

**MERIDIAN OIL**

OIL CONSERVATION DIVISION  
RECEIVED

134 FEB 16 PM 8 35

February 11, 1994

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

RE: **Reid #7R (New Drill)**  
**NE/4, Section 19, T28N, R09W**  
**San Juan, New Mexico**  
**Downhole Commingling Request**

Dear Mr. LeMay:

Meridian Oil, as operator for the Southland Royalty Company, respectfully requests administrative approval to downhole commingle the Aztec Pictured Cliffs and Basin Fruitland Coal pools in the referenced well. Approval to commingle these pools on the proposed lease was granted per administrative order DHC-855, September 1992. (See attached approval letter.) This order permitted for downhole commingling in the Reid #7; however, prior to completion of the Fruitland Coal, this well was plugged and abandoned due to poor casing integrity. Meridian Oil is requesting that the referenced well be included under the existing order. Please find attached the documentation submitted for the Reid #7 commingle request. Reservoir and production characteristics addressed in this documentation are expected for the Reid #7R. An allocation formula is included for approval. All offset operators and the Bureau of Land Management will be notified of this request by certified mail.

If you have any questions concerning this matter please contact Mr. Sean Woolverton at (505) 326-9837. Your attention to this matter is greatly appreciated.

Sincerely,



Travis D. Stice  
Regional Engineer

SCW:scw

Attachments

cc: **Frank T. Chavez - NMOCD/Aztec**  
**Peggy Bradfield**  
**Well File**

# **Reid #7R**

## **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.

PICTURED 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)

