

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
CASE 9439
EXAMINER HEARING

IN THE MATTER OF:

In the Matter of Case 9439 Being Reopened Pursuant
to the Provisions of Division Order No. R-8770
Which Order Promulgated Temporary Special Pool
Rules and Regulations Including a Provision for
80-Acre Spacing and Proration Units, Designated
Well Locations, and a Poolwide Exception to
Division Rule No. 111 Allowing for Directional
Drilling or Well Deviations of More Than Five
Degrees in Any 500-Foot Interval in the Vada-
Devonian Pool, Lea County, New Mexico.

ORIGINAL
TRANSCRIPT OF PROCEEDINGS

BEFORE: DAVID R. CATANACH, EXAMINER

STATE LAND OFFICE BUILDING

SANTA FE, NEW MEXICO

May 2, 1990

A P P E A R A N C E S

FOR THE APPLICANT:

KELLAHIN, KELLAHIN & AUBREY

Attorneys at Law

By: W. THOMAS KELLAHIN

117 N. Guadalupe

P.O. Box 2265

Santa Fe, New Mexico 87504-2265

* * *

I N D E X

| | Page Number |
|-------------------------|-------------|
| Appearances | 2 |
| Proceedings | 3 |
| Certificate of Reporter | 5 |

* * *

1 WHEREUPON, the following proceedings were had
2 at 9:18 a.m.:

3 EXAMINER CATANACH: At this time call Case
4 9439, In the matter of Case 9439 being reopened
5 pursuant to the provisions of Division Order Number
6 R-8770, which order promulgated temporary special pool
7 rules and regulations, including a provision for 80-
8 acre spacing and proration units, designated well
9 locations, and a poolwide exception to Division Rule
10 No. 111 allowing for directional drilling or well
11 deviations of more than five degrees in any 500-foot
12 interval in the Vada-Devonian Pool, Lea County, New
13 Mexico.

14 Are there any appearances in this case?

15 MR. KELLAHIN: Mr. Examiner, I'm Tom Kellahin
16 of the Santa Fe law firm of Kellahin, Kellahin and
17 Aubrey.

18 I appeared at the hearing on April 18th,
19 1990, on behalf of the original Applicant, by which the
20 pool rules were established. That was Union Pacific.
21 Their successor-in-interest to this area is Western
22 Reserves.

23 Both companies at this point seek the
24 reversion of the rules to the statewide rules and the
25 elimination of the special rules for the pool.

1 EXAMINER CATANACH: Any other appearances or
2 statements in this case?

3 If not, Case 9439 will be taken under
4 advisement.

5 (Thereupon, these proceedings were concluded
6 at 9:21 a.m.)

7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

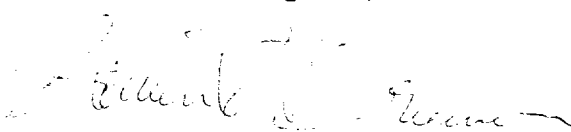
CERTIFICATE OF REPORTER

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.

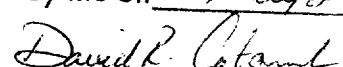
I FURTHER CERTIFY that I am not a relative or employee of any of the parties or attorneys involved in this matter and that I have no personal interest in the final disposition of this matter.

WITNESS MY HAND AND SEAL May 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. Q38, heard by me on May 2 19 90.


 _____, Examiner
 Oil Conservation Division

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
CASE 9907, CASE 9911, CASE 9889,
CASE 9439, CASE 9912, CASE 9918,
CASE 9919

EXAMINER HEARING
CONTINUED AND DISMISSED CASES

TRANSCRIPT OF PROCEEDINGS
BEFORE: MICHAEL E. STOGNER, EXAMINER

STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO
April 18, 1990

I N D E X

| | Page Number |
|-------------------------|-------------|
| Case 9907 | 3 |
| Case 9911 | 3 |
| Case 9889 | 4 |
| Case 9439 | 4 |
| Case 9912 | 5 |
| Case 9918 | 5 |
| Case 9919 | 5 |
| Certificate of Reporter | 7 |

* * *

1 WHEREUPON, the following proceedings were had
2 at 8:20 a.m.:

3 EXAMINER STOGNER: This hearing will come to
4 order for Docket Number 11-90. I'm Michael E. Stogner,
5 appointed Hearing Officer for today, April 18, 1990.

6 I'll call first case, Number 9907, which is
7 the Application of Enron Oil and Gas Company for
8 compulsory pooling, Eddy County, New Mexico.

9 At the Applicant's request, this case will be
10 continued and will need to be advertised for the
11 hearing scheduled -- readvertised for the hearing
12 scheduled for May 2nd, 1990.

13 * * *

14 WHEREUPON, the following proceedings were had
15 at 10:24 a.m.:

16 EXAMINER STOGNER: Call Case Number 9911,
17 which is the Application of Union Oil Company of
18 California for a highly deviated directional drilling
19 pilot project and an unorthodox coal gas well location,
20 Rio Arriba County.

21 At the Applicant's request, this case will be
22 continued to the Examiner's Hearing scheduled for May
23 2nd, 1990.

24 * * *

25 EXAMINER STOGNER: Call the next case, Number

1 9889, which is the Application of Meridian Oil,
2 Incorporated, for temporary well testing allowable for
3 certain wells in the Parkway-Delaware Pool, Eddy
4 County, New Mexico.

