

CASE 3937: Appli. of ANADARKO  
PRODUCTION CO. FOR AN AMENDMENT  
TO ORDER NO. R-2977, EDDY COUNTY



Case Number

3937

Application

Transcripts

Small Exhibits

ETC.



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SPECIALIZING IN: DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS

1120 SIMMS BLDG. • P. O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO



BEFORE THE  
NEW MEXICO OIL CONSERVATION COMMISSION  
Santa Fe, New Mexico  
November 12, 1968  
EXAMINER HEARING

-----  
IN THE MATTER OF: )  
)  
)

Application of Anadarko )  
Production Company for an )  
amendment to Order No. )  
R-2977, Eddy County, New )  
Mexico. )  
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Case No. 3937

BEFORE: Daniel S. Nutter, Examiner

TRANSCRIPT OF HEARING

RECORDED  
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MR. NUTTER: We'll call Case 3937.

MR. HATCH: Case 3937, application of Anadarko Production Company for an amendment to Order No. R-2977, Eddy County, New Mexico.

MR. BONNETTE: Mr. Stumhoffer will be the only witness.

(Whereupon, Applicant's Exhibits Numbers 1, 2, and 3 were marked for identification.)

(Witness sworn.)

C. W. STUMHOFFER

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

DIRECT EXAMINATION

BY MR. BONNETTE:

Q State your name and the company you work with, and what position you have.

A My name is C. W. Stumhoffer, S-t-u-m-h-o-f-f-e-r. I am employed by Anadarko Production Company, Fort Worth, Texas, as Superintendent of the Secondary Recovery Division.

MR. NUTTER: Counsel, would you enter your name in the record, please?

MR. BONNETTE: Yes. Irley, I-r-l-e-y, Bonnette, B-o-n-n-e-t-t-e.

MR. NUTTER: The record will show we have an



appearance on behalf of Anadarko's legal staff by Sim Christy, of Hinkle, Bondurant and Christy.

Q (By Mr. Bonnette) Have you ever testified before this Commission before?

A Yes, I have.

Q Have you been qualified as an expert witness?

A Yes, sir, I have.

Q Would you state to the Commission the content of your application and detail the exhibits to support it?

MR. BONNETTE: And before he does that, I might state that this 40-acre tract immediately east of the proposed well which was Sema-Capitan, we have a contract with them whereby we are purchasing that, in the process of acquiring that acreage there. Please proceed.

A Mr. Examiner, I'd like to refer you to Exhibit 1. On Exhibit 1 is a map. We have a map of the portion of the East Square Lake Field, Eddy County, New Mexico.

Outlined on the map, we have Anadarko's Grier Federal Lease shown in yellow. This lease was acquired from Western Oil Fields, Incorporated, during 1966 by purchase. This, the Grier Federal Lease, is part of a cooperative waterflood project that was approved by the Commission on October the 7th, 1965 by Order No. R-2977, and which was amended by R-"29778" dated, also,



the same date, and in this order to which Sema-Capitan, Rider-Scott Management Company, Stallworth Oil and Gas Company, and Western Oil Fields, Incorporated, were parties, was approved as a waterflood project, cooperative water project. In this order, it was approved to develop by the drilling of injection wells on the 160-acre corners of each lease.

Q I might ask here, Mr. Stumhoffer, under the present application, where is the well that you're concerned with now to be -- is to be drilled as an injection well?

A Well, that was a point for me to bring up next. Among these wells, among the wells that were approved by the Commission Order R-2977 was a well to be located at the center of Section 31, Township 16 South, Range 31 East. This was to be drilled on Sema-Capitan's Grier Lease, and in view of the planned acquisition of the Sema-Capitan Lease and the economics to drill a new injection well and the -- with the idea that we will not lose any recoverable waterflood oil, we propose to substitute the Well No. 6 on the Grier Federal Lease as the injection well to its location.

Exhibit 2 is a log of the Grier Federal Well No. 6 that we have submitted. It's a gamma ray neutron log, Lane Wells. On it, we show the zones that are being flooded which are in the Grayburg and San Andres.



Exhibit 3 is a diagrammatic sketch of the proposed injection well. This is an old well that was drilled during the early 1940's and during 1965, a string of two and seven-eighths casing was run in this well through all the pay zones, by Western Oil Fields. At this time, the well was placed on inactive status and which is the present status of the well. It's inactive. We propose to complete the well. It has been completed in the Premier Sand of the Grayburg and the Lovington Sand of the San Andres, for a dual injection. We will inject, or we will run two and three-eighths-inch OD tubing set on a packer between the Premier and Lovington Sands and inject a mixture of fresh water purchased from a commercial water company and produced water down the annulus into the Premier Sand and down the tubing into the Lovington Sand.

The two and seven-eighths OD casing string has been cemented with sufficient cement to bring the top of the cement to 2250 feet in the annulus. This has been verified by a temperature survey. Our injection rates will be approximately 250 barrels a day into the Premier Sand and 150 barrels per day into the Lovington Sand at pressures of approximately 2000 psi.

MR. NUTTER: Both zones?

THE WITNESS: The Lovington, that will be the Premier Zone, the annulus. The Lovington will require a little higher



pressure, Mr. Examiner. It will be approximately 2600 psi.

Q How much will it cost you to convert this well to a water injection?

A Approximately \$5,000.00.

Q How much will it cost to drill a new well?

A \$35,000.00.

Q Was it your testimony a moment ago that you would recover the same amount of oil by this procedure as it would be if you drilled a new well and left this one on production?

A Yes.

Q Were all these exhibits prepared under your supervision or by you?

A Yes.

MR. BONNETTE: That's all we have, Mr. Examiner.

CROSS EXAMINATION

BY MR. NUTTER:

Q Mr. Stumhoffer, what is the status of this well at the present time? It is producing?

A It's temporarily abandoned. It's inactive.

Q It's inactive?

A Yes.

Q And as I understand it, the well that was authorized for injection would be in the extreme northeast corner of that



40 acres immediately east of where I made that little red X-mark, isn't it?

A Yes, it is.

Q And you're substituting this well for the well that was authorized to be drilled at that point?

A Right.

Q And this two and seven-eighths-inch casing that's in there, is that a liner or full string?

A That's a full string.

Q And the cement comes some 700 feet back into the five and a half-inch casing?

