CASE 6670: BTA OIL PRODUCERS FOR POOL CREATION AND SPECIAL POOL RULES, LEA COUNTY, NEW MEXICO.

CASE NO.

6670

APPLICATION,

TRANSCRIPTS,

SMALL EXHIBITS,

ETC.

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

BRUCE KING
GOVERNOR

LARRY KEHOE
SECRETARY

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
(505) 827-2434

February 25, 1981

Re: CASE NO. 6670
ORDER NO. R-6183-A

Mr. William F. Carr
Campbell, Byrd and Black
Attorneys at Law
Post Office Box 2208
Santa Fe, New Mexico

Applicant:

OCD (BTA Oil Producers)

Dear Sir:

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

Yours very truly,

JOE D. RAMEY
Director

JDR/fd

Copy of order also sent to:

Hobbs OCD x
Artesia OCD x
Aztec OCD

Other Thomas Kellahin

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION DIVISION FOR THE PURPOSE OF CONSIDERING:

CASE NO. 6670
Order No. R-6183-A

IN THE MATTER OF CASE 6670 BEING REOPENED PURSUANT TO THE PROVISIONS OF ORDER NO. R-6183, WHICH ORDER PROMULGATED SPECIAL RULES AND REGULATIONS FOR THE RED HILLS-DEVONIAN GAS POOL, LEA COUNTY, NEW MEXICO, INCLUDING A PROVISION FOR 640-ACRE SPACING UNITS.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on February 11, 1981, at Santa Fe, New Mexico, before Examiner Richard L. Stamets.

NOW, on this 23rd day of February, 1981, the Division Director, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

(1) That due public notice having been given as required by law, the Division has jurisdiction of this cause and the subject matter thereof.

(2) That by Order No. R-6183, dated November 28, 1979, temporary special rules and regulations were promulgated for the Red Hills-Devonian Gas Pool, Lea County, New Mexico, establishing temporary 640-acre spacing units.

(3) That pursuant to the provisions of Order No. R-6183, this case was reopened to allow the operators in the subject pool to appear and show cause why the Red Hills-Devonian Gas Pool should not be developed on 320-acre spacing units.

(4) That the evidence establishes that one well in the Red Hills-Devonian Gas Pool can efficiently and economically drain and develop 640 acres.

(5) That the Special Rules and Regulations promulgated by Order No. R-6183 have afforded and will afford to the owner of each property in the pool the opportunity to produce his just and equitable share of the gas in the pool.

(6) That in order to prevent the economic loss caused by the drilling of unnecessary wells, to avoid the augmentation of risk arising from the drilling of an excessive number of wells, to prevent reduced recovery which might result from the drilling of too few wells, and to otherwise prevent waste and protect correlative rights, the Special Rules and Regulations promulgated by Order No. R-6183 should be continued in full force and effect until further order of the Division.

IT IS THEREFORE ORDERED:

(1) That the Special Rules and Regulations governing the Red Hills-Devonian Gas Pool, Lea County, New Mexico, promulgated by Order No. R-6183, are hereby continued in full force and effect until further order of the Division.

(2) That jurisdiction of this cause is retained for the entry of such further orders as the Division may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

JOE D. RAMEY
Director

SEAL

fd/

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BLDG.
SANTA FE, NEW MEXICO
11 February 1981

EXAMINER HEARING

IN THE MATTER OF:

Case 6670 being reopened and pursuant to the provisions of Order No. R-6183.

CASE 6670

BEFORE: Richard L. Stamets

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation Division: Ernest L. Padilla, Esq.
Legal Counsel to the Division
State Land Office Bldg.
Santa Fe, New Mexico 87501

For the Applicant: W. Thomas Kellahin, Esq.
KELLAHIN & KELLAHIN
500 Don Gaspar
Santa Fe, New Mexico 87501

For HNG Oil Company: William F. Carr, Esq.
CAMPBELL, BYRD, & BLACK
Jefferson Place
Santa Fe, New Mexico 87501

I N D E X

E X H I B I T S

MR. STAMETS: Call next Case 6670.

MR. PADILLA: In the matter of Case 6670 being reopened and pursuant to the provisions of Order No. R-6183, which order promulgated temporary special rules and regulations for the Red Hills-Devonian Gas Pool in Lea County, New Mexico.

MR. KELLAHIN: I'm Tom Kellahin of Santa Fe, New Mexico, appearing on behalf of BTA Oil Producers, and I have one witness.

MR. CARR: Mr. Examiner, I'm William F. Carr, with the law firm Campbell, Byrd, and Black, Santa Fe. I'm appearing on behalf of HNG Oil Company.

MR. PADILLA: Mr. Carr, do you have any witnesses?

MR. CARR: At this time we do not intend to call a witness.

(Witness sworn.)

STEVE SALMON

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Salmon, would you please state your name and occupation?

A. My name is Steve Salmon. I'm employed by BTA Oil Producers as a petroleum engineer, and have been employed by BTA Oil Producers as a petroleum engineer for approximately ten years, and I have testified before the New Mexico Conservation Division before.

Q. Mr. Salmon, you testified in the previous hearing that resulted in Order R-6183, did you not, sir?

A. Yes, I did.

Q. The pool rules for the Red Hills-Devonian Gas Pool resulted from a hearing brought your company, did it not?

A. Yes, they did.

Q. And pursuant to the call of this hearing today, have you made a study of the Red Hills-Devonian Gas Pool?

A. Yes, I have.

Q. And have you prepared certain exhibits with regards to your testimony?

A. I have prepared exhibits with the assistance of one of our development geologists. He worked

under my direction in preparing the maps.

Q. All right, sir.

MR. KELLAHIN: We tender Mr. Salmon as an expert petroleum engineer.

MR. STAMETS: He is considered qualified.

Q. Mr. Salmon, would you turn to what we've marked as BTA Exhibit Number One and identify that for us?

A. Yes. This is a structure map. The lines are based on top of the Devonian. This, with a few minor changes in ownership and the addition of one Wolfcamp gas well, is essentially the same exhibit presented during the September, 1989, field rules hearing.

The scale is one inch equals 4000 feet. The contour is 50 feet.

There is one producing Devonian well, BTA's 7811 "JB-P" Rojo Well No. 1, as indicated by the red dot in the approximate center of the map. This well is 660 feet from the north and west lines of Section 27, Township 25 South, Range 33 East.

Q. What's the acreage dedicated to that Devonian well, Mr. Salmon?

A. All of Section 27 is currently devoted to that well. This is covered under three separate leases

which BTA has.

Q. Are there any other Devonian gas wells in this pool?

A. No, there are no other producing Devonian wells. There are two other wells on the map that have penetrated the Devonian and we'll discuss each of them later on.

Q. All right, sir.

A. Field limits on this map are governed by the gas/water contact which is shown by the dashed blue line at -14,180 feet.

A cross section trace A-A' is shown on this map going from the American Quasar Vaca Draw Unit to the BTA Rojo Well No. 1, and the other Devonian penetration, the Red Hills Unit No. 1 in Section 32 will also be on the cross section.

There are also four Wolfcamp wells, four producing Wolfcamp wells as shown by the blue dots on this exhibit, which don't really enter into this hearing.

Q. All right, sir, would you turn to Exhibit Number Two and identify that?

A. Yes. This is a producing field map to show the position of the Red Hills-Devonian Field with other Devonian fields in the area.

The DEvonian Fields are colored in yellow

on the map. The field names are highlighted in blue.

Q. Would you identify for us which of the Devonian Pools in the area are spaced upon 640 acres?

A. Yes. BTA's Red Hills Unit is shown as the southernmost field, Devonian field, in this part of New Mexico. The Antelope Ridge Field -- the Antelope Ridge-Devonian, which is approximately 11.4 miles to the north and slightly east is on 640-acre spacing. And just to the north and slightly west of that field the Bell Lake North-Devonian Field is on 640 acres.

Q. All right, sir, would you turn to Exhibit Number Three, which I believe is your cross section?

A. Yes.

Q. Would you identify that for us?

A. Okay, this is a cross section showing the three Devonian penetrations. This again is essentially the same exhibit that was presented as Exhibit Four in the September 19th, 1979, field hearing. A trace of this cross section,as discussed earlier, is shown on the Exhibit One.

On the lefthand side of the map is the American Quasar Vaca Draw Well No. 1. This well perforated the Devonian down to the bottom perf of the subsea of -14,187 feet. This perforation flowed gas at 4 million cubic feet per day, decreasing to 750 Mcf per day with slugs of water,

and was plugged before it went on production.

The drill stem tests are shown just to the right of the log and DST number two recovered gas at 1.7-million cubic feet per day and recovered 120 feet of drilling mud. It bottomed at -14,217 feet.

The Red Hills Unit No. 1 just to right of that well was perforated and also had some drill stem tests run on it. The perforation that the -- the top two sets of perforations shown on the log, highlighted in yellow, flowed 10.4-million cubic feet per day. In discussing this well with a Mr. Hughes with Union, he said thattheir records indicated it made some water during that test but it was not identified as the load water or the formation water or whatever, and it was a very short duration test. The well was then plugged back and completed in the Wolfcamp.

The drill stem shown just to the right of the log all recovered gas and sulphur water.

The one producing well in the field is shown on the righthand side of the map, the BTA Waterhole Well No. 1, it was perforated down to a subsea of -14,146 feet and went on line -- went on production on December the 11th, 1979, with 2,667 Mcf per day.

The well did have three drill stem tests as shown on the -- to the right of the log and these -- the

lower drill stem test recovered gas with no water.

Q. All right, Mr. Salmon, would you turn to Exhibit Number Four and identify that for us?

A. Exhibit Number Four is a production tabulation for the Waterhole Well No. 1. The left column indicates the date, month, and year for the production. The center column is gas sold, and the righthand column is barrels of water per month.

Our next Exhibit, Exhibit Number Five, is a graph on semilog paper of this data. As you can see, the well declined rather rapidly the first few months it was on production. The last three or four months it appears to have flattened out considerably.

Also, on the bottom, the bottom curve is the barrels of water per month, and as you can see, it increased rapidly but in the last three or four months appears to have also leveled off.

The well has made through December 1980, just over 1 Bcf of gas.

Q. All right, sir, would you turn to Exhibit Number Six and discuss that for us?

A. Yes. Exhibit Six is a tabulation of the pressure information available on the BTA 7811 Waterhole Well No. 1.

The initial shut-in tubing pressure on June the 23rd, 1979, was 5744 pounds on a 77-1/2 hour shut-in. The bottom hole pressure measured in conjunction with the shut-in tubing pressure was 7671 pounds.

The well was shut-in for mainly a shut-in test on September the 11th, 1980, and the shut-in tubing pressure on 24-hour test was 4852 pounds.

To have consistent numbers to plot, since we didn't have a measured bottom hole pressure on both shut-in, I calculated the bottom hole pressure from the tubing pressure using the New Mexico stepwise method, and these are shown in about the middle column.

Just to the right of that is the bottom hole pressure over Z, based on the calculated pressure and cumulative at the time the test was taken.

Q. Do you have any other pressure tests on this well, Mr. Salmon?

A. No, this is all the pressure tests that we have.

Q. All right, sir.

Would you identify for us Exhibit Number Seven?

A. Yes. Exhibit Number Seven is a graph of the bottom hole pressure over Z calculated in the previous

exhibit versus cumulative production. The two on the graph are indicated on the lefthand side of the graph by the X's. Drawing a line between these two points and extending it down to the Y, the gas recovery expected to 750 psi would be 8.64 Bcf with gas in place in the recovery area, 9.79 Bcf.

Q. In your testimony in September of '79 from which the original 640-acre spacing rules were adopted, what was your estimate of the recoverable gas reserves attributable to this well at that time?

A. We estimated that in a 640-acre drainage area, and I believe it was entered into the record at that time, was 8.2 Bcf per 640 acres. This compares very favorably to the 8.6 Bcf recovery indicated by the bottom hole pressure over Z versus cumulative graph, and we feel that this is proof that one well can drain at least 640 acres.

Now, I would like to add that since BTA Well No. 1 was making some water, it is possible that this water could increase and the well might not actually get this recovery, but if the water -- if the well does not water out, it should get 8.6 Bcf.

Q. Why have you used an abandonment pressure of 750 psi?

A. The abandonment pressure that you use is at best a guess, and this is what we feel like we could

drain the reservoir to if our water encroachment does not get to us.

Q. You've plotted the two pressure points on the upper lefthand side of your P/Z curve. Would you discuss that for us for a moment to determine whether in your opinion the lines drawn through those pressure points represent a conservative estimate or an optimistic estimate of potential recoverable reserves?

A. I would say that they represent a conservative estimate. There are several things that could enter into this pressure data. One is that if we have water loading up in the tubing during the shut-ins, it would tend to make the pressure higher, and since the water production came up since the initial production, this would affect the second point more than the first, and it could be that the second point's pressure would be slightly higher.

Also, if you look at the amount of recovery prior to these shut-ins and the time they were shut-in, the first pressure being shut-in 77-1/2 hours, the second survey being a 24-hour shut-in, if they aren't built up all the way you'd expect that the second one would be built up less close to the reservoir pressure than the first one.

So anything that could affect this pres-

sure data would tend to increase the gas in place and recovery rather than decrease it.

Q. Mr. Salmon, what was the total cost of completing this Devonian test?

A. Well, this well was drilled through the Devonian and went deeper than the Devonian, and actually its cost would not be very reflective of the actual Devonian cost.

Q. Can you give us your opinion as to what the Devonian cost would be for a well to test the Devonian formation?

A. Well, at the previous hearing we had an estimate of approximately $3.3 million. I have not updated this estimate prior to this hearing and it would probably be $3.3-million plus approximately 15 percent for inflation since the previous hearing.

Q. In your opinion are the economics of drilling a Devonian test now such that they would support the drilling of wells based upon closer than 640 acres?

A. No, I don't believe it would. If the well costs at the time of the previous hearing, drilling on 320 acres would have resulted in a return of investment of approximately 2-to-1, which we feel like would not justify the risk of drilling a Devonian well to this reservoir, and

the economics would not have changed appreciably since then.

Q. The special rules adopted by the Commission for this pool provide for well locations where, Mr. Salmon?

A. It provides for 640-acre units. It provides for well location 1650 feet from the outer boundary and no nearer than 330 feet to any governmental quarter quarter section.

Q. Do you have any recommendations to the Examiner with regards to the well location provisions of the rules?

A. Yes, we would like to see the spacing changed to allow a well within --

Q. You don't mean the spacing, do you?

A. No, the distance from the outer boundary changed to allow a well 660 feet from the outer boundary. This is in line with the recommendations we made previously.

Q. That was your same recommendation back in September, '79?

A. Yes, it is.

Q. And upon what do you base that recommendation?

A. Well, as was seen in the exhibits, the water production in the BTA well is increasing. This is on

Exhibits Four and Five. And we feel like the closer spacing to the lease will allow operators to position their wells to obtain maximum structural advantage and increase the ultimate recovery from the field.

As you can see on Exhibit One, some of the leases -- well, BTA's well was substantially above the gas/water contact and it is making water. If an operator positioned his well at the highest possible structural position on his lease, he can recover the reserves available on his lease and due to water encroachment he probably will not attain an unfair advantage.

Q. Mr. Salmon, were Exhibits One through Seven prepared by you directly or compiled under your direction and supervision?

A. Yes, they were.

Q. In your opinion will the continuation of 640-acre spacing for this particular Devonian pool be in the best interest of conservation?

A. Yes, I believe it will.

Q. Will it promote the prevention of waste and the protection of correlative rights?

A. Yes, I believe it will.

MR. KELLAHIN: That concludes our examination of Mr. Salmon. We move the introduction of BTA

exhibits One through Seven.

MR. STAMETS: These exhibits will be admitted.

CROSS EXAMINATION

BY MR. STAMETS:

Q. Mr. Salmon, has BTA done any reservoir limits tests in this well?

A. No, we have not. The only pressure data available is the initial pressure buildup, which did not indicate a reservoir limits, and then the September the 11th, 1980, 24-hour shut-in, and we feel that the geology shows it to be -- essentially the way its drawn here.

The Union Red Hills Unit down in Section 32 and our well, we feel like could be in the same reservoir, and the only question in respect to -- that I can see, would be how far to the southeast the structure would actually go,

Q. How was the gas/water contact determined?

A. Well, it was determined from just a compilation of the data shown on Exhibit Three, in that the Vaca Draw Well, the American Quasar Vaca Draw Well was perforated actually seven feet below where I've shown the gas/water contact to be, and it started making water almost immediately when they produced it.

And the BTA well perforated down to -14,146 feet. It was water-free initially.

Also you'll notice that all three exhibits--or all three drill stem tests from the Union well recovered gas and water, which its DST number two is completely below the gas/water contact and it did recover some gas. There's probably a transition vein, there may be 30 to 40 feet there where they'd get gas and water, but we feel like -14,180 is about as good a number as you can get from all the data shown on Exhibit Three.

Q. What would the the actual negative impact if any, on BTA if this pool were to convert to 320-acre spacing?

A. Okay. We feel, well, the well that we have in Section 27 is governed by three leases, and I believe that the lease that covers the west half of the section does provide for a back-in. Yes, the lease on the west half of the section, Texaco has a 9-1/2 percent overriding royalty, which is convertible to a 50 percent working interest.

BTA, the east half of the section is also under lease to BTA and our interest there is slightly better on the east half. The people involved in this section in the east half, we have had discussions with them and at one time had considered putting it on 320, but we feel that

it will drain 640. These people farmed out to us so we feel like, you know, they should get their share of production from this well.

