STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION COMMISSION

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION COMMISSION FOR THE PURPOSE OF CONSIDERING:	)	CASE NO. 12,003
APPLICATION OF MANZANO OIL CORPORATION FOR SPECIAL POOL RULES, LEA COUNTY, NEW MEXICO	)	ORIGINAL

REPORTER'S TRANSCRIPT OF PROCEEDINGS

COMMISSION HEARING

BEFORE: LORI WROTENBERY, CHAIRMAN
WILLIAM J. LEMAY, COMMISSIONER
JAMI BAILEY, COMMISSIONER

November 16th, 1998

Santa Fe, New Mexico

This matter came on for hearing before the Oil Conservation Commission, LORI WROTENBERY, Chairman, on Monday, November 16th, 1998, 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.

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I N D E X

November 16th, 1998
Commission Hearing
CASE NO. 12,003

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A P P E A R A N C E S

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* * *

WHEREUPON, the following proceedings were had at 9:05 a.m.:

CHAIRMAN WROTENBERY: So I think that takes us to Case 12,003, the only case that is ready to be heard today. This is the Application of Manzano Oil Corporation for special pool rules in Lea County, New Mexico. The Applicant seeks the promulgation of special pool rules and regulations for the Featherstone-Bone Spring Pool, including provisions for 80-acre spacing and special well-location requirements. The Featherstone-Bone Spring Pool comprises portions of Sections 20 and 21 of Township 20 South, Range 35 East. This area is located approximately nine miles west southwest of Monument, New Mexico.

This case was the subject of an Oil Conservation Division Order issued on September 10th, 1998. This was Order Number R-11,053, which denied the Application. The Applicant has requested this hearing before the Oil Conservation Commission, pursuant to OCD Rule 1220.

Commissioners, in your notebooks you have copies of the Oil Conservation Division's Order, you have a copy of the Applicant's request for a hearing *de novo* and also a copy of the Applicant's prehearing statement.

At this time we'll call for appearances.

MR. CARR: May it please the Commission, my name is William F. Carr with the Santa Fe law firm Campbell,

Carr, Berge and Sheridan. We represent Manzano Oil Corporation, and I have two witnesses.

CHAIRMAN WROTENBERY: Are there any preliminary matters that we need to address, Mr. Carr?

MR. CARR: I believe at this time we're ready to have the witnesses sworn in and proceed.

CHAIRMAN WROTENBERY: Okay.

(Thereupon, the witnesses were sworn.)

MR. CARR: May it please the Commission, at this time we would call Mike Brown.

CHAIRMAN WROTENBERY: Mr. Brown?

CHARLES MICHAEL BROWN,

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

DIRECT EXAMINATION

BY MR. CARR:

Q. Would you state your name for the record, please?

A. My name is Charles Michael Brown.

Q. Where do you reside?

A. Roswell, New Mexico.

Q. By whom are you employed?

A. Manzano Oil Corporation.

Q. Mr. Brown, what is your current position with Manzano Oil Corporation?

A. I'm a geologist.

Q. Have you previously testified before the Oil Conservation Commission --

A. I have.

Q. -- and had your credentials -- At that time were your credentials as an expert in petroleum geology accepted and made a matter of record?

A. They were.

Q. Are you familiar with the Application filed in this case on behalf of Manzano Oil Corporation?

A. Yes, I am.

Q. Have you made a geological study of the Bone Spring formation in the area surrounding the Featherstone-Bone Spring Pool?

A. Yes, I have.

Q. Are you prepared to share the results of that study with the Oil Conservation Commission?

A. Yes, I am.

MR. CARR: Are the witness's qualifications acceptable?

CHAIRMAN WROTENBERY: Yes, they are.

Q. (By Mr. Carr) Mr. Brown, would you briefly summarize for the Commission what it is that Manzano is seeking with this Application?

A. We are seeking the adoption of special pool rules for the Featherstone-Bone Spring Pool which will provide

for 80-acre spacing and for special well location requirements with wells located within 150 feet of the center of a quarter quarter section.

This Application is the result of the discovery of production in the Bone Spring formation in the Manzano Oil Corp. Appleseed Federal Well Number 1. This well was originally drilled by Jake Hamon in 1963. It was named the Northeast Lynch Unit Well Number 1 at that point. It was completed in the Morrow formation. It subsequently watered out and was plugged and abandoned in 1964.

In 1997, Manzano Oil Corp. re-entered this well and re-established production in the Morrow. However, the well watered out fairly quickly and in April of 1988 it was recompleted from the Morrow to the Bone Spring.

Q. And that was in April of 1998?

A. 1998, yes, it is. The well is located at standard well location, 1980 feet from the north line and 660 feet from the east line of Section 17, Township 20 South, Range 35 East.

Q. Mr. Brown, are there additional zones that could be productive in this well?

A. It's possible there could be some Delaware Mountain Group production. However, this is an older well. I can't find any mud logs. It's possible it was run, but they're unavailable at this time. So it would be real

difficult to predict if any of the zone are productive.

