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

YATES PETROLEUM CORPORATION

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

S. P. YATES
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TREASURER

April 12, 1991

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 Lakeshore XH Fed #1, located in Unit F of Section 11, Township 21 South, Range 26 East.

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

Sincerely,

Brian Collins

Brian Collins
Petroleum Engineer

BC/th

COMMINGLING DATA FOR THE LAKESHORE XH FED. #1

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:

Lakeshore XH Fed. #1
Unit F Sec 11-T21S-R26E
1980' FNL & 1980' FWL
Pools: Burton Flat Morrow
Undesignated Eddy 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 From C-116 showing the amount of oil, gas, and water produced from each zone.

Morrow
10690'-10717'
Flowed at 25 psi on 16/64" choke = 58 MCFPD rate.

Atoka
10484'-10502'
IP'd at 180 psi on 32/64" choke = 1,400 MCFPD rate. During 11 days of subsequent gas sales the Atoka produced approximately 5,304 MCF = 482 MCFPD.

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.)

See Attachment B (workover history)

See Attachment C (Federal DC #1 production history)
(Stonewall DD Com #1 prod. history)

Prognostication of Atoka reserves derived by assuming an exponential decline rate of 50% / yr. as illustrated on attached Atoka production history for the Federal DC #1 located in Unit L, Sec. 29-20S-28E. An initial production rate of 482 MCFPD based on 11 days of production into the pipeline is assumed.

Qi = 482 MCFPD
Qel = 20 MCFPD
d = 50% / yr.

$$N = \frac{365\ (Qel-Qi)}{ln\ (1-d)} = \frac{365\ (20-482)}{ln\ (1-.5)} = 243{,}282\ MCF$$

Estimated life of Atoka =

$$\frac{ln\ (Qel/Qi)}{ln\ (1-d)} = \frac{ln\ (20/482)}{ln\ (.5)} = 4.6\ yrs.$$

Prognostication of Morrow reserves derived by assuming an exponential decline rate of 25% / yr. as illustrated on attached Morrow production history for the Stonewall DD Com #1 located in Unit N, Sec. 20-20S-28E. An initial production rate of 20 MCFPD is derived by multiplying the IP = 58 MCFPD by the ratio of the Atoka pipeline production to Atoka IP (482/1400).

Qi = 20 MCFPD
d = 25% / yr.
At 4.6 years, $Q = Qi(1-d)^{t} = 20(1-.25)^{4.6} = 5$ MCFPD

$$N = \frac{365\ (5-20)}{ln\ (.75)} = 19{,}031\ MCF$$

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.

Estimated BHP of Morrow = 4415 psi based on pressure gradient of original Morrow completion 10967'-10974' (4507 psi/10925' = 0.4125 psi/ft).

$$\frac{(10690' + 10717')}{(\quad 2 \quad)} \text{ (0.4125 psi/ft.)} = 4415 \text{ psi}$$

Estimated BHP of Atoka = 4738 psi at 10493' from direct BHP measurement performed 2-8-91.

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

Both zones produce dry, sweet gas. There are no incompatibility 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 zones produce dry, sweet gas. The value of the commingled production will not be less than the sum of the values of the individual streams.

By commingling the Morrow with the Atoka, an estimated additional 19,031 MCF of gas reserves will be produced during the life of the well.

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

Gas: Morrow - $\frac{19,031 \text{ MCF}}{262,313 \text{ MCF}} = 7.26\%$

Atoka - $\frac{243,282 \text{ MCF}}{262,313 \text{ MCF}} = 92.74\%$

Condensate: Use same ratios as for gas production.

