

MERIDIAN OIL

CASE # 10725

APRIL 22, 1993

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

IN THE MATTER OF THE HEARING CALLED
BY THE OIL CONSERVATION DIVISION
FOR THE PURPOSE OF CONSIDERING:

CASE NO. 10725

APPLICATION OF MERIDIAN OIL INC.
FOR AN UNORTHODOX GAS WELL
LOCATION AND DOWNHOLE COMMINGLING,
SAN JUAN COUNTY, NEW MEXICO.

CERTIFICATE OF MAILING

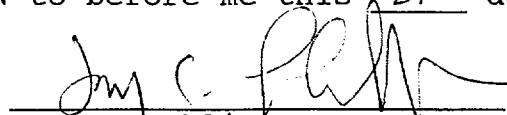
AND

COMPLIANCE WITH ORDER R-8054

W. THOMAS KELLAHIN, attorney in fact and authorized representative of Meridian Oil Inc., states that the notice provisions of Division Rule 1207 (Order R-8054) have been complied with, that Applicant has caused to be conducted a good faith diligent effort to find the correct addresses of all interested parties entitled to receive notice, that on March 30, 1993, I caused to be mailed by certified mail return-receipt requested notice of this hearing and a copy of the application for the above referenced case along with the cover letter, at least twenty days prior to the hearing set for April 22, 1993, to the parties shown in the application as evidenced by the attached copies of return receipt cards, and that pursuant to Division Rule 1207, notice has been given at the correct addresses provided by such rule.


W. Thomas Kellahin

SUBSCRIBED AND SWORN to before me this 21st day of
APRIL, 1993.


Notary Public

My Commission Expires:

10/7/95

KELLAHIN AND KELLAHIN

ATTORNEYS AT LAW

EL PATIO BUILDING

117 NORTH GUADALUPE

POST OFFICE BOX 2265

SANTA FE, NEW MEXICO 87504-2265

CERTIFIED

P 355 568 573

MAIL

NAME
1st NAME
2nd NAME
Initial 4/15/93

R & G Drilling Company,
Inc.
P.O. Box 158
Thousand Palms, California 92276

RETURNED TO
SENDER
NO SUCH ADDRESS
ATTEMPTED, NOT KNOWN
INSUFFICIENT ADDRESS
UNDELIVERABLE AS ADDRESSED
POSTAL ORDER EXPIRED

RETURNED TO
SENDER
NO SUCH ADDRESS
ATTEMPTED, NOT KNOWN
INSUFFICIENT ADDRESS
UNDELIVERABLE AS ADDRESSED
POSTAL ORDER EXPIRED

PT #
INIT

Is your RETURN ADDRESS completed on the reverse side?

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

- ☐ Addressee's Address
- ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

Jerry Hoover
Conoco, INC.
10 Desta Drive West
Midland, Texas 79705

4a. Article Number

P 355 568 575

4b. Service Type

- ☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

7. Date of Delivery

8. Addressee's Address (Only if requested and fee is paid)

5. Signature (Addressee)

6. Signature (Agent)

PS Form 3811, December 1991 ☆U.S. GPO: 1992-323-402

DOMESTIC RETURN RECEIPT

Thank you for using Return Receipt Service.

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SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
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I also wish to receive the following services (for an extra fee):

- ☐ Addressee's Address
- ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

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

4a. Article Number

P 355 568 572

4b. Service Type

- ☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

7. Date of Delivery

8. Addressee's Address (Only if requested and fee is paid)

5. Signature (Addressee)

6. Signature (Agent)

PS Form 3811, December 1991 ☆U.S. GPO: 1992-323-402

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I also wish to receive the following services (for an extra fee):

- ☐ Addressee's Address
- ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

M & G Drilling Company
P.O. Box 2560
Palm Springs, CA 92263

4a. Article Number

P 355 568 574

4b. Service Type

- ☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

7. Date of Delivery

8. Addressee's Address (Only if requested and fee is paid)

5. Signature (Addressee)

6. Signature (Agent)

PS Form 3811, December 1991 ☆U.S. GPO: 1992-323-402

DOMESTIC RETURN RECEIPT

Thank you for using Return Receipt Service.



EXHIBIT 1



KELLAHIN AND KELLAHIN

ATTORNEYS AT LAW

EL PATIO BUILDING

117 NORTH GUADALUPE

POST OFFICE BOX 2265

SANTA FE, NEW MEXICO 87504-2265

W. THOMAS KELLAHIN*

*NEW MEXICO BOARD OF LEGAL SPECIALIZATION
RECOGNIZED SPECIALIST IN THE AREA OF
NATURAL RESOURCES-OIL AND GAS LAW

TELEPHONE (505) 982-4285

TELEFAX (505) 982-2047

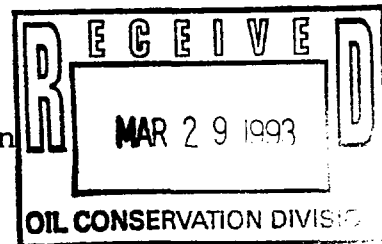
JASON KELLAHIN (RETIRED 1991)

March 29, 1993

Mr. William J. LeMay
Oil Conservation Division
State Land Office Building
310 Old Santa Fe Trail, Room 219
Santa Fe, New Mexico 87501

HAND DELIVERED

RE: Application of Meridian Oil, Inc.
for an Unorthodox Gas Well Location
and Downhole Commingling,
San Juan County, New Mexico
Rhodes C #102 Well



Dear Mr. LeMay:

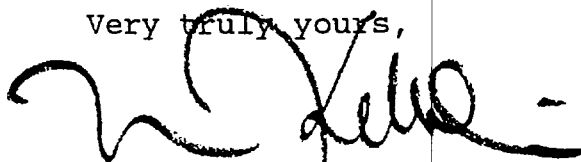
On behalf of Meridian Oil, Inc. please find enclosed our Application for an unorthodox gas well location and downhole commingling as referenced above, which we request be set for hearing on the next available Examiner's docket now scheduled for April 22, 1993.

By copy of this letter and application, sent certified mail-return receipt requested, we are notifying all interested parties offsetting the subject well and its proposed spacing and proration unit of their right to appear at the hearing and participate in this case, including the right to present evidence either in support of or in opposition to the application and that failure to appear at the hearing may preclude them from any involvement in this case at a later date. Also, all parties entitled to notice are hereby informed that pursuant to the Division Memorandum 2-90 all parties appearing in this case are requested to file a Pre-Hearing Statement with the Division no later than 4:00 p.m. on Friday, April 16, 1993.

Mr. William J. LeMay
March 29, 1993
Page 2

Also enclosed is our suggested advertisement for
this case.