5 At the Applicant's request, this case will be
6 dismissed.

7 * * *

8 EXAMINER STOGNER: I'll call Case Number
9 9439, which is in the matter of said case being
10 reopened pursuant to the provisions of Division Order
11 Number R-8770, which order promulgated temporary
12 special rules and regulations including 80-acre spacing
13 for the Vada-Devonian Pool in Lea County, New Mexico.

14 I'm going to call for appearances at this
15 time.

16 MR. KELLAHIN: Mr. Examiner, I'm Tom Kellahin
17 of the Santa Fe law firm of Kellahin, Kellahin and
18 Aubrey. I'm appearing today on behalf of Union Pacific
19 Resources Company, which was the original Applicant in
20 the case that resulted in the order that established
21 the special rules for the pool.

22 In addition, Mr. Examiner, I'm appearing
23 today on behalf of Western Reserves Oil Company, Inc.

24 On behalf of those companies, I would request
25 that this case be continued to the next regular

1 which is the Application of Mesa Operating Limited
2 Partnership for another compulsory pooling, San Juan
3 County, New Mexico.

4 The Applicant has also requested that this
5 case be continued to the May 2nd, 1990, hearing.

6 * * *

7
8
9
10
11
12
13
14 I do hereby certify that the foregoing is
15 a complete record of the proceedings of
16 the Examiner hearing of Case No. 9434,
17 heard by me on 18 April 1990.

18
19
20
21
22
23
24
25

Michael E. Hogue, Examiner
Oil Conservation Division

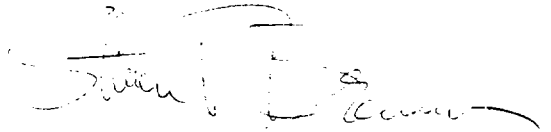
1 CERTIFICATE OF REPORTER

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

5
6 I, Steven T. Brenner, Certified Shorthand
7 Reporter and Notary Public, HEREBY CERTIFY that the
8 foregoing transcript of proceedings before the Oil
9 Conservation Division was reported by me; that I
10 transcribed my notes; and that the foregoing is a true
11 and accurate record of the 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 April 28, 1990.

17
18 
19 STEVEN T. BRENNER
CSR No. 106

20 My commission expires: October 14, 1990
21
22
23
24
25

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO

17 August 1988

EXAMINER HEARING

IN THE MATTER OF:

Application of Union Pacific Resources CASE
Company for pool extension and special 9439
pool rules, Lea County, New Mexico, and

Application of Union Pacific Resources 9440
Company for directional drilling and
an unorthodox (subsurface) oil well lo-
cation, Lea County, New Mexico.

BEFORE: David R. Catanach, Examiner

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Division:

Robert G. Stovall
Attorney at Law
Legal Counsel to the Division
State Land Office Bldg.
Santa Fe, New Mexico

For the Applicant:

W. Thomas Kellahin
Attorney at Law
KELLAHIN, KELLAHIN & AUBREY
P. O. Box 2265
Santa Fe, New Mexico 87501

I N D E X

JERRY DRAKE, JR.

Direct Examination by Mr. Kellahin 5

Cross Examination by Mr. Catanach 16

DEBORAH K. HAWTHORNE

Direct Examination by Mr. Kellahin 18

Cross Examination by Mr. Catanach 28

JAMES R. CARTER, JR.

Direct Examination by Mr. Kellahin 32

Cross Examination by Mr. Catanach 34

E X H I B I T S

Applicant Exhibit One, Map 6

Applicant Exhibit Two, Montage 8

Applicant Exhibit Three, Deviation Data 12

Applicant Exhibit Four, Survey Plat 16

Applicant Exhibit Five, Summary 22

Applicant Exhibit Six, Information 24

Applicant Exhibit Seven, Data 26

Applicant Exhibit Eight, Certificate of Notice 31

1 MR. CATANACH: Call Case 9439.

2 MR. STOVALL: Application of
3 Union Pacific Resources Company for pool extension and
4 special pool rules, Lea County, New Mexico.

5 MR. CATANACH: Are there ap-
6 pearances in this case?

7 MR. KELLAHIN: Mr. Examiner,
8 I'm Tom Kellahin of the Santa Fe law firm of Kellahin, Kel-
9 lahin & Aubrey, appearing on behalf of the applicant.

10 We would request at this time
11 that you also call Case 9440 and that the two cases be con-
12 solidated for purposes of taking testimony.

13 MR. CATANACH: Call Case 9440
14 at this time.

15 MR. STOVALL: Application of
16 Union Pacific Resources Company for directional drilling
17 and unorthodox subsurface oil well location, Lea County,
18 New Mexico.

19 MR. CATANACH: Are there any
20 other appearances in these cases?

21 MR. KELLAHIN: Mr. Examiner, I
22 have two witnesses to be sworn.

23 MR. CATANACH: Will the wit-
24 nesses please stand and be sworn in?
25

1 (Witnesses sworn.)

2
3 JERRY DRAKE, JR.,

4 being called as a witness and being duly sworn upon his
5 oath, testified as follows, to-wit:

6
7 DIRECT EXAMINATION

8 BY MR. KELLAHIN:

9 Q Mr. Drake, would you please state your
10 name and occupation.

11 A My name is Jerry Drake, Junior. I'm a
12 geologist with Union Pacific Resources Company in Houston.

13 Q Mr. Drake, have you on previous occa-
14 sions testified before the Oil Conservation Division?

15 A No, I haven't.

16 Q Would you take a moment and describe to
17 the Examiner when and where you obtained your degree in
18 geology?

19 A I went to school at Lamar University in
20 Beaumont, Texas. I received a BS degree in geology in
21 1979.

22 Q Subsequent to graduation in '79 would
23 you summarize for Mr. Catanach what has been your profes-
24 sional employment experience as a petroleum geologist?