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

$$D_{pc} = (0.00368/M)$$

THUS:  $Q_{ftc} = Q_t - Q_{pci} \times e^{\{-(0.00368) \times (t)\}}$

WHERE: (t) IS IN MONTHS

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

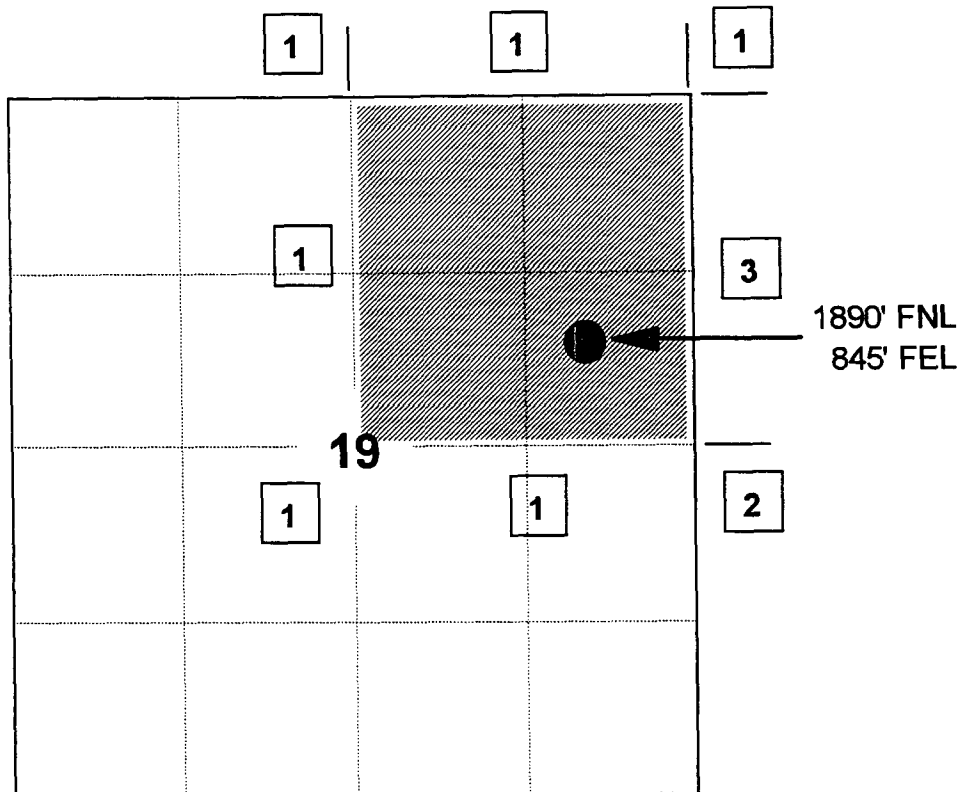
# MERIDIAN OIL INC

## REID #7R

### OFFSET OPERATOR PLAT

Fruitland Coal / Pictured Cliffs Commingle Well

Township 28 North, Range 9 West



1) Southland Royalty Company

2) Amoco Production Company PO Box 800, Denver, CO 80202

3) Amoco Production Company

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

Pictured Cliffs Formation

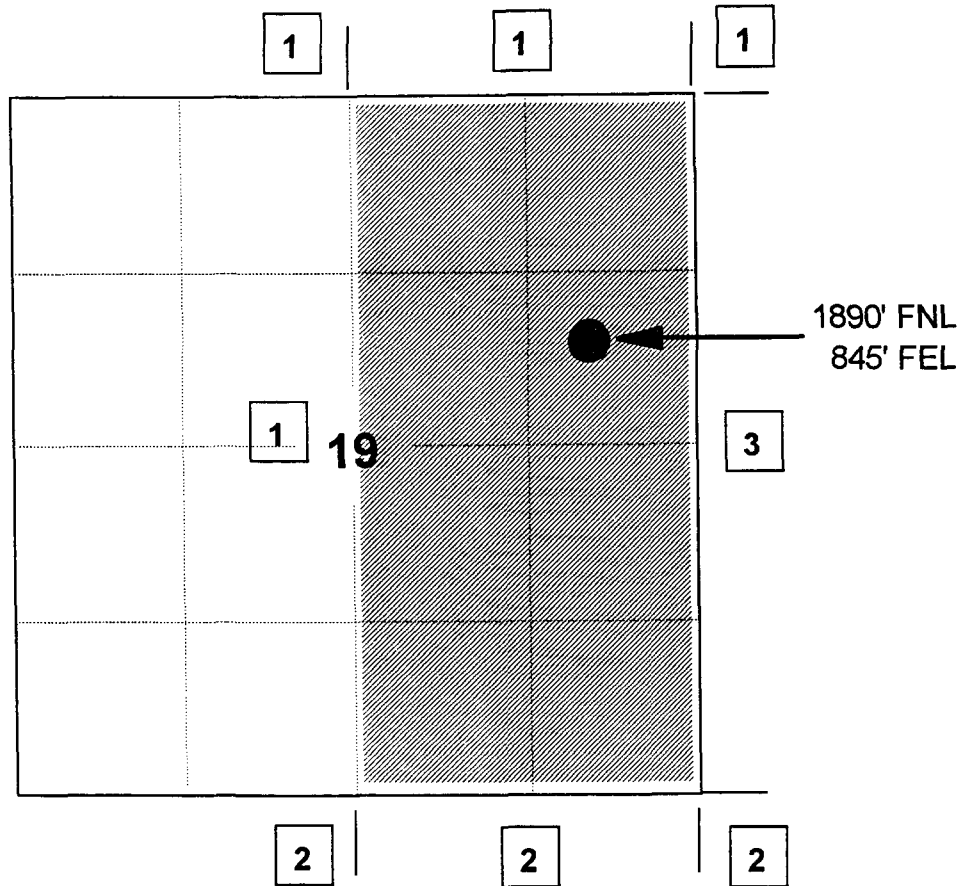
# MERIDIAN OIL INC

REID #7R

OFFSET OPERATOR PLAT

Fruitland Coal / Pictured Cliffs Commingle Well

Township 28 North, Range 9 West



1) Southland Royalty Company

2) Meridian Oil Inc.,

Amoco Production Company PO Box 800, Denver CO 80201 &

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

3) Amoco Production Company &

Conoco, Inc.

Fruitland Coal Formation

# MERIDIAN OIL

February 10, 1994

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

RE:    **Reid #7R (New Drill)**  
         **NE/4, Section 19, T28N, R09W**  
         **San Juan, New Mexico**  
         **Downhole Commingling Request**

Gentlemen:

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The purpose of this letter is to notify you of Meridian's application. If you have no objections to the proposed NMOCD 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,



Sean C. Woolverton  
Reservoir Engineer

SCW:scw

Wavier approval.

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

# MERIDIAN OIL

February 10, 1994

Amoco Production Company  
P. O. Box 800  
Denver, CO 80202

RE: **Reid #7R (New Drill)**  
**NE/4, Section 19, T28N, R09W**  
**San Juan, New Mexico**  
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Yours truly,



Sean C. Woolverton  
Reservoir Engineer

SCW:scw

Wavier approval.

