



NEW MEXICO ENERGY, MINERALS  
& NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION  
2040 South Pacheco Street  
Santa Fe, New Mexico 87505  
(505) 827-7131

February 5, 1998

Pioneer Natural Resources USA, Inc.  
P. O. Box 3178  
Midland, Texas 79702-3178

Attention: Scott H. Lackey  
Sr. Operations Engineer

*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, New Mexico.*

Dear Mr. Lackey:

I am in receipt of your applications dated December 9, 1997 and January 15 and 26, 1998 to expand the subject waterflood project which was the subject of Division Order No. R-10863, issued in Case 11704 and dated August 28, 1997, by including the following described 4 wells as water injectors in Township 19 South, Range 32 East, NMPM, Lea County, New Mexico :

Well Name and Number	API Number	Footage Location	Unit	Section	Injection Interval (feet)	Type of Well
West Lusk Delaware Unit Well No. 903 (filed as the Southern California Federal Well No. 14)	30-025-34172	990' FNL & 1880' FWL	C	29	6434-6443	New Drill
West Lusk Delaware Unit Well No. 11 (filed as the Lusk Deep Unit "A" Well No. 23)	30-025-34173	1980' FS & WL	K	20	6445-6457	New Drill
Lusk West Delaware Unit Well No. 909	N/A	1980' FSL & 940' FEL	I	29	6452-6464	New Drill
Lusk West Delaware Unit Well No. 915-Y	N/A	450' FSL & 2050' FEL	O	29	6448-6455	New Drill

Said Division Order No. R-10863 included provisions postponing water injection into the subject waterflood project until such time as eight certain existing wellbores (2 producing wells and 6 plugged and abandoned wells), see Decretory Paragraphs (4) and (5) of said Order for

further detail, see copy attached. What is the current status of the eight wells covered by these directives? Further, please provide me with a detailed report of the work performed by or the studies done by Parker & Parsley Development, L.P./Pioneer Natural Resources USA, Inc. In cooperation with the Division's District Office in Hobbs to satisfactorily comply with those stipulations?

It would also appear that two of the proposed wells in the immediate applications are replacements for two wells previously authorized by said Order No. R-10863:

- (1) the Lusk West Delaware Unit Well No. 909 for the Southern California Federal Well No. 4 (API No. 30-025-20877) in Unit "I" of said Section 29; and,
- (2) the Lusk West Delaware Unit Well No. 915-Y for the Southern California Federal Well No. 12 in Unit "O" of said Section 29.

What is the current status of and the future plans for these two older Southern California Federal No. 4 and 12 wells? Did their configurations change any since the issuance of said Order No. R-10863? Not mentioned in the application for the No. 915-Y is the current status, configuration, and plans for the Lusk West Delaware Unit Well No. 915 (API No. 30-025-34130), located 450 feet from the South line and 2000 feet from the East line (Unit O) of said Section 29?

To complete my review of these applications the Division further requires:

- (1) Information on the well in Unit "L" of said Section 20 indicated on the map as the Lusk Deep Unit "A" Well No. 7;
- (2) Additional data and/or a detailed explanation showing that injected water into the proposed Lusk West Delaware Unit Well No. 903 will remain confined in the narrow injection interval. The well in Unit "A" of Section 30, Township 19 South, Range 32 East, NMPM, Lea County, New Mexico in within the ½ mile area of review ("AOR") of the proposed Lusk West Delaware Unit Well No. 903 and the information provided me indicates that there is no cement protection behind pipe within the proposed injection interval;
- (3) Since the information provided by Parker & Parsley

Development, L.P. at the time of the hearing is now at least one year old (February 6, 1997), up dated and current information is essential in matters concerning water injection; therefore, Pioneer Natural Resources USA, Inc. needs to indicate any and all: new drills, recompletions, workovers, name/number changes, wellbore configurations, etc. on all wells within each of the four subject well's ½ mile AOR; and,

(4) Please submit a supplemental land plat to support the notification for each of the four proposed injection wells (i.e. - please match those parties that were provided notice with the corresponding acreage and/or owned).

Should you have any questions concerning this matter, please contact me in Santa Fe at (505) 827-8185.

Sincerely,



Michael E. Stogner  
Chief Hearing Officer/Engineer

cc: New Mexico Oil Conservation Division - Hobbs  
U. S. Bureau of Land Management - Roswell  
Conrad Coffield (Legal Counsel Representing Parker & Parsley Development, L.P. in Case 11704) - Santa Fe  
Ben Stone, NMOCD - Santa Fe  
File: Case 11704

STATE OF NEW MEXICO  
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT  
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING  
CALLED BY THE OIL  
CONSERVATION DIVISION FOR THE  
PURPOSE OF CONSIDERING:

CASE NO. 11704  
ORDER NO. R-10863

**APPLICATION OF PARKER & PARSLEY DEVELOPMENT, L. P. FOR A  
WATERFLOOD PROJECT AND QUALIFICATION FOR THE RECOVERED OIL  
TAX CREDIT PURSUANT TO THE "NEW MEXICO ENHANCED OIL  
RECOVERY ACT", LEA COUNTY, NEW MEXICO.**

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 8:15 a.m. on February 6, 1997 at Santa Fe, New Mexico, before Examiner Michael E. Stogner.

NOW, on this 28th day of August, 1997 the Division Director, having considered the testimony, the record and the recommendations of the Examiner, and being fully advised in the premises,

FINDS THAT:

- (1) Due public notice having been given as required by law, the Division has jurisdiction of this cause and the subject matter thereof.
- (2) At the time of the hearing this case was consolidated with Division Case No. 11703 for the purpose of testimony.
- (3) The applicant, Parker & Parsley Development, L. P. ("Parker & Parsley"), seeks authority to institute a secondary recovery project in its proposed Lusk West (Delaware) Unit Area (which was the subject of Division Case No. 11703), comprising all of Section 20, the NW/4 and N/2 SW/4 of Section 21, and all of Section 29, all in Township 19 South, Range 32 East, NMPM, Lea County, New Mexico, by the injection of water into the unitized interval that is within the designated and Undesignated West Lusk-Delaware Pool through the gross perforated interval from approximately 6,400 feet to 6,450 feet in 13 certain wells to either be drilled or converted from producing wells to

water injectors, as further described in Exhibit "A" attached hereto and made a part hereof.

(4) Geological evidence and testimony presented at the time of the hearing indicates the zone of interest within the Delaware formation herein designated by the applicant as the "6400-foot zone" is a deep marine turbidite fan system that runs primarily north/south along a slope break. Within the Lusk West (Delaware) Unit Area the thickness of this sand body varies from zero to 35 feet, but averages 22 feet in thickness. The 6400-foot Delaware sand exhibits both structural and stratigraphic trapping mechanisms and characteristics. This feature trends structurally down dip to the east to an oil/water contact and the up dip in the western portion is delineated by the thinning of this sand to zero. Within this sand body there appears to be two structural highs that are bounded by the project area, thereby making this area a prime candidate for such secondary recovery operations.

