

2421

(505) 827-5760

FAX (505) 827-5766

State of New Mexico Commissioner of Public Lands

RAY POWELL, M.S., D.V.M. COMMISSIONER

310 OLD SANTA FE TRAIL P.O. BOX 1148

SANTA FE, NEW MEXICO 87504-1148

January 4, 1996

Strata Production Company Post Office Drawer 1030 Roswell, New Mexico 88201

Attn:

Ms. Jo McInerney

Re:

Designation of Successor Unit Operator

Northeast Caprock Queen Unit

Lea and Chaves Counties, New Mexico

Dear Ms. McInerney:

The Oil, Gas & Minerals Division received a designation of successor unit operator, wherein Murphy Operating Corporation resigned as unit operator of the Northeast Caprock Queen Unit, and designated Secondary Oil Company as the successor unit operator.

The Commissioner of Public Lands has this date approved the designation described herein. This change in operators is effective November 1, 1995. In accordance with this approval, Secondary Oil Company is now responsible for all operations and the reporting of all production from the unit.

If you have any questions, or if we may be of further help, please contact Pete Martinez at (505) 827-5791.

Very truly yours,

RAY POWELL, M.S., D.V.M.

COMMISSIONER OF PUBLIC LANDS

LARRY KEHOE, Director

Oil, Gas & Minerals Division

(505) 827-5744

RP/LK/cpm

Enclosures

xc: Reader File

OCD-Roy Johnson

Murphy Operating Corporation Commissioner's File

TRD

242/





UNITED BANK PLAZA, SUITE 300 400 NORTH PENNSYLVANIA AVENUE - 10 8 52 POST OFFICE BOX 2648 ROSWELL, NEW MEXICO 88202-2648

TELEPHONE 505 623-7210

September 23, 1994

Ms. Leslie Cone, District Manager United States of America Department of the Interior Bureau of Land Management Post Office Box 1397 Roswell, New Mexico 88202-1397

Mr. William J. LeMay, Director State of New Mexico Energy and Minerals Department Oil Conservation Division Post Office Box 2088 Santa Fe, New Mexico 87504-2088

Mr. Floyd O. Prando Director, Oil and Gas Division Commissioner of Public Lands State of New Mexico Post Office Box 1148 Santa Fe, New Mexico 87504-1148 9-27-94 D-VnitleHer D-VnitleX

Re:

Plan of Operation for 1994-1995 Northeast Caprock Queen Unit (the "Unit) Lea County, New Mexico

Ladies and Gentlemen:

Pursuant to the provisions of Section 11 of the Unit Agreement, Murphy Operating Corporation ("MOC"), Unit Operator of the Northeast Caprock Queen Unit, Lea County, New Mexico respectfully submits for your consideration and approval this Plan of Operation for the secondary recovery of oil by waterflood on the subject unitized land.

- Review of 1992 Unit Activity: During 1992, a total of seven (7) wells were active. These seven (7) wells consisted of three (3) injectors (#3, #5 and #21) and four (4) producers (#2, #9, #22, and During the months of January, February, March, April, November and December, Unit production activities were curtailed due to producing problems caused by cold weather (see copy enclosed of correspondence dated January 3, 1990 for additional information).
- Review of 1993 Unit Activity: During 1993, a total of seven (7) II. These seven (7) wells consisted of three (3) wells were active. injectors (#3, #5, and #21) and four (4) producers (#2, #9, #22, and #35Y). During the months of January, February, March, November, and December, Unit production activities were curtailed due to producing problems caused by cold weather. In late August, 1993 one (1) well (#24) was plugged and abandoned. This well was plugged in a manner which will allow it to be re-entered and reactivated, if necessary. Also, one (1) well (#32) was temporarily abandoned. Well #32 will either be reactivated and/or deepened due to the indicated presence of additional pay interval. Both wells were an operational nuisance as a result of the wellhead leaking of small quantities of produced fluids.

- III. <u>Summary of 1994 Unit Activity:</u> Three (3) producing wells (#2, #9, and #35Y) and one (1) injector (#21) have been intermittently active during the months of January through July, 1994. Unit activity was largely curtailed due to cold weather during the months of January through March and low crude oil prices. In August, 1994, four (4) producing wells (#2, #9, #22, and #35Y) and two (2) injectors (#5 and #21) were reactivated. Unit production is expected to average between 250 and 300 barrels of oil per month.
- IV. Proposed Plan of Operation for 1994 and 1995: MOC anticipates that four (4) producers and two (2) injectors will remain active until November or December 1994. We anticipate that Unit activity will be curtailed during the months of December 1994 and January, February, and March 1995, depending upon crude oil prices and the severity of the producing problems caused by cold weather. As a result of the analysis by MOC and the New Mexico Petroleum Recovery Research Center ("PRRC") we believe that ${\rm CO_2}$ flooding is the most optimum oil recovery method. I enclose a copy of PRRC's correspondence dated March 13, 1992 which sets forth a preliminary estimate of the remaining oil reserves. MOC is currently discussing the possibility of a joint venture with Shell Western E & P, Incorporated. We anticipate utilizing CO2 from Shell's Cortez pipeline, located 8 miles northeast of the Unit, as a potential CO2 source for a pilot project.

In order to maintain reservoir pressure, MOC will continue to reinject the available produced water supplemented with freshwater from the existing water well in Section 3, T-12-S, R-32-E. MOC will also continue to monitor all active injection wells by daily rate and pressure readings. Monthly fluid level readings and production tests of the active producing wells will also be performed.

٧. Further Development: MOC has investigated the potential for establishing production from horizons deeper than the Unitized Interval (Queen Sandstone) on the lands encompassed within this Our review indicates that the prospect for establishing production from deeper horizons has, in all likelihood, been fully explored and exhausted. As you are aware, production from the Wolfcamp and Devonian formations has been established in the eastern portion of the Unit. The deeper horizons have apparently been tested in the western portion of the Unit and condemned by the drilling of Union Oil Company's Texaco-Sun State #1 which was drilled to a total depth of 11,987' and was declared dry and abandoned on May 11, 1976. This well is located in Unit A of Section 20, T-12-S, R-32-E. A review of commercial seismic data and subsurface mapping together with the drilling of the deep test wells throughout the Unit indicates that the potential for establishing production from horizons below the Queen Sandstone interval is remote.

Development will continue in an orderly fashion to recover additional oil and gas reserves and to maximize revenues to the parties of the Unit and Unit Operating Agreement. As previously discussed, this development may include the implementation of an enhanced oil recovery project. All workover, drilling and other types of operations will be performed in strict adherence to the Rules and Regulations of the Oil Conservation Division and the Bureau of Land Management.

VI. <u>Modification:</u> Subject to approval, this Plan of Operation may be modified or supplemented during the year to meet changed conditions or to protect the interest of all parties to the Unit Agreement.

Sincerely,

MURPHY OPERATING CORPORATION

Mark B. Murphy President

MBM/js

Enclosures: Exhibit 1 - Northeast Caprock Queen Unit Well Status Map;

Exhibit 2 - Northeast Caprock Queen Unit Reservoir Performance

Curve;

Exhibit 3 - MOC correspondence dated January 3, 1990;

Exhibit 4 - New Mexico Petroleum Recovery Research Center

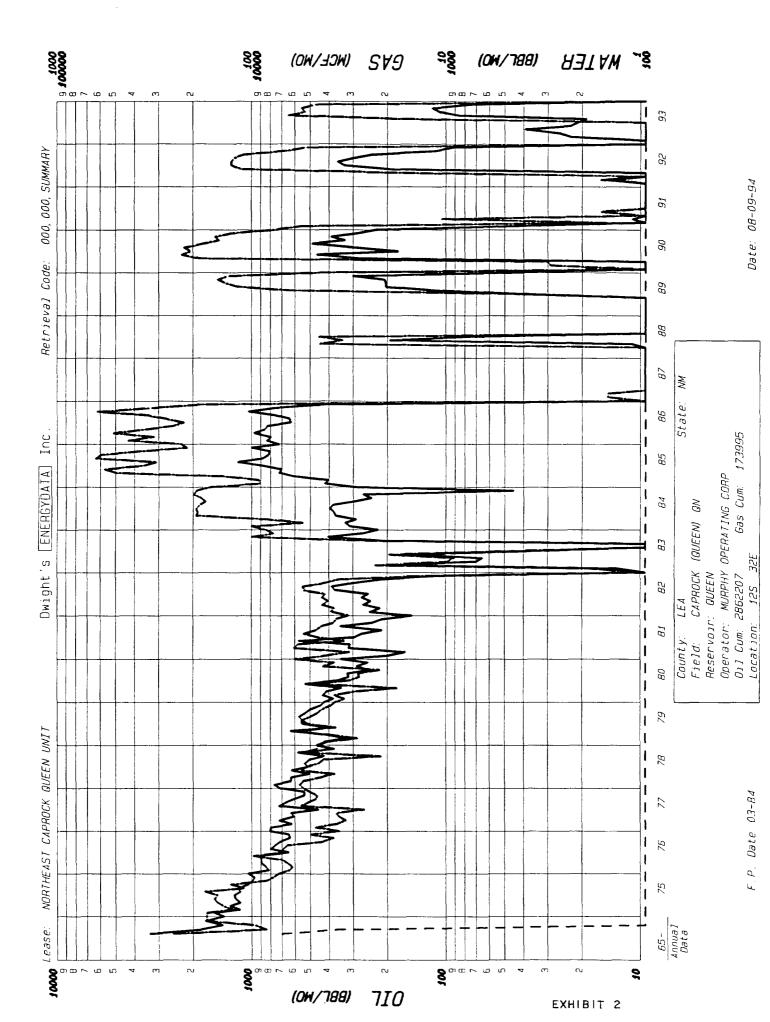
correspondence dated March 13, 1992.

xc: Ms. Alexis Swoboda, BLM Roswell office

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MURPHY OPERATING CORPORATION UNITED BANK PLAZA, SUITE 300 400 NORTH PENNSYLVANIA AVENUE POST OFFICE BOX 264B ROSWELL, NEW MEXICO 88202-2648

TELEPHONE 505 623-7210

January 3, 1990

Ms. Susan Howarth
Oil and Gas Division
New Mexico State Land Office
Post Office Box 1148
Santa Fe, New Mexico 87504-1148

Re: Northeast Caprock Queen Unit (the "Unit") Lea County, New Mexico Supplemental Information Plan of Operation 1989-1990.

Dear Susan:

Pursuant to our discussion enclosed find the field-wide cross-section of the above-referenced unit. As we discussed, MOC will continue to reactivate certain producing and injection wells as outlined in the Plan of Operation. In addition, MOC plans to test additional "behind pipe" reserves believed to be located in the SE/4 NE/4, Section 22, T12S-R32E and the SW/4 NW/4, Section 23, T12S-R32E. These tests should commence in the second or third quarter of 1990.

As we discussed, the Unit exhibits certain producing problems such as a high chloride produced water (see Water Analysis enclosed). The presence of this high chloride water results in salt deposition in the flowlines and producing facilities. To alleviate this problem, fresh water is circulated down the tubing-casing annulus thereby lowering the chloride content of the produced water. This system works very well except when low outside temperatures are encountered. Freezing temperatures make this system inoperable because the fresh water lines freeze, therefore the producing wells must be shut down. During November, 1989, we had essentially no problems with the fresh water system. However, cold temperatures in the first half of December, 1989 resulted in the Unit being shut in for approximately one week and we expect that for the months of December, 1989, January and February, 1990 the Unit may be produced less than half the time. Obviously, this may result in decreased production volumes for these months. By late February or early March, 1990 outside temperatures are expected to be high enough to return the Unit to fully active production and injection.

Thank you for your cooperation and if you have any further questions, comments or suggestions, please do not hesitate to contact me at the number listed above.

Sincerely,

MURPHY OPERATING CORPORATION

Mark B. Murphy

President and Chief Operating Officer

MBM/js

Enclosures: Northeast Caprock Queen Unit Field-wide Cross Section

Permian Treating Chemicals, Inc. Water Analysis

dated 12-05-89.

MURPHY OPERATING COMPANY Northeast Caprock Queen Unit ENGINEERED BY BERTRAM H. MURPHY

DRAFTED BY R. S. ESCOBEDO

PERMIAN

Treating Chemicals, Inc.

