

**Nearburg Producing Company**

13 West Carlisle

Exploration and Production  
3300 North "A" Street  
Building 2, Suite 120  
Midland, Texas 79705  
915-686-8235  
Fax 915 686-7806

January 5, 2001

Case 12667

New Mexico Oil Conservation Division  
2040 S. Pacheco Street  
Santa Fe, New Mexico 87505

JAN 9

Attn: David Catanach

Gentlemen:

Application for Classification as Hardship Gas Well (Rule 409) –  
Shelby Federal No.3, Eddy County, New Mexico

Nearburg Producing Company respectfully requests Hardship Gas Well Classification (Rule 409) for the Shelby Federal Well No.3, located in Unit K, Section 12, T-22S, R-24E, McKittrick Hills Upper Penn (Gas) Pool, Eddy County, New Mexico. This well is situated at the end of a high pressure gas gathering system and is in jeopardy of being shut-in. The potential for permanent waste of recoverable reserves incurred by shut-in events warrants a Hardship Classification, and is demonstrated by the following evidence:

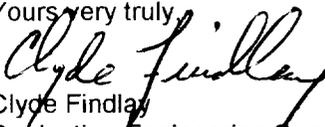
- ✓ 1. Excessive Cost – Water encroaches towards the wellbore when Upper Penn wells in this area are shut-in. The reservoir is characterized as a fractured carbonate gas pool with a weak water drive/water influx recovery mechanism. The well must be produced at a substantial gas rate to prevent water encroachment. When the well is shut-in, the cost to restore production is substantial because nitrogen and coil tubing are needed to return the well to flowing status. It is estimated that 1,000,000 – 1,500,000 cu.ft. nitrogen is required during a coil tubing treatment of 2 – 3 days to unload encroached water and restore gas production. This costs \$30,000 - \$40,000 per shut-in event.
- ✓ 2. Lost Reserves from Premature Abandonment – Permanent loss of reserves is another concern. Due to the quantity of water produced from the reservoir, water will accumulate in and around the wellbore during shut-in periods. The cost to unload water is substantial and will increase over time as service costs increase. The cost to restore production will eventually become unfeasible after a shut-in event. This may force Nearburg to prematurely abandon the well, and the remaining gas reserves will be lost.
- 3. Lost Reserves from Shut-in Productivity Damage – The Shelby Federal No.3 has cumulative gas recovery of +/- 12 BCF and continues to produce 2 – 3 MMCF/day due to the drive mechanism. Nearburg thinks it is likely that the weak water drive/water influx recovery mechanism can cause permanent productivity damage during a shut-in event. The evacuation of water from the fractures is necessary to maintain gas productivity as the water drive/water influx advances. A shut-in event of any length results in water encroachment and causes a new, higher connate water saturation through matrix imbibition during the shut-in event. The higher connate water saturation reduces matrix permeability and causes drainage to occur over a smaller area and bypasses gas

reserves (underground waste). Reserves of 4 BCF gas could be lost as a result of a shut-in event. Analogous Upper Penn wells in the Indian Basin field (located 6 miles northwest) have recovered 10 – 50 BCF gas/well. Analogous Upper Penn wells in the Springs field (located 7 miles northeast) have incurred shut-in productivity damage – specifically the Conoco Federal 34 #2 in 1987. This resulted in the granting of Hardship Classification to select Springs field wells in 1987.

