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February ¹² 11, 2004

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Oil Conservation Division
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Hand Delivered

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

Re: Case No. 12940 (Reopened)/Mewbourne Oil Company

Dear Mr. Catanach:

Enclosed is Mewbourne's proposed order in the above case, in hard copy and on disk.

Very truly yours,



James Bruce

Attorney for Mewbourne Oil Company

cc: Michael Feldewert w/encl.

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. 12940 (Reopened)
ORDER NO. R-11856-A

APPLICATION OF MEWBOURNE OIL COMPANY
TO REOPEN CASE NO. 12940 TO AMEND AND
MAKE PERMANENT THE SPECIAL RULES AND
REGULATIONS FOR THE SHUGART-STRAWN
POOL, AND FOR A DISCOVERY ALLOWABLE,
EDDY COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

(Submitted by Mewbourne Oil Company)

BY THE DIVISION:

This case came on for hearing at 8:15 a.m. on November 20, 2004, at Santa Fe, New Mexico, before Examiner David R. Catanach.

NOW, on this _____ day of February, 2004, the Division Director, having considered the testimony, the record, and the recommendations of the Examiner,

FINDS THAT:

(1) Due public notice has been given, and the Division has jurisdiction of this case and its subject matter.

(2) In Case No. 12940, the applicant, Mewbourne Oil Company ("Mewbourne"), sought the creation of a new pool for the production of oil from the Strawn formation, and special rules and regulations for the pool. By Order No. R-11856, the Division created the Shugart-Strawn Pool, initially comprising the NE¼ of Section 8, Township 18 South, Range 31 East, N.M.P.M., Eddy County, New Mexico, and instituted temporary rules for the pool including:

- (a) 160-acre spacing and proration units;
- (b) wells to be located no closer than 660 feet to quarter section line nor closer than 330 feet to a quarter-quarter section line or subdivision inner boundary;
- (c) a special depth bracket allowable of 1,120 barrels of oil per day; and

- (d) a limiting gas:oil ratio ("GOR") of 4,000 cubic feet of gas for each barrel of oil produced.

The case was to be reopened in March 2004 to determine whether the rules should be made permanent.

- (3) The Shugart-Strawn Pool currently covers the following lands in Eddy County:

Township 18 South, Range 31 East, N.M.P.M.
Section 5: S½
Section 8: N½

- (4) In the present case, Mewbourne seeks (i) to amend the special pool rules to increase the depth bracket allowable to 1,350 BOPD and to increase the gas:oil ratio to 10,000 cubic feet of gas for each barrel of oil produced, and (ii) to make the rules permanent. Mewbourne also requests that it be granted a discovery allowable for the proration unit comprising the NE¼ of Section 8.

- (5) Gruy Petroleum Management Co., Pecos Production Company, and Harvey E. Yates Company appeared at the hearing in opposition to the application (collectively, "opponents").

- (6) Marbob Energy Corporation, a working interest owner in the pool, submitted a letter in support of Mewbourne's application.

- (7) Since its discovery, the following wells have been drilled and completed in the Shugart-Strawn Pool:

<u>Operator</u>	<u>Well</u>	<u>Completion Date</u>
Mewbourne Oil Co.	Fren 8 Fed. No. 2	9/02
Mewbourne Oil Co.	Fren 8 Fed. No. 3	8/02
Mewbourne Oil Co.	Fren 8 Fed. No. 5	11/02
Gruy Pet. Mgt. Co.	Magnum 5 Fed. No. 2	1/03
Gruy Pet. Mgt. Co.	Magnum 5 Fed. No. 3	5/03
Harvey E. Yates Co.	Parker Deep 5 Fed. No. 3	5/03
Mewbourne Oil Co.	Fren 8 Fed. No. 6	10/03

The Parker Deep 5 Fed. No. 3 is an edge well with producing rates substantially lower than any other well in the pool.

- (8) Mewbourne's geologic evidence demonstrates that:

- (a) the wells in the Shugart-Strawn Pool are producing from a section over 500 feet thick in the Strawn formation. The carbonate buildup covers parts of the SW¼ of Section 4, S½ of Section 5, N½ of Section 8, and NW¼ of Section

