



STATE OF NEW MEXICO
ENERGY, MINERALS and NATURAL RESOURCES DIVISION
OIL CONSERVATION DIVISION
AZTEC DISTRICT OFFICE

THE STATE OF NEW MEXICO
AZTEC DISTRICT OFFICE
1000 RIO BRAZOS ROAD
AZTEC, NEW MEXICO 87410
(505) 334-6170

BRUCE KING
GOVERNOR

ANITA LOCKWOOD
CABINET SECRETARY

1000 RIO BRAZOS ROAD
AZTEC, NEW MEXICO 87410
(505) 334-6170

Date: 9/21/95

Oil Conservation Division
P.O. Box 2088
Santa Fe, NM 87504-2088

RE: Proposed MC _____ Proposed DHC X _____
Proposed NSL _____ Proposed SWD _____
Proposed WFX _____ Proposed PMX _____
Proposed NSP _____ Proposed DD _____

Gentlemen:

I have examined the application received on 9/19/95
for the Meridian Sandberg A Com #2
OPERATOR LEASE & WELL NO.

E-16-28N-9W and my recommendations are as follows:
UL-S-T-R

Approve

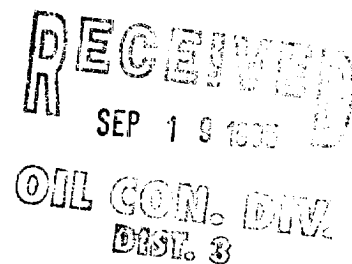
Yours truly,

S. J. 8

MERIDIAN OIL

September 15, 1995

New Mexico Oil Conservation Division
Attn: Mr. Bill LeMay
2040 South Pacheco Street
Santa Fe, New Mexico 87505



RE: Sanchez A Com #2
Unit E, Section 16, T28N, R9W
San Juan County, New Mexico
Downhole Commingle Request
Fruitland Coal/Pictured Cliffs

Dear Mr. Bill LeMay,

Meridian Oil Inc., operator of the subject well, requests approval to downhole commingle the Aztec Pictured Cliffs and Basin Fruitland Coal pools in the referenced well. Ownership for the producing intervals to be commingled is common, save an ORRI in the Fruitland Coal. All offset interest owners shown on the attached plat and the Bureau of Land Management will receive notice of this commingling application.

Precedent for commingling the referenced intervals in this area has been established in the Reid #8 (Unit L, Section 19, T28N, R9W) per NMOCD Administrative Order #DHC-856, dated September 3, 1992, the Reid #13 (Unit I, Section 18, T28N, R9W) per NMOCD Administrative Order #DHC-1030, dated August 30, 1994, and the Reid #14 (Unit O, Section 7, T28N, R9W) per NMOCD Administrative Order #DHC-1029, dated August 30, 1994. These wells are producing without adverse effects. The most recent offset approval, the Reid #10 (Unit L, Section 17, T28N, R9W) per NMOCD Administrative Order #DHC-1142, is dated August 7, 1995.

The Sanchez A Com #2 was completed in the Pictured Cliffs in 1955. Currently the well is inactive; Casing integrity appears sound with 342 psi casing pressure and 340 psi tubing pressure. The well has cumulative production of 579 MMCF. Meridian Oil proposes to verify the integrity of the existing wellbore, case the open hole interval, re-stimulate the Pictured Cliffs, complete the Fruitland Coal and commingle Fruitland Coal production with the Pictured Cliffs production. Remaining Pictured Cliffs reserves are estimated to be 443 MMCF +/-.

Based upon previous Fruitland Coal completions in this area, ultimate reserves of 577 MMCF +/- are estimated for the Fruitland Coal interval in the Sanchez A Com #2. Meridian Oil anticipates restoration of 100 MCFD in Pictured Cliffs production commingled with 200 MCFD in Fruitland Coal production, yielding a combined rate of 300 MCFD. Currently, the Pictured Cliffs is uneconomic. The addition of the Fruitland Coal interval will ensure continued Pictured Cliffs production and prevent waste of resources.