P. O. BOX 815 TATUM, NM 88267 PHONE (505) 398-4111

WATER ANALYSIS REPORT

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New Mexico Petroleum Recovery Research Center

A Division of New Mexico Institute of Mining and Technology Telephone (505) 835-5142 Socorro, NM 87801 Facsimile (505) 835-6031 Verify (505) 835-5406

March 13, 1992

Mr. Mark Murphy Murphy Operating Company P.O. Drawer 2648 Roswell, NM 88202-2648

Dear Mr. Murphy:

This letter is to advise you of the status of our study of the Northeast Caprock Queen Unit. The purpose of the study is to determine the feasibility of applying an Enhanced Oil Recovery process to the unit.

To date, we know that the reservoir contains about 65% of the original oil-in-place, which is an EOR target of 7,200,000 barrels of oil. We are in the process of history matching the waterflood performance. The results of the computer history match will be used to evaluate polymerflooding and CO₂ flooding as potential EOR processes.

I urge you to take all means available to preserve the current wells. Re-drilling a field for EOR purposes is impossible to justify at foreseeable oil prices. The current wellbores are a significant asset and must be maintained to ensure an economic EOR process.

It is of interest that the NM Oil & Gas Engineering Committee estimates cumulative recovery from all Caprock Queen Units to be about 73,000,000 barrels of oil. Assuming that your NE Caprock Queen Unit is representative of the others, the remaining oil-in-place for all of the Caprock Queen Units is 142,500,000 STB. I suspect that any technology that is developed for your unit can be transferred to the others.

The Petroleum Recovery Research Center appreciates your support. We look forward to our continued work on this project.

Sincerely,

W. W. Weiss

Field Petroleum Engineer

Bill Mein

WWW:kb

MURPHY OPERATING CORPORATION ONSERGE

UNITED BANK PLAZA, SUITE 300 400 NORTH PENNSYLVANIA AVENUE

-N DIVISION RECOED

TELEPHONE 505 623-7210

POST DFFICE BOX 2648 191 SEP 24
ROSWELL, NEW MEXICO 88202-2648

AM 9 05

September 23, 1991

#2421

CERTIFIED - RETURN RECEIPT REQUESTED

State of New Mexico Commissioner of Public Lands P.O. Box 1148 Santa Fe, New Mexico 87504-1148

Attention: Floyd O. Prondo, Director

Oil and Gas Division

Re:

NORTHEAST CAPROCK QUEEN UNIT

Lea County, New Mexico

Gentlemen:

On August 6, 1986, Murphy Operating Corporation, as Operator of the Northeast Caprock Queen Unit, submitted for approval to the State of New Mexico ("the State") a new Unit Agreement and Unit Operating Agreement.

On August 28, 1986, we received correspondence from the State (copy attached) requesting that Ratifications be executed on behalf of the Lessees of Record under each lease in the Unit, approving the substitution of the new unit agreements.

We are hereby submitting executed Ratifications and a substitute page no. 3, as requested in your letter under paragraph #15. I hope this is everything required in order to receive approval of the unit documents.

Also enclosed for your further information is correspondence dated September 8, 1986 from the Bureau of Land Management approving the Unit Agreement and Unit Operating Agreement.

If you have any questions or need anything further, please don't hesitate to contact this office.

Sincerely,

Lease Records Analyst

dr

Enclosures: as stated.

xc: Oil Conservation Division



State of New Mexico Commissioner of Public Lands

#2421

W. R. Humphries COMMISSIONER

Advisory Board April 23, 1990

George Clark Chairman

Murphy Operating Corporation Kristin Conniff

P.O. Box 2648 Vice Chairman

Roswell, New Mexico 88202-2648 Melvin Cordova

Joe Kelly

Robert Portillos ATTN: Mr. Mark Murphy

Nancy Lynch Vigil

Northeast Caprock Queen Unit RE: Rex Wilson

1990 Plan of Development

Gentlemen:

Commissioner of Public Lands has this date approved the 1990 Plan of Development for the Northeast Caprock Queen Unit. is subject to like approval by all other appropriate approval agencies.

The possibility of drainage by wells outside of the Unit Area and the need for further development of the Unit may exist. be contacted at a later date regarding these possibilities.

Enclosed is an approved copy of the 1990 Plan of Development your files. If we may be of further help, please do not hesitate to contact this office at (505) 827-5746.

Very truly yours,

W.R. HUMPHRIES, COMMISSIONER OF PUBLIC LANDS

Hoyle Phan

BY:

FLOYD O. PRANDO, Director Oil and Gas Division (505) 827-5746

OCD - Santa Fe, New Mexico CCI BLM Unit Correspondence File Unit P.O.D. File

WRH/FOP/SMH

MURPHY OPERATING CORPORATION

UNITED BANK PLAZA, SUITE 300 400 NORTH PENNSYLVANIA AVENUE

FO 8 FEE POST OFFICE BOX 2648 13 ROSWELL, NEW MEXICO 88202-2648

TELEPHONE 505 623-7210

#2421

April 12, 1990

Mr. Francis R. Cherry, Jr., District Manager United States of America Department of the Interior Bureau of Land Management Post Office Box 1397 Roswell, New Mexico 88202-1397

Attention: Mr. Armando Lopez, Branch Chief

Branch of Fluids

Mr. William J. LeMay, Director State of New Mexico Energy and Minerals Department Oil Conservation Division Post Office Box 2088 Santa Fe, New Mexico 87504-2088

Attention: Mr. Michael E. Stogner, Examiner

Mr. Floyd O. Prando Director, Oil and Gas Division Commissioner of Public Lands State of New Mexico Post Office Box 1148 Santa Fe, New Mexico 87504-1148

Attention: Susan Howarth, Phd, Unitization Manager

Substitute Pages for Plan of Operation Correspondence dated April 10, 1990

Mortherst Caprock Queen Unit (the "Unit") Lea County, New Mexico

Gentlemen:

Recently you received the above-referenced correspondence. Unfortunately, the first paragraph was omitted from the text. Enclosed please find corrected replacement pages, please substitute these pages for those originally provided. We regret any inconvenience this may have caused and appreciate your cooperation.

Sincerely,

MURPHY OPERATING CORPORATION

Jeanette Sons

Assistant to the President

cc: Mr. Jerry E. Sexton, Supervisor State of New Mexico Energy and Minerals Department Post Office Box 1980 Hobbs, New Mexico 88240

> Mr. Vince Balderaz Bureau of Land Management Post Office Box 1157 Hobbs, New Mexico 88240

MURPHY OPERATING CORPORATION

MOG

UNITED BANK PLAZA, SUITE 300 400 NORTH PENNSYLVANIA AVENUE POST OFFICE BOX 2648 ROSWELL, NEW MEXICO 88202-2648

TELEPHONE 505 623-7210

April 12, 1990

Mr. Francis R. Cherry, Jr., District Manager United States of America Department of the Interior Bureau of Land Management Post Office Box 1397 Roswell, New Mexico 88202-1397

Attention: Mr. Armando Lopez, Branch Chief

Branch of Fluids

Mr. William J. LeMay, Director State of New Mexico Energy and Minerals Department Oil Conservation Division Post Office Box 2088 Santa Fe, New Mexico 87504-2088

Attention: Mr. Michael E. Stogner, Examiner

Mr. Floyd O. Prando
Director, Oil and Gas Division
Commissioner of Public Lands
State of New Mexico
Post Office Box 1148
Santa Fe, New Mexico 87504-1148

Attention: Susan Howarth, Phd, Unitization Manager

Re:

Northeast Caprock Queen Unit (the "Unit")

Lea County, New Mexico

PLAN OF OPERATION FOR 1990

Gentlemen:

Pursuant to the provisions of Section 11 of the Unit Agreement, Murphy Operating Corporation ("MOC"), Unit Operator of the Northeast Caprock Queen Unit, Lea County, New Mexico respectfully submits for your consideration and approval this plan of operation for the secondary recovery of oil by waterflood on the subject unitized land.

- I. Review of 1989: During 1989 a total of seven (7) wells were active. These seven (7) wells consisted of four (4) injectors (#3, #5, #19, and #21) and three (3) producers (#2, #22, and #35Y). In December, 1989, the Unit produced only about one-half of the month due to producing problems caused by cold weather (see attached correspondence dated January 3, 1990 for additional information).
- II. Proposed Plan of Operation for 1990: As of late March and early April, 1990, a total of nine (9) wells were active. These nine (9) wells consisted of six (6) producing wells (Wells #2, #4, #9, #20, #22, and #35Y) and three (3) injection wells (Wells #3, #5, and #21.)

As discussed in the January 3, 1990 correspondence, MOC plans to test the lower Queen interval in the SE/NE of Section 22, and the SW/NW of Section 23 of T12S-R32E. MOC plans to perforate additional interval and acidize and isolate the lower Queen interval in Wells #31 and #32. Log and core analysis as well as oil recovery from this equivalent interval in Well #13 indicates that this lower zone may not be fully depleted. MOC plans to initiate workover operations on Well #32 in July, 1990. Depending upon the results, Well #31 then may be tested. If commercial production can be established from the lower Queen interval, additional opportunities are immediately apparent throughout Section 22 and 23, T12S-R32E.

In order to maintain reservoir pressure, MOC will continue to reinject the available produced water supplemented with fresh water from the existing water well in Section 3, T12S-R32E. MOC will also continue to monitor all active injection wells by daily rate and pressure readings. Monthly fluid level readings and production tests of the active producing wells will also be performed.

- III. Further Development: Development will continue in an orderly fashion to recover additional oil and gas reserves and to maximize revenues to the parties of the Unit and Unit Operating Agreement. This development may include the implementation of an enhanced oil recovery (tertiary) project and/or infill drilling. All workover, drilling and other types of operations will be performed in strict adherence to the Rules and Regulations of the Oil Conservation Division and the Bureau of Land Management.
- IV. Modification: Subject to approval, this Plan of Operation may be modified or supplemented during the year to meet changed conditions or to protect the interests of all parties to the Unit Agreement.

Sincerely.

MURPHY OPERATING CORPORATION

Mark B. Murphy

President and Chief Operating Officer

MBM/js

Correspondence dated January 3, 1990; Enclosures:

Exhibit 1 - Northeast Caprock Queen Unit Well Status Map;

Exhibit 2 - Northeast Caprock Queen Unit Reservoir

Performance Curve; Exhibit 3 - Northeast Caprock Queen Unit 1988 Tabulated Production

and Injection Data; Exhibit 4 - Northeast Caprock Queen Unit 1989 Tabulated Production

and Injection Data;

Exhibit 5 - Northeast Caprock Queen Unit Agreement, Exhibit A; and

Exhibit 6 - Northeast Caprock Queen Unit Agreement, Exhibit B.

cc: Mr. Jerry E. Sexton, Supervisor State of New Mexico Energy and Minerals Department Post Office Box 1980 Hobbs, New Mexico 88240

> Mr. Vince Balderaz Bureau of Land Management Post Office Box 1157 Hobbs, New Mexico 88240

MOD

MURPHY OPERATING CORPORATION UNITED BANK PLAZA, SUITE 300 400 NORTH PENNSYLVANIA AVENUE POST OFFICE BOX 2648 ROSWELL, NEW MEXICO 88202-2648

TELEPHONE 505 623-7210

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MBM/js

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cc: Mr. Jerry E. Sexton, Supervisor State of New Mexico Energy and Minerals Department Post Office Box 1980 Hobbs, New Mexico 88240

> Mr. Vince Balderaz Bureau of Land Management Post Office Box 1157 Hobbs, New Mexico 88240

MOC

MURPHY DPERATING CORPORATION UNITED BANK PLAZA, SUITE 300 400 NORTH PENNSYLVANIA AVENUE POST OFFICE BOX 2648 ROSWELL, NEW MEXICO 88202-2648

TELEPHONE 505 623-7210

April 12, 1990

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MURPHY OPERATING CORPORATION

Mark B. Murphy

President and Chief Operating Officer

MBM/js

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Exhibit 3 - Northeast Caprock Queen Unit 1988 Tabulated Production

and Injection Data;

Exhibit 4 - Northeast Caprock Queen Unit 1989 Tabulated Production

and Injection Data;

Exhibit 5 - Northeast Caprock Queen Unit Agreement, Exhibit A; and

Exhibit 6 - Northeast Caprock Queen Unit Agreement, Exhibit B.

cc: Mr. Jerry E. Sexton, Supervisor State of New Mexico Energy and Minerals Department Post Office Box 1980 Hobbs, New Mexico 88240

> Mr. Vince Balderaz Bureau of Land Management Post Office Box 1157 Hobbs, New Mexico 88240



MURPHY OPERATING CORPORATION

UNITED BANK PLAZA, SUITE 300 400 NORTH PENNSYLVANIA AVENUE POST OFFICE BOX 2648 ROSWELL, NEW MEXICO 88202-2648

TELEPHONE 505 623-7210

April 10, 1990

4-18-90

D-UNIT LETTER Thaily

Mr. Francis R. Cherry, Jr., District Manager United States of America Department of the Interior Bureau of Land Management Post Office Box 1397 Roswell, New Mexico 88202-1397

Attention: Mr. Joe Lara,

Assistant District Manager of Minerals

Mr. Floyd O. Prando Director, Oil and Gas Division Commissioner of Public Lands State of New Mexico Post Office Box 1148 Santa Fe, New Mexico 87504-1148

Mr. William J. LeMay, Director State of New Mexico Energy and Minerals Department Oil Conservation Division Post Office Box 2088 Santa Fe, New Mexico 87504-2088

Re: PLAN OF OPERATION FOR 1990

Northeast Caprock Queen Unit (the "Unit") Lea County, New Mexico

Gentlemen:

- I. Review of 1989: During 1989 a total of seven (7) wells were active. These seven (7) wells consisted of four (4) injectors (#3, #5, #19, and #21) and three (3) producers (#2, #22, and #35Y). In December, 1989, the Unit produced only about one-half of the month due to producing problems caused by cold weather (see attached correspondence dated January 3, 1990 for additional information).
- II. Proposed Plan of Operation for 1990: As of late March and early April, 1990, a total of nine (9) wells were active. These nine (9) wells consisted of six (6) producing wells (Wells #2, #4, #9, #20, #22, and #35Y) and three (3) injection wells (Wells #3, #5, and #21.)