So at this time we have no plans for any additional potential.

Q. When was the Featherstone-Bone Spring Pool created?

A. It was created August 1st of 1982 by Order R-7030 and was expanded by Order Number R-9646 in April -- April 1st of 1992. The pool was created as a result of drilling the Mobil Featherstone well in Section 21. That well is now plugged and abandoned.

Another well was reportedly recompleted to the Bone Spring in this pool in Section 22, but it was never produced. So there are currently no other wells producing from this pool.

The total pool production prior to the Manzano recompletion was 3000 barrels, and all of it came from the Mobil well.

And this pay zone is not the same pay zone as what's producing in the Appleseed well. The Appleseed produces from the Scharb pay interval, which is part of the second Bone Spring sand, while the Featherstone Bone Spring field produced from an upper second Bone Spring carbonate zone, about 450 feet stratigraphically higher than the Scharb pay.

Q. What are the current boundaries of the

Featherstone-Bone Spring Pool?

A. The northwest quarter of Section 21 and the north half of Section 22.

Q. And what rules currently govern the development of this pool?

A. It's on statewide rules, 40-acre oil spacing, a depth bracket allowable of 320 barrels of oil per day, and a GOR limit of 2000 to 1.

Q. Is the Appleseed well currently allowable-restricted?

A. No, it is not. We're not seeking a change in spacing to increase the assigned allowable. We're instead seeking the field rules change for the Featherstone-Bone Spring Pool to make them similar to those which apply in the other fields in the nearby area that produce from the Scharb pay.

We plan to drill additional wells in this pool and are trying to avoid the drilling of unnecessary wells.

Q. As the Commission Chairman noted, the Application of Manzano Oil Corporation in this case was denied following an Examiner Hearing by Order Number R-11,053.

Would you just briefly summarize for the Commission the reasons for the denial as set forth in that order?

A. Okay, at the July hearing we testified that the

characteristics of the Bone Spring formation in the Featherstone-Bone Spring Pool are similar to the reservoir characteristics in the Scharb-Bone Spring Pool located about eight miles to the northwest. Since the Scharb-Bone Spring Pool is developed on 80-acre spacing, we requested rules similar to this pool.

The Division noted that the Lea-Bone Spring Pool is located approximately two miles west of the Appleseed Well Number 1, and it is currently spaced on 80-acre spacing, pursuant to Order Number 1827.

It also noted that the South Lea-Bone Spring Pool is located approximately two miles west of the Appleseed, and it's placed on 40-acre spacing, pursuant to Rule 104.

The Division found that Manzano's evidence was insufficient to justify correlation between the Featherstone-Bone Spring Pool and the Scharb-Bone Spring Pool and the establishment of special pool rules.

Q. That order did not say that the evidence presented was wrong?

A. That is correct.

Q. It simply stated that Manzano needed to correlate the Appleseed to additional pools in the area, some spaced on 80-acre spacing, some on 40-acre spacing?

A. That is correct.

Q. Have you prepared exhibits to make that

correlation between the Lea-Bone Spring Pool, the South Lea-Bone Spring Pool and the Featherstone Pool?

A. I have.

Q. Let's go to what has been marked for identification as Manzano Exhibit Number 1, and Mr. Brown, I'd like you first just to explain what this exhibit is designed to show, and then review the information contained thereon.

A. This is a regional plat showing Bone Spring production in the vicinity of the Appleseed Federal Number 1.

I've shown the location of the well in red; there's a red dot with a red arrow pointing to it.

I've shown the outline of six Scharb-Bone -- or six Bone Spring fields in purple. There are -- As I said, there are six total fields within this area, and I'd just kind of like to go through the general characteristics of these six fields.

The Scharb-Bone Spring field is on the far north part of your plat. It is on 80-acre spacing, produces primarily from the Scharb-Bone -- the Scharb pay interval. It has a cumulative production -- I need to note, there's a misprint here. The cumulative production is 13.9 million barrels of oil and 13 BCF of gas. There are 82 wells. The per-well cum is 170,000 barrels per well.

Q. That's the pool we were analogizing to at the Examiner Hearing?

A. That is correct.

Q. All right, let's go on.

A. To the south southwest is the Lea-Bone Spring field. It also is on 80-acre spacing. It produces primarily from the Scharb pay but also from the second Bone Spring carbonate interval. It has a cumulative production of 3 million barrels and 5.8 BCF of gas. It produces from 31 wells and has a per-well average of 97,000 barrels.

To the south of that is the South Lea-Bone Spring field. It's on statewide 40-acre spacing. It has a cumulative production of only 188,000 barrels, and half of that came from one well. There are five wells in the field, the per-well average is only 38,000 barrels per well. And none of the wells produce from the Scharb.

