

ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION



GARREY CARRUTHERS  
GOVERNOR

April 10, 1987

POST OFFICE BOX 2088  
STATE LAND OFFICE BUILDING  
SANTA FE, NEW MEXICO 87501  
(505) 827-5800

Marathon Oil Company  
P.O. Box 3128  
Houston, Texas 77253

Attention: R. J. Peterson

Re: Administrative Order NFL-167

Dear Mr. Peterman:

Reference is made to your application for an Infill Well Finding and Well-Spacing Waiver made pursuant to Section 271.305(b) of the Federal Energy Regulatory Commission regulations, Natural Gas Policy Act of 1978, and Oil Conservation Division Order No. R-6013 for the following described well:

South Eunice (7RQ) Unit Well No. 440 located 2630 feet from the North line and 1550 feet from the East line (Unit G) of Section 35, Township 22 South, Range 36 East, NMPM, Lea County, New Mexico.

THE DIVISION FINDS THAT:

(1) Section 271.305(b) of the Federal Energy Regulatory Commission Interim Regulations promulgated pursuant to the Natural Gas Policy Act of 1978 provides that, in order for an infill well to qualify as a new onshore production well under Section 103 of said Act, the Division must find, prior to the commencement of drilling, that the well is necessary to effectively and efficiently drain a portion of the reservoir covered by the proration unit which cannot be so drained by any existing well within that unit, and must grant a waiver of existing well-spacing requirements.

(2) By Division Order No. R-6013, dated June 7, 1979, the Division established an administrative procedure whereby the Division Director and the Division Examiners are empowered to act for the Division and find that an infill well is necessary.

(3) The well for which a finding is sought is to be completed in the South Eunice Seven Rivers Queen Pool, and the standard spacing unit in said pool is 40 acres.

(4) A standard 40-acre oil proration unit comprising the SW/4 NE/4 of Section 35, Township 22 South, Range 36 East, is currently dedicated to the applicant's South Eunice (7RQ) Unit Well No. 404 also located in Unit G of said Section 25.

(5) Said unit is not being effectively and efficiently drained by the existing well on the unit.

(6) The drilling and completion of the well for which a finding is sought should result in the production of an additional 24,000 MCF of gas from the proration unit which would not otherwise be recovered.

(7) All requirements of Division Order No. R-6013 have been complied with, and the well for which a finding is sought is necessary to effectively and efficiently drain a portion of the reservoir covered by said proration unit which cannot be so drained by any existing well within the unit.

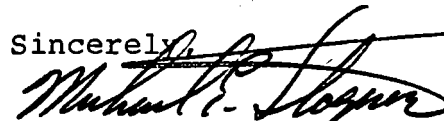
(8) In order to permit effective and efficient drainage of said proration unit, the subject application should be approved as an exception to the standard well-spacing requirements for the pool.

IT IS THEREFORE ORDERED THAT:

(1) The applicant is hereby authorized to drill the South Eunice (7RQ) Unit Well No. 440 as described above, as an infill well on the existing 40-acre oil proration unit comprising the SW/4 NE/4 of Section 35, Township 22 South, Range 36 East, NMPM, South Eunice Seven Rivers Queen Pool, Lea County, New Mexico. The authorization for infill drilling granted by this order is an exception to applicable well spacing requirements and is necessary to permit the drainage of a portion of the reservoir covered by said proration unit which cannot be effectively and efficiently drained by any existing well thereon.

(2) Jurisdiction of this cause is retained for the entry of such further orders as the Division may deem necessary.

Sincerely,



Michael E. Stogner  
Examiner

MES/et

xc: Oil Conservation Division - Hobbs

ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION



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(3) The well for which a finding is sought is to be completed in the South Eunice Seven Rivers Queen Pool, and the standard spacing unit in said pool is 40 acres.

(4) A standard 40-acre oil proration unit comprising the SW/4 NE/4 of Section 35, Township 22 South, Range 36 East, is currently dedicated to the applicant's South Eunice (7RQ) Unit Well No. 404 also located in Unit G of said Section 25.

(5) Said unit is not being effectively and efficiently drained by the existing well on the unit.

(6) The drilling and completion of the well for which a finding is sought should result in the production of an additional 24,000 MCF of gas from the proration unit which would not otherwise be recovered.

(7) All requirements of Division Order No. R-6013 have been complied with, and the well for which a finding is sought is necessary to effectively and efficiently drain a portion of the reservoir covered by said proration unit which cannot be so drained by any existing well within the unit.

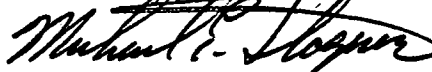
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IT IS THEREFORE ORDERED THAT:

(1) The applicant is hereby authorized to drill the South Eunice (7RQ) Unit Well No. 440 as described above, as an infill well on the existing 40-acre oil proration unit comprising the SW/4 NE/4 of Section 35, Township 22 South, Range 36 East, NMPM, South Eunice Seven Rivers Queen Pool, Lea County, New Mexico. The authorization for infill drilling granted by this order is an exception to applicable well spacing requirements and is necessary to permit the drainage of a portion of the reservoir covered by said proration unit which cannot be effectively and efficiently drained by any existing well thereon.

(2) Jurisdiction of this cause is retained for the entry of such further orders as the Division may deem necessary.

Sincerely,

  
Michael E. Stogner  
Examiner

MES/et

xc: Oil Conservation Division - Hobbs

APPLICATION OF MARATHON OIL COMPANY  
TO EXPAND ITS SOUTH EUNICE  
(SEVEN RIVERS-QUEEN) UNIT WATER  
FLOOD PROJECT IN THE SOUTH EUNICE  
SEVEN RIVERS-QUEEN POOL IN LEA  
COUNTY, NEW MEXICO.

ADMINISTRATIVE ORDER  
WFX NO. 414

ADMINISTRATIVE ORDER  
OF THE OIL CONSERVATION COMMISSION

Under the provisions of Order No. R-4217, Marathon Oil Company has made application to the Commission on May 17, 1974, for permission to expand its South Eunice (Seven Rivers-Queen) Unit Water Flood Project in the South Eunice Seven Rivers-Queen Pool in Lea County, New Mexico.

NOW, on this 1st day of June, 1974, the Secretary-Director finds:

1. That application has been filed in due form;
2. That satisfactory information has been provided that all offset operators have been duly notified of the application;
3. That no objection has been received within the waiting period as prescribed by Order No. R-4217.
4. That the proposed injection wells are eligible for conversion to water injection under the terms of Order No. R-4217;
5. That the proposed expansion of the above-referenced water flood project will not cause waste nor impair correlative rights.
6. That the application should be approved.

IT IS THEREFORE ORDERED:

That the applicant, Marathon Oil Company, be and the same is hereby authorized to inject water into the Seven Rivers-Queen formation through the following described wells for purposes of secondary recovery, to wit:

South Eunice Seven Rivers-Queen Unit Well No. 102  
located in Unit M of Section 23,

South Eunice Seven Rivers-Queen Unit Well No. 202  
located in Unit E of Section 26,

South Eunice Seven Rivers-Queen Unit Well No. 401  
located in Unit O of Section 26,

South Eunice Seven Rivers-Queen Unit Well No. 404  
located in Unit G of Section 35,

South Eunice Seven Rivers-Queen Unit Well No. 405  
located in Unit A of Section 35,

South Eunice Seven Rivers-Queen Unit Well No. 408  
located in Unit I of Section 35,

South Eunice Seven Rivers-Queen Unit Well No. 410  
located in Unit M of Section 36,

South Eunice Seven Rivers-Queen Unit Well No. 411  
located in Unit E of Section 36,

South Eunice Seven Rivers-Queen Unit Well No.  
413, located in Unit H of Section 36, E

South Eunice Seven Rivers-Queen Unit Well No.  
414, located in Unit O of Section 36,

South Eunice Seven Rivers-Queen Unit Well No.  
433 located in Unit G of Section 25,

South Eunice Seven Rivers-Queen Unit Well No.  
502 located in Unit M of Section 26,

South Eunice Seven Rivers-Queen Unit Well No.  
504 located in Unit K of Section 26, and

South Eunice Seven Rivers-Queen Unit Well No.  
702 located in Unit O of Section 35,

all in Township 22 South, Range 36 East, NMPM, Lea County, New Mexico.

DONE at Santa Fe, New Mexico, on the day and year hereinabove  
designated.

STATE OF NEW MEXICO  
OIL CONSERVATION COMMISSION

*A. L. Porter Jr.*  
A. L. PORTER, Jr.  
Secretary-Director

S E A L

CERTIFICATE OF SERVICE

I hereby certify that I have this day served a copy, via registered mail, of Marathon Oil Company's request for Infill Well Finding for South Eunice Unit Well No. 440, South Eunice (Seven Rivers Queen) Field, Lea County, New Mexico upon all offset operators as listed below as required by New Mexico Order No. R-6013-A.

Arco Oil and Gas  
P. O. Box 1610  
Midland, Texas 79702  
Attn: Jerry Tweed

*R. J. Peterman*

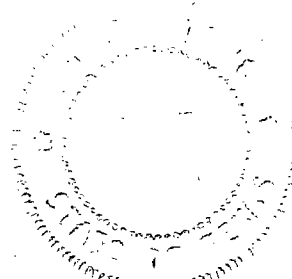
R. J. Peterman, Manager  
Contracts & Regulatory Compliance

Subscribed and sworn to before me, a Notary Public,

March 5, 1986

*Kayla R. Pigman*

Notary Public



KAYLA RAE PIGMAN  
Notary Public, State of Texas  
My Commission Expires 7-16-89

Request for Infill Well Finding  
South Eunice Unit Well No. 440  
South Eunice (Seven Rivers Queen) Field  
Lea County, New Mexico

In compliance with Rule 8 of Filing Requirements for Natural Gas Policy Act Infill Findings, Marathon is submitting a plat showing 40-acre spacing within the South Eunice Unit and a description of all wells drilled on the proration unit (including the completed infill well) which are completed in the same pool or reservoir as the proposed infill well. Also attached is a statement indicating why the existing well on the proration unit cannot effectively and efficiently drain the portion of the reservoir covered by the proration unit.

I. WELL ON WHICH FILING FOR INFILL FINDING IS BEING MADE

- A. Lease Name & Well Location: South Eunice (7RQ) Unit No. 440.  
Unit G, Section 35, T-22-S, R-36-E, 2630' FNL & 1550' FEL,  
Lea County, New Mexico.
- B. Spud Date: 02/02/86
- C. Completion Date: N/A
- D. Mechanical Problems: None
- E. Current Rate of Production: N/A
- F. Date of P&A: None

II. EXISTING WELL ON PRORATION UNIT

- A. Lease Name & Well Location: South Eunice (7RQ) Unit No. 404.  
Unit G, Section 35, T-22-S, R-36-E, 1980' FNL & 2310' FEL,  
Lea County, New Mexico
- B. Spud Date: 9-30-57
- C. Completion Date: 10-10-57
- D. Mechanical Problems: None
- E. Current Rate of Production: Active Injection Well
- F. Date of P & A: None

South Eunice Unit Well No's. 438 & 440

Lea County, New Mexico

Reserves of 80,000 barrels of oil and 24,000 MCF of gas are expected from each of the wells listed above. This reserve figure was derived from volumetric calculations, using the following parameters: average porosity 15%, drainage area = 10 acres, net pay thickness = 50 feet, water saturation = 35%, formation volume factor = 1.2, recovery efficiency = 25%, and gas-oil ratio = 300 SCF/STB.

The area was originally developed on 40 acre spacing in the late 1950's and early 1960's. In the mid-1970's a pilot and later a unit-wide waterflood were implemented, utilizing the existing wells. It is believed that only a small portion of the unitized reservoir has been successfully waterflooded, due to the low permeability of the fine-grained Queen sandstone and the presence of high permeability streaks in portions of the Unit. Two-thirds of the waterflood production has come from several wells that encounter one particular high permeability sand member in the northeastern portion of the Unit.

Due to this low permeability of the majority of the Queen pay, each well has drained considerably less than the 40 acres currently assigned. As shown above, reserves of 80,000 barrels can be calculated assuming only 10 acre drainage, and many wells in the unit have not made that much. It is expected that these infill wells can recover primary reserves from tight Queen sands after adequate stimulation.

It is also believed that these wells will help to recover additional secondary reserves from higher permeability intervals which are floodable. Pressure testing of wells has indicated an unusually low reservoir pressure in some producing wells, indicating inadequate injection support. This may be caused by reservoir discontinuities between producing wells and injection wells. By infill drilling in the South Eunice Unit, more continuous pay will be developed which should improve waterflood recoveries.

DGJ/NPS/dah

1-20-86

**(C - DRILLING - Cont'd.)**

In the event gas production is encountered in a well which was projected to an oil-producing horizon and which is located accordingly but does not conform to the above gas well location rules, it shall be necessary for the operator to bring the matter to a hearing before approval for the production of gas can be given.

**III. All counties except Lea, Chaves, Eddy, Roosevelt, San Juan, Rio Arriba, and Sandoval (As Amended by Order No. R-6870, February 1, 1982.)**

Any wildcat well which is projected as an oil well in any county other than Lea, Chaves, Eddy, Roosevelt, San Juan, Rio Arriba, and Sandoval shall be located on a tract consisting of approximately 40 surface contiguous acres substantially in the form of a square which is a legal subdivision of the U. S. Public Land Surveys, or on a governmental quarter-quarter section or lot and shall be located not closer than 330 feet to any boundary of such tract.

Any wildcat well which is projected as a gas well to a formation and in an area which, in the opinion of the Division representative approving the application to drill, may reasonably be presumed to be productive of gas rather than oil shall be located on a drilling tract consisting of 160 surface contiguous acres, more or less, substantially in the form of a square which is a quarter section, being a legal subdivision of the U. S. Public Land Surveys, and shall be located not closer than 660 feet to any outer boundary of such tract nor closer than 330 feet to any quarter-quarter section or subdivision inner boundary.

**C. ACREAGE AND WELL LOCATION REQUIREMENTS FOR DEVELOPMENT WELLS (As Amended by Order No. R-4383, September 6, 1972, and Order No. R-5113, November 1, 1975.)**

**I. Oil Wells. All Counties (As Amended by Order No. R-4383, September 6, 1972.)**

Unless otherwise provided in special pool rules, each development well for a defined oil pool shall be located on a tract consisting of approximately 40 surface contiguous acres substantially in the form of a square which is a legal subdivision of the U. S. Public Land Surveys, or on a governmental quarter-quarter section or lot, and shall be located not closer than 330 feet to any boundary of such tract nor closer than 330 feet to the nearest well drilling to or capable of producing from the same pool, provided, however, only tracts committed to active secondary recovery projects shall be permitted more than four wells.

**II. Gas Wells**

**(a) Lea, Chaves, Eddy, and Roosevelt Counties**

Unless otherwise provided in special pool rules, each development well for a defined gas pool in a formation younger than the Wolfcamp formation, or in the Wolfcamp formation which was created and defined by the Division prior to November 1, 1975, or in a Pennsylvanian age or older formation which was created and defined by the Division prior to June 1, 1964, shall be located on a designated drilling tract consisting of 160 surface contiguous acres, more or less, substantially in the form of a square which is a quarter section being a legal subdivision of the U. S. Public Land Surveys, and shall be located not closer than 660 feet to any outer boundary of such tract nor closer than 330 feet to any quarter-quarter section or subdivision inner boundary nor closer than 1320 feet to the nearest well drilling to or capable of producing from the same pool.

Unless otherwise provided in the special pool rules, each development well for a defined gas pool in the Wolfcamp formation which was created and defined by the Division after November 1, 1975, or of Pennsylvanian age or older which was created and defined by the Division after June 1, 1964, shall be located on a designated drilling tract consisting of 320 surface contiguous acres, more or less, comprising any two contiguous quarter sections of a single governmental section, being a legal subdivision of the U. S. Public Land Surveys. Any such well

having more than 160 acres dedicated to it shall be located not closer than 660 feet to the nearest side boundary of the dedicated tract nor closer than 1980 feet to the nearest end boundary nor closer than 330 feet to any quarter-quarter section or subdivision inner boundary. (For the purpose of this rule, 'side' boundary and 'end' boundary are as defined in Section B I (a) of this rule.)

**(b) San Juan, Rio Arriba, and Sandoval Counties**

Unless otherwise provided in special pool rules, each development well for a defined gas pool shall be located on a designated drilling tract consisting of 160 surface contiguous acres, more or less, substantially in the form of a square which is a quarter section, being a legal subdivision of the U. S. Public Land Surveys, and shall be located not closer than 790 feet to any outer boundary of the tract nor closer than 130 feet to any quarter-quarter section line or subdivision inner boundary.

**(c) All counties except Lea, Chaves, Eddy, Roosevelt, San Juan, Rio Arriba, and Sandoval**

Unless otherwise provided in special pool rules, each development well for a defined gas pool shall be located on a designated drilling tract consisting of 160 surface contiguous acres, more or less, substantially in the form of a square which is a quarter section, being a legal subdivision of the U. S. Public Land Surveys, and shall be located not closer than 660 feet to any outer boundary of such tract nor closer than 330 feet to any quarter-quarter section or subdivision inner boundary nor closer than 1320 feet to the nearest well drilling to or capable of producing from the same pool.

**D. ACREAGE ASSIGNMENT, COMPLETED WELLS**

**I. Well Tests and Classification**

It shall be the responsibility of the operator of any wildcat gas well or development gas well to which more than 40 acres has been dedicated to conduct a potential test within 30 days following completion of the well and to file the same with the Division within 10 days following completion of the tests. (See Rule 401.)

Date of completion for a gas well shall be the date a Christmas tree is installed or 30 days following conclusion of active completion work on the well, whichever date comes first.

Upon making a determination that the well should not properly be classified as a gas well, the Division will reduce the acreage dedicated to the well.

Failure of the operator to file the aforesaid tests within the specified time will also subject the well to such acreage reduction.

**II. Non-Standard Units**

Any completed gas well which does not have the required amount of acreage dedicated to it for the pool or formation in which it is completed may not be produced until a standard unit for the well has been formed and dedicated or until a non-standard unit has been approved.

The Division-Director may grant administrative approval to non-standard gas units without notice and hearing when an application has been filed for a non-standard unit and the unorthodox size or shape of the unit is necessitated by a variation in the legal subdivision of the U. S. Public Land Surveys, or the following facts exist and the following provisions are complied with:

(a) The non-standard unit consists of quarter-quarter sections or lots that are contiguous by a common bordering side.

(b) The non-standard unit lies wholly within a single governmental quarter section if the well is completed in a pool or formation for which 160 acres is the standard unit size or wholly within a single governmental half section if the well is completed in a pool or formation for which 320 acres is the standard unit size.

**C - DRILLING - Cont'd.)**

(c) The applicant presents written consent in the form of waivers from all offset operators and from all operators owning interests in the quarter section (for 160-acre pools or formations) or the half section (for 320-acre pools or formations) in which the non-standard unit is situated and which acreage is not included in said non-standard unit.

(d) In lieu of paragraph (c) of this rule, the applicant may furnish proof of the fact that all of the aforesaid operators were notified by registered or certified mail of his intent to form such non-standard unit. The Director may approve the application if no such operator has entered an objection to the formation of such non-standard unit within 30 days after the Division Director has received the application.

E. (As Amended by Order No. R-2761, January 1, 1965.) Form C-101, Application for Permit to Drill, Deepen, or Plug Back for any well shall designate the exact legal subdivision allotted to the well and no Form C-101 will be approved by the Division or any of its agents without such proper designation of acreage.

F. Unorthodox Locations (As Amended by Order No. R-3038, February 9, 1966. Order No. R-5890, December 29, 1978, Order No. R-6870, February 1, 1982, and Order No. R-7451, March 2, 1984.)

I. The Division Director shall have authority to grant an exception to the well location requirements of Sections B and C above without notice and hearing when the necessity for such unorthodox location is based upon topographical conditions, the recompletion of a well previously drilled to a deeper horizon, provided said well was drilled at an orthodox or approved unorthodox location for such original horizon, or to permit the completion of an efficient production and injection pattern within a secondary recovery or pressure maintenance project, provided that any such unorthodox location within such project is no closer than 330 feet to the outer boundary of the lease, or the unitized area, nor closer than 10 feet to any quarter-quarter section line or subdivision inner boundary.

II. The Division Director shall have authority to grant an exception to the well location requirements of Rule 104 B.I. (a) and Rule 104 C.II. (a) without notice and hearing when the necessity for such unorthodox location is based upon geologic conditions provided that any such unorthodox location shall be no closer than 660 feet to the nearest side boundary nor closer than 990 feet to the nearest end boundary of the proration unit.

III. Applications for administrative approval of unorthodox locations shall be filed in triplicate and shall be accompanied by plats, showing the ownership of all leases offsetting the proration or spacing unit for which the unorthodox location is sought, and also all wells completed thereon. If the proposed unorthodox location is based upon topography, the plat shall also show and describe the existent topographical conditions. If the proposed unorthodox location is based upon completion of an efficient production and injection pattern, the plat shall also show the project outline identifying all producing and injection wells therein, and the applicant shall further include a statement setting forth the necessity for such location. If the proposed unorthodox location is based upon geology as provided in Paragraph II above, the application shall include appropriate geologic maps, cross-sections, and/or logs, and a discussion of the geologic conditions which result in the necessity for the unorthodox location.

IV. All operators of proration or spacing units offsetting the unit for which the unorthodox location is sought shall be notified of the application by certified or registered mail, and the application shall state that such notification has been given. The Division Director may approve the unorthodox location upon receipt of waivers from all offset operators or if no offset operator has entered an objection to the unorthodox location within 20 days after the Director has received the application.

V. The Division Director may, at his discretion, set any application for administrative approval of an unorthodox location for public hearing.

G. Whenever an exception is granted, the Division may take such action as will offset any advantage which the person securing the exception may obtain over other producers by reason of the unorthodox location.

H. If the drilling tract is within an allocated oil pool or is placed within such allocated pool at any time after completion of the well and the drilling tract consists of less than 39-1/2 acres or more than 40-1/2 acres, the top unit allowable for such well shall be increased or decreased in the proportion that the number of acres in the drilling tract bears to 40.

I. If the drilling tract is within an allocated gas pool or is subsequently placed within an allocated gas pool, and the drilling tract consists of less than 158 acres or more than 162 acres in 160-acre pools, or less than 316 acres or more than 324 acres in 320-acre pools, the top allowable for such well shall be decreased or increased in the proportion that the number of acres in the drilling tract bears to a standard unit for the pool.

J. In computing acreage under H and I above, minor fractions of an acre shall not be counted but 1/2 acre or more shall count as 1 acre.

K. The provisions of H and I above shall apply only to wells completed after January 1, 1950. Nothing herein contained shall affect in any manner any well completed prior to the effective date of this rule and no adjustments shall be made in the allowable production for any such wells by reason of these rules.

L. In order to prevent waste the Division may, after notice and hearing, fix different spacing requirements and require greater acreage for drilling tracts in any defined oil pool or in any defined gas pool notwithstanding the provisions of B and C above.

M. The Division may approve the pooling or communitization of fractional lots of 20.49 acres or less with another oil proration unit when:

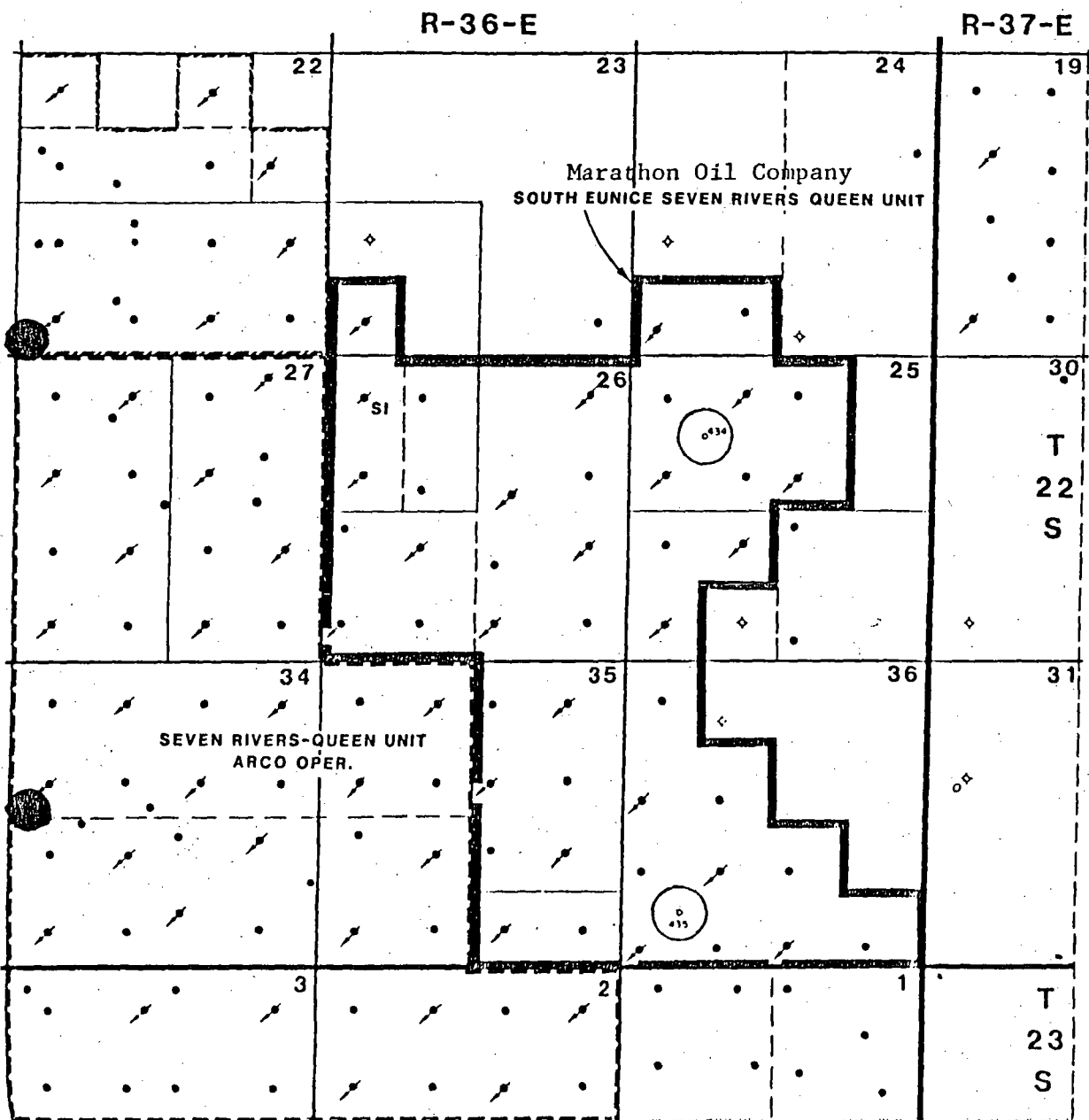
1. The units involved are contiguous;
2. They are part of the same basic lease, carrying the same royalty interest; and
3. The ownership of the units involved is common.

Application to the Division for pooling shall be accompanied by three (3) copies of a certified plat showing the dimensions and acreage involved in the pooling, the ownership of all leases and royalty interests involved, and the location of any proposed wells.

Applicant shall furnish all operators who directly and diagonally offset the units involved a copy of the application to the Division, and shall include with his application a written statement that all offset operators have been properly notified. Offset operators shall include only those operators who have offset properties within the State of New Mexico. The Division shall wait at least ten days before approving any such pooling, and shall approve such pooling only in the absence of objection from any offset operator. In the event that an operator objects to the pooling, the Division shall consider the matter only after proper notice and hearing.

The Division may waive the ten-day waiting period requirement if the applicant furnishes the Division with the written consent to the pooling by all offset operators involved.

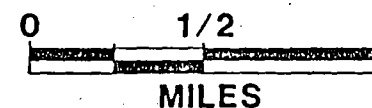
The Division may consider that the requirements of subparagraphs 2 and 3 of paragraph M of this rule have been fulfilled if the applicant furnishes with each copy of each application to the Division a copy of an executed pooling agreement communitizing the units involved.



HOUSTON DIVISION  
MIDLAND DISTRICT

# EUNICE, SOUTH FIELD

LEA COUNTY, NEW MEXICO



Proposed Locations ○

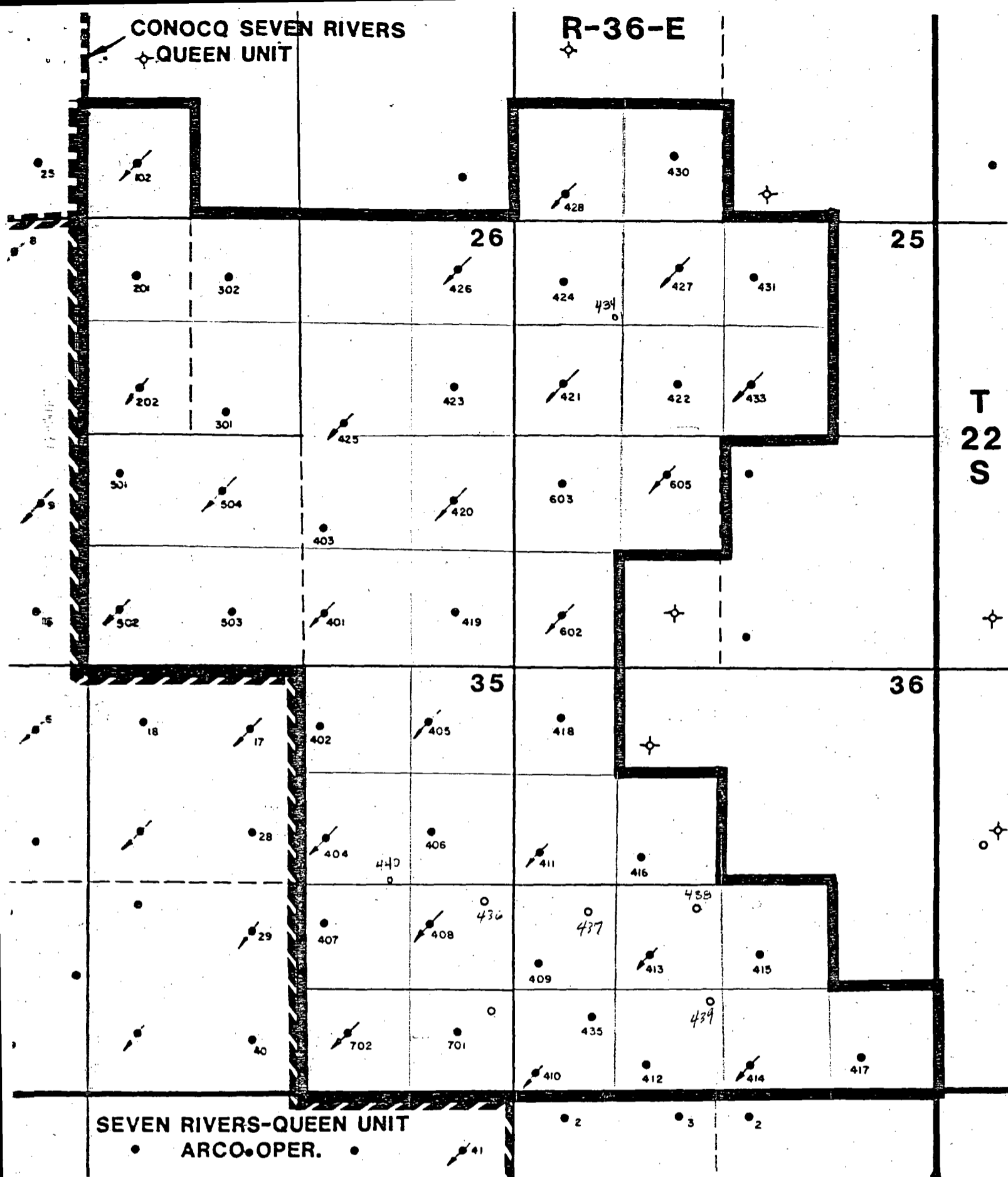


AREA  
SHOWN

CONOCO SEVEN RIVERS

QUEEN UNIT

R-36-E



MARATHON OIL COMPANY  
HOUSTON DIVISION  
MIDLAND DISTRICT

**SOUTH EUNICE**  
**(SEVEN RIVERS, QUEEN) UNIT**  
**EUNICE, SOUTH FIELD**  
**LEA COUNTY, NEW MEXICO**

JALMAT GAS WELLS ARE NOT SHOWN

SCALE: 1"=1500'

3/85  
DON JONES

# TYPE LOG

R-36-E

R-37-E



HOUSTON DIVISION  
MIDLAND DISTRICT

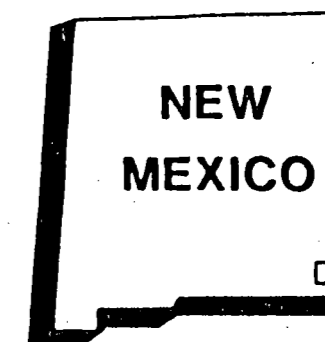
## EUNICE, SOUTH FIELD

LEA COUNTY, NEW MEXICO

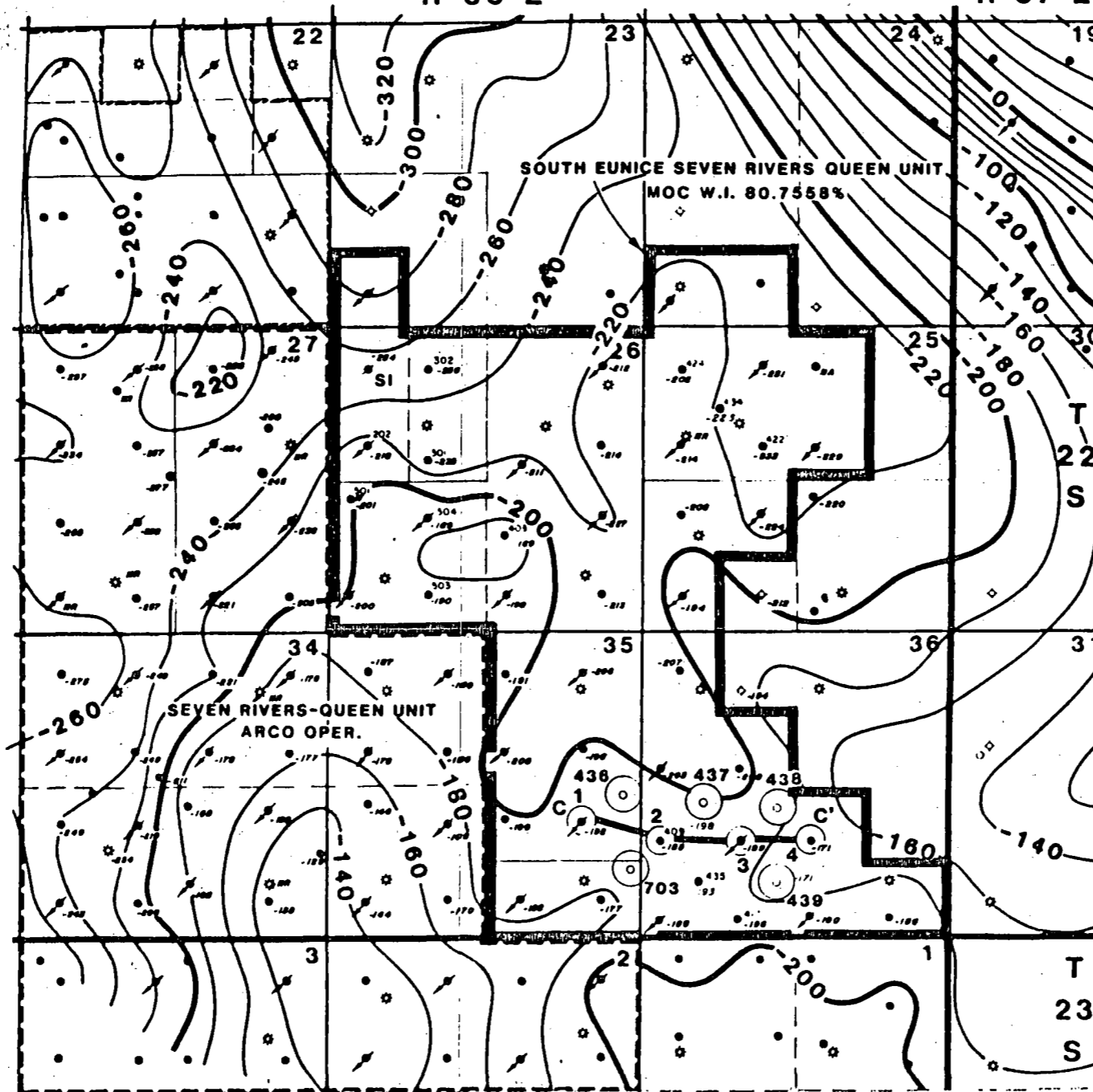


### LEGEND

- PROPOSED LOCATIONS
- LINE OF SECTION



AREA SHOWN



3000

YATES

SEVEN RIVERS

3500

QUEEN

BEFORE THE OIL CONSERVATION COMMISSION  
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING  
CALLED BY THE OIL CONSERVATION  
COMMISSION OF NEW MEXICO FOR  
THE PURPOSE OF CONSIDERING:

CASE NO. 4616  
Order No. R-4217

APPLICATION OF MARATHON OIL  
COMPANY FOR A WATERFLOOD PROJECT,  
LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on October 27, 1971, at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this 4th day of November, 1971, the Commission, a quorum being present, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

(1) That due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, Marathon Oil Company, seeks authority to institute a waterflood project in the South Eunice (Seven Rivers-Queen) Unit Area, South Eunice Seven Rivers-Queen Pool, by the injection of water into the Seven Rivers and Queen formations through eight injection wells in Sections 24, 25, and 26, Township 22 South, Range 36 East, NMPM, Lea County, New Mexico.

(3) That the applicant further seeks an administrative procedure whereby said project could be expanded to include additional injection wells in the area of the said project as may be necessary in order to complete an efficient injection pattern; that said administrative procedure should provide for administrative approval for conversion to water injection in exception to the well response requirements of Rule 701 E-5 of the Commission Rules and Regulations.

(4) That the wells in the project area are in an advanced state of depletion and should properly be classified as "stripper" wells.

(5) That the proposed waterflood project should result in the recovery of otherwise unrecoverable oil, thereby preventing waste.

(6) That the subject application should be approved and the project should be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations; provided however, the showing of well response as required by Rule 701 E-5 should not be necessary before obtaining administrative approval for the conversion of additional wells to water injection.

IT IS THEREFORE ORDERED:

(1) That the applicant, Marathon Oil Company is hereby authorized to institute a waterflood project in the South Eunice (Seven Rivers-Queen) Unit Area, South Eunice Seven Rivers-Queen Pool, by the injection of water into the Seven Rivers and Queen formations through the following-described wells in Township 22 South, Range 36 East, NMPM, Lea County, New Mexico:

| <u>Company</u> | <u>Lease and Well No.</u>          | <u>Location</u>  |
|----------------|------------------------------------|------------------|
| Marathon       | McDonald State A/C "1-B"<br>No. 20 | Unit I - Sec. 26 |
| Marathon       | McDonald State A/C "1-B"<br>No. 21 | Unit E - Sec. 25 |
| Marathon       | McDonald State A/C "1-B"<br>No. 25 | Unit G - Sec. 26 |
| Marathon       | McDonald State A/C "1-B"<br>No. 26 | Unit A - Sec. 26 |
| Marathon       | McDonald State A/C "1-B"<br>No. 27 | Unit C - Sec. 25 |
| Marathon       | McDonald State A/C "1-B"<br>No. 28 | Unit M - Sec. 24 |
| Shell          | A. L. Christmas "B" No. 2          | Unit M - Sec. 25 |
|                | A. L. Christmas "B" No. 5          | Unit K - Sec. 25 |

(2) That the subject waterflood project is hereby designated the Marathon South Eunice Unit Waterflood Project and shall be

-3-

CASE NO. 4616

Order No. R-4217

governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations.

PROVIDED HOWEVER, that the Secretary-Director of the Commission may approve expansion of the above-described waterflood project to include such additional injection wells in the area of said project as may be necessary to complete an efficient water injection pattern; that the showing of well response as required by Rule 701 E-5 shall not be necessary before obtaining administrative approval for the conversion of additional wells to water injection.

(3) That monthly progress reports of the waterflood project herein authorized shall be submitted to the Commission in accordance with Rules 704 and 1120 of the Commission Rules and Regulations.

(4) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO  
OIL CONSERVATION COMMISSION

BRUCE KING, Chairman

ALEX J. ARMIJO, Member

A. L. PORTER, Jr., Member & Secretary

S E A L

dr/



**NEW MEXICO OIL CONSERVATION COMMISSION  
WELL LOCATION AND ACREAGE DEDICATION PLAT**

Form C-102  
Supersedes C-128  
Effective 1-1-65

All distances must be from the outer boundaries of the Section

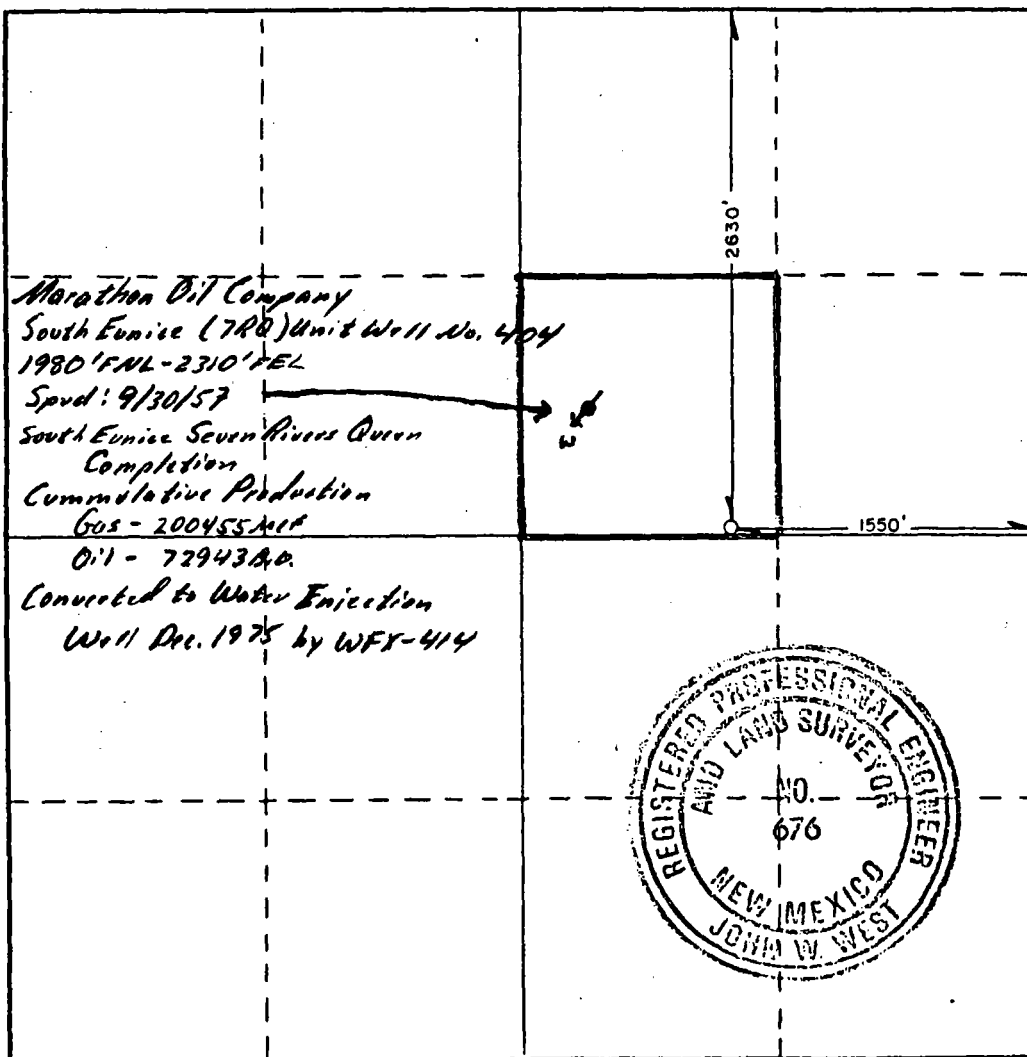
|                                  |   |                      |   |               |                                |
|----------------------------------|---|----------------------|---|---------------|--------------------------------|
| MARATHON OIL COMPANY             |   |                      | Lease<br>SOUTH EUNICE SEVEN RIVERS QUEEN UNIT |               | Well No.<br>440                |
| Letter<br>G                      | Section<br>35                             | Township<br>22 SOUTH | Range<br>36 EAST                              | County<br>LEA |                                |
| Actual Footage Location of Well: |   |                      |   |               |                                |
| 2630                             |   | feet from the        | NORTH   | line and      | 1550                           |
|                                  |   |                      |   | feet from the | EAST                           |
|                                  |   |                      |   |               | line                           |
| Ground Level Elev.<br>3484.4'    | Producing Formation<br>SEVEN RIVERS/QUEEN |                      | Pool<br>SOUTH EUNICE (7 RIVERS/QUEEN)         |               | Dedicated Acreage:<br>40 Acres |

1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).
3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?

☐ Yes    ☐ No    If answer is "yes," type of consolidation \_\_\_\_\_

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) \_\_\_\_\_

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission.



**CERTIFICATION**

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.

*Thomas F. Zapatka*

Name

Thomas F. Zapatka

Position

Production Engineer

Company

Marathon Oil Company

Date

December 12, 1985

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

Date Surveyed

DECEMBER 3, 1985

Registered Professional Engineer and/or Land Surveyor

*John W. West*

Certificate No. JOHN W. WEST,

676

RONALD J. EIDSON, 3239

CERTIFICATE OF SERVICE

I hereby certify that I have this day served a copy, via registered mail, of Marathon Oil Company's request for Infill Well Finding for South Eunice Unit Well No. 440, South Eunice (Seven Rivers Queen) Field, Lea County, New Mexico upon all offset operators as listed below as required by New Mexico Order No. R-6013-A.

Arco Oil and Gas  
P. O. Box 1610  
Midland, Texas 79702  
Attn: Jerry Tweed

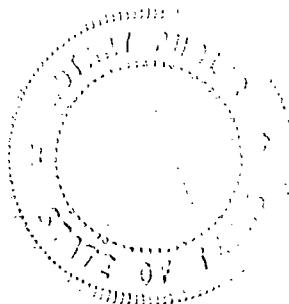
*R. J. Peterman*

R. J. Peterman, Manager  
Contracts & Regulatory Compliance

Subscribed and sworn to before me, a Notary Public,

March 5, 1986

*Kayla R. Pigman*  
Notary Public



Request for Infill Well Finding  
South Eunice Unit Well No. 440  
South Eunice (Seven Rivers Queen) Field  
Lea County, New Mexico

In compliance with Rule 8 of Filing Requirements for Natural Gas Policy Act Infill Findings, Marathon is submitting a plat showing 40-acre spacing within the South Eunice Unit and a description of all wells drilled on the proration unit (including the completed infill well) which are completed in the same pool or reservoir as the proposed infill well. Also attached is a statement indicating why the existing well on the proration unit cannot effectively and efficiently drain the portion of the reservoir covered by the proration unit.

I. WELL ON WHICH FILING FOR INFILL FINDING IS BEING MADE

- A. Lease Name & Well Location: South Eunice (7RQ) Unit No. 440.  
Unit G, Section 35, T-22-S, R-36-E, 2630' FNL & 1550' FEL,  
Lea County, New Mexico.
- B. Spud Date: 02/02/86
- C. Completion Date: N/A
- D. Mechanical Problems: None
- E. Current Rate of Production: N/A
- F. Date of P&A: None

II. EXISTING WELL ON PRORATION UNIT

- A. Lease Name & Well Location: South Eunice (7RQ) Unit No. 404.  
Unit G, Section 35, T-22-S, R-36-E, 1980' FNL & 2310' FEL,  
Lea County, New Mexico
- B. Spud Date: 9-30-57
- C. Completion Date: 10-10-57
- D. Mechanical Problems: None
- E. Current Rate of Production: Active Injection Well
- F. Date of P & A: None

South Eunice Unit Well No's. 438 & 440

Lea County, New Mexico

Reserves of 80,000 barrels of oil and 24,000 MCF of gas are expected from each of the wells listed above. This reserve figure was derived from volumetric calculations, using the following parameters: average porosity 15%, drainage area = 10 acres, net pay thickness = 50 feet, water saturation = 35%, formation volume factor = 1.2, recovery efficiency = 25%, and gas-oil ratio = 300 SCF/STB.

The area was originally developed on 40 acre spacing in the late 1950's and early 1960's. In the mid-1970's a pilot and later a unit-wide waterflood were implemented, utilizing the existing wells. It is believed that only a small portion of the unitized reservoir has been successfully waterflooded, due to the low permeability of the fine-grained Queen sandstone and the presence of high permeability streaks in portions of the Unit. Two-thirds of the waterflood production has come from several wells that encounter one particular high permeability sand member in the northeastern portion of the Unit.

Due to this low permeability of the majority of the Queen pay, each well has drained considerably less than the 40 acres currently assigned. As shown above, reserves of 80,000 barrels can be calculated assuming only 10 acre drainage, and many wells in the unit have not made that much. It is expected that these infill wells can recover primary reserves from tight Queen sands after adequate stimulation.

It is also believed that these wells will help to recover additional secondary reserves from higher permeability intervals which are floodable. Pressure testing of wells has indicated an unusually low reservoir pressure in some producing wells, indicating inadequate injection support. This may be caused by reservoir discontinuities between producing wells and injection wells. By infill drilling in the South Eunice Unit, more continuous pay will be developed which should improve waterflood recoveries.

DGJ/NPS/dah

1-20-86

## (C - DRILLING - Cont'd.)

In the event gas production is encountered in a well which was projected to an oil-producing horizon and which is located accordingly but does not conform to the above gas well location rules, it shall be necessary for the operator to bring the matter to a hearing before approval for the production of gas can be given.

### III. All counties except Lea, Chaves, Eddy, Roosevelt, San Juan, Rio Arriba, and Sandoval (As Amended by Order No. R-6870, February 1, 1982.)

Any wildcat well which is projected as an oil well in any county other than Lea, Chaves, Eddy, Roosevelt, San Juan, Rio Arriba, and Sandoval shall be located on a tract consisting of approximately 40 surface contiguous acres substantially in the form of a square which is a legal subdivision of the U. S. Public Land Surveys, or on a governmental quarter-quarter section or lot and shall be located not closer than 330 feet to any boundary of such tract.

Any wildcat well which is projected as a gas well to a formation and in an area which, in the opinion of the Division representative approving the application to drill, may reasonably be presumed to be productive of gas rather than oil shall be located on a drilling tract consisting of 160 surface contiguous acres, more or less, substantially in the form of a square which is a quarter section, being a legal subdivision of the U. S. Public Land Surveys, and shall be located not closer than 660 feet to any outer boundary of such tract nor closer than 330 feet to any quarter-quarter section or subdivision inner boundary.

### C. ACREAGE AND WELL LOCATION REQUIREMENTS FOR DEVELOPMENT WELLS (As Amended by Order No. R-4383, September 6, 1972, and Order No. R-5113, November 1, 1975.)

#### I. Oil Wells. All Counties (As Amended by Order No. R-4383, September 6, 1972.)

Unless otherwise provided in special pool rules, each development well for a defined oil pool shall be located on a tract consisting of approximately 40 surface contiguous acres substantially in the form of a square which is a legal subdivision of the U. S. Public Land Surveys, or on a governmental quarter-quarter section or lot, and shall be located not closer than 330 feet to any boundary of such tract nor closer than 330 feet to the nearest well drilling to or capable of producing from the same pool, provided, however, only tracts committed to active secondary recovery projects shall be permitted more than four wells.

#### II. Gas Wells

##### (a) Lea, Chaves, Eddy, and Roosevelt Counties

Unless otherwise provided in special pool rules, each development well for a defined gas pool in a formation younger than the Wolfcamp formation, or in the Wolfcamp formation which was created and defined by the Division prior to November 1, 1975, or in a Pennsylvanian age or older formation which was created and defined by the Division prior to June 1, 1964, shall be located on a designated drilling tract consisting of 160 surface contiguous acres, more or less, substantially in the form of a square which is a quarter section being a legal subdivision of the U. S. Public Land Surveys, and shall be located not closer than 660 feet to any outer boundary of such tract nor closer than 330 feet to any quarter-quarter section or subdivision inner boundary nor closer than 1320 feet to the nearest well drilling to or capable of producing from the same pool.

Unless otherwise provided in the special pool rules, each development well for a defined gas pool in the Wolfcamp formation which was created and defined by the Division after November 1, 1975, or of Pennsylvanian age or older which was created and defined by the Division after June 1, 1964, shall be located on a designated drilling tract consisting of 320 surface contiguous acres, more or less, comprising any two contiguous quarter sections of a single governmental section, being a legal subdivision of the U. S. Public Land Surveys. Any such well

having more than 160 acres dedicated to it shall be located not closer than 660 feet to the nearest side boundary of the dedicated tract nor closer than 1980 feet to the nearest end boundary nor closer than 330 feet to any quarter-quarter section or subdivision inner boundary. (For the purpose of this rule, 'side' boundary and 'end' boundary are as defined in Section B I (a) of this rule.)

#### (b) San Juan, Rio Arriba, and Sandoval Counties

Unless otherwise provided in special pool rules, each development well for a defined gas pool shall be located on a designated drilling tract consisting of 160 surface contiguous acres, more or less, substantially in the form of a square which is a quarter section, being a legal subdivision of the U. S. Public Land Surveys, and shall be located not closer than 790 feet to any outer boundary of the tract nor closer than 130 feet to any quarter-quarter section line or subdivision inner boundary.

#### (c) All counties except Lea, Chaves, Eddy, Roosevelt, San Juan, Rio Arriba, and Sandoval

Unless otherwise provided in special pool rules, each development well for a defined gas pool shall be located on a designated drilling tract consisting of 160 surface contiguous acres, more or less, substantially in the form of a square which is a quarter section, being a legal subdivision of the U. S. Public Land Surveys, and shall be located not closer than 660 feet to any outer boundary of such tract nor closer than 330 feet to any quarter-quarter section or subdivision inner boundary nor closer than 1320 feet to the nearest well drilling to or capable of producing from the same pool.

#### D. ACREAGE ASSIGNMENT, COMPLETED WELLS

##### I. Well Tests and Classification

It shall be the responsibility of the operator of any wildcat gas well or development gas well to which more than 40 acres has been dedicated to conduct a potential test within 30 days following completion of the well and to file the same with the Division within 10 days following completion of the tests. (See Rule 401.)

Date of completion for a gas well shall be the date a Christmas tree is installed or 30 days following conclusion of active completion work on the well, whichever date comes first.

Upon making a determination that the well should not properly be classified as a gas well, the Division will reduce the acreage dedicated to the well.

Failure of the operator to file the aforesaid tests within the specified time will also subject the well to such acreage reduction.

#### II. Non-Standard Units

Any completed gas well which does not have the required amount of acreage dedicated to it for the pool or formation in which it is completed may not be produced until a standard unit for the well has been formed and dedicated or until a non-standard unit has been approved.

The Division-Director may grant administrative approval to non-standard gas units without notice and hearing when an application has been filed for a non-standard unit and the unorthodox size or shape of the unit is necessitated by a variation in the legal subdivision of the U. S. Public Land Surveys, or the following facts exist and the following provisions are complied with:

(a) The non-standard unit consists of quarter-quarter sections or lots that are contiguous by a common bordering side.

(b) The non-standard unit lies wholly within a single governmental quarter section if the well is completed in a pool or formation for which 160 acres is the standard unit size or wholly within a single governmental half section if the well is completed in a pool or formation for which 320 acres is the standard unit size.

## C - DRILLING - Cont'd.)

(c) The applicant presents written consent in the form of waivers from all offset operators and from all operators owning interests in the quarter section (for 160-acre pools or formations) or the half section (for 320-acre pools or formations) in which the non-standard unit is situated and which acreage is not included in said non-standard unit.

(d) In lieu of paragraph (c) of this rule, the applicant may furnish proof of the fact that all of the aforesaid operators were notified by registered or certified mail of his intent to form such non-standard unit. The Director may approve the application if no such operator has entered an objection to the formation of such non-standard unit within 30 days after the Division Director has received the application.

E. (As Amended by Order No. R-2761, January 1, 1965.) Form C-101. Application for Permit to Drill, Deepen, or Plug Back for any well shall designate the exact legal subdivision allotted to the well and no Form C-101 will be approved by the Division or any of its agents without such proper designation of acreage.

F. Unorthodox Locations (As Amended by Order No. R-3038, February 9, 1966, Order No. R-5590, December 29, 1978, Order No. R-6870, February 1, 1982, and Order No. R-7451, March 2, 1984.)

I. The Division Director shall have authority to grant an exception to the well location requirements of Sections B and C above without notice and hearing when the necessity for such unorthodox location is based upon topographical conditions, the recompletion of a well previously drilled to a deeper horizon, provided said well was drilled at an orthodox or approved unorthodox location for such original horizon, or to permit the completion of an efficient production and injection pattern within a secondary recovery or pressure maintenance project, provided that any such unorthodox location within such project is no closer than 330 feet to the outer boundary of the lease, or the unitized area, nor closer than 10 feet to any quarter-quarter section line or subdivision inner boundary.

II. The Division Director shall have authority to grant an exception to the well location requirements of Rule 104 B.I. (a) and Rule 104 C.II. (a) without notice and hearing when the necessity for such unorthodox location is based upon geologic conditions provided that any such unorthodox location shall be no closer than 660 feet to the nearest side boundary nor closer than 330 feet to the nearest end boundary of the proration unit.

III. Applications for administrative approval of unorthodox locations shall be filed in triplicate and shall be accompanied by plats, showing the ownership of all leases offsetting the proration or spacing unit for which the unorthodox location is sought, and also all wells completed thereon. If the proposed unorthodox location is based upon topography, the plat shall also show and describe the existent topographical conditions. If the proposed unorthodox location is based upon completion of an efficient production and injection pattern, the plat shall also show the project outline identifying all producing and injection wells therein, and the applicant shall further include a statement setting forth the necessity for such location. If the proposed unorthodox location is based upon geology as provided in Paragraph II above, the application shall include appropriate geologic maps, cross-sections, and/or logs, and a discussion of the geologic conditions which result in the necessity for the unorthodox location.

IV. All operators of proration or spacing units offsetting the unit for which the unorthodox location is sought shall be notified of the application by certified or registered mail, and the application shall state that such notification has been given. The Division Director may approve the unorthodox location upon receipt of waivers from all offset operators or if no offset operator has entered an objection to the unorthodox location within 20 days after the Director has received the application.

V. The Division Director may, at his discretion, set any application for administrative approval of an unorthodox location for public hearing.

G. Whenever an exception is granted, the Division may take such action as will offset any advantage which the person securing the exception may obtain over other producers by reason of the unorthodox location.

H. If the drilling tract is within an allocated oil pool or is placed within such allocated pool at any time after completion of the well and the drilling tract consists of less than 39-1/2 acres or more than 40-1/2 acres, the top unit allowable for such well shall be increased or decreased in the proportion that the number of acres in the drilling tract bears to 40.

I. If the drilling tract is within an allocated gas pool or is subsequently placed within an allocated gas pool, and the drilling tract consists of less than 158 acres or more than 162 acres in 160-acre pools, or less than 316 acres or more than 324 acres in 320-acre pools, the top allowable for such well shall be decreased or increased in the proportion that the number of acres in the drilling tract bears to a standard unit for the pool.

J. In computing acreage under H and I above, minor fractions of an acre shall not be counted but 1/2 acre or more shall count as 1 acre.

K. The provisions of H and I above shall apply only to wells completed after January 1, 1950. Nothing herein contained shall affect in any manner any well completed prior to the effective date of this rule and no adjustments shall be made in the allowable production for any such wells by reason of these rules.

L. In order to prevent waste the Division may, after notice and hearing, fix different spacing requirements and require greater acreage for drilling tracts in any defined oil pool or in any defined gas pool notwithstanding the provisions of B and C above.

M. The Division may approve the pooling or communitization of fractional lots of 20.49 acres or less with another oil proration unit when:

1. The units involved are contiguous;
2. They are part of the same basic lease, carrying the same royalty interest; and
3. The ownership of the units involved is common.

Application to the Division for pooling shall be accompanied by three (3) copies of a certified plat showing the dimensions and acreage involved in the pooling, the ownership of all leases and royalty interests involved, and the location of any proposed wells.

Applicant shall furnish all operators who directly and diagonally offset the units involved a copy of the application to the Division, and shall include with his application a written statement that all offset operators have been properly notified. Offset operators shall include only those operators who have offset properties within the State of New Mexico. The Division shall wait at least ten days before approving any such pooling, and shall approve such pooling only in the absence of objection from any offset operator. In the event that an operator objects to the pooling, the Division shall consider the matter only after proper notice and hearing.

The Division may waive the ten-day waiting period requirement if the applicant furnishes the Division with the written consent to the pooling by all offset operators involved.

The Division may consider that the requirements of subparagraphs 2 and 3 of paragraph M of this rule have been fulfilled if the applicant furnishes with each copy of each application to the Division a copy of an executed pooling agreement communitizing the units involved.

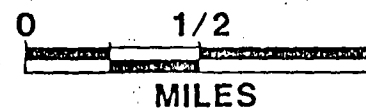
R-36-E

R-37-E

Marathon Oil Company  
SOUTH EUNICE SEVEN RIVERS QUEEN UNIT

SEVEN RIVERS-QUEEN UNIT  
ARCO OPER.

