#### 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:

APPLICATION OF SEELY OIL COMPANY FOR APPROVAL OF A WATERFLOOD PROJECT AND QUALIFICATION OF THE PROJECT AREA FOR THE RECOVERED OIL TAX RATE PURSUANT TO THE ENHANCED OIL RECOVERY ACT, LEA COUNTY, NEW MEXICO

APPLICATION OF SEELY OIL COMPANY FOR APPROVAL OF A UNIT AGREEMENT, LEA COUNTY, NEW MEXICO and (2,983)

(Consolidated)

) CASE NOS. 12,964

#### REPORTER'S TRANSCRIPT OF PROCEEDINGS

### EXAMINER HEARING

BEFORE: DAVID R. CATANACH, Hearing Examiner

January 9th, 2003

Santa Fe, New Mexico

These matters came on for hearing before the New Mexico Oil Conservation Division, DAVID R. CATANACH, Hearing Examiner, on Thursday, January 9th, 2003, at the New Mexico Energy, Minerals and Natural Resources Department, 1220 South Saint Francis Drive, Room 102, Santa Fe, New Mexico, Steven T. Brenner, Certified Court Reporter No. 7 for the State of New Mexico.

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### APPEARANCES

# FOR THE DIVISION:

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By: WILLIAM F. CARR

\* \* \*

WHEREUPON, the following proceedings were had at 9:29 a.m.:

EXAMINER CATANACH: All right, at this time I'll call Case 12,963, the Application of Seely Oil Company for statutory unitization, Lea County, New Mexico.

Call for appearances in this case.

MR. CARR: May it please the Examiner, my name is William F. Carr with the Santa Fe office of Holland and Hart, L.L.P. We represent Seely Oil Company in this matter.

Mr. Examiner, we would request that at this time you also call Case 12,964, which is the Application of Seely Oil Company for approval of a waterflood project and for qualification of the project for the recovered oil tax rate.

We would also request that you call Case 12,983, which is an Application of Seely Oil Company for approval of a voluntary unit.

What we have here is two cases involving formation of this unit. Case 12,963 seeks an order statutorily unitizing the unit area, and it was filed some time ago.

More recently, we started getting a very good response to our efforts to voluntarily put this acreage together, so we also filed for a voluntary unit, and that

is Case 12,983.

I can tell you that as of last night we come before you with a hundred percent of the working interest committed, a hundred percent of the royalty interest committed, and only several very, very small overriding royalty interests that have not yet returned their joinder forms, and we believe they are coming in.

And so for that reason we're dismissing -- or requesting that you dismiss Case 12,963, which is for statutory unitization, and then consolidate the other two cases so we can proceed with the waterflood with a voluntary unit.

EXAMINER CATANACH: Okay, at this time let me call Case 12,964, the Application of Seely Oil Company for approval of a waterflood project and qualification of the project for the recovered oil tax rate pursuant to the Enhanced Oil Recovery Act, Lea County, New Mexico.

And I'll also call Case Number 12,983,
Application of Seely Oil Company for approval of a unit
agreement, Lea County, New Mexico.

Let me at this time call for appearances in any of these three cases, any additional appearances.

There being none, then I suspect there's no objection to the dismissal of the first case. I will at this time grant your request to dismiss Case Number 12,963.

	,
1	And you may proceed, Mr. Carr.
2	MR. CARR: May it please the Examiner, we have
3	two witnesses.
4	EXAMINER CATANACH: Will the two witnesses please
5	stand to be sworn in?
6	(Thereupon, the witnesses were sworn.)
7	MR. CARR: Mr. Examiner, at this time we call
8	C.W. Stumhoffer.
9	C.W. STUMHOFFER,
10	the witness herein, after having been first duly sworn upon
11	his oath, was examined and testified as follows:
12	DIRECT EXAMINATION
13	BY MR. CARR:
14	Q. Would you state your name for the record, please?
15	A. My name is C.W. Stumhoffer.
16	Q. Mr. Stumhoffer, where do you reside?
17	A. Fort Worth, Texas.
18	Q. By whom are you employed?
19	A. Seely Oil Company.
20	Q. And what is your current position with Seely?
21	A. Petroleum engineer.
22	Q. Have you previously testified before the New
23	Mexico Oil Conservation Division?
24	A. Yes, I have.
25	Q. At the time of that testimony, were your

credentials as an expert witness in petroleum engineering 1 accepted and made a matter of record? 2 Yes, they were. 3 Are you familiar with the Applications filed in 4 Q. each of these consolidated cases? 5 Yes, I am. 6 Α. Are you familiar with the status of the lands in 7 Q. the proposed EK Penrose Sand Unit? 8 Α. Yes. 9 You are the person who has been responsible for 10 negotiating agreements with the other interest owners in 11 12 the unit area; is that not correct? Yes, I have been. Yes, correct. 13 Α. And at this time we stand before the Division 14 Q. having reached a voluntary agreement with virtually all the 15 interest owners in the proposed unit area? 16 17 Α. That's correct. 18 MR. CARR: Are the witness's qualifications 19 acceptable. EXAMINER CATANACH: Mr. Stumhoffer is so 20 21 qualified. (By Mr. Carr) Could you briefly summarize for 22 Q. Mr. Catanach what it is that Seely Oil Company seeks with 23 this Application? 24

We propose to create approval of the unit

agreement for the EK Penrose Sand Unit, which will be a voluntary unit containing 1469.75 acres, that consists of federal and fee lands -- no state lands are involved -- in Lea County, New Mexico.

- Q. Are we also seeking approval of the waterflood?
- A. That is correct, of the Penrose sand.
- Q. And we seek to qualify this project for the recovered oil tax rate pursuant to the New Mexico Enhanced Oil Recovery Act, do we not?
  - A. That's correct.