Q. You'd be put in a position of you having to drill a well on the east half or letting the leases go?

A. Yes, we would be, if the 640-acre rules are not continued.

Q. Would it be possible to run a reservoir limits test on this well?

A. It would be possible. I don't really think it would be very definitive. I feel like the proximity to the gas/water contact, we'd probably see several things happening in the pressure data with the gas/water contact affecting the slope, it would probably negate any benefit from a reservoir limits test. I don't think it would really show a good number there.

Now BTA does want to do some more drilling in the area and what's holding us up is that our additional acreage is in sections where other people also have an interest and they have expressed a desire to see more production on the BTA well before they make a decision whether to join or farm out. We do have some indications that Texaco in Section 22 has almost -- has made up -- or is close to making up their mind, and so we feel like we will

be drilling an additional well in Section 22, either with a 25 percent interest or on a farmout from Texaco with 100 percent working interest.

In Section 34 Texaco and Gulf would be involved in drilling there, and they would probably not do anything until after a well is drilled in Section 22.

Q. Looking at Exhibit Number One, it would appear as though a 1650 location would allow you and the other owners in the pool to more or less drill right on the crest of this Devonian structure. Is there any real need for a change to 660 spacing?

A. Well, in Section 22, I believe if you drill a 1650-foot location you are going to be down structure just slightly, though it would be almost on strike with the existing well, which is already making some water, and we would like to drill a well closer to the lease line than that.

In Section 28 a 1650 location, while BTA does not have an interest in that section, would allow you to drill a well essentially on the crest of the structure.

MR. STAMETS: Any other questions of the witness? He may be excused.

Anything further in this case?

Mr. Carr?

MR. CARR: Mr. Examiner, HNG Oil Company

is an interest owner in the BTA Rojo No. 1 Well. This interest arises from certain leases in the east half of Section 27.

HNG supports the application of BTA and would like to call to the Examiner's attention that should the spacing revert to 320-acres, they would be left in a position where reserves from underneath their leases would be drained and the only way they could protect against that drainage would be by drilling a well which in all probability would not be an economical well.

MR. STAMETS: Anything further in this case?

The case will be taken under advisement.

(Hearing concluded.)

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

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 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 C.S.R.

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 6670 heard by me on 2-11 1981.

Richard L. Stamets, Examiner
Oil Conservation Division

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BLDG.
SANTA FE, NEW MEXICO
11 February 1981

EXAMINER HEARING

IN THE MATTER OF:

Case 6670 being reopened and pursuant to the provisions of Order No. R-6183.

CASE 6670

BEFORE: Richard L. Stamets

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation Division: Ernest L. Padilla, Esq.
Legal Counsel to the Division
State Land Office Bldg.
Santa Fe, New Mexico 87501

For the Applicant: W. Thomas Kellahin, Esq.
KELLAHIN & KELLAHIN
500 Don Gaspar
Santa Fe, New Mexico 87501

For HNG Oil Company: William F. Carr, Esq.
CAMPBELL, BYRD, & BLACK
Jefferson Place
Santa Fe, New Mexico 87501

I N D E X

E X H I B I T S

MR. STAMETS: Call next Case 6670.

MR. PADILLA: In the matter of Case 6670 being reopened and pursuant to the provisions of Order No. R-6183, which order promulgated temporary special rules and regulations for the Red Hills-Devonian Gas Pool in Lea County New Mexico.

MR. KELLAHIN: I'm Tom Kellahin of Santa Fe, New Mexico, appearing on behalf of BTA Oil Producers, and I have one witness.

MR. CARR: Mr. Examiner, I'm William F. Carr, with the law firm Campbell, Byrd, and Black, Santa Fe. I'm appearing on behalf of HNG Oil Company.

MR. PADILLA: Mr. Carr, do you have any witnesses?

MR. CARR: At this time we do not intend to call a witness.

(Witness sworn.)

STEVE SALMON

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Salmon, would you please state your name and occupation?

A. My name is Steve Salmon. I'm employed by BTA Oil Producers as a petroleum engineer, and have been employed by BTA Oil Producers as a petroleum engineer for approximately ten years, and I have testified before the New Mexico Conservation Division before.

Q. Mr. Salmon, you testified in the previous hearing that resulted in Order R-6183, did you not, sir?

A. Yes, I did.

Q. The pool rules for the Red Hills-Devonian Gas Pool resulted from a hearing brought your company, did it not?

A. Yes, they did.

Q. And pursuant to the call of this hearing today, have you made a study of the Red Hills-Devonian Gas Pool?

A. Yes, I have.

Q. And have you prepared certain exhibits with regards to your testimony?

A. I have prepared exhibits with the assistance of one of our development geologists. He worked

under my direction in preparing the maps.

Q. All right, sir.

MR. KELLAHIN: We tender Mr. Salmon as an expert petroleum engineer.

MR. STAMETS: He is considered qualified.

Q. Mr. Salmon, would you turn to what we've marked as BTA Exhibit Number One and identify that for us?

A. Yes. This is a structure map. The lines are based on top of the Devonian. This, with a few minor changes in ownership and the addition of one Wolfcamp gas well, is essentially the same exhibit presented during the September, 1989, field rules hearing.

The scale is one inch equals 4000 feet. The contour is 50 feet.

There is one producing Devonian well, BTA's 7811 "JB-P" Rojo Well No. 1, as indicated by the red dot in the approximate center of the map. This well is 660 feet from the north and west lines of Section 27, Township 25 South, Range 33 East.

Q. What's the acreage dedicated to that Devonian well, Mr. Salmon?

A. All of Section 27 is currently devoted to that well. This is covered under three separate leases

which BTA has.

Q. Are there any other Devonian gas wells in this pool?

A. No, there are no other producing Devonian wells. There are two other wells on the map that have penetrated the Devonian and we'll discuss each of them later on.

Q. All right, sir.

A. Field limits on this map are governed by the gas/water contact which is shown by the dashed blue line at -14,180 feet.

A cross section trace A-A' is shown on this map going from the American Quasar Vaca Draw Unit to the BTA Rojo Well No. 1, and the other Devonian penetration, the Red Hills Unit No. 1 in Section 32 will also be on the cross section.

There are also four Wolfcamp wells, four producing Wolfcamp wells as shown by the blue dots on this exhibit, which don't really enter into this hearing.

Q. All right, sir, would you turn to Exhibit Number Two and identify that?

A. Yes. This is a producing field map to show the position of the Red Hills-Devonian Field with other Devonian fields in the area.

The DEvonian Fields are colored in yellow

on the map. The field names are highlighted in blue.

Q. Would you identify for us which of the Devonian Pools in the area are spaced upon 640 acres?

A. Yes. BTA's Red Hills Unit is shown as the southernmost field, Devonian field, in this part of New Mexico. The Antelope Ridge Field -- the Antelope Ridge-Devonian, which is approximately 11.4 miles to the north and slightly east is on 640-acre spacing. And just to the north and slightly west of that field the Bell Lake North-Devonian Field is on 640 acres.

Q. All right, sir, would you turn to Exhibit Number Three, which I believe is your cross section?

A. Yes.

Q. Would you identify that for us?

A. Okay, this is a cross section showing the three Devonian penetrations. This again is essentially the same exhibit that was presented as Exhibit Four in the September 19th, 1979, field hearing. A trace of this cross section, as discussed earlier, is shown on the Exhibit One.

On the lefthand side of the map is the American Quasar Vaca Draw Well No. 1. This well perforated the Devonian down to the bottom perf of the subsea of -14,187 feet. This perforation flowed gas at 4 million cubic feet per day, decreasing to 750 Mcf per day with slugs of water,

and was plugged before it went on production.

The drill stem tests are shown just to the right of the log and DST number two recovered gas at 1.7-million cubic feet per day and recovered 120 feet of drilling mud. It bottomed at -14,217 feet.

The Red Hills Unit No. 1 just to right of that well was perforated and also had some drill stem tests run on it. The perforation that the -- the top two sets of perforations shown on the log, highlighted in yellow, flowed 10.4-million cubic feet per day. In discussing this well with a Mr. Hughes with Union, he said thattheir records indicated it made some water during that test but it was not identified as the load water or the formation water or whatever, and it was a very short duration test. The well was then plugged back and completed in the Wolfcamp.

The drill stem shown just to the right of the log all recovered gas and sulphur water.

The one producing well in the field is shown on the righthand side of the map, the BTA Waterhole Well No. 1, it was perforated down to a subsea of -14,146 feet and went on line -- went on production on December the 11th, 1979, with 2,667 Mcf per day.

The well did have three drill stem tests as shown on the -- to the right of the log and these -- the

lower drill stem test recovered gas with no water.

Q. All right, Mr. Salmon, would you turn to Exhibit Number Four and identify that for us?

A. Exhibit Number Four is a production tabulation for the Waterhole Well No. 1. The left column indicates the date, month, and year for the production. The center column is gas sold, and the righthand column is barrels of water per month.

Our next Exhibit, Exhibit Number Five, is a graph on semilog paper of this data. As you can see, the well declined rather rapidly the first few months it was on production. The last three or four months it appears to have flattened out considerably.

Also, on the bottom, the bottom curve is the barrels of water per month, and as you can see, it increased rapidly but in the last three or four months appears to have also leveled off.

The well has made through December 1980, just over 1 Bcf of gas.

Q. All right, sir, would you turn to Exhibit Number Six and discuss that for us?

A. Yes. Exhibit Six is a tabulation of the pressure information available on the BTA 7811 Waterhole Well No. 1.

The initial shut-in tubing pressure on June the 23rd, 1979, was 5744 pounds on a 77-1/2 hour shut-in. The bottom hole pressure measured in conjunction with the shut-in tubing pressure was 7671 pounds.

The well was shut-in for mainly a shut-in test on September the 11th, 1980, and the shut-in tubing pressure on 24-hour test was 4852 pounds.

To have consistent numbers to plot, since we didn't have a measured bottom hole pressure on both shut-in, I calculated the bottom hole pressure from the tubing pressure using the New Mexico stepwise method, and these are shown in about the middle column.

Just to the right of that is the bottom hole pressure over Z, based on the calculated pressure and cumulative at the time the test was taken.

Q. Do you have any other pressure tests on this well, Mr. Salmon?

A. No, this is all the pressure tests that we have.

Q. All right, sir.

Would you identify for us Exhibit Number Seven?

A. Yes. Exhibit Number Seven is a graph of the bottom hole pressure over Z calculated in the previous

exhibit versus cumulative production. The two on the graph are indicated on the lefthand side of the graph by the X's. Drawing a line between these two points and extending it down to the Y, the gas recovery expected to 750 psi would be 8.64 Bcf with gas in place in the recovery area, 9.79 Bcf.

Q. In your testimony in September of '79 from which the original 640-acre spacing rules were adopted, what was your estimate of the recoverable gas reserves attributable to this well at that time?

A. We estimated that in a 640-acre drainage area, and I believe it was entered into the record at that time, was 8.2 Bcf per 640 acres. This compares very favorably to the 8.6 Bcf recovery indicated by the bottom hole pressure over Z versus cumulative graph, and we feel that this is proof that one well can drain at least 640 acres.

Now, I would like to add that since BTA Well No. 1 was making some water, it is possible that this water could increase and the well might not actually get this recovery, but if the water -- if the well does not water out, it should get 8.6 Bcf.

Q. Why have you used an abandonment pressure of 750 psi?

A. The abandonment pressure that you use is at best a guess, and this is what we feel like we could

drain the reservoir to if our water encroachment does not get to us.

Q. You've plotted the two pressure points on the upper lefthand side of your P/Z curve. Would you discuss that for us for a moment to determine whether in your opinion the lines drawn through those pressure points represent a conservative estimate or an optimistic estimate of potential recoverable reserves?

A. I would say that they represent a conservative estimate. There are several things that could enter into this pressure data. One is that if we have water loading up in the tubing during the shut-ins, it would tend to make the pressure higher, and since the water production came up since the initial production, this would affect the second point more than the first, and it could be that the second point's pressure would be slightly higher.

Also, if you look at the amount of recovery prior to these shut-ins and the time they were shut-in, the first pressure being shut-in 77 1/2 hours, the second survey being a 24-hour shut-in, if they aren't built up all the way you'd expect that the second one would be built up less close to the reservoir pressure than the first one.

So anything that could affect this pres-

sure data would tend to increase the gas in place and recovery rather than decrease it.

Q. Mr. Salmon, what was the total cost of completing this Devonian test?

A. Well, this well was drilled through the Devonian and went deeper than the Devonian, and actually its cost would not be very reflective of the actual Devonian cost.

Q. Can you give us your opinion as to what the Devonian cost would be for a well to test the Devonian formation?

A. Well, at the previous hearing we had an estimate of approximately $3.3-million. I have not updated this estimate prior to this hearing and it would probably be $3.3-million plus approximately 15 percent for inflation since the previous hearing.

Q. In your opinion are the economics of drilling a Devonian test now such that they would support the drilling of wells based upon closer than 640 acres?

A. No, I don't believe it would. If the well costs at the time of the previous hearing, drilling on 320 acres would have resulted in a return of investment of approximately 2-to-1, which we feel like would not justify the risk of drilling a Devonian well to this reservoir, and

the economics would not have changed appreciably since then.

Q. The special rules adopted by the Commission for this pool provide for well locations where, Mr. Salmon?

A. It provides for 640-acre units. It provides for well location 1650 feet from the outer boundary and no nearer than 330 feet to any governmental quarter quarter section.

Q. Do you have any recommendations to the Examiner with regards to the well location provisions of the rules?

A. Yes, we would like to see the spacing changed to allow a well within --

Q. You don't mean the spacing, do you?

A. No, the distance from the outer boundary changed to allow a well 660 feet from the outer boundary. This is in line with the recommendations we made previously.

Q. That was your same recommendation back in September, '79?

A. Yes, it is.

Q. And upon what do you base that recommendation?

A. Well, as was seen in the exhibits, the water production in the BTA well is increasing. This is on

Exhibits Four and Five. And we feel like the closer spacing to the lease will allow operators to position their wells to obtain maximum structural advantage and increase the ultimate recovery from the field.

As you can see on Exhibit One, some of the leases -- well, BTA's well was substantially above the gas/water contact and it is making water. If an operator positioned his well at the highest possible structural position on his lease, he can recover the reserves available on his lease and due to water encroachment he probably will not attain an unfair advantage.

Q. Mr. Salmon, were Exhibits One through Seven prepared by you directly or compiled under your direction and supervision?

A. Yes, they were.

Q. In your opinion will the continuation of 640-acre spacing for this particular Devonian pool be in the best interest of conservation?

A. Yes, I believe it will.

Q. Will it promote the prevention of waste and the protection of correlative rights?

A. Yes, I believe it will.

MR. KELLAHIN: That concludes our examination of Mr. Salmon. We move the introduction of BTA

exhibits One through Seven.

MR. STAMETS: These exhibits will be admitted.

CROSS EXAMINATION

BY MR. STAMETS:

Q. Mr. Salmon, has BTA done any reservoir limits tests in this well?

A. No, we have not. The only pressure data available is the initial pressure buildup, which did not indicate a reservoir limits, and then the September the 11th, 1980, 24-hour shut-in, and we feel that the geology shows it to be -- essentially the way its drawn here.

The Union Red Hills Unit down in Section 32 and our well, we feel like could be in the same reservoir, and the only question in respect to -- that I can see, would be how far to the southeast the structure would actually go.

Q. How was the gas/water contact determined?

A. Well, it was determined from just a compilation of the data shown on Exhibit Three, in that the Vaca Draw Well, the American Quasar Vaca Draw Well was perforated actually seven feet below where I've shown the gas/water contact to be, and it started making water almost immediately when they produced it.

And the BTA well perforated down to -14,146 feet. It was water-free initially.

Also you'll notice that all three exhibits--or all three drill stem tests from the Union well recovered gas and water, which its DST number two is completely below the gas/water contact and it did recover some gas. There's probably a transition vein, there may be 30 to 40 feet there where they'd get gas and water, but we feel like -14,180 is about as good a number as you can get from all the data shown on Exhibit Three.

Q. What would the the actual negative impact if any, on BTA if this pool were to convert to 320-acre spacing?

A. Okay. We feel, well, the well that we have in Section 27 is governed by three leases, and I believe that the lease that covers the west half of the section does provide for a back-in. Yes, the lease on the west half of the section, Texaco has a 9-1/2 percent overriding royalty, which is convertible to a 50 percent working interest.

BTA, the east half of the section is also under lease to BTA and our interest there is slightly better on the east half. The people involved in this section in the east half, we have had discussions with them and at one time had considered putting it on 320, but we feel that

it will drain 640. These people farmed out to us so we feel like, you know, they should get their share of production from this well.

Q. You'd be put in a position of you having to drill a well on the east half or letting the leases go?

A. Yes, we would be, if the 640-acre rules are not continued.

Q. Would it be possible to run a reservoir limits test on this well?

A. It would be possible. I don't really think it would be very definitive. I feel like the proximity to the gas/water contact, we'd probably see several things happening in the pressure data with the gas/water contact affecting the slope, it would probably negate any benefit from a reservoir limits test. I don't think it would really show a good number there.

Now BTA does want to do some more drilling in the area and what's holding us up is that our additional acreage is in sections where other people also have an interest and they have expressed a desire to see more production on the BTA well before they make a decision whether to join or farm out. We do have some indications that Texaco in Section 22 has almost -- has made up -- or is close to making up their mind, and so we feel like we will

be drilling an additional well in Section 22, either with a 25 percent interest or on a farmout from Texaco with 100 percent working interest.

In Section 34 Texaco and Gulf would be involved in drilling there, and they would probably not do anything until after a well is drilled in Section 22.

Q. Looking at Exhibit Number One, it would appear as though a 1650 location would allow you and the other owners in the pool to more or less drill right on the crest of this Devonian structure. Is there any real need for a change to 660 spacing?

A. Well, in Section 22, I believe if you drill a 1650-foot location you are going to be down structure just slightly, though it would be almost on strike with the existing well, which is already making some water, and we would like to drill a well closer to the lease line than that.

