

CASE 4705: Appli. of ATLANTIC  
RICHFIELD CO. FOR WATERFLOOD  
PROJECTS, EDDY COUNTY, N. M.

Case Number

4705

Application

Transcripts

Small Exhibits

ETC.

dearnley-meier reporting services, inc.

SPECIALIZING IN: DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS  
209 SIMMS BLDG., P.O. BOX 1092, PHONE 243-6661 ALBUQUERQUE, NEW MEXICO 87103  
FIRST NATIONAL BANK BLDG. EAST ALBUQUERQUE, NEW MEXICO 87108

BEFORE THE  
NEW MEXICO OIL CONSERVATION COMMISSION  
CONFERENCE ROOM, STATE LAND OFFICE BUILDING  
SANTA FE, NEW MEXICO  
May 5, 1972

EXAMINER HEARING

IN THE MATTER OF:

Application of Atlantic Richfield  
Company for waterflood projects,  
Eddy County, New Mexico.

CASE NO. 4705

BEFORE: Elvis A. Utz  
Examiner

TRANSCRIPT OF HEARING

1 MR. UTZ: Case 4705.

2 MR. HATCH: Application of Atlantic Richfield  
3 Company for waterflood projects, Eddy County, New Mexico.

4 MR. HINKLE: Clarence Hinkle of Roswell, appearing  
5 on behalf of Atlantic Richfield.

6 We have one witness and eleven Exhibits.

7 DAVID OWENS,  
8 was called as a witness, and after being duly sworn, testified  
9 as follows:

10 DIRECT EXAMINATION

11 BY MR. HINKLE:

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

14 A David Owens, I work for Atlantic Richfield, in Midland,  
15 Texas.

16 Q What is your position with Atlantic Richfield?

17 A Operating Engineer for Southwest New Mexico.

18 Q Petroleum Engineer?

19 A Yes.

20 Q Have you previously testified before the Commission?

21 A No.

22 Q State briefly your educational background and your  
23 experience as a Petroleum Engineer.

24 A I graduated in January of 1968, from the University of  
25 Missouri and went to work for Sinclair immediately after

1 graduation. Later, in 1969, I went to work for  
2 Atlantic Richfield and have been working in West  
3 Texas and Southeast New Mexico as an Engineer and  
4 an Operations Engineer.

5 Q Are you familiar with Atlantic Richfield's operations  
6 in New Mexico?

7 A Yes, sir.

8 Q Are you familiar with the area involved in this  
9 Application?

10 A Yes.

11 Q And do you have logs of the wells and all that  
12 information available?

13 A Yes.

14 MR. HINKLE: Are the witness' qualifications  
15 acceptable?

16 MR. UTZ: Yes.

17 Q (By Mr. Hinkle) Have you prepared, or has there been  
18 prepared under your direction, certain information for  
19 introduction in this Case?

20 A Yes.

21 Q Exhibits 1 through 11?

22 A That's right.

23 Q Are you familiar with the Application of Atlantic  
24 Richfield in this Case?

25 A Yes.

1 Q What is Atlantic Richfield seeking to accomplish?

2 A We are seeking to initiate waterflood operations  
3 on our three leases in Sections 19 and 30, Township  
4 17 South, Range 31 East, in Eddy County, New Mexico,  
5 for the injection of water into the pressure zone of  
6 the Grayburg formation through five wells on these  
7 subleases.

8 Q This is the Grayburg-Jackson Pool?

9 A Yes, sir.

10 Q Referring you to Exhibit Number 1, will you explain what  
11 it is and what it shows?

12 A Exhibit 1 shows our projection area outlined in blue.  
13 It shows all of the wells that have been drilled in the  
14 project area within a two mile radius.

15 It shows the formations from where they have produced  
16 or are producing. The proposed injection wells in the  
17 project area are shown and other injection wells are  
18 also indicated and the red line shown on this Exhibit  
19 are north-south and east-west cross section lines which  
20 we will get to in later Exhibits.

21 Q There are quite a few leases under waterflood surrounding  
22 the proposed project area; are there not?

23 A Yes. Atlantic has an offset waterflood project to the  
24 northeast and south of the proposed project area.

25 Q Referring you to Exhibit 2, will you explain what it is?

1 A This is our north-south cross section, as indicated  
2 on Exhibit 1.

3 These are gamma-ray neutron logs of the wells and  
4 we have marked the top of the pressure zone and the  
5 top of the San Andres zone and we have also indicated  
6 here the main zone of interest.

7 As you can see from the cross section, it continues  
8 on across this area and you can also see the structure  
9 has a marked dip to the south.

10 Q Does this show continuity of production to the north  
11 and south sections of the project area?

12 A Yes, sir.

13 Q Referring you to Exhibit Number 3, would you explain it?

14 A Exhibit Number 3 is our east-west cross section. We  
15 have marked the same intervals on this, namely, the  
16 top of the Sand zone and the main zone of interest.

17 It again shows continuity in an east-west direction  
18 and shows that our structure is relatively flat east to  
19 west.

20 Q Referring you to -- in order to save time, let's take  
21 Exhibits 4, 5, 6, 7 and 8 altogether.

22 A These are diagrammatic sketches of injection wells  
23 and on these, we show the well name and location; we  
24 show the casing, size, and depth; we show the amount  
25 of cement and the cement tops on each one of these strings

1 of casing; we show the proposed injection intervals;  
2 we also have the injection lookup and the injection  
3 tubing and Packer with the approximate Packer setting  
4 date indicated.

5 Q Some of these -- are any of these open hole or are they  
6 all through perforation?

7 A Yes, Exhibit 6 and 7, these two wells will be open hole  
8 injection and the other wells are all perforated.

9 Q Do you propose to use the closed system or do you have  
10 plastic coated tubing?

11 A The tube will be bar steel. We have used this type of  
12 injection setup at offset injection wells where we are  
13 treating our injection water and have experienced no  
14 difficulty with corrosion problems in injection strings.

15 Q Do you have anything further to commend on in these  
16 Exhibits?

17 A No, sir.

18 Q I refer you to Exhibit 9.

19 A Exhibit 9 is the decline curve of production on the  
20 three subleases since 1960. It shows that the production  
21 had declined in 1968 to less than 1,000 barrels of oil  
22 per month, and there are approximately two barrels of  
23 oil per day showing that we have been in the declining  
24 stage of production in the past two years.

25 We have obtained some response from our offset



1       injections.

2       Q     You have filed with your Application, logs of all these  
3       wells, have you not?

4       A     Yes, sir.

5       Q     With the exception of one which was not available?

6       A     The Federal Number 2 is not available.

7       Q     What is Exhibit 10?

8       Exhibit 10 is a large scale plat of the project  
9       area again showing our injection well and underlined in  
10      red on this Exhibit is the accumulated oil production for  
11      the project area which is 636 barrels as of 1/1/72.

12       This plat also shows continuation of our eighty  
13      acre pattern that has been developed on our offsetting  
14      plats.

15      Q     Is all the land in the project area Federal or State  
16      land?

17      A     It is all Federal land.

18      Q     Have you obtained approval from the U.S.G.S. concerning  
19      this project?

20      A     Yes, Exhibit 11 is a letter from the U.S.G.S. giving  
21      their approval of the project subject to the  
22      conditions listed on the second page.

23      Q     Are the royalties uniform throughout the three leases?

24      A     Yes.

25      Q     Do you have any overrides?

1 A No.

2 Q When do you plan to start injecting water?

3 A As soon as we gain State approval.

4 Q Are you requesting a project allowable?

5 A Yes, sir.

6 Q In accordance with the rule?

7 A Yes.

8 Q In your opinion, would approval of this project  
9 protect conservation?

10 A Yes, sir.

11 Q And protect correlative rights?

12 A Yes.

13 MR. HINKLE: I will offer Exhibits 1 through 11.

14 MR. UTZ: Without objection, Applicant's Exhibits  
15 1 through 11 will be entered into the record of this Case.

16 (Whereupon, Applicant's Exhibits 1 through 11 were  
17 admitted in evidence.)

