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May 30, 1995

HAND-DELIVERED

Michael E. Stogner, Chief Engineer
Oil Conservation Division
New Mexico Department of Energy,
Minerals and Natural Resources
2040 South Pacheco Street
Santa Fe, New Mexico 87505

RECEIVED

MAY 30 1995

Oil Conservation Division

Re: Oil Conservation Division Case No. 11267:
Application of Arch Petroleum Inc., for Special Pool Rules, Lea County, New
Mexico

Dear Mr. Stogner:

At the April 20, 1995 hearing in the above-referenced case, you requested volumetrics and estimates of the remaining productive life for the Arch Petroleum Inc. Learcy McBuffington No. 8 Well. Enclosed are Arch's volumetric calculations and a copy of a structure map on the top of the Fusselman formation. As you will note from the enclosed, Arch estimates a remaining economic life for this well of 5.6 years.

At the hearing you also requested a proposed finding and conclusion which would cause this case to be reopened when the McBuffington No. 8 ceases to produce to permit the Division to terminate the special pool rules which are the subject of this case.

Pursuant to your request, Arch proposes the following finding and conclusion be included in the Order which results from this hearing:

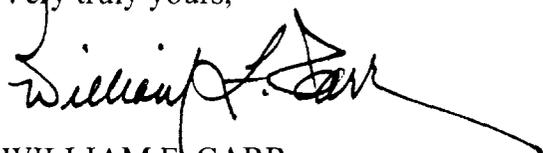
Michael E. Stogner, Chief Engineer
Oil Conservation Division
New Mexico Department of Energy,
Minerals and Natural Resources
May 30, 1995
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(Finding __): The operator of the Learcy McBuffington No. 8 Well should be required to notify the Director of the Division upon the permanent cessation of production from this well and this case should then be reopened to permit operators in the pool to appear and present evidence and show cause why the Special Rules and Regulations for this pool should remain in effect.

(Conclusion __): The operator of the Learcy McBuffington No. 8 Well shall notify the Director of the Division upon the permanent cessation of production from this well at which time this case shall be reopened at an Examiner hearing to permit operators in the pool to appear and present evidence and show cause why the foregoing Special Rules and Regulations should remain in effect.

If you need anything further from Arch to proceed with your consideration of this application, please advise.

Very truly yours,



WILLIAM F. CARR
ATTORNEY FOR ARCH PETROLEUM INC.

WFC:mlh
Enclosures

cc: Mr. Chris N. Benzer (w/o enclosures)
Arch Petroleum Inc.
10 Desta Drive, Suite 420E
Midland, TX 79705

**Learcy McBuffington #8 - Arch Petroleum
Justis Fusselman Field
Gas Cap Volumetrics**

The structure and isopach maps of the Justis Fusselman Field were put onto Geographix, a geologic mapping program. The current Gas/Water contact at 6645' was used to discard all pay below in the calculation of the gas cap volume. The attached map shows the results of this mapping. The gas cap is outlined by a dashed red contour line. The mapping yielded the following results:

Area of Gas Cap=46 acres=2,003,760 ft².
Calculated Volume of Gas Cap=77,700,000 ft³.
Avg. h'=77,700,000 ft³/2,003,760 ft²=38.8 ft.

The only modern log available in the area is from ARCO's W. N. Wimberly #11 (unit letter C, Sect. 24). This well is also highlighted on the attached map. The upper Fusselman that is present in our McBuffington #8 at 6590'-6645' is also present in the Wimberly #11 at 6648'-6754'. Even though it is downdip in the oil column, we can get representative numbers for our gas cap well: Average Neutron-Density X-plotted ϕ =6.3%.
Estimated S_{wi} =24.5%.

When we originally completed our well, the SITP built up to 1050 psig or 1064.7 psia. Our gas sales line pressure runs at about 50 psig or 64.7 psia (abandonment). A gas analysis was done on our well on April 24, 1995. It showed the following constituents:

Gas Gravity	0.7042
%N ₂	2.707%
%CO ₂	1.374%
%H ₂ S	0.90%

From the gas analysis and initial and abandonment pressures, the following gas compressibility factors (Z factor) and Bottom Hole Pressures (BHP) can be calculated:

Surface, psia	Z factor	BHP, psia
1065 (initial)	0.8251	1299
65 (abandonment)	0.9887	76

From this we can calculate the Formation Volume Factor (Bg) for both the initial and abandonment BHP:

BHP, psia	Bg, ft ³ /SCF
1299	0.0102
76	0.2085

From the initial open hole log from the McBuffington #8 we get the BHT of 108°F or 568°R. From these numbers we can calculate the Gas In Place (GIP) initially and at abandonment:

BHP, psia	Z factor	Bg, ft ³ /SCF	GIP, MCF
1299 (initial)	0.8251	0.0102	384,200
76 (abandonment)	0.9887	0.2085	18,800

By subtracting these two GIP numbers we get the Recoverable GIP of **365,400 MCF**.

