

Case Number

4391

Application  
Transcripts.

Small Exhibits

ETC.

BEFORE THE  
NEW MEXICO OIL CONSERVATION COMMISSION  
Santa Fe, New Mexico  
August 5, 1970

EXAMINER HEARING

IN THE MATTER OF:

Application of Murphy H. Baxter  
for a unit agreement, Lea County  
New Mexico.

Case No. 4391  
and 4390

BEFORE: Elvis A. Utz, Examiner

TRANSCRIPT OF HEARING

DEARNLEY-MEIER REPORTING SERVICE

MR. UTZ: Case 4390 and Case 4391.

MR. HATCH: Case 4390, Application of Murphy H. Baxter for a unit agreement, Lea County, New Mexico. Case 4391, Application of Murphy H. Baxter for a waterflood project, Lea County, New Mexico.

MR. HINKLE: Clarence Hinkle, Hinkle, Bondurant, Cox & Eaton, Roswell, New Mexico, entering an appearance on behalf of Murphy H. Baxter. I would like to move that Cases 4390 and 4391 be consolidated for purposes of taking testimony.

MR. UTZ: Cases 4390 and 4391 will be consolidated for purposes of testimony and separate orders will be written.

MR. HINKLE: We have one witness.

WILLIAM U. SUMNER

called as a witness, first having been duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. HINKLE:

Q State your name, your residence and by whom you are employed.

A I am William U. Sumner, Midland, Texas, employed by Murphy H. Baxter as petroleum engineer.

Q Have you previously testified before the Commission?

A No, I haven't.

Q You are a graduate petroleum engineer?

A I was graduated from Texas Technological College with a B.S. Degree in petroleum engineering in 1953.

Q Have you followed your profession as petroleum engineer since graduation?

A Yes, I have worked with Seaboard Oil Company and Texaco from 1955 to 1959 as a petroleum engineer and with Murphy H. Baxter from 1959 to the present.

Q And has your experience been in New Mexico or West Texas or where?

A Yes, I have made a study of the proposed North E-K Queen unit area, examined logs, production records and so forth for this hearing.

Q Are the qualifications of the witness acceptable?

MR. UTZ: Yes, they are.

Q (By Mr. Hinkle) Are you familiar with the application of Murphy H. Baxter in both Cases 4390 and 4391?

A Yes. The Application in Case 4390 is for approval of North E-K Queen unit agreement comprising 978 acres of State land in Township 17 South, Range 33 East, and Township 18 South, Ranges 33 and 34 East, E-K Yates-Seven Rivers-Queen Pool, Lea County, New Mexico. The Application in Case 4391 is for approval of a waterflood project co-extensive with the proposed unit area. Application also seeks a procedure

whereby the project may be expanded administratively without showing a well response.

Q Have you prepared or has there been prepared under your direction certain exhibits for introduction in this case?

A Yes, I have.

(Whereupon Exhibits 1 through 11 were marked for identification.)

Q Refer to Exhibit 1 and explain what it shows.

A Exhibit 1 is a general plat of the area showing location of the proposed unit area together with wells which have been drilled in the unit area and surrounding area, including the E-K Queen Unit which is operated by Mobil Oil Company.

The wells circled in red indicate wells that have been completed as a producer in the Queen Formation. This plat also shows ownership of the oil and gas leases in the area and the lands in Section 6, 7 in Township 18 - 34 and Section 1 in 18 - 33 in Section 36 and 17 -- 33, which are located within the proposed unit area, are lands of the State of New Mexico under oil and gas lease.

Q In other words, all the lands of the proposed units are State lands?

A Yes, sir, they are. Now this map is in error as to two tracts. The present owner of the Shalorides, which includes the Queen Formation of the northeast quarter

of southwest quarter, Section 6, Township 18, Range 34 is Bilco Supply Company not J. J. Travis as shown on the map.

Q That error was found after the plat was prepared?

A Yes, this has never been changed and also there is two -- the northwest quarter and the southeast quarter of the southeast quarter of Section 6 of the same township and range is presently unleased.

Q Now refer to Exhibit Number 2 and explain that to the Commission.

A Exhibit 2 is a plat of the area showing the proposed unit boundary of the North E-K Queen Unit.

Q And the location of all the wells within the unit area?

A Yes, sir. It does show the location of all the wells that have been drilled in the unit area.

Q Any further comment with respect to Exhibit Number 2?

A No, sir.

Q Refer to Exhibit Number 3 and explain that.

A Exhibit 3 is a plat of the area showing a line of cross section through the unit area.

Q That is for the purpose of an index to the next exhibit?

A Yes, that's correct.

Q Refer to Exhibit 4 and explain that.

A Exhibit 4 is a cross section from northwest to southeast through the unit area. This cross section indicates a continuous producing formation throughout the proposed unit area. It also shows the steep dip of the Queen sand in this area.

Q All the wells shown can be readily correlated as far as the producing formation is concerned?

A Very easily correlated. The sand goes very well through that area.

Q Refer to Exhibit 5 and explain that.

A Exhibit 5 is a sub-surface structure map contoured on top of the Queen sand. This map shows the limits of permeability of the Queen sand in the proposed unit area. It also shows a separation of the North E-K Queen Unit from the E-K Queen unit which is operated by Mobil.

Q Are there any dry holes between the two units?

A Yes, there are two dry holes between these two units.

Q What are they?

A One of them is presently the Murphy H. Baxter State C-L Number 8 located in Section 7 and the other one is a Sunray Well, State 3-G located in the same section.

Q Well, that's the northeast of southwest of 7?

A Yes.

Q Now refer to Exhibit Number 6 and explain this.

A Exhibit 6 shows the four proposed injection wells.

Q Shown in red triangles?

A Yes, sir, they are marked with a red triangle.

These wells are namely the Murphy H. Baxter State "N" Number 2 located 1,650 feet from the north line and 2,310 feet from the west line of Section 7, the Murphy H. Baxter State "M" Number 3 located 853 feet from the west line and 480 feet from the north line of Section 7, the Murphy H. Baxter State C-L Number 6 located 330 feet from the north line and 660 feet from the east line of Section 7 and the Murphy H. Baxter State C-L Number 7 located 990 feet from the south line and 660 feet from the west line of Section 7 all in Township 18 South, Range 34 East.

Q Are you familiar with the proposed formal unit agreement, copies which have been filed in these cases?

A Yes, I am.

Q Is the proposed unit agreement substantially in the same form as unit agreements which have heretofore been approved by the Oil Conservation Commission and the Commissioner of Public Lands?

A Yes, they are.

Q What formations are unitized under this proposed unit agreement?

A The formation is the Queen Formation as shown in



the unit agreement under Section 1-I and it is defined as Queen sand formation underlying the unit, which occurs between the log's dip measured from the Kelly Bushing of 4,121 feet and 4,210 feet and the City Service Oil Cochran "B" State Number 2 well located in the southeast quarter-northeast quarter, Section 1, Township 18 South, Range 33 East, Lea County.

Q Is Murphy H. Baxter designated as unit operator in this agreement?

A Yes, he is.

Q Does the unit agreement contain a participating formula?

A Yes, it does.

Q Has this been agreed to by all or most all the working interest owners in the proposed unit area?

A All the working interest owners in the proposed unit area have been contacted and the majority have agreed to this participation formula in the agreement.

Q What is the participating formula?

A The participating formula shown under Section 10 of the unit agreement consists of 90% of the cumulative oil production from the tract prior to November 1, 1968 divided by the cumulative oil production from the unit area prior to 11-1-68 plus 5% surface acres in the tract divided by the total surface acres in the unit area plus 5% of the

number of useable Queen wells on the tract divided by the total number of useable Queen wells in the unit area.

Q Now refer to Exhibit 7 and 8 and explain those?  
You may refer to both of these exhibits at the same time and explain what they show.

A Exhibits 7 and 8 are schematic diagrams of the water injection wells, of the four water injection wells, and they show all the casing strains, including the diameter setting depths, quantities and tops of cement, perforated intervals, tubing strains, including the diameters and setting depth and location of packer.

Q Do you plan to use plastic coated tubing?

A Yes, we do.

Q Now have you filed electric logs of these proposed injections with the application?

A Yes, the electric logs have been filed with the application.

Q What quantities of water do you anticipate will be injected into the four initial injection wells?