18 MR. HINKLE: That's all my Direct Examination.

19 CROSS-EXAMINATION

20 BY MR. UTZ:

21 Q Mr. Owens, did you state your source of water?

22 A We are getting our water from Keel West Water Supply  
23 Systems. We also will be reinjecting our produced water.

24 Q What is the company?

25 A Keel West Water Supply Systems.

1 Q Referring to your Exhibit Number 4, I notice the  
2 Well has a liner in the bottom, now, have you tested  
3 the casing on this well and been satisfied of the  
4 enclosure there?

5 A This liner has not been set yet. The well, at the  
6 present time, is an open hole completion through the  
7 Grayburg formation.

8 Q How about the casing tests on the other wells?

9 A They are all presently producing with no indication  
10 of any leaks. They were tested when they were  
11 originally cemented.

12 Q How long ago was that?

13 A It varies. Some of the wells were drilled in the fifties  
14 and some of the wells were drilled in the late forties.  
15 I believe I can get the exact dates, if you need them.

16 Q No, I think that is close enough. I might ask one  
17 more question, have you estimated what the secondary  
18 recovery might be?

19 A Yes, we anticipate approximately 620,000 barrels of  
20 secondary recovery from the area.

21 MR. UTZ: That's all I have.

22 MR. HATCH: Mr. Hinkle, ordinarily the Commission,  
23 where there is more than one lease, has orders written for  
24 each lease.

25 MR. HINKLE: Well, in this particular case, because

1 of the royalties being uniform, and it is all Federal land  
2 and there is no override and the working interest is all under  
3 Atlantic Richfield, I can't see any reason for it.

4 MR. HATCH: It wouldn't present any problems if  
5 listed as three?

6 MR. HINKLE: No.

7 MR. UTZ: Are there any other questions?

8 (No response.)

9 (Witness excused.)

10 MR. UTZ: Any statements in the Case?

11 (No response.)

12 MR. UTZ: The Case will be taken under advisement.  
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25

1 STATE OF NEW MEXICO )  
2 COUNTY OF BERNALILLO )

3 I, RICHARD E. MCCORMICK, a Certified Shorthand Reporter,  
4 in and for the County of Bernalillo, State of New Mexico,  
5 do hereby certify that the foregoing and attached Transcript  
6 of Hearing before the New Mexico Oil Conservation Commission  
7 was reported by me; and that the same is a true and correct  
8 record of the said proceedings to the best of my knowledge,  
9 skill and ability.

10   
11 CERTIFIED SHORTHAND REPORTER

22 I do hereby certify that the foregoing is  
23 a complete record of the proceedings in  
24 the Ex parte hearing of Case No. 4785  
25 heard by me on May 5, 1977.  
\_\_\_\_\_, Secretary  
New Mexico Oil Conservation Commission

I N D E XWITNESS:PAGEJERRY TWEED

Direct Examination by Mr. Hinkle

3

Cross-Examination by Mr. Utz

7

E X H I B I T SAPPLICANT'S (Atlantic Richfield)OFFEREDADMITTED

Exhibit Number 1

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Exhibit Number 2

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Exhibit Number 3

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Exhibit Number 4

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Exhibit Number 5

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Exhibit Number 6

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Exhibit Number 7

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Exhibit Number 8

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Exhibit Number 9

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Exhibit Number 10

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9

Exhibit Number 11

8

9

Atlantic Richfield Company

North American Production Division  
Permian District - West Area  
Post Office Box 1978  
Roswell, New Mexico 88201  
Telephone 505 622 4041

*Reg. Case Files  
not unit*

RECEIVED

JUL 6 1972

July 5, 1972

O. C. C.  
ARTESIA, OFFICE

New Mexico Oil Conservation Commission  
Drawer DD  
Artesia, New Mexico 88210

*Case 4705*

Attention: Mr. W. A. Gressett

Re: Atlantic Richfield's Waterflood in  
SE $\frac{1}{4}$  & E $\frac{1}{2}$ SW $\frac{1}{4}$  Sec. 19, and the NE $\frac{1}{4}$   
Sec. 30 of T17S-R31E, Eddy County,  
New Mexico

RECEIVED  
JUL 17 1972  
OIL CONSERVATION COMM.  
Santa Fe

Gentlemen:

We commenced the injection of water in another  
converted well, namely, Fren No. 2, SE $\frac{1}{4}$ SW $\frac{1}{4}$   
Section 19, at 2:30 p.m., on July 3, 1972.  
This is the third well out of the five wells  
proposed for water injection.

When we start injection into the remaining  
two wells, we will notify you.

By separate letter, we are notifying the U.S.G.S.  
and the State Engineer.

Very truly yours,

*L. C. Hudry*  
L. C. Hudry

LCH:rhs

cc: New Mexico Oil Conservation Commission  
P. O. Box 2088, Santa Fe, New Mexico 87501  
Attention: Mr. A. L. Porter, Jr.

Mr. W. P. Tomlinson - Midland  
Mr. A. D. Kloxin - Roswell  
Mr. D. L. Wright - Roswell  
Hobbs File

Atlantic Richfield Company

North American Producing Division  
Permian District - West Area  
Post Office Box 1978  
Roswell, New Mexico 88201  
Telephone 505 622 4041

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JUL 13 1972

O. C. C.  
ARTESIA, OFFICE

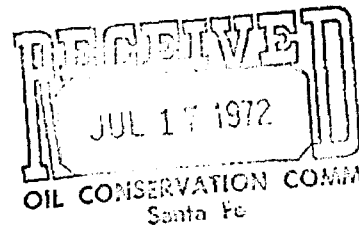
Case 4705

July 12, 1972

New Mexico Oil Conservation Commission  
Drawer DD  
Artesia, New Mexico 88210

Attention: Mr. W. A. Gressett

Re: Atlantic Richfield's Waterflood in  
SE $\frac{1}{4}$  & E $\frac{1}{2}$ SW $\frac{1}{4}$  Sec. 19 and the NE $\frac{1}{4}$   
Sec. 30 of T17S-R31E, Eddy County,  
New Mexico



Gentlemen:

The last two wells have been converted to water injection wells. The injection of water started in the two wells as follows: Max Friess Federal No. 2, NW $\frac{1}{4}$ SE $\frac{1}{4}$  Section 19, at 10:00 a.m. on July 5, 1972; and in the Max Friess No. 1, NW $\frac{1}{4}$ NE $\frac{1}{4}$  Section 30, at 1:30 p.m. on July 11, 1972.

By separate letter, we are notifying the U.S.G.S. and the State Engineer.

Very truly yours,

A handwritten signature in cursive script, appearing to read "L. C. Hudry".

L. C. Hudry

LCH:rhs

cc: New Mexico Oil Conservation Commission  
P. O. Box 2088, Santa Fe, New Mexico 87501  
Attention: Mr. A. L. Porter, Jr.

Mr. W. P. Tomlinson - Midland  
Mr. A. D. Kloxin - Roswell  
Mr. D. L. Wright - Roswell  
Hobbs File





## OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO  
P. O. BOX 2088 - SANTA FE  
87501

May 19, 1972

GOVERNOR  
BRUCE KING  
CHAIRMAN

LAND COMMISSIONER  
ALEX J. ARMIJO  
MEMBER

STATE GEOLOGIST  
A. L. PORTER, JR.  
SECRETARY - DIRECTOR

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

Re: Case No. 4705  
Order No. R-4306

Applicant:  
Atlantic Richfield Co.

Dear Sir:

Enclosed herewith is a copy of the above-referenced Commission order recently entered in the subject case. Letter pertaining to conditions of approval and maximum allowable to follow.