(5) Evidence presented by the applicant indicates that approximately 72 percent of the total oil production from the West Lusk-Delaware Pool can be attributed to this narrow 6400 foot sand interval. Current production from this interval within the subject project area is in an advanced state of depletion and should therefore be properly classified as "stripper wells"; therefore, pursuant to Division General Rule 701.G, the proposed secondary recovery project should properly be classified as a waterflood project and governed accordingly.

(6) The applicant proposes to institute the subject waterflood project at an expected cost of \$3,591,000.00. The estimated reserves recoverable from the project is expected to be approximately 1.3 million barrels of oil.

(7) The area for said project should incorporate the applicant's Lusk West (Delaware) Unit Area as described in Finding Paragraph No. (3), above and should be designated the "*Lusk West (Delaware) Unit Waterflood Project*".

(8) The proposed waterflood project should result in the recovery of otherwise unrecoverable oil, thereby preventing waste.

(9) The operator of the proposed Lusk West (Delaware) Waterflood Unit project should take all steps necessary to ensure that the injected water enters and remains confined to only the unitized interval authorized by the Lusk West (Delaware) Unit Agreement and is not permitted to escape to other formations or onto the surface from injection, production, or plugged and abandoned wells.

(10) Evidence submitted at the time of the hearing and Division records indicate

that there are eight wellbores within the project's one-half mile area of review, 6 that are plugged and abandoned and 2 that are currently active or producing, all of which are inadequately plugged and abandoned or inadequately cemented or plugged back in a manner adequate to confine the injected fluids to the proposed injection interval or 6400 foot sand zone:

(a) The plugged and abandoned El Paso Products Company Lusk Deep Unit Well No. 3, located 1650 feet from the North line and 660 feet from the West line (Unit E) of said Section 20;

(b) the plugged and abandoned Parker & Parsley Development, L. P. Lusk Deep Unit "A" Well No. 7 (API No. 30-025-20874), located 1650 feet from the South line and 990 feet from the West line (Unit L) of said Section 20;

(c) the plugged and abandoned Pan American Petroleum Corporation Plains Unit Well No. 4, located 1930 feet from the South line and 660 feet from the West line (Unit L) of said Section 21;

(d) the plugged and abandoned El Paso Products Company Southern California Federal Well No. 2, located 990 feet from the North and West lines (Unit D) of said Section 29;

(e) the plugged and abandoned Texaco Inc. S. A. Bowman Federal Well No. 3, located 1980 feet from the South and West lines (Unit K) of said Section 29;

(f) the Parker & Parsley Development, L. P. Plains Unit Federal Well No. 4-Y (API No. 30-025-20518), located 710 feet from the South line and 660 feet from the West line (Unit M) of said Section 21, which is currently completed in and producing from the Lusk-Strawn Pool;

(g) the Shackelford Oil Company Plains Unit Well No. 6 (API No. 30-025-20769), located 1980 feet from the North line and 660 feet from the West line (Unit E) of said Section 21, which is currently completed in and producing

from the East Lusk-Yates Pool;

(h) the plugged and abandoned Damson Oil Corporation Plains Unit Federal Well No. 3-Y, located 1980 feet from the South line and 760 feet from the West line (Unit L) of said Section 28;

(11) Prior to initiating injection within any of the 13 proposed water injection wells, Parker & Parsley should be required to demonstrate to the supervisor of the Division's Hobbs District Office that: (i) the Parker & Parsley Development, L. P. Plains Unit Federal Well No. 4-Y in Unit "M" of said Section 21 and the Shackelford Oil Company Plains Unit Well No. 6 in Unit "E" of said Section 21 have been completed and/or plugged back in such a manner as to ensure that they do not provide an avenue of escape for waters from the proposed injection zones; and, (ii) the six above-described plugged and abandoned wells (the El Paso Products Company Lusk Deep Unit Well No. 3 in Unit "E" of said Section 20, the Parker & Parsley Development, L. P. Lusk Deep Unit "A" Well No. 7 in Unit "L" of said Section 20, the Pan American Petroleum Corporation Plains Unit Well No. 4 in Unit "L" of said Section 21, the El Paso Products Company Southern California Federal Well No. 2 in Unit "D" of said Section 29, the Texaco Inc. S. A. Bowman Federal Well No. 3 in Unit "K" of said Section 29, and the Damson Oil Corporation Plains Unit Federal Well No. 3-Y in Unit "L" of said Section 28) have all been properly plugged and abandoned in a manner which will assure that none of the wellbores serve as a conduit for the migration of injected fluids and to the satisfaction of the supervisor of the Hobbs District Office of the Division.

(12) Once the supervisor of the Hobbs District Office of the Division is satisfied that all eight of the wellbores described in Finding Paragraph No. (10) above are shown: (i) to be completed; (ii) to have undergone remedial work-over requirements; or (iii) to be properly plugged and abandoned; so as to assure confinement of injection fluids, the applicant may then proceed with the proposed waterflood project as follows:

- a) Injection into each well should be accomplished through 2-7/8 inch internally plastic lined tubing installed in a packer set at approximately 100 feet above the uppermost perforated interval; the casing-tubing annulus should be filled with an inert fluid; and a pressure gauge or approved leak-detection device should be attached to the annulus in order to determine leaks in the casing, tubing or packer.
- b) Prior to commencing injection operations, the casing of the subject well should be pressure-tested throughout the

interval, from the surface down to the proposed packer-setting depth, to assure integrity of such casing.

- c) The injection wells or injection pressurization system for each well should be so equipped as to limit injection pressure at the wellhead to no more than 1280 psi.

(13) The Director of the Division should be authorized to administratively approve an increase in the injection pressure upon a proper showing by the operator that such higher pressure will not result in migration of the injected waters from the subject 6400 foot sand interval of the designated and Undesignated West Lusk-Delaware Pool.

(14) The operator should give advance notification to the supervisor of the Hobbs District Office of the Division of the date and time of the installation of injection equipment and of the mechanical integrity pressure-test in order that the same may be witnessed.

(15) The subject application should be approved and the project should be governed by the provisions of Rules 702 through 708 of the Division Rules and Regulations.

(16) The applicant further requests that the subject waterflood project be approved by the Division as a qualified "Enhanced Oil Recovery Project" pursuant to the "Enhanced Oil Recovery Act" (Laws 1992, Chapter 38, Sections 1 through 5).

(17) The evidence presented indicates that the subject waterflood project meets all the criteria for approval.

(18) The approved "project area" should initially comprise that area described in Finding Paragraph No. (3) above.

(19) To be eligible for the EOR credit, prior to commencing injection operations, the operator must request from the Division a Certificate of Qualification, which certificate will specify the proposed project area as described above.

