

Release Date - Sept 16, 1987



MURPHY OPERATING CORPORATION
UNITED BANK PLAZA, SUITE 300
400 NORTH PENNSYLVANIA AVENUE
POST OFFICE BOX 2648
ROSWELL, NEW MEXICO 88202-2648
August 26, 1987

TELEPHONE
505 623-7210

State of New Mexico
Oil Conservation Commission
P. O. Box 2088
Santa Fe, New Mexico 87000

Attention: Mr. Mike Stogner

Re: Application For Downhole Commingling
South Corbin Federal Well No. 1
Federal NM-61604
Unit Ltr. B, Sec.20, T-18S, R-33E,
Lea County, New Mexico

Gentlemen:

Pursuant to a recent telephone conversation with your office, Murphy Operating Corporation ("MOC") respectfully requests approval for downhole commingling of the above-referenced well pursuant to the State of New Mexico Energy and Minerals Department, Oil Conservation Division (OCD) Rules and Regulations as specially outlined in Rule 303-C. MOC originally submitted an Application for Multiple Completion on Form C-107 dated June 1, 1987. Pursuant to telephone conversations between MOC personnel and OCD personnel, MOC is herein submitting an Application for Downhole Commingling which apparently is the proper procedure considering the specific circumstances of the above-referenced well.

The following is the requested information pursuant to the format as outlined in Rule 303-C.

2(a). Name and address of Operator:

MURPHY OPERATING CORPORATION
P. O. Box 2648
Roswell, New Mexico 88202-2648

2(b). Lease Name: South Corbin Federal
Well Number: 1
Well Location: Unit Ltr. B, Section 20, Township 18 South, Range 33 East
Lea County, New Mexico

2(c). A plat of the area showing acreage dedicated to the well and the ownership of all offsetting leases:

attached as Exhibit 1

2(d). A current (within 30 days) 24-hour productivity test on Division Form C-116 showing amount of oil, gas and water produced from each zone:

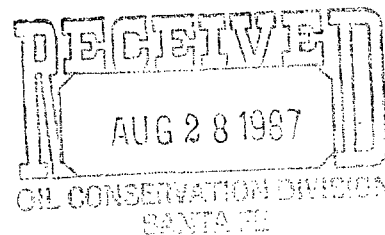
attached as Exhibit 2

2(e). ...a complete resume of the well's completion history including description of treating, testing, etc., of each zone, and a prognostification of future production from each zone shall be submitted:

attached as Exhibit 3

2(f). Estimated bottom-hole pressure for each artificially lifted zone:

attached as Exhibit 3



- 2(g). A description of the fluid characteristics of each zone showing that the fluids will not be incompatible in the well-bore:

attached as Exhibit 3

- 2(h). A completion showing that the value of the commingled production will not be less than the sum of the values of the individual stream:

attached as Exhibit 3

- 2(i). A formula for the allocation of production of each of the commingled zones and a description of the factors or data used in determining such formula:

attached as Exhibit 3

- 2(j). A statement that all offset operators and, in the case of a well on federal land, the Bureau of Land Management, have been notified in writing of the proposed commingling:

Copies of this letter and accompanying exhibits have been mailed "certified return receipt requested" to the parties as listed in Exhibit 2 and to the B.L.M. at the following address:

Department of the Interior
Bureau of Land Management
P. O. Box 1778
Carlsbad, New Mexico 88220

MOC respectfully requests approval for downhole commingling and should you have any questions or comments, please feel free to contact me at the above listed number.

Sincerely,

MURPHY OPERATING CORPORATION



Mark B. Murphy
President

MBM/lb

Enclosures: as stated

CC: one copy: Oil Conservation Division
Attn: Mr. Jerry Sexton
P. O. Box 1980
Hobbs, New Mexico 88240

one copy: each offset operator as listed on Exhibit 1, Page 3

All distances must be from the outer boundaries of the Section.

