDL will be run prior to the Mesa Verde completion.

**XI. Attach a chemical analysis of fresh water from two or more fresh water wells within one mile of any injection or disposal well showing location of wells and dates samples were taken.**

Inquires to the State Engineer/ Water Rights Bureau on January 16, 1992 indicate no fresh water wells are located within one mile of the proposed injection well.

**XII. Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering date and find no evidence of open faults or any other hydrologic connection between the disposal zone and any under ground source of drinking water.**

The Mesa Verde interval is a complex formation comprised of sand, shale, and coal layers. The formation is bordered above by the Lewis Shale, and below by the Mancos Shale. These formation can be considered virtually impermeable to vertical flow under the existing overburden pressure. The known fresh water zones for this area of the San Juan Basin are the Nacimiento, and the Ojo Alamo formations. Within the area of review for the proposed injection well, the Nacimiento sandstone is at its surface outcrop. The Ojo Alamo is found at approximately 400 feet. This sandstone is 100'-200' thick. Faulting or fracturing from the Mesa Verde interval to one of the fresh water formations would be highly uncommon, and highly improbable to occur in the San Juan Basin. Offsetting well records within the "area of review" indicate adequate cement isolation between the proposed injection interval and known sources of drinking water or producing intervals. There is no other evidence indicating a hydrological connection between the Mesa Verde interval and the known sources of drinking water.

**XIII Applicants must complete the "Proof of Notice"...**
Texaco has run the following notice in the Farmington Daily Times:

**Legal**

**LEGAL NOTICE**
**INTENT TO DISPOSE OF PRODUCED WATER IN THE SUB-SURFACE**

Texaco Exploration and Production Inc. is requesting approval to convert the H. J. Loe Federal B No. 2 to a water disposal well. The well is located in Sec 23, T29N, R12W at 1850' FNL & 3210' FEL, Unit Letter "G" of San Juan County, New Mexico. The proposed injection interval is within the Mesa Verde Group in the Cliff House and Point Lookout formations. (3250'-3400', 4000', 4200'). The average daily injection rate is anticipated to be 200 BWPD, with a maximum rate of 1000 BWPD. This surface injection pressure is estimated to be at or below 1800 psi. Any questions regarding this notice should be addressed to Ted A. Tipton, Texaco Exploration and

(Continued on next column)

**Legal**

Production Inc. 3300 N. Butler, Ste 100, Farmington, NM 87401. Interested parties must file objections or request for hearing with the Oil Conservation Division, PO Box 2088, Santa Fe, NM 87501 within 15 days.

Legal No 28945 published in the Farmington Daily Times, Farmington, New Mexico on Sunday, Monday, Tuesday and Wednesday, February 9, 10, 11 and 12, 1992.

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**IN THE DISTRICT COURT FOR SAN JUAN COUNTY STATE OF NEW MEXICO**
**IN THE MATTER OF THE ESTATE OF ORVILLE SCHERER, deceased.**
**No. PB-92-7-3**
**NOTICE TO CREDITORS**

Raymond L. Hill has been appointed Personal Representative of the Estate of Orville Scherer, deceased. All persons having claims against this estate are required to present their claims within two months after the

(Continued on next column)

**SENDER:**
- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece next to the article number.

I also wish to receive the following services (for an extra fee):
1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
MESA OPERATING LIMITED PART.
P.O. BOX 2009
AMARILLO TX 79189-2009

4a. Article Number
P 337 994 920

4b. Service Type
☐ Registered ☐ Insured
☑ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

7. Date of Delivery
MAR - 2 1992

5. Signature (Addressee)

8. Addressee's Address (Only if requested and fee is paid)

6. Signature (Agent)

PS Form **3811**, October 1990 ☆U.S. GPO: 1990—273-861 **DOMESTIC RETURN RECEIPT**

DBS

**SENDER:**
- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece next to the article number.

I also wish to receive the following services (for an extra fee):
1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
R&G DRILLING
C/O WALSH ENGINEERING & PRODUCTION
204 N. AUBRN
FARMINGTON NM 87401

4a. Article Number
P 565 391 480

4b. Service Type
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

7. Date of Delivery
3/3/92

5. Signature (Addressee)

8. Addressee's Address (Only if requested and fee is paid)

6. Signature (Agent)

PS Form **3811**, October 1990 ☆U.S. GPO: 1990—273-861 **DOMESTIC RETURN RECEIPT**

