

CASE No.

4964

Application,
Transcripts,
Small Exhibits

ETC.

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
OIL CONSERVATION COMMISSION CONFERENCE ROOM
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO
Wednesday, May 9, 1973

EXAMINER HEARING

IN THE MATTER OF:

Application of Texaco Inc. for a unit
agreement, Eddy County, New Mexico.

and

IN THE MATTER OF:

Application of Texaco Inc. for a
waterflood project, Eddy County,
New Mexico.

Case No. 4963

Case No. 4964

BEFORE: Daniel S. Nutter,
Examiner

TRANSCRIPT OF HEARING

1 MR. NUTTER: We will call next Cases Numbers 4963
2 and 4964.

3 MR. CARR: Case 4963, application of Texaco Inc.
4 for a unit agreement, Eddy County, New Mexico. Case 4964,
5 application of Texaco Inc. for a waterflood project, Eddy
6 County, New Mexico.

7 MR. KELLY: Mr. Examiner, I am Booker Kelly of
8 White, Koch, Kelly and McCarthy, appearing on behalf of the
9 applicant, and we have marked our exhibits, Mr. Examiner, and
10 consolidated them for purposes of testimony. I have one
11 witness and ask that he be sworn.

12 KENNETH L. PETERS,
13 a witness, having been first duly sworn according to law, upon
14 his oath, testified as follows:

15 DIRECT EXAMINATION

16 BY MR. KELLY:

17 Q Would you please state your name, position, and employer?

18 A My name is Kenneth Peters, I am employed with Texaco,
19 Incorporated, in Hobbs, New Mexico, as District
20 Production Engineer.

21 Q And you have previously qualified as an expert witness
22 in your field before this Commission?

23 A Yes, sir, I have.

24 Q What does Texaco seek by these two applications?

25 A Texaco seeks permission to unitize 1,800 acres located

1 in portions of Sections 27, 26, 29, 31, 32, 33, and 34,
2 all in Township 18 South, Range 30 East, Eddy County,
3 New Mexico, consisting both of State and Federal lands;
4 and the proposed unit will consist of a total of 45
5 acres located in the Benson Queen Grayburg North Field,
6 and that Texaco seeks to initiate secondary recovery
7 operations in the subject unit by converting 21 producing
8 wells to injection, and also Texaco seeks authority to
9 expand the unit area and to drill and/or convert
10 additional wells in the proposed unit prior to response
11 without hearing and notice, subject to administrative
12 approval of the Commission, and that the requested
13 proposed secondary recovery project be authorized and
14 governed by provisions of Rules 701, 702, and 703, the
15 Oil Commission's directives.

16 Q All right. First, going to the Unit Agreement, is
17 Exhibit Number 1 a copy of the proposed Unit Agreement?

18 A Yes, sir, it is.

19 Q Would you show the Examiner where the unit area is
20 defined by a plat and by legal description?

21 A Exhibit A of the proposed Unit Agreement is in the rear
22 of this Unit Agreement and it defines the proposed unit
23 by 15 individual tracts; and, on Page 2 of the Unit
24 Agreement, Section 2, the unit area is defined,
25 containing 1,800 acres, more or less, in Eddy County,

1 New Mexico, both of State and Federal lands.

2 Q There is no fee land here, is that right?

3 A That is correct.

4 Q What is the unitized formation?

5 A The unitized formation is in Section 2, Paragraph G,
6 Page 2, and it's defined as the stratigraphic interval
7 of the Guadalupian series of the Permians, known as the
8 Queen Formation, and that's on the PGAC Acoustic Gamma
9 Ray Log dated 9/29/63, in Texaco's L.A. Fanning "B" Well
10 Number 7, and that's located 980 feet from the south and
11 west lines, Township 18 South, Range 30 East, and this is
12 found between the depths of 2,250 feet and 2,339 feet,
13 an interval of 589 feet.

14 Q Will Texaco be the unit operator?

15 A Yes, sir, they will.

16 Q What percentage does Texaco own of this unit?

17 A Texaco will operate the unit with 75 percent working
18 interest in this unit. Exhibit B defines the 15
19 individual tracts and the summary at the last page of
20 Exhibit B clearly defines the working interest owners.

21 Q Have all the working interest owners agreed to this Unit
22 Agreement?

23 A To date, there is 100 percent interest owner working
24 interest signed up and 99.15 percent of the overriding
25 royalty interest has been signed up.

dearnley, meier & mc cormick

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1 Q How do you stand with your basic royalty estate and the
2 Federal Government?

3 A The Federal Government has tentatively approved the Unit
4 Agreement, as well as the Commissioner of Public Lands,
5 by letters dated October 4, 1972, and October 16, 1972,
6 respectively. And, this subject agreement is similar to
7 others that have previously been approved by the
8 Commission.

9 Q Now, going to the waterflood aspects of the case, you
10 have a plat marked Exhibit 2 which defines both the unit
11 and the waterflood area?

12 A Yes, sir, in Exhibit 2, the 1,800-acre proposed unit is
13 outlined in the dashed line and the proposed injection
14 wells are shown with a triangle around them. There will
15 be 21 injection wells and 24 producing wells. The
16 pattern will be an 80-acre 5-spot, and secondary recovery
17 will recover an additional 1,669,000 barrels of
18 secondary oil. And, this unit will reach a peak rate of
19 2,800 barrels of oil per day, which will occur 18 months
20 after commencing injection; and there are no other
21 waterfloods in this field.

22 Q Is there any other producing zone in this field?

23 A No, sir, there are not.

24 Q These are all single completions?

25 A Yes, sir, that's correct.

1 Q And all of the proposed injection wells and producing
2 wells are now drilled?

3 A Yes. There is no tentative development drilling plan.

4 Q Now, going to Exhibit 3, your structure map, would you
5 explain that project?

6 A The structure map is a structural contour on the top of
7 the Queen sand and it is in 20-foot intervals. Basically,
8 the first commercial production in the Benson Queen
9 North Field was from the Simms and Reece McClay Well
10 Number 1, and that was completed September 1, 1954, and
11 production was derived from the Upper Queen Formation of
12 Guadalupian series of the Permian Age. The Benson Queen
13 North Field is located in the back-field reef area of
14 the Capitan Reef Front. Locally, the field is a
15 stratigraphic trap, limited by an up-dip porosity and
16 permeability pinch-out towards the northwest, and the
17 structure is monoclinal feature dipping to the southeast,
18 and the producing formation itself is composed of fine
19 to medium grained dolomitic and anhydritic, and
20 development has been on a 40-acre spacing of an average
21 producing depth of 2,950 feet and producing mechanism is
22 solution gas dry.

23 As of March 1, 1973, the production records listed
24 of 47 wells producing from the Benson Queen North Field,
25 and the cumulative oil production to March 1, 1973, was

1 1,418,718 barrels of oil, which amounts to 93 percent
2 of the ultimate primary. The estimated remaining
3 primary reserves as of September 19 to March 1, 1972,
4 or 1973, is 98,000 barrels; and during February 1973,
5 the field produced 143 barrels of oil per day and 76
6 barrels of water per day, with an average GOR of 1136.

