

DHC-3227 PWJ 0335835751 WJ

**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 71 % Gas 68 %	Oil % Gas %	Oil 29 % Gas 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 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

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

<b>NOTICE OF INTENTION TO:</b>		<b>SUBSEQUENT REPORT OF:</b>	
PERFORM REMEDIAL WORK <input type="checkbox"/>	PLUG AND ABANDON <input type="checkbox"/>	REMEDIAL WORK <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>
TEMPORARILY ABANDON <input type="checkbox"/>	CHANGE PLANS <input type="checkbox"/>	COMMENCE DRILLING OPNS <input type="checkbox"/>	PLUG AND ABANDONMENT <input type="checkbox"/>
PULL OR ALTER CASING <input type="checkbox"/>	MULTIPLE COMPLETION <input type="checkbox"/>	CASING TEST AND CEMENT JOB <input type="checkbox"/>	
OTHER: DOWNHOLE COMMINGLING <input checked="" type="checkbox"/>		OTHER: <input type="checkbox"/>	

**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:

State of New Mexico

Energy, Minerals and Natural Resources Department

Form C-102

Revised February 10, 1994

Submit to Appropriate District Office

State Lease - 4 Copies

Fee Lease - 3 Copies

OIL CONSERVATION DIVISION

P.O. Box 2088

Santa Fe, New Mexico 87504-2088

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

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 4
OGRID No. 14049	Operator Name MARBOB ENERGY CORPORATION	Elevation 3663'

Surface Location

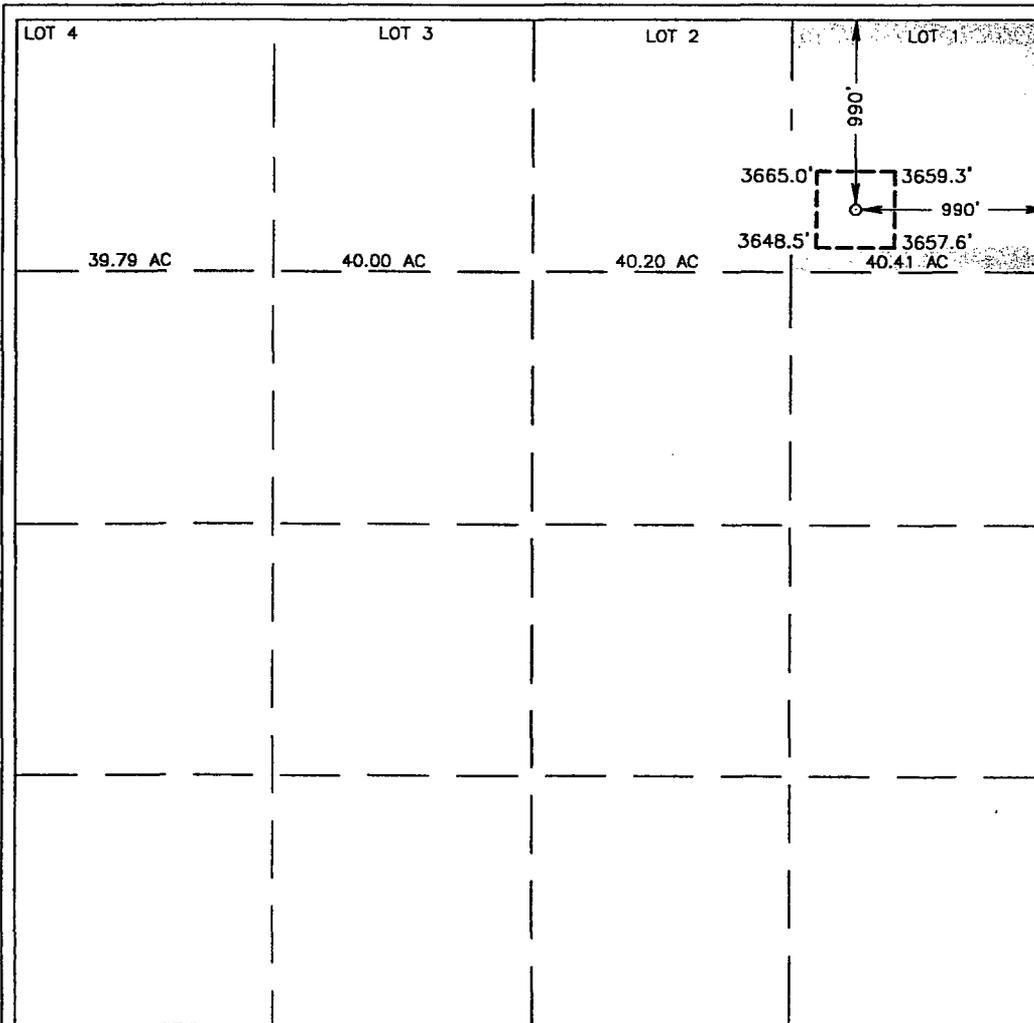
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
1	1	18-S	27-E		990	NORTH	990	EAST	EDDY