In Section 28 a 1650 location, while BTA does not have an interest in that section, would allow you to drill a well essentially on the crest of the structure.

MR. STAMETS: Any other questions of the witness? He may be excused.

Anything further in this case?

Mr. Carr?

MR. CARR: Mr. Examiner, HNG Oil Company

is an interest owner in the BTA Rojo No. 1 Well. This interest arises from certain leases in the east half of Section 27.

HNG supports the application of BTA and would like to call to the Examiner's attention that should the spacing revert to 320-acres, they would be left in a position where reserves from underneath their leases would be drained and the only way they could protect against that drainage would be by drilling a well which in all probability would not be an economical well.

MR. STAMETS: Anything further in this case?

The case will be taken under advisement.

(Hearing concluded.)

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

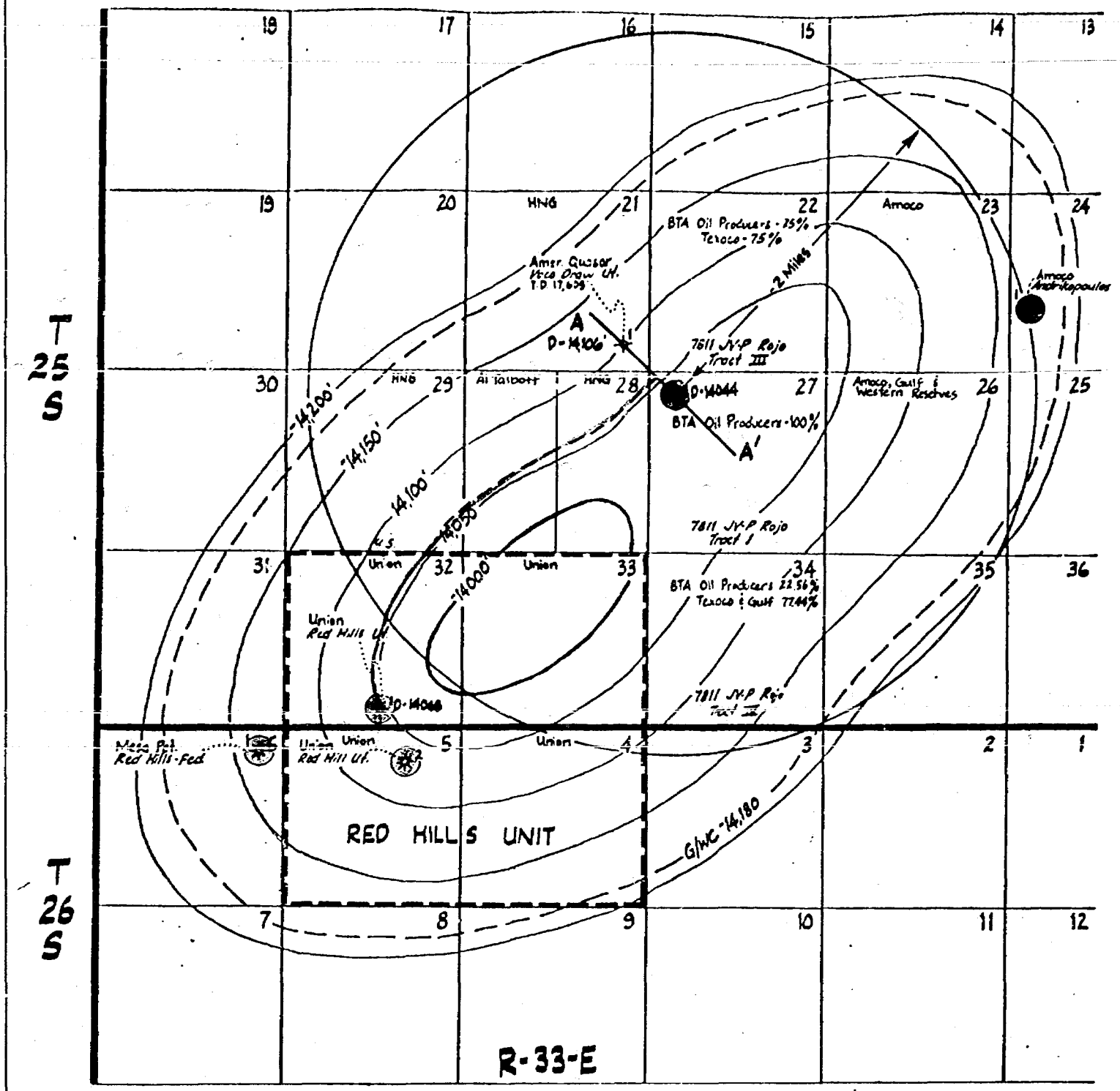
C E R T I F I C A T E

I, SALLY W. BOYD, C.S.R., DO HEREBY CERTIFY that the foregoing Transcript of Hearing before the Oil Conservation Division 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.

_____

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. _____, heard by me on _____ 19____.

_____, Examiner
Oil Conservation Division



BTA OIL PRODUCERS

STRUCTURE MAP
EXHIBIT 1
RED HILLS DEVONIAN
LEA COUNTY, NEW MEXICO
CASE Nº 6670

LEGEND

- Producing Devonian Gas Well
- Producing Wolfcamp Gas Well
- Dry Hole
- LOCATION

Scale : 1"=4000'
Date : 2-11-81

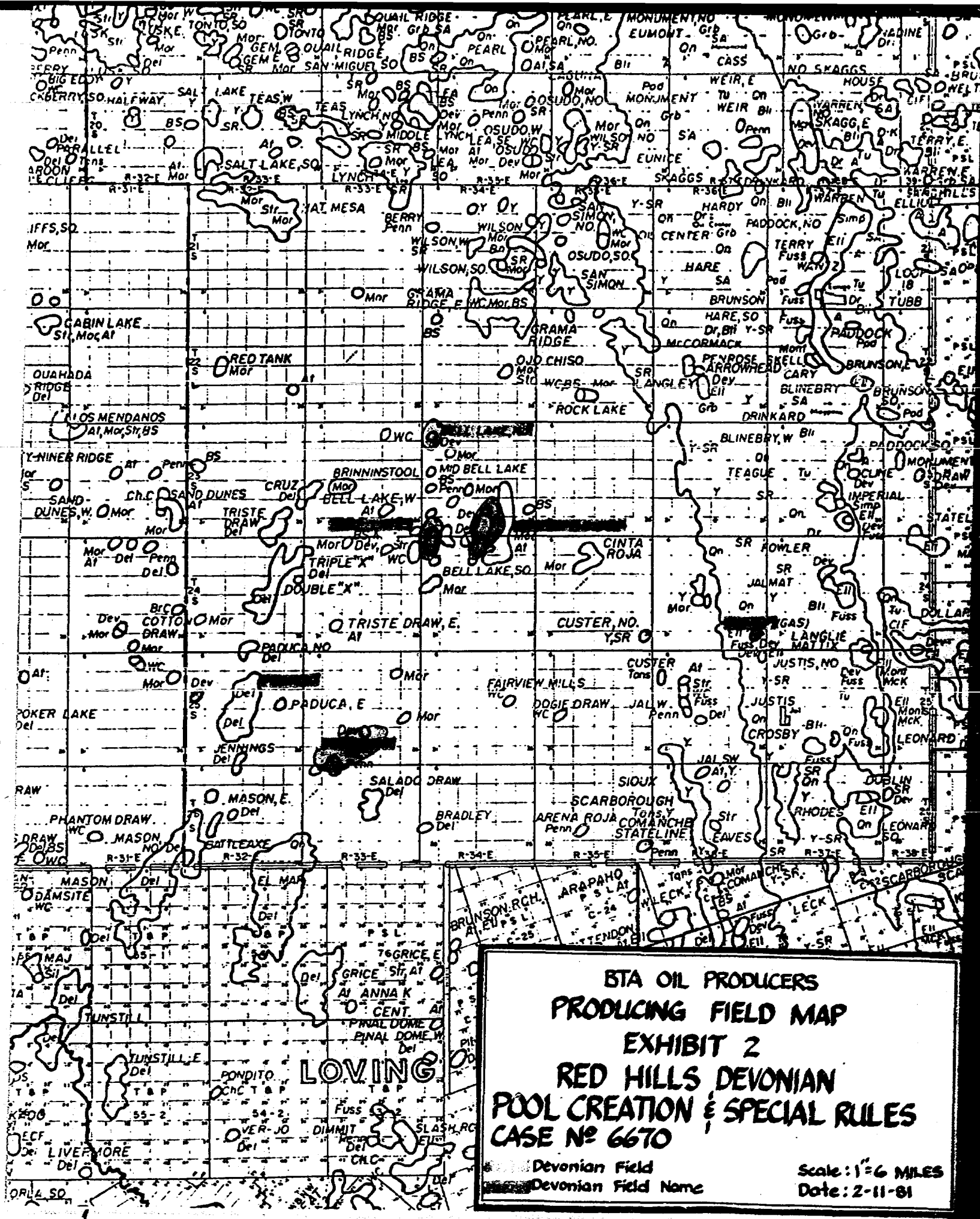

BTA OIL PRODUCERS
PRODUCING FIELD MAP
EXHIBIT 2
RED HILLS DEVONIAN
POOL CREATION & SPECIAL RULES
CASE Nº 6670
Devonian Field
Devonian Field Name
Scale: 1"=6 MILES
Date: 2-11-81
LOVING
RED TANK
BELL LAKE, W
BELL LAKE, SO
TRIPLE "X"
DOUBLE "X"
TRISTE DRAW, E.
PADUCA, NO
PADUCA, E
SALADO DRAW
MASON, E.
MASON, NO
MASON DAMSITE
TUNSTILL
TUNSTILL, E
PONDITO
LIVERMORE
GRAMA RIDGE
GRAMA RIDGE, E
ROCK LAKE
CINTA ROJA
CUSTER, NO.
FAIRVIEW MILLS
DOGIE DRAW
JUSTIS, NO
JUSTIS
CROSBY
LANGLIE MATTIX
SCARBOROUGH
ARENA ROJA
STATELINE
SALT LAKE, SO
LYNCH
OSUDO, NO
OSUDO, SO
WILSON, SO
SAN SIMON
HARE, SO
BRUNSON
PADDOCK
TEAGUE
DRINKARD
BLINEBRY, W
BLINEBRY
IMPERIAL
JALMAT
LANGLIE
EUNICE
SKAGGS
WARREN
TUBB
LOS MENDANOS
OUAHADA RIDGE
BRINNINSTOOL
CRUZ
SAND DUNES
SAND DUNES, W
TRISTE DRAW
COTTON DRAW
JENNINGS
PHANTOM DRAW
BRADLEY
SIOUX
RHODES
LECK
ARAPAHO
BRUNSON RCH.
TENDON
EL MAR
GRICE
ANNA K
CENT.
PINAL DOME
PINAL DOME, W
SLASH, RC
DIMMIT
OVER-JO
CHC
CALC
ORLA, SO
BATTLEAXE
MAJ
Y-NINER RIDGE
GABIN LAKE
BIG EDDY
HALFWAY
PARALLEL
QUAIL RIDGE
SAN MIGUEL SO
TONTO, SO
GEM, E
PEARL
PEARL, NO
MONUMENT, NO
EUMONT
CASS
NO SKAGGS
HOUSE
WEIR, E
WEIR
MONUMENT
YARREN
SKAGG, E
TERRY, E.
WARREN, E
ELLIOTT
HARDY
CENTER
PADDOCK, NO
TERRY
BRUNSON, E
BRUNSON, SO.
HARE, SO
McCORMACK
PENROSE SKELLY
ARROWHEAD
CARY
LANGLEY
OJO CHISO
WILSON
WILSON, W
WILSON, SO.
SAN SIMON
MID BELL LAKE
CLINE
STATELINE
ROWLER
JALMAT
(GAS)
FUSS
DOLLARHIDE
MONUMENT DRAW
MONTMCK
LEONARD
DUBLIN
SCARBOROUGH
COMANCHE
LECK
Y-SR
R-31-E
R-32-E
R-33-E
R-34-E
R-35-E
R-36-E
R-37-E
R-38-E
T 20 S
T 21 S
T 22 S
T 23 S
T 24 S
T 25 S

EXHIBIT 4

CASE 6670

PRODUCTION TABULATION

BTA OIL PRODUCERS

7811 JV-P Rojo No. 1

MO - YEAR	GAS SALES MCFPM	BARRELS WATER PER MONTH
DEC. 79	81,756	162
JAN. 80	97,719	186
FEB. 80	92,997	174
MAR. 80	99,556	186
APR. 80	89,629	261
MAY 80	85,547	218
JUNE 80	76,324	296
JULY 80	73,627	440
AUG. 80	74,820	500
SEP. 80	61,088	500
OCT. 80	71,188	600
NOV. 80	67,576	510
DEC. 80	69,228	620
CUMULATIVE	1,041,055	

2/11/81

BEFORE EXAMINER STAMETS
OIL CONSERVATION DIVISION
BTA EXHIBIT NO. 4
CASE NO. 6670
Submitted by
Hearing Date 2/11/81

BTA Oil PRODUCERS

7813 JV-P ROJO Nº 1

Gas Prod.-MMCFPM 46 6690

MCFPM

BWPM

K+E 5 YEARS BY MONTHS x 3 LOG CYCLES
KEUFFEL & ESSER CO. MADE IN U.S.A.

1000 9 8 7 6 5 4 3 2 100 9 8 7 6 5 4 3 2 10 9 8 7 6 5 4 3 2 1

10,000 9 8 7 6 5 4 3 2 1,000 9 8 7 6 5 4 3 2 100

1 9 8 7 6 5 4 3 2

BWPM

Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.

19 79 | 19 80 | 19 81 | 19 82 | 19 ____

EXHIBIT 5
CASE Nº 6670
2/11/81

EXHIBIT 6

CASE NO. 6670

PRESSURE DATA

BTA OIL PRODUCERS

7811 JV-P RoJo No. 1

Date	Hrs. SI.	SITP PSI.	BHP(1) MEAS. Psi.	BHP (1) Calc. Psi.	BHP/Z (1) Calc. Psi.	Cum. MMCF
6-23-79	77.5	5744	7671	7656	6369	00
9-11-80	24	4852	-	6624	5852	795

(1) @ 17,468'

2/11/81

BEFORE EXAMINER STAMETS
OIL CONSERVATION DIVISION
BTA EXHIBIT NO. 6
CASE NO. 6670
Submitted by
Hearing Date 2/11/81

46 0860

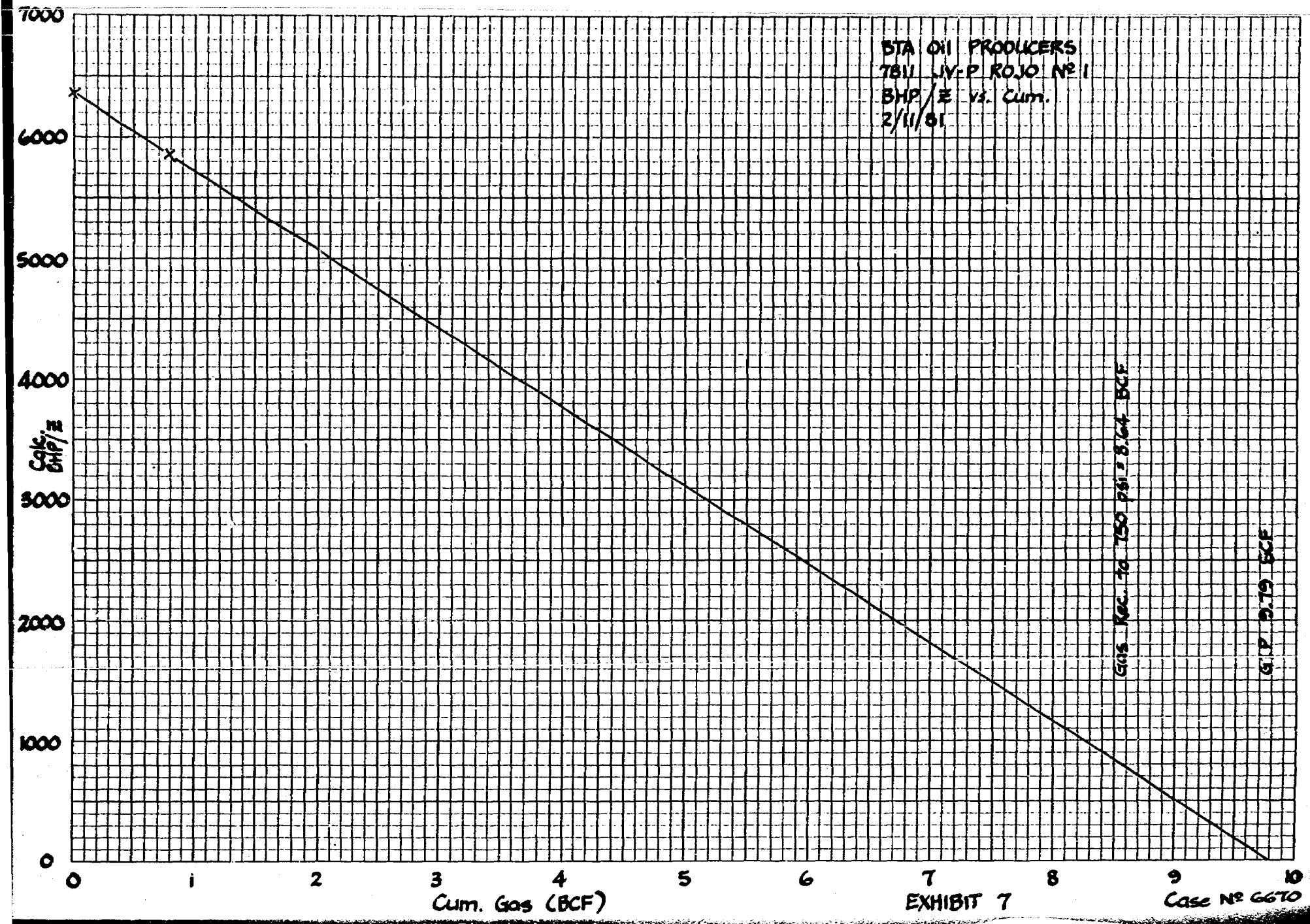


EXHIBIT 7

Case Nº 6670

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BLDG.
SANTA FE, NEW MEXICO
14 January 1981

EXAMINER HEARING

IN THE MATTER OF:

Case 6670 being reopened and pursuant to the provisions of Order No. R-6183.