DBS

**SENDER:**
- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece next to the article number.

I also wish to receive the following services (for an extra fee):
1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to: ~~ABS~~
MERIDIAN OIL INC.
3535 E 30th
FARMINGTON NM 87401
Carolyn Curry

4a. Article Number
P 337 994 919

4b. Service Type
☐ Registered ☐ Insured
☐ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

7. Date of Delivery
2-28-92

5. Signature (Addressee)

8. Addressee's Address (Only if requested and fee is paid)

6. Signature (Agent)

PS Form **3811**, October 1990 ☆U.S. GPO: 1990—273-861 **DOMESTIC RETURN RECEIPT**

DBS

**SENDER:**
- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece next to the article number.

I also wish to receive the following services (for an extra fee):
1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
UNION OIL CO. OF CALIFORNIA
3300 N. BUTLER Ste 200
FARMINGTON, NM. 87401

4a. Article Number
P 337 994 921

4b. Service Type
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

7. Date of Delivery
2/28/92

5. Signature (Addressee)
Holly Morgan

8. Addressee's Address (Only if requested and fee is paid)

6. Signature (Agent)

PS Form **3811**, October 1990 ☆U.S. GPO: 1990—273-861 **DOMESTIC RETURN RECEIPT**

DBS

## XIV. Proof of notification.

**SENDER:**
- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece next to the article number.

I also wish to receive the following services (for an extra fee):
1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to: ~~OBS~~

AMOCO PRODUCTION COMPANY.
ZOO AMOCO Ct.
FARMINGTON, NM. 87401)

4a. Article Number P337 994 918

4b. Service Type
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

7. Date of Delivery 2-25-92

5. Signature (Addressee) Sue Matonis

6. Signature (Agent)

8. Addressee's Address (Only if requested and fee is paid)

PS Form 3811, October 1990 ☆U.S. GPO: 1990—273-861 **DOMESTIC RETURN RECEIPT**

OBS

**SENDER:**
- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece next to the article number.

I also wish to receive the following services (for an extra fee):
1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
Bureau of Land Mgmt.
1235 La Plata Hwy.
Farmington, NM 87401

4a. Article Number P337 994 887

4b. Service Type
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

7. Date of Delivery 2-27-92

5. Signature (Addressee) Marinell Shelton

6. Signature (Agent)

8. Addressee's Address (Only if requested and ~~fee~~ is paid)

PS Form 3811, October 1990 ☆U.S. GPO: 1990—273-861 **DOMESTIC RETURN RECEIPT**

STATE OF NEW MEXICO
# ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
AZTEC DISTRICT OFFICE

GARREY CARRUTHERS
GOVERNOR

1000 RIO BRAZOS ROAD
AZTEC, NEW MEXICO 87410
(505) 334-6178

ATTN: DAVID CATANACH

Date: 4-6-92

Oil Conservation Division
P.O. Box 2088
Santa Fe, NM 87504-2088

Re: Proposed MC_____
Proposed DHC_____
Proposed NSL_____
Proposed SWD X
Proposed WFX_____
Proposed PMX_____

Gentlemen:

I have examined the application dated 3-30-92

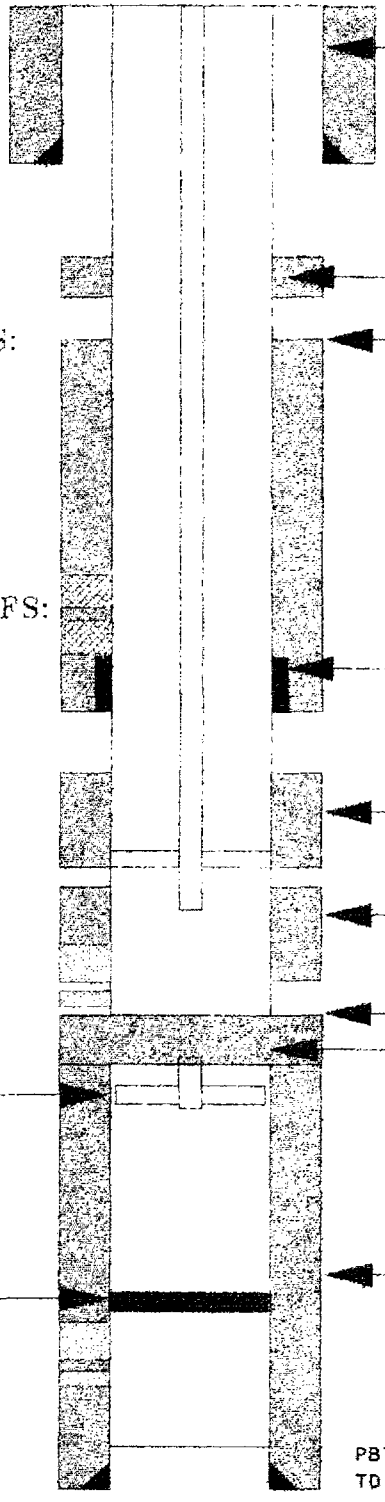
for the Texaco Exp Inc. H.J. Loe Federal #2
Operator Lease & Well No.

