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

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

Date: June 23, 1992

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 June 11, 1992

for the Meridian Oil #5
OPERATOR LEASE & WELL NO.

O-25-28N-10W and my recommendations are as follows:
UL-S-T-R

Approve

Yours truly,

MERIDIAN OIL

June 10, 1992

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

RE: Omler #5
Unit O, Section 25, T28N, R10W
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 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 Fulcher Kutz Pictured Cliffs interval in December 1954. Gas sales commenced in December 1954 with a cumulative to date production of 519 MMCF. This well has been inactive for three years and is currently blind plated.

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 clean out the open hole Pictured Cliffs formation and re-establish production. It is then 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 315 and 350 psi, respectively.

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,

Richard E. Fraley
Engineering Manager

KAS:tg
attachments

cc: Frank Chavez - NMOCD/Aztec

Pertinent Data Sheet - Omler #5

Location: 1120' FSL, 1650' FEL, Section 25, T28N, R10W, San Juan County, NM

Field: Fulcher Kutz Pictured Cliffs **Elevation:** 5872'GL **TD:** 1963'

PBTD: 1963'

Completed: 12-08-54 **Initial Potential:** 1685 MCF-Pitot

Casing Record:

Hole Size	Csg. Size	Wt. & Grade	Depth Set	Cement	Top/Cement
N/A	9 5/8"	32.0#	99'	75 sxs	Surface
8 3/4"	5 1/2"	14.0#, J-55	1935'	100 sxs	1585' (75%)

Tubing Record: 1" set @ 1890', 58 jts.

Formation Tops:

Ojo Alamo	944'
Kirtland	1024'
Fruitland	1674'
Pictured Cliffs	1938'

Logging Record: N/A

Stimulation: Open hole shot with 30 qts.
Frac'd with 10,700# sand.

Workover History: 1971: Ran in new tubing to 1890'.

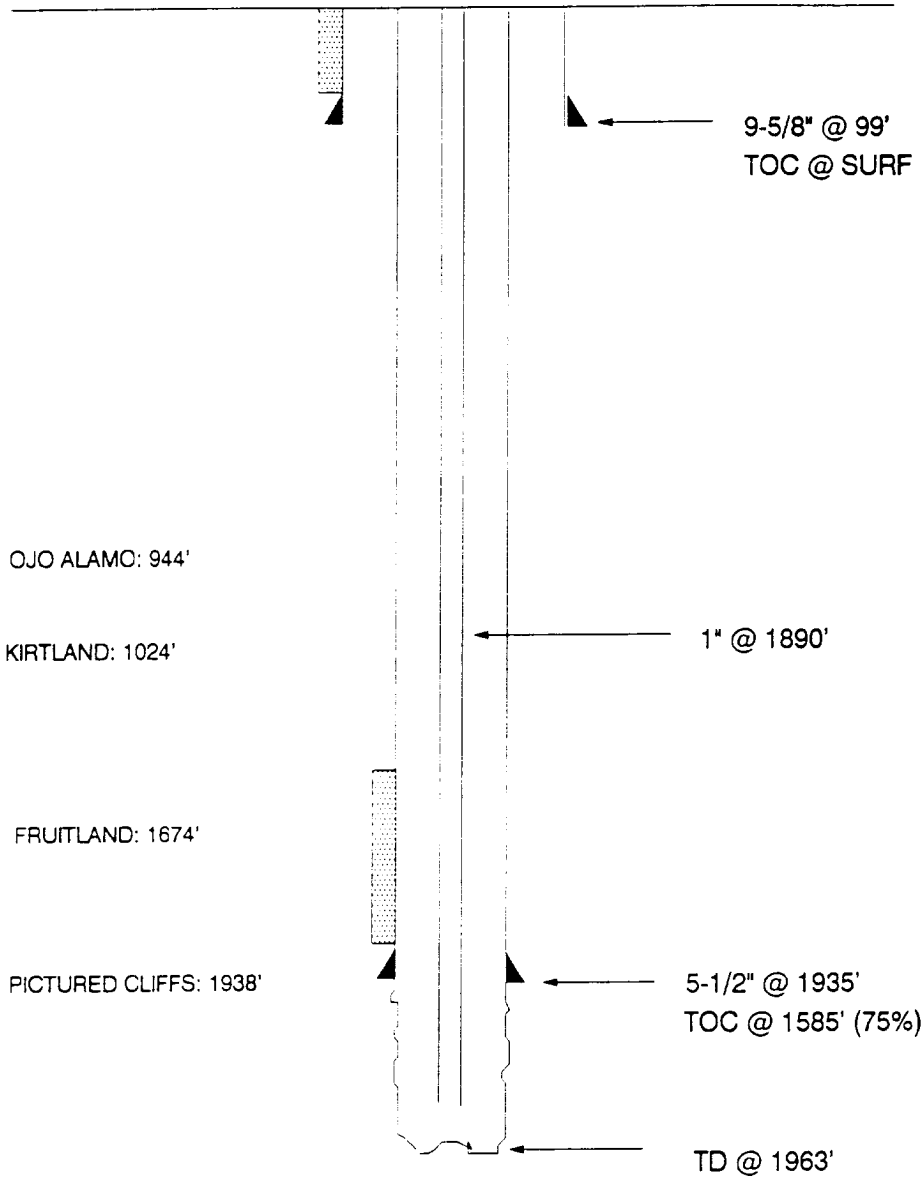
Production History: The well was first delivered in December, 1954. The well has accumulated 519 MMCF with a last production rate of 30 MCF/D in 1988. Currently it has 0 tubing and casing pressures.