Very truly yours,

A handwritten signature in black ink, appearing to read 'W. Thomas Kellahin', with a horizontal line extending from the end of the signature.

W. Thomas Kellahin

WTK/lam
Enclosures

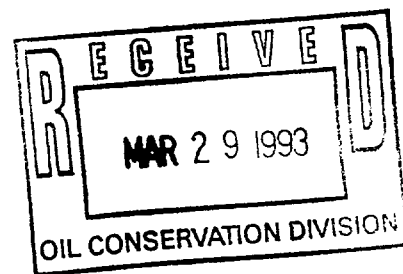
cc: with Enclosures
Alan Alexander - Meridian Oil Inc.

By Certified Mail - Return Receipt
All Parties Listed on Exhibits B & C of
Application

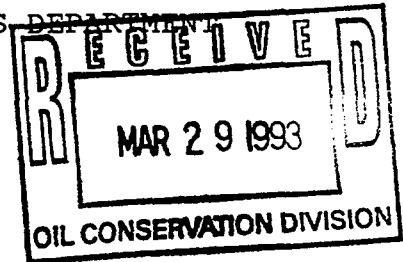
ltr329d.330

PROPOSED ADVERTISEMENT

Case _____: Application of Meridian Oil Inc. for an unorthodox gas well location and downhole commingling, San Juan County, New Mexico. Applicant seeks approval to downhole commingle West Kutz-Pictured Cliffs Gas Pool and the Basin-Fruitland Coal Gas Pool production within the wellbore of its proposed Rhodes C #102 Well to be drilled at an unorthodox gas well location for the West Kutz-Pictured Cliffs Gas Pool being 790 feet FNL and 1950 feet FEL, (Unit B) Section 31, T28N, R11W, NMPM, San Juan County, New Mexico. Said well is to be dedicated a standard 317.85-acre gas spacing unit for the Basin-Fruitland Coal Gas Pool being N/2 equivalent of Section 31 and to a standard 160-acre gas spacing unit for the West Kutz-Pictured Cliffs Gas Pool being the NE/4 of Section 31. The well is located approximately 7 miles south from Bloomfield, New Mexico.



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



IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
DIVISION FOR THE PURPOSE OF
CONSIDERING:

APPLICATION OF MERIDIAN OIL INC.
FOR AN UNORTHODOX GAS WELL LOCATION
AND DOWNHOLE COMMINGLING
SAN JUAN COUNTY, NEW MEXICO.

CASE:

A P P L I C A T I O N

Comes now MERIDIAN OIL INC., ("Meridian") by and through its attorneys Kellahin and Kellahin, and applies to the New Mexico Oil Conservation Division for approval to downhole commingle West Kutz-Pictured Cliffs Gas Pool and the Basin-Fruitland Coal Gas Pool production within the wellbore of its proposed Rhodes C #102 Well to be drilled at an unorthodox gas well location for the West Kutz-Pictured Cliffs Gas Pool being 790 feet FNL and 1950 feet FEL, (Unit B) Section 31, T28N, R11W, NMPM, San Juan County, New Mexico. The N/2 equivalent of Section 31 is to be dedicated to the subject well forming a standard 317.85-acre gas spacing unit for the Basin-Fruitland Coal Gas Pool. The NE/4 of Section 31 is to be dedicated to the subject well forming a standard 160-acre gas spacing unit for the West Kutz-Pictured Cliffs Gas Pool.

In support of its application, Meridian states:

(1) Meridian is the operator for the proposed Rhodes C #102 Well to be drilled at an unorthodox gas well location 790 feet FNL and 1950 feet FEL (Unit B), Section 31, T28N, R11W, NMPM, San Juan County, New Mexico as shown on Exhibit "A" attached.

(2) Said location is an unorthodox gas well location for the West Kutz-Pictured Cliffs Gas Pool being only 690 feet from the west side of its spacing unit rather than the required 790 feet from the outer boundaries of the spacing units for that pool.

(3) The T. L. Rhodes "C" Lease consists of all of Section 30 and the N/2 equivalent of Section 31, T28N, R11W, NMPM, with all of the interest owners (royalty, working and overriding riding royalty) being common.

(4) While the proposed well location is unorthodox pursuant to Division rules, it only encroaches upon offsetting spacing units which have ownerships identical to the subject spacing unit and therefore correlative rights will not be impaired.

(5) The Well is to be drilled so that production from the Basin-Fruitland Coal Gas Pool and the West Kutz-Pictured Cliffs Gas Pool can be downhole commingled in the wellbore.

(6) The N/2 equivalent of Section 31, being 317.85 acres, is to be dedicated to any production from the Basin-Fruitland Coal Gas Pool which is spaced on 320-acre gas spacing units.

(7) The NE/4 of Section 31 is to be dedicated to any production from the West Kutz-Pictured Cliffs Gas Pool which is spaced on 160-acre gas spacing units.

(8) The ownership is common between these two spacing units.

(9) In accordance with Division Rule 303-C-1.(b), the Applicant states and will demonstrate at hearing:

1. That drilling the Rhodes C #102 Well initially for downhole commingling in the wellbore is necessary because it is not otherwise economic to attempt to drill and complete a separate well for either Fruitland Coal Gas or Pictured Cliffs Gas production nor is it economic to attempt to dually complete those formations in the proposed well.

2. That there will be no crossflow between the two zones commingled.

3. That the ownership in each of the two spacing units is common between the two pools and no impairment of correlative rights will occur.

4. It is expected that the bottom hole pressure of the lower pressure zone is not less than 50 percent of the bottom hole pressure of the higher pressure zone adjusted to a common datum.

5. That the value of the commingled production will not be less than the sum of the values of the individual production.

(10) That both the Fruitland Coal formation and the Pictured Cliffs formations in this area of the basin should be marginally productive and cannot be economically produced unless it is done so by downhole commingling that production.

(11) Meridian has selected to drill the proposed well in the NE/4 instead of the NW/4 of Section 31 because that location appears to have a greater opportunity for a successful although marginal Fruitland formation well.

(12) In addition, the NE/4 of Section 31 is a standard location for a Fruitland Coal Gas Well while the NW/4 is an unorthodox location.

(13) Due to the nature of the Basin-Fruitland Coal Gas production, straight allocation of gas volumes from both zones is not appropriate. Meridian therefore seeks the adoption of a monthly allocation formula to be presented at the time of the hearing.

(14) Applicant requests that this matter be docketed for hearing on the Division's Examiner docket now scheduled for April 22, 1993.

Application of Meridian Oil, Inc.
Page 4

(15) Copy of this application has been sent to all offsetting operators to the two spacing units as set forth on Exhibits B and C.

WHEREFORE Applicant requests that this matter be set for hearing on April 22, 1993 before a duly appointed Examiner of the Oil Conservation Division and that after notice and hearing as required by law, the Division enter its order granting this application.