A Yes, sir. This is verified by a temperature survey we have. It's not in the exhibits, but we have it available.

Q And you will be going down an inch and a quarter tubing to the Lovington Sand and into the annulus to the Premier?

A Yes, sir.

MR. NUTTER: Are there any other questions of the witness?

MR. BONNETTE: No questions.

MR. NUTTER: You may be excused. Do you have anything further?

MR. BONNETTE: No.

MR. NUTTER: Does anyone have anything they wish to



offer in Case No. 3937? We'll take the case under advisement.



I N D E X

<u>WITNESS</u>	<u>PAGE</u>
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<u>EXHIBITS</u>	<u>MARKED</u>	<u>OFFERED AND ADMITTED</u>
Applicant's Exhibits Numbers 1, 2, 3	2	----



STATE OF NEW MEXICO )  
 ) ss  
COUNTY OF BERNALILLO )

I, CHARLOTTE MACIAS, Court Reporter and Notary Public in and for the County of Bernalillo, State of New Mexico, 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.

*Charlotta Mavris*  
COURT REPORTER

I do hereby certify that the foregoing is a true and correct copy of the original as the same appears in the files of the Commission.

11/12 3937  
68

*[Signature]* Director  
New Mexico Oil Conservation Commission



OIL CONSERVATION COMMISSION

P. O. BOX 2088

SANTA FE, NEW MEXICO 87501

November 21, 1968

C Mr. Irley Bonnette  
Anadarko Production Company  
Post Office Box 9317  
Fort Worth, Texas 76107

Dear Sir:

O Enclosed herewith is Commission Order No. R-2977-B, entered in Case No. 3937, approving the revision of Anadarko's Grier Federal Water-Flood Project in the Square Lake Pool, Eddy County.

P The newly authorized water injection well shall be a dual zone injector, with injection into the Lovington sand through 1 1/4-inch tubing under a packer and injection down the casing-tubing annulus into the Premier sand. The annulus between the 2 7/8-inch casing and the 5 1/2-inch casing shall be loaded with an inhibited fluid and equipped with a pressure gauge to facilitate detection of leakage in the casing or cement.

Y 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 350 barrels per day when the Southeast New Mexico normal unit allowable is 42 barrels per day or less. This allowable will be increased, of course, upon assumption of ownership by Anadarko of the NE/4 SW/4 of Section 31 and when and if Wells No. 9 and 10 are returned to production.

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



OIL CONSERVATION COMMISSION  
P. O. BOX 2088  
SANTA FE, NEW MEXICO 87501

..2-

Mr. Irley Bonnette  
Anadarko Production Company  
Post Office Box 9317  
Fort Worth, Texas 76107

C  
O  
P  
Y  
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

ALP/DSM/ir

Enclosure

cc: Oil Conservation Commission  
Hobbs and Artesia, New Mexico

U. S. Geological Survey  
Artesia, 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. 3937  
Order No. R-2977-B

APPLICATION OF ANADARKO PRODUCTION  
COMPANY FOR AN AMENDMENT TO ORDER  
No. R-2977, EDDY COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on November 12, 1968, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 21st day of November, 1968, 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 Order No. R-2977, as corrected by Order No. R-2977-A, authorized Cima Capitan, Inc., Ryder-Scott Management Company, Stallworth Oil and Gas Company, and Western Oil Fields, Inc., to institute a cooperative waterflood project in the Square Lake Pool, Eddy County, New Mexico, by the injection of water into the Grayburg-San Andres formations.

(3) That the applicant, Anadarko Production Company as successor in interest to Western Oil Fields, Inc., now seeks the amendment of Order No. R-2977, as corrected by Order No. R-2977-A, to delete the water injection well authorized therein to be drilled 2630 feet from the South line and 2650 feet from the East line of Section 31, Township 16 South, Range 31 East,



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CASE No. 3937

Order No. R-2977-B

NMPM, Eddy County, New Mexico, and to authorize for water injection its Grier Federal Well No. 6, located 1980 feet from the South line and 1980 feet from the East line of said Section 31.

(4) That the applicant is in the process of acquiring the interests of Cima Capitan, Inc., in the NE/4 SW/4 of said Section 31.

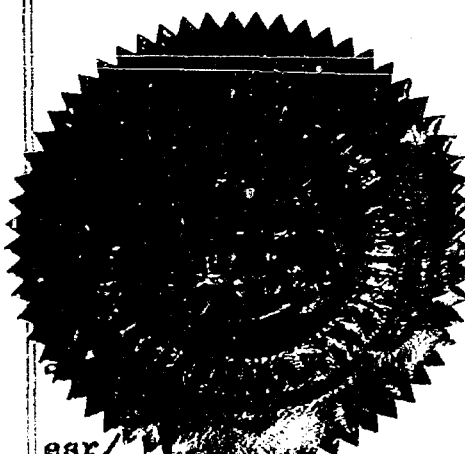
(5) That approval of the subject application will not violate correlative rights and should increase the efficiency of that portion of the subject cooperative waterflood project.

IT IS THEREFORE ORDERED:

(1) That Order No. R-2977, as corrected by Order No. R-2977-A, is hereby amended by deleting from the water injection wells authorized therein the Cima Capitan, Inc., Grier Well No. 2 to be located 2630 feet from the South line and 2650 feet from the East line of Section 31, Township 16 South, Range 31 East, NMPM, Square Lake Pool, Eddy County, New Mexico, and substituting in lieu thereof as a water injection well the Anadarko Production Company Grier Federal Well No. 6, located 1980 feet from the South line and 1980 feet from the East line of said section and pool.

(2) 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*  
DAVID F. CARGO, Chairman

*Guyton B. Hays*  
GUYTON B. HAYS, Member

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

esr/



ROUGH DRAFT FOR WATERFLOOD LETTERS

Mr. Irley Bonnette  
Anadarko Production Company  
Post Office Box 9317  
Fort Worth, Texas 76107

Dear Sir:

~~Enclosed herewith is~~ Commission Order No. R-2977-B entered in Case No. 3937, approving the division of Anadarko's Grier Federal Waterflood Project in the Square Lake Pool, Eddy County.

