

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING)
 CALLED BY THE OIL CONSERVATION)
 DIVISION FOR THE PURPOSE OF)
 CONSIDERING:)
 APPLICATION OF ENRON OIL & GAS)
 COMPANY)

CASE NO. 11,027

ORIGINALREPORTER'S TRANSCRIPT OF PROCEEDINGSEXAMINER HEARING

BEFORE: JIM MORROW, Hearing Examiner

July 21, 1994

17 1994

Santa Fe, New Mexico

This matter came on for hearing before the Oil
 Conservation Division on Thursday, July 21, 1994, at Morgan
 Hall, State Land Office Building, 310 Old Santa Fe Trail,
 Santa Fe, New Mexico, before Steven T. Brenner, Certified
 Court Reporter No. 7 for the State of New Mexico.

* * *

I N D E X

July 21, 1994
 Examiner Hearing
 CASE NO. 11,027

PAGE
 3

APPEARANCES

APPLICANT'S WITNESSES:

RANDALL CATE

Direct Examination by Ms. Trujillo 5

Examination by Examiner Morrow 15

REPORTER'S CERTIFICATE 18

* * *

E X H I B I T S

	Identified	Admitted
Exhibit 1	7	15
Exhibit 2	8	15
Exhibit 3	9	15
Exhibit 4	9	15
Exhibit 5	11	15
Exhibit 6	11	15
Exhibit 7	14	15

* * *

A P P E A R A N C E S

FOR THE DIVISION:

RAND L. CARROLL
Attorney at Law
Legal Counsel to the Division
State Land Office Building
Santa Fe, New Mexico 87504

FOR THE APPLICANT:

CAMPBELL, CARR, BERGE & SHERIDAN, P.A.
Suite 1 - 110 N. Guadalupe
P.O. Box 2208
Santa Fe, New Mexico 87504-2208
By: TANYA M. TRUJILLO

* * *

1 WHEREUPON, the following proceedings were had at
2 9:50 a.m.:

3
4 EXAMINER MORROW: All right, at this time we'll
5 call Case 11,027.

6 MR. CARROLL: Application of Enron Oil and Gas
7 Company for unorthodox oil well location, Lea County, New
8 Mexico.

9 EXAMINER MORROW: We'll call for appearances at
10 this time.

11 MS. TRUJILLO: Mr. Examiner, my name is Tanya
12 Trujillo, from the Santa Fe law firm Campbell, Carr, Berge
13 and Sheridan, here today on behalf of the Applicant, Enron
14 Oil and Gas Company.

15 EXAMINER MORROW: Are there other appearances?

16 MS. TRUJILLO: Mr. Examiner, I have one witness
17 to be sworn.

18 EXAMINER MORROW: All right.

19 (Thereupon, the witness was sworn.)

20 (Off the record)

21 MS. TRUJILLO: Mr. Examiner, I would like to call
22 my first witness --

23 EXAMINER MORROW: Okay.

24 MS. TRUJILLO: -- my only witness.

25 EXAMINER MORROW: All right.

1 RANDALL CATE,
2 the witness herein, after having been first duly sworn upon
3 his oath, was examined and testified as follows:

4 DIRECT EXAMINATION

5 BY MS. TRUJILLO:

6 Q. Could you state your name and place of residence,
7 please?

8 A. Yes, my name is Randall Cate, C-a-t-e, and I live
9 in Midland, Texas.

10 Q. By whom are you employed?

11 A. My employer is Enron Oil and Gas.

12 Q. And what is your position there?

13 A. I'm a project reservoir engineer.

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

16 A. Yes, I have.

17 Q. And at that time were your credentials
18 acceptable?

19 A. Yes.

20 Q. And your testimony was made a matter of the
21 record?

22 A. That's correct.

23 Q. Your credentials were made a matter of the
24 record?

25 A. Yes.

1 Q. Are you familiar with the Application filed on
2 behalf of Enron?

3 A. Yes, I am.

4 Q. And are you familiar with the proposed well?

5 A. Yes.

6 MS. TRUJILLO: Mr. Examiner, are the witness's
7 qualifications acceptable?

8 EXAMINER MORROW: Yes.

9 Q. (By Ms. Trujillo) Mr. Cate, could you briefly
10 state what Enron seeks with this Application?

11 A. Yes, Enron seeks approval of an unorthodox oil
12 well location for our Half "7" Federal Well Number 1,
13 located at 990 feet from the south line and 990 feet from
14 the west lines of Section 7, Township 25 South, Range 34
15 East of Lea County, New Mexico.