(20) At such time as a positive production response occurs and within five years from the date of the Certificate of Qualification, the applicant must apply to the Division for certification of positive production response, which application shall identify the area actually benefitting from enhanced recovery operations, and identifying the specific wells which the operator believes are eligible for the credit. The Division may review the

application administratively or set it for hearing. Based upon evidence presented, the Division will certify to the Department of Taxation and Revenue those lands and wells which are eligible for the credit.

(21) The injection authority granted herein for the proposed injection wells should terminate one year after the effective date of this order if the operator has not commenced injection operations into the subject wells, provided however, the Division, upon written request by the operator, may grant an extension thereof for good cause shown.

**IT IS THEREFORE ORDERED THAT:**

(1) The applicant, Parker & Parsley Development, L. P. ("Parker & Parsley"), is hereby authorized to institute a waterflood project on its Lusk West (Delaware) Unit by the injection of water into the unitized interval that is within the designated and Undesignated West Lusk-Delaware Pool through the gross perforated interval from approximately 6,400 feet to 6,450 feet in 13 certain wells to either be drilled or converted from producing wells to water injectors, as further described in Exhibit "A" attached hereto and made a part hereof.

(2) The subject waterflood project, herein designated the Lusk West (Delaware) Unit Waterflood Project, shall coincide with the boundary established for the Lusk West (Delaware) Unit Area in Lea County, New Mexico, as further described below, which was the subject of Division Case No. 11703 and was heard in combination with this case:

**TOWNSHIP 19 SOUTH, RANGE 32 EAST, NMPM**

Section 20:	All
Section 21:	NW/4 and N/2 SW/4
Section 29:	All.

(3) The applicant must take all steps necessary to ensure that the injected water only enters and remains confined only to the unitized interval authorized by the Lusk West (Delaware) Unit Agreement and is not permitted to escape to other formations or onto the surface from injection, production, or plugged and abandoned wells.

(4) Injection of water into said project area shall not commence until:

(a) such time as the (i) Parker & Parsley Development, L. P. Plains Unit Federal Well No. 4-Y (API No. 30-025-20518), located 710 feet from the South line and 660 feet from the West line (Unit M) of said Section 21, which is currently completed in and producing from the Lusk-

Strawn Pool and (ii) the Shackelford Oil Company Plains Unit Well No. 6 (API No. 30-025-20769), located 1980 feet from the North line and 660 feet from the West line (Unit E) of said Section 21, which is currently completed in and producing from the East Lusk-Yates Pool have both been completed and/or plugged back in such a manner as to ensure that they do not provide an avenue of escape for waters from the proposed injection zones; and,

(b) the following six plugged and abandoned wells, all within the project's one-half mile area of review, have all been properly plugged and abandoned in a manner which will assure that none of the wellbores serve as a conduit for the migration of injected fluids to the satisfaction of the supervisor of the Hobbs District Office of the Division:

(i) the El Paso Products Company Lusk Deep Unit Well No. 3, located 1650 feet from the North line and 660 feet from the West line (Unit E) of said Section 20;

(ii) the Parker & Parsley Development, L. P. Lusk Deep Unit "A" Well No. 7 (API No. 30-025-20874), located 1650 feet from the South line and 990 feet from the West line (Unit L) of said Section 20;

(iii) the Pan American Petroleum Corporation Plains Unit Well No. 4, located 1930 feet from the South line and 660 feet from the West line (Unit L) of said Section 21;

(iv) the El Paso Products Company Southern California Federal Well No. 2, located 990 feet from the North and West lines (Unit D) of said Section 29;

(v) the Texaco Inc. S. A. Bowman Federal Well No. 3, located 1980 feet from the South and West lines (Unit K) of said Section 29;

(vi) the Damson Oil Corporation Plains Unit Federal Well No. 3-Y, located 1980 feet from the South line and 760 feet from the West line (Unit L) of said Section 28.

(5) Any and all of the needed testing requirements, completion evaluations, recompletions, remedial workover operations to remediate the above-described 8 wellbores shall be conducted to the satisfaction and/or recommendations of the supervisor of the Hobbs District Office of the Division.

(6) Prior to commencing injection operations, the casing in each of the subject 13 injection wells shall be pressure-tested throughout the interval from the surface down to the proposed packer setting depth, to assure the integrity of such casing in a manner that is satisfactory to the supervisor of the Hobbs District Office of the Division.

(7) Injection into each of the subject 13 injection wells shall be accomplished through 2-7/8 inch internally plastic-lined tubing installed in a packer set approximately within 100 feet of the uppermost injection perforation; the casing-tubing annulus in each well shall be filled with an inert fluid; and a pressure gauge shall be attached to the annulus or the annulus shall be equipped with an approved pressure leak detection device in order to determine leakage in the casing, tubing, or packer in each well.

(8) The 13 injection wells herein authorized and/or the injection pressurization system shall be equipped with a pressure-limiting switch or other acceptable device which will limit the wellhead pressure on the injection wellhead to no more than 1280 psi.

(9) The Division Director shall have the authority to administratively authorize an increase in the injection pressure limitation placed upon any well upon a proper showing by the operator that such higher pressure will not result in the migration of the injected water from its respective interval or fracture the confining strata.

(10) The operator shall immediately notify the supervisor of the Hobbs District Office of the Division of the failure of the tubing, casing or packer in any of the injection wells, the leakage of water or oil from or around any producing well, or the leakage of water or oil from any plugged and abandoned well within the project area, and shall take such steps as may be timely and necessary to correct such failure or leakage.

(11) The operator of the Lusk West (Delaware) Unit Waterflood Project shall conduct injection operations in accordance with all applicable Division rules, regulations, and policies, including Division General Rules 701 through 708 and shall submit monthly progress reports in accordance with Division General Rules 706 and 1115.

(12) The subject waterflood project is hereby approved as an "Enhanced Oil Recovery Project" pursuant to the "Enhanced Oil Recovery Act" (Laws 1992, Chapter 38, Sections 1 through 5).

(13) The approved "project area" shall initially comprise that area described in Secretary Paragraph No. (2) above.

(14) To be eligible for the EOR credit, prior to commencing injection operations, the operator must request from the Division a Certificate of Qualification, which certificate will specify the proposed project area as described above.

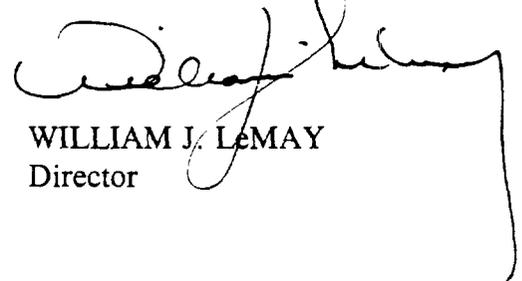
(15) At such time as a positive production response occurs and within five years from the date of the Certificate of Qualification, the applicant must apply to the Division for certification of positive production response, which application shall identify the area actually benefitting from enhanced recovery operations, and identifying the specific wells which the operator believes are eligible for the credit. The Division may review the application administratively or set it for hearing. Based upon evidence presented, the Division will certify to the Department of Taxation and Revenue those lands and wells which are eligible for the credit.