Morrow - 7.26%

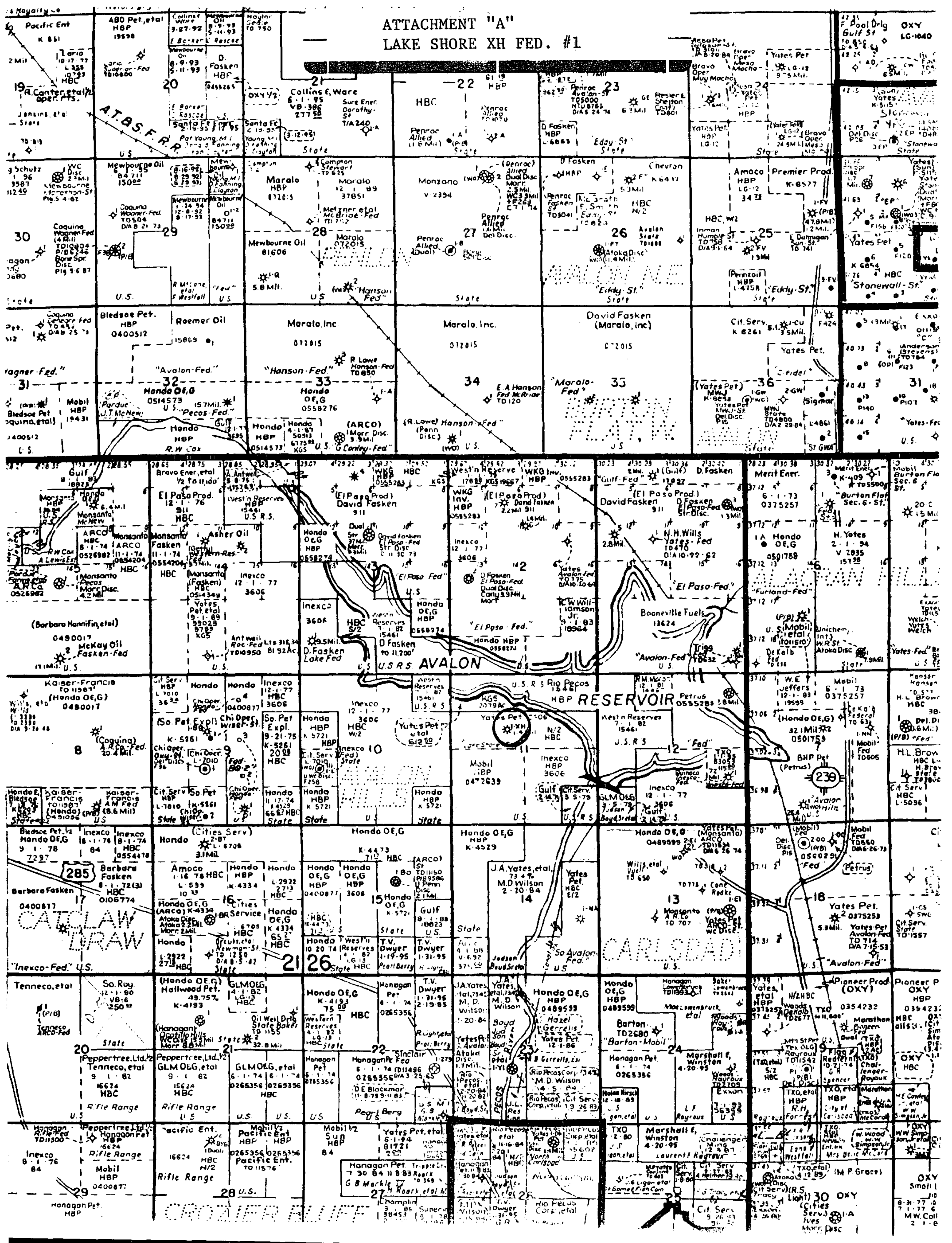
Atoka - 92.74%

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 Lakeshore XH Fed #1.