As discussed in the January 3, 1990 correspondence, MOC plans to test the lower Queen interval in the SE/NE of Section 22, and the SW/NW of Section 23 of T12S-R32E. MOC plans to perforate additional interval and acidize and isolate the lower Queen interval in Wells #31 and #32. Log and core analysis as well as oil recovery from this equivalent interval in Well #13 indicates that this lower zone may not be fully depleted. MOC plans to initiate workover operations on Well #32 in July, 1990. Depending upon the results, Well #31 then may be tested. If commercial production can be established from the lower Queen interval, additional opportunities are immediately apparent throughout Section 22 and 23, T12S-R32E.

In order to maintain reservoir pressure, MOC will continue to reinject the available produced water supplemented with fresh water from the existing $% \left(1\right) =\left(1\right) \left(1\right) \left($ water well in Section 3, T12S-R32E. MOC will also continue to monitor all active injection wells by daily rate and pressure readings. Monthly fluid level readings and production tests of the active producing wells will also be performed.

- III. Further Development: Development will continue in an orderly fashion to recover additional oil and gas reserves and to maximize revenues to the parties of the Unit and Unit Operating Agreement. This development may include the implementation of an enhanced oil recovery (tertiary) project and/or infill drilling. All workover, drilling and other types of operations will be performed in strict adherence to the Rules and Regulations of the Oil Conservation Division and the Bureau of Land Management.
- Modification: Subject to approval, this Plan of Operation may be modified IV. or supplemented during the year to meet changed conditions or to protect the interests of all parties to the Unit Agreement.

Sincerely,

MURPHY OPERATING CORPORATION

President and Chief Operating Officer

MBM/js

Correspondence dated January 3, 1990; Enclosures:

Exhibit 1 - Northeast Caprock Queen Unit Well Status Map; Exhibit 2 - Northeast Caprock Queen Unit Reservoir

Performance Curve;

Exhibit 3 - Northeast Caprock Queen Unit 1988 Tabulated Production

and Injection Data;

Exhibit 4 - Northeast Caprock Queen Unit 1989 Tabulated Production

and Injection Data;

Exhibit 5 - Northeast Caprock Queen Unit Agreement, Exhibit A; and

Exhibit 6 - Northeast Caprock Queen Unit Agreement, Exhibit B.

cc: Mr. Jerry E. Sexton, Supervisor State of New Mexico Energy and Minerals Department Post Office Box 1980 Hobbs, New Mexico 88240

> Mr. Vince Balderaz Bureau of Land Management Post Office Box 1157 Hobbs, New Mexico 88240

MOG

MURPHY OPERATING CORPORATION UNITED BANK PLAZA, SUITE 300 400 NORTH PENNSYLVANIA AVENUE POST OFFICE BOX 2648 ROSWELL, NEW MEXICO 88202-2648

TELEPHONE 505 623-7210

January 3, 1990

Ms. Susan Howarth
Oil and Gas Division
New Mexico State Land Office
Post Office Box 1148
Santa Fe, New Mexico 87504-1148

Re: Northeast Caprock Queen Unit (the "Unit") Lea County, New Mexico Supplemental Information Plan of Operation 1989-1990.

Dear Susan:

Pursuant to our discussion enclosed find the field-wide cross-section of the above-referenced unit. As we discussed, MOC will continue to reactivate certain producing and injection wells as outlined in the Plan of Operation. In addition, MOC plans to test additional "behind pipe" reserves believed to be located in the SE/4 NE/4, Section 22, T12S-R32E and the SW/4 NW/4, Section 23, T12S-R32E. These tests should commence in the second or third quarter of 1990.

As we discussed, the Unit exhibits certain producing problems such as a high chloride produced water (see Water Analysis enclosed). The presence of this high chloride water results in salt deposition in the flowlines and producing facilities. To alleviate this problem, fresh water is circulated down the tubing-casing annulus thereby lowering the chloride content of the produced water. This system works very well except when low outside temperatures are encountered. Freezing temperatures make this system inoperable because the fresh water lines freeze, therefore the producing wells must be shut down. During November, 1989, we had essentially no problems with the fresh water system. However, cold temperatures in the first half of December, 1989 resulted in the Unit being shut in for approximately one week and we expect that for the months of December, 1989, January and February, 1990 the Unit may be produced less than half the time. Obviously, this may result in decreased production volumes for these months. By late February or early March, 1990 outside temperatures are expected to be high enough to return the Unit to fully active production and injection.

Thank you for your cooperation and if you have any further questions, comments or suggestions, please do not hesitate to contact me at the number listed above.

Sincerely,

MURPHY OPERATING CORPORATION

Mark B. Murphy

President and Chief Operating Officer

MBM/js

Enclosures: Northeast Caprock Queen Unit Field-wide Cross Section

Permian Treating Chemicals, Inc. Water Analysis

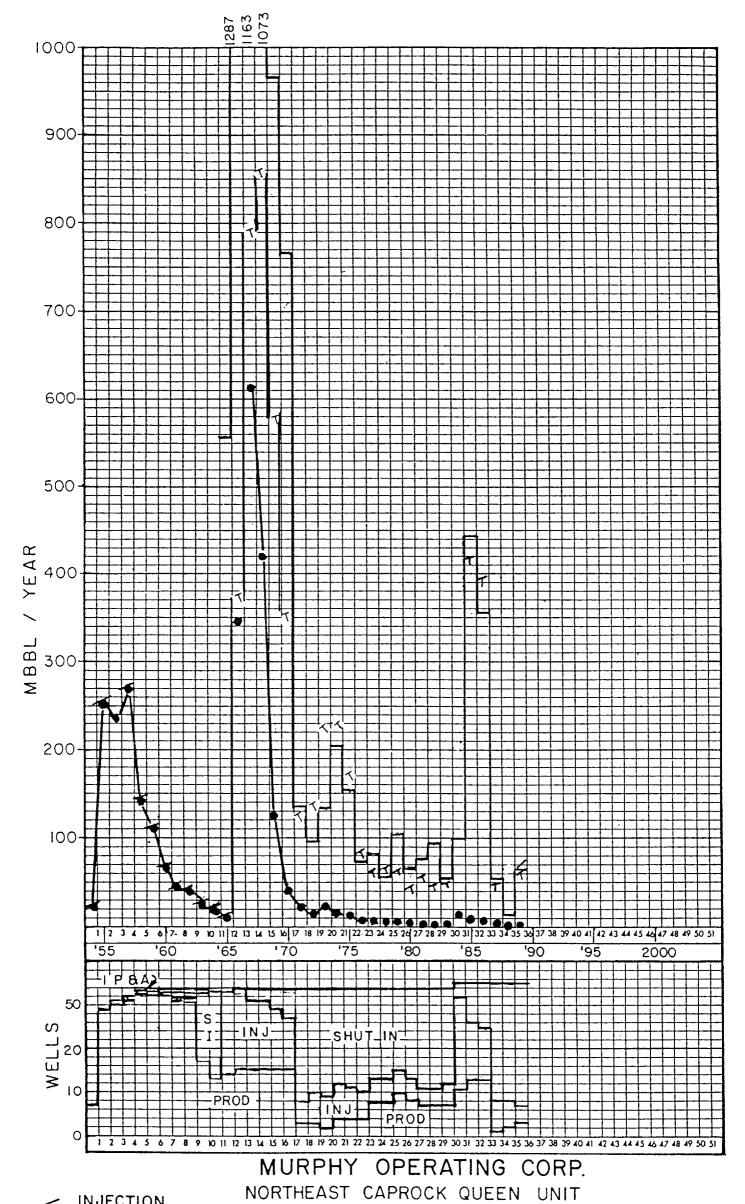
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MURPHY OPERATING COMPANY Northeast Caprock Queen unit

ENGINEERED BY BERTRAM H. MURPHY

DRAFTED BY R. S. ESCOBEDO

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MURPHY OPERATING CORPORATION 4TH QUARTER PRODUCTION REPORT JANUARY 01, 1989

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MURPHY OPERATING CORPORATION 4TH QUARTER PRODUCTION REPORT JANUARY 01, 1989

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MURPHY OPERATING CORPORATION 4TH QUARTER PRODUCTION REPORT JANUARY 01, 1989

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MURPHY OPERATING CORPORATION 4TH QUARTER PRODUCTION REPORT JANUARY 01, 1989

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MURPHY OPERATING CORPORATION 4TH QUARTER PRODUCTION REPORT JANUARY 01, 1989

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MURPHY OPERATING CORPURATION 4TH QUARTER PRODUCTION REPORT JANUARY 01, 1990

	CUM. TOTALS	5,356	000	271,442	98,565 2.104	207,457	24,875	1,379	3,069 716,128	8,150	203,484 8.955	458,267	,	221 0	13,309 322,064		146,865 10,487	317,042	10,221	96,378	33,218 8,020	9,690 87,710
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MURPHY OPERATING CORPORATION 4TH QUARTER PRODUCTION REPORT JANUARY 01, 1990

	CUM. TOTALS	159,588 9,453 365,603	170,495 1,978 213,331	29,570 4,284 77 516,563	175,768 10,868 133,641	51,347 1,981 800 348,232	195,643 5,139 182,216	67,415 31 2,422 455,757	20,872 2,212 0 505,852
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	CUMULATIVE THRU 12/31/88	159,588 9,453 365,603	170,495 1,978 213,331	29,570 4,284 77	175,768 10,868 133,641	51,347 1,981 800 348,232	195,643 5,139 182,216	67,415 31 2,422 455,757	20,872 2,212 0 505,852
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N OEEN OEEN	LEASE	1765 4 I	Œ	2062 10 P	18 C	3273 17 D	3499 32 E	473-1 25 D	6927 1 L
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MURPHY OPERATING CORPORATION 4TH QUARTER PRODUCTION REPORT JANUARY 01, 1990

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	CUM. TOTALS	69,871	76,385	16,155 745		661,765	154,009	6,203 164,331		198,206	440,992	126,529	7,254	168,286	6,818	1,085	241.075		1 251	167,4	262,256	59,809	6,978	4,862	449,022	000	2,281	9,720 350,156
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MURPHY OPERATING CORPORATION 4TH QUARTER PRODUCTION REPORT JANUARY 01, 1990

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	CUMULATIVE THRU 12/31/88	28,166 5,696 2,118 530,491	171,452 12,891 130,377 364,360	25,060 2,471 0 0	5,1,933 9,532 5,003 5,620 557,482	171,609 13,303 284,937	57,855 3,634 405 255,077	14,546 0 1,113 227,265
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PRODUCTION	7	State B-9946 145026 23 B	145027 24	145028 28	145029 31	Fee Leases 145030 11	145031 12	145032 5
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MURPHY OPERATING CORPORATION 4TH QUARTER PRODUCTION REPORT JANUARY 01, 1990