Very truly yours,

A. L. PORTER, Jr.  
Secretary-Director

ALP/ir

Copy of order also sent to:

Hobbs OCC x  
Artesia OCC x  
Aztec OCC \_\_\_\_\_  
State Engineer x

Other \_\_\_\_\_

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. 4705  
Order No. R-4306

APPLICATION OF ATLANTIC RICHFIELD  
COMPANY FOR WATERFLOOD PROJECTS,  
EDDY COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on May 5, 1972,  
at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this 19th day of May, 1972, 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, Atlantic Richfield Company, seeks  
permission to institute a waterflood project in the Grayburg-  
Jackson Pool by the injection of water into the Grayburg formation  
through five wells located in Sections 19 and 30, Township 17  
South, Range 31 East, NMPM, Eddy County, New Mexico.

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

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

(5) That the subject application should be approved and the  
projects should be governed by the provisions of Rules 701, 702,  
and 703 of the Commission Rules and Regulations.

IT IS THEREFORE ORDERED:

(1) That the applicant, Atlantic Richfield Company, is  
hereby authorized to institute a waterflood project in the  
Grayburg-Jackson Pool by the injection of water into the Grayburg

-2-

CASE NO. 4705  
Order No. R-4306

formation through the following-described five wells in Township 17 South, Range 31 East, NMPM, Eddy County, New Mexico:

<u>Well Name</u>	<u>Well Number</u>	<u>Unit Letter</u>	<u>Section</u>
Atlantic Richfield Friess MA	1	B	30
Atlantic Richfield Friess MA	4	H	30
Atlantic Richfield Friess Federal	2	J	19
Atlantic Richfield Fren Oil Co.	2	N	19
Atlantic Richfield Fren Oil Co.	13	P	19

(2) That the subject waterflood project is hereby designated the Atlantic Grayburg-Jackson Friess-Fren Waterflood Project and shall be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations.

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

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

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

STATE OF NEW MEXICO  
OIL CONSERVATION COMMISSION



*Bruce King*  
BRUCE KING, Chairman

*Alex J. Armijo*  
ALEX J. ARMILLO, Member

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

S E A L

dr/



## OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO  
P. O. BOX 2088 - SANTA FE  
87501

GOVERNOR  
BRUCE KING  
CHAIRMAN  
LAND COMMISSIONER  
ALEX J. ARMijo  
MEMBER  
STATE GEOLOGIST  
A. L. PORTER, JR.  
SECRETARY - DIRECTOR

June 1, 1972

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

Dear Sir:

Reference is made to Commission Order No. R-4306, recently entered in Case No. 4705, approving the Atlantic Grayburg-Jackson Friess-Fren Waterflood Project.

Injection is to be through the five authorized water injection wells, each of which is to be equipped with tubing set in a packer located as near as is practicable to the uppermost perforation, or in the case of the two open-hole completions, to the casing shoe. Injection water shall be treated to prevent corrosion and coupon corrosion tests continuously conducted with result thereof reported quarterly to the Commission.

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 490 barrels per day when the Southeast New Mexico normal unit allowable is 42 barrels per day or less. This project and project allowable, with transfer privileges across lease lines, is based on the premise that all ownership of the leases is common, and that in the absence of unitization, such transfer would be subject to the approval of the United States Geological Survey.

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

-2-

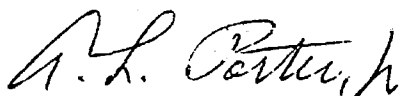
Mr. Clarence Hinkle  
Hinkle, Bondurant, Cox & Eaton  
Attorneys at Law  
Post Office Box 10  
Roswell, New Mexico 88201

June 1, 1972

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

ALP/DSN/ir

cc: OCC-Hobbs and Artesia, New Mexico  
U. S. Geological Survey, Roswell, New Mexico  
Mr. D. E. Gray, State Engineer Office, Santa Fe, New Mexico

Case 4785

Heard 5-5-72

Rec. 5-9-72 Grant Atlantic 3 waterflood  
projects and permission to  
convert their following wells  
to H<sub>2</sub>O Injection wells:

Flood #1 NWSE - 19.

Diess Sed #2, 1980/S, 1980/E - 19

Flood #2 S/2, NE/SE, NE/SW - 19

Diess - #2, 660/S, 198/W - 19

Diess #13, 660/S, 710/E - 19

Flood #3 - NE/4 sec. 30 -

Mat Diess MA #1, 660/N - 198/E - 30

MA #4, 660/N - 1980/N - 30

~~Fubing Hill is to be coated~~  
~~Water to be treated.~~

Gauges or ~~water~~ equivalent.

on surface of Arculus.

~~Admission to~~

Rule 70 for project allowable.

Thos D. R.

- CASE 4700: Application of Penasco Corporation for a waterflood project, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project in the Penasco Shugart Queen Sand Unit Area, Shugart Pool, by the injection of water into the Queen formation through four wells located in Sections 8, 9, 16, and 17, Township 18 South, Range 31 East, Eddy County, New Mexico. Applicant further seeks a procedure whereby additional injection wells within the unit area may be approved administratively.
- CASE 4701: Application of Wynn Oil Company for an unorthodox location and a dual completion, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks approval of the dual completion of its Largo Federal Well No. 2 to produce gas from the Blanco-Mesaverde and Basin-Dakota Pools at an unorthodox location for the Blanco-Mesaverde Pool 1500 feet from the South line and 1100 feet from the East line of Section 13, Township 27 North, Range 8 West, San Juan County, New Mexico.
- CASE 4702: Application of Penroc Oil Corporation for a special gas-oil ratio limitation, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an amendment of the special rules and regulations for the Hobbs-Drinkard Pool, Lea County, New Mexico, to provide for a limiting gas-oil ratio of 10,000 cubic feet of gas per barrel of oil for said pool.
- CASE 4703: Application of Continental Oil Company for special pool rules, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks the promulgation of special pool rules for the West Lindrith Gallup-Dakota Oil Pool, Rio Arriba County, New Mexico, including provisions defining a gas well in the pool as one producing with a gas-liquid ratio of 30,000 cubic feet of gas per barrel of oil or one which produces oil with a gravity of 60° API or greater, a gas-oil ratio limitation for oil wells of 10,000 cubic feet of gas per barrel of oil, and 160-acre spacing units for both oil and gas wells.
- CASE 4709: Application of Continental Oil Company for downhole commingling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to commingle production from the Eumont Gas Pool and the Penrose Skelly Oil Pool in the wellbore of its Lockhart A-17 Well No. 1 located in Unit L of Section 17, Township 21 South, Range 37 East, Lea County, New Mexico.
- CASE 4710: Application of Hanson Oil Corporation for an exception to Order No. R-3221, as amended, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an exception to Order No. R-3221, as amended, to dispose into unlined surface pits water produced by 22 wells located

Docket No. 10-72

DOCKET: EXAMINER HEARING - FRIDAY - MAY 5, 1972

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

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The following cases will be heard before Elvis A. Utz, Examiner, or Richard L. Stamets, Alternate Examiner:

CASE 4689: (Continued from the April 5, 1972, Examiner Hearing)

Application of Petroleum Corporation of Texas for an exception to Order No. R-3221, as amended, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an exception to Order No. R-3221, as amended, to dispose into unlined surface pits water produced by its Dexter Federal Well No. 15 located in Unit J of Section 15, and all of its wells located or to be located in the NW/4 of Section 20, Township 17 South, Range 30 East, Grayburg-Jackson Pool, Eddy County, New Mexico.

CASE 4697: Application of Texaco Inc. for a dual completion, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the dual completion (tubingless) of its V. M. Henderson Well No. 9 located in Unit G of Section 30, Township 21 South, Range 37 East, Lea County, New Mexico, in such a manner as to permit the production of oil from the Paddock and Tubb Pools through parallel strings of casing, cemented in a common well-bore.

CASE 4698: Application of David Fasken for a dual completion, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the dual completion (conventional) of his Arco "9" Morrison Well No. 1 located in Unit B of Section 9, Township 19 South, Range 25 East, Eddy County, New Mexico, in such a manner as to produce gas from an undesignated Cisco gas pool through tubing and gas from the Boyd-Morrow Gas Pool through the casing-tubing annulus.

