



**marbob**  
energy corporation

COPY

June 18, 2003

Bureau of Land Management  
2909 W. 2<sup>nd</sup> St.  
Roswell, NM 88201

Attn: Mr. Armando Lopez

Re: Downhole Commingling Application  
AAO Federal #3 - Lot 2, Sec. 1-T18S-R27E  
Eddy County, New Mexico



Dear Mr. Lopez:

Enclosed are copies of the downhole commingling applications submitted to the NMOCD for the captioned well.

No crossflow will occur because the wells will be artificially lifted in a pumped-down condition. Commingling will not decrease the value of the well's production.

Please contact me at 505-748-3303 if you have any questions.

Sincerely,

Brian Collins  
Petroleum Engineer

BC/dlw  
enclosure

District I  
1625 N. French Drive, Hobbs, NM 88240

District II  
1301 W. Grand Avenue, Artesia, NM 88210

District III  
1000 Rio Brazos Road, Aztec, NM 87410

District IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico  
Energy, Minerals and Natural Resources Department

Form C-107A  
Revised May 15, 2000

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

APPLICATION TYPE  
☒ Single Well  
☐ Establish Pre-Approved Pools  
EXISTING WELLBORE  
☒ Yes ☐ No

APPLICATION FOR DOWNHOLE COMMINGLING

MARBOB ENERGY CORPORATION P. O. BOX 227, ARTESIA, NM 88211-0227  
Operator Address  
AAO FEDERAL 3 LOT 2, 1-T18S-R27E EDDY COUNTY  
Lease Well No. Unit Letter-Section-Township-Range County  
OGRID No. 014049 Property Code 29793 API No. 30-015-32309 Lease Type: ☒ Federal ☐ State ☐ Fee

DATA ELEMENT	UPPER ZONE	INTERMEDIATE ZONE	LOWER ZONE
Pool Name	RED LAKE Q-GB-SA		RED LAKE GLORIETA YESO NE
Pool Code	51300		96836
Top and Bottom of Pay Section (Perforated or Open-Hole Interval)	2092-3165' EST PERFORATED		3479-3793' PERFORATED
Method of Production (Flowing or Artificial Lift)	ARTIFICIAL LIFT		ARTIFICIAL LIFT
Bottomhole Pressure (Note: Pressure data will not be required if the bottom perforation in the lower zone is within 150% of the depth of the top perforation in the upper zone)	EST. 50 PSI PRODUCING BHP		EST. 100 PSI PRODUCING BHP
Oil Gravity or Gas BTU (Degree API or Gas BTU)	38.5°		41.8°
Producing, Shut-In or New Zone	NEW ZONE		PRODUCING
Date and Oil/Gas/Water Rates of Last Production. (Note: For new zones with no production history, applicant shall be required to attach production estimates and supporting data.)	Date: N/A Rates:	Date: Rates:	Date: 4/13/03 Rates: 13 BOPD 67 MCFPD
Fixed Allocation Percentage (Note: If allocation is based upon something other than current or past production, supporting data or explanation will be required.)	Oil Gas 71 % 68 %	Oil Gas % %	Oil Gas 29 % 32 %

ADDITIONAL DATA

Are all working, royalty and overriding royalty interests identical in all commingled zones? Yes ☒ No ☐  
If not, have all working, royalty and overriding royalty interest owners been notified by certified mail? Yes ☐ No ☐  
Are all produced fluids from all commingled zones compatible with each other? Yes ☒ No ☐  
Will commingling decrease the value of production? Yes ☐ No ☒  
If this well is on, or communitized with, state or federal lands, has either the Commissioner of Public Lands or the United States Bureau of Land Management been notified in writing of this application? Yes ☒ No ☐  
NMOCD Reference Case No. applicable to this well: R-11363 PRE-APPROVED POOL

Attachments:

- C-102 for each zone to be commingled showing its spacing unit and acreage dedication.
- Production curve for each zone for at least one year. (If not available, attach explanation.)
- For zones with no production history, estimated production rates and supporting data.
- Data to support allocation method or formula.
- Notification list of working, royalty and overriding royalty interests for uncommon interest cases.
- Any additional statements, data or documents required to support commingling.