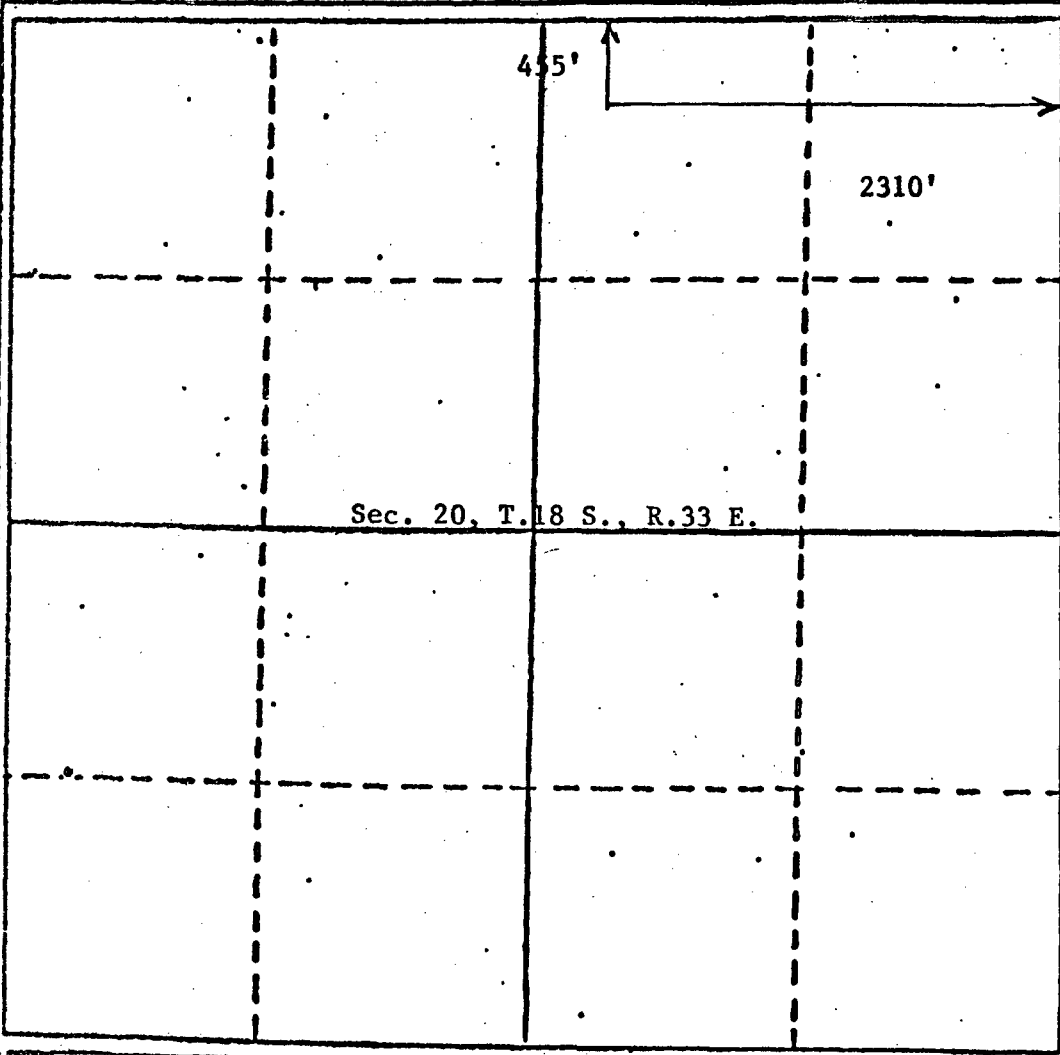
Operator MURPHY OPERATING			Lease CORBIN FEDERAL		Well No. #1
Unit Letter B	Section 20	Township 18S	Range 33E	County Lea County	
Actual Wellbore Location of Well					
455 feet from the North line and		2310 feet from the East line			
Ground Level Elev. 3842	Producing Formation		Pool	Dedicated Acreage Acres	

1. Outline the acreage dedicated to the subject well by colored pencil or hatchure marks on the plat below.
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).
3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?

☐ Yes ☐ No If answer is "yes," type of consolidation _____

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) _____

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Division



CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.