ATTACHMENT "A"
LAKE SHORE XH FED. #1



ATTACHMENT B

DRILLING REPORT - RECOMPLETION

Yates Petroleum Corp. - Lake Shore "XH" Fed #1 (Unit F) 11-21S-26E
**********Eddy County, New Mexico*******

1-29-91 Move in and rig up 55 Well Service. Set tanks. Prep to recomplete Morrow Lime. DC $975; CC $975

1-30-91 SITP 1900#, SICP 600#. Bled well down. Loaded casing with 30 bbls. Loaded tubing with 30 bbls. Test casing to 1000#, OK. Drop standing valve. Tested tubing to 1000#, OK. Unset packer. Pull to 5000'. Shut well in. Prep to abandon Morow 10,967-10,974' with CIBP. DC $3713; CC $4688

1-31-91 TOH with remaining tubing. Rig up Wedge wireline. TIH with 4.343" OD guage ring and junk basket. TOH. TIH with 4.24" OD CIBP. Set at 10,925'. Dump 35' cement on CIBP. TIH with packer and RBP. Set RBP at 10,750'. Set packer at 10,600'. Flanged well up. Shut well in. Prep to swab tubing down to 7200' and perf thru tubing. DC $6862; CC $11,550

2-1-91 Swabbed tubing down to 6500'. Rigged up Wedge Wireline. Perforated through tubing 10,690-10,717', 1 JSPF - 27 holes with 1-11/16" scallop gun. Did not get any blow or pressure. Swabbed down to 7000', could not get through tight spot. Shut in. Prep to broach tight spot. DC $4128; CC $15,678

Est. BHP 4415psi based on pressure gradient of Morrow 10967-74' (4507psi/10925')

2-2-91 Initial fluid level 5800'. Swabbed tubing dry to seating nipple. Pressured casing to 500#. Loaded tubing with 57 bbls 15% NEFE acid. Pressured to 6000#. Formation would not break. Closed tubing in to pressure casing higher. Tubing or packer failed. Bled off casing and tubing. Made 1 swab run to 1500'. Parted sandline (did not lose swab). Rigged down swab unit. Waiting on completion unit. DC $2780; CC $18,458

2-3-4-91 Moved in and rigged up pulling unit. Reversed acid from tubing. TOH with packer. Shut in. Prep to Hydrotest tubing. DC $2019; Cc $20,477

2-5-91 Hydrotested tubing and packer in hole. Found bad joint of tubing 40 joints above packer. TIH to 10,720'. Spot acid. Nippled down BOP. Nippled up wellhead. Acidized perfs 10,690-10,717' with 500 gals 15% NEFE acid. Treating Pressures: Max 3300#, Min 2800#, Avg 3050# at 4 BPM. ISDP 1850#, 10 mins 1700#. Bled well down. Initial fluid level at surface. Swabbed back 70 bbls load water. Load to recover 128 bbls. Final fluid level 4200'. No shows. Shut down overnight. Prep to swab. DC $9929; CC $30,406

2-6-91 Overnight SITP 700#. Bled down. Initial fluid level 3000'. Swabbed well dry. Small show of gas. Recovered 77 bbls. Put on 16/64" choke. In 1 hour - 25#. Bled off. Made swab run - dry. Shut in. Total recovery 162 bbls, 30 bbls left to recover. This AM - Overnight SITP 600#. Initial fluid level 7500'. DC $1696; CC $32,202

WATER ANALYSIS: 2-5-91

Spec. Gravity	1.155 @68	Resistivity	.055 @ 69
pH	5.9	Sulfate	627
Iron	500	Bicarbonate	1954
Calcium	47446	Chlorides	114285
Magnesium	1683	Sod & Pot	17515

2-7-91 Overnight SITP 600#. Bled off. Initial fluid level 7000'. Made 4 swab runs. Recovered 18 bbls. Put on 16/64" choke. After 1 hour - 25#. Loaded tubing. Released packer and RBP. Set RBP at 10600'. Tested to 2000#. Set packer at 10,400' and tested to 500#. Swabbed tubing down to 7000'. Perforated 10,484-91' and 10,498-502' with 1-11/16" thru-tubing gun with total 24 holes. No pressure. Made 2 swab runs. Pulled 2nd run from 10,000', all water and no gas. Shut in. This AM - Overnight SITP 1600#. Put on 1/2" choke. DC $5002; CC $37,204

