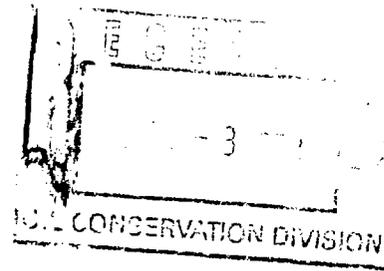


**PIONEER**  
NATURAL RESOURCES USA, INC



March 25, 1998

New Mexico Energy, Minerals & Natural Resources Department  
Oil Conservation Division  
2040 South Pacheco Street  
Santa Fe, NM 87505

Attn: ~~Michael E. Stogner~~  
Chief Hearing Officer/Engineer

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RE: **Administrative application for waterflood expansion pursuant to Division General Rules 701.G(6) and 701.C for the Lusk West (Delaware) Unit Waterflood Project in Sections 20,21, and 29, Township 19 South, Range 32 East, NMPM, designated and Undesignated West Lusk-Delaware Pool, Lusk West (Delaware) Unit, Lea County, NM. Case 11704**

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Dear Mr. Stogner,

I was recently assigned the engineering duties for the above referenced project. Previous to my assignment Scott Lackey (Pioneer engineer) was responsible for the project. I have studied the material relating to the project and have been brought up to date with the approval process by Mr. Lackey.

It is my understanding the Division Order No. R-10863 included provisions postponing water injection into the subject waterflood project until such time as eight (8) certain existing wellbores (2 producing wells and 6 plugged and abandoned wells) were deemed capable of not providing an avenue of escape from the proposed injection zone.

A meeting was conducted November 3, 1997 with Chris Williams (Director of Hobbs District for the NMOCD) and Pioneer Natural Resources (PNR) to discuss the eight wells in question. During the meeting each wellbore in question was reviewed in detail to determine if fluid migration from the proposed injection zone

would escape into the wellbores of the eight wells in question (see exhibit A). **Upon this review, Mr. Williams concluded that no additional work was required by PNR concerning these eight wells in order to prevent the migration of fluid from the proposed injection zone to the eight wellbores in question.**

Also in question was the status of the following wells,

- **Southern California Federal #4** – will remain a Strawn producer, this wellbore has cement across the proposed injection interval
- **Lusk West Delaware Unit (LWDU) #909** – new drill injector
- **LWDU #915** – new drill lost during drilling, junked and abandoned
- **LWDU #915Y** – new drill injector, replacement to #915
- **Southern California Federal #12** – renamed the LWDU #907
- **Lusk Deep Unit “A” #7** – water supply well, no known problems concerning illegal migration of fluid (see well diagram)
- **LWDU #903** – cement circulated to surface behind the production casing, injected fluids will remain contained within the proposed injection interval (see well diagram)

Enclosed you will find the documents and diagrams used to satisfy the requirements of Mr. Williams concerning the questioned wellbores within the Lusk West (Delaware) Unit Waterflood Project.

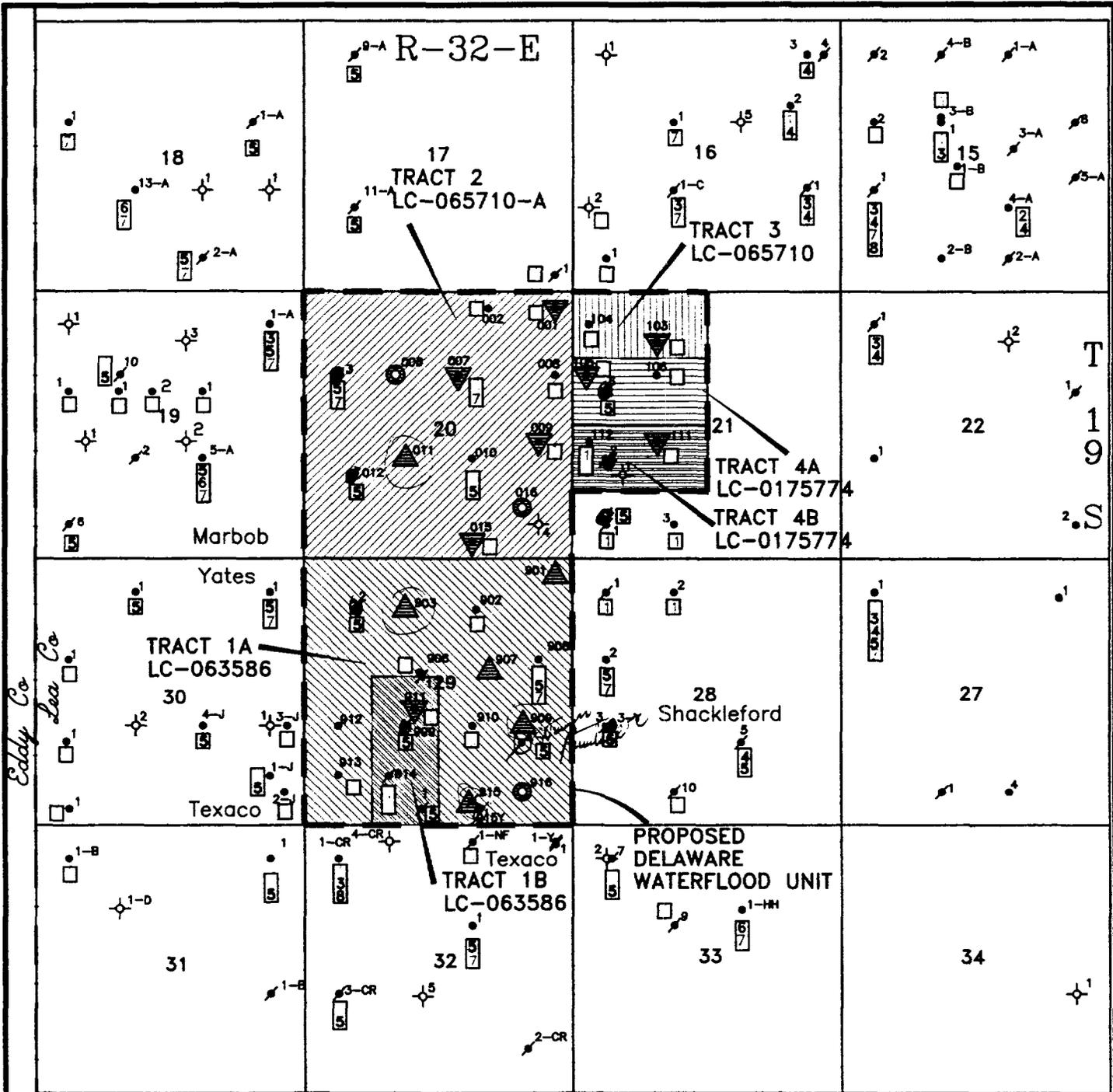
I hope this information will now allow for the approval of the administrative application concerning the subject project. Should you have any questions concerning this matter, please contact me in Midland at (915) 571-1368.

