STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

CASES 10062, 10063, 10064

EXAMINER HEARING

IN THE MATTER OF:

Application of OXY USA, Inc., for Statutory Unitization, Lea County, New Mexico

Application of OXY USA, Inc., for a Waterflood Project, Lea County, New Mexico

Application of OXY USA, Inc., for Pool Contraction and Extension, Lea County, New Mexico

TRANSCRIPT OF PROCEEDINGS

BEFORE: MICHAEL E. STOGNER, EXAMINER

STATE LAND OFFICE BUILDING

SANTA FE, NEW MEXICO

September 5, 1990

ORIGINAL

CUMBRE COURT REPORTING
(505) 984-2244

A P P E A R A N C E S

FOR THE DIVISION:	ROBERT G. STOVALL, ESQ. Post Office Box 2088 State Land Office Building Santa Fe, N.M. 87504-2088
	JAMES MORROW Chief Petroleum Engineer Post Office Box 2088 State Land Office Building Santa Fe, N.M. 87504-2088
FOR THE APPLICANT:	W. THOMAS KELLAHIN, ESQ. Kellahin, Kellahin & Aubrey Post Office Box 2265 Santa Fe, N.M. 87504-2265
FOR SANTA FE EXPLORATION:	ERNEST L. PADILLA, ESQ. Padilla & Snyder Post Office Box 2523 Santa Fe, N.M. 87504-2523

I N D E X

E X H I B I T S

EXAMINER STOGNER: At the Applicant's request, we're now going to consolidate the next three cases, and I'll call Cases 10062, 10063 and 10064, which are all in the matter of OXY USA, Incorporated, for statutory unitization, a waterflood project and for pool contraction and extension in Eddy County, New Mexico.

I'll call now for appearances.

MR. KELLAHIN: If it please the Examiner, I'm Tom Kellahin of the Santa Fe Law Firm of Kellahin, Kellahin & Aubrey, appearing on behalf of OXY, USA, Inc. I have three witnesses to be sworn.

EXAMINER STOGNER: Are there any other appearances?

MR. PADILLA: Mr. Examiner, my name is Ernest L. Padilla of Santa Fe, New Mexico, for Santa Fe Exploration Company, and I have at least one witness but I would like to swear two witnesses.

EXAMINER CATANACH: Are there any other appearances?

Would the witnesses please stand to be sworn at this time.

(Thereupon the witnesses were sworn.)

MR. KELLAHIN: Mr. Examiner, I would like to call our geologic witness first, Mr. Bob Doty.

ROBERT DOTY

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

MR. KELLAHIN: Mr. Examiner, we have handed out what has been marked as OXY Exhibit No. 1. It's a geologic and engineering report for the Central Corbin Queen Field of Lea County, New Mexico. To aid us in the presentation this afternoon, we have numbered the pages of the geologic and engineering report in the lower right-hand corner, and hopefully you'll have one that has been numbered. If not, let me know and we'll trade.

EXAMINER STOGNER: Mine has numbers.

MR. STOVALL: No plastic cover, but mine has numbers.

MR. KELLAHIN: We'll do it by the numbers in the bottom right-hand corner, so we won't get lost in the book.

EXAMINER STOGNER: Mr. Padilla, does yours have numbers?

MR. PADILLA: Yes.

EXAMINER STOGNER: Okay.

MR. KELLAHIN: All right. Everyone has numbers.

EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Doty, for the record, would you please state your name and occupation?

A. My name is Robert Doty. I'm a geologist with OXY, USA.

Q. Mr. Doty, on prior occasions have you testified before the Oil Conservation Division of New Mexico?

A. Yes, sir.

Q. Pursuant to your employment as a geologist for OXY, USA, your residence is in Midland, Texas, is it?

A. Yes, sir.

Q. Have you participated as part of the technical committee that has worked on studying the feasibility of waterflood operations in the Central Corbin Queen Field?

A. Yes, sir.

Q. Are the geologic exhibits, that are shown in Exhibit No. 1, documents that you prepared directly yourself or in which you have agreement?

A. Yes, sir.

MR. KELLAHIN: We tender Mr. Doty as an expert petroleum geologist.

EXAMINER STOGNER: Are there any objections?

MR. PADILLA: No objection.

EXAMINER STOGNER: Mr. Doty is so qualified.

Q. Mr. Doty, let me have you turn, sir, and let's start with page 31. Identify for us what is depicted for us on page 31 of Exhibit 1?

A. Page 31 is a locator map which identifies the location of the Central Corbin Queen Field relative to major fields in Southeastern New Mexico.

Q. Have you included in the report other orientation maps which would more closely identify where the Central Corbin Queen pool is?

A. They are in the report, yes.

Q. Let's turn to page 33. Having familiarized yourself with the geology for the Central Corbin Queen, would you give us an overview as a geologist of the information as depicted on Exhibit No. 1, page 33?

A. Page 33 establishes the depositional setting for the Queen reservoir. The Queen is present throughout much of Southeastern New Mexico. It pinches out against what's marked as the Goat Seep Reef. It's a hatchered line which is bounding the Delaware Basin.

The Central Corbin Queen is located along an east/west productive trend which occurs near the edge of the Goat Seep Reef lagoon, which would effectively be the shoreline. This trends east/west through Central Corbin Queen.

Q. Can you describe for us the deposition of the Central Corbin Queen as it might relate to other of the Queen pools in this immediate vicinity?

A. The Central Corbin Queen is part of that east/west trend of production which occurs at that shoreline.

Q. Let me have you turn to page 39. What's the purpose of this display?

A. The purpose of this display is to give a closer look at the productive trend of which Central Corbin Queen is a part. As you can see, there are two orientations of Queen pools along this productive trend. The east/west trending Queen pool, such as Corbin Queen to the north, North E-K Queen and E-K Queen, which are effectively shoreline sands that parallel the shoreline, and also north/south trending Queen pools, such as Central Corbin, and then a portion of what's called Corbin Queen to the west, which are tidal channel deposits.

So there's two predominant trends of

sandstone bodies, the east/west trending shoreline sands and the north/south trending tidal channel sands.

Q. When you studied the geology of this particular Queen deposition, what are the Queen pools that closely approximate or are analogous to the Central Corbin Queen?

A. All the Queen pools on this map have very similar reservoir characteristics to the Central Corbin Queen as far as net pay, porosity, thickness and so forth, including North E-K, E-K and Corbin.

Q. Let me ask you now, sir, to turn to page 34. Having seen the depositional nature of the Queen in this particular area, give us an understanding of the vertical limits of the Queen formation.

A. The Queen formation is a very specific 40- to 60-foot sandstone body which is depicted by this type log, the Federal "AA" #1, the discovery well for this field. Queen Sandstone, as it is marked on this type log, is correlatable throughout the entire pool and it's a common source of supply for all the Central Corbin Queen wells. It's underlain by impermeable anhydrite and overlain by impermeable anhydrite.

EXAMINER STOGNER: Before we go any further, if I can, Mr. Kellahin, the Queen sandstone

as you show here from 4200 feet to--

THE WITNESS: To 4246, yes, sir.

EXAMINER STOGNER: That is your proposed unit boundary and waterflood? Is that what we're primarily looking at today?

THE WITNESS: Yes, sir.

EXAMINER STOGNER: Okay. I just wanted to double check and make sure. Thank you, sir. Mr. Kellahin?

Q. (BY MR. KELLAHIN) Let me ask you now to turn to page 41. What have you prepared here?

A. The purpose of this demonstration, of this exhibit, is to demonstrate separation between Central Corbin Queen to the north--pardon me, Corbin Queen to the north, and Central Corbin Queen to the south.

I've outlined all the production, Queen production, occurring in Corbin Queen which has that east/west trend of the shoreline sands and I've also outlined the zero net pay for the Central Corbin Queen which has the north/south trending sands. There are several Queen dry holes separating Corbin Queen and Central Corbin Queen, such as in the east/southwest of Section 33, the southwest/ southeast of Section 33, the southwest/southwest of 34, and the northeast/northwest of Section 3.

Q. Let's use this display to summarize some of your geologic conclusions based upon this work. First of all, let me ask you, have you reached geologic opinions about the size and shape of the Central Corbin Queen pool itself?

A. Yes, sir.

Q. And how have you reached that conclusion?

A. The size and shape of Central Corbin Queen is defined by a net pay map, a subsequent display.

Q. The proposed Central Corbin Queen Unit that OXY is seeking to implement, how does that boundary for the unit match the boundary of the pool?

A. It closely coincides with the boundary of the pool.

Q. Was that a conscious effort on your part and others participating with you in forming the boundaries for the unit?

A. Yes, sir. The zero net pay line was the basis from which the boundary of the unit were designed.

Q. Is the plan to include all of the producing wells within the pool and dedicate them to the unit?

A. Yes, sir.

Q. When we look at the boundary to the north that separates it from the Corbin Queen, you've

identified a series of factors that, in your mind, have separated the Central Corbin Queen from the Corbin Queen. Summarize those factors for us.

A. Basically it has to do with exhibits to follow. Could we proceed--

Q. No. Just tell me, in essence, what they are?

A. In essence, the Corbin Queen Field occurs along a steep monoclinal fold where the structural setting is such that sand deposition was controlled in an east/west direction. Central Corbin Queen, however, occurs in a structural basin where tidal channel sands were deposited within that structural basin, and these are two distinct depositional settings.

Q. That separation has been confirmed to your satisfaction by the information available by some dry holes?

A. Yes, sir.

Q. The logs available from those dry holes?

A. Yes.

Q. You don't have any reservations or qualifications, then, about the northern boundary of the unit and its relationship to the pool?

A. No, sir.

Q. Without going into the specific displays, describe for us the geologic basis for determining the southern boundary of the unit and the pool.

A. The southern boundary of the unit and the pool is based on oil/water contact, which occurs at a minus subsea elevation of 300 feet. This is confirmed by water tests in a well in the southeast/northeast of Section 8, and southeast/southwest of Section 9.

Q. Describe for us the basis for control of the unit and the pool as we move to the western boundaries.

A. The western boundary is defined by a gradual decrease in porosity in the Queen formation, decreasing to near zero in a well northeast/northeast of Section 8.

Q. And how do we determine the eastern boundary or the eastern side of the pool?

A. By the same method. The porosity is decreasing to the east and is, in fact, zero in the northeast/northwest of Section 3, southeast/southwest of Section 3, and there's a gas well in Section 10 southeast of the northwest, which is structurally low to most of the oil production in the field which, therefore, must be separated from the rest of the field. This is a well that was completed as a gas

well several years ago but never produced.

Q. Are you satisfied as a geologist that you had sufficient geologic data in which to formulate an opinion about the appropriate boundaries of the pool and the unit?

A. Yes, sir.

EXAMINER STOGNER: Just one more, to make sure I have my terms here. You described the Central Corbin Pool as a basal deposition?

THE WITNESS: No, sir, it's a tidal channel deposition, stale shallow water, marginal marine, but basin, we're from the Beach deposition where Corbin Queen is situated.

EXAMINER STOGNER: As further shown on page 39? That gives you a good representation of your tidal channel and then a beach deposit?

THE WITNESS: Yes, sir.

EXAMINER STOGNER: I'm sorry, Mr. Kellahin. Please continue.

MR. KELLAHIN: Please interrupt us. We don't want to confuse you with the presentation. We want to turn now, though, to page 51.

Q. (BY MR. KELLAHIN) Describe for us now in summary fashion, Mr. Doty, the boundaries of the unit as proposed?

A. Yes, sir, the boundaries of the unit as proposed on page 51 is effectively the acreage contained within the zero net pay line of Central Corbin Queen such that any 40-acre tract with greater than 50 percent of that 40-acre tract within the zero net pay line was included within the proposed unit boundary.

In addition, two 40-acre tracts containing wellbores that may be needed for unit operations were also included, those being the southeast quarter of the northeast quarter of Section 8, and the southeast quarter of the southwest quarter of Section 9.

Q. Mr. McAlpine has entered an appearance in this case. Would you identify for us your understanding of which tracts in this display on page 51 in which he has an interest?

A. They would be Tracts 6 and 7.

Q. Let's look specifically, then, when you compare page 41, you just fold page 41 over and leave page 51 exposed, describe for us what has been your recommendation to your company, geologically, about the inclusion of Tracts 7 and 6 within the unit area.

A. Tracts 6 and 7 are entirely within the productive limits of Central Corbin Queen, produced from the same reservoir as Central Corbin Queen or a

common source of supply of Central Corbin Queen and, therefore, should be included within the proposed unit and waterflooded under the continuous operation.

Q. Each of of the wells in Tracts 6 and 7 are completed in the Queen formation?

A. Yes, sir.

Q. Geologically you have correlated the logs for those wells with other control wells within the unit area and you've reached what conclusion?

A. I've concluded that they're producing from the same reservoir, the same source of supply as the rest of Central Corbin Queen.

Q. One of the applications deals with a need to modify the pool boundary as administered by the Division in relation to the Corbin Queen and how it affects the Central Corbin Queen. Are you familiar with that topic?

A. No, sir.

Q. Let me identify for you the quarter section that's involved. Let me take a moment. When we look at page 51, it is my understanding that the north half of the northeast quarter of 4 may be carried under nomenclature of the Division as being in the Corbin Queen pool?

A. Yes, sir.

Q. What do you propose geologically need to be done in order to place the unit operations in the same common source of supply as designated by the Division?

A. There's compelling geologic evidence that the north half of the northeast quarter of Section 4, that well is part of a tidal channel deposit that Central Corbin Queen is part of, as opposed to the near shore beach deposit that Corbin Queen is part of. Therefore, that portion, the north half of the northeast quarter should be included in Central Corbin Queen and it's continuous with the reservoir there and not continuous with the Corbin Queen reservoir.

Q. Let me have you turn now to page 35. Have you mapped the Queen structure within this area and within the Queen formation that would be dedicated to unit production?

A. Yes, sir.

Q. What does it show you?

A. It shows that the northern part of the map where Corbin Queen is located is a very steep monoclinal fold. The dip is quite a bit steeper through the portion of the northern half of that northern tier of sections. It's flatter to the north and quite a bit flatter to the south. Also, the structure to the south, for the most part, is a very

broad structural low into which the tidal channel of Central Corbin Queen reservoir was deposited.

So this is the most likely geologic control for the position of the Central Corbin Queen reservoir, was along this steep monoclinal fold. As we go downdip into the depression, that's where the tidal channel sand occurs for Central Corbin Queen.

Q. Based upon the structure, is there sufficient justification in your mind geologically to make this unit area a waterflood operation for secondary recovery of the Queen gas reserves?

A. Yes, sir. Queen oil reserves.

Q. I'm sorry, Queen oil reserves. There is no gas production in the pool?

A. No.

Q. We don't have a gas cap in here, as you know?

A. No, sir.

Q. Let's turn to Exhibit 1, page 40. You've given us a cross-sectional view, both stratigraphically and structurally, of the unit area?

A. Yes. The purpose of this illustration is to further define a separation between Corbin Queen and Central Corbin Queen. The location for this log cross-section A - A' is on the next page over, page

41, the map we were discussing earlier.

To the north, or the left on the cross-section is a typical Corbin Queen well. To the right or to the south is a typical Central Corbin Queen well, and they're very similar reservoirs. In the middle is a well which tested the Queen, perforated, acidized and frac'd and swab dried, and failed in the Queen reservoir.

A little schematic structural cross-section in the lower left part of the exhibit on page 40, pretty much takes in the entire--it's also marked on page 41, I'm sorry, as north/south. There's a hatchered line that goes right down the center of the map area.

It shows the steep monoclinal fold where Corbin Queen was deposited, and then it shows the broad structural basin where Central Corbin Queen was deposited. Therefore, Central Corbin Queen is separated from Corbin, and the Central Corbin boundary as described on page 41 is supported by this sort of analysis.

Q. Have you prepared a map of the reservoir showing the net sands attributable to the Central Corbin Queen and pool area?

A. Yes, sir.

Q. Let me refer you to Exhibit 1, page 36. What does this show you, as a geologist?

A. This is a net sand isopach of porosity greater than or equal to eight percent in the Central Corbin Queen reservoir. It defines the northern, eastern and western boundaries of the pool. There's a maximum of 34 feet of porosity which occurs in two wells, the Federal "AE" #4, and the northeast of the southeast of Section 4, and the Federal "AA" #1 in the northwest of the northeast of Section 9. Porosity thins both north/south--pardon, north, east and west from these wells, pinches out in several wells to the east, and pinches out almost in one well to the west, northeast/northeast of 8. The net porous sand does continue to the south past the pool boundaries which goes below the oil/water contact and is wet.

Q. Have you further refined the sand map and created a phi-H map for the engineers to utilize?

A. That and a net pay map.

Q. Let's turn to page 37. Is that your net pay map?

A. Yes.

Q. Describe for us what you've done here.

A. I've applied the oil/water contact based on water tests in two wells to show the southern limit of

the field which is cut off by the oil/water contact. So this map on page 37 fully defines the limits of the Central Corbin Queen reservoir.

Q. Geologically are you satisfied, then, that the acreage proposed to be included for secondary recovery under unit operations is consistent with and agrees with the pool limits that you've defined here on your map?