CASE 6670

BEFORE: Richard L. Stamets

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation Division: Ernest L. Padilla, Esq.
Legal Counsel to the Division
State Land Office Bldg.
Santa Fe, New Mexico 87501

For the Applicant:

MR. STAMETS: We will call at this time Case 6670.

MR. PADILLA: In the matter of Case 6670 being reopened and pursuant to the provisions of Order No. R-6183, which order promulgated temporary special rules and regulations for the Red Hills-Devonian Gas Pool in Lea County, New Mexico, including a provision for 640-acre spacing units.

MR. STAMETS: The interested parties in this case request that the hearing be continued to the February 11th Examiner Hearing, and it shall be.

(Hearing concluded.)

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

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 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 C.S.R.

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 6670 heard by me on 7-14 1981.

Richard L. Stamets, Examiner
Oil Conservation Division

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BLDG.
SANTA FE, NEW MEXICO

14 January 1981

EXAMINER HEARING

IN THE MATTER OF:

Case 6670 being reopened and pursuant to the provisions of Order No. R-6183.

CASE 6670

BEFORE: Richard L. Stamets

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation Division: Ernest L. Padilla, Esq.
Legal Counsel to the Division
State Land Office Bldg.
Santa Fe, New Mexico 87501

For the Applicant:

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(Hearing concluded.)

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Sally W. Boyd C.S.R.

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. _____, heard by me on _____ 19____.

_____, Examiner
Oil Conservation Division

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

CASE 7151: Application of C & E Operators, Inc. for compulsory pooling, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Mesaverde formation underlying the N/2 of Section 9, Township 30 North, Range 11 West, to be dedicated to a well to be drilled at a standard location in the NE/4 and a well to be drilled at a previously approved unorthodox location in the NW/4 of said Section 9. Also to be considered will be the cost of drilling and completing said wells and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the wells, and a charge for risk involved in drilling said wells.

CASE 7152: Application of C & E Operators, Inc. for compulsory pooling and a non-standard proration unit, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Mesaverde formation underlying a 158.54-acre non-standard gas proration unit comprising the SW/4 of Section 9, Township 30 North, Range 11 West, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well, and a charge for risk involved in drilling said well.

CASE 7153: Application of C & E Operators, Inc. for compulsory pooling and a non-standard proration unit, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Mesaverde formation underlying a 158.54-acre non-standard gas proration unit comprising the SW/4 of Section 8, Township 30 North, Range 11 West, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well, and a charge for risk involved in drilling said well.

CASE 7129: (Continued from January 28, 1981, Examiner Hearing)

Application of Koch Exploration Company for compulsory pooling, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Dakota formation underlying the N/2 of Section 28, Township 28 North, Range 8 West, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well, and a charge for risk involved in drilling said well.

CASE 6670: (Continued from January 14, 1981, Examiner Hearing)

In the matter of Case 6670 being reopened and pursuant to the provisions of Order No. R-6183 which order promulgated temporary special rules and regulations for the Red Hills-Devonian Gas Pool in Lea County, New Mexico, including a provision for 640-acre spacing units. Operators in said pool may appear and show cause why the pool should not be developed on 320-acre spacing units.

CASE 7154: Application of Mobil Producing Texas and New Mexico, Inc. for designation of a tight formation, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks the designation of the Mesaverde formation underlying portions of Townships 26 and 27 North, Ranges 2 and 3 West. containing 13,920 acres, more or less, as a tight formation pursuant to Section 107 of the Natural Gas Policy Act and 18 CFR Section 271.701-705.

CASE 7134: (Continued and Readvertised)

Application of Read & Stevens, Inc. for an unorthodox gas well location and two non-standard gas proration units, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks approval of two 160-acre non-standard proration units in the Buffalo Valley-Pennsylvanian Gas Pool, the first being the NW/4 of Section 13, Township 15 South, Range 27 East, to be dedicated to its Langley "Com" Well No. 1 in Unit C, and the other being the NE/4 of said Section 13 to be dedicated to a well to be drilled at an unorthodox location 1315 feet from the North and East lines of the section.

CASE 7125: Application of Western Oil Producers Inc. for the amendment of Order No. R-5399, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the amendment of Division Order No. R-5399 to include production from all of the Pennsylvanian formations in its Amoco State Well No. 1 at an unorthodox location in Unit M of Section 28, Township 16 South, Range 33 East.

CASE 7126: Application of Franks Petroleum, Inc. for an unorthodox gas well location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for an unorthodox location 1980 feet from the North line and 1315 feet from the West line, Section 3, Township 21 South, Range 32 East, Hat Mesa-Morrow Gas Pool, the N/2 of said Section 3 to be dedicated to the well.

CASE 7127: Application of Ellwade Corporation for amendment of Order No. R-6399, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks the amendment of Order No. R-6399 which approved a 129.52-acre non-standard gas proration unit comprising the W/2 of Section 33, Township 26 South, Range 30 East, for the Wolfcamp formation in the Ross Draw Area. Applicant seeks to have said order also apply to all formations of Pennsylvanian age.

CASE 6670: (Reopened and Readvertised)

In the matter of Case 6670 being reopened and pursuant to the provisions of Order No. R-6183 which order promulgated temporary special rules and regulations for the Red Hills-Devonian Gas Pool in Lea County, New Mexico, including a provision for 640-acre spacing units. Operators in said pool may appear and show cause why the pool should not be developed on 320-acre spacing units.

CASE 7128: Application of HNG Oil Company for pool creation, special pool rules, assignment of a discovery allowable, and dual completion, Lea County, New Mexico. Applicant, in the above-styled cause, seeks creation of a new Wolfcamp oil pool for its San Simon 6 State Comm. Well No. 1 located 1980 feet from the North line and 660 feet from the East line of Section 6, Township 22 South, Range 35 East, with special rules therefor, including provisions for 160-acre spacing. Applicant further seeks a discovery allowable for said well and approval for its dual completion to produce oil from the Wolfcamp and gas from an undesignated Morrow pool thru parallel strings of tubing.

CASE 7129: Application of Koch Exploration Company for compulsory pooling, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Dakota formation underlying the N/2 of Section 28, Township 28 North, Range 8 West, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well, and a charge for risk involved in drilling said well.

CASE 7130: Application of Read & Stevens, Inc. for an unorthodox gas well location and two non-standard gas proration units, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks approval of two 160-acre non-standard proration units in the Buffalo Valley-Pennsylvanian Gas Pool, the first being the SE/4 of Section 12, Township 15 South, Range 27 East, to be dedicated to its Trobough "A" State Com. Well No. 1 in Unit J, and the other being the NE/4 of said Section 12 to be dedicated to a well to be drilled at an unorthodox location 1315 feet from the North and East lines of the section.

CASE 7131: Application of Read & Stevens, Inc. for an unorthodox gas well location and two non-standard gas proration units, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks approval of two 160-acre non-standard proration units in the Buffalo Valley-Pennsylvanian Gas Pool, the first being the SE/4 of Section 1, Township 15 South, Range 27 East, to be dedicated to its Trobough Com. Well No. 1 in Unit J, and the other being the NE/4 of said Section 1 to be dedicated to a well to be drilled at an unorthodox location 1315 feet from the North and East lines of the section.

CASE 7132: Application of Read & Stevens, Inc. for an unorthodox gas well location and two non-standard gas proration units, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks approval of two 160-acre non-standard proration units in the Buffalo Valley-Pennsylvanian Gas Pool, the first being the SE/4 of Section 13, Township 15 South, Range 27 East, to be dedicated to its Rose Well No. 1 located in Unit J, and the other being the SW/4 of said Section 13 to be dedicated to a well to be drilled at an unorthodox location 1315 feet from the South and West lines of the section.

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
DIVISION FOR THE PURPOSE OF
CONSIDERING:

CASE NO. 6670
Order No. R-6183

APPLICATION OF BTA OIL PRODUCERS
FOR POOL CREATION AND SPECIAL POOL
RULES, LEA COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on September 19, 1979, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 28th day of November, 1979, the Division Director, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

(1) That due public notice having been given as required by law, the Division has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, BTA Oil Producers, is the owner of the 7811 JV-P Rojo Well No. 1, located 660 feet from the North line and 660 feet from the West line of Section 27, Township 25 South, Range 33 East, NMPM, Lea County, New Mexico.

(3) That said well was drilled at an unorthodox gas well location approved by Division Order No. R-5905, dated January 16, 1979.

(4) That said well was completed in the Devonian formation as a producing gas well on June 29, 1979, with perforations from 17,420 feet to 17,515 feet.

(5) That the applicant herein seeks the creation of a new gas pool for said well and the promulgation of special rules therefor, including a provision for 640-acre spacing with well locations no closer than 660 feet to the outer boundary of the unit.

(6) That the Devonian structure and producing zone in which the subject well is completed appear to be the same Devonian structure and producing zone encountered by the Red Hills Unit Well No. 1, located approximately 2.4 miles Southwest of the subject well in Unit O of Section 32, Township 25 South, Range 33 East, NMPM.

(7) That although said Red Hills Unit Well No. 1 was found to be capable of producing considerable quantities of gas from the Devonian formation when tested in 1964, there was no market available at the time for the type of gas produced from said formation, and the Devonian perforations in said well were squeezed and the well completed in the Wolfcamp formation, from which it is still producing.

(8) That available data would indicate that the subject Devonian reservoir is contained in a Northeast-Southwest trending anticline and that the productive area in said anticline above the gas-water contact is probably no more than 3.75 miles long and 1.25 miles wide.

(9) That considering the limited areal extent of the reservoir and the concomitant limited reserves contained therein, combined with the high cost (over $3 million) of Devonian wells to this depth (over 17,000 feet), it would seem proper to adopt a well spacing and acreage dedication plan for the pool which would preclude a proliferation of unnecessary and possibly uneconomic wells such as might result without such a plan.

(10) That it appears that the most desirable plan for the reservoir would provide for 640-acre spacing and proration units, and with well locations at least 1650 feet from the outer boundary of the unit but no closer than 330 feet to any interior quarter-quarter section line.

(11) That creation of the Red Hills-Devonian Gas Pool and development of said pool in the manner described in Finding No. (10) above will protect correlative rights and not cause waste and should be approved.

(12) That in order to prevent the economic loss caused by the drilling of unnecessary wells, to avoid the augmentation of risk arising from the drilling of an excessive number of wells, to prevent reduced recovery which might result from the drilling of too few wells, and to otherwise prevent waste and protect correlative rights, temporary special rules and regulations providing for 640-acre spacing units should be provided for the Red Hills-Devonian Gas Pool.

(13) That the temporary special rules and regulations should provide for limited well locations in order to assure orderly development of the pool and protect correlative rights.

(14) That the temporary special rules and regulations should be established for a period of one year to allow the operators in the subject pool to gather reservoir information to establish the area that can be efficiently and economically drained and developed by one well.

(15) That this case should be reopened at an examiner hearing in January, 1981, at which time the operators in the pool should be prepared to appear and show cause why the Red Hills-Devonian Gas Pool should not be developed on 320-acre spacing units.

(16) That the application for well locations 660 feet from the outer boundary of the spacing and proration unit should be denied.

IT IS THEREFORE ORDERED:

(1) That a new gas pool for Devonian production, designated the Red Hills-Devonian Gas Pool, is hereby created with vertical limits comprising the Devonian formation and horizontal limits described as follows:

TOWNSHIP 25 SOUTH, RANGE 33 EAST, NMPM
Section 22: S/2
Sections 27 and 28: All
Sections 32 and 33: All

(2) That temporary Special Rules and Regulations for the Red Hills-Devonian Gas Pool, Lea County, New Mexico, are hereby promulgated as follows:

SPECIAL RULES AND REGULATIONS
FOR THE
RED HILLS-DEVONIAN GAS POOL

RULE 1. Each well completed or recompleted in the Red Hills-Devonian Gas Pool or in the Devonian formation within one mile thereof, and not nearer to or within the limits of another designated Devonian gas pool, shall be spaced, drilled, operated, and produced in accordance with the Special Rules and Regulations hereinafter set forth.

RULE 2. Each well shall be located on a standard unit containing 640 acres, more or less, consiting of a governmental section.

RULE 3. The Director of the Division may grant an exception to the requirements of Rule 2 without notice and hearing when an application has been filed for a non-standard unit and the unorthodox size or shape of the unit is necessitated by a variation in the legal subdivision of the United States Public Land Surveys, or the following facts exist and the following provisions are complied with:

(a) The non-standard unit consists of quarter-quarter sections or lots that are contiguous by a common bordering side.

(b) The non-standard unit lies wholly within a governmental section and contains less acreage than a standard unit.

(c) The applicant present written consent in the form of waivers from all offset operators and from all operators owning interests in the section in which the non-standard unit is situated and which acreage is not included in said non-standard unit.

(d) In lieu of Paragraph (c) of this rule, the applicant may furnish proof of the fact that all of the aforesaid operators were notified by registered or certified mail of his intent to form such non-standard unit. The Division Director may approve the application if no such operator has entered an objection to the formation of such non-standard unit within 30 days after the Director has received the application.

RULE 4. Each well shall be located no nearer than 1650 feet to the outer boundary of the section and no nearer than 330 feet to any governmental quarter-quarter section line.

RULE 5. The Division Director may grant an exception to the requirements of Rule 4 without notice and hearing when an application has been filed for an unorthodox location necessitated by topographical conditions or the recompletion of a well previously drilled to a deeper horizon. All operators offsetting the proration unit shall be notified of the application by registered or certified mail, and the application shall state that such notice has been furnished. The Director may approve

the application upon receipt of written waivers from all operators offsetting the proration unit or if no objection to the unorthodox location has been entered within 20 days after the Director has received the application.

IT IS FURTHER ORDERED:

(1) That the locations of all wells presently drilling to or completed in the Red Hills-Devonian Gas Pool or in the Devonian formation within one mile thereof are hereby approved; that the operator of any well having an unorthodox location shall notify the Hobbs District office of the Division in writing of the name and location of the well on or before December 15, 1979.

(2) That, pursuant to Paragraph A. of Section 70-2-18, NMSA 1978, contained in Chapter 271, Laws of 1969, existing wells in the Red Hills-Devonian Gas Pool shall have dedicated thereto 640 acres in accordance with the foregoing pool rules; or, pursuant to Paragraph C. of said Section 70-2-18, existing wells may have non-standard spacing or proration units established by the Division and dedicated thereto.

Failure to file new Forms C-102 with the Division dedicating 640 acres to a well or to obtain a non-standard unit approved by the Division within 60 days from the date of this order shall subject the well to cancellation of allowable. Until said Form C-102 has been filed or until a non-standard unit has been approved, and subject to said 60-day limitation, each well presently drilling to or completed in the Red Hills-Devonian Gas Pool or in the Devonian formation within one mile thereof shall receive no more than one-half of a standard allowable for the pool.

(3) That this case shall be reopened at an examiner hearing in January, 1981, at which time the operators in the subject pool may appear and show cause why the Red Hills-Devonian Gas Pool should not be developed on 320-acre spacing units.

(4) That the application of BTA Oil Producers for well locations no closer than 660 feet to the outer boundary of the spacing and proration unit is hereby denied.

