

MERIDIAN OIL

May 27, 1994

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

RE: C. M. Morris #100
Unit G, Section 10, T27N, 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, Breck Operating Corporation, McKenzie Methane and Quintana Petroleum Services. The Bureau of Land Management and the above mentioned operators have received notification of this downhole commingle.

The proposed project is a redrill of the C. M. Morris #1 Pictured Cliffs wellbore which suffered an extensive casing failure and will be plugged before commencement of this project. The estimated remaining reserves associated with the Pictured Cliffs formation in this drill block do not economically justify a redrill or dual completion of this location. 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.

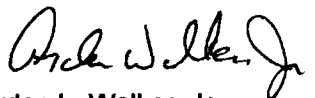
It is proposed to complete the Pictured Cliffs formation and establish production. It is then proposed to set a bridge plug above the Pictured Cliffs, perforate and stimulate the Fruitland Coal, and test its production. The bridge plug will then be removed, and both zones produced through a single string 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 200 and 250 psi, respectively.

The allocation of the commingled production will be calculated using the attached allocation formula. This formula is based on production performance of the C. M. Morris #1, 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. William LeMay
C. M. Morris #100
Downhole Commingling Request
Page Two

Approval of this commingling application will allow for the prevention of wasted resources and protection of correlative rights. A similar application for commingle approval (Shiotani Federal #500, Unit H, Sec. 08, T29N, R12W, has already received administrative approval NMOCD Order #DHC-901). 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, an allocation formula, and Production History Curve for the C. M. Morris #1 (PC).

Sincerely,

A handwritten signature in black ink, appearing to read "Arden L. Walker, Jr.", written in a cursive style.