G-23-29N-12W and my recommendations are as follows:
Unit, S-T-R

To
TEST CASING ~~INSIDE~~ PLUG @ 4500 over
the PARTED CASING TO ENSURE THAT
PLUG WILL NOT ALLOW COMMUNICATION
W/ DAKOTA TEST @ 1500 PSE MAX
OR MAXIMUM POSSIBLE INJECTION PRESS.
RUN CBL PRIOR TO CASING ~~IN~~ INSIDE
Yours truly, PLUG TEST

Ernie Busch

# H J LOE B FED. No. 2
# PROPOSED INJECTION SCHEMATIC



**WELL:**
H. J. Loe B Fed. #2

**LOCATION:**
SW/4 NE/4
Sec. 23 T29N R12W

**COMPL. DATE:**
5/24/60

KB - 5669
GL - 5658

**EST. FORMATION TOPS:**
San Jose - Surface
Ojo Alamo - 440
Fruitland - 511
Kirtland - 540
Pictured Cliffs - 1698
Cliff House - 3238

**PICTURED CLIFFS PERFS:**
(SQZ w/ 40 SX CMT)
1703-1716
1722-1730

**MESA VERDE INJECTION INTERVAL**
3260-3400
4000-4200

FISH
1 1/2 JTS TBG, PKR

CIBP @ 6150

**DAKOTA PERFS:**
(ABANDONED)
6176-6179
6244-6278
6300-6310

13.375" 48# K55 csg
Set @ 289' in 17.25" hole
w/ 300 sx. cmt.
TOC = 0 (circ)

SQZ CSG LEAK @ 1473-1480
W/ 75 SX CMT

2nd TOC = 1090
(Calc. w/ 25% Excess)

DV Tool @ 1886'
w/ 150 sx. cmt.

Plugged back w/ 50 sx.
through sqz. hole @ 3190

Squeezed csg. leak
3578-4034 w/ 400 sx.

1st TOC = 4896
(Calc. w/ 75% Excess)

Plugged back w/ 120 sx.
@ 4500' (parted csg.)

5.5", 14 & 15.5#, K55 Csg.
Set @ 6408' in 7.875" hole
w/ 1st 400 sx. cmt.
2nd 150 sx. cmt

PBTD - 4300
TD - 6412

July 15, 1992

REVIEW OF ADMINISTRATIVE ORDER SWD-472

Subject Well: H.J. Loe "B" Federal No.2
1850' FNL & 2310' FEL
Sec.23 - T29N - R12W
San Juan County, New Mexico

## REVIEW BY THE OIL CONSERVATION DIVISION

Under the direction of David Catanach, PE, and at the request of Charlie Gholson, Field Representative II, the mechanical integrity of the aforementioned well was brought into question. The subject well was drilled and completed as a Dakota formation producer on June 24, 1960 and was permitted as a salt water disposal well under administrative order SWD-472 issued April 9, 1992.

### THE DIVISION REVIEW FINDS THAT:

1) The subject well has a history of leaks affecting the production casing string. It is noted that the casing has parted, ruptured and has an unrecoverable fish in the hole.

2) The subject well has been cement squeezed, plugged back with cement and cast iron bridge plugs and subsequently re-entered several times. Consequently, the well has been shut-in for the greater period of 16 years.

3) It is inferred through communications by letter, telephone, and hand written memos referring to telephone conversations, contained in the well file, the situation would best be remedied by the plugging and abandonment of the subject well.

4) The operator sought approval to drill the H.J. Loe "B" Federal No.2-R as a replacement well, hereinafter referred to as "replacement well".