P.O. Box 4289, Farmington, New Mexico 87499-4289. Telephone 505-326-9700. Fax 505-326-9833
3535 East 30th St., 87402-8891

New Mexico Oil Conservation Division
Mr. Bill LeMay
Sanchez A Com #2
Downhole Commingling Request
Page Two

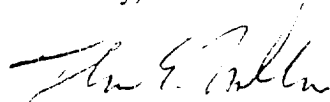
All produced fluids from these two reservoirs are compatible and no precipitates will be formed. The reservoir parameters of each zone are such that underground waste will not be caused by the proposed commingling. Bottom hole shut-in pressures for both the Pictured Cliffs and Fruitland Coal are estimated to be 386 psi.

The allocation of the commingled production will be verified using flow tests from the Pictured Cliffs and Fruitland Coal intervals during completion operations, in addition to the 39 years of prior Pictured Cliffs production. Meridian Oil will consult with the district supervisor of the Aztec NMOCD office for approval of the attached Sanchez A Com #2 Downhole Commingle Allocation Formula.

Approval of this commingling request will promote recoverable resources and protect correlative rights. Included with this letter are plats showing ownership of offsetting leases for both formations, copies of letters to offset operators and copies of the proposed workover procedure and wellbore diagram.

If you have any questions concerning this matter, please call me at (505) 326-9546. Your consideration is appreciated.

Sincerely,



Thomas E. Mullins
Reservoir Engineer

TEM:dlc

enclosures

xc: BLM (Farmington)
Frank T. Chavez, NMOCD (Aztec)
Peggy Bradfield
Well File

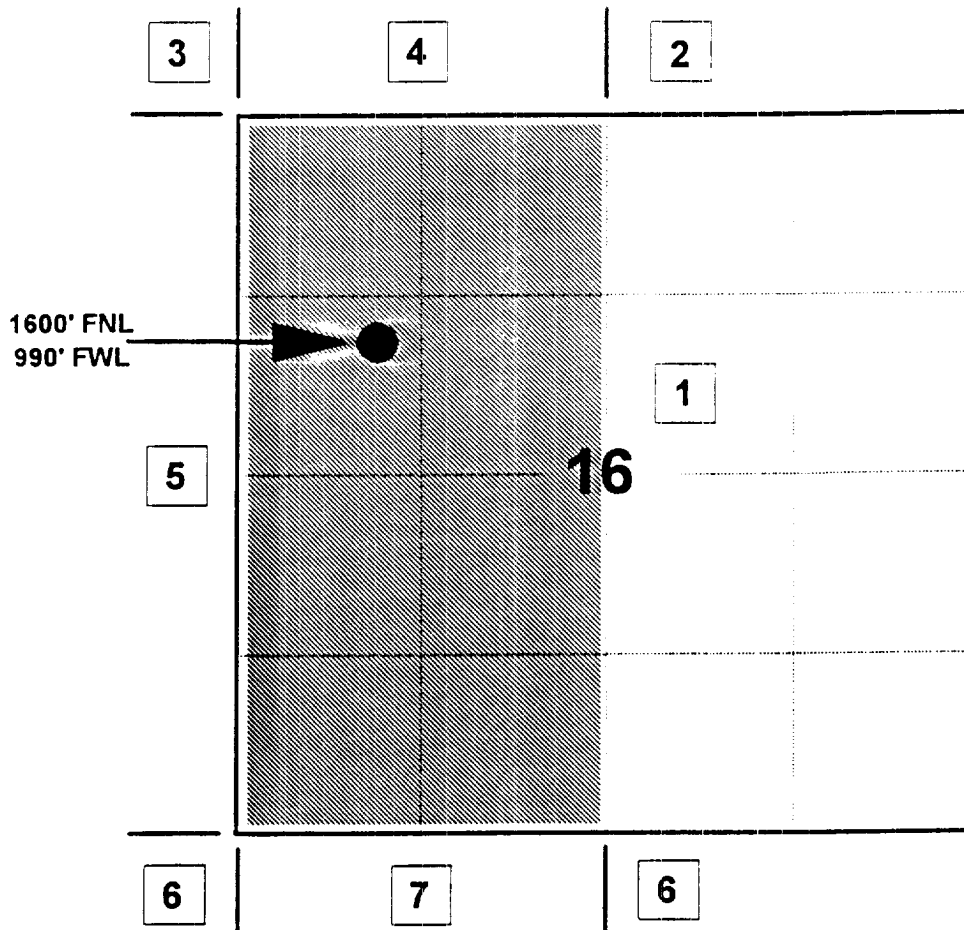
MERIDIAN OIL INC

SANCHEZ A COM #2

OFFSET OPERATOR \ OWNER PLAT

Fruitland Coal / Pictured Cliffs Formations Commingle Well

Township 28 North, Range 9 West



1) Meridian Oil Inc.