Respectfully submitted

A handwritten signature in black ink, appearing to read 'W. Thomas Kellahin', with a stylized, flowing script.

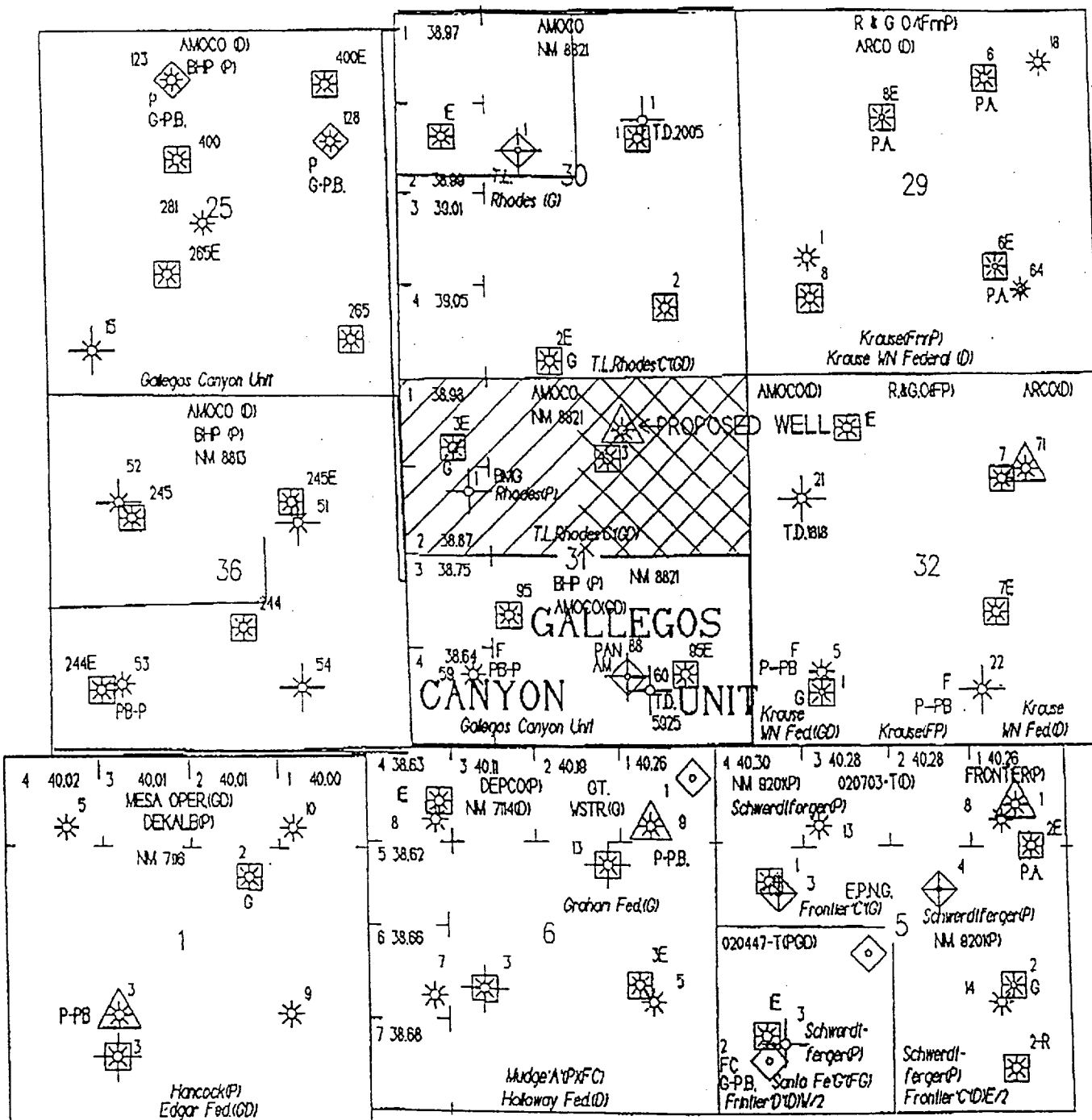
W. Thomas Kellahin
KELLAHIN and KELLAHIN
P. O. Box 2265
Santa Fe, New Mexico 87501
(505) 982-4285
Attorneys for Applicant

MERIDIAN OIL INC.

RHODES C # 102

790'FNL, 1950'FEL

SECTION 31-28N-11W



★ PICTURED CLIFFS WELL

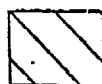
▲ FRUITLAND COAL WELL

◻ DAKOTA WELL

◆ GALLUP WELL



SPACING UNIT (FRUITLAND COAL)



SPACING UNIT (PICTURED CLIFFS)