- Q. Let's go to what has been marked for identification as Seely Oil Company Exhibit Number 1, and I'd ask you just to identify that for Mr. Catanach and briefly explain where the unit is and what this exhibit shows.
- A. Exhibit 1 is a unit map of the -- a map of the proposed unit area, and it's located 25 miles west of Hobbs. I notice on the docket it was shown 14 miles southwest of Lovington, but about the same place.

The unitized area will consist of seven federal leases and two fee leases. Seely Oil Company is the operator of six of the federal leases, Yates Petroleum is the operator of one federal lease and -- within the unit area.

And the area we're talking about unitizing is on

the south end of the EK Queen Unit, which is a previously 1 approved waterflood unit in the Queen formation. 2 Another witness will review the status of the 3 individual wells within the unit area; is that correct? 4 Α. That's correct. 5 Now, you referenced the EK Queen Unit. 6 Q. 7 Approximately when was that unit created? Α. That unit was created in June of 1965 by Mobil 8 9 Oil Corporation. And the unit area for the EK Queen initially 10 covered a portion of the area which you are seeking to 11 unitize today; is that right? 12 That is correct. The Queen formation was the 13 Α. unitized formation under the EK Queen Unit, and that did 14 15 include the Penrose, although the Penrose was never 16 developed for waterflood. 17 This is actually the second hearing we've had in Q. our effort to form this unit; is that correct? 18 19 Α. That is correct. And when was the first hearing? 20 Q. 21 Α. On July 24th of 2002. And that was Case 12,891? 22 Q. 23 Α. That's correct. 24 And what did we do in that case? Q. 25 In that case we filed the Application to remove Α.

1	the lower Penrose the lower Queen, which is known as the
2	Penrose sand, from the unitized formation under the EK
3	Queen Unit so we could free a portion of the acreage up to
4	include in the proposed EK Penrose sand unit.
5	Q. And that effort to contract the unitized interval
6	was supported by all the working interest owners?
7	A. That's correct.
8	Q. Did the State Land Office and BLM also support
9	that effort?
10	A. Yes, they did.
11	Q. And it was approved by the Division, was it not?
12	A. That is correct.
13	MR. CARR: Mr. Examiner, that was Order Number
14	R-2913-A that was entered on July 24th.
15	Q. (By Mr. Carr) And what we now seek, Mr.
16	Stumhoffer, is to unitize and implement waterflood
17	operations in the Penrose, including a portion of the area
18	contracted out of the EK Queen Unit; is that correct?
19	A. That is correct, we plan to unitize it with some
20	other Penrose sand productive acreage.
21	Q. That is south of what was originally
22	A. South of the area, right.
23	Q. Let's go to what has been marked Exhibit Number
24	2. Could you identify that, please?

Exhibit Number 2 is the unit agreement for the  $\,$ 

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A.

1	development and operation of the EK Penrose Sand Unit.
2	Q. Standard form?
3	A. Standard form, approved by the BLM.
4	Q. Does it identify the portion of the Queen to be
5	unitized in this Application?
6	A. Yes, it does.
7	Q. And a type log will be reviewed by a subsequent
8	witness; is that right?
9	A. That's correct.
10	Q. Does the unit agreement provide for waterflood
11	operations?
12	A. Yes, it does.
13	Q. It provides also for the filing of plans of
14	development with the BLM, does it not?
15	A. That is correct.
16	Q. Will Seely agree to and also file the plans of
17	development with the Oil Conservation Division
18	A. Yes.
19	Q at the same time it files with the BLM?
20	A. Yes.
21	Q. Would you identify what has been marked as Seely
22	Exhibit Number 3?
23	A. Exhibit Number 3 is the unit operating agreement.
24	Q. And is this again a standard agreement that
25	defines the relationship between the parties?

1	A. Yes, it is, it sets out the terms and conditions
2	for joint operation of the EK Penrose sand unit, with Seely
3	Oil Company as the proposed operator, and it includes all
4	responsibilities of all the working interest owners and
5	sets out accounting procedures.
6	Q. Seely has reviewed the Application with the BLM;
7	is that correct?
8	A. That's right.
9	Q. Would you identify what has been marked Exhibit
10	4?
11	A. Exhibit 4 is a copy of a letter from the BLM
12	granting their preliminary approval of the proposed EK
13	Penrose sand unit.
14	Q. The BLM has designated this as an area that can
15	logically be developed under a unit plan, has it not?
16	A. Yes, it has.
17	Q. And did you review this with the State Land
18	Office?
19	A. There are no state lands in this unit.
20	Q. When we contracted the EK Queen, there were state
21	lands, so the Land Office was involved, but they're not
22	involved in
23	A. No, they're not involved in this unit.
24	Q. Now, we initially filed this Application for
25	statutory unitization?

1 Α. That's correct. What has happened since that date? 2 Q. Since that happened, we have been able to 3 purchase or get agreements with all the working interest 4 5 owners in the unit area, a hundred percent. We have a 6 hundred-percent approval, ratification, from the royalty owners under the fee lands, and we have 99-plus percent of 7 the overriding royalty owners have ratified the unit 8 There are six small -- six very small 9 agreement. overriding royalty owners that we don't have, we expect to 10 11 get. And you have talked to each of those? 12 Q. 13 Α. Yes. Now, what is Exhibit Number 5? 14 Q. Exhibit Number 5 is the list of the owners that 15 Α. were notified of Seely Oil Company's plan to unitize the EK 16 17 Penrose Sand Unit for waterflood development. It talks about an application for statutory 18 19 unitization, but this is the list we prepared for both 20 cases. It shows all owners; is that correct? That's correct. 21 Α. And who has not voluntarily committed at this 22 Q. time? Can you identify them for me? 23

has not ratified the unit agreement. The Selma E. Andrews

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Α.