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

# MERIDIAN OIL

February 10, 1994

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

RE: **Reid #7R (New Drill)  
NE/4, Section 19, T28N, R09W  
San Juan, New Mexico  
Downhole Commingling Request**

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Yours truly,



Sean C. Woolverton  
Reservoir Engineer

SCW:scw

Wavier approval.

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



STATE OF NEW MEXICO  
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT  
OIL CONSERVATION DIVISION



BRUCE KING  
GOVERNOR

ANITA LOCKWOOD  
CABINET SECRETARY

POST OFFICE BOX 2088  
STATE LAND OFFICE BUILDING  
SANTA FE, NEW MEXICO 87504  
(505) 827-5800

ADMINISTRATIVE ORDER DHC-855

MERIDIAN OIL

SEP 14 1992

FARMINGTON, NEW MEXICO  
REGULATORY

Southland Royalty Company  
P.O. Box 4289  
Farmington, New Mexico 87499-4289

Attention: Thomas B. Nusz

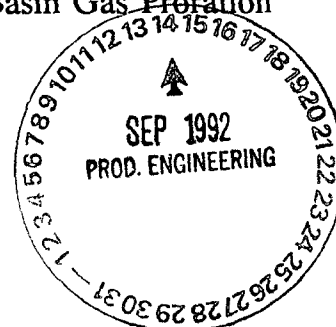
*Reid No. 7  
Unit H, Section 19, Township 28 North, Range 9 West, NMPM,  
San Juan County, New Mexico.  
Aztec - Pictured Cliffs and Basin - Fruitland Coal Gas Pools*

Dear Mr. Nusz:

Reference is made to your recent application for an exception to Rule 303-A of the Division Rules and Regulations to permit the subject well to commingle production from both pools in the wellbore.

It appearing that the subject well qualifies for approval for such exception pursuant to the provisions of Rule 303-C, and that reservoir damage or waste will not result from such downhole commingling, and correlative rights will not be violated thereby, you are hereby authorized to commingle the production as described above and any Division Order which authorized the dual completion and required separation of the two zones is hereby placed in abeyance.

In accordance with the provisions of Rule 303-C-4., total commingled oil production from the subject well shall not exceed 20 barrels per day, and total water production shall not exceed 40 barrels per day. The maximum amount of gas which may be produced daily from the well shall be determined by Division Rules and Regulations or by the gas allowable for each respective prorated pool as printed in the Division's San Juan Basin Gas Proration Schedule.





Assignment of allowable to the well and allocation of production from the well shall be on the following basis:

Monthly gas production from the Aztec - Pictured Cliffs Gas Pool shall be calculated utilizing the following formula:

$$Q_2 = Q_1 (1 - De)^{Yr} \text{ MCFD}$$

Where      De = Effective Decline in %/yr. (Derived from production plot)  
              Q<sub>2</sub> = Rate two (at some future date) MCFD  
              Q<sub>1</sub> = Rate one (current rate) MCFD  
              Yr = Years into the future from current date

Any gas production above what is calculated by the aforementioned formula shall be attributed to the Basin-Fruitland Coal Gas Pool.

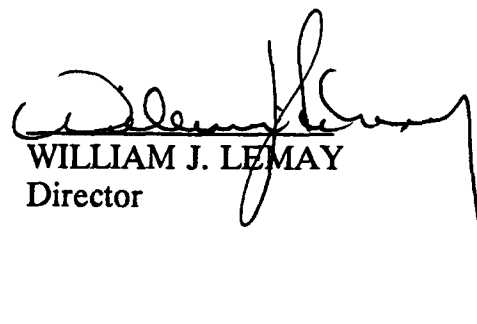
Any condensate production shall be allocated entirely to the Aztec - Pictured Cliffs Gas Pool.

An annual report shall be submitted by the operator to both the Santa Fe and Aztec offices of the Division showing the complete allocation computations for each month.

Pursuant to Rule 303-C-5, the commingling authority granted by the order may be rescinded by the Division Director if, in his opinion, conservation is not being best served by such commingling.

Approved at Santa Fe, New Mexico on this 3rd day of September, 1992.

STATE OF NEW MEXICO  
OIL CONSERVATION DIVISION

  
WILLIAM J. LEMAY  
Director

S E A L

xc:   OCD - Aztec  
      U.S. BLM - Farmington

# MERIDIAN OIL

August 7, 1992

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

Subject: Reid #7  
Unit H, Section 19, T28N, R09W  
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 Aztec 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 Amoco Production Company and Conoco, Inc. The Bureau of Land Management and the above mentioned operators will receive notification of this downhole commingling.