To the -- On the far southeast part of the plat is the Featherstone East-Bone Spring field. It was on statewide 40-acre spacing. It has a cumulative production of 10,000 barrels, which came from only one well, and it did not produce from the Scharb.

The Featherstone-Bone Spring field, as we discussed before, is in statewide 40-acre spacing, had a cumulative production of only 3000 barrels, came from one well, and it did not produce from the Scharb pay interval.

And then to the north is a one-well field called the Pearl-Bone Spring field. It was on statewide 40-acre spacing, had a cumulative production of 4000 barrels, which came from one well, and it did not produce from the Scharb pay.

So in summary, there are six fields total, two of which are on 80-acre spacing, and that's the Scharb-Bone Spring field and the Lea-Bone Spring field, both of which produced primarily from the Scharb pay interval, both of which have very high per-well averages, 170,000 for the Scharb and 97,000 for the Lea-Bone Spring field.

There are four other fields that are on statewide 40s. These do not produce from the Scharb pay. They really do not have very good productive capabilities. There are ten total wells in these four fields, and they've only produced 25,000 barrels per well, which is barely economic.

Q. The Appleseed well is completed in the Scharb interval; is that right?

A. Yes, that's what we're going to show, the Appleseed is developed in the same interval as what you see in the Lea-Bone Spring and the Scharb, and is not the same as in the other four fields.

Q. What was the source of the data for this exhibit?

A. The production data came from *Dwight's*.

Q. And is it the most current data available from *Dwight's*?

A. It's the best we can get right now, uh-huh.

Q. And this exhibit also has a trace on it for a subsequent cross-section?

A. Right, the heavy black line is the line of section for cross-section A-A'.

Q. Let's go to that cross-section and review the information on the wells shown thereon.

A. Okay, this is a cross-section through the Bone Spring -- first and second Bone Spring intervals, and going through the Scharb-Bone Spring field, the Lea-Bone Spring field, the Featherstone-Bone Spring field and the South Lea-Bone Spring field.

The Bone Spring is a pretty large interval. It covers around 3500 feet of total section. There are three periods of major sea-level regressions, which deposited your clastics, your sands -- first, second and third sands -- then you have three periods of major sea-level transgressions that deposited our carbonates, the first, second and third carbonates.

The Scharb interval represents kind of a little unique setting in that it represents a minor transgressive period within an overall regressive period, so it is a nice little dolomite of about 70 feet thick, is all that it

gets, within a sand package. It's very unusual in its setting. It also makes it fairly unusual in its productive capabilities. It's very productive, it has high permeability and porosity.

Going to the cross-section, the well on your left is the ARCO Ora Jackson Number 1. This well was drilled in 1963, produced from the Scharb pay only, had a cumulative production of 597,000 barrels and has since been plugged and abandoned. This well is within the Scharb-Bone Spring field, as we said, is on 80-acre spacing, with a per-well average of 170,000 barrels per well.

The well to the next of that is the Marathon Lea Unit Number 7. This well also only produced from the Scharb pay interval. It's very -- only about 20 feet thick, but it produced 203,000 barrels before it was plugged and abandoned. It is part of the Lea-Bone Spring field, which is also on 80-acre spacing, and as I said before, it had cumulative production -- or a per-well average of 97,000 barrels per well.

To the right of that is the Manzano Appleseed Federal Number 1. As you can clearly see, the pay interval is the Scharb pay interval. It correlates quite well to the Lea Unit Number 7 and to the Ora Jackson. It is comparable in thickness to the Lea Unit Number 7, so we feel it will have production capabilities in the range of

what we saw in the Lea-Bone Spring field in the Lea Unit Number 7.

The well to the right of it is the Marathon Lea Unit Number 13. It produces from the first and second Bone Springs sands. There is no Scharb production within this wellbore, nor is there any production from the Scharb within the South Lea-Bone Spring fields, of which this is a part.

This field is on 40-acre spacing. This particular well cum'd 97,000 barrels from these sands. It's the best well in the field. The rest of the wells contributed only an additional 90,000 barrels to the field. The per-well average here is about 38,000 barrels per well.

The wellbore to the right of that is the Mobil Featherstone Federal Number 1. This is the producing well -- the only other producing well within our pool. As you can see, the perforated interval sits at about 10,100 feet and is a good 450 feet above the Scharb pay, which is barely present, just a remnant of it in that well.

This well produced only 3000 barrels from a fairly tight Bone Spring carbonate section.

Q. What conclusions can you reach from your study of the Bone Spring formation in this area?

A. First of all, I think it's fairly clear that the pay in the Appleseed Federal Number 1 is the same pay that

has been called the Scharb pay interval within the Scharb field and also in the Lea-Bone Spring field. Both of these fields are on 80-acre spacing. The pay is not correlative to the producing zones in the pools that are developed on 40-acre spacing nearby.

We strongly feel that 80-acre spacing is the proper well density for the Featherstone-Bone Spring Pool.