Yes, I can. On the second page the Higgins Trust

Trust, the Braille Institute of America, Sabine Royalty 1 2 Trust, and Asa Grayson Ashworth, and the Selma E. Andrews 3 Perpetual Charitable Trust. And you have communicated with these and 4 Q. anticipate their joining? 5 They have been sent ratification instruments. Α. 6 If one of these or all of them shouldn't join, 7 Q. how would their interests be paid and handled? 8 They would be paid on a lease basis. 9 Α. Even if they are out, Seely would have virtually 10 0. 11 complete and effective control of all unit operations; is 12 that right? 13 Α. That's correct. Seely -- With a voluntary unit, there's no party 14 Q. 15 to notify of the unit Application; is that correct? 16 Α. That's right. They were all notified of the statutory 17 Q. Application? 18 That's right. 19 Α. You're also seeking the approval of the Penrose 20 Q. Sand Waterflood. Has notice of the waterflood project been 21 provided in accordance with OCD Rules? 22 23 A. Yes. And who did you notify? 24 Q.

All the operators within a half mile of injection

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Α.

1	and proposed injection under the unit and the surface
2	owner.
3	Q. On each injection well?
4	A. On each injection well.
5	Q. And is Exhibit Number 6 a copy of the affidavit
6	confirming that notice of the waterflood project has been
7	provided as required by Division Rules?
8	A. Yes, it is.
9	Q. Will Seely call an additional engineering witness
10	to review the technical portions of the case?
11	A. Yes.
12	Q. Were Exhibits 1 through 6 either prepared by you
13	or compiled under your direction and supervision?
14	A. Yes, they were.
15	MR. CARR: Mr. Catanach, at this time we move the
16	admission into evidence of Seely Oil Company Exhibits 1
17	through 6.
18	EXAMINER CATANACH: Exhibits 1 through 6 will be
19	admitted as evidence.
20	MR. CARR: And that concludes my direct
21	examination of Mr. Stumhoffer.
22	EXAMINATION
23	BY EXAMINER CATANACH:
24	Q. Okay, Mr. Stumhoffer, the EK Queen Unit, who
25	operates that?

Seely Oil Company is the present operator. 1 Α. Now, as I understand it, part of the EK Queen 2 Unit originally encompassed a portion of the unit that 3 you're trying to put together? 4 Yes, it did. 5 Α. Okay, so you contracted the EK Queen, took that 6 Q. 7 acreage out? 8 No, we took the -- we changed the unitized A. formation --9 10 Q. Okay. -- to remove the lower -- the Penrose sand, which 11 12 is lower Queen, from the unitized formation. And then it was taken out of the whole -- under all of the EK Queen 13 Unit area. 14 15 So the Penrose was never developed in the EK Q. Queen Unit? 16 It was in the unitized formation but was never 17 Α. 18 developed for waterflood. 19 Q. Okay. It is only productive on the extreme south end of 20 the EK Queen Unit --21 22 Q. Okay. -- and there's only one well that produced oil, 23 and a couple wells tested gas. 24 25 Q. So within the unit that you're proposing, that is

the only interval that you're going to develop; is that 1 correct? 2 Under the Penrose sand, right. Α. 3 No other Queen intervals? Q. No. 5 A. Now, you've been in contact with the six royalty 6 Q. interest owners that have not committed; is that correct? 7 That's correct. I anticipate -- They have not 9 said they weren't going to ratify the unit documents, and so I assume with no news it means they will send it as soon 10 as they were able to do so. I don't anticipate any problem 11 12 with those very small overriding royalty owners. 13 Q. Okay. Most of them are in trust, and it takes a little 14 while to get them to do it. 15 16 EXAMINER CATANACH: Mr. Carr, your next witness is going to testify as to the unit boundaries and --17 MR. CARR: Yeah, all of that will be covered by 18 our next witness, yes, sir. 19 20 Q. (By Examiner Catanach) Okay. How much interest does Seely own in this unit, Mr. Stumhoffer? 21 22 Α. Well, Seely and his investor group owns all of the working interest except for the Yates tract, Yates 23 Petroleum tract, and --24

Now -- I'm sorry, go ahead.

25

Q.

1	A. Go ahead.
2	Q. Was there production on the Yates tract?
3	A. Not from the Penrose. We have examined There
4	were two Bone Springs wells on their tract, and we've
5	examined the logs and all the information, and this is
6	something that's going to be addressed by the next witness,
7	really, so I'd be getting into an area that he's going to
8	talk about.
9	Q. Okay. Yates is fully committed to the waterflood
10	project?
11	A. Yes. But there have been no In answer to your
12	question, there has been no Penrose sand production from
13	the Yates tract. We just think there is Penrose sand
14	production there, based on log evaluation.
<b>1</b> 5	Q. Now, as far as allocating production, have you
16	guys developed a formula that everybody's happy with?
17	A. Yes, eighty Well, that's another area that
18	Q. Okay.
19	A he will get into.
20	EXAMINER CATANACH: I think that's all I have.
21	Did you anything?
22	MR. BROOKS: No, no questions.
23	EXAMINER CATANACH: That's all we have.
24	MR. CARR: Mr. Catanach, at this time we'd call
25	David L. Henderson. And Mr. Stumhoffer will be here if you