A. Yes, sir.

Q. Let's turn now to your phi-H map. That's on page 38?

A. Yes.

Q. What's done here?

A. The phi-H map is a porosity thickness map using the net pay map and average porosities for each well, and it's the basis from which pore volume estimates were produced.

Q. What's the reason that the technical group elected to make a determination of pore volume for the reservoir and for the unit?

A. To determine the amount of oil in place on each individual tract, and to determine recoverable secondary reserves.

Q. Are you satisfied that you've given the engineering group the necessary geologic information

from which they can accurately and reliably calculate reserves?

A. Yes, sir.

Q. In addition, can we use your geologic pore volume map to determine the relative pore volume for each of the individual tracts participating in the unit?

A. Yes, sir.

Q. In the absence of voluntary participation, are you confident as a geologist that the Examiner may rely upon this geologic work to establish equities for the compulsory unitization of other tracts that decide not to voluntarily participate?

A. Yes, sir.

Q. Let's turn now to Exhibit No. 2, and I believe that's not in the exhibit book. You have a cross-section, don't you?

A. Yes.

Q. Use the locator plat for us on the far right side of the display, and before you start describing your observations and conclusions tell us what wells are used on the display.

A. This cross-section includes Federal "AE" 6 and Federal "AE", which are in the main portion of Central Corbin Queen, two Santa Fe wells, Corbin Fee

#2 and Corbin Fee #1, and also includes that gas well which occurs in the southeast to the north/northwest of Section 10.

Q. What does this information tell you?

A. The purpose of this illustration is to demonstrate that the Santa Fe wells are indeed correlatable to the reservoir at Central Corbin Queen and are in the same source of supply; the correlation of cleaner sandstone beds, which are the yellow portion on the cross-section. This is indicated by the lower gamma ray which indicates that these wells are indeed correlatable to the main portions of Central Corbin Queen and are indeed in communication with that field.

The cross-section also shows the gas well in Section 10 which, for the most part is dirtier tire sandstone as evidenced by the higher gamma ray reading, with the exception of one little streak of porosity which is not correlatable to the field. This is the well that was completed as a gas well but never produced. It's structurally low to the oil wells. It's clearly separated.

Q. Have you reviewed each and every one of the geologic displays and the geologic information shown in Exhibit 1?

A. Yes, sir.
Q. Have you satisfied yourself that that information depicted is accurate and reliable?
A. Yes, sir.
Q. And that it might be relied upon by others in making decisions in this case?
A. Yes, sir.
Q. Let me have you summarize for us what your geologic conclusions are that apply to this case.
A. I can conclude that the Central Corbin Queen is adequately developed. From this development, substantial geologic information was gathered from which I can conclude the limits of the pool.

The pool boundaries closely coincide with the proposed unit boundaries.

The geology supports the inclusion of each and every tract into the unit and each and every tract produces from a common source of supply.

The Queen reservoir is vertically and horizontally separated from any other pool and is a viable candidate for waterflooding.

MR. KELLAHIN: That concludes my direct examination of Mr. Doty. I think procedurally I will beg your indulgence, move the admission of Exhibits 1 and 2, recognizing that the engineering witness has

not qualified the portions of Exhibit No. 1 and we will do so when he appears.

EXAMINER STOGNER: Do you have any objection to that?

MR. PADILLA: I don't have any objection.

EXAMINER STOGNER: Exhibit 1 and 2 are admitted into evidence at this time.

Mr. Padilla, your witness.

EXAMINATION

BY MR. PADILLA:

Q. Mr. Doty, I only have a couple of questions and they relate to the Santa Fe wells or even to any of the wells in your geologic description as shown, say, on page 38.

As I understand, you've given the Corbin #2 and the Corbin #1 certain sand thickness figures? Is that what those numbers are, 1.62 and 2.37 on page 38?

A. Yes, sir, pore volume figures.

Q. How does that pore volume relate to the ability of a well to produce?

A. There's not a one-to-one correlation precisely with pore volume and the ability of a well to produce in this field. The Santa Fe wells, on a relative basis, have greater pore volume than you would depict from their initial potential or the

ability of those wells to produce.

Q. Are you familiar with the producing characteristics of both of the Santa Fe wells?

A. Not specifically, sir.

Q. Do you know that the Corbin #1 is a poorer well than, say, the Corbin #2 well?

A. That I am aware of, yes.

Q. Yet the Corbin #1 has a higher pore numerically?

A. Yes, sir.

Q. Can you explain the difference for why this may be so?

A. That occurs often in the field. For example, "AE" #5 is a much better well than the Corbin #2 and it has quite significantly less pore volume. I can't fully explain it. Part of the reason would be timing of the development, pressure depletion from nearby wells.

Q. I can understand how pressure depletion might affect the production, but I'm unsure as to how to explain it in terms of pore volume as exemplified by these two wells.

A. Yes, sir.

Q. Let me take that a step further and ask you to look in Section 9. There's a #3 well there with a

3.60 numerical?

A. Yes.

Q. Can you tell me how that would compare with, say, the Santa Fe well, the Corbin #1, if you know?

A. From a standpoint of producing capabilities?

Q. Yes.

A. I'm sorry, sir, I don't know.

Q. Do you know how the participation formula or how these numbers were incorporated into the participation formula for the unit?

A. No, sir.

Q. Do you know whether there is a difference in the participation formula depending on the various numericals assigned to the various wells?

A. Certainly.

Q. And how does that happen?

A. I'm not able to testify about the specific formula. We have testimony that will discuss that. That's beyond my expertise.

Q. How did your geologic presentation enable, say, the engineers that you work with, to assign the participation numbers and the ultimate conclusions as far as participation was concerned?

A. Specifically oil in place. This is getting to oil in place, which is very important in this field, but most of the money you're going to make is from the secondary reserves, not from the primary reserves.

Q. So what you're telling me is that pore space has nothing to do with the participation formula?

A. No, sir, pore space has everything to do with it because it describes the amount of oil in place in each individual tract.

Q. Wouldn't it make since that a well, just comparing the Corbin #1 with the Corbin #2 that you would, on the basis of pore space, have a higher participation, say, for the 40-acre tract of which the Corbin #1 is located?

A. On the basis of pore space, yes, it would have additional participation because of the higher pore volume and the higher oil in place in that tract, and, therefore, the greater secondary recovery reserves to be recovered.

Q. Do you know if there is a difference in, say, the Corbin #1 and the Corbin #2 as far as participation in the unit production is concerned?

A. That's again a question for our engineer.

Q. Those numbers are included in your Exhibit No. 1 somewhere, aren't they?

A. Yes, sir.

Q. And let me see if I understand your testimony correctly. Turning to page 37, on the southeast quarter of section--well, I should say the southeast of the southwest quarter of Section 3, you base your zero line on that dry hole in that 40-acre tract?

A. Yes, sir.

Q. Is that well shown on any cross-section that you have?

A. No, sir, it isn't.

Q. Was that well drilled to the Queen formation, do you know?

A. It was a deeper objective.

Q. What was the objective?

A. That, I don't know, sir. I know it was TD'd deeper than the Queen.

Q. You simply looked at the well log? Is that what you looked at?

A. Yes.

Q. But do you know whether that well was ever tested in the Queen?

A. No, sir.

Q. Do you know whether there are any other Queen wells east of Sections 3 and 10?

A. Yes, sir, there are. Well, let me see.

Q. It would be in Sections 2 and the section right underneath Section 2, whatever that section is?

A. I can't show you a map of those sections.

Q. But you're saying there is Queen production east of those two sections?

A. I would have to locate myself because we operate a Bone Spring field to the east which has Queen pay behind which has not produced as of yet, the Mescalero Scarpi.

Q. How far away is that Bone Spring field?

A. About three miles east.

Q. But immediately beyond this map there, to your knowledge, there's no Queen production or is there Queen production?

A. Not to my knowledge.

Q. Do you know whether there has been any wells drilled that tested for Queen production in Sections 2 and I believe it would be Section 11?

A. I'm sure there's penetrations of the Queen. I don't know if there has been any Queen tests.

Q. How about the well in Section 10? That

well in the northwest quarter of Section 10 is shown on your cross-section, is it not?

A. The gas well?

Q. Yes.

A. Yes, sir.

Q. Did that well test the Queen for oil production?

A. It was completed as a gas well.

Q. In the Queen formation?

A. Yes, sir.

MR. PADILLA: I believe that's all the questions I have.

EXAMINER STOGNER: Thank you, Mr. Padilla.

Mr. Kellahin, any redirect?

MR. KELLAHIN: No, sir.

EXAMINER STOGNER: I don't have any questions of the witness.

Are there any further questions of this witness? Mr. Kellahin.

MR. KELLAHIN: I'll call Archie Taylor at this time. He's a reservoir engineer with OXY.

EXAMINER STOGNER: Mr. Kellahin, will we need to be referring to the cross-section?

MR. KELLAHIN: No, sir. I think you can fold that up.

ARCHIE R. TAYLOR

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

EXAMINATION

BY MR. KELLAHIN:

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

A. My name's Archie Taylor. I'm a petroleum engineer for OXY, USA.

Q. Mr. Taylor, on prior occasions have you testified as a reservoir engineer before the Division?

A. No, I haven't.

Q. Summarize for us your educational background?

A. I graduated from the University of Missouri at Raleigh in May of 1977 with a B.S. in petroleum engineering.

I then went to work for City Service in Oklahoma City, Oklahoma, as a reservoir engineer.

After working on units there, waterfloods and other reservoir tasks, I moved to Denver, Colorado as a regional reservoir engineer supervising the reservoir engineering for the Rocky Mountain region, where I was involved with unitizing various fields in Wyoming and North Dakota.

Q. Describe for us what it is that you have done in the past apart from this project as a unitization engineer. What does a unitization engineer do?

A. We basically are involved in working on the technical committees, putting together feasibility studies, determining whether or not the waterflood or enhanced recovery process was economic; work up reserves for remaining primary, come up with parameters to be used in participation formulas, and, in some cases, recommend to working interest owners the proper formulas to be used.

Q. Have you made yourself familiar with the engineering report and geologic information that's shown on Exhibit No. 1 dated July of 1990?

A. Yes, I have.

Q. Describe for us your personal involvement in this project.

A. Basically it started in January of this year supervising the unitization efforts by putting together this feasibility study to be sent to the working interest owners.

Q. Are you familiar with the engineering details, the figures, tables and plats that have been prepared and have been introduced by the Examiner in

Exhibit No. 1?

A. Yes.

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

EXAMINER STOGNER: Are there any objections?

Mr. Taylor is so qualified.

Q. Based upon your review of all the engineering information as well as relying on the geologic conclusions with regards to the Central Corbin Queen Unit, have you formulated engineering opinions about the feasibility of waterflooding the Central Corbin Queen pool?

A. Yes.

Q. Have you satisfied yourself that you have a viable, feasible project to be implemented with the assistance of the statutory unitization procedures?

A. Yes.

Q. And if implemented by the Division with the use of those orders, will you be able to recover additional secondary oil recovery by waterflood operations that you might not otherwise recover?

A. Yes.

Q. Is that volume of additional oil recovery a substantial volume of oil?

A. Yes, it is.

Q. Describe for us what you mean by "substantial."

A. Well, the volume would vastly exceed the value and reserves under remaining and continued primary operations.

Q. Quantify for us the estimated volume of secondary oil recovery to be recovered from this pool.

A. The additional oil to be recovered in the waterflood is estimated to be about 570,000 barrels of oil.

Q. Let me have you turn your attention, sir, to page 3 of Exhibit No. 1, and summarize for us, then, what are the major summary points of the engineering work you participated in for this particular project.

A. Basically, development was begun in March of 1985. Currently, most of the productive areas of the field have been developed at this time.

Productive limits are controlled by porosity and lip fluid contacts. The oil/water contact exists at about 300 feet below sea level.

The producing rate in the field has been rather severe. With most of the primary reserves having been produced, we have estimated approximately

70,000 barrels of remaining primary.

Q. You said production has become severe. What do you mean by "severe"?

A. Production decline.

Q. The rate of production for the existing wells under primary production has reached a severe drop in their producing rates?

A. Yes, it dropped significantly from the initial producing rates.

Q. Your initial discovery of production is in early 85, is it?

A. Yes.

Q. When you go through a period of development in the pool?

A. Right.

Q. Approximately when did you accomplish or did the interest owners in this area accomplish full development of the pool?

A. I believe it would have been about 1988 when the well finished.

Q. Approximately when did you commence to see a severe drop in the rate of producing or a decline in the primary production for the pool?

A. About 1987, when we really noticed the producing rates showing the severe decline.

Q. You've estimated for us the remaining primary production for those wells?
A. Yes.
Q. As of what date did you make that estimate?
A. For purposes of feasibility study here, we estimated it based upon April of 1989 data.
Q. And based upon April of 89 data, what is the estimated primary reserves to be produced?
A. 70,000 barrels of oil.
Q. Have you satisfied yourself and reached the engineering conclusion that it is feasible to waterflood this pool for secondary oil recovery?
A. Yes.
Q. How have you gone about accomplishing that task? What do you do as an engineer to satisfy yourself that this is a unit that's suitable for waterflood?
A. Basically we go through and try and define the limits of the field by looking at logs, production characteristics, PVT data, anything that would help define the limits.
Q. Are you satisfied that you have sufficient engineering information to reach conclusions, then, about the floodability of this pool?
A. Yes.

Q. Now, you've raised the topic of the boundaries. Have you, as an engineer, independently confirmed the geologic conclusions about the suitable boundary of the unit?

A. Yes, I have.

Q. What is the criteria that you, as an engineer, apply to making a determination that the boundary is an accurate, reliable boundary to give you effective and efficient control of the pool?

A. We include looking at the logs, looking at production data. If there's any dry holes that tested dry, that will tend to help orient log analysis parameters; whether a well produced oil or water or gas would also influence the limits of the reservoir.

Q. How did you go about calculating the primary reserves?

A. Took individual well decline curves and forecasted based upon the historical production what the future production would be.

Q. Is that a typical engineering methodology to calculate primary reserves?

A. Yes, it is.

Q. How did you go about calculating the secondary reserves?

A. The secondary reserves were based upon

analogy to offsetting fields that Mr. Doty has previously mentioned, specifically the E-K and North E-K field. The E-K field is very similar in size and number of producing wells to the Central Corbin Queen. Both of these wells, or fields, were flooded back in the 1960s and 70s and have subsequently been disbanded as units.

Q. So you had a historical basis of engineering information from the E-K pool--

A. Right.

Q. --under secondary waterflood operations that you could use as an actual historic model, then, to plot the secondary reserves for the Central Corbin Queen?

A. Yes.

Q. In terms of an investment of capital into secondary recovery operations for the Central Corbin Queen, approximate for us the total number of dollars.

A. We have estimated that it will entail an investment of approximately $890,000. $360,000 of that would be for well conversions to convert wells to injection, and the remaining $530,000 would be for injection lines, service facilities and that sort of thing.

Q. Based upon the cost related to the recovery

of secondary oil, is this going to be a profitable operation?

A. Yes, it is. We have estimated a discount of net cash produced from the waterflood operations of about $2.9 million, including both primary and secondary reserves. The incremental waterflood has been estimated to be $2.2 million.

Q. Have you plotted the production from the key wells in the unit or from the unit itself?

A. Yes.

Q. Let me direct your attention to the exhibit book, Exhibit 1, to page 86 if you will. What's the purpose of this display?

A. The appendix here shows the decline curves that we used for the data up through April of 1989. This shows the reserves we've attributed for the Federal "AA" #1 on page 86. You can see the severe decline that started in 1987 and continued on up through 1989 on this graph. It also shows the remaining primary forecast for each of the wells that were used.

Q. The engineering group prepared similar decline curves on all the producing wells?

A. Yes. They're listed here in the appendix.

Q. Is this characteristic of the producing

wells within the proposed unit area?

A. Yes. As a matter of fact, this one was one of the first wells in the field, so it had some time before we saw the decline. Other wells underwent some severe decline right after initial completion.

Q. Let's look at Exhibit No. 3. Have you plotted the production from the proposed unit wells within the pool to see what that shows you?

A. Yes, I have.

Q. Is that what's demonstrated on Exhibit No. 3?

A. Yes.

Q. Define for us what each of the codes are, for understanding the display.

A. The blue curve is the oil rate, the green curve is the gas producing rate and the red curve is the water rate for the total field production within the Queen reservoir.

Q. Within the proposed unit we don't have wells that classify as gas wells?

A. No.

Q. But there is some gas in association with the oil that's produced by the oil wells?

A. Yes, there is some solution gas.

Q. And you do have some water production in

the pool?

A. Yes.

Q. What does this tell you?

A. Well, currently the field is only producing about 50 barrels of oil per day or less from over 20 wells, so the wells are getting close to their economic limit. There are some wells that are better than others in a field but, on the whole, the field is not making a whole lot of money right now.

Q. In terms of timing for the implementation of a waterflood project, Mr. Taylor, can you either look at page 86 of Exhibit 1 or Exhibit 3, and tell us your engineering conclusion about the timing for implementation of waterflood?