25 A Okay. I was graduated in December of

1 '79 and went to work for Union Pacific, Champlin Petroleum
2 Company, as they were called then, in March the 1st of
3 1980. I've been employed with them since then.

4 I've worked east Texas and Carthage
5 (sic) Field and I've worked in Bolton (sic) County and
6 Austin Chalk fractured reservoir; did that for about two
7 years, and the rest of my time has been spent working in
8 west Texas and southeast New Mexico.

9 I've worked about the past year in an
10 Exploitation Group and prior to that I was working explora-
11 tion.

12 Q With your company, Mr. Drake, have you
13 been involved in the drilling and picking of well locations
14 with regards to this immediate area?

15 A Yes.

16 Q And have you been involved in the re-
17 entry in the subject well and the directional drilling for
18 production in the Vada Devonian Pool?

19 A Yes.

20 MR. KELLAHIN: We tender Mr.
21 Drake as an expert petroleum geologist.

22 MR. CATANACH: He is so quali-
23 fied.

24 Q Let me have you go to Exhibit Number One
25 which we've put on the board, Mr. Drake, and before we talk

1 in detail about that display, would you simply take a
2 moment and describe what information is contained on that
3 exhibit?

4 A This area that we're looking at is Sec-
5 tion 26 and Section 35 in 10 South, 33 East, of Lea County,
6 New Mexico.

7 The area shown in red here is our area
8 of interest. We drilled one well here, a discovery well
9 for the Vada Devonian Field and we've offset the well here
10 at this location and have deviated the well to this area.

11 There's no Devonian production right
12 around this area. The areas outlined in green show nearby
13 Devonian producing fields.

14 All of the production shown through here
15 is shallower production from the Permian or shallow Penn-
16 sylvanian pools.

17 Q When we look at the Vada Devonian Field
18 as it exists now, are there in place yet special pool rules
19 for that production?

20 A No, it's statewide rules.

21 Q And that's one of the things you're
22 seeking to accomplish with this application.

23 A That's right.

24 Q Is the adoption of certain special pool
25 rules for this pool?

1 A Right.

2 Q In drilling wells in this immediate
3 area, Mr. Drake, has your company experienced difficulty
4 with having wellbores that would deviate during drilling?

5 A Yes, we have. In the first well we had
6 problems with it, the borehole deviating, and the offset
7 that we drilled, we had severe deviation problems with the
8 borehole. We had to go in and steer the well and subse-
9 quent to steering of the well we encountered a fault that
10 created problems and we drilled a dry hole.

11 Q One of the rules, then, you're going to
12 ask Mr. Catanach to adopt is a rule that creates greater
13 flexibility for the drilling of these wells in terms of
14 granting exceptions to the Division's normal rules on
15 directional drilling.

16 A That's right.

17 Q In addition, Mr. Drake, have you studied
18 geologically what, in your opinion, ought to be the appro-
19 priate temporary spacing for this immediate area?

20 A Yes. We feel like an 80-acre spacing
21 for this area will be advantageous to the development, the
22 rest of the development for this area.

23 Q When we look at the Devonian pools shown
24 on Exhibit One, can you identify any of those Devonian
25 Pools that are being developed on 80 acres?

1 A Bagley Field is the one field in the
2 area that is on 80-acre spacing. The remaining fields are
3 all on 40-acre spacing.

4 Q Do you have an opinion, sir, as to
5 whether or not some or all of those other Devonian fields
6 being developed on 40 acres are in fact being drilled at
7 spacing patterns that are too dense?

8 A Yes. On this area in through here it
9 looks like this Moore (sic) Field, that it could have been
10 drained with, probably with a fewer number of wells through
11 there.

12 Q Let's turn now to the montage of infor-
13 mation shown on Exhibit Number Two, Mr. Drake, and initial-
14 ly have you identify each of the sections on Exhibit Two
15 and then we'll go back and talk about each of specific por-
16 tion of that display.

17 A Okay. Starting on this side of the
18 cross section, this is a type log from the discovery well
19 that was drilled in the Vada Devonian Field.

20 This is a structure map shown over our
21 field area; a location map showing the Lea County and the
22 approximate area in Lea County where we are drilling; and a
23 cross section that is shown by this red line on this map
24 through the Vada Devonian Field.

25 Q When we look at the cross section, Mr.

1 Drake, have you identified for us on that cross section all
2 of the important key wells within the immediate area?

3 A Yes.

4 Q What does it show you?

5 A Okay, on this-- this cross section runs
6 in a southwest to northeast direction from this well, from
7 the discovery well, up to the dry hole that we drilled
8 there.

9 Coming across, this fault that's shown
10 here on the map will be in this position here.

11 This fault that's shown right here would
12 be the fault that's shown on the west side, through this
13 well. This is the fault that we cut in drilling of the
14 well that caused us lots of problems with -- with the devi-
15 ation. We started having deviation problems, shallower in
16 the section. Before we got to it, we got near the fault
17 and steered, and we steered across the fault and dropped
18 down and encountered the Devonian section shown in the pink
19 color here about a couple hundred feet low to the discovery
20 well.

21 Q When we look at the structure map that's
22 shown on Exhibit Number Two, do you have an opinion as to
23 what ought to be the initial area that's subject to the
24 special pool rules for the pool?

25 A Yes. This area outlined in green is the

1 subject initially for the pool rules of the reservoir.