Name
Mark B. Murphy
Position
President
Company
Murphy Operating Corporation
Date
November 20, 1985

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

JOHN D. JAGUES
November 21, 1985
Date Subscribed
NEW MEXICO
Registered Professional Engineer
and/or Land Surveyor
John D. Jagues, P.E. & L.S.
Certificate No. **6290**

This figure is a detailed map of the United States, specifically focusing on the oil and gas industry. The map is divided into numerous small sections, each representing a different oil or gas field. Each section is labeled with a name, often in large, bold, capital letters, such as 'CORBIN', 'BUFFALO', 'SHINERY', and 'MARY NELLIS'. These labels are typically placed within the field's boundary. The map also includes a grid system, with letters and numbers used to identify specific locations. For example, 'A-1' might refer to a specific well or area within a field. The map shows the distribution of these fields across the country, with a high concentration in the central and southern regions. Various symbols and codes are used throughout the map to denote different types of fields, production levels, and other relevant information. The map is a valuable resource for understanding the oil and gas industry in the United States.

OPERATORS OFFSETTING
SOUTH CORBIN FEDERAL WELL #1

<u>Operators:</u>	<u>Lease Ownership:</u>
Meridian Oil (successor to Southland Royalty) 21 Desta Drive Midland, Texas 79705	S/2 Section 17, T-18, R-33E
Amoco Production Company P. O. Box 4072 Odessa, Texas 79760	S/2 Section 16, T-18S, R-33E; NW/4, N/2 SW/4 Section 21, T-18S, R-33E; NW/4, W/2 SW/4, NE/4 SW/4, Section 20, T-18S, R-33E.
R. N. Enfield P. O. Box 2431 Santa Fe, New Mexico 87501	W/2 Section 29, T-18S, R-33E
Read & Stevens P. O. Box 1518 Roswell, New Mexico 88201	S/2 SW/4 Section 21, T-18S, R-33E
Mobil Producing, Inc. P. o. Box 633 Midland, Texas 79702	W/2 NW/4 Section 28, T-18S, R-33E
Pennzoil Company P. O. Drawer 1828 Midland, Texas 79702	E/2 Section 29, T-18S, R-33E
C. W. Trainer 526 Sandy Mountain Drive Sun Rise Beach, Texas 78643	SE/4 SW/4 Section 20, T-18S, R-33E

GAS-OIL RATIO TESTS

Operator		MURPHY OPERATING CORPORATION		County		Lea County, New Mexico												
Address		P. O. Drawer 2648, Roswell, New Mexico 88201		Pool		SOUTH CORBIN BONE SPRING												
LEASE NAME		WELL NO.	LOCATION			TYPE OF TEST - (X)		Completion ☐ Special ☒										
			U	S	T	R	DATE OF TEST	CHOKE SIZE	TBG. PRESS.	DAILY ALLOWABLE	LENGTH OF TEST HOURS	WATER BOLS.	PROD. GRAV. OIL	OIL BBLs	GAS M.C.F.	GAS - OIL RATIO CU.FT./BBL.		
South Corbin Federal		1	B	20	18S	33E		2-17-87	P	2"	35 psi	5	24	25	36.0	6	17	2833

No well will be assigned an allowable greater than the amount of oil produced on the official test.

During gas-oil ratio test, each well shall be produced at a rate not exceeding the top unit allowable for the pool in which well is located by more than 35 percent. Operator is encouraged to take advantage of this 25 percent tolerance in order that well can be assigned increased allowable when authorized by the Division.

Gas volumes must be reported in MCF measured at a pressure base of 15.025 psia and a temperature of 60° F. Specific gravity base will be 0.60.

Report casing pressure in lieu of tubing pressure for any well producing through casing.

Well owners and one copy of this report to the district office of the New Mexico Oil Conservation Division in accordance with Rule 331 and appropriate pool rules.

I hereby certify that the above information is true and complete to the best of my knowledge and belief.