A. The waterflood should be started as soon as possible.

Q. Why is that?

A. That would enhance the value to the working interest owners in the proposed unit.

Q. What's accomplished by the timely injection of water into the unit in the immediately foreseeable future? What happens? You put water in the reservoir and then what does that do?

A. That would increase your producing rates from the producing wells.

Q. Does it have an effect on your gas/oil ratio?

A. Well, the gas oil ratio should end up going down, I would expect. I believe we are probably producing some free gas at this point. And, under our waterflood operations, we would put that gas back into solution and form an oil bank to be pushed to the producing wells.

Q. When we look at the horizontal line on your Exhibit No. 3 and we take it over to 1991, at the end of 91 there's a sharp increase in the oil rate. What does that represent?

A. In 1991, for purposes of this exhibit, we have assumed the waterflood was initiated in January of 91. The continued decline is the further field work to get injection wells going, and then a flattening and slight increase to a large increase in producing rates as a result of the stimulation from water injection.

Q. The water injection will extend the life of the operations within the pool? Is that what happened? If you take the normal decline without waterflood operations, that decline would take you into, what, about 97, maybe?

A. Well, the forecasted reserves for the

individual wells have a longer life than what we would see under a waterflood.

Q. Can you use this display to quantify the secondary reserves to be produced under waterflood operations?

A. Basically it would be an extrapolated line from what is currently going on, with the wedge following the blue line.

Q. If the Examiner desired to do so, he could settle a decline line through established production as it exists in the absence of waterflood? Establish a decline--

A. Yes.

Q. --go over there and finish off the extension of the decline under secondary operations, and the difference between one decline and the second decline is the secondary oil recovery?

A. Right.

Q. Okay. All right. Let's turn now to Exhibit No. 4. What does this tell us?

A. Exhibit 4 is the production history for the North E-K Queen Unit.

Q. All right. This is the type case, then? This is the analogous Queen flood?

A. Right.

Q. What does this show?

A. This shows the oil production under primary operations, and then the oil recovery under the waterflood operations, beginning in approximately 1970.

Q. Let me ask you to turn now to Exhibit No. 5. What's the purpose of this display, Mr. Taylor?

A. Exhibit 5 shows the similarities between the North E-K Field, which was waterflooded, and the Central Corbin, which we're producing to waterflood.

We've listed here the net pay comparisons that were picked directly off the logs, and the porosity values, the number of wells for each of the fields--the number of producing wells prior to the unit operations, the frac size. All wells and the wells of both fields were frac'd upon initial completion.

You compare the performance, average IPs. In the Central Corbin it's slightly higher, but you also had slightly larger frac jobs. The initial decline rates are similar. The primary recovery is similar, and ultimate recovery we have down here as being approximately the same.

Q. The purpose, then, is to use the North E-K

as a type example by which to compare performance projected for the Central Corbin Queen?

A. Yes.

Q. If you will, based upon that analysis, if you'll take Exhibit No. 4, which is the E-K Queen-- This is actual documented performance under secondary operations?

A. Right.

Q. --and compare that to your projected curve of performance in the Central Queen, you can put them together and overlie them?

A. Yes, sir.

Q. What does that tell you?

A. They're very similar. It gives me confidence that we should expect the same sort of production rates over time.

Q. Do you have any reservations about the methodology used by you and employed by you to calculate the secondary oil reserves for the Central Corbin Queen Unit?

A. No.

Q. Let's go on now to a discussion of what you have done to share this information with other working interest owners that you propose to be included in participating in production for the unit. Give us a

chronology of events and your efforts to get others to participate.

A. Basically, we went through an initial feasibility study in 1987. This was subsequently updated in 1989, and we sent it out to working interest owners in May of this year for their review and comments, suggestions, et cetera.

Q. During that exercise, has anyone suggested to you a different methodology to be applied to quantifying the remaining primary reserves?

A. No.

Q. Have they suggested to you any alternate solutions for solving the secondary reserves?

A. No.

Q. Has anyone criticized or objected about the methodology that you have employed to calculate either of those numbers?

A. No.

Q. Let's go to Exhibit No. 1 page 43. All right. On page 43, what's represented here, Mr. Taylor?

A. This is another locator map. This map shows Queen waterfloods located in the area of Central Corbin Queen. The legend at the bottom shows the different patterns that were used in these fields.

Q. What pattern do you propose to utilize for this waterflood?

A. 80-acre five-spot, which is the same as the E-K and North E-K, directly adjacent to Central Corbin used.

Q. Could you have any reservations that using that five-spot 80-acre pattern has successfully recovered additional incremental oil for other waterflood operations in the Queen?

A. Not consistently, no.

Q. What have the operators done, then, to modify their injection plan to aid them in production of secondary oil? There are some that use the 80-acre five-spot. Are there other solutions used?

A. Some, as noted on this graph, had 20-acre five-spots. Our investigations into that showed that a large portion of these infill wells did not recover additional oil.

Q. What's your recommendation to the Examiner, then, as regards to the acres and the spot pattern to be used for water injection?

A. They should be 80-acre five-spots.

Q. Turn now, sir, if you will, to page 44. Does this show the proposed injector pattern for the unit operations?

A. Yes, it does.

Q. Describe for us the plan, then.

A. The plan would be to use these 12 wells as injection wells for the unit. This would allow--would give us basically 80-acre five-spot patterns without having to drill additional wells and undergo that expense. As I mentioned before, this is the same sort of pattern that was used on the North E-K, which we based our analogy and production forecasts on.

Q. Compare the pattern you proposed on page 44 to the Queen sand net pay map that Mr. Doty had on page 37. You can overlay one, bend the page on 37 and look at 44.

Does your proposed injector pattern give you an effective and efficient flood pattern for this particular reservoir?

A. Yes, it does.

Q. When we look at the tracts in which Mr. McAlpine has an interest in Section 3, Tracts 6 and 7, the #1 well is proposed for conversion as an injector?

A. Yes.

Q. And the #2 well would remain as a producer?

A. Right.

Q. What's the purpose of doing that?

A. This is to aid in the sweep of oil from the

injection well toward the producing wells. Without this, there would be oil that would remain in the reservoir because there would either be no production from that well in that area of the reservoir, or you would not be able to pressure up the reservoir to increase the producing rate.

Q. Let me have you turn now to page 38 of Exhibit No. 1. This is the pore volume map, the phi-H map. To what purpose did you use this display in your work with regards to this project?

A. This one, originally we looked at this to determine where the oil was in the ground, where we should have injection wells and whether they would be needed.

Q. Does your proposed plan for injection accomplish the purpose of putting the injectors at the best possible locations in the pool?

A. Yes.

Q. Does it aid you in quantifying the secondary oil reserves?

A. Yes, it does.

Q. And it gives you an accurate and reliable basis for understanding the original oil in place?

A. Yes.

Q. Has this been used to derive one of the

components for the participation formula?

A. Yes.

Q. What are the parameters for the participation formula?

A. Basically there are four parameters in the participation formula; we have cumulative production, remaining primary, current producing rate and pore volume.

Q. What is the purpose of including pore volume as one of the parameters in the participation formula?

A. That the pore volume, essentially, is where the oil is in the reservoir.

Q. If a tract owner has the good fortune to be in a tract that has a large amount of oil underlying his tract, he is given credit in the participation formula for that fact?

A. Yes.

Q. Correspondingly, if he doesn't have the benefit of having significant pore volume in the reservoir underlying his tract, he doesn't get a credit for it?

A. Right.

Q. How do you balance, then, the fact that certain wells may be more productive and not

correspond to the pore volume? Is there a component in the participation formula to take into consideration the current producing rates of wells?

A. Yes. We have, actually, 10 percent of the formula as current producing rate.

Q. Okay. What about remaining primary production from that well? Is that a component?

A. Yes, it is.

Q. And what percentage?

A. That's 25 percent of the formula.

Q. Does an interest owner get credit for the fact that regardless of his pore volume, he had a terrific well that produced a bunch of oil?

A. Yes.

Q. He gets a cumulative oil credit?

A. Right.

Q. Of what percentage?

A. The cumulative oil percentage was 30 percent of the formula.

Q. And what is the percentage of the pore volume?

A. The pore volume was weighted at 35 percent of the formula.

Q. You've dealt with other participation formulas for other units, have you not?

A. Yes.

Q. In selecting a participation formula to be applied to the Corbin Queen, can you reach an engineering conclusion that this is a fair and equitable formula?

A. Yes.

Q. Describe for us why you think it's fair and equitable.

A. Since there were questions as to the comparison of producing character of the well and the quality of the primary production on a direct comparison with pore volume, we went ahead and then added in the additional primary production parameters into the formula. That way, you know, we would get weighted pore volume, as well as production, to try to balance the unknowns or interpretations or misinterpretations that could come about in the field.

Q. By applying this particular formula to this pool, does OXY get a benefit or an advantage over any other working interest owner?

A. No, sir.

Q. In fact, does any working interest owner receive a windfall or an advantage over others by use of this formula?

A. No.

Q. The participation formula, have you shared that proposed participation formula with other working interest owners?

A. Yes. We sent it out earlier this year and asked for comments.

Q. Who are the major working interest owners? Don't give me the whole list, but give me the major ones.

A. Basically OXY, Conoco, Santa Fe Energy, and then various working interest owners under Tracts 6 and 7 with Mr. McAlpine being one.

Q. Did we have Yates involved in this unit?

A. Yes.

Q. Have any of the working interest owners that are obviously knowledgeable about this kind of thing, ever propose to you an alternative participation formula?

A. No.

Q. Did Mr. McAlpine ever object to your participation formula?

A. No.

Q. Did he ever propose one of his own?

A. No.

Q. Did he have an opportunity to do so?

A. Yes.

Q. Let's look at Exhibit No. 6, if you would. Now, when we take the participation formula, have you come up with a display that represents how you've allocated the secondary recovery back to the individual tracts? Isn't that what we can do with this display?

A. Yes.

Q. It's to figure out the equity parameters and to see the tract participation?

A. Yes. This Exhibit 6 shows the parameters that were used in the formula, the fraction of the total of that parameter that that tract would have, and then the third column under each individual parameter shows the percent of the formula that that tract would have.

Q. Okay. Let's start reading the display, Exhibit 6, and look at Tract 6. Find Tract 6.

A. Okay.

Q. When you read across, and cumeoil as of the April 89 date is simply a reported number, is it not?

A. Right.

Q. So you rely upon reported information on cumulative oil production and get that component to the formula?

A. Right.

Q. The next major one is the remaining reserves for that tract. You have 208 barrels?
A. Right.
Q. Is that all?
A. That's what was forecasted at that time.
Q. How do you make the forecast of the remaining primary reserves?
A. Basically an estrapolation from what the well has done.
Q. The conventional traditional decline curve analysis per well?
A. Yes.
Q. And that will get the 208 for that tract?
A. Yes.
Q. Then the current producing rate for that tract is 17 barrels a month? Is that a monthly number?
A. Right.
Q. Mr. McAlpine's interest in Tract 6 is in a well that produces less than a half a barrel per day under primary production?
A. Yes, approximately a half a barrel per day.
Q. When we look at the pore volume credit for his tract, under 6, you get almost 60 acre-feet?
A. Right.

Q. And then the last tract participation percentage represents what?

A. That's the actual participation in the unit production.

Q. That's the end number after running the calculation?

A. Right.

Q. Okay. When we look at the net phi-H number for an individual tract and we look at page 38, if you look at the pore volume map. If you look at the pore volume map for each of the wells there is a number; for example, in Tract No. 6 I think it's 1.62. What does that represent on page 38? Do you see Tract 2, I mean, Tract 6, you see the Well #2, the 1.62? What does that represent?

A. The 1.62 represents the calculated density/porosity feet, porosity feet for that well, calculated from the well log.

Q. When we look, then, at the net pore volume for that Tract No. 6, it's 60. How do you get the calculation? What do you do?

A. We planimeter the area of each of the contour lines that have been contoured on this map, go through the formula for calculating volume based upon the area and thickness.

Q. And you applied that same methodology to all the wells, regardless of who had their ownership?

A. Yes.

Q. Let's go now to Exhibit 7. What does Exhibit No. 7 show?

A. Exhibit 7 shows the results of applying the tract participation formulas to the remaining reserves, the secondary reserves, and then the actual economics for that tract based upon the participation formula interests.

Q. When we look at the display, then, first it's the tract number, the lease name, the well number, remaining reserves. When we looked out and let's find Tract No. 6, the one in which Mr. McAlpine has an interest, that's the Corbin Fee #1 well, and we see 80 barrels. What does that represent?

A. That is the barrels of remaining primary estimated from an extrapolated decline curve from March of 1990 data.

Q. So when we compare 6 and 7, we're using a little different time frame in pegging the information?

A. Right.

Q. Okay. Why did you prepare number 7? What did you want to find out?

A. We wanted to make sure that under current conditions that the waterflood value for each tract still exceeded the value for primary.

Q. You had satisfied yourself in 5/89 that it worked?

A. Right.

Q. And you wanted to visit that topic again in March of 1990 to see if it was still a correct conclusion?

A. Right.

Q. What did you conclude?

A. That each one of the tracts proposed to be included in the unit would have additional value under the unitized operations.

Q. How do we know that by looking at Exhibit No. 7? For example, for Tract 6 we know remaining primarily is 80 barrels, secondary based on participation I think it's 7,000 barrels. How do you read the rest of it?

A. Could you repeat that?

Q. Yes, sir. On tract 6, reading horizontally along, we get to secondary, that tract's share of the secondary oil recovery based on this participation formula?

A. Right.

Q. Okay. What's the next number?
A. The next number is the remaining primary discounted net cash produced as of 1/1/91, the assumed start date of the waterflood.
Q. Why is it zero for Tract 6?
A. In our estimation, the well will not have any remaining economic reserves as of that date.
Q. For the #1 well, then, in Tract 6, it has no further value under primary production?
A. Right.
Q. The secondary value is what?
A. $30,000.
Q. What is incremental secondary economics? The last number, what is that?
A. That's simply the value under secondary operations minus the value of primarily.
Q. The second to the last column and the last column are going to be the same if there's a zero component for the primary reserves?
A. Right.
Q. Let's look at Tract 7, where there is remaining primary trend, okay? Tract 7, remaining primary is 7,800 barrels; secondary share is 34,000 barrels--
A. Right.

Q. --attributable to that tract? Okay. The remaining primary economics is 68? What does that represent, $68,000?

A. Yes, $68,000 is the value from 1/1/91 of continued operations of that well.

Q. And its economic value is $147,000 dollars for the secondary reserves share.

A. That includes the secondary and primary reserves.

Q. What is the net gain, then, under secondary operations?

A. The net gain under secondary operations is $79,000, the last column.

Q. For Mr. McAlpine and the working interest owners in Tract 7, if their tract is put into this waterflood operation, there is a net gain to them of $80,000 for that tract's participation?

A. Yes.

Q. That translates back to some 34,000 barrels of oil for that tract under secondary operations?

A. Yes.

Q. Should that tract be in or out?

A. It should be in.

Q. Let me direct your attention now to Exhibit No. 8. This is your short summary of the various

efforts to establish the studies and complete the work?

A. Yes.

Q. All right. Let's go on to Exhibit 9. Mr. Taylor, have you examined various alternatives, one of which is the exclusion of the two tracts in which Mr. McAlpine has an interest, Tract 6 and Tract 7? Have you examined that?

A. Yes.

Q. And if those tracts are excluded from the waterflood, what have you done to analyze the impact of that consequence?

A. Basically, as an alternative, if we could not use the Corbin #1 well as an injection well, we feel like we would need to, as one alternative, set up a line of producing wells following the line of the Federal "AE" #12 in Section 3 down, and following the line around. Essentially this blank area in the map shows the pore volume that would not be under waterflood operations.

Q. Let me make sure we're clear on the assumptions made in this analysis on Exhibit No. 9. The first assumption is that neither Tract 6 or 7 is included?

A. Right.

Q. The second assumption is that neither of those two wells is converted for injection regardless of whether they're in or out of the unit?

A. Right.

Q. The next assumption is that you've got to make some adjustment in the injector pattern within the unit, having excluded 6 and 7?

A. Right.

Q. What is the adjustment, then, in the injection pattern?

A. Basically we dropped--we would end up dropping, I believe it's three injection wells.

Q. A quick reference, if you'll turn to page 44 on your Exhibit 1. That shows your proposed plan, right?

A. Yes.

Q. When you look in the northwest of 3, that proposed injector for the #12 well has to remain a producer?

A. Yes.

Q. When you look around in the northeast of the southeast of 4, the #4 proposed injector must remain a producer?

A. Yes.

Q. You drop on down into section--I guess

those are the only ones, right? and then you lose the #1 as an injector?

A. Right.

Q. If those tracts are excluded and neither are available for injection, do you see any alternative?

A. Yes.

Q. All right. We will talk about the other alternatives in a minute. Let's explore this solution, all right?

You've avoided injectors in the immediate proximity to Mr. McAlpine's tract because of what?

A. We would end up pushing oil across lease lines, and we wanted too avoid that.

Q. You're required to avoid that, aren't you?

A. Yes.

Q. Having done that, what do you quantify to be the magnitude of deleting those two tracts and adjusting your injection?

A. Based upon our estimated recovery factor for secondary reserves and the pore volume involved with this, we have estimated that there would be about 86,000 barrels of secondary oil left in the ground.