A It is anticipated a maximum of 500 or total of 2,000 barrels per day per unit.

Q What is the source of water you plan to inject into these wells?

The source of the water would be produced water from the Mobil Oil Company E-K Queen Unit to the south of the

proposed unit area. A water analysis --

Q Have you had an analysis made of the water?

A Yes, and it is shown as Exhibit 9.

Q Refer to Exhibit 9 and explain that.

A This is an analysis that was run on the produced water taken from the Mobil storage tank located on their E-K Queen Unit.

Q Do you anticipate you will have sufficient quantities of water from this source to go ahead with the unit?

A Yes. Mobil also has a fresh water line in there and they have agreed that as long as that line is available they will furnish us produced water and should they run out of produced water they will supplement it with fresh water.

Q Referring back to Exhibit Number 6, which shows the injection wells, why were these particular wells selected as injection wells?

A Due to the steep dip and the configuration of the wells, this will be a line drive from the down-dip wells of the water pushing and forcing the oil in a northerly direction. These wells will be the only wells needed during the initial injection period. However, as the wells water out to the north it may be desirable or necessary to convert these wells to water injection.

Q So is that one of the reasons why you want the

order of approval to provide for administrative procedure for approval of additional injection wells?

A Yes, sir, and also for the fact that there appears to be a small gas cap present in the north end of the proposed unit. This gas cap is proposed to inject water into this cap to prevent oil from migrating into the area at some time in the future.

Q Now you are seeking a project allowable in accordance with Rule 701 of the Commission?

A Yes, we are.

Q Now refer to Exhibit Number 10 and explain that.

A Exhibit 10 is a graph of the production from the proposed unit area. It shows a cumulative oil production for the unit to 6,170 of 506,000 barrels and a present producing rate of about 600 barrels per month for the current ten producing wells.

Q Now refer to Exhibit Number 11 and explain it to the Commission.

A Exhibit 11 is a graph of the waterflood performance of the E-K Queen Unit which is operated by Mobil.

Q That's the unit immediately to the south?

A Yes, and this is in the Queen Formation, also the same sand.

Q Does this formation have the same characteristics

essentially as the proposed unit?

A Yes, as far as we can determine based on waterflood performance and it is anticipated that B-K Queen Unit will recover one and a quarter times primary of additional oil due to waterflooding. Based on this recovery factor it is anticipated that the proposed unit will recover 669,000 barrels of oil by waterflooding.

Q Now in your opinion, if the unit agreement and waterflood project are approved, would it be in the interest of conservation and prevention of waste?

A Yes.

Q And also tend to protect correlative rights?

A Yes, sir, I do.

MR. HINKLE: We would like to offer in evidence Exhibits 1 through 11.

MR. UTZ: Without objection, Exhibits 1 through 11 will be entered into the record of this case.

CROSS EXAMINATION

BY MR. UTZ:

Q Mr. Sumner, where did you say the Mobil unit was?

A It is to the south of the proposed unit area.

Q Is this the area that is marked in dashed lines to the south of your area?

A Yes, sir, that's correct.

Q And they have more water being produced than they need, don't they?

A Yes, sir. Their current water production is quite high, about 125,000 barrels a month. Proposed maximum will be 2,000 barrels. They will also supplement their water. They have a fresh water line into that particular flood from some other area.

Q Now the locations shown on your Exhibit Number 7 and 8 are correct locations, is that correct?

A Yes, sir, as far as I know they are.

Q Would you use a gauge at the surface or leave it open?

A We will probably put a gauge at the surface, yes, sir.

MR. UTZ: Any further questions of the witness?  
You may be excused. Statements in the case?

Cases will be taken under advisement.

I N D E X

<u>WITNESS</u>		<u>PAGE</u>
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<u>EXHIBIT</u>	<u>MARKED</u>	<u>OFFERED AND ADMITTED</u>
Applicant's 1 through 11	4	12

STATE OF NEW MEXICO )  
 ) ss  
 COUNTY OF BERNALILLO )

I, SOVEIDA GONZALES, Court Reporter, do hereby  
 certify that the foregoing and attached Transcript of  
 Hearing before the New Mexico Oil Conservation Commission  
 was reported by me; and that the same is a true and correct  
 record of the said proceedings, to the best of my knowledge,  
 skill and ability.

*Soveida Gonzales*  
 COURT REPORTER

I do hereby certify that the foregoing is  
 a correct record of the hearing  
 the Transcript before the Commission  
 held at the 8-5-70  
 4390-91  
*[Signature]*  
 New Mexico Oil Conservation Commission



OIL CONSERVATION COMMISSION

P. O. BOX 2088

SANTA FE, NEW MEXICO 87501

August 11, 1970

Mr. Clarence Hinkle  
Hinkle, Bondurant, Cox & Eaton  
Attorneys at Law  
Post Office Box 10  
Roswell, New Mexico 88201

Dear Mr. Hinkle:

Enclosed herewith is Commission Order No. R-4009, entered in Case No. 4391, approving the Murphy H. Baxter North E K Unit Waterflood Project.

Initial injection shall be through the four authorized water injection wells, each of which shall be equipped with a string of internally plastic-coated tubing set in a packer located as near as practicable to the uppermost perforation. The casing-tubing annulus shall be loaded with an inert fluid and equipped with a pressure gauge at the surface.

As to allowable, our calculations indicate that 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 420 barrels per day when the Southeast New Mexico normal unit allowable is 42 barrels per day or less.

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

OIL CONSERVATION COMMISSION

P. O. BOX 2088

SANTA FE, NEW MEXICO 87501

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Mr. Clarence Hinkle  
Hinkle, Bondurant, Cox & Eaton  
Attorneys at Law  
Post Office Box 10  
Roswell, New Mexico 88201

C drilled, when additional wells are acquired through purchase or unitization, when wells have received a response to water injection, etc.

O 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,

A. L. PORTER, Jr.  
Secretary-Director

P  
Enclosure  
ALP/DSM/ir

Y cc: Oil Conservation Commission  
Hobbs, New Mexico

Mr. D. E. Gray  
State Engineer Office  
Santa Fe, New Mexico

**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. 4391  
Order No. R-4009**

**APPLICATION OF MURPHY H. BAXTER  
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 August 5, 1970, at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this 12th day of August, 1970, 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, Murphy H. Baxter, seeks authority to institute a waterflood project in the North EK Queen Unit Area, E-K Yates-Seven Rivers-Queen Pool, by the injection of water into the Queen formation through four injection wells in Units A, D, F, and G of Section 7, Township 18 South, Range 34 East, NMPM, Lea County, New Mexico.

(3) That the applicant further seeks an administrative procedure whereby said project could be expanded to include additional lands and 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.

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CASE No. 4391  
Order No. R-4009

(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, that 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, Murphy H. Baxter, is hereby authorized to institute a waterflood project in the North EK Queen Unit Area, E-K Yates-Seven Rivers-Queen Pool, by the injection of water into the Queen formation through the following-described wells in Section 7, Township 18 South, Range 34 East, NMPM, Lea County, New Mexico:

Murphy H. Baxter State "M" Well No. 2 - Unit F  
Murphy H. Baxter State "M" Well No. 3 - Unit D  
Murphy H. Baxter State "CL" Well No. 6 - Unit A  
Murphy H. Baxter State "CL" Well No. 7 - Unit G

(2) That the subject waterflood project is hereby designated the North EK Unit Waterflood Project and shall be 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 North EK Unit Waterflood Project to include such additional lands and 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.

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CASE No. 4391

Order No. R-4009

(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

  
DAVID F. CARGO, Chairman

  
ALEX J. ARMILLO, Member

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



esr/

ROUGH DRAFT FOR WATERFLOOD LETTERS

Mr. Clarence Hinkle  
Hinkle, Bondurant, Cox & Eaton  
Attorneys at Law  
Post Office Box 10  
Roswell, New Mexico 88201  
Dear Sir:

Enclosed herewith <sup>is</sup> Commission Order No. R-4009, entered in Case No. 4391, approving the Murphy H. Baxter North EK Unit Waterflood Project.

Initial injection shall be through the four authorized water injection wells, each of which shall be equipped with a string of internally plastic-coated tubing set in a packer located as near as practicable to the uppermost perforation. The casing - tubing annulus shall be loaded with an inert fluid and As to allowable, our calculations indicate that 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 420 barrels per day when the Southeast New Mexico normal unit allowable is 42 barrels per day or less.