25psi 1/4" ck ≈ 58 MCFPD

2-8-91 Overnight SITP 1600#. Put on 32/64" choke. Bled down in 25 minutes. Initial fluid level 6000', gas cut. Swabbed

****

dry. Had 6-8' continuous flare. Acidized (via 2-7/8" tubing) with 2000 gals 15% NEFE acid + ball sealers. Formation broke 2800#. Avg treating pressure 3100# at 4 BPM. ISDP 1800#, 5 mins 1500#, 10 mins 1400#, 15 mins 1300#. Bled off. Started swabbing. Load to recover 112 bbls. Recovered 50 bbls. Well started flowing. Cleaned up in 3 hours and stabilized 160# on 32/64" choke = 1.1 MMCFPD. Shut in. DC $3596; CC $40,800

2-9-11-91 Overnight SITP 3800#. Stabilized 180# on 32/64" choke = 1.4 MMCF with slight mist. Rigged up Bennett and Cathey. Ran 72 hour buildup. Flowed 1 hour. Shut in 3:00 PM. Rigged down unit. DC $1995; CC $42,795

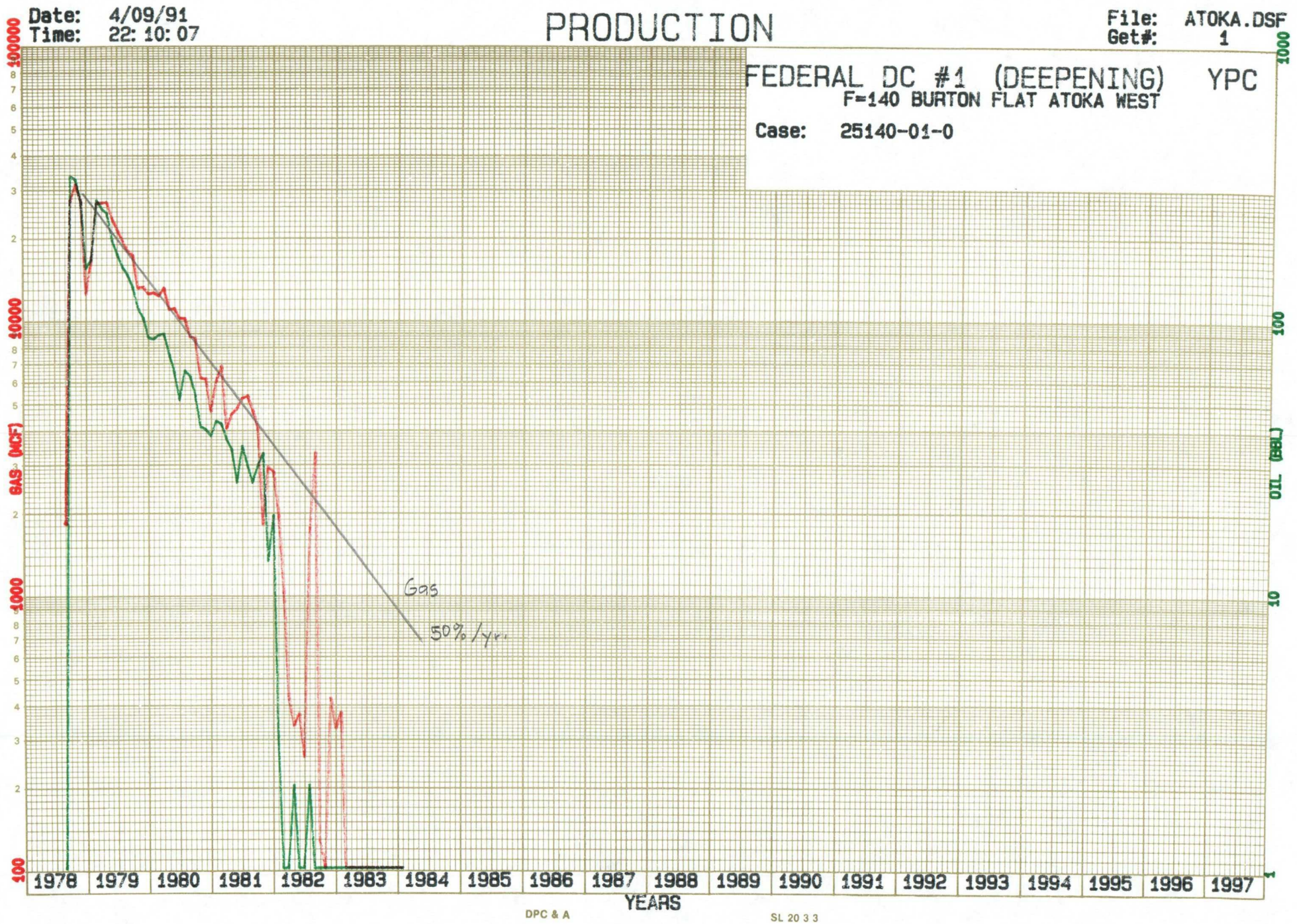
2-12-91 Shut in.