CURRENT

OMLER #5

UNIT O SECTION 25 T28N R10W

SAN JUAN COUNTY, NEW MEXICO

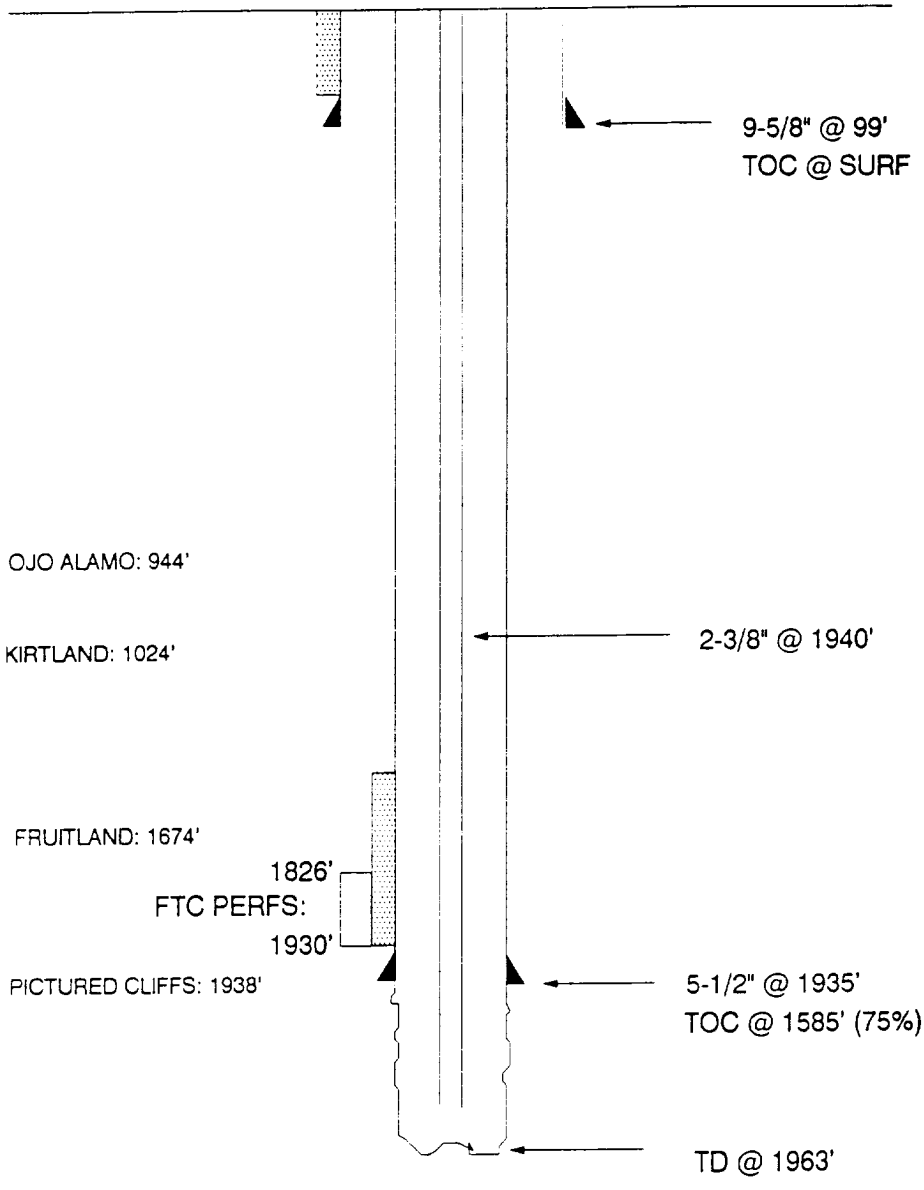


PROPOSED

OMLER #5

UNIT O SECTION 25 T28N R10W

SAN JUAN COUNTY, NEW MEXICO



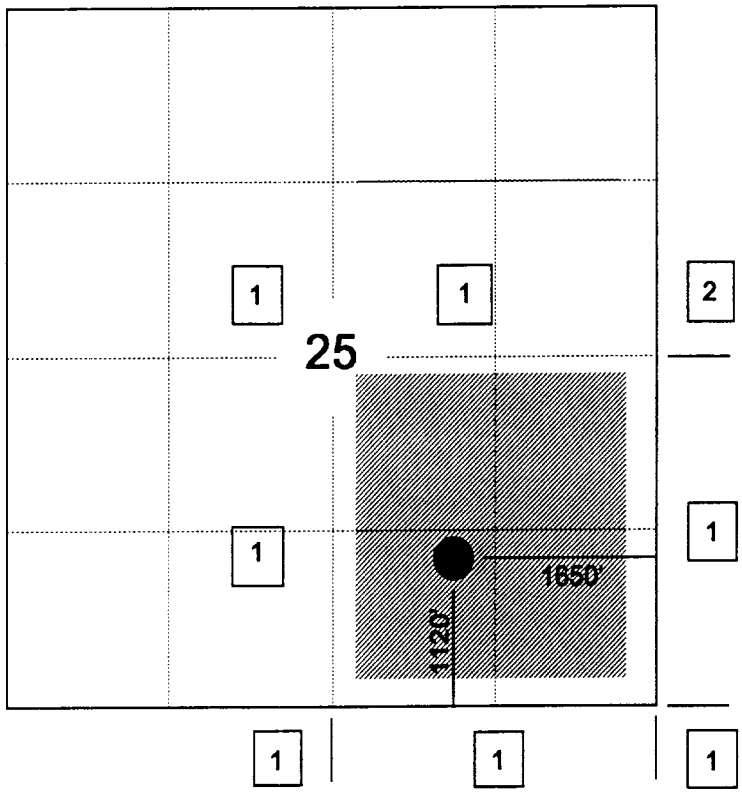
MERIDIAN OIL INC

OFFSET OPERATOR PLAT

OMLER #5

Fruitland Coal \ Pictured Cliffs Comingle

Township 28 North, Range 10 West



1) Meridian Oil Inc

2) Amoco Production Company, PO Box 800, Denver, CO 80202
Conoco, Inc., PO Box 951063, Houston, TX 75395-1063