The newly authorized water injections well shall be a dual zone injector, with injection into the Livingston sand through 1 1/4-inch tubing under a packer and injection down the casing-tubing annulus into the Permian sand. ~~At the~~ ~~giving down said annulus~~ The annulus between the 2 7/8-inch casing and the 5 1/2-inch casing shall be sealed with an inhibited fluid and equipped with a

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 350 barrels per day when the Southeast New Mexico normal unit allowable is 42 barrels per day or less. ~~This allowable will be increased, of course, upon assumption of~~ 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 x  
Aztec .

USGS Artesia

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

pressure gauge to facilitate detection of leakage in the casing or cement.

ownership by Anadarko of the NE 1/4 SW 1/4 of Section 31 and when and if wells No. 9 and 10 are returned.



DOCKET: EXAMINER HEARING - TUESDAY - NOVEMBER 12, 1968

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

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

- CASE 3927: Application of Gulf Oil Corporation for an unorthodox oil well location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to drill a producing oil well at an unorthodox location 5 feet from the North line and 1,315 feet from the West line of Section 33, Township 19 South, Range 35 East, as an infill well in the West Pearl Queen Unit Waterflood Project, Pearl-Queen Pool, Lea County, New Mexico.
- CASE 3928: Application of Jake L. Hamon for the creation of a new oil pool and for special pool rules, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the creation of a new Devonian oil pool for its State "K-33" Well No. 1 located 1980 feet from the South and West lines of Section 30, Township 16 South, Range 36 East, Lea County, New Mexico, and for the promulgation of special rules therefor including a provision for 80-acre proration units.
- CASE 3929: Application of Leonard Latch for three waterflood projects, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute three waterflood projects by the injection of water into the Yates formation through five wells on his Saunders A, B, and Travis leases located in Sections 12 and 13 of Township 17 South, Range 27 East, Empire (Yates-Seven Rivers) Pool, Eddy County, New Mexico.
- CASE 3930: Application of Pan American Petroleum Corporation for a dual completion and water injection, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dually complete its Meyers "B" Federal Well No. 4 located in Unit E of Section 21, Township 24 South, Range 37 East, Lea County, New Mexico, in such a manner as to permit the production of gas from the perforated interval 2950 feet to 3090 feet, Jalmat Gas Pool, and the injection of water for secondary recovery purposes into the Seven Rivers-Queen formations, Langlie-Mattix Pool, in the open-hole interval from 3295 feet to 3650 feet through parallel strings of tubing.
- CASE 3931: Application of Pan American Petroleum Corporation for salt water disposal, Roosevelt County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the San Andres formation in the interval from 4239 feet to 4389 feet in its Farrell Federal Well No. 10 located in Unit F of Section 28, Township 7 South, Range 33 East, and in



November 12, 1968  
Examiner Hearing

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Docket No. 33-68

(Case 3931 continued)

the interval from 4402 to 4422 feet in its State "DF" Well No. 1 located in Unit I of Section 25, Township 7 South, Range 33 East, Chaveroo-San Andres Pool, Roosevelt County, New Mexico.

CASE 3932: Application of Pan American Petroleum Corporation for down-hole commingling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to commingle production from the Justis-Blinbry and Justis-Fusselman Pools in the wellbore of its State "AJ" Well No. 6 located in Unit M of Section 30, Township 25 South, Range 38 East, Lea County, New Mexico, with the provision that no more than one single allowable will be produced from said well.

CASE 3933: Application of Texaco, Inc., for a waterflood project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a pilot waterflood project by the injection of water into the Drinkard formation through its C. H. Lockhart Federal NCT Well No. 9 located in Unit P of Section 18, Township 22 South, Range 38 East, Drinkard Pool, Lea County, New Mexico. Applicant further seeks a procedure whereby said project may be expanded administratively without a showing of a well response.

CASE 3934: Application of Texaco Inc., for a waterflood project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project by the injection of water into the Drinkard formation through the Drinkard string of its multiple completed (tubingless) V. M. Henderson Well No. 8 located in Unit E of Section 30, Township 21 South, Range 37 East, Drinkard Pool, Lea County, New Mexico.

CASE 3935: Application of Sinclair Oil Corporation for a waterflood project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a pilot waterflood project by injection of water into the Yates and Seven Rivers formations through its B Davis Well No. 1 located 330 feet from the South and West lines of Section 34, Township 23 South, Range 36 East, Jalmat Pool, Lea County, New Mexico.



November 12, 1968

Examiner Hearing

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Docket No. 33-68

CASE 3936: Application of Tenneco Oil 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 Yates and Seven Rivers formations in the perforated interval from approximately 2920 feet to 3134 feet in its E. J. Wells Well No. 2 located in Unit G of Section 12, Township 25 South, Range 36 East, Jalmat Pool, Lea County, New Mexico.

CASE 3937: Application of Anadarko Production Company for an amendment to Order No. R-2977, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks the amendment of Order No. R-2977, as corrected by Order No. R-2977-A, which authorized a cooperative waterflood project in the Square Lake Pool, Eddy County, New Mexico, to delete the water injection well previously authorized to be drilled 2630 feet from the South line and 2650 feet from the East line of Section 31, Township 16 South, Range 31 East, and to authorize for water injection its Grier Federal Well No. 6 located 1980 feet from the South and East lines of said Section 31.

CASE 3938: Application of Aztec Oil & Gas Company for compulsory pooling and a non-standard proration unit, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Pictured Cliffs formation underlying Lots 6, 7, NE/4 SW/4, and SE/4 SW/4 of Section 6, Township 29 North, Range 10 West, Aztec-Pictured Cliffs Gas Pool, San Juan County, New Mexico. Said non-standard unit to be dedicated to a well to be drilled 1830 feet from the South line and 1530 feet from the West line of said Section 6. 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.

CASE 3939: Application of Aztec Oil & Gas Company for four unorthodox gas well locations, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks approval of unorthodox Blanco-Mesaverde Gas Pool locations for four wells located as follows:

SAN JUAN COUNTY, NEW MEXICO

Township 30 North, Range 11 West

Hampton Well No. 4 - 1,140 feet from the West line  
and 970 feet from the North line  
of Section 13



November 12, 1968

Examiner Hearing

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Docket No. 33-68

(Case 3939 continued)

Township 31 North, Range 12 West

Richardson Well No. 7 - 1,584 feet from the East line  
and 1,621 feet from the South line  
of Section 15

East Well No. 10 1,770 feet from the North line  
and 790 feet from the West line of  
Section 26

East Well No. 8 790 feet from the South and East  
lines of Section 26.