The subject well was completed in the Aztec Pictured Cliffs interval in July 1956 and gas sales commenced in July 1956. The well currently produces about 58 MCFD and has a cumulative production of 1105 MMCF. This zone is still economic at the current rate and the well is not a candidate for plugging back the Pictured Cliffs and opening the Fruitland Coal.

The Fruitland Coal is proven to be productive in this area by Meridian and other operators producing wells. Based on offset production in this area, new well drilling is not economically justified. The only economical way to recover the Fruitland Coal reserves in this area is to commingle the production with an existing well.

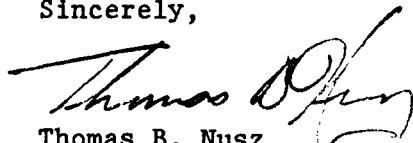
It is proposed to set a bridge plug above the Pictured Cliffs, perforate and stimulate the Fruitland Coal, then remove the bridge plug and produce both zones through a single string of tubing. The reservoir characteristics of each of the subject zones are such that underground waste will not be caused by the proposed commingling. Neither producing interval makes oil or water in the offset wells. The shut-in pressure for the Pictured Cliffs and Fruitland Coal is 250 and 250 psi, respectively.

New Mexico Oil Conservation Division  
Mr. Bill LeMay  
Reid #7  
Downhole Commingling Request  
Page Two

The allocation of the commingled production will be calculated using the attached allocation formula. This formula is based on the Pictured Cliffs production history for the last 19 years and uses accepted Reservoir Engineering methods to allocate the remaining Pictured Cliffs reserves. All additional reserves will be attributed to the Fruitland Coal reservoir. This addresses the Fruitland Coal producing characteristics of early life inclining production rates. The formula also addresses the possible situation of pipeline curtailment.

Approval of this commingling application will allow for the prevention of wasted resources and protection of correlative rights. 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, production history curves, pertinent data sheet, and an allocation formula.

Sincerely,

A handwritten signature in dark ink, appearing to read "Thomas B. Nusz", is written over the typed name and title.

Thomas B. Nusz  
Regional Production Engineer

KAS:tg  
attachments

cc: Frank Chavez - NMOCD/Aztec

Pertinent Data Sheet - Reid #7

Location: NE/4, section 19, T28N, R09W, San Juan County, New Mexico

Field: Aztec Pictured Cliffs

Elevation: 5836'GL  
5846'KB

TD: 2101'  
PSTD: 2091'

Completed: 7/17/56

Initial Potential: 4202 MCFD(PI)

Casing Record:

| <u>Hole Size</u> | <u>Csq. Size</u> | <u>Wt. &amp; Grade</u> | <u>Depth Set</u> | <u>Top/Cement</u> |
|------------------|------------------|------------------------|------------------|-------------------|
| 12-1/4"          | 8-5/8"           | 24.0# J-55 8rd         | 198'KB           | 110 sxs (surface) |
| 7-7/8"           | 5-1/2"           | 14.0# J-55 8rd         | 2101'KB          | 150 sxs (1350')*  |

\* Cement tops calculated (75% coverage)

Tubing Record: 2060'KB (93 joints) 1" 1.7# J-55 10rd

Formation Tops:

|             |       |
|-------------|-------|
| Ojo Alamo   | 890'  |
| Kirtland    | 1090' |
| Fruitland   | 1760' |
| Pic. Cliffs | 2025' |

Logging Record: Electrical, Gamma

Stimulation: Perfed Pictured Cliffs 2026-70' w/4spf. Fracture stimulated with 40, #s sand and 43,570 gal. water.

