



BRUCE KING  
GOVERNOR

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

ANITA LOCKWOOD  
CABINET SECRETARY

1000 RIO BRAZOS ROAD  
AZTEC, NEW MEXICO 87410  
(505) 334-6178

Date: May 28, 1993

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

RE: Proposed MC \_\_\_\_\_  
Proposed NSL \_\_\_\_\_  
Proposed WFX \_\_\_\_\_  
Proposed NSP \_\_\_\_\_

Proposed DIIC \_\_\_\_\_  
Proposed SWD \_\_\_\_\_  
Proposed PMX \_\_\_\_\_  
Proposed DD \_\_\_\_\_

Gentlemen:

I have examined the application received on May 18, 1993  
for the Meridian Shiotani Federal #500  
OPERATOR LEASE & WELL NO.

H-8-29N-12W and my recommendations are as follows:  
UL-S-T-R

Approve  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

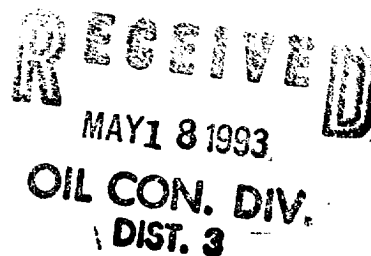
Yours truly,

35.8

# MERIDIAN OIL

May 14, 1993

New Mexico Oil Conservation Division  
Attn: Mr. Bill LeMay  
P. O. Box 2088  
310 Old Santa Fe Trail  
Santa Fe, New Mexico 87501



RE: Shiotani Federal #500  
Unit H, Section 08, T29N, R12W  
San Juan County, New Mexico  
Downhole Commingling Request

Dear Mr. LeMay:

Meridian Oil Inc. is applying for an administrative downhole commingling order for the referenced well in the Fulcher Kutz Pictured Cliffs and the Basin Fruitland Coal fields. The ownership of the zones to be commingled is common. The offset operators to this well are Conoco, Inc., BHP Petroleum, Amoco Production Company, Texaco Exploration & Production, Inc., Elliot Riggs, Dugan Production Corporation, and Richardson Operating Company. The Bureau of Land Management and the above mentioned operators have received notification of this downhole commingle.

The Fruitland Coal and Pictured Cliffs wells producing in this area operated by Meridian and others are marginally productive. Based on offset production in this area, drilling of separate wells and dual completions to produce the Fruitland Coal and Pictured Cliffs are not economically justified. The only economical way to recover the Fruitland Coal and Pictured Cliffs reserves in this drill block is to downhole commingle production from both zones in this well.

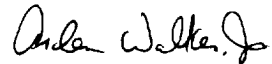
It is proposed to complete the Pictured Cliffs formation and establish production. It is then proposed to set a bridge plug above the Pictured Cliffs, perforate and stimulate the Fruitland Coal, and test its production. The bridge plug will then be removed, and both zones produced through a single string of tubing. The reservoir characteristics of each of the subject zones are such that underground waste will not be caused by the proposed commingling. Neither producing interval makes oil, and only minimal amounts of similar water are produced in the offset wells. The shut-in pressures for the Pictured Cliffs and Fruitland Coal are 340 and 460 psi, respectively.

The allocation of the commingled production will be calculated using the attached allocation formula. This formula is based on offset Pictured Cliffs production performance (material balance) and volumetrics, and uses accepted Reservoir Engineering methods to allocate the Pictured Cliffs reserves. This addresses the Fruitland Coal producing characteristics of early life inclining production rates.

New Mexico Oil Conservation Division  
Mr. Bill LeMay  
Shiotani Federal #500  
Downhole Commingling Request  
Page Two

Approval of this commingling application will allow for the prevention of wasted resources and protection of correlative rights. The offset (Shiotani Federal Com #400, SW/4 Sec. 8, T29N, R12W, has already received administrative approval NMOCD Order #R-9881). Included with this letter are plats showing ownership of offsetting leases for both the Pictured Cliffs and Fruitland Coal, a copy of letters to the BLM and offset operators, wellbore diagrams, pertinent data sheet, and an allocation formula.