  
HOUSTON DIVISION  
MIDLAND DISTRICT  
**EUNICE, SOUTH FIELD**  
LEA COUNTY, NEW MEXICO



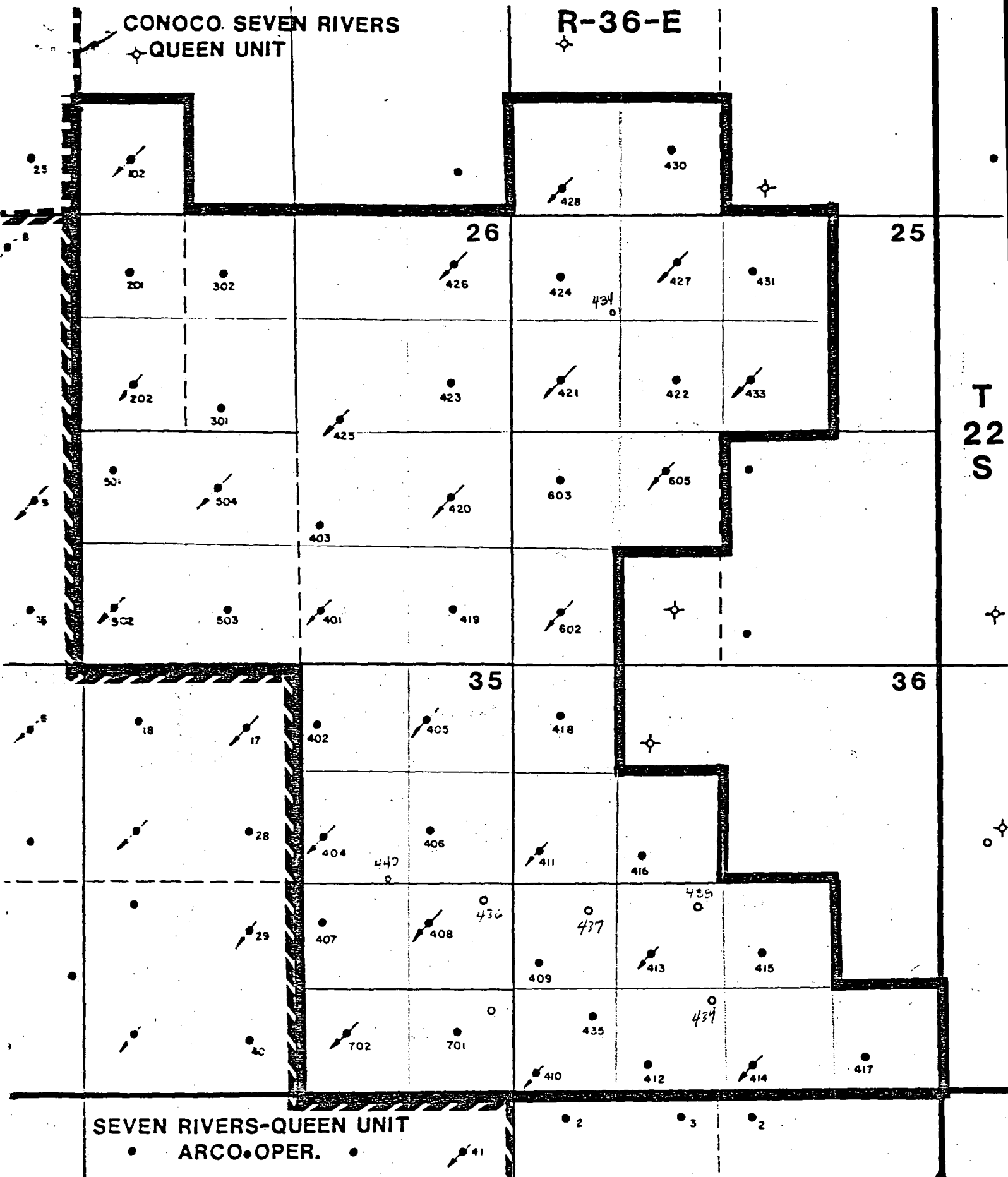
Proposed Locations ○

NEW  
MEXICO


AREA  
SHOWN

CONOCO. SEVEN RIVERS  
 QUEEN UNIT

R-36-E



SEVEN RIVERS-QUEEN UNIT  
 • ARCO.OPER. •



**MARATHON OIL COMPANY**  
 HOUSTON DIVISION  
 MIDLAND DISTRICT

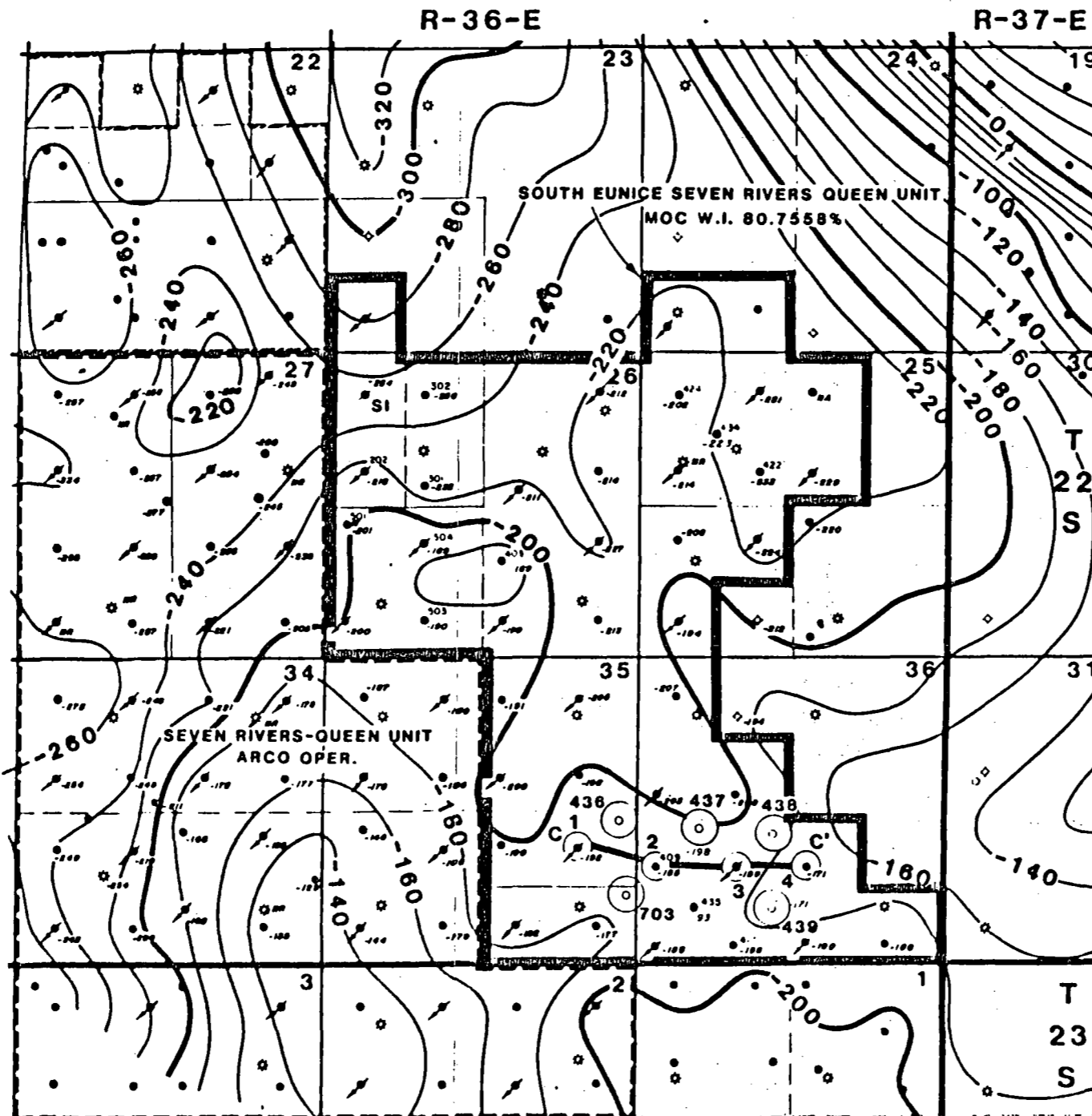
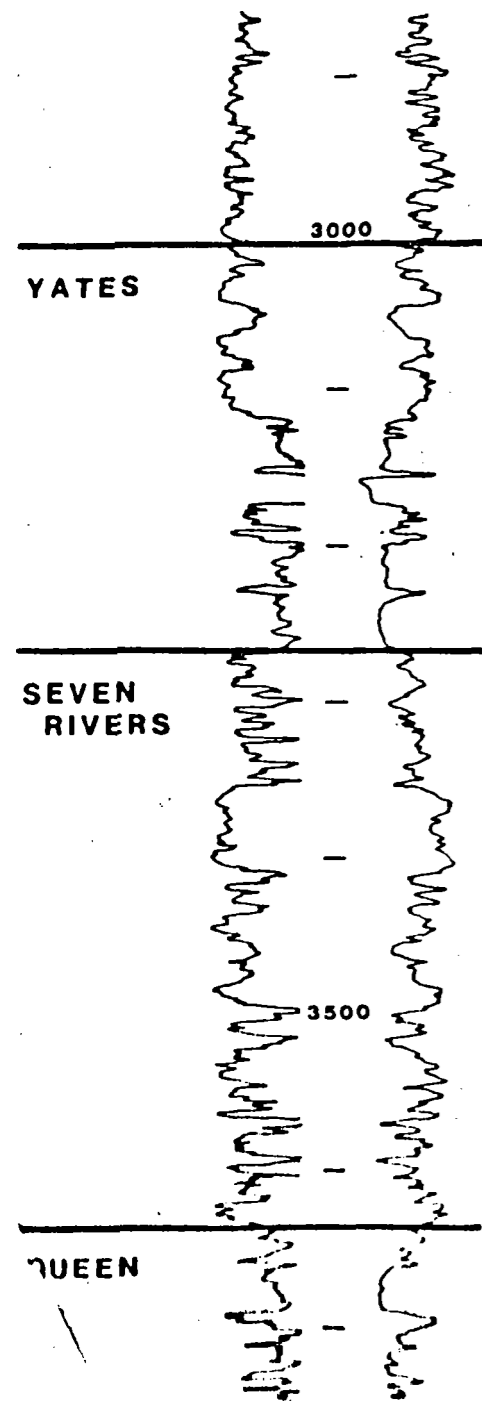
**SOUTH EUNICE  
 (SEVEN RIVERS, QUEEN) UNIT**  
 EUNICE, SOUTH FIELD  
 LEA COUNTY, NEW MEXICO

JALMAT GAS WELLS ARE NOT SHOWN

SCALE: 1"=1500'

3/88  
 DON JONES

# TYPE LOG



CONTOURED ON TOP OF QUEEN  
C.I. 20'



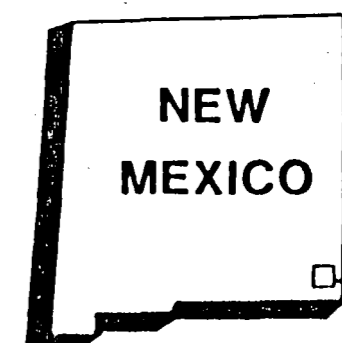
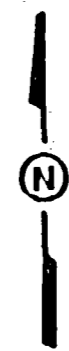
HOUSTON DIVISION  
MIDLAND DISTRICT

## EUNICE, SOUTH FIELD LEA COUNTY, NEW MEXICO



### LEGEND

- PROPOSED LOCATIONS
- LINE OF SECTION



AREA SHOWN