(5) That jurisdiction of this cause is retained for the entry of such further orders as the Division may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

JOE D. RAMEY
Director

S E A L

fd/

EXHIBIT NO.
CASE 6670
SUMMARY OF APPLICATION
RED HILLS (DEVONIAN)

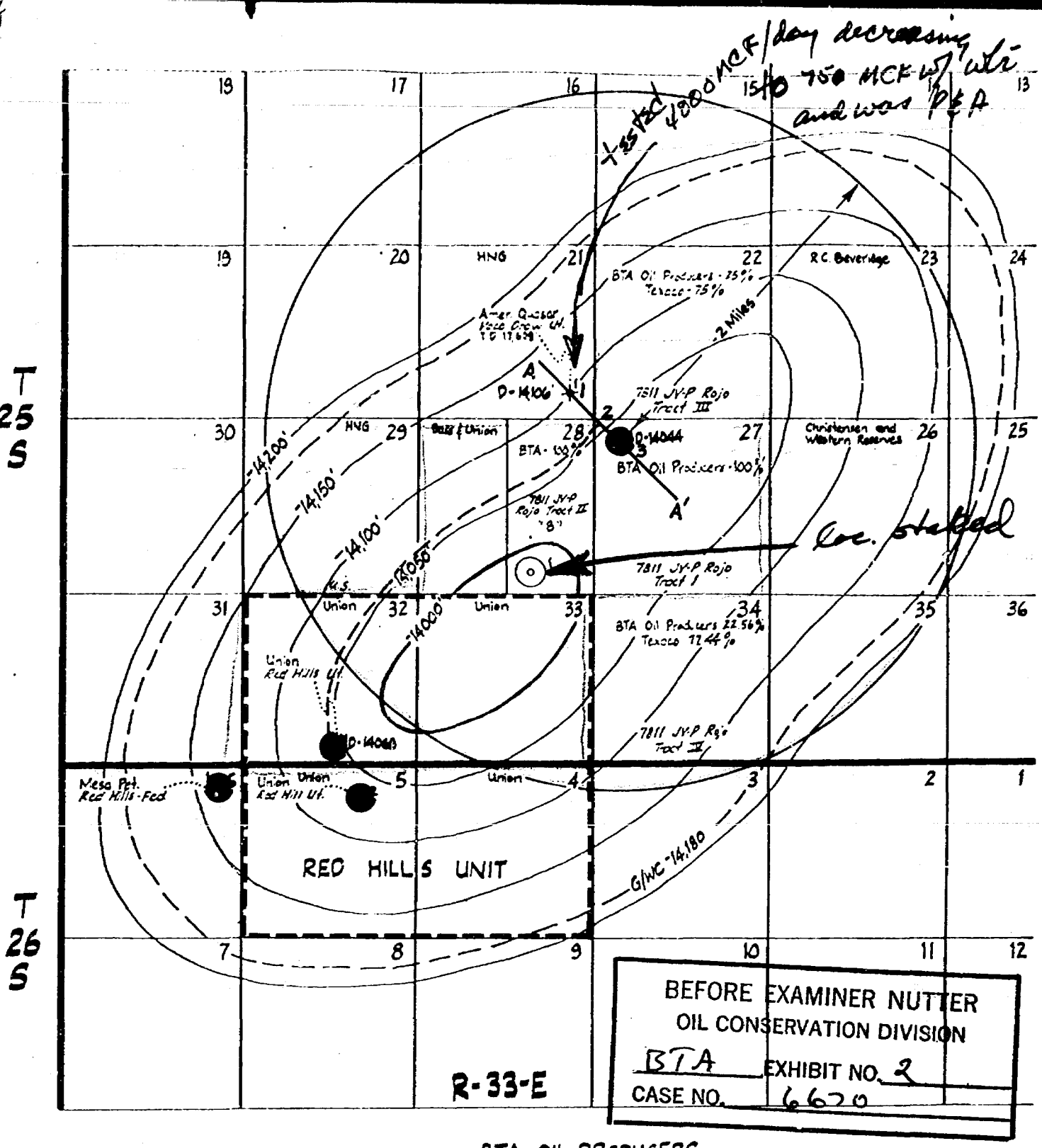
1. Creation of a Devonian Gas Pool for the BTA Oil Producers 7811 JV-P Rojo Well No. 1 located 660' FN & WL, Section 27, Township 25-S, Range 33-E, Lea County, New Mexico.

2. The pool will be named Red Hills (Devonian).

3. Vertical limits of the pool to be the Devonian formation.

4. The promulgation of temporary special pool rules including 640 acre spacing and well locations within a spacing unit of no closer than 660' to the outer boundary of any unit.

BEFORE EXAMINER NUTTER
OIL CONSERVATION DIVISION
BTA
6670 EXHIBIT NO. 1
CASE NO. 6670



BEFORE EXAMINER NUTTER
OIL CONSERVATION DIVISION
BTA EXHIBIT NO. 2
CASE NO. 6670

BTA OIL PRODUCERS

STRUCTURE MAP EXHIBIT

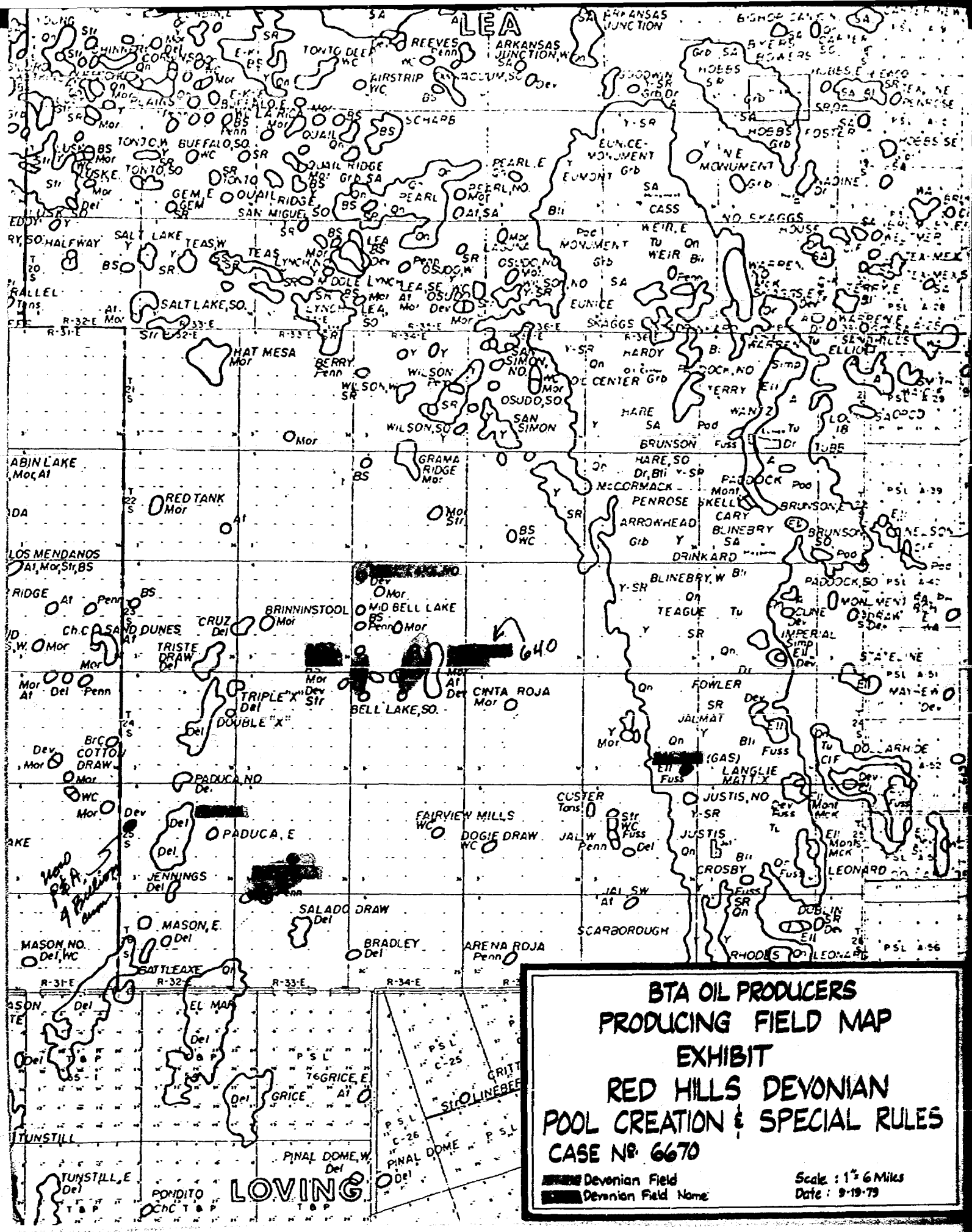
RED HILLS DEVONIAN

LEA COUNTY, NEW MEXICO

CASE NO. 6670

LEGEND
- Producing Devonian Gas Well
- Producing Wolfcamp Gas Well
- Dry Hole
- LOCATION

Scale: 1"=4000'
Date: 9-19-79



BTA OIL PRODUCERS
PRODUCING FIELD MAP
EXHIBIT
RED HILLS DEVONIAN
POOL CREATION & SPECIAL RULES
CASE Nº 6670

Devonian Field

Devonian Field Name

Scale : 1" = 6 Miles

Date : 9-19-79

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
Oil Conservation Division
State Land Office Bldg.
Santa Fe, New Mexico
19 September 1979

EXAMINER HEARING

IN THE MATTER OF:

Application of BTA Oil Producers for pool creation and special pool rules Lea County, New Mexico. CASE 6670

BEFORE: Daniel S. Nutter

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation Division: Ernest L. Padilla, Esq.
Legal Counsel for the Division
State Land Office Bldg.
Santa Fe, New Mexico 87503

For the Applicant: W. Thomas Kellahin, Esq.
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Santa Fe, New Mexico 87501

SALLY WALTON BOYD
CERTIFIED SHORTHAND REPORTER
3010 Plaza Blanca (505) 471-2462
Santa Fe, New Mexico 87501

I N D E X

E X H I B I T S

MR. NUTTER: Call next Case Number 6670.

MR. PADILLA: Application of BTA Oil Producers for pool creation and special pool rules, Lea County, New Mexico.

MR. KELLAHIN: Tom Kellahin of Santa Fe, New Mexico, appearing on behalf of the applicant and I have two witnesses.

(Witnesses sworn.)

STEVE PAYTON

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q Would you please state your name, by whom you are employed, and in what capacity?

A My name is Steve Payton. I'm employed with BTA Oil Producers as a geologist.

Q Mr. Payton, have you previously testified before the Oil Conservation Division?

A No, I haven't.

Q Would you explain to the Examiner when you obtained your degree in geology and where?

A. I obtained my degree in geology from the University of Texas at the Permian Basin in the fall of 1978.

Q. And subsequent to graduation, Mr. Payton, where have you been employed as a geologist?

A. I worked for Coastal States Gas Corporation as an assistant geologist while I was in school.

Q. And you're currently employed by BTA Oil Producers as a geologist?

A. Yes.

Q. And pursuant to that employment have you made a study of and are you familiar with the facts surrounding this particular application?

A. Yes, I am.

MR. KELLAHIN: We tender Mr. Payton as an expert geologist.

MR. NUTTER: Mr. Payton is qualified.

Q. (Mr. Kellahin continuing.) Mr. Payton, would you refer to Exhibit Number One and identify for the Examiner what BTA Oil Producers is seeking to accomplish?

A. Exhibit Number One is a summary of that application and it calls for creation of a Devonian Gas Pool for the BTA Oil Producers 7811 JV-P Rojo Well No. 1, located in Section 27, Township 25 South, Range 33 East.

The pool would be named the Devonian Hills Devonian -- excuse me, the Red Hills Devonian. The vertical

limits would be the Devonian formation and we're asking for temporary 640-acre spacing with 660 feet well location to the outer boundary of the unit.

Q. Would you refer to Exhibit Number Two and identify that?

A. Exhibit Number Two is a structure map, mapped on the top of the Devonian formation at a scale of 1 inch equal 4000 feet with 50-foot contours. The BTA Rojo No. 1 is located in Section 27, Township 25 South, Range 33 East, Lea County, New Mexico. It is shown by the red dot.

A 2-mile radius circle is drawn around the BTA Rojo Well No. 1. The field limits are determined by the gas/water contact, which is shown by a blue dashed line at -14,180 feet. The red solid line with letters and numbers and a dashed red line will be discussed later in connection with the cross section.

The nearest well to penetrate the Devonian is approximately 1,867 feet to the northwest. That's in Section 21.

The American Quasar Vaca Well No. 1 went to the Devonian and flowed 4000 Mcf per day, then decreased to 750 Mcf per day, with slugs of water, and was plugged and abandoned.

The Union Red Hills Unit Well No. 1 is located 2.4 miles to the southwest. That is shown in Section

32 by a green dot. It went to the Devonian and tested 10,400 MCf per day. It was then plugged back to the Wolfcamp from which it is currently producing.

Q. The Rojo No. 1 Well, located in Unit D of Section 27, what is the status of the well at this point?

A. This well is currently shut-in waiting on a pipeline which is expected to be going on production in October of 1979.

Q. You have a well location in the south half of Section 28. What is that?

A. This is a location which we have determined would be most beneficial according to the way we've mapped our structure. We're attempting to get as high on the structure as we can to eliminate water problems which we might encounter down-dip from the structure, and as you can see, the structure is fairly narrow and the location that we have determined there would get us as high as we presently think that we can.

Q. That's simply a staked location?

A. Yes, it is.

Q. You've not commenced drilling at that site?

A. This is a staked location. We haven't commenced drilling.

Q. Would you refer to Exhibit Number Three and identify that?

A. Exhibit Number Three is a producing field map. It shows the surrounding Devonian Fields in the area.

BTA's Rojo Well No. 1 is indicated by the red dot in the center of the southwest portion of the map.

The Paduca Devonian Gas Field is located nine miles to the west and slightly to the north of BTA's Rojo Well No. 1. This is the closest Devonian Field having produced .9 Bcf gas from one well, and it is now plugged.

The closest currently producing Devonian Field is the Antelope Ridge Field, which is 11.4 miles to the north and slightly to the east of BTA's Rojo Well No. 1.

Q. What is the spacing in the Antelope Ridge Devonian pool?

A. The spacing is on 640 acres.

The combined cumulative production of the three wells in the Antelope Ridge Field is 28.4 Bcf and as of January 1st, 1979, two wells are currently producing 1.3 million per day.

Q. Would you refer to Exhibit Number Four and identify that?

A. Exhibit Number Four is a cross section showing the three wells in the immediate area which penetrated the Devonian.

Starting on the lefthand side is log number one, which is the American Quasar Vaca Draw No. 1 in

Section 21.

The second log is the Union Oil Red Hills Unit No. 1, located in Section 32, and the third log is the BTA Oil Producers Rojo No. 1 in Section 27.

Q. This Union Oil Red Hills Unit No. 1 Well, the center well in the cross section, penetrated the Devonian formation but does not produce from the Devonian, does it?

A. This is correct. It tested gas and was plugged back to the Wolfcamp from which it is now producing.

Q. Then the third well is the discovery well for the pool.

A. Yes.

Q. That you're requesting?

A. Yes, BTA's Rojo No. 1.

Exhibit Two, which is the structure map, shows where the cross section falls and the red dashed line, I believe, brings the Union Red Hills No. 1 up to the cross section. The cross section is -- is shown on the top of the Devonian and the original oil/water contact is at -14,180, shown by horizontal line.

The gas/water contact is based on tests primarily in the American Quasar Vaca Draw No. 1, and in this well the Devonian wa s perforated from 17,527 to 17,579, as shown in the green. Perforations were acidized with30,000 gallons and flowed 4000 Mcf per day, decreasing to 750 Mcf

per day with slugs of water.

The Devonian was then plugged back and abandoned.

MR. NUTTER: How long did it take for that to occur, that decrease from 4000 to 750?

A. I don't have that information. You might refer that question to the engineer which studied the tests that were performed on all three of these wells in more detail.

The Union Oil Red Hills Unit No. 1 was perforated at three different intervals within the Devonian. Perforations were made at 17,663 through 17,684 and were acidized with 3000 gallons and flowed a small amount of gas and perforations were squeezed.

Perforations from 17,476 to 17,492, and 17,523 to 17,544, were acideized with 5000 gallons and flowed 10,400 Mcf per day and were squeezed.

This well is now plugged back to the Wolfcamp section where it is producing gas.

The BTA Oil Producers Well No. 1 is the highest well on the Devonian structure and is the only producer in the area.

Perforations were made in one interval from 17,420 to 17,515 and were acidized with 10,000 gallons. The shut-in bottom hole pressure was 7671 psi at 17,468.

The well flowed 2667 Mcf per day plus 8-1/2 barrels of water, which is the load water, on a 1-inch choke at 940 psi and 300 --- excuse me, and 103 barrels of load water to recover.

Presently this BTA Rojo Well No. 1 is waiting on pipeline connection.

Q. Mr. Payton, what do you conclude by your study of the geology as depicted in your exhibits?

A. My conclusion is that the Devonian structure, which was found in all three of these wells, is pretty well related and one anticline running from the southwest to the northeast, and I conclude that the location that we have spotted would possibly be the highest or at least on our leases would be the highest point that we could get on the Devonian.

Q. Are you satisfied that the discovery well, the Rojo No. 1, discovers a new Devonian reservoir not currently being produced by any other well?

A. Yes, I do.

Q. Were Exhibits One through Four prepared by you directly or compiled under your direction and supervision?

A. They were compiled by both myself and Steve Salmon.

MR. KELLAHIN: We move the introduction of

Exhibits One through Four.

MR. NUTTER: BTA Exhibits One through Four will be admitted in evidence.

MR. KELLAHIN: I have an engineer as my second witness, Mr. Nutter.

MR. NUTTER: Okay.

CROSS EXAMINATION

BY MR. NUTTER:

Q. Mr. Payton, You stated here on your Exhibit Number Four that these Devonian perforations in the Red Hills Unit No. 1 had been squeezed.

A. Yes.

Q. It had been my understanding that they had simply bridge-plugged that well and come back up and completed in the Wolfcamp.

A. The information that I have was taken off of a scout tickets and that's what I've seen from what I have available.

Q. And have you talked to Union about the well?

A. I have not talked to them.

Q. The well was completed, and is producing from the Wolfcamp zone.

A. Yes, it is.

Q. Also, as I recall, the gas from that well was quite sour. Is that true of the gas which you produce from this Rojo No. 1?

A. I don't know this. You can probably refer that question to the engineer.

Q. You do feel that the Red HIlls Well and your Rojo No. 1 are producing from the same structure, however?

A. Yes.

Q. Now, you have proposed in your pool rules that the locations would be 660 feet from the outer boundary of the 640-acre unit. Isn't this sort of unusual to have well spacing locations that close to the boundary of 640-acre spaced pools?

A. Yes, it's my understanding that it's unusual, and the reason we're asking for this is to get as high on the structure, what we believe to be the structure, to stay out of water problems. As you can see, the American Quasar Well loaded up with water, and we want to stay out of the problems that they had.

Q. Well, they drilled 660 and got water.

A. They drilled 660 but at that time they didn't have as much geological information to go on.

Our well was not drilled at that time.

Q. Have yodu actually gotten a drilling permit

for this well in the southwest of the southeast of Section 28?

A. No, we haven't.

Q. You've simply staked the location.

A. Yes.

Q. And that's all. And that looks like it's a 660/1980 location, probably.

A. Yes.

Q. And it's quite apparent, and I think you stated, that the reason that well was located where it was, was to get inside that highest contour on the structure.