1	have questions. We have two engineers, and Mr. Stumhoffer
2	is suffering having to function as our landman here today.
3	MR. STUMHOFFER: Don't ask me for my
4	qualifications as a landman. I've done a little of it.
5	DAVID L. HENDERSON,
6	the witness herein, after having been first duly sworn upon
7	his oath, was examined and testified as follows:
8	DIRECT EXAMINATION
9	BY MR. CARR:
10	Q. Would you state your name for the record, please?
11	A. David L. Henderson.
12	Q. Mr. Henderson, where do you reside?
13	A. Fort Worth, Texas.
14	Q. And by whom are you employed?
15	A. Seely Oil Company.
16	Q. And what is your position with Seely Oil Company?
17	A. Vice president.
18	Q. Have you previously testified before the New
19	Mexico Oil Conservation Division?
20	A. Yes, sir.
21	Q. At the time of that testimony, were your
22	credentials as an expert in petroleum engineering accepted
23	and made a matter of record?
24	A. Yes, sir.
25	Q. Are you familiar with the Applications filed in

21 1 each of these consolidated cases? Yes. 2 A. And have you made an engineering study of the 3 portion of the Queen formation, the Penrose sand, which is 4 the subject of these cases? 5 Α. Yes. 6 MR. CARR: Are the witness's qualifications 7 8 acceptable? Yes, they are. 9 EXAMINER CATANACH: MR. CARR: Mr. Catanach, this witness is going to 10 first review the geology of the Penrose formation, and then 11 we're going to talk about the primary production from the 12 unit area, we're going to talk about the proposed 13 unitization and the anticipated secondary recovery. 14 15 will then review the C-108 Application and then wrap up by 16 presenting the request for qualification under the Enhanced Oil Recovery Act. And so that's how we intend to organize 17 this presentation. 18 EXAMINER CATANACH: Very good. 19 (By Mr. Carr) Mr. Henderson, let's first go to 20 what has been marked as Exhibit Number 7, and would you 21

just explain to the Examiner what this is?

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Exhibit Number 7 is a summary of technical A. testimony with attached tables and other supporting data, supporting the formation of the EK Penrose Sand Unit.

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Q. And you're going to be referring to certain of
these tables as you go through your overall presentation;
is that correct?
A. Yes, I will.
Q. And this also contains a summary of the testimony
that you will be presenting as to each of the exhibits?
A. Yes.
Q. Okay. Let's just look back briefly at Exhibit
Number 1, and let's start with that. Explain what that is
and, for the purposes of your part of the case, what it
shows.
A. Exhibit Number 1 is a unit map showing the 1470,
plus or minus, acres of the proposed unit, along with
identifying wells that The P represents Penrose, and the
Delaware and other formations are also identified so that
you can pick out the Penrose wells easier as you examine
the map.
Q. And it also Does it show the wells that we
intend to convert or use for injection?
A. The wells are on here, but they're not actually
shown as the wells that we're going to convert to
injection. That's shown on a plan of development map to be

presented later.

identification as Seely Exhibit Number 8. Would you

All right, let's go to what has been marked for

identify and review this, please?

- A. Exhibit Number 8 is a type log from the C.W. Stumhoffer Federal CS Number 1 well which shows the top of the unitized formation from 4640 to 4750 and which does correspond with the unitized interval of the unit agreement.
- Q. And the portions of the unit -- This area had initially been included in the EK Penrose Queen Unit; is that correct?
  - A. That is correct.
- Q. But the area that is shown in the green block as the unitized formation has been excluded from that unit and now is available to be included in the unit you're proposing today?
- A. Yes, the vertical limits were contracted and removed the Penrose formation.
- Q. Could you provide Mr. Catanach with a general description of the Penrose sand in this area?
- A. The Penrose sand is the lower member of the Queen, which is a member of the Guadalupian series of the Permian age. The productive sand is always gray sand, fine- to medium-grain friable quartz sandstone.
- Q. Let's go to your isopach, Exhibit Number 9. Would you review the information on this exhibit?
  - A. Exhibit Number 9 shows the thickness from both --

whatever available data we have on cores as well as logs, and basically shows the Penrose is, you know, anywhere from two to four to six to eight feet thick. Thickness was determined by, like I said, all available log and core data of public record.

The sand appears to be a wedge or bar deposit, and it's isolated by hard, dense anhydrite above the pay and red, silty tight sand with calcerous or anhydritic cementation below the porosity developments.

Note that the entire unitized area should contribute reserves to the unit according to the sand thickness, and it does conform to the unit boundary.

- Q. Now, the log and core data that you utilized in developing this map is set forth on Table I to Exhibit 7; is that right?
  - A. That is correct.

- Q. And that's one of those tables that is just included in the background information that you're providing for the Examiner?
  - A. That is correct.
- Q. And it was this interpretation that was utilized to set the boundaries for the unitized area; is that right?
  - A. That is correct.
- Q. And this is the information that was shared with the BLM and also has been shared with the other working

interest owners in the unit, in developing this plan?

A. That is correct.

- Q. Let's go to Exhibit Number 10. Will you identify and review that exhibit?
- A. Exhibit Number 10 is a cross-section from east to west over almost the entire unit -- No, well, actually northeast to southwest, and you can see the relationship between the upper Queen and the Penrose sand that we're pursuing in this hearing.

You can see that the gross thickness is shaded in yellow, and the productive thickness is shaded in red. How that was determined is from drilling time, shows, the production recovered, and also some cored data supports that all of that porosity thickness is not productive, just the top part where there's the gray sand.

- Q. And if we look at this and compare it to the preceding exhibit, Exhibit Number 9, this line of cross-section starts over on the western edge of the unit in the McElvain well located -- Where is that, in Section 25?
- A. Yeah, it's the southwest of the northeast of Section 25.
- Q. And then we move over to the Seely well, which is located --
  - A. -- southeast of the southeast of Section 20.
  - Q. And then as we move on across, why don't you just

run through these wells so we can see the line?

A. Okay, the Scharbauer is -- the Number 2 well over here is on the far right of the cross-section. That's the one where when the well was drilled all this thickness was found on this log, but the well never did really produce like it should have. And it made us wonder, you know, what it really was.