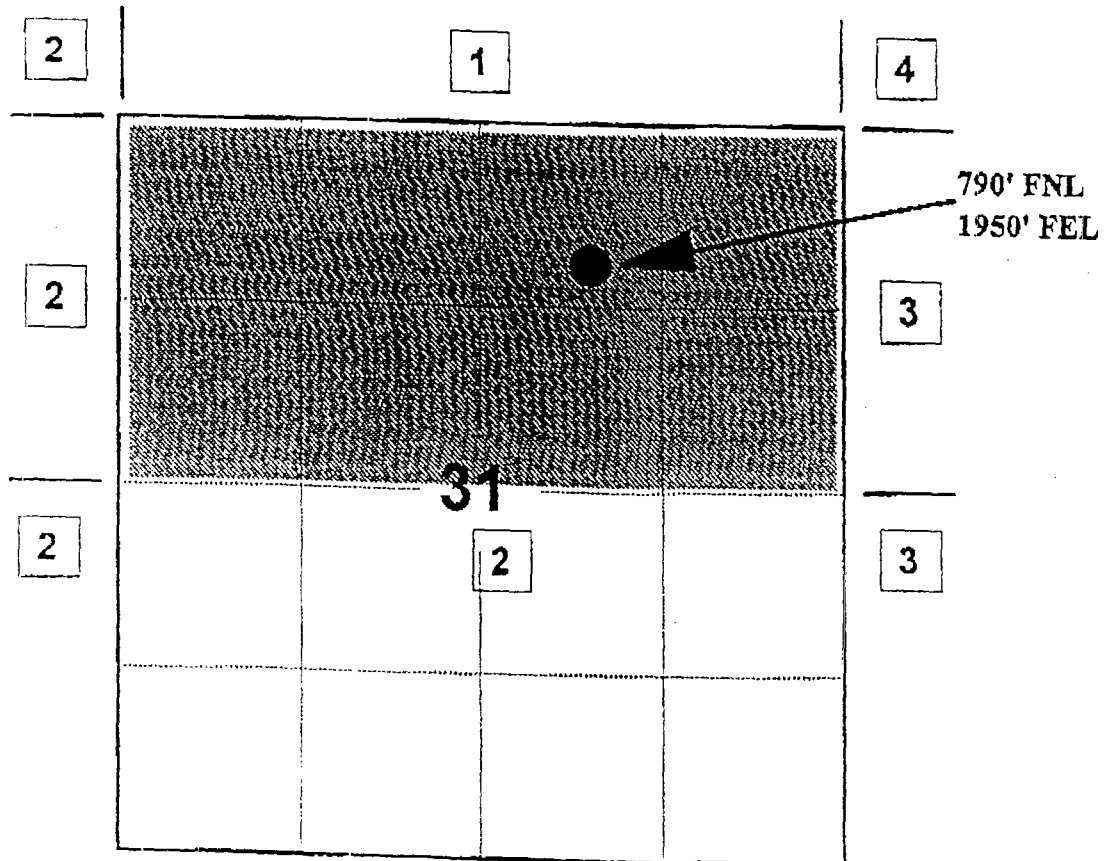
MERIDIAN OIL INC

RHODES C #102

OFFSET OPERATOR \ OWNER PLAT

Fruitland Coal / Pictured Cliffs Formation Commingle

Township 28 North, Range 11 West



1) Meridian Oil Inc

2) Amoco Production Company

PO Box 800, Denver, CO 80202

3) R & G Drilling Co, Inc.

PO Box 158, Thousand Palms, CA 92276

M & G Drilling Co

PO Box 2560, Palms Springs, CA 92263

4) Amoco Production Company

Conoco, Inc

10 Desta Drive West, Midland, TX

M & G Drilling Co

R & G Drilling Co, Inc.

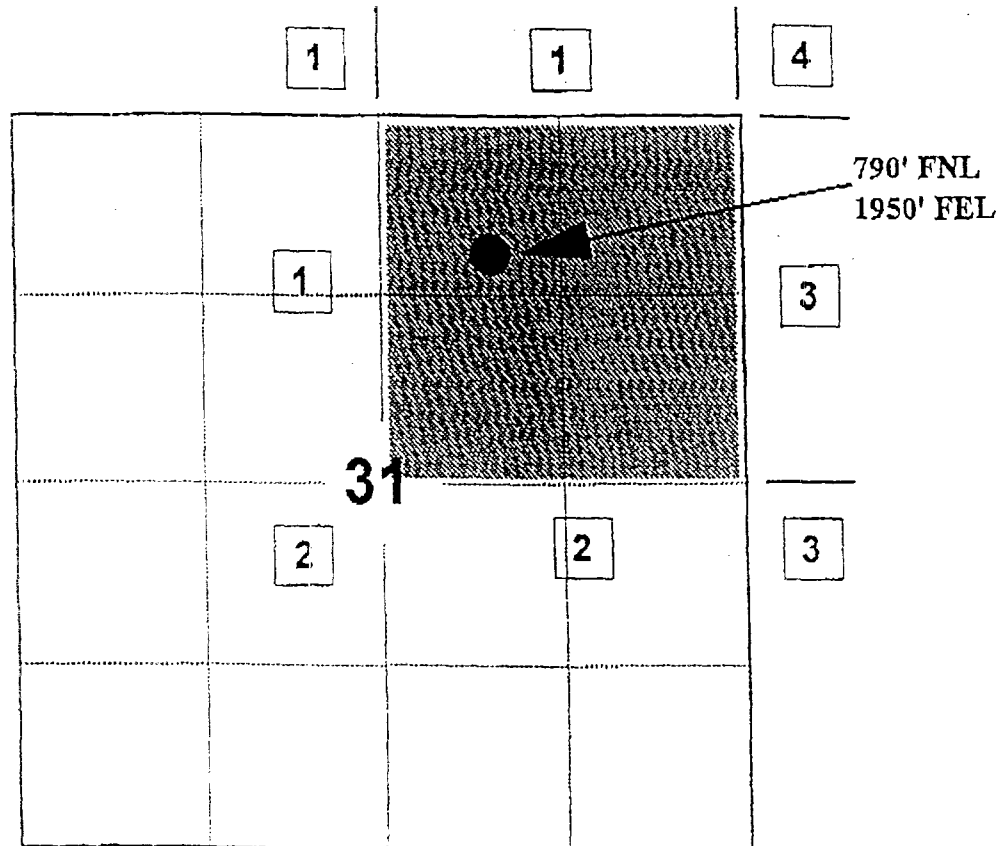
MERIDIAN OIL INC

RHODES C #102

OFFSET OPERATOR \ OWNER PLAT

Fruitland Coal / Pictured Cliffs Formation Commingle

Township 28 North, Range 11 West



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PO Box 158, Thousand Palms, CA 92276

M & G Drilling Co

PO Box 2560, Palms Springs, CA 92263

4) Amoco Production Company

Conoco, Inc

10 Desta Drive West, Midland, TX

M & G Drilling Co

R & G Drilling Co, Inc.