CASE 4711: Application of Shell Oil Company for commingling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to commingle North Vacuum Abo production from its State VB Com Well No. 1 located in Unit B of Section 19, Township 17 South, Range 35 East, Lea County, New Mexico, and from its State K Lease comprising the SE/4 of said Section 19 after separately metering the State VB Com production and determining the State K production by means of the subtraction method.

CASE 4699: Application of Penasco Corporation for a unit agreement, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval of the Penasco Shugart Queen Sand Unit Area comprising 520 acres, more or less, of Federal and State lands in Sections 8, 9, 16, and 17, Township 18 South, Range 31 East, Shugart Pool, Eddy County, New Mexico.



(Case 4710 continued)

or to be located in Sections 24, 25, 26, 34, and 35, Township 18 South, Range 30 East, Shugart Pool, Eddy County, New Mexico.

CASE 4704: Application of Atlantic Richfield Company for rededication of acreage, Lea County, New Mexico. Applicant, in the above-styled cause, seeks amendment of Order No. R-1932 to permit the 240-acre non-standard gas proration unit comprising the NE/4 NE/4 of Section 33 and the NW/4 and NW/4 NE/4 of Section 34, Township 19 South, Range 37 East, Eumont Gas Pool, Lea County, New Mexico, established by said order to be dedicated simultaneously to its J. H. Williams "Com" Well No. 3 and its J. H. Williams Well No. 5 located, respectively, in Units E and F of said Section 34.

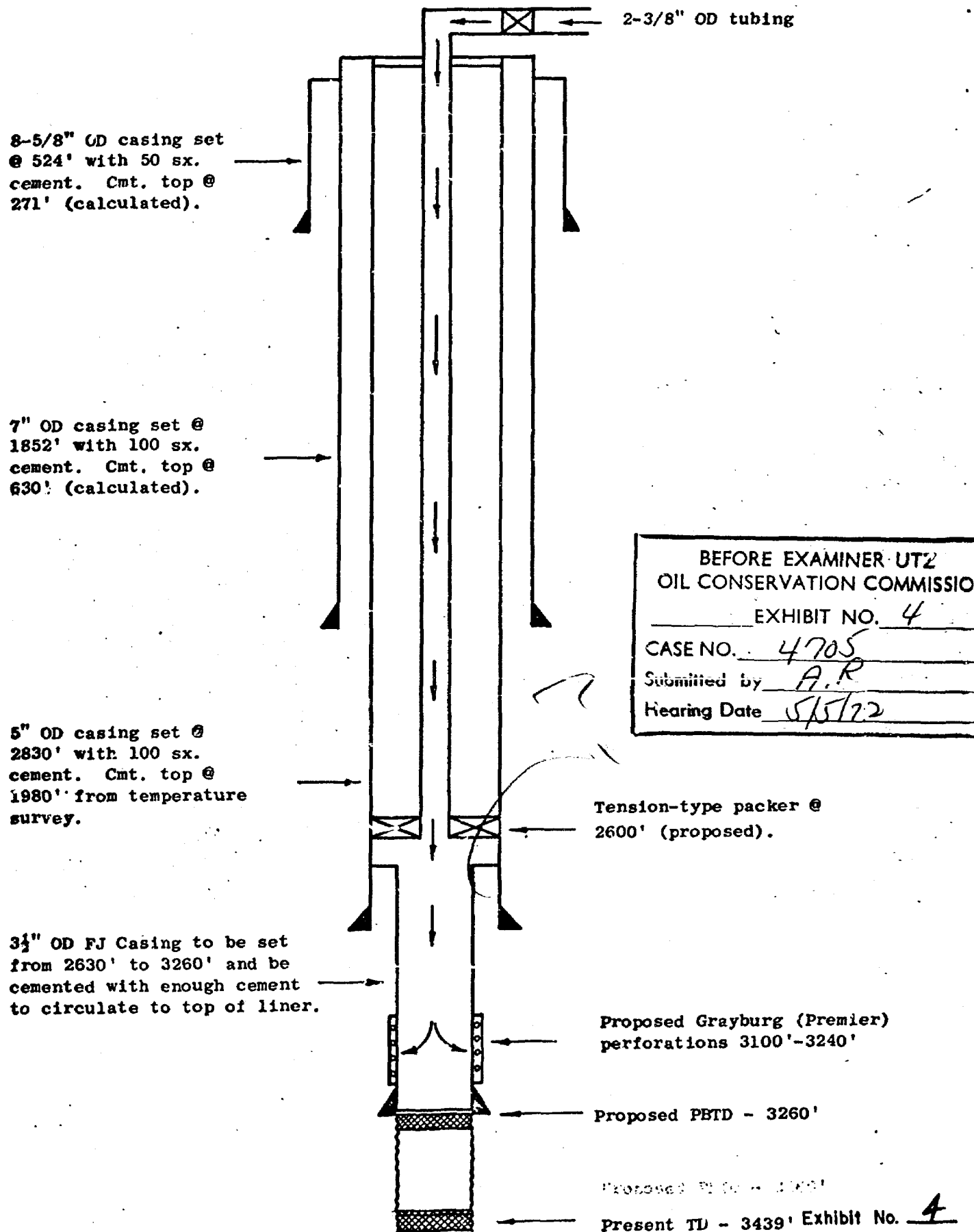
CASE 4705: Application of Atlantic Richfield Company for waterflood projects, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks to institute three waterflood projects on its leases in Sections 19 and 30, Township 17 South, Range 31 East, Grayburg-Jackson Pool, Eddy County, New Mexico, by the injection of water into the Grayburg formation through five wells located in said Sections 19 and 30.

CASE 4706: Application of Kennedy Oil Company for a waterflood project, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project in the Grayburg-Jackson Pool by the injection of water into the Grayburg formation through its State "B" Well No. 1 located in the NW/4 SW/4 of Section 19, Township 17 South, Range 31 East, Eddy County, New Mexico.