Sincerely,



Arden L. Walker, Jr.  
Regional Production Engineer

SBD/KAS:tg  
Attachments

cc: Frank T. Chavez - NMOCD/Aztec

**Pertinent Data Sheet - Shiotani Federal # 500**

**Location:** 1700 ' FNL, 1055' FEL, Section 8, T29N R12W, San Juan County, N.M.

**Field:** Basin Fruitland Coal/West Kutz PC

**Elevation:** 5663' GL    **TD:** 1950'  
**PBTD:** 1905'

**GWI:** 56.2500%

**NRI:** 47.8125%

**Completed:**    NA

**DP Number:**            30821A        FTC  
                                 30821B        PC

**Casing Record:**

<u>Hole Size</u>	<u>Csg Size</u>	<u>Wt. &amp; Grade</u>	<u>Depth Set</u>	<u>Cement</u>	<u>Top/Cmt.</u>
12-1/4"	8-5/8"	24.0# K-55	219'	235 sxs	SURF (CIRC)
7-7/8"	4-1/2"	10.5# K-55	1949'	605 sxs*	SURF (CIRC)

\*Two stage cement with stage tool set @ 1390':

1st:    Lead: 115 sxs Class G 65/35 POZ w/ 2% CaCl<sub>2</sub>, 6% gel, 5 lb/sxs Gilsonite, 1/4 lb/sx Flocele.  
         Tail: 80 sxs Class G w/ 2% CaCl<sub>2</sub> (92 cf)  
2nd:    Lead: 385 sxs Class G 63/35 POZ w/ 2% CaCl<sub>2</sub>, 5 lb/sxs Gilsonite, 6% gel, 1/4 lb/sx Flocele.  
         Tail: 25 sxs Class G Neat w/ 2% CaCl<sub>2</sub> (29 cf)

**Tubing Record:** NA

**Formation Tops:**

Ojo Alamo:	305'
Kirtland:	427'
Fruitland:	1376'
Pictured Cliffs:	1698'

