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2	STATE OF NEW MEXICO ENERGY AND MINERALS DEPARTMENT
3	OIL CONSERVATION DIVISION STATE LAND OFFICE BUILDING SANTA FE, NEW MEXICO
4	30 January 1985
5	EXAMINER HEARING
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7	
8	IN THE MATTER OF:
9	Application of Amoco Production CASE
10	Company for amendment to Division 8470 Order No. R-7518, Lea County, New Mexico.
11	TICATOO!
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13	BEFORE: Michael E. Stogner, Examiner
14	DEFORM. MICHAEL B. BEOGHEL, EXAMINED
15	TRANSCRIPT OF HEARING
16	
17	APPEARANCES
18	
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22	For the Applicant: Kathleen E. Magruder
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3	MR. STOGNER: We'll call next
	Case 8470, which is the application of Amoco Production Com-
4	pany for amendment to Division Order No. R-7518, Lea County,
5	New Mexico.
6	We'll at this time call for ap-
7	pearances.
8	MS. MAGRUDER: Mr. Examiner, my
9	name is Kathleen Magruder. I'm here in association today
10	with William F. Carr of the firm Campbell, Byrd, and Black,
	here in Santa Fe.
11	I'm representing Amoco Produc-
12	tion Company.
13	MR. STOGNER: Are there any
14	other appearances in this matter?
15	If not do you have a wit-
16	ness, Macruder
17	
18	Will you please
19	stand?
20	(Witness sworn.)
21	
22	MS. MAGRUDER: Mr. Examiner, in
23	this hearing Amoco desires to expand the injection interval
24	for the State "FU" No. 3 Well in Lea County, New Mexico.
25	It's Amoco's desire to include

the Wolfcamp formation in the injection interval permitted by the Division.

At a hearing last year Amoco was granted the authority to inject into the Bone Springs formation and this hearing is merely a request for an expansion of that authorization.

For convenience sake, Amoco would ask that the record of the hearing in Case Number 8167, heard by Examiner Stogner on April 25, 1984, be incorporated by reference into the record of this proceeding.

Amoco makes this request since much of the testimony adduced at that hearing is relevant to issues to be decided here today and rather than burden the record with much repetitious evidence, we would request that that record be incorporated by reference.

MR. STOGNER: The testimony and the record in Case 8167 will be so incorporated.

MS. MAGRUDER: We have one witness today, Mr. Scheffler.

STEVE SCHEFFLER,

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

DIRECT EXAMINATION

BY MS. MAGRUDER:

Q

Would you please state your name for the

5 1 record? 2 Stephen Scheffler. Α 3 By whom are you employed and in what cap-0 4 acity? 5 Α Amoco Production Company as a Senior 6 Staff Petroleum Engineer. 7 Mr. Scheffler, have you previously testi-0 fied before the oil Conservation Division? Α Yes. 9 And are your qualifications as a petro-10 leum engineer a matter of public record? 11 Yes, they are. Α 12 MS. MAGRUDER: Mr. Examiner, do 13 you have any questions regarding his qualifications? 14 MR. STOGNER: I do not. 15 Mr. Scheffler, are you familiar with the 0 application that is to be heard today? 16 Yes. Α 17 You're going to present a number of exhi-18 Were these exhibits either prepared by you or under bits. 19 your direction and supervision? 20 Yes, they were. Α 21 0 If you would, please, turn to what has 22 been marked as Amoco Exhibit One and identify it briefly for 23 the Examiner. 24 Exhibit One is the order of the Division Α that allowed Amoco approval to inject salt water into the 25

State "FU" No. 3, located in the Airstrip Bone Springs Pool. That application was approved and it was approved allowing us to inject water into the Upper and Lower Bone Springs, as it was defined at that time.

Since that time by Division Order R-6255A, dated 7-9-84, the two horizons, the Upper and Lower Bone Springs, have since been consolidated into the Airstrip Bone Spring Pool.

Q Would you please turn to your Exhibit Two and identify it for the record?

A Exhibit Number Two is an area map that identifies the completions in the Airstrip Wolfcamp and Airstrip Bone Spring Pools.

On this exhibit I've identified Airstrip
Bone Spring completions with the light blue dots and Airstrip Wolfcamp completions with the green dots.

Currently there are some 21 Airstrip Bone Spring completions and 5 Airstrip Wolfcamp completions.