CASE 3940: Application of Shell Oil Company for an amendment to Order No. R-2808, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the amendment of Order No. R-2808 to permit the dedication of a non-standard proration unit authorized therein to its Livingston Wells Nos. 7 and 2 located in Units V and W, respectively, of Section 3, Township 21 South, Range 37 East, Tubb Gas Pool, Lea County, New Mexico. Applicant further seeks authority to produce the allowable assigned to said unit from either of the aforesaid wells in any proportion.

CASE 3941: Application of Agua, Inc., for salt water disposal, Eddy County, New Mexico. Applicant, in the above-styled cause, proposes to dispose of produced salt water into the San Andres formation in the open-hole interval between the casing shoe set at 2050 feet and a cement plug at 5400 feet after cleaning out and acidizing the well between 2050 feet and 3600 feet in its Empire-Abo SWD Well No. 01, formerly the Humble Federal Empire-Abo Well No. 3, located in Unit O of Section 1, Township 18 South, Range 27 East, Empire-Abo Field, Eddy County, New Mexico.

CASE 3942: Application of Cities Service Oil 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 Yates and Seven Rivers formations in the perforated interval from approximately 3790 feet to 3834 feet in its Closson "B" Well No. 18 located in Unit M of Section 19, Township 22 South, Range 36 East, Jalmat Pool, Lea County, New Mexico.



November 12, 1968  
Examiner Hearing

Docket No. 33-68

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CASE 3943: Application of Continental Oil Company for a dual completion, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dually complete its Lynn A-28 Well No. 5, located in Unit A of Section 28, Township 23 South, Range 36 East, Lea County, New Mexico, in such a manner as to produce gas from the Yates formation of the Jalmat Gas Pool through the casing-tubing annulus and to dispose of produced salt water through tubing into the Seven Rivers formation of said pool in the interval from 3340 to 3374 feet.

CASE 3944: Application of Sun Oil Company for a pressure maintenance project, Roosevelt County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a pressure maintenance project in its James McFarland Lease by the injection of water into the San Andres formation through its James McFarland Well No. 4 located in the NW/4 SW/4 of Section 20, Township 7 South, Range 33 East, Chaveroo-San Andres Pool, Roosevelt County, New Mexico. Applicant further seeks the promulgation of special rules to govern operation of said pressure maintenance project.

CASE 3945: Application of Mobil Oil Corporation for lease commingling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to commingle Vacuum Grayburg-San Andres production from its State "G" lease comprising the W/2 NE/4 and SE/4 NE/4 of Section 24, Township 17 South, Range 34 East, Lea County, New Mexico, with Vacuum Grayburg-San Andres production from that portion of its Bridges State lease comprising the W/2 of said Section 24, allocating the production to each lease on the basis of monthly well tests.



Docket No. 33-68

DOCKET: EXAMINER HEARING - TUESDAY - NOVEMBER 12, 1968

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

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- CASE 3931: Application of Pan American Petroleum Corporation for salt water disposal, Roosevelt County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the San Andres formation in the interval from 4239 feet to 4389 feet in its Farrell Federal Well No. 10 located in Unit F of Section 28, Township 7 South, Range 33 East, and in



November 12, 1968

Examiner Hearing

-2-

Docket No. 33-68

(Case 3931 continued)

the interval from 4402 to 4422 feet in its State "DF" Well No. 1 located in Unit I of Section 25, Township 7 South, Range 33 East, Chaveroo-San Andres Pool, Roosevelt County, New Mexico.

CASE 3932: Application of Pan American Petroleum Corporation for down-hole commingling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to commingle production from the Justis-Blinbry and Justis-Fusselman Pools in the wellbore of its State "AJ" Well No. 6 located in Unit M of Section 30, Township 25 South, Range 38 East, Lea County, New Mexico, with the provision that no more than one single allowable will be produced from said well.

CASE 3933: Application of Texaco, Inc., for a waterflood project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a pilot waterflood project by the injection of water into the Drinkard formation through its C. H. Lockhart Federal NCT Well No. 3 located in Unit P of Section 18, Township 22 South, Range 38 East, Drinkard Pool, Lea County, New Mexico. Applicant further seeks a procedure whereby said project may be expanded administratively without a showing of a well response.

CASE 3934: Application of Texaco Inc., for a waterflood project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project by the injection of water into the Drinkard formation through the Drinkard string of its multiple completed (tubingless) V. M. Henderson Well No. 8 located in Unit E of Section 30, Township 21 South, Range 37 East, Drinkard Pool, Lea County, New Mexico.

CASE 3935: Application of Sinclair Oil Corporation for a waterflood project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a pilot waterflood project by injection of water into the Yates and Seven Rivers formations through its B Davis Well No. 1 located 330 feet from the South and West lines of Section 34, Township 23 South, Range 36 East, Jalmat Pool, Lea County, New Mexico.



November 12, 1968

Examiner Hearing

-3-

Docket No. 33-68

CASE 3936: Application of Tenneco Oil 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 Yates and Seven Rivers formations in the perforated interval from approximately 2920 feet to 3134 feet in its E. J. Wells Well No. 2 located in Unit G of Section 12, Township 25 South, Range 36 East, Jalmat Pool, Lea County, New Mexico.

CASE 3937: Application of Anadarko Production Company for an amendment to Order No. R-2977, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks the amendment of Order No. R-2977, as corrected by Order No. R-2977-A, which authorized a cooperative waterflood project in the Square Lake Pool, Eddy County, New Mexico, to delete the water injection well previously authorized to be drilled 2630 feet from the South line and 2650 feet from the East line of Section 31, Township 16 South, Range 31 East, and to authorize for water injection its Grier Federal Well No. 6 located 1980 feet from the South and East lines of said Section 31.

CASE 3938: Application of Aztec Oil & Gas Company for compulsory pooling and a non-standard proration unit, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Pictured Cliffs formation underlying Lots 6, 7, NE/4 SW/4, and SE/4 SW/4 of Section 6, Township 29 North, Range 10 West, Aztec-Pictured Cliffs Gas Pool, San Juan County, New Mexico. Said non-standard unit to be dedicated to a well to be drilled 1830 feet from the South line and 1530 feet from the West line of said Section 6. 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.