Exhibit C

Pictured Cliffs Formation

EXHIBIT 2

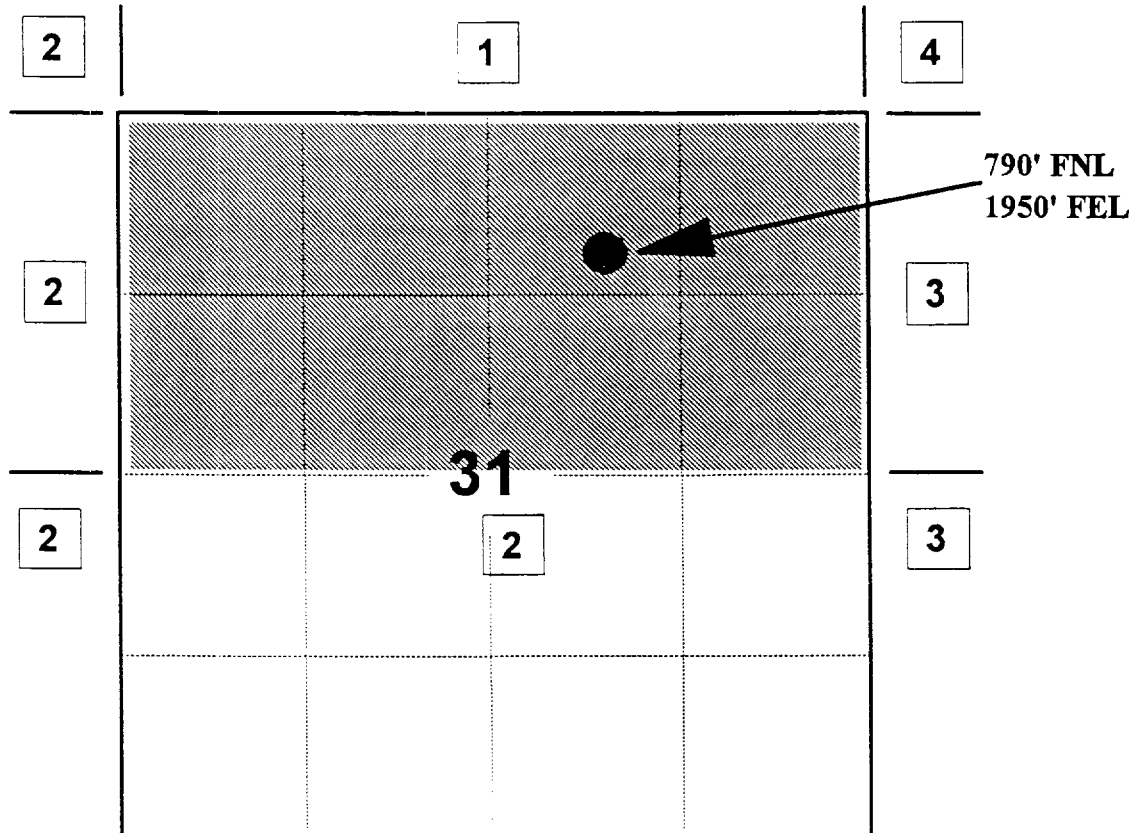
MERIDIAN OIL INC

RHODES C #102

OFFSET OPERATOR \ OWNER PLAT

Fruitland Coal / Pictured Cliffs Formation Commingle

Township 28 North, Range 11 West



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PO Box 2560, Palms Springs, CA 92263

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Conoco, Inc

10 Desta Drive West, Midland, TX

M & G Drilling Co

R & G Drilling Co, Inc.

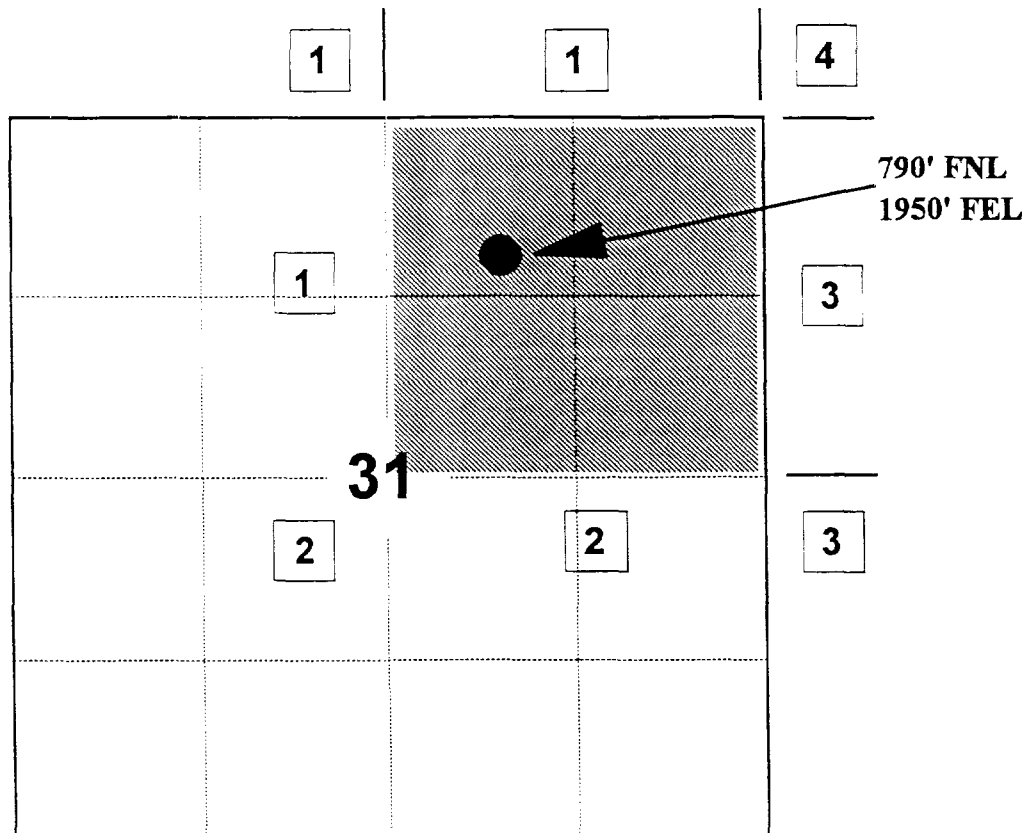
MERIDIAN OIL INC

RHODES C #102

OFFSET OPERATOR \ OWNER PLAT

Fruitland Coal / Pictured Cliffs Formation Commingle

Township 28 North, Range 11 West



1) Meridian Oil Inc

2) Amoco Production Company

PO Box 800, Denver, CO 80202

3) R & G Drilling Co, Inc.

PO Box 158, Thousand Palms, CA 92276

M & G Drilling Co

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Conoco, Inc

10 Desta Drive West, Midland, TX

M & G Drilling Co

R & G Drilling Co, Inc.