Q. Will Manzano call an engineering witness to review that portion of this case?

A. Yes, we will.

Q. Were Exhibits 1 and 2 prepared by you?

A. Yes, they were.

MR. CARR: May it please the Commission, at this time we would move the admission into evidence of Manzano Exhibits 1 and 2.

CHAIRMAN WROTENBERY: Exhibits 1 and 2 are admitted into evidence.

MR. CARR: And that concludes my direct examination of Mr. Brown.

CHAIRMAN WROTENBERY: Thank you. Commissioners, do you have any questions of Mr. Brown?

COMMISSIONER BAILEY: No.

COMMISSIONER LEMAY: Well, maybe a couple, Mr. Brown.

THE WITNESS: Okay.

EXAMINATION

BY COMMISSIONER LEMAY:

Q. Have you looked at the vertical interval that's incorporated into the pool rules in some of the other fields? I know you've mentioned a large interval in the Pearl-Bone Springs Pool -- I mean, not the Pearl but the Scharb.

A. The Scharb. I've pulled logs and done a lot of correlation throughout most of the fields. I haven't done detailed work on every -- you know, every well, but I have looked at it. I've looked at all the wells in the Lea South-Bone Spring field. This was the only well even drilled deep enough to look at the Scharb. Most of them were concentrating -- or had perforations deep enough to have been the Scharb, and I pulled it, and it was, in fact, the sands.

So I have done, you know, some work in that, but...

Q. I guess my concern was that -- like the Young, if you look at the Young-Bone Spring Pool or --

A. Over -- Yes, in 18-30?

Q. Yeah.

A. I have looked at that.

Q. Isn't the interval there wide enough to accommodate perforations in both the Bone Springs sands and

carbonates that are encountered? In other words, as you go from well to well sometimes you pick up different pays --

A. Right.

Q. -- within the same interval, and it's all the same pool?

A. Those are within the second Bone Spring carbonate, and the second Bone Spring carbonate really represents at least three periods of debris deposition. So it is a lot more complex in that there are multiple zones that produce in the dolomite, sometimes there's dolomite in one well, there might be carbonate in another.

The Scharb is a little unusual in that it represents a single period, a real quick deposition. It seems to be, everywhere I see it, dolomite. So there's a lot of things that are not as complicated, when you look at the Scharb, as what you see in some of the other Bone Spring fields that are, say, in the second carbonate.

Q. I guess -- What about the sand? Doesn't the sand produce, the second Bone Springs sand in --

A. Right.

Q. -- the Young field, for instance, and some places in the Scharb field?

A. Right, and they'll just throw that all into the -- call it Bone Spring.

Q. I guess the point I'm trying to get at is, the

Bone Spring is a complicated interval stratigraphically.

A. It is.

Q. The Commission has -- the Division has chosen to incorporate pool rules over rather a large vertical interval to accommodate all the stratigraphic variations that you referred to in your presentation.

A. Right.

Q. And that to define a pool based on only the second Bone Spring carbonate, is that what you intended? What if you drilled another well and encountered some sand that was productive? You'd still want 80 acres for that, wouldn't you?

A. We'd want 80-acre spacing for that too. Manzano has wells in other Bone Spring fields which are on 80-acre spacing, and in those cases we still feel that those were -- and they were sand wells, and we felt that that was the proper spacing there as well.

Q. It seems -- I'm only just looking at what you presented here -- that the arguments are as much economic as geological, that if you drill a well and you get 3000 barrels or you've got a marginal production, it probably doesn't come -- make economic sense to make a presentation before this -- the Division, to get 80-acre spacing where you're not going to offset, it's a marginal zone. And yet if you have a decent well, you'd like to develop it on 80s

because that's the most economic development pattern?

A. Right, I would think that the Bone Spring as a whole should probably start with 80-acre spacing, and then come back in before the Commission and apply for 40 if it's justified. However, you know, we start with 40 and have to go to 80.

COMMISSIONER LEMAY: I would tend to agree with you, Mr. Brown. Thank you.

EXAMINATION

BY CHAIRMAN WROTENBERY:

Q. I would just like to ask Mr. Brown if you would just summarize for me very quickly the additional information that you're presenting here today that was not presented before the Division's Examiner in this case.

A. In the initial hearing we compared ourself to the Scharb field, and we did that because most of the production in the field comes from the same zone. And it's real easy to go in and see the production from the exact zone that we're producing from. And we also have some recent production where we can -- you know, our engineering witness will show, that we can do decline curves.

We look over to the South Lea-Bone Spring field, it was on 80-acre spacing, but it produces from second carbonate and Scharb, and it's real complex to figure out what produces how much oil. And when we went in to do

production work, most of the production was done prior to 1970, and if you've done any work trying to get production data before 1970 you just get a cumulative number. So we couldn't do any decline curves for you to show how we're comparable.

So we chose not -- at that point not to use it, because it -- Well, it was on 80-acre spacing anyway. We wouldn't have seen if there was any difference.