9. **Mewbourne Exhibit 3;**

- (b) the thickest part of the buildup, and the bulk of the reservoir, is in the NE $\frac{1}{4}$ of Section 8, where the most productive wells are located. This is confirmed by hydrocarbon pore feet calculations. **Mewbourne Exhibit 14;** and
- (c) the shape of the reservoir in the Shugart-Strawn Pool is confirmed by (i) wells which do not have carbonate buildup in the Strawn formation, located immediately to the east, west, and south of the pool, and (ii) the structure on the base of the Wolfcamp Carbonate. **Mewbourne Exhibits 3 and 15.**
- (9) Mewbourne's engineering evidence shows the following:
 - (a) the Strawn formation is a volatile oil reservoir which produces like a gas reservoir rather than an oil reservoir. The gravity of the oil is 50 API, which is similar to a condensate. A static-fluid gradient test in the Fren 8 Fed. No. 6 showed gas in the entire column, with no oil or water. Thus, most oil recovered from the reservoir is in a gaseous state when produced at the perforations, and is condensed into condensate in the tubing or in surface separators;
 - (b) all wells in the reservoir are in pressure communication, and there is competition for reserves among wells;
 - (c) the reservoir is a solution gas drive reservoir, in which GOR's increase naturally over time. Other Strawn reservoirs in adjoining townships exhibit the same trend, and currently have pool-wide GOR's ranging from 8,000-11,000:1. **Mewbourne Exhibit 9.** There is a pending request to increase the limiting GOR in the North Lusk-Strawn Pool to 20,000:1;
 - (d) there is no evidence of a gas cap in the reservoir;
 - (e) wells in the Shugart-Strawn Pool (except HEYCO's well) are currently producing at GOR's of 6,000-8,000:1, well in excess of the 4,000:1 limiting GOR. The producing GOR in the pool will continue to increase naturally over time;
 - (f) production data from the Fren 8 Fed. Nos. 2 and 6, the two best wells in the pool, shows that producing the wells at rates from 300 BOPD to over 1300 BOPD does not

lead to a noticeable increase in GOR. **Mewbourne Exhibits 11 and 12.** This is verified by production from the Cedar Lake Reef-Strawn Pool, which produced at rates in excess of 1,000 BOPD without increasing the GOR above its natural rate of increase, or harming the reservoir. **Mewbourne Exhibit 9.** In addition, the best well in the Shugart-Strawn Pool, the Fren 8 Fed. No. 2, produces at a lower GOR than most other wells in the pool. **Mewbourne Exhibit 11;**

- (g) the poolwide GOR was level during the period of time that Mewbourne was overproduced (April-July 2003), and actually increased when Mewbourne's production was restricted (August-October 2003). The GOR increase is due to cumulative depletion and not to production rates. **Mewbourne Exhibit 9; Opponents' Exhibit 13;**
 - (h) the data shows that increasing the oil allowable in the Shugart-Strawn Pool will not damage the reservoir;
 - (i) the only wells capable of producing in excess of the current allowable are in the NE $\frac{1}{4}$ of Section 8, operated by Mewbourne. The NE $\frac{1}{4}$ of Section 8 well unit is capable of producing substantially in excess of 2,200 BOPD;
 - (j) even if the GOR and the oil allowable are increased as requested by Mewbourne, production from the NE $\frac{1}{4}$ of Section 8 will still be significantly restricted, to about one-half of its capability; and
 - (k) because this is a volatile, highly competitive reservoir, reserves under a well unit with restricted production will migrate to offsetting well units which are not production-restricted. Thus, Mewbourne's correlative rights are being adversely affected by the current pool rules.
- (10) Opponents' geology and engineering evidence showed the following:
- (a) there is a large "lobe" of the reservoir extending to the north of Gruy's Magnum Fed. Nos. 2 and 3. **Opponents' Exhibits 4 and 5.** However, (i) the lobe is based on 2-D seismic which cannot reliably indicate the location of the reservoir due to "sideswipe," and (ii) oil production from the Magnum Fed. Nos. 2 and 3 is declining at rates of 80% per year. Opponent's engineer could not explain such a high rate of decline if a large part of the reservoir is located to the north of these two wells.

Opponent's reservoir outline is inconsistent with the Wolfcamp structure. **Mewbourne Exhibit 15;**

- (b) original oil in place is approximately 7.15 MMBO, of which 1.65 MMBO (23%) is in the SE $\frac{1}{4}$ of Section 5 and 4.15 MMBO (58%) is in the NE $\frac{1}{4}$ of Section 8. However, the OOIP figures are totally dependent on the geology. If opponent's geology is incorrect, a much greater percentage of the reservoir is located on the NE $\frac{1}{4}$ of Section 8. Opponent's geologist admitted that the best wells, with the most porosity-feet, are in the NE $\frac{1}{4}$ of Section 8;
- (c) opponent's Exhibit 9 attempted to show how Mewbourne would recover its proportionate share of reserves at an oil allowable of 1,120 BOPD and a GOR of 6,000:1. However, since production from the NE $\frac{1}{4}$ of Section 8 would be severely restricted under such a scenario, while no other well unit would be restricted, the exhibit substantially over-states actual recoveries from the NE $\frac{1}{4}$ of Section 8. The overstated amount attributed to the NE $\frac{1}{4}$ of Section 8 would be produced by offsetting proration units; and
- (d) there is a relationship between high GOR and structure. **Opponents' Exhibit 9. However:**
 - (i) all wells in the pool currently have GOR's in the range of 6,000-8,000:1, which is an insignificant difference on a poolwide basis;
 - (ii) the Magnum Fed. Nos. 2 and 3, which have higher GOR's than other wells, were perforated structurally higher than Mewbourne's wells. **Mewbourne Exhibit 13.** While this may show a slight relationship between structure and GOR, it also shows there is no relationship between producing rate and GOR, since the best well in the reservoir, the Fren 8 Fed. No. 2, has a low GOR. **Mewbourne Exhibit 11;** and
 - (iii) Mewbourne's Fren 8 Fed. No. 3 has perforations and a GOR equivalent to the Magnum Fed. Nos. 2 and 3. **Mewbourne Exhibit 11.** However, that well, which is a poor producer, has low relative permeability, and thus would be expected to produce gas preferentially to oil. In fact, it has had a relatively higher GOR since the date it was placed on production.