Pictured Cliffs Formation

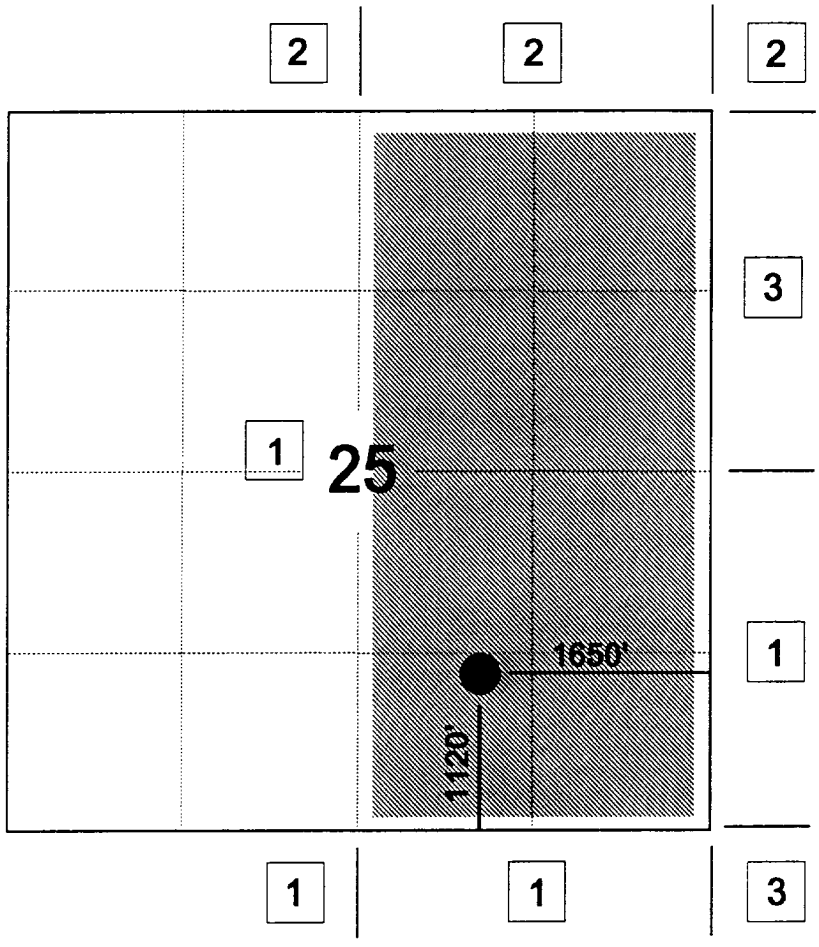
MERIDIAN OIL INC

OFFSET OPERATOR \ OWNER PLAT

OMLER #5

Fruitland Coal \ Pictured Cliffs Commingle

Township 28 North, Range 10 West



1) Meridian Oil Inc
2) Southland Royalty Company
3) Amoco Production Company, PO Box 800, Denver, CO 80202
Conoco, Inc., PO Box 951063, Houston, TX 75395-1063