Q. Lost?

A. Right.

Q. You're not going to get them, are you?
A. Right.
Q. Have you examined any other scenario to see how to handle possible solutions with Mr. McAlpine's Tracts 6 and 7?
A. Yes, we have.
Q. Okay. I would direct your attention to Exhibit No. 10. Tell us what this proposal is.
A. One possible alternative would be to, including these tracts in the unit, would be to set up lease line injection. The problem that we ran into here is that these two tracts have different working interest owners which would entail, instead of just one lease line injector, it would entail drilling--having three lease line injection wells to keep oil from being pushed across lease lines.
Q. Tract 6, as you understand stand, is a separate lease that has different interest owners with different percentages from Tract 7?
A. That's what I understand, yes.
Q. Recognizing that as a problem, what would you do with your injectors along that common boundary with those two differently owned tracts? You would have to put injectors to protect each of those tracts, would you not?

A. Yes. That's why we have the three injectors.

Q. What's the benefit to the unit of doing that?

A. The unit should recover approximately the same amount of oil under this operation. It might be slightly less, but on an overall there's not a large difference in the ultimate waterflood recovery.

Q. All right. So the 86,000 barrels that are at risk, if we do the solution on Exhibit 9, it can be solved by drilling three more injectors?

A. Yes.

Q. At what economic cost?

A. That would cost us approximately $330,000. That's estimating $150,000 for the cost of drilling injection wells and then subtracting off the cost of the well conversions that would not be converted from the previous pattern.

Q. To recover the 86,000 barrels of oil for the $330,000, does that work?

A. Huh?

Q. Is there a positive net profit for spending the money to gain that additional oil?

A. No. We could recover the same amount of oil without that $330,000 expenditure.

Q. And how would you accomplish that?
A. By the proposed inclusion of Tracts 6 and 7 in the unit.
Q. If they're excluded, then, in order to protect the unit you're going to have to spend $330,000 that you would not otherwise have to spend--
A. Yes.
Q. --to recover the same amount of oil?
A. Right.
Q. Let's go to Exhibit No. 11. One of the items on Mr. Stogner's checklist of things to look at when we do this for him is to talk about the cost of conversion to capital investments, that component to the process. Describe for us what you've tabulated on Exhibit No. 11?
A. Exhibit 11 is the proposed or estimated cost of well conversions on the top portion. It shows the breakdown of what is expected to be done. The total for a well would be approximately $30,000. For all 12 well conversions, it would sum to be $360,000.
Q. This is the itemization, then, of your opening remarks, to say that the investment for waterflood was $888,000?
A. Yes.
Q. This shows you how you get that number,

right?

A. Right.

Q. In your opinion, is this a fair, reasonable and accurate assessment of the cost to be expended for the waterflood project?

A. Yes. This work was done by other engineering staff in-house and should be pretty close to the actual expenditures, I think.

Q. Let's turn now to the details of the operations. Have you provided a summary sheet to talk about the operational details?

A. Yes.

Q. That's Exhibit No. 12?

A. Exhibit No. 12 shows our expected operational data that we expect to have under waterflood operation. We would expect 13 producing wells with 12 injection wells on an 80-acre five-spot pattern; conversion costs for the injection wells at $30,000 per well.

Our injection water sources we've identified as being the Ogallala, the Bone Spring and produced Queen water.

Our injection plant facilities, $530,000; injection pressure initially of 840 psi with expectations to increase that after step-rate

testing. A total investment of approximately $890,000.

Our estimated peak rate under waterflood protection of 900 barrels of oil per day for the field compared to the current rate of approximately 45 barrels per day; and from our decline curve extrapolations, we've estimated that there will be producing wells in the field for up to 14 years; under secondary operations this would be reduced to approximately seven years and produce additional oil over primary recovery.

Q. In summary, then, Mr. Taylor, can you conclude, based upon your engineering studies and your calculations, that the proposed unit is one that is reasonably defined by development at this point?

A. Yes.

Q. In your opinion, is it timely to institute secondary recovery operations under unit plans in order to recover secondary oil that would not otherwise be recovered?

A. Yes.

Q. In your opinion, are the estimated additional costs of conducting unitized operations not to exceed the estimated value of the additional oil or gas to be recovered plus a reasonable profit to all

the interest owners?

A. Yes.

Q. Have you satisfied yourself and can you reach the engineering conclusion that the participation formula as you've suggested and as contained in the documents is one that allocates the produced and saved unitized hydrocarbons to the individually owned tracts in the unit area on a fair, reasonable, and equitable basis and protects the correlative rights of all owners of interest within the unit?

A. Yes.

Q. Can you reach the engineering conclusion, Mr. Taylor, that the operations of waterflood under this statutory unitization plan will be one that prevents waste and protects correlative rights?

A. Right.

Q. Have you satisfied yourself to a reasonable engineering certainty that the implementation of this project will result in additional incremental oil in the range of 500- to 600,000 barrels of oil?

A. Yes.

Q. Are you satisfied that the method of operation, as it's been communicated to you, is one that's feasible, will prevent waste and will result

with reasonable probability in the increased recovery of substantially more oil and gas from the unitized formation than would otherwise be recovered?

A. Yes.

Q. Do you, as an engineer, conclude and agree with Mr. Doty that the boundaries of this unit are reasonable and fair?

A. Yes.

MR. KELLAHIN: That concludes my examination of Mr. Taylor on the topic of statutory unitization. He is also the witness will discuss in detail the C-108 provisions that are necessary for the implementation of the waterflood, but perhaps we might take a break at this point or--

EXAMINER STOGNER: Sounds good. Let's take a 15-minute recess.

(Thereupon, a recess was taken.)

EXAMINER STOGNER: This hearing will come to order. Mr. Kellahin?

MR. KELLAHIN: Thank you, Mr. Examiner.

Q. (BY MR. KELLAHIN) Mr. Taylor, let me turn with you to the topic of Commission Form C-108. Have you and others with OXY prepared and tabulated the data required for the Commission Form C-108?

A. Yes, we have.

Q. Have you done that in accordance with the Division rules and procedures for the approval of waterflood projects?

A. Yes.

Q. If you will turn to the black exhibit book and if you'll turn to the last set of exhibits, all the documentation, then, for the C-108 is identified by Exhibit 13?

A. Yes.

Q. Turn past the Division form and get us to the first display. Again, what is this?

A. This is the plat showing the proposed injection wells for the waterflood unit.

Q. Do the proposed injection wells themselves fall into any categories of types of injection completions? Do you have different proposed ways of installing injections into these producing wells?

A. No. The injectors are proposed to be completed almost identical, given the differences from well to well.

Q. If we look behind the locator map there's a wellbore schematic. What does this represent?

A. This is our proposed completion schematic for the injection wells in the unit. A typical schematic is showing the packer location, the

approximate packer locations and tubing string.

Q. This is identified as the Federal "AE" #1 but it would apply to all the other injectors?

A. Yes.

Q. Why do we find the schematic behind this first page, which says for the Corbin Fee #1?

A. OXY does not operate that well so we set it up separately for this form.

Q. Other than the fact it's not operated by OXY, the method for conversion of that well, is it similar to the method for all the other injection wells?

A. Yes, it is.

EXAMINER STOGNER: Before we go any further; Mr. Taylor, on the Queen perfs, do you purpose to make any additional perfs or utilize the perfs which are already existing in each each well?

THE WITNESS: Right now we don't have any plans for additional perforations.

EXAMINER STOGNER: So you'll just use the existing ones?

THE WITNESS: Right. The wells were hydraulically frac'd on completion, so I think we'll have good vertical communication.

EXAMINER STOGNER: Thank you. Mr.

Kellahin?

Q. (BY MR. KELLAHIN) all of the wells that OXY proposes to convert to injection, do they have the same number of feet of surface casing on them? Look at your schematic.

A. Approximately, yes.

Q. That's an approximation, then, to give us a sample of how this was done?

A. Yes.

Q. When we look at the one in the Corbin Fee it appears to be very similar to the ones you have? Their surface casing string is set a little deeper?

A. Right.

Q. The method of proposed injection, then, for all these wells, is one that meets the criteria for the Oil Conservation Division's approval of these wells?

A. Yes.

Q. After that what have you put in the book?

A. We have individual well data sheets for each of the wells involved, and then--

Q. After we turn through all the individual well data sheets you get to a map again that has a bunch of circles in it. This one.

A. Yes.

Q. What's the purpose of this?
A. This shows, on a general, more larger map, it shows the location of the proposed injection wells.
Q. Okay. Turn the page. You have an area described around these injection wells that you've proposed. What does that represent?
A. That represents the half-mile radius of investigation for wells that need to be identified for the C-108 form that penetrated the Queen formation.
Q. In compliance with those requirements, have you, in fact, provided an individual schematic for each of the wells that is within the half-mile area of review?
A. Yes, I have.
Q. And that's what's represented behind the locator map?
A. Yes.
Q. In summary, based upon that analysis, do you find any wells that might be characterized as problem wells, where you are not yet confident that those wells are properly cemented or plugged and abandoned, or that you don't have sufficient information to be confident?
A. Yes.
Q. Where, within this area, then, do you

identify any wells that require further investigation by you and OXY before you institute injection with an injector within a half-mile of that well?

A. There are two wells in the northeast portion of the area of investigation. The well in Section 34, just in the extreme southwest corner, the Wyatt Federal "B" #1, and the well in Section 3 of Township 18 South. I believe the name of this well was the Corbin Federal "B" #3.

Q. Do you have schematics for each of those wells in the exhibit book?

A. Yes.

Q. Have you raised or made inquiry of the area supervisor for the Oil Conservation Division concerning information he may have about those two wells?

A. Yes.

Q. That would be Mr. Jerry Sexton?

A. Right.

Q. Has Mr. Sexton yet acted upon your request for his determination of whether or not those two wells are properly cemented so that you can commence injection into what is proposed as the #12 well?

A. The information we've got indicates that we will need to go in and plug these wells properly.

Q. Your plan then is to not inject into the #12 injector in the, I guess that's the southwest of the northwest of 3?

A. Right.

Q. That's the #12 injector? You will not convert that to injection until you've satisfied Mr. Sexton that the two wells you've already identified have been properly cemented?

A. Right.

Q. Other than those two within the half-mile area of review, do you find any other problem well?

A. No.

Q. Do you propose to institute waterflood using some limitation of your surface injection pressure?

A. Right now we propose to start at an injection pressure of 840 psi.

Q. Will that convert to .2 psi per foot of depth?

A. That's equivalent to .2 psi per foot, yeah.

Q. What's that pressure again?

A. 840 psi.

Q. What is the source of the water to be used for the waterflood?

A. There are three separate sources that we

propose to use in the waterflood. One source would be produced water from the Bone Spring, the other source would be fresh water from the Ogallala, and then the third would be actual produced water from the Central Corbin Queen Field in the Queen zone.

Q. With the exception of the injector on Tract 7, the rest of these injectors would be located on BLM federal oil and gas leases?

A. Yes.

Q. What is your knowledge about the deepest known producing fresh water sands in this area?

A. There are no currently producing fresh water sands in this area.

Q. Do you know where fresh water, if any, is utilized in this area? How it gets there? Is fresh water piped in, or is there simply no use of the surface here that requires fresh water?

A. There's no use of the surface at this time.

Q. Have you run any compatibility tests or made examinations of the composition of the injected fluids?

A. Yes, we have.

Q. And what conclusion do you reach from an examination of that information?

A. That the waters proposed to be used in the

waterflood are all compatible. We ran tests on the Bone Spring and Corbin Queen water, the Central Corbin Queen water, and also fresh water and Central Corbin Queen water, and both indicated that they would be compatible for waterflood operations.

Q. The documentation to support those conclusions is set forth towards the end of Exhibit No. 13?

A. Yes. There's two reports, one from Unichem International Laboratory concerning the Bone Spring and Central Corbin water, and the second is an Interoffice Letter from Cities Service Oil and Gas Corporation concerning the Central Corbin Queen produced water and fresh water from the Ogallala.

Q. To your knowledge, has OXY or you received any objection from any of the owners at the surface for these injectors?

A. No.

Q. When we turn to the last page in the exhibit book, what is shown there?

A. The last page is a well cross-reference showing the current lease name and operator on each tract and the well number, and then the final column is the well number under the proposed unit designation.

Q. If Mr. Stogner determines it appropriate to approve the waterflood project, can he rely upon this tabulation of wells to identify the list of injectors for approval?

A. Yes.

Q. This will contain all the proposed injectors?

A. Yes.

Q. The method of operation, will that be one where you have a way to monitor the pressure on the annular space between the tubing and the casing?

A. Yes.

Q. Will you fill that space with some inert fluid?

A. Yes, well, typical packer fluid.

Q. The range of expectation in the injection rates is what, sir?

A. For each individual well?

Q. No, a general range. What volume of barrels of water a day for injectors.

A. It would be approximately 200 barrels per day.

Q. Is that based upon your experience with the E-K waterflood?

A. Yes. That's an average from the injection

history in the North E-K Field.

Q. Do you see any indication, based upon your study, of there being any hydrologic connection between the flood in the Queen formation and any fresh water sands in shallower depths?

A. No.

Q. In fact, we don't have any knowledge of any fresh water sands being produced in the area, is that correct?

A. Right.

Q. Except for the two problem wells you've identified in proximity to the #12 injector, are you aware of any other reason the Examiner should not approve the waterflood operation?

A. No.

MR. KELLAHIN: That concludes my examination of Mr. Taylor. We would move the introduction of his Exhibits 3 through 13.

EXAMINER STOGNER: Are there any objections?

MR. PADILLA: No objections.

EXAMINER STOGNER: Exhibits 3 through 13 will be admitted into evidence at this time.

I'll pass the witness to you, Mr. Padilla.

EXAMINATION

BY MR. PADILLA:

Q. Mr. Taylor, let me ask you some questions on this C-108, and I'll try to be very brief.

MR. PADILLA: I have a page in here that says "Exhibit No. 9 based on Tom's research." Do you know what that is?

MR. KELLAHIN: It had to do with a list of logs that had been on file for the injector wells. The C-108 asks you to document for the Division whether logs of the injectors are available and if not to supply them, and that's what's to go there and it's not there.

MR. PADILLA: Okay. I don't have any problem with that.

Q. (BY MR. PADILLA) there is a September 9, 1986 letter authored by Loyd Nixon to Rebecca Egg. Do you have that?

A. Yes.

Q. The first conclusions on that letter states, "The produced brine itself is very likely to be scaling CaCO-3, and possible gypsum (Table I)." What type of scaling is this referring to?

A. The scale from the produced water that would be deposited in the pumps and in the wellbore

tubing, surface equipment, that sort of thing.

Q. Does this increase operating expenses?

A. Yes, for the producing well, yes, it would tends to increase operating expenses.

Q. About how much? Let me ask that first.

A. A lot of that would depend upon the severity of the scaling problem. From my conversations with our operations engineer, we really haven't seen a large effect of that in actual field operations. So it's essentially negligible in this case.

Q. What does the word "very likely" indicate? It seems to me that's contrary to what you're telling me now. It's going to occur? Isn't this what this letter says?

A. My interpretation is that if you look at Table I of this letter, he basically went off of the composition and what happened in the laboratory under the laboratory conditions, and the results of that, I think his statement said it would likely precipitate scale.

Q. Do you have any parafin problems in this area in this field?

A. No.

Q. How about salt problems?

A. Yes. Talking to the operations engineer, he did indicate that they had a few pumps, two or three wells that we operate, that had exhibited some salt problems, with salt forming on the pump, the bottom-hole pump.

Q. How does that increase the operating expenses?

A. Well, it would increase--when you're producing the well, you would end up having to change out the pump a little more often, and, in this particular case, that's pretty much it.

Q. Do you require a pulling unit to change the pump when you do this?

A. Yes.

Q. How often do you anticipate having the pulling unit out there to take care of this kind of problem?

A. From just inferences there, I don't think it's more than perhaps once a year.

Q. Do your materials reflect use of pumping units out there from time to time?

A. I don't understand your question.

Q. Does anything in your materials indicate what type of operations you anticipate from time to time, say, on a weekly basis, a monthly basis,

semi-annual basis, that would increase ordinary operating expenses for the pool or the waterflood?

A. Well, basically under a waterflood we use $1,500 per well per month in our waterflood economics, waterflood operation, compared to $150 per well per month under primary.

Q. Does that $1,500 include administrative overhead?

A. No, it doesn't.

Q. Do you know what administrative overhead for each well is going to be out there?

A. No, I don't.

Q. Let me refer you to the last page on this exhibit attached to the C-108. I don't understand. On Tract No. 5 you have Santa Fe. Is that Santa Fe Energy or Santa Fe Exploration?

A. Santa Fe Energy.

Q. And the "not use" indicates that you're not going to use that well for an injector, is that right?

A. Right. Currently there's no plans to use it.

Q. Let's go on now to, you made a comparison between Exhibit No. 3 and your Exhibit No. 4, and correct me if I'm mistaken, but you indicated that you had basically the same type of decline or the same

type of curve for both the proposed Central Corbin Queen Unit and the E-K Queen Field, correct?