Amoco operates 15 of the Bone Spring completions and 2 of the Wolfcamp completions.

The Amoco -- or the acreage that is colored in yellow identifies the Amoco acreage which consists of five leases, those being the State "FU", "HQ", "IA", "HR", and "NM" leases.

I've noted also on this exhibit the location of the salt water disposal well with the purple arrow.

Q Do you have any further testimony with

regards to this exhibit?

A No, I don't.

Q If not, please turn to your Exhibit Three and identify and discuss it.

A Exhibit Number Three is some well test information for the Amoco-operated Airstrip Field wells. This is a data sheet in which I've identified the lease name, the well number, the completion horizon, the latest test information that was available, that being as of December of 1984, and the status of each well.

The purpose of this exhibit is to show the water production that is existing at this time in that field, as can be identified by the well test information shown.

shown here adds up to 646 barrels of water per day that we are currently realizing in this Airstrip Field area from the Amoco-operated wells. It is this water that we are having to contend with in terms of disposal and currently we are unable to dispose of this volume due to the fact the State "FU" No. 3 has not been able to take the amount of water that we're currently producing.

Our injection capacity is fairly limited, we feel, probably due to the fact that we had a relatively limited reservoir in which to inject. We would hope with this approval of the application that we would have additional capacity by incorporating and adding the Wolfcamp to

the current Bone Spring injection intervals.

Q What are you doing with the water that you're not currently injecting into the State "FU" No. 3?

A Right now we're having to truck about 95 percent of the water that we're currently producing out there to the disposal well some 25 miles away from the field area.

O I --

A A commercial disposal well.

Q Your exhibit shows 646 barrels of water per day being produced. Is this the same number as you told the examiner the last time you came for authorization for disposal?

A This -- this increase -- this is an increase over what we had indicated as being the amount of water we were having to contend with at that time.

The increase is due primarily to the fact that we now have, as you can see on this particular exhibit, a well called the State "HQ" No. 7, which is a Wolfcamp completion and it has added some 296 barrels of water per day that we have had to attempt to dispose of, and basically, it is that increase in water that has increased this total production, caused the increase in total production that you see here.

There has been no increase of significant amount over the original water producing rates that we indicated existed at the time that we asked for the Bone Springs

horizon to be used as the injection horizon in the previous hearing.

Q Do you have any further testimony regarding your Exhibit Three?

A No, I haven't.

Q If you would, then, please turn to your Exhibit Four and identify and discuss it, please.

A Exhibit Number Four is an exhibit that I prepared that shows the historical injecton performance for the State "FU" No. 3 salt water disposal well since it went on line in July of 1984.

On this exhibit you can see I've identified the number of months that we have had injection going on in this particular well.

Also I've shown the monthly injection rate, associated daily injection rate, the average injection pressure, and the cumulative injection volume.

I might point out that from July through October of 1984, as you can see under the average injection pressure heading, we did not have our positive displacement pump in operation at that time and the water that was being put into the injection well was being fed to it through gravity feed. There was not actually a pump installed.

The average daily injection rate that we saw during that time averaged about 50 to 60 -- 58 or 60 barrels of water per day.

As you can see with the installation of

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the injection pump that occurred in November of '84, we were able to significantly increase our daily injection rate to 200 barrels of water per day with an associated injection pressure, wellhead pressure, of some 1280 psi.

Unfortunately, that did not last very long due to the limited capacity of the injection well and, as you can see, our rate has significantly fallen off to the performance you've seen for the first seven days in January, that being about 24 barrels of water per day, and this is at the limited pressure that the Commission has approved for that particular injection well of 1800 psi.

And it is for this reason that we would request additional capacity in that well which we hope would be provided with the Wolfcamp reservoir we're asking approval to inject into.

Q If you would, please, turn to your Exhibit Five and identify it for the record and discuss it, please.

A Exhibit Number Five is a data sheet for the injection well. On this exhibit the information that is shown under tubular data is basically the same information that was presented in the previous hearing that we've referenced.

The only change here that I might note is that we have identified what the existing Bone Spring interval is, as well as what the additional injection interval will be that we are proposing, that being the Wolfcamp inter-

val from 10,574 feet to 10,621 feet, and from 10,744 feet to 10,766 feet, this will be a perforated interval.