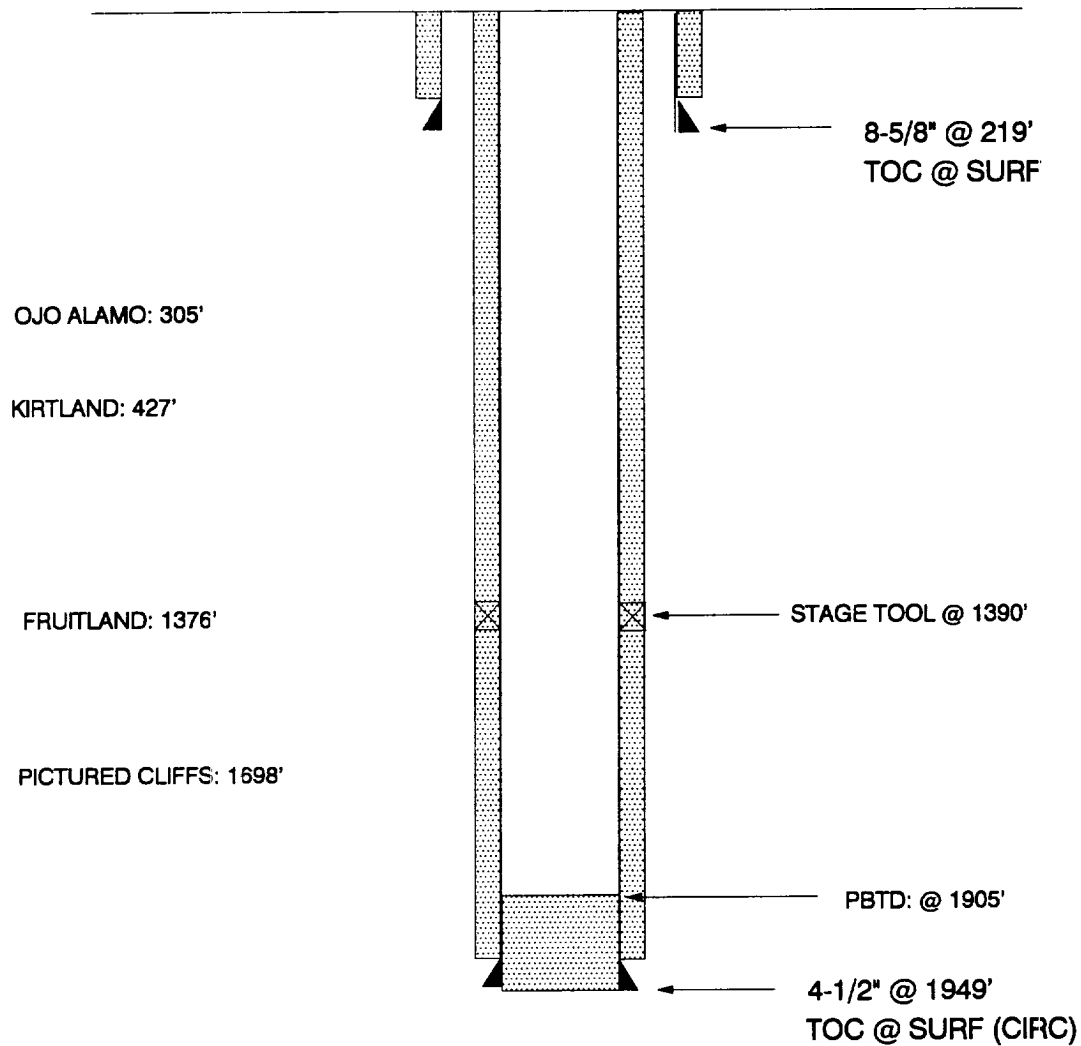
**Logging Record:** GR, DENSITY/NEUTRON, MICRO LOG, CYBERLOOK/COAL, MUD LOG.