2-13-91 TD 11,301'; PBTD 10,600'. On a 24 hour Official Potential test taken 2-9-91, well flowed 180 psi on 32/64" choke = 1400 MCFGPD through perfs 10484-10502' Atoka. SIWOPLC. FINAL REPORT.

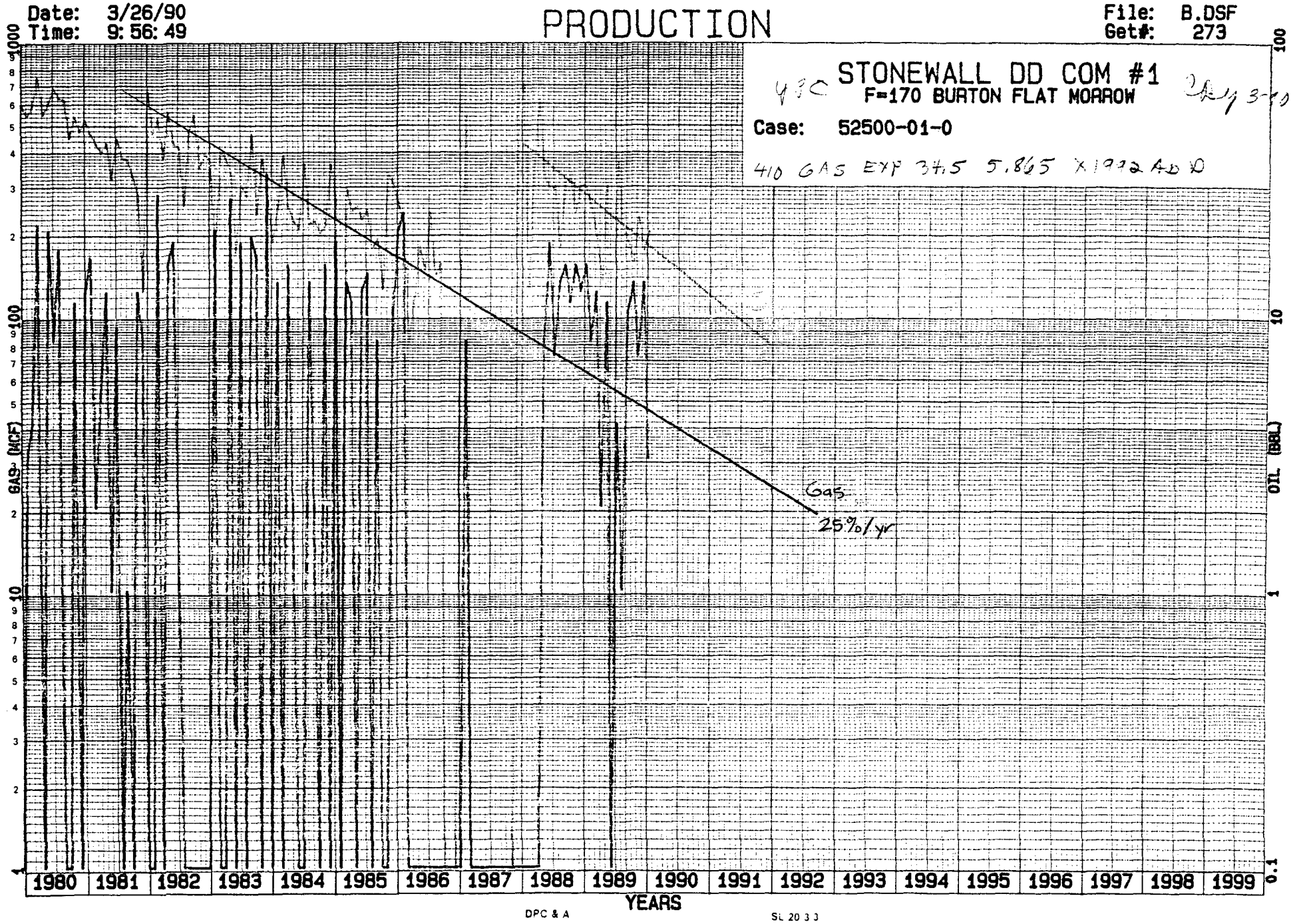
BHP = 4738 psi @ 10493'