Williams Production Company

PO Box 58900, Salt Lake City, UT 84158

Texaco Exploration & Production, Inc.

PO Box 2100, Denver, CO 80201-2100

2) Meridian Oil Inc.

S G Interests

811 Dallas, Houston, TX 77002

3) Southland Royalty Company

Amoco Production Company

PO Box 800, Denver, CO 80201

Conoco, Inc.

10 Desta Drive, Suite 100W, Midland, TX 79705

4) S G Interest &

D J Simmons

PO Box 1469, Farmington, NM 87499

5) West Largo Corporation

6638 W. Ottawa Ave., Suite 100, Littleton, CO 80123

6) Amoco Production Company & Conoco, Inc.

7) Amoco Production Company

Fruitland Coal Formation

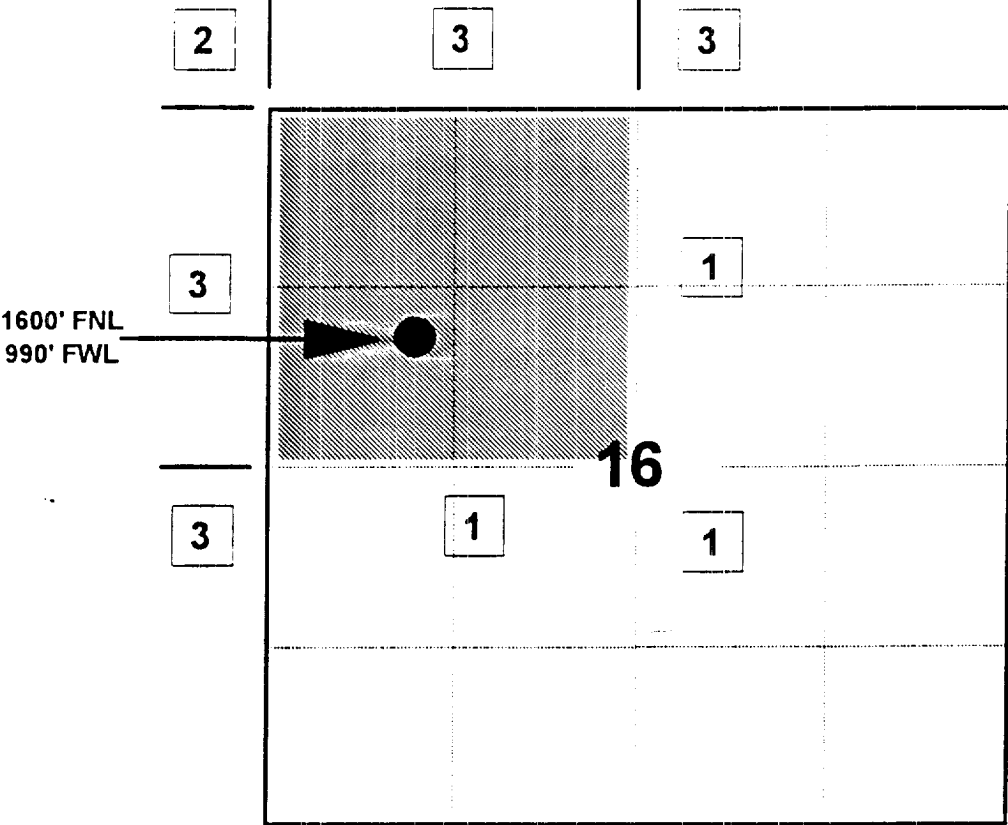
MERIDIAN OIL INC

SANCHEZ A COM #2

OFFSET OPERATOR \ OWNER PLAT

Fruitland Coal / Pictured Cliffs Commingle Well

Township 28 North, Range 9 West



- 1) Meridian Oil Inc.
- 2) Southland Royalty Company
- 3) Amoco Production Company
- PO Box 800, Denver, CO 80201

Pictured Cliffs Formation

Sanchez A Com #2

MONTHLY GAS PRODUCTION ALLOCATION FORMULA

GENERAL EQUATION

$$Q_t = Q_{ftc} + Q_{pc}$$

WHERE: Q_t = TOTAL MONTHLY PRODUCTION (MCF/MONTH)
 Q_{ftc} = FRUITLAND COAL (ftc) MONTHLY PRODUCTION
 Q_{pc} = PICTURED CLIFFS (pc) MONTHLY PRODUCTION (MCF/MONTH)

REARRANGING THE EQUATION TO SOLVE FOR Q_{ftc} :

$$Q_{ftc} = Q_t - Q_{pc}$$

ANY PRODUCTION RATE OVER WHAT IS CALCULATED FOR THE PICTURED CLIFFS (PC) USING THE APPLIED FORMULA IS FRUITLAND COAL (FTC) PRODUCTION.