**Spud Date:** 12/30/92

**Estimated Drilling Costs:** \$76,047

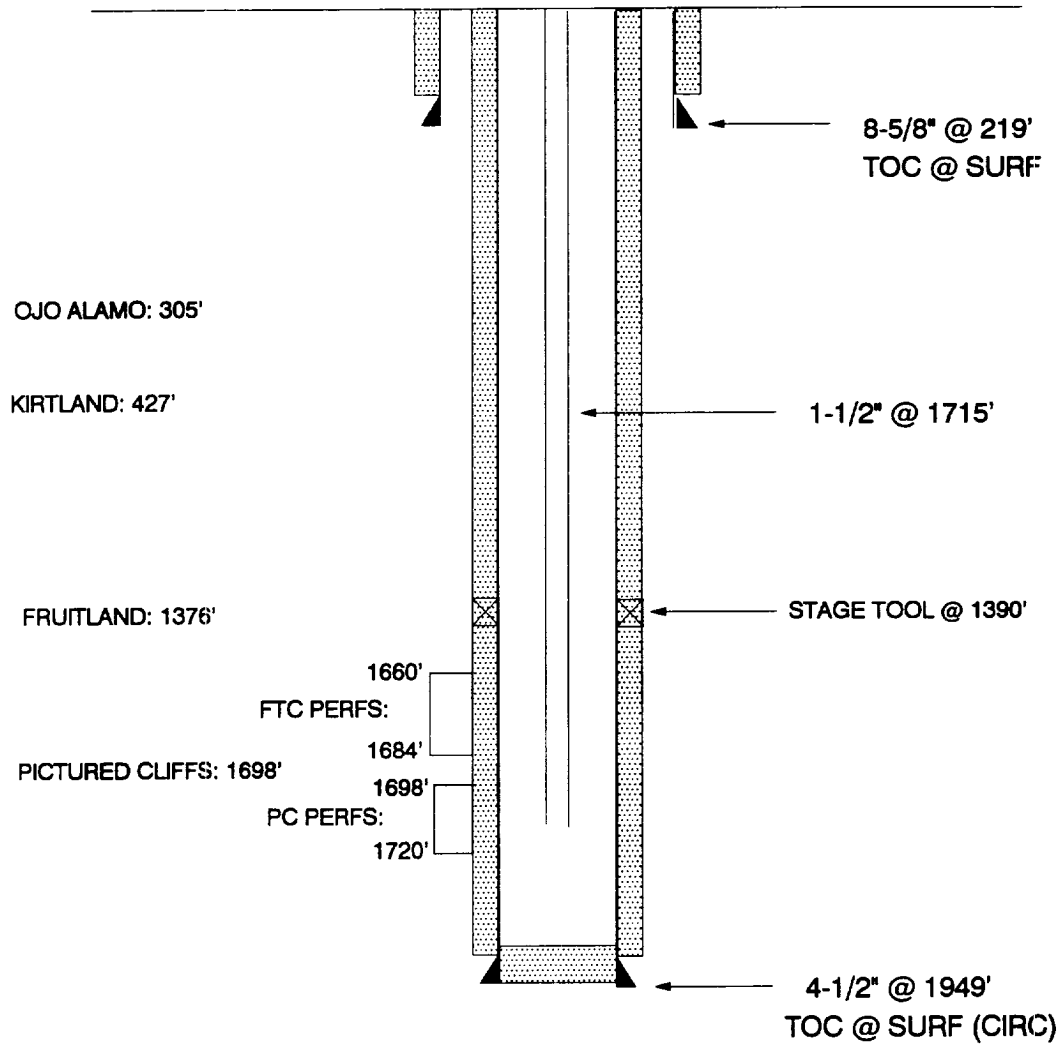
CURRENT  
**SHIOTANI FED # 500**

UNIT H SECTION 8 T29N R12W  
SAN JUAN COUNTY, NEW MEXICO



PROPOSED  
**SHIOTANI FED # 500**

UNIT H SECTION 8 T29N R12W  
SAN JUAN COUNTY, NEW MEXICO



# SHIOTANI FEDERAL #500

## MONTHLY GAS PRODUCTION ALLOCATION FORMULA

### GENERAL EQUATION

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

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.

PICTURED CLIFFS (PC) FORMATION PRODUCTION FORMULA IS:

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

WHERE:  $Q_{pci}$  = INITIAL PC MONTHLY FLOW RATE (CALCULATED FROM FLOW TEST)

$D_{pc}$  = PICTURED CLIFFS MONTHLY DECLINE RATE DETERMINED FROM:

MATERIAL BALANCE (FIELD ANALOGY):  
VOLUMETRIC RESERVES (LOG ANALYSIS)  
 $G f(P^*) = 0.84 \text{ MMCF/PSI} \times P^* \times R_f$

$P^*$  = INITIAL RESERVOIR PRESSURE (7 DAY SIBHP)

$R_f$  = RECOVERY (FIELD ANALOGY): = 0.85

THUS:  $Q_{ftc} = Q_t - Q_{pci} * e^{-\{D_{pc}\}(T)}$

WHERE: (t) IS IN MONTHS

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

# **SHIOTANI FEDERAL #500**

## **DETERMINATION OF $Q_{pci}$ : (INITIAL PICTURED CLIFFS MONTHLY PRODUCTION)**

$$\underline{Q_{pci} = Q_t(1) * Q_{pc}(p) \setminus \{Q_{pc}(p) + Q_{ftc}(p)\}}$$

### **WHERE:**

$Q_t(1)$  = FIRST MONTH TOTAL PRODUCTION (MCF)