Lois N. Brown
LOIS N. BROWN (Signature)

Production Department 505/623-7210

August 26, 1987 (Title)

GAS-OIL RATIO TESTS

Operator MURPHY OPERATING CORPORATION		Pool UPPER DELAWARE SANDSTONE		County Lea County, New Mexico												
Address P. O. Drawer 2648, Roswell, New Mexico 88201		TYPE OF TEST - (X)		Schedulded ☐ Completion ☐ Special ☒												
LEASE NAME	WELL NO.	LOCATION			DATE OF TEST	CHOKE SIZE	TBG. PRESS.	DAILY ALLOW. ABLE	LENGTH OF TEST HOURS	PROC. DURING TEST			GAS - OIL RATIO CU.FT./GBL.			
		U	S	T						R	WATER BOLS.	GRAV. OIL		OIL BOLS.	GAS M.C.F.	
South Corbin Federal	1	B	20	18S	33E	4-15-87	P	2"	35 psi	0	24	5	34.0	2	TSTM	-

No well will be assigned an allowable greater than the amount of oil produced on the official test.

During gas-oil ratio test, each well shall be produced at a rate not exceeding the top unit allowable for the pool in which well is located by more than 25 percent. Operator is encouraged to take advantage of this 25 percent tolerance in order that well can be assigned increased allowable when authorized by the Division.

Gas volumes must be reported in MCF measured at a pressure base of 15.025 psia and a temperature of 60° F. Specific gravity base will be 0.60.

Report casing pressure in lieu of tubing pressure for any well producing through casing.

Mail original and one copy of this report to the district office of the New Mexico Oil Conservation Division in accordance with Rule 331 and appropriate pool rules.

I hereby certify that the above information is true and complete to the best of my knowledge and belief.

Lois N. Brown
Lois N. Brown (Signature)
Production Department 505/623-7210
August 26, 1987 (Title)

GAS-OIL RATIO TESTS

Operator MURPHY OPERATING CORPORATION		Pool YATES SANDSTONE		County Lea County, New Mexico										
Address P. O. Drawer 2648, Roswell, New Mexico 88201		TYPE OF TEST - (X)		Completion ☐ Special ☒										
LEASE NAME	WELL NO.	LOCATION			DATE OF TEST	CHOKE SIZE	TBG. PRESS.	DAILY ALLOW-ABLE	LENGTH OF TEST HOURS	PROD. DURING TEST			GAS - OIL RATIO CU.FT./GBL.	
		U	S	T						R	WATER BBL.S.	GRAV. OIL		OIL BBL.S.
South Corbin Federal	1	B	20	18S	33E	4-23-87	P	2"	35 psi	0	32.0	1	TSTM.	-

No well will be assigned an allowable greater than the amount of oil produced on the official test.

During gas-oil ratio test, each well shall be produced at a rate not exceeding the top unit allowable for the pool in which well is located by more than 25 percent. Operator is encouraged to take advantage of this 25 percent tolerance in order that well can be assigned increased allowables when authorized by the Division.

Gas volumes must be reported in MCF measured at a pressure base of 15.035 psia and a temperature of 60° F. Specific gravity base will be 0.60.

Report casing pressure in lieu of tubing pressure for any well producing through casing.

Mail original and one copy of this report to the district office of the New Mexico Oil Conservation Division in accordance with Rule 331 and appropriate pool rules.

I hereby certify that the above information is true and complete to the best of my knowledge and belief.

Lois N. Brown
LOIS N. BROWN (Signature)
Production Department 505/623-7210

August 26, 1987
(Date)

BONE SPRING SANDSTONE

Reference 2(e):

Producing Zone: Bone Spring Sandstone

Productive Test: 6 BOPD, 17 mcfgpd, 25 BWPD

Perforations: 7345' - 7374'

Coring & Testing: DST: Interval 7330' - 7374'

<u>Sampler Recovery:</u>	IHP	3613	psi
100 cc. 36.5° API oil	1st IF	54.6	psi
2300 cc. water	1st F.F.	127.3	psi
140 psi (.15 cu.ft.gas)	ISIP	2261.8	psi

<u>Pipe Recovery:</u>	2ndIF	202.3	psi
6238' gas in drlg. pipe	F.F.	247.8	psi
90' of 36.5° OIL	FSIP	2716.2	psi
177' O&GC mud	FHP	3606.2	psi
320' mud & gas cut water			

Btm. Hole Temp. 114° F

Completion History:

5-12-86 perforate and acidize w/2000 gals. 15% MCA
Average rate: 4 BPM Average Pressure: 3000 psi
Maximum rate: 4.5 BPM Maximum Pressure: 3800 psi

5-14-86 frac w/20,000 gals. 30# cross-link gel
2000# 100 mesh sand, 36,000# 20/40 mesh sand
Average rate: 8 BPM Average Pressure: 3300 psi
Maximum rate: 8.2 BPM Maximum Pressure: 4400 psi

Put on pump to evaluate.

