

RELEASE 2-21-93

MARTIN YATES, III  
1912 - 1985  
FRANK W. YATES  
1936 - 1986



105 SOUTH FOURTH STREET  
ARTESIA, NEW MEXICO 88210  
TELEPHONE (505) 748-1471

OIL CONSERVATION DIVISION  
RECEIVED  
93 FEB 2 AM 8 53  
S. P. YATES  
CHAIRMAN OF THE BOARD  
JOHN A. YATES  
PRESIDENT  
PEYTON YATES  
EXECUTIVE VICE PRESIDENT  
RANDOLPH PATTERSON  
SECRETARY  
DENNIS G. KINSEY  
TREASURER

February 1, 1993

State of New Mexico  
OIL CONSERVATION DIVISION  
P. O. Box 2088  
Santa Fe, NM 87501  
ATTN: Mr. David Catanach

Dear Mr. Catanach,

Enclosed are the necessary documents for obtaining approval for the downhole commingling of the Lechuguilla Canyon AJ Federal #1 located in O of Section 8, Township 24 South, Range 24 East.

Should you have any questions, please feel free to contact me at (505) 748-1471. Thank you.

Sincerely,

Brian Collins

BC/th

Enclosure

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TREASURER

February 1, 1993

State of New Mexico  
OIL CONSERVATION DIVISION  
Drawer DD  
Artesia, NM 88210  
ATTN: Mr. Mike Williams

Dear Mr. Williams,

Enclosed are the necessary documents for obtaining approval for the downhole commingling of the Lechuguilla Canyon AJ Federal #1 located in O of Section 8, Township 24 South, Range 24 East.

Should you have any questions, please feel free to contact me at (505) 748-1471. Thank you.

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DENNIS G. KINSEY  
TREASURER

February 1, 1993

Bureau of Land Management  
P. O. Box 1778  
Carlsbad, NM 88220  
ATTN: Mr. Richard Manus, Area Manager

Dear Mr. Manus,

Enclosed for your information is the data necessary to obtain approval for downhole commingling of the following well:

Lechuguilla Canyon AJ Federal #1  
Unit O Sec. 8-T24S-R24E  
Eddy County, New Mexico  
Operator: Yates Petroleum Corporation

If you have any questions, please call me at (505) 748-1471.

Sincerely,

Brian Collins

BC/th

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DENNIS G. KINSEY  
TREASURER

February 1, 1993

Mitchell Energy  
P. O. Box 4000  
Woodlands, TX 77387-4000

Gentlemen:

Enclosed please find a copy of the application for commingling the Lechuguilla Canyon AJ Federal #1 located in O of Section 8, Township 24 South, Range 24 East. This copy of the application to commingle fulfills our requirement to notify offset operators per NMOCD Rule 303D (10).

Should you have any questions, please feel free to contact me at (505) 748-1471. Thank you.

Sincerely,

Brian Collins

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TREASURER

February 1, 1993

Yates Energy  
P. O. Box 2323  
Roswell, NM 88202

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February 1, 1993

Maralo, Inc.  
P. O. Box 832  
Midland, TX 79702

Gentlemen:

Enclosed please find a copy of the application for commingling the Lechuguilla Canyon AJ Federal #1 located in O of Section 8, Township 24 South, Range 24 East. This copy of the application to commingle fulfills our requirement to notify offset operators per NMOCD Rule 303D (10).

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Brian Collins

BC/th

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February 1, 1993

Chevron USA, Inc.  
P. O. Box 100183  
Houston, TX 77212

Gentlemen:

Enclosed please find a copy of the application for commingling the Lechuguilla Canyon AJ Federal #1 located in O of Section 8, Township 24 South, Range 24 East. This copy of the application to commingle fulfills our requirement to notify offset operators per NMOCD Rule 303D (10).

Should you have any questions, please feel free to contact me at (505) 748-1471. Thank you.

Sincerely,

Brian Collins

BC/th

Enclosure

**Application for Downhole Commingling  
Lechuguilla Canyon AJ Federal #1  
Unit O Sec. 8-T24S-R24E  
Eddy County, New Mexico**

Reason for Application: Yates Petroleum Corporation respectfully requests approval to commingle the Morrow from 10026' to 10096' with the Atoka from 9657' to 9728'. Our intention is to maximize gas recovery from the Morrow and Atoka and prevent mineral resource waste.