Sincerely,



Todd M. Yocham  
Senior Operations Engineer

cc: NMOCD – Hobbs  
US BLM – Roswell  
Conrad Coffield – Hinkle, Cox, Eaton, Coffield & Hensley, L.L.P.



Eddy Co  
Lea Co  
Yates Co

- PRODUCER
- ✶ PLUGGED & ABANDONED
- ◇ DRY HOLE

- ▽ CONVERT TO INJECTOR
- ▲ DRILL INJECTOR
- DRILL PRODUCER

- TRACT 1
- TRACT 2
- TRACT 3
- TRACT 4

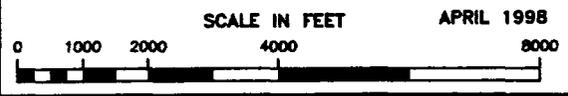
- 1 YATES
- 2 DELAWARE
- 3 BONE SPRING
- 4 WOLFCAMP
- 5 STRAWN
- 6 ATOKA
- 7 MORROW
- 8 UNDESIGNATED

— UNIT BOUNDRY



**PIONEER**  
NATURAL RESOURCES

LUSK, W. (DELAWARE) UNIT  
LEA COUNTY, NEW MEXICO  
LAND PLAT OF TRACTS & LEASES  
COVERING UNIT AREA



**Exhibit A**

**SUMMARY OF WELLS TO BE REVIEWED  
IN ACCORDANCE WITH ORDER NO. R-10863**

**Well Name:** Plains Unit Federal #4-Y  
**Current Status:** Strawn Producer (Perforated 11435' - 11479')  
**Open Interval:** 4540' - 10079'  
**Waterflood Interval:** 6478' - 6492'  
**Porosity:** 3% to 5% (15% Minimum Required to produce fluid)  
**Thickness:** 14 Feet  
**Zone Quality:** Interbedded Shale, Silt, and Carbonate (Tight), Non-Reservoir Quality

**Well Name:** Shackelford Oil Plains Unit Federal #6  
**Current Status:** Yates Producer (Perforated 2651' - 2711')  
**Open Interval:** 4490' - 6678'  
**Waterflood Interval:** 6464' - 6492'  
**Porosity:** 16% to 18%  
**Thickness:** 28 Feet  
**Zone Quality:** Very Good

**Well Name:** Lusk Deep Unit "A" #3  
**Current Status:** Plugged and Abandoned  
**Open Interval:** 5400' - 11000'  
**Waterflood Interval:** 6400' - 6412'  
**Porosity:** 10% to 12% (15% Minimum Required to produce fluid)  
**Thickness:** 12 Feet  
**Zone Quality:** Interbedded Shale, Silt, and Carbonate (Tight), Non-Reservoir Quality

**Well Name:** Lusk Deep Unit "A" #7  
**Current Status:** Seven Rivers Water Supply Well (Perforated 2920' - 3456')  
**Open Interval:** 3846' - 6423'  
**Waterflood Interval:** 6410' - 6417'  
**Porosity:** 3% to 5% (15% Minimum Required to produce fluid)  
**Thickness:** 7 Feet  
**Zone Quality:** Interbedded Shale, Silt, and Carbonate (Tight), Non-Reservoir Quality

**Well Name:** Plains Unit Federal #4  
**Current Status:** Junked and Abandoned  
**Open Interval:** 4290' - 11,517'  
**Waterflood Interval:** Estimated 6500' - 6517' (No Logs Available)  
**Porosity:** Fair to Good  
**Thickness:** ~17 Feet  
**Zone Quality:** Producable

**Exhibit A – pg. 2**

**Well Name:** Southern California Federal #2  
**Current Status:** Plugged and Abandoned  
**Open Interval:** 4497' - 6420'  
**Waterflood Interval:** 6408' - 6412'  
**Porosity:** 4% to 6% (15% Minimum Required to produce fluid)  
**Thickness:** 4 Feet  
**Zone Quality:** Interbedded Shale, Silt, and Carbonate (Tight), Non-Reservoir Quality