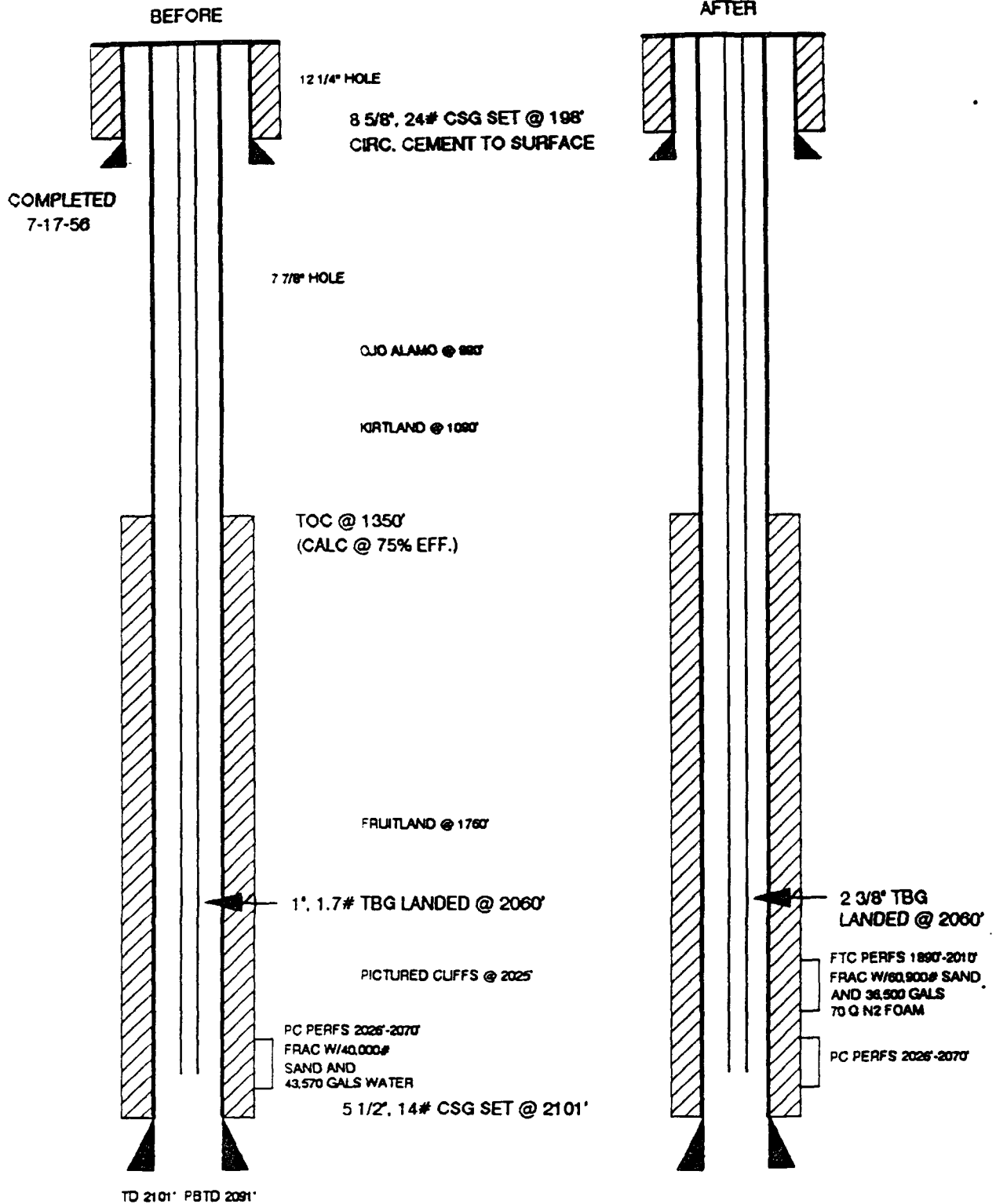
Workover History: None

Production History: Initial Deliverability - 461 MCFGD (1956)  
Latest Deliverability - 65 MCFGD (1991)  
Cumulative Production - 1105 MMCFG (1991)

