STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION DIVISION FOR THE PURPOSE OF CONSIDERING:	)	CASE NO. 12,003
IN THE MATTER OF CASE 12,003 BEING REOPENED PURSUANT TO THE PROVISIONS OF DIVISION ORDER NO. R-11,053-A, WHICH ORDER ESTABLISHED TEMPORARY SPECIAL RULES AND REGULATIONS FOR THE FEATHERSTONE-BONE SPRING POOL IN LEA COUNTY, NEW MEXICO, INCLUDING A PROVISION FOR 80-ACRE SPACING UNITS	)	ORIGINAL

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

BEFORE: MARK ASHLEY, Hearing Examiner

January 20th, 2000

Santa Fe, New Mexico

This matter came on for hearing before the New Mexico Oil Conservation Division, MARK ASHLEY, Hearing Examiner, on Thursday, January 20th, 2000, at the New Mexico Energy, Minerals and Natural Resources Department, Porter Hall, 2040 South Pacheco, Santa Fe, New Mexico, Steven T. Brenner, Certified Court Reporter No. 7 for the State of New Mexico.

* * *

I N D E X

January 20th, 2000
Examiner Hearing
CASE NO. 12,003

* * *

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* * *

A P P E A R A N C E S

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By: PAUL R. OWEN

* * *

WHEREUPON, the following proceedings were had at 11:11 a.m.:

EXAMINER ASHLEY: The Division calls Case 12,003.

MR. CARROLL: In the matter of Case 12,003 being reopened pursuant to the provisions of Division Order Number R-11,053-A, which order established temporary special pool rules for the Featherstone-Bone Spring Pool in Lea County, New Mexico.

EXAMINER ASHLEY: Call for appearances.

MR. OWEN: Paul Owen of the Santa Fe law firm of Campbell, Carr, Berge and Sheridan, appearing on behalf of Manzano Oil Corporation. I have one witness in this matter.

EXAMINER ASHLEY: Additional appearances?

Will the witness please rise and be sworn in?

(Thereupon, the witness was sworn.)

MR. OWEN: Call Mr. Mike Brown.

Mr. Examiner, before I begin my examination of the witness, I'd like to provide a brief overview of this case.

This case came before the Commission on a *de novo* proceeding in November of 1998. In the case, Manzano Oil Corporation was seeking special pool rules for the

Featherstone-Bone Springs Pool.

At that time, Manzano had recently recompleted a well in the Bone Springs formation, and initial tests of that well indicated that it was capable of producing more than 40 acres, which is the standard spacing unit for a Bone Springs pool in that area.

Manzano presented the case to the commission, and as a result of Manzano's presentation, Order Number R-11,053-A was entered.

That order established temporary special pool rules for the Featherstone-Bone Springs Pool, which included 80-acre spacing and well location requirements within 150 feet of the center of a governmental quarter section or lot.

The order also required that the case be reopened in December of 1999 to require the operator, Manzano, to present evidence as to whether or not the special pool rules should be extended on a permanent basis.

The case was reopened in December of 1999, and at Manzano's request it was continued to this docket, and Manzano appears today requesting that the temporary special pool rules be adopted on a permanent basis for this Featherstone-Bone Springs Pool.

And what that background, Mr. Examiner, I would like to proceed with my examination of my witness.

MIKE BROWN,

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

DIRECT EXAMINATION

BY MR. OWEN:

Q. Mr. Brown, can you please tell us your full name?

A. My name is Mike Brown.

Q. Where do you live?

A. Roswell, New Mexico.

Q. Who do you work for?

A. Manzano Oil Corporation.

Q. And what do you do for Manzano, Mr. Brown?

A. I'm their geologist.

Q. Have you testified before this Division before and had your credentials as a petroleum geologist accepted and made a matter of record?

A. I have.

Q. Did you testify before the New Mexico Oil Conservation Commission in this case in November of 1998?

A. I did.

Q. At that time, had you made a geologic study of the area which is the subject of this Application?

A. Yes, I have.

Q. And at that time did you share the results of that study with the Commission?

A. I did.

Q. Why don't you tell us what Manzano seeks through its testimony today?

A. We seek the permanent adoption of the special pool rules for the Featherstone-Bone Spring Pool which provide for 80-acre spacing and special well requirements with wells located within 150 feet of the center of a quarter-quarter section.

As was stated prior, this Application is the result of a discovery by Manzano Oil Corporation in a well that was originally drilled by Jake Hamon in the Northeast Lynch Unit. That well produced from the Morrow formation. It was drilled in 1964 and was plugged about four months after production.

We re-entered the well in 1998, we established production in the Morrow. However, the well watered out after only a few months. And then we recompleted to the Bone Spring.