5) The Division approved the drilling of the replacement well. The plugging and abandonment of the original well was not stated as a condition of approval.

6) The operator submitted notice to plug and abandon the original well stating a detailed procedure to do so.

7) The operator later submitted notice requesting the previous notice be voided, and extended shut-in status be granted.

8) During the drilling operations on the replacement well, a blow out occurred at approximately 800 feet. It was surmised that the Ojo Alamo formation may have been charged with gas from casing leaks in the original well.

9) At least two (2) workovers in recent years were labeled as "unsuccessful".

10) The subject well passed casing integrity tests in September 1988 and July 1989, both held 1000 psi for 15 minutes.

11) The last sundry notice indicating plug back operations indicates cement plug back to 3122 feet, however, a current wellbore schematic submitted with form C-108 for authorization to inject, indicates a plug back total depth of 1822 feet.

12) The operators proposal for injection called to once again deepen the well to approximately 4200 feet for injection into the Mesaverde formation.

13) The son of a bitch is smooth wore out!

THE ABOVE FINDINGS ARE EVIDENCED BY:

Copies of sundry notices, applications and memos contained in the well file and attached hereto.

STATE OF NEW MEXICO
ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
AZTEC DISTRICT OFFICE

'92 NOV 2 AM 10 30

1000 RIO BRAZOS ROAD
AZTEC, NEW MEXICO 87410
(505) 334-6178

Date: 10/30/92

Oil Conservation Division
P.O. Box 2088
Santa Fe, NM 87504-2088

RE: Proposed MC_____ Proposed DHC_____
Proposed NSL_____ Proposed SWD ✓
Proposed WFX_____ Proposed PMX_____
Proposed NSP_____ Proposed DD_____

Gentlemen:

I have examined the application received on 10/29/92

for the TEXACO HJ LOE B FEDERAL #2
OPERATOR LEASE & WELL NO.