**1> Name and Address of the Operator:**

Yates Petroleum Corporation  
105 South Fourth Street  
Artesia, NM 88210  
ATTN: Brian Collins

**2> Lease Name, Well Number, Well Location, Name of the Pools to be Commingled:**

Lechuguilla Canyon AJ Federal #1  
Unit O Sec. 8-T24S-R24E  
660' FSL & 1980' FEL  
Pools: Crooked Creek Morrow  
Undesignated Atoka

**3> A plat of the area showing the acreage dedicated to the well and the ownership of all offsetting leases.**

See Attachment A (map)

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

See Attached Workover Report (Attachment B) and Monthly Production Reports (Attachment C)

Morrow capable of producing 55 MCFD.  
Atoka capable of producing 35 MCFD.

**5> A production decline curve for both zones showing that for a period of at least one year a steady rate of decline has been established for each zone which will permit a reasonable allocation of the commingled production to each zone for statistical purposes. (This requirement may be dispensed with in the case of a newly completed or recently completed well which has little or no production history. However, a complete description of treating testing, etc., of each zone, and a prognostication of future production from each zone shall be submitted.)**

Prognostication of future production assumes that Morrow declines at 15%/yr. and Atoka declines at 50%/yr.

Morrow: Start at 55 MCFPD and decline to 10 MCFPD

$$N_1 = \frac{-365 (10-55)}{\ln (1-.15)} = 101,065 \text{ MCF}$$



Atoka: Start at 35 MCFPD and decline to 10 MCFPD

$$N_1 = \frac{-365 (10-35)}{\ln (1-.5)} = 13,165 \text{ MCF}$$

6> Estimated bottom-hole pressure for each artificially lifted zone. A current (within 30 days) measured bottom-hole pressure for each zone capable of flowing.

See Attachments B and C for shut-in tubing pressures of Morrow and Atoka zones.

Morrow: SITP = 1755 psi

Assuming gas mostly methane (MW = 16)

$$P = P_s e^{\frac{MW (D-D_s)}{1544 Z T}}$$

MW = 16

$P_s = 1755$

$D = 10061'$

$T = \frac{185 + 60}{2} = 123^\circ \text{F} = 583^\circ \text{R}$

$Z = .84$

$$P = 1755 e^{\frac{16 (10061)}{1544 (.84) (583)}} = 2171 \text{ psi}$$

Atoka: SITP = 2280 psi

MW = 16

$P_s = 2280$

$D = 9692'$

$T = 583^\circ \text{R}$

$Z = .84$

$$P = 2280 e^{\frac{16 (9692)}{1544 (.84) (583)}} = 2799 \text{ psi}$$

7> A description of the fluid characteristics of each zone showing that the fluids will not be incompatible in the well-bore.

Both Morrow and Atoka produce sweet gas. Don't anticipate any compatibility problems.

8> A computation showing that the value of the commingled production will not be less than the sum of the values of the individual streams.

Both Morrow and Atoka produce sweet gas. The value of the gas will not be affected by commingling.

9> A formula for the allocation of production to each of the commingled zones and a description of the factors or data used in determining such formula.

Morrow = Morrow Reserves

Total Reserves

$$\frac{101,065 \text{ MCF}}{114,230 \text{ MCF}} = .8848 \text{ Say } 88\%$$

Atoka = Atoka Reserves

Total Reserves

$$\frac{13,165 \text{ MCF}}{114,230 \text{ MCF}} = .1152 \text{ Say } 12\%$$

10> A statement that all offset operators and, in the case of a well on federal land, the US BLM, have been notified in writing of the proposed commingling.

The offset operators for this area and the BLM were notified of the proposed commingling of the Lechuguilla Canyon AJ Federal #1.