CASE 3939: Application of Aztec Oil & Gas Company for four unorthodox gas well locations, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks approval of unorthodox Blanco-Mesaverde Gas Pool locations for four wells located as follows:

SAN JUAN COUNTY, NEW MEXICO  
Township 30 North, Range 11 West

Hampton Well No. 4 - 1,140 feet from the West line  
and 970 feet from the North line  
of Section 13



November 12, 1968

Examiner Hearing

-4-

Docket No. 33-68

(Case 3939 continued)

Township 31 North, Range 12 West

Richardson Well No. 7 - 1,584 feet from the East line  
and 1,621 feet from the South line  
of Section 15

East Well No. 10      1,770 feet from the North line  
and 790 feet from the West line of  
Section 26

East Well No. 8      790 feet from the South and East  
lines of Section 26.

CASE 3940:

Application of Shell Oil Company for an amendment to Order No. R-2808, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the amendment of Order No. R-2808 to permit the dedication of a non-standard proration unit authorized therein to its Livingston Wells Nos. 7 and 2 located in Units V and W, respectively, of Section 3, Township 21 South, Range 37 East, Tubb Gas Pool, Lea County, New Mexico. Applicant further seeks authority to produce the allowable assigned to said unit from either of the aforesaid wells in any proportion.

CASE 3941:

Application of Agua, Inc., for salt water disposal, Eddy County, New Mexico. Applicant, in the above-styled cause, proposes to dispose of produced salt water into the San Andres formation in the open-hole interval between the casing shoe set at 2050 feet and a cement plug at 5400 feet after cleaning out and acidizing the well between 2050 feet and 3600 feet in its Empire-Abo SWD Well No. 01, formerly the Humble Federal Empire-Abo Well No. 3, located in Unit O of Section 1, Township 18 South, Range 27 East, Empire-Abo Field, Eddy County, New Mexico.

CASE 3942:

Application of Cities Service Oil 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 Yates and Seven Rivers formations in the perforated interval from approximately 3790 feet to 3834 feet in its Closson "B" Well No. 18 located in Unit M of Section 19, Township 22 South, Range 36 East, Jalmat Pool, Lea County, New Mexico.



November 12, 1968  
Examiner Hearing  
-5-

Docket No. 33-68

CASE 3943:

Application of Continental Oil Company for a dual completion, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dually complete its Lynn A-28 Well No. 5, located in Unit A of Section 28, Township 23 South, Range 36 East, Lea County, New Mexico, in such a manner as to produce gas from the Yates formation of the Jalmat Gas Pool through the casing-tubing annulus and to dispose of produced salt water through tubing into the Seven Rivers formation of said pool in the interval from 3340 to 3374 feet.

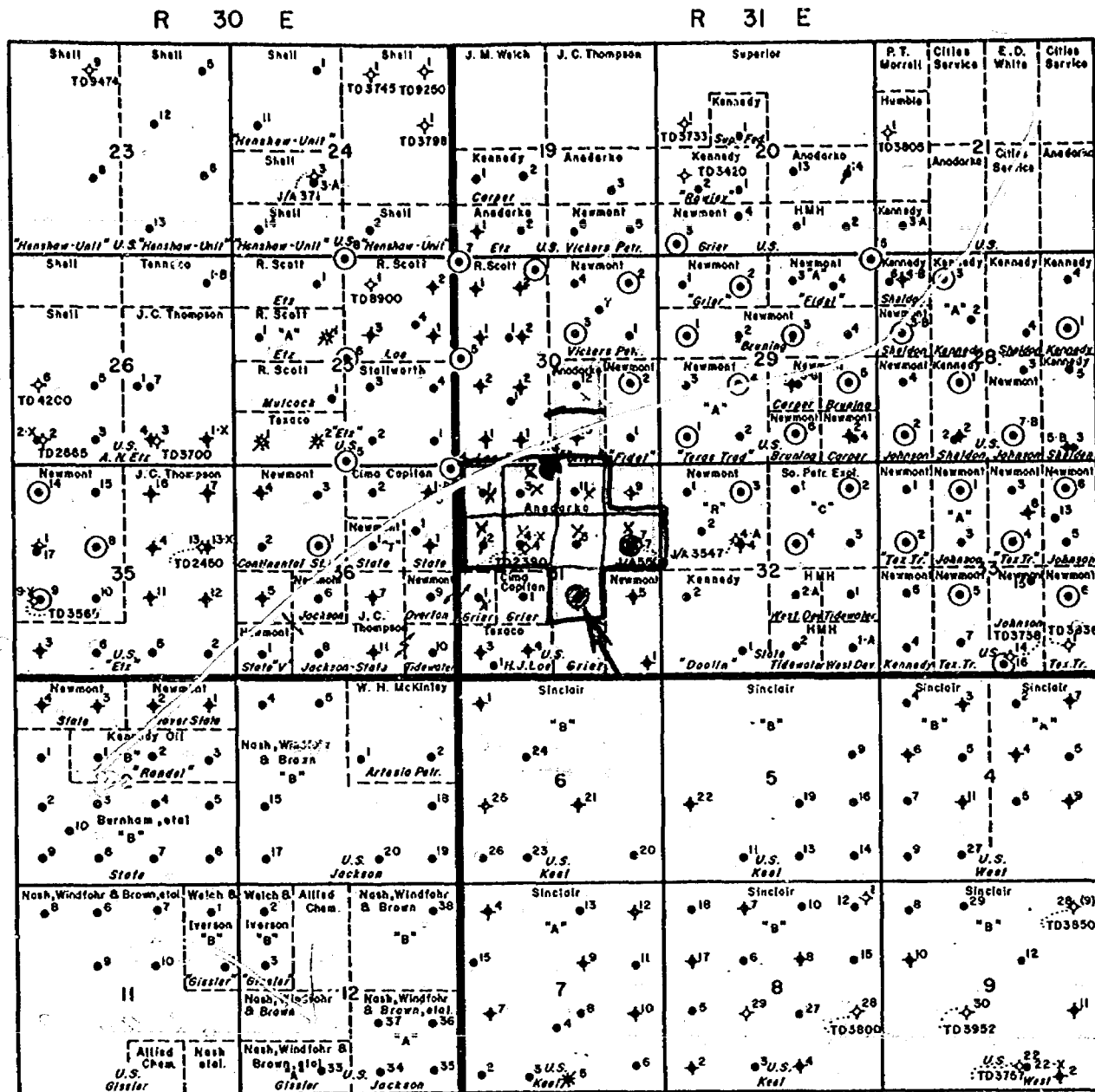
CASE 3944:

Application of Sun Oil Company for a pressure maintenance project, Roosevelt County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a pressure maintenance project in its James McFarland Lease by the injection of water into the San Andres formation through its James McFarland Well No. 4 located in the NW/4 SW/4 of Section 20, Township 7 South, Range 33 East, Chaveroo-San Andres Pool, Roosevelt County, New Mexico. Applicant further seeks the promulgation of special rules to govern operation of said pressure maintenance project.

