STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO

17 September 1986

EXAMINER HEARING

IN THE MATTER OF:

Cases which have been called on this docket for which no testimony has been presented.

CASE 8983 etc. 8981, 8939, 8940, 8988, 8991, 8958, (8993)

BEFORE: DAVID R. CATANACH, EXAMINER

Transcript in Case 8983

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation Division:

Jeff Taylor
Legal Counsel to the Division
Oil Conservation Division
State Land Office Bldg.
Santa Fe, New Mexico 87501

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BLDG.
Santa Fe, New Mexico

8 October 1986

EXAMINER HEARING

IN THE MATTER OF:

Application of Texaco, Inc., for an unorthodox oil well location, Lea County, New Mexico. CASE 8993

BEFORE: Michael E. Stogner, Examiner

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Division: Jeff Taylor
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State Land Office Bldg.
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For Texaco, Inc.: William F. Carr
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For Amerind Oil Co.
Pennzoil
Standard Oil Corp.: W. Thomas Kellahin
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KELLAHIN, KELLAHIN & AUBREY
P. O. Box 2265
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I N D E X

I N D E X CONT'D

E X H I B I T S

E X H I B I T S CONT'D

MR. STOGNER: Call next Case Number 8993.

MR. TAYLOR: The application of Texaco, Incorporated, for an unorthodox oil well location, Lea County, New Mexico.

MR. STOGNER: Call for appearances.

MR. CARR: May it please the Examiner, my name is William F. Carr with the law firm Campbell & Black, P. A., of Santa Fe, appearing on behalf of Texaco, Inc.

We have two witnesses.

MR. STOGNER: Are there any other appearances?

MR. KELLAHIN: Yes, Mr. Examiner. I'm Tom Kellahin of the Santa Fe law firm of Kellahin & Kellahin.

I'm appearing in opposition to the Texaco application on behalf of Amerind, A-M-E-R-I-N-D, Oil Company; on behalf of Pennzoil Company; and on behalf of Standard Oil Corporation.

MR. STOGNER: For clarification, Standard Oil is the old SOHIO, is that correct?

MR. KELLAHIN: Yes, sir. I

would like to have four witnesses sworn.

MR. STOGNER: Are there any other appearances?

Mr. Carr, how many witnesses do you have?

MR. CARR: I have two.

MR. STOGNER: Will all seven witnesses please stand and be sworn?

(Witnesses sworn.)

MR. STOGNER: Mr. Carr?

MR. CARR: Mr. Stogner, we first call Mr. McCance.

PRESSLY H. McCANCE, III,

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

DIRECT EXAMINATION

BY MR. CARR:

Q Will you state your full name, please?

A My name is Pressly H. McCance, III.

Q Mr. McCance, where do you reside?

A I live at 4205 Russell Drive, Midland,

Texas.

Q By whom are you employed?

A By Texaco, Incorporated.

Q And in what capacity are you employed?

A I am a Development Geologist for Texaco.

Q Have you previously testified before this Division?

A I have not.

Q Would you briefly summarize for Mr. Stogner your educational background and then review your work experience?

A I have a Bachelor -- Bachelor of Science degree in geology from Denison University in Ohio. I'm currently finishing my thesis which will give me a Master of Science degree in geology from the University of Tulsa.

Upon graduation from college I was a mud-logger employed by Tooke Engineering in the Rocky Mountain District and following that work experience I started work with Getty Oil Company and three months later went to work for Texaco and have been with them for approximately three years.

Q And what is your title of your position with Texaco?

A I am a Development Geologist in charge of studying various areas for development drilling locations.

Q What does a development geologist do?

A I'm primarily involved in studying areas for development locations that Texaco can drill.

Q In that regard, are you the individual who actually picks well locations?

A Yes, I am.

Q Does your area of responsibility include southeastern New Mexico?

A Solely southeastern New Mexico.

Q Are you familiar with the application filed in this case on behalf of Texaco?

A Yes, I am.

Q Are you familiar with the proposed well?

A Yes, I am.

MR. CARR: We tender Mr. McCance as an expert witness in petroleum geology.

MR. STOGNER: Are there any objections?

MR. KELLAHIN: No objections at this time.

MR. STOGNER: Gentlemen, before we start, let me call about a four minute recess. I've got strep throat and it's burning.

(Thereupon a recess was taken.)

MR. STOGNER: This hearing will come to order.

Mr. McCance, you said you went to Denison University?

A Yes, sir.

MR. STOGNER: And you went to work for Tooke Engineering?

A For Tooke Engineering.

MR. STOGNER: How do you spell that?

A It's T-O-O-K-E.

MR. STOGNER: And when did you begin your employment with Getty?

A In September of 1983.

MR. STOGNER: What office were you in?

A I was in the Development Group that's in the First City Center Building.

MR. STOGNER: In Midland?

A In Midland, right.

MR. STOGNER: Mr. McCance is so qualified, if I haven't already done that before.

Mr. Carr?

Q Mr. McCance, would you briefly state what

Texaco seeks with this application?

A We're seeking an unorthodox location to be drilled at 150 feet from the east line and 1400 feet from the south line of Section 20, Township 16 South, Range 37 East.

Q And that places a well 150 feet out of the corner of the acreage that's going to be dedicated to it, is that correct?

A From the section line, yes.

Q Are you familiar with the rules for the subject pool?