A. Yes, that's right.

MR. NUTTER: Are there any other questions of Mr. Payton? He may be excused.

MR. KELLAHIN: I'd like to call Mr. Steve Salmon.

STEVE SALMON

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Salmon, would you please state your name, by whom you're employed, and in what capacity?

A. Yes. My name is Steve Salmon. I'm cur-

rently employed by BTA Oil Producers as a petroleum engineer and have been for the last 8-1/2 years.

Q. Mr. Salmon, have you previously testified before the Oil Conservation Division?

A. Yes, I have.

Q. And have you made a study of BTA's application in this case?

A. Yes, I have.

MR. KELLAHIN: We tender Mr. Salmon as an expert.

MR. NUTTER: Mr. Salmon is qualified.

Q. (Mr. Kellahin continuing.) Would you please refer to Exhibit Number Two, Mr. Salmon?

A. Yes.

Q. And describe the current status of that Rojo No. 1 Well in Section 27.

A. Yes. The Rojo No. 1, as we said, is currently shut-in waiting a pipeline connection. It did flow 2,667 Mcf per day with a 940-pound tubing pressure and is currently shut-in waiting on pipeline connection.

Q. It's the applicant's desire to dedicate the entire Section 27 to that well?

A. Yes, it is. We have 100 percent working interest in Section 27; however, this is covered by three leases, and if we dedicate less than 640 acres to this well

only one of these three leases will share in the production of this well.

Q. What is the status of the second well to be drilled in Section 28?

A. We have staked the location and it is a 660/1980 location. We are planning on drilling this and dedicating the entire Section 28 to this well if we can get the 640-acre proration unit.

Q. It would be the applicant's desire to have temporary special pool rules for a period of one year?

A. Yes, it would.

Q. And why would you want temporary rules for that period of time, Mr. Salmon?

Q. Okay. Bass and Union currently have leases on the west half of Section 28. BTA has 100 percent working interest in the east half. If we drill this well on 320-acre spacing and we come back later and respace the field with 640-acre proration units, we'd be giving Bass and Union a free look to try to force pool back into the well.

I would mention that Bass and Union have indicated some desire to join in the drilling the well at this location; however, they have some lease questions that they have to clear up and until these lease questions are cleared up we are at a standstill on that, on these negotiations.

Q. I know you haven't produced the Rojo No. 1 Well, Mr. Salmon. Have you made any studies or calculations to determine that there is a reasonable possibility that once the Rojo No. 1 Well is produced, that it in fact will justify 640-acre spacing?

A. We did take a pressure build-up on the well. We don't feel like the data that we got is conclusive as far as indicating it can drain 640 acres or that it can't. We do feel that in the Devonian Field, or the Devonian Pools in this area, they can drain 640 acres and that eventually we will get the data that we need to prove 640-acre drainage. We're also the closest Devonian -- closest active Devonian Field to this pool; it does currently have 640-acre spacing.

Q. Have you made any preliminary studies to determine whether the economics of drilling a Devonian test can be justified on 320-acre spacing?

A. Yes, I have. The pore volume recovery for this field, and this is based on pore volume from our log calculations, is 115 Mcf per acre foot. This indicates that on 640-acre spacing you would have 8.2 Bcf of gas in place. This is if you have the total acreage above water. With this 8.2 Bcf it would give us a return on investment of four to one on our $3-million 300 and something thousand drilling cost.

On 320-acre spacing this -- this would

only amount to 4.1 Bcf per well and give us a return on investment of only two to one, which we feel is not adequate to justify drilling into the depths we have to go in this field.

Q. Let me have some of those numbers again, Mr. Salmon. What was the approximate cost of this Rojo No. 1 Well?

A. It was $3-million 300 and something thousand. I forget the last few numbers on it.

Q. And what do you propose to be the cost of the well in Section 28?

A. It would be approximately the same.

Q. And in making your economic calculations, you have come up with a pore volume recovery of 115 Mcf per acre foot?

A. Yes, I have.

Q. Would you s mmarize for me briefly how you make that calculation?

A. Yes. As you can see on our cross section, Exhibit Number Four, the Union Oil Company Red Hills Unit No. 1 penetrated much more pay section than either the BTA Rojo No. 1 or the American Quasar Vaca Draw No. 1. The well actually went on down and penetrated the Ellenburger.

The top 112 feet of the Devonian in this Union Well appears to have pretty good porosity and be one

pay section that you can probably drain with it perforated. As you get below there the rock starts getting tighter and for this reason I've limited my calculations to the top 112 feet in this well.

Looking at the other two logs, they appear to be much -- they appear to be tighter in the section that you can see on the cross section, and if you included them in your calculations, you probably would come up with a slightly lower recovery per acre foot number and reserve number.

Q You then use this pore volume recovery of 115 Mcf per acre foot to come up with a -- some reserve projections of, I believe you said, 4.1 Bcf of gas, based on 320 acres?

A Correct. Of course, if part of this 320 acres would get below water, well, that would reduce your recovery.

Q And the rate of return based upon 320 acres is what?

A 2.3 over 1, which means you would get your investment back plus that amount again.

Q And based upon that rate of return, in your opinion would the applicant in this case go ahead and drill that second well in Section 28?

A No, we probably would not.

Q. Would you discuss for me the reasons the applicant desires the flexibility of well locations no closer than 660 to the outer boundary lines of the section?

A. Yes, I will. The American Quasar Vaca Draw Unit No. 1 indicates a tendency for the wells to water out rather quickly and not recover the -- an appreciable amount of reserves if they're completed down close to the water.

Also referring to Exhibit Two you can see that this is a long, narrow structure, and if you're forced on a lease to drill low structurally there's that much more tendency -- there will be that much more tendency for the well to water out prematurely.

By getting the 660 acre spacing from the outer boundary we feel like the operators can place their wells at more advantageous structural positions. They can get the reserves on their lease that they're entitled to, and we also feel like there will probably be a better recovery from the field if you can produce it from wells up on top of the structure.

Q. In your opinion, Mr. Salmon, will approval of this application be in the best interests of conservation, the prevention of waste, and the protection of correlative rights?

A. Yes, I think it will.

Q. In your opinion will the approval of special pool rules for 640-acre spacing plus 660 outer boundary well locations for a period of one year be a sufficient period of time in which to assess the production from the Rojo No. 1 Well to determine whether the special pool rules ought to be made permanent?

A. Yes, I think it would.

Q. In your opinion would there be any adverse affect to any of the correlative rights of any operator in the area to go ahead and temporarily develop this well as requested by the applicant?

A. No, I don't think there would be.

MR. KELLAHIN: That concludes our examination of Mr. Salmon.

A. I would like to address myself to a couple of Mr. Nutter's questions that he asked of our geologist.

And one of them has to do with the gas in the well. I do have a gas analysis on it and yes, it is sour gas.

CROSS EXAMINATION

BY MR. NUTTER:

Q. Do you have an analysis of it to compare with the analysis of the gas from the Red Hills No. 1?

A. I don't have an analysis on the Red Hills

Unit No. 1, no.

The gas from the BTA Rojo No. 1 had 337 grains per 100 standard cubic feet of H_2S. This figured out to, I think, 5,300 parts per million.

Another question that I'd like to address myself to is the time that it took the American Quasar Vaca Draw Well No. 1 to water out. The only data that we have on that well is what there was reported on the scout card, and that is the way it's recorded, that the well flowed 4-million cubic feet of gas per day and decreased -- they have 750 Mcf per day with slugs of water -- and there's a time written there, 2 hours through 1-inch choke, and whether that's the time they measured the 750 Mcf per day or how long it took it to decrease, I don't know.

Q Does it have a date that that test was run?

A The well was completed on -- during February of 1973, and the test would have probably been, you know, a few days prior to that.

Q And when was this well plugged?

A Well, this was the completion date which would have been the date that the well was plugged.

Q I see. So you don't know --

A No, I don't know when the --

Q -- from the date of the test to the date

when it was P&Ad?

A. No, I don't. Now, they did plug back and test the Wolfcamp zone at about 15,300 feet, and they fracd it so, you know --

Q. It sounds like it is all in a relatively short time while they still had the rig on the hole, doesn't it?

A. Yes, it would have been a relatively short time after they finished drilling the well and then, you know -- reading the scout card it would be a very short flowing test and --

Q. Okay, you answered two of the questions I asked Mr. Payton. The third related to the exact status of the Devonian perforations in that Red Hills Unit Well No. 1.

A. Okay, again the information that we have there is based from scout cards, and it shows that they perfed 17,476 to 17,492, and 17,523 to 17,544 feet. They acidized with 5000 gallons, swabbed, and flowed 10.4 million cubic feet of gas per day, and then it says squeezed.

So I take it from the scout card, the scout card says that they were squeezed. Now I have not talked with Union to see if this is correct or not, but this is what we based that on.

Q. We have a rather comprehensive file on

that Red Hills Unit No. 1, and with your permission I'd like to take administrative notice of any information in that file with regards to this structure and this pool.

A. That would be okay with us. I have not looked at that file, but --

Q. That's okay with BTA?

A. Oh, yes.

MR. NUTTER: Are there any further questions of Mr. Salmon? He may be excused.

Do you have anything further, Mr. Kellahin?

MR. KELLAHIN: No. I figured you'd look at the file, anyway.

MR. NUTTER: Not without his permission.

Does anyone have anything they wish to offer in Case Number 6670?

We'll take the case under advisement.

(Hearing concluded.)

REPORTER'S CERTIFICATE

I, SALLY W. BOYD, a court reporter, DO HEREBY CERTIFY that the foregoing and attached Transcript of Hearing before the Oil Conservation Division 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 from my notes taken at the time of the hearing.

Sally W. Boyd, C.S.R.

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 6670, heard by me on 9/19 1979.

Oil Conservation Division, Examiner

SALLY WALTON BOYD
CERTIFIED SHORTHAND REPORTER
3010 Plaza Blanca (505) 471-2462
Santa Fe, New Mexico 87501

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

BRUCE KING
GOVERNOR

LARRY KEHOE
SECRETARY

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
(505) 827-2434

December 5, 1979

Re: CASE NO. 6670
ORDER NO. R-6183

Mr. Thomas Kellahin
Kellahin & Kellahin
Attorneys at Law
Post Office Box 1769
Santa Fe, New Mexico

Applicant:

BTA Oil Producers

Dear Sir:

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

Yours very truly,

JOE D. RAMEY
Director

JDR/fd

Copy of order also sent to:

Hobbs OCD X
Artesia OCD X
Aztec OCD

Other

CASE 6668: Application of Delta Drilling Company for pool creation and special pool rules, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks the creation of a new oil pool for Bone Spring production for its SCB Unit Well No. 3 in Unit G of Section 23, Township 23 South, Range 28 East, and special rules therefor, including 80-acre spacing.

CASE 6669: Application of Mesa Petroleum Company for the amendment of Order No. R-6078, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks the amendment of Order No. R-6078 to cover the Wolfcamp and Pennsylvanian formations in the compulsory pooling of the E/2 of Section 10, Township 16 South, Range 27 East, rather than the Morrow formation only.

CASE 6644: (Continued from September 5, 1979, Examiner Hearing)

Application of Tenneco Oil Corporation for downhole commingling, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks approval for the downhole commingling of Fruitland and Pictured Cliffs production in the wellbores of its State K Com Well No. 12 located in Unit E of Section 16, Township 30 North, Range 9 West, and its Florence Well No. 60R in Unit L of Section 1, Township 29 North, Range 9 West.

CASE 6670: Application of BTA Oil Producers for pool creation and special pool rules, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the creation of a new Devonian gas pool for its 7811 JV-P Rojo Well No. 1 located in Unit D of Section 27, Township 25 South, Range 33 East, and special rules therefor, including 640-acre gas well spacing.

CASE 6671: Application of Chapman and Schneider for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water in the Seven Rivers Reef formation in the open-hole interval from 3422 feet to 3504 feet in its I. B. Ogg "A" Well No. 3 located in Unit E of Section 35, Township 24 South, Range 36 East, Jalmat Pool.

CASE 6672: Application of Coquina Oil Corporation for an exception to Rule 303C, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an exception to the Division's Rule 303C to permit its Vivian Well No. 1 located in Unit F of Section 30, Township 22 South, Range 38 East, in which Drinkard and Granite Wash production is commingled in the wellbore, to produce in excess of the 50-barrel limit imposed by said rule.

CASE 6673: Application of Conoco Inc. for a non-standard proration unit, unorthodox well locations, and simultaneous dedication, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of a 440-acre non-standard gas proration unit comprising the SW/4 and S/2 NW/4 of Section 17 and the N/2 NE/4, SE/4 NE/4, and N/2 SE/4 of Section 18, all in Township 21 South, Range 36 East, Eumont Pool, to be simultaneously dedicated to the following wells at unorthodox locations: Meyer A-1 Wells Nos. 11 in Unit K of Section 17 and 6 and 14 in Units B and J of Section 18.

CASE 6580: (Continued from August 22, 1979, Examiner Hearing)

Application of Continental Oil Company for a carbon dioxide injection project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to initiate a pilot carbon dioxide injection project in the Grayburg-San Andres formation in Units H and I of Section 20, Township 17 South, Range 32 East, Maljamar Pool, for tertiary recovery purposes.

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
Oil Conservation Division
State Land Office Bldg.
Santa Fe, New Mexico
19 September 1979

EXAMINER HEARING

IN THE MATTER OF:

Application of BTA Oil Producers for pool creation and special pool rules Lea County, New Mexico.

CASE 6670

BEFORE: Daniel S. Nutter

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation Division: Ernest L. Padilla, Esq.
Legal Counsel for the Division
State Land Office Bldg.
Santa Fe, New Mexico 87503

For the Applicant: W. Thomas Kellahin, Esq.
KELLAHIN & KELLAHIN
500 Don Gaspar
Santa Fe, New Mexico 87501

I N D E X

E X H I B I T S

MR. NUTTER: Call next Case Number 6670.

MR. PADILLA: Application of BTA Oil Producers for pool creation and special pool rules, Lea County, New Mexico.

MR. KELLAHIN: Tom Kellahin of Santa Fe, New Mexico, appearing on behalf of the applicant and I have two witnesses.

(Witnesses sworn.)

STEVE PAYTON

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q. Would you please state your name, by whom you are employed, and in what capacity?

A. My name is Steve Payton. I'm employed with BTA Oil Producers as a geologist.

Q. Mr. Payton, have you previously testified before the Oil Conservation Division?

A. No, I haven't.

Q. Would you explain to the Examiner when you obtained your degree in geology and where?

A. I obtained my degree in geology from the University of Texas at the Permian Basin in the fall of 1978.

Q. And subsequent to graduation, Mr. Payton, where have you been employed as a geologist?

A. I worked for Coastal States Gas Corporation as an assistant geologist while I was in school.

Q. And you're currently employed by BTA Oil Producers as a geologist?

A. Yes.

Q. And pursuant to that employment have you made a study of and are you familiar with the facts surrounding this particular application?

A. Yes, I am.

MR. KELLAHIN: We tender Mr. Payton as an expert geologist.

MR. NUTTER: Mr. Payton is qualified.

Q. (Mr. Kellahin continuing.) Mr. Payton, would you refer to Exhibit Number One and identify for the Examiner what BTA Oil Producers is seeking to accomplish?

A. Exhibit Number One is a summary of that application and it calls for creation of a Devonian Gas Pool for the BTA Oil Producers 7811 JV-P Rojo Well No. 1, located in Section 27, Township 25 South, Range 33 East.

The pool would be named the Devonian Hills Devonian -- excuse me, the Red Hills Devonian. The vertical

limits would be the Devonian formation and we're asking for temporary 640-acre spacing with 660 feet well location to the outer boundary of the unit.

Q. Would you refer to Exhibit Number Two and identify that?

A. Exhibit Number Two is a structure map, mapped on the top of the Devonian formation at a scale of 1 inch equal 4000 feet with 50-foot contours. The BTA Rojo No. 1 is located in Section 27, Township 25 South, Range 33 East, Lea County, New Mexico. It is shown by the red dot.

A 2-mile radius circle is drawn around the BTA Rojo Well No. 1. The field limits are determined by the gas/water contact, which is shown by a blue dashed line at -14,180 feet. The red solid line with letters and numbers and a dashed red line will be discussed later in connection with the cross section.

The nearest well to penetrate the Devonian is approximately 1,867 feet to the northwest. That's in Section 21.

The American Quasar Vaca Well No. 1 went to the Devonian and flowed 4000 Mcf per day, then decreased to 750 Mcf per day, with slugs of water, and was plugged and abandoned.

The Union Red Hills Unit Well No. 1 is located 2.4 miles to the southwest. That is shown in Section

32 by a green dot. It went to the Devonian and tested 10,400 MCf per day. It was then plugged back to the Wolfcamp from which it is currently producing.

Q. The Rojo No. 1 Well, located in Unit D of Section 27, what is the status of the well at this point?

A. This well is currently shut-in waiting on a pipeline which is expected to be going on production in October of 1979.

Q. You have a well location in the south half of Section 28. What is that?

A. This is a location which we have determined would be most beneficial according to the way we've mapped our structure. We're attempting to get as high on the structure as we can to eliminate water problems which we might encounter down-dip from the structure, and as you can see, the structure is fairly narrow and the location that we have determined there would get us as high as we presently think that we can.

Q. That's simply a staked location?

A. Yes, it is.

Q. You've not commenced drilling at that site?

A. This is a staked location. We haven't commenced drilling.

Q. Would you refer to Exhibit Number Three and identify that?

A. Exhibit Number Three is a producing field map. It shows the surrounding Devonian Fields in the area.

BTA's Rojo Well No. 1 is indicated by the red dot in the center of the southwest portion of the map.