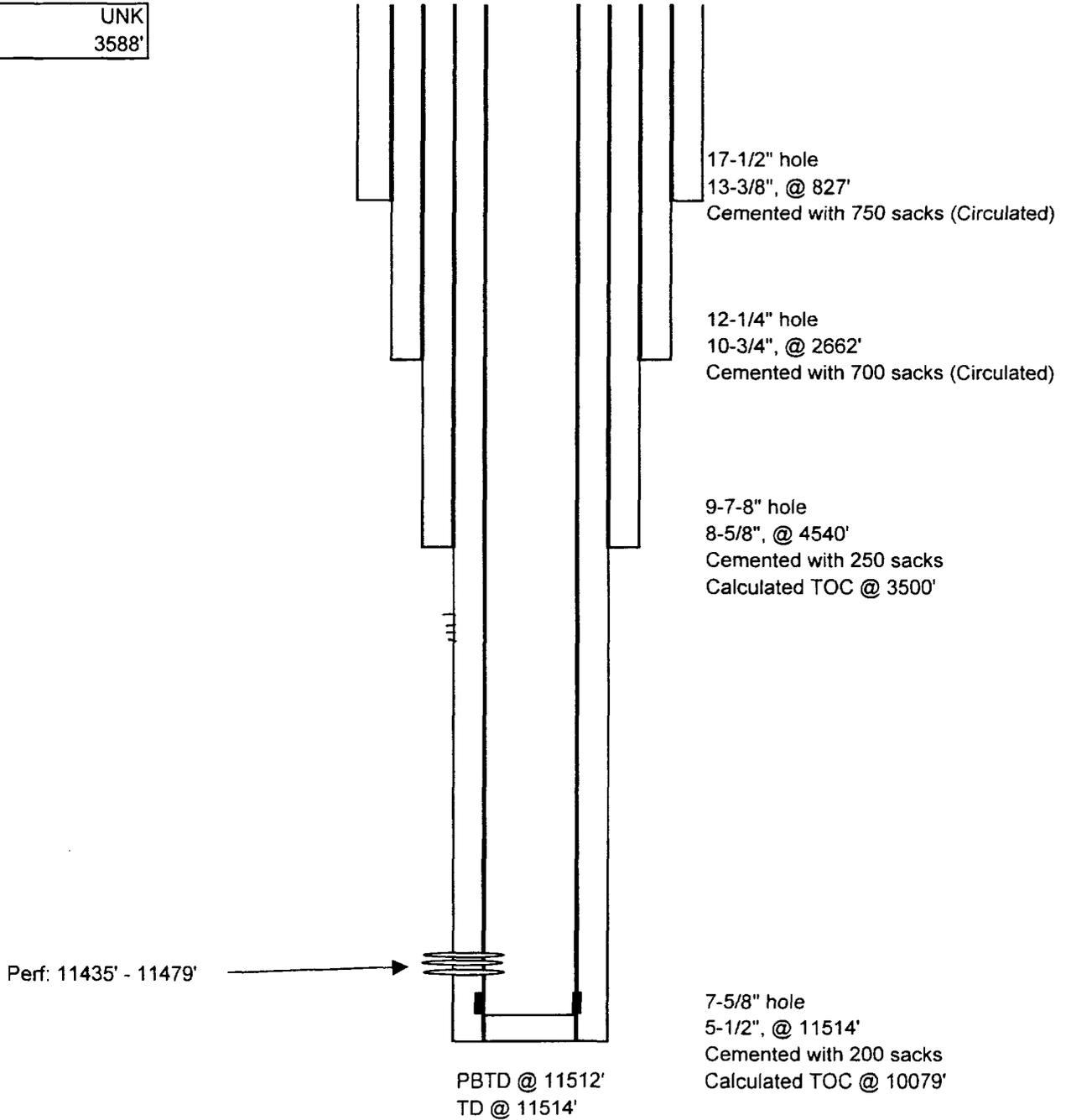
**Well Name:** S. A. Bowman Federal #3  
**Current Status:** Plugged and Abandoned  
**Open Interval:** 4700' - 8960'  
**Waterflood Interval:** 6421' - 6439'  
**Porosity:** 16% to 18%  
**Thickness:** 18 Feet  
**Zone Quality:** Very Good

**Well Name:** Plains Unit Federal #3-Y  
**Current Status:** Plugged and Abandoned  
**Open Interval:** 5999' - 7838'  
**Waterflood Interval:** 6440' - 6442'  
**Porosity:** 3% to 5% (15% Minimum Required to produce fluid)  
**Thickness:** 2 Feet  
**Zone Quality:** Interbedded Shale, Silt, and Carbonate (Tight), Non-Reservoir Quality



**WELLBORE SCHEMATIC**  
**Plains Unit Federal #4-Y**  
**Current Wellbore Sketch as of 10/22/97**  
API # 30-025-20518  
710' FSL & 660' FWL, Sec. 21, T19S, R32E  
Lea County, New Mexico