ICTURED CLIFFS (PC) FORMATION PRODUCTION FORMULA IS:

$$Q_{pc} = Q_{pci} \times e^{-\{D_{pc} \times (t)\}}$$

WHERE: Q_{pci} = INITIAL PC MONTHLY FLOW RATE (DETERMINED FROM LAST MONTH OF PC ONLY PRODUCTION, PRIOR TO RECOMPLETION & COMMINGLE)

$$Q_{pci} = 100 \text{ MCFD} \times 30.4 = 3040 \text{ MCFM}$$

D_{pc} = PICTURED CLIFFS MONTHLY DECLINE RATE CALCULATED FROM DECLINE CURVE & MATERIAL BALANCE ANALYSIS:

$$D_{pc} = (7.170/\text{Yr}) \text{ per year} = (0.59750/\text{M})$$

THUS: $Q_{ftc} = Q_t - 3040 \times e^{-\{0.59750 \times (t)\}}$

WHERE: (t) IS IN MONTHS

FROM FIRST DATE OF COMMINGLED PRODUCTION =

REFERENCE: Thompson, R.S., Wright, J.D., "Oil Property Evaluation", Pages 5-2, 5-3, 5-4.

PERTINENT DATA SHEET
Sanchez A Com #2

LAT: 36-39-55
LONG: 107-47-57

Location: 1600' FNL, 990' FWL
Section 16, T28N, R9W
San Juan County, New Mexico

Elevation: 5990' GL

Field: Aztec Pictured Cliffs

DP#: 32099A

GW: 100%

NRI: 87.5%

Spud Date: 11-20-55

ID: 2322'

Completion Date: 12-11-55

PBTD:

Casing Record:

<u>Hole Size</u>	<u>Casing Size</u>	<u>Weight & Grade</u>	<u>Depth Set</u>	<u>Sxs Cement</u>	<u>Cement Top</u>
13-3/4"	9-5/8"	40#, J-55	120'	125	surface
8-3/4"	5-1/2"	15.5#, J-55	2265'	100	

Tubing Record:

<u>Tubing Size</u>	<u>Weight & Grade</u>	<u>Depth Set</u>
1"	1.7#, T&C Line Pipe	2289' (109 jts.)

Formation Tops:

Nacimiento	Surface	Fruitland	2035'
Ojo Alamo	1040'	Pictured Cliffs	2272'
Kirtland	1342'		

Logging Record:

Electrical Log

Stimulation:

Sand frac with 21,000 gal water and 22,000# sand at 44 bpm, 100 psi ATP. Open hole: 2265-2322'

Workover History:

None

Production History:

Initial Deliverability	1930 mcf/d (AOF)	Latest Deliverability	0 mcf/d
Initial Pressure:	720 psi		
Latest Pressures:	340 psi tbh	342 psi csg	(taken 5-18-95)

Transporter:

Oil/Condensate: Meridian Oil

Gas: Gas Company of New Mexico

JMS

Sanchez A Com #2

Pictured Cliffs

1600' FNL, 990' FWL
Section 16, T28N, R9W
San Juan County, New Mexico

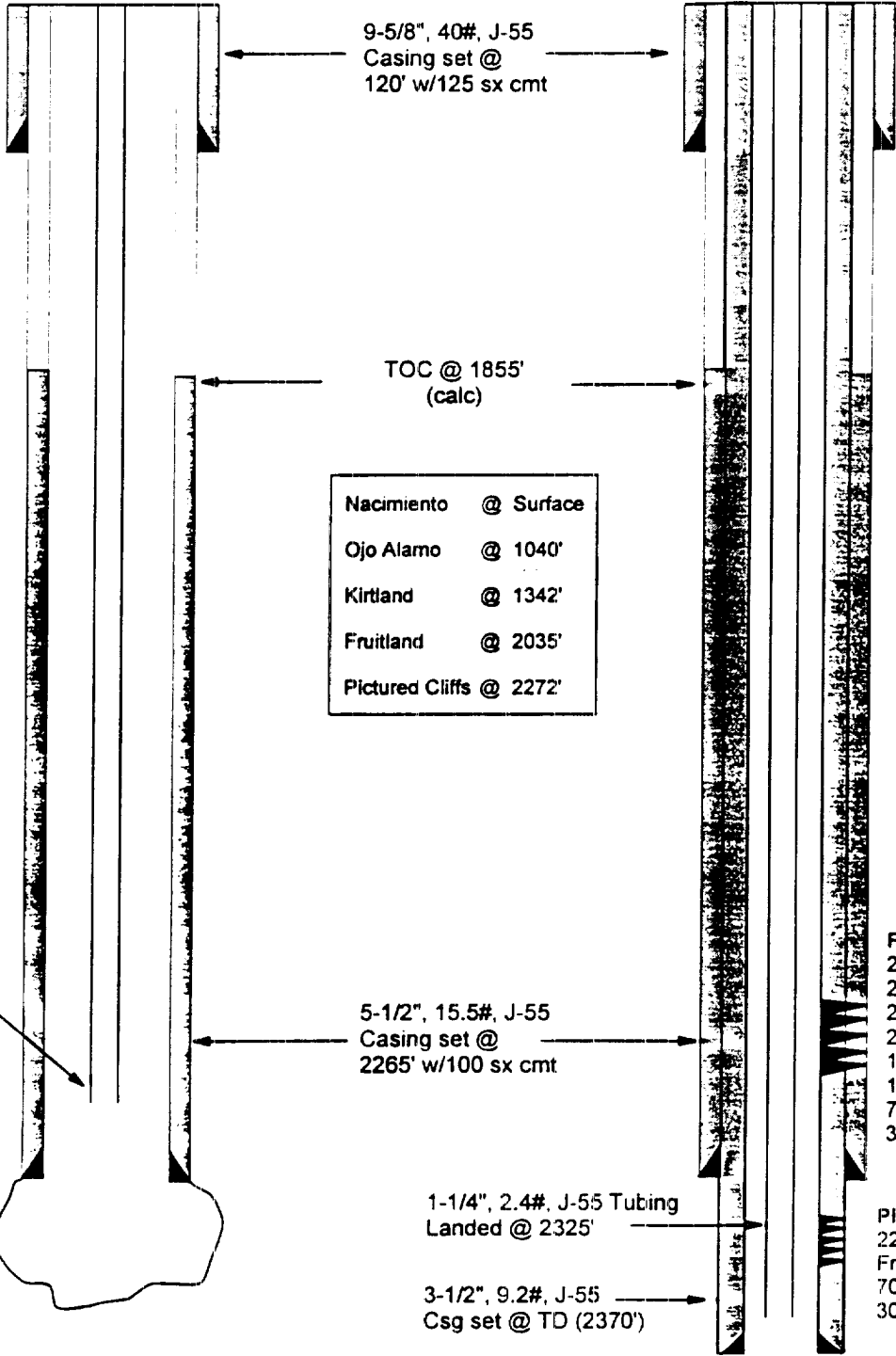
Elevation: 5990' GR

LAT: 36-39-55

LONG: 107-47-57

Current

Proposed



TD: 2322'

New TD: 2370'

JME

Sanchez A Com #2
Fruitland Coal Recompletion/PC Commingle
Unit E-Sec16-T28N-R09W
1600' fsl & 990' fwl

-
- Dig work pits for water recovery/flare pit, fence pits.
 - Comply with all BLM, NMOCD, and MOI rules and regulations.
 - Air will be utilized during workover.
 - 80 joints 2-3/8" J-55 workstring will be utilized in this workover.
 - Spot and fill three (3) 400 bbl frac tanks w/ 2% KCl water. Filter all water to 2 microns.
 - **Always Hold Safety Meetings!**
-

This well is an open-hole Pictured Cliffs well completed in 1955. The well will be restimulated in the PC and recompleted in the Fruitland Coal. The wellbore will be reconfigured by drilling an additional 50' to a new TD of 2370' and cementing 3-1/2" tubing in the present 5-1/2" casing. Pay intervals will be stimulated in two stages with nitrogen foam fracs. The formations will be produced commingled.