(16) The injection authority granted herein for the proposed injection wells shall terminate one year after the effective date of this order if the operator has not commenced injection operations into the subject wells, provided however, the Division, upon written request by the operator, may grant an extension thereof for good cause shown.

(17) Jurisdiction of this cause is retained for the entry of such further orders as the Division may deem necessary.

**DONE** at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO  
OIL CONSERVATION DIVISION



WILLIAM J. LEMAY  
Director

S E A L

**Exhibit "A"**  
**Case No. 11704**  
**Order No. R-10863**

*Parker & Parsley Development, L. P.*  
*Proposed Water Injection Wells*  
*Lusk West (Delaware) Unit Waterflood Project Area*  
*Township 19 South, Range 32 East, NMPM, West Lusk-Delaware Pool, Lea County, New Mexico.*

Well Name and Number	API Number	Footage Location	Unit	Section	Injection Interval	Type of Well
Lusk Deep Unit "A" Well #17	30-025-30518	330' FN & EL	A	20	6476-6484	Conversion
Lusk Deep Unit "A" Well #12	30-025-24869	1660' FNL & 2300' FEL	G	20	6446-6467	Conversion
Lusk Deep Unit "A" Well #14	30-025-30490	330' FSL - 1980' FEL	O	20	6452-6459	Conversion
Lusk Deep Unit "A" Well #20	30-025-30524	2310' FSL & 660' FEL	I	20	6469-6487	Conversion
Mobil Federal Well #1	30-025-30439	1650' FNL & 330' FWL	E	21	6469-6479	Conversion
Amoco Federal Well #2	30-025-30572	990' FNL & 1650' FWL	C	21	6489-6503	Conversion
Mobil Federal Well #4	30-025-30791	2310' FSL - 1650' FWL	K	21	6468-6476	Conversion
Southern California Federal Well #4	30-025-20877	1650' FSL & 990' FEL	I	29	6430-6450	Recompletion
S. A. Bowman Federal Well #5	30-025-30165	2310' FSL & 2160' FWL	K	29	6431-6446	Conversion
Southern California Federal Well #6	30-025-30094	990' FSL & 660' FWL	M	29	6389-6399	Conversion
Southern California Federal Well #10	N/A	1980' FN & EL	G	29	Approximately 6425-6450	New Drill
Southern California Federal Well #11	N/A	660' FN & EL	A	29	Approximately 6425-6450	New Drill
Southern California Federal Well #12	N/A	660' FSL & 1980' FEL	O	29	Approximately 6425-6450	New Drill

WFX 4/20/98



PIONEER

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.

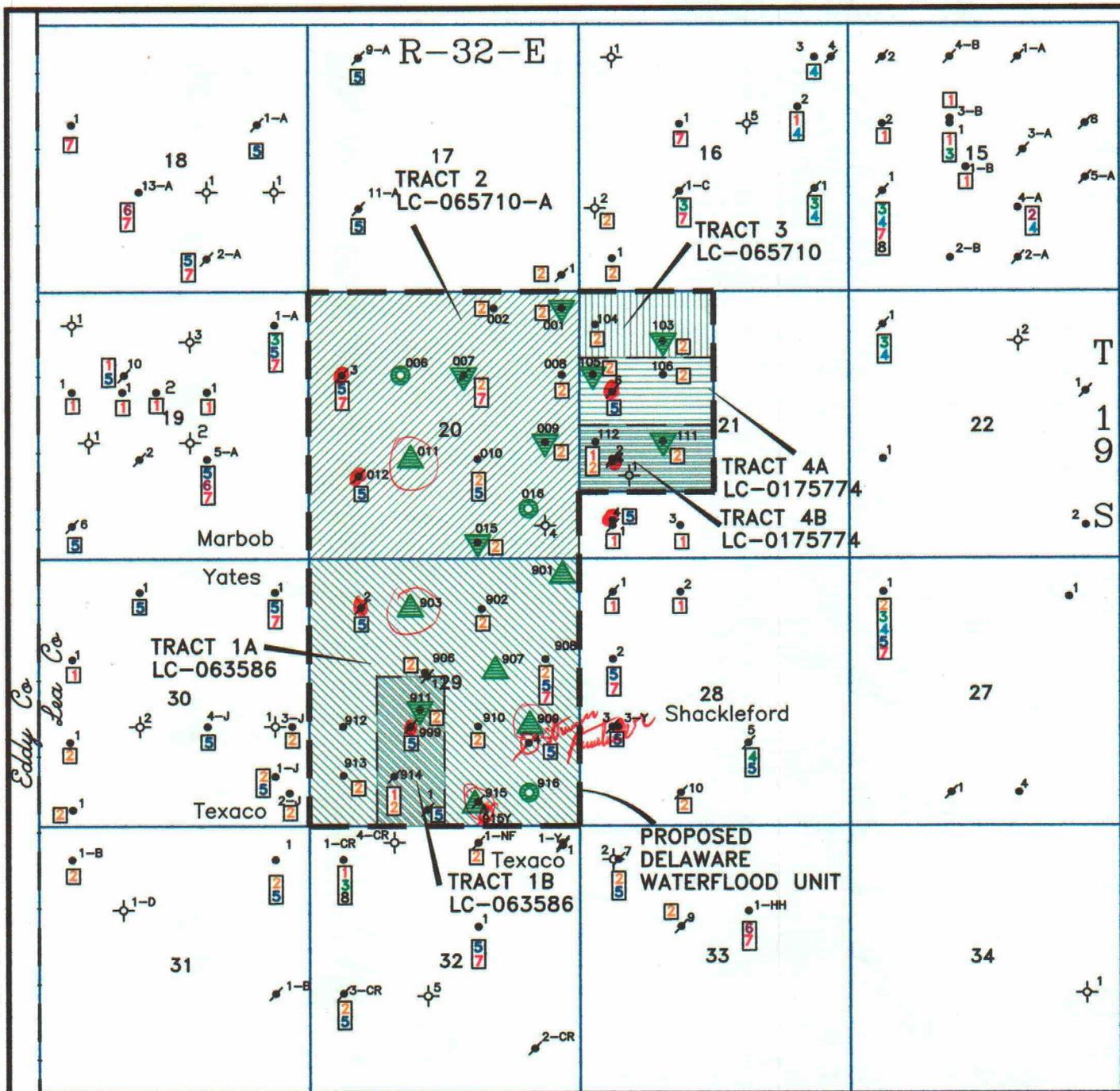
I hope this information will now allow for the approval of the administrative application concerning the subject project. Should you have any questions concerning this matter, please contact me in Midland at (915) 571-1368.