This well has been named the Appleseed Federal Number 1. It's located 1980 feet from the north line, 660 feet from the east line of Section 17, Township 20 South, Range 35 East. The special pool rules which we seek to now be made permanent were established by Order R-11,053-A, dated December 18th, 1998.

We will show the production from the Appleseed

Federal Well Number 1 is definitely capable -- that that well is capable of producing more than 40 acres, and that the special pool rules that were established by Order R-11,053-A should be made permanent.

Q. Mr. Brown, is Manzano Exhibit Number 1, in fact, Order Number R-11,053-A?

A. Yes, it is.

Q. Why don't you review for us some of the more salient findings of that order?

A. Findings 6, 7 and 8 found that Manzano showed that the Appleseed Federal Well Number 1 was capable of draining in excess of the 40-acre spacing that was originally dedicated to it, pursuant to Division Rule 104.

We presented evidence, geologic and engineering evidence, indicating that the reservoir characteristics of the Featherstone-Bone Springs Pool, which the Appleseed Federal was made part of, are similar in characteristics to the Scharb-Bone Spring field, located approximately eight miles to the northwest, and the Lea-Bone Spring Pool, which is located approximately two miles to the west.

Also that since the Scharb-Bone Spring Pool and the Lea-Bone Spring Pool are located on 80-acre spacing, the Featherstone-Bone Springs Pool should also be located on 80-acre spacing.

Q. Mr. Brown, as a result of that finding did the

Commission further find that this pool, the Featherstone-Bone Springs Pool, should be spaced on 80-acre spacing and that that spacing would prevent waste, protect correlative rights?

A. Yes, they did.

Q. Did the Commission also find that these temporary special pool rules should be adopted with 150 feet well spacing requirements from the center of a governmental quarter-quarter section?

A. Yes, they did.

Q. And did the Commission direct that this case be reopened one year after entry of the order?

A. They did.

Q. Did Order Number R-11,053 adopt the temporary special pool rules requested by Manzano?

A. Yes, they did.

Q. What are those temporary special pool rules?

A. Eighty-acre spacing and well-location requirements within 150 feet of the center of a governmental quarter-quarter section line.

Q. And is the purpose of your testimony and Manzano's appearance at this hearing to demonstrate for the Division why the special pool rules should be made permanent?

A. Yes, they are.

Q. Have you prepared some exhibits to review for the Examiner the data which Manzano used to justify its request for special pool rules in November of 1998?

A. Yes, I have.

Q. Why don't we take a brief look at Manzano Exhibit Number 2? Can you tell us what that exhibit is, please?

A. This was the land plat presented in the November, 1998, hearing. Basically what this shows, first of all the location of the Manzano Oil Appleseed Federal Number 1. It's the red dot with the red arrow pointing to it in Section 17 of 20 South, 35 East.

I've noted the Bone Spring fields that are located within a three-township area. Two of the fields are on 80-acre spacing. These are the Scharb-Bone Spring field and the Lea-Bone Spring field. Both of these fields produce from the same correlative interval that is being produced in the Appleseed federal.

If we look at the Scharb-Bone Spring field to the north, it's on the north part of the map, it's on 80-acre spacing, it's 82 wells in the field, and the field has averaged 209,000 barrels per well. And that field is almost primarily producing from an interval called the Scharb pay, and that is the same interval that is productive in the Appleseed federal.

The Lea-Bone Spring field -- it's on the west

side of the map in 20-34 -- is also on 80-acre spacing. It has 31 wells that produce an average of 97,000 barrels per well. This produces from the Scharb plus some other zones. The Scharb wells, as I'll show you on the cross-section, have much higher ultimate recoveries. But even at that, it's 97,000 barrels per well.

The other remaining fields are all on 40-acre spacing, they produce from horizons other than the Scharb pay, and they're not very productive. The South Lea-Bone Springs, the best of the bunch -- it's in the southwest corner of this exhibit -- it's on 40-acre spacing, has five wells that have made 38,000 barrels per well, average.

There's a small field in 19-35 called the Pearl-Bone Spring. It's on 40-acre spacing. It only made 4000 barrels.

The original well that had started the Featherstone-Bone Spring field is shown in Section 21. It was on 40-acre spacing originally, only produced 3000 barrels, and was plugged and abandoned.

And then the last field is in the far southeast corner of the plat, and that's the Featherstone East-Bone Spring field. It was on 40-acre spacing. It had one well that made 10,000 barrels, and it was plugged and abandoned.

But in summary, this shows that the two major fields are both on 80-acre spacing, they have all produced

from the Scharb pay as their primary productive horizon. The other fields on 40-acre spacing produced from other than Scharb pay. Their cumulative production is pretty poor. As a matter of fact, it's much less than 50 percent of the 80-acre spacing fields, so...