Skipping down to the information near the bottom of the page, I'd like to point out that this Wolfcamp interval has previously been perforated; however, it was abandoned after there was no show of oil or gas, only formation water.

It is currently isolated below a cast iron bridge plug covered with some 35 feet of cement.

There is no underlying oil or gas zone that is -- that we are aware of in the area. The overlying oil and gas zone, of course, is the Bone Spring. In the area the lowest Bone Spring potential is about -- is at about 10,350 feet.

me, Exhibit Five-B is a current wellbore sketch of the State "FU" that shows the current configuration of the wellbore. You can see I've identified the location of the current injection interval as well as that additional Wolfcamp injection interval isolated below the bridge plug that we propose to add to the injection interval which we now have.

Exhibit Five-C is simply a proposed well-bore configuration that we would expect to exist with the addition of the Wolfcamp. Our packer, our tubing configuration would be set at approximately the same depth, some 9100 feet.

We would anticipate after removing the

bridge plug that we would probably only have to stimulate the -- the previously opened horizon and the Wolfcamp with some 7000 gallons of acid and then initiate injection.

Q So then does Amoco propose to inject into both the Bone Spring and the Wolfcamp formation?

A Yes.

Q Will you please turn to your Exhibit Six, identify it and discuss it?

A Exhibit Six is an area map that shows a 2-mile circle that surrounds -- 2-mile radius circle that surrounds the injection well location, which is identified by the purple arrow.

There is also noted on this map a 1-mile and 1/2-mile circle around the injection well. The 1/2-mile circle identifies the area of review for which I have prepared a subsequent exhibit, or later exhibit, that I'll be going over in identifying pertinent data regarding the wells that fall within that area of review or just immediately outside.

The wells that are considered for this case as a part of the area of review I've noted by the red boxes around the well locations.

The colored dots identify wells in this 2-mile area. The various colors denote as can be seen at the bottom in the legend; various completion horizons these wells are currently completed in.

The light blue dots I point out are Air

5

strip Bone Springs completions and the green dots, again, are Wolfcamp completions in the area. The red dots identify wells that are plugged and abandoned.

Three of these wells, three of these P&A'd wells, lie within the area of review.

Q I have noticed that there is one well on here that is right outside the half mile circle that has no colored dot on it. Would you --

A That's -- yes, that's the HNG Oil Company Streicht 26 Well. That is the number one well we don't -- the only information we have is what was available in the Commission records. It's apparently an incomplete well still in the process of completion.

From what knowledge we have, and I've got a pertinent data sheet available on it that I will review with you, it appears that well was -- an attempt was made to complete in the Bone Springs. It did not appear that it was successful and apparently the well is currently shut in with perhaps an attempt to move up-hole.

Q If you have nothing further, please turn to your Exhibit Seven, identify it and discuss it for the examiner.

A Exhibit Number Seven is a 32-page exhibit which I will not detail but more or less outline here.

The first seven pages contain information regarding the plugged and abandoned wells I referred to.

Those three that exist in the area of re-

to that well.

view, the wells are -- lie to the west of the injection well and somewhat to the north. They include the Wiser State -- Wiser 26 State No. 1, which was plugged and abandoned in 1931. Attached is a wellbore schematic which shows that the cement exists to surface behind the intermediate and surface strings and that there is cement calculated behind the long string to be at 3855 feet. The associated plugs that have been set within that wellbore are also noted.

The next P&A'd well is the Airstrip State
No. 2, which was plugged and abandons:

The state of the state of your exhibit?

A I'm sorry, that is on page three, yes.

There's a pertinent data sheet attached

As well, on page four there is a schematic of that wellbore which shows the configuration that exists. There is cement behind the surface and intermediate string that has been cemented to surface. The 5-1/2 was cut and pulled at 6136 feet with a 85-sack plug set at 6152 feet on the stub. There is cement behind that long string, what's left of it, calculated to be at some 7925 feet. Again the plugs that have been set, remaining plugs I haven't noted, are noted on this configuration.

I've also included for this well a performance curve that is associated with the Airstrip Bone Spring portion of the well's attempted completion and this was, in fact, a successful completion, and as you can see,

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there is pertinent information that can be found on this particular plot that might be of interest to the examiner.

The last P&A'd well is the Bob Johnson Gulf State No. 1 Well, which is on page six. It was plugged and abandoned in 1957. This well did not penetrate to but to 4643 feet. I've noted the plugs that are set there and would point out that cement has been circulated to surface, as well, in this particular wellbore.