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 40.41	Joint or Infill	Consolidation Code	Order No.
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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



**OPERATOR CERTIFICATION**

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

*Diana J. Cannon*  
Signature

DIANA J. CANNON  
Printed Name

PRODUCTION ANALYST  
Title

APRIL 15, 2002  
Date

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**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  
*Ronald J. Eidson*  
Professional Surveyor

NEW MEXICO  
02.17.0101

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

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

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.)

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

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

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

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

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

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

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

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

ARCO 26 A			MJ STATE						
WTR	ELK HORN	GPM	TP	LP	Gas PREV	Gas EST	TOTAL	OIL	WTR
<del>302</del>	<del>124</del>	<del>124</del>	-	24.9	94	92	17474	30	-
<del>170</del>	<del>130</del>	<del>130</del>	-	24.5	96	90	17570	30	-
<del>220</del>	<del>126</del>	<del>126</del>	-	24.7	95	90	17666	32	-
<del>213</del>	<del>130</del>	<del>130</del>	-	24.7	96	103	17771	32	-
<del>357</del>	<del>130</del>	<del>130</del>	-	23.1	95	94	17862	28	-
<del>205</del>	<del>126</del>	<del>126</del>	-	25	94	93	17952	28	-
<del>193</del>	<del>126</del>	<del>126</del>	-	25	94	92	18043	26	-
<del>200</del>	<del>126</del>	<del>126</del>	-	25.3	95	93	18150	32	-
<del>220</del>	<del>124</del>	<del>124</del>	-	24.2	151	115	18302	85	-
<del>115</del>	<del>124</del>	<del>124</del>	-	25.1	189	203	18443	106	-
<del>267</del>	<del>124</del>	<del>124</del>	-	25.2	220	229	18414	140	-
<del>178</del>	<del>120</del>	<del>120</del>	-	25.9	233	234	18511	110	-
<del>169</del>	<del>140</del>	<del>140</del>	-	25.5	236	240	19193	98	-
<del>217</del>	<del>124</del>	<del>124</del>	-	24.5	238	249	19422	118	-
<del>165</del>	<del>128</del>	<del>128</del>	-	25.1	258	35.1	19681	127	-
<del>309</del>	<del>130</del>	<del>130</del>	-	24.7	266	264	19948	172	-
<del>201</del>	<del>135</del>	<del>135</del>	-	25.1	265	244	20224	182	-
<del>235</del>	<del>135</del>	<del>135</del>	-	26.0	264	265	20478	175	-
<del>204</del>	<del>135</del>	<del>135</del>	-	25.3	263	255	20752	177	-
<del>199</del>	<del>135</del>	<del>135</del>	-	24.0	257	229	20999	161	-
<del>215</del>	<del>126</del>	<del>126</del>	-	25.0	247	202	21236	174	-
<del>300</del>	<del>135</del>	<del>135</del>	-	25.5	250	241	21493	175	-
<del>176</del>	<del>130</del>	<del>130</del>	-	26.0	276	273	21781	174	540
<del>173</del>	<del>130</del>	<del>130</del>	-	26.0	282	272	22053	173	-

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

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)

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**marbob**  
energy corporation

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December 11, 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 #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