Fruitland Coal Formation

FIGURE 1

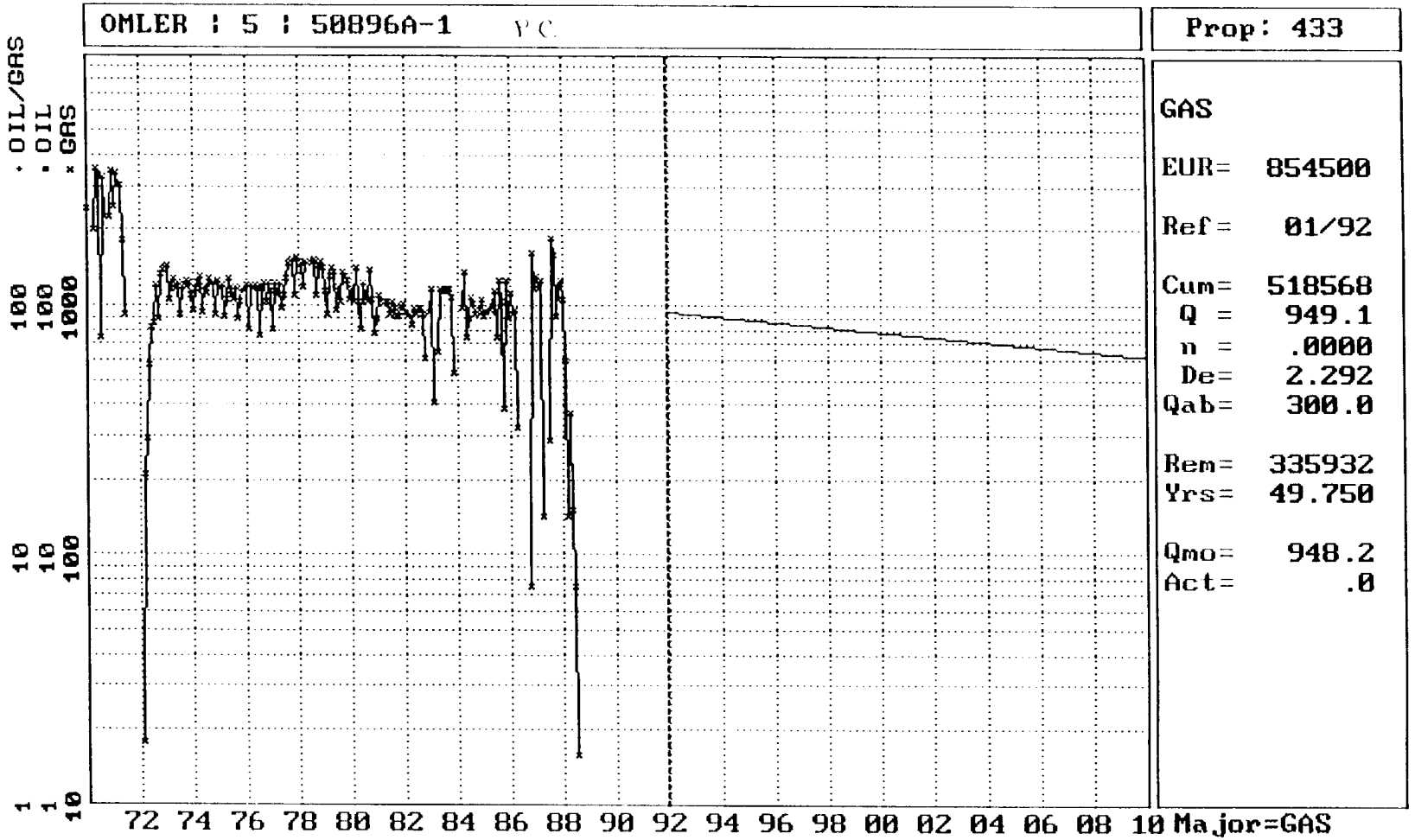