The South Lea-Bone Spring field doesn't even produce from the Scharb, so we -- you know, we just showed it produces from other intervals, so we didn't think it applied, but...

So basically, all we've added is showed how the Appleseed Federal Number 1 compares to the Lea-Bone Spring and to the South Lea-Bone Spring.

CHAIRMAN WROTENBERY: Thank you, Mr. Brown.

Any other questions?

Thank you. You may excused.

MR. CARR: At this time we would call Donnie Brown, the other Brown.

CHAIRMAN WROTENBERY: The other Brown.

MR. MIKE BROWN: No relation.

COMMISSIONER LEMAY: Family affair here.

MR. MIKE BROWN: No.

MR. CARR: They all go out of their way to say

they're not related. I don't know what that means.

DONNIE E. BROWN,

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

DIRECT EXAMINATION

BY MR. CARR:

Q. Would you state your name for the record?

A. My name is Donnie Brown.

Q. Mr. Brown, where do you reside?

A. Roswell, New Mexico.

Q. And by whom are you employed?

A. Manzano Oil Corporation.

Q. And what is your position with Manzano Oil Corporation?

A. Petroleum engineer.

Q. Mr. Brown, have you previously testified before this Commission?

A. Yes, I have.

Q. At the time of that testimony, were your credentials as an expert witness in petroleum engineering accepted and made a matter of record?

A. Yes, they were.

Q. Are you familiar with the Application filed in this case?

A. Yes, I am.

Q. Have you made an engineering study of the Bone Spring formation in the area of the Featherstone-Bone Spring Pool?

A. Yes, I have.

Q. And are you prepared to share the results of that work with the Oil Conservation Commission?

A. Yes.

MR. CARR: Are the witness's qualifications acceptable?

CHAIRMAN WROTENBERY: Yes, they are.

Q. (By Mr. Carr) Mr. Brown, have you prepared exhibits for presentation in this case?

A. Yes.

Q. Would you refer to what's been marked for identification as Manzano Oil Corporation Exhibit Number 3, identify this and review it for the Commission?

A. Yes, Exhibit Number 3 is a sonic log over the Bone Springs interval that we completed in. The interval is from 10,448 to -466, some 18 feet of perforations. It has a gross net pay of 22 feet, a porosity of 8 percent and a water saturation of 35 percent.

Q. And the information from this log will be utilized in calculations which you will be presenting later in your testimony; is that correct?

A. That's correct.

Q. All right. Let's go to Exhibit Number -- Well, before we get to the next exhibit, let's explain to the Commission why it is that you're seeking an increase in the spacing of the pool.

A. We're seeking an increase. We recently completed from the Morrow, which was on 160-acre spacing, to the Bone Spring on statewide 40 acres. We feel, based on this current production and its projection that it can drain in excess of 40 acres. We hope to develop this field. We feel like drilling on 40 acres would be an unnecessary waste and 80 acres would be a more economical, more acceptable drilling pattern.

Q. And Manzano does intend to drill additional wells to the Bone Spring, to the Scharb interval in this area?

A. That's correct, after we watch it for a year, make sure our projection is as predicted, we hope to develop this.

Q. And as you've continued to watch the Appleseed over the last three months since the Examiner hearing, in fact, the data seems to be moving toward larger drainage areas than smaller; is that correct?

A. That's correct.

Q. And you'll review that information later?

A. Yes.

Q. How close are we to the Scharb-Bone Spring Pool?

A. About seven miles south of the Scharb field.

Q. At the Examiner hearing, this was the field we had selected to use as a good analogy pool?

A. Yes, because it has several wells that was completed in the same producing formation, the Scharb pay, as the Appleseed, and we thought if we could show a fairly similar comparison we could justify 80-acre spacing.

Q. Since the order was entered in the Examiner hearing, you have examined data on other Bone Spring pools in the area, have you not?

A. Yes, I have.

Q. Is it your opinion the Scharb-Bone Spring Pool still remains the best analogy for the interval that is producing in the Appleseed well?

A. That's correct.

Q. All right, let's go to Exhibit Number 4. Will you identify that, please?

A. Yes, Exhibit Number 4 is the Scharb field that I drew an analogy with our Appleseed. It's seven miles to the north of the Appleseed, and most of the wells have established a definite decline curve and have ultimate recoveries in excess of 100,000 barrels, and it is a good analogy to our well.

Q. And again, you'll be using information from this exhibit in your calculations; is that correct?

A. Yes, that's correct.

Q. All right, let's go now to Manzano Exhibit Number 5. What is this?

A. Exhibit Number 5 is a decline curve, a rate versus time, of a typical well in the Scharb field. This is the Unit C well in Section 7 of Township 19 South, Range 35 East. It shows that the well has produced some 386,000 barrels, and over the life of the well it established a decline of 12.2 percent per year.