The Paduca Devonian Gas Field is located nine miles to the west and slightly to the north of BTA's Rojo Well No. 1. This is the closest Devonian Field having produced .9 Bcf gas from one well, and it is now plugged.

The closest currently producing Devonian Field is the Antelope Ridge Field, which is 11.4 miles to the north and slightly to the east of BTA's Rojo Well No. 1.

Q. What is the spacing in the Antelope Ridge Devonian pool?

A. The spacing is on 640 acres.

The combined cumulative production of the three wells in the Antelope Ridge Field is 28.4 Bcf and as of January 1st, 1979, two wells are currently producing 1.3 million per day.

Q. Would you refer to Exhibit Number Four and identify that?

A. Exhibit Number Four is a cross section showing the three wells in the immediate area which penetrated the Devonian.

Starting on the lefthand side is log number one, which is the American Quasar Vaca Draw No. 1 in

Section 21.

The second log is the Union Oil Red Hills Unit No. 1, located in Section 32, and the third log is the BTA Oil Producers Rojo No. 1 in Section 27.

Q. This Union Oil Red Hills Unit No. 1 Well, the center well in the cross section, penetrated the Devonian formation but does not produce from the Devonian, does it?

A. This is correct. It tested gas and was plugged back to the Wolfcamp from which it is now producing.

Q. Then the third well is the discovery well for the pool.

A. Yes.

Q. That you're requesting?

A. Yes, BTA's Rojo No. 1.

Exhibit Two, which is the structure map, shows where the cross section falls and the red dashed line, I believe, brings the Union Red Hills No. 1 up to the cross section. The cross section is -- is shown on the top of the Devonian and the original oil/water contact is at -14,180, shown by horizontal line.

The gas/water contact is based on tests primarily in the American Quasar Vaca Draw No. 1, and in this well the Devonian wa s perforated from 17,527 to 17,579, as shown in the green. Perforations were acidized with30,000 gallons and flowed 4000 Mcf per day, decreasing to 750 Mcf

per day with slugs of water.

The Devonian was then plugged back and abandoned.

MR. NUTTER: How long did it take for that to occur, that decrease from 4000 to 750?

A. I don't have that information. You might refer that question to the engineer which studied the tests that were performed on all three of these wells in more detail.

The Union Oil Red Hills Unit No. 1 was perforated at three different intervals within the Devonian. Perforations were made at 17,663 through 17,684 and were acidized with 3000 gallons and flowed a small amount of gas and perforations were squeezed.

Perforations from 17,476 to 17,492, and 17,523 to 17,544, were acideized with 5000 gallons and flowed 10,400 Mcf per day and were squeezed.

This well is now plugged back to the Wolfcamp section where it is producing gas.

The BTA Oil Producers Well No. 1 is the highest well on the Devonian structure and is the only producer in the area.

Perforations were made in one interval from 17,420 to 17,515 and were acidized with 10,000 gallons. The shut-in bottom hole pressure was 7671 psi at 17,468.

The well flowed 2667 Mcf per day plus 8-1/2 barrels of water, which is the load water, on a 1-inch choke at 940 psi and 300 -- excuse me, and 103 barrels of load water to recover.

Presently this BTA Rojo Well No. 1 is waiting on pipeline connection.

Q. Mr. Payton, what do you conclude by your study of the geology as depicted in your exhibits?

A. My conclusion is that the Devonian structure, which was found in all three of these wells, is pretty well related and one anticline running from the southwest to the northeast, and I conclude that the location that we have spotted would possibly be the highest or at least on our leases would be the highest point that we could get on the Devonian.

Q. Are you satisfied that the discovery well, the Rojo No. 1, discovers a new Devonian reservoir not currently being produced by any other well?

A. Yes, I do.

Q. Were Exhibits One through Four prepared by you directly or compiled under your direction and supervision?

A. They were compiled by both myself and Steve Salmon.

MR. KELLAHIN: We move the introduction of

Exhibits One through Four.

MR. NUTTER: BTA Exhibits One through Four will be admitted in evidence.

MR. KELLAHIN: I have an engineer as my second witness, Mr. Nutter.

MR. NUTTER: Okay.

CROSS EXAMINATION

BY MR. NUTTER:

Q. Mr. Payton, You stated here on your Exhibit Number Four that these Devonian perforations in the Red Hills Unit No. 1 had been squeezed.

A. Yes.

Q. It had been my understanding that they had simply bridge-plugged that well and come back up and completed in the Wolfcamp.

A. The information that I have was taken off of a scout tickets and that's what I've seen from what I have available.

Q. And have you talked to Union about the well?

A. I have not talked to them.

Q. The well was completed, and is producing from the Wolfcamp zone.

A. Yes, it is.

Q. Also, as I recall, the gas from that well was quite sour. Is that true of the gas which you produce from this Rojo No. 1?

A. I don't know this. You can probably refer that question to the engineer.

Q. You do feel that the Red HIlls Well and your Rojo No. 1 are producing from the same structure, however?

A. Yes.

Q. Now, you have proposed in your pool rules that the locations would be 660 feet from the outer boundary of the 640-acre unit. Isn't this sort of unusual to have well spacing locations that close to the boundary of 640-acre spaced pools?

A. Yes, it's my understanding that it's unusual, and the reason we're asking for this is to get as high on the structure, what we believe to be the structure, to stay out of water problems. As you can see, the American Quasar Well loaded up with water, and we want to stay out of the problems that they had.

Q. Well, they drilled 660 and got water.

A. They drilled 660 but at that time they didn't have as much geological information to go on.

Our well was not drilled at that time.

Q. Have yodu actually gotten a drilling permit

for this well in the southwest of the southeast of Section 28?

A. No, we haven't.

Q. You've simply staked the location.

A. Yes.

Q. And that's all. And that looks like it's a 660/1980 location, probably.

A. Yes.

Q. And it's quite apparent, and I think you stated, that the reason that well was located where it was, was to get inside that highest contour on the structure.

A. Yes, that's right.

MR. NUTTER: Are there any other questions of Mr. Payton? He may be excused.

MR. KELLAHIN: I'd like to call Mr. Steve Salmon.

STEVE SALMON

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Salmon, would you please state your name, by whom you're employed, and in what capacity?

A. Yes. My name is Steve Salmon. I'm cur-

rently employed by BTA Oil Producers as a petroleum engineer and have been for the last 8-1/2 years.

Q. Mr. Salmon, have you previously testified before the Oil Conservation Division?

A. Yes, I have.

Q. And have you made a study of BTA's application in this case?

A. Yes, I have.

MR. KELLAHIN: We tender Mr. Salmon as an expert.

MR. NUTTER: Mr. Salmon is qualified.

Q. (Mr. Kellahin continuing.) Would you please refer to Exhibit Number Two, Mr. Salmon?

A. Yes.

Q. And describe the current status of that Rojo No. 1 Well in Section 27.

A. Yes. The Rojo No. 1, as we said, is currently shut-in waiting a pipeline connection. It did flow 2,667 Mcf per day with a 940-pound tubing pressure and is currently shut-in waiting on pipeline connection.

Q. It's the applicant's desire to dedicate the entire Section 27 to that well?

A. Yes, it is. We have 100 percent working interest in Section 27; however, this is covered by three leases, and if we dedicate less than 640 acres to this well

only one of these three leases will share in the production of this well.

Q. What is the status of the second well to be drilled in Section 28?

A. We have staked the location and it is a 660/1980 location. We are planning on drilling this and dedicating the entire Section 28 to this well if we can get the 640-acre proration unit.

Q. It would be the applicant's desire to have temporary special pool rules for a period of one year?

A. Yes, it would.

Q. And why would you want temporary rules for that period of time, Mr. Salmon?

Q. Okay. Bass and Union currently have leases on the west half of Section 28. BTA has 100 percent working interest in the east half. If we drill this well on 320-acre spacing and we come back later and respace the field with 640-acre proration units, we'd be giving Bass and Union a free look to try to force pool back into the well.

I would mention that Bass and Union have indicated some desire to join in the drilling the well at this location; however, they have some lease questions that they have to clear up and until these lease questions are cleared up we are at a standstill on that, on these negotiations.

Q. I know you haven't produced the Rojo No. 1 Well, Mr. Salmon. Have you made any studies or calculations to determine that there is a reasonable possibility that once the Rojo No. 1 Well is produced, that it in fact will justify 640-acre spacing?

A. We did take a pressure build-up on the well. We don't feel like the data that we got is conclusive as far as indicating it can drain 640 acres or that it can't. We do feel that in the Devonian Field, or the Devonian Pools in this area, they can drain 640 acres and that eventually we will get the data that we need to prove 640-acre drainage. We're also the closest Devonian -- closest active Devonian Field to this pool; it does currently have 640-acre spacing.

Q. Have you made any preliminary studies to determine whether the economics of drilling a Devonian test can be justified on 320-acre spacing?

A. Yes, I have. The pore volume recovery for this field, and this is based on pore volume from our log calculations, is 115 Mcf per acre foot. This indicates that on 640-acre spacing you would have 8.2 Bcf of gas in place. This is if you have the total acreage above water. With this 8.2 Bcf it would give us a return on investment of four to one on our $3-million 300 and something thousand drilling cost.

On 320-acre spacing this -- this would

only amount to 4.1 Bcf per well and give us a return on investment of only two to one, which we feel is not adequate to justify drilling into the depths we have to go in this field.

Q. Let me have some of those numbers again, Mr. Salmon. What was the approximate cost of this Rojo No. 1 Well?

A. It was $3-million 300 and something thousand. I forget the last few numbers on it.

Q. And what do you propose to be the cost of the well in Section 28?

A. It would be approximately the same.

Q. And in making your economic calculations, you have come up with a pore volume recovery of 115 Mcf per acre foot?

A. Yes, I have.

Q. Would you summarize for me briefly how you make that calculation?

A. Yes. As you can see on our cross section, Exhibit Number Four, the Union Oil Company Red Hills Unit No. 1 penetrated much more pay section than either the BTA Rojo No. 1 or the American Quasar Vaca Draw No. 1. The well actually went on down and penetrated the Ellenburger.

The top 112 feet of the Devonian in this Union Well appears to have pretty good porosity and be one

pay section that you can probably drain with it perforated. As you get below there the rock starts getting tighter and for this reason I've limited my calculations to the top 112 feet in this well.

Looking at the other two logs, they appear to be much -- they appear to be tighter in the section that you can see on the cross section, and if you included them in your calculations, you probably would come up with a slightly lower recovery per acre foot number and reserve number.

Q. You then use this pore volume recovery of 115 Mcf per acre foot to come up with a -- some reserve projections of, I believe you said, 4.1 Bcf of gas, based on 320 acres?

A. Correct. Of course, if part of this 320 acres would get below water, well, that would reduce your recovery.

Q. And the rate of return based upon 320 acres is what?

A. 2.3 over 1, which means you would get your investment back plus that amount again.

Q. And based upon that rate of return, in your opinion would the applicant in this case go ahead and drill that second well in Section 28?

A. No, we probably would not.

Q. Would you discuss for me the reasons the applicant desires the flexibility of well locations no closer than 660 to the outer boundary lines of the section?

A. Yes, I will. The American Quasar Vaca Draw Unit No. 1 indicates a tendency for the wells to water out rather quickly and not recover the -- an appreciable amount of reserves if they're completed down close to the water.

Also referring to Exhibit Two you can see that this is a long, narrow structure, and if you're forced on a lease to drill low structurally there's that much more tendency -- there will be that much more tendency for the well to water out prematurely.

By getting the 660 acre spacing from the outer boundary we feel like the operators can place their wells at more advantageous structural positions. They can get the reserves on their lease that they're entitled to, and we also feel like there will probably be a better recovery from the field if you can produce it from wells up on top of the structure.

Q. In your opinion, Mr. Salmon, will approval of this application be in the best interests of conservation, the prevention of waste, and the protection of correlative rights?

A. Yes, I think it will.

Q. In your opinion will the approval of special pool rules for 640-acre spacing plus 660 outer boundary well locations for a period of one year be a sufficient period of time in which to assess the production from the Rojo No. 1 Well to determine whether the special pool rules ought to be made permanent?

A. Yes, I think it would.

Q. In your opinion would there be any adverse affect to any of the correlative rights of any operator in the area to go ahead and temporarily develop this well as requested by the applicant?

A. No, I don't think there would be.

MR. KELLAHIN: That concludes our examination of Mr. Salmon.

A. I would like to address myself to a couple of Mr. Nutter's questions that he asked of our geologist.

And one of them has to do with the gas in the well. I do have a gas analysis on it and yes, it is sour gas.

CROSS EXAMINATION

BY MR. NUTTER:

Q. Do you have an analysis of it to compare with the analysis of the gas from the Red Hills No. 1?

A. I don't have an analysis on the Red Hills

Unit No. 1, no.

The gas from the BTA Rojo No. 1 had 337 grains per 100 standard cubic feet of H_2S. This figured out to, I think, 5,300 parts per million.

Another question that I'd like to address myself to is the time that it took the American Quasar Vaca Draw Well No. 1 to water out. The only data that we have on that well is what there was reported on the scout card, and that is the way it's recorded, that the well flowed 4-million cubic feet of gas per day and decreased -- they have 750 Mcf per day with slugs of water -- and there's a time written there, 2 hours through 1-inch choke, and whether that's the time they measured the 750 Mcf per day or how long it took it to decrease, I don't know.

Q. Does it have a date that that test was run?

A. The well was completed on -- during February of 1973, and the test would have probably been, you know, a few days prior to that.

Q. And when was this well plugged?

A. Well, this was the completion date which would have been the date that the well was plugged.

Q. I see. So you don't know --

A. No, I don't know when the --

Q. -- from the date of the test to the date

when it was P&Ad?

A. No, I don't. Now, they did plug back and test the Wolfcamp zone at about 15,300 feet, and they fracd it so, you know --

Q. It sounds like it is all in a relatively short time while they still had the rig on the hole, doesn't it?

A. Yes, it would have been a relatively short time after they finished drilling the well and then, you know -- reading the scout card it would be a very short flowing test and --

Q. Okay, you answered two of the questions I asked Mr. Payton. The third related to the exact status of the Devonian perforations in that Red Hills Unit Well No. 1.

A. Okay, again the information that we have there is based from scout cards, and it shows that they perfed 17,476 to 17,492, and 17,523 to 17,544 feet. They acidized with 5000 gallons, swabbed, and flowed 10.4 million cubic feet of gas per day, and then it says squeezed.

So I take it from the scout card, the scout card says that they were squeezed. Now I have not talked with Union to see if this is correct or not, but this is what we based that on.

Q. We have a rather comprehensive file on

that Red Hills Unit No. 1, and with your permission I'd like to take administrative notice of any information in that file with regards to this structure and this pool.

A. That would be okay with us. I have not looked at that file, but --

Q. That's okay with BTA?

A. Oh, yes.

MR. NUTTER: Are there any further questions of Mr. Salmon? He may be excused.

Do you have anything further, Mr. Kellahin?

MR. KELLAHIN: No. I figured you'd look at the file, anyway.

MR. NUTTER: Not without his permission.

Does anyone have anything they wish to offer in Case Number 6670?

We'll take the case under advisement.

(Hearing concluded.)

REPORTER'S CERTIFICATE

I, SALLY W. BOYD, a court reporter, DO HEREBY CERTIFY that the foregoing and attached Transcript of Hearing before the Oil Conservation Division 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 from my notes taken at the time of the hearing.

Sally W. Boyd C.S.R.
Sally W. Boyd, C.S.R.

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 6670 heard by me on 9/19 1979.

, Examiner
Oil Conservation Division

SALLY WALTON BOYD
CERTIFIED SHORTHAND REPORTER
3010 Plaza Blanca (505) 471-2462
Santa Fe, New Mexico 87501

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, Examiner
Oil Conservation Division

SALLY WALTON BOYD
CERTIFIED SHORTHAND REPORTER
3010 Plaza Blanca (505) 471-8462
Santa Fe, New Mexico 87501

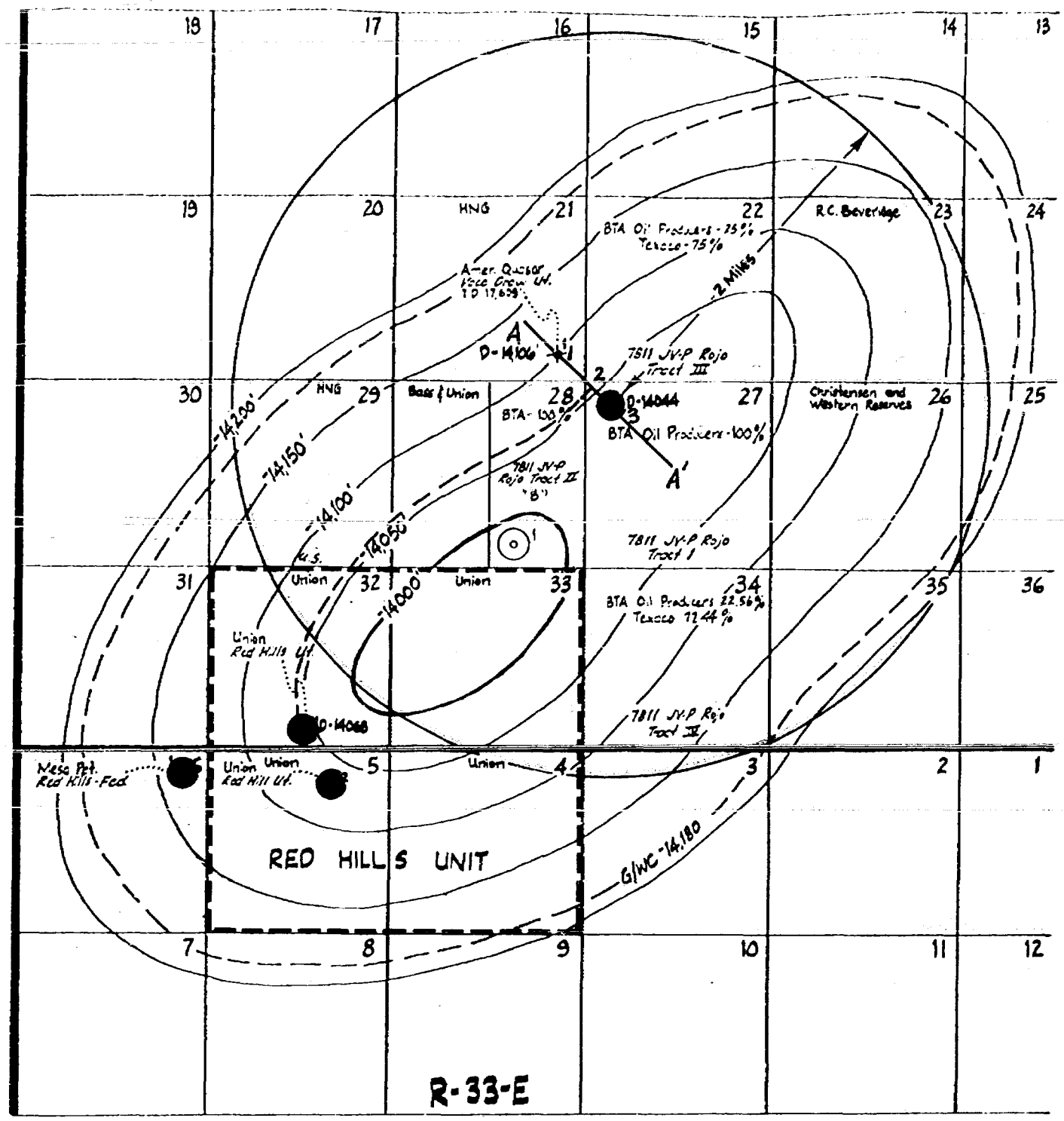
EXHIBIT NO.
CASE 6670
SUMMARY OF APPLICATION
RED HILLS (DEVONIAN)

1. Creation of a Devonian Gas Pool for the BTA Oil Producers 7811 JV-P Rojo Well No. 1 located 660' FN & WL, Section 27, Township 25-S, Range 33-E, Lea County, New Mexico.