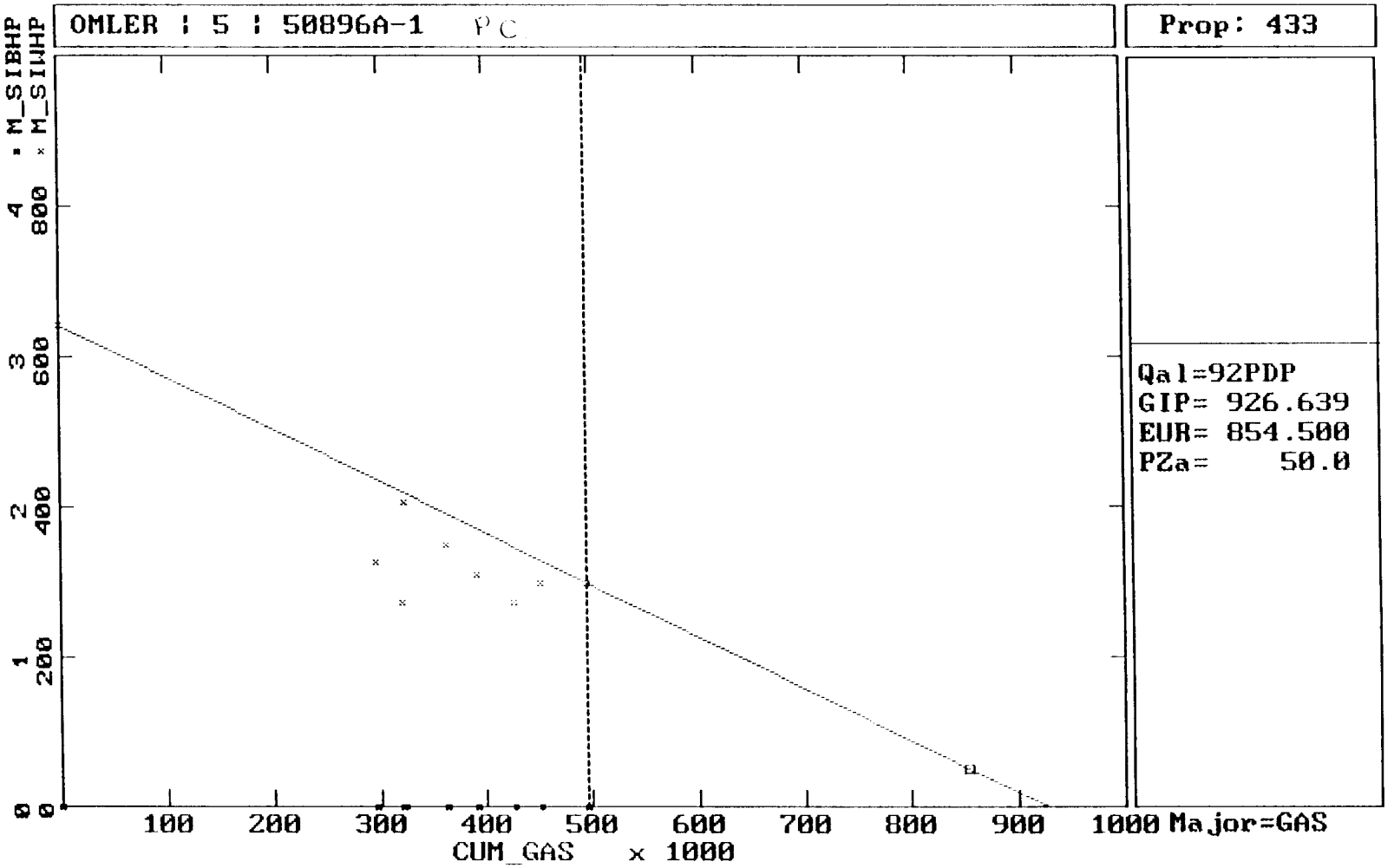