G-23-29N-12W and my recommendations are as follows:
UL-S-T-R

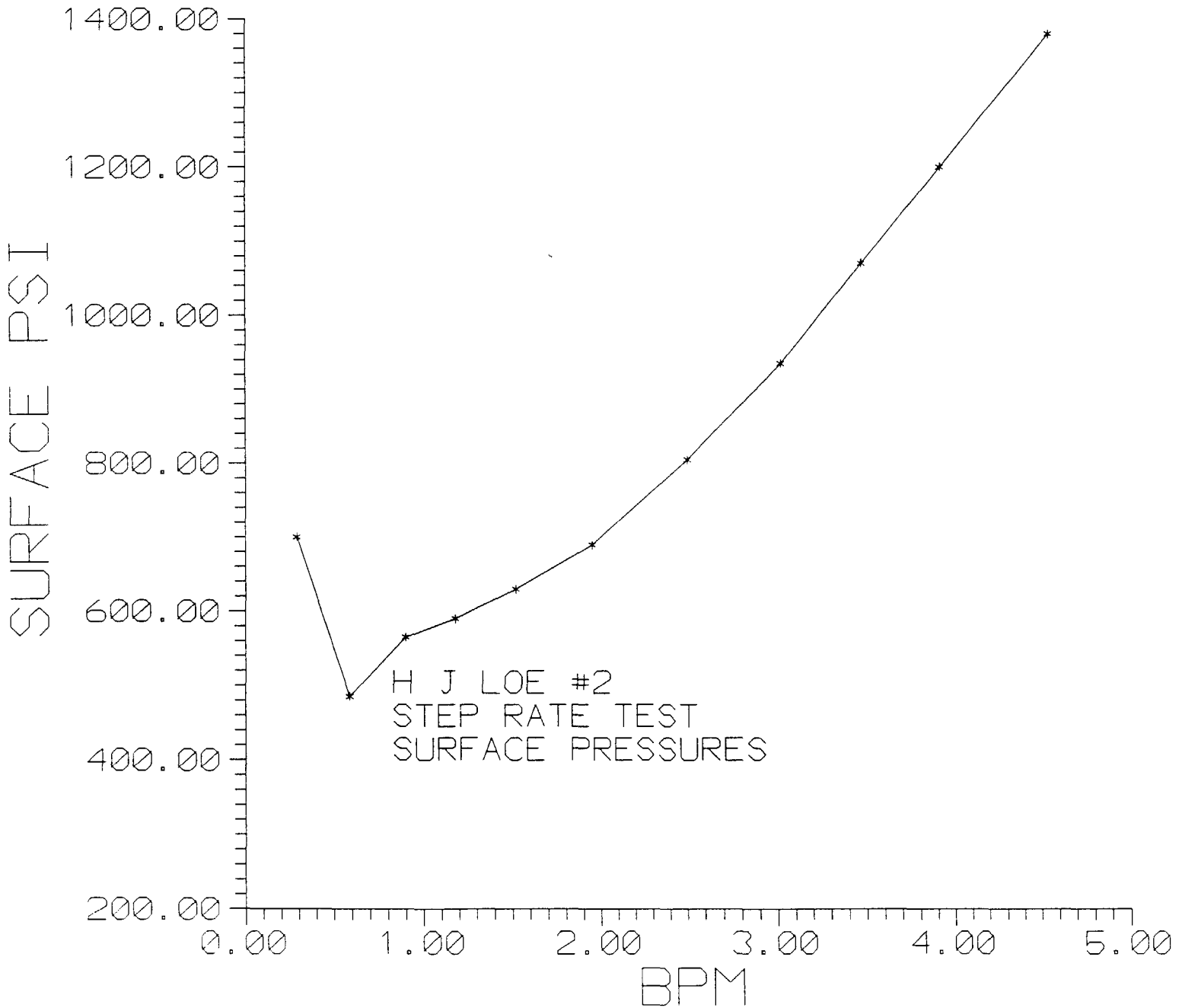
MAXIMUM PRESSURE = 545 psi