A. Yes. That's basically production versus time.

Q. As far as the time is concerned, the Exhibit No. 4 covers the period from 1961 to 1986, and that's approximately a 25-year period. Exhibit No. 3 covers the period from--what?--1985 through 1989?

A. Right.

Q. That's a much shorter period?

A. Right.

Q. Given the difference, how can you make that kind of comparison as far as time is concerned? How can you say that both curves were the same, in other words?

A. Well, I think what I said was the curves were similar in that the North E-K Queen Field has a large jump from a pilot flood and then they went to a full field flood. We intend to go to a full field flood initially. There are some variations like that, but essentially they're approximately the same.

Q. Because of this time difference, aren't you really talking about apples and oranges?

A. No, I don't think so.

Q. But that's debatable, you would agree?

A. Well, without any other evidence, any evidence to the contrary, I would tend to believe that we're going to recover oil at least as fast as they did in the E-K Queen in the waterflood--I'm sorry, the North E-K.

In fact, looking at the production curve, I don't have that as an exhibit, but looking at the production curve for the E-K field, the waterflood response from that was a lot steeper and a lot quicker and a lot higher than the rates under primary production.

Q. Let me see if I understand. What is the life of this project that OXY is using? Do you have a life for the project?

A. We're estimating it, from the economics, at about seven or eight years.

Q. So if I look at your Exhibit No. 3 from 1991 through 1999, I'm looking at approximately nine, eight and a half years? Is that fair to say? As I understand that, you're going to commence sometime in 1991 your waterflood, correct?

A. Right.

Q. And the project will still continue or be in operation in 1999, according to this curve?

A. Well, according to this curve. This is the

way we have production scheduled out in our economics. The exact cutoff was, I think, in 1998 for an economic basis. But to be sure, you know, we have in our economic analysis there's an economic cutoff, and once we hit an economic limit this will essentially shut off the production.

Q. You'll turn off the injectors? Is that what you're saying?

A. Shutdown the injection. What I was stating is, life of the waterflood was for actual injection when it became uneconomic to inject water for the amount of production we're receiving.

Q. After that you're just simply going to produce the wells?

A. Right.

Q. Without injection?

A. Right.

Q. And that's all--well, I guess I'm having a hard time understanding that Exhibit 3 says you'll stop injection in 1998 or when your economic limit arrives.

A. Well, Exhibit No. 3, essentially, is the forecasted production under unit operations. It does not necessarily reflect the economic limit cutoff. It was the way production was scheduled out.

Q. Looking at Exhibit No. 4, is the North E-K Queen Field still under water or injection?

A. No.

Q. When did they discontinue water injection?

A. I believe it was about 1982 or 1983. The field has currently been disbanded. We have taken over operations of a couple of the wells where we had leases in that unit, and are producing those under continued--

Q. In 1982 or 1983 there's a sharp decline in production. Is that when injection was discontinued?

A. I believe so, yes.

Q. So your Exhibit 3 here would show a sharp decline in production once you reach the economic limit?

A. Right.

Q. And that's not reflected on Exhibit 3?

A. No.

Q. Let me refer you to page 9 of Exhibit 1. The last paragraph there, second sentence, that states, "Both parafin and salt precipitatio may also be accelerating if the producing rate declines, if this precipitation is occurring down-hole where it is difficult to remove." How would that affect your curve in Exhibit No. 3?

A. This was discussing primary operations and, essentially, when we inject the fresh water in with the Corbin Queen produced water, it reduces the scaling tendency for the water. So, under waterflood operations we should have less of a tendency to have scale and salt problems.

Q. Do you anticipate having to remove parafin from the wells?

A. Not to any noticeable degree, no.

Q. Why is this sentence included on this page 9, do you know?

A. I think that was based upon the PVT data that showed some-- Well, the actual analysis, the PVT data analysis that the lab did on the oil and gas for this field wasn't fully--we incorporated some of the tables on this study, but the whole memorandum was not included in this.

When I was going through this, I didn't feel like this would have a significant impact on the operations of the unit, so rather than bother striking the sentence, I just left it in.

Q. Was that PVT data originally included in this study?

A. Just the tables that we have here.

Q. Did you work on this study in 1987?

A. No. That was done by Rebecca Egg, another engineer in our office.

Q. Who is Vy Pham?

A. He was the technician that was compiling the report when I moved to the Midland office in January of this year.

Q. So you didn't see this report until January of this year?

A. Right.

Q. Who is Will Hill?

A. Will is another reservoir engineer that was assisting Vy in the compilation of this report.

Q. Is he still with OXY?

A. Yes.

Q. How about Glen Kellerhals?

A. Glen is in our F & A Group now in the Midland office.

Q. How come these people didn't come to this hearing?

A. Basically, when I came to the Midland region this was a high priority project that OXY wanted to see get done, and it was given to me to try to get the unit formed; I believe primarily because of my prior involvement in units and other areas.

Q. In Southeast New Mexico?

A. No.

Q. Let me refer you to your Exhibit No. 10. Are you aware, Mr. Taylor, that--well, I believe your testimony was that it would cost $330,000 to install the injectors along the lease line as an alternate solution in order to exclude the Corbin #1 and Corbin #2 wells, is that correct?

A. That would be a net cost to the field as opposed to unit operations and installing these three injectors, not converting four other injection wells. We would have a net cost for the field operations or net investment in the field operations of $330,000.

Q. Are you aware, Mr. Taylor, that Santa Fe Exploration offered to sell its interest to OXY for $300,000 in the Queen, including the well equipment for both wells?

A. $300,000? No, sir.

Q. On Section 4, why isn't this Well #10 shown as an injector?

A. Well, basically I think if you look back at the pore volume map, or Exhibit 9, we can point out the same thing. Well #10 has a very small pore volume. It's located real close to the zero contour line and, as such, we felt that it would probably be more beneficial to the unit to have that well in

production rather than injection.

Q. If you're on a five-spot pattern and the #8 well is the producing well, wouldn't it make sense to have that as an injector well?

You're pushing oil towards the middle. Isn't that the basis of your reasoning in not allowing the Santa Fe wells to be eliminated from the unit, isn't that correct?

A. Right. And, on Well #10, as I pointed out, in addition to being real close to the zero line, the #10 well has very poor producing rates and indicated that it probably wouldn't take water at a rate sufficient to justify the conversion.

Q. Even under pressure?

A. Well, yes. We will be limited in the amount of surface injection pressure that we could probably put on that well without frac'ing the formation.

Q. Isn't it true, Mr. Taylor, this you just simply--this is a device so as to not eliminate the Santa Fe wells from the unit?

MR. KELLAHIN: Objection. That's argumentative, Mr. Examiner.

MR. STOVALL: I'll agree.

EXAMINER STOGNER: Agreed.

MR. PADILLA: I'll go on to something else, Mr. Examiner.

Q. Let's go on now to your Exhibit No. 7. Let me see if I understand this correctly. Your testimony, as I understand it, indicates that Santa Fe would have a net of--well, on Tract No. 6 it would have no primary reserves and it would have only secondary benefit, and Santa Fe Tract 6 would receive $30,070, correct?

A. Right.

Q. And that's over how long a period of time?

A. That's the discounted net cash production, so it would be the present value of cash flows received for the unit production.

Q. Okay. How much are you going to charge Santa Fe on a monthly basis for Tract No. 6? Do you have that figure?

A. No, I don't have that number.

Q. In Tract No. 7, as I understand this, Santa Fe will gain $79,400--

A. Yes.

Q. --by secondary recovery?

A. Yes.

Q. Do you have any figures of how much it would cost Santa Fe for its share of unit operations

over this period of time?

A. Not exactly. We are basically looking at 13 producers at $1,500 a month, and then we would have to take the interest attributable to Santa Fe from that and multiply those numbers out.

Q. Have you ever done any economics for the Santa Fe interests as to what it would cost and how much Santa Fe is going to gain as a result of secondary operations?

A. That's what this exhibit is.

Q. Is this a net figure? Is that what you're saying?

A. Yes. The incremental secondary includes the cost of operation of the unit as opposed to the cost of primary, and the net subtracts the two and that's the difference.

Q. And this includes all costs that you anticipate?

A. Yes.

Q. Overhead costs are included in this figure?

A. The overhead costs were not specifically included in this figure, as, you know, we put in a certain amount for overhead. What we've done is put in operating expenses of $1,500 per month for each producing well.

Q. And that's your budget today, correct?
A. Right.
Q. It doesn't--
A. That's what we're estimating over the life of the project.
Q. Over the life of the project or just this year?
A. Over the life of the project; for each month of the life of the project.
Q. What other charges are not included in this figure as shown in Exhibit No. 7?
A. None that I can think of.
Q. As I understand, the participation formula attributes 35 percent to pore space, correct?
A. Right.
Q. How did you arrive at 35 percent for pore space?
A. Well, we basically looked at several different formulas, and comparing the results of those we picked this formula as what we thought probably distributed the future reserves from the field.
Q. I don't want to quarrel with you about the propriety of the formula or not, but it just simply seems strange that at least as far as the Santa Fe wells, that the one that has the higher pore space

produces less, and it doesn't seem to jibe as far as the formula and what the ultimate percentage of unit participation is. Do you understand what I'm getting at?

A. Yeah, I think.

MR. KELLAHIN: Is that a question or a comment, Mr. Examiner? I've lost track of what it is that Mr. Padilla wants to do.

Are you asking him a question?

MR. PADILLA: Sure, I'll restate that. I'm sorry if I've confused everybody with it.

Q. What I'm getting at, Mr. Taylor, 35 percent and, say, 10 percent for producing rates don't seem to jibe as far as the ultimate result as far as participation for Tracts 6 and 7 which are operated by Santa Fe.

My question to you is: Doesn't it seem to you that we have a strange result given that the poor well has a high pore space and actually has low production?

A. I've seen this in other areas. Basically it goes back to the fact that your production, especially under primary, is dependent upon your pressure support as well as the actual transmissibility, not the pore volume, but the

transmissibility.

If you've got better permeability, the well can produce even though there's less feet of pay. In one unit that I looked at, we had a well that produced from one foot that produced at higher rates than a well that had 25 feet of pay.

Q. Let me go back now here to this exhibit relating to the C-108. There's a geologic or reservoir description here, the second page of that reservoir description. Down towards the bottom there's a sentence that starts, it says "Anhydrite cement distribution in the cross-bedded sandstone suggests tortuous permeability paths." It's about three-fourths of the way down.

A. Okay.

Q. What does that indicate?

MR. KELLAHIN: Are you asking this witness a geologic opinion or an engineering opinion?

MR. PADILLA: Well, this is a reservoir description. If he's not qualified to answer the question, he can say so.

A. Well, in this particular sentence, when you're talking about permeability, more what I consider reservoir/engineering stuff--so I think I'll go ahead with this one--the "tortuous permeability

paths" is kind of a wordy way of saying that some areas have lower permeability. And where you get your permeability is having wide open pore spaces that are directly connected and the oil doesn't have to go in a tortuous path to get to the producing well or between injection wells.

Q. Does this indicate that the entire reservoir is going to be flooded or some portions are not going to be flooded?

A. That's a possibility, yes.

Q. That some portions are not going to be flooded?

A. Right.

Q. I have one final question. Please turn to page 67 of Exhibit No. 1, and also page 63, and your Exhibit No. 12.

A. Could you repeat that again?

Q. Okay. It would be page 67, page 63 and your Exhibit No. 12. As I recall, you didn't testify concerning this Table XVI on page 67, is that correct?

A. Right.

Q. On that page you show a project life on the bottom line of five years, correct?

A. Right.

Q. On your Exhibit 12, you're showing a

producing life of seven years?

A. Right.

Q. And then on Table XII, page 63, starting in December 89, or probably, to be more accurate, 1990.

How do you reconcile what appears to be the producing life of this field, as I understand it? Table XII has the period from 1990 to 1998, Table XVI has five years, and then Exhibit 12 has seven years.

A. Again, it goes back to whether--the actual economic runs and cutting off based upon an operating economic limit. Instead of changing operating expenses or shutting down unit operations and then continuing on with producing the field, the economics didn't include that additional oil that would be produced after that. It strictly included what we would have for unit operations.

Q. All I'm saying is, the point I'm trying to make and the question I would like to get answered is, doesn't a five-year life versus a seven-year life or a nine-year life change the economics of the waterflood?

A. Actually, it would change some of the economics slightly, but with the magnitudes that we're talking about, there's not really an appreciable difference.

Q. Five years doesn't make any difference

compared to nine years? Is that what you're saying?

A. Basically I think we're composing the five years to the seven years. The nine years is what we scheduled protection at for under the continued waterflood injection scenario. That was not the actual economic life of the injection project.

MR. PADILLA: I think that's all I have, Mr. Examiner.

EXAMINER STOGNER: Thank you, Mr. Padilla. Mr. Kellahin, any redirect?

MR. KELLAHIN: No, sir.

EXAMINER STOGNER: Are there any other questions of this witness?

MR. MORROW: I've got one.

EXAMINATION

BY MR. MORROW:

Q. The exhibit, page 51, 38 and 46. The question I had concerned the exclusion of why productive portions of the reservoir were excluded from the unit area. In Sections 10 and 3 and 4 and 5 there were some exclusions of small amounts of pay.

A. Okay. We originally had a larger unit boundary set up. And then, in our discussions with the BLM, they requested that the tracts with less than--which were less--cut less than 50 percent by the

zero contour line, would not be included in the unit.

Q. How would that affect Tract 3 in Section 10 and the one in Section 4?

A. It basically reduced the pore volume attributed to that tract.

Q. You included a part of that tract but didn't include it all. I wondered why you did that. Did the BLM want you to exclude that also in 10 and 4?

A. Yeah. We originally had a larger unit boundary that encircled the entire zero line. And then, in conversations with the BLM, they asked us to reduce the actual unit boundary to what it is now.

Q. On Exhibit 9, I didn't follow that calculation.

A. Okay. On Exhibit 9, basically what I did was take the area, the whited-out area surrounding the Corbin Tracts 6 and 7, and planimetered back on the actual pore volume map. I planimetered the value of the pore volume that would be in that area, or planimetered the pore volume map to come up with a pore volume that would be in that area.

Q. That was the 354?

A. Right, that was the 354.6 acre-feet. That's porosity acre-feet.

Q. What was the .053?

A. That was the secondary recovery factor that we had come up with for the unit.

Q. Can you explain that a little more?

A. That's the ratio of the secondary reserves, strictly waterflood reserves, to the total oil in place.

Q. Where will the fresh water come from, that Ogallala water?

A. There are currently some fresh water wells in this area that are not producing, and we plan to go back in and run some pumps in and obtain our fresh water from those wells.

Q. I understood there weren't any fresh water wells.

A. There are no currently producing fresh water wells.

MR. MORROW: That's all I have.

EXAMINER STOGNER: Any other questions of this witness? He may be excused.

Mr. Kellahin?

MR. KELLAHIN: I would like to call Mr. Charlie Dickenson, please.

CHARLES E. DICKENSON

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

EXAMINATION

BY MR. KELLAHIN:

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

A. Yes, sir. My name is Charles E. Dickenson. I'm a member of the land department, OXY USA, Inc., formally Cities Service, succeeded by acquisition, OXY, USA, Midland, Texas.

Q. Mr. Dickenson, on prior occasions have you testified as a petroleum landman?

A. Yes, sir, but not as to a Statutory Unitization Act.

Q. In discharging your responsibilities to your company as a petroleum landman, have you been involved with the other working interest owners in this proposed unit in an effort to obtain their voluntary participation?

A. Yes, sir.

Q. Have you been the primary employee responsible for tabulating and determining the interest of the overriding royalty and working interest owners?

A. The final consummated figure, I would respond affirmative. I, like Mr. Taylor, came back to Midland after a hiatus in January, and I inherited the

unit, but, yes.

MR. KELLAHIN: We tender Mr. Dickenson as an expert petroleum landman.

EXAMINER STOGNER: Are there any objections?

MR. PADILLA: No objections.

EXAMINER STOGNER: Mr. Dickenson is so qualified.

Q. Mr. Dickenson, let me direct your attention to what is marked as Exhibit No. 14. I believe it's in the black book if you've got one available to you?

A. Yes, sir.

Q. Describe that for us. What is it?

A. That is a unit agreement which was sanctioned by the preliminary meeting with the BLM, primarily Armando Lopez and his engineering aid, at the initial onset of this unitization, and it subscribes both to the federal leasehold position which we hold in excess of 90 percent, and also meets the Mineral Leasing Act in the statute. So, therefore, to the best of my knowledge, it subscribes to the form as far as the unit itself.

Q. Attached to the form are a series of exhibits. Have you reviewed those exhibits and satisfied yourself to the best of your knowledge that

those exhibits are correct?

A. Yes, sir, I have.

Q. They are a tabulation of the various leases and the interest within those leases that you propose to have committed to the unit?

A. Yes, sir, by tract, on a tract basis.

Q. Is this the unit agreement that you have circulated for consideration by the various working interest owners in the units?