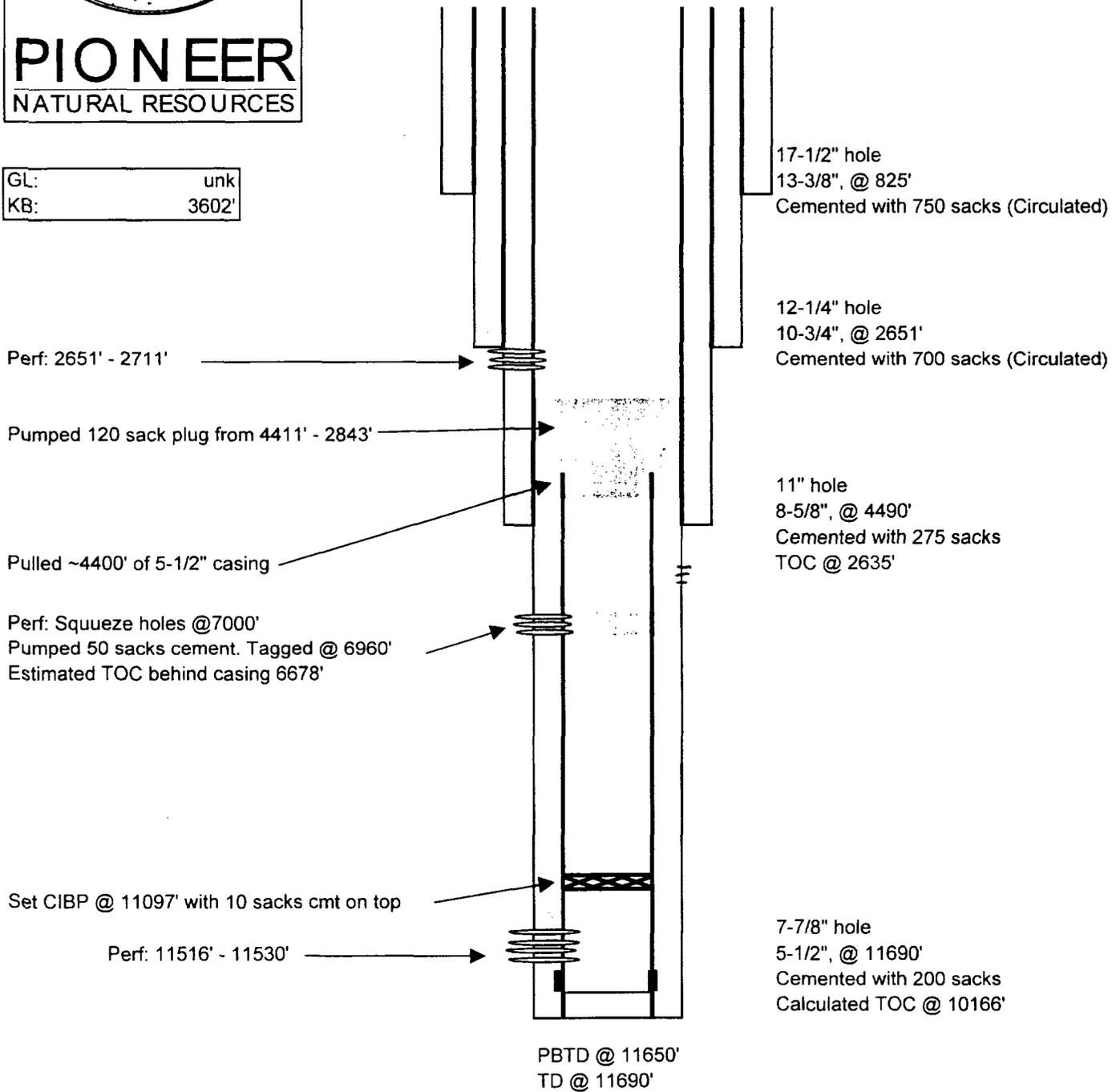
|     |       |
|-----|-------|
| GL: | UNK   |
| KB: | 3588' |





**WELLBORE SCHEMATIC**  
**Shackelford Oil Plains Unit Fed. #6**  
**Current Wellbore Sketch as of 10/22/97**  
 API # 30-025-20769  
 1980' FNL & 660' FWL, Sec. 21, T19S, R32E  
 Lea County, New Mexico