16 Q. And to what formation is this well drilled?

17 A. The well is drilled to the Bone Spring formation
18 in the Undesignated Red Hills-Bone Spring Pool.

19 Q. And why is Enron proposing to drill at this
20 location?

21 A. Enron is proposing to drill at this location
22 because the original proposed orthodox location was denied
23 for archeological reasons, and the BLM did grant a new
24 location for us at the unorthodox location that we're
25 asking for.

1 The recorded site is in Enron's Exhibit Number 1,
2 and the recorded site is called LA 86211.

3 Q. Okay. And Exhibit Number 1 has a descriptive
4 cover sheet and then a map indicating where the
5 archeological site is; is that correct?

6 A. That's correct.

7 Q. And it shows the original well location there,
8 correct? With the arrows?

9 A. Yes, the original location, again, was an
10 orthodox proposal at 810 feet from the south line and 660
11 from the west line.

12 Q. What is the current status of your well?

13 A. The well, we went ahead and spud the well, based
14 on BLM permit, and have TD'd the well. We don't have logs
15 available as yet, but the mud log showed that we had
16 approximately 80 foot of sand, which was anticipated.

17 We had filed an application for this hearing on
18 July 7th, and apparently it was not docketed, because the
19 Division records had not yet shown that this pool had been
20 granted 80-acre spacing in a -- established by Order Number
21 R-10,109, which was -- the hearing was -- I'm sorry, the
22 order was April 26th, 1994, and the field rules had become
23 effective May 1st.

24 We had contracted a rig, expecting the July 7th
25 hearing, and because of the fact that we would only

1 encroach on an Enron-operated well, Mr. LeMay was contacted
2 and gave us permission to drill, at our own risk, in a
3 meeting with our lawyers on June 30th.

4 So we did go ahead and spud the well. And like I
5 say, as of yesterday we had cut the pay.

6 Q. Mr. Cate, have you made a technical study of this
7 area?

8 A. Yes, I have. I've done log analysis for pay
9 height on offset wells, porosity, saltwater calculations,
10 and then jointly worked with our geologist, Mr. Barry
11 Zinz -- that's Z-i-n-z -- in contouring pay thicknesses for
12 what we call our "A" sand and our "B" sand for the basis of
13 the whole field development, but specifically also for this
14 hearing.

15 Q. Could you identify and review what has been
16 marked as Enron Exhibit Number 2?

17 A. Yes, Enron Exhibit Number 2 is a land ownership
18 plat and an orientation map.

19 Approximately in the middle there, where it's
20 outlined in red, is the 80-acre dedication unit, and then
21 the circle within that is the unorthodox location that the
22 well is drilled at.

23 It should be noted that Enron operates wells and
24 owns -- and is operator of all offsetting acreage.

25 Q. Could you identify what has been marked as Enron

1 Exhibit Number 3, please?

2 A. Yes, Enron Exhibit Number 3 is the BLM, Bureau of
3 Land Management's, approved permit to drill at the proposed
4 unorthodox location.

5 Q. Could you move to Enron Exhibit Number 4 and
6 identify and review this exhibit, please?

7 A. Enron Exhibit Number 4 is an interval isopach of
8 what we call our third Bone Spring "A" sand, which is the
9 lowermost sand within the Bone Spring package, and on that
10 we show -- Well, first it was based on a density porosity
11 cutoff of 14 percent.

12 The exhibit shows the anticipated and sand
13 thicknesses that have been encountered in drilled wells,
14 and then the anticipated thicknesses based on well control
15 for the "A" sand package.

16 Q. And the proposed location is indicated here?

17 A. Yes, approximately in the center of the exhibit,
18 outlined in red, is the 80-acre dedication unit, a standup
19 in the southwest -- south -- well, actually the west half
20 of the southwest of Section 7.

21 The dot or circle, red circle, to the north is a
22 standard location, orthodox, for the north portion of the
23 80 acres.

24 And then the red dot in the south is the
25 unorthodox proposed location.

1 Q. And that proposed location shows approximately 20
2 additional feet of sand?

3 A. Yes, the contour interval for the proposed
4 location is actually showing approximately 40 feet of sand
5 for the southern location, versus only 20 feet of
6 anticipated sands for the location, the orthodox location
7 in the north portion of the unit.

8 And again, if you look at the Hallwood "12" Fed
9 3, which is a direct offset to the west, it had encountered
10 32 feet of gross interval with 23 feet of net sand meeting
11 the cutoff, versus a location to the extreme north which
12 only had four feet of net sand in this interval. So that
13 is why we anticipated encountering more of the "A" sand in
14 a southern location.

15 Furthermore, the green circles -- or actually
16 semicircles -- they show the calculated drainage radii for
17 each of the direct offset wells to the proposed location,
18 and also to the orthodox location in the north half of the
19 80. And the point there is that in the north half, that
20 location would have been substantially affected by the due
21 offset to the north and the due offset to the east.