4. Loss and Abandonment of Well from Unrepairable Shut-in Damage – The McKittrick Hills Upper Penn (Gas) Pool has a poor track record during shut-in events. The offset Shelby Federal No.2 well was lost and abandoned due to permanent damage incurred during a shut-in event in 1987. The Shelby Federal No.3 was drilled as a replacement wellbore to the No.2. Nearburg estimates that a replacement well would cost \$1,000,000 to drill and complete if the No.3 was unrepairably damaged during a shut-in event.
5. Reason to Grant Hardship Classification – The Shelby Federal No.3 has never been shut-in by Nearburg for the reasons previously stated. We fear a possible gas gathering system shut-in this spring due to pipeline and processing constraints in the Indian Basin area. The remote location of the No.3 at the end of the Duke Gas Gathering System puts us in a poor gas sales position and will cause underground waste if we are shut-in. By granting Hardship Classification to the No.3, pipeline shut-ins will be avoided and underground waste will be eliminated. The gas will be prioritized and can continue flowing until abandonment.
6. ~~Log-Off Test – Nearburg is hesitant to run a log-off test on the No.3 due to the offset No.2 being lost and abandoned during a shut-in event.~~ We would prefer to use the current producing rate of 2,600 MCF/day as the minimum sustainable producing rate for the No.3. ~~The Shelby Federal No.3 averaged gas sales of 2,600 MCF/day over the last year without suffering productivity damage or negative reservoir effects.~~
7. Wellbore Diagram – See Attachment One.
8. Proration Unit Land Plat – See Attachment Two.
9. Authorized Gas Transporter and Purchaser – Duke Energy Field Services, L.P.
10. Other Relevant Data – See Attachment Three – the open hole porosity log showing the perforated pay interval. Note that the No.3 well is completed at the top of the Upper Penn and substantial pay remains unperforated below. This is due to the weak water drive/water influx recovery mechanism and the completion necessary to prevent early water frontal breakthrough.
11. Notification of Gas Transporter, Purchaser, and Offset Operators – See Attachment Four – copies of notification letters.

→ 12348 12/4/11/00  
12345 12/4/00  
1234 12/4/00

Yours very truly,

  
Clyde Findlay  
Production Engineering Supervisor

cc: Artesia District NMOCD office – Tim Gum  
w/attach: Wellbore Diagram, Proration Unit Land Plat, Open Hole Porosity Log with Perforations, Copies of Notification Letters

Shelby Federal No. 3

Wellbore Diagram

22-141 50 SHEETS  
22-142 100 SHEETS  
22-144 200 SHEETS

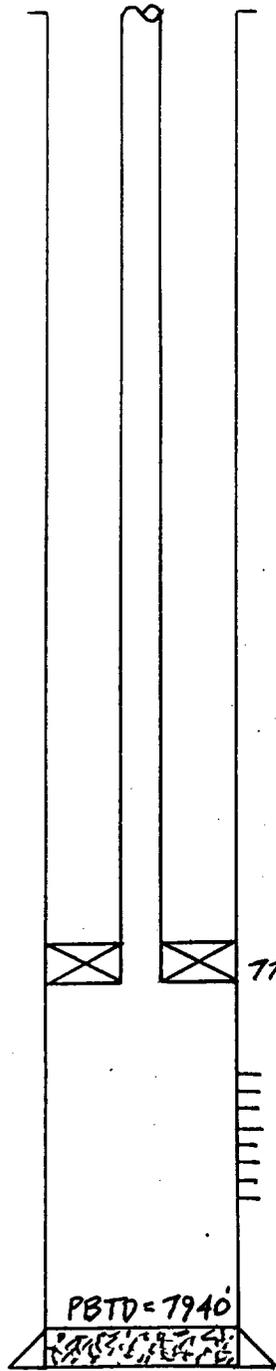


Surface Casing: 13 7/8",  
48# H-40, STC @  
400' w/400 sx cement  
(17.5" hole)

Intermediate Casing: 8 5/8",  
24# K-55, STC @  
1620' w/300 sx cement  
(12.25" hole)

Production Tubing: 2 3/8", N-80,  
4.7# @ 7730', Guiberson XL  
On-Off Tool w/1.875" "F"  
Profile, Guiberson Uni II  
(set in 4 1/2" casing)

Production Casing: 4 1/2", 11.6#  
K-55, LTC @ 7979'  
w/1250 sx cement (7.875" hole)



400'

1620'

7730'

PBTD = 7940'

TD = 7979'

