

1 NEW MEXICO OIL CONSERVATION DIVISION

2 STATE LAND OFFICE BUILDING

3 STATE OF NEW MEXICO

4 CASE NO. 10401

5
6 IN THE MATTER OF:

7 The Application of Texaco Exploration
8 & Production, Inc., for a Secondary
9 Recovery Project, Lea County,
10 New Mexico.

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14 BEFORE:

15 DAVID R. CATANACH

16 Hearing Examiner

17 State Land Office Building

18 October 17, 1991

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23 REPORTED BY:

24 CARLA DIANE RODRIGUEZ
25 Certified Shorthand Reporter
for the State of New Mexico

ORIGINAL

A P P E A R A N C E S

FOR THE NEW MEXICO OIL CONSERVATION DIVISION:

ROBERT G. STOVALL, ESQ.

General Counsel
State Land Office Building
Santa Fe, New Mexico 87504

FOR THE APPLICANT:

CAMPBELL, CARR, BERGE & SHERIDAN, P.A.
Post Office Box 2208

Santa Fe, New Mexico 87504-2208

BY: WILLIAM F. CARR, ESQ.

FOR YATES PETROLEUM CORPORATION:

PADILLA & SNYDER

Post Office Box 2523

Santa Fe, New Mexico 87504-2523

BY: ERNEST L. PADILLA

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1 EXAMINER CATANACH: At this time we'll
2 call Case 10401.

3 MR. STOVALL: Application of Texaco
4 Exploration & Production, Inc., for a Secondary
5 Recovery Project, Lea County, New Mexico.

6 EXAMINER CATANACH: Are there
7 appearances in this case?

8 MR. CARR: May it please the Examiner,
9 my name is William F. Carr with the law firm
10 Campbell, Carr, Berge & Sheridan of Santa Fe. I
11 represent Texaco Exploration & Production, Inc.,
12 and I have one witness.

13 EXAMINER CATANACH: Any other
14 appearances?

15 MR. PADILLA: Mr. Examiner, my name is
16 Ernest L. Padilla, Padilla & Snyder of Santa Fe,
17 for Yates Petroleum Corporation.

18 I have no witnesses to present, and I
19 intend only to enter my appearance at this time.

20 EXAMINER CATANACH: Will the witness
21 please stand to be sworn.

22 MICHAEL L. PIERCE

23 Having been first duly sworn upon his oath, was
24 examined and testified as follows:

25

EXAMINATION

BY MR. CARR:

Q. Will you state your name for the record, please.

A. Michael Pierce.

Q. Where do you reside?

A. Hobbs, New Mexico.

Q. By whom are you employed and in what capacity?

A. I own Peak Consulting Services in Hobbs.

Q. In what expertise are you trained?

A. I'm a petroleum geologist.

Q. Have you previously testified before the Oil Conservation Division?

A. I have.

Q. At the time of that prior testimony, were your credentials as a petroleum geologist accepted and made a matter of record?

A. They were.

Q. Are you familiar with the application filed in this case on behalf of Texaco Exploration & Production, Inc.?

A. I am.

Q. Are you the party who prepared the

1 C-108 for Texaco in this matter?

2 A. Yes, I am.

3 MR. CARR: Are the witness's
4 qualifications acceptable?

5 EXAMINER CATANACH: They are.

6 Q. Mr. Pierce, would you briefly state
7 what Texaco seeks with this application?

8 A. Texaco seeks approval to institute a
9 pilot waterflood project in the New Mexico State
10 "AT" and "AN" leases in the Saunders-Permo-Penn
11 field in Section 15 and 22, Township 14 South,
12 Range 33 East, in Lea County.

13 Q. How many injection wells does Texaco
14 propose to use in this pilot project?

15 A. Four.

16 Q. Could you refer to what has been marked
17 for identification as Texaco Exhibit No. 1 and
18 identify that for Mr. Catanach?

19 A. That's the C-108.

20 Q. With all attachments?

21 A. Correct.

22 Q. Is this an expansion of an existing
23 project?

24 A. No, it is not.

25 Q. What is the status of the lands in this

1 project area?

2 A. The ownership?

3 Q. Yes.

4 A. The two leases are state leases, and
5 Texaco owns 100 percent in both of the leases,
6 and we have been advised by the State Land Office
7 that the beneficiary institutions are the same
8 under both leases.

9 Q. The royalty burdens are the same under
10 each tract?

11 A. Correct.

12 Q. What you're proposing is a cooperative
13 lease waterflood pilot project on these two state
14 leases?

15 A. That is correct.

16 Q. What is the present status of the four
17 wells that Texaco proposes to convert to
18 injection?

19 A. The four wells are currently shut in
20 due to poor production.

21 Q. Let's refer to the plat that's
22 contained in Exhibit No. 1. I believe it's on
23 what has been marked page 3 of the exhibit. I
24 would ask you to review the information on this
25 exhibit for the Examiner.

1 A. This shows the four wells and the area
2 of review for each of the four wells for the
3 pilot waterflood. In Section 15, the #4 and the
4 #10 wells, that's the "AT" lease. In Section 22,
5 the #7 and #9 wells.

6 Q. The project area includes two state
7 leases. Could you describe the acreage that's
8 included within these leases?

9 A. Section 22 is a 640-acre lease.

10 Q. What is the status of the south half of
11 the southwest quarter? Why is that broken out on
12 this exhibit?

13 A. That is where Texaco had an old camp at
14 one time.

15 Q. That was the purpose of delineating the
16 south half of the southwest in this fashion?

17 A. I believe it was.

18 Q. The first lease is 640 acres, including
19 all of Section 22. What is included within the
20 second lease?

21 A. The south half of the south half of
22 Section 10, and then all of Section 15 comprises
23 the New Mexico "AT" lease.

24 Q. Those two leases together are the
25 project area?

1 A. Right.

2 Q. You've indicated the areas of review
3 for each of the injection wells?

4 A. Correct.

5 Q. Let's refer to the portion of Texaco
6 Exhibit No. 1 which contains the data required by
7 Form C-108 on each well within any of these four
8 areas of review. Could you identify that for Mr.
9 Catanach?

10 A. This is page 4 on the C-108, pages 4,
11 5, 6 and 7.

12 Q. I think those are the injection wells.
13 First we're looking at just the wells that are
14 within the area of review. I think those are on
15 pages 8 through 24.

16 A. Right. These are all wells excluding
17 injection wells within the area of review. They
18 are all Permo-Penn wells. Currently there are no
19 wells within the area of review that are plugged
20 and abandoned.

21 Q. Have you indicated on each of these
22 well summary sheets the type of each well?

23 A. Yes, I have.

24 Q. And it shows the construction of each?

25 A. Right.

1 Q. The location is indicated?

2 A. Right.

3 Q. Depth?

4 A. Yes, sir.

5 Q. And the record of completion is also
6 shown on each of these?

7 A. Correct.

8 Q. There's a separate sheet for each well
9 within any of the four areas of review?

10 A. That's correct.

11 Q. Let's go back to pages 4 through 7.
12 Are those the schematic drawings on the four
13 proposed injection wells?

14 A. They are.

15 Q. Could you review these for Mr.
16 Catanach, please.

17 A. Okay. On page 4 of the C-108, that
18 will be the New Mexico "AT" State well #4. This
19 is a typical well diagram of the wells within the
20 area of review, showing the casing set, the depth
21 set, the amount of cement used, and the top of
22 cement for each well and the current
23 perforations. These four wells also have a
24 proposed diagram on them with what we intend to
25 do.

1 At this time I would like to point out
2 to the Examiner that in the #4 well, we have some
3 perfs in the Upper Permo-Penn. The top of perf
4 is 9,521. That is not in the Bough A, B or C,
5 but it is open right now. What Texaco would like
6 to do with this is run an injectivity test on
7 this upper set of perfs, to determine if this
8 interval will take water. If it will take water,
9 we would like to go ahead and inject in this
10 interval and perforate this interval and offset
11 zones. We feel this would add to the ultimate
12 recovery of the flood. If this zone will not
13 take water, we propose to go ahead and squeeze
14 this zone. So if it will not take water, the
15 only zones we would have open would be the zones
16 in the Bough A, B and C.

17 Q. What you're doing is asking for
18 authority to amend the application as filed based
19 on a test of these upper perforations in the #4
20 well?

21 A. Correct.

22 Q. These upper perforations, the
23 perforations from 9,521 to 9,974, those
24 perforations are in the Permo Upper Penn field?

25 A. Correct.

1 Q. All you're doing is proposing to
2 possibly open a larger interval in the same
3 field?

4 A. That's correct.

5 Q. On page 4 of Exhibit 1, you've
6 indicated on the right-hand side that those perms
7 would be squeezed?

8 A. Correct.

9 Q. So the full extent of this amendment is
10 that you want to test those, and if they won't
11 take water, you'll squeeze them?

12 A. That's correct.

13 Q. If we look at the proposed wellbore
14 schematic, you have not indicated tubing or
15 packer or anything on this exhibit. How do you
16 propose actually to complete these injection
17 wells?

18 A. They will be completed by running 2-3/8
19 plastic coated tubing, internal plastic coated
20 tubing, and set at a depth of approximately 100
21 feet above the top perforation. The perforations
22 will be isolated using a Model-R packer, and
23 packer fluid will be put down the back side.

24 Q. So there will be an inhibited fluid in
25 the tubing casing annular space?

1 A. That's correct.

2 Q. Will there be a pressure gauge at the
3 surface on this well?

4 A. Yes, there will be, on all four
5 injection wells.

6 Q. You will, in all other respects, comply
7 with the Federal Underground Injection Control
8 Program?

9 A. That's right.

10 Q. If we look at the next wellbore
11 schematic on page 5, this is the proposal for the
12 #10 well?

13 A. That's correct.

14 Q. Again, you haven't shown the tubing or
15 the packer in this case?

16 A. That's right.

17 Q. If we go to the last two, you have
18 indicated tubing and packer in both of those?

19 A. Correct.

20 Q. Is there any oil production in the area
21 other than the subject field?

22 A. No. The Permo-Penn is the only
23 productive interval in the immediate area.

24 Q. What is the source of the water that
25 Texaco proposes to inject?

1 A. That will be from the Ogallala, fresh
2 water.

3 Q. What is the maximum daily injection
4 rate that Texaco is proposing?

5 A. When the application was filed, the
6 maximum rate was 2,000 barrels a day. We would
7 like to amend that to to a maximum rate of 3,200
8 barrels a day with an average rate of 2,000
9 barrels a day.

10 Q. Will this system be an open or a closed
11 system?

12 A. It will be closed.

13 Q. Do you propose to inject under pressure
14 or by gravity?

15 A. By gravity.

16 Q. Is it possible that during the life of
17 this waterflood some pressure might be required?

18 A. Yes. At some point in time we do
19 anticipate pressure.

20 Q. Will a pressure limitation of 2/10
21 pound per foot of depth to the top of the
22 injection interval be satisfactory for Texaco's
23 purposes?

24 A. Yes, it would.

25 Q. You're going to be injecting fresh

1 water. Is it possible for there to be any
2 compatible problems with what you're proposing?

3 A. No, there doesn't seem to be.

4 Q. Are there fresh water zones in the
5 area?

6 A. Yes, sir, there are.

7 Q. Could you identify those for us,
8 please?

9 A. It's the Ogallala, at a bottom depth of
10 250 feet.

11 Q. Are there fresh water wells in the
12 area?

13 A. Yes, there are. There are three.

14 Q. Are they identified in Exhibit No. 1?

15 A. Yes, they are, on page 28 of the
16 application.

17 Q. These are producing from the Ogallala,
18 I assume?

19 A. As far as I know, yes.

20 Q. Have you had water analyses run on
21 these wells?

22 A. Yes. I collected fresh water samples
23 from the three wells that are exhibited on page
24 28 and had a chloride analysis run on them.

25 Q. Are the results of that included in

1 this exhibit?

2 A. Yes, they are. They're on page 29 of
3 the exhibit.

4 Q. Now, Texaco is proposing to drill water
5 supply wells, fresh water wells, for purposes of
6 this waterflood?

7 A. They are.

8 Q. Have you sought the approval of the
9 State Engineer's Office for this program?

10 A. Yeah. The application to drill these
11 wells is currently before the State Engineer's
12 Office.

13 Q. Have you received any indication from
14 them as to whether or not they--what kind of
15 action they may be taking on that?

16 A. They've informed me that there are
17 water rights available for us to use, and it's
18 just a matter of getting the application
19 approved.

20 Q. Does the State Engineer's Office
21 understand you're proposing to use this water for
22 a waterflood project?

23 A. Yes, they do.

24 Q. Would you refer to what's marked as
25 Texaco Exhibit No. 2 and review that for the

1 Examiner?

2 A. That would be the cross-section?

3 Q. Yes.

4 A. This is a cross-section prepared
5 through the north part of the lease, and the
6 purpose of this cross-section is to show that the
7 Bough A, B and C are continuous in this area, the
8 area of the pilot flood.

9 Q. Can you identify the injection
10 interval?

11 A. Yeah. They're marked on the map, Bough
12 A, B and C. The second well in the
13 cross-section, the Bough A comes in about 9,760,
14 and the base of the Bough C comes in right at
15 10,010 feet. These are primarily carbonate
16 reservoirs.

17 Q. Mr. Pierce, is the last page of Exhibit
18 No. 1, page 30, copies of return receipts showing
19 that this application has been mailed to all
20 affected operators as required by Oil
21 Conservation Division rules?

22 A. Yes, it is.

23 Q. Are you aware of similar applications
24 for waterflood projects or pilot projects that
25 have been approved in the same general area?

1 A. Yes, sir. Yates Petroleum has recently
2 had a similar project approved in Section 21 of
3 14-33, I believe.

4 Q. That immediately offsets this acreage
5 to the west?

6 A. Yes, just about half a mile.

7 Q. That is their Woodpecker project?

8 A. Yes, sir.

9 MR. CARR: That was Case 10381, Mr.
10 Examiner.

11 Q. Mr. Pierce, have you examined the
12 available geologic and engineering data on the
13 subject area?

14 A. Yes, I have.

15 Q. As a result of that examination, have
16 you found any evidence of open faults or any
17 other hydrologic connections between the
18 injection zone and any underground source of
19 drinking water?

20 A. No, I have not.

21 Q. In your opinion, will granting this
22 application prevent waste, protect correlative
23 rights and otherwise be in the best interest of
24 conservation?

25 A. Yes, I do.

1 Q. Is Texaco Exhibit No. 3 a copy of an
2 Affidavit with return receipts and letters
3 indicating that notice of today's hearing has
4 been provided as required by OCD rule?

5 A. Yes, it is.

6 Q. Were Exhibits 1 and 2 prepared by you?

7 A. Yes, sir, they were.

8 MR. CARR: At this time, Mr. Catanach,
9 we move the admission of Texaco Exhibits 1
10 through 3.

11 EXAMINER CATANACH: Exhibits 1 through
12 3 will be admitted as evidence.

13 MR. CARR: That concludes my direct
14 examination of Mr. Pierce.

15 EXAMINER CATANACH: Did you have any
16 questions, Mr. Padilla?

17 MR. PADILLA: I have no questions, Mr.
18 Examiner.

19 EXAMINATION

20 BY EXAMINER CATANACH:

21 Q. Mr. Pierce, how many producing wells
22 are on these two state leases that Texaco
23 operates?

24 A. They are all currently producing or
25 shut in right now. There are 23 wells.

1 Q. They're all currently shut in, did you
2 say?

3 A. They're either producing or shut in
4 right now. There are not any that have been
5 officially T and A'd, to my knowledge. Excuse
6 me. One well has been TA'd.

7 Q. Do you know what the average production
8 rate for these wells is?

9 A. The wells that are currently producing
10 average 10 to 15 barrels a day.

11 Q. Is this project generally a pilot type
12 project where additional injection wells may be
13 put on at a later time?

14 A. That's kind of what we're looking at.
15 We're just trying to determine the feasibility
16 and practicality of this and see what kind of
17 results we get from this effort.

18 Q. The Permo Upper Penn takes in--is it
19 the Wolfcamp?

20 A. Yes, sir.

21 Q. And the Pennsylvanian?

22 A. Yes, sir.

23 Q. The entire Penn?

24 A. Yes, sir.

25 Q. Is the Wolfcamp productive in this

1 area?

2 A. It all depends on what you want to call
3 the top or the base of the Wolfcamp and the top
4 of the Penn. I think that's the whole reason the
5 pool designation was changed to Permo-Penn.

6 The upper perms we spoke about in Well
7 #4 could well very be Lower Wolfcamp perms. I
8 don't know if that falls within the Lower
9 Wolfcamp or Upper Penn. I believe that's why the
10 designation was changed to Permo-Penn.

11 Q. The perforations in the #4 well, was
12 the well productive out of those perforations?

13 A. Well, when this well was perforated, it
14 was perforated along with the Bough C or the
15 Bough intervals. I don't have a production test
16 on just that interval itself. I don't know how
17 much production this zone contributed to the
18 overall production, if any, but it was perforated
19 and treated.

20 Q. So those perms could be in the Lower
21 Wolfcamp or they could be in the Upper Bough A?
22 Is that what you're saying?

23 A. The Upper Bough.

24 Q. The Upper Penn. And it's my
25 understanding that if they take water--how will

1 that be determined, if the appropriations--

2 A. To run an injectivity test, to set a
3 packer and isolate these upper perms, and see if
4 they will take water.

5 Q. Now, you say the "upper perms." What
6 would that constitute? 9,521 to what?

7 A. To approximately 9,601.

8 Q. If they do take water, you propose to
9 open up that zone in each of the producing wells
10 and injection wells?

11 A. Correct. We have one producing well
12 right now, the #6 well, that has perms up above
13 the Bough A that, you know, depending on the
14 outcome of the test on #4 they would, you know,
15 if this interval will not take water, these upper
16 perms in this #6 well would also be squeezed.

17 Q. Mr. Pierce, do you see that as a
18 separate zone from the rest of the perforated
19 interval, I mean, separated by some geologic
20 barrier?

21 A. Yeah, much the same as the Bough A is
22 separated from the B, separated from the C.
23 They're each separate reservoirs but geologically
24 they're very similar. I think each one is an
25 individual reservoir.

1 Q. If that's the case, those perforations,
2 9,521 to approximately 9,601, would that
3 basically be a virgin reservoir that hasn't been
4 produced?

5 A. Well, we have got perms in two wells.

6 Q. In the #4 and the #6?

7 A. The #6, that's correct. I have a
8 little information now on the #4 well.
9 Immediately after this zone was perforated it did
10 do a production test of about 19 barrels a day
11 and 200 barrels of water per day.

12 Q. Do you have an opinion as to whether
13 waterflooding this zone would have any adverse
14 effect, since it hasn't really been exposed to
15 any primary production?

16 A. Well, I don't know if there would be
17 any adverse effects or not. I guess throughout
18 these two leases this interval has not been
19 properly tested, though. If it had been very
20 productive, it would seem to me that Texaco would
21 have perforated this in several more of the
22 offsets.

23 Q. Does Texaco have any estimate of what
24 may be recovered by waterflooding these two
25 leases?

1 A. Yes, sir. We have ultimate primary on
2 this at 240 or 250--2.5 million barrels, and then
3 ultimate secondary is almost 600,000 barrels.
4 That's for the two leases together.

5 Q. Mr. Pierce, are the area of review
6 wells completed or cased in such a manner, you
7 think, to prevent migration of injected fluid?

8 A. Yes, they are.

9 EXAMINER CATANACH: I believe that's
10 all I have of the witness.

11 FURTHER EXAMINATION

12 BY MR. CARR:

13 Q. Mr. Pierce, does Texaco request that a
14 procedure be established within the project area
15 whereby additional wells can be converted to
16 injection without the necessity of further
17 hearing?

18 A. Yes, we would.

19 MR. CARR: That's all I have.

20 EXAMINER CATANACH: There being nothing
21 further in this case, Case 10401 will be taken
22 under advisement.

23 (And the proceedings concluded.)

24

25

I do hereby certify that the foregoing is
a complete record of the proceedings in
the Examiner hearing of Case No. 10401,
heard by me on October 17 1991.

David R. Catanach Examiner
Oil Conservation Division

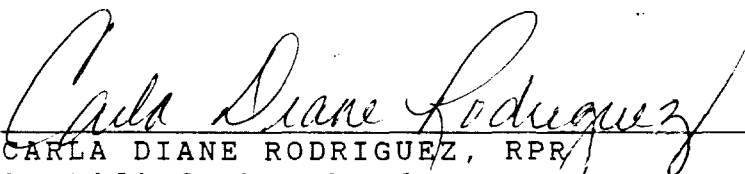
1 CERTIFICATE OF REPORTER

2
3 STATE OF NEW MEXICO)
4 COUNTY OF SANTA FE) ss.
5

6 I, Carla Diane Rodriguez, Certified
7 Shorthand Reporter and Notary Public, HEREBY
8 CERTIFY that the foregoing transcript of
9 proceedings before the Oil Conservation Division
10 was reported by me; that I caused my notes to be
11 transcribed under my personal supervision; and
12 that the foregoing is a true and accurate record
13 of the proceedings.

14 I FURTHER CERTIFY that I am not a
15 relative or employee of any of the parties or
16 attorneys involved in this matter and that I have
17 no personal interest in the final disposition of
18 this matter.

19 WITNESS MY HAND AND SEAL October 19,
20 1991.
21

22
23 
24 CARLA DIANE RODRIGUEZ, RPR
25 Certified Shorthand Reporter No. 91

NEW MEXICO OIL CONSERVATION DIVISION
STATE LAND OFFICE BUILDING
STATE OF NEW MEXICO
CASE NO. 10401

IN THE MATTER OF:

The Application of Texaco
Exploration & Production,
Inc., for a secondary recovery
project, Lea County, New Mexico.

BEFORE:

MICHAEL E. STOGNER

Hearing Examiner

State Land Office Building

November 21, 1991

REPORTED BY:

DEBBIE VESTAL
Certified Shorthand Reporter
for the State of New Mexico

ORIGINAL

1 EXAMINER STOGNER: Let's go back to
2 the first page and call Case No. 10400 -- I'm
3 sorry -- 10401.

4 Mr. Carr, are you leaving?

5 MR. CARR: No, I'm not. I'm getting a
6 docket because I want to make sure you get these
7 numbers right.

8 EXAMINER STOGNER: Okay. 10401, which
9 is the application of Texaco Exploration &
10 Production, Inc., for a secondary recovery
11 project in Lea County, New Mexico.

12 This case was originally heard by
13 Examiner David Catanach on October 17, 1991. The
14 applicant in this matter presented testimony at
15 that time; however, did not include a portion of
16 land which was covered and that had to be
17 readvertised and reopened to this time to take in
18 the considerations for this additional area.

19 At this time I'm going to call for any
20 additional testimony and/or exhibits.

21 There being none, then Case No. 10401
22 for the secondary recovery project in Lea County,
23 New Mexico, on Texaco's New Mexico State "AT" and
24 "AN" leases in Sections 10, 15, and 22 in
25 Township 14 South, Range 33 East will be taken

1 under advisement.

2 (And the proceedings were concluded.)
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I do hereby certify that the foregoing is
a correct and true copy of the proceedings in
the examination hearing of Case No. 10401,
heard by me on 21 November 1946.

Walter C. Higgins Examiner
Oil Conservation Division


CERTIFICATE OF REPORTER

STATE OF NEW MEXICO)
) ss.
COUNTY OF SANTA FE)

I, Debbie Vestal, Certified Shorthand Reporter and Notary Public, HEREBY CERTIFY that the foregoing transcript of proceedings before the Oil Conservation Division was reported by me; that I caused my notes to be transcribed under my personal supervision; and that the foregoing is a true and accurate record of the proceedings.

I FURTHER CERTIFY that I am not a relative or employee of any of the parties or attorneys involved in this matter and that I have no personal interest in the final disposition of this matter.

WITNESS MY HAND AND SEAL NOVEMBER 27,
1991.



DEBBIE VESTAL, RPR
NEW MEXICO CSR NO. 3