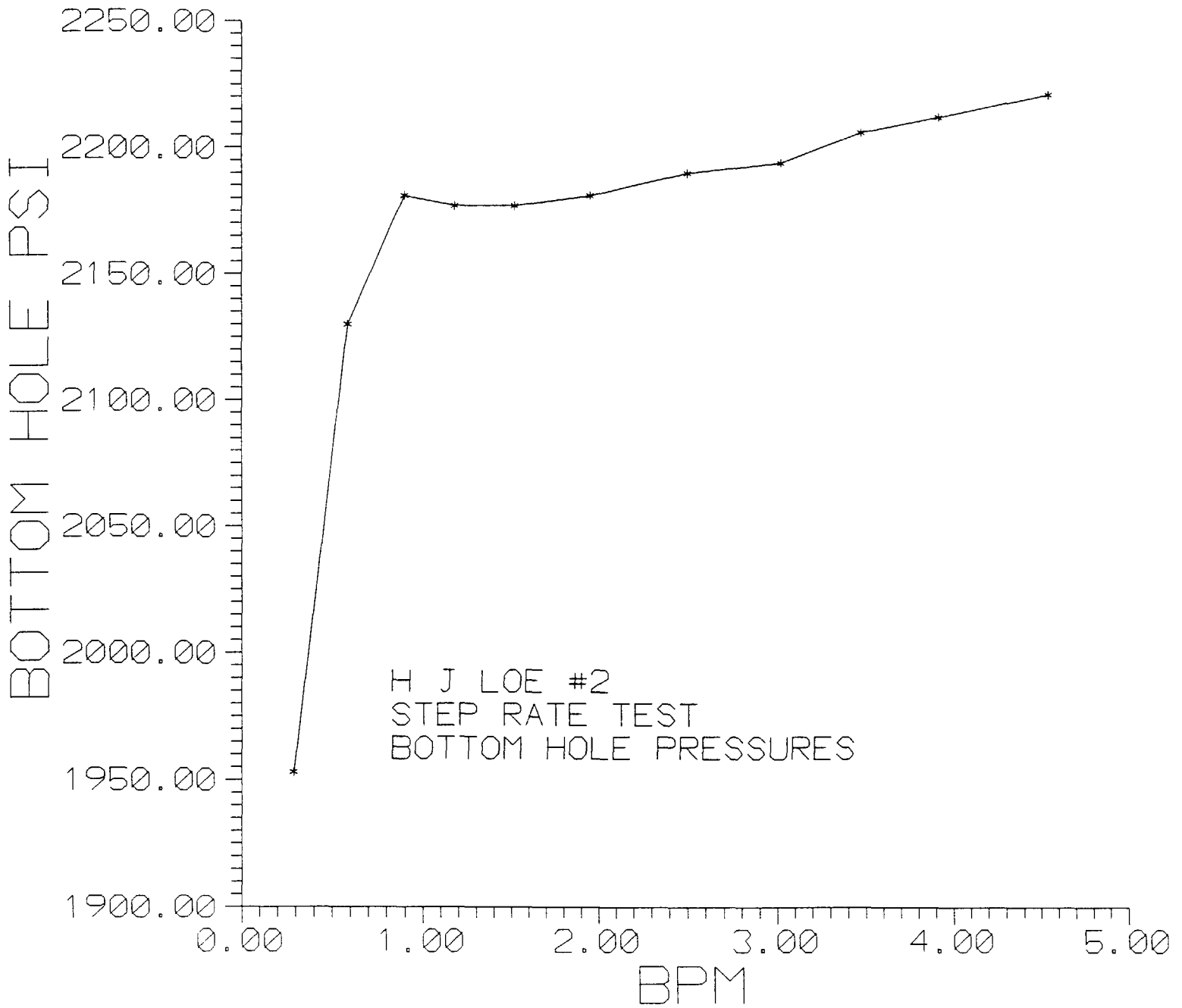
STEP RATE TEST WAS RAN WITHOUT NOTIFICATION TO THE NMOCD - WE WERE NOT PRESENT TO WITNESS THE TEST.