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,

A. L. PORTER, Jr.  
Secretary-Director

cc: OCC: Hobbs x  
Artesia         
Aztec       

USGS       

~~Mr. Frank Libby~~, State Engineer Office, Santa Fe, New Mexico  
Mr. D. E. Gray

equipped with a pressure gauge at the surface.

4391

Heard 8-5-70

Rec. 8-7-70

Licent Murphy Bayler  
permission to connect ~~the~~ 4  
wells to Waterford Injection  
well as shown the attached  
Exhibits. Injection shall be  
 thru 2" Inst. Plastic coated  
 tubing under a packer & into  
 perp in the E.H. Green oil Pool.  
 Cements shall be filled w/ inert.  
 W.O. w/ gauge at Surface.

John R. [Signature]

Docket No. 18-70

DOCKET: EXAMINER HEARING - WEDNESDAY - AUGUST 5, 1970

9 A.M. - OIL CONSERVATION COMMISSION CONFERENCE ROOM,  
STATE LAND OFFICE BUILDING - SANTA FE, NEW MEXICO

The following cases will be heard before Elvis A. Utz, Examiner, or Daniel S. Nutter, Alternate Examiner:

CASE 4385: (Continued from the July 15, 1970 Examiner Hearing)

Application of King Resources Company for a unit agreement, Otero County, New Mexico. Applicant, in the above-styled cause, seeks approval of the Brokeoff Mountain Unit Area comprising 37,747 acres, more or less, of Federal, State and Fee lands in Townships 24, 25, and 26 South, Ranges 19 and 20 East, Otero County, New Mexico.

CASE 4388: Application of Humble Oil & Refining Company for an exception to Order No. R-3221, as amended, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks an exception to Order No. R-3221, as amended, which order prohibits the disposal of water produced in conjunction with the production of oil on the surface of the ground in Lea, Eddy, Chaves, and Roosevelt Counties, New Mexico. Said exception would be for applicant's Florence B. Lusk, DeSmet Federal, and Hesse Federal leases located in Sections 6 and 7 of Township 15 South, Range 30 East, Double L Queen Pool, Chaves County, New Mexico. Applicant seeks authority to dispose of salt water produced by wells on said leases in unlined surface pits located in the vicinity of said wells.

CASE 4389: Application of Coastal States Gas Producing Company for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Upper Pennsylvanian formation through the perforated interval from 9789 to 9924 feet in its State "27" Well No. 2 located in Unit F of Section 27, Township 14 South, Range 32 East, Talk-Pennsylvanian Pool, Lea County, New Mexico.

CASE 4390: Application of Murphy H. Baxter for a unit agreement, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of the North E-K Queen Unit Area comprising 978 acres, more or less, of State lands in Township 17 South, Range 33 East, and Township 18 South, Ranges 33 and 34 East, E-K Yates-Seven Rivers-Queen Pool, Lea County, New Mexico.



Examiner Hearing - August 5, 1970

Docket No. 18-70

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CASE 4391: Application of Murphy H. Baxter for a waterflood project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project in its North E-K Queen Unit Area by the injection of water into the Queen formation through 4 wells located in Units A, D, F, and G of Section 7, Township 18 South, Range 34 East, E-K Yates-Seven Rivers-Queen Pool, Lea County, New Mexico. Applicant further seeks a procedure whereby said project may be expanded administratively without a showing of well response.

CASE 4392: Application of Southwestern Natural Gas, Inc. for the assignment of back allowable, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks the assignment of back allowable to its Mershon Gas Comm Well No. 1 located in Unit A of Section 21, Township 22 South, Range 23 East, Indian Basin-Upper Pennsylvanian Gas Pool, Eddy County, New Mexico, for the period from the date of completion of said well on September 22, 1969, to the date of connection of said well on June 4, 1970.

CASE 4393: Application of Mobil Oil Corporation for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Devonian formation in the open-hole interval from 12,240 feet to 12,463 feet in its Santa Fe Pacific Well No. 3 located in Unit M of Section 26, Township 9 South, Range 36 East, Crossroads-Devonian Pool, Lea County, New Mexico.

CASE 4394: Application of Phillips Petroleum Company for a unit agreement, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of the Plata Deep Unit Area comprising 5,600 acres, more or less, of Federal and State lands in Sections 8, 9, 10, 11, 14, 15, 16, 22 and 23 of Township 20 South, Range 32 East, Lea County, New Mexico.

CASE 4395: Application of Consolidated Oil & Gas, Inc. for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Abo formation in the perforated interval from 8915 to 8926 feet in its Shipp Well No. 1-17 located in Unit H of Section 17, Township 17 South, Range 37 East, Midway Abo Pool, Lea County, New Mexico.

Examiner Hearing - August 5, 1970  
Docket No. 18-70

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CASE 4396: Application of Klabzuba, Munson and Seaman for a dual completion and salt water disposal, Chaves County, New Mexico. Applicants, in the above-styled cause, seek authority to dually complete its (Varel) Avalanche Journal Well No. 1 located in Unit N of Section 18, Township 10 South, Range 28 East, Chaves County, New Mexico, in such a manner as to produce gas from the San Andres formation in the perforated interval from 2186 to 2204 feet of the Race Track (San Andres) Pool through the casing-tubing annulus and dispose of produced salt water through tubing into the San Andres formation of said pool in the perforated interval from 2262 to 2289 feet.

CASE 4397: In the matter of the hearing called by the Oil Conservation Commission on its own motion to permit Rio Trust and all other interested persons to appear and show cause why the following Rio Trust wildcat wells located in Section 2, Township 1 North, Range 2 East, Rio Arriba County, New Mexico, should not be plugged and abandoned in accordance with a Commission-approved plugging program:

Little Chama Valley Co. Well No. 1  
located 660 feet from the North line  
and 1380 feet from the West line;

Sargent Well No. 1 located 925 feet  
from the West line and 1445 feet from  
the South line.

CASE 4267: (Reopened)

In the matter of Case No. 4267 being reopened by the Oil Conservation Commission on its own motion to permit Edward M. Kriss and all other interested parties to appear and show cause why the Edward M. Kriss Little Chama Valley Company Well No. 1, a wildcat well, located 545 feet from the North line and 1530 feet from the West line of Section 2, Township 1 North, Range 2 East, Rio Arriba County, New Mexico, should not be plugged and abandoned in accordance with a Commission-approved plugging program.

CASE 4398: Application of Michael P. Grace and Corinne Grace for compulsory pooling and unorthodox gas well locations, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests from the surface of the ground down to and including the Morrow formation underlying the N/2