7 MR. NUTTER: Average approximate was 143?

8 THE WITNESS: Yes, sir, that's correct, barrels of
9 oil per day.

10 Q (By Mr. Kelly) You've got all of the wells in this Queen
11 Pool, then, except two, is that right?

12 A Yes, sir, that is correct.

13 Q Where are the wells located?

14 A Those other two wells are located on properties to the
15 east of the proposed unit.

16 Q And have all the offset operators been notified of this
17 application?

18 A Yes, sir, they have.

19 Q Who are they, do you know?

20 A The offset operators are Owen F. Featherston, and
21 Franklin, Astin and Faire, Incorporated; both of Roswell,
22 New Mexico.

23 Q Now, you have Exhibit Number 4, which is your current
24 pro-well production figures?

25 A Yes, Exhibit Number 4 lists the current producing rate

allowables for the North Benson Queen Grayburg for the month of February 1973, and this is a list of the 47 wells giving the allowable, the oil, the water, and the GOR on a monthly basis; and during this month, the average per well rate was 5 barrels of oil per day, 3 barrels of water per day, with the same GOR of 1136. This indicates that the production has reached an advanced stripper state.

Q Now, Exhibit Number 5 is a typical diagramatic sketch for one of your injection wells, is that correct?

A Yes, this depicts the casing program with the surface casing, the amount of cement used, the cement being either circulated. This is circulated on both strings. The perforated interval and also the injection interval. On all of the 21 proposed injection wells, plastic-coated tubing with a Packer will be set above the interval. The tubing casing annulus will be loaded with inhibited water and a pressure gauge will be placed on the surface to monitor the injection.

Q Is there any fresh water near the surface?

A No, there is no fresh water in the area.

Q And there is no other production zones up structure, as I understand it?

A That is correct.

Q Do you feel that this installation will prevent migration

1 of any fluids to any other zone?

2 A Yes, sir.

3 Q What is the source of your water that you will be
4 injecting?

5 A Texaco will seek commercial sources of water in the
6 area. Negotiations are currently under way with two
7 commercial firms.

8 Q How about your injection rate?

9 A The initial injection rate will be 385 barrels of water
10 per day per well at approximately 2,500 psi.

11 Q Now, Exhibit Number 6 is the tabulation of all of the
12 characteristics that you have shown on the diagramatic
13 form for each well, is that correct?

14 A Yes, sir, that is correct, for all 21 wells, giving the
15 surface casing, the depth, the cement used, and the
16 production casing, and also the total depth and the
17 injection interval of each well.

18 Q And Exhibit Number 7 is the actual footage location of
19 each proposed injection well?

20 A Yes, sir, Exhibit Number 7 depicts the exact legal
21 location of these 21 proposed injection wells.

22 Q Do you feel that the granting of these applications will
23 allow you to recover oil that would otherwise be left in
24 place, Mr. Peters?

25 A Yes, sir, that's true.

1 Q Do you think that the application will have any adverse
2 effects on the correlative rights of others?

3 A No, sir, it will not.

4 Q Were Exhibits 1 through 7 prepared by you or under your
5 supervision?

6 A Yes, sir, they were.

7 MR. KELLY: We would move the introduction of those
8 exhibits at this time, and that concludes our Direct Examination.

9 MR. NUTTER: Texaco's Exhibits 1 through 7 will be
10 admitted in evidence.

11 CROSS-EXAMINATION

12 BY MR. NUTTER:

13 Q Mr. Peters, all of these wells are equipped with casing
14 throughout the pay, is this correct?

15 A Yes, sir, that is correct.

16 Q And in each instance, the Packer will be set immediately
17 above the uppermost perforation in the well?

18 A Yes, sir, that is correct, and one joint of tubing, as
19 close as possible.

20 Q Have you calculated your total water needs initially?
21 It would be 21 times 380, but I thought you might have
22 the figure.

23 A 8,000.

24 Q What was that?

25 A 8,000 barrels of water per day.

- 1 Q This will come from a commercial source?
- 2 A Yes, sir, that is correct.
- 3 Q Of course, when you start producing water, you will
- 4 reinject that?
- 5 A Yes, sir, we will.
- 6 Q Now, I think you said that the unit contained all of the
- 7 wells except two. Aren't there three wells out at the
- 8 east end there, or are those producing from another pool?
- 9 A The proration records indicate that there are only two
- 10 other wells outside of our proposed unit. Proration
- 11 records as of February '73 show that there were a total
- 12 of 47 wells.
- 13 Q Which two wells were the ones that --
- 14 A I don't have those designated. I can check that and
- 15 furnish the information.
- 16 Q Apparently, one of those three wells must be shut-in and
- 17 isn't indicated on the map.
- 18 A Yes, sir, that is correct.
- 19 Q At any rate, you've essentially got all of the North
- 20 Benson Queen Pool under a unit here?
- 21 A Yes, sir.
- 22 Q And will be flooding the entire pool, almost?
- 23 A Yes, sir, that's correct.
- 24 Q Were those people given an opportunity to come into the
- 25 unit and chose not to do so?

1 A Yes, sir, that is correct.

2 MR. NUTTER: Are there further questions of the
3 witness?

4 (No response.)

5 MR. NUTTER: He may be excused. Do you have
6 anything further, Mr. Kelly?

7 MR. KELLY: Nothing, Mr. Examiner.

8 MR. NUTTER: Does anyone have anything they wish to
9 offer in Case 4963 or 4964?

10 (No response.)

11 MR. NUTTER: We will take the case under advisement.

12

13 R E P O R T E R ' S C E R T I F I C A T E

14 I, JOHN DE LA ROSA, a Court Reporter, do hereby certify
15 that the foregoing and attached Transcript of Hearing before the
16 New Mexico Oil Conservation Commission was reported by me; and
17 that the same is a true and correct record of the said
18 proceedings to the best of my knowledge, skill and ability.

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John De La Rosa
COURT REPORTER

I do hereby certify that the foregoing is
a complete record of the proceedings in
the Examiner hearing of Case No. 4963-4964
heard by me on 3/9, 19 73.
[Signature], Examiner
New Mexico Oil Conservation Commission

dearnley, meier & mc cormick retaining service inc.

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OIL CONSERVATION COMMISSION

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

May 21, 1973

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

Mr. Booker Kelly
White, Koch, Kelly & McCarthy
Attorneys at Law
Post Office Box 787
Santa Fe, New Mexico

Re: Case No. 4964
Order No. R-4537
Applicant:
TEXACO Inc.

Dear Sir:

Enclosed herewith are two copies of the above-referenced Commission order recently entered in the subject case.

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

Other State Engineer Office

DOCKET: EXAMINER HEARING - WEDNESDAY - MAY 9, 1973

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:

- ALLOWABLE: (1) Consideration of the allowable production of gas for June, 1973, from seventeen prorated pools in Lea, Eddy, Roosevelt and Chaves Counties, New Mexico;
- (2) Consideration of the allowable production of gas from nine prorated pools in San Juan, Rio Arriba, and Sandoval Counties, New Mexico, for June, 1973.

CASE 4943: (Continued from the April 11, 1973 Examiner Hearing)

Application of M. W. Staples for an unorthodox oil well location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to produce oil from his Vanderventer Well No. 2 located 1310 feet from the North line and 1330 feet from the East line of Section 20, Township 18 South, Range 28 East, Artesia Pool, Eddy County, New Mexico. Said well was drilled as an injection well at said location pursuant to authority granted by Order No. R-3341.

CASE 4928: (Continued from the April 11, 1973, Examiner Hearing)

Application of Union Oil Company of California for compulsory pooling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Morrow formation underlying all of Section 11, Township 21 South, Range 25 East, Catclaw Draw-Morrow Gas Pool, Eddy County, New Mexico, to be dedicated to the Atlantic Richfield Oil Company Pure-Federal Well No. 11 located in Unit K of said Section 11. Applicant further seeks a provision for the payment of proper costs to be borne by applicant for such well and the related well equipment, a provision for allocation of actual operating costs, and the establishment of charges for supervision of such well and the designation of an operator thereof; and for such other relief as proper. Also to be considered will be the risk involved in drilling the subject well.

CASE 4932: (Continued from the April 11, 1973, Examiner Hearing)

Application of Atlantic Richfield Company for a non-standard proration unit, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for a 340.94-acre non-standard gas proration unit comprising the W/2 of Section 11, Township 21 South, Range 25 East, Catclaw Draw-Morrow Gas Pool, Eddy County, New Mexico, to be dedicated to its Pure Federal Well No. 1 located in Unit K of said Section 11.

- CASE 4959: Application of Tamarack Petroleum Company, Inc. for a unit agreement, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of the Bronco Wolfcamp Unit Area, comprising 762 acres, more or less, of fee lands in Section 35, Township 12 South, and Section 2, Township 13 South, both Range 38 East, Lea County, New Mexico.
- CASE 4960: Application of Tamarack Petroleum Company, 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 Wolfcamp formation through three wells in its Bronco Wolfcamp Unit Area, Bronco-Wolfcamp Pool, Lea County, New Mexico.
- CASE 4961: Application of Amoco Production Company for down-hole commingling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to commingle production from the Blinebry and Drinkard Oil Pools and the Tubb Gas Pool in the well-bore in its Southland Royalty "A" Well No. 4 located in Unit X of Section 4, Township 21 South, Range 37 East, Lea County, New Mexico.
- CASE 4962: Application of Amoco Production Company for special pool rules, Roosevelt County, New Mexico. Applicant, in the above-styled cause, seeks the promulgation of special pool rules for the Peterson-Pennsylvanian Pool, Roosevelt County, New Mexico, including a provision for classification of oil wells and gas wells, 160-acre spacing for oil wells, 320-acre spacing for gas wells, and a limiting gas-oil ratio of 4,000 to one.
- CASE 4963: Application of Texaco Inc. for a unit agreement, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval of the North Benson Queen Unit Area comprising 1800 acres, more or less, of Federal and State lands in Township 18 South, Range 30 East, Eddy County, New Mexico.
- CASE 4964: Application of Texaco Inc. for a waterflood project, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project in its North Benson Queen Area, North Benson-Queen Pool, Eddy County, New Mexico, by the injection of water into the Queen formation through 20 wells in said unit area.
- CASE 4965: Application of Read & Stevens, Inc. for a dual completion, contraction of vertical limits, creation of a new pool and special pool rules, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks the contraction of the vertical limits of the Buffalo Valley-Pennsylvanian Pool, Chaves County, New Mexico, to exclude the producing interval from 8548 feet to 8578 feet as found in its Langley Com Well No. 1 located in Unit C of Section 13, Township 15 South, Range 27 East, and to redesignate said pool as the Buffalo Valley Lower-Pennsylvanian Gas Pool, and for the creation of a new pool for the

(Case 4965 continued from page 2)

above-described producing interval to be designated Buffalo Valley Upper-Pennsylvanian Gas Pool. Applicant also seeks the adoption of special rules for said proposed new pool similar to the pool rules for the presently existing pool; applicant further seeks approval for the dual completion of the above-described well to produce from both of the aforesaid two pools.

CASE 4966: Application of Read & Stevens, Inc. for compulsory pooling, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests underlying the N/2 of Section 36, Township 12 South, Range 30 East, Chaves County, New Mexico, to be dedicated to a well to be drilled to the Queen formation in Unit B of said Section 36, in the Southeast Chaves Queen Gas Area. Also to be considered will be the cost of drilling and completing said well and the allocation of such costs as well as actual operating costs and charges for supervision. Also to be considered is the designation of applicant as operator of the well and a 200 percent charge for risk involved in drilling said well.

CASE 4967: Application of John M. Etcheverry for dissolution of a standard proration unit and the creation of two non-standard proration units, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the dissolution of the standard 160-acre proration unit comprising the SW/4 of Section 29, Township 14 South, Range 34 East, West Tres Papalotes-Pennsylvanian Pool, Lea County, New Mexico, dedicated to the Mark Production Company Etcheverry Well No. 1 located in Unit L of said Section 29, and the creation of two non-standard 80-acre proration units, one comprising the N/2 and the other the S/2 of the SW/4 of said Section 29; the first unit would be dedicated to the aforesaid Etcheverry Well No. 1 and the second unit would be dedicated to a well proposed to be drilled in Unit P of said Section 29.

CASE 4968: Application of Benjamin K. Horton for the amendment of Order No. R-1814, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks the amendment of Order No. R-1814 to provide for the dissolution of the 344.28-acre non-standard unit approved by paragraph 4 of said order which unit comprises all of partial Section 11 plus Lot 4 and the SW/4 SW/4 of partial Section 12, Township 28 North, Range 13 West, Basin-Dakota Pool, San Juan County, New Mexico. Applicant proposes the creation of a 275.36-acre non-standard unit comprising all of the aforesaid partial Section 11 only to be dedicated to his Federal Well No. 2 located 1190 feet from the South line and 2210 feet from the East line of said Section 11.

CASE 4946: (Continued and Readvertised)

Application of Union Texas Petroleum for special pool rules, Lea County, New Mexico. Applicant, in the above-styled cause, seeks

Examiner Hearing - Wednesday - May 9, 1973

Docket No. 13-73

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(Case 4946 continued from page 3)

the promulgation of special pool rules for the Crosby-Fusselman Pool, Lea County, New Mexico, including a provision for classification of oil wells and gas wells, 320-acre spacing for all wells, and a limiting gas-oil ratio of 5000 to one. (This case will be continued to the May 23rd Examiner Hearing.)

CASE 4885: (Continued and Readvertised)

In the matter of the hearing called by the Oil Conservation Commission on its own motion to permit John Lemley and Juanita Franks and Aetna Casualty and Surety Company and all other interested parties to appear and show cause why the Lemley and Franks Greathouse Well No. 1, located in Unit F of Section 10, Township 23 North, Range 1 West, Rio Arriba County, New Mexico, should not be plugged and abandoned in accordance with a Commission-approved plugging program.

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. 4964
Order No. R-4537

APPLICATION OF TEXACO INC.
FOR A WATERFLOOD PROJECT,
EDDY COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on May 9, 1973,
at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 17th day of May, 1973, 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, Texaco Inc., seeks authority
to institute a waterflood project in the North Benson Queen
Unit Area, North Benson-Queen Pool, by the injection of water
into the Queen formation through 21 injection wells in Sec-
tions 27, 28, 29, 32, 33, and 34, Township 18 South, Range 30
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 project 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, Texaco Inc., is hereby authorized
to institute a waterflood project in the North Benson Queen

Unit Area, North Benson-Queen Pool, by the injection of water into the Queen formation through the following-described wells in Township 18 South, Range 30 East, NMPM, Eddy County, New Mexico:

<u>LEASE</u>	<u>WELL NO.</u>	<u>LOCATION</u>
Elliott Federal	3	660' FSL & 660' FEL of Sec. 29
Holt Federal	1	990' FSL & 2310' FWL of Sec. 29
Simms and Reese Federal	2	660' FNL & 1650' FEL of Sec. 33
E. M. Elliott	2	1980' FSL & 1980' FEL of Sec. 29
E. M. Elliott	3	2310' FNL & 1650' FWL of Sec. 29
McClay	5	1650' FNL & 330' FEL of Sec. 33
Jones Federal	1	1980' FEL & 660' FNL of Sec. 34
Simms Federal	2	1650' FNL & 1980' FWL of Sec. 34
Simms Federal	4	660' FNL & 610' FWL of Sec. 34
L. R. Manning "B" Federal (NCT-1)	1	660' FSL & 1980' FWL of Sec. 27
L. R. Manning "B" Federal (NCT-1)	3	330' FSL & 330' FEL of Sec. 28
L. R. Manning "B" Federal (NCT-1)	5	1650' FSL & 1651' FEL of Sec. 28
L. R. Manning Federal (NCT-1)	8	1650' FSL & 660' FWL of Sec. 27
L. R. Manning Federal (NCT-1)	9	1980' FSL & 660' FNL of Sec. 28
L. R. Manning Federal (NCT-1)	10	660' FSL & 2310' FWL of Sec. 28
L. R. Manning Federal (NCT-1)	12	2310' FNL & 660' FEL of Sec. 28
L. R. Manning Federal (NCT-1)	14	1980' FNL & 1980' FWL of Sec. 28
L. R. Manning Federal (NCT-1)	18	2310' FNL & 1750' FWL of Sec. 27
L. R. Manning Federal (NCT-1)	19	990' FNL & 560' FWL of Sec. 27
New Mexico "CY" State (NCT-1)	2	660' FNL & 660' FWL of Sec. 32
New Mexico "CY" State (NCT-1)	3	1980' FNL & 1980' FWL of Sec. 32

(2) That injection into each of the aforesaid wells shall be through 2 3/8-inch plastic-lined tubing and the annulus of each of said wells shall be loaded with an inert liquid and equipped with a pressure gauge at the surface. The appropriate District Office of the Commission shall be notified upon completion of the well for injection purposes prior to the commencement of actual injection.

(3) That the subject waterflood project is hereby designated the Texaco North Benson Queen Unit Waterflood Project and shall be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations.

-3-

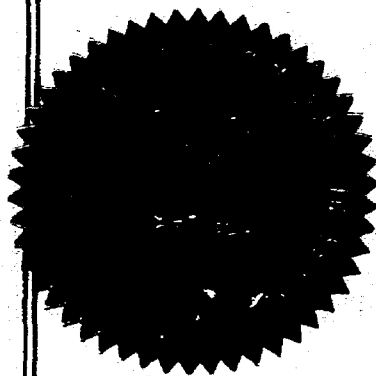
Case No. 4964

Order No. R-4537

(4) 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.

(5) 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

I. R. Trujillo
I. R. TRUJILLO, Chairman

Alex J. Armijo
ALEX J. ARMIJO, Member

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

S E A L

dr/



W.F

PRODUCING DEPARTMENT
CENTRAL UNITED STATES
MIDLAND DIVISION

PETROLEUM PRODUCTS

April 12, 1973

TEXACO INC.
P. O. BOX 3109
MIDLAND, TEXAS 79701

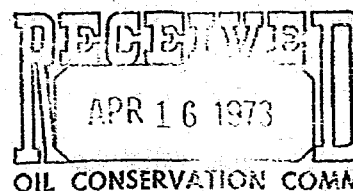
REQUEST FOR HEARING
UNITIZATION AND WATERFLOOD
NORTH BENSON QUEEN GRAYBURG POOL
EDDY COUNTY, NEW MEXICO

Case 4964

New Mexico Oil Conservation Commission
P. O. Box 2088
Santa Fe, New Mexico 88750

Attention: Mr. A. L. Porter
Secretary Director

Gentlemen:



Texaco Inc. respectfully requests that evidence be considered at the Examiner Hearing in Santa Fe, New Mexico for an application to:

1. Unitize 1800 acres, more or less, in the North Benson Queen Grayburg Pool.
2. Initiate waterflood operations.
3. Expand the proposed Unit area and to drill and/or convert additional wells in the proposed Unit area without notice and hearing subject to administrative approval by the Commission.

The proposed Unit area is comprised of:

Section 27: W 1/2 and SW 1/4 NE 1/4 and SW 1/4 SE 1/4
Section 28: S 1/2 and S 1/2 NE 1/4 and E 1/2 NW 1/4
Section 29: SE 1/4 and E 1/2 SW 1/4 and SE 1/4 NW 1/4
Section 31: NE 1/4 NE 1/4
Section 32: NW 1/4 and NE 1/4 SW 1/4
Section 33: N 1/2 NE 1/4 and SE 1/4 NE 1/4 and NE 1/4 SE 1/4
Section 34: NW 1/4 and W 1/2 NE 1/4

All of Township 18 South, Range 30 East, Eddy County, New Mexico.

The proposed waterflood will consist of an 80-acre five-spot flood pattern. Injection will be into the Queen formation at an average depth of 2650 to 3250 feet. Injection will be down tubing with a packer set above the injection interval. Initial injection will be 380 barrels of water per day per well. Injection fluid will be fresh water purchased from a commercial water company.

DOCKET MAILED

Date 4-26-73

New Mexico Oil
Conservation Commission

-2-

April 12, 1973

Attached is a plat of the proposed project area, a diagrammatic sketch of a typical injection well, and a list of offset operators. Detailed information supporting this application will be presented at the hearing.

A copy of this letter is being mailed to each offset operator, to the United States Geological Survey in Roswell, New Mexico, and the Commissioner of Public Lands in Santa Fe, New Mexico. The United States Geological Survey and Commissioner of Public Lands, have, by letters dated October 4, 1972 and October 16, 1972, respectively, approved the proposed North Benson Queen Unit Agreement as to form and content.

Yours very truly,

Darrell Smith
Division Manager

By R. G. Brown
R. G. Brown
Assistant to Division Manager

GRW/sl

Attachments

cc: United States Geological Survey
Commissioner of Public Lands
All Offset Operators (List Attached)

OFFSET OPERATORS

Case 4464

PROPOSED NORTH BENSON QUEEN UNIT
NORTH BENSON QUEEN GRAYBURG POOL
EDDY COUNTY, NEW MEXICO

Olen F. Featherstone
1717 West 2nd Street
Roswell, New Mexico 88201

Franklin, Aston & Fair, Inc.
P. O. Box 1090
Roswell, New Mexico 88201

PAN GEO ATLAS CORP.

Acoustic-Gamma Ray Log

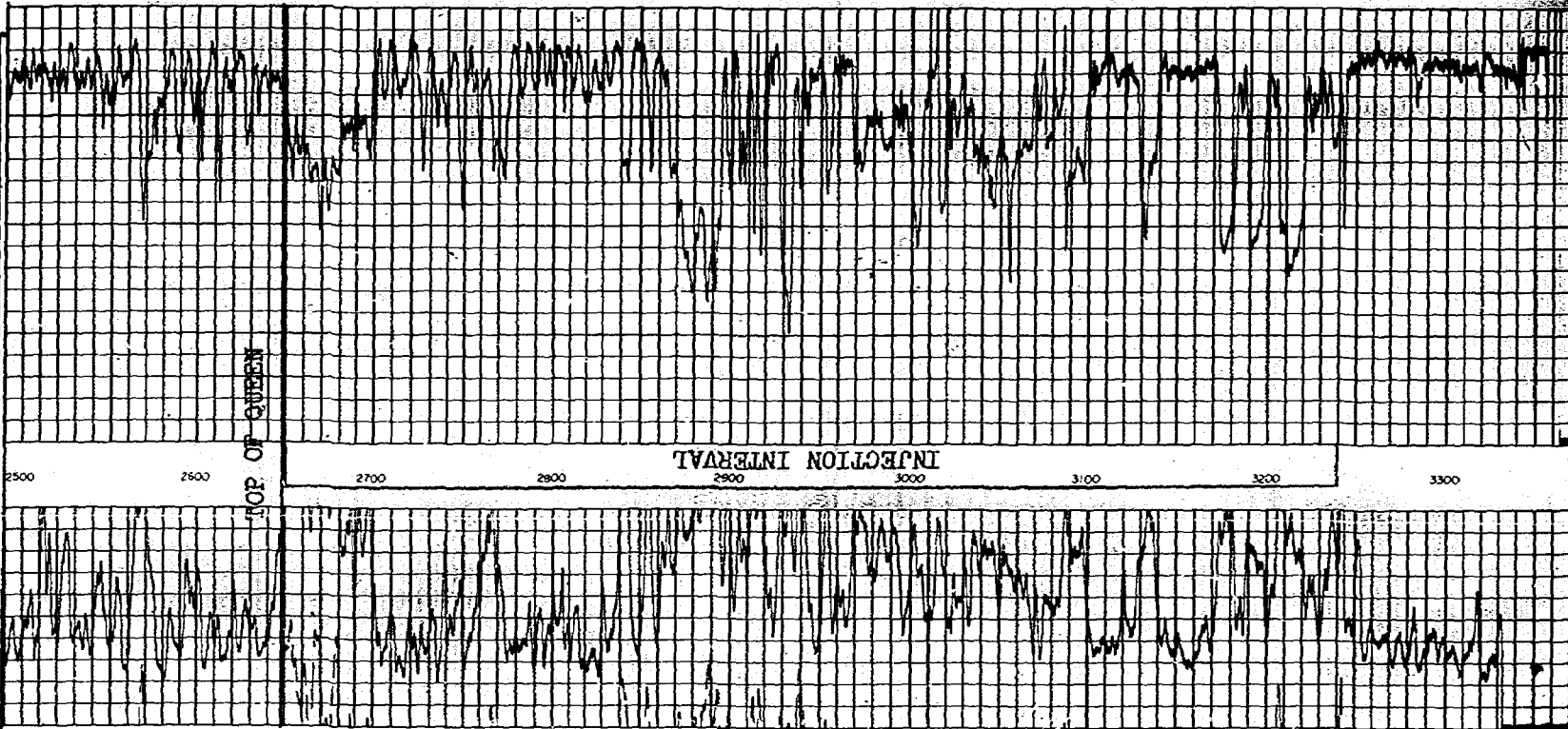
WELL NO. 1
 COMPANY TEXACO INCORPORATED
 WELL L.R. MANNING FEDERAL "B" (NCT-1 NO. 7)
 FIELD NORTH BENSON (QUEEN)
 COUNTY LEA STATE NEW MEXICO
 LOCATION 1980' FSL & 1980' FWL
 SEC 28 TWP 18-S RGE 30-E

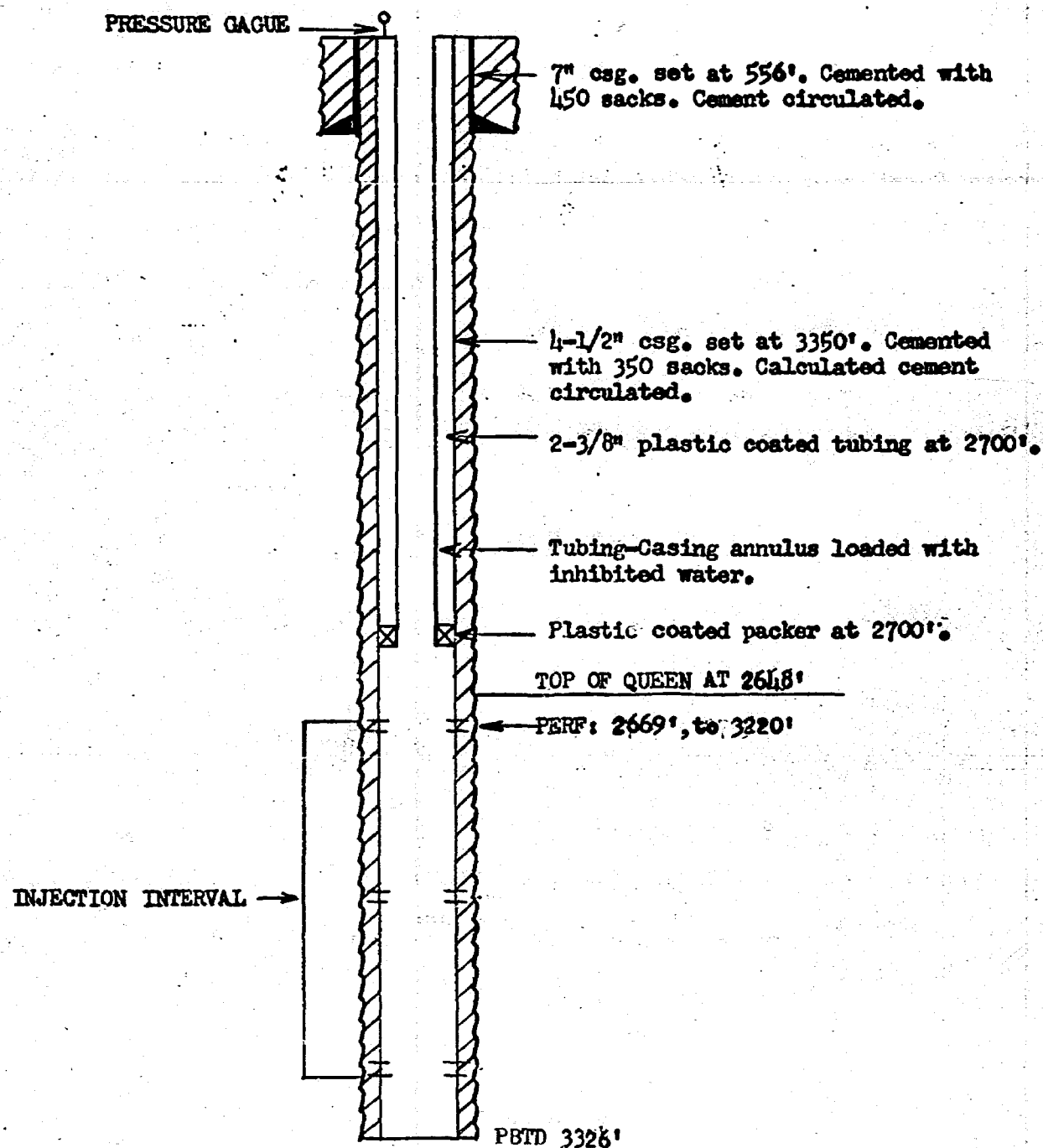
Permanent Datum
 log measured from K.B. 11' ft. Above Permanent Datum
 Drilling Measured from K.B. 11' ft. Above Permanent Datum

Date 9/21/55
 Log No. ONE
 Log Depth 3350
 Log Depth PGAC 3349
 Log Depth PGAC 3343
 Log Depth 556
 Log Depth 3243
 Log Type SALT PLS.

Log No. 10,21,33
 Log Temp. 199 95°F
 Log To Rec. Depth 11'
 Log To Rec. Depth 4'
 Log To Rec. Depth TEL 8-20-15-73-27-53S1
 Log To Rec. Depth 1-25 HOSBS
 Log To Rec. Depth CAREY
 Log To Rec. Depth MR. DAWSON & MR. MORRISON

LOG NO. RECORD		CASING RECORD	
Log No.	From To	Cas. No.	From To
7/8	SURF. 556	7"	SURF. 556
1/4	556 3350		





DIAGRAMMATIC SKETCH
 TYPICAL INJECTION WELL
 TEXACO INC.
 L.R. MANNING "B" (NCT-1) WELL NO. 7
 NORTH BENSON (QUEEN) POOL
 EDDY COUNTY, NEW MEXICO

Case 4964

DRAFT

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. 4964

Order No. R- 4527

APPLICATION OF TEXACO INC.
FOR A WATERFLOOD PROJECT, EDDY COUNTY,
NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on MAY 9, 1973
at Santa Fe, New Mexico, before Examiner DANIEL S. NUTTER.

NOW, on this MAY day of 1973 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, TEXACO INC.,
seeks authority to institute a waterflood project in the NORTH
BENSON QUEEN Unit Area, NORTH BENSON-QUEEN Pool,
by the injection of water into the QUEEN formation
through 21 injection wells in Sections 27, 28, 29, 32, 33, and 34,
Township 18 ~~North~~ South, Range 30 ~~West~~ 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 project 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, TEXACO INC., is hereby authorized to institute a waterflood project in the NORTH DENVER QUEEN Unit Area, NORTH DENVER-QUEEN Pool, by the injection of water into the QUEEN formation through the following-described wells in Township 18 North, South, Range 30 West, East, NMPM, EDDY County, New Mexico:

<u>WELL</u>	<u>Well No.</u>	<u>Location</u>
Elliott Federal	3	660' FSL & 660' FEL of Sec. 29
Holt Federal	1	990' FSL & 2310' FWL of Sec. 29
Simms and Reese Federal	2	660' FNL & 1650' FEL of Sec. 33
E. M. Elliott	2	1980' FSL & 1980' FEL of Sec. 29
E. M. Elliott	3	2310' FNL & 1650' FWL of Sec. 29
McClay	5	1650' FNL & 330' FEL of Sec. 33
Jones Federal	1	1980' FEL & 660' FNL of Sec. 34
Simms Federal	2	1650' FNL & 1980' FWL of Sec. 34
Simms Federal	4	660' FNL & 610' FWL of Sec. 34
L. R. Manning 'B' Federal		
(NCT-1)	1	660' FSL & 1980' FNL of Sec. 27
"	3	330' FSL & 330' FEL of Sec. 28
"	5	1650' FSL & 1651' FEL of Sec. 28
"	9	1650' FSL & 660' FNL of Sec. 27
"	10	1980' FSL & 660' FNL of Sec. 28
"	12	660' FSL & 2310' FWL of Sec. 28
"	14	2310' FNL & 660' FEL of Sec. 28
"	18	1980' FNL & 1980' FEL of Sec. 28
"	19	2310' FNL & 1750' FWL of Sec. 27
"	19	990' FNL & 560' FWL of Sec. 27
New Mexico 'CY' State (NCT-1)	2	660' FNL & 660' FWL of Sec. 32
"	3	1980' FNL & 1980' FWL of Sec. 32

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

(5) 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.

(2) THAT INJECTION INTO EACH OF THE AFORESAID WELLS SHALL BE THROUGH $2\frac{3}{8}$ - INCH PLASTIC - LINED TUBING AND THE ANNULUS ^{OF EACH OF SAID WELLS} SHALL BE LOADED WITH AN INERT LIQUID AND EQUIPPED WITH A PRESSURE GAUGE AT THE SURFACE. The

~~and the~~ appropriate District office of the ^{County in 1951} shall be notified upon completion of the well for injection purposes ~~in order that appropriate inspections~~ prior to the commencement of actual injection.

CURRENT PRODUCING RATES & ALLOWABLES
NORTH BENSON QUEEN GRAYBURG POOL
EDDY COUNTY, NEW MEXICO

February, 1973

LEASE	WELL NO.	ALLOWABLE	OIL	WATER	GOR
Elliott Federal	2	84	57	—	193
	3	Shut-In			
Holt Federal	1	56	33	—	TSTM
Light Federal	1	84	111	—	198
	2	84	—	—	—
E. M. Elliott	2	28	18	—	TSTM
	3	28	19	—	TSTM
Federal 'N'	1	1400	477	840	692
	2	560	191	—	733
Featherstone Federal	1	84	47	—	—
Jones Federal	1	84	35	15	5514
	2	28	12	14	9083
Simms Federal	1	140	43	16	3837
	2	56	22	28	7455
	3	28	14	23	4286
	4	56	21	16	714
Chad Federal	1	224	51	9	TSTM
L. R. Manning "B" Federal (NCT-1)	1	—	—	—	—
	2	196	126	21	1810
	3	168	105	22	1933
	4	168	105	22	1257
	5	280	252	42	996
	6	224	126	21	921
	7	168	105	22	3124
	8	28	21	21	2476
	9	140	82	21	1402
	10	168	147	21	1272
	11	140	105	22	524
	12	140	105	22	1095
	13	—	—	—	—
	14	140	84	66	1446
	15	112	63	44	3444
	16	140	126	44	1389
	17	140	147	66	986
	18	196	164	62	2207
	19	168	141	73	1397
	20	84	42	42	1190
McClay Federal	1	112	45	23	TSTM
	2	—	—	—	—
	5	168	91	23	TSTM
New Mexico "CY" State (NCT-1)	1	140	60	97	TSTM
	2	140	60	79	3200
	3	168	75	75	1120
	4	168	75	75	347
	5	532	231	34	TSTM
Simms and Reese Federal	1	140	88	29	34
	2	56	—	—	—
Sunshine Federal	1	196	49	25	TSTM
Federal "BH"	1	84	45	25	TSTM

*Feb
prod
ave : 5 bopd
3 bopd
GOR 1136*

*Texas 4
4963 & 4964*

TEXACO Inc.

Locations Of Proposed Injection Wells
Proposed North Benson Queen Unit
Eddy County, New Mexico
All In Township 18-South, Range 30-East

<u>Lessee</u>	<u>Well No.</u>	<u>Location</u>
Elliott Federal	3	660' FSL & 660' FSL of Sec. 29
Holt Federal	1	990' FSL & 2310' FSL of Sec. 29
Sims and Reese Federal	2	660' FSL & 1650' FSL of Sec. 33
E. M. Elliott	2	1980' FSL & 1980' FSL of Sec. 29
E. M. Elliott	3	2310' FSL & 1650' FSL of Sec. 29
McClay	5	1650' FSL & 330' FSL of Sec. 33
Jones Federal	1	1980' FSL & 660' FSL of Sec. 34
Sims Federal	2	1650' FSL & 1980' FSL of Sec. 34
Sims Federal	4	660' FSL & 610' FSL of Sec. 34
L. R. Manning 'B' Federal (NCT-1)	1	660' FSL & 1980' FSL of Sec. 27
	3	330' FSL & 330' FSL of Sec. 28
	5	1650' FSL & 1651' FSL of Sec. 28
	8	1650' FSL & 660' FSL of Sec. 27
	9	1980' FSL & 660' FSL of Sec. 28
	10	660' FSL & 2310' FSL of Sec. 28
	12	2310' FSL & 660' FSL of Sec. 28
	14	1980' FSL & 1980' FSL of Sec. 28
	16	2310' FSL & 1750' FSL of Sec. 27
	19	990' FSL & 560' FSL of Sec. 27
New Mexico 'CY' State (NCT-1)	2	660' FSL & 660' FSL of Sec. 32
	3	1980' FSL & 1980' FSL of Sec. 32

BEFORE EXAMINED NUTTER
CPL. COMMISSIONER OF LANDS
Texaco EXAMINER NO. 7
CASE NO. 4963 2-4964

BEFORE EXAMINER NUTTER

OF THE REGISTRATION COMMISSION

Texaco EXHIBIT NO. 6

CASE NO. 49632 4964

TEXACO INC.
DATA OF PROPOSED INJECTION WELLS
PROPOSED NORTH BENSON QUEEN UNIT
EDDY COUNTY, NEW MEXICO

SURFACE CASING

PRODUCTION CASING

PB

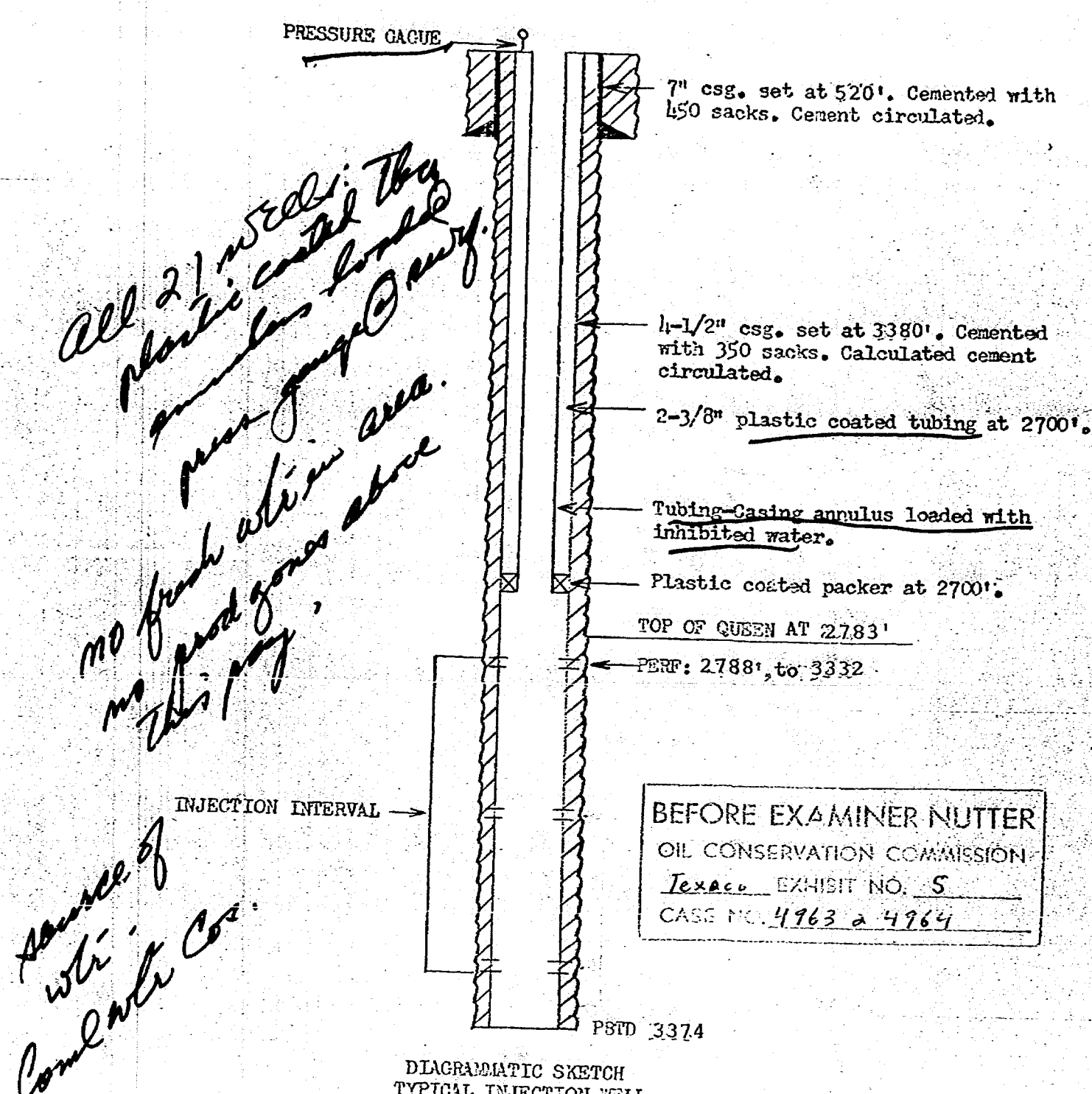
Intest

Lease & Well No.	Size	Depth	Cement	Top of Cement	Size	Depth	Cement	Calc. Top of Cement	Total Depth	From
Elliott Federal No. 3	7"	519'	245	Circ.	4 1/2"	3283'	240	307'	3253'	2889'
Molt Federal No. 1	7"	565'	140	Circ.	4 1/2"	3170'	130	1558'	3170'	2829'
Simms and Reese Federal No. 2	8 5/8"	682'	100	222'	5 1/2"	3386'	175	1566'	3386'	2845'
E. M. Elliott No. 2	8 5/8"	546'	230	Circ.	5 1/2"	3193'	150	1633'	3167'	2828'
E. M. Elliott No. 3	8 5/8"	528'	240	Circ.	5 1/2"	3132'	150	1572'	3100'	2798'
McClay No. 5	8 5/8"	557'	50	327'	5 1/2"	3219'	100	2179'	3219'	2904'
Jones Federal No. 1	8 5/8"	588'	100	128'	5 1/2"	3108'	280	196'	2898'	2827'
Simms Federal No. 2	8 5/8"	593'	250	Circ.	4 1/2"	3145'	300	Circ.	3135'	2951'
Simms Federal No. 4	8 5/8"	626'	100	166'	4 1/2"	3377'	425	Circ.	3377'	2786'
L. R. Manning "B" Federal (NCT-1)										
No. 1	7 5/8"	571'	300	Circ.	2 7/8"	3449'	680	400'	3420'	2767'
No. 3	7 5/8"	514'	450	Circ.	4 1/2"	3349'	300	Circ.	3347'	2806'
No. 5	7"	539'	650	Circ.	4 1/2"	3371'	350	Circ.	3367'	2782'
No. 8	7"	520'	450	Circ.	4 1/2"	3380'	350	Circ.	3374'	2788'
No. 9	7"	520'	500	Circ.	4 1/2"	3250'	350	Circ.	3222'	2639'
No. 10	7"	524'	450	Circ.	4 1/2"	3335'	350	Circ.	3310'	2760'
No. 12	7"	517'	500	Circ.	4 1/2"	3350'	350	Circ.	3325'	2754'
No. 14	7"	545'	350	Circ.	4 1/2"	3250'	350	Circ.	3231'	2658'
No. 18	7 5/8"	546'	700	Circ.	4 1/2"	3390'	350	Circ.	3385'	2859'
No. 19	7 5/8"	472'	500	Circ.	4 1/2"	3400'	350	Circ.	3366'	2750'
New Mexico "CY" State (NCT-1)										
No. 2	7 5/8"	469'	400	Circ.	4 1/2"	3100'	800	Circ.	3078'	2708'
No. 3	7 5/8"	466'	800	Circ.	4 1/2"	3205'	800	Circ.	3179'	2699'

E EXAMINER MUTTER
 REGISTRATION COMMISSION
 EXHIBIT NO. 6
 O. 49632 4964

TEXACO INC.
 DATA OF PROPOSED INJECTION WELLS
 PROPOSED NORTH BENSON QUEEN UNIT
 EDDY COUNTY, NEW MEXICO

	SURFACE CASING				PRODUCTION CASING				PB Injection Interval		
	Size	Depth	Cement	Top of Cement	Size	Depth	Cement	Calc. Top of Cement	Total Depth	From	To
No. 2	7"	519'	245	Circ.	4 1/2"	3283'	240	307'	3253'	2889'	3201'
	7"	565'	140	Circ.	4 1/2"	3170'	130	1558'	3170'	2829'	3141'
	8 5/8"	682'	100	222'	5 1/2"	3386'	175	1566'	3386'	2845'	2849'
										3372'	3376'
	8 5/8"	546'	230	Circ.	5 1/2"	3193'	150	1633'	3167'	2828'	3074'
	8 5/8"	528'	240	Circ.	5 1/2"	3132'	150	1572'	3100'	2798'	2977'
	8 5/8"	557'	50	327'	5 1/2"	3219'	100	2179'	3219' TD	2904'	2982'
	8 5/8"	588'	100	128'	5 1/2"	3108'	280	196'	2898'	2827'	2842'
										3032'	3051'
	8 5/8"	593'	250	Circ.	4 1/2"	3145'	300	Circ.	3135'	2951'	2961'
	8 5/8"	626'	100	166'	4 1/2"	3377'	425	Circ.	3377' TD	2786'	2802'
1	7 5/8"	571'	300	Circ.	2 7/8"	3449'	680	400'	3420'	2767'	3292'
3	7 5/8"	514'	450	Circ.	4 1/2"	3349'	300	Circ.	3347'	2806'	3345'
5	7"	539'	650	Circ.	4 1/2"	3371'	350	Circ.	3367'	2782'	3336'
8	7"	520'	450	Circ.	4 1/2"	3380'	350	Circ.	3374'	2788'	3332'
9	7"	520'	500	Circ.	4 1/2"	3250'	350	Circ.	3222'	2639'	3182'
10	7"	524'	450	Circ.	4 1/2"	3335'	350	Circ.	3310'	2760'	3295'
12	7"	517'	500	Circ.	4 1/2"	3350'	350	Circ.	3325'	2754'	3311'
14	7"	545'	350	Circ.	4 1/2"	3250'	350	Circ.	3231'	2658'	3183'
18	7 5/8"	546'	700	Circ.	4 1/2"	3390'	350	Circ.	3385'	2859'	3377'
19	7 5/8"	472'	500	Circ.	4 1/2"	3400'	350	Circ.	3366'	2750'	3278'
2	7 5/8"	469'	400	Circ.	4 1/2"	3100'	800	Circ.	3078'	2708'	3057'
3	7 5/8"	466'	800	Circ.	4 1/2"	3205'	800	Circ.	3179'	2699'	3133'



All 21 wells; they plastic coated the annulus loaded press gauge @ every. no fresh water in area. no good zones above this pay.

Source of water - Comanche Cos.

BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
Texaco EXHIBIT NO. 5
CASE NO. 4963 & 4964

DIAGRAMMATIC SKETCH
TYPICAL INJECTION WELL
TEXACO INC.
L.R. MANNING "B" (NCT-1) WELL NO. 8
NORTH BENSON (QUEEN) POOL
EDDY COUNTY, NEW MEXICO