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

- PRODUCER
- ✕ PLUGGED & ABANDONED
- ⊕ DRY HOLE

- ▼ CONVERT TO INJECTOR
- ▲ DRILL INJECTOR
- DRILL PRODUCER

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

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

UNIT BOUNDARY



**PIONEER**  
NATURAL RESOURCES

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

SCALE IN FEET APRIL 1998



## 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

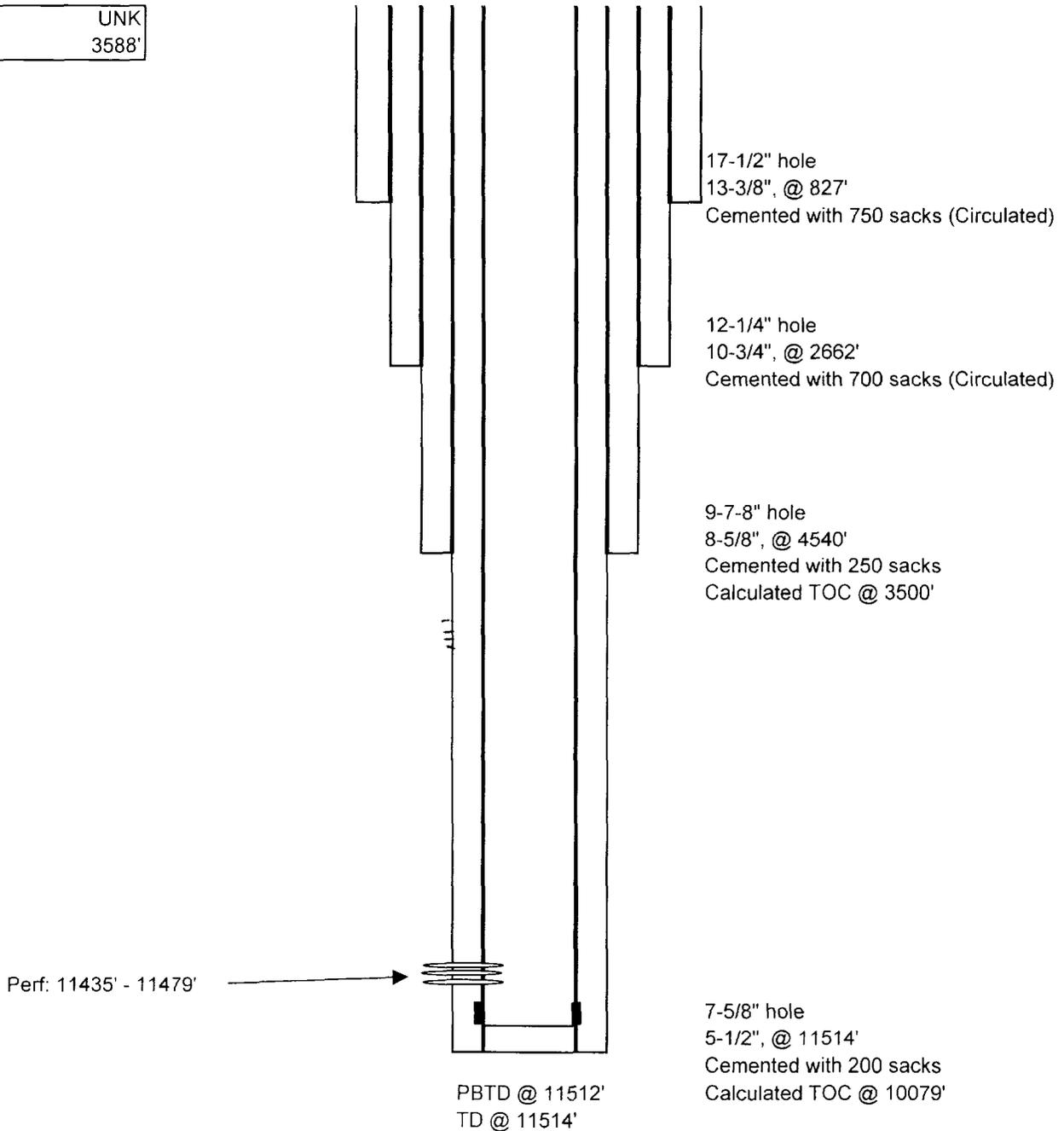
Current Wellbore Sketch as of 10/22/97

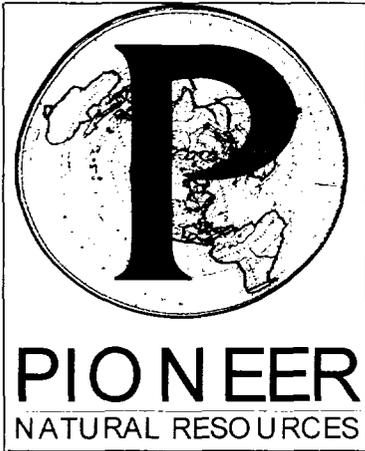
API # 30-025-20518

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

Lea County, New Mexico

GL:	UNK
KB:	3588'