## ATTACHMENT A

## ATTACHMENT B

## DRILLING REPORT - WORKOVER

Yates Petroleum - Lechuguilla Canyon "AJ" Federal #1 (Unit ) 8-24s-24E  
 \*\*\*\*\*Eddy County, New Mexico\*\*\*\*\*

12-3-92	Worked on road into location. Moved in wireline truck. Set standing valve in 2-7/8" N-80 tubing. Moved in unit. Set tanks. Blew well down. Tested standing valve to 2500#. No fluid on backside. DC \$5432.50
12-5-92	Unbolted flange on wellhead. Would not come loose. Had to cut bolts out of flange. Picked up on wellhead. Off and on tool would not release. Shut in. Shut down due to weather. DC \$3194
12-6-8-92	Worked with off and on tool. Would not release. Unset packer. POH. Went back in hole with packer with standing valve in place. Reset packer with off and on tool. DC \$4869.50
12-8-92	POH with tubing. Perforated Morrow 10,026', 27', 28, 29', 32', 33', and 10,034' (14 holes). WIH with RBP and packer. Set RBP below perfs. Spotted acid across perfs. Set packer above perfs. Perforations would not break with 6000#. Unable to pressure backside due to hole in 5-1/2" casing. Left 6000# on formation. Shut in. DC \$6473.29
12-9-92	Formation broke with 6000# left on overnight. Acidized perfs 10,026-034' (14 holes) with 1500 gals 7-1/2% Morflo with N2 + ball sealers. Max 6080# at 3.4 BPM, 5950# at 2.7 BPM. ISDP 5200#, 5 mins 4750#. Not able to pressure backside. Load to recover 95 bbls. Recovered 56 bbls flowing and swabbing. DC \$12,611.59
12-10-92	SITP 200#. Initial fluid level 4500'. Scattered to seating nipple. Recovered 25 bbls. Swab rate - 2 BPH. Load to recover 95 bbls. Recovered 81 bbls. Small show of gas. DC \$1868.50
12-11-92	SITP 80#. Initial fluid level 3500'. Scattered fluid to seating nipple. Recovered 14 bbls. Swabbed dry. Continued to swab. Recoverd a total of 22 bbls water. Unset packer. POH. Prep to perforate Atoka. DC \$2510.50
12-12-92	WIH on wireline and perforated Atoka 9657', 58', 59', 9725', 26', 27', and 9728' (14 holes). Circulated hole to get fill out. WIH with RBP and packer. Set RBP below perfs. Set packer above perfs. Acidized with 2000 gals 7-1/2% MS HCL and ball sealers. Recovered 86 bbls swabbing. Break down 4400#. Avg 4700# at 2.5 BPM. ISDP 4600#, 15 mins 4100#. DC \$9584.83
12-13-92	Swabbed well. Recovered 38 bbls. Swabbed dry. Installed 1/8" choke - 100# after 2-1/2 hours. Shut in. DC \$2150.50
12-14-92	SITP 2200#. Possible acid gas. Bled well down. Scattered fluid - 8200' to seating nipple. Swabbed dry. Installed 1/4" positive choke - 60# after 3 hours. Shut in. DC \$1630.50
12-15-92	SITP 2250#. Hooked well up to sales flow line. Laid down 2-7/8" N-80 tubing in singles. Cleaned location. Inventoried equipment. Released tanks, BOP and light plant. Covered pit. DC \$1514
12-16-92	No report.
12-17-92	No report.
12-18-92	No report.
12-19-21-92	No report.
12-22-92	No report.
12-23-92	No report.
12-24-28-92	No report.
12-29-92	No report.
12-30-92	No report.
12-31-92	No report.
1-1-4-93	No report.
1-5-93	No report.
1-6-93	No report.
1-7-93	No report.
1-8-93	No report.
1-9-11-93	No report.

ENG502

INTERNAL PRODUCTION REPORT  
PRODUCTION DATE..October, 1992

PAGE 1  
8:41:32 1/26/93

WELL..... 35830 004 S1 GAS LECHUGUILLA CNYN AJ FED # #1 YFC  
FIELD..... 237 UNDESIGNATED (EDDY)  
LOCATION...  
PUMPER....  
OPENING STOCK.. .00  
CLOSING STOCK.. .00