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					*	AT 147,917	4	0	0	0	0	0	0	0	0	0	0	0	0	0	147,917
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EXHIBIT "A"

NORTHEAST CAPROCK QUEEN UNIT COUNTY OF LEA, STATE OF NEW MEXICO

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NDA /4	 ₹	.55AD	9 67 9	CITIES SERVICE STATE	· · · · · · · · · · · · · · · · · · ·	YATES STATE	N.
AMERADA POSEY, et		RALPH WASSAD		STATE	21.	CITIES SERVICE STATE	NN) TRACT No.
AMERADA		900	R. (MURPHY OPER, MURPHY OPER, CORP. CORP. (11) STATE MURPHY OPER. (5) C-3449 10) STATE STATE STATE	NUCORP STATE	RICAN STATE	(2)
TEXACO		CHEATHOOD	МИРРНУ ОРЕВ. СОВР,	MURPHY OPER. E-473-1 (1) STATE MURPHY OPER. E-3439 (10) STATE	CITIES SERVICE STATE	TEXAS AMERICAN	INDARY
техасо /5	-	STATE.TEXACO	MURPHY OPER. CORP. 2 (18) • 1 E. SPEED	MURPHY OPER. 22 6-894s 2 15 15 15 87A7E	YATES	STATE	UNIT BOUNDARY
TEXACO	STATE		Q	Z) IR			
PHILLIPS	STATE		'[]	MURPHY OPER. CORPAY LC-068747 U.S. Z		 U.S.	: E:
<i>9/</i> Nns	STATE TEXACO & SUN	E CO	養品	u.s.			R. 32
	31 11.5	2	МИВРНУ ОРЕВ. СОВР. Е-3628 (14) \$IATE	RPHY OPER, WURPHY OPER CORP CORP CORP CORP CORP CORP CORP COR		HITT et al	
	TEXACO & SUN	MURPHY OPERATING CORP E-8827-1	MURPHY OPER.	AURPHY OPER. CORP. E-5273 1 9 STATE MURPHY OPER CORP. E-7049-2 E-7049-2 E-7049-2	. WURPHY OPER. — 1 CORP — 19 — 19	Е. БООТНІТТ	
21		DAVOIL, INC.	MURPHY OPER (ORP.) 16-10142 3 57ATE	PER MURPHY OP CORP. E-7049-2 (13) SIATE CORP. D-8946 (15) SIATE SIATE SIATE	<u>.</u> 1		
SUN OIL			STATE	MURPHY CORP. (15) (15) (15) (15) (15) (15) (15) (15)	. 6 .	STATE	
				DALCO	TEXACO SUMRAY STATE		

UNIT BOUNDARY

EXHIBIT "B" TO UNIT AGREEMENT NORTHEAST CAPROCK QUEEN UNIT LEA COUNTY, NEW MEXICO

nt Percent Unit * Participation*	0.02934 0.45064 0.25349 0.08802 0.11735 0.93884	0.15090 2.31789 1.30381 0.45272 0.60362 4.82894	0.03482 0.53483 0.30084 0.10446 1.11423	0.09105 1.39849 0.78665 0.27314 0.36419 2.91352
W.I. Percent Ownership*	03.12500 48.00000 27.00000 09.37500 12.50000 100.00000	03.12500 48.00000 27.00000 09.37500 12.50000 100.00000	03.12500 48.00000 27.00000 09.37500 12.50000	03.12500 48.00000 27.00000 09.37500 100.000000
W.I. Owner	Daniel Varel Murphy Operating Corp. NECQ, Ltd. Petroleum Ventures of Texas, Inc. PVT 85 Ltd.	Daniel Varel Murphy Operating Corp. NECQ, Ltd. Petroleum Ventures of Texas, Inc. PVT 85 Ltd.	Daniel Varel Murphy Operating Corp. NECQ, Ltd. Petroleum Ventures of Texas, Inc. PVT 85 Ltd.	Daniel Varel Murphy Operating Corp. NECQ, Ltd. Petroleum Ventures of Texas, Inc. PVT 85 Ltd.
Percent Ownership	1.64793% 1.64793% 1.64793% .61798% .50000% .34269%	1.64793% 1.64793% 1.64793% .61798% .50000% .34269%	1.64793% 1.64793% 1.64793% .61798% .50000%	10.00000% 1.64793% 1.64793% 1.64793% .61798% .61798%
Overriding Royalty Interest Owner	Bert H. Murphy Ann J. Murphy Mark B. Murphy Matthew B. Murphy Murphy Operating Corp Employee Royalty Pool Derry W. Moore	Bert H. Murphy Ann J. Murphy Mark B. Murphy Matthew B. Murphy Murphy Operating Corp Employee Royalty Pool Derry W. Moore	Bert H. Murphy Ann J. Murphy Mark B. Murphy Matthew B. Murphy Murphy Operating Corp Employee Royalty Pool Derry W. Moore	Ralph Nix Bert H. Murphy Ann J. Murphy Mark B. Murphy Muthew B. Murphy Murphy Operating Corp Employee Royalty Pool
Basic Royalty & Percentage	USA 12.5%	USA 12.5%	State of N.M. 12.5%	State of N.M. 12.5%
Lessee of Record	John H. Trigg	Atlantic Richfield Company	Great Western Drilling Company	Sabine Corporation
Serial No. & Lease Date	LC-069224 05/01/51	LC-068747 03/01/49	B-10142 03/10/43	E-1274-5 04/10/47
Description of Land and No. Acres	T-12-S, R-32-E Sec. 21: N½NE¾ 80.0 acres	T-12-S, R-32-E Sec. 22: N%NW% 80.0 acres	T-12-S, R-32-E Sec. 17: SE%SE% 40.0 acres	T-12-S, R-32-E Sec. 20: SWÄNE¾ 40.0 acres
Tract No.	÷	. .	ຕໍ່	ं च

*Subject to the terms of those certain Letter Agreements dated May 15, 1986.

EXHIBIT "B" TO UNIT AGREEMENT NORTHEAST CAPROCK QUEEN UNIT LEA COUNTY, NEW MEXICO

Tract No.	Description of Land and No. Acres	1	Serial No. & Lease Date Lessee of Record	Basic Royalty & Percentage	Overriding Royalty Interest Owner	Percent Ownership	W.I. Owner	W.I. Percent Ownership*	Percent Unit Participation*
က်	T-12-S, R-32-E Sec. 23: E½NW¼ 80.0 acres	B-9948-6 12/10/42	Ronadero Company, Inc.	State of N.M. 12.5%	Bert H. Murphy Ann J. Murphy Mark B. Murphy Matthew B. Murphy Murphy Operating Corp Employee Royalty Pool Derry W. Moore Jo McInerney	1.64793% 1.64793% 1.64793% .61798% .50000%	Daniel Varel Murphy Operating Corp. NECQ, Ltd. Petroleum Ventures of Texas, Inc. PVT 85 Ltd.	03.12500 48.00000 27.00000 09.37500 12.50000 100.00000	0.17765 2.72865 1.53487 0.53294 0.71058 5.68469
ဖ်	T-12-S, R-32-E Sec. 16: NE%SE% 40.0 acres	E-1765-2 03/10/48	Union Oil Company of California	State of N.M. 12.5%	Bert H. Murphy Ann J. Murphy Mark B. Murphy Matthew B. Murphy Murphy Operating Corp Employee Royalty Pool Derry W. Moore	1.64793% 1.64793% 1.64793% .61798% .50000% .34269%	Daniel Varel Murphy Operating Corp. NECQ, Ltd. Petroleum Ventures of Texas, Inc. PVT 85 Ltd.	03.12500 48.00000 27.00000 09.37500 12.50000	0.09519 1.46213 0.82245 0.28557 0.38076 3.04610
r.	T-12-S, R-32-E Sec. 16: SWXSWX 40.0 acres	B-10275-4 05/10/43	Sun Exploration and Production Company	State of N.M. 12.5%	Bert H. Murphy Ann J. Murphy Mark B. Murphy Matthew B. Murphy Murphy Operating Corp Employee Royalty Pool Derry W. Moore	1.64793% 1.64793% 1.64793% .61798% .50000% .34269%	Daniel Varel Murphy Operating Corp. NECQ, Ltd. Petroleum Ventures of Texas, Inc. PVT 85 Ltd.	03.12500 48.00000 27.00000 09.37500 12.50000	0.23054 3.54107 1.99185 0.69161 7.37722
· 	T-12-S, R-32-E Sec. 16: SE%SE% Sec. 21: NE%NW% 80.0 acres	E-2062-2 08/10/48	Texas American Oil Corporation	State of N.M. 12.5%	Bert H. Murphy Ann J. Murphy Mark B. Murphy Matthew B. Murphy Murphy Operating Corp Employee Royalty Pool Derry W. Moore	1.64793% 1.64793% 1.64793% .61798% .50000% .34269%	Daniel Varel Murphy Operating Corp. NECQ, Ltd. Petroleum Ventures of Texas, Inc. PVT 85 Ltd.	03.12500 48.00000 27.00000 09.37500 12.50000 100.00000	0.18464 2.83612 1.59532 0.55393 0.73858 5.90859

*Subject to the terms of those certain Letter Agreements dated May 15, 1986.

Tract No.	Description of Land and No. Acres	i	Serial No. & Lease Date Lessee of Record	Basic Royalty & Percentage	Overriding Royalty Interest Owner	Percent Ownership	W.I. Owner	W.I. Percent Ownership*	Percent Unit Participation*
Ö	T-12-S, R-32-E Sec. 21: NW%NW% 40.0 acres	E-3273-2 02/10/50	Texas American Oil Corporation	State of N.M. 12.5%	Bert H. Murphy Ann J. Murphy Mark B. Murphy Matthew B. Murphy Murphy Operating Corp Employee Royalty Pool Derry W. Moore	1.64793% 1.64793% 1.64793% .61798% .50000% .34269%	Daniel Varel Murphy Operating Corp. NECQ, Ltd. Petroleum Ventures of Texas, Inc. PVT 85 Ltd.	03.12500 48.00000 27.00000 09.37500 12.50000 100.00000	0.13521 2.07690 1.16826 0.40565 0.54086 4.32688
10.	T-12-S, R-32-E Sec. 23: SWXNWX 40.0 acres	E-3499-2 05/10/50	Texas American Oil Corporation	State of N.M. 12.5%	Bert H. Murphy Ann J. Murphy Mark B. Murphy Matthew B. Murphy Murphy Operating Corp.— Employee Royalty Pool Derry W. Moore Jo McInerney	1.64793% 1.64793% 1.64793% .61798% .50000% .34269%	Daniel Varel Murphy Operating Corp. NECQ, Ltd. Petroleum Ventures of Texas, Inc. PVT 85 Ltd.	03.12500 48.00000 27.00000 09.37500 12.50000 100.00000	0.12861 1.97550 1.11122 0.38584 0.51446 4.11563
11.	T-12-S, R-32-E Sec. 23: NWXNWX 40.0 acres	E-473-10 08/10/45	Mobil Producing Tx. & NM, Inc.	State of N.M. 12.5%	Bert H. Murphy Ann J. Murphy Mark B. Murphy Matthew B. Murphy Murphy Operating Corp.— Employee Royalty Pool Derry W. Moore Jo McInerney	1.64793% 1.64793% 1.64793% .61798% .50000%	Daniel Varel Murphy Operating Corp. NECQ, Ltd. Petroleum Ventures of Texas, Inc. PVT 85 Ltd.	03.12500 48.00000 27.00000 09.37500 12.50000 100.00000	0.17665 2.71335 1.52626 0.52995 0.70660 5.65281
12.	T-12-S, R-32-E Sec. 16: N%SW%, W%SE% 160.0 acres	E-6927-3 02/10/53	Texaco, Inc. Sun Exploration & Production, Inc.	State of N.M. 12.5%	Bert H. Murphy Ann J. Murphy Mark B. Murphy Matthew B. Murphy Murphy Operating Corp Employee Royalty Pool Derry W. Moore Jo McInerney	1.64793% 1.64793% 1.64793% .61798% .50000%	Daniel Varel Murphy Operating Corp. NECQ, Ltd. Petroleum Ventures of Texas, Inc. PVT 85 Ltd.	03.12500 48.00000 27.00000 09.37500 12.50000 100.00000	0.24133 3.70685 2.08510 0.72399 0.96532 7.72259

*Subject to the terms of those certain Letter Agreements dated May 15, 1986.