Examiner Hearing - August 5, 1970

Docket No. 18-70

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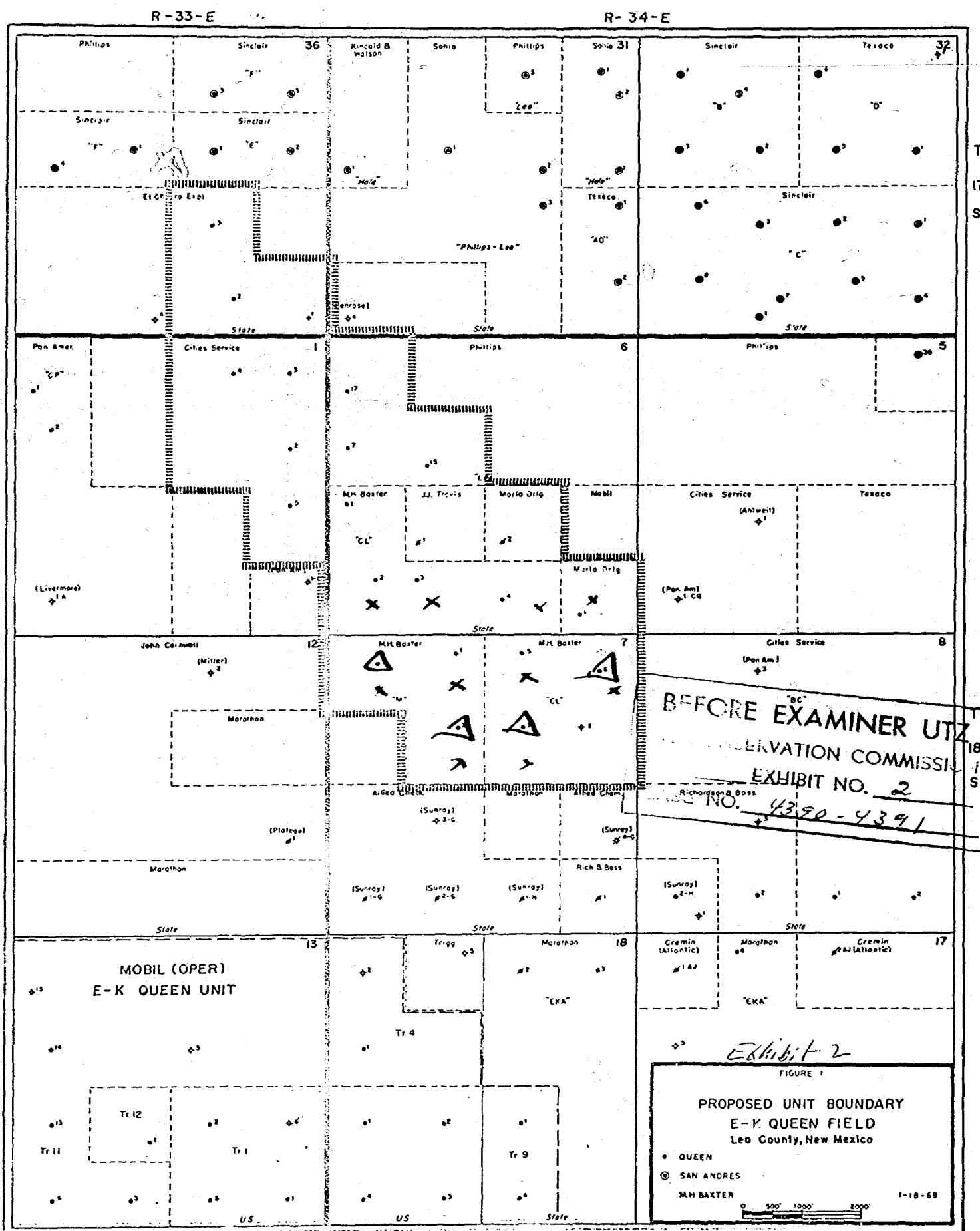
(Case 4398 continued)

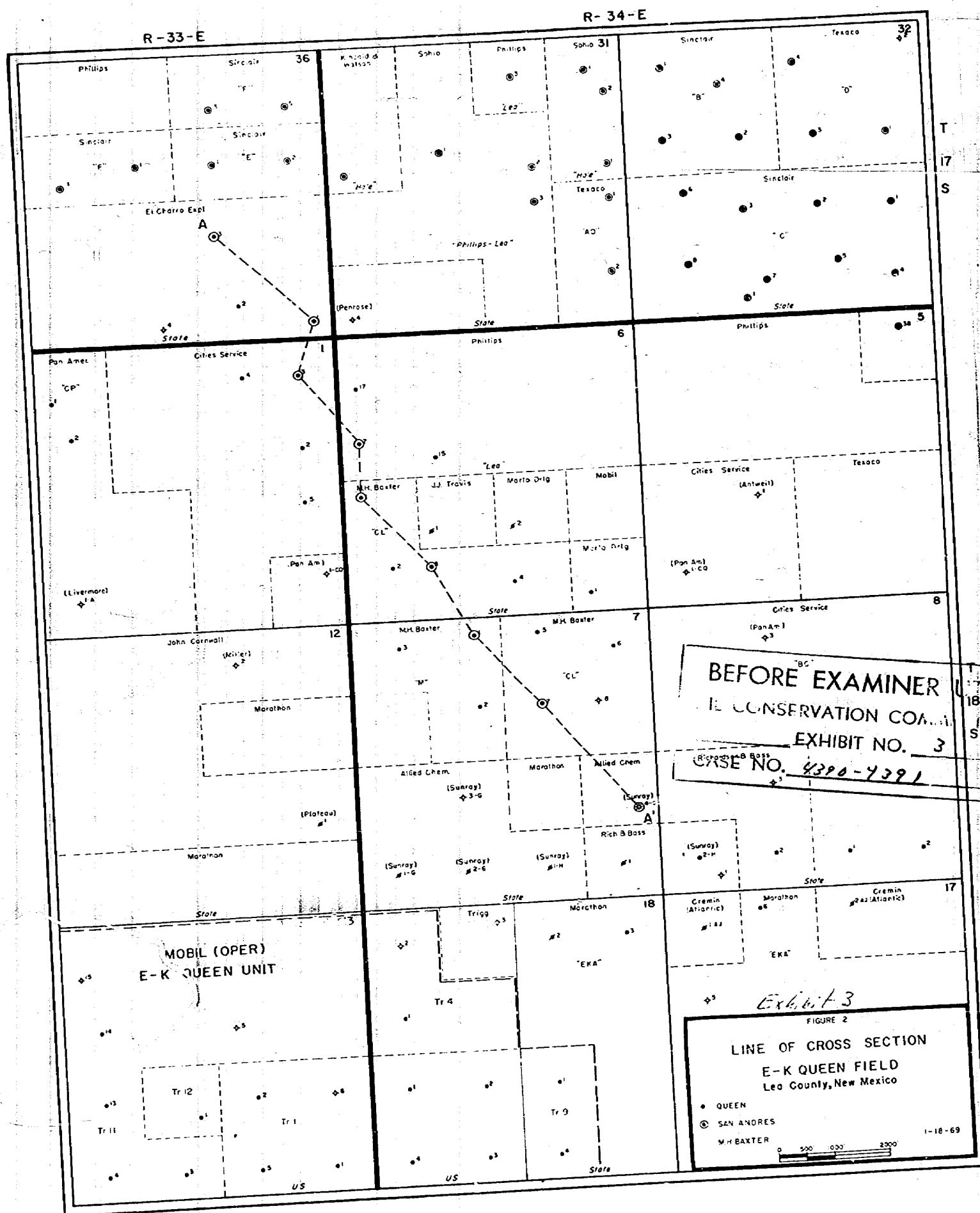
and the S/2 of Section 2, Township 23 South, Range 26 East, Eddy County, New Mexico, to form two 320-acre proration units for the production of gas from any or all zones of the Pennsylvanian formation. Said N/2 and S/2 to be dedicated to wells to be drilled respectively, at unorthodox locations 2500 feet from the North line and 330 feet from the East line of said Section 2 and 990 feet from the South line and 660 feet from the East line of said Section 2.