A. Yes, it is.

Q. Let me direct your attention now, Mr. Dickenson, to Exhibit No. 15. Do you have that?

A. Yes, I do.

Q. What is that?

A. It's a supplementary agreement which takes the form of a UOA or Unit Operating Agreement, which sets forth the rules of operations with regard to once the unit is ratified and put into being by the working interest owners, it, likewise, would require execution and adoption.

Q. Is this a form of unit operating agreement that has received preliminary approval by the Bureau of Land Management?

A. Yes, sir, it is.

Q. Have you also circulated this proposed

operating agreement among the working interest owners?

A. Yes, sir, I have.

Q. Let's turn to the attachments to the operating agreement and look at Exhibit B-3.

A. Yes, sir.

Q. And there's a schedule attached there which shows what, sir?

A. B-3 is a by-tract basis of the participation factor as to the unit, each tract renders to the unit itself to come up to a composite of 100 percent, once all inclusive.

Q. If the Examiner desires to do so, he can look at this table, relate the working interest to the tracts and their percentage, then, in the unit?

A. Yes, sir,.

Q. To the best of your knowledge, is this accurate and complete?

A. Yes, sir, to the best of my knowledge it is.

Q. Appended to this is a proposed COPAS attachment to the operating agreement?

A. Yes, sir.

Q. And that conforms to the form utilized for operating agreements by your company?

A. Yes, sir.

Q. There's a gas balancing agreement as well?
A. Yes, sir.
Q. Are these the proposed forms that you're requesting the Examiner incorporate into the Statutory Unitization Order if he grants OXY's application in this case?
A. Yes, sir, they are.
Q. Let's turn now to Exhibit No. 16 which is not in the book. They are separate tables. Do you have that, Mr. Dickenson?
A. Yes, sir, I have it.
Q. What is Exhibit No. 16?
A. The first sheet is a summary by tract of those parties, both royalty, working interest and overriding royalty interests that have either ratified or have not ratified for one reason or another.

Attached thereto are five additional sheets which go into support that summation, by tract, individually listing the specific number of owners who have ratified and have not ratified and their respective percentages as they are calculated.
Q. What is the approximate date at which you completed this tabulation?
A. As recent as--I think, Mr. Kellahin, Thursday of this previous week we had a ratification.

Q. As of then, describe for us in summary what is the percentage of royalty owners committed on a voluntary basis to participation in the unit?

A. According to my calculations, 91 and 79/100ths, approximately, royalty interests ratified the unit.

Q. Overriding royalty interest is is what percentage?

A. The overriding royalty interest, 75.259 percent.

Q. And what is the working interest?

A. And the working interest, 93.03 plus ratification. And my calculation was a total composite of all, of approximately 92.72 percent of total, all three categories which have ratified.

Q. When we turn through this display, can you identify for us Mr. McAlpine's interest in the unit and what that percentage is?

A. Yes, sir.

MR. PADILLA: Mr. Examiner, for the record, I don't think--I would be happen to put on Mr. McAlpine to indicate that he doesn't have an interest in the wells.

MR. KELLAHIN: I apologize. My intent is to identify the Santa Fe Exploration Company

interest.

Q. When we look at that interest, what is that interest with regard to its net percentage in the unit?

A. That's reflected on page 5, Mr. Kellahin, fee acres of 80 acres, 80 gross and net acres, which contribute in the form of two fee tracts of 5 and 12/100ths percent of the total unit.

Q. So what net percentage is that in the unit itself if it's consolidated?

A. If it were consolidated into the unit, the total interests of Tracts 6 and 7-- Well, I'll go back. Maybe I don't understand your question, Mr. Kellahin, but both tracts make up, as I say, 5 and 12/100ths or actually 94 and 88/100ths are all federal leases, if I understand your directive.

Q. Let me refer back to the operating agreement and Exhibit B-3 that we just described.

A. Yes, sir.

Q. You have tabled on that display the working interest owners?

A. Yes, sir.

Q. In the far right column you have the unit percentage?

A. Yes, sir.

Q. OXY's unit percentage is 90 percent?
A. Yes, sir.
Q. Conoco's is 2.5?
A. Yes, sir.
Q. You get down to the Santa Fe Exploration Company, and what percentage interest, then, do they have? It's the entry just below Yates. It's the fifth entry on the first page of Exhibit B-3.
A. 2.008 percent.
Q. Turn now with me to Exhibit 17. It's not in the book, it will be a separate handout. Would you identify and describe what Exhibit 17 is?
A. It was a letter to OXY USA, Inc., as a firm acquiescing in our request or quest for preliminary approval of the unit as noted in the attached exhibits, dated approximately July 18 and received one day later by us, July 19. As I say, it recited preliminary approval as we were in quest of it.
Q. How do you go about obtaining final approval from the BLM for this unit?
A. It's my recollection that if one owner owns in excess of a given percentage--in this case we own 91 percent of the federal leases--we need 75 percent of the total working interest owners to ratify and approximately the same royalty interest owners to

ratify, which, according to the exhibit and the summary, so yields that.

Q. So you would submit this for final approval to the BLM? Once the Division approves the orders and you submit it for final ratification and approval, it's only later, then, that you return it to the BLM for final approval?

A. Yes, sir.

Q. To the best of your knowledge, have you accomplished all the necessary requirements of that agency for proceeding forward?

A. Yes, sir, I think we have.

Q. Let's turn now to the package of correspondence that's identified as Exhibit 18. Was it your responsibility, on behalf of your company, to contact the royalty owners, working interest owners and the overriding royalty owners?

A. Yes, it was.

Q. Identify for us what is marked as the first page of Exhibit 18.

A. The first page is dated May 10, 1990, under my signature, where I remitted a letter accompanying the feasibility study, copies of which were in the brochure I think that have been passed out, such as this, and a copy of the unit agreement so confined to

this exhibit, to the four operators to our knowledge at that point in time, apprising them of our intent or intentions to establish this secondary recovery waterflood.

Q. The next letter is a June 11th letter?

A. Yes, sir, it is.

Q. The purpose of that correspondence is what?

A. Essentially the same thing, but with regards to the unitization effort that we intended to endeavor to accomplish, but to apprise those parties specifically and particularly of a proposed meeting scheduled for June 20 at one o'clock as set forth in the second paragraph of that letter dated June 11th.

Q. Did your notice of the working interest owners' meeting in OXY's office on June 20th go out to Santa Fe Exploration Company?

A. Yes, sir, it did, and I have the certification, if necessary.

Q. Did you have indications that there were going to be interested parties that would appear and participate in the working interest meeting on June 20?

A. Repeat that.

Q. Did people call you and say they were going to come?

A. No, sir. The only call that I received was from Mr. McAlpine, who called me the morning, if I think I'm correct, the morning of the meeting and advised me that he was not in favor of the unitization and stated, in a very cordial conversation, stated his objections to it, and asked that if I would do so would I please apprise those other operators of his lack of desire to join in the unitization. I told Mr. McAlpine that I would do that.

Q. Did you have other working interest owners that came to the meeting?

A. No, sir, unfortunately no one showed up.

Q. Did Mr. McAlpine send any representative in his behalf then?

A. No, sir, he did not.

Q. There was nobody to talk to then was there, Charlie?

A. No, sir, there wasn't.

Q. All right. June 22nd, the next letter, what happened then?

A. Once again we were tracing the four parties with regard to apprising them of the meeting, the fact that it was held and no one attended, and an agenda of what the meeting was about, what we had purported to present at that point in time, and the fact that we

did expect to continue on towards the unitization efforts.

Q. Despite the fact that the working interest companies didn't come to the working interest meeting, did you send out to them, at some point, the geologic and engineering report that your company had been preparing on this project?

A. Yes, sir. In fact, it went with the feasibility initially, in the form of this booklet along with the unit agreement, to those four parties.

MR. STOVALL: The book you're referring to is the Exhibit 1 that has been used here all day?

THE WITNESS: Well, I'm sorry, I--

Q. Well, that's Exhibit 1 and has a cover on it that says July 1990, but you had sent a copy of that report, then, to these working interest owners?

A. Yes, sir.

Q. When we get down to the next letter of June 26th, what's that letter?

A. June 26th, again, was a copy of the unit operating agreement, which was the first time that it had been disseminated, as we told them in a previous letter that it would come under separate cover at a subsequent date, and we enclosed that particular UOA along with seven copies of a letter requesting their

consents and ratifications to that agreement, if they were so inclined.

Q. This is the operating agreement that you have discussed this afternoon as Exhibit 15, I believe?

A. Yes. Yes, sir, it is Exhibit 15.

Q. Then we go past the list of addressees for that letter and you get to another June 26th letter. What was the purpose of that letter?

A. Well, in essence they were sent simultaneous, Mr. Kellahin, both the operators and the royalty interests and the overriding royalty interests, apprising them of the fact that we proposed the unitization of the field.

Q. To the best of your knowledge, have you made a good faith effort to obtain voluntary approval of the proposed unit from the royalty, the overriding royalty and working interest?

A. Yes, I have.

Q. To the best of your knowledge, are you working with an accurate and reliable list of people to contact?

A. Well, for all practical purposes, yes, sir.

Q. There are some addresses, I assume, that still are not quite correct, but at least the

individuals have been identified?

A. That is correct, sir.

MR. KELLAHIN: That concludes my examination of Mr. Dickenson. We move the introduction of Exhibits 14 through 18.

EXAMINER STOGNER: Are there any objections?

Exhibits 14 through 18 will be admitted into evidence.

EXAMINATION

BY MR. PADILLA:

Q. Mr. Dickenson, if you'll refer, please, to Exhibit B-3 to the Unit Operating Agreement.

A. Yes, sir, I have it with me.

Q. In response to a question from Mr. Kellahin, you indicated that Santa Fe Exploration Company had a 2.00833 percent interest in the unit, is that correct?

A. That is correct, sir.

Q. What is the reason for pointing out a 2.00833 percent?

A. Nothing more than that is the tract participation percentage, Mr. Padilla. I think I fielded Mr. Kellahin's question. I think my response to his question, maybe I responded to Exhibit B-2

though he asked me about B-3. Exhibit B-2, there was an exhibit attached thereto showing the tract participation, 1 through 7, and on B-3 was an exhibit by working interest owner respectively, as to their percentages.

Q. The thing I'm trying to get at, this showing of percentage of 2.00833 indicates that this is not a very large percentage in the unit?

A. I would agree with that statement. I think I stated also that there were only 80 fee acres in total, Mr. Padilla, if I'm correct.

Q. Does this also indicate that we shouldn't care too much about this interest because it's a small interest?

A. No, sir. If I gave that response, that was erroneous. I certainly didn't mean to. I think all are important regardless of the denomination of percentages. I didn't mean to demean; but if I did, I would correct that of record.

Q. Of these owners shown on this Exhibit B-3, how many are contributing wells to the units?

A. How many are contributing wells? Well, as discussed previously, Tracts 6 and 7, Certainly Tracts 2b, 2a.

Q. Who owns 2b and 2a? Is that OXY?

A. OXY.

Q. Let me ask the question this way. Is there anyone else other than Santa Fe Exploration and OXY who are contributing wells to the unit?

A. Of course, there are wellbores being contributed. Whether they go, it depends on the inventory at that point in time, Mr. Padilla. There are other wells, if that's the question.

Q. Yes, that is the question.

A. Yes, sir, there are other plugged wellbores.

Q. They're plugged wellbores, not producing wells?

A. Not producing wells to my knowledge, that's correct.

Q. In looking at the Unit Agreement and the Unit Operating Agreement, when it comes to voting rights and that sort of thing, as a practical matter, OXY's going to outvote anybody through its one vote, isn't that true?

A. As to the percentage--I don't know that the one vote stands--but, yes, sir, in terms of denomination, we would have a larger interest, yes.

Q. And so anything that anybody else says with regard to operations or expenditure of money, OXY can

decide that pretty much by itself just by virtue of this--

A. It would be quite decisive in that matter, yes.

Q. In terms of removing OXY as unit operator, that, as a practical matter, can't be done either, isn't that correct?

A. Well, I think a show of negligence, default, the likes of that, most assuredly they can be. If it's a prudent operation, again I think the numbers speak for themselves.

Q. If it requires a vote, it still requires a vote, isn't that correct?

A. Save and except the negligence and proof of that, I would agree, yes, sir.

Q. And I'm not--

A. Misconduct and likes of that, I wouldn't affirmative that response. Save and except that, yes, sir.

Q. Mr. Dickenson, who drafted the Unit Agreement and Unit Operating Agreement?

A. The land department, Mr. Padilla. I had a great hand in it. I worked the Permian Basin in the far west, so I won't say that I did every item on it, there are other objectives, but I supervised that

portion of it, yes, sir. The part that I didn't do I certainly sanctioned.

Q. This is not a standard federal Unit Agreement?

A. To my knowledge it is. I think it meets the-- When you say "standard," from a legal standpoint I won't respond to that, Mr. Padilla. To my knowledge it met the requirements as evidenced by Mr. Lopez' preliminary approval letter, and it was discussed with him in person. There were no objections raised as to form or any part of its content other than they were reasonable objections from the federal side as to what they would like deleted.

Q. Except for that 80-acre fee tract, there are no other royalty interest owners besides possibly the overriding royalty interests?

A. No, sir, I would beg to differ. There are other royalty owners in some of the federal tracts and overriding royalties, if that is the question.

For example, in tract 1a there's an 8th burden against it by the USA. There's also 11 and a half percent of overriding royalties, and that pretty well is indicative of all tracts. Again, two or three may be the exception. The Conoco tract is burdened

with more than just a straight aid, so--

Q. My question was, aside from the overriding royalty interest owners on the federal tracts, the United States has all of the royalty except for this 80-acre tract on which the Santa Fe--

A. That is correct, yes, sir.

Q. Let's turn now to your COPAS section of the Unit Operating Agreement and let me ask you about the overhead rates as shown on that page 4 of the COPAS.

A. I have it, sir.

Q. How did you derive the figures of $7,350 for drilling the well and the producing well rate of $735?

A. Mr. Padilla, within our organization that figure is tendered to us by the joint interests. If it's a company-operated facility proposal, then it's remitted to us or given to us by the F & A, the administrative people that monitor the bills and the likes of that. So, in response, that figure is not a conjectured figure by the land department, it's an actual figure that's handed to us by our administrative people.

Q. That is an OXY figure, though?

A. Yes, sir, most assuredly for an OXY-operated well. Again, in its defense, whether

there's a defense needed I can't say, we certainly look at the Ernst and Whinney publication which is certainly less than scientific, I think--that's cause everyone knows that's a pool that's taken based on what any given party is willing to concede that their operating rates are--and they'll field any and everybody's responses. In fact, they come around asking you to divulge that information.

Again, I don't know whether anybody's operating rates are scientific. Again, in this response, in its defense, the only thing I could say, the $7,350 and the $735 is based on a fixed basis which does include the first line supervisor capacity, where most overhead rates and producing rates generally are billed on top of that, as you well know. In fact, I think most independents would, perhaps, favor that. So, that being the differential in the two, to my knowledge, Mr. Padilla. But again, that is our rate, yes, sir.

And we're prepared, I might add that we do it in every negotiation, if it's a farm out or what have you and we're into an operating agreement or a back-in situation, we've had various and sundry objections. And any time we're amenable to negotiating a rate with anybody and we're sort of

prepared to accept whatever might be given to us if, in fact, that is determined to be in excess of the going rate.

I think the only thing that I might say again in its defense, I attended a meeting with an Amerada unit very close just this past week, and there was conjecture from $7,000 down to $4,000 and no definitive agreement was reached at that point in time on a much, much larger unit. So I can't--

Q. These figures apply to injection wells as well, correct?

A. Well, it applies, yes, sir. The drilling well rate does not. I think you've got a one-time drilling rate on an injector well as if it were a producing well, so we have a one-month one-time charge on that injector-type well.

Q. So, injector wells and producing wells are treated the same under this overhead charge?

A. As a producing well, a one-time charge, yes, sir.

Q. Are there any other charges over here that are not included in the $1,500 estimated operating expense per well that Mr. Taylor testified to were here?

A. Well, I haven't confided or had any

discourse with Mr. Taylor on the $1,500, and I haven't been privy to all the operational or engineering meetings that they've had, so that figure was somewhat new to me, too. So I can't respond to that.

I think the COPAS pretty well addresses the direct charges and what is covered and what isn't. The one that looms out would be the technical salaries or the cost of those professional consultants who go out on the property, as opposed to rendering a service with regards to the operation within the property or in the property. So, aside from that, though, I think it's pretty self-explanatory.

Q. What you're saying is, that technical service fee is not included in the $1,500?

A. That would be my interpretation of that, sir.

Q. Let's turn now to, it's Exhibit B-1 of the Unit Operating Agreement. I'm sorry, I think it's the new Exhibit No. 16. As I understand it, the checkmarks indicate the people who have ratified, is that correct?

A. That is correct, yes, sir.

Q. Turning to the Santa Fe Exploration tract, you have LaRue and Muncy and Marbob Energy Corporation as having joined, is that correct?

A. That is correct, sir.

Q. You have received no communications from any of these people or companies indicating or saying they're rescinding their approval of the unit?