22 That is why we preferred -- Well, also, in
23 addition to a thicker sand on the south, we also preferred
24 the southern location because the drainage radius or radii
25 showed that there was recoverable oil that would not be

1 affected or recovered by offset wells.

2 Q. And you prepared Exhibit Number 5 to indicate
3 what those radii are; is that correct?

4 A. Yes, Exhibit Number 5 is engineering -- a
5 tabulation of engineering data, based on log analyses for
6 the three direct offsets to that 80-acre drainage unit,
7 showing net pay, the decline, estimated ultimate recovery
8 in thousands of barrels, the drainage acres, and the
9 drainage radius for each of the drainage acres.

10 And then below, it shows the porosity, the
11 formation volume factor, which was derived from a
12 recombination test, a PVT analysis. Oil saturation is
13 derived from core data and log analyses. And then the
14 recovery factor is estimated from an Arp's calculations
15 that was done out of a Craft and Hawkins handbook.

16 So those, all that data goes into the drainage
17 calculations. And again, then, those radii are presented
18 on an "A" sand map and the "B" sand map.

19 Q. Okay. And the "B" sand map is what you have
20 marked as Exhibit 6, correct?

21 A. Yes, Exhibit 6 is the "B" sand map, which is the
22 thicker unit, and it is the upper unit within the Bone
23 Spring interval.

24 Now, the drainage radius takes into account both
25 sands for the radius. And as you can see in Exhibit 4, the

1 "A" sand is not quite as blanket as this "B" sand is. The
2 radii, again, are calculated based on thicknesses from both
3 sands.

4 One point to make is that the south half of the
5 80-acre proration unit or dedication unit, I've estimated
6 that there's possibly 40 acres of area that would not have
7 been drained without a well in the south half, and based on
8 a recovery of 2000 barrels per acre, which is what we
9 calculated on the Diamond "7" Number 2 well, which has 81
10 net feet of pay on Exhibit 5, it's got an anticipated
11 decline, EUR, of 116,000 barrels for a drainage acres of
12 57.6 acres. That's approximately 2000 barrels per acre.

13 So for those 40 acres that would not have been
14 recovered without a south-half location, that's
15 approximately 80,000 barrels that could have been
16 unrecovered.

17 Q. And so this location is essentially more
18 effective and efficient than the standard location?

19 A. Yes, yes. We believe that it is going to
20 encounter thicker sands, which the mud log appears that
21 it's come in as anticipated, and would provide more
22 effective and greater ultimate recovery in the field and
23 would have avoided potential drainage from -- as opposed to
24 a location in the north.

25 Q. Now, Mr. Cate, Enron's acreage is shown on

1 Exhibit Number 2; is that correct?

2 A. Yes, it is.

3 Q. Now, were there any other offset operators who
4 you're required to give notice of this Application to?

5 A. No, there are not. Enron is operator of all
6 offset leases. Enron is the operator of the lease that is
7 encroached upon, and that lease has already been drilled
8 and developed under the guidelines of the pool order that
9 was established April 26th.

10 Q. Okay. So could you just summarize again why this
11 particular location was selected?

12 A. Okay. This particular location was -- is needed
13 because the south half of the 80-acre unit, from an
14 engineering and sand thickness point of view, is the best,
15 to recover the most oil and gas, to avoid drainage from
16 offset wells, to best effectively drain this pool, and
17 because of the anticipated thicker sands in the south
18 portion of the unit.

19 Q. Is this well necessary to produce the reserves in
20 this portion of the Bone Spring formation?

21 A. Yes, it is. Again, the drainage radius shows
22 that there was at least 40 acres of area that could not
23 have been drained without a well there, and approximately
24 80,000 barrels of recovery.

25 Q. Will approval of this Application enable Enron to

1 produce reserves that otherwise will not be recovered?

2 A. Yes.

3 Q. Will correlative rights be protected?

4 A. Yes.

5 Q. And that's because the rights of no other owner
6 will be impaired, correct?

7 A. That's correct. There again, Enron operates all
8 offset leases, and the encroached-upon acreage unit is
9 operated by Enron and already developed.

10 Q. Now, Mr. Cate, since this well is already
11 drilling, do you request that the order in this case be
12 expedited?

13 A. Yes, the well is basically TD'd, and I imagine
14 logging operations are ensuing, and based on the verbal
15 from Mr. LeMay we did go ahead and take the risk. But we
16 would request an expeditious order so that we can get on
17 and complete the well.

18 Q. And Exhibit Number 7 is a proposed order; is that
19 correct?

20 A. Yes. Yes, we've provided a proposed order, which
21 is Exhibit Number 7, which summarizes the findings and the
22 testimony that we've just presented.