To go on, I'll briefly comment on what exists in the remainder of this exhibit.

There were five wells that -- well, let me first say that all of the remaining wells that are in this that are detailed in the pertinent data sheets for the remainder of this exhibit, detailed producing wells that exist within the area of review, all of those wells have had cement circulated to surface behind the surface and intermediate casing strings with the exception of the "FU" No. 5, which is found on page fifteen, and that well had cement circulated to surface behind its production string, its long string.

I would like to point out, too, that I'm just basically going to briefly describe to you which of the wells in this area of review have had any activity in the Wolfcamp area.

On page eight there was -- this identifies the pertinent data sheet for the State "FU" No. 1. You can see that there was some Wolfcamp perforations that took

place in this particular well and that this well in fact did produce and is currently producing at a downhole configuration with the Bone Springs.

The latest test on the Wolfcamp as of November, or December, I'm sorry, was some 18 barrels of oil per day, 13 barrels of water, and 25 mcfd. That is an allocated -- based upon allocated production.

Also attached to that well I've shown the cumulative production through June of 1984 from the Wolf-camp. This is found on page nine on the performance plot. That cumulative production number is some 92,438 barrels of oil.

Skipping to page thirteen, the State "FU" No. 4 has had the Wolfcamp tested. That was found to be nonproductive. The Wolfcamp is currently isolated below a bridge plug in that well with 35 feet of cement set on top of that bridge plug.

Going on to page nineteen of the exhibit, the Wolfcamp is still in the State "HQ" No. 1. That well was potentialed at 33 barrels of oil per day and 18 barrels of water per day from the Wolfcamp in 1979. The Wolfcamp was subsequently abandoned or -- well, abandoned and isolated below a bridge plug in 1983 after producing a cumulative of some 13,178 barrels of oil. There is an attached performance curve detailing that production for that particular well.

On page twenty-two the State "HQ" No. 2

bit.

Well was perforated in the Wolfcamp in 1980. That horizon, however, was found to be nonproductive and was isolated with a cast iron bridge plug and capped with 35 feet of cement.

And finally the State "YH" -- Lea "YH" State No. 1, operated by Gulf, found on page twenty-eight, was perforated in the Woflcamp in 1979; however, it too was found to be nonproductive and is currently isolated below a cast iron bridge plug and capped with some 35 feet of cement.

That concludes my detailing of that exhi-

Q Well, to summarize, Mr. Scheffler, how many wells have produced from the Wolfcamp in the area of inquiry?

A Only one, the State "FU" No. 1, which is shown on the previous Exhibit Number Six to be currently downhole commingled with the state -- or with the Bone Springs horizon in that wellbore.

Q And that well currently produces from the Wolfcamp?

A Yes, it does.

Q If you have nothing further, why don't you turn to your Exhibit Fight, identify it and discuss it for the examiner?

A This is a somewhat -- it's a stratigraphic cross section. It's fairly long and let's spread it out here, Mr. Examiner.

This is a 5-well stratigraphic log cross section in which I have hung porosity logs. The line of cross section, as you can see, is identified in the lower righthand corner of the map, the insert map. The distances between the wells correlate to the line of cross section shown on the insert map.

Above each of the top -- above the top of each of the wells I've shown the pertinent information that identifies these wells.

Alongside to the right of each of the well logs I've indicated completion or testing information that correlates to the red intervals that have been perforated in these wells.

At the base of each well I've shown the current status.

These wells are all hung on a common datum, that is the top of the Wolfcamp, being a stratigraphic cross section.

The purpose of this exhibit is to show a couple of things here.

First of all I'd like to point out that the State "FU" No. 3, which is the second well from the right, or left, end of this exhibit, I've colored in the two intervals that we're proposing to inject into.

The interval that -- the mid or uppermost interval, as you can see, correlates stratigraphically to the "HQ" No. 2 off to the left. It also correlates strati-

graphically to the "FU" No. 1, our current producing well in the Wolfcamp, and I might point out that the State "FU" No. 6, which has an interval in the Wolfcamp, a porosity interval, which appears to lie stratigraphically immediately above the injection interval we're proposing in the "FU" No. 3, the "FU" No. 6 interval correlates very well to the "FU" No. 4 interval.