And on this plat I've shown the line of section, which I'll show in Exhibit 3. It's a cross-section that goes through the major fields, and it's A-A'.

Q. Now Mr. Brown, let me interrupt you. You prepared this map in anticipation of the November, 1998, hearing; is that correct?

A. That is correct.

Q. Since that time has there been any development of the Bone Springs within a mile of Manzano's Appleseed Federal Number 1?

A. No, there hasn't.

Q. Or within a mile of the pool boundaries established in Order R-11,053-A?

A. No, there hasn't.

Q. You were about to go to your cross-section, which I believe is Manzano Exhibit Number 3. Why don't you review that briefly for the Examiner?

A. This is a stratigraphic cross-section that's hung on the top of the second Bone Springs sand. I've gone through the major fields to show how the Appleseed Federal

Number 1 correlates to the major producing fields.

The well on the left side is a representative sample from the Scharb-Bone Spring field. The main pay is a dolomite interval that lies halfway into the second Bone Springs sand. It's been labeled the Scharb Pay interval, it's kind of a local term.

This particular well is extremely thick, over 50 feet of pay. And it's produced right at 600,000 barrels of oil.

As we move down to the Lea-Bone Spring field, which is our other 80-acre field, we have a well there, the Marathon Lea Unit Number 7, produced from 18 feet of Scharb pay. It's definitely the same pay interval. From this 18 feet of pay it produced 203,000 barrels.

Moving over to the Appleseed Federal well, you can see the correlations pretty easy. It's definitely the Scharb pay, and in a minute I'll show that we're estimating something in the neighbor of 167,000, 168,000 barrels of production out of this well. It's thicker than the Lea Unit Number 7 that made 203,000, so it's definitely in the ballpark.

Moving to the original -- Moving down to the South Lea-Bone Spring Field, as I said, that field produces from pays other than the Scharb. You can see the Scharb pay -- It's not even there, very poorly developed.

Production comes from second sand and a little bit up into the second Bone Spring carbonate and some first Bone Spring sand production.

The well that was originally designated as the Featherstone-Bone Spring Field well produced from the second Bone Spring carbonate. It had a little bit of Scharb pay development in it, however it was never perforated. That's probably because it's a couple hundred feet downstructure of our wells, so it's probably wet.

Q. And the wells to the south there, including the last well on the cross-section, specifically the last well on the cross-section, the Mobil, that is a plugged-and-abandoned well; is that correct?

A. That is correct.

Q. So is there any current Bone Springs production within a mile of the Appleseed Federal Number 1?

A. No, there is not.

Q. Okay. Has Manzano also prepared an affidavit from an engineering witness to review for the Division the engineering justification for the special pool rules?

A. Yes, we have.

Q. Is Exhibit Number 4 an affidavit from Donnie Brown, a petroleum engineer employed by Manzano Oil Corporation?

A. Yes, it is.

Q. And did Mr. Brown, Mr. Donnie Brown, testify at the November, 1998, Commission hearing?

A. He did.

Q. Have you reviewed the affidavit, Manzano's Exhibit Number 4, and its attachments?

A. Yes, I have.

Q. Can you review that affidavit and the exhibits to the affidavit for the Examiner, please?

A. If you will please turn to Exhibit 4A, this is the chart originally presented in the November, 1998, hearing. It's a oil production rate-versus-time projected curve for the Appleseed Federal Number 1. At the time we came to the Commission, we had only made 4535 barrels of oil, so it was very early in its life. Mr. Brown established for the Commission that the decline rate of 12.26 on an exponential curve is a standard decline rate for the Scharb field to the north. And basing our production on that, we came up with an ultimate recovery of 123,526 barrels ultimate recovery.

Q. Moving to Exhibit Number 4B there, does that at the upper left indicate the plotting of the actual production from the Appleseed Federal Number 1?

A. Yes, this exhibit takes the Exhibit 4A and just simply plots the new production that has occurred since November, 1998, to December of 1999. And as you can easily

see, all the production points lie above the projected decline curve.

Q. And Mr. Brown, is that same information further reflected and developed on Exhibit Number 4C, including a projection of the ultimate recovery from this well?

A. Yes, if you take the historical decline rate of 12.26 and put it on the new curve with the data that we have, you come up with an ultimate recovery of 169,810 barrels.

Q. And comparing that with Exhibit Number 4A, it seems that, in fact, the well has significantly improved upon your estimate and Mr. Brown's estimate of the ultimate recovery for the well?

A. Yes, it has.

Q. Okay. Why don't you turn to Exhibit Number 4D and tell us the significance of this information?

A. This was the production projection summary that was presented at the November, 1998, hearing, and that put forth the data used to estimate original oil in place. Basically, our well has 22 feet of net pay, 8 percent porosity, approximately 35-percent water saturation, and we're a solution gas drive.