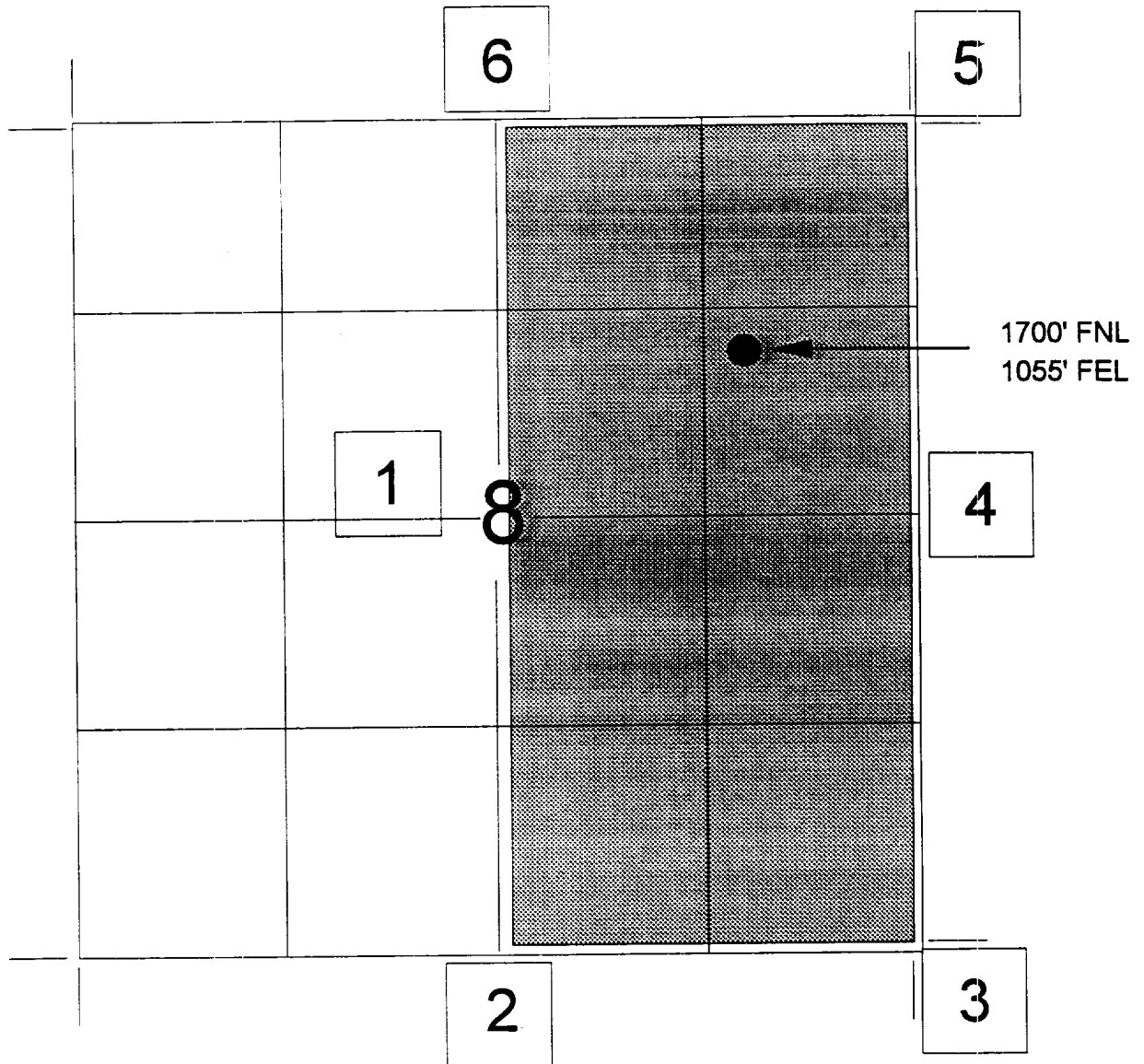
$Q_{pc}(p)$  = FINAL PICTURED CLIFFS FLOW TEST (MCFPD)

$Q_{ftc}(p)$  = FINAL FRUITLAND COAL FLOW TEST (MCFPD)



# MERIDIAN OIL INC.

OFFSET OPERATOR/OWNER PLAT  
Fruitland Coal\Pictured Cliffs Commingle  
Shiotani Federal #500  
SE NE Section 8, T29N, R12W  
San Juan County, New Mexico