MIT PASSED ON 9/29/92

Yours truly,

Dianna Dainhurst


1400.00
1200.00
1000.00
800.00
600.00
400.00
200.00
SURFACE PSI
0.00
1.00
2.00
3.00
4.00
5.00
BPM
H J LOE #2
STEP RATE TEST
SURFACE PRESSURES


BOTTOM HOLE PSI
2250.00
2200.00
2150.00
2100.00
2050.00
2000.00
1950.00
1900.00
0.00
1.00
2.00
3.00
4.00
5.00
BPM
H J LOE #2
STEP RATE TEST
BOTTOM HOLE PRESSURES

Form C-408 (3-88)

TEXACO

# FAX TRANSMITTAL COVER SHEET

NOTE: DO NOT USE BLUE OR RED INK OR PENCIL ON THIS FORM. THEY WILL NOT REPRODUCE

DATE: 10/29/92 ☐URGENT ☒ROUTINE NO. OF PAGES 1+2

**MESSAGE TO:** NMOCD / D. FAIRHURST

TELEPHONE NO. _____ FAX MACHINE NO. _____

DEPT./DIV./SUBS. _____

LOCATION _____ ROOM NO. _____

**MESSAGE FROM:** DARREN SEGRAEST

TELEPHONE NO. 325-4397 FAX MACHINE NO. 325-5398

DEPT./DIV./SUBS. _____

LOCATION _____ ROOM NO. _____

SENDING DEPT. APPROVAL _____ TIME TRANSMITTED _____

☐ RETURN ORIGINAL VIA INTER-OFFICE MAIL ☐ RETURN ORIGINAL CALL SENDER TO PICK UP

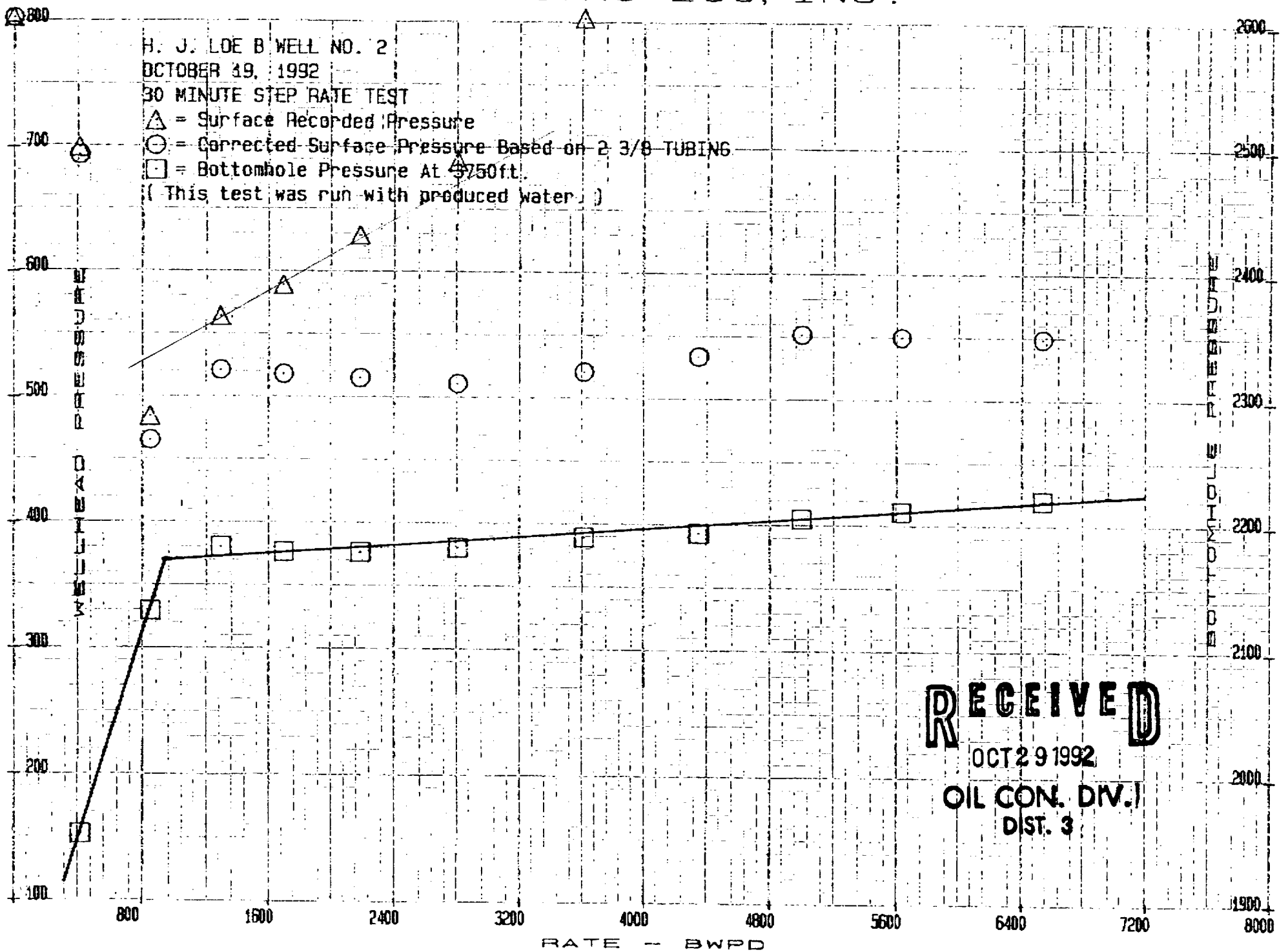
ADDITIONAL COMMENTS:

H.d. Log 2 STEP RATE TEST INFO

RECEIVED
OCT 29 1992
OIL CON. DIV.
DIST. 3

# PETRO LOG, INC.

H. J. LOE B WELL NO. 2
OCTOBER 19, 1992
30 MINUTE STEP RATE TEST
△ = Surface Recorded Pressure
○ = Corrected Surface Pressure Based on 2 3/8 TUBING
□ = Bottomhole Pressure At 5750ft.
( This test was run with produced water )



TEXACO EXPLOR & PRODUCTION

H. J. LOE B WELL NO. 2

30 MINUTE STEP RATE TEST

OCTOBER 19, 1992

2 3/8 TUBING

BOMB DEPTH 3750

| POINT NO. | TIME | RATE (BWPD) | GAUGE | FRICTION | CORRECTED | BHP |
|---|---|---|---|---|---|---|
| 1 | 10:52 | 418 | 700 | 6 | 694 | 1953 |
| 2 | 11:22 | 850 | 485 | 19 | 466 | 2130 |
| 3 | 11:52 | 1296 | 565 | 43 | 522 | 2181 |
| 4 | 12:22 | 1700 | 590 | 71 | 519 | 2177 |
| 5 | 12:52 | 2189 | 630 | 114 | 516 | 2177 |
| 6 | 1:22 | 2808 | 690 | 178 | 512 | 2181 |
| 7 | 1:52 | 3614 | 805 | 283 | 522 | 2190 |
| 8 | 2:22 | 4349 | 935 | 400 | 535 | 2194 |
| 9 | 2:52 | 4997 | 1070 | 517 | 553 | 2206 |
| 10 | 3:22 | 5639 | 1200 | 649 | 551 | 2212 |
| 11 | 3:52 | 6538 | 1380 | 830 | 550 | 2221 |