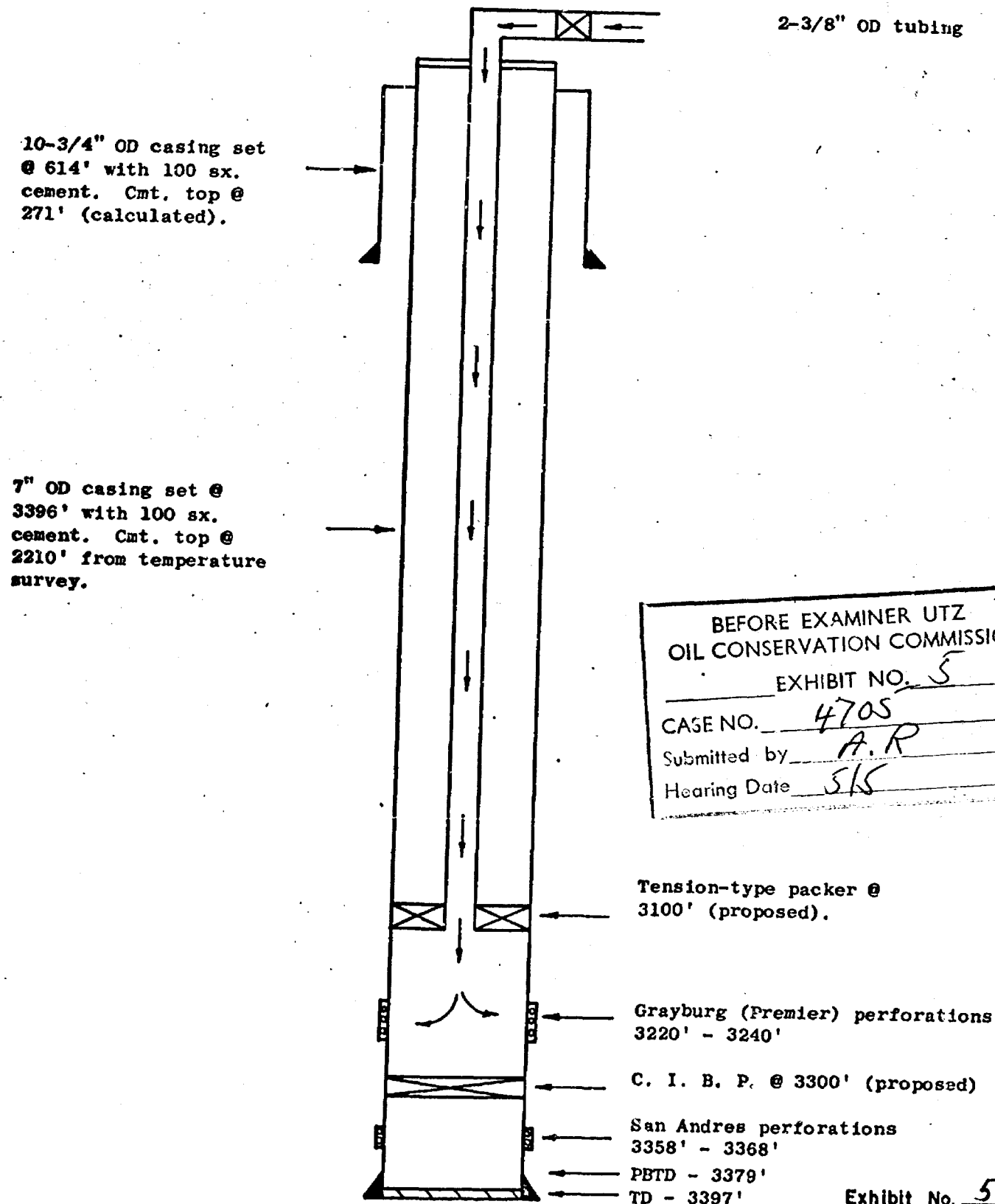
CASE 4708: Application of Jake L. Hamon for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Pennsylvanian and Devonian formations in perforated and open-hole interval from 10,492 feet to 13,100 feet in his State B-2330 Well No. 1 located in Unit C of Section 31, Township 16 South, Range 36 East, East Shoebar-Devonian Field, Lea County, New Mexico.

CASE 4707: Application of Blackrock Oil Company for a dual completion, salt water disposal, and unorthodox location, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks authority to dually complete its Bates McIntyre Federal Well No. 1 at an unorthodox location 1980 feet from the North line and 660 feet from the East line of Section 9, Township 6 South, Range 27 East, Chaves County, New Mexico, in such a manner as to produce gas from the Haystack Cisco Gas Pool through tubing and to dispose of salt water down the casing-tubing annulus into the San Andres and other formations in the open-hole interval from 1186 feet to 4389 feet, the N/2 of said Section 9 would be dedicated to the well.

ATLANTIC RICHFIELD COMPANY  
**MAX FRIESS MA WELL NO. 1**  
 660' FNL & 1980' FEL Sec. 30, T-17-S, R-31-E  
 EDDY COUNTY, NEW MEXICO  
 INJECTION WELL DIAGRAM



ATLANTIC RICHFIELD COMPANY  
**MAX FRIESS MA WELL NO. 4**  
 660' FEL & 1980' FNL Sec. 30, T-17-S, R-31-E  
 EDDY COUNTY, NEW MEXICO  
 INJECTION WELL DIAGRAM



BEFORE EXAMINER UTZ  
 OIL CONSERVATION COMMISSION  
 EXHIBIT NO. 5  
 CASE NO. 4705  
 Submitted by A. R.  
 Hearing Date 5/5

Exhibit No. 5

ATLANTIC RICHFIELD COMPANY  
**FRIESS FEDERAL WELL NO. 2**  
 1980' FSL & 1980' FEL Sec. 19, T-17-S, R-31-E  
 EDDY COUNTY, NEW MEXICO  
 INJECTION WELL DIAGRAM

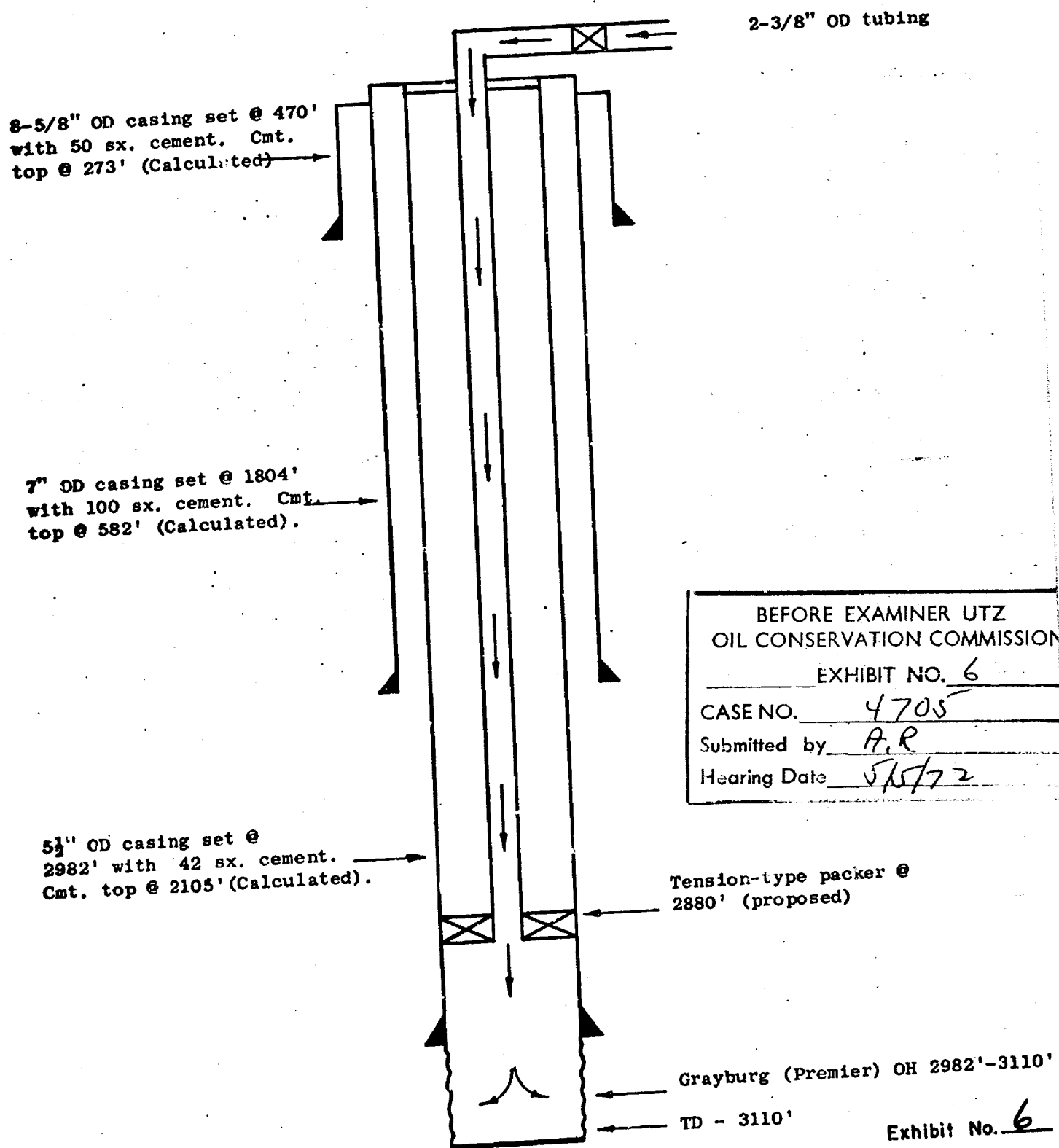
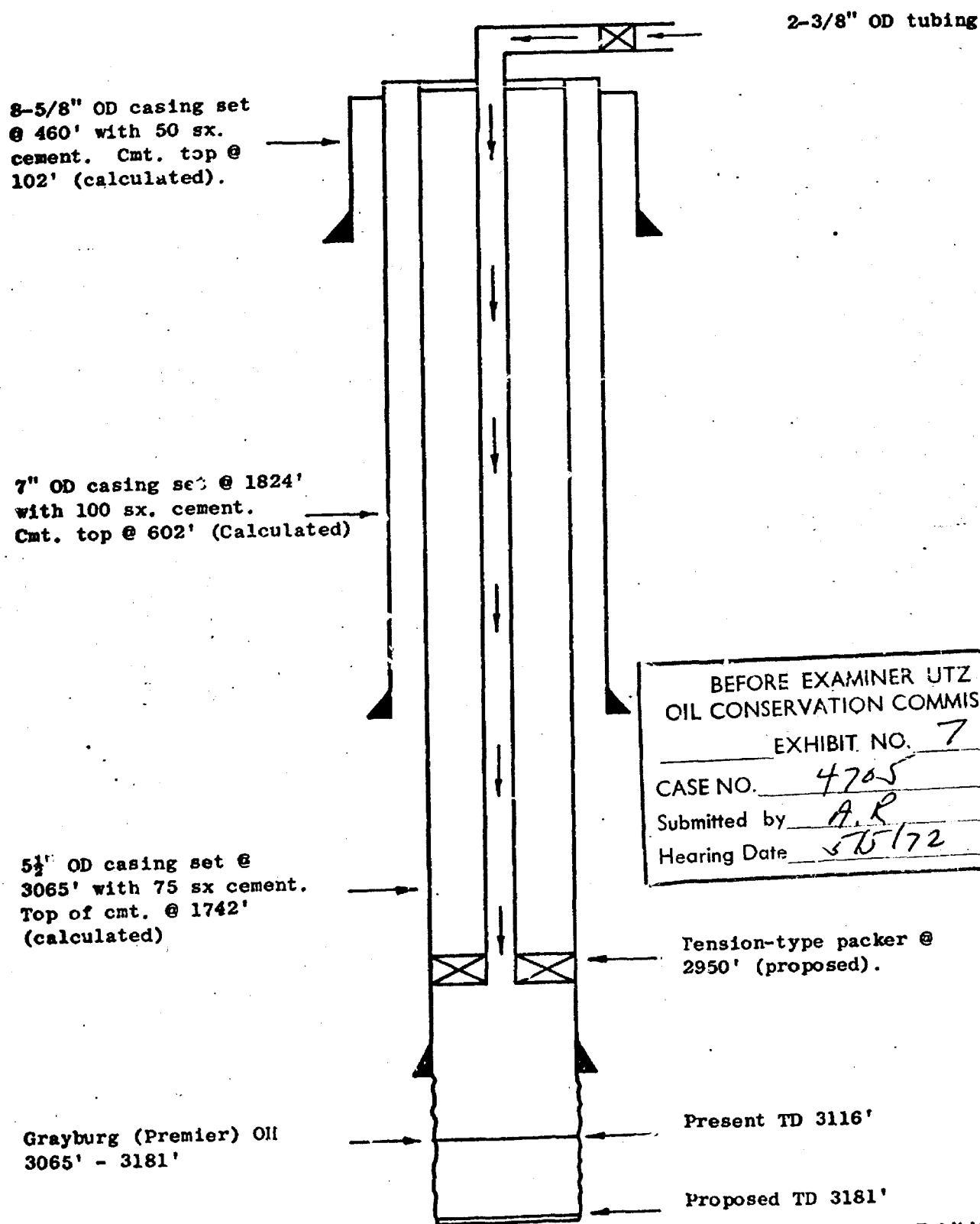