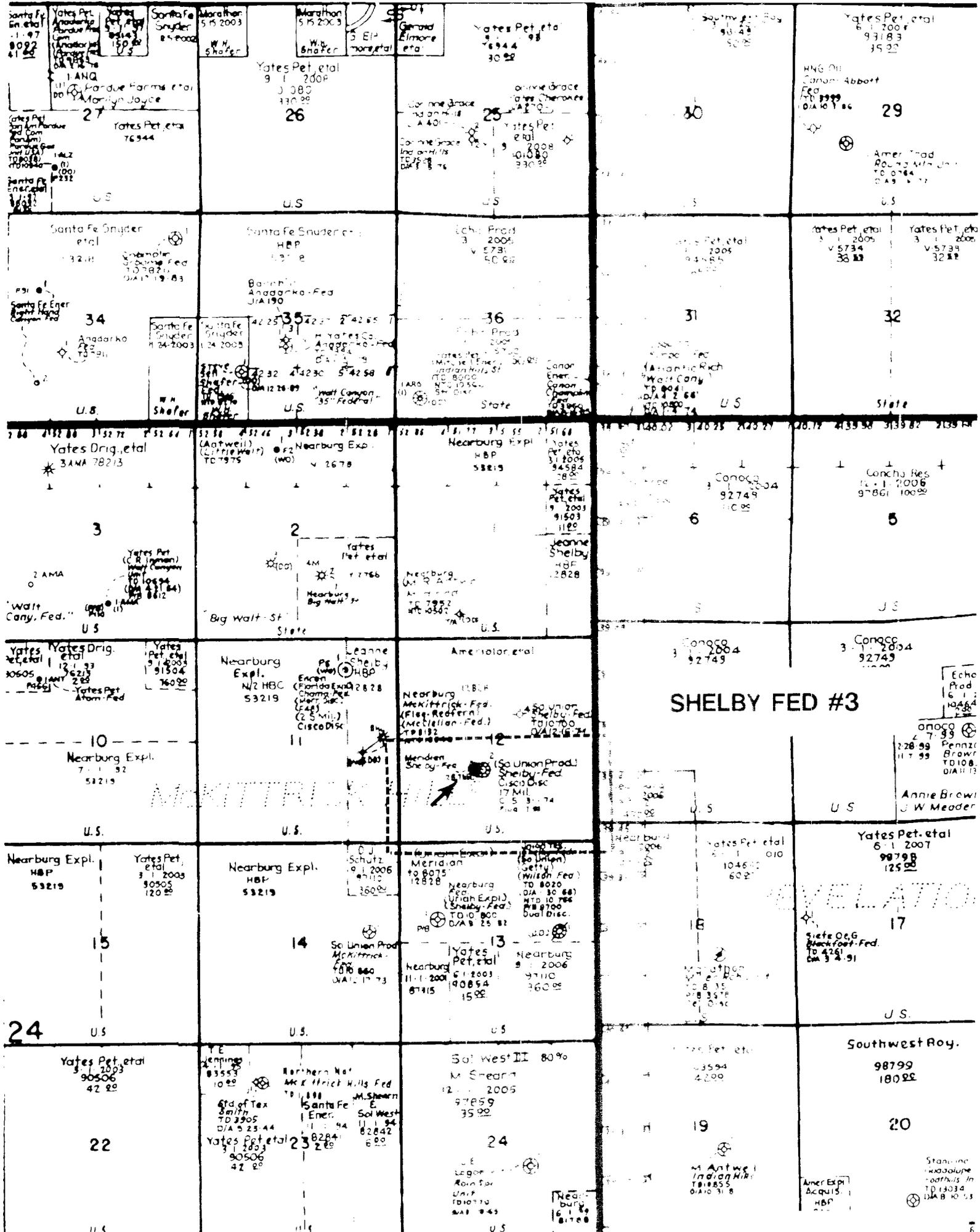
Shelby Federal No. 3  
1900' FSL & 2150' FWL,  
Section 12, T22S,  
R24E, Eddy County,  
New Mexico