Q. Now let's go to your rate-versus-time curve for the Appleseed well.

A. This is our decline curve from our Appleseed well. As I initially testified back in August, we had three months of production. It was initially completed and turned to production in May of 1998. I used the same decline that was established from the Scharb field well on the previous exhibit of 12.26 percent. It shows with a current production of some 4500 barrels, it has 118,900 thousand remaining, for an ultimate recovery of some 123,500 barrels.

Q. Now, the fist page of this exhibit is the curve that was presented at the Examiner hearing; is that correct?

A. That's correct.

Q. Would you now go to the second page of Exhibit

Number 6 and explain what that shows?

A. This is really the same decline curve, with the addition of three more months of production, August through October, which shows it is higher than my decline curve projects, and reinforces my conclusion that this well will drain in excess of 80 acres -- 40 acres, and 80 acres would be more appropriate for future development.

Q. I'd like you now to go to Manzano Oil Corporation Exhibit Number 7 and, if you would, Mr. Brown, I'd like you to review the data that you've utilized and then explain the numbers and calculations at the bottom of the page.

A. This exhibit shows the data from our Appleseed well. It's a Bone Springs carbonate, commonly called the Scharb pay, from 10,448 to -466. It currently -- At the August hearing, it was producing 50 barrels of oil and some 11 barrels of water per day. It's currently producing some 82 barrels of oil now, and about four or five barrels of water per day.

It's a sweet crude of 33-degree gravity, bottomhole pressure of 4600 p.s.i., and a temperature of 155 degrees. Its initial GOR was some 700 cubic feet per barrel, and from this data I derived a formation volume factor of 1.3562.

As I've showed you in our sonic exhibit, we have 22 feet of net pay, 8 percent porosity, 35 percent water

saturation, and we believe the recovery mechanism is a primary recovery mechanism of a solution gas drive.

Based on this data, on a 40-acre areal drainage, original oil in place is some 261,770 barrels.

If you use my decline recovery of 125,000, that's a primary recovery of some 48 percent, which is higher than a solution -- you could expect from a solution gas drive. Primary recovery from a solution gas drive in carbonate fields typically run between 17 and 25 percent of original oil in place.

If you assume an 80-acre drainage radius, original oil in place is some 523,500 barrels. Again, with my projection of 125,000 barrels, that's a primary recovery of some 24 percent, which is more in the range of what you'd expect from a primary recovery.

The Scharb-Bone Springs fields that I referred to is on 80-acre spacing. It has a primary of some 13.7 million barrels from 44 wells, which averages 311,400 barrels per well. Their gross pay was 50 feet, compared to the Appleseed 22 feet. So when you put that on a comparable basis of equal net pay, their typical recovery was 137,000 barrels per well, which is in the range of what we're expecting from the Appleseed.

Therefore, I conclude that they're draining 80 acres efficiently, and so will the Appleseed.

Q. When we look at the numbers on this exhibit on the Scharb-Bone Spring Pool, what was the source of the information you utilized in preparing this exhibit?

A. I took this from a Roswell Geological study on the Scharb-Bone Springs field, and it was -- I forget the date it was, but it was an earlier date than the production -- current production, as reported by Mike Brown.

Q. You've looked at the exhibits presented by Mr. Brown?

A. Yes, I have.

Q. And he's used recent figures from *Dwight's*, you've used some older figures from the Roswell Geological study. Did the difference in these numbers have any impact on the conclusions that you have shown in your work?

A. No, they both conclude that the typical recoveries for 80 acres is in excess of 100,000 barrels and is an efficient drainage area, for 80 acres.

Q. Let's go now to what has been marked Exhibit Number 8. Would you identify and review those?

A. Yes, Exhibit 8 is two decline curves from the Lea-Bone Springs field. These are two of 14 wells that I reviewed from the Lea-Bone Springs field. And about the only thing I could find in common between these wells and the Appleseed was the word "Bone Springs" and the field name.

Most of these wells were completed in the early 1960s, and production had ceased before 1970. Therefore, no information was available from commercial data banks from which to draw a decline curve and compare a decline analysis.

However, all of these wells, with the exception of one, was completed in zones other than the Scharb pay. These wells were perforated from zones ranging from 9400 feet to 14,000-plus feet. Well, as I say, with only one, the Marathon Unit Number 7, as demonstrated in Mike Brown's cross-section, completed in the Scharb pay.

I submit these two exhibits simply to show that wells completed in the Bone Springs carbonate on 80-acre spacing typically produce in excess of 100,000 barrels. These two wells, as I mention, ultimate recovery is 123,000 and 177,000 on 80-acre spacing.

Other than that, I don't find very much in common between these wells in the Lea field, Lea-Bone Springs field, and the Manzano Appleseed or the Featherstone-Bone Springs Pool.

Q. And these are typical wells from pools that, in the Examiner Order, it was found we failed to show evidence why you couldn't make a correlation from the Appleseed to these pools?