# WELLBORE SCHEMATIC

## Shackelford Oil Plains Unit Fed. #6

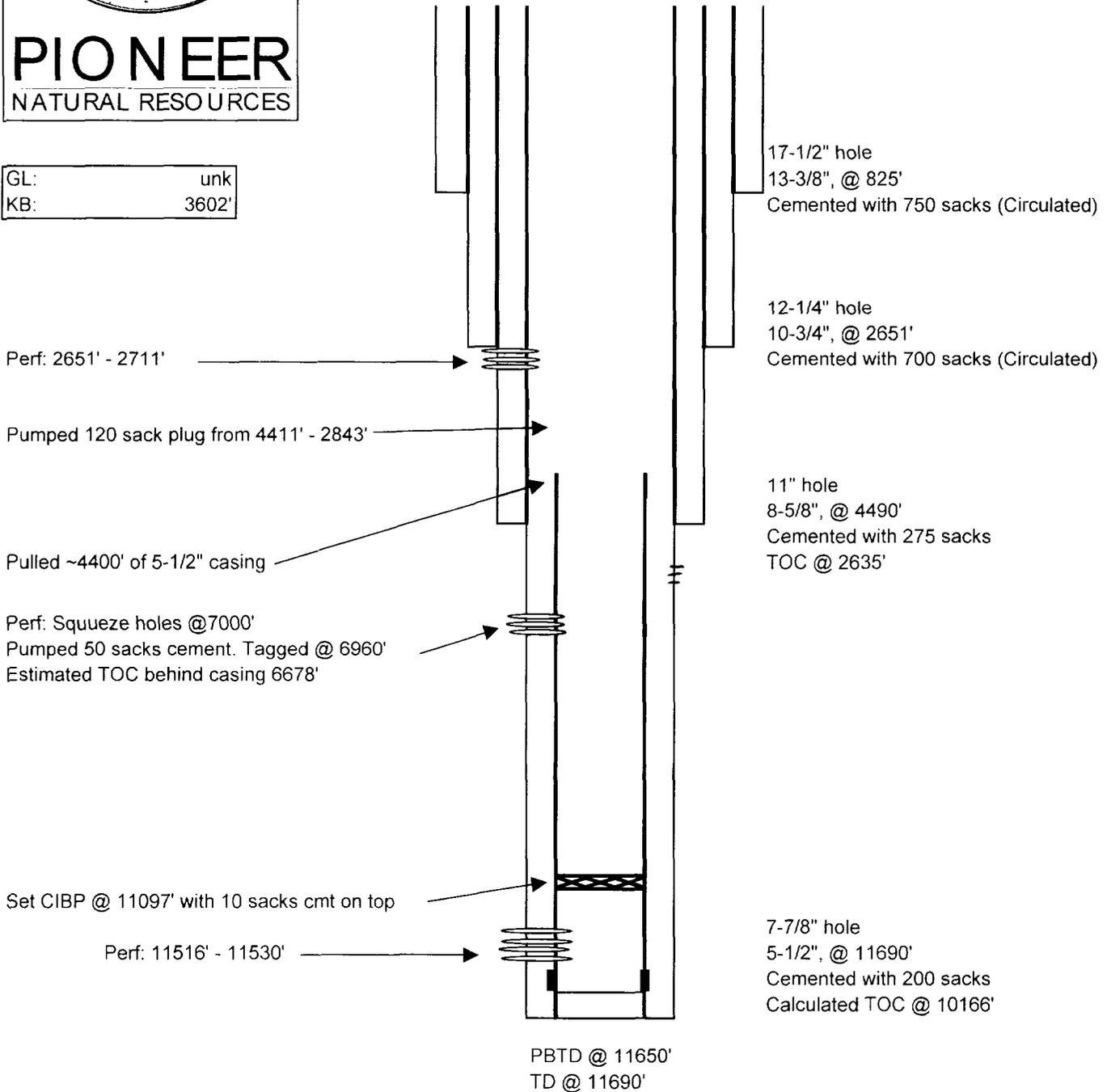
### Current Wellbore Sketch as of 10/22/97

API # 30-025-20769

1980' FNL & 660' FWL, Sec. 21, T19S, R32E

Lea County, New Mexico

GL:	unk
KB:	3602'