The point to be made here is that on first look-see it appears that our injection interval does correlate well with the producing interval in the "FU" No. 1; however, the injection interval in the "FU" No. 3 tested nothing but water. The injection -- or stratigraphically correlatable interval in the "FU" No. 1, as you can see, tested a significant amount of oil production.

The point to be made here is there is obviously a barrier that exists between these two wells and one more point that enhances our belief that there's not going to be any problem or detrimental effects from injecting into the "FU" No. 3 in the offset potentially productive Wolfcamp is that the "FU" No. 3 lies significantly up-structure to the wells you see on this cross section, with the exception of the "FU" No. 4, which is slightly lower but not too much lower.

It's much higher, so therefore, I would expect that because we're seeing water in a higher structural position, oil in a lower structural position, again, the, with the exception of the No. 3, Wolfcamp is an isolated re-

servoir.

This, the elevations I'm referring to here, are colored in yellow, highlighted in yellow above the stratigraphic intervals I've noted.

This, I would also like to elaborate a little bit, in that this higher structure in the "FU" No. 3 can be said to be consistent with the remaining wells in the area of review and that those wells, even though they don't appear on this cross section, we have checked, they are also lower structurally than we see the top here in the "FU" No. 3 for the Wolfcamp top injection interval.

That's all I have on this exhibit.

Q Fine. If you would, then, please turn to your Exhibit Nine, identify it and discuss it for the Examiner.

A Exhibit Number Nine is the Form C-108, the Commission's Form C-108, Application for Authorization to Inject. I have completed this form for purposes of the record. I have attached Exhibit Nine-A, which is this application -- or Application for Authorization to Inject.

Attached to that I have Exhibit Nine-B, which is a detail of some specific information that's requested on the application that I may not have touched upon.

This is attached for the Examiner's use. The only thing I'd like to point out is that it details Sections 7, 8, and 9. Briefly what it discusses or what it identifies is that Amoco would be asking for an average, or

expecting a daily average injection rate of 600 barrels of water per day at the most, with a maximum rate, perhaps, as high as 1000 barrels a day if we do see the additional water -- or additional water production due to infill drilling or just an increase in the current producing rates.

The type of injection system we have is a closed one. The average injection pressure we anticipate is 900 psi; however, our maximum pressure would not expect to exceed the limiting pressure that currently exists for the Bone Springs interval of 1800 psi.

We do not expect to have any problem with incompatibility of waters. The Wolfcamp and Bone Springs waters have both been shown to be compatible and nothing to the contrary has been observed since downhole commingling; therefore, produced waters for the Bone Springs and Wolfcamp wells, we expect will be compatible with receiving formations.

I've also addressed, as you can see on page two of this exhibit, underground sources of drinking water. The information that's included here is identical to the data that we presented in the previous hearing.

Q If you have nothing further with regards to Exhibit Nine, please turn to Exhibit Ten, identify it and discuss it with the examiner.

A The last exhibit details the Amocooperated Airstrip Field Area and the anticipated increased reserve recovery that we would expect with the proposed ex-

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pansion of salt water disposal in this particular well to include the Wolfcamp.

I've noted here Airstrip Field Summary -- an Airstrip Field summary of pertinent data for the Bone Spring and Wolfcamp Pools.

Briefly, the percentage of total water production that is currently being trucked is about 95 to 96 percent.

The economic limit that we're looking at with this sort of a situation, having to truck that much water, is about 96 barrels of oil per day on a field-wide basis.

The maximum reduction we would expect on monthly operating expenses with the proposed salt water injection interval added will be some 19,638 barrels -- or dollars per month. This would reduce our economic limit to about 67 barrels of oil per day.

This results in an incremental reserves recovery by reducing our economic limit, an incremental reserve recovery of some 21,170 barrels of oil. This is derived by evaluating the combined Wolfcamp and Bone Springs decline that currently exists, as identified from performance tests, and that assumes a 50 percent decline per year. Using decline curve analysis we're able to come up with this additional reserve recovery that we would anticipate by lowering the economic limit to the 67 barrels of oil per day.