So we've gone back and done some sidewall cores, we've done some FMI imaging logging to show that the actual porosity is only in the very top of this thing, and it is limited to where you have gray sand and the red sand does not produce.

- Q. Now, basically what these two exhibits together show is that you have the Penrose sand running across the unit area, and it looks like a logical candidate for a waterflood; is that right?
  - A. It is continuous across the whole unit area.
- Q. Let's move to what has been marked Exhibit Number 11, the structure map. Will you review the information on that exhibit for Mr. Catanach?
- A. The Penrose sand has a miner relief, it has regional dip of 100 to 125 feet per mile with almost no exception. There is a gas-oil contact that was indicated by the gas wells in the southeast of the -- excuse me, the southwest of the southeast of Section 24 was the gas well,

as well as the northeast of the southwest of 19, indicating 1 that there is a gas cap, and it was estimated at a minus 2 708. 3 Several wells above this have produced a 4 substantial amount of gas, but were plugged back and used 5 as wells in the upper Queen and main Queen EK waterflood 6 and never produced any substantial gas from the Penrose. 7 What is the primary depletion recovery mechanism 8 Q. in this Penrose sand reservoir? 9 10 Solution gas drive. Has the gas cap, in your opinion, been an 11 effective part of the primary producing mechanism? 12 Α. No. 13 Is there any significant evidence of water 14 Q. 15 encroachment in this pool? There is one well to the extreme southeast, 16 Α. the McElvain Federal Number 10, which is the northeast of 17 the northwest of Section 29, that does cut about 50 percent 18 water, but that appears to be localized to the southeast 19 20 part of the field. There really is no significant water production 21 Q. throughout the area --22 23 A. No.

-- that is the subject of this --

24

25

Q.

Α.

No.

### Q. -- Application?

Let's review for a few minutes the primary production history of the unit. Would you review that for the Examiner? And you may want to refer to Exhibit 12.

A. Okay, if you would, Mr. Examiner, examine Exhibit 12. The Ibex Company McElvain Federal Number 1 well, which is located in the northwest of the northeast of Section 25, was the discovery well in August of 1955. The initial potential was 285 barrels of oil per day.

By January, 1958, 12 wells had tested the Penrose: Eight were oil, three were gas, and one was dry.

Further development began in 1974 when the Scharbauer wells were drilled, which is on the extreme northeast part of the unit, which is the south half of the southwest quarter of Section 20.

The eastern limit was established by the dry hole east of that, the Union Texas State Number 1 in the southwest of the southeast of Section 20.

The northeast limit was established by the General Operating Scharbauer Cattle Company Number 2 well, which was very limited pay, and that's also in the northwest of the southwest of 20.

Further development was in 1981. C.W. Stumhoffer drilled the Federal CS Number 1 well, which had an initial potential of 16 barrels of oil per day.

29 That pretty well covers --1 Are the initial potentials shown on this exhibit? Q. 2 Yes, this is a map contoured on the initial 3 potentials. 4 Q. What is Exhibit Number 13? 5 Exhibit Number 13 is the first 12 months of 6 production from the Penrose. 7 And what is the purpose of this exhibit? 8 Q. It's an indication of reservoir quality and 9 permeability, and also it was an attempt to better define 10 the reservoir. It does support the IP map very well with 11 the same basic trend. 12 How many wells have produced Penrose oil within Q. 13 the proposed unit area? 14 A. Sixteen wells. 15 And have you included in the material you've 16 17 presented here today lists of all the wells that have tested the sands? 18

A. Yes, in Exhibit 7 Table II lists all wells that have tested the Penrose or are to be included in the

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Q. And what is the total production from these wells, the most recent total number that you have?

development of the EK Penrose Sand Unit.

A. As of January 1st, 2002, it was 395,000 barrels, plus or minus.

1	Q. Would you identify and review what has been
2	marked Exhibit 14?
3	A. Exhibit 14 is the cum production map from the
4	Penrose sand. It also shows the same southwest-northeast
5	trend, and you can see where the older wells we have in
6	there, the longest, have certainly cum'd the most oil
7	production.
8	Q. Okay. Is there any significant production from
9	the Penrose in the unit area at this time?
10	A. No.
11	Q. What is Is there production at this time?
12	A. There's a few wells that make one barrel or two
13	barrels a day. The McElvain Federal Number 10 only makes
14	about 15 to 16 barrels of oil per day. The Citation Number
15	1 well makes 67 barrels per day.
16	Q. All right. I'd like to now have you review the
17	proposed unitization plan, and we need to go to what has
18	been marked Exhibit Number 16.
19	There's a gap in our numbering, Mr. Catanach.
20	There is no Exhibit 15.
21	A. Okay, Number 16 is a plan-of-development map, and
22	that shows that we intend to proceed with the peripheral
23	flood that and you can see where we're going to drill an
24	injection well on the southeast end of it, convert six

wells, we're going to deepen one well, and then we're going

to work over one well on the Yates tract. 1 So how many injection wells will we actually 2 3 have? Nine injection wells. Do you plan to add additional injection at this Q. 6 time? 7 No, but we may in the future, depending on how Α. the project goes. 8 What is the participation formula in the unit 9 Q. agreement? How is participation determined? 10 11 Eight percent cumulative recovery and 20 percent acreage. 12 And are the individual tract factors for this 13 Q. unit set out on Table III to Exhibit 7? 14 Yes, they are. 15 Α. In your opinion, does the unit agreement 16 Q. participation formula allocate production to the separately 17 owned tracts on a fair, reasonable and equitable basis? 18 19 Α. Yes. Will unitization and adoption of the proposed 20 waterflood benefit all the interest owners in the unit 21 area? 22 23 Α. Yes. And I guess that's why you were able to get a 24 25 hundred-percent ratification; is that right?