Transporter: GCNM

# REID #7

AZTEC PICTURED CLIFFS  
NE/4 SECTION 19, T28N-R09W



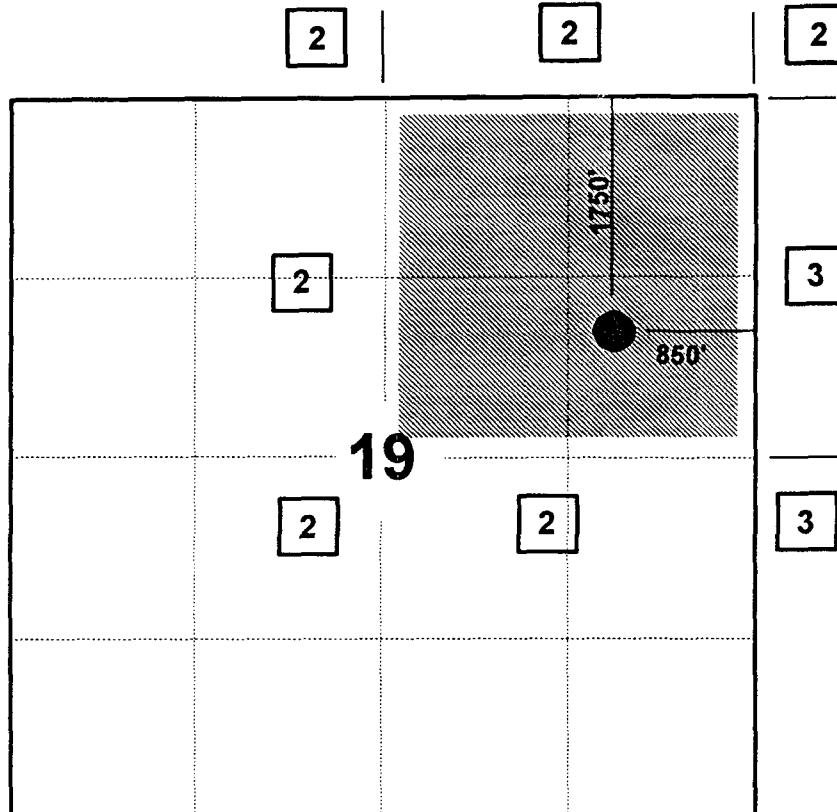
# MERIDIAN OIL INC

OFFSET OPERATOR \ OWNER PLAT

REID #7

Fruitland Coal \ Pictured Cliffs Commingle

Township 28 North, Range 09 West



1) Meridian Oil Inc

2) Southland Royalty Company

3) Amoco Production Company

PO Box 800, Denver, CO 80201

Conoco, Inc.

PO Box 951062, Dallas, TX 75395-1062

PICTURED CLIFFS FORMATION

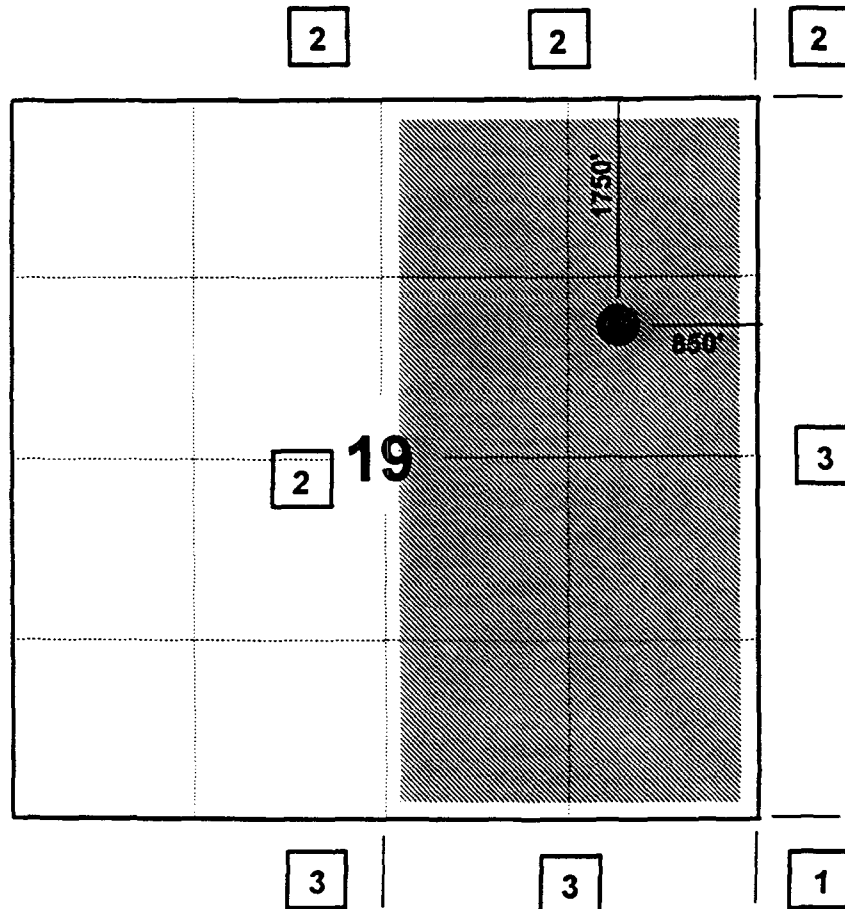
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Fruitland Coal \ Pictured Cliffs Commingle

Township 28 North, Range 09 West



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2) Southland Royalty Company

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PO Box 800, Denver, CO 80201

Conoco, Inc.