Exhibit No. 6

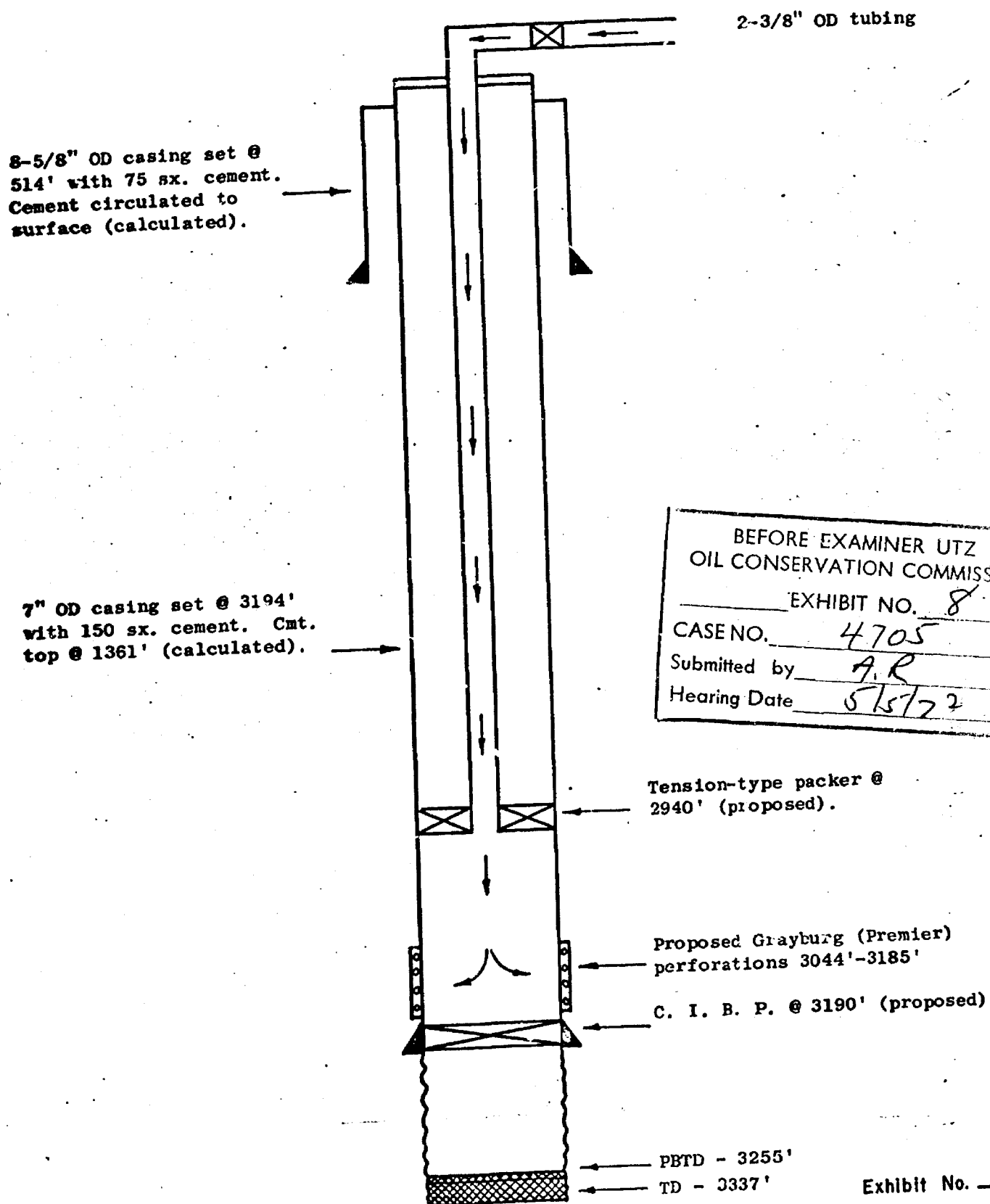
ATLANTIC RICHFIELD COMPANY  
**FREN OIL COMPANY WELL NO. 2**  
 660' FSL & 1980' FWL Sec. 19, T-17-S, R-31-E  
 EDDY COUNTY, NEW MEXICO  
 INJECTION WELL DIAGRAM