- 32 That's exactly right. A. Could you review for Mr. Catanach Seely's estimates of secondary reserves? I think you're looking probably at Tables IV and V in Exhibit 7. Yeah, Table IV is a summary of basic data which Α. was derived from log calculations and core data that was available and shows 2 million barrels of oil in place and 460,000 barrels or so of secondary recovery, based upon the formulas and information set out in Table V as well. Let's go now to the Application for authorization to inject, Exhibit Number 17. Would you initially just identify that for Mr. Catanach? It's a C-108, and the form was prepared by me and Α. by C.W. Seely, Jr. Is this an expansion of an existing project? Q. Α. No. Would you go to pages 7 through 9 and review Q. those maps for Mr. Catanach? Okay, page 7 is a shot of a county map showing all operators and leases within two to three miles of our
  - proposed unit.
    - Okay, and page 8? Q.

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- Page 8 is an area-of-review map showing all wells within a half mile of each proposed injection well.
  - And then page 9? Q.

Page 9 is another copy of the plan-of-development 1 Α. map, as set out in previous discussions. 2 In your opinion, does this exhibit contain all 3 the information required for a Form C-108 review of this 4 proposed project? 5 6 Α. Yes. On pages 10 through 51, you have well data sheets 7 0. for each of the wells that penetrate the Penrose; is that 8 correct? 9 10 Α. That is correct. And there are how many of them? 11 Q. 12 Α. 43. And are they organized by section? 13 Q. They're organized by section. 14 A. 15 And do these sheets contain the data on each of Q. 16 the wells that are --17 On each and every well. Α. Are there plugged and abandoned wells within any 18 Q. of the areas of review? 19 20 Α. Yes, 16. And does Exhibit 17 contain a well data sheet for 21 Q. each of these wells? 22 Yes, it does. 23 Α. And have you reviewed this information? 24 Q.

Yes, I have.

1	Q. And in your opinion are all these wells plugged
2	so as to prevent the migration of injected fluid from the
3	injection interval?
4	A. Yes.
5	Q. What volumes does Seely propose to inject?
6	A. It should average a hundred barrels of water per
7	day per well, with a maximum of 200 barrels of water per
8	day per well.
9	Q. And what is the source of the water you will be
10	injecting?
11	A. Various water sources from Bone Spring and Queen
12	formations. We will use no fresh water for makeup water.
13	Q. Is the system going to be a closed or an open
14	system?
15	A. Closed.
16	Q. Will Seely limit the injection pressure to .2
17	pound per foot of depth to the top of the injection
18	interval until higher pressures, if needed, are justified
19	by step-rate tests?
20	A. Yes.
21	Q. And those would be witnessed by the Division; is
22	that correct?
23	A. Yes.
24	Q. Have you reviewed the data available on wells
25	within the area of review for this project and satisfied

yourself that there is no remedial work required on any of 1 the wells to enable Seely and others to safely operate this 2 3 project? Α. Yes. 4 Initially, you identified three wells that needed Q. 5 work; is that correct? 6 7 That's correct, two wells in the Yates tract and Α. one well on the -- that Concho operates. 8 Now, you've arranged for the remedial work to be Q. done on the Yates well? 10 That's correct. 11 A. 12 Q. What about the Concho well? 13 A. The Concho well will have to be addressed. Where is that well located? 14 Q. It's in the southwest of the northeast of Section 15 Α. 25, the same tract as the McElvain Federal Number 6. 16 And there will be additional work that will be 17 Q. required on this well? 18 That is correct. 19 A. And that should be identified and addressed in 20 Q. the order as a condition to injection? 21 A. That is correct. 22 And you have reviewed the current status of the 23 wells that you propose to utilize for injection. You've 24

got six you're going to convert?

1	A. That's right.
2	Q. One you're going to deepen and complete?
3	A. That's correct.
4	Q. One to be recompleted as injection and one new
5	drill?
6	A. Yes, sir, as shown on the plan-of-development
7	map.
8	Q. How will Seely monitor the injection to assure
9	the integrity of the wellbores in this injection effort?
10	A. The tubing casing annulus will be filled with
11	inert packer fluid, pressure gauges will be installed on
12	the Bradenhead as well as the tubing casing annulus and
13	will be monitored daily, and the mechanical tests will be
14	done as required by the OCD.
15	Q. Will injection into these wells pose any threat
16	to any underground source of drinking water?
17	A. No.
18	Q. Are there freshwater zones in the area?
19	A. Yes.
20	Q. And what is that?
21	A. The Ogallala formation at about 250 to 300 feet.
22	Q. Are there any freshwater wells within a mile of
23	any injection well?
24	A. No.
25	Q. Do you anticipate any compatibility problem by

injecting the proposed produced water into the --

- A. No, we have run compatibility tests on all the water sources that we have at this time, and we can certainly provide copies to the OCD if necessary.
- Q. Have you examined the available geologic and engineering data on this reservoir and as a result of this review found any evidence of open faults or other hydrologic connections between the injection interval and any underground source of drinking water?
  - A. No.

- Q. Does Seely also seek authority to commit additional wells to injection at orthodox and unorthodox locations, obtaining approval for these wells through administrative procedures?
  - A. Yes.
- Q. How soon does Seely hope to commence injection in the project area?
  - A. Third quarter, 2003.
- Q. Let's go now to what has been marked Exhibit 18, the Application to qualify the project for the recovered tax rate. Mr. Henderson, does this Application contain the information required by OCD Rules?
  - A. Yes.
- Q. What are the initial estimated capital costs to be incurred in this project?