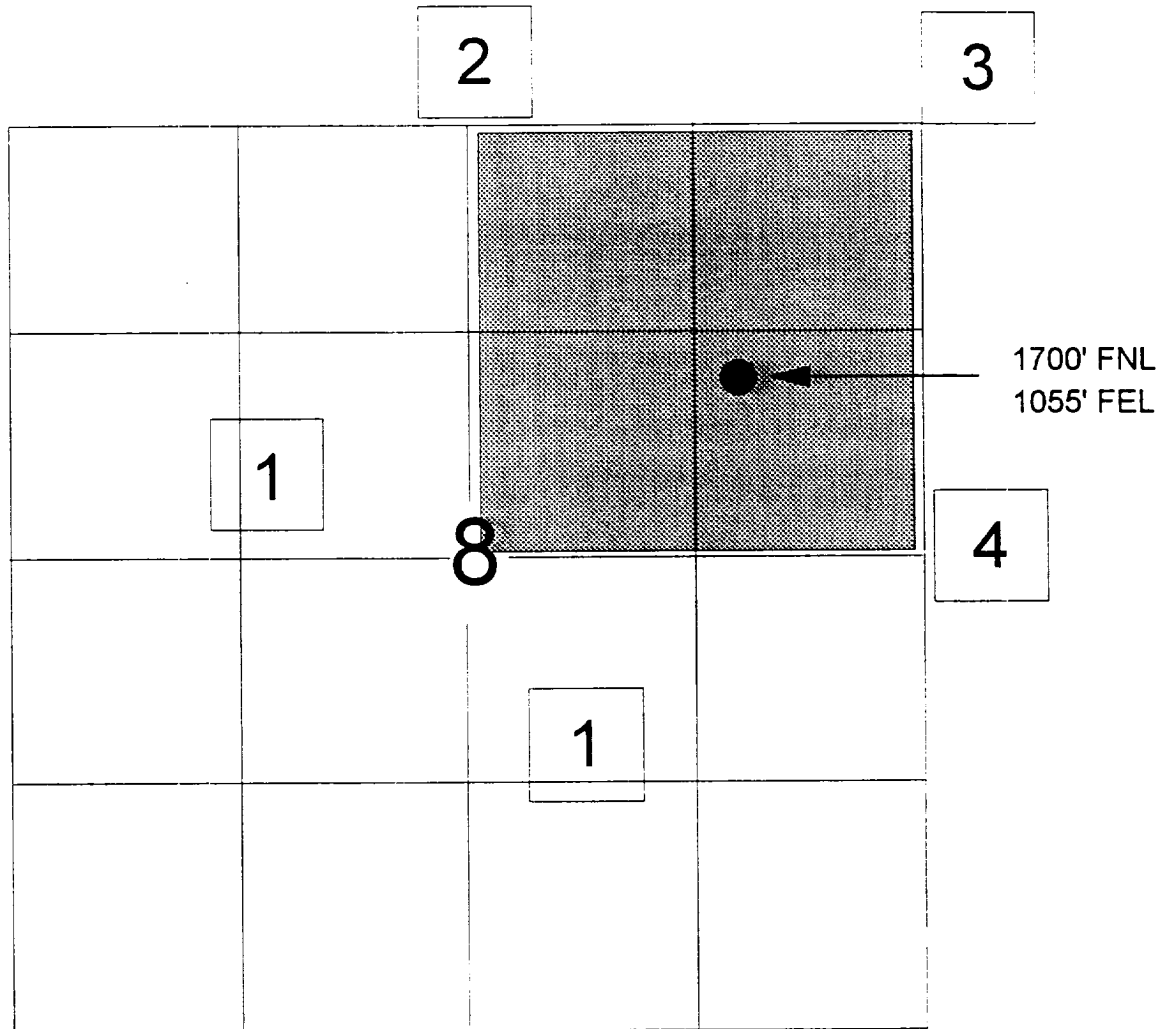
See Attached List

## FRUITLAND COAL

1. Meridian Oil Inc.  
P.O. Box 4289  
Farmington, NM 87499-4289  
  
Conoco, Inc.  
10 Desta Drive, Suite 100W  
Midland, TX 79705-4500  
  
Frank A. Schultz  
Attn: Mr. Aaron L. Colvin  
Lincoln Plaza, Suite 2160 LB-1, 500 North Akard  
Dallas, TX 75201-3318  
  