CASE 3945:

Application of Mobil Oil Corporation for lease commingling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to commingle Vacuum Grayburg-San Andres production from its State "G" lease comprising the W/2 NE/4 and SE/4 NE/4 of Section 24, Township 17 South, Range 34 East, Lea County, New Mexico, with Vacuum Grayburg-San Andres production from that portion of its Bridges State lease comprising the W/2 of said Section 24, allocating the production to each lease on the basis of monthly well tests.





3 inj. 40's  
 5 prod 40's  
 8 total 40's  
 1 extra well

BEFORE EXAMINER NUTTER  
 OIL CONSERVATION COMMISSION  
 Appx. EXHIBIT NO. 1  
 CASE NO. 3937

LEGEND

- Oil Well
- ✦ Plugged & Abandoned
- ✧ Temporarily Abandoned
- ✧ Dry Abandoned
- ⊙ Water Injection Well

42  
 833

126

126

336

349.86

350 bbl allowance



**ANADARKO  
 PRODUCTION COMPANY**

**PROPOSED WATER INJECTION WELL**

EDDY COUNTY, NEW MEXICO

SQUARE LAKE FIELD

ANADARKO GRIER FEDERAL #6

PREMIER SD. (GRAYBURG - ZONE 6)

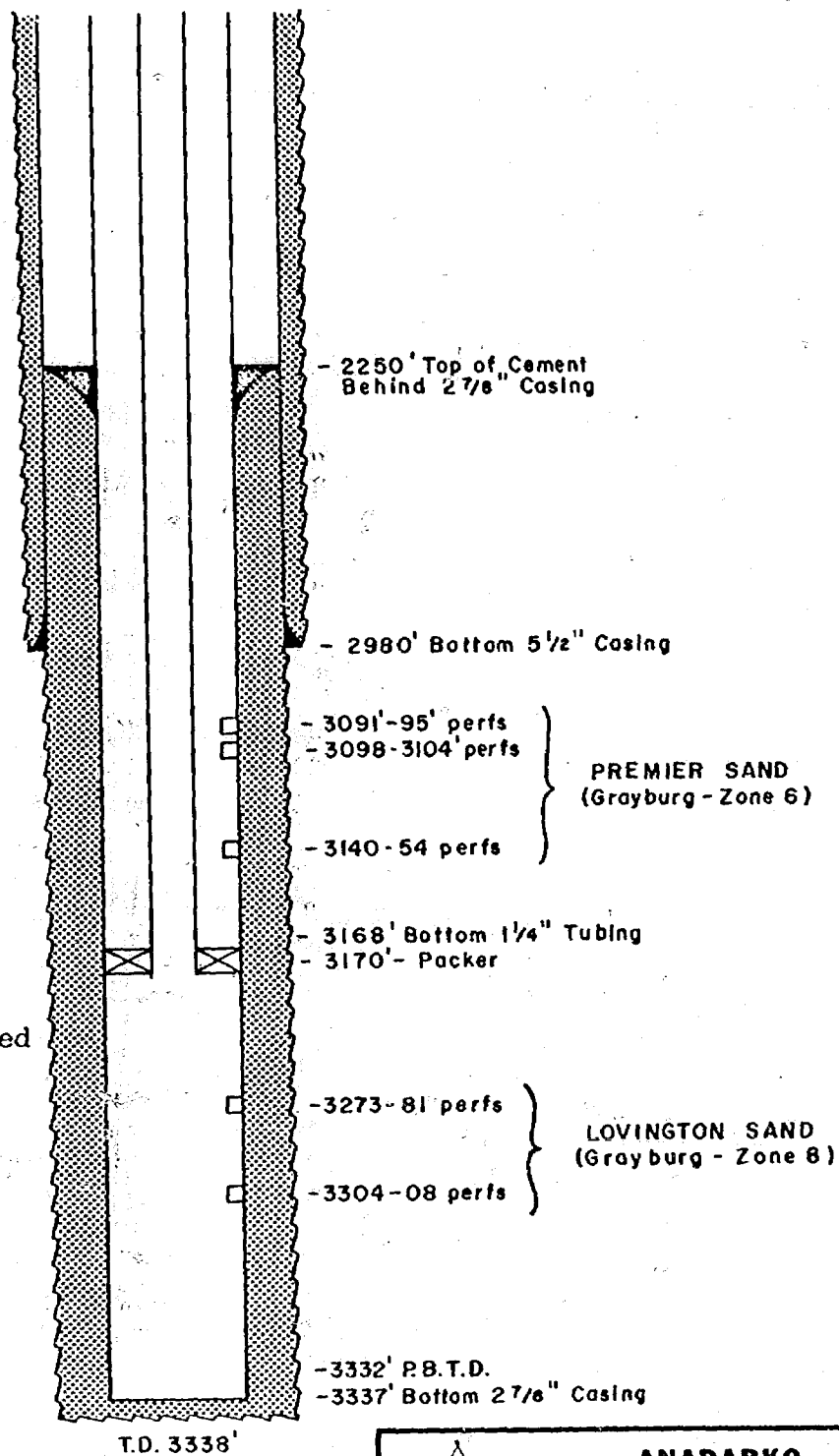
LOVINGTON SD (SAN ANDRES - ZONE 8)

0 2000 4000 8000  
 SCALE IN FEET



Fluid Injection Rate: 250 B/D in  
Premier Sand  
150 B/D in  
Lovington Sand

Injected Fluid source to be fresh  
water purchased from Ryder Scott  
Management Company and produced  
water.



