303 W. Wall, Ste. 101
Midland, TX 79701
Phone: 915-571-1322
Fax: 915-571-5062

Pioneer Natural Resources

Fax

915-571-1368

To: New Mexico Energy, Minerals & Natural Resources Department – Michael Stogner

From: Todd Yocham

Fax: 505.827.1389

Date: April 14, 1998

Phone:

Pages: 4 following

Re: Lusk West (Delaware) Unit Waterflood

CC:

☐ **Urgent** ☐ **For Review** ☐ **Please Comment** ☐ **Please Reply** ☐ **Please Recycle**

•Comments:

Mr. Stogner,

Following you will find documents related to the reference project and our recent telephone conversation.

If you need to contact me I will be in the field today and out of the office on Thursday and Friday of this week.

Thanks,

April 14, 1998

PIONEER NATURAL RESOURCES **memo**

TO: New Mexico Energy, Minerals & Natural Resources Department
Michael Stogner, Chief Hearing Officer/Engineer

FROM: Todd Yocham

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, T-19-S, R-32-E, NMPM, designated and undesignated West Lusk-Delaware Pool, Lusk West (Delaware) Unit, Lea Co., NM. Case 11704***

This letter and information is in reference to our telephone conversation on April 7, 1998.

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. Initially it was ordered to remediate and/or provide information relative to these wellbores to the satisfaction and/or recommendations of the supervisor of the Hobbs District Office of the Division. According to our recent conversation this evaluation will now be handled through your office.

Reference to our conversation you have received materials documenting the eight (8) wells in question and have determined potential problems in two(2) of the wellbores. The two (2) wellbores in question are the Plains Unit Federal #4-Y and the Plains Unit Federal #4. Following is some backup information and commentary concerning these two (2) wellbores.

Plains Unit Federal #4-Y (M - 21)
This well is currently operated by Pioneer Natural Resources (PNR) and is producing from the Strawn carbonate at 11,435'-11,479'. There is an uncemented window of open hole formation between the 8 5/8" intermediate csg (4540') and the 5 ½" production csg TOC (~10,100). The LWDU waterflood interval in this well is 6478'-6492' and has porosity of 3-5%. This interval is an interbedded shale, silt, carbonate, non reservoir quality sand insufficient for fluid migration. As this well is located off the main buildup of reservoir quality sand noted in the LWDU it could be reasoned that fluid migration will not occur into this

wellbore. If fluid could migrate into the wellbore it would be contained from migrating up into the fresh water source by the cemented 8 5/8" casing string. Also there are no known producing horizons between the waterflood interval and 10,100' for fluid migration down conduction.

Plains Unit Federal #4 (4-21)

This well has been plugged and abandoned as approved by the NMOCD. Records indicate an 8 ¾" open hole section from well TD (11,517') to the bottom of the 9 5/8" csg (4290'). The LWDU waterflood interval in this well is estimated at 6500'-6517' (no logs available) and has fair to good porosity (estimated from proximity of offset wells). It could be reasoned there is potential for fluid migration into this wellbore. If fluid could migrate into the wellbore it would be contained from migrating up into the fresh water source by the cemented 9 5/8" casing string. Concerning fluid migration down, the only produceable zone below the potential migration entry point is the Strawn formation at ~11,450' as determined by the PNR producing Plains Unit Fed #4-Y offset well. The potential hydrostatic pressure exerted on this Strawn zone would be approximately ~2100 psi. This is well below the formation pore pressure required to instigate fluid flow.

PNR would rather risk the unlikely chance of fluid migration into this Strawn formation (and potential watering out of its nearby producing Strawn well) than undertake the more risky reenter/remediate operations of a plugged and abandoned well with collapsed casing.

Enclosed you will find the diagrams relating to the two (2) wells in review.

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.

Thank you for your assistance in this process.