Arden L. Walker, Jr.
Regional Production Engineer

KAS:tdg

Attachments

cc: Frank T. Chavez - NMOCD/Aztec

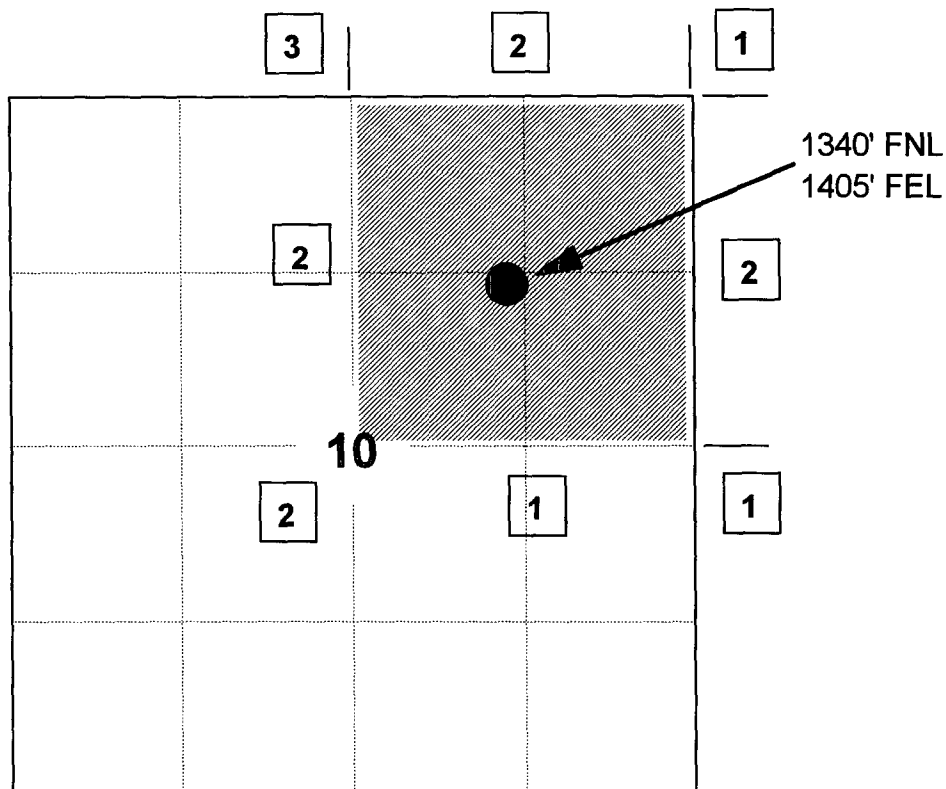
MERIDIAN OIL INC

C. M. MORRIS #100

OFFSET OPERATOR PLAT

Fruitland Coal | Pictured Cliffs Formations Commingle Well

Township 27 North, Range 10 West



1) Meridian Oil Inc

2) Amoco Production Company PO Box 800, Denver, CO 80201

3) Breck Operating Corporation PO Box 911, Breckenridge, TX 76024

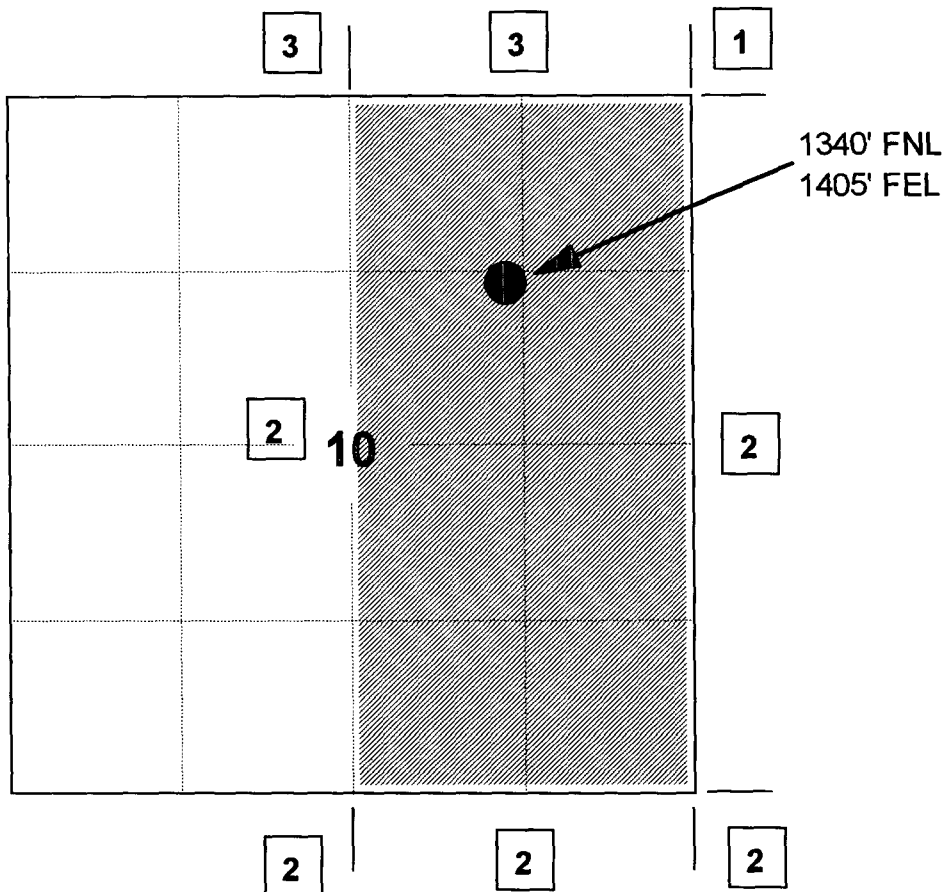
Pictured Cliffs

MERIDIAN OIL INC

C. M. MORRIS #100 OFFSET OPERATOR PLAT

Fruitland Coal / Pictured Cliffs Formations Commingle Well

Township 27 North, Range 10 West



1) Meridian Oil Inc &

Breck Operating Corporation PO Box 911, Breckenridge, TX 76024

**2) McKenzie Methane 1625 Broadway, Suite 2580, Denver, CO 80201 &
Quintana Petroleum Services 601 Jefferson St, Houston, TX 77002**

3) Breck Operating Corporation PO Box 911, Breckenridge, TX 76024

Fruitland Coal

MERIDIAN OIL

May 24, 1994

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

RE: C. M. Morris #100
Unit G, Section 10, T27N, R10W
San Juan County, New Mexico
Downhole Commingling Request

Gentlemen:

Meridian Oil Inc. is in the process of applying for a downhole commingling order from the New Mexico Oil Conservation Division (NMOCD) for the referenced well located in San Juan County, New Mexico. The approved application will commingle the Fulcher Kutz Pictured Cliffs and the Basin Fruitland Coal fields.

The purpose of this letter is to notify you of Meridian's application. If you have no objections to the NMOCD issuing a commingling order, we would appreciate your signing this letter and returning the original to Mr. LeMay at the following address with a copy to this office:

New Mexico Oil Conservation Division
Mr. William LeMay
P.O. Box 2088
Santa Fe, New Mexico 87501

Your prompt attention to this matter would be appreciated.