**WELL LOCATION**

1980' FSL & 1980' FEL  
SEC. 31-T16S-R31E

**BEFORE EXAMINER NUTTER**

OIL CONSERVATION COMMISSION

Appl EXHIBIT NO. 3

CASE NO. 3937



**ANADARKO  
PRODUCTION COMPANY**

**WELL BORE DIAGRAM**

GRIER FEDERAL NO. 6  
EDDY COUNTY, NEW MEXICO

**EXHIBIT III**



CLARENCE E. HINKLE  
W. E. BONDURANT, JR.  
S. B. CHRISTY IV  
LEWIS C. COX, JR.  
PAUL W. EATON, JR.  
CONRAD E. COFFIELD  
HAROLD L. HENSLEY, JR.  
MICHAEL R. WALLER  
STUART D. SHANOR  
C. D. MARTIN  
PAUL J. KELLY, JR.

LAW OFFICES  
HINKLE, BONDURANT & CHRISTY  
600 HINKLE BUILDING  
ROSWELL, NEW MEXICO 88201

November 7, 1968

MIDLAND, TEXAS OFFICE  
521 MIDLAND TOWER  
(915) MU 3-4891  
OF COUNSEL: HIRAM M. DOW

TELEPHONE (505) 622-6510  
POST OFFICE BOX 10

NOV 12 1968 AM 8 24

New Mexico Oil Conservation Commission  
State Land Office Building  
Santa Fe, New Mexico 87501

Re: Case No. 3937  
Anadarko Production Company

Gentlemen:

We are enclosing herewith triplicate counterparts of Entry  
of Appearance in connection with the captioned.

Respectfully,

HINKLE, BONDURANT & CHRISTY

By   
S. B. Christy IV

SBC:md  
encl.

cc: Mr. John D. Townsend



MAIN OFFICE  
68 NOV 12 AM 8 24

BEFORE THE OIL CONSERVATION COMMISSION  
STATE OF NEW MEXICO

APPLICATION OF ANADARKO PRODUCTION )  
COMPANY FOR AN AMENDMENT TO ORDER )  
NO. R-2977 AND R-2997-A, SQUARE LAKE )  
POOL, EDDY COUNTY, NEW MEXICO. )

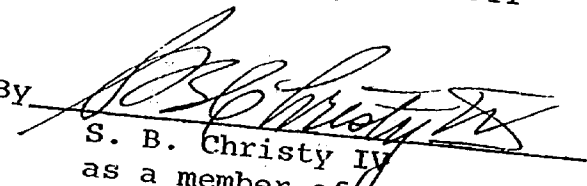
Case No. 3937

ENTRY OF APPEARANCE

COMES NOW the undersigned attorneys, duly licensed to practice law in the State of New Mexico, and enter their appearance in this cause in behalf of the applicant, Anadarko Production Company.

The undersigned attorneys have associated in this case with Mr. John D. Townsend, an attorney licensed to practice law in the states of Kansas and California, and request that the Commission permit Mr. Townsend to present evidence in behalf of the applicant at the hearing in this cause.

Respectfully,  
HINKLE, BONDURANT & CHRISTY

By   
S. B. Christy IV  
as a member of the firm

Post Office Box 10  
Roswell, New Mexico 88201





**ANADARKO PRODUCTION COMPANY**

3109 WINTHROP AVENUE P. O. BOX 9317 FORT WORTH, TEXAS 76107  
CABLE ADDRESS: ANDARK

October 3, 1968

*Set for Hearing*  
*Case 3937*

New Mexico Oil Conservation Commission  
P.O. Box 2088  
Santa Fe, New Mexico 87501

RE: Grier Federal Well No. 6,  
Square Lake Field, NW/4  
SE/4 Section 31-T16S-R31E,  
Eddy County, New Mexico

Gentlemen:

To comply with the provisions of Rule 701 of the Rules and Regulations of the New Mexico Oil Conservation Commission, Anadarko Production Company is requesting administrative approval to convert Grier Federal Well No. 6, Square Lake Field, Eddy County, New Mexico to water injection in the oil productive Grayburg-San Andres reservoir.

The waterflood project on the portion of Anadarko's Grier Federal lease located in Sections 30 and 31 - T16S-R31E as shown on the attached map was approved by New Mexico Oil Conservation Commission Order No. R-2977 and R-2977-A. This order permitted the cooperative waterflood development of this portion of the Square Lake Field by Ryder Scott Management Company, Stallworth Oil and Gas, Inc., Cima Capitan Incorporated, Newmont Oil Company, and Western Oil Fields, Inc. (succeeded by Anadarko Production Company).

New Mexico Oil Conservation Commission Order No. R-2977 approved the drilling of Grier Well No. 2 by Cima Capitan, Inc. at a location 2630 feet from the South line and 2650 feet from the

DOCKET MAILED

Date *11-1-68*



October 3, 1968

East line of Section 31, Township 16 South, Range 31 East, NMPM as a water injection well. In lieu of drilling this proposed injection well, Anadarko proposes to convert its Grier Federal Well No. 6 located in the Center of the NW/4 SE/4 Section 31, Township 16 South, Range 31 East, NMPM to water injection.

To support this application to convert Grier Federal Well No. 6 to water injection, in place of drilling Cima Capitan, Inc. Grier Well No. 2 as a water injection well, we are attaching data required under the provisions of Rule 701-B. This data includes (1) a plat showing the proposed water injection well and offset operations, (2) a log of the proposed water injection well, and (3) a diagrammatic sketch of the proposed water injection well completion on which we have indicated the zones to be open for injection and the type and quantity of water to be injected.

The conversion of this well to water injection is urgently needed to accomplish maximum recoveries of oil from the oil productive reservoir under the Grier Federal lease.

Your approval at your earliest convenience will be appreciated.