GL: 3859' KB: 3871'  
Zero: 12' AGL

McKittrick Hills  
Upper Penn (gas) Pool Perfs:  
7830' - 7863' w/2 ISPF, 0° Phase

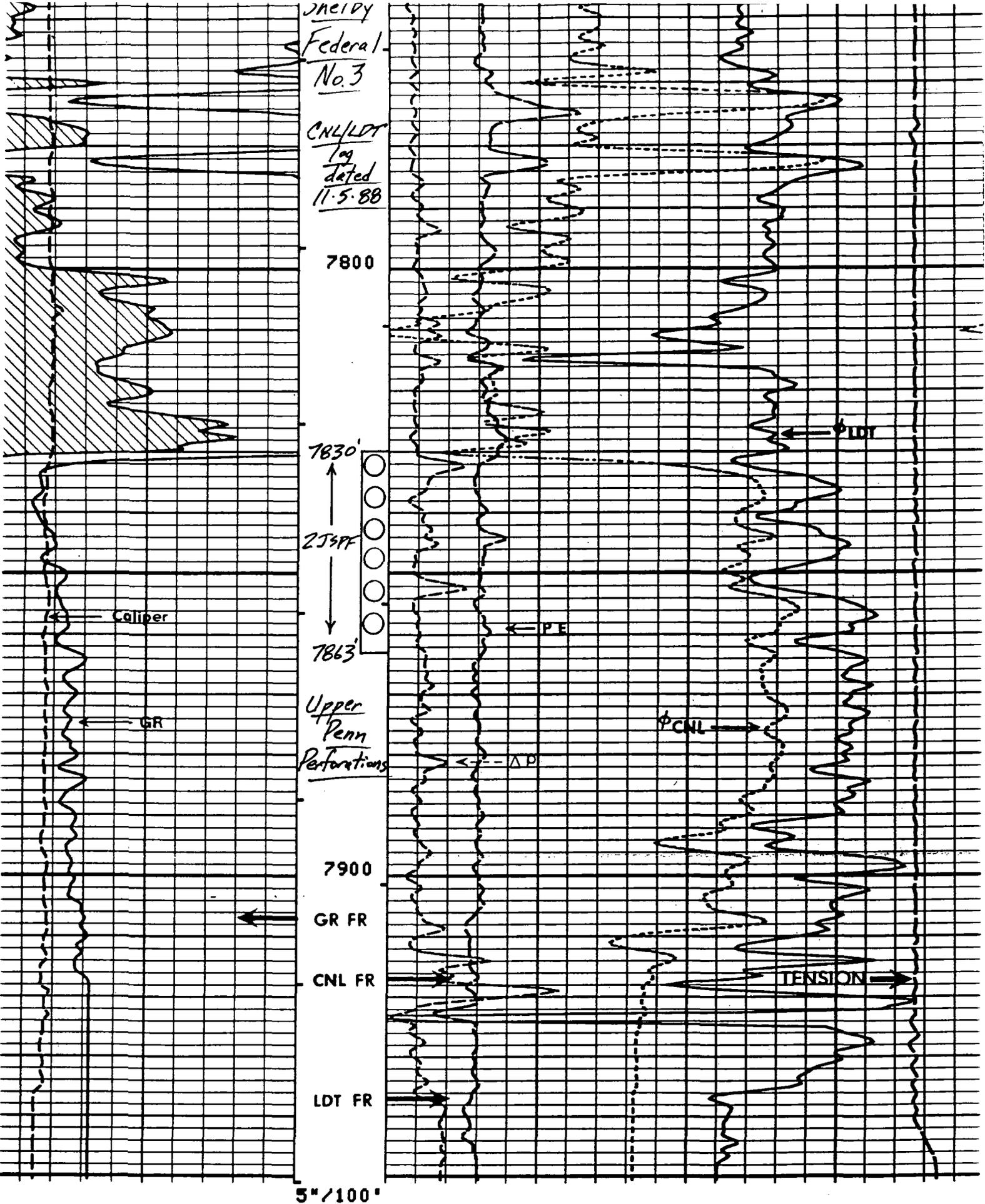
Not to Scale

CPF-15-01



**ATTACHMENT NO. 2**

M. Shearn 3-1-97 88094  
 Yates Pet et al 4-1-94 90591  
 M. Shearn 12-1-2006  
 Michael Shearn 1-1-97  
 M. Shearn 2-1-2006