Sincerely,



Keith A. Swainson
Reservoir Engineer

KAS/tdg

**The undersigned hereby waives objection to the referenced
Downhole Commingle Request.**

Company/Owner: _____

Title: _____

Date: _____

MERIDIAN OIL

May 24, 1994

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

RE: C. M. Morris #100
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San Juan County, New Mexico
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MERIDIAN OIL

May 24, 1994

Breck Operating Corporation
P.O. Box 911
Breckenridge, Texas 76024

RE: C. M. Morris #100
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San Juan County, New Mexico
Downhole Commingling Request

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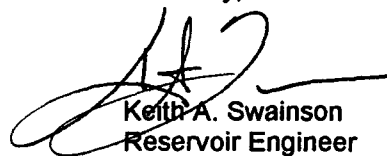
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MERIDIAN OIL

May 24, 1994

McKenzie Methane
1625 Broadway, Suite 2580
Denver, Colorado 80201

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San Juan County, New Mexico
Downhole Commingling Request

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MERIDIAN OIL

May 24, 1994

Quintana Petroleum Services
601 Jefferson Street
Houston, Texas 76024

RE: C. M. Morris #100
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San Juan County, New Mexico
Downhole Commingling Request

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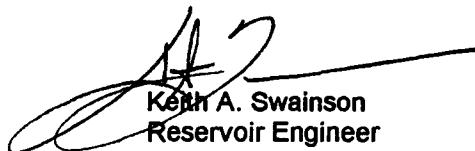
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C M MORRIS 100

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 (OBTAINED FROM C M MORRIS #1 PRODUCTION HISTORY)

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

$$D_{pc} = (Q_{pci} - Q_{pcabd}) / N_{p(pc)}$$

See Determination of Q_{pci} and PC Estimated Ultimate Recovery ($N_{p(pc)}$)
 $Q_{pci} = 1521$ MCF/M; $Q_{pcabd} = 300$ MCF/M; $N_{p(pc)} = 436.8$ MMCF

WHERE: $N_{p(pc)}$ = PICTURED CLIFFS ESTIMATED ULTIMATE RECOVERY (EUR)
 $N_{p(pc)}$ = DETERMINED FROM MATERIAL BALANCE CALCULATIONS OBTAINED FROM THE C M MORRIS #1 (PC) WELLBORE PREVIOUSLY LOCATED IN THE SAME 1/4 SECTION (REMAINING RESERVES = 436.794 MMCF).

By calculating $N_{p(pc)}$ from SIBHP and determining Q_{pci} , D_{pc} can then be calculated utilizing the previously described parameters. See derivation of D_{pc} , item (c) on page 4.

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

WHERE: (t) IS IN MONTHS

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

C M MORRIS 100

DETERMINATION OF:

(a) Q_{pci}
(b) D_{pc}

INITIAL PC MONTHLY FLOW RATE
PC MONTHLY DECLINE RATE

(a) DETERMINATION OF Q_{pci}

ATTACHED IS A COPY OF THE PRODUCTION HISTORY OF THE C M MORRIS #1 (PC), WHICH WAS THE ORIGINAL PC WELL LOCATED IN THIS 1/4 SECTION (NOW PLUGGED). THE EXPECTED INITIAL PRODUCTION FOR THE PICTURED CLIFFS ESTIMATED FROM THIS PLOT IS 1521 MCF/M.

$$\underline{Q_{pci} = 1,521 \text{ MCF/M}}$$

(b) DETERMINATION OF D_{pc}

$$D_{pc} = (Q_{pci} - Q_{pcabd})/N_p(pc)$$

$$\begin{aligned} Q_{pcabd} &= 300 \text{ MCF/M} \\ N_p(pc) &= 436.8 \text{ MMCF} \end{aligned}$$

$$D_{pc} = (1,521 \text{ MCF/M} - 300 \text{ MCF/M}) / (436,800 \text{ MCF})$$

$$\underline{D_{pc} = 0.0028/\text{M}}$$

$$\underline{\text{THUS: } Q_{ftc} = Q_t(\text{MCF/M}) - 1,521(\text{MCF/M}) \times e^{\{-(0.0028(1/\text{M})) \times t(\text{M})\}}}$$

C M MORRIS 100

Expected Reservoir Pressures

Pictured Cliffs - Average of the closest PC completions is 200 psi SICP (pressures range from 140 psi to 250 psi). All of the completions are within 4 miles of the subject location. The initial pressure at the subject location is expected to be the offsetting PC average of 200 psi.

Fruitland Coal - Average of the closest FTC completions is 250 psi SICP (pressures range from 200 to 350 psi). All of the completions are within 4-5 miles of the subject location. The pressure at the subject location is expected to be the offset FTC average of 250 psi.

PC - 200 psi, FTC - 250 psi. Within limits of pressure requirements for commingling.