Next we want to make an estimate of the economic life of the McBuffington #8 well based on these gas reserves. The well is currently making a little over 800 MCFPD. Assuming an economic limit of 10 MCFPD, we can solve for average yearly decline of 54.6%/year. For a well initially producing at 800 MCFPD and declining at 54.6%/year, it would take **5.6 years** to reach it's economic life. This is our best estimate of the remaining life of the Learcy McBuffington #8.

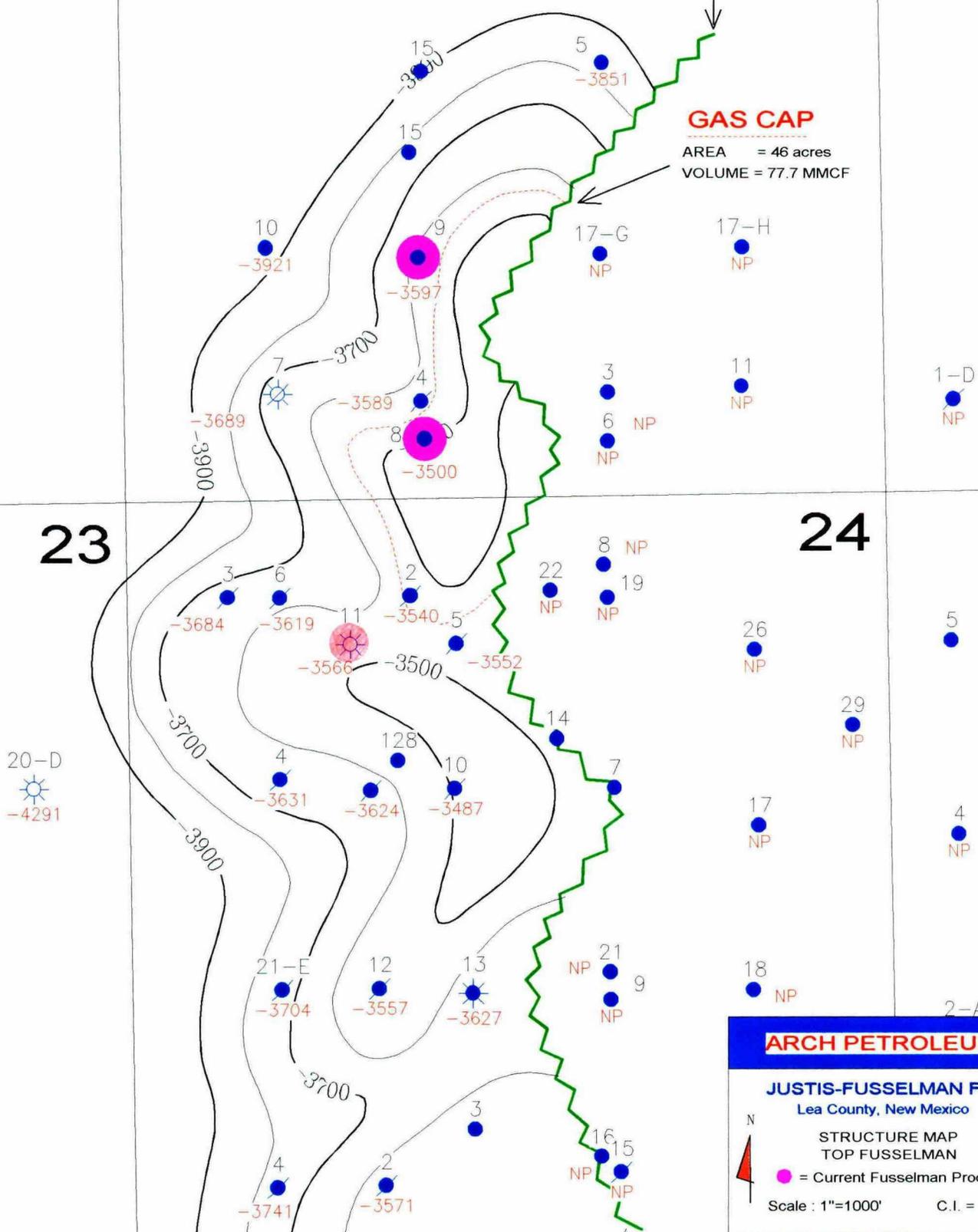
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UPDIP LIMIT OF FUSSELMAN

GAS CAP

AREA = 46 acres
VOLUME = 77.7 MMCF



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ARCH PETROLEUM

JUSTIS-FUSSELMAN FIELD
Lea County, New Mexico

STRUCTURE MAP
TOP FUSSELMAN

● = Current Fusselman Producer

Scale : 1"=1000'

C.I. = 100'