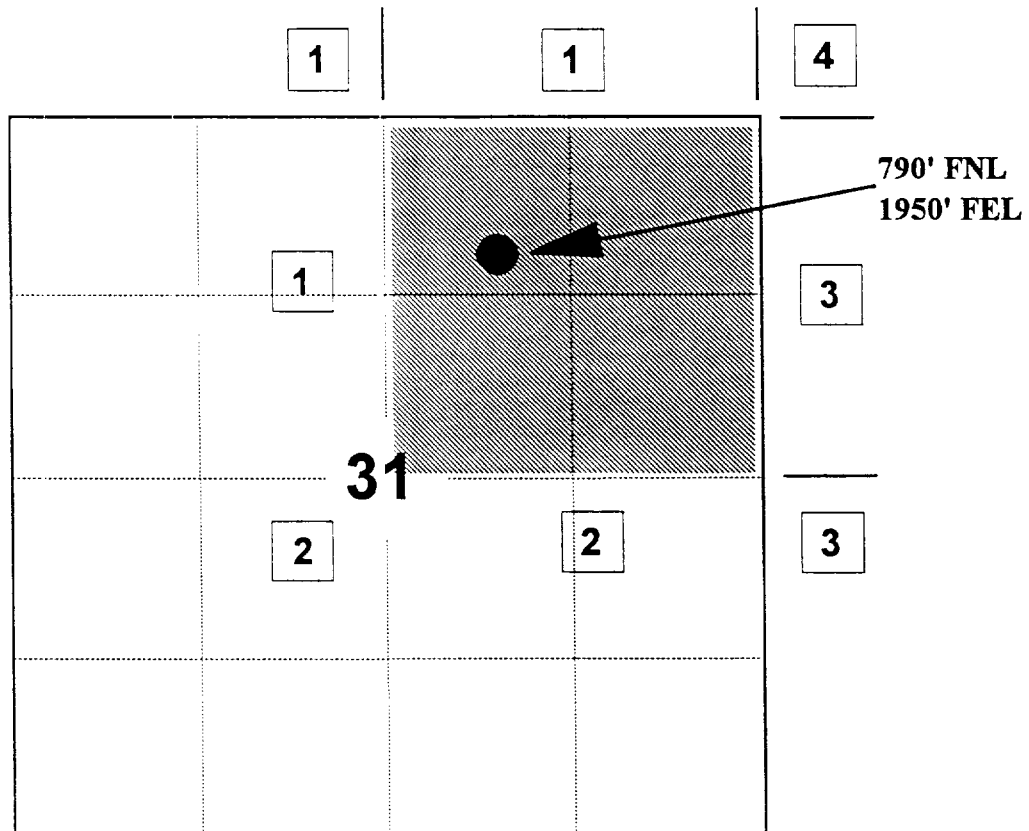
MERIDIAN OIL INC

RHODES C #102

OFFSET OPERATOR \ OWNER PLAT

Unorthodox Pictured Cliffs Well Location

Township 28 North, Range 11 West



1) Meridian Oil Inc

2) Amoco Production Company

PO Box 800, Denver, CO 80202

3) R & G Drilling Co, Inc.

PO Box 158, Thousand Palms, CA 92276

M & G Drilling Co

PO Box 2560, Palms Springs, CA 92263

4) Amoco Production Company

Conoco, Inc

10 Desta Drive West, Midland, TX

M & G Drilling Co

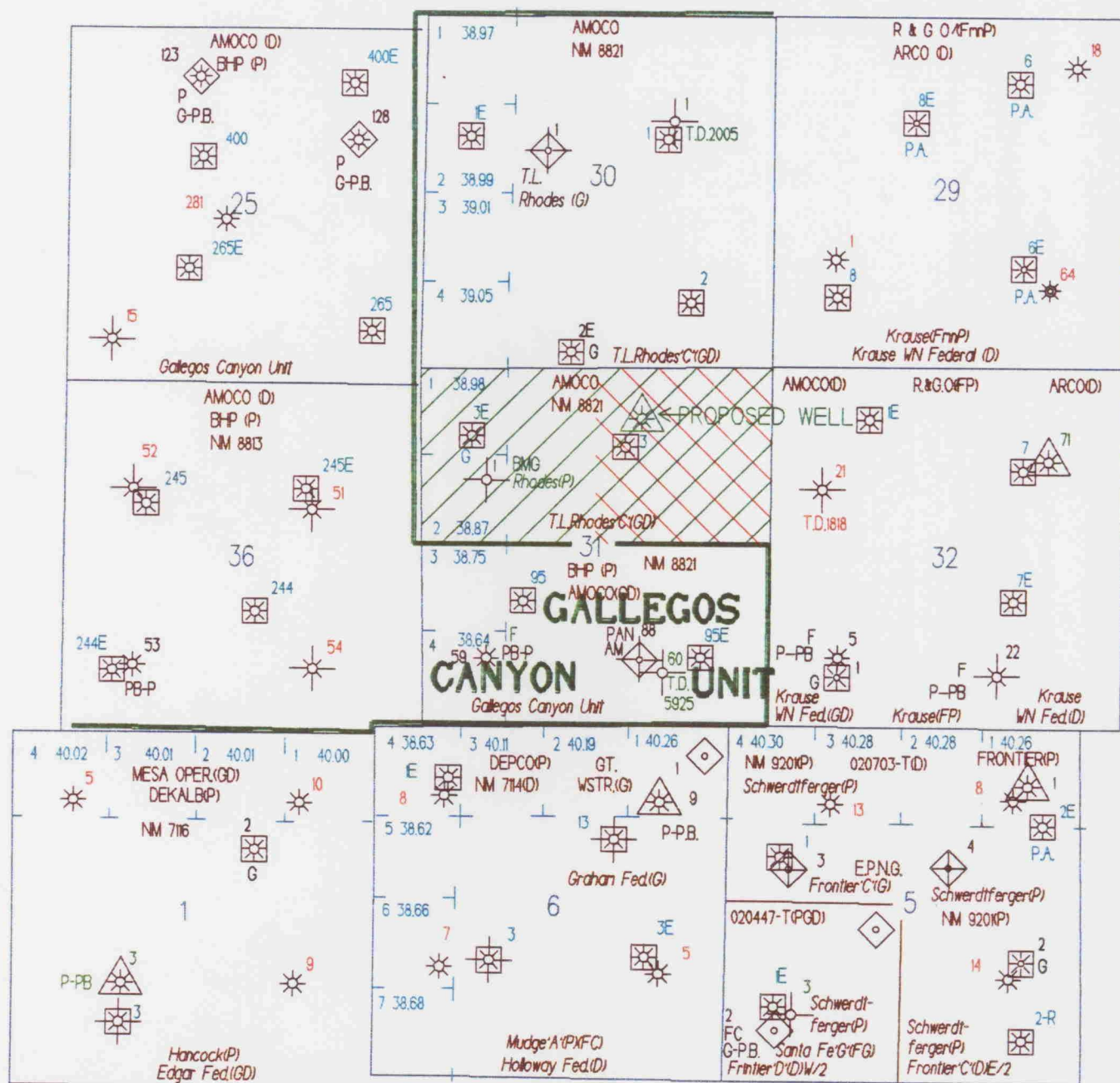
R & G Drilling Co, Inc.



EXHIBIT 3



MERIDIAN OIL INC.
RHODES C # 102
790'FNL,1950'FEL
SECTION 31-28N-11W



☀ PICTURED CLIFFS WELL



FRUITLAND COAL WELL

 DAKOTA WELL

GALLUP WELL

SPACING UNIT (FRUITLAND COAL)