Burton Flat Morrow
Undes. Eddy Atoka

ATTACHMENT C



ATTACHMENT C



PROPOSED WELLBORE SCHEMATIC ATTACHMENT D

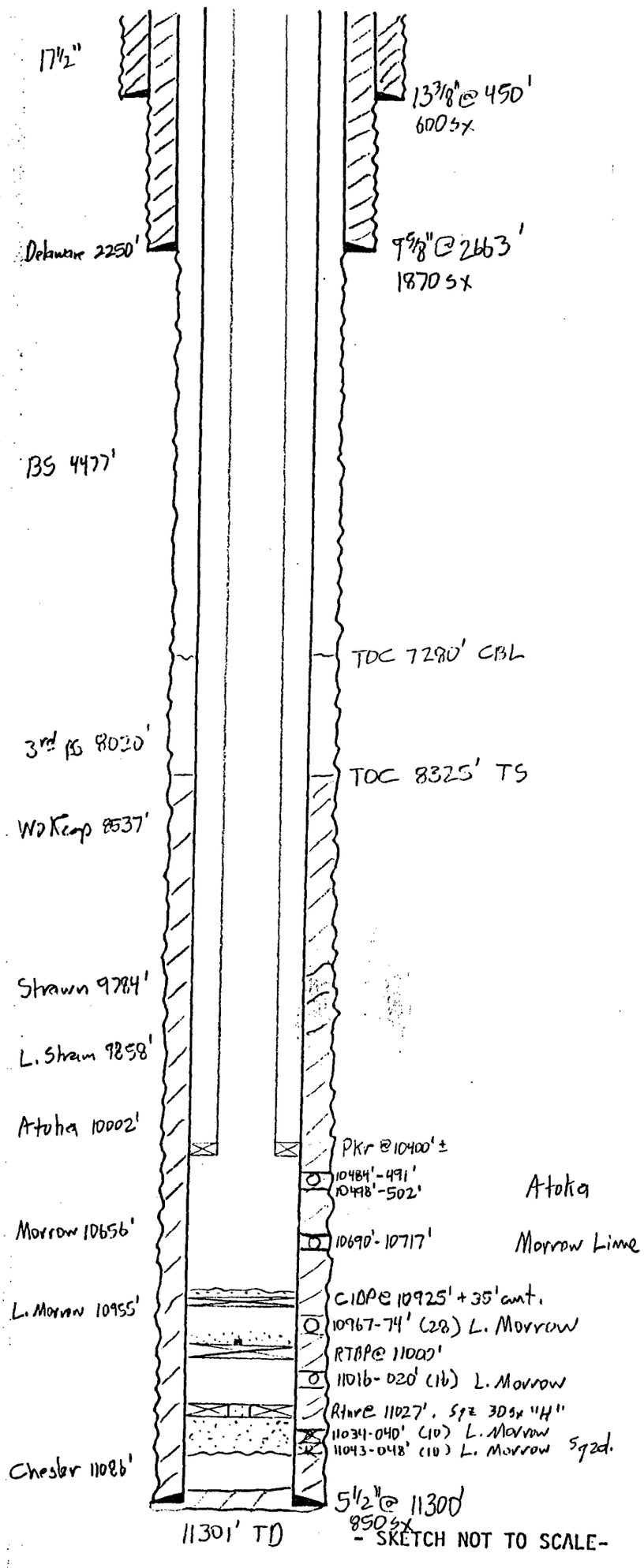
WELL NAME: Lake Shore XH Fed. Com. 1 FIELD AREA: Avalon