2 Q And what is the basis upon which you've
3 reached that opinion, Mr. Drake?

4 A This fault that we show here is not a
5 bounding or a sealing fault. There's been some production
6 from different areas, like in this field you can get on the
7 downthrown side of the fault and still obtain production
8 from the well and we feel like this fault is -- we're not
9 separating the reservoir across here, but we still have
10 production in this area.

11 Q Do you have an initial opinion as to
12 what is the likely eastern boundary for the reservoir?

13 A Yes. Apparently this fault right here
14 is going to be it.

15 Q And that's the one that you show that
16 was cut --

17 A That's right.

18 Q -- by the State 26-2 Well?

19 A Yes, sir.

20 Q At this point do you know what is the
21 likely northern or southern limits of production for the
22 pool?

23 A No, we don't.

24 Q Initially what have you proposed to be
25 the spacing units for each of the existing wells within the

1 pool?

2 A 80 acres.

3 Q Can you show us how you would orient
4 those 80 acres as to the existing wells?

5 A This well, the discovery well in Section
6 26 would be a laydown 80 in this area and the well we're
7 drilling, currently drilling now would be a laydown 80 in
8 Section 35.

9 Q Do you see any geologic feature or event
10 or information from your geologic studies to show you that
11 geologically we are not likely to see production that can
12 be developed on 80 acres?

13 A No.

14 Q There's no event in there that you see
15 now that would preclude, then, 80-acre spacing?

16 A No. I feel like we have a good chance
17 of draining an 80-acre pattern on this side. This fault is
18 not a sealing fault or trapping fault that's isolating this
19 area from this area.

20 Q Let's go to the specific information on
21 the type log now and have you identify for the examiner
22 what are the principal features on the type log.

23 A Okay. The type log is just -- is from
24 this well right here --

25 Q This is the discovery well?

1 A The discovery well, yes, and shows a
2 different formation, Glorieta, Tubb, and so forth, down
3 through the section, down through the Devonian section in
4 through here. This is, the Devonian is where we find our
5 pay, where we see these wells in the Devonian.

6 Q Let me have you help me and let's put up
7 Exhibit Number Three and talk about the deviation and di-
8 rectional drilling problems.

9 Again locate for us, Mr. Drake, the well
10 that is shown in the profile on Exhibit Number Three.

11 A It's this well right here shown by the
12 dry hole symbol.

13 Q Describe in a general way for Mr. Cata-
14 nach what has been the history with this well.

15 A Okay. After we drilled the 26-2 and we
16 encountered the Devonian low in the section, we didn't find
17 any reservoir rock there. The rocks were different than
18 they were across the fault.

19 We found no reservoir, so we plugged
20 back, decided to plug back to 9900 feet and kick off and
21 deviate the well and cross this fault, get in the upthrown
22 block and deviate over to a location, a bottom hole loca-
23 tion right here.

24 We're shooting for a 50-foot radius cir-
25 cle of about 60 feet from the proration line, where the

1 proration line would be, and our actual bottom location
2 ended up about there.

3 Q This is the subject of Case 9440 in
4 which this well has already been drilled?

5 A Yes.

6 Q You commenced deviation based upon oral
7 approval of the Division?

8 A That's right.

9 Q And you now want approval of the final
10 bottom hole target for the well.

11 A Right.

12 Q What is the footage location for the
13 subsurface location, if you will, at the top of the Devon-
14 ian formation in terms of distances from the spacing unit
15 or from the section line?

16 A (Unclear) think, Deborah --

17 MS. HAWTHORNE: I've got that
18 information.

19 A Do you have that?

20 Q Is it shown on your display?

21 A The location from the surface location
22 that we drilled is about 615 feet west of -- about 615 feet
23 west of the surface location for the well.

24 Q Have you shown on the vertical section
25 of Exhibit Number Three where we will find the top of the

1 Devonian formation?

2 A Yes. The top of the Devonian is right
3 here.

4 Q And at what footage is that?

5 A That's at 12,542.

6 Q Have you also shown on that vertical
7 section other formations that you penetrated?

8 A Yes. We penetrated the Woodford Shale
9 in that interval, 12,514. It's also at 11,152. Strawn at
10 10,551 and the Canyon at 10,072.

11 Q During the drilling of this well what
12 involvement did you have?

13 A I was the well site geologist for the
14 well monitoring the drilling. I was out plotting the
15 curves here and for awhile I was out in the field when they
16 were drilling through different pay sections looking for
17 the reservoir.

18 Q During this drilling, where did you be-
19 gin to experience the wellbore beginning to deviate?

20 A Okay. In the drilling of the initial
21 well we had deviation problems up around 90 -- up around --
22 in this area in through here in the Canyon and down in the
23 Strawn and different places through here it started wander-
24 ing off on us, and we really got some severe deviations as
25 we got down in here so that's when we went (not clearly

1 understood.)

2 Q When you say "down in here" where are
3 we?

4 A Down around 11,200. We had to go in
5 with the mud motor (sic) back up at 10,700, right in here.
6 And we were having problems all through this interval with
7 it wandering on us.

8 Q The applicant has requested that the
9 Examiner adopt a poolwide exception to Division Rule 111
10 concerning deviation tests and directional drilling so that
11 a pool well can be directionally drilled or allowed to de-
12 viate more than five degrees in any 500-foot interval pro-
13 vided that the cumulative displacement is not greater than
14 410 feet from the center of a governmental quarter quarter
15 section, and further provided the wellbore is no closer
16 than 250 feet to an outer boundary of the spacing and pro-
17 ration unit when it encounters the top of the Devonian for-
18 mation.