PO Box 951062, Dallas, TX 75395-1062

Fruitland Coal Formation

Figure 1

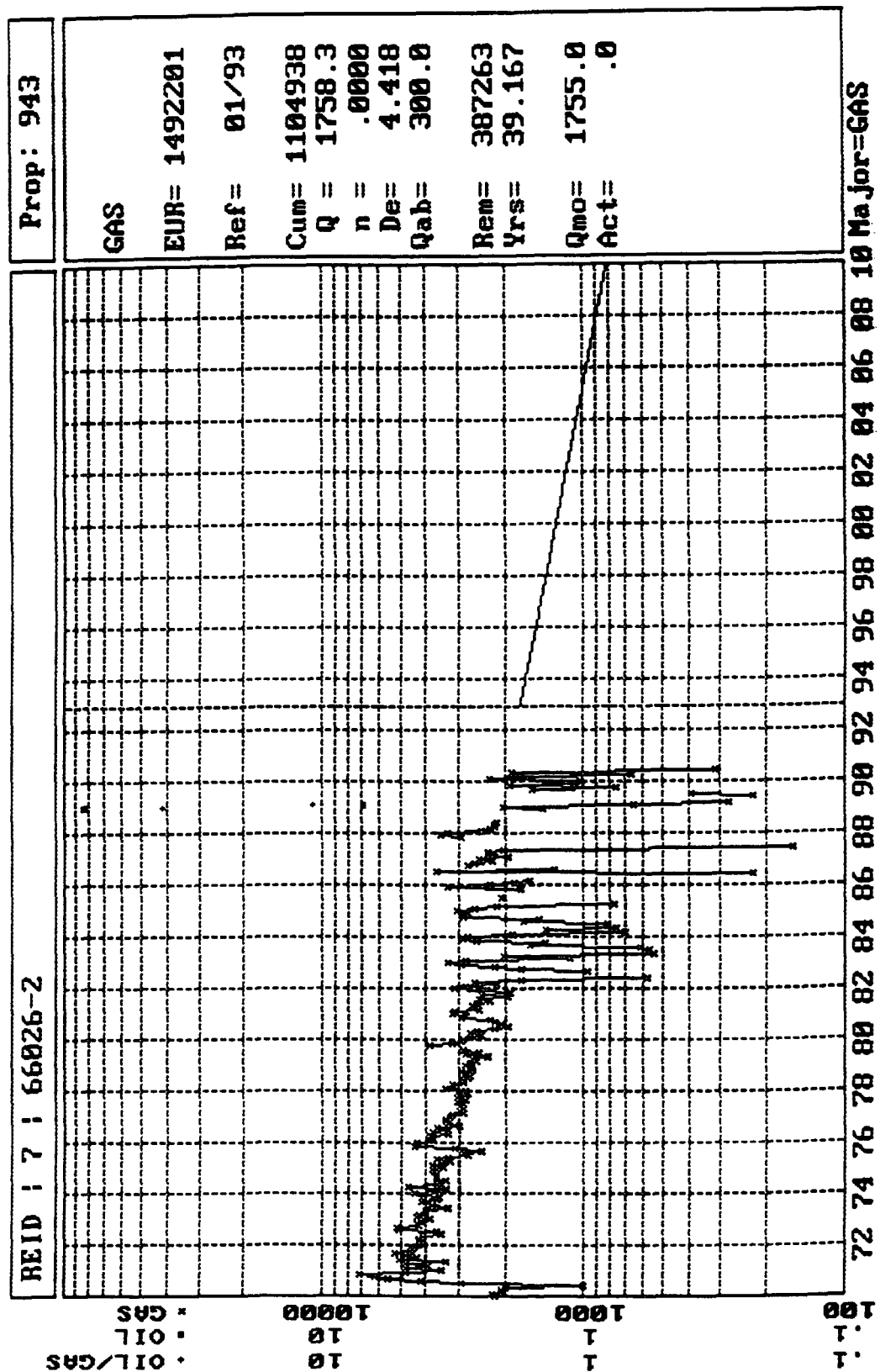
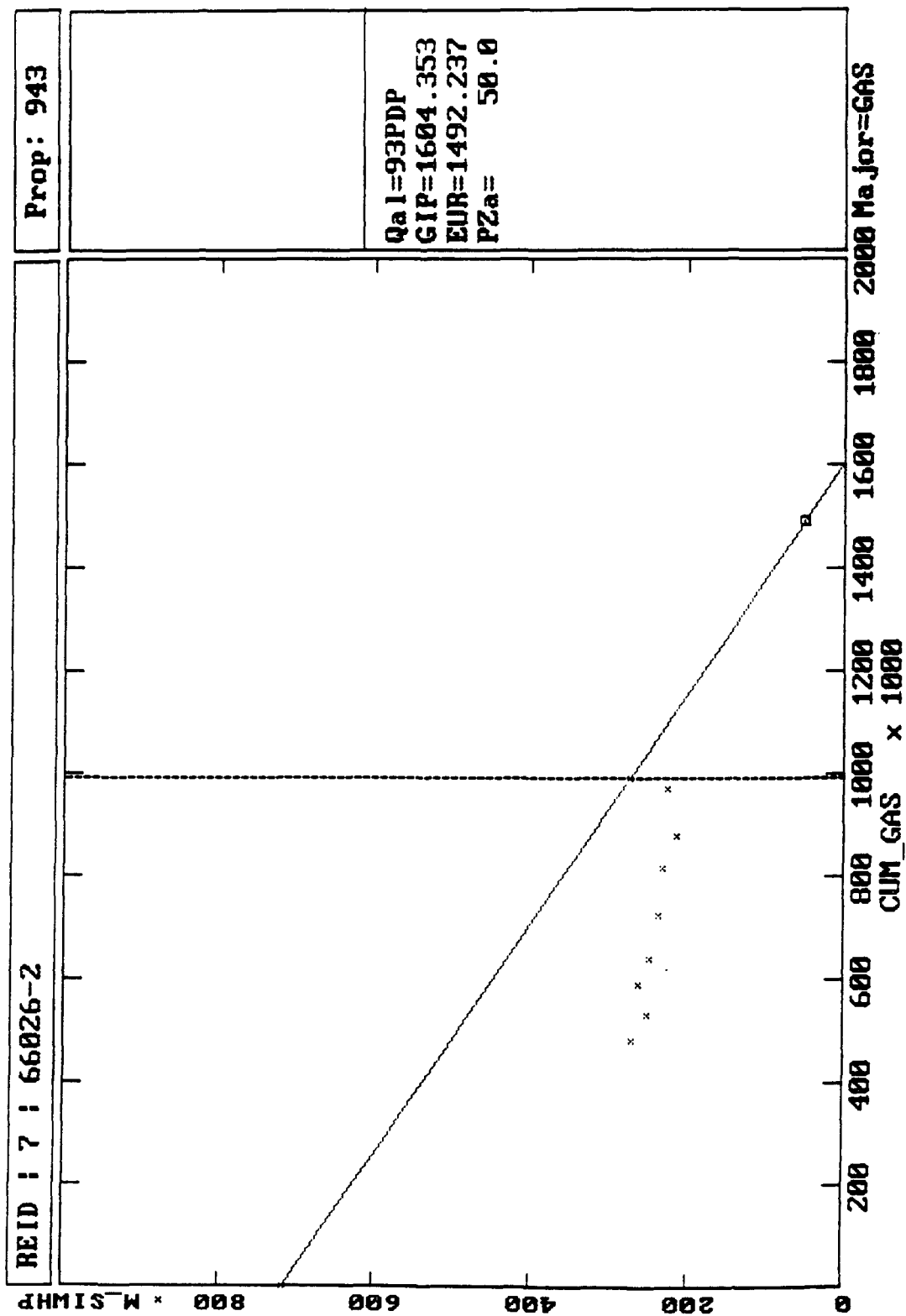




Figure 2



# MERIDIAN OIL

February 10, 1994

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

RE:    **Reid #7R (New Drill)**  
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Sean C. Woolverton  
Reservoir Engineer

SCW:scw

Wavier approval.

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

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February 10, 1994

Amoco Production Company  
P. O. Box 800  
Denver, CO 80202

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Sean C. Woolverton  
Reservoir Engineer

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Wavier approval.

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

# MERIDIAN OIL

February 10, 1994

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

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Sean C. Woolverton  
Reservoir Engineer

SCW:scw

Wavier approval.

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

Microsoft Mail v3.0 IPM.Microsoft Mail.Note

From: Ernie Busch

To: Ben Stone

David Catanach

Subject: MERIDIAN OIL INC. (DHC)

Date: 1994-03-07 11:07

Priority: R

Message ID: 36A370C2

Conversation ID: 36A370C2

-----  
WELL NAME: REID #7R

LOCATION: H-19-28N-09W

FOOTAGE: 1890' FNL; 845' FEL

RECOMMEND: APPROVAL  
=====

DHC - 995