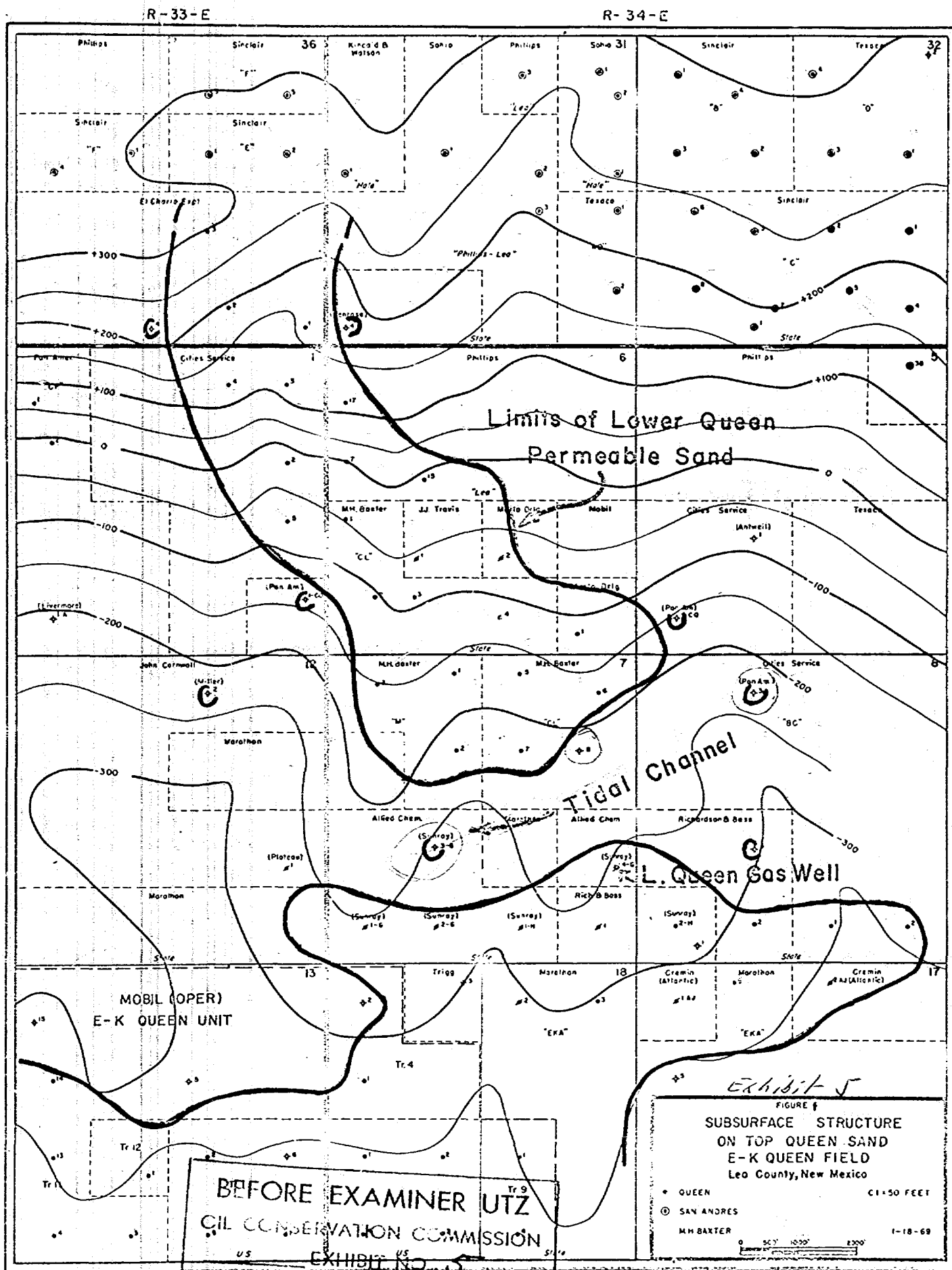
Also to be considered will be the costs of drilling said wells, a charge for the risk involved, provisions for the allocation of actual operating costs, and the establishment of charges for supervision of said wells.

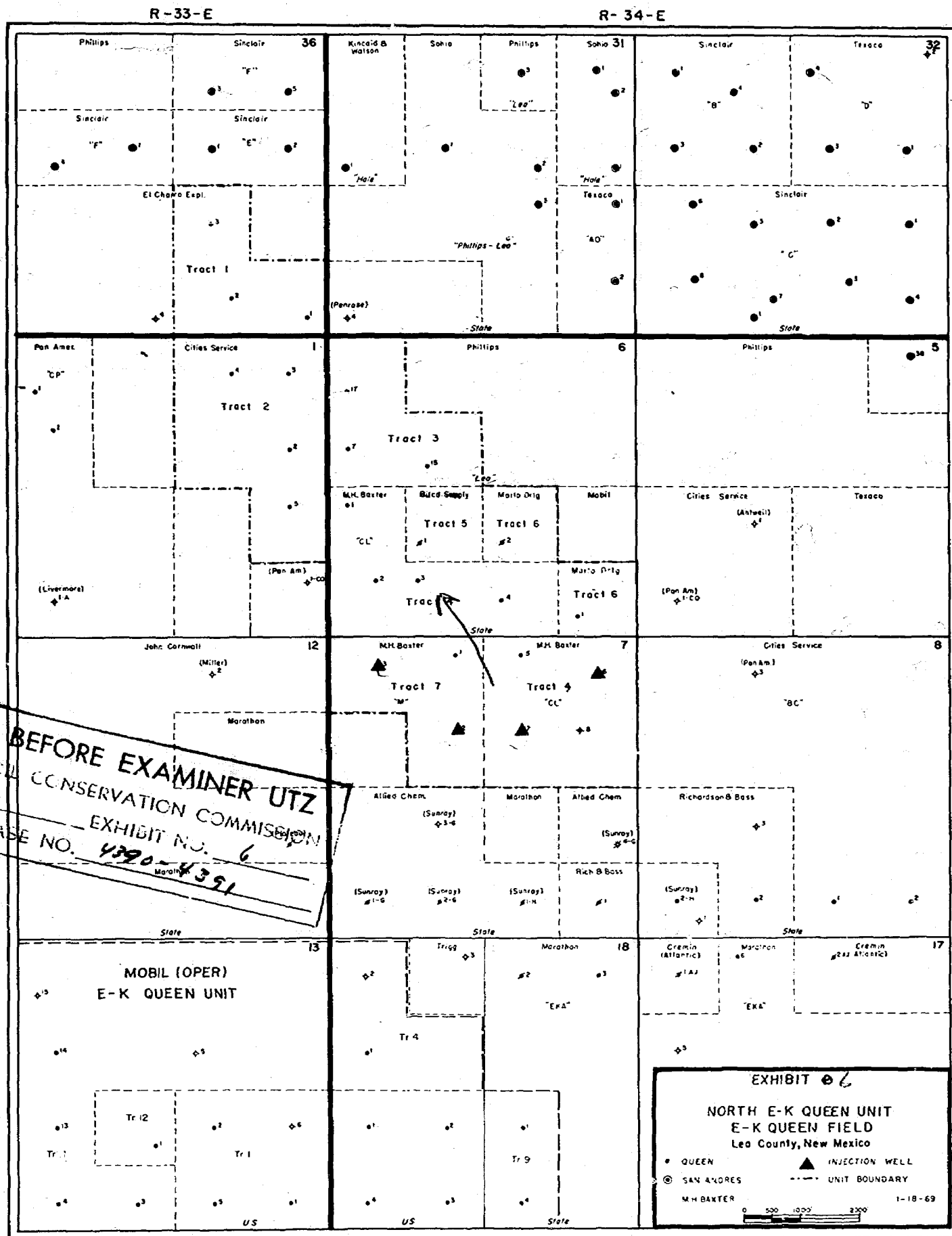
CASE 4354: (Continued from the July 1, 1970, Examiner Hearing)

Application of Michael P. Grace and Corinne Grace for compulsory pooling, Eddy County, New Mexico. Applicants, in the above-styled cause, seek an order pooling all mineral interests from the surface of the ground down to and including the Morrow formation underlying the N/2 of Section 11, Township 23 South, Range 26 East, South Carlsbad Field, Eddy County, New Mexico, said acreage to be dedicated to a well to be drilled in either the NE/4 NW/4 or the NW/4 NE/4 of said Section 11. Also to be considered will be the costs of drilling said well, a charge for the risk involved, a provision for the allocation of actual operating costs, and the establishment of charges for supervision of said well.