19 Have you reviewed that proposed rule,
20 Mr. Drake?

21 A Yes, sir.

22 Q And do you believe that it's necessary
23 in order to provide the operators in the pool the economic
24 -- the flexibility and the economic savings of drilling
25 wells to this pool?

1 A Yes, sir.

2 Q Did we have another display for you to
3 discuss? I think we did have a survey from one of the sur-
4 veyors.

5 Let me direct your attention at this
6 point to just for the record identify for us Exhibit Number
7 Four.

8 A Okay, this is a survey plat from a re-
9 gistered surveyor that shows the surface location and the
10 actual bottom hole location of the well.

11 MR. KELLAHIN: That concludes
12 my examination of Mr. Drake.

13 We would move the introduction
14 at this time of Exhibits One through Four.

15 MR. CATANACH: Exhibits One
16 through Four will be admitted into evidence.

17

18 CROSS EXAMINATION

19 BY MR. CATANACH:

20 Q Mr. Drake, the first well drilled, the
21 discovery well, was the Humble State?

22 A No, the discovery well was the UPRC
23 State 26 No. 1.

24 Q Did you have any type of hole deviation
25 problems in that well?

1 A Yes, they did.

2 Q Were they as extensive as the other one?

3 A Deborah was just going to go into that
4 more than I was.

5 MR. KELLAHIN: We have an en-
6 gineering witness, Mr. Catanach, that has shown you, and I
7 think you'll find it if you would like to look, that on
8 Exhibit Number Five, she'll present you the actual degrees
9 of deflection for each of those wells.

10 Q Okay. That westernmost fault, you say
11 that's not a sealing fault.

12 A No, sir.

13 Q So you're going to have communication
14 across that fault into the Devonian?

15 A Yes sir.

16 MR. CATANACH: Is your other
17 witness also going to testify about the spacing?

18 MR. KELLAHIN: Yes, sir.

19 Q Is the Humble State No. 1 producing at
20 this time?

21 A No, sir, it was drilled and completed as
22 a dry hole.

23 Q Oh, it is a dry hole?

24 A Yes, sir.

25 Q But you guys want to include it in the

1 pool. Why is that?

2 A Part of that, that well -- there were
3 some contours on the outside of that westernmost fault
4 there; it looks like there may be an oil/water contact at
5 about the level of the Humble well that extends westward
6 and up in the northwest direction, wrapping back around to
7 where that fault would be; so that we would have areas of
8 drainage in that area above those Humble wells that we con-
9 sider prospective for locations.

10 Q Has the Division already created the
11 pool, do you know, through nomenclature?

12 MR. KELLAHIN: Yes, sir, there
13 is a nomenclature case which establishes the Vada Devonian
14 as a pool but there are no special pool rules for it.

15 MR. CATANACH: That's all I
16 have for now.

17 The witness may be excused.

18
19 DEBORAH K. HAWTHORNE,
20 being called as a witness and being duly sworn upon her
21 oath, testified as follows, to-wit:

22

23 DIRECT EXAMINATION

24 BY MR. KELLAHIN:

25 Q Ms. Hawthorne, would you state your name

1 and occupation, please?

2 A Deborah K. Hawthorne. I'm a petroleum
3 engineer with Union Pacific Resources.

4 Q Ms. Hawthorne, have you previously tes-
5 tified before the Division as a petroleum engineer?

6 A No, I have not.

7 Q Would you take a moment and describe
8 your educational background as a petroleum engineer?

9 A I received a BS in petroleum engineering
10 from Texas A & M University in 1979.

11 I worked for Amoco Production Company
12 right from coming out of school until 1985.

13 From '85 to the present I've been em-
14 ployed by Union Pacific Resources.

15 I've always worked in west Texas, New
16 Mexico, and the Texas Panhandle area.

17 Q Have you been working with Mr. Drake to
18 formulate opinions for the drilling and exploration of the
19 Vada Devonian Pool that we've been discussing this morning?

20 A Yes, I have.

21 Q Would you summarize for Mr. Catanach
22 what has been your personal involvement in that study?

23 A I came in on the -- well, after the
24 discovery well was drilled I came in at the time of comple-
25 tion and designed the completion for the State 26 No. 1.

1 Jerry and I worked very close together on -- deciding on
2 the drilling location for the State 26 No. 2.

3 I did the logging on the straight hole
4 of the 26 No. 2, and also on the deviated hole on the 26
5 No. 2, and designed the completion that is in progress 26
6 No. 2.

7 Q In making your engineering studies have
8 you formulated an opinion with regards to a recommendation
9 on the spacing pattern to be adopted by the Division for
10 production from this pool?

11 A Yes, I have.

12 Q And do you have recommendations to the
13 Examiner with regards to well locations and flexibility in
14 rules with regards to directional drilling or deviated
15 drilling?

16 A Yes.

17 MR. KELLAHIN: We tender Ms.
18 Hawthorne as an expert petroleum engineer.

19 MR. CATANACH: She is so qual-
20 ified.

21 Q Let me ask you at this point, what is
22 your opinion with regards to the spacing that's appropriate
23 for production from the pool?

24 A I think we should start out with 80-acre
25 spacing so that we do not have to over drill. The wells in

1 this area are capable of draining 80 acres.

2 Q Do you have a recommendation to the Exa-
3 miner as to what temporary period of time should be adopted
4 by the Division to have these rules in place before they
5 are again reviewed by the Division?

6 A Two years.

7 Q And what do you hope to accomplish, if
8 anything, during that 2-year temporary period?

9 A We believe these wells to be water drive
10 wells, as other Devonian wells in the area. We would like
11 to develop a production history of these wells so that we
12 can determine for sure that they will drain an 80-acre
13 location.