A Yes, I am.

Q And what do they provide in terms of well location requirements?

A 150 feet from the quarter quarter section.

Q From the center of the quarter quarter?

A From the center of a governmental quarter quarter section.

Q Have you prepared certain exhibits for introduction in this case?

A Yes, I have.

Q Would you please refer to what's been marked as Texaco Exhibit Number One, identify this, and review it for the Examiner, please?

A Exhibit Number One is a combination Isopach and structure map, and if I could have a copy of that I will refer to it.

It's a combination Isopach/structure map with the structure being contoured on the top of the Strawn limestone.

The Isopach map was contoured using limestone porosity of -- of porosity greater than or equal to 4 percent, as determined by wireline logs.

It also shows Texaco's acreage in the immediate area of the subject well with the lease in question dashed in showing the 80-acre proration unit.

In addition to that it shows the distribution of Strawn producing wells shown in pink and Strawn dry holes or tests shown in brown.

Q And, Mr. McCance, the acreage shaded in yellow is the acreage in which Texaco has an interest.

A Yes, it is.

Q And the orange dot is the -- spots the proposed well location.

A It shows the proposed location.

Q And then you've dashed the acreage that is to be dedicated to the well, which is a laydown unit comprised of the north half of the southeast of 20.

A Yes.

Q What is the primary producing interval in this area?

A It's the Strawn limestone.

Q What was your role in terms of recommending the development or the location of wells in this area?

A Well, I did the geology and proposed the No. 2 H. T. Monteith, which is located just south of the proposed location, in addition to proposing this particular well at the unorthodox location shown, and I did the well-site work on our Lovington Lumpkin No. 1-Y, which is the dry hole to the northwest of the proposed location.

Q In your opinion how important is structure in determining whether or not you make a successful well in this area?

A I believe that structure is critical in defining the reservoir as well as -- as potential drill sites for exploration. The Strawn is interpreted as a bioclastic accumulation that following burial and subsequent compactional -- or differential -- differential compactions created structures over these detrital reservoirs. They are depicted as noses due to subsequent uplift to the south, and as you can see from most of these dry holes, that where lows are indicated the reservoir quality rock didn't develop and it's a direct reflection of the development of these bioclastic pauses (sic).

Q So what you're trying to do is -- is develop the structural noses in the Strawn formation.

A Yes, sir. And there are various isolated reservoirs around where they clearly do develop on the structural noses.

Q This is also an isopachous map, is that correct?

A It is an Isopach contoured using four percent or better limestone porosity determined from logs.

Q And what conclusions can you draw from -- from this exhibit?

A From this exhibit we show that there are producable hydrocarbons on our lease that we cannot produce effectively with a conventional location, which is drilled where the Lovington Lumpkin 1-Y was.

We also show that the Isopach is a reasonable interpretation based on the structural nose that is represented by the structure map.

Q Do you have anything else to present with Exhibit Number One?

A No, I do not.

Q Would you refer to what has been marked for identification as Texaco Exhibit Number Two, identify this and review it for the Examiner, please?

A Exhibit Number Two is a stratigraphic

cross section showing principally the Strawn limestone porosity that we used to Isopach --

Q Okay.

A Exhibit Number Two is a stratigraphic cross section showing the Strawn reservoir in this portion of the Lovington Penn Northeast Field, in addition to an index map showing the distribution of Strawn production and a trace of the cross section.

We put this together to show what we used in construction of our Isopach map, mainly, that porosity that is shaded in red. In addition to the relationship of the porosity with the dry hole that Getty Oil Company drilled in 1984, the Lovington Lumpkin No. 1-Y, and that's basically what the cross section is constructed for.

Q Now, Mr. McCance, you're the individual who originally selected the proposed well location, is that correct?

A Yes, I was.

Q Why did you pick this partacular location?

A Well, we felt as though we had producable reserves under our lease that we wouldn't be able to produce effectively at an orthodox location. We felt that with the risk involved in this part of New Mexico, we felt that the location that we picked was such that -- was such that we

could lessen our risk in addition to -- we weighed that against the penalty that we felt would be assessed, and we came to the conclusion that that was the best location that we had; otherwise, we'd probably -- or we wouldn't be able to drill a well and protect our reserves under this lease.

Q Now, Mr. McCance, will Texaco also be calling an engineering witness?

A Yes, Texaco will.

Q Were Exhibits One and Two prepared by you?

A They were prepared by me.

MR. CARR: At this time, Mr. Stogner, we would offer Texaco Exhibits One and Two into evidence.

MR. STOGNER: Are there any objections?

MR. KELLAHIN: No objections.

MR. STOGNER: Exhibits One and Two will be admitted into evidence.

MR. CARR: That concludes my direct examination of Mr. McCance.

MR. STOGNER: Thank you, Mr. Carr.

Mr. Kellahin, your witness.

CROSS EXAMINATION

BY MR. KELLAHIN:

Q Mr. McCance, can you identify for us the approximate order in which the wells in the immediate area that offset the proposed unorthodox Texaco location, can you tell us in what general order those wells were drilled?

A I can.

Q All right, sir.

A The Amerind 21 State No. 2, I believe, was the first well drilled, followed by the Higgins Trust No. 1.

Q All right, you'll have to go slower for us.

A Okay.

Q You know the names and we don't.

A All right.