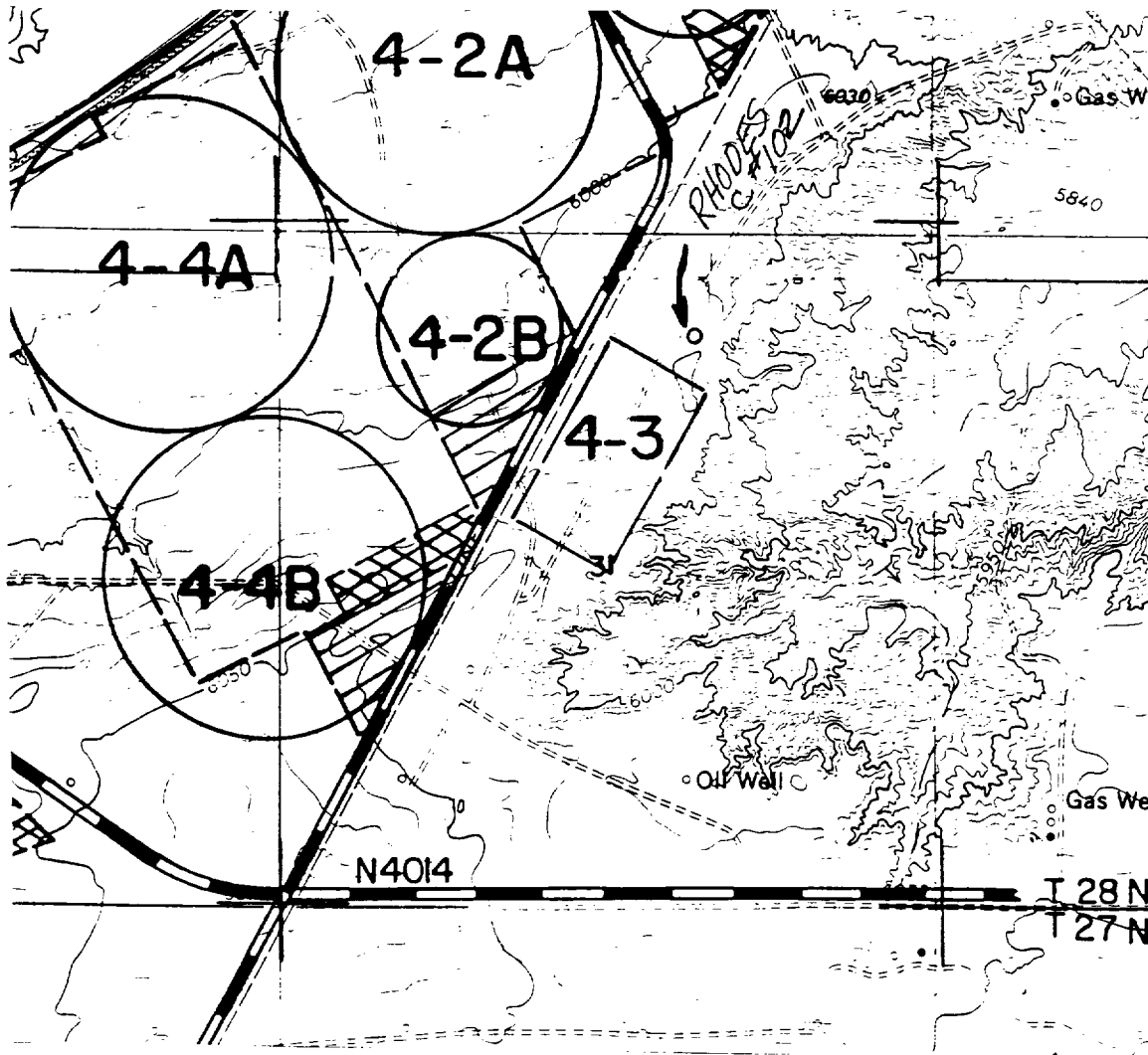
SPACING UNIT (PICTURED CLIFFS)



EXHIBIT 4

MERIDIAN OIL INC.

MOI RHODES C #102
790' FNL, 1950' FEL
SECTION 31, T28N, R11W, N.M.P.M.
SAN JUAN COUNTY, NEW MEXICO



THIS LOCATION IS NON-STANDARD DUE TO WATER LINES, AN EXISTING GAS WELL, GAS PIPELINES, SIDEROLL IRRIGATION UNITS, AND DIFFICULT TERRAIN TO THE EAST WHICH WAS REJECTED BY THE B.L.M. FOR LOCATION AND ACCESS.

4-15-93

DATE

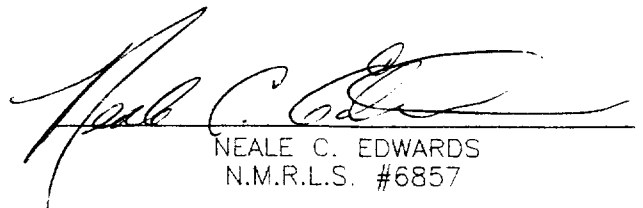

NEALE C. EDWARDS
N.M.R.L.S. #6857

EXHIBIT 5

RHODES C #102

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)
 $G_f(P^*) = 0.61 \text{ MMCF/PSI} \times P^* \times R_f$

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.

RHODES C #102

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)