|     |       |
|-----|-------|
| GL: | unk   |
| KB: | 3602' |





# WELLBORE SCHEMATIC

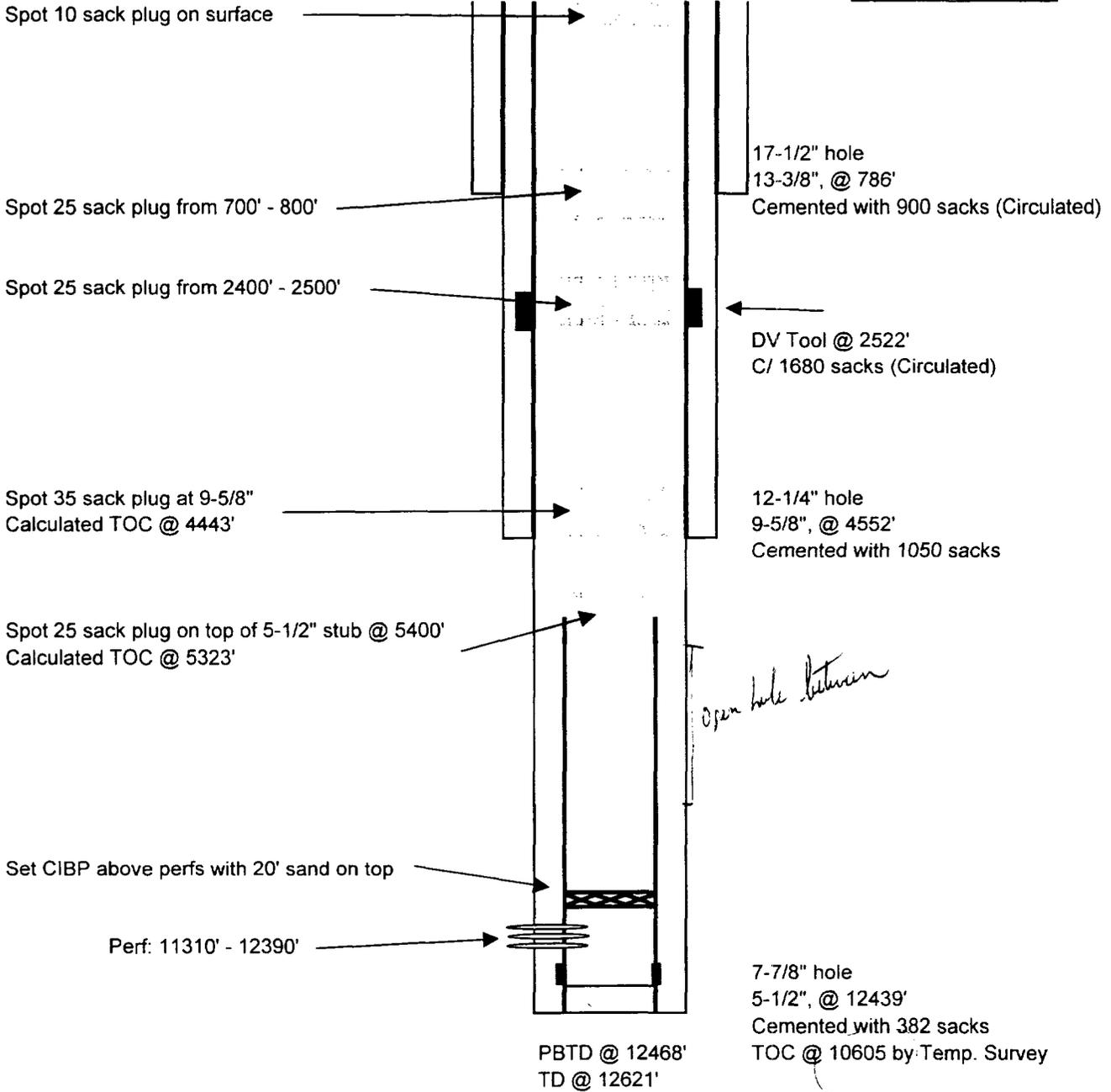
## Lusk Deep Unit "A" #3

Current Wellbore Sketch as of 12/15/97

1650' FNL & 660' FWL, Sec. 20, T19S, R32E

Lea County, New Mexico

|     |       |
|-----|-------|
| GL: | 3574' |
| KB: | 3591' |