14 Q Have you yet determined and located the
15 water/oil contact for this reservoir?

16 A No, we have not.

17 Q Let me direct your attention to Exhibit
18 Number Four, which is Mr. West's survey of -- of the bottom
19 hole location. Have you reviewed that information?

20 A Yes, I have.

21 Q And what is the bottom hole location
22 that you're requesting the Division approve?

23 A Okay, the bottom hole is 2593 from the
24 east line and 1858 from the south line.

25 Q Were you able to hit the bottom hole

1 target that was advertised within the docket showing for
2 this case, which was 150-radius of a subsurface location
3 1910 from the south line and 2580 feet from the east line
4 of Section 26?

5 A Yes. We were within that 150-foot rad-
6 ius.

7 Q Let me direct your attention now, Ms.
8 Hawthorne, to what is marked as Exhibit Number Five. Would
9 you identify that exhibit for us?

10 A This is just a summary that I put to-
11 gether of the deviation surveys from the two wells we have
12 drilled.

13 On the summary sheet I used an approxi-
14 mate depth since our deviations were not always taken at
15 the same depth, but this would be the nearest -- the
16 deviation to the nearest depth, my approximate depth.

17 The second column is the deviation from
18 the discovery well. the 26 No. 1.

19 The third column is the deviation from
20 the 26 No. 2 straight hole.

21 And the final column is the deviation
22 from the 26 No. 2 sidetrack.

23 Q Can you summarize for us what that devi-
24 ation shows you in terms of the magnitude of deviation ex-
25 perience for the drilling of wells to this pool?

1 A Yes, sir. As you can see from the sur-
2 face down to 9500 to 10,000 feet, there is not much devia-
3 tion problem at all.

4 Once we get past approximately 10,000
5 feet, the wells do begin to wander; they're trying to go up
6 dip with the bit.

7 In the 26 No. 1 we had a final deviation
8 of 7.25 degrees.

9 In the 26-2 Well we began deviating at
10 about 10,500 feet. Deviation was beginning to increase and
11 at that time we contacted the Commission on whether we
12 needed to install a mud motor and go back to the vertical.

13 We did try to keep the deviation under
14 the 5 percent, or 5 degrees, and the final deviation on
15 that well was 3.5 degrees, but we did have to steer the
16 well. On the sidetrack we came in and kicked off at 9900
17 feet. The deviations listed here are the ones where we
18 were intentionally deviating the well so that we could get
19 above the fault.

20 Q Your company has requested the Examiner
21 adopt in his order a provision creating an exception to the
22 statewide Rule 111 on directional deviated wells.

23 Do you have an opinion as to whether or
24 not that exception is necessary and reasonable for this
25 pool?

1 A I do.

2 Q And what is that opinion?

3 A I believe that it is very necessary.
4 The wells want to deviate above the 5 degrees, yet the
5 cumulative distance deviation will not be accepted to where
6 we will get too close to the proration line.

7 If we can go past the 5 degrees we will
8 not have to steer the wells to maintain the limit that we
9 request, the 410 feet.

10 Q Let me direct your attention now to
11 Exhibit Number Six.

12 Would you identify for us Exhibit Number
13 Six?

14 A This is a volumetric analysis that I did
15 for several of the Devonian fields that are in the area.

16 As you can see on our Exhibit Number
17 One, I've used the --

18 Q Take a moment and go to Exhibit Number
19 One and orient us as to which of the pools you've conducted
20 volumetric calculations for?

21 A To the southwest of our area is the Bag-
22 ley Field, located approximately six miles. I also used
23 the Caprock East. It's about 15 miles from our field.

24 The Moore Field, which is 12 miles.

25 And the Mescalero Field, which is almost

1 due west of ours.

2 I did a volumetric analysis on each of
3 these fields based on information that I could find that
4 was published in Geological Survey based on net heights.

5 I used Dwight's Information to obtain
6 cumulative production and the purpose of this was to calcu-
7 late an average recovery factor on 40 acres versus 80 ac-
8 res.

9 Q Ms. Hawthorne, you'll have to speak up
10 just a little louder, if you please. And what did your
11 calculation show you for each of those pools where you've
12 made an analysis?

13 A What I saw in the majority of the fields
14 is that you would have to have an unusually high recovery
15 factor to drain -- to obtain the amount of oil that these
16 wells have recovered from 40 acres.

17 The 80-acre recovery factors were more
18 in line with what these type of wells should have produced.

19 Q In which of the reservoirs you've exa-
20 mined exist special rules on 80-acre spacing?

21 A The Bagley Field is drilled on 80 acres.

22 Q Can you show us any of the other wells
23 that are still on 40-acre spacing that in your opinion have
24 been over drilled?

25 A The field I used the most was Moore

1 Field. It seems to be a similar feature as to what we
2 have. The wells along the eastern edge produce in the 2-
3 million barrel range. The wells further away produce in
4 the 1-million -- further west produce in the 1-million
5 range.

6 The wells across what Jerry has shown as
7 what he believes to be a fault have produced in the 150-to-
8 200,000 barrel range.

9 All these wells are profitable; however,
10 I believe the 40-acre infills were more (not clearly under-
11 stood) than the others are.

12 Q I direct your attention now to Exhibit
13 Number Seven.

14 A Exhibit Number Seven is the production
15 from the State 26 No. 1. If you'll go to the last page, we
16 started production on the well in February of 1988 when we
17 did it's initial completion. On page -- the next page for-
18 ward, we did not potential the well until the middle of
19 March. It potentialled for 3,918 barrels of oil per day.
20 That was calculated off an 8-hour test of 1,306 barrels of
21 oil. We ran out of tank room at that time and shut it in.

