

DHC-3227 pwtj 0335835751 wuj

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 June 10, 2003

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
AAO FEDERAL #4

Address

(LOT1) A-01-18S-27E

EDDY COUNTY

Lease

Well No.

Unit Letter-Section-Township-Range

County

OGRID No. 14049 Property Code 29793 API No. 30-015-32310 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)	2134-2849' PERFORATED		3552-3817' 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: 10/21/03 Rates: 19 BOPD
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?
If not, have all working, royalty and overriding royalty interest owners been notified by certified mail?

Yes ☒ No ☐
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 15 Dec 03

TYPE OR PRINT NAME BRIAN COLLINS TELEPHONE NO. (505) 748-3303

E-MAIL ADDRESS ENGINEERING@MARBOB.COM

Submit 3 Copies To Appropriate District
Office
District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Ave., Artesia, NM 88210
District III
1000 Rio Brazos Rd., Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM
87505

State of New Mexico
Energy, Minerals and Natural Resources

Form C-103
Revised May 08, 2003

OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

WELL API NO. 30-015-32310
5. Indicate Type of Lease STATE <input type="checkbox"/> FEE <input type="checkbox"/>
6. State Oil & Gas Lease No. N/A
7. Lease Name or Unit Agreement Name AAO FEDERAL
8. Well Number 4
9. OGRID Number 14049
10. Pool name or Wildcat RED LAKE GLORIETAYESO NE

SUNDRY NOTICES AND REPORTS ON WELLS
(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A
DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH
PROPOSALS.)

1. **Type of Well:**
Oil Well ☒ Gas Well ☐ Other ☐

2. **Name of Operator** MARBOB ENERGY CORPORATION

3. **Address of Operator** P O BOX 227, ARTESIA, NM 88211-0227

4. **Well Location**
Unit Letter A : 990 feet from the NORTH line and 990 feet from the EAST line
Section 1 Township 18S Range 27E NMPM EDDY County NM

11. **Elevation** (Show whether DR, RKB, RT, GR, etc.)
3663' GR

12. Check Appropriate Box to Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO:

PERFORM REMEDIAL WORK ☐ PLUG AND ABANDON ☐
TEMPORARILY ABANDON ☐ CHANGE PLANS ☐
PULL OR ALTER CASING ☐ MULTIPLE COMPLETION ☐
OTHER: DOWNHOLE COMMINGLING ☒

SUBSEQUENT REPORT OF:

REMEDIAL WORK ☐ ALTERING CASING ☐
COMMENCE DRILLING OPNS ☐ PLUG AND ABANDONMENT ☐
CASING TEST AND CEMENT JOB ☐
OTHER: ☐

13. **Describe proposed or completed operations.** (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). SEE RULE 1103. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

SEE ATTACHED C-107A APPLICATION FOR DOWNHOLE COMMINGLING
DIVISION ORDER #R-11363 PRE-APPROVED POOLS

THE PROPOSED ALLOCATION IS: REDLAKE Q-GB-SA 51300 - OIL 71% - GAS 68%
REDLAKE GLORIETA/YESO NE 96836 - OIL 29% - GAS 32%

NEW ALLOCATION WILL BE SUBMITTED IF ACTUAL WELL PRODUCTION IS SIGNIFICANTLY DIFFERENT
THAN THAT ABOVE.

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 16 Dec 03

Type or print name BRIAN COLLINS

Telephone No. (505) 748-3303

(This space for State use)

APPROVED BY _____ TITLE _____ DATE _____

Conditions of approval, if any:

DISTRICT I
P.O. Box 1980, Hobbs, NM 88241-1980

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	Pool Code	Pool Name
30-015-	96836	RED LAKE; GLORIETA YESO, NORTHEAST
Property Code	Property Name	Well Number
	AAO FEDERAL	4
OGRID No.	Operator Name	Elevation
14049	MARBOB ENERGY CORPORATION	3663'

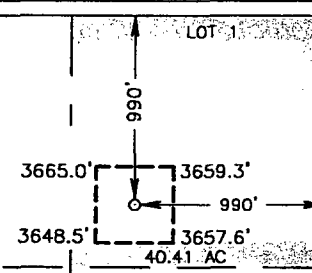
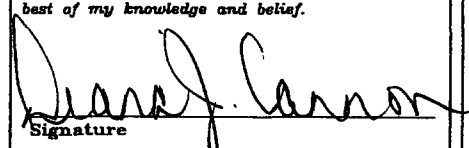
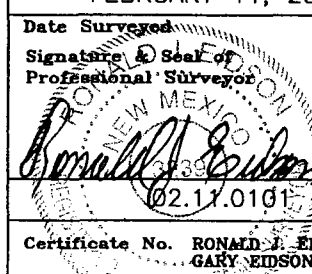
Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
1	1	18-S	27-E		990	NORTH	990	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.			
40.41									

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
			
OPERATOR CERTIFICATION 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 15, 2002 Date			
SURVEYOR CERTIFICATION 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. FEBRUARY 11, 2002 Date Surveyed AWB Signature & Seal of Professional Surveyor  Certificate No. RONALD J. EIDSON 3239 GARY EIDSON 12641			

Engineering Summary
Form C-107A
Application for Downhole Commingling

Marbob Energy Corporation
AAO Federal No. 4 (Unit A, Sec. 4-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

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

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

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

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.)

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

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

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

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

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

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

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

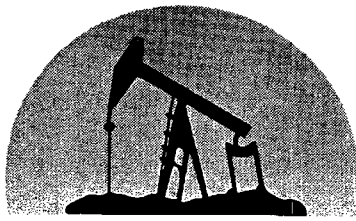
$$\text{San Andres Gas} = 1-.32 = .68 = 68\%$$

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	18414	140	—	11
178		120		25.9	233	234	18511	110	—	12
169		140		25.5	236	240	19193	98	—	13
217		124		24.5	238	249	19422	118	—	14
165		128		25.1	258	351	19681	127	—	15
309		130		24.7	266	264	19948	172	—	16
201		135		25.1	265	244	20224	182	—	17
235		135		26.0	264	265	20478	175	—	18
204		135		25.3	263	255	20752	177	—	19
199		135		24.0	257	229	20999	161	—	20
215		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 Yaso IP ≈ 90 BOPD
 ≈ 140 MCFD (January 2002)

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



marbob
energy corporation

December 11, 2003

Bureau of Land Management
2909 W. 2nd St.
Roswell, NM 88201

Attn: Mr. Armando Lopez

Re: Downhole Commingling Application
AAO Federal #4 - Unit A, Sec. 1-T18S-R27E
Eddy County, New Mexico

Dear Mr. Lopez:

Enclosed is a copy of the downhole commingling application submitted to the NMOCD for the captioned well.

No crossflow will occur because the well 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