A. Yeah, that's correct.

Q. In your opinion, will the requested 80-acre spacing result in an efficient development pattern for the pool?

A. Yes, it will.

Q. In your opinion, will approval of 80-acre spacing result in waste?

A. No, it will not.

Q. What conclusions can you reach from your engineering work in this reservoir?

A. I can conclude that the Appleseed is draining in excess of 40 acres and that 80 acres is the appropriate spacing for continued development.

Q. And it is Manzano's intent to drill additional wells offsetting this well in the Bone Spring formation?

A. Yes, once we can confirm that actual history will verify my projection, we can continue to develop this field.

Q. And the last three months' production on the Appleseed already tend to be confirming the initial projections on the drainage area?

A. That's correct.

Q. Will approval of this Application otherwise be in the best interests of conservation, the prevention of waste and the protection of correlative rights?

A. Yes, it will.

Q. Were Exhibits 3 through 8 prepared by you?

A. Yes.

MR. CARR: At this time we would move the admission into evidence of Manzano Oil Corporation Exhibits 3 through 8.

CHAIRMAN WROTENBERY: Exhibits 3 through 8 are admitted into evidence.

MR. CARR: And that concludes my direct examination of this Mr. Brown.

CHAIRMAN WROTENBERY: Any questions, Commissioners?

COMMISSIONER BAILEY: I have a question.

EXAMINATION

BY COMMISSIONER BAILEY:

Q. Exhibit 5 has to do with the well in Section 7 of 19-35 East, which is a different well from the one that was shown in your Scharb-Bone Springs in Exhibit 2. Would you describe the perforated interval relative to the interval that we see in Exhibit 2?

A. It's a different well, but it's perforated in the same interval. I don't know what interval it is, but it's perforated in the Scharb pay. I don't know what the interval is.

Q. Can you tell me how many feet were perforated --

A. No, no.

Q. -- or the porosity or anything such as that, so we can do a comparison of what we see here?

A. No, I can't. Maybe Mike can.

MR. CARR: We can --

THE WITNESS: I just accepted this as a well in the Bone Springs pay.

MR. CARR: May it please the Commission, we can recall Mike Brown --

COMMISSIONER BAILEY: Please.

MR. CARR: -- to respond to that question.

COMMISSIONER BAILEY: That's all.

CHAIRMAN WROTENBERY: Mr. LeMay?

EXAMINATION

BY COMMISSIONER LEMAY:

Q. Mr. Brown, have you taken any other bottomhole pressures besides the one giving you 4600 pounds?

A. No, that 4600 pounds was a DST pressure.

Q. DST pressure.

A. And no other pressures have been taken to date.

Q. Do you plan to take additional pressure tests --

A. As long as --

Q. -- on that producing -- probably not the producing well, right?

A. No, as long as the production is above my decline curve, I'm not too worried about it.

Q. Are you familiar with some of that Scharb interval where the other wells that have been drilled in the area have proven to be occasional limited reservoirs in that Scharb carbonate?

A. Yeah, and that's why we want to watch it for about a year.

COMMISSIONER LEMAY: That's the only question -- the only comment that I had. Thank you.

CHAIRMAN WROTENBERY: I don't have any further question of Mr. Donnie Brown.

MR. CARR: At this time we would recall Mr. Mike Brown, who is not related to Mr. Donnie Brown.

CHARLES MICHAEL BROWN (Recalled),

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

DIRECT EXAMINATION

BY MR. CARR:

Q. Mr. Brown, were you present a few moments ago when Commissioner Bailey had questions of Donnie Brown concerning the interval shown in the well on Exhibit Number 5, comparing that to Exhibit Number 2?

A. Yes, I was.

Q. Can you respond to that question, please?

A. I have a sheet that shows the productive intervals, and -- I was hoping I could figure out what well

it was. However, I have looked at all the logs in there. I'm pretty sure that's all just Scharb, but I can't directly say that I -- I thought I -- I hoped I could, but I really can't say for certain that's Scharb only, but I'm pretty sure it is.

I can provide that log to you if it's --

COMMISSIONER BAILEY: Okay, thank you.

CHAIRMAN WROTENBERY: Bill?

COMMISSIONER LEMAY: Quick one.

EXAMINATION

BY COMMISSIONER LEMAY:

Q. Do you have a copy of the DST that was taken, giving you the 4600 pounds bottomhole pressure? Can you supply that?

MR. CARR: Ms. Chairman, we can supply the log section on the well shown in Exhibit Number 5 in response to Commissioner Bailey's question and the DST that you requested, and we can have those filed this week, and we'll provide copies directly to each of the Commissioners.

CHAIRMAN WROTENBERY: Thank you very much. Anything else for Mr. Mike Brown?

COMMISSIONER BAILEY: No.

CHAIRMAN WROTENBERY: Thank you.

MR. CARR: May it please the Commission, that concludes our presentation in this case. We had hoped to

drag the case on into the afternoon.

CHAIRMAN WROTENBERY: Okay. Mr. Carr, you'll have the additional information by the end of this week?