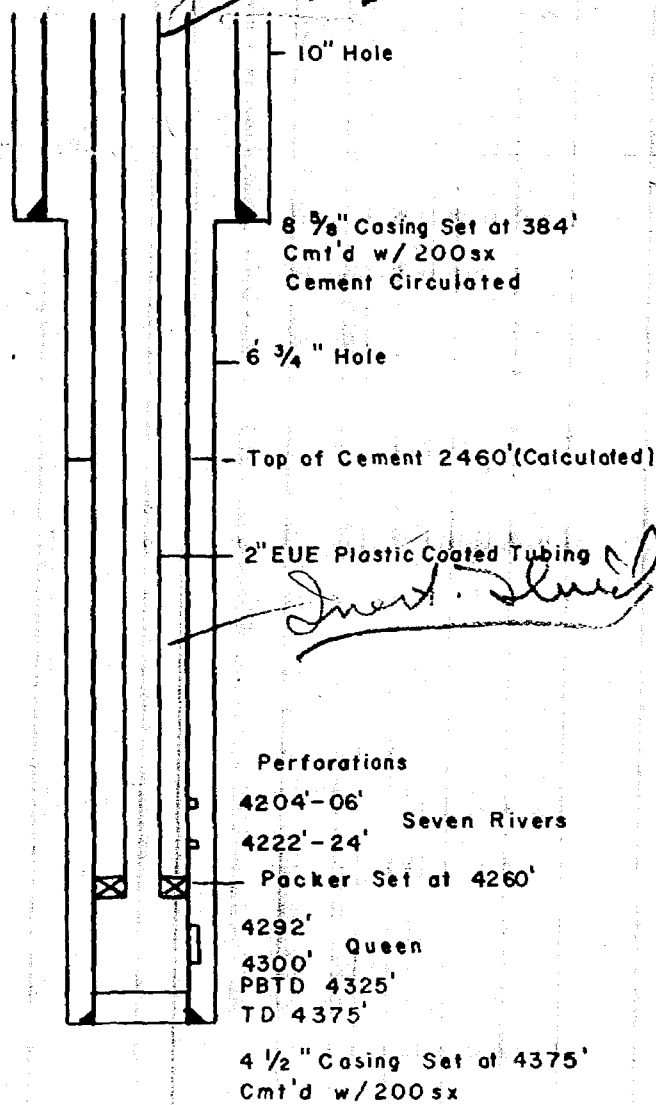


MURPHY H. BAXTER

STATE "M" NO.3

853' FWL & 480' FNL

SEC. 7-T1BS-R34E



BEFORE EXAMINER UTZ  
CIVIL CONSERVATION COMMISSION  
EXHIBIT NO. 7  
CASE NO. 4390-4391

MURPHY H. BAXTER

STATE "M" NO.2

1650' FNL & 2310' FWL

SEC. 7-T1BS-R34E

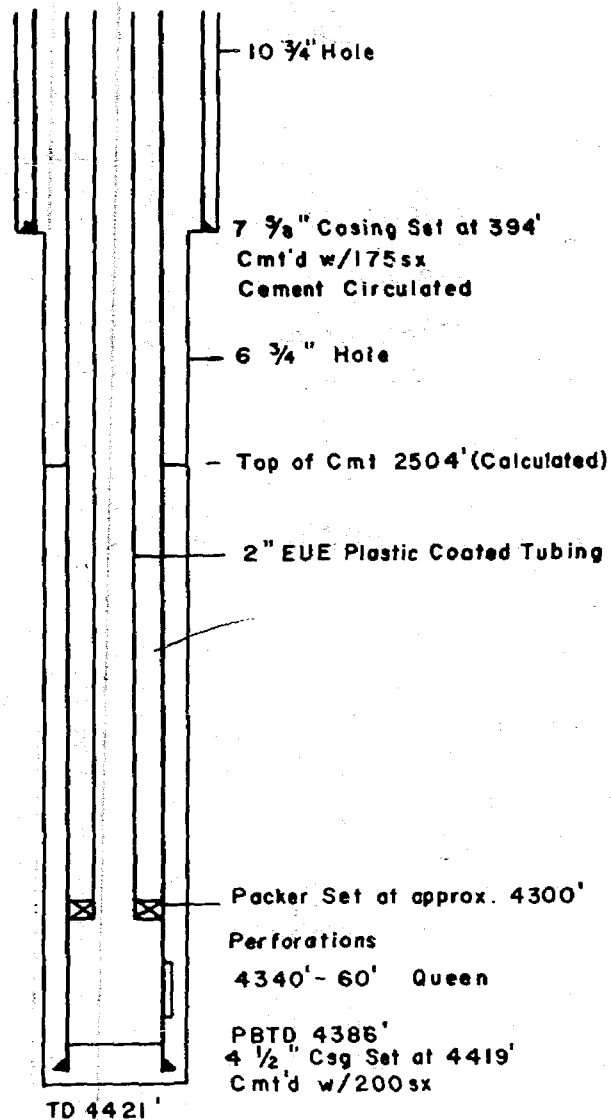


EXHIBIT 3 & 7  
NORTH EK QUEEN UNIT

Schematic Diagram of  
Water Injection Wells  
EK (Yates-Seven Rivers-Queen) Field  
LEA COUNTY, NEW MEXICO