# WELLBORE SCHEMATIC

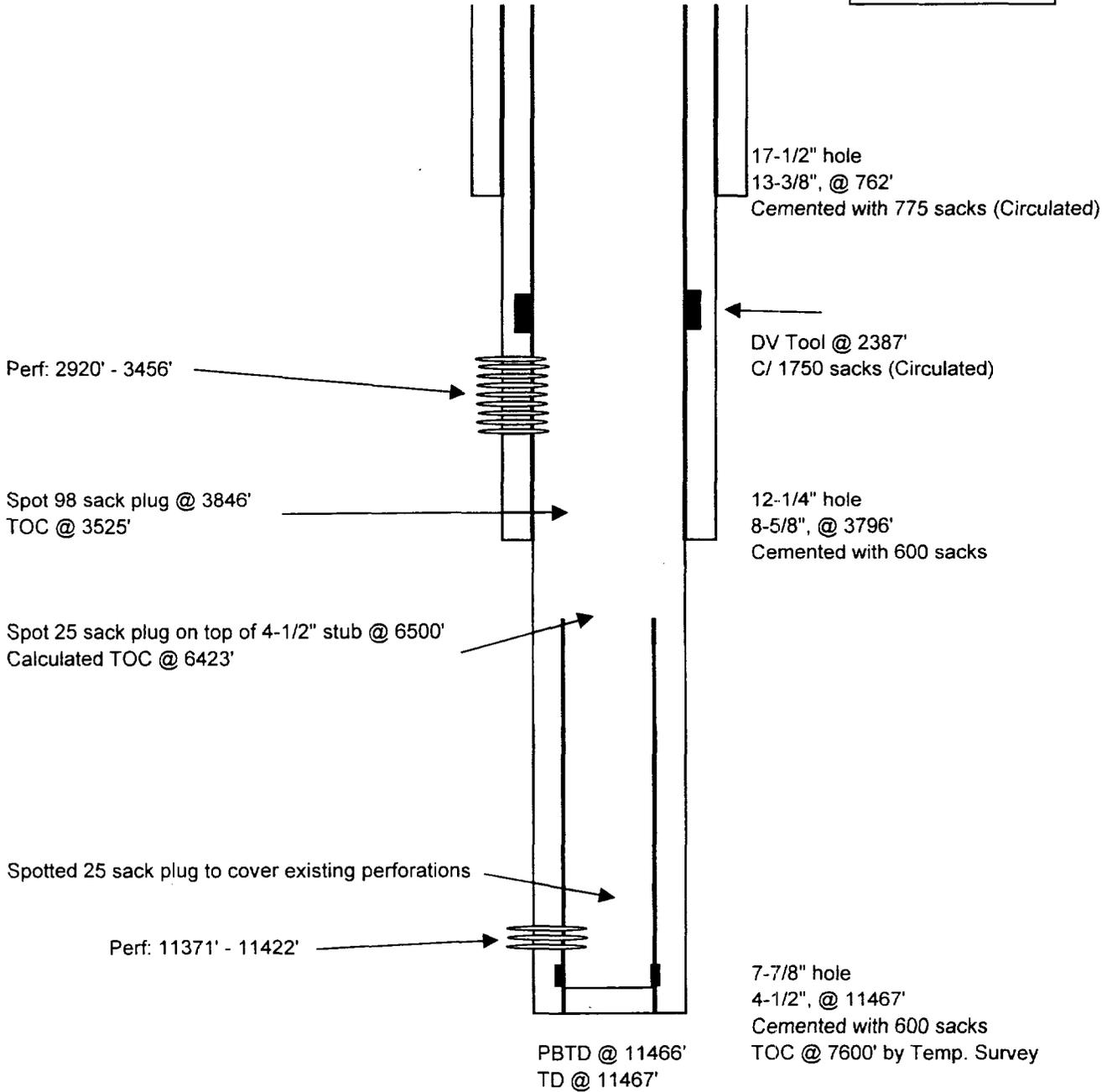
## Lusk Deep Unit "A" #7

### Current Wellbore Sketch as of 10/22/97

1650' FSL & 990' FWL, Sec. 20, T19S, R32E

Lea County, New Mexico

|     |        |
|-----|--------|
| GL: | 3567.7 |
| KB: |        |





# WELLBORE SCHEMATIC

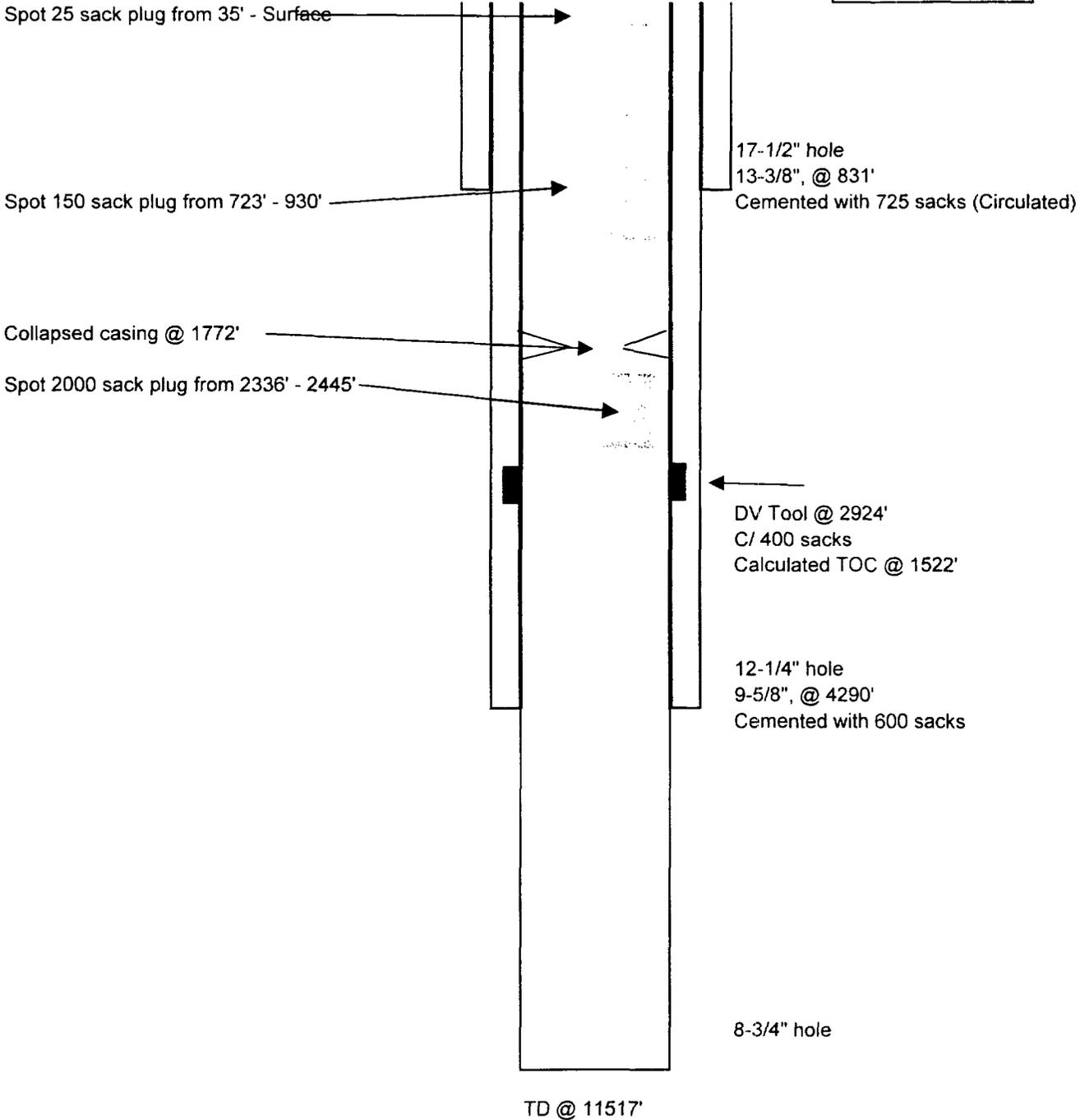
## Plains Unit Federal #4

Current Wellbore Sketch as of 10/22/97