22 This exhibit is mainly to show the pro-
23 duction history of the well. The well is capable of pro-
24 ducing at an 80-acre allowable. In the end of June and be-
25 ginning of July we started to see a drop in the surface

1 pressure. We decreased the choke size at this time and our
2 rate is decreased. So the well is choked back is why it's
3 not taking top allowable now.

4 We had a small amount of water produc-
5 tion in the middle of July. This was causing surface pres-
6 sure to drop and we would choke the well back. The first
7 decrease brought it down to approximately 300 barrels per
8 day. By the end of July we began to see water again and a
9 dropping in the surface pressure. We choked it back one
10 more time. It's currently on a 7/64ths positive choke and
11 it's producing approximately 225 barrels of oil per day.

12 Q What is the current status of the com-
13 pletion of the deviated well?

14 A We are perforating that well now.

15 Q In your opinion as an engineer, do you
16 believe that on a temporary basis for a 2-years period 80-
17 acre spacing is appropriate for this reservoir?

18 A I do. Yes.

19 Q Do you have -- and do you believe that a
20 provision in the pool rules granting an exception as you've
21 outlined for us to Rule 111, directional drilling, is also
22 appropriate?

23 A I do.

24 MR. KELLAHIN: Mr. Examiner,
25 that concludes our direct examination of Ms. Hawthorne.

1 We move the introduction of
2 her Exhibits Five, Six and Seven.

3 MR. CATANACH: Exhibits Five,
4 Six and Seven will be admitted as evidence.

5
6 CROSS EXAMINATION

7 BY MR. CATANACH:

8 Q Ms. Hawthorne, let's go over your pro-
9 posed rules again just to make sure I have them right.

10 You want 80-acre spacing for the pool,
11 standard designated well locations, which would be within
12 150 feet of the center of the quarter quarter section line

13 A Yes, sir.

14 Q Now, the directional drilling portion of
15 those pool rules, I'm not quite sure I have those correct.

16 MR. CATANACH: Mr. Kellahin,
17 you read something that I know that I have seen.

18 MR. KELLAHIN: It's set forth
19 in the application, Mr. Catanach, and should be found
20 starting on the bottom of page 2 and continuing on page 3.

21 MR. CATANACH: Where was it?

22 MR. KELLAHIN: It's in the ap-
23 plication that should be in the case file.

24 There are two separate appli-
25 cations filed. One is for the directional drilling but

1 there's also a separate application for the special pool
2 rules.

3 Q How did you arrive at the figures that
4 you arrived at, 410 feet from the center of a governmental
5 quarter quarter section, how did you arrive at that figure?

6 A We think this is a distance that the
7 well can be allowed to wander in without steering and we'll
8 not exceed that limit without steering it.

9 Our Drilling Department put these num-
10 bers together.

11 Q So none of your previous wells have ex-
12 ceeded that distance?

13 A The only one that did was the one we in-
14 tentionally deviated.

15 Q Ms. Hawthorne, to your knowledge has --
16 has -- do any of these other pools have -- have that devia-
17 tion problem?

18 A Not to my knowledge, but I did not look
19 into the drilling aspects of the other wells.

20 Q So you think it's a problem that's just
21 based on geology?

22 A Yes, sir.

23 Q As I understand it, the acreage outlined
24 in yellow on the Exhibit Number Two, that's acreage held by
25 your company?

1 A Yes, sir.

2 Q What is the typical recovery factor for
3 a reservoir such as this?

4 A I don't have a lot of experience in
5 fractured reservoirs, but I believe that 70 to 90 percent
6 is an unusually high recovery factor. I would think more
7 in the -- 30 to 40 percent would be a more reasonable num-
8 ber.

9 Q How did you arrive at the recovery fac-
10 tor for the Vada Devonian Pool?

11 A That was mainly based on assumed reserve
12 recovery and back calculating a recovery factor. Our wells
13 tend to be a little tighter. I don't think we are going to
14 have million barrel wells, and I gave it a lower reserve.

15 Q So you've actually calculated volumet-
16 rically the reserves underlying each proration unit for the
17 wells?

18 A Yes, sir.

19 Q Have you done any decline curve analysis
20 on the No. 1?

21 A If you will look at the production, you
22 will see that the pressure stayed constant. The rate is
23 relatively constant until we choked it back, and there's
24 been no decline. All the production decline has been
25 caused by choking the well back.

1 Q Do the -- your proposed rules about the
2 deviation, does that -- does that make these wells more
3 economical to drill?

4 A Yes, sir.

5 Q Is that a deterrent, the economics if
6 you have to use downhole motors and all?

7 A I believe we will continue to drill the
8 wells if we have to use the downhole motor but we will save
9 money by not having to.

10 Q But it won't be to the point where you
11 wouldn't drill the wells --

12 A No, sir.

13 Q Now, the No. 2 Well has not been com-
14 pleted yet?

15 A No, it has not. We're in the process of
16 completing it now.

17 MR. CATANACH: Mr. Kellahin,
18 who were the parties who were notified?

19 MR. KELLAHIN: Mr. Examiner,
20 I'd like to introduce Exhibit Number Eight, which is our
21 Certificate of Notification, and in addition to the owners
22 which are common for the areas shown in yellow, represented
23 by the applicant, we've also notified those interest owners
24 that are shown on Exhibit A attached to Exhibit Number
25 Eight.