ATTACHMENT C  
Page 1

DAY	TP	CP	CHOK	METER	ORF	STATIC	DIFF	WATER	OIL	GAS	WATER PULLED	OIL SOLD	REMARKS
01	0/	0	00/00					.00	.00	0			
02	0/	0	00/00					.00	.00	0			
03	0/	0	00/00					.00	.00	0			
04	0/	0	00/00					.00	.00	0			
05	0/	0	00/00					.00	.00	0			
06	0/	0	00/00					.00	.00	0			
07	0/	0	00/00					.00	.00	0			
08	0/	0	00/00					.00	.00	0			
09	0/	0	00/00					.00	.00	0			
10	0/	0	00/00					.00	.00	0			
11	0/	0	00/00					.00	.00	0			
12	0/	0	00/00					.00	.00	0			
13	0/	0	00/00					.00	.00	0			
14	0/	0	00/00					.00	.00	0			
15	0/	0	00/00					.00	.00	0			
16	0/	0	00/00					.00	.00	0			
17	0/	0	00/00					.00	.00	0			
18	0/	0	00/00					.00	.00	0			
19	0/	0	00/00					.00	.00	0			
20	0/	0	00/00					.00	.00	0			
21	0/	0	00/00					.00	.00	0			
22	0/	0	00/00					.00	.00	0			
23	0/	0	00/00					.00	.00	0			
24	0/	0	00/00					.00	.00	0			
25	0/	0	00/00					.00	.00	0			
26	0/	0	00/00					.00	.00	0			
27	0/	0	04/64	4.000	.500	6.9	3.7	.00	.00	110			
28	495/	0	07/64	4.000	.500	6.9	3.3	.00	.00	112			
29	540/	0	07/64	4.000	.500	7.2	2.0	.00	.00	71			
30	540/	0	07/64	4.000	.500	7.3	1.5	.00	.00	54			
31	535/	0	07/64	4.000	.500	7.2	1.5	.00	.00	51			
32	535/	0	07/64	4.000	.500	7.2	1.1	.00	.00	39			
33	535/	0	07/64	4.000	.500	7.2	1.3	.00	.00	46			
34	535/	0	07/64	4.000	.500	7.2	1.4	.00	.00	50			
35	540/	0	07/64	4.000	.500	7.2	1.1	.00	.00	39			
36	540/	0	07/64	4.000	.500	7.2	1.1	.00	.00	39			
37	525/	0	07/64	4.000	.500	7.1	1.0	.00	.00	35			
38	530/	0	07/64	4.000	.500	7.2	.8	.00	.00	28			
39	510/	0	07/64	4.000	.500	7.1	1.0	14.00	.00	33			
40	0/	0	00/00					.00	.00	0			
41	0/	0	00/00					.00	.00	0			
42	0/	0	00/00					.00	.00	0			
TOTALS....								14.00	.00	707			PRODUCED 13 DAYS

Marrow

ENGR502 INTERNAL PRODUCTION REPORT  
PRODUCTION DATE...November, 1992

PAGE 1  
8:41:12 1/26/93

WELL..... 35830 004 S1 GAS LECHUGUILLA CNYN AJ FED # #1 YFC  
FIELD..... 237 UNDESIGNATED (EDDY)  
LOCATION...  
PUMPER...  
OPENING STOCK.. .00  
CLOSING STOCK.. .00