A. \$1.8 million. 1 And what are the total project costs? 2 Q. \$3.4 million. 3 How much additional production does Seely believe 4 Q. they can obtain from this waterflood project? 5 Four hundred sixty thousand million stock tank 6 A. 7 Excuse me, 460,000 stock tank barrels. barrels. That would be a great project, wouldn't it? 8 What is the total value of this additional 9 Q. production? 10 Roughly \$10 million, based on \$22 per stock tank 11 barrel. 12 Do Exhibits D1 and D2 that are attached to this 13 0. Application -- that is, Exhibit 18 -- are these unit 14 performance curves? 15 Α. Yes. 16 D1 shows the past production history in the 17 Q. Penrose from the area? 18 That is correct. Α. 19 And then D2 shows the projection that you have 20 for Penrose production following the implementation of a 21 waterflood? 22 That is correct. Α. 23 Mr. Henderson, in your opinion will approval of 24 this Application and implementation of this waterflood 25

1 project be in the best interest of conservation, the prevention of waste and the protection of correlative 2 rights? 3 Α. Yes. Were Exhibits 7 through 18 either prepared by you 5 Q. or compiled at your direction? 6 7 Α. Yes, they were. MR. CARR: At this time, Mr. Catanach, we'd move 8 the admission into evidence of Exhibits 7 through 14 and 16 9 10 through 18. EXAMINER CATANACH: Exhibits 7 through 14 and 16 11 through 18 will be admitted. 12 MR. CARR: And that concludes my direct 13 examination of Mr. Henderson. 14 15 EXAMINATION BY EXAMINER CATANACH: 16 Mr. Henderson, in the northwest -- or north and 17 Q. northwest portion of the units, you've got that shown as 18 gas productive. I assume that's above the gas-oil contact? 19 That is correct. 20 Α. Now, has that gas all bee produced? 21 Q. No, there has been no gas production from the gas 22 cap since those wells were initially tested. They were 23 immediately shut in or plugged back and used as upper Queen 24

injection wells or producers.

Why is that, do you know? 1 Q. Mobil was containing their waterflood to the 2 Α. upper and main Queen. They completely excluded the 3 Penrose, they never pursued it. 4 So what are your plans for that gas-productive Q. 5 interval there? You're --6 We're going to fill up the gas cap to contain the 7 Α. oil in the oil column with water. 8 Do you know how much gas is there? Q. I can calculate it, but I don't know it 10 Α. 11 offhand, no. 12 Q. Why is that not worth producing, that gas? Or 13 why do you choose not to produce that gas? Α. Because anytime you produce the gas and take the 14 15 pressure off and the oil column comes updip, you leave residual oil that you could get waterflooding, if you 16 filled it with water. 17 And you say that's going to -- You think that's 18 going to increase the amount of oil recovered? 19 Yes, sir. I think producing the gas cap and 20 bringing oil up into the gas cap will reduce what we 21 22 recover. Will that gas ultimately not be recovered at all? 23 Q. No, it should be recovered with the oil and 24

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displaced also by water.

1	Q. Okay. Now, the southeast portion of the unit,
2	there really isn't a lot of Penrose production?
3	A. There is a zone that we behind pipe in that
4	C.W. Trainer well, that we think is productive, and also in
5	the McElvain 10, that correlates with the McElvain 10
6	Penrose section.
7	And then there's a Penrose field back to the east
8	three-quarters of a mile or a mile, that's also productive.
9	There also was a show reported when the Kaiser-
LO	Francis McElvain Federal in the northwest of the southeast
11	of Section 30 was drilled through the Penrose.
L2	Q. Now, how did you all decide on the pattern for
L3	this waterflood project?
L <b>4</b>	A. Using the available wellbores, without having to
L5	drill a bunch of wells.
۱6	Q. So at this point you're not going to recover
L7	anything that's outside essentially the circle of
L8	injection?
19	A. Right, you will in the McElvain Number 6, and
20	there's a chance that we may drill a well outside, yes.
21	Q. I'm sorry, where is the McElvain Number 6?
22	A. It's in the southwest of the northeast of Section
23	25. It's outside the ring.
24	Q. Okay.
25	A. But there's always a chance of drilling a well in

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the latter stages of the waterflood, on the edges. 1 Some of these other Bone Spring wells that are 2 outside the unit on the south end, those are not going to 3 be used? 4 5 Α. No. Okay, and initially you plan to have nine 6 Q. 7 injection wells? Α. That's correct. 8 And are all those going to be brought on at the 9 Q. same time? 10 11 They should all be on within 12 to 18 months from 12 the time we receive approval. In this type of flood, the 13 quicker we get water in the ground, the better. Q. And how many producing wells will you have? 14 Eight initially. Α. 15 Does that include the McElvain Number 6? 16 Q. Nine including the McElvain Number 6, excuse me. 17 Α. Eight inside the pattern. 18 Okay, and the unitized interval is shown on that 19 Q. type log 4640 to 4750? 20 Α. That is correct. 21 Okay, and cumulative production, you said as of 22 Q. January 1st, 2002 --23 Uh-huh. 24 A.

-- was 395,000 barrels?

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Q.

1	A. That's correct.
2	Q. That's from everything within the unit boundary?
3	A. That is correct.
4	Q. So you at this point plan on your recovery
5	will be more than primary?
6	A. Well, there's still some production There's
7	some primary production at this time on this unit in two
8	wells, and when you estimate the primary from those wells,
9	it ends up about close to 460,000 barrels. So it's a
LO	one to one.
L1	Q. Okay. And your estimate was 2 million barrels
L2	original oil in place?
L3	A. Yes, sir.
4	Q. Okay, you identified, you said, three wells
L5	you've identified for needing work, and two of those were
L6	the Yates wells?
L7	A. Yes, sir.
L8	Q. Now, when you say needed work, I assume that
L9	that's
0.	A. The Penrose is not covered by cement on the
21	primary cement job.
22	Q. And those are the two Yates wells in Section 30;
23	is that correct?
4	A. That is correct.