6-17-86 reperforate and acidize w/2000 gals. 15% NEFE

6-19-86 refrac w/45,000 gals 30# cross link gel
80,000# 20/40 mesh sand
Average rate: 30 BPM Average Pressure: 6000 psi
Maximum rate: 31 BPM Maximum Pressure: 9000 psi

6-28-86 reacidize w/3000 gals. 7.5% MSR 100
Average rate: 2.4 BPM Average Pressure: 1200 psi
Maximum rate: 3 BPM Maximum Pressure: 1500 psi

2-10-87 reperforate and reacidize w/1000 gals. 7.5% MSR 100
and 250 gals. Xylene.
Average rate: 3 BPM Average Pressure: 3000 psi
Maximum rate: 3 BPM Maximum Pressure: 4950 psi

Put on pump, well stabilized @ 6 BOPD
17 mcfgpd
25 BWPD

Prognostification: As noted above, MOC has made numerous completion attempts in this zone. This zone has stablized production as noted above, in MOC's opinion, there is little chance of improving said production rate.

Reference 2(f):

Estimated Bottom Hole Pressure: 73 psi

UPPER DELAWARE SANDSTONE

Reference 2(e):

Producing zone: Upper Delaware Sandstone

Production Test: 2 BOPD, TSTM mcfcpd, 5 BOPD

Perforations: 4967' - 4975'

Completion History:

3-19-87 set RBP @ 7111', perforate and acidize w/1000 gals. 15% MSR
Average rate: .5 BPM Average Pressure: 1550 psi
Maximum rate: .5 BPM Maximum Pressure: 2020 psi

3-23-87 frac w/29,000 gals. 40# cross linkgel,
30,000# 2/40 mesh sand and 9000# 12/20 mesh sand
Average rate: 10 BPM Average Pressure: 2300 psi
Maximum rate: 10 BPM Maximum Pressure: 3010 psi

Zone isolated and put on pump. Well stabilized @ 2 BOPD
TSTM mcfcpd
5 BOPD

Prognostification: This zone has been completed utilizing contemporary completion practices, in MOC's opinion, there is little chance of improving said production rate.

Reference 2(f):

Estimated Bottom Hole Pressure: 52 psi

YATES SANDSTONE

Reference 2(e):

Producing zone: Yates Sandstone

Production Test: 1 BOPD, TSTM mcfcpd, 0 BOPD

Perforations: 3036' - 3051'

Completion History:

4-18-87 set RBP @ 3681', perforate and acidize w/1000 gals. 15% NEFE
Average rate: 3 BPM Average Pressure: 2050 psi
Maximum rate: 4.5 BPM Maximum Pressure: 4750 psi

Zone isolated and put on pump. Well stabilized @ 1 BOPD
TSTM mcfcpd
0 BOPD

Prognostification: This zone appears extremely tight and, in MOC's opinion, does not have potential for increased production.

Reference 2(f):

Estimated Bottom Hole Pressure: 38 psi

Reference 2(g):

Water Analysis of Individual Zones

	<u>Bone Spring Sandstone</u>	<u>Delaware Sandstone</u>	<u>Yates Sandstone</u>
Specific Gravity	1.164	1.13	1.173
ph	5.6	7.0	6.2
Calcium	21479	23652	24122
Magnesium	2797	1594	3660
Chlorides	151000	115000	159000

The water analysis (above) of the individual zones indicates that the produced fluids from the individual zones are compatible.