EXHIBIT "B" TO UNIT AGREEMENT NORTHEAST CAPROCK QUEEN UNIT LEA COUNTY, NEW MEXICO

Tract No.	Description of Land and No. Acres	d Serial No. & Lease Date	e Lessee of Record	Basic Royalty & Percentage	Overriding Royalty Interest Owner	Percent Ownership	W.I. Owner	W.I. Percent Ownership*	Percent Unit Participation*
13.	T-12-S, R-32-E Sec. 20: NE%NE% Sec. 21: S%NW% 120.0 acres	E-7049-3 04/10/53	Texaco, Inc. Sun Exploration & Production, Inc.	State of N.M. 12.5%	Bert H. Murphy Ann J. Murphy Mark B. Murphy Matthew B. Murphy Murphy Operating Corp Employee Royalty Pool Derry W. Moore	1.64793% 1.64793% 1.64793% .61798% .50000%	Daniel Varel Murphy Operating Corp. NECQ, Ltd. Petroleum Ventures of Texas, Inc. PVT 85 Ltd.	03.12500 48.00000 27.00000 09.37500 12.50000 100.00000	0.24846 3.81635 2.14670 0.74538 0.99384 7.95073
14.	T-12-S, R-32-E Sec. 16: SE%SW% 40.0 acres	E-3626-4 06/10/50	Texaco, Inc. Sun Exploration & Production, Inc.	State of N.M. 12.5%	H. L. Brown W. R. Wheeler Estate Bert H. Murphy Ann J. Murphy Marthew B. Murphy Murphy Operating Corp Employee Royalty Pool Derry W. Moore	3.12500 3.12500 1.64793% 1.64793% .61798% .50000% .34269%	Daniel Varel Murphy Operating Corp. NECQ, Ltd. Petroleum Ventures of Texas, Inc. PVT 85 Ltd.	03.12500 48.00000 27.00000 09.37500 12.50000 100.00000	0.16659 2.55880 1.43932 0.49977 0.66635 5.33083
15.	T-12-S, R-32-E Sec. 20: NWÄNEÄ, SWÄNEÄ Sec. 22: NÄNEÄ, SEÄNEÄ 200.0 acres	B-9946 12/10/42	Texaco, Inc.	State of N.M. 12.5%	Bert H. Murphy Ann J. Murphy Mark B. Murphy Matthew B. Murphy Murphy Operating Corp Employee Royalty Pool Derry W. Moore Jo McInerney	1.64793% 1.64793% 1.64793% .61798% .50000%	Daniel Varel Murphy Operating Corp. NECQ, Ltd. Petroleum Ventures of Texas, Inc. PVT 85 Ltd.	03.12500 48.00000 27.00000 . 09.37500 12.50000 100.00000	0.40421 6.20859 3.49233 1.21262 1.61682 12.93457
16.	7-12-5, R-32-E Sec. 15: S%SE% 80.0 acres	N/A 01/08/45	Murphy Operating Corporation	Ella Speed 12.5%	Socony Mobil Oil Co., Inc. Bert H. Murphy Ann J. Murphy Mark B. Murphy Matthew B. Murphy Murphy Operating Corp Employee Royalty Pool Derry W. Moore	3.12500 1.64793% 1.64793% 1.64793% .61798% .50000% .34269%	Daniel Varel Murphy Operating Corp. NECQ, Ltd. Petroleum Ventures of Texas, Inc. PVT 85 Ltd.	03.12500 48.00000 27.00000 09.37500 12.50000 100.00000	0.34205 5.25386 2.95529 1.02614 1.36819 10.94553

*Subject to the terms of those certain Letter Agreements dated May 15, 1986.

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EXHIBIT "B" TO UNIT AGREEMENT NORTHEAST CAPROCK QUEEN UNIT LEA COUNTY, NEW MEXICO

Land	Description of Land Serial No. and No. Acres & Lease Date	Serial No. & Lease Date Lessee of Record	Basic Royalty & Percentage	Overriding Royalty Interest Owner	Percent Ownership	W.I. Owner	W.I. Percent Ownership*	Percent Unit Participation*
N/A 09/21/46	ω	Murphy Operating Corporation	Ella N. Speed, a widow 12.5%	Amerada Petroleum Corp. Bert H. Murphy Ann J. Murphy Mark B. Murphy Muthew B. Murphy Murphy Operating Corp Employee Royalty Pool Derry W. Moore Jo McInerney	5.46875 1.64793% 1.64793% 1.64793% .61798% .50000% .34269%	Daniel Varel Murphy Operating Corp. NECQ, Ltd. Petroleum Ventures of Texas, Inc. PVT 85 Ltd.	03.12500 48.00000 27.00000 09.37500 12.50000 100.00000	0.03691 0.56687 0.31886 0.11072 0.14762 1.18098
N/A 06/30/54		Murphy Operating Corporation	Will C. Speed, et ux 12.5%	Bert H. Murphy Ann J. Murphy Mark B. Murphy Matthew B. Murphy Murphy Operating Corp Employee Royalty Pool Derry W. Moore Jo McInerney	1.64793% 1.64793% 1.64793% .61798% .50000% .34269%	Daniel Varel Murphy Operating Corp. NECQ, Ltd. Petroleum Ventures of Texas, Inc. PVT 85 Ltd.	03.12500 48.00000 27.00000 09.37500 12.50000 100.00000	0.24450 3.75544 2.11244 0.73348 0.97798 7.82384
N/A 02/14/59		Murphy Operating Corporation	Elgen Douthitt, et al 12.5%	Bert H. Murphy Ann J. Murphy Mark B. Murphy Matthew B. Murphy Murphy Operating Corp Employee Royalty Pool Derry W. Moore Jo McInerney	1.64793% 1.64793% 1.64793% .61798% .50000% .34269%	Daniel Varel Murphy Operating Corp. NECO, Ltd. Petroleum Ventures of Texas, Inc. PVT 85 Ltd.	03.12500 48.00000 27.00000 09.37500 100.00000	0.00635 0.09767 0.05494 0.01908 0.02544 0.20348
160.00 PERC 960.00 240.00 1,360.00	SENT	PERCENTAGE: Federal - State - Fee Total	11.76 70.59 17.65 100.00					

*Subject to the terms of those certain Letter Agreements dated May 15, 1986.

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MURPHY OPERATING CORPORATION

UNITED BANK PLAZA, SUITE 300 400 NORTH PENNSYLVANIA AVENUE POST OFFICE BOX 2648

ROSWELL, NEW MEXICO 88202-2648

TELEPHONE 505 623-7210

6-13-87 6-13-89

May 24, 1989

Mr. Francis R. Cherry, Jr., District Manager United States of America Department of the Interior Bureau of Land Management Post Office Box 1397 Roswell, New Mexico 88202-1397

Attention: Mr. Joe Lara,

Assistant District Manager of Minerals

Mr. Floyd O. Prando Director, Oil and Gas Division Commissioner of Public Lands State of New Mexico Post Office Box 1148 Santa Fe, New Mexico 87504-1148

Mr. William J. LeMay, Director State of New Mexico Energy and Minerals Department Oil Conservation Division Post Office Box 2088 Santa Fe, New Mexico 87504-2088 MAY 25 1989 OIL CONSERVATION DIV. SANTA FE

#2421

Re: Plan of Operation 1989-1990

Northeast Caprock Queen Unit ("the Unit")

Lea County, New Mexico

Gentlemen:

Pursuant to the provisions of Section 11 of the Unit Agreement, Murphy Operating Corporation ("MOC"), Unit Operator of the Northeast Caprock Queen Unit, Lea County, New Mexico respectfully submits for your consideration and approval this plan of operation for the secondary recovery of oil by waterflood on the subject unitized land.

I. Review of 1988.

During 1988, MOC produced two wells intermittently, Wells #2 and #22. The following injection wells were utilized intermittently during the year: Wells #3, #19, #21, #22, #23, and #30. In the fall of 1988, most of the above-listed producers and injectors were temporarily shut in because of the Unit's history of producing problems caused by cold weather and other winter weather conditions.

II. Proposed Plan of Operation for 1989.

MOC is currently in the process of reactivating two producing wells, Wells #22 and #35Y. In addition to reactivating these wells, MOC will initiate injection into at least one and possibly as many as three injection wells, Wells #3, #19 and #21. MOC plans to utilize available produced water supplemented as necessary by fresh water from an existing water well in Section 31, T12S-R32E which provides the Unit with a supplemental source of injection water.

MOC will continue to monitor all active injection wells by daily rate and pressure checks. Monthly fluid level and production tests of active producing wells will also be continued.

III. Further Development.

MOC is continuing its engineering and reservoir evaluation of the Unit. Preliminary results indicate that approximately 60% (6 million barrels) of the original 10 million barrels of oil in place remains unrecovered. The Unit

exhibits reservoir conditions of an average net pay of 12.3 feet, an average permeability to air of 145.24 millidarcys and average porosities of 18 to 20 percent suggesting that the Unit is an excellent candidate for an enhanced oil recovery program. MOC is currently evaluating a variety of enhanced oil recovery methods to determine the optimum means of maximizing the oil recovery from this Unit. Preliminary results indicate that a miscible $\rm CO_2$ project is now technically feasible due to reservoir depth and temperature, oil gravity and proximity to the $\rm Cortez$ $\rm CO_2$ line. However, current economic conditions will not justify the substantial investment required to initiate this type of project. For technical and legal reasons, MOC strongly believes that it is in the best interest of all of the parties in interest to maintain this Unit in an active status so that an enhanced oil recovery program may be initiated when it becomes practical to do so.

IV. Modification.

Subject to approval, this Plan of Operation may be modified or supplemented during the year to meet changed conditions or to protect the interests of all parties to the Unit Agreement.

Sincerely,

MURPHY OPERATING CORPORATION

Mark B. Murphy

President and Chief Operating Officer

MBM/js

Enclosures: Exhibit 1 - Northeast Caprock Queen Unit Well Status Map;

Exhibit 2 - Northeast Caprock Queen Unit Reservoir

Performance Curve; and

Exhibit 3 - Northeast Caprock Queen Unit 1988 Tabulated Production

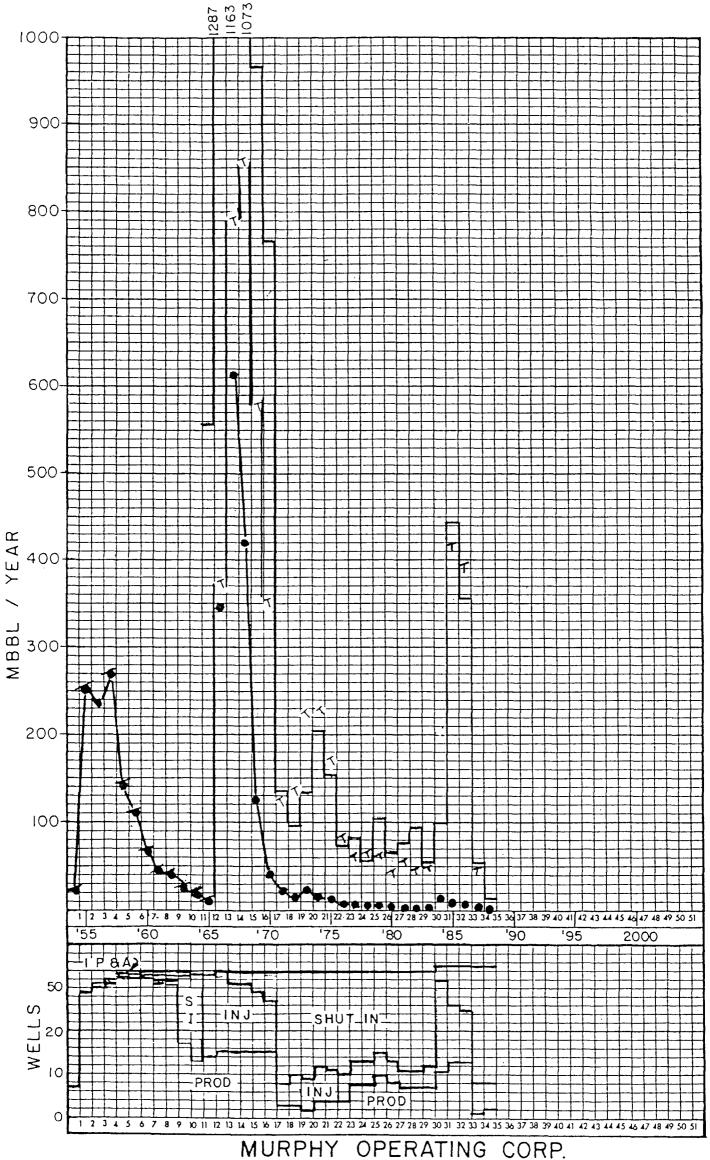
and Injection Data.