**APPLICATION FOR CLASSIFICATION AS HARDSHIP GAS WELL (RULE 409)  
SHELBY FEDERAL NO. 3  
EDDY COUNTY, NEW MEXICO**

Transporter and Purchaser: Duke Energy Field Services, L.P.  
P. O. Box 50020  
Midland, Texas 79710-0020

Offset Owner/Operator: Yates Petroleum Corporation  
105 S. 4<sup>th</sup> Street  
Artesia, New Mexico 88210

Jeanne Fields Shelby  
5535 Yale Blvd., Suite 100  
Dallas, Texas 75206-5015

Conoco, Inc.  
10 Desta Drive, Suite 100W  
Midland, Texas 79705

**Nearburg Producing Company**

*Exploration and Production  
3300 North "A" Street  
Building 2, Suite 120  
Midland, Texas 79705  
915/686-8235  
Fax 915/686-7806*

January 4, 2001

**CERTIFIED MAIL – RETURN RECEIPT REQUESTED**

Duke Energy Field Services, L.P.  
P. O. Box 50020  
Midland, Texas 79710-0020

Re: **Application for Classification as Hardship Gas Well (Rule 409) –  
Shelby Federal No. 3, Eddy County, New Mexico**

Gentlemen:

This letter serves as official notice pursuant to NMOCD Rule 409 that Nearburg Producing Company has filed for Hardship Gas Well Classification for the NPC Shelby Federal No. 3, located in Unit K, Section 12, T-22-S, R-24-E, McKittrick Hills Upper Penn (Gas) Pool, Eddy County, New Mexico. As required, this notice is given to Duke Energy Field Services, L.P. as the transporter and purchaser of gas from said well.

If we can be of further assistance, please advise.

Yours truly,



Bob Shelton  
Land Manager

BS/dw

**Nearburg Producing Company**

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3300 North "A" Street  
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Midland, Texas 79705  
915/686-8235  
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January 5, 2001

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Yates Petroleum Corporation  
105 S. 4<sup>th</sup> Street  
Artesia, New Mexico 88210

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If we can be of further assistance, please advise.

Yours truly,



Bob Shelton  
Land Manager

BS/dw

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Midland, Texas 79705  
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January 5, 2001

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Jeanne Fields Shelby  
5535 Yale Blvd., Suite 100  
Dallas, Texas 75206-5015

Re: **Application for Classification as Hardship Gas Well (Rule 409) –  
Shelby Federal No. 3, Eddy County, New Mexico**

Dear Ms. Shelby:

This letter serves as official notice pursuant to NMOCD Rule 409 that Nearburg Producing Company has filed for Hardship Gas Well Classification for the NPC Shelby Federal No. 3, located in Unit K, Section 12, T-22-S, R-24-E, McKittrick Hills Upper Penn (Gas) Pool, Eddy County, New Mexico. As required, this notice is given to Jeanne Fields Shelby as an offset owner/operator.

If we can be of further assistance, please advise.

Yours truly,



Bob Shelton  
Land Manager

BS/dw

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Midland, Texas 79705  
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January 5, 2001

### **CERTIFIED MAIL – RETURN RECEIPT REQUESTED**

Conoco, Inc.  
10 Desta Drive, Suite 100W  
Midland, Texas 79705

Re: **Application for Classification as Hardship Gas Well (Rule 409) –  
Shelby Federal No. 3, Eddy County, New Mexico**

Gentlemen:

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If we can be of further assistance, please advise.

Yours truly,



Bob Shelton  
Land Manager

BS/dw