MR. CARR: Yes, we will, and we will file it with the Commission's office in Santa Fe and provide copies to Commissioners LeMay and Bailey, if that's all right with you.

CHAIRMAN WROTENBERY: Thank you.

Mr. Carr, would you like to make any kind of closing statement?

MR. CARR: No -- We came in with a -- basically a one-well pool this summer, seeking pool rules that would be similar to the rules for other Scharb fields in the area.

The data is obviously limited, we have one well, we have one interval. But future development plans really dictate that wasteful practices can be avoided if, in fact, the spacing is changed and is made consistent with the other Scharb pools. That's our intent.

At the time of the hearing we presented evidence that only analogized the interval in the Appleseed well to the Scharb pool eight miles to the northwest, and there were no questions at that time about other pools in the area. We thought we had presented what was needed, but obviously we did not. And the order came down and it said that we needed to show why this interval could be

analogized eight miles away when there were other pools in much closer proximity to the Appleseed. And we have tried now to respond to those concerns, and we now entrust this matter to you.

CHAIRMAN WROTENBERY: Thank you, Mr. Carr. We will leave the record open till the end of this week so that we can get the additional information from the Applicant.

At this time I would like to entertain a motion to close this open meeting and go into executive session so that we can deliberate on the information we've received on this particular Application in accordance with Section 10-15-1 H. (3) of the Open Meetings Act.

Okay, we will then close this meeting for purposes of deliberation.

Thank you Mr. Carr and --

MR. CARR: Thank you.

CHAIRMAN WROTENBERY: -- Messrs. Brown.

(Off the record at 9:55 a.m.)

(The following proceedings had at 10:07 a.m.:)

CHAIRMAN WROTENBERY: We'll come back into open session now for the record.

The matter that was discussed by the Commission while we were in closed session was the Manzano Application which we just heard, and that was the only matter that was

discussed in closed session.

I think we're just about ready to adjourn this meeting, although Commissioner Bailey just raised a question about the scheduling for the next meeting.

COMMISSIONER BAILEY: I don't have my calendar with me, but December 16th I will not be in town. Does anybody have a calendar?

CHAIRMAN WROTENBERY: I've got one. Let's see, that's Wednesday --

COMMISSIONER BAILEY: Uh-huh.

CHAIRMAN WROTENBERY: -- December 16th.

COMMISSIONER BAILEY: I will be coming back into town about the 18th, 17th or 18th -- I will be coming back into town the 16th and be back at work on the 17th and 18th.

CHAIRMAN WROTENBERY: Okay. I'm trying to see what -- I had something on the 17th. I don't remember what that was -- Oh, let's see. Hearing, that was what it was.

I don't have anything on the 18th.

Do you have your calendar, Commissioner, LeMay?

COMMISSIONER LEMAY: I'm okay in December. What is that, Friday?

CHAIRMAN WROTENBERY: Friday the 18th. Should we --

COMMISSIONER LEMAY: That's okay with me. That's

a week before Christmas and you have a lot of parties, but that's the only thing you're going to run up against, is social problems on that date.

CHAIRMAN WROTENBERY: Yeah. So shall we reschedule the next Commission meeting, then, for Friday, December 18th? I had already announced that a couple of cases were continued to the 16th --

COMMISSIONER BAILEY: Right.

CHAIRMAN WROTENBERY: -- but we'll go ahead and continue those to the 18th instead.

Okay, well, we need to have you there.

One of the items that will come up on the 18th is the final action on the Manzano Application.

COMMISSIONER LEMAY: Jami, you're going to be the continual representative of Ray, I guess. He used to switch off occasionally with Gary and others, but that doesn't seem to be --

COMMISSIONER BAILEY: Unless the potash comes up, and then Gary will probably take potash.

COMMISSIONER LEMAY: Is that because you don't want it, I mean because --

(Laughter)

COMMISSIONER LEMAY: -- he wants to, or --

COMMISSIONER BAILEY: To provide continuity, let's put it that way.

COMMISSIONER LEMAY: So you're still kind of a not-all-the-time situation --

COMMISSIONER BAILEY: It depends on --

COMMISSIONER LEMAY: -- but most of the time?

COMMISSIONER BAILEY: Most of the time.

COMMISSIONER LEMAY: Okay, I was curious. We like to have you, I'm not --

(Laughter)

COMMISSIONER BAILEY: No, he's been so involved in other issues --

COMMISSIONER LEMAY: Yeah.

COMMISSIONER BAILEY: -- that he really hasn't had much time to take on other areas. But when it comes to potash --

COMMISSIONER LEMAY: I imagine he wants to -- Okay.

CHAIRMAN WROTENBERY: Okay, any other matter before the Commission today? I don't hear any, so we will adjourn this meeting. Thank you, everybody.

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

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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 Commission 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 November 21st, 1998.

STEVEN T. BRENNER
CCR No. 7

My commission expires: October 14, 2002