So in conclusion I would just say that we

23 1 anticipate that we'll be able to, hopefully, put away 2 additional water that we're seeing out there now and, 3 well, ultimately see an increase in reserve recovery 4 would not otherwise see if we have to continue to truck our 5 water. 6 Scheffler, in your opinion would the 0 Mr. 7 granting of this application promote conservation, prevent waste, and protect correlative rights? 8 Yes, it would. Α 9 MS. MAGRUDER: Mr. Examiner, I 10 will move the admission of Amoco Exhibits One through Ten 11 and tender the witness for any questions you might have. 12 MR. STOGNER: Exhibits One 13 through Ten will be admitted into evidence. 14 15 CROSS EXAMINATION 16 BY MR. STOGNER: Mr. Scheffler, this well was completed in **17** March of '80, is that right? 18 Α The "FU" No. 3? 19 Yes, sir. Q 20 Let me --Α 21 Well, on Exhibit Three -- Five-B, it's up 22 there on the upper lefthand corner, I believe it's marked

March of 1980, yes, sir.

When was the Wolfcamp

plugged

Okay.

23

24

25

there.

Α

Q

we

1	24
2	back?
3	A Let me refer to the cross section here,
4	Mr. Examiner. I believe I've got the dates identified for
5	the well on that cross section.
6	It would have been no later, I would
	think, than the third month of 1980, since the Wolfcamp test
7	occurred during February of 1980.
8	Q Would Amoco be prepared to test that
9	casing
10	A If necessary.
11	Q down in the lower part before injec-
12	tion operations?
13	A If necessary, it certainly would.
14	Q Just for the record, in looking at your
15	Exhibit Five-B
	A Yes, sir.
16	Q you do not plan to put any more extra
17	tubing or change the position of the packer?
18	A No. No, we don't, since we're antici-
19	pating, you know, the use of both of the injection inter-
20	vals.
21	Q And no increase of the of the maximum
22	injection rate, pressure rate, would you?
23	A The rate we may see, hopefully we would
24	see a rate as high as well, as high as we're as is necessary to dispose of 646 barrels of water per day, which
25	would be that rate.

25 1 The pressure, though, would be no higher 2 That pump is rated at 1000 barrels a day than 1800 psi. 3 with an associated injection pressure of 1800, so we're lim-4 ited to 1800 just by the design capacity of the pump. 5 Okay. And that was the limit set forth 6 back in the original bearing. 7 1.09 31.6 The magnitude of the 1-8 mile radius but within the 2-mile radius there seems to be 9 three Wolfcamp completed wells. Are those presently pro-10 ducing in the Wolfcamp formation? 11 Α I'm sorry, Mr. Examiner, where was that 12 again? 13 Okay. From your well down to the south-Q 14 west about a mile, just a little over a mile is the Amoco 15 Production State "HO" No. 7. Yeah, yes, sir. That well is currently 16 producing from the Wolfcamp. 17 Q Okay. 18 It's the high water producer, and I be-Α 19 lieve, yes, there's a test, December test on Exhibit Number 20 2.1 Well, is that presently producing? Q 2.2 Α Yes. Yes, it is. 23 0 Okay, and how about the MidAmerican NMA

State Well No. 1, which is further to the south of your No.

24

25

3 Well?

1	26
2	A The only thing I could testify to con-
3	cerning that well is that it appeared as a Wolfcamp producer
	on the latest proration schedule, only gas proration sche-
4	dule that has been issued, and that's
5	Q Okay.
6	A the basis for that color.
7	Q And net production, would that still be
8	within the Airstrip Bone Spring? I mean the Airstrip Wolf-
9	camp, or is that within some other
10	A No, sir. It was again identified on the
11	proration schedule as an Airstrip Wolfcamp completion.
	Q Okay. How about the Bass Enterprises
12	Airstrip State No. 1, which is a little over a mile to the
13	south and east of your No. 3 Well?
14	A Again that that's the way it appeared
15	on the proration schedule.
16	Q Okay.
17	MR. STOGNER: I have no further
18	questions of Mr. Scheffler.
19	Are there any other questions
20	of this witness?
	He may be excused.
21	Anything further in Case Number
22	8470 this morning?
23	MS. MAGRUDER: Amoco has no-
24	thing.
25	MR. STOGNER: Does anybody else

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1
   have anything further in this case?
2
                                  If not, the case will be taken
3
    under advisement.
4
5
                         (Hearing concluded.)
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CERTIFICATE

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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.

may by Boyd COR

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 8470 heard by me on 30 January 1985

Oil Conservation Division