1 MR. CATANACH: And who are
2 these interest holders, Mr. Kellahin?

3 MR. KELLAHIN: If I might have
4 Mr. Carter respond to that for us, Mr. Carter provided me
5 with that information and he is probably better able than I
6 to tell you generally where their interests lie and why
7 they were notified.

8 If I might call him to the
9 stand for a moment.

10 MR. CATANACH: Okay.
11 Were you sworn in this
12 morning?

13 MR. CARTER: No, I was not.

14
15 (Mr. Carter sworn.)

16
17 JAMES R. CARTER, JR.,
18 being called as a witness and being duly sworn upon his
19 oath, testified as follows, to-wit:

20
21 DIRECT EXAMINATION

22 BY MR. KELLAHIN:

23 Q Mr. Carter, would you have a seat here
24 and would identify your name and tell us by whom you're
25 employed and in what capacity?

1 A Yes, sir. My name is James R. Carter,
2 Junior. I am employed by Union Pacific Resources Company
3 in Houston as Regulatory Supervisor for the Houston Region
4 Area.

5 Q Have you made an examination or caused
6 to be made an examination of other interest owners in the
7 immediate area that might be affected by your company's
8 application today?

9 A Yes, sir, we have.

10 Q Can you identify for Mr. Catanach the
11 reason certain parties were notified of this application
12 and in responding I'm going to show you what is marked as
13 Exhibit Number Eight.

14 In preparing that tabulation or causing
15 that tabulation of interest owners to be prepared, Mr. Car-
16 ter, how was that accomplished?

17 A There was a search made of the area
18 within the vicinity of our discovery well and we attempted
19 to identify simply producing -- producing wells. These
20 wells, the operators from these properties do not have
21 wells producing from the Devonian. These are operators of
22 wells within a 1-mile radius actually of our area, which --
23 which was required in order to submit the discovery appli-
24 cation and a new field designation.

25 Q So in addition to the actual interest

1 owners that are involved in the known production for the
2 Vada Devonian Pool, which are companies that you operate
3 for, you caused notice to be sent to all other operators
4 within a 1-mile area even though they may not have had Vada
5 Devonian wells.

6 A That's exactly right.

7 MR. KELLAHIN: That concludes
8 our examination of Mr. Carter, Mr. Catanach.

9
10 CROSS EXAMINATION

11 BY MR. CATANACH:

12 Q Mr. Carter, there are only four parties
13 that you found that operated within a mile of the pool
14 boundary?

15 A Yes, sir, to the best of our knowledge.
16 Some of the new leases are still open.

17 MR. CATANACH: That's all I
18 have of this witness.

19 He may be excused.

20 Ms. Hawthorne, your proposed
21 rules say that provided that the well location is not
22 closer than 330 feet to the outer boundary of the proration
23 unit, when it crosses the top of the Devonian --

24 MR. KELLAHIN: We may have
25 confused you, Mr. Examiner, there is an amended applica-

1 tion. The first application was filed on June 21st.
2 That's the one you're looking at.

3 The amended one is June 28th,
4 and that shows a 450-foot distance to the outer boundary of
5 the spacing unit.

6 MR. CATANACH: She may be ex-
7 cused.

8 Is there anything further in
9 Cases 9439 and 9440?

10 If not, these cases will be
11 taken under advisement.

12
13 (Hearing concluded.)
14
15
16
17
18
19
20
21
22
23
24
25

C E R T I F I C A T E

I, SALLY W. BOYD, C. S. R. DO HEREBY
CERTIFY that the foregoing Transcript of Hearing before the
Oil Conservation Division (Commission) was reported by me;
that the said transcript is a full, true and correct record
of the hearing, prepared by me to the best of my ability.

Sally W. Boyd CSR

I do hereby certify that the foregoing is
a complete record of the proceedings in
the Examiner hearing of Case No. 9439, 9440
heard by me on August 17 19 88.

David R. Catanaach, Examiner
Oil Conservation Division

1 STATE OF NEW MEXICO
2 ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
3 OIL CONSERVATION DIVISION
4 STATE LAND OFFICE BUILDING
5 SANTA FE, NEW MEXICO

6 20 July 1988

7 EXAMINER HEARING

8 IN THE MATTER OF:

9 Application of Union Pacific Resources CASE
10 Company for pool extension and special 9439
11 pool rules, Lea County, New Mexico.

12 BEFORE: Michael E. Stogner, Examiner
13
14
15

16 TRANSCRIPT OF HEARING

17 A P P E A R A N C E S
18

19 For the Division: Robert G. Stovall
20 Attorney at Law
21 Legal Counsel to the Division
22 State Land Office Bldg.
23 Santa Fe, New Mexico

24 For the Applicant:
25

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

MR. STOGNER: Call next Case
Number 9439.

MR. STOVALL: Application of
Union Pacific Resources Company for pool extension and
special pool rules, Lea County, New Mexico.

The applicant has requested
that Case No. 9439 be continued.

MR. STOGNER: Case No. 9439
will be continued to the Examiner Hearing August 17, 1988.

(Hearing concluded.)

C E R T I F I C A T E

I, SALLY W. BOYD, C. S. R. DO HEREBY
CERTIFY that the foregoing Transcript of Hearing before the
Oil Conservation Division (Commission) was reported by me;
that the said transcript is a full, true and correct record
of the hearing, prepared by me to the best of my ability.

Sally W. Boyd CSR

I do hereby certify that the foregoing is
a complete record of the proceedings in
the Examiner hearing of Case No. 4439
heard by me on 20 July 1988.

Michael E. Stogerson, Examiner
Oil Conservation Division