A. Do I have that, Mr. Padilla, no, sir. The answer to your question would be negative. I have a letter from Mr. McAlpine who addressed all working interest owners with regards to, at that point, a preferential right, which they asked if we were amenable to purchasing the properties, any and all working interest parties. We said we would be, we would be affirmative to that and we did provide offers to each and every party, which was inclusive of Marbob, LaRue and Muncy.

They ratified. They had told us in advance they were going to ratify and/or sell if we were amenable to extending our offers and provided they were equitable. In each instance they were. I talked to Mr. Charlie LaRue, I talked to a party by the name of Mr. Miller at Marbob. I know Mr. LaRue. I do not know Mr. Miller, other than having talked with him when I was in the Oklahoma City office in the midcontinent region.

Q. In your opinion, can they do both? Can they sign and sell at the same time?

A. No, sir, they cannot, and neither did they do that. I might clarify that by stating that we had ratifications in advance of their acceptance offers. When I got the advice that Mr. McAlpine exercised his preferential right, I had the Marbob in hand.

As for LaRue and Muncy, I had a call from Mr. LaRue just last week. I think Mr. McAlpine has had some conversations with him. He, likewise, was fully content in stay in a ratified position, however, he would also choose to sell and divest himself, if we were amenable to that, also, but he would take whatever that situation would be. But they were not done in concert, if that is the response you're looking for. They were done separate and apart.

Q. Did you buy an interest owned by Dallas McCasland to be included--

A. No, sir, I didn't. I was in the midcontinent region again, out of pocket. I was in Midland for seven or eight years, moved back to Oklahoma City for three years, and during the course of that I learned first I might add from Mr. McAlpine. When we had our first cordial conversation, he apprised me that he tried or attempted to divest his property to OXY USA--I think it was OXY at that time. I don't think it would have been Cities. At

that point in time OXY was the parent--he apprised me of that, of his conversation with an engineer--at that point in time Mr. McAlpine couldn't remember, and I think I recanted to him that perhaps it could have been a Mr. Hunt. He was the manager of engineering, he is the manager, after I came back from Oklahoma City in January of 1990, and that was the first knowledge I had of that.

Q. Did you buy four wells from Mr. McCasland?

A. We bought Mr. McCasland's property, Mr. Padilla, as it relates to the northeast quarter of Section 4, and beyond that, I can't tell you. I've heard dollar amounts, but I can't tell you amounts. A producing well, looking at it, I would say we bought three. It looks like there are three wellbores. That may be an error. I'm judging by what I'm reviewing here.

Q. You haven't heard of any dollar amounts that were paid?

A. Yes, sir, I have and I stated that, but as to concuring or affirming or confirming, I cannot do that, sir. I had no part in it. I was totally unaware until Mr. McAlpine told me. I went immediately to Mr. Hunt, and apprised him of my conversation with Mr. McAlpine, and he echoed the fact

that, yes, an offer had been made to Mr. McAlpine at that point in time.

Q. What dollar figure did you come to?

MR. KELLAHIN: We would object, Mr. Examiner. I think I have been very patient in this line of questioning. It's not relevant to the proceeding here.

The question of whether OXY has acquired other interest in this unit some years ago is not germane to your decisions in this case. The bottom line is, the parties can't agree on Mr. McAlpine or Santa Fe Exploration's voluntary participation in this unit. The parties are unable to reach an agreement on a sale price. It is like the typical pooling case where the parties can't decide. I don't know that you need to know the details of why they can't; it's simply that they cannot, and this is not relevant to your decision.

EXAMINER STOGNER: Mr. Padilla, any response?

MR. PADILLA: Yes, Mr. Examiner. I think the purchase price is entirely relevant to this proceeding as to the reasonableness of any offers that were made in the area, no different than farmout terms or no different than lease terms in compulsory pooling

cases.

If a lease term is unreasonable or farmout term is unreasonable or any kind of an assignment or any kind of a deal, the terms of a deal to assign or convey or somehow participate in an oil and gas compulsory pooling or a forced unitization is entirely relevant in order to determine the reasonableness of the offer. Certainly, the statute says that fairness and equity are considerations under a unit plan. So I think it's very material to this case.

MR. STOVALL: Mr. Examiner, I would advise you that based upon Mr. Padilla's argument in comparison to force pooling, that the Division never evaluates the quality of offers in those negotiations, it's whether there have been negotiations.

EXAMINER STOGNER: Thank you, Mr. Stovall. The objection is sustained.

Mr. Padilla?

MR. PADILLA: That's all the questions I have, Mr. Examiner.

EXAMINER STOGNER: Is there any redirect of this witness?

MR. KELLAHIN: No, sir.

MR. STOVALL: I have a couple of questions, if I may be permitted.

EXAMINATION

BY MR. STOVALL:

Q. Is there a provision in either the Unit Agreement or the Unit Operating Agreement for carrying of nonconsenting parties? I'll preface that by saying that I didn't find one as I skimmed through it?

A. No, sir, there isn't. And the only reference I would make to that would be that under the Statutory Unitization Act in 70-7, provision (F) it does say that in the event you have a nonconsenting working interest party, that they could be subject to cost, 100 percent plus 200 percent penalty. The question never came up except one of Santa Fe Exploration's working interest parties asked me would he would be exposed to that, and I said I could not answer that. There was a provision under the Act--

Q. Let me interrupt you here, Mr. Dickenson. I'm reading 70-7-7, "...and shall approve or prescribe a plan for a Unit Agreement for unit operations which shall include"--and I'll go to your paragraph (F)--"a provision for carrying any working interest owner unlimited during a net profits basis," and further down it provides, "carrying plus an amount not to exceed 200 percent."

My interpretation of that statutory

provision is that the Unit Agreement or Unit Operating Agreement needs to have that provision for carrying included in it. Would you been willing to amend the Agreement?

MR. KELLAHIN: No, sir. Mr. Stovall, we've made the conscious decision not to seek the nonconsent provisions that apply in the statute and it's been intentionally deleted from the operating agreement.

MR. STOVALL: So, in effect the nonparticipating interest would be carried at no penalty?

MR. KELLAHIN: That's right.

EXAMINER STOGNER: Any other questions of this witness? If not, Mr. Dickenson--

THE WITNESS: If I might, in response to Mr. Stovall--

MR. STOGNER: Mr. Kellahin?

MR. KELLAHIN: There's no question before you, Mr. Dickenson.

EXAMINER STOGNER: Okay. Mr. Dickenson, you may be excused.

MR. KELLAHIN: That concludes our presentation, Mr. Examiner.

EXAMINER STOGNER: Mr. Padilla, do you have a witness?

MR. PADILLA: Can I take a short break? I think I can reduce it to one. I do have one.

EXAMINER STOGNER: Let's take about a ten-minute recess at this time.

(Thereupon, a recess was taken.)

EXAMINER STOGNER: The hearing will come to order. Let's see, we wish to recall Mr. Dickenson at this time. Mr. Stovall has a question.

CHARLES E. DICKENSON

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

EXAMINATION

BY MR. STOVALL:

Q. Mr. Dickenson, you testified as to the overhead rates, and I'm particularly talking about the producing well rate of $735 and I will state that that's probably higher than the Division normally grants.

However, you did make some statement, and as I look on page 2 of the COPAS attached to the operating agreement, did I understand you correctly to say you are including, within that overhead charge, rather than as a direct charge, items which under the COPAS are normally provided for as a direct charge?

A. The reference I made was the first-line supervisory charge which normally is billed directly on most of them we found certainly by independent operators and/or smaller operators. And the point that I made was, that was inclusive of the first-line supervision. That was the distinction I attempted to make, but perhaps failed to.

Q. Are you familiar enough with the COPAS, or do you have it in front of you so I can make sure we're talking about--it's in the black book, if that helps you. If you would turn to page 2 of the COPAS.

A. Yes, sir.

Q. Page 2, I'm looking now at the direct charges on page 2 under labor, 3(a) and in the copy I've got, item number 2 is stricken. Is that the charge you're talking about, the supervisory charge--

A. Yes, sir.

Q. --that you included in the overhead?

A. Yes, sir. And the third qualification that I made, Mr. Stovall, had to do with item 3, and my reference was in the preposition--

Q. I understand that.

A. Yes, sir.

MR. STOVALL: That's all I have of this witness.

EXAMINER STOGNER: Any other questions? If not, you may be excused.

Mr. Padilla?

MR. PADILLA: Mr. Examiner, at this time we'll call Bill McAlpine for our portion of our case.

WILLIAM A. McALPINE, JR.

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

EXAMINATION

BY MR. PADILLA:

Q. Mr. McAlpine, have you previously testified before the Oil Conservation Division as president of Santa Fe Exploration Company?

A. I have.

Q. And have your credentials been accepted in that capacity?

A. Yes.

Q. Are you familiar with the issues as they relate to Santa Fe in this case?

A. Yes, sir, I am.

Q. Does Santa Fe represent other working interest owners for whom Santa Fe operates on the Tracts 6 and 7 of the proposed unit?

A. We do.

MR. PADILLA: Mr. Examiner, we would tender

Mr. McAlpine as a witness, as a managerial witness for Santa Fe Exploration.

EXAMINER STOGNER: Are there any objections?

MR. KELLAHIN: He is tendered as an expert witness in any particular aspect, Mr. Padilla?

MR. PADILLA: No, sir; as a practical oil man.

MR. KELLAHIN: No objection.

MR. STOVALL: How about as manager of the company?

MR. KELLAHIN: Oh, that's fine. He wasn't proposed to give geologic or engineering testimony? Is that right.

MR. PADILLA: No.

EXAMINER STOGNER: Let the record so show his qualifications.

Mr. Padilla?

Q. (BY MR. PADILLA) Mr. McAlpine, first of all I would like for you to identify what we have marked as Exhibits 1 through 7. I would like for you to briefly identify each of those exhibits and then I will come back and address each of them.

A. Exhibit No. 1 is a letter from Santa Fe Exploration Company executed by me, to OXY USA, to the

attention of Mr. Charles Dickenson. Basically--

Q. That's all it is, is that correct?

A. Okay.

Q. What's Exhibit No. 2?

A. Exhibit 2 is a letter dated July the 20th from Santa Fe Exploration executed by me, to OXY, USA, to Mr. Charles Dickenson.

Q. Okay. And attached to that is another letter. Is that a letter from OXY to you?

A. Yes, it is, dated July 16th.

Q. What's Exhibit 3?

A. Exhibit 3 is a letter from Santa Fe Exploration executed by me to the attention of Mr. P. N. McGee, land manager.

Q. Okay. What's Exhibit 4?

A. Exhibit 4 is a letter to Santa Fe Exploration from OXY USA, executed by Mr. Charles Dickenson.

Q. Okay. What's Exhibit No. 5?

A. Exhibit No. 5 is the survey results, the 1989 Ernst and Whinney regional drilling and operating charges for the West Texas/Eastern New Mexico area.

Q. What's Exhibit 6?

A. It's a letter from Buddy Sipes, that has an interest in the Corbin #1 Well.

Number 7 is an AFE for a water injection well in the south half of Section 3 of 18/33, Lea County, New Mexico.

Q. Mr. McAlpine, were these exhibits compiled understand your supervision?

A. Yes, they were.

Q. Okay. Let's go back now and have you tell me or give the Examiner a historical background of Santa Fe's involvement in this waterflood and unit project.

MR. KELLAHIN: Excuse me, Mr. Examiner. Are you tendering these exhibits for introduction at this point?

MR. PADILLA: No.

MR. KELLAHIN: I will have objections to some of those exhibits. I also have an objection to Mr. McAlpine discussing before the Examiner failed efforts to reach a settlement of sale or some solution outside of the hearing process because it's irrelevant, and we would ask that the examination of Mr. McAlpine not include that topic.

MR. PADILLA: Mr. Examiner, I assume that Mr. Kellahin is really addressing himself to the contents of Exhibits 3 and 4. The contents--

MR. STOVALL: Mr. Padilla, let's not worry

CUMBRE COURT REPORTING
(505) 984-2244

about which exhibits he's objecting to until such time as he actually makes objection. Please don't take our time speculating. Respond to the testimony objection, if you would.

MR. PADILLA: All I'm saying is that our proposed testimony will include information concerning Santa Fe's attempts to resolve the controversy with OXY. It is usually customary to include correspondence in this type of hearing, and they have always been admissible as far as I understand.

MR. KELLAHIN: Two different topics, Mr. Examiner. One is to limit the scope of inquiry with this witness in his testimony, and none of the exhibits have been submitted for evidence.

MR. STOVALL: Mr. Padilla, to simplify this, what is going to be the thrust of Mr. McAlpine's testimony?

MR. PADILLA: The thrust of his testimony is why he doesn't want to be involved with the unit operation or the unit plan or the water injection project.

MR. STOVALL: Are you willing to limit the testimony to that and not discuss any negotiations between OXY and Santa Fe with respect to acquisition of Santa Fe's interest in the wells?

MR. PADILLA: No, sir. I assumed that I would--I still want to introduce evidence of Santa Fe's attempt to enter into what Santa Fe believes is a reasonable deal with OXY, and I would prefer to have a ruling that it's inadmissible rather than voluntarily limit my examination of Mr. McAlpine to that particular issue only.

MR. STOVALL: Mr. Examiner, I think this is along the same lines as the discussion with Mr. Dickenson, and to the extent if Mr. McAlpine wants to say there were some negotiations, I would say that that's probably fine; but as far as going into any details of negotiations, again the Division does not evaluate the quality of proposals in these types of cases. Again, we don't determine whether it's a good offer or a bad. So I would suggest that any discussions as to specific offers and prices and valuations is not relevant as to whether or not--

MR. PADILLA: Well, let me offer this as a proposal, Mr. Stovall. Let me proceed to examine Mr. McAlpine, and at the time that Mr. Kellahin feels it's necessary for him to object, I would prefer to have a ruling on the proffered testimony.

EXAMINER STOGNER: Well, let's try that.

Q. (BY MR. PADILLA) Mr. McAlpine, when did

you first become involved in the proposed unitization of the Santa Fe tracts in OXY's proposed unit?

A. The first contact that was made, an engineer contacted me approximately two to three years ago doing some research, as I recall, on a unit of the Queen in this area.

Q. And that was a couple of years ago, you say?

A. Well, my memory is faulty, but as I recall it was more like three years ago; but I stand to be corrected.

Q. Can you tell us generally what your stand has been with regard to statutory unitization of the Santa Fe tracts in the proposed unit?

A. Well, we have resisted and objected to it because we feel like for Santa Fe and our working interest owners we would never receive a net penny of profit in it.

If you look at the examples demonstrated here today, with $1,500 a month operating expenses, not taking into account the $730 per month--or whatever that figure is that they proposed that is not included in that $1,500--and then you also take into account the $7,350 drilling rate that can be charged for completion rigs, and knowing a little bit about

when you have 24 wells out there that you're going to have a completion unit out there doing something all the time--

Q. How do you know this? Do you have something to rely on experience in order to make that determination?

A. We have some waterfloods in the Queen.

Q. Can you tell the Examiner where it is that you have those waterfloods?

A. Well, the Langley Jack in Lea County is one. Consequently, we would prefer to give them one of the wells to use as a water injection well or, if our property is going to be condemned which, apparently, it may be, to get at least the price that it would cost to drill two water injection wells.

Q. What is that price?

A. Well, the engineer in our office has done an AFE to do a water injection well on these two locations at $209,000 apiece. Now, that is new equipment, and it may be--a previous witness here has testified that three water injection wells in the same location would cost $330,000 plus the amount they would save on converting four wells at $30,000 apiece, which is $120,000, which is $450,000 divided by three, would be $150,000.

And so we certainly have some flexibility in that, but we would hope that our property not be condemned without some just compensation.

Q. Have you determined what that just compensation is?

A. No, but I don't think they want me to answer your question.

Q. No one has objected to my question.

A. Well, a water injection well, we believe would cost about $200,000. And if they're going to receive two wells from us that they can use either as producers or water injection wells, we would be happy to accept $150,000 per well and receive nothing for whatever oil might underlie our 80 acres.

Q. Mr. McAlpine, did you read the proposed Unit Agreement and the proposed Unit Operating Agreement and determine or reach a decision as to whether or not you wanted to join as a result of reading those agreements?

A. Well, the principal thing that we object to is in the COPAS, the operating rates. In a project like this, you're going to have lots of work going on as I've already stated, and I think it's more typical above 5,000 feet. I think the average depth of the Queen here is around 4,200 feet. I imagine that

around $3,000 to $3,300 per month or $3,500 perhaps at the most for a drilling well and $300 to $350 a month might not be more appropriate for a producing well.

Q. What do you base those rates on?

A. Well, on the 1989 survey by Ernst and Whinney.

Q. Is that in the form of Exhibit 6?

A. I think it's marked Exhibit No. 5.

Q. And you've already testified to the bottom line of Exhibit No. 7, as the cost for drilling the water injection well, is that correct?

A. Yes, sir.

Q. Were you present when the OXY engineer testified as to the cost for drilling an injection well?

A. Yes, sir.

Q. Do you agree with the costs expressed by that engineer, as far as your experience is concerned?

A. Well, we hope that we did a good job of doing the AFE on a realistic basis, and we certainly weren't trying to inflate it. We think that normally the AFE rates that we come up with are very competitive. So, I suspect the actual rates for doing that would be closer to the AFE our engineer specifically did for this.