23 Q. Were Exhibits 1 through 7 prepared by you or
24 compiled under your direction?

25 A. Yes, they were.

1 MS. TRUJILLO: Mr. Examiner, at this time I offer
2 Exhibits 1 through 7, including a copy of the proposed
3 order on a disc, and I have no further questions for this
4 witness at this time.

5 EXAMINER MORROW: All right, Exhibits 1 through 7
6 are admitted into the record.

7 EXAMINATION

8 BY EXAMINER MORROW:

9 Q. You indicated an initial reason for the selected
10 location, archeological reasons; is that what you said?

11 A. Yes, the standard or orthodox location in the
12 south portion of the 80-acre unit was denied for
13 archeological reasons. The BLM did then approve a location
14 at the 990-990 location, and we felt that was still the
15 most prudent location over a potential orthodox in the
16 north half of the 80-acre unit.

17 Q. So there would have been an orthodox location you
18 could have drilled, even with the archeological restraints?

19 A. We believe so. We didn't actually have the
20 archeological study done, but when they were out there we
21 sighted in a north-half orthodox location, and they said
22 there were no apparent archeological sites.

23 So we do believe it probably would have been an
24 orthodox location.

25 Q. I guess what I'm getting at, you could have

1 applied for that administratively, had it been -- if you
2 had to locate it where you did for archeological reasons.

3 A. Oh, yes. With the 990, you mean?

4 Q. Well, if you could have picked the standard
5 location, the one that you -- I mean, if you had to move
6 from a standard location for an archeological reason, you
7 could have applied administratively to obtain -- If it's
8 for geological reasons, I believe the way the rule is
9 written, you had to come through here.

10 A. Okay. Well, we considered both, and we did have
11 geological reasons that we wanted to stay in the south.

12 Q. Did you say you encountered 80 foot of total
13 sand?

14 A. Yes, sir.

15 Q. The maps indicate you should have found more than
16 that.

17 A. Well, again, this is a mud log and you get your
18 actual drilling breaks and your shows. Until the actual
19 logs come in, it could be more or less.

20 But we anticipate it be right around 80 feet, of
21 the gross interval for the upper sand. It might be, say,
22 60 and 20, 60 and 30, somewhere in there.

23 Q. Well, your map showed 80 and 40. Was that what
24 you --

25 A. Yes, I was referring to a net sand though.

1 Q. Did you run any open-hole logs?

2 A. We will, yes. They were just not available.

3 Q. Oh, you hadn't set the --

4 A. No, we have not.

5 Q. Okay.

6 A. All we know is, we've cut pay and we recorded
7 sand on the mud log, and that's where we're at.

8 EXAMINER MORROW: Okay. Thank you, sir, for your
9 testimony.

10 Do you have anything further?

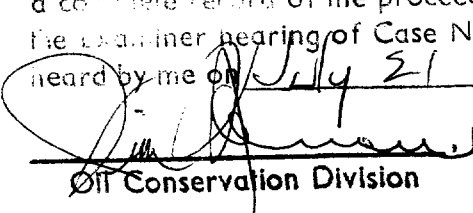
11 MS. TRUJILLO: No, sir.

12 EXAMINER MORROW: All right, we'll take 11,027
13 under advisement.

14 MS. TRUJILLO: Thank you.

15 (Thereupon, these proceedings were concluded at
16 10:13 a.m.)

17 * * *

18
19
20
21 I do hereby certify that the foregoing is
22 a complete record of the proceedings in
23 the Examiner hearing of Case No. 11027.
24 heard by me on July 21 1994.
25  Examiner
Oil Conservation Division

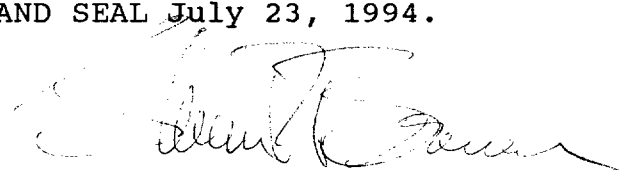
1 CERTIFICATE OF REPORTER

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

5
6 I, Steven T. Brenner, Certified Court Reporter
7 and Notary Public, HEREBY CERTIFY that the foregoing
8 transcript of proceedings before the Oil Conservation
9 Division was reported by me; that I transcribed my notes;
10 and that the foregoing is a true and accurate record of the
11 proceedings.

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

16 WITNESS MY HAND AND SEAL July 23, 1994.

17
18 
19 STEVEN T. BRENNER
CCR No. 7

20
21 My commission expires: October 14, 1994
22
23
24
25