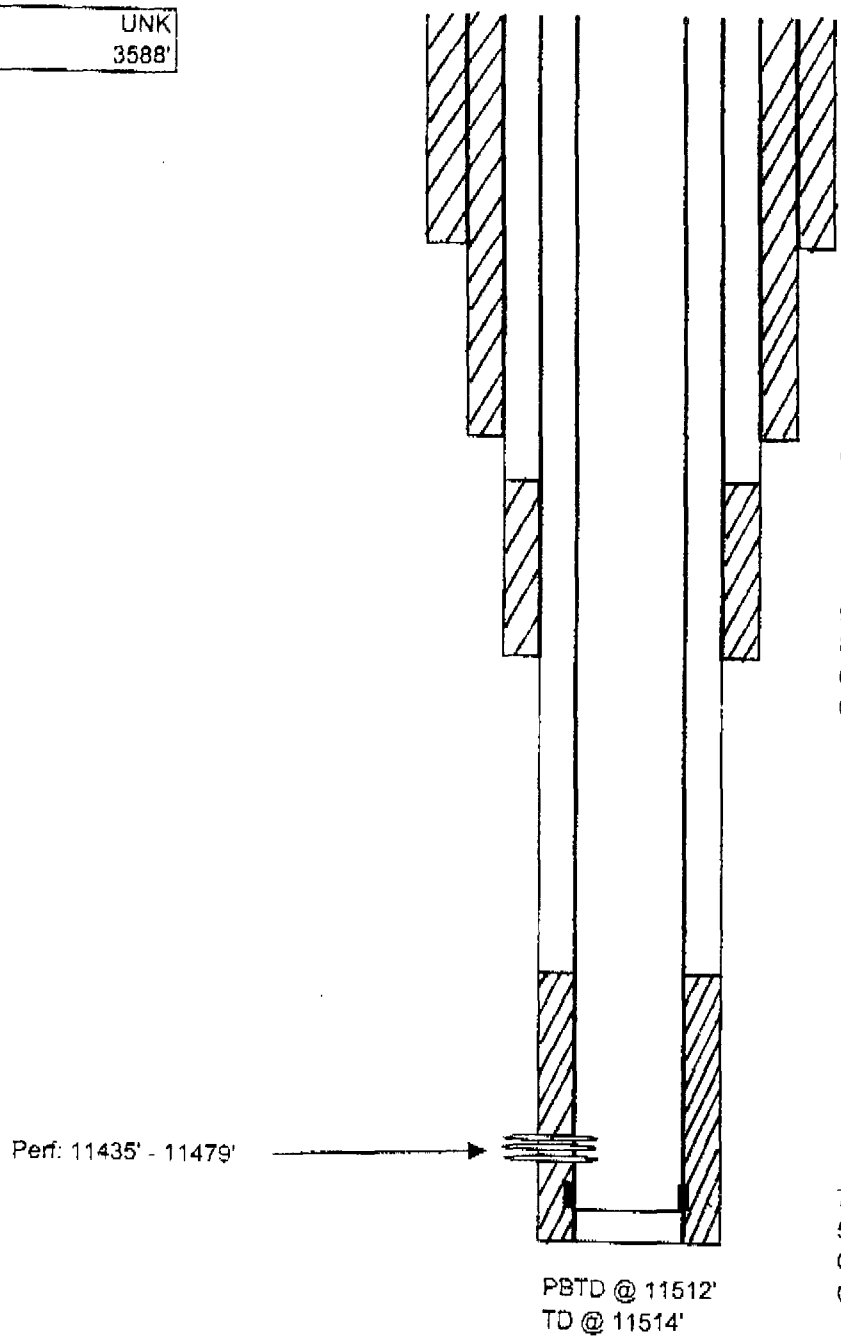
Todd

PIONEER
NATURAL RESOURCES

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'



17-1/2" hole
13-3/8", @ 827'
Cemented with 750 sacks (Circulated)

12-1/4" hole
10-3/4", @ 2662'
Cemented with 700 sacks (Circulated)

9-7-8" hole
8-5/8", @ 4540'
Cemented with 250 sacks
Calculated TOC @ 3500'

Perf: 11435' - 11479'

PBTD @ 11512'
TD @ 11514'

7-5/8" hole
5-1/2", @ 11514'
Cemented with 200 sacks
Calculated TOC @ 10079'