1. MIRU completion rig. Obtain tubing and casing pressures. Kill well down tubing w/ 2% KCl water. ND WH, NU BOP. Test all equipment.
2. TOOH w/1" tbg and lay down for salvage (109 joints, set @ 2289'). PU 2-3/8" workstring and 5-1/2" casing scraper, TIH to 2260'. TOOH.
3. PU RBP, set @ 2250'. Load hole, pressure test casing to 500 psi. Casing leak not suspected.
4. RU wireline. Dump 10' sand on RBP. Run CBL-CCL from 2250' to surface. Engineering and drilling will design procedure to cement 5-1/2" casing to surface (TOC calculated @ 1855').
6. Drill out cement w/ water, pressure test to 500 psi. TOOH & PU retrieving head on 2-3/8". TIH to RBP @ 2250', equalize across and release. TOOH, lay down RBP. TIH w/ 4-3/4" bit & drill to new TD of 2370'. TOOH.
7. Make sure hole is filled with 2% KCl (minimum fluid level = 1800') for logging. Rig up Blue Jet, run an advanced integrated data processing GSL neutron log from 2370' to 2025'. Correlate log to open hole electric log.
8. Run 3-1/2" OD 9.2# J-55 NUE tbg to TD @ 2370' w/Omega type locking plug & Texas guide shoe on bottom. Cement w/100 sx 50/50 Class "B" POZ w/2% gel & 6-1/2#/sx kolite and 10% salt and 2% CaCl. (Yield = 1.44 cf/sx.) After cementing, run 2 wiper balls & Omega wiper latching plug, followed by 100 gal 7-1/2% HCl acid. Install 3-1/2" casing in new csg spool. WOC 24 hours before perforating.
9. MIRU wireline. Run GR-CCL & correlate to neutron log. Perf PC interval (2272'-2321') as per production engineering. (Perfs will be determined according to GSL log.) Perf 1 SPF, 180° phasing, using 2-1/2" RTG w/10 gr #304 Owen charges (0.30" hole, 10.78" penetration).
10. Breakdown PC perfs down 3-1/2" casing w/1000 gal 7-1/2% HCl (w/2 gal/1000 corrosion inhibitor, 5 gal/1000 iron sequestering agent, 5 gal/1000 iron control, and 1 gal/1000 surfactant) and 100% excess 7/8" 1.3 s.g. ball sealers. Acidize @ 6-8 BPM. Max pressure = 6000 psi. Balloff, release pressure. Displace acid. Run junk basket, retrieve balls, count hits.

11. Frac Pictured Cliffs down 3-1/2" casing w/ 70Q Nitrogen foam and 60,000# 20/40 sand, using 30# X-linked gel as base fluid (1-4 ppg). Treatment rate will be 40 BPM (service co. to have line capacity to go higher). Max pressure is 6000 psi. Sand will not be tagged. Frac schedule to be attached.

12. Shut in well for a minimum of 8 hours to allow resin-coated sand to set. Flush well w/ 2% KCl water in order to minimize time between stages (no trip in to clean out).

13. RU wireline, run gauge ring to 2270'. Set RBP @ 2264 (8' below bottom FTC perf). Dump sand on RBP.

14. Perforate Fruitland Coal interval 1 SPF, 180° phasing, w/ 2-1/2" RTG w/10 gr #304 Owen charges (0.30" hole). Perforate the following depths (2057' - 2245' interval):

2057'	2068'	2083'	2126'	2132'	2171'
2178'	2202'	2237'	2245'		

(10 holes, 59' net pay, 188' interval)

15. RU stimulation company, breakdown Fruitland coal down 3-1/2" casing w/1000 gallons 7.5% HCl (w/2 gal/1000 corrosion inhibitor, 5 gal/1000 iron sequestering agent, 5 gal/1000 iron control, and 1 gal/1000 surfactant) and 22 7/8" 1.3 s.g. ball sealers. Acidize @ 6-8 BPM. Max pressure = 6000 psi. Balloff, release pressure. Displace acid. RD stimulation company, RU wireline. Run junk basket, recover balls, count hits.

16. RU stimulation company, frac Fruitland Coal down 3-1/2" casing w/ 70Q Nitrogen foam and 135,000# 20/40 sand tailed w/ 15,000# resin-coated sand, using 30# linear gel as base fluid (1-5 ppg). Treatment rate is 40 BPM (service co. to have line capacity to go higher). Max pressure = 6000 psi. Pad and 1-2 ppg stages will be tagged w/ Iridium, 3-4 ppg stages tagged w/ Antimony, 5 ppg (resin-coated) stage tagged w/ Scandium. Frac schedule to be attached.