1930' FSL & 660' FWL, Sec. 21, T19S, R32E

Lea County, New Mexico

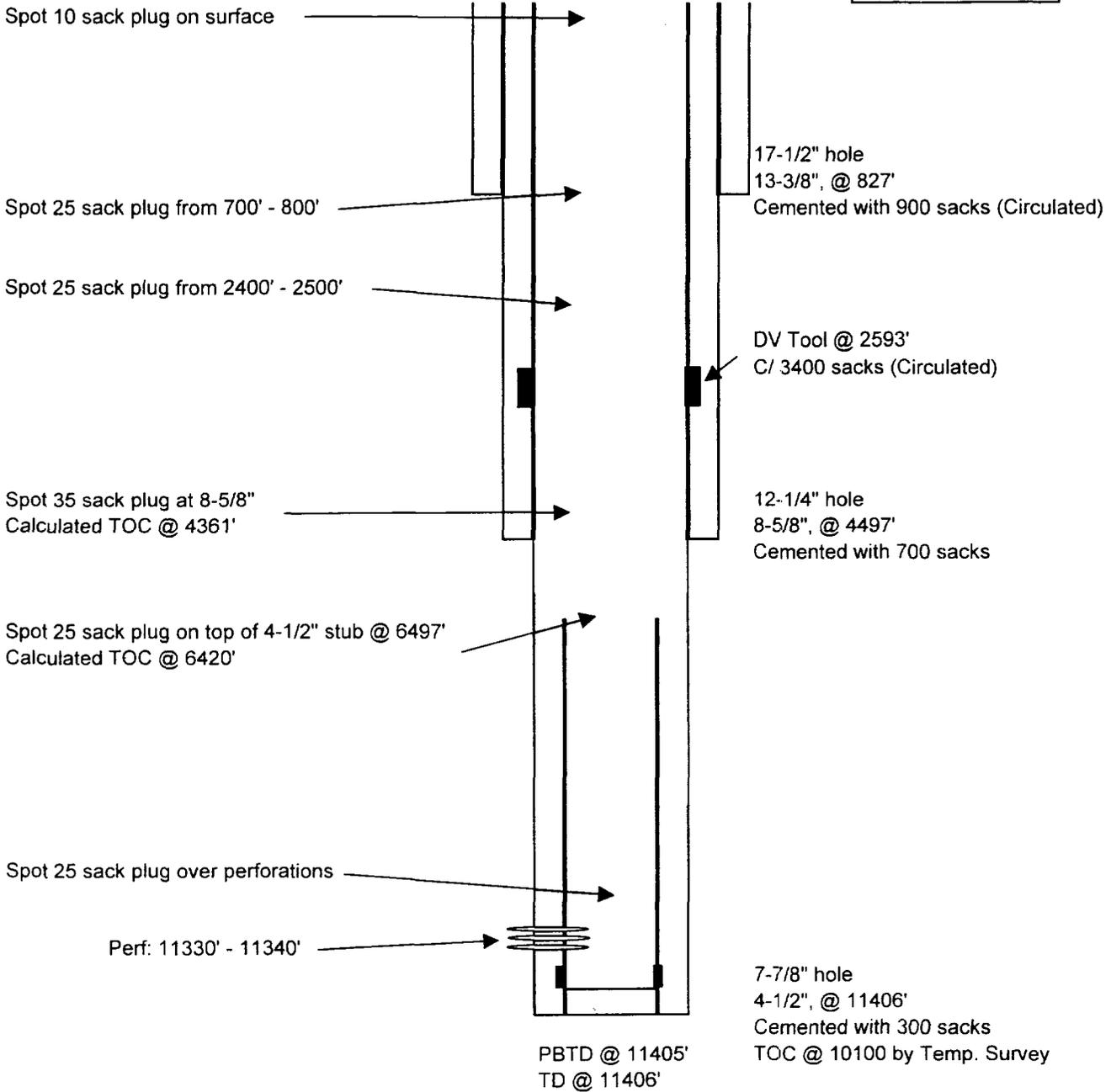
|     |       |
|-----|-------|
| GL: |       |
| KB: | 3602' |





**WELLBORE SCHEMATIC**  
**Southern California Federal #2**  
**Current Wellbore Sketch as of 10/22/97**  
 990' FNL & 990' FWL, Sec. 29, T19S, R32E  
 Lea County, New Mexico