And has that work been done, or is that going to

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Q.

be done?

A. The Number 2 Howe was -- they had a casing leak and they squeezed it, and there is a chance that the cement covered the zone. Yates has agreed to run a cement bond log when they work the well over.

The Howe Number 1, the north offset to that, is one of our injection wells, and that will be handled when we convert it to injection.

The other is the Concho Edith Federal Number 2, located in the southwest of the northeast of 25, and it does not have cement across the Penrose.

- Q. And that's a Concho well.
- A. That's a Concho well.
- Q. And how is that progressing with Concho? Have you talked to them about it?
- A. We've talked to them about it several times. I suppose we're going to talk to them about it several more. It's going to have to -- That's got to be negotiated.
- Q. Now, this area, as far as you know, was never waterflooded before?
  - A. No, no.
- Q. The current production is only what, eight to 10 barrels a day from the whole unit?
- A. No, it's more in the range of 25, 26 barrels a day from the entire unit. You've got six or seven from the

Citation well, 15 to 16 from the McElvain 10, and there's five or six barrels from the rest of the unit.

- Q. When were most of these wells drilled, Mr. Henderson?
- A. A lot of the wells, the original wells that were drilled for Penrose production were started in the 1950s, and there were five or six drilled in the -- and like I said, by 1958 there were a total of twelve drilled, eight oil producers, three gas and one dry hole. And then several more were drilled in the mid-1970s, a couple in the mid-1980s, and two recently.

Most of the deeper wells that have penetrated it for other objectives have been since 1981 or 1982, very recent.

- Q. Now, the wells that you plan to use as injection wells, were some of those the older wells drilled in the 1950s?
  - A. Yes.

- Q. What do you think the current condition of those wellbores is?
- A. The wells that were -- up in the old EK Queen

  Unit, the wells that we're talking about up there have been tested, and they have -- mechanical-integrity tested, because they're currently upper Queen or main Queen injection wells, so we have tests on those.

The other ones, the McElvain 10 should be fine, the Yates well will be worked over, the others I have no idea, no knowledge.

- Q. Okay. And as far as the cement goes, that has adequate cement coverage in all the proposed injection wells?
  - A. Yes, sir.
- Q. Have you had any experiences in the EK Queen with any kind of water out of zone or water flows --
- A. No.

- Q. -- or anything like that?
- A. No, not to my knowledge.
- Q. How soon do you anticipate a response to your injection?
- A. If you'll look at the projection on the back of -- It's on there. If we start injection in the third quarter of 2003 -- Like I said, most of these conversions and things will happen within 12 to 18 months. You should start seeing some response somewhere in 2006, maybe late 2005, and really see a response in 2007 and 2008. This is Exhibit D, on the very back.

And we expect somewhere -- This type of flood, the peak production is somewhere around 190 to 200 barrels a day.

If you normalized all the Penrose producers back

to the one starting date, it was 220-plus. We don't think
we'll get quite that high, although with starting all
injection at the same time it shouldn't be too much less
than that.

Q. Now, when you work over or do some work on the
eight producing wells, the eight or nine producing wells,

eight producing wells, the eight or nine producing wells, do you anticipate that the production will come up somewhat?

- A. Yes, I do. I think cleaning those wells out will help. They probably haven't been done since the -- Who knows? We haven't.
- Q. So the initial cost of the project, \$1.8 million, that will be essentially working these wells over and --
  - A. And drilling the wells, that's correct.
  - Q. And what wells are you going to drill?
- A. We're going to drill that injection well as -Let's see. We're going to drill a producer in the
  southeast of the southeast of 19.

We're going to drill a producer somewhere in the south half, probably, of the northeast of Section 30.

We're going to drill an injection well -- it's shown Number 13 on the plan-of-development map, it's in the northeast of the southeast of Section 30.

And we'll drill a well -- We may re-enter a plugged-out producer over on this -- in the northwest of

the northwest of 30, or drill a well. If we don't think 1 the records would allow us to re-enter the well, we'll 2 drill a well. 3 Okay, and there is fresh water in this area, you 4 Q. said? 5 Yes, there is. The Ogallala has been used as Α. 6 water supply on the old Mobil EK Queen flood as well as the 7 flood we operate northeast of there called the Central EK 8 Queen Unit. Both have used fresh water. 9 10 Q. You have no plans to do that? A. No, sir. 11 EXAMINER CATANACH: Okay, I think that's all I 12 13 have. Do you have anything? MR. BROOKS: Nothing. 14 MR. CARR: Mr. Catanach, there's a relatively 15 long period of time after they commence injection before 16 17 they anticipate a response. And in terms of the tax credit, we'd like to be able to notify the Division prior 18 to commencement of injection, so -- and have the project 19 qualified at that time so we'd have as much of the five 20 years as possible to get that response, if that's all right 21 with you. 22 EXAMINER CATANACH: I believe that's standard 23 procedure, Mr. Carr. We can do that. 24

Anything further?

1	There being nothing further in this case in
2	these two cases, Case Number 12,964 and Case Number 12, 983
3	will be taken under advisement.
4	(Thereupon, these proceedings were concluded at
5	9:25 a.m.)
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13	do hereby certify that the foregoing a complete record of the proceedings in
14	the Examiner hearing of Case No. 12164. heard by me on fandu S + 2003.
15	Sand K Cotant Examiner
16	Off Conservation Division
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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 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 10th, 2003.

STEVEN T. BRENNER

CCR No. 7

My commission expires: October 16th, 2006