2. The pool will be named Red Hills (Devonian).

3. Vertical limits of the pool to be the Devonian formation.

4. The promulgation of temporary special pool rules including 640 acre spacing and well locations within a spacing unit of no closer than 660' to the outer boundary of any unit.



LEGEND

- Producing Devonian Gas Well
- Producing Wolfcamp Gas Well
- Dry Hole
- LOCATION

BTA OIL PRODUCERS

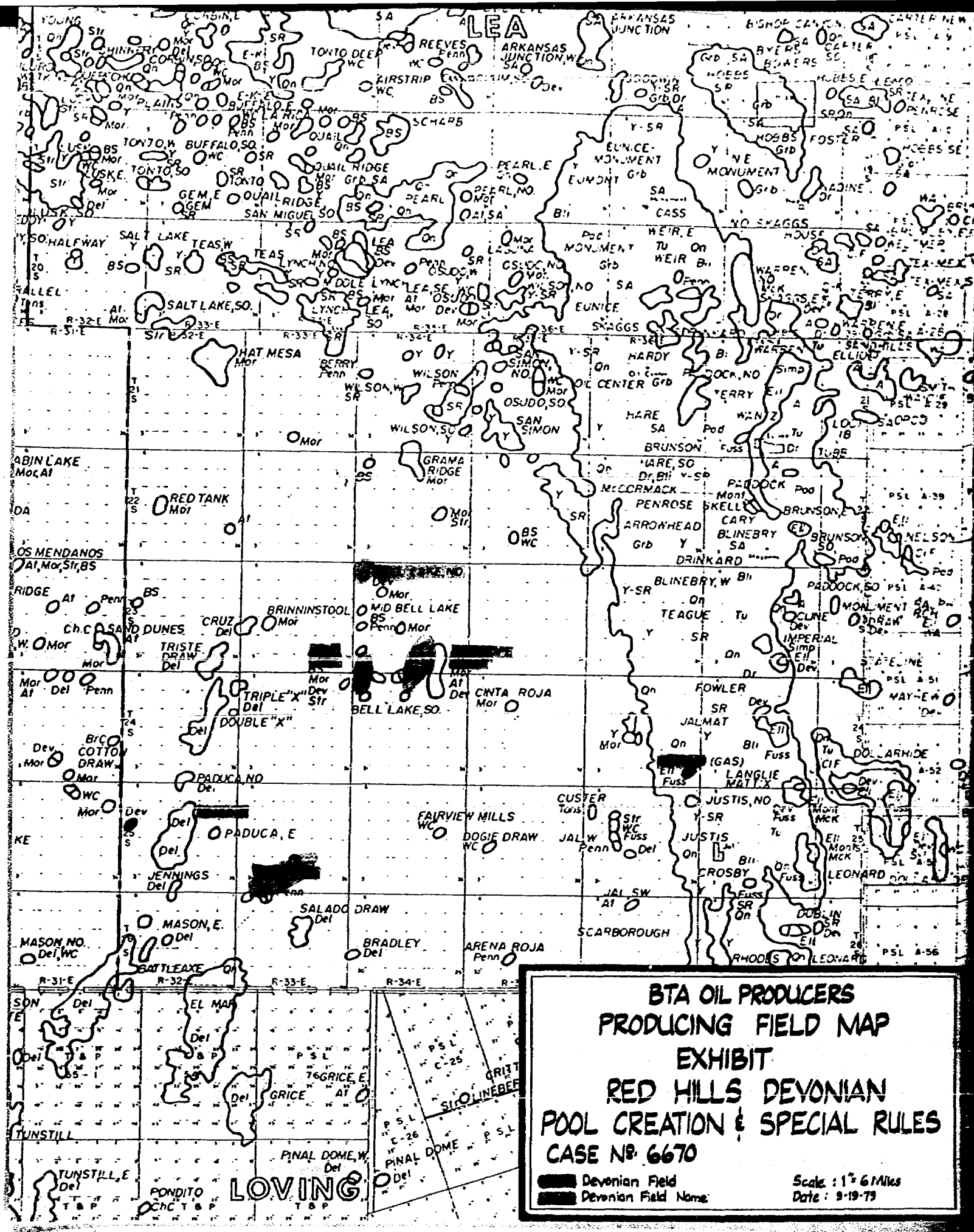
STRUCTURE MAP EXHIBIT

RED HILLS DEVONIAN

LEA COUNTY, NEW MEXICO

CASE Nº 6670

Scale : 1"=4000'
Date : 9-19-79



BTA OIL PRODUCERS
PRODUCING FIELD MAP
EXHIBIT
RED HILLS DEVONIAN
POOL CREATION & SPECIAL RULES
CASE NO. 6670

Devonian Field

Devonian Field Name

Scale : 1" = 6 Miles

Date : 9-19-79

KELLAHIN and KELLAHIN
Attorneys at Law
500 Don Gaspar Avenue
Post Office Box 1769
Santa Fe, New Mexico 87501

Jason Kellahin
W. Thomas Kellahin

Karen Aubrey

Telephone 982-4285
Area Code 505

August 29, 1979

Mr. Joe Ramey
Oil Conservation Division
P. O. Box 2088
Santa Fe, New Mexico 87501

Re: BTA Oil Producers

Dear Joe:

Please set the enclosed application for hearing on September 19, 1979.

Very truly yours,

W. Thomas Kellahin

W. Thomas Kellahin

cc: Steve Salmon

STATE OF NEW MEXICO

DEPARTMENT OF ENERGY AND MINERALS

OIL CONSERVATION DIVISION

IN THE MATTER OF
THE APPLICATION OF
BTA OIL PRODUCERS
FOR POOL CREATION AND
SPECIAL POOL RULES,
LEA COUNTY, NEW MEXICO

Case 6670.

APPLICATION

COMES NOW BTA OIL PRODUCERS, by and through their attorneys, Kellahin & Kellahin, and applies to the Oil Conservation Division of New Mexico for Pool Creation and Special Pool Rules, for its 7811 JV-P Rojo Well No. 1 located in Unit D, Section 27, Township 25 South, Range 33 East, NMPM, Lea County, New Mexico, and would show:

1. That applicant is the operator of the 7811 JV-P Rojo Well No. 1, located in Unit D of Section 27, T25S, R33E, NMPM, Lea County, New Mexico.

2. Applicant seeks the promulgation of Special Pool Rules for the Devonian gas production from the subject well including 640 acre spacing and well locations within a spacing unit of no closer than 660' to the outer boundary of any unit.

3. Applicant proposes to dedicate all of Section 27 to the subject well.

WHEREFORE, applicant requests that this application be set for hearing before the Division's Examiner and that after notice and hearing the application be approved.

KELLAHIN & KELLAHIN

By _____
W. Thomas Kellahin
P. O. Box 1769
Santa Fe, New Mexico 87501

STATE OF NEW MEXICO

DEPARTMENT OF ENERGY AND MINERALS

OIL CONSERVATION DIVISION

IN THE MATTER OF
THE APPLICATION OF
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KELLAHIN & KELLAHIN

By _____
W. Thomas Kellahin
P. O. Box 1769
Santa Fe, New Mexico 87501

STATE OF NEW MEXICO

DEPARTMENT OF ENERGY AND MINERALS

OIL CONSERVATION DIVISION

IN THE MATTER OF
THE APPLICATION OF
BTA OIL PRODUCERS
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LEA COUNTY, NEW MEXICO

Case 6670

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WHEREFORE, applicant requests that this application be set for hearing before the Division's Examiner and that after notice and hearing the application be approved.

KELLAHIN & KELLAHIN

By _____
W. Thomas Kellahin
P. O. Box 1769
Santa Fe, New Mexico 87501

(10) That it appears that the most desirable ~~an adequate~~ plan for the reservoir would provide for 640-acre spacing and proration units, and with well locations at least 1650 feet from the outer boundary of the unit but no closer than 330 feet to any interior quarter-quarter section line.

(11) That, creation of the Red Hills Devonian Gas Pool and development of ~~the~~ said pool in the manner described in Finding No. (10) above will protect correlative rights and not cause waste and should be approved.

(12) That in order to prevent the economic loss caused by the drilling of unnecessary wells, to avoid the augmentation of risk arising from the drilling of an excessive number of wells, to prevent ~~the~~ reduced recovery which might result from the drilling of too few wells, and to otherwise prevent waste and protect correlative rights, temporary special rules and regulations providing for 640-acre spacing units should be provided for the Red Hills Devonian Gas Pool.

(13) That the temporary special rules ~~Short~~ and regulations should provide for limited well locations in order to assure orderly development of the pool and protect correlative rights.

(14) That the Temporary special rules and regulations should be established for a period of one year to allow the operators in the subject pool to

(6) That the Devonian structure and producing zone in which the subject well is completed appear to be the same Devonian structure and producing zone encountered by the Red Hills Unit Well No. 1, located approximately 2.4 miles Southwest of the subject area in Unit O of Section 32, Township 25 South, Range 33 East, NMPM.

(7) That although said Red Hills Unit Well No. 1 ~~contemplates~~ was found to be capable of producing considerable quantities of gas from the Devonian formation, which tested in 1964, there was no market ~~,~~ acreage at the time for the type of gas produced from said formation, and the Devonian perforations in said well were squeezed and the well completed in the Wolfcamp formation, from which it is still producing.

(8) That available data would indicate that the subject Devonian reservoir is contained in a Northeast-Southwest trending anticline and that the productive area in said anticline above the gas-water contact is probably no more than 3.75 miles long and 1.25 miles wide.

3.75
1.25
18.75
75
3.75
14.68 75

(9) That, considering the limited areal extent of the reservoir and the concomitant limited ~~production~~ reserves contained therein, coupled with the high cost (over $3 million) of Devonian wells to this depth (over 17,000 feet) it would seem proper to adopt a well spacing and acreage dedication plan for the pool which would preclude a proliferation of unnecessary and possibly uneconomic

RULE 2. Each well shall be located on a standard unit containing 640 acres, more or less, consisting of a governmental section.

RULE 3. The Director of the Division may grant an exception to the requirements of Rule 2 without notice and hearing when an application has been filed for a non-standard unit and the unorthodox size or shape of the unit is necessitated by a variation in the legal subdivision of the United States Public Land Surveys, or the following facts exist and the following provisions are complied with:

(a) The non-standard unit consists of quarter-quarter sections or lots that are contiguous by a common bordering side.

(b) The non-standard unit lies wholly within a governmental section and contains less acreage than a standard unit.

(c) The applicant presents written consent in the form of waivers from all offset operators and from all operators owning interests in the section in which the non-standard unit is situated and which acreage is not included in said non-standard unit.

(d) In lieu of Paragraph (c) of this rule, the applicant may furnish proof of the fact that all of the aforesaid operators were notified by registered or certified mail of his intent to form such non-standard unit. The Division Director may approve the application if no such operator has entered an objection to the formation of such non-standard unit within 30 days after the Director has received the application.

RULE 4. Each well shall be located no nearer than 1650 feet to the outer boundary of the section and no nearer than 330 feet to any governmental quarter-quarter section line.

RULE 5. The Division Director may grant an exception to the requirements of Rule 4 without notice and hearing when an application has been filed for an unorthodox location necessitated by topographical conditions or the recompletion of a well previously drilled to a deeper horizon. All operators offsetting the proration unit shall be notified of the application by registered or certified mail, and the application shall state that such notice has been furnished. The Director may approve the application upon receipt of written waivers from all operators offsetting the proration unit or if no objection to the unorthodox location has been entered within 20 days after the Director has received the application.

IT IS FURTHER ORDERED:

(1) That the locations of all wells presently drilling to or completed in the Red Hills-Devonian Gas Pool or in the Devonian formation within one mile thereof are hereby approved; that the operator of any well having an unorthodox location shall notify the Hobbs District office of the Division in writing of the name and location of the well on or before December 15, 1979.

(2) That, pursuant to Paragraph A. of Section 70-2-18, NMSA 1978 contained in Chapter 271, Laws of 1969, existing wells in the Red Hills-Devonian Gas Pool shall have dedicated thereto 640 acres in accordance with the foregoing pool rules; or, pursuant to Paragraph C. of said Section 70-2-18, existing wells may have non-standard spacing or proration units established by the Division and dedicated thereto.

Failure to file new Forms C-102 with the Division dedicating 640 acres to a well or to obtain a non-standard unit approved by the Division within 60 days from the date of this order shall subject the well to cancellation of allowable. Until said Form C-102 has been filed or until a non-standard unit has been approved, and subject to said 60-day limitation, each well presently drilling to or completed in the Red Hills-Devonian Gas Pool or in the Devonian formation within one mile thereof shall receive no more than one-half of a standard allowable for the pool.

(3) That this case shall be reopened at an examiner hearing in January, 1981, at which time the operators in the subject pool may appear and show cause why the Red Hills-Devonian Gas Pool should not be developed on 320-acre spacing units.

~~(4) That the first operator to obtain a pipeline connection for a well in the Red Tank Morrow Gas Pool shall notify the Commission in writing of such fact, and that the Commission will thereupon issue a supplemental order designating an exact date for reopening this case.~~

(5) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

DONE at —

(4) That the application of BTA Oil Producers for three locations no closer than 660 feet to the outer boundary of the spacing and proration unit is hereby denied

ROUGH

dr/

PROMULGATED

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION DIVISION FOR THE PURPOSE OF CONSIDERING:

CASE NO. 6670

Order No. R- 6183-A

IN THE MATTER OF CASE 6670 BEING REOPENED PURSUANT TO THE PROVISIONS OF ORDER NO. R- 6183, WHICH ORDER ~~ESTABLISHED~~ SPECIAL RULES AND REGULATIONS FOR THE RED HILLS-DEVONIAN GAS POOL, LEA COUNTY, NEW MEXICO, INCLUDING A PROVISION FOR 640 -ACRE ~~PRORATION~~ SPACING UNITS.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on ~~January 14~~ Feb 11, 1981, at Santa Fe, New Mexico, before Examiner Richard L. Stamets.

NOW, on this _____ day of January, 1981, the Division Director, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

(1) That due public notice having been given as required by law, the Division has jurisdiction of this cause and the subject matter thereof.

(2) That by Order No. R-6183, dated November 28, 1979, temporary special rules and regulations were promulgated for the Red Hills-Devonian Gas Pool, Lea County, New Mexico, establishing temporary 640 -acre spacing units.

(3) That pursuant to the provisions of Order No. R-6183, this case was reopened to allow the operators in the subject pool to appear and show cause why the Red Hills-Devonian Gas Pool should not be developed on 320 -acre spacing units.

(4) That the evidence establishes that one well in the Red Hills-Devonian Gas Pool can efficiently and economically drain and develop 640 acres.

(5) That the Special Rules and Regulations promulgated by Order No. R-6183 have afforded and will afford to the owner of each property in the pool the opportunity to produce his just and equitable share of the gas in the pool.

(6) That in order to prevent the economic loss caused by the drilling of unnecessary wells, to avoid the augmentation of risk arising from the drilling of an excessive number of wells, to prevent reduced recovery which might result from the drilling of too few wells, and to otherwise prevent waste and protect correlative rights, the Special Rules and Regulations promulgated by Order No. R-6183 should be continued in full force and effect until further order of the Commission.

IT IS THEREFORE ORDERED:

(1) That the Special Rules and Regulations governing the Red Hills-Devonian Gas Pool, Lea County, New Mexico, promulgated by Order No. R-6183, are hereby continued in full force and effect until further order of the Division.

(2) That jurisdiction of this cause is retained for the entry of such further orders as the Division may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.