Using that data, we estimate that on a 40-acre drainage area, that the original oil in place is about 262,000 barrels. Using the 123,000 barrels that we said

originally we'd make, you'd have to have a recovery factor of 47 percent to recover that on 40 acres.

Using 80-acre drainage area, original oil in place of 523,000 barrels, using the 123,000 projected EOR, that puts your recovery factor of about 23 percent, which is very well in the range of what you'll see for the Scharb solution gas type reservoir.

The last part, C, was looking at the Scharb-Bone Spring field and the main part of the area. If you take out the wells that were not as good and just look at the main part, that field averaged 311,000 barrels per well on the 80-acre spacing. But their gross pay is greater. So if we take their data and divide by our 22 feet as opposed to their 50 feet of net pay, their average recovery is somewhere around 137,000 barrels per well, if our well was to be part of the Scharb.

Q. So Mr. Brown, based on Exhibit Number 4D, it appears that at the time of the November, 1998, hearing, Mr. Donnie Brown was estimating that this Appleseed Federal Well Number 1 would certainly drain more than 40 acres.

A. That is correct.

Q. And has the actual production from the well confirmed Mr. Brown's anticipated performance of the well?

A. It's not only shown that the original conclusion was correct, but it's exceeded our expectations. It's just

an excellent well.

Q. And is that information reflected on updated Exhibit Number 4E?

A. That's correct. This is the revised production projection summary using the new estimated ultimate recovery for the well. If you go down to part B, on a 40-acre drainage area with the new EUR you'd have to have a recovery factor of almost 65 percent, which is totally outrageous.

On 80-acre, using the new EUR, the recovery factor would be about 32.4 percent. So not only does it indicate that we're draining 80 acres, but we might possibly be draining slightly larger than 80 acres.

Q. And Mr. Brown, is there any indication that this well is depleting the reservoir, or this reservoir is reaching depletion?

A. No, there is not. And if you'll please turn to Exhibit 4F, this is a GOR-versus-oil-cumulative curve, and basically what this chart shows is that our GOR is staying fairly constant. As a matter of fact, it's even declined a little bit over time, which shows there's no measurable depletion that we can see at this point. And we've produced 40,000 barrels of oil to this point, so...

Q. Mr. Brown, does the geologic and engineering evidence presented in November of 1998 and developed since

the well has been produced on 80-acre spacing, does that confirm that the proper development of this pool should be on 80 acres?

A. I think it does, yes.

Q. And does the extension of these special pool rules into permanent pool rules -- Is that in the best interests of conservation --

A. Yes, it is.

Q. -- the prevention of waste and the protection of correlative rights?

A. Yes, it is.

Q. Were Exhibits 2 through 4 prepared by you --

A. Yes.

Q. -- or compiled under your direction?

A. Yes, they were.

MR. OWEN: Mr. Examiner, I tender Exhibits Numbers 1 through 4, Number 1 being the original order from the Commission in this case in November of 1998.

EXAMINER ASHLEY: Exhibits 1 through 4 will be admitted as evidence at this time.

MR. OWEN: And those all the questions I have at this time.

EXAMINATION

BY EXAMINER ASHLEY:

Q. Mr. Brown, are there plans to develop this area?

A. Yes, there is. We'll drill a well later this year. We were waiting on some tracts to come up on a land sale, which we've since acquired, so we'll begin development here in the year 2000.

Q. Are there any other operators that will be drilling in this area?

A. No, as you can just see on the map, we're kind of out in the middle of nowhere. And we've pretty much tied up the land around it, and we should be pretty much on our own.

Q. Where are you planning your next well?

A. To the west of the Appleseed well, which is the updip direction.

Q. In Section 17?

A. Yes, sir.

EXAMINER ASHLEY: I have nothing further. Thank you.

MR. OWEN: Mr. Examiner, I would like to point out that there are no other operators of Bone Spring production within a mile of this pool, and therefore there are no other parties to whom notice is required under the Division rules.

The engineering and geologic evidence presented in November of 1998 and then confirmed through the production shows that the temporary special pool rules

should be extended and made permanent, and we'd request that the Division enter an order effecting such permanent special pool rules.

That's all I have.

EXAMINER ASHLEY: Okay, thank you.

There being nothing further in this case, Case 12,003 will be taken under advisement.

(Thereupon, these proceedings were concluded at 11:35 a.m.)

* * *

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 12003, heard by me on 1-20 2000.

Mark Ashley, Examiner
Oil Conservation Division

CERTIFICATE OF REPORTER

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

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

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

WITNESS MY HAND AND SEAL January 26th, 2000.

STEVEN T. BRENNER
CCR No. 7

My commission expires: October 14, 2002