OMLER : 5 : 50896A-1 YC
Prop: 433
GAS
EUR= 854500
Ref= 01/92
Cum= 518568
Q = 949.1
n = .0000
De= 2.292
Qab= 300.0
Rem= 335932
Yrs= 49.750
Qmo= 948.2
Act= .0
Major=GAS
• OIL/GAS
• OIL
• GAS
100
100
1000
10
10
100
1
1
10
72 74 76 78 80 82 84 86 88 90 92 94 96 98 00 02 04 06 08 10

FIGURE 2


OMLER : 5 : 50896A-1 PC
Prop: 433
M_SIBHP
M_SIWHP
0
200
400
600
800
1
2
3
4
100
200
300
400
500
600
700
800
900
1000
CUM_GAS x 1000
Qal=92PDP
GIP= 926.639
EUR= 854.500
PZa= 50.0
Major=GAS

Omler #5 Allocation Formula

Equation Derivation

Given the exponential decline cure analysis formula*:

$$De = 1-(Q_2/Q_1)^{(1/yr)}$$

Where: De = Effective Decline in %/yr
Q_2 = Rate two (at some future date) MCFD
Q_3 = Rate one (current rate) MCFD

Rearranging the equation to solve for Q2:

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

Omler #5 Formula

Using Production plot (Fig 1):

Last production rate = Q1 = 949.1 MCFM ≅ 31 MCFD
De = 2.292% from plot

$$Q_{2PC} = 31\ (1 - 0.02292)^{yr} \text{ MCFD}$$

$$Q_{2PC} = 31\ (0.97708)^{yr} \text{ MCFD}$$ **FORMULA FOR FUTURE PC RATES**

Any production rate over what is calculated using the above PC formula on a specific date is Fruitland Coal.

Curtailment Situations

If any curtailment occurs, both streams will be affected the same and go to 0 MCFD.

When production resumes, the rates will equate to those when the well was shut in:

$$Q_{2PC} = 31\ (0.97708)^{(yr - \text{curtailment time})}$$

$$Q_{FTC} = Q_{TOT} - Q_{PC}$$

$$Q_{TOT} = Q_{FTC} + Q_{PC}$$

The total amount of PC gas produced will be the EUR calculated through decline curve and P-Sum analysis (see Figs 1 & 2).

*Reference: pg. 5-46 Oil Property Evaluation
by R. S. Thompson & J. D. Wright

Omler #5 Allocation Formula, page 2

Example: Date Now = 1/1/93

Assuming the well produces steadily in 1993. On 1/1/94, the well produces 300 MCFD.

Q_1 = 31 MCFD De = 2.292%

$Q_{PC} = 31\ (0.97708)^{(yr\ -\ curtailment\ time)}$

$Q_{PC} = 31\ (0.97708)^{(1\ -\ 0)} = 30$ MCFD

$Q_{TOT} = 300\ MCFD = Q_{FTC} + Q_{PC}$

$Q_{FTC} = 300 - 30 = 270$ MCFD

Then on 1/2/94, the well gets shut in for 1 month:

On 2/2/94, assume that the PC stream will come back on line at the same rate it left off. Or:

1 month curtailment = 1/12 = 0.0833

Tot. Time = 1 yr + 1 month = 1 + 1/12 = 1.0833

$Q_{PC} = 31\ (0.97708)^{(1.0833\ -\ 0.0833)} = 30$ MCFD.

$Q_{TOT} = 300$ MCFD

$Q_{FTC} = 270$ MCFD

MERIDIAN OIL

June 10, 1992

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

RE: Omler #5
Unit O, Section 25, T28N, R10W
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 Omler #5 well located in Unit O, Section 25, T28N, R10W, N.M.P.M., San Juan County, New Mexico, in the Fulcher Kutz Pictured Cliffs and 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 the attached copy of this letter and returning it to this office.

Your prompt attention to this matter would be appreciated.

Yours truly,

Keith A. Swainson
Production Engineer

KAS:tg

The above downhole commingling request is hereby approved:

_____

Date: _____

MERIDIAN OIL

June 10, 1992

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

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San Juan County, New Mexico
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Keith A. Swainson
Production Engineer

KAS:tg

The above downhole commingling request is hereby approved:

_____

Date: _____

Meridian Oil Inc., 3535 East 30th St., P.O. Box 4289, Farmington, New Mexico 87499-4289, Telephone 505-326-9700

MERIDIAN OIL

June 10, 1992

Conoco, Inc.
P.O. Box 951063
Houston, Texas 75395-1063

RE: Omler #5
Unit O, Section 25, T28N, R10W
San Juan County, New Mexico
Downhole Commingling Request

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