BEFORE EXAMINER UTZ  
 OIL CONSERVATION COMMISSION  
 EXHIBIT NO. 7  
 CASE NO. 4705  
 Submitted by A.R.  
 Hearing Date 5/5/72

Exhibit No. 7

ATLANTIC RICHFIELD COMPANY  
 FREN OIL COMPANY WELL NO. 13  
 660' FSL & 710' FEL Sec. 19, T-17-S, R-31-E,  
 EDDY COUNTY, NEW MEXICO  
 INJECTION WELL DIAGRAM



BEFORE EXAMINER UTZ  
 OIL CONSERVATION COMMISSION

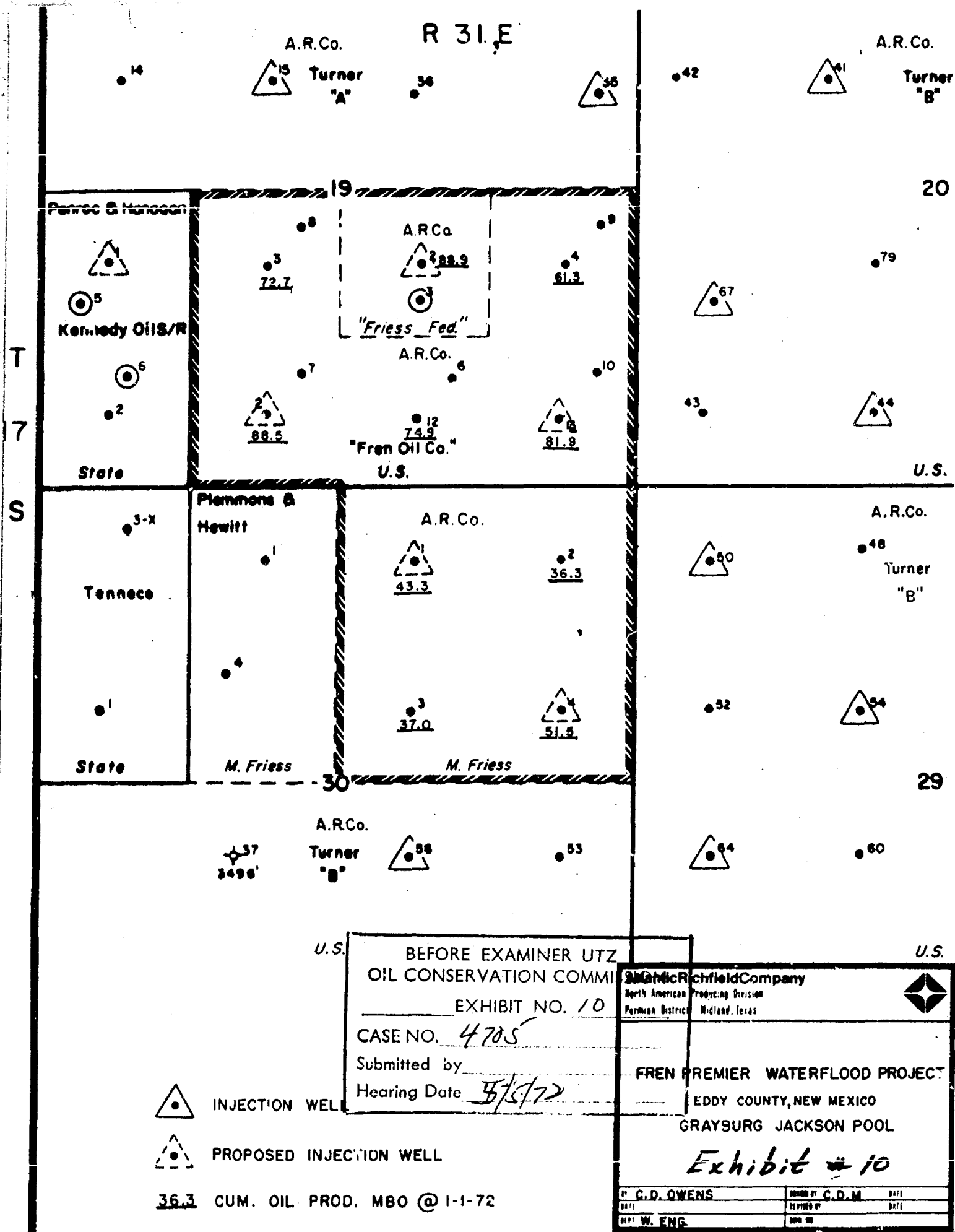
EXHIBIT NO. 8

CASE NO. 4705

Submitted by A.R.

Hearing Date 5/5/72

Exhibit No. 8





# United States Department of the Interior

## GEOLOGICAL SURVEY

P. O. Drawer U  
Artesia, New Mexico 88210

March 28, 1972

Atlantic Richfield Company  
Post Office Box 1610  
Midland, Texas 79701

Gentlemen:

Your letter of March 7, 1972 requests approval to operate a waterflood of the Premier zone of the Grayburg formation in T. 17 S., R. 31 E., N.M.P.M., Eddy County, New Mexico on that portion of oil and gas leases described as follows:

Las Cruces 031844  
sec. 19: E $\frac{1}{2}$ SE $\frac{1}{4}$ , SW $\frac{1}{4}$ SE $\frac{1}{4}$ , E $\frac{1}{2}$ SW $\frac{1}{4}$

Las Cruces 060409  
sec. 19: NW $\frac{1}{4}$ SE $\frac{1}{4}$

Las Cruces 065014  
sec. 30: NE $\frac{1}{4}$

The flood pattern would be 80-acre 5-spot, which would be a continuation of the pattern of the waterfloods to the north, east, and south, and in lease line agreement with one operator on the west. You propose to convert to water injection the following wells:

Well Number and Lease
1 Max Friess
4 Max Friess
2 Fren Oil Co.
13 Fren Oil Co.
2 Friess Fed.

Location
NW-NE sec. 30
SE-NE sec. 30
SE-SW sec. 19
SE-SE sec. 19
NW-SE sec. 19

The plan for operating the above described waterflood project as proposed in the application is satisfactory to this office and hereby approved subject to approval by the New Mexico Oil Conservation Commission and the following:

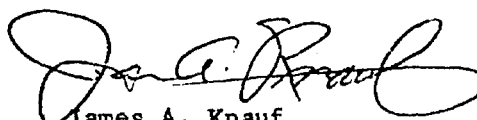
BEFORE EXAMINER UTZ	
OIL CONSERVATION COMMISSION	
EXHIBIT NO.	11
CASE NO.	4705
Submitted by	A.P.
Hearing Date	5/5/72

Exhibit # 11



1. This project will be operated in compliance with the New Mexico Oil Conservation Commission regulations governing waterflood operations.
2. Duplicate copies of a monthly progress report (N.M.O.C.C. form C-120 acceptable) are to be submitted to this office showing the volume of water injected and average pressure for the injection wells and production for the producing wells in the project area.
3. This approval does not preclude the necessity for further approval when the project is expanded to include other wells and leases or the necessity to submit the usual notices and reports on wells involved.

Sincerely yours,



James A. Knauf  
District Engineer

cc:  
N.M.O.C.C., Santa Fe  
Roswell  
File  
Accounts

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.  
J. M. LITTLE

LAW OFFICES  
HINKLE, BONDURANT, COX & EATON  
600 HINKLE BUILDING  
POST OFFICE BOX 10  
ROSWELL, NEW MEXICO 88201

TELEPHONE (805) 822-6510

MIDLAND, TEXAS OFFICE  
521 MIDLAND TOWER  
(815) 683-4691

March 31, 1972

*Case 4765*

Oil Conservation Commission  
Box 2088  
Santa Fe, New Mexico 87501

Gentlemen:

We enclose herewith in triplicate application of Atlantic Richfield Company for approval of a water flood project in connection with its leasehold interests in Sections 19 and 30, Township 17 South, Range 31 East.