(11) Mewbourne's interpretation of the geology and engineering more accurately represents the reservoir data.

(12) Opponents asserted that the pool rules should not be amended or made permanent until additional wells were drilled. However, only three additional wells have been proposed in the pool, which were drilled by January-February 2004, at which time the pool would be fully developed.

(13) There is sufficient data available at this time to make the special rules for the Shugart-Strawn Pool permanent.

(14) The engineering evidence demonstrates that approval of Mewbourne's request for a limiting GOR of 10,000:1, and a special depth bracket allowable of 1,350 barrels of oil per day, for the Shugart-Strawn Pool will not result in waste of reservoir energy, will not reduce the ultimate recovery of oil from the reservoir, and will not violate correlative rights.

(15) In order to prevent waste and protect correlative rights, the special pool rules for the Shugart-Strawn Pool should be amended as set forth in Finding Paragraph No. (14), and be made permanent.

(16) Mewbourne also requests a discovery allowable under Rule 509. Opponents have objected to the discovery allowable, and if it is granted, to allowing any well other than the Fren 8 Fed. No. 3 to produce the allowable. The facts and the regulations show:

- (a) although the first well completed in the Shugart-Strawn Pool was Mewbourne's Fren 8 No. 3 (in August 2002), the pool was actually discovered by Mewbourne's Fren 8 No. 2, which was initially completed in the Morrow formation (in August 2001). The Fren 8 No. 3 was recompleted in the Strawn formation in September 2002;
- (b) "The evidence presented by Mewbourne demonstrates that the Fren "8" Federal Nos. 2 and 3 have discovered a new common source of supply in the Strawn formation." **Order No. R-11856, Finding Paragraph No. (10);**
- (c) Rule 509 does not set a time limit on applying for a discovery allowable;
- (d) Division rules allow an oil well unit to have up to four wells per proration unit. **Rule 104.B(1)**. In addition, because oil wells are prorated, oil production is measured by proration unit and not by well. **Rule 502**. Thus, the discovery allowable should be producible by any

wells in the unit; and

- (e) in Case Nos. 12940 and 12940 (Reopened), Mewbourne has submitted all data required by Rule 509 to justify the discovery allowable.

(17) Mewbourne should be granted a discovery allowable of 52,310 barrels of oil (5 x 10,462 feet, the depth of the top perforation in the Fren 8 Fed. Well No. 3), producible from any wells in the proration unit comprising the NE¼ of Section 8.

IT IS THEREFORE ORDERED THAT:

(1) Pursuant to the application of Mewbourne Oil Company, the Special Pool Rules for the Shugart-Strawn Pool are amended as provided below, and are made permanent.

(2) Permanent special rules for the Shugart-Strawn Pool are hereby established as follows:

**SPECIAL POOL RULES FOR THE
SHUGART-STRAWN POOL**

RULE 1: Each well completed or recompleted in the Shugart-Strawn Pool, or in the Strawn formation within one mile thereof and not nearer to or within the limits of another designated Strawn pool, shall be spaced, drilled, operated, and produced in accordance with the special rules hereinafter set forth.

RULE 2: Each well completed or recompleted in the Shugart-Strawn Pool shall be located on a unit containing 160 acres, more or less, which consists of a single governmental quarter section.

RULE 3: The Director may grant an exception to the requirements of Rule 2 in accordance with the procedure set by Division Rule 104.D.(2).

RULE 4: Each well shall be located no closer than 660 feet to any outer boundary of a spacing unit, and no closer than 330 feet to any quarter-quarter section line or subdivision inner boundary.

RULE 5: The Director may grant an exception to the requirements of Rule 4 when in accordance with the procedure set by Division Rule 104.F.

RULE 6: The allowable for a standard 160-acre proration unit shall be 1,350 barrels of oil per day. In the event there is more than one well per 160-acre proration unit, the operator may produce the allowable assigned to the unit from the wells on the unit in any proportion. The allowable assigned to a non-standard proration unit shall bear the same ratio to a standard allowable as the acreage in such non-standard unit bears to 160 acres.

RULE 7: The limiting gas:oil ratio shall be 10,000 cubic feet of gas per barrel of oil produced.

(3) Mewbourne is granted a discovery allowable of 52,310 barrels of oil, which shall be producible over a two year period from the date of this order, as provided in Rule 509.F, from any wells in the proration unit comprising the NE $\frac{1}{4}$ of Section 8.

(4) Jurisdiction is hereby retained for the entry of such further orders as the Division may deem necessary.

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

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

LORI WROTENBERY
Director

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