DAY	TP	CP	CHOK	METER	ORF	STATIC	DIFF	WATER	OIL	GAS	WATER PULLED	OIL SOLD	REMARKS
01	0/	0	00/00					.00	.00	0			
02	0/	0	00/00					.00	.00	0			
03	0/	0	00/00					.00	.00	0			
04	0/	0	00/00					.00	.00	0			
05	0/	0	00/00					.00	.00	0			
06	0/	0	00/00					.00	.00	0			
07	0/	0	00/00					.00	.00	0			
08	0/	0	00/00					.00	.00	0			
09	0/	0	00/00					.00	.00	0			
10	1390/	0	00/00					.00	.00	0			
11	600/	0	06/64	4.000	.500	7.0	2.6	.00	.00	91			
12	500/	0	12/64	4.000	.500	7.1	1.8	.00	.00	63			
13	500/	0	12/64	4.000	.500	7.0	1.6	.00	.00	51			
14	500/	0	12/64	4.000	.500	7.0	1.3	.00	.00	42			
15	500/	0	12/64	4.000	.500	6.9	1.4	.00	.00	47			
16	500/	0	12/64	4.000	.500	7.0	1.3	.00	.00	45			
17	0/	0	00/00					.00	.00	0			
18	0/	0	00/00					.00	.00	0			
19	0/	0	00/00					.00	.00	0			
20	0/	0	00/00					.00	.00	0			
21	0/	0	00/00					.00	.00	0			
22	0/	0	00/00					.00	.00	0			
23	0/	0	00/00					.00	.00	0			
24	0/	0	00/00					.00	.00	0			
25	0/	0	00/00					.00	.00	0			
26	0/	0	00/00					.00	.00	0			
27	0/	0	00/00					.00	.00	0			
28	0/	0	00/00					.00	.00	0			
29	0/	0	00/00					.00	.00	0			
30	0/	0	00/00					.00	.00	0			
31	0/	0	00/00					.00	.00	0			
32	0/	0	00/00					.00	.00	0			
33	0/	0	00/00					.00	.00	0			
34	0/	0	00/00					.00	.00	0			
35	1020/	0	00/00					.00	.00	0			
36	550/	0	07/64	4.000	.500	6.8	2.0	.00	.00	67			
37	490/	0	09/64	4.000	.500	6.6	2.0	.00	.00	65			
38	490/	0	09/64	4.000	.500	6.8	1.5	.00	.00	51			
39	480/	0	09/64	4.000	.500	6.7	1.3	.00	.00	44			
40	455/	0	09/64	4.000	.500	6.7	1.1	.00	.00	36			
41	465/	0	09/64	4.000	.500	6.7	1.0	.00	.00	33			
42	TOTALS...					20.00	.00	6.35		PRODUCED 12 DAYS			

Marrow



ENGR502

INTERNAL PRODUCTION REPORT  
PRODUCTION DATE..December, 1992

PAGE 1  
8:40:49 1/26/93

WELL..... 35830 004 S2 GAS LECHUGUILLA CNYN AJ FED # #1 YFC  
FIELD..... 237 UNDESIGNATED (EDDY)  
LOCATION...  
PUMPER....  
OPENING STOCK.. .00  
CLOSING STOCK.. .00

ATTACHMENT C  
Page 3

DAY	TF	CP	CHOK	METER	ORF	STATIC	DIFF	WATER	OIL	GAS	WATER PULLED	OIL SOLD	REMARKS
01	0/	0	00/00					.00	.00	0			
02	0/	0	00/00					.00	.00	0			
03	0/	0	00/00					.00	.00	0			
04	0/	0	00/00					.00	.00	0			
05	0/	0	00/00					.00	.00	0			
06	0/	0	00/00					.00	.00	0			
07	0/	0	00/00					.00	.00	0			
08	0/	0	00/00					.00	.00	0			
09	0/	0	00/00					.00	.00	0			
10	0/	0	00/00					.00	.00	0			
11	0/	0	00/00					.00	.00	0			
12	0/	0	00/00					.00	.00	0			
13	0/	0	00/00					.00	.00	0			
14	0/	0	00/00					.00	.00	0			
15	0/	0	00/00					.00	.00	0			
16	0/	0	00/00					.00	.00	0			
17	0/	0	00/00					.00	.00	0			
18	0/	0	00/00					.00	.00	0			
19	0/	0	00/00					.00	.00	0			
20	0/	0	00/00					.00	.00	0			
21	0/	0	00/00					.00	.00	0			
22	0/	0	00/00					.00	.00	0			
23	0/	0	00/00					.00	.00	0			
24	0/	0	00/00					.00	.00	0			
25	0/	0	00/00					.00	.00	0			
26	0/	0	00/00					.00	.00	0			
27	0/	0	00/00					.00	.00	0			
28	0/	0	00/00					.00	.00	0			
29	0/	0	00/00					.00	.00	0			
30	0/	0	00/00					.00	.00	0			
31	0/	0	00/00					.00	.00	0			
32	0/	0	00/00					.00	.00	0			
33	0/	0	00/00					.00	.00	0			
34	0/	0	00/00					.00	.00	0			
35	0/	0	00/00					.00	.00	0			
36	0/	0	00/00					.00	.00	0			
37	0/	0	00/00					.00	.00	0			
38	0/	0	00/00					.00	.00	0			
39	0/	0	00/00					.00	.00	0			
40	0/	0	00/00					.00	.00	0			
41	0/	0	00/00					.00	.00	0			
42	0/	0	00/00					.00	.00	0			

Atoka

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