It is our understanding that the Kennedy Oil Company has filed an application for hearing on a proposed water flood project which covers its lease on the W $\frac{1}{2}$ SW $\frac{1}{4}$  Section 19, Township 17 South, Range 31 East which adjoins the Atlantic Richfield lease and that it has indicated it would like to have the hearing on its application at the same time as that of Atlantic Richfield. We would like to have this matter set down at the earliest examiners hearing possible.

Yours very truly,

HINKLE, BONDURANT, COX & EATON

By *Clarence E. Hinkle*  
08

CEH:cs  
Enc.

cc: J. C. Snyder  
cc: David Owens

RECEIVED  
APR 9 1972

DOCKET MARKED

Date 4-21-72

BEFORE THE OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO

APPLICATION OF ATLANTIC RICHFIELD )  
COMPANY FOR APPROVAL OF A WATER )  
FLOOD PROJECT COVERING THE SE $\frac{1}{4}$  )  
AND E $\frac{1}{2}$ SW $\frac{1}{4}$  SECTION 19, NE $\frac{1}{4}$  SECTION )  
30, TOWNSHIP 17 SOUTH, RANGE 31 )  
EAST, N.M.P.M. IN THE GRAYBURG- )  
JACKSON FIELD, EDDY COUNTY. APPLICANT )  
PROPOSES TO INJECT WATER INTO THE )  
PREMIER ZONE OF THE GRAYBURG FORMA- )  
TION THROUGH FIVE INJECTION WELLS )

*Case 4705*

Oil Conservation Commission ✓  
Box 2088  
Santa Fe, New Mexico 87501

Comes Atlantic Richfield Company, acting by and through the undersigned attorneys, and hereby makes application for approval of a water flood project covering the SE $\frac{1}{4}$  and E $\frac{1}{2}$ SW $\frac{1}{4}$  Section 19, and NE $\frac{1}{4}$  Section 30, Township 17 South, Range 31 East, N.M.P.M. in the Grayburg-Jackson Field, Eddy County. Applicant proposes to inject water into the Premier zone of the Grayburg formation through five injection wells. In support of said application, applicant respectfully shows:

1. There is attached hereto and made a part hereof as Exhibit "A" a plat showing the location of the proposed project area, as well as the leasehold interests of applicant and others within 2 miles thereof and the wells which have been drilled in the project area and on other leases in the vicinity thereof, and the formations from which they are producing. Said plat also shows the proposed injection wells on the project area and the current injection wells surrounding the project area.

2. The five injection wells are as follows:

Atlantic Richfield Max Friess MA Well No. 1 located 660 feet from the north line and 1980 feet from the east line of Section 30, Township 17 South, Range 31 East;

Atlantic Richfield Max Friess MA Well No. 4 located 660 feet from the east line and 1980 feet from the north line Section 30, Township 17 South, Range 31 East.

Atlantic Richfield Friess Federal Well No. 2 located 1980 feet from the south line and 1980 feet from the east line Section 19, Township 17 South, Range 31 East.

Atlantic Richfield Fren Oil Company Well No. 2 located 660 feet from the south line and 1980 feet from the west line Section 19, Township 17 South, Range 31 East.

Atlantic Richfield Company Fren Oil Company Well No. 13 located 660 feet from the south line and 710 feet from the east line Section 19, Township 17 South, Range 31 East.

There are filed herewith copies of electrical logs of the above referred to wells, except in the case of the Friess Federal Well No. 2 a small scale log is not available.

3. There is also attached hereto diagrammatic sketches of each of the proposed injection 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 depths, and type and location of packers.

4. It is proposed to water flood the Premier zone of the Grayburg formation beginning at a depth of approximately 3150 feet. The majority of the injected fluid will be fresh water with a small portion thereof produced water at an average injection rate of 500 barrels of water per day, at a maximum wellhead pressure of 1600 psi. The source of the fresh water will be Atlantic Richfield Company's Keel West Water Supply System (Ogallala). The source of the produced water will be the Russell Turner plant located in adjoining Section 20, which produced water is from nearby wells.

5. The project area is covered by three oil and gas leases owned by applicant, namely the Friess Federal lease covering the NW $\frac{1}{4}$ SE $\frac{1}{4}$  Section 19, the Fren Oil Company lease covering the balance of the lands in the project area in Section 19 and the M. Friess lease covering the NE $\frac{1}{4}$  Section 30. All of the lands within the project area are lands of the United States.

6. All of the wells on the proposed project area are in a stripper stage of production and it is believed that said water flood

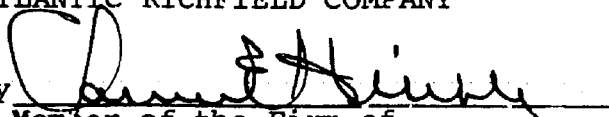
project will recover considerable secondary oil and gas and that said project will be in the interest of conservation and the prevention of waste and will tend to protect correlative rights. Applicant desires that a project allowable be established for said project in accordance with Rule 701 of the Oil Conservation Commission rules and regulations.

7. Applicant respectfully requests that this matter be set down for hearing before an examiner at the earliest possible date.

Respectfully submitted,

ATLANTIC RICHFIELD COMPANY

By



Member of the Firm of  
HINKLE, BONDURANT, COX & EATON  
P.O. Box 10  
Roswell, New Mexico 88201

DRAFT

GMH/dr

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. 4705

Order No. R-4306

APPLICATION OF ATLANTIC RICHFIELD  
COMPANY FOR WATERFLOOD PROJECTS,  
EDDY COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on May 5, 1972,  
at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this        day of May, 1972, 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, Atlantic Richfield Company, seeks  
permission to institute <sup>a</sup> ~~three~~ waterflood projects in the Grayburg-  
Jackson Pool by the injection of water into the Grayburg formation  
through five wells located in Sections 19 and 30, Township 17  
South, Range 31 East, NMPM, Eddy County, New Mexico.

(3) That the wells in the project area<sup>s</sup> are in an advanced state of depletion and should properly be classified as "stripper" wells.

(4) That the proposed waterflood project<sup>s</sup> should result in the recovery of otherwise unrecoverable oil, thereby preventing waste.

(5) That the subject application should be approved and the projects should be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations.

IT IS THEREFORE ORDERED:

(1) That the applicant, Atlantic Richfield Company, is hereby authorized to institute <sup>2</sup> ~~three~~ waterflood project<sup>s</sup> in the Grayburg-Jackson Pool by the injection of water into the Grayburg formation through the following-described five wells in Township 17 South, Range 31 East, NMPM, Eddy County, New Mexico:

Well Name	Well Number	Unit Letter	Section
Atlantic Richfield Friess MA	1	B	30
Atlantic Richfield Friess MA	4	H	30
Atlantic Richfield Friess Federal	2	J	19
Atlantic Richfield Fren Oil Co.	2	N	19
Atlantic Richfield Fren Oil Co.	13	P	19

*is hereby designated the Atlantic Grayburg-Jackson Friess-Fren Waterflood Project and*

(2) That the subject waterflood project<sup>s</sup> shall be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations.

(3) That monthly progress reports of the waterflood project<sup>s</sup> 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.

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:

Reference is made to Commission Order No. R-4306, <sup>recently</sup> entered in Case No. 4705, approving the Atlantic Grayburg-Jackson Friess-Fren Waterflood Project.

Injection is to be through the five authorized water injection wells, each of which is to be equipped with tubing set in a packer located as near as is practicable to the uppermost perforation, or in the case of the two open-hole completions, to the casing shoe. Injection water shall be treated to prevent corrosion and coupon corrosion tests continuously conducted with results 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 490 barrels per day when the Southeast New Mexico normal unit allowable is 42 barrels per day or less. *This project and*

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 Roswell

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

project allowance, with transfer privileges across lease lines, is based on the premise that all ownership of the leases is common, and that ~~such~~ transfer ~~would~~ in the absence of unitization, such transfer would be subject to the approval of the USGS, United States Geological Survey.

*thoroughly reported quarterly to the Commission.*