17. Shut in well minimum of 8 hours to all resin-coated sand to set. Flow back well on 1/4" choke, opening up to 3/4" choke. Flow well until sand production is minimal.

18. PU 1-1/4" IJ tubing and retrieving head. TIH, clean out to RBP @ 2264'. Obtain FTC pitot gauge. Equalize across RBP and release. TOOH w/ RBP. TIH w/ 1-1/4" and notched collar, clean out to TD. Pull up to top perf, obtain pitot gauge. TOOH.

19. RU wireline, run multi-isotope after-frac log and temperature log from 2330' to 2025'. PU production string as follows: 1 joint open-ended 1-1/4", seating ripple, remaining 1-1/4" tubing. Set @ 2325'. Take final pitot gauge.

20. ND BOP, NU WH. Rig down, release rig to next location.

Approved:

W.S. [Signature] 8/14
Drilling Superintendent

Concur:

JME [Signature] 8/11
Team Leader

JME

[Signature]

Suggested Vendors:

Multi-Isotope After-frac	Halliburton	325-3423
Cased Hole. Perforating	Basin Perforators	327-5124
Stimulation	BJ Services	327-6222
Engineering	Joan Easley	599-4026-work
		324-2717-pager
		327-3061-home

MERIDIAN OIL

September 15, 1995

D.J. Simmons
PO Box 1469
Farmington, New Mexico 87499

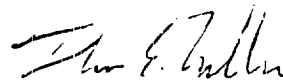
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Unit E, Section 16, T28N, R9W
San Juan County, New Mexico
Downhole Commingle Request
Fruitland Coal/Pictured Cliffs

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The purpose of this letter is to notify of such action. We would appreciate your signing this letter and returning it to this office indicating you have been notified.

Should you have concerns or questions regarding this commingle application, please contact me at (505) 326-9546.

Sincerely,



Thomas E. Mullins
Reservoir Engineer

TEM:dlc

The addressee has been notified of this downhole commingling request:

Date: _____

MERIDIAN OIL

September 15, 1995

Conoco, Inc.
10 Desta Drive, Suite 100W
Midland, Texas 79705-4500

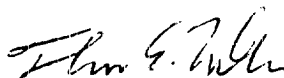
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Sincerely,



Thomas E. Mullins
Reservoir Engineer

TEM:dlc

The addressee has been notified of this downhole commingling request:

Date: _____

September 15, 1995

Amoco Production Company
PO Box 800
Denver, Colorado 80201

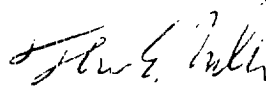
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Thomas E. Mullins
Reservoir Engineer

TEM:dlc

The addressee has been notified of this downhole commingling request:

Date: _____

September 15, 1995

West Largo Corporation
6638 W. Ottawa, Suite 100
Littleton, Colorado 80123

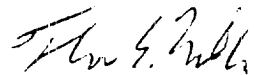
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Sincerely,



Thomas E. Mullins
Reservoir Engineer

TEM:dlc

The addressee has been notified of this downhole commingling request:

Date: _____

MERIDIAN OIL

September 15, 1995

Texaco Exploration & Production, Inc.
PO Box 2100
Denver, Colorado 80201-2100


RE: Sanchez A Com #2
Unit E, Section 16, T28N, R9W
San Juan County, New Mexico
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Sincerely,



Thomas E. Mullins
Reservoir Engineer

TEM:dlc

The addressee has been notified of this downhole commingling request:

Date: _____

MERIDIAN OIL

September 15, 1995

SG Interests
811 Dallas
Houston, Texas 77002

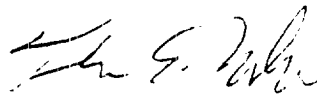
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Sincerely,



Thomas E. Mullins
Reservoir Engineer

TEM:dlc

The addressee has been notified of this downhole commingling request:

Date: _____

MERIDIAN OIL

September 15, 1995

Williams Field Services
One Williams Center
PO Box 3288
Tulsa, Oklahoma 74101

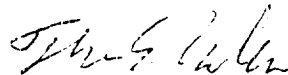
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