LOCATION: 1980 FNL, 1980 FWL F-11-21s-26e Eddy Co NM

GL: 3184' ZERO: 19.8' AGL: _____'

KB: 3203.8' ORIG. DRLG./COMPL. DATE: 9/83

COMMENTS: _____



- SKETCH NOT TO SCALE-

YATES PETROLEUM CORPORATION

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

April 12, 1991

State of New Mexico
OIL CONSERVATION DIVISION
P. O. Drawer DD
Artesia, NM 88201
ATTN: Mr. Mike Williams

Dear Mr. Williams,

Enclosed are the necessary documents for obtaining approval for the downhole commingling of the Lakeshore XH Fed #1, located in Unit F of Section 11, Township 21 South, Range 26 East.

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

Sincerely,

Brian Collins

Brian Collins
Petroleum Engineer

BC/th

YATES PETROLEUM CORPORATION

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

April 12, 1991

BUREAU OF LAND MANAGEMENT
P. O. Box 1778
Carlsbad, NM 88220
ATTN: Richard Manus, Area Manager

Dear Mr. Manus,

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

LAKESHORE XH FED. #1
Unit F Sec 11-T21S-R26E
Eddy County, New Mexico
Operator: Yates Petroleum Corporation

Any objections may be submitted within the next 20 days to the New Mexico Oil Conservation Division, State Land Office Building, P. O. Box 2088, Santa Fe, NM 87504. Thank you.

Sincerely,

Brian Collins
Petroleum Engineer

BC/th

YATES PETROLEUM CORPORATION

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

April 12, 1991

Barbara Fasken
303 West Wall Avenue
Suite 1900
Midland, TX 79701-5116

Dear Sir or Madam:

Enclosed please find a copy of the application for commingling the Lakeshore XH Fed. #1 located in Unit F of Section 11-T21S-R26E. This copy of the application to commingle fulfills our requirement to notify offset operators per NMOCD Rule 303 D (10).

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

Sincerely,

Brian Collins
Petroleum Engineer

BC/th

YATES PETROLEUM CORPORATION

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

April 12, 1991

Bonneville Fuels Corporation
1600 Broadway
Suite 1110
Denver, CO 80202

Dear Sir or Madam:

Enclosed please find a copy of the application for commingling the Lakeshore XH Fed. #1 located in Unit F of Section 11-T21S-R26E. This copy of the application to commingle fulfills our requirement to notify offset operators per NMOCD Rule 303 D (10).

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

Sincerely,

Brian Collins

Brian Collins
Petroleum Engineer

BC/th

YATES PETROLEUM CORPORATION

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

April 12, 1991

Bridge Oil Company
P. O. Box 910054
Dallas, TX 75391

Dear Sir or Madam:

Enclosed please find a copy of the application for commingling the Lakeshore XH Fed. #1 located in Unit F of Section 11-T21S-R26E. This copy of the application to commingle fulfills our requirement to notify offset operators per NMOCD Rule 303 D (10).

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

Sincerely,

Brian Collins

Brian Collins
Petroleum Engineer

BC/th