PRE-APPROVED POOLS

If application is to establish Pre-Approved Pools, the following additional information will be required:

- List of other orders approving downhole commingling within the proposed Pre-Approved Pools
- List of all operators within the proposed Pre-Approved Pools
- Proof that all operators within the proposed Pre-Approved Pools were provided notice of this application.
- Bottomhole pressure data.

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

SIGNATURE Brian Collins TITLE ENGINEER DATE 18 JUN 03  
TYPE OR PRINT NAME BRIAN COLLINS TELEPHONE NO. (505) 748-3303

DISTRICT I  
P.O. Box 1888, Hobbs, NM 88241-1888

DISTRICT II  
P.O. Drawer DD, Artesia, NM 88211-0719

DISTRICT III  
1000 Rio Brazos Rd., Aztec, NM 87410

DISTRICT IV  
P.O. BOX 2088, SANTA FE, N.M. 87504-2088

State of New Mexico  
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION  
P.O. Box 2088  
Santa Fe, New Mexico 87504-2088

Form C-102  
Revised February 10, 1994  
Submit to Appropriate District Office  
State Lease - 4 Copies  
Fee Lease - 3 Copies

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number 30-015	Pool Code 96836	Pool Name RED LAKE; GLORIETA YESO, NORTHEAST
Property Code	Property Name AAO FEDERAL	Well Number 3
OGRID No. 14049	Operator Name MARBOB ENERGY CORPORATION	Elevation 3649'

Surface Location

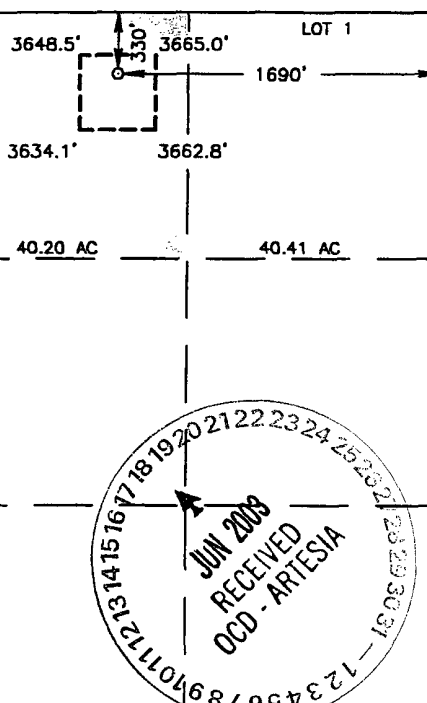


UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
2	1	18-S	27-E		330	NORTH	1690	EAST	EDDY

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
40.20			

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED  
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

LOT 4	LOT 3	LOT 2	LOT 1
39.79 AC	40.00 AC	40.20 AC	40.41 AC
			
<b>OPERATOR CERTIFICATION</b> I hereby certify the the information contained herein is true and complete to the best of my knowledge and belief.  Signature DIANA J. CANNON Printed Name PRODUCTION ANALYST Title APRIL 12, 2002 Date			
<b>SURVEYOR CERTIFICATION</b> 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 belief. MARCH 13, 2002 Date Surveyed Signature & Seal of Professional Surveyor  02.11.0199 Certificate No. RONALD J. EIDSON 3239 GARY EIDSON 12641			

**Engineering Summary**  
**Form C-107A**  
**Application for Downhole Commingling**

**Marbob Energy Corporation**  
**AAO Federal No. 3 (Lot 2, Sec. 1-T18S-R27E)**

Marbob Energy proposes to downhole commingle the San Andres (Red Lake Q-GB-SA 51300) and the Yeso (Red Lake Glorieta Yeso, NE 96836) in the captioned well. This proposal is identical to the downhole comminglings that Devon Energy has done offsetting the captioned wells (Orders R-11363, DHC-2390, DHC-2685, DHC-2701).

No crossflow will occur because this well will be rod pumped in a pumped down condition. The MJ State No. 1 is currently completed in the Yeso and will be used as a "typical" Yeso well. The MJ State No. 2 is currently completed in the San Andres and will be used as a "typical" San Andres well. The proposed zonal allocation is described below.

Yeso: Production declines exponentially at 84%/yr. for one year, followed by 35%/yr. for oil and 32%/yr. for gas. (Best engineering estimate using the production history of nearby Devon wells.)