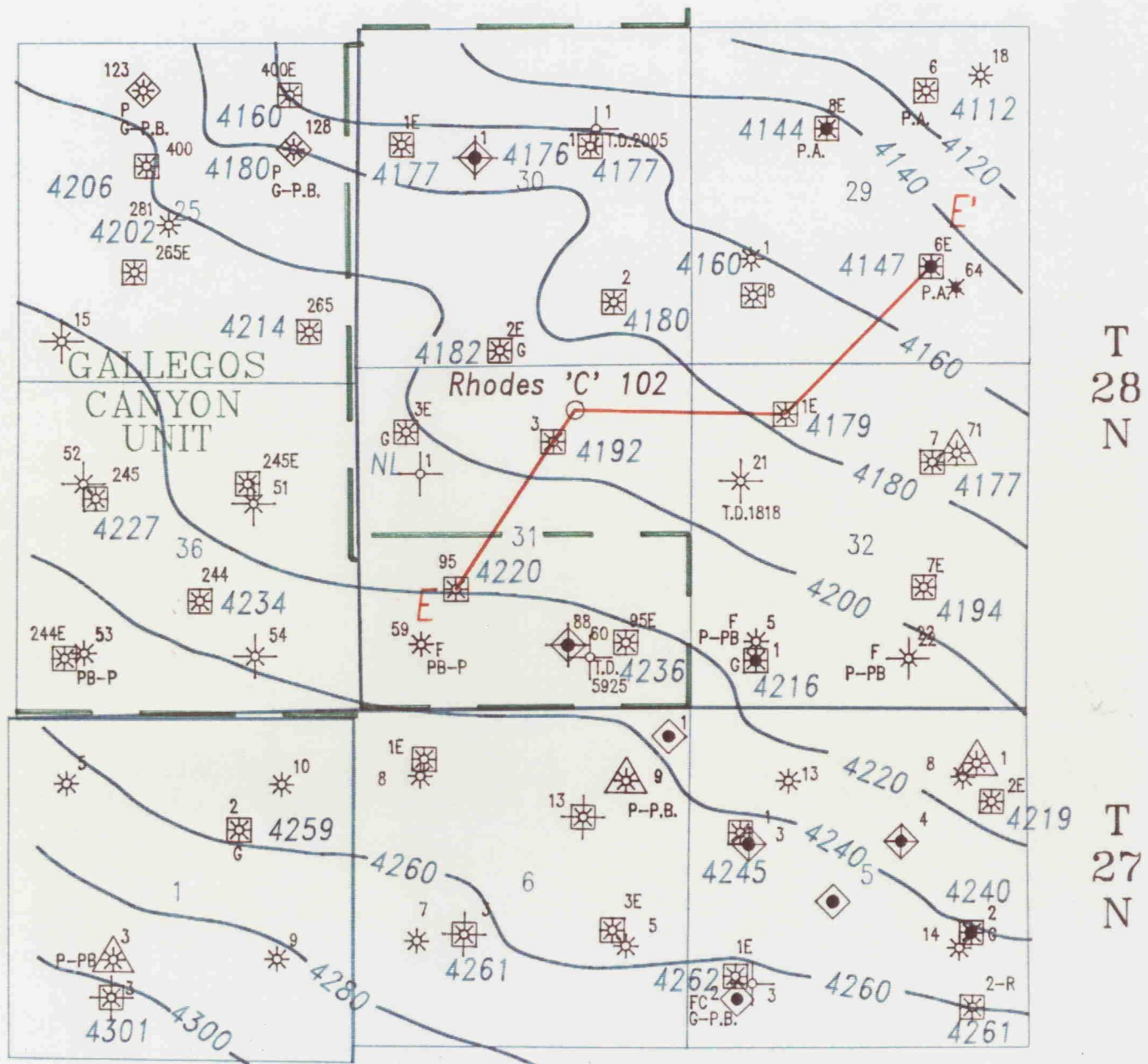


EXHIBIT 6



R12W

R11W



Net Pay = $R_t > \text{Shale Baseline} \ \& \ Sp > (-10) \text{ mv Deflection}$

Scale 2" = 1 mile

NL no log

NLD not logged over Pictured Cliffs

- ▲ FRUITLAND
- * PICTURED CLIFFS
- MESAVERDE
- DAKOTA

Fruitland Coal Structure

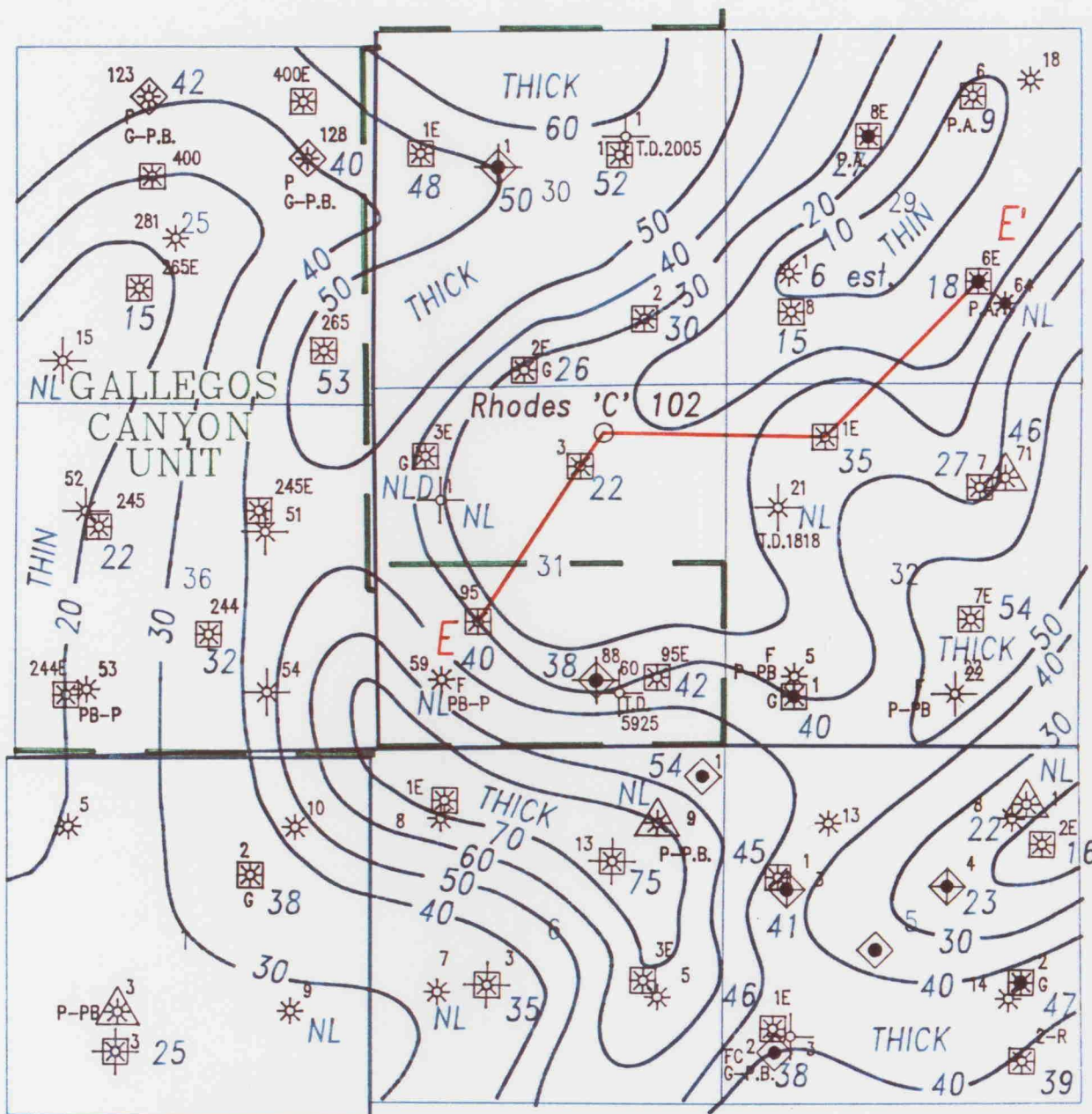
C.I. = 20 FT.
San Juan Co., N.M.



EXHIBIT 7



R11W



Scale $2'' = 1 \text{ mile}$

NL no log

NLD not logged over Pictured Cliffs

-  FRUITLAND
 PICTURED CLIFFS
 MESAVERDE
 DAKOTA

Pictured Cliffs Net Pay Isopach

C.I. = 10 FT.
San Juan Co., N.M.

R 1 1 W



NLD not logged over Pictured Cliffs

San Juan Co., N.M.





- | | |
|---|-----------------|
|  | FRUITLAND |
|  | PICTURED CLIFFS |
|  | MESA VERDE |
|  | DAKOTA |

EXHIBIT 8