|     |       |
|-----|-------|
| GL: |       |
| KB: | 3546' |



OPERATOR

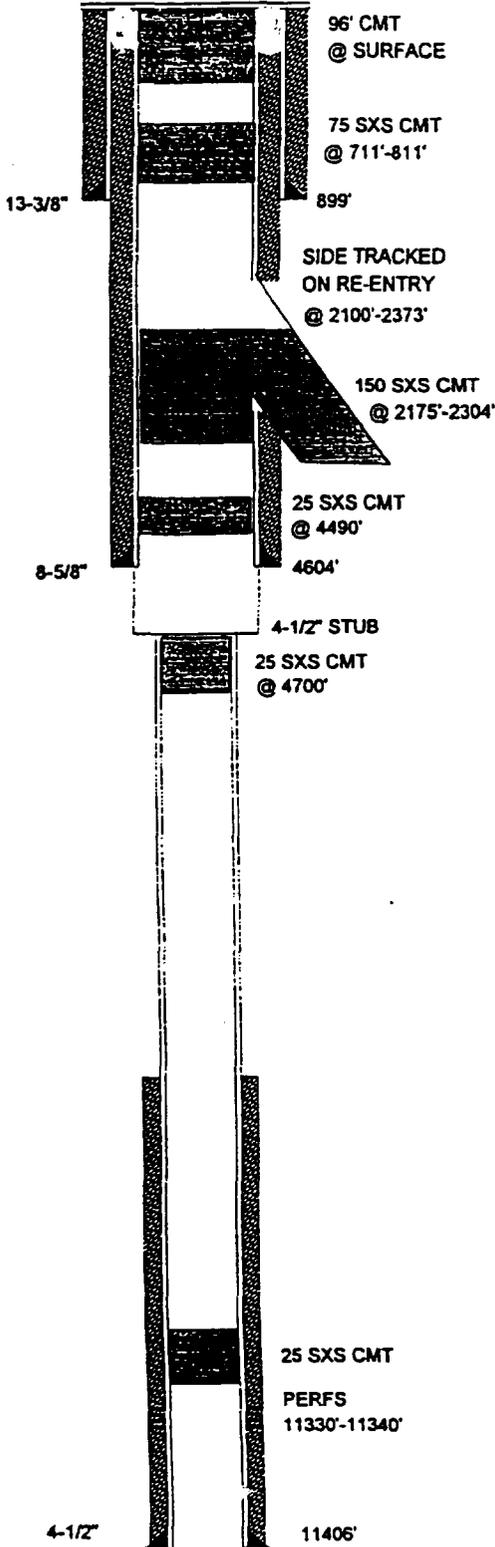
LEASE

|          |                       |         |          |        |
|----------|-----------------------|---------|----------|--------|
| 3        | 1980' FSL & 1980' FWL | SEC-29  | T-19-S   | R-32-E |
| WELL NO. | FOOTAGE LOCATION      | SECTION | TOWNSHIP | RANGE  |

TYPE OF WELL: PLUGGED & ABANDONED SPUD DATE: 10/24/63

**SCHEMATIC**

**TABULAR DATA**



**1. SUFACE CASING**

SIZE: 13-3/8 INCHES CEMENTED WITH: 600 sx

TOC: Surface FEET DETERMINED BY: Circulated

HOLE SIZE: 17-1/2 INCHES

**2. INTERMEDIATE CASING**

SIZE: 8-5/8 INCHES CEMENTED WITH: 1700 sx

TOC: 425' FEET DETERMINED BY: CALCULATED

HOLE SIZE: 11 INCHES

**3. LONG STRING**

SIZE: 4-1/2 INCHES CEMENTED WITH: 600 sx

TOC: 8960' FEET DETERMINED BY: Temp. Survey

HOLE SIZE: 7-7/8 INCHES

4. TOTAL DEPTH: 11406 FEET

**5. PERFORATIONS**

11330 FEET TO: 11340 FEET  
(PERFORATED OR OPEN HOLE ; INDICATE WHICH)  
**PERFORATED\***

6. HAS THE WELL EVER BEEN PERFORATED IN ANY OTHER ZONE(S)?  
LIST ALL SUCH PERFORATED INTERVALS AND GIVE PLUGGED  
DETAIL, I.E. SACKS OF CEMENT OR PLUG(S) USED. NONE

FORM C-108  
SECTION VI

APPLICATION FOR AUTHORIZATION  
TO INJECT

Parker & Parsley  
Development L.P.

WATER INJECTION WELL

TABULATION OF WELL DATA



**WELLBORE SCHEMATIC**  
**Plains Unit Federal #3-Y**  
**Current Wellbore Sketch as of 10/22/97**

API # 30-025-20538  
 1980' FSL & 760' FWL, Sec. 28, T19S, R32E  
 Lea County, New Mexico

|     |       |
|-----|-------|
| GL: | unk   |
| KB: | 3570' |

Spotted 10 sacks to Surface

Pulled 906' of 8-5/8" casing  
 Spotted 50 sacks from 825' - 925'

17-1/2" hole  
 13-3/8", @ 840'  
 Cemented with 750 sacks (Circulated)

Set 8-5/8" CIBP @ 2232'  
 With 6 sacks on top of CIBP

Pulled 2264' of 7" casing

Set 7" Retainer @ 3640'  
 Pumped 75 sacks with 6 sacks on Retainer

11" hole  
 8-5/8", @ 3647'  
 Cemented with 700 sacks  
 TOC @ 2275 by Temp. Survey

Bottom of 7" @ 3829'

Cut 5-1/2" @ 5951'  
 Cut 7" from 5949' and pulled to 3829'  
 35 sack plug from 5783' - 5999'  
 after cutting off both strings of casing

7-7/8" hole  
 7", @ 9871'  
 Cemented with 250 sacks  
 Calculated TOC @ 7838'

CIBP @ 11350' with 10 sks on top

Perf: 11390' - 11480'

PBTD @ 11484'  
 TD @ 11485'

6-1/4" hole  
 5-1/2", @ 11485'  
 Cemented with 250 sacks  
 Calculated TOC @ 8568'