Elizabeth Jeanne Turner Calloway  
4801 St. Johns Drive  
Dallas, TX 75205  
  
J. Glenn Turner Jr.  
3131 Turtle Creek Blvd., Suite 1201  
Dallas, TX 75219  
  
Frederick Eugene Turner  
One Energy Square, Suite 853  
4925 Greenville Ave.  
Dallas, TX 75205  
  
John Lee Turner  
P.O. Box 797215  
Dallas, TX 75379-7215  
  
Mary Frances Turner Jr.  
c/o MBank Dallas, Trustee (Trust #3095)  
P.O. Box 951412  
Dallas, TX 75395-1412  
  
William G. Webb  
1525 Elm Street, Second Floor  
Dallas, TX 75201  
  
Estate of C. W. Murchison  
Bankers Trust Company of Texas  
1445 Ross Ave., Suite 2600 LB 201  
Dallas, TX 75202  
  
Virginia L. Linthicum  
Attn: R. J. Smith, Jr.  
2626 Cole Ave., Suite 603 LB 63  
Dallas, TX 75204
2. BHP Petroleum  
5847 San Felipe  
Suite 3600  
Houston, TX 77057  
  
Amoco Production Company  
P.O. Box 800  
Denver, CO 80201  
  
3. Texaco Exploration & Prod., Inc  
P.O. Box 2100  
Denver, CO 80201-2100  
  
4. Elliott Riggs  
P.O. Box 711  
Farmington, NM 87499-0711  
  
Amoco Production Company  
P.O. Box 800  
Denver, CO 80201  
  
Conoco, Inc.  
10 Desta Drive, Suite 100W  
Midland, TX 79705-4500  
  
5. Elliott Riggs  
P.O. Box 711  
Farmington, NM 87499-0711  
  
Dugan Production Corp.  
P.O. Box 420  
709 E. Murray Dr.  
Farmington, NM 87499  
  
6. Richardson Operating Company  
309 West First Avenue  
P.O. Box 9808  
Denver, CO 80209  
  
Amoco Production Company  
P.O. Box 800  
Denver, CO 80201  
  
Conoco, Inc.  
10 Desta Drive, Suite 100W  
Midland, TX 79705-4500  
  
Texaco Exploration & Prod., Inc.  
P.O. Box 2100  
Denver, CO 80201-2100

# MERIDIAN OIL INC.

OFFSET OPERATOR/OWNER PLAT  
Fruitland Coal\Pictured Cliffs Commingle  
Shiotani Federal #500  
SE NE Section 8, T29N, R12W  
San Juan County, New Mexico



See Attached List

## PICTURED CLIFFS

1. Meridian Oil Inc.  
P.O. Box 4289  
Farmington, NM 87499-4289  
  
Conoco Inc.  
10 Desta Drive, Suite 100W  
Midland, TX 79705-4500  
  
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Farmington, NM 87499
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Farmington, NM 87499-0711  
  
Amoco Production Company  
P.O. Box 800  
Denver, CO 80201  
  
Conoco, Inc.  
10 Desta Drive, Suite 100W  
Midland, TX 79705-4500

# MERIDIAN OIL

May 14, 1993

Bureau of Land Management  
1235 La Plata Highway  
Farmington, New Mexico 87401

RE: Shiotani Federal #500  
Unit H, Section 08, T29N, R12W  
San Juan County, New Mexico  
Downhole Commingling Request

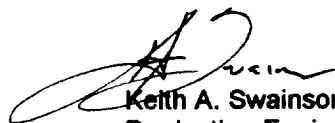
Gentlemen:

Meridian Oil, Inc. is in the process of applying for a downhole commingling order for the Shiotani Federal #500 well located in Unit H, Section 08, T29N, R12W, N.M.P.M., San Juan County, New Mexico, in the Fulcher Kutz Pictured Cliffs and the Basin Fruitland Coal fields.