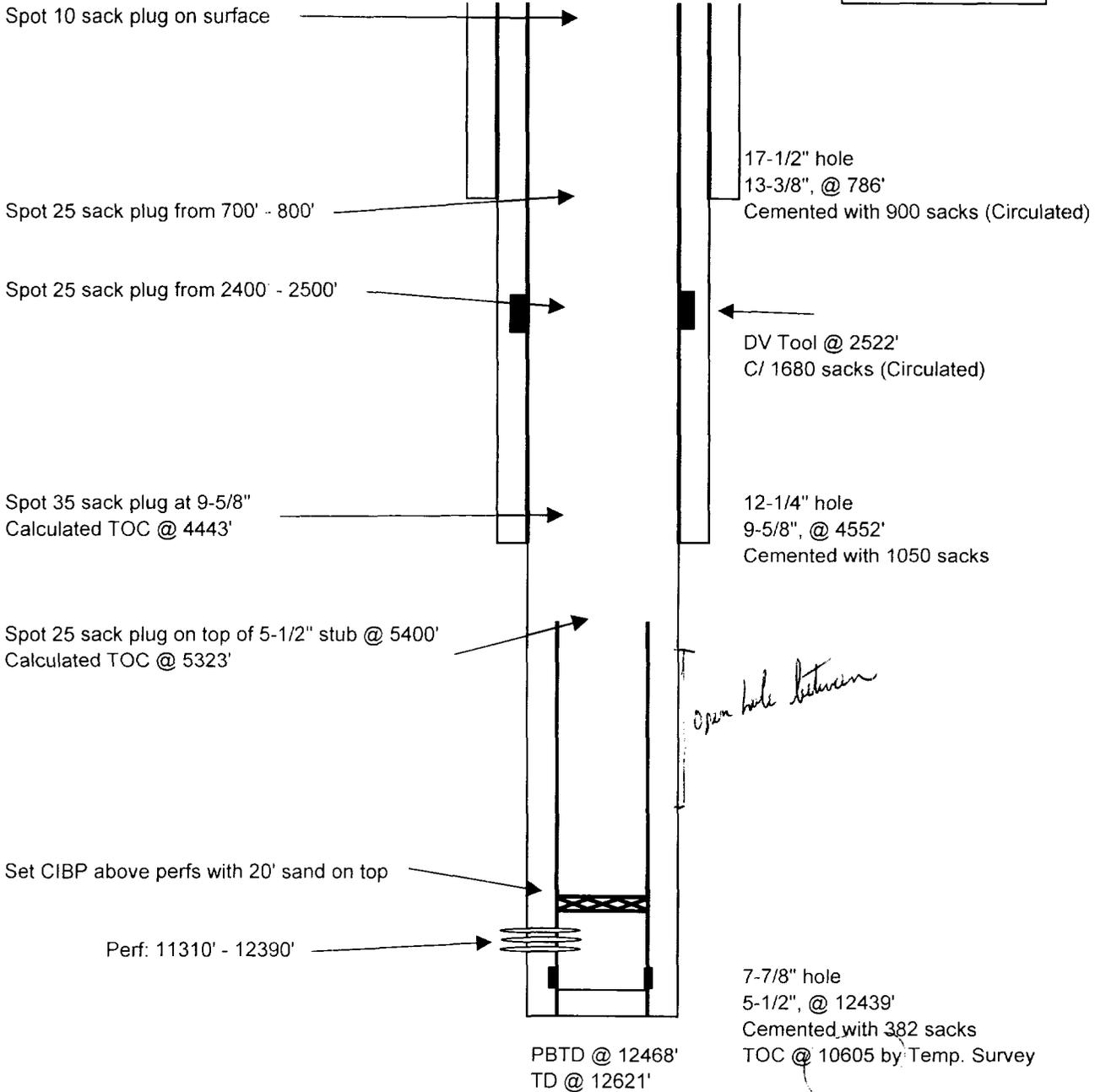
# WELLBORE SCHEMATIC

## 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

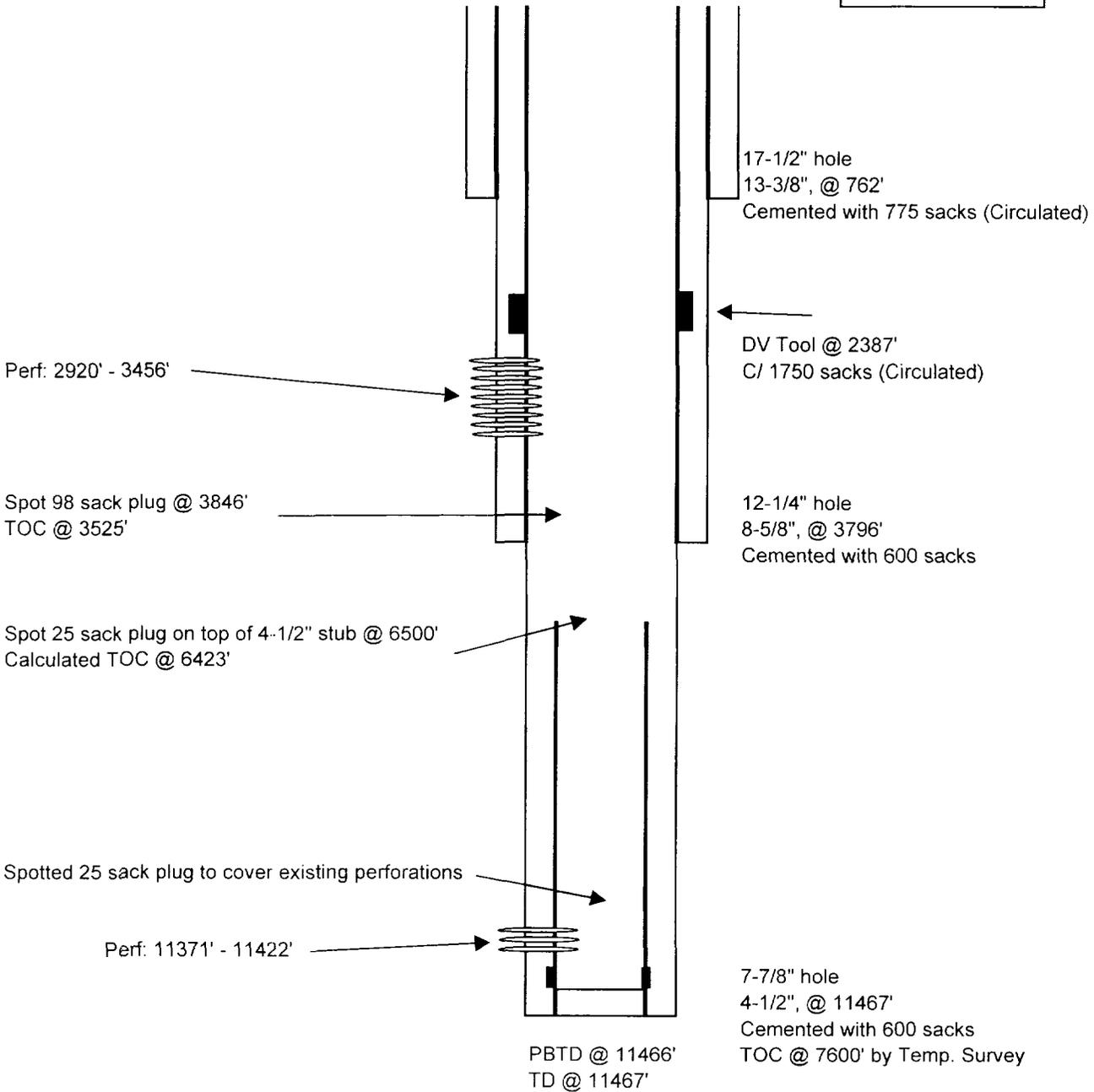
## Lusk Deep Unit "A" #7

### 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

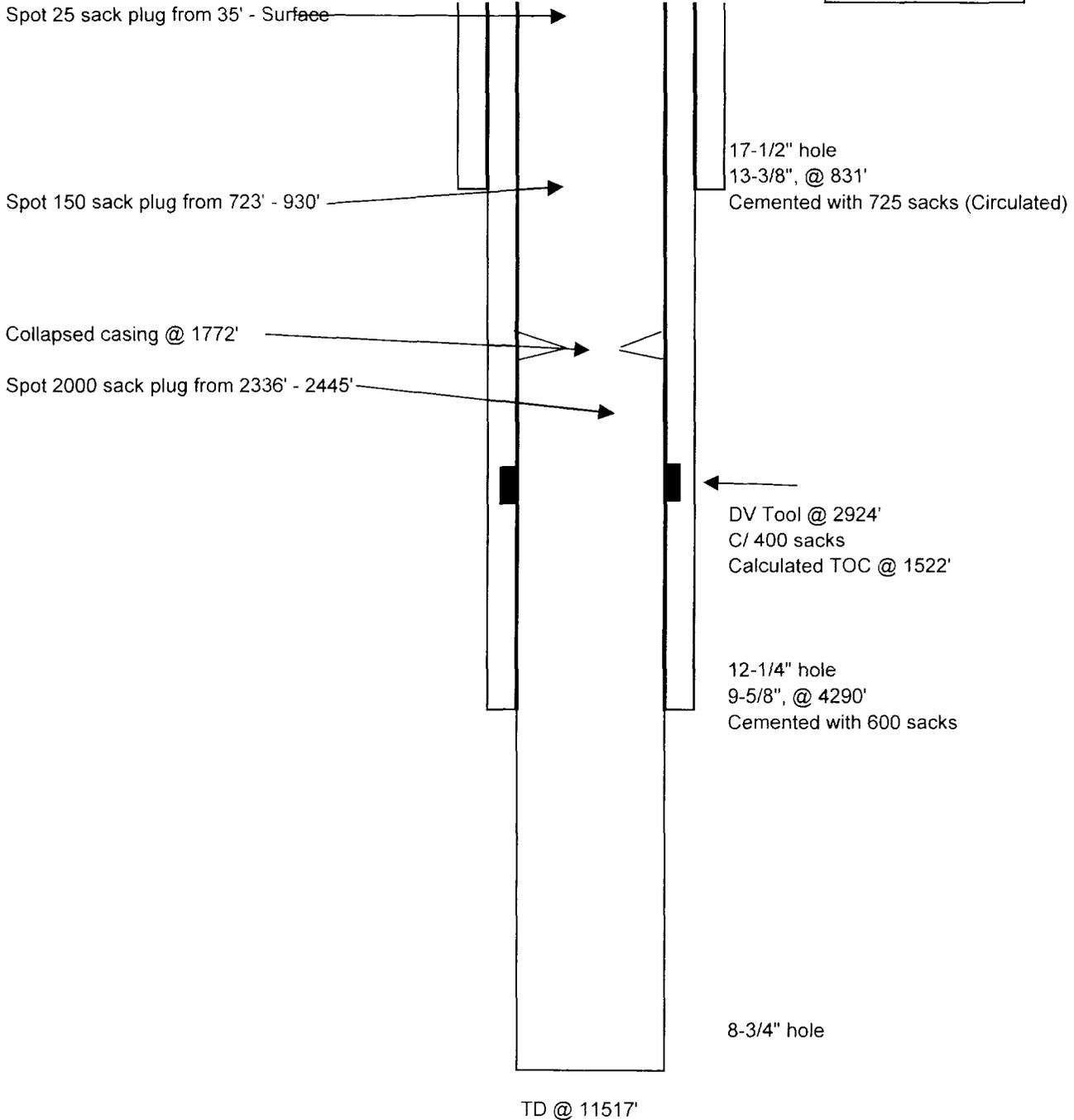
## Plains Unit Federal #4

Current Wellbore Sketch as of 10/22/97

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

Lea County, New Mexico

GL:	
KB:	3602'