M. H. Baxter

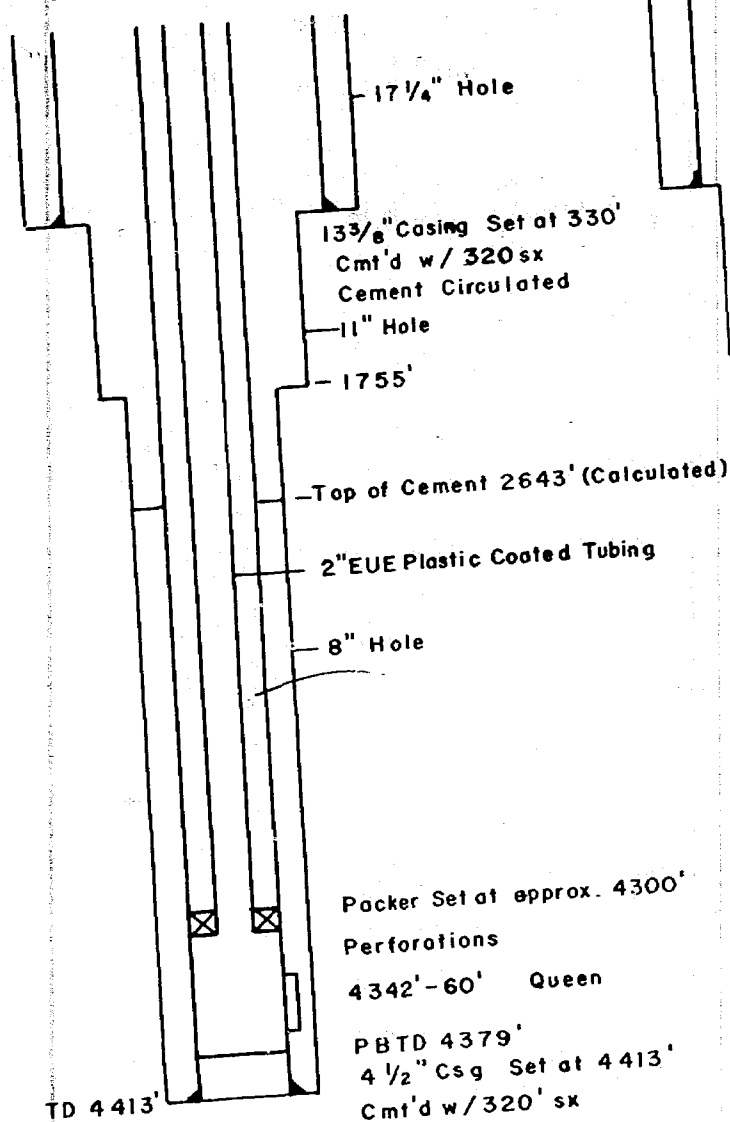


MURPHY H. BAXTER

STATE "CL" NO. 71

990' FSL & 660' FWL

SEC. 7-T18S-R34E



BEFORE EXAMINER UTZ

CIL

8  
4390-4391

MURPHY H. BAXTER

STATE "CL" NO. 6

330' FNL & 660' FEL

SEC. 7-T18S-R34E

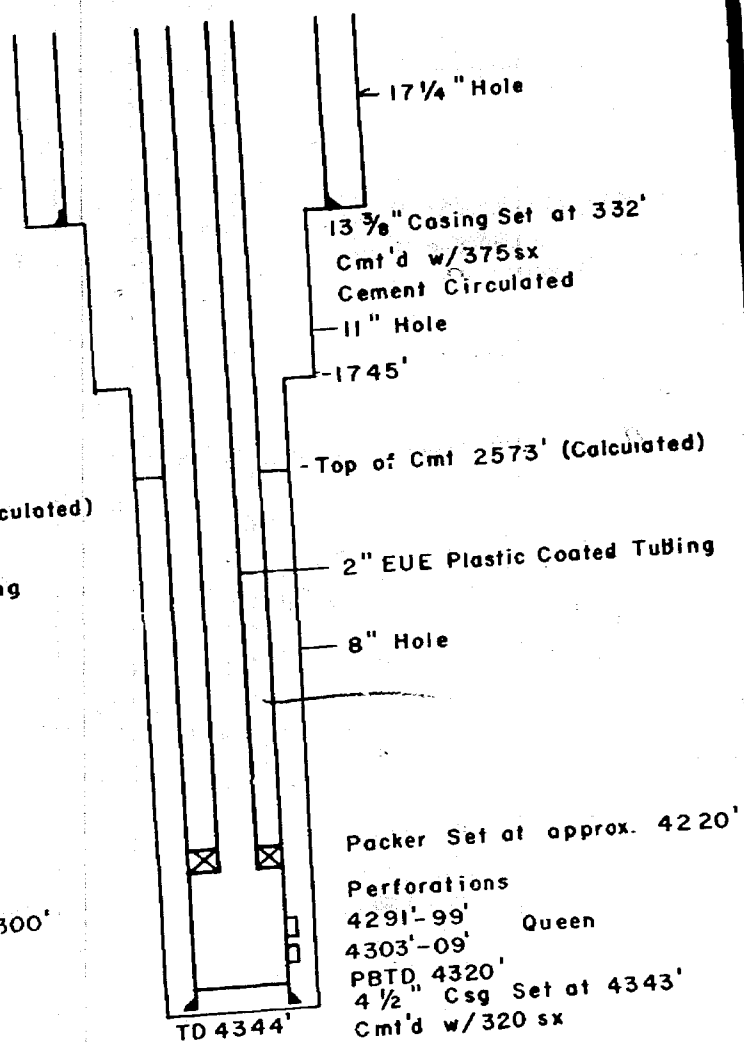


EXHIBIT 3B P

NORTH EK QUEEN UNIT

Schematic Diagram of

Water Injection Wells

EK (Yates-Seven Rivers-Queen) Field

LEA COUNTY, NEW MEXICO

M.H. Baxter

## Martin Water Laboratories

P. O. BOX 1468 PHONE 943-3234  
MONAHANS, TEXAS 79756

406 W. ILLINOIS PHONE 683-4521  
MIDLAND, TEXAS 79701

### RESULT OF WATER ANALYSES

TO: Mr. W. U. Sumner LABORATORY NO. 770200  
814 Bldg. of Southwest, Midland, Texas SAMPLE RECEIVED 7-30-70  
RESULTS REPORTED 7-31-70

COMPANY Murphy H. Baxter LEASE E. K. Queen  
FIELD OR POOL E. K. Queen  
SECTION      BLOCK      SURVEY      COUNTY Lea STATE N. M.  
SOURCE OF SAMPLE AND DATE TAKEN:     

No. 1 Produced water - taken from storage tank, 7-30-70 Mobil's E K Queen Unit

NO. 2

NO. 3

**NO. 4**

## REMARKS:

CHEMICAL AND PHYSICAL PROPERTIES				
	NO. 1	NO. 2	NO. 3	NO. 4
Specific Gravity at 60° F.	1.0926			
pH When Sampled				
pH When Received	7.1			
Bicarbonate as HCO <sub>3</sub>	500			
Supersaturation as CaCO <sub>3</sub>	26			
Undersaturation as CaCO <sub>3</sub>	-			
Total Hardness as CaCO <sub>3</sub>	22,600 ✓			
Calcium as Ca	3,600			
Magnesium as Mg	3,305			
Sodium and/or Potassium	44,365			
Sulfate as SO <sub>4</sub>	3,341			
Chloride as Cl	81,673 ✓			
Iron as Fe	4.4			
Barium as Ba				
Turbidity, Electric				
Color as Pt				
Total Solids, Calculated	136,784			
Temperature °F.				
Carbon Dioxide, Calculated				
Dissolved Oxygen, Winkler				
Hydrogen Sulfide	15.0			
Resistivity, ohms/m at 77° F.	0.066			
Suspended Oil				
Filtrable Solids as mg/l				
Volume Filtered, ml				

Results Reported As Milligrams Per Liter

### Additional Determinations And Remarks

Contact us for any details or discussions concerning the above results.

Form No. 3

Oil.

By

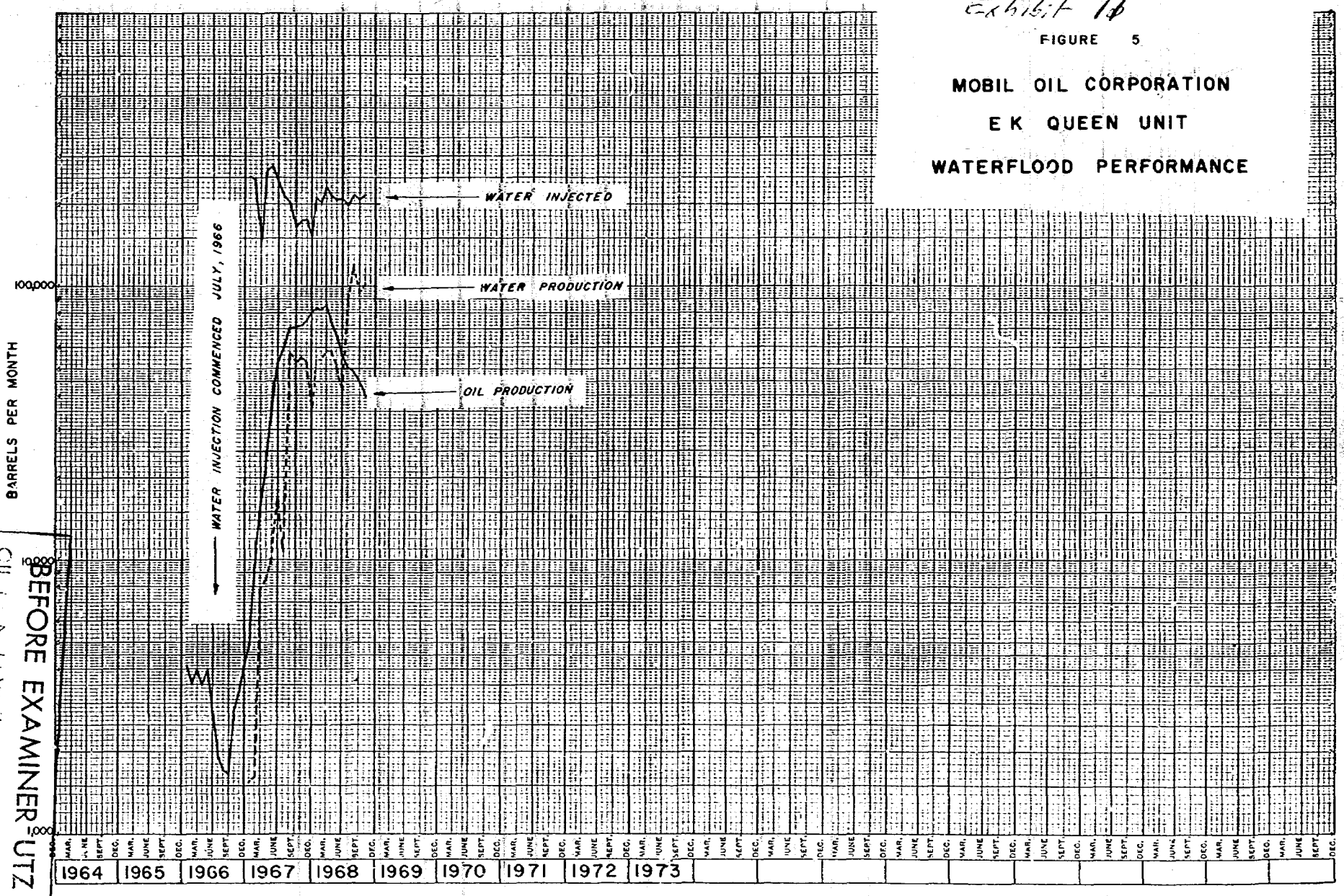
W. Reagan White, B. S.

4390-4391

Exhibit 10

FIGURE 5

MOBIL OIL CORPORATION  
E K QUEEN UNIT  
WATERFLOOD PERFORMANCE



BEFORE EXAMINER'S UTZ  
OIL COMPANY  
CASE NO. 4390-4391  
Exhibit No. 11

CLARENCE E. HINKLE  
W. E. BONDURANT, JR.  
LEWIS C. COX, JR.  
PAUL W. EATON, JR.  
CONRAD E. COFFIELD  
HAROLD L. HENSLEY, JR.  
STUART D. SHANOR

C. D. MARTIN  
PAUL J. KELLY, JR.

LAW OFFICES  
HINKLE, BONDURANT, COX & EATON

600 HINKLE BUILDING

POST OFFICE BOX 10

ROSWELL, NEW MEXICO 86201

July 14, 1970

TELEPHONE (505) 622-6510

MIDLAND, TEXAS OFFICE  
521 MIDLAND TOWER  
(915) MU 3-4691

*Case 4391*

Oil Conservation Commission  
Box 2088  
Santa Fe, New Mexico 87501

Gentlemen:

There are enclosed herewith in triplicate applications of Murphy H. Baxter for approval of the Unit Agreement for the Development and Operation of the North EK Queen Unit, Lea County, and for the waterflood project which is to be inaugurated in connection therewith, together with exhibits referred to in said applications.