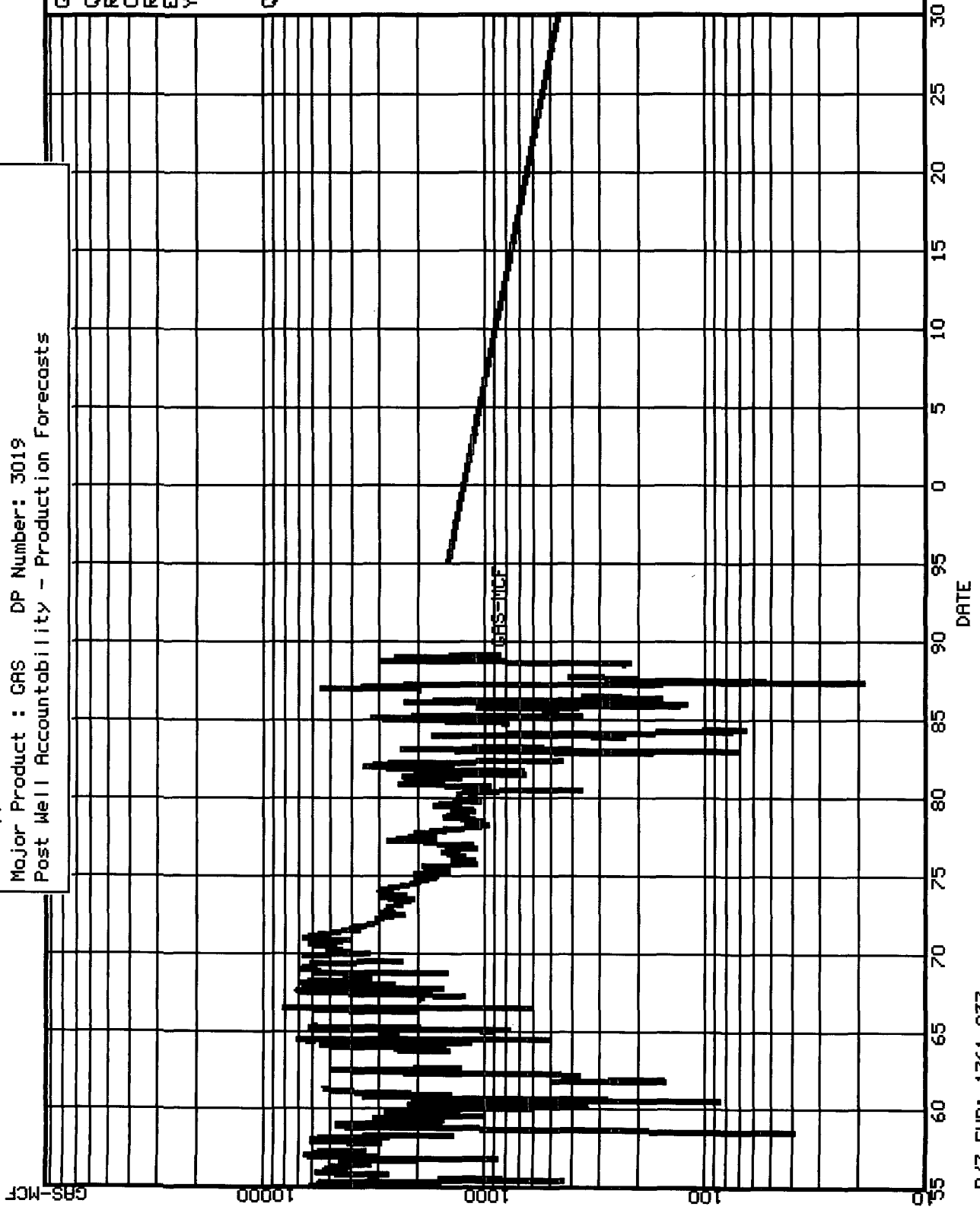
Fluid Compatibility

Neither producing formation makes oil or water in existing wells in the area. Both formations are very dry gas producers and no fluid production is anticipated in this well.

PC - dry gas production , FTC - dry gas production. Only natural gas will be produced so fluids are compatible.

Lease : C M MORRIS 1
 Field : FULCHER KUTZ PICTURED CLIFFS
 Location : 027N010W10G
 County, St : SAN JUAN NM
 Major Product : GAS DP Number: 3019
 Post Well Accountability - Production Forecasts

GAS ———
 Qal=MED
 Ref= 01/95
 Cum=1325.043
 Rem= 436.794
 EUR=1761.837
 Yrs= 48.167
 Qi= 1520.8
 De= 3.287
 n= .000
 Qab= 304.2



P/Z EUR: 1761.837
 CUM: 1325.043
 REM 436.794

MERIDIAN OIL

OIL CONSERVATION DIVISION
RECEIVED

'94 AUG 3 AM 8 50

May 24, 1994

Breck Operating Corporation
P.O. Box 911
Breckenridge, Texas 76024

RE: C. M. Morris #100
Unit G, Section 10, T27N, R10W
San Juan County, New Mexico
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DAC-1023

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Reservoir Engineer

KAS/tdg

**The undersigned hereby waives objection to the referenced
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Breck Operating Corp.

Company/Owner: *O'Hearne*

Title: Senior Vice-President

Date: 7.27.94