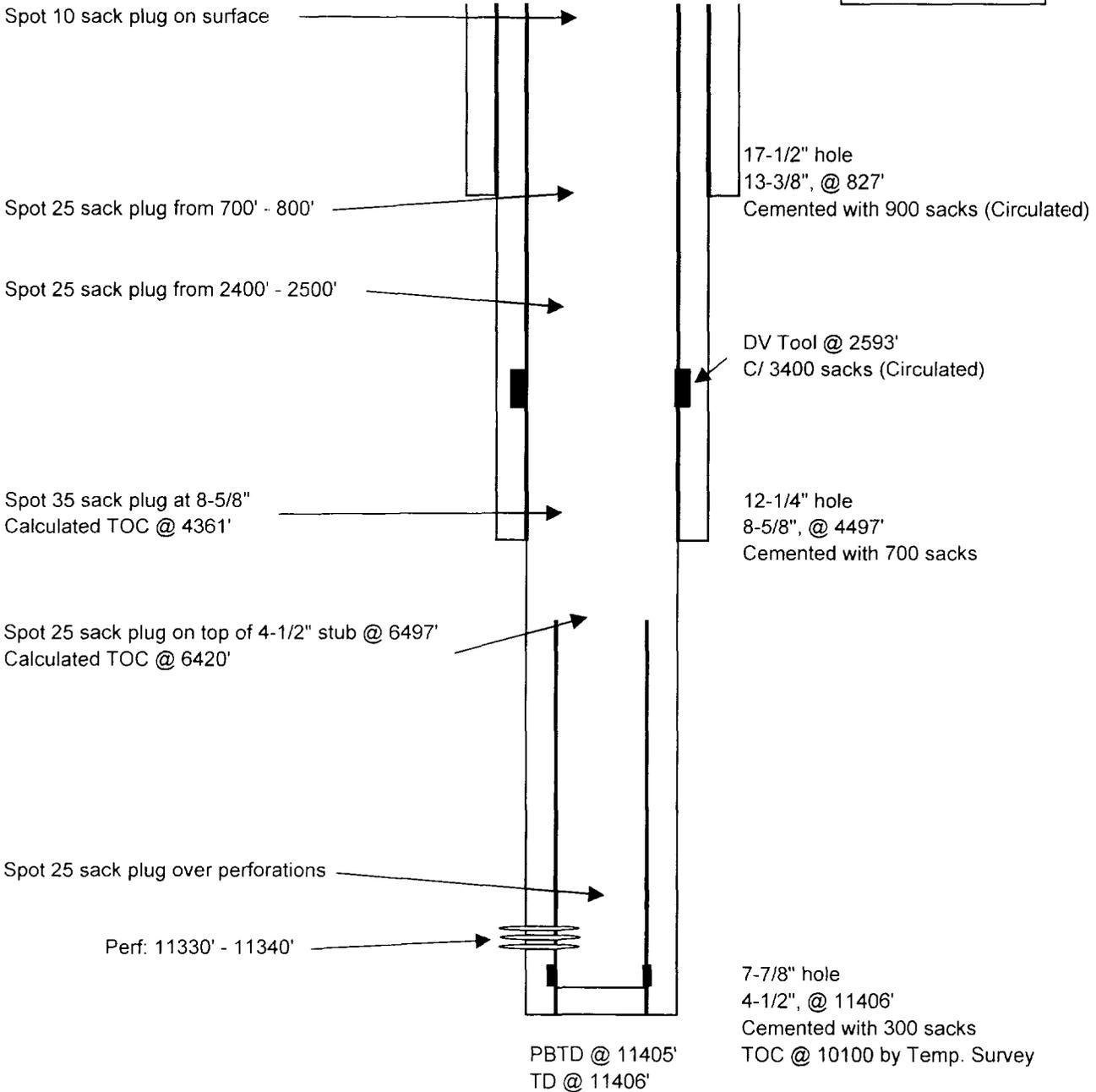
# WELLBORE SCHEMATIC

## 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'



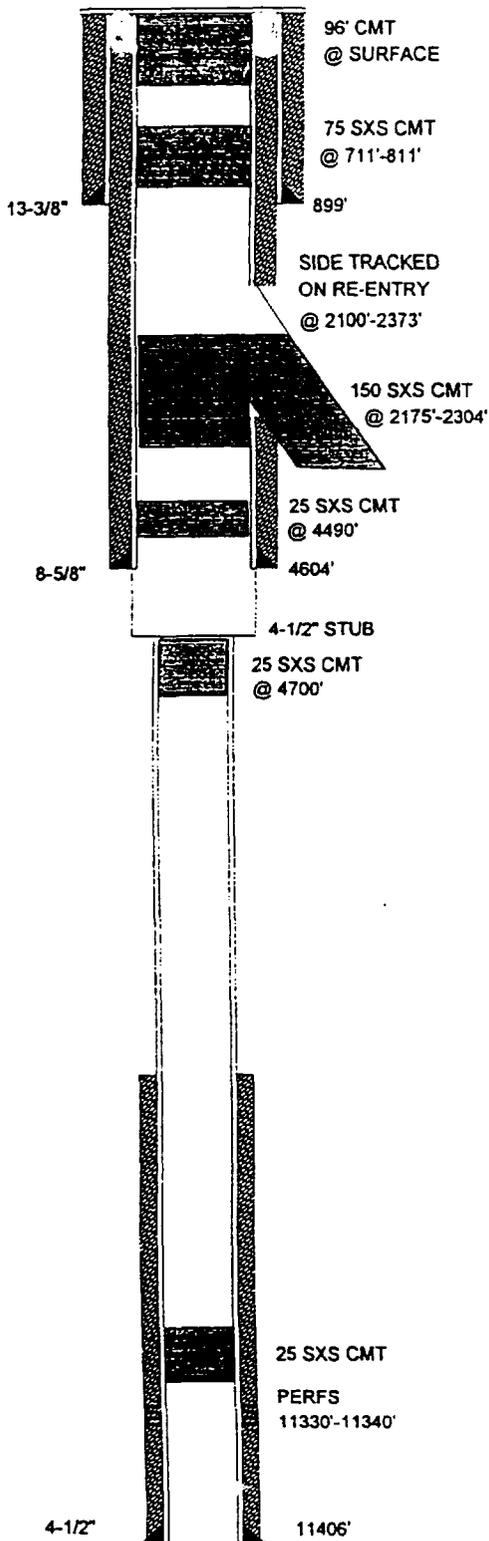
OPERATOR

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. SURFACE 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'