I would appreciate your placing these two cases on the examiner's hearing docket for August 5 and would further appreciate it very much if you would place these cases as near the first of the docket as possible as I have an engagement for that afternoon. Your cooperation in this connection will be greatly appreciated.

Yours very truly,

HINKLE, BONDURANT, COX & EATON

By Clarence E. Hinkle  
*cd*

CEH:cs  
Enc.  
cc: W. U. Sumner

DOCKET MAILED

Date 7/23/70

40  
100  
73 JUL 15 AM 8 40

BEFORE THE OIL CONSERVATION COMMISSION  
STATE OF NEW MEXICO

APPLICATION OF MURPHY H. BAXTER  
FOR APPROVAL OF A WATERFLOOD  
PROJECT FOR THE NORTH EK QUEEN  
UNIT AREA, LEA COUNTY, NEW MEXICO.  
UNDER THE PROPOSED PROJECT THE  
QUEEN SAND FORMATION WILL BE  
FLOODED INITIALLY THROUGH FOUR  
INJECTION WELLS THROUGH PERFORATED  
DEPTHS RANGING FROM 4291 FEET TO  
4360 FEET. APPLICANT SEEKS A PRO-  
JECT ALLOWABLE AND ADMINISTRATIVE  
APPROVAL OF ADDITIONAL INJECTION  
WELLS.

Case 4391

Oil Conservation Commission  
Box 2088  
Santa Fe, New Mexico 88201

Comes Murphy H. Baxter, acting by and through the undersigned  
attorneys, and hereby makes application for approval of a waterflood  
project for the North EK Queen Unit Area and in support thereof respect-  
fully shows:

1. Applicant has filed an application with the Oil Conservation  
Commission for approval of the Unit Agreement for the Development and  
Operation of the North EK Queen Unit Area, Lea County, New Mexico. That  
the proposed unit area embraces the following described lands of the  
State of New Mexico, to-wit:

Township 17 South, Range 33 East  
Section 36 -  $S\frac{1}{2}SE\frac{1}{4}$ ,  $NW\frac{1}{4}SE\frac{1}{4}$

Township 18 South, Range 33 East  
Section 1 - Lots 1, 2,  $S\frac{1}{2}NE\frac{1}{4}$ ,  $NE\frac{1}{4}SE\frac{1}{4}$

Township 18 South, Range 34 East  
Section 6 - Lots 4, 5, 6, 7,  $SE\frac{1}{4}NW\frac{1}{4}$ ,  $E\frac{1}{2}SW\frac{1}{4}$ ,  
 $W\frac{1}{2}SE\frac{1}{4}$ ,  $SE\frac{1}{4}SE\frac{1}{4}$   
Section 7 - Lot 1,  $E\frac{1}{2}NW\frac{1}{4}$ ,  $NE\frac{1}{4}$   
containing 978.44 acres, more or less.

2. That the primary purpose of the unit agreement is to inaugurate a waterflood project coextensive with the unit area for the purpose of secondary recovery operations in connection with the Queen Sand formation underlying the unit area which occurs between the logged depths measured from the Kelly bushing of 4121 feet and 4210 feet in the Cities Service Oil Company Cockburn "B" State No. 2 well located in the SE $\frac{1}{4}$ NE $\frac{1}{4}$  Section 1, Township 18 South, Range 33 East, Lea County, New Mexico.

3. That there is attached hereto, made a part hereof and for purposes of identification marked Exhibit 1, a plat showing the outlines of the proposed unit area and all of the wells producing from the Queen Sand formation, as well as the acreage ownership, within a radius of two miles of the proposed unit area.

4. There is attached hereto as Exhibit 2 a plat showing the four proposed initial injection wells, namely the following Murphy H. Baxter wells: State "M" No. 2 located 1650 feet from the North line and 2310 feet from the West line of Section 7; State "M" No. 3 located 853 feet from the West line and 480 feet from the North line of Section 7; State "CL" No. 6 located 330 feet from the North line and 660 feet from the East line of Section; and State "CL" No. 7 located 990 feet from the South line and 660 feet from the West line of said Section 7, all in Township 18 South, Range 34 East. There are also attached diagrammatic sketches of the above mentioned wells showing all casing strings including diameters and setting depths; quantities used and tops of cement; perforated or open hole intervals; tubing strings including diameters and setting depth; and location of packers.

5. There are also filed herewith electrical logs of each of the proposed injection wells.

6. Applicant proposes to initially inject water in the four wells hereinabove referred to and estimates that the water injected will be at a maximum rate of 500 barrels per day per well, or a total of 2,000 barrels per day. The source of the injected fluid will be produced water from Mobil Oil Company's EK Queen Unit which lies to the south of the proposed unit area.

7. The four initial injection wells have been selected with a view to causing the secondary recovery oil to be swept up-structure and it may be necessary later to convert other wells or to drill additional wells for injection purposes and applicant would like to have the order approving the waterflood project provide that additional injection wells may be approved administratively, without a hearing.

8. That applicant also seeks the approval of a project allowable for the proposed waterflood project in accordance with Rule 701 of the Commission.

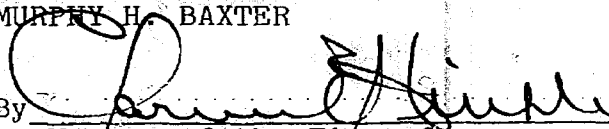
9. In the opinion of applicant the proposed waterflood project is in the interest of conservation and the prevention of waste and will tend to protect correlative rights.

10. Applicant requests that this matter be set down for hearing at the examiner's hearing to be held on August 5, 1970.

Respectfully submitted,

MURPHY H. BAXTER

By

  
Member of the Firm of  
HINKLE, BONDURANT, COX & EATON  
Box 10  
Roswell, New Mexico 88201  
Attorneys for Applicant







DRAFT

GMH/esr

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. 4391

Order No. R- 4009

APPLICATION OF MURPHY H. BAXTER  
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 August 5, 1970,  
at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this        day of August, 1970, 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, Murphy H. Baxter,  
seeks authority to institute a waterflood project in the North  
E-K Queen Unit Area, E-K Yates-  
Seven Rivers-Queen Pool,  
by the injection of water into the Queen formation  
through four injection wells in Section Units A, D, F, and G of  
Section 7, Township 18 ~~NORTH~~, South, Range 34 ~~WEST~~ East,  
NMPM, Lea County, New Mexico.

(3) That the applicant further seeks an administrative  
procedure whereby said project could be expanded to include  
additional lands and 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.

the recovery of otherwise unrecoverable oil, thereby preventing  
waste. (SEE UNDER)

(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, that 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, Murphy H. Baxter,  
is hereby authorized to institute a waterflood project in the  
North E-K Queen Unit Area, Seven Rivers-Queen Pool,  
by the injection of water into the Queen formation  
Section 7,  
through the following-described wells in/Township 18  
~~North~~ South, Range 34 ~~West~~ East, NMPM, Lea

County, New Mexico:

*Murphy H Baxter State "M" Well No. 2 - Unit F -*  
*Murphy H Baxter State "M" Well No. 3 - Unit D -*  
*Murphy H Baxter State "CL" Well No. 6 - Unit A*  
*Murphy H Baxter State "CL" Well No. 7 - Unit G -*

(2) That the subject waterflood project is hereby designated  
the North EK Unit Waterflood Project and shall  
be governed by the provisions of Rules 701, 702, and 703 of the  
Commission Rules and Regulations;

PROVIDED HOWEVER, that the Secretary-Director, of the Commis-  
sion may approve expansion of the North EK Unit  
Waterflood Project to include such additional lands and 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.

(SEE UNDER)

(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.

**CASE 4392: Appli. of SOUTHWESTERN  
NATURAL GAS FOR THE ASSIGNMENT  
OF BACK ALLOWABLE, EDDY COUNTY.**