cc: Mr. Jerry E. Sexton, Supervisor State of New Mexico Energy and Minerals Department Post Office Box 1980 Hobbs, New Mexico 88240

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MURPHY UPERATING CORPURATION 4TH QUARTER PRODUCTION REPORT JANUARY 01, 1989

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EXHIBIT 3

MURPHY OPERATING CORPORATION 4TH QUARTER PRODUCTION REPORT JANUARY 01, 1989

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	CUMULATIVE HRU 12/31/87	159,588 9,453 365,603	170,495 1,978 213,331	29,570 4,284 77 516,563	175,768 10,868 133,641	51,347 1,981 800 348,232	195,643 5,139 182,216	67,415 31 2,422 455,757	20,872 2,212 0 505,852
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PROD	Comp Well	State E 145009	Stat 1450	State 145011	145012	State 145013	State E 145014	State E 145015	State E 145016

MURPHY OPERATING CORPORATION 4TH QUARTER PRODUCTION REPORT JANUARY 01, 1989

	CUM. TOTALS	9,86 3,05	76,385 16,155 745	19,71	154,009 6,203 164,331	,20 ,555	26,52 7,25 68,28	6,818 1,086 126 241,075	3,57	59,809 6,978 4,862 449,022	14,685 2,281 9,720 350,156
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	CUMULATIVE HRU 12/31/87	9,0°	76,385 16,155 745	18,3	154,009 6,203 164,331		126,529 7,254 168,286	6,818 1,086 126 238,837	ຕ໌ ແ	59,809 6,978 4,862 449,022	14,685 2,281 9,720 350,156
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MURPHY OPERATING CORPORATION 4TH QUARTER PRODUCTION REPORT JANUARY 01, 1989

PRODUCTION

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MURPHY OPERATING CORPORATION 4TH QUARTER PRODUCTION REPORT JANUARY 01, 1989

PRODUCTION																		
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State of New Mexico





Commissioner of Public Lands

P.O. BOX 1148 SANTA FE, NEW MEXICO 87504-1148

May 4, 1989

Murphy Operating Corporation P.O. Drawer 2648 Roswell. New Mexico 88201

RE: Northeast Caprock Queen Unit Lea County, New Mexico

Gentlemen:

While conducting a review of monthly unit production reports, noted that the Northeast Caprock Queen Unit currently produces an average of 3 barrels of oil a month with water no order to hold the Unit, oil or must gas The current in paying quantities. produced minimal oil production rates on this unit do not appear to justify economic production.

In accordance with Section 10 of the Unit Agreement, you are required to submit periodic plans of operation and development for the unit in addition to monthly production and injection reports. We would like to know what your plans are for further development and economic justification for continued operation of the unit. We request that a Plan of Development be submitted for the Northeast Caprock Queen Unit within 60 days.

If you have any questions, please contact Susan Howarth at (505) 827-5791.

Very truly yours,

W.R. HUMPHRIES

COMMISSIONER OF PUBLIC LANDS

Loyde Vhunch

ρv.

FLOYD O. PRANDO, Director Oil and Gas Division (505) 827-5744

State of New Mexico





Commissioner of Public Lands

P.O. BOX 1148 SANTA FE, NEW MEXICO 87504-1148

July 26, 1989

Murphy Operating Corporation P.O. Box 2648 Roswell, New Mexico 88202-2648

ATTN: Mark B. Murphy

RE: 1989 Plan of Operations

Northeast Caprock Queen Unit

Lea County, New Mexico

Gentlemen:

We received your 1989 Plan of Operations for the Northeast Caprock Queen Unit dated May 24, 1989. We regret to inform you that we cannot approve the Plan of Operations as submitted.

Because the Unit has been producing at low rates, a more detailed Plan of Operations is required. Specifically, the Plan should include the following:

- Dates for the reactivation of the injection and producing wells as indicated in the May 24, 1989 letter.
- Any additional information, including economic justification, which would support continued operation of this Unit.

Please be advised that, according to the Unit Agreement, production must be in "paying quantities". The present rate of oil production, 3 barrels of oil per month, does not appear to meet this requirement.

If you have any questions, please do not hesitate to call on us.

Very truly yours,

W.R. HUMPHRIES COMMISSIONER OF PUBLIC LANDS

BY:

FLOYD O. PRANDO, Director Oil and Gas Division (505) 827-5749

cc: BLM - Roswell, New Mexico Unit Correspondence File

WRH/FOP/smh

State of New Mexico



W.R. HUMPHRIES

COMMISSIONER



Commissioner of Public Lands October 2, 1989

P.O. BOX 1148 SANTA FE, NEW MEXICO 87504-1148

Murphy Operating Corporation P.O. Box 2648 Roswell, NM 88202-2648

ATTN: 'Mr. Mark B. Murphy

RE: Northeast Caprock Queen Unit

Lea County, New Mexico 1989 Plan of Development

Gentlemen:

The Commissioner of Public Lands has this date approved the above captioned 1989 Plan of Development Our approval is subject to like approval by all other appropriate agencies.

Enclosed is an approved copy for your files. If we may be of further help, please do not hesitate to contact Susan Howarth at (505) 827-5791.

Very truly yours,

W.R. HUMPHRIES COMMISSIONER OF PUBLIC LANDS

I Dought to Mar

BY:

FLOYD O. PRANDO, Director Oil and Gas Division (505) 827-5749

cc: OCD - Santa Fe, New Mexico BLM Unit Correspondence File Unit P.O.D. File

WRH/FOP/SMH

#2421





UNITED BANK PLAZA, SUITE 300 400 NORTH PENNSYLVANIA AVENUE POST OFFICE BOX 2648 ROSWELL, NEW MEXICO 88202-2648

TELEPHONE 505 623-7210

May 3, 1988

Mr. Francis R. Cherry, Jr., District Manager United States of America Department of the Interior Bureau of Land Management Post Office Box 1397 Roswell, New Mexico 88202-1397 Attention: Mr. Joe Lara, Assistant District Manager of Minerals

Mr. Floyd O. Prando Director, Oil & Gas Division State of New Mexico Commissioner of Public Lands Post Office Box 1148 Santa Fe, New Mexico 87504-1148

Mr. William J. Lemay, Director State of New Mexico Energy and Minerals Department Oil Conservation Division Post Office Box 2088 Santa Fe, New Mexico 87504-2088 Driffetter Unit letter Thx Ry

Re: Plan of Operation 1987-1988, Northeast Caprock Queen Unit ("the Unit"), Lea County, New Mexico.

Gentlemen:

Pursuant to the provisions of Section II of the Unit Agreement, Murphy Operating Corporation ("MOC"), operator of the Northeast Caprock Queen Unit, Lea County, New Mexico respectfully submits for your consideration and approval, this Plan of Operation for the secondary recovery of oil by waterflood at the North East Caprock Queen Unit, Lea County, New Mexico.

- I. Review of 1987. During 1987, MOC continued to produce one well, Well #2. The following injection wells were utilized intermittently during the year: Wells #1, #3, #5, #12, #19, #25 and #30.
- II. Proposed Plan of Operation for 1988. In April 1988, MOC reactivated producing Well #22 and injection Wells #21 and #23. MOC plans to continue injection into Wells #21 and #23 utilizing available produced water supplemented as necessary by fresh water from an existing water well in Section 31, T-12-S, R-32-E which provides to the Unit a supplemental source of injection water.

MOC will continue to reactivate certain producing and injection wells on a well-by-well basis as needed to properly maintain and enhance the recovery of oil from this Unit for the benefit of all parties of interest to the Unit Agreement. This process may require the conversion of certain wells from producers to injectors and conversely to realign the injection pattern for a more efficient waterflood pattern. The proposed realignment should result in the recovery of previously unrecoverable oil and gas reserves.

MOC will continue to monitor all active injection wells by daily rate and pressure checks. Monthly fluid level and production tests of active producing wells will also be continued.

III. <u>Further Development</u>. Preliminary engineering studies indicate that this Unit originally contained approximately 10 million barrels of oil in place of which some 40% has probably been recovered through conventional primary recovery and secondary recovery by the waterflood method. Possibly 60% (6 million barrels) of the Unit's oil in place is yet to be produced. MOC is currently analyzing a variety of enhanced oil recovery methods to determine the optimum means of maximizing the oil recovery from this Unit (including the injection of polymers, surfactants and CO2).

Plan of Operation North East Caprock Queen Unit Page 2

Additionally, MOC is now evaluating the feasibility of drilling (at legal locations) a well or wells to test certain previously untested porosity zones within the unitized interval at the following location:

LOCATION

PROPOSED STATUS

T-12-S, R-32-E, NMPM Lea County, New Mexico

Unit H, Section 22

Producer

Unit E, Section 23

Producer

Modification. Subject to your approval, this Plan of Operation may be modified or supplemented during the year to meet changed conditions or to protect the interests of all parties to the Unit Agreement.

Sincerely,

MURPHY OPERATING CORPORATION

Márk B. Murphy

President and Chief Operating Officer

MBM/ms1

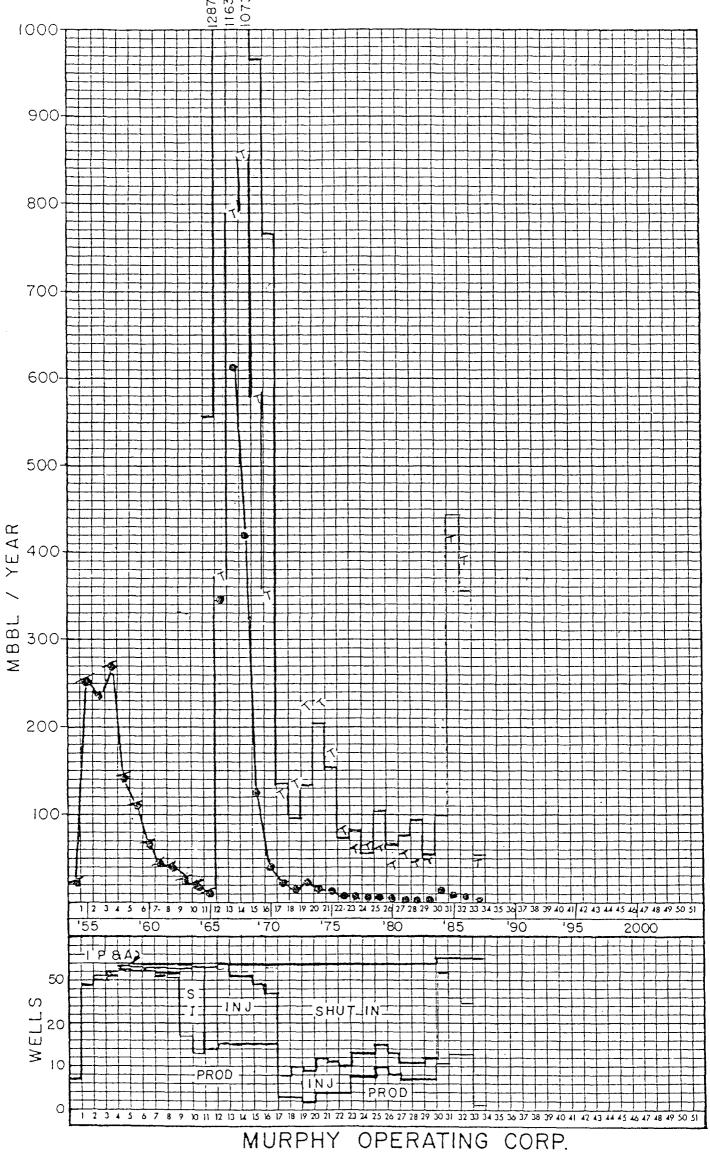
Enclosures:

Exhibit 1 - Northeast Caprock Queen Unit Well Status Map; Exhibit 2 - Northeast Caprock Queen Unit Reservoir Performance Curve; and Exhibit 3 - Northeast Caprock Queen Unit 1987 Tabulated Production and Injection Data.

cc: Mr. Jerry E. Sexton, Supervisor State of New Mexico Energy and Minerals Department Post Office Box 1980

Hobbs, New Mexico 88240

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MURPHY OPERATING CORPORATION 4TH QUARTER PRODUCTION REPORT JANUARY 01, 1988

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MURPHY OPERATING CORPORATION 4TH QUARTER PRODUCTION REPORT JANUARY 01, 1988

NORTHEAST CAPROCK QUEEN UNIT

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4TH QUARTER PRODUCTION REPORT MURPHY OPERATING CORPORATION JANUARY 01, 1988

NORTHEAST CAPROCK QUEEN UNIT

PRODUCTION

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MURPHY OPERATING CORPORATION 4TH QUARTER PRODUCTION REPORT JANUARY 01, 1988

NORTHEAST CAPROCK QUEEN UNIT

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MURPHY OPERATING CORPORATION 4TH QUARTER PRODUCTION REPORT JANUARY 01, 1988

NORTHEAST CAPROCK QUEEN UNIT

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State of New Mexico





Commissioner of Public Lands

SLO REF NO OG-778

P.O. BOX 1148 SANTA FE, NEW MEXICO 87504-1148

May 9, 1988

Murphy Operating Corporation Attn: Mr. Mark B. Murphy P. O. Box 2648 Roswell, New Mexico 88202-2648

Re:

1988 Plan of Development Northeast Caprock Queen Unit Lea County, New Mexico

Gentlemen:

The Commissioner of Public Lands has this date approved your 1988 Plan of Development for the above captioned unit area.