Q. Mr. McAlpine, in your analysis of the engineering report and the various documents that were sent to you by OXY, USA, did you arrive at any conclusion that the proposed unit was an advantage or benefit to Santa Fe Exploration Company?

A. Well, we felt like that the expenses of operation and whatnot, taking that into consideration as I previously testified, that the bottom line would be that we would not net a penny out of the thing. We would be trading a lot of dollars. And that's not the business we're in. Sure, we're all trying to make oil, but the bottom line is we're trying to make dollars and a profit.

Q. And, in your study of this matter, you've reached the conclusion that you're not going to make any money, is that it?

A. That's my opinion.

Q. If you had money to invest in this project, what would you do with money? Would you invest it somewhere else instead of investing it in this project?

MR. KELLAHIN: Objection, irrelevant.

MR. STOVALL: Agree.

Q. Have you figured a rate of return for your investment in this project?

A. No, I have not.
Q. But your study simply concludes that it would not be an advantage, because of economics, to participate in this project?
A. That's correct.
Q. Let me ask you to be more specific as to why you sent your Exhibit No. 1 to OXY USA?
A. Well, the reason I wrote the letter was that after my conversation with Mr. Dickenson which, as he described was very cordial and that was exactly the way it was, the next piece of correspondence I received did not indicate our objection to be included in the unit nor our willingness to give them one of the bore holes was discussed. It may have been and just not reported in his next correspondence, but I gathered it had not been discussed and that's why I wrote the letter.
Q. Was this an option that you gave to OXY, to give them one of the wellbores?
A. Well, that was one of the suggestions that I made, yes.
Q. What was the result of that suggestion or offer?
A. The result is that we're sitting here today.

Q. Let's go on to Exhibit No. 2 and have you tell us what that contains.

MR. KELLAHIN: I object to the reference to the exhibit. He's simply circumventing my potential objection to the exhibit. It talks about suggesting a purchase predicated on some other arrangement with Mr. McCasland. I object to both the testimony and to the exhibit.

EXAMINER STOGNER: Mr. Padilla, I'm going to sustain his objection. Mr. McAlpine said "we're here today" and that's exactly where we're at today, so I would ask you to move along to another topic at this point.

MR. PADILLA: Well, to make it short, Mr. Examiner, I believe the next Exhibits 2, 3 and 4 contain or will probably meet the same objection, so I would, at this point, like to make an offer of proof as to what the contents of those three exhibits are.

MR. KELLAHIN: The exhibits speak for themselves. I don't believe there's any offer of proof necessary. We have objections to Exhibits 2, 3 and 4.

MR. STOVALL: Mr. Examiner, I might suggest that with respect to Exhibits 2, 3 and 4, we've already stated that we don't evaluate the quality of

offers in negotiations, merely the presence of them, and these exhibits may be admissible for the purpose of showing in fact there were some discussions between Santa Fe and OXY, if you wish to admit them for that purpose.

I think could be admitted with the recognition that the relevance of the specifics of the offers, there is no relevance to that as far as the determination here. It would be your decision at this point.

EXAMINER STOGNER: Thank you, Mr. Stovall.

Mr. Padilla, I will admit Exhibits 1, 2, 3 and 4 for the reasons that Mr. Stovall did state, and ask that you continue on.

MR. PADILLA: As I understand, there was no objection to Exhibit No. 1?

MR. KELLAHIN: No objection.

EXAMINER STOGNER: So Exhibit 1 is admitted into evidence, still.

MR. STOVALL: Let's clarify the record at this point. Mr. Padilla, to help things, you talked about Exhibit No. 5, I believe, the Ernst and Young study. Would you like to offer that at this time?

MR. PADILLA: Let me offer Exhibit No. 1, Exhibit No.--

MR. STOVALL: Well, 1 through 4 are in. What about Exhibit 5? Let's do 5.

MR. PADILLA: I would offer all exhibits, 1 through 7.

EXAMINER STOGNER: Mr. Kellahin, any objection?

MR. KELLAHIN: Exhibit No. 5, Mr. Examiner, talks about drilling well rates. There appears to be no foundation laid to demonstrate that this has been tabulated based upon water field plan operations or injector wells, and with that reservation I would object because I don't think this document speaks to this specific type of operation required here, and for that reason we would object.

Exhibit 6 is Mr. Sipes' letter. It's hearsay; it's not admissible. If Mr. Sipes cared enough he could have come and talked about it.

The next exhibit is apparently this AFE on an injector well, and I have no objection to No. 7.

EXAMINER STOGNER: As far as Exhibits 5 and 7 go, they will be admitted.

Mr. Padilla, do you want to respond to Exhibit 6, to Mr. Kellahin's objection?

MR. PADILLA: Mr. Examiner, I think the exhibit is relevant for showing that Tract 6, which

carries the 1.20982 percentage, is not getting a fair percentage.

I think the exhibit speaks to what we have pointed out with regard to the core space insofar as 35 percent is assigned under the participation formula. I think it's relevant for what it says.

MR. KELLAHIN: Well, it is obviously relevant. Mr. Buddy Sipes is a recognized engineer, has testified before this Division on occasion. The objection is not to relevancy but to hearsay. Mr. Sipes is not here to talk about his letter.

MR. PADILLA: In terms of hearsay, Mr. Examiner, this Division has always relaxed the rules of evidence and has allowed hearsay consistently.

MR. STOVALL: Mr. McAlpine, can you testify that Santa Fe Exploration received this letter in the ordinary course of business?

THE WITNESS: Yes, sir.

MR. STOVALL: And this is a copy of a letter you received?

THE WITNESS: Yes, sir.

MR. STOVALL: Recognizing, again, that there may be some question as to the value of the evidence, as to exactly what it means, Mr. Examiner, I think we can properly admit it under our relaxed rules

of evidence as Mr. Padilla has pointed out.

EXAMINER STOGNER: Thank you, Mr. Stovall.

Mr. Kellahin, your objections are so noted.

Exhibit 6 will be admitted into evidence at this time.

MR. PADILLA: May I proceed at this time?

EXAMINER STOGNER: Mr. Padilla, you may.

Q. (BY MR. PADILLA) Do you have anything further to add to your testimony, Mr. McAlpine?

A. No, sir, I don't.

MR. PADILLA: That's all I have, Mr. Examiner.

EXAMINER STOGNER: Thank you, Mr. Padilla.

Mr. Kellahin, you may cross-examine.

MR. KELLAHIN: Thank you, Mr. Examiner.

EXAMINATION

BY MR. KELLAHIN:

Q. Mr. McAlpine, let me direct your attention to your Exhibit No. 1 in which you communicate to OXY your willingness to contribute one of the wellbores for waterflood operations.

Am I correct to understand that you were willing to take one of the two wells, either the well on Tract 6 or Tract 7, and contribute that for conversion for injection?

A. Yes. What I had discussed with the engineer originally, and I thought that was on the tract he was working on because he called several times over a period of a year or two, was it seemed as though for the pattern that they wanted to work, our Well #1 would suit them best.

Q. When we look at this pattern, then, and I look at Well #1, that would be in Tract 7?

A. Yes, sir. It's the one that they propose as a water injection well.

Q. Is that Tract 7 a 40-acre tract that is a fee lease?

A. Yes, sir.

Q. Is Tract 6 a 40-acre tract that is on a separate fee lease?

A. Yes, sir.

Q. The two tracts each on 40 acres have not been consolidated in any manner?

A. No, they have not.

Q. If the interest owners of the well in Tract 7, which has the producing well you propose to contribute to the unit, that lease is currently being held by production from that well, is it not?

A. Yes, sir.

Q. Is that lease being held by production from

any other well?

A. No, this same question came up, and I was advised if that well were contributed to OXY and they made it a part of their unit, which I assumed that they would, then it would be held by their unit even though it was used as a water injection.

And I'm sorry, I also said "under certain conditions for your use," and what I meant there was, that allowing us to put any produced water out of our remaining well back into their system, which would not only help us but hopefully help them too, allowing them to receive water that they wouldn't have to buy.

Q. Unless that 40-acre tract is committed to the unit, then, there would be nothing to hold that lease and it would expire?

A. That's correct. I was assuming that they would take it into the unit.

Q. If that assumption works and that 40-acre tract comes in, then we have the remaining Tract 6 that has a producing well and is offset, then, on three sides by injector wells from the unit?

A. Yes, sir.

Q. Have you had any engineering studies made to determine whether there is equity established in the waterflood by the accomplishment of that

arrangement?

A. No, sir, we have not.

MR. KELLAHIN: I have no further questions.

EXAMINER STOGNER: Are there any other questions of this witness? If not, Mr. McAlpine may be excused.

MR. STOVALL: Mr. Taylor is the engineering witness? I would like to ask him one question, if I might.

EXAMINER STOGNER: Let the record show Mr. Taylor is being recalled to the stand.

ARCHIE R. TAYLOR

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

EXAMINATION

BY MR. STOVALL:

Q. Mr. Taylor, in doing your economic evaluation and coming up with your net discount of cash flow to the tracts, did you take into account operating costs in operating the unit?

A. Yes, I did. I mentioned previously that I put in $1,500 per well per month for operating wells. I also included $350 on a per-well basis, which would

be $350 per well per month for a waterflood plan, for a total of about $1,850, divided out over the full 25 wells.

Q. $1,850 per well?

A. For the full 25 wells.

Q. Per month, operating cost, was the number you used--

A. Right.

Q. --as a monthly expense figure when you did your cash net discounted cash?

A. Yeah. The total monthly cost came out to be approximately $46,000 for the economics.

Q. You heard Mr. McAlpine testify that he was concerned that after those costs were deducted there wouldn't be any profit left for the interest owners in his tract, is that correct?

A. Right.

Q. Am I correct in hearing you say that in doing the calculations, you believe your numbers show that there is, in fact, a net gain to all tracts, including Santa Fe Exploration tracts?

A. Yes.

MR. STOVALL: Nothing further.

MR. KELLAHIN: May I follow-up on Mr. Stovall's questions?

EXAMINER STOGNER: You may.

EXAMINATION

BY MR. KELLAHIN:

Q. The basis for that conclusions, Mr. Taylor, is that found in OXY's Exhibit No. 7?

A. Yes. The final column on the right shows the net incorporating those costs previously talked about in doing the economics and using the production schedule we previously talked about.

MR. STOVALL: That's net of the costs then, right?

THE WITNESS: It shows the net of the costs, and net of investment.

MR. STOVALL: Okay. That clarifies what I thought he had tendered before.

MR. KELLAHIN: Thank you.

MR. PADILLA: I have a question.

EXAMINATION

BY MR. PADILLA:

Q. Mr. Taylor, does that include those costs, the overriding burdens on the lease?

A. For Tracts 6 and 7 it does. I assumed a .875 net revenue interest for the other tracts.

Q. And you've shown a 75 percent net revenue interest for the Santa Fe leases?

A. It varied slightly. One was about--I used about a .79 and another one was about a .8.

MR. STOVALL: You used actuals? Is that what you're saying?

THE WITNESS: Actual to my understanding, yes for those two specific tracts.

MR. PADILLA: I have nothing else.

EXAMINER STOGNER: Mr. Taylor, you may be excused.

MR. STOVALL: Mr. Kellahin, I would like to go back and address a point I addressed earlier with respect to the carrying of working interests, and again I think you're probably familiar with the statutory provision. I'm not sure by omitting the provision for carrying exactly what that result is.

Do you believe that, in fact, by omitting any provision for carrying interest that that enables the operator to carry that interest and recover 100 percent of the costs of carrying the interest, or should that be specifically provided for as the statute would indicate? What is your opinion with respect to that?

MR. KELLAHIN: If you're talking about the risk factor component?

MR. STOVALL: I'm not talking about a risk

factor component. I'm talking about recovering the actual first hundred percent of the cost.

MR. KELLAHIN: We presumed that was in the document and it should be in the document if it's not submitted to you, that at least the operator gets out of production that nonconsenting working interest owner's share of the cost. That's only equitable. The fact that the statute--

MR. STOVALL: Well, I'm just questioning whether it's in the document. That was the question I've got. I couldn't find it.

MR. KELLAHIN: We think it is, and if it's not we will seek to have it amended so it's properly in there to at least get back out of production the nonconsenting working interest's share of the cost. But we don't seek within that provision to provide for a penalty.

MR. STOVALL: I understand. I simply couldn't find the provision as I thumbed through, and that was the focus of my inquiry earlier. So we'll check the document.

MR. KELLAHIN: I think it's there and it may have been overlooked in your review, and we'll find it.

EXAMINER STOGNER: Gentlemen, if there's

nothing further, I believe we're ready for closing arguments or statements.

Mr. Padilla, if you have any, you may--

MR. PADILLA: Yes, I have, very briefly. I realize the time is late and I think everybody is tired.

I would like to point to Section 70-7-6(A), (3) and (4). Section 3 states that the estimated additional costs if any of conducting such operations will not exceed the estimated value of the additional oil and gas so recovered, plus a reasonable profit.

As to Santa Fe, you've heard Mr. McAlpine's testimony, and he has indicated that in his opinion he is not going to get one cent of profit from the operations.

(4) states, if such unitization and adoption of one or more of such unitized methods of operation will benefit the working interest owners and royalty owners of the oil and gas rights within the pool or portion thereof directly affected.

Again, with respect to Santa Fe, we take the same position that there's no benefit derived to Santa Fe. In terms of the OXY benefit, there's no question that OXY controls the major portion of the proposed unit. And certainly as to OXY there's no

question but that without arguing over contents of the participation or anything, that it's going to benefit OXY.

This is probably a good project for OXY and we have no quarrel with the project itself. We do have a quarrel with the application of the project to the Santa Fe Exploration interests and to the working interest owners who are represented by Santa Fe.

But, in order to issue an Order, the Division will need to meet at least all of the requirements shown on 70-7-6, including (3) and (4). (3) and (4) certainly do not, again, benefit or show some kind of a profit to Santa Fe. It's just simply an experience that Santa Fe finds undesirable. And, in all likelihood, it will be operated to death, you know, because this is an expensive project and the estimates as to the length of the project and when the economic limit is reached is really not known.

We have a variance in the testimony of the OXY witnesses or engineer, from between five and nine years. If it's nine years, you're certainly going to stretch the economic limits, and I don't believe that for a small company like Santa Fe that this project is feasible nor desirable. Thank you.

EXAMINER STOGNER: Thank you Mr. Padilla.

Mr. Kellahin?

MR. KELLAHIN: Quite frankly, Mr. Examiner, I don't know what else to do to satisfy the Santa Fe concerns. If there's some quibble with the length of time the project is going to be operational, whether it's five to seven years, I see nothing presented by Santa Fe to show us that our assumptions are wrong.

There's a range of expectations in terms of the life, but there's certainly no evidence at all to refute our substantial evidence that there are in excess of half a million barrels of oil potentially to be recoverable from the implementation of this waterflood.

I simply don't know what to do for Santa Fe with regards to the participation formulas. 65 percent of the formula is directly attributable to the well, either in cumulative oil, remaining, primary or current production. The 35 percent is the reservoir pore volume. They've not suggested any alternative formula.

The geologic and engineering conclusions before you, that are unrefuted is that the tracts belong in, they are part of the same common source of supply and ought to be in.

Santa Fe complains about the fact that they

don't think they'll make any money, but it's unrefuted that Mr. Taylor has documented for you in Exhibit No. 7 that the net present worth of each of his tracts, the Santa Fe tracts, shows a positive number.

And I don't know what better proof we have for paragraph 70-7-6(A)(3) than this very document. That's all we ever do and here it is and it shows that it works.

The concept of a contribution of a wellbore, to avoid being included in a waterflood project that will aid and benefit all working interest owners, I think is unusual. It doesn't seem to work. Mr. Taylor has shown it doesn't lead to the production of additional oil that might otherwise be recovered.

I think we've met all the requirements that are required by the statute in order to have this go forward. Within our operating agreement it requires not only the concurrence of OXY but another working interest owner. It requires them to concur in what we do.

I think this case speaks for the need of statutory unitization. We've simply gotten to the point, despite our good faith efforts, where we have interest owners in a small portion of this area that are unwilling to participate.

The bottom line is their participation is necessary in order to make this effective, and we would request that you compel their inclusion by the implementation of the statutory unitization procedures.

EXAMINER STOGNER: Thank you, Mr. Kellahin.

Does anybody else have anything further in these matters? In that case, Cases 10062, -63 and -64 will be taken under advisement, and the hearing is adjourned.

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 10062, 10063, 10064 heard by me on 5 Sept 1990.

Michael E. Stogner, Examiner
Oil Conservation Division

CERTIFICATE OF REPORTER

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

I, Carla Diane Rodriguez, Certified Shorthand Reporter and Notary Public, HEREBY CERTIFY that the foregoing transcript of proceedings before the Oil Conservation Division was reported by me; that I caused my notes to be transcribed under my personal supervision; 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 September 17, 1990.

CARLA DIANE RODRIGUEZ
CSR No. 91

My commission expires: May 25, 1991