Qi	= 90 bopd	d=84%/yr.
Q1yr	= 14 bopd	d=35%/yr.
Qel	= 1.5 bopd	assumed

$$\text{EUR} = \frac{-365 (90-14)}{\ln (1-.84)} + \frac{-365 (14-1.5)}{\ln (1-.35)} = 25.7 \text{ MBO}$$

Qi	= 140 mcf/d	d=84%/yr.
Q1yr	= 22 mcf/d	d=32%/yr.
Qel	= 5 mcf/d	assumed

$$\text{EUR} = \frac{-365 (140-22)}{\ln (1-.84)} + \frac{-365 (22-5)}{\ln (1-.32)} = 39.6 \text{ MMCF}$$

San Andres: Production declines exponentially at 80%/yr. for one year, followed by 24%/yr. for oil and 20%/yr. for gas. (Best engineering estimate using the production history of nearby Devon wells.)

$$\begin{aligned} Q_i &= 145 \text{ bopd} & d &= 80\%/yr. \\ Q_{1yr} &= 29 \text{ bopd} & d &= 24\%/yr. \\ Q_{el} &= 1.5 \text{ bopd} & & \text{assumed} \end{aligned}$$

$$EUR = \frac{-365 (145-29)}{\ln (1-.80)} + \frac{-365 (29-1.5)}{\ln (1-.24)} = 62.9 \text{ MBO}$$

$$\begin{aligned} Q_i &= 180 \text{ mcf/d} & d &= 80\%/yr. \\ Q_{1yr} &= 36 \text{ mcf/d} & d &= 20\%/yr. \\ Q_{el} &= 5 \text{ mcf/d} & & \text{assumed} \end{aligned}$$

$$EUR = \frac{-365 (180-36)}{\ln (1-.80)} + \frac{-365 (36-5)}{\ln (1-.20)} = 83.4 \text{ MMCF}$$

$$\text{Yeso Oil} = \frac{25.7 \text{ MBO}}{25.7 + 62.9} = .29 = 29\%$$

$$\text{San Andres Oil} = 1-.29 = .71 = 71\%$$

$$\text{Yeso Gas} = \frac{39.6 \text{ MMCF}}{39.6 + 83.4} = .32 = 32\%$$

$$\text{San Andres Gas} = 1-.32 = .68 = 68\%$$

## E'S LEASES

June 2002

MONTH:

2002

ARCO 26 A			MJ STATE							
WTR	ELK HORN	GPM	TP	LP	Gas PREV	Gas EST	TOTAL	OIL	WTR	
302		124	—	24.9	94	92	17474	30	—	1
170		130	—	24.5	96	90	17570	30	—	2
220		126	—	24.7	95	90	17666	32	—	3
213		130	—	24.7	96	103	17771	32	—	4
357		130	—	23.1	95	94	17862	28	—	5
205		126	—	25	94	93	17952	28	—	6
193		126	—	25	94	92	18043	26	—	7
200		126		25.3	95	93	18150	32	—	8
220		124		24.2	151	115	18302	85	—	9
115		124		25.1	189	203	18443	106	—	10
267		124		25.2	220	229	18114	140	—	11
178		120		25.9	233	234	18051	110	—	12
169		140		25.5	236	240	19193	98	—	13
217		124		27.5	238	249	19422	118	—	14
165		128		25.7	258	351	19681	127	—	15
309		130		24.7	266	264	19948	172	—	16
201		135		25.1	265	274	20224	183	—	17
235		135		26.0	264	265	20478	175	—	18
204		135		25.3	263	255	20752	177	—	19
199		135		27.0	257	229	20999	161	—	20
218		126		25.0	247	202	21236	174	—	21
300		135		25.5	250	241	21493	175	—	22
176		130		26.0	276	273	21781	174	540	23
113		130		26.0	282	272	22053	173	—	24
										25
										26
										27
										28
										29
										30
										31

MJ St. #2 San Andres IP  $\approx 175 - 30 = 145$  BOPD  
 $\approx 275 - 95 = 180$  MCFD

MJ St. #1 Yeso IP  $\approx 90$  BOPD  
 $\approx 140$  MCFD (January 2002)

Yeso Only (MJ St. #1)

Yeso (MJ St. #1) + S. Andres (MJ St. #2)