Our approval is subject to like approval by all other appropriate agencies.

Enclosed is an approved copy for your files.

If we may be of further help please do not hesitate to call on us.

Very truly yours,

W. R. HUMPHRIES COMMISSIONER OF PUBLIC LANDS

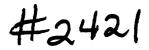
BY: Deple View FLOYD O. PRANDO, Director Oil and Gas Division

(505) 827-5744

WRH/FOP/pm encls.cc: OCD

BLM

State of New Mexico







IIM BACA COMMISSIONER

Commissioner of Public Lands

April 26, 1985

P.O. BOX 1148 SANTA FE, NEW MEXICO 87504-1148 Express Mail Delivery User 310 Old Santa Fe Trail Santa Fe, New Yexico 875.1

Murphy Minerals Corporation P. O. Drawer 2164 Roswell, New Mexico 88201

Re: Change in Unit Operator

by Assignment

Northeast Caprock Queen Unit

Lea County, New Mexico

ATTENTION: Ms. Laura M. Puntch

Gentlemen:

This will acknowledge receipt of your Change in Unit Opaerator by Assignment by which M R Oil Company resigns as Unit Operator and Murphy Operating Operating Company accepts and assumes the obligations of Unit Operator for the Northeast Caprock Queen Unit Agreement, Lea County, New Mexico.

The Commissioner of Public Lands has this date approved the Resignation of M R Oil Company as operator of the Northeast Caprock Queen Unit Area and approved the Designation of Murphy Operating Company as the successor Unit Operator. Our approval is subject to like approval by the Bureau of Land Management.

Please advise this office when the Bureau of Land Management approves this document.

Very truly yours,

JIM BACA

COMMISSIONER OF PUBLIC LANDS

RAY D. GRAHAM, Director

Oil and Gas Division AC 505/827-5744

JB/RDG/pm

encls. cc:

OCD-Santa Fe, New Mexico

BLM-Albuquerque, New Mexico

BLM-Roswell. New Mexico

Attn: Fluids Branch

Attn: Mr. Armando Lopez

CHANGE IN UNIT OPERATOR BY ASSIGNMENT

STATE OF NEW MEXIC	0)
)
COUNTY OF LEA	}

This indenture, dated as of November 1, 1984, by and between M R OIL COMPANY, hereinafter designated as "First Party", and MURPHY OPERATING CORPORATION, hereinafter designated as "Second Party".

WITNESSETH: Whereas under the authorization of the Legislature, as set forth in Sec. 7-11-47, New Mexico Statutes, Annotated, 1955 Laws, the Commission of Public Lands of the State of New Mexico approved a unit agreement for the Northeast Caprock Queen Unit, wherein the First Party is now designated as Unit Operator; and

Whereas the First Party desires to transfer, assign, release, and quitclaim, and the Second Party desires to assume all the rights, duties and obligations of Unit Operator under the unit agreement; and

Whereas for sufficient and valuable consideration, the receipt whereof is hereby acknowledged, the First Party has transferred, conveyed, and
assigned all its rights under certain operating agreements involving lands
within the area set forth in said unit agreement unto the Second Party;

Now, therefore, in consideration of the premises hereinbefore set forth, the First Party does hereby transfer, assign, release, and quitclaim unto the Second Party all of First Party's rights, duties, and obligations as Unit Operator under said unit agreement; and

Second Party hereby accepts this assignment and hereby covenants and agrees to fulfill the duties and assume the obligations of Unit Operator under and pursuant to all the terms of said unit agreement to the full extent set forth in this assignment, effective upon approval of this indenture by the Commissioner of Public Lands of the State of New Mexico; said unit agreement being hereby incorporated herein by reference and made a part hereof as fully and effectively as though said unit agreement were expressly set forth in this instrument.

In witness whereof, the parties hereto have executed this instrument as of the date hereinabove set forth.

M R OIL COMPANY

D. E. RAMSEY, General Partner

R. T. MCDANIEL, General Partner

ATTEST:

MURPHY OPERATING CORPORATION

Nadine Reed, Secretary

A. J. MURPHY President

Commissioner of Public Lands State of New Mexico

HUMBLE OIL & REFINING COMPANY SOUTHWEST REGION

P. O. BOX 1597 ROSWELL, NEW MEXICO

1982 APR 5 FM 1:17

April 4, 1962

Mrs. Ida Rodriguez New Mexico Oil Conservation Commission Santa Fe, New Mexico

Dear Ida:

Enclosed are the exhibits from your unit files on case numbers 2293 and 2421.

Thanks for letting us borrow them. Please let me know when we can help you.

Very truly yours,

James C. West

James C. West

JCW: eh Enclosures DOMESTIC PRODUCING DEPARTMENT

TEXACO

INC.

PETROLEUM PRODUCTS



P. O. BOX 3109 MIDLAND, TEXAS

2421

August 3, 1965

NORTHEAST CAPROCK QUEEN UNIT LEA COUNTY, NEW MEXICO

Commissioner of Public Lands State of New Mexico P. O. Box 1148 Santa Fe, New Mexico

Attention: Mr. Ted Bilberry, Director Oil and Gas Department

Gentlemen:

MIDLAND DIVISION

We are pleased to advise that water injection commenced in the Northeast Caprock Queen Unit on July 26. 1965.

The final work of installing a building over the pump and motor should be accomplished prior to the 15th of August. Both water supply wells in the North Caprock Unit are in operation.

Since we have successfully commenced the injection of water, we will consider this the final monthly report as to the progress in waterflooding this unit area as requested by your letter of January 8, 1965.

Yours very truly,

-5. H. Moore Jako J. H. Moore

Assistant Division Manager

TWD: jh

cc: United States Geological Survey

P. O. Drawer 1857 Roswell, New Mexico

New Mexico Oil Conservation Commission P. O. Drawer 2088 Santa Fe, New Mexico

TEXACO FINC. C SI

P. O. BOX 3109 MIDLAND, TEXAS

DOMESTIC PRODUCING DEPARTMENT MIDLAND DIVISION

July 7, 1965

NORTHEAST CAPROCK QUEEN UNIT LEA COUNTY, NEW MEXICO

Commissioner of Public Lands State of New Mexico P. O. Box 1148 Santa Fe. New Mexico

Attention: Mr. Ted Bilberry, Director Oil and Gas Department

Gentlemen:

We wish to provide you with the following information concerning the progress during the month of June, 1965, with regard to the development of a waterflood for the Northeast Caprock Queen Unit.

The water supply line from the two wells in the North Caprock Unit has been laid to the two 500-barrel water tanks in the Northeast Caprock Queen Unit. From this point the water injection lines have been laid to all injection wells. The injection wells are being connected to the injection lines while the consolidation of the tank batteries is being accomplished.

A similar report will be submitted in August covering the progress made during the month of July.

Yours very truly,

J. H. Moore

Assistant Division Manager

TwD: jh

cc: United States Geological Survey

P. C. Drawer 1857 Roswell, New Mexico

New Mexico Oil Conservation Commission P. O. Drawer 2088
Santa Fe. New Mexico

TEXACO

INC.

PETROLEUM PRODUCTS

DOMESTIC PRODUCING DEPARTMENT
MIDIAND DIVISION



P. O. BOX 3109 MIDLAND, TEXAS

June 3, 1965

NORTHEAST CAPROCK QUEEN UNIT LEA COUNTY, NEW MEXICO

Commissioner of Public Lands State of New Mexico P. O. Box 1148 Santa Pe, New Mexico

Attention: Mr. Ted Bilberry, Director Oil and Gas Department

Gentlemen:

We would like to provide you with the following information concerning the progress made during the month of May, 1965, for developing the waterflood for the Northeast Caprock Queen Unit.

Texaco is actively engaged in construction operations to develop the waterflood. We have started clearing rights-of-way, have started ditching and all materials have been ordered. All pipe has been received and will be installed shortly. A similar report will be submitted in July on the progress made in initiating waterflood operations during the month of June.

Yours wery truly,

J. H. Moore

Assistant Division Manager

TWD: jh

cc: United States Geological Survey

P. O. Drawer 1857 Roswell, New Mexico

New Mexico Oil Conservation Commission P. O. Drawer 2088
Santa Fe, New Mexico

TEXACO

INC.

PETROLEUM PRODUCTS

DOMESTIC PRODUCING DEPARTMENT
MIDLAND DIVISION



P. O. BOX 3109 MIDLAND, TEXAS

24-1

NORTHEAST CAPROCK QUEEN UNIT LEA COUNTY, NEW MEXICO

Commissioner of Public Lands State of New Mexico P. O. Box 1148 Santa Fe, New Mexico

Attention: Mr. Ted Bilberry, Director Oil and Gas Department

Gentlemen:

We wish to provide you with the following information on progress made during the month of April, 1965, in developing a waterflood for the Northeast Caprock Queen Unit.

Texaco has now obtained essentially all of the rightsof-way needed for the water supply line to serve the unit
and firm agreements for the remaining rights-of-way needs are
expected to be reached within the next week. Specifications
for the waterflood facilities have been prepared and are being
submitted to contractors with invitiations to bid on the
construction.

A similar report will be submitted in June on the progress made in initiating waterflood operations during the month of May.

Yours very truly.

111.... 1 2... 数4 1 1...

J. H. Moore Assistant Division Manager

RRMc : Jh

cc: United States Geological Survey
P. O. Drawer 1857
Roswell. New Mexico

New Mexico Oil Conservation Commission F. O. Drawer 2088
Santa Fe, New Mexico

INC.

2421

PETROLEUM PRODUCTS

DOMESTIC PRODUCING DEPARTMENT
MIDLAND DIVISION



P. O. BOX 3109 MIDLAND, TEXAS

NORTHEAST CAPROCK JUEEN UNIT LEA COUNTY, NEW MEXICO

Commissioner of Public Lands State of New Mexico P. O.Box 1148 Santa Fe, New Mexico

Attention: Mr. Ted Bilberry, Director

Oil and Gas Department

Gentlemen:

We wish to provide you with the following information on progress made during the month of March, 1965, in developing a waterflood for the Northeast Caprock sueen Unit.

Texaco's application for the relocation of an existing water appropriation to serve the Northeast Caprock used Unit was approved by the State Engineer's Office on March 12, 1965. This action should assure the unit of an adequate water supply necessary to conduct waterflood operations. Texaco is currently in the process of acquiring the rights-of-way needed for the water supply line.

A similar report will be submitted in May on the progress made in initiating waterflood operations during the month of April.

Yours very truly,

J. H. Moore

RRMc: jh

Assistant Division Manager

cc: United States Geological Survey

P. O. Drawer 1857 Roswell, New Mexico

New Mexico Oil Conservation Commission

P. O. Drawer 2088 Santa Fe, New Mexico

INC.

PETROLEUM PRODUCTS

2421

DOMESTIC PRODUCING DEPARTMENT
MIDLAND DIVISION

YE A CO

P. O. BOX 3109 MIDLAND, TEXAS

March 10, 1965

NORTHWEST CAPROCK QUEEN UNIT LEA COUNTY, NEW MEXICO

Commissioner of Fublic Lands State of New Mexico P. O. Box 1148 Santa Fe. New Mexico

Attention: Mr. Ted Bilberry, Director

Oil and Gas Department

Gentlemen:

We wish to provide you with the following information on progress made during the month of February, 1955, in developing a waterflood for the Northeast Caprock Queen Unit.

