THUNDERBOLT PETROLEUM

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February 26, 2004

New Mexico Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

ATTN: Mr. Richard Ezeanyim:

Dear Mr. Ezeanyim:

Thunderbolt Petroleum respectfully requests an increase in the Maximum Surface Injection Pressure to 1100 psi for the Calmon Nos. 1 and 3 from the current limit of 650# for the #1 and 550 psi for the #3, as authorized by letter from the OCD dated 8/9/02, see attached.

Please find attached step rate tests and tracer surveys pertaining to my Calmon Waterflood located in the SW/4 of Section 16, T-18-S, R-29-E Eddy County, New Mexico. This flood was approved by the NMOCD Order # R-11275,(copy attached) in which the Maximum Surface Injection pressure of 453 PSIG was set for the Calmon State #1 and Calmon State #3. In 2002 a pressure increase was requested and was granted increasing the maximum pressure of the Calmon #1 to 650 psi and increasing the Calmon #3 to550 psi.

We have been battling an iron sulfide problem that has plugged off some injectivity and has caused our injection pressure to increase. We have tried back flowing and acidizing the wells with minimal benefit. Mr. Mike Bratcher, from the OCD Artesia office, recently performed a field inspection which showed the injection pressure to be above the last pressure increase order, a copy of his report is attached.

Attached are tracer surveys, which verify that the injection water is staying within the Grayburg injection interval. The Calmon Well #1 injection water goes out the upper perfs with no water reaching the lowest set of perfs, at 2676-80. The tracer survey indicates some channeling down about 10 feet below the perfs, at 2608-10, and no channeling up. The Calmon #3 injection water goes out the perfs, and the tracer does not indicate any channeling outside the pipe. The temperature survey on the #3 well indicates there may be a channel behind pipe up to about 2140'. The temperature log looks fairly erratic and the Cardinal personnel could not explain the behavior. However, the radioactive tracer does not indicate any channeling. Even if there was a channel to 2140', we are still in the Grayburg and well below any fresh water, which is above 400' in this area. What appears to be channeling could also be due to the frac jobs when the wells were initially completed. The #1 well was fraced with 75,500 # of sand and the #3 well was fraced with 129,300 # of sand.

BEFORE THE
OIL CONSERVATION COMMISSION
Case No.13249 Exhibit No. 4
Submitted By:
Thunderbolt Petroleum
Hearing Date: June 10, 2004

An attached plot of injection water and oil production demonstrates that the injection of a sufficient volume of water is necessary to increase the oil production. We have ran step rate tests on the Calmon #1 and Calmon #3 showing the parting pressure to be 805 psi and 787 psi respectively. We are requesting an increase in the Maximum Surface Injection Pressure to 1100 psi for the Calmon #1 and 1050 psi for the Calmon #3 because this is the pressure at which these wells will take injection water on a consistent basis.

These wells are injecting into the Grayburg interval at a depth of about 2250' to 2600'. The top of the Grayburg is about 2100'. As is typical with wells of this nature, the wellhead injection pressure has to be around 1000 to 1100 psi to inject water into the formation. These zones are fairly tight and over time plugging occurs due to microscopic particles being carried in the injection water. This seems to occur even when filters are used.

I am also sending you a chart showing the water injection rates compared to oil rates over time. Initially the oil production was about 50 to 80 BOPM and we were injecting about 5000 BWPM. In September 2001, I was able to secure additional water and was able to increase injection to almost 15000 BWPM. In about 5 months the oil rate increased to about 200 BOPM. The additional water source became unavailable after about 3 months and we went back to injecting around 5000 BWPM. In April 2003 we were able to get additional water and injection started climbing to about 10000 BWPM. The oil rate has since increased to nearly 400 BOPM.

Based on the results of the tracer survey, which shows the water remaining within the Grayburg zone, Thunderbolt Petroleum is requesting a wellhead pressure increase to 1100 psi for the Calmon #1 and #3.

If you need anything else please contact me. Thanks for everything you have done.

Sincerely,

Robert Lee

Robert Lee