The purpose of this letter is to notify you of such action. If you have no objections to the proposed commingling order, we would appreciate your signing this letter and returning it to this office.

Your prompt attention to this matter would be appreciated.

Yours truly,



Keith A. Swainson  
Production Engineering

KAS/tg

The above downhole commingling request is hereby approved:

\_\_\_\_\_

Date: \_\_\_\_\_

# MERIDIAN OIL

May 14, 1993

BHP Petroleum  
5847 San Felipe  
Suite 3600  
Houston, Texas 77057

RE: Shiotani Federal #500  
Unit H, Section 08, T29N, R12W  
San Juan County, New Mexico  
Downhole Commingling Request

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Meridian Oil, Inc. is in the process of applying for a downhole commingling order for the Shiotani Federal #500 well located in Unit H, Section 08, T29N, R12W, N.M.P.M., San Juan County, New Mexico, in the Fulcher Kutz Pictured Cliffs and the Basin Fruitland Coal fields.

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Production Engineering

KAS/tg

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Date: \_\_\_\_\_

# MERIDIAN OIL

May 14, 1993

Amoco Production Company  
P.O. Box 800  
Denver, Colorado 80201

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Unit H, Section 08, T29N, R12W  
San Juan County, New Mexico  
Downhole Commingling Request

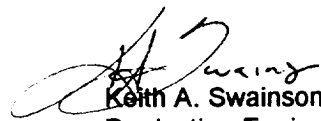
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Production Engineering

KAS/tg

The above downhole commingling request is hereby approved:

\_\_\_\_\_

Date: \_\_\_\_\_

# MERIDIAN OIL

May 14, 1993

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

RE: Shiotani Federal #500  
Unit H, Section 08, T29N, R12W  
San Juan County, New Mexico  
Downhole Commingling Request


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Production Engineering

KAS/tg

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Date: \_\_\_\_\_



# MERIDIAN OIL

May 14, 1993

Mr. Elliot Riggs  
P.O. Box 711  
Farmington, New Mexico 87499-0711

RE: Shiotani Federal #500  
Unit H, Section 08, T29N, R12W  
San Juan County, New Mexico  
Downhole Commingling Request

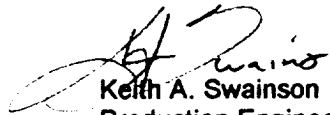
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Yours truly,

  
Keith A. Swainson  
Production Engineering

KAS/tg

The above downhole commingling request is hereby approved:

\_\_\_\_\_

Date: \_\_\_\_\_

# MERIDIAN OIL

May 14, 1993

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

RE: Shiotani Federal #500  
Unit H, Section 08, T29N, R12W  
San Juan County, New Mexico  
Downhole Commingling Request


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Keith A. Swainson  
Production Engineering

KAS/tg

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\_\_\_\_\_

Date: \_\_\_\_\_

# MERIDIAN OIL

May 14, 1993

Dugan Production Corporation  
P.O. Box 420  
709 East Murray Drive  
Farmington, New Mexico 87499

RE: Shiotani Federal #500  
Unit H, Section 08, T29N, R12W  
San Juan County, New Mexico  
Downhole Commingling Request

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Keith A. Swainson  
Production Engineering

KAS/tg

The above downhole commingling request is hereby approved:

\_\_\_\_\_

Date: \_\_\_\_\_

# MERIDIAN OIL

May 14, 1993

Richardson Operating Company  
P.O. Box 9808  
309 West First Avenue  
Denver, Colorado 80209

RE: Shiotani Federal #500  
Unit H, Section 08, T29N, R12W  
San Juan County, New Mexico  
Downhole Commingling Request


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