Texaco is completing arrangements for the acquisition of a water supply source to serve the Northeast Caprock queen Unit. An application was filed with the State Engineer during January providing for the withdrawal points of an existing water appropriation to be moved to the location of two water wells being acquired from the North Caprock queen Unit. Publication of this application was made on February 9th, 16th and 23rd. The State Engineer's office reports that no protests to Texaco's application have been received and we anticipate final approval in the near future.

A similar report will be submitted in April on the progress made in initiating waterflood operations during the month of March.

Yours very truly,

J. H. Moore

Assistant Division Manager

RRMc: ih

cc: United States Geological Survey

P. O. Drawer 1857

Roswell. New Mexico

New Mexico Oil Conservation Commission

P. O. Drawer 2088

Santa Fe, New Mexico

PETROLEUM PRODUCTS

TEMCO

February 1, 1965

P. O. BOX 3109 MIDLAND, TEXAS

2421

NORTHEAST CAPROCK QUEEN UNIT LEA COUNTY, NEW MEXICO

Commissioner of Public Lands State of New Mexico P. O. Box 1148 Santa Fe. New Mexico

Attention: Mr. Ted Bilberry, Director Oil and Gas Department

Gentlemen:

DOMESTIC PRODUCING DEPARTMENT

MIDLAND DIVISION

In response to your request for a monthly report on the progress made in developing a waterflood for the Northeast Caprock Queen Unit, we provide the following information as to action taken during the month of January, 1965.

As noted in Texaco's letter of January 4, 1965, arrangements are being made to obtain a water supply source from the North Caprock Queen Unit, operated by Grazidge. An agreement providing for the acquisition of this water source has been approved by the working interest owners in both units and has been executed by Graridge and Texaco. A surface easement has also been obtained permitting Texaco's operation of two water wells from which the water supply is to be obtained.

Texaco has an existing water appropriation in T-12-S, R-32-E which will be adequate to meet the needs of the Northeast Caprock Unit. An application was filed with the State Engineer during January providing that the withdrawal points for this appropriation be relocated to the two water wells being acquired from the North Caprock Queen Unit. We

anticipate approval of this application during February.

A similar report will be submitted in March on the progress made in initiating waterflood operations during the month of February.

Yours very truly,

J. H. Moore

Assistant Division Manager

RRMc: jh

cc: United States Geological Survey
P. O. Drawer 1857
Roswell, New Mexico

New Mexico Oil Conservation Commission F. O. Drawer 2088
Santa Fe, New Mexico

65 Jan 11 PM

2421

Jan ary 8, 1965

Texaco Inc. F. U. Box 3109 Midland, Texas

Lea County, New Mexico

Attention: Mr. J. H. Moore

Gentlemen:

We acknowledge your letter of January 4, 1965, and your report concerning your difficulties encountered in commencing water injection in the Northeast Caprock Queen Unit Area.

We have discussed Sections 10 and 27 of this ogreement with Mr. Oscar Jordan, our attorney and he agrees that your continuous concerted efforts to obtain a water supply for secondary recovery and your failure to do so constitutes maters beyond the reasonable control of the Unit Operator as provided for under Section 27. Therefore, we consider the Unit Operator has maintained the Unit in force.

May we have a monthly report as to the progress you are making in waterflooding this Unit Area.

"65 JAN 11 PM

2421

Jan ary 8, 1965

Texaco Inc. P. O. Box 3109 Midland, Texas

> Re: Northeast Caprock Queen Unit Lea County, New Mexico

Attention: Mr. J. H. Moore

Gentlemen:

We acknowledge your letter of January 4, 1965, and your report concerning your difficulties encountered in commencing water injection in the Northeast Caprock Queen Unit Area.

We have discussed Sections 10 and 27 of this Agreement with Mr. Oscar Jordan, our attorney and he agrees that your continuous concerted efforts to obtain a water supply for secondary recovery and your failure to do so constitutes maters beyond the reasonable control of the Unit Operator as provided for under Section 27. Therefore, we consider the Unit Operator has maintained the Unit in force.

May we have a monthly report as to the progress you are making in waterflooding this Unit Area.



Texace Inc. Attention: Mr. J. H. Moore January 8, 1965 - page 2 -

Very truly yours.

GUYTOK B. HAYS COMMISSIONER OF PUBLIC LANDS

BY: Ted Bilberry, Director Oil & Gas Department

GBH/mmr/v

United States Geological Survey P. O. Drawer 1857 Roswell, New Mexico

hew Mexico Oil Conservation Commission P. O. Box 2086 Santa Fe, New Mexico 1964 JULI 18 MI 1911 1421

January 9, 1964

NORTHEAST CAPROCK (QUEEN) UNIT TERMINATION OF PHASE I PARTICIPATION

Commissioner of Public Lands P. O. Box 791 Santa Fe, New Mexico Oil Conservation Commission P. O. Box 871 Santa Fe, New Mexico

Attn: Mrs. M. M. Rhea

U. S. Geological Survey P. O. Drawer 1857 Roswell, New Mexico

Attn: Mr. John A. Anderson

Gentlemen:

Under Article I, Paragraph 1.2.1 of the Unit Operating Agreement for the Northeast Caprock (Queen) Unit, the unit area remaining primary reserves were defined as being 102,000 barrels of oil as of January 1, 1961. The last barrel of these remaining primary reserves was produced from the Northeast Caprock (Queen) Unit during the month of July, 1963.

This terminated the Phase I participation factors as of July 31, 1963, as specified in the Unit Operating Agreement, Section 2, Paragraph (p). Phase II participation became effective on August 1, 1963 and, as of that date, the allocation of produced unitized substances will be made on the basis of the Phase II participations as shown in Exhibit B of the Unit Agreement.

Yours very truly,

J. H. Moore

RRMc: jb

i N C.

PETROLEUM PRODUCTS

DOMESTIC PRODUCING DEPARTMENT



P. O. BOX 3109 MIDLAND, TEXAS

August 13, 1963

NORTHEAST CAPROCK QUEEN UNIT LEA COUNTY, NEW MEXICO

Regional Oil & Gas Supervisor United States Geological Survey P. O. Drawer 1857 Roswell, New Mexico

Commissioner of Public Lands State of New Mexico Capitol Annex Building Santa Fe, New Mexico

Oil Conservation Commission P. O. Box 871 Santa Fe. New Mexico

Gentlemen:

The following is a brief report of the operations in the Northeast Caprock Queen Unit, Lea County, New Mexico.

Activities since June 1, 1962: Immediately following unitization, an intensive search for a source of Ogallala water was initiated. This entire area is within the Lea County underground water basin and the use of all water is subject to appropriation by the State Engineer.

The first area investigated was a commercial water lease owned by Texaco in the N/2 of Section 15, T-12-S, R-32-E, adjoining the Unit to the north. After drilling five stratigraphic test holes and two test water wells, it was found that insufficient water was available. Further exploratory work was then performed in Sections 30 and 31 in the same township. Here, a total of three Ogallala test wells were drilled, two in Section 30 and one in Section 31. Insufficient water was found in those three test wells. At this point, application was made to the State Engineer for an appropriation of

water from Section 25, T-11-5, R-32-E, and Section 30, T-11-5, R-33-E approximately five miles northeast of the Unit. The applications were protested and a hearing was held before a representative of the State Engineer's office on August 1, 1963. A ruling from the State Engineer is expected by October 1, 1963.

Future Actions: If the pending water appropriation is approved by the State Engineer's office, development of water wells and construction of waterflood injection facilities will commence as soon as possible after receipt of such approval. It is anticipated that in such event construction will be completed and water injection started by or before December 31, 1963.

waterflood facilities have been designed to deliver 5000 barrels of water per day at a maximum injection pressure of 2000 psi. The reservoir is to be waterflooded on an 80-acre five spot pattern as shown on the attached plat. There will initially be 18 wells converted from producer to injection service and an additional well drilled for injection service. The additional well drilled for injection will be located in Unit P, Section 17, T-12-S, R-32-E and this well will be drilled as soon as possible after injection operations begin.

Yours very truly,

Frigunal Signed by J. H. MOORE

J. H. Moore WCF Assistant Division Manager

CHM: bl Attach.

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		Superior	Mobil Skelly Amerada Amerada State State	LEGEND LEGEND Mater Injection Well Froposed Water Injection Well
R-32-E	MATER RIGHTS LLASE	Grt. Western Texaco	N	State
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		exaco S - Sunray Union "B" "B" "C" "C" "Amerad	Amerada Amerada NCA NCB NCA Texaco S-Sunray State US Texaco	"Douthitt"
	2	GGT. Western T.P.C. 8, 0	Texaco 20 Amerada Texaco 20 Amerada "BA" NCT-6	State

March 30, 1962

Texaco Inc. P. O. Box 3109 Midland, Texas

> Re: Northeast Caprock Queen Unit, Lea County, New Mexico

Attention: Mr. B. E. Hellman

Gentlemen:

The Commissioner of Public Lands has of this date approved the Northeast Caprock Queen Unit Agreement and we are enclosing herewith ten Certificates of Approval.

Also enclosed is Official Receipt No. 87103 in the amount of \$40.00 which covers the filing fee.

Very truly yours,

E. S. JOHNNY WALKER COMMISSIONER OF PUBLIC LANDS

F7:

(Mrs.) Marian M. Rhea, Supervisor Unit Division

ESW/mmr/v

cc: Oil Conservation Commission Santa Fe, New Mexico

> U. S. Geological Survey Roswell, New Mexico

GOVERNOR EDWIN L. MECHEM CHAIRMAN

State of New Mexico il Conservation Commission

LAND COMMISSIONER
E. S. JOHNNY WALKER
MEMBER

STATE GEOLOGIST

A. L. PORTER, JR.
SECRETARY - DIRECTOR

P. O. BOX 871 SANTA FE

Gilbert, White & Gilbert P. O. Box 787 Santa Fe, New Mexico

December 13 ,1961

Attention: Mr. L. C. White

Gentlemen:

Enclosed herewith is Commission Order No. R-2133, entered in Case No. 2421, approving the Texaco's Northeast Caprock Queen
Water Flood Project.

According to our calculations, when all of the authorized injection wells have been placed on active injection, the maximum allowable which this project will be eligible to receive under the provisions of Rule 701-E-3 is 1428 barrels per day.

Please report any error in this calculated maximum allowable immediately, both to the Santa Fe office of the Commission and the appropriate District proration office.

In order that the allowable assigned to the project may be kept current, and in order that the operator may fully benefit from the allowable provisions of Rule 701, it behooves him to promptly notify both of the aforementioned Commission offices by letter of any change in the status of wells in the project area, i.e., when active injection commences, when additional injection or producing wells are drilled, when additional wells are acquired through purchase or unitization, when wells have received a response to water injection, etc.

Your cooperation in keeping the Commission so informed as to the status of the project and the wells therein will be appreciated.

Very truly yours,

ALP/DSN/esr Enclosure A. L. PORTER, Jr. Secretary-Director

cc: Oil Conservation Commission - Hobbs Mr. J. E. Kapteina, Oil Conservation Commission - Santa Fe CLASS OF SERVICE

This is a fast message unless its deferred character is indicated by the proper symbol.

WESTERN UNION

TELEGRAM

W. P. MARSHALL, PRESIDENT

1201 (4-60)

SYMBOLS

DL = Day Letter

NL=Night Letter

LT=International Letter Telegram

The filing time shown in the date line on domestic telegrams is LOCAL TIME at point of origin. Time of receipt is LOCAL TIME at point of destination

.LA157 SSD219

L HBA057 PD=H0BBS NMEX 28 331P MST=

NEW MEXICO OIL CONSERVATION COMMISSION, DAN NUTTER=

SANTA FE NMEX=

REFERENCE CASE NUMBER 2421 SOCONY MOBIL OIL CO INC RECOMMENDS THE APPROVAL OF THE NORTH EAST CAPROCK (QUEEN) UNIT AGREEMENT AND UNIT-WIDE WATER FLOOD AS PROPOSED BY TEXACO INCORP=

C F UNDERINER JR PRODUCING SUPT SOCONY MOBIL OIL
CO HOBBS NMEX.

THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE