

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

CASE 9952

EXAMINER HEARING

IN THE MATTER OF:

Application of Oxy USA, Inc., for an Unorthodox
Gas Well Location and a Non-Standard Gas Proration
Unit, Eddy County, New Mexico

TRANSCRIPT OF PROCEEDINGS

BEFORE: DAVID R. CATANACH, EXAMINER

STATE LAND OFFICE BUILDING

SANTA FE, NEW MEXICO

May 30, 1990

ORIGINAL

A P P E A R A N C E S

FOR THE DIVISION:

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* * *

1 WHEREUPON, the following proceedings were had
2 at 10:12 a.m.:

3 EXAMINER CATANACH: Okay, at this time we'll
4 call Case 9952.

5 MR. STOVALL: Application of Oxy USA, Inc.,
6 for an unorthodox gas well location and a nonstandard
7 gas proration unit, Eddy County, New Mexico.

8 EXAMINER CATANACH: Are there appearances in
9 this case?

10 MR. KELLAHIN: Mr. Examiner, I'm Tom Kellahin
11 of the Santa Fe Law Firm of Kellahin, Kellahin and
12 Aubrey, appearing on behalf of the Applicant, and I
13 have one witness to be sworn.

14 EXAMINER CATANACH: Any other appearances?
15 Will the witnesses please stand to be sworn
16 in?

17 (Thereupon, the witness was sworn.)

18 GREGORY D. HINTERLONG,
19 the witness herein, after having been first duly sworn
20 upon his oath, was examined and testified as follows:

21 EXAMINATION

22 BY MR. KELLAHIN:

23 Q. Mr. Hinterlong, for the record would you
24 please state your name and occupation?

25 A. Gregory D. Hinterlong, I'm a geologist.

1 Q. Mr. Hinterlong, on prior occasions have you
2 testified before the Division as a petroleum geologist?

3 A. No, sir, I haven't.

4 Q. Would you summarize for us what has been your
5 educational experience as a geologist?

6 A. I received a bachelor's of science degree in
7 geology in 1978 from the University of Cincinnati and a
8 master's degree in geology from the University of Miami
9 in Oxford, Ohio, in 1981.

10 Q. Subsequent to graduation, summarize for us
11 your experience as a geologist.

12 A. I was hired on by City Service in September
13 of 1981 and have worked continuously for them to this
14 point.

15 Subsequently, they were bought by Occidental
16 Petroleum, and the name's changed now to Oxy USA.

17 Q. As a petroleum geologist for your company,
18 have you made a study of the geologic facts surrounding
19 your company's Application for an unorthodox gas well
20 location in Eddy County, New Mexico?

21 A. Yes, sir, I have.

22 Q. The geologic displays and interpretations
23 that you're about to present to the Examiner are your
24 own?

25 A. Yes, sir, they are.

1 MR. KELLAHIN: We tender Mr. Hinterlong as an
2 expert in petroleum geology.

3 EXAMINER CATANACH: He is so qualified.

4 Q. (By Mr. Kellahin) Let me direct your
5 attention to what is marked as Exhibit Number 1, and
6 let's orient the Examiner as to what has occurred with
7 regard to the surface choices for a location, and then
8 we'll get into the geologic discussion.

9 Start with Exhibit Number 1 and identify it
10 for us.

11 A. Yes, sir. Exhibit Number 1 is an enlargement
12 of a USGS topographic map centering on Section 34 of
13 Township 23 South, Range 23 East, Eddy County, New
14 Mexico.

15 Q. Based upon your geologic study, what is the
16 prospect that you're seeking to explore with the
17 unorthodox well location?

18 A. We're attempting to develop the Mid-Morrow/
19 East Hess Pool.

20 Q. In terms of the orientation of the spacing
21 unit, what portion of Section 34 will be dedicated to
22 the well?

23 A. It will be the east half.

24 Q. When we look at the east half, then, in 34,
25 your display shows something in a green line that says

1 the Morrow sand channel axis. What does that
2 represent?

3 A. Yes, sir, that's -- That's my interpretation
4 of the distribution of these mid-Morrow sands through
5 the area.

6 Q. Geologically, then, in trying to locate a
7 well for the development of the gas reserves underlying
8 the east half of Section 34, where would you place the
9 well?

10 A. Well, our first choice was at what's marked
11 in red with the number 1, is a standard location in as
12 close a proximity as possible to the Morrow sand
13 channel.

14 Q. What happens when you move farther away from
15 the axis of this Morrow sand channel, as you've
16 interpreted it on the display?

17 A. The further away you get from the axis of the
18 channel, the increase in risk for encountering any
19 sands at all dramatically increases.

20 Q. So you're looking for a location that's in
21 close proximity to the axis of the channel as you've
22 mapped it?

23 A. That's correct.

24 Q. And the first choice was at a standard
25 location?

1 A. Yes, sir.

2 Q. And the different locations are numbered and
3 identified on the bottom portion of the display?

4 A. That's correct.

5 Q. Okay. Were you able to obtain the necessary
6 surface approvals for the use of that surface location
7 where the number 1 is located?

8 A. No, sir, we're not. The problem is
9 topography.

10 These contour lines represented on the
11 topographic map are at 20-foot intervals. So there's a
12 great deal of surface relief at location number 1.

13 Q. Describe for us the other three locations
14 that are shown on the display.

15 A. Subsequent to review of the first location,
16 we then tried to find the next acceptable location in
17 terms of both surface topography and the proximity to
18 the green line of the mid- -- the Morrow sand channel
19 axis.

20 The second location, indicated by the red 2,
21 met these requirements for us. But after the BLM and
22 surface owners examined the location, they were not
23 satisfied with it and, over a phone conversation with
24 our office, suggested moving to location number 3.

25 We sent out a surveyor and subsequently found

1 that that would have set the well location on top of
2 the Yates Pipeline.

3 Following that, we have conversed with the
4 BLM and decided on location number 4.

5 The -- That location has been approved, and I
6 should note that the yellow square around location
7 number 4 is the area required for the drilling pad.

8 Q. Let's turn now to an examination of your
9 geologic interpretations, and in doing so let me direct
10 your attention to Exhibit Number 2. Would you identify
11 that for us?

12 A. Yes, sir. Exhibit Number 2 is a structure
13 map on the base of the mid-Morrow shale. We've
14 expanded the area of the topographic map seen in the
15 previous exhibit.

16 Q. Describe for us the interpretation.

17 A. What I've interpreted from this map is that
18 we're not dealing with a structurally controlled
19 reservoir, but a stratigraphic reservoir.

20 The axis of the channel is running roughly
21 perpendicular to the structure lines with increasing
22 structure down -- Excuse me, increasing structure to
23 the northwest.

24 What would explain this better, I believe,
25 would be if we can move to the next exhibit.

1 Q. Let's do that. Would you identify and
2 describe Exhibit Number 3?

3 A. Exhibit Number 3 is a stratigraphic cross-
4 section hung on the top of what we call the Morrow B
5 limestone, sitting just above the beginning of the
6 productive sands in the East Hess Field.

7 Q. The two wells you've chosen on each side of
8 the proposed location are shown on Exhibit Number 2?

9 A. Yes, sir, they are. They're indicated by the
10 large letters A and A prime.

11 Q. When we look at the log of the well in the A
12 position, do you find the channel sand to be present in
13 that well?

14 A. No, sir, we do not.

15 Q. And when we look, then, in the A-prime
16 location, do you find the log indicating that channel
17 sand to be present in that well?

18 A. Yes, sir, I do.

19 Q. Was it tested and found to be productive in
20 the channel sand in that well?

21 A. Excuse me, the Lonesome Dove --

22 Q. Yes, sir.

23 A. -- in A prime.

24 Q. Yeah.

25 A. Yes, it has been shown that it can produce

1 some gas.

2 However, the Yates Energy Corporation elected
3 to complete lower in the Morrow section.

4 Q. What other key wells are involved in your
5 interpretation of the axis of this channel?

6 A. The determination of the axis of the channel
7 has come primarily from examination of logs and cores
8 from the Oxy USA State "EC." That's a dry hole in
9 Section 36. It can be seen on Exhibit 2.

10 From that I've determined the depositional
11 environment of the mid-Morrow sand as a sand channel.
12 And the directional information from the well indicates
13 that the sand channel will run northwest-southeast.

14 Q. Let's turn now to Exhibit Number 4. Would
15 you identify and describe that display?

16 A. Exhibit Number 4 is a combination isopach map
17 of the Morrow Sand that produces in the Oxy USA Federal
18 "AC" and my interpretation of the distribution of the
19 distribution of these sands, superimposed on the
20 structure map of the mid-morrow shale.

21 Q. When we go north and west of your proposed
22 location and look for a possible extension of the
23 channel in that direction, do you find any wells
24 capable of production out of that channel sand as we
25 move to the north and west?

1 A. There has been one well that's drilled
2 through the sand in Section 28 and encountered it.

3 However, when drill-stem tested it only
4 recovered a slight amount of gas and a considerable
5 amount of water.

6 Q. Based upon your geologic study then, Mr.
7 Hinterlong, what do you conclude is the justification
8 for the unorthodox location over the standard locations
9 that might be available in the east half of the
10 section?

11 A. The primary reason is that we need to be in
12 the northern half of the eastern half to reduce the
13 amount of geologic risk.

14 These channels are very narrow and we need to
15 get as much of the main sand package, which should be
16 located along the axis, to reduce the amount of risk of
17 not having any reservoir quality.

18 The dry hole in the Oxy USA State "EC" had a
19 total of nine feet of sand in it. However, it was too
20 tight to produce.

21 Q. When we look at the offset operators or
22 owners towards whom this well is moving, who are those
23 parties or companies?

24 A. The primary operators are Yates Energy
25 Corporation and Yates Petroleum.

1 Q. Have you provided those companies with
2 notification of your proposed unorthodox well location?

3 A. Yes, sir, we have.

4 Q. When we turn to Exhibit Number 5, has the BLM
5 approved your use of the surface at the proposed
6 unorthodox well location?

7 A. Yes, sir, that's correct.

8 Q. And what is contained in Exhibit Number 5?

9 A. Exhibit Number 5 is the original letter
10 conferring with us that they suggest the location of
11 what we've listed as number 4 on the first exhibit.

12 Q. Will you turn to Exhibit Number 5? Would you
13 identify and describe that?

14 A. Yes, sir. Exhibit Number 6 is the approved
15 location for the location we're having the hearing for
16 today.

17 Q. And Exhibit Number 7?

18 A. It's the Oil Conservation Division Form
19 C-102, showing the exact location of the well and the
20 area of the pad.

21 Q. Let's turn to Exhibit Number 8. Would you
22 identify and describe that?

23 A. Yes, sir. This is a waiver that we have
24 received from the Yates Petroleum corporation, stating
25 that they waive any --

1 Q. Objection?

2 A. -- objection to our drilling at that
3 location.

4 Q. Your displays refer to Yates Energy
5 Corporation. Why was notice provided to Yates
6 Petroleum Corporation?

7 A. They also had a substantial interest in the
8 leases involved.

9 Q. Their leasehold interest would have been in
10 the west half of Section 27?

11 A. Yes, sir, I believe that's correct.

12 Q. And then you've identified the east half of
13 27 as being Yates Energy Corporation?

14 A. Yes, sir.

15 Q. And then the south half of 26 is dedicated to
16 a Yates Energy Corporation operating well?

17 A. That's correct.

18 Q. So those would be the only two companies
19 towards whom you're encroaching?

20 A. That's correct, sir.

21 Q. Okay. Why have they not opposed your
22 Application, as best you understand it, Mr. Hinterlong?

23 A. Well, they would like very much to see a well
24 drilled at this location because of the stratigraphic
25 nature of these sands, that -- and the -- that they're

1 very elongate and narrow, that any additional well
2 control would very likely show that they have
3 additional locations to the northwest from our proposed
4 location.

5 Q. It's your understanding, then, that not only
6 do they not oppose you, they actively encourage the
7 drilling of this well at this particular location?

8 A. That's my understanding, yes.

9 MR. KELLAHIN: That concludes my examination
10 of Mr. Hinterlong. We move the introduction of
11 Exhibits 1 through 9.

12 EXAMINER CATANACH: Exhibits 1 through 9 will
13 be admitted as evidence.

14 EXAMINATION

15 BY EXAMINER CATANACH:

16 Q. Mr. Hinterlong, the axis of the channel, that
17 would be the center of the channel sand?

18 A. Yes, sir. Essentially what I'm marking out
19 with the axis is the area I expect to find the thickest
20 accumulations of sand within the channel.

21 Q. Now, the Yates Energy Well in Section 26 is
22 located a considerable distance from that axis and
23 still encountered some of the sand.

24 It's your position that you need to be that
25 much closer to the axis than that well was to get a

1 productive well?

2 A. They -- I'm looking for essentially sand that
3 they chose not to complete in. They had a grand total
4 of about eight feet of sand, and of that they had eight
5 porous feet.

6 To contrast with that, in Section 2 we had a
7 well sitting virtually on top of the axis, the State --
8 Oxy USA State "EB," which had 40 feet of sand. But its
9 productive rate doesn't match the well in Section 35
10 that had even less sand.

11 The point of it is that there's not an exact
12 correlation between the thickness of sand and its
13 productive capability.

14 It more depends on how much of the porosity
15 and permeability has remained in that sand. The
16 thicker the sand portion, the greater the likelihood of
17 making an economic well.

18 (Off the record)

19 EXAMINATION

20 BY MR. STOVALL:

21 Q. Let me ask you a question about location
22 number 2 on Exhibit 1

23 A. Yes, sir.

24 Q. I assume that's the location -- Or, I
25 shouldn't assume. Is that the location that the BLM

1 refers to as requiring too much cut-and-fill?

2 A. Yes, sir. It seems that there's an ephemeral
3 stream valley right there, and to install our pits we
4 would have had to cut a portion of the hill out and
5 taken that and filled back into the ephemeral stream.

6 FURTHER EXAMINATION

7 BY EXAMINER CATANACH:

8 Q. Anything south of location number 3 would put
9 you too far away from the channel; is that correct? Or
10 are there other considerations?

11 A. That's my understanding, yes, sir.

12 Q. It is? Well, how close do you feel you have
13 to be to the channel?

14 A. To the axis of the channel? I was slightly
15 uncomfortable with position number 1, which was roughly
16 500 feet from my interpreted axis. But it was a legal
17 location, until such time we came into the problems
18 with the topography.

19 I feel the -- It's my opinion that these
20 channels are probably not much more than 2000 feet wide
21 in terms of productive limit.

22 Q. At the proposed location, how much -- how
23 much sand do you think you'll encounter in the well?

24 A. If I've got everything down right, I should
25 get 20-plus feet of the sand.

FURTHER EXAMINATION

BY MR. STOVALL:

Q. Looking at Exhibit Number 1 again --

A. Yes, sir.

Q. -- Exhibit Number -- I mean location number 1 is orthodox?

A. That's correct.

Q. Is that the furthest north and east you can go and stay orthodox? Is that the --

A. That's correct.

Q. -- northeast corner of the orthodox? So any further north and you're --

A. -- unorthodox.

Q. -- you're too close to...

So in other words, to stay orthodox, you just have to go straight east, east and south, and just keep moving away from the channel that you're talking about?

A. Yes, sir.

FURTHER EXAMINATION

BY EXAMINER CATANACH:

Q. What was the -- Was the Yates Well in Section 26, was that even tested in that channel sand?

A. Yes, sir, it was, but the channel sand had a very -- Let's see, if I remember right on Section 26, their test failed.

1 They got the drill-stem test back to the
2 surface, and they recovered gas out of it, but they
3 recovered too much volume for the drill pipe, and they
4 determined that they had a hole afterwards and did not
5 retest.

6 Q. And that had eight feet of sand, did you say?

7 A. Yes, sir.

8 Q. Are there other wells in this area completed
9 in the channel sand?

10 A. Yes, sir, the Oxy USA Federal "AC" and the
11 Oxy USA State "EB."

12 Q. Those are in sections --

13 A. -- 36 and 2.

14 Q. -- 36 and 2. The one in 36 encountered nine
15 feet; is that right?

16 A. That's correct. But there was a reservoir-
17 quality sand.

18 Q. And the one in Section 2 encountered 34 feet?

19 A. Yes, sir.

20 Q. And that's a pretty good well?

21 A. It's actually not as good a well as the well
22 in Section 35. We have about half of 34 feet of net
23 sand, has very low porosity.

24 Q. The well in Section 2 shows 34 feet of sand,
25 yet it's -- I'm sorry, never mind.

1 (Off the record)

2 EXAMINER CATANACH: I have no further
3 questions of the witness.

4 THE WITNESS: Thank you very much.

5 EXAMINER CATANACH: I thought you had another
6 witness?

7 MR. KELLAHIN: We had elected not to use him.
8 We need to mark and submit for introduction
9 the next exhibit, which I guess is Number 9, is it?
10 Let me take a moment and make sure.

11 MR. STOVALL: Number 10, Tom.

12 MR. KELLAHIN: Yes, number 10. That's our
13 certificate of mailing notices to both of the Yates
14 companies. We then move the introduction of that at
15 this time.

16 EXAMINER CATANACH: Okay, Exhibit Number 10
17 will be admitted as evidence.

18 MR. KELLAHIN: That concludes our
19 presentation.

20 EXAMINER CATANACH: There being nothing
21 further in this case, Case 9952 will be taken under
22 advisement.

23 (Thereupon, these proceedings were concluded
24 at 10:35 a.m.)
25

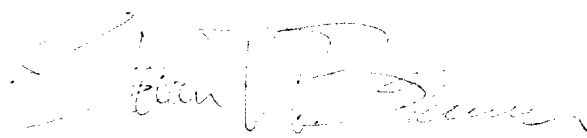
CERTIFICATE OF REPORTER

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

I, Steven T. Brenner, 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 transcribed my notes; and that the foregoing is a true and accurate record of the proceedings.

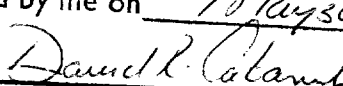
I FURTHER CERTIFY that I am not a relative or employee of any of the parties or attorneys involved in this matter and that I have no personal interest in the final disposition of this matter.

WITNESS MY HAND AND SEAL June 10, 1990.


STEVEN T. BRENNER
CSR No. 106

My commission expires: October 14, 1990

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 9850, heard by me on May 30 1989.


Daniel R. Calamb, Examiner
Oil Conservation Division