SHL 2/25/98 Puf4y

PIONEER
NATURAL RESOURCES

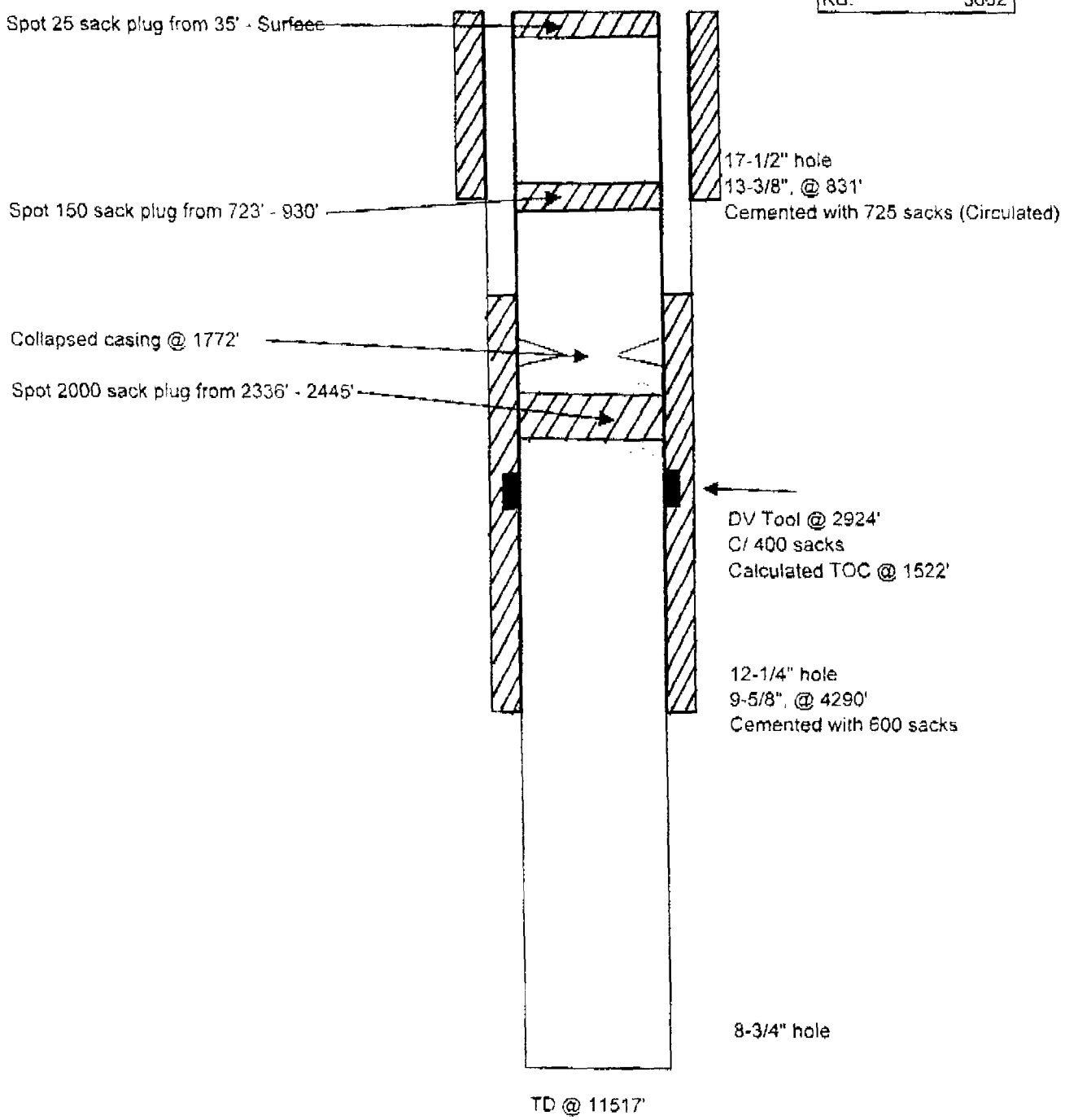
WELLBORE SCHEMATIC

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'



SHL 2/25/98 puf4