Yours very truly,

ANADARKO PRODUCTION COMPANY

*C. W. Stumhoffer*

C.W. Stumhoffer  
Superintendent  
Secondary Recovery Division

CWS/nl

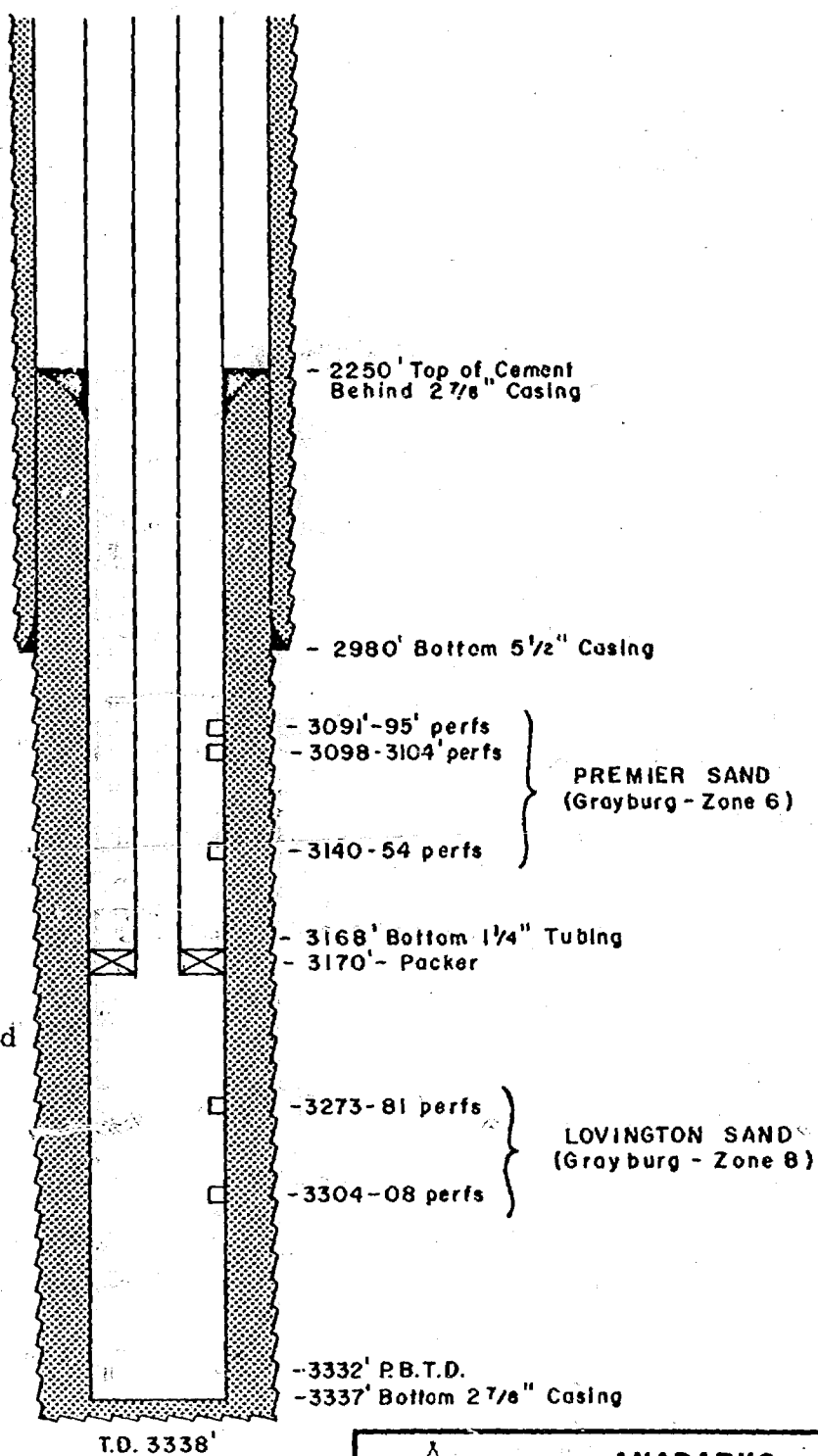
Encl:

cc: U.S.G.S. - Artesia  
Newmont Oil Company - Artesia  
Cima Capitan, Inc. - Artesia  
Texaco - Hobbs



Fluid Injection Rate: 250 B/D in  
Premier Sand  
150 B/D in  
Lovington Sand

Injected Fluid source to be fresh  
water purchased from Ryder Scott  
Management Company and produced  
water.



WELL LOCATION

1980' FSL & 1980' FEL  
SEC. 31-T16S-R31E



**ANADARKO  
PRODUCTION COMPANY**

**WELL BORE DIAGRAM  
GRIER FEDERAL NO. 6  
EDDY COUNTY, NEW MEXICO**

*Case 3937*







DRAFT

GMH/esr  
11-18-68

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:

*Spec ltr*  
CASE No. 3937

Order No. R-2977-B

*[Signature]* *[Signature]*  
APPLICATION OF ANADARKO PRODUCTION  
COMPANY FOR AN AMENDMENT TO ORDER  
NO. R-2977, EDDY COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on November 12, 1968,  
at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this \_\_\_\_\_ day of November, 1968, 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 Order No. R-2977, as corrected by Order No. R-2977-A,  
authorized Cima Capitan, Inc., Ryder-Scott Management Company,  
Stallworth Oil and Gas Company, and Western Oil Fields, Inc., to  
institute a cooperative waterflood project in the Square Lake  
Pool, Eddy County, New Mexico, by the injection of water into the  
Grayburg-San Andres formations.

(3) That the applicant, Anadarko Production Company as  
successor in interest to Western Oil Fields, Inc., now seeks  
the amendment of Order No. R-2977, as corrected by Order No.  
R-2977-A, to delete the water injection well authorized therein  
to be drilled 2630 feet from the South line and 2650 feet from



the East line of Section 31, Township 16 South, Range 31 East, NMPM, Eddy County, New Mexico, and to authorize for water injection its Grier Federal Well No. 6, located 1980 feet from the South line and 1980 feet from the East line of said Section 31.

(4) That the applicant is in the process of acquiring the interests of Cima Capitan, Inc., in the NE/4 SW/4 of said Section 31.

(5) That approval of the subject application will not violate correlative rights and should increase the efficiency of that portion of the subject cooperative waterflood project.

IT IS THEREFORE ORDERED:

(1) That Order No. R-2977, as corrected by Order No. R-2977-A, is hereby amended by deleting from the water injection wells authorized therein the Cima Capitan, Inc., Grier Well No. 2 to be located 2630 feet from the South line and 2650 feet from the East line of Section 31, Township 16 South, Range 31 East, NMPM, Square Lake Pool, Eddy County, New Mexico, and substituting in lieu thereof as a water injection well the Anadarko Production Company Grier Federal Well No. 6, located 1980 feet from the South line and 1980 feet from the East line of said section and pool.

(2) 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.