Reference 2(h):

<u>Individual Zone</u>		<u>Stabilized Production Rate (BOPD)</u>	<u>Percentage Contribution</u>	<u>Adjusted Percentage API</u>
Bone Spring Sandstone	= 36° API Gravity	6	67%	24.12
Upper Delaware Sandstone	= 34° API Gravity	2	22%	7.48
Yates Sandstone	= 32° API Gravity	1	11%	3.52
		9 BOPD	100%	35.12 API

Oil Analysis has been performed on all of the above-listed intervals. This analysis indicates an adjusted API gravity of 35°. MOC tested these zones for a thirty-day period, which resulted in the sale of a 185 barrel load of oil on May 13, 1987. The gravity of the oil sold was 35° API which tends to confirm the computation above. This adjusted API gravity is not less than the sum of the values of the individual streams.

Reference 2(i):

The formula for allocating production is based upon stablized well tests which reflect the amount of production contributed by the individual zones. The contribution factors are calculated as follows:

	<u>Stabilized Production Rate (BOPD)</u>	<u>Percentage of Contribution</u>
Bone Spring Sandstone	6	67%
Upper Delaware Sandstone	2	22%
Yates Sandstone	1	11%
		9 BOPD 100%

EXAMPLE: Production of 100 barrels of oil (BO) allocated as follows:

Bone Spring Sandstone	67 BO
Upper Delaware Sandstone	22 BO
Yates Sandstone	11 BO
	100 BO

APPLICATION FOR MULTIPLE COMPLETION

MURPHY OPERATING CORPORATION Lea June 1, 1987
Operator County Date

P. O. Box 2648, Roswell, N.M.88202 South Corbin Fed. Well #1
Address Lease Well No.

455' FNL & 2310' FEL, Unit Ltr. B, Sec. 20, T-18S, R-33E
Location Unit Section Township Range
of Well

All Applicants for multiple completion must complete Items 1 and 2 below.

1. The following facts are submitted:	Upper Zone	Intermediate Zone	Lower Zone
a. Name of Pool and Formation	Yates Sandstone	Upper Delaware Sandstone	Bone Spring Sandstone
b. Top and Bottom of Pay Section (Perforations)	3036' - 3051'	4967' - 4975'	7345' - 7348' <i>West Corbin</i>
c. Type of production (Oil or Gas)	oil	oil	oil
d. Method of Production (Flowing or Artificial Lift)	Artificial Lift - insert pump	Artificial Lift - insert pump	Artificial Lift - insert pump
e. Daily Production ☒ Actual ☐ Estimated Oil Bbls. Gas MCF Water Bbls.	1 BOPD TSTM 0 BWPD	2 BOPD TSTM 5 BWPD	6 BOPD 17 MCFPD 25 BWPD

2. The following must be attached:

- Diagrammatic Sketch of the Multiple Completion, showing all casing strings, including diameters and setting depths, centralizers and/or turbolizers and location thereof, quantities used and top of cement, perforated intervals, tubing strings, including diameters and setting depth, location and type of packers and side door chokes, and such other information as may be pertinent.
- Plat showing the location of all wells on applicant's lease, all offset wells on offset leases, and the names and addresses of operators of all leases offsetting applicant's lease.
- Electrical log of the well or other acceptable log with tops and bottoms of producing zones and intervals of perforation indicated thereon. (If such log is not available at the time application is filed it shall be submitted as provided by Rule 112-A.)

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

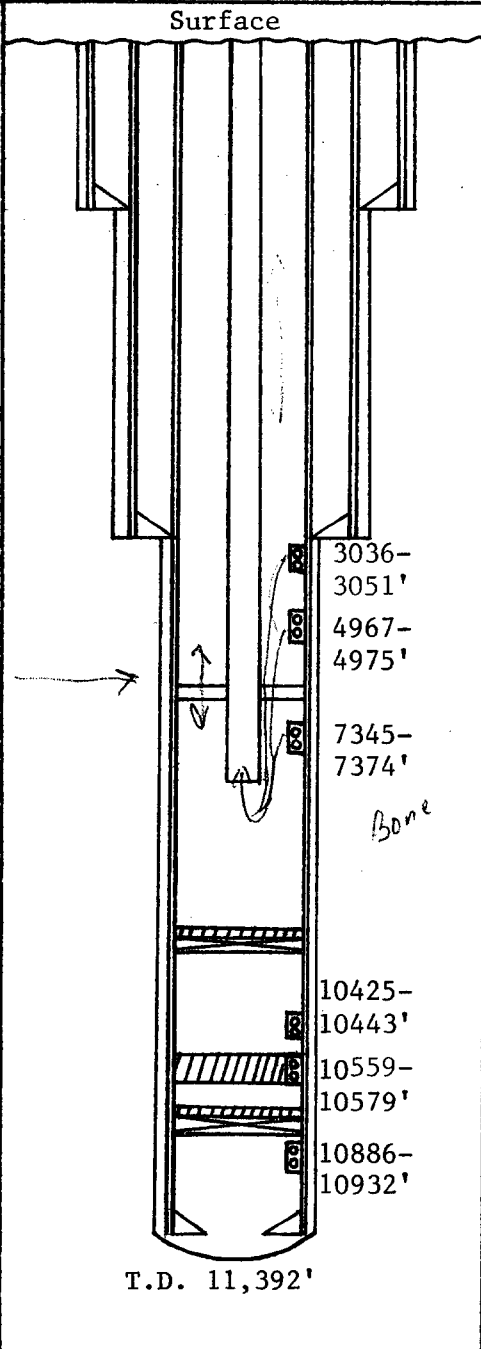
Signed Mark B. Murphy Title President Date June 1, 1987

(This space for State Use)

Approved By _____ Title _____ Date _____

NOTE: If the proposed multiple completion will result in an unorthodox well location and/or a non-standard proration unit in one or more of the producing zones, then separate application for approval of the same should be filed simultaneously with this application.

MURPHY OPERATING CORPORATION
 South Corbin Federal Well #1
 Sec. 20, T18S, R33E
 455' FNL & 2310' FEL

Plugging & Production String	Surface	Bit	Casing	Depth	Cement
		17 7/8"	13 3/8"	381'	420 sx, Circ to Surf
		12 1/4"	8 5/8"	2931'	1165 sx. Circ to Surf
Tubing Anchor set@ 7287'					
2 3/8" 4.7# J-55 tubing set @ 7449.5					
Set CIBP @ 9850' 35 sxs cmt on Top					
Sqzd Perfs 10,559-10,579 w/ 200 sx					
Set CIBP @ 10,764' 35 sxs cmt on Top					
		7 7/8"	5 1/2"	11,391'	2210 sx. Circ to Surf
	T.D. 11,392'				

Not Drawn to Scale

[illegible]

OPERATORS OFFSETTING SOUTH CORBIN FEDERAL WELL #1

Meridian Oil (successor to Southland Royalty)
21 Desta Drive
Midland, Texas 79705

Amoco Production Company
P. O. Box 4072
Odessa, Texas 79760

R. N. Enfield
P. O. Box 2431
Santa Fe, New Mexico 87501

Read & Stevens
P. O. Box 1518
Roswell, New Mexico 88201

Mobil Producing, Inc.
P. O. Box 633
Midland, Texas 79702

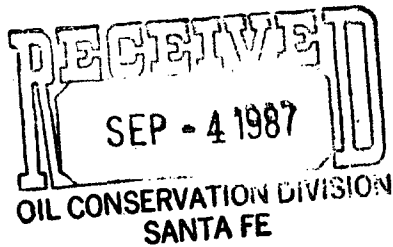
Pennzoil Company
P. O. Drawer 1828
Midland, Texas 79702

C. W. Trainer
526 Sandy Mountain Drive
Sun Rise Beach, Texas 78643



STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
HOBBS DISTRICT OFFICE

GARREY CARRUTHERS
GOVERNOR



POST OFFICE BOX 1980
HOBBS, NEW MEXICO 88241-1980
(505) 393-6161

OIL CONSERVATION DIVISION
P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

RE: Proposed:

MC _____
DHC X _____
NSL _____
NSP _____
SWD _____
WFX _____
PMX _____

Gentlemen:

I have examined the application for the:

Murphy H. Baxter So. Corbin Fed #1-B 20-18-33
Operator Lease & Well No. Unit S-T-R

and my recommendations are as follows:

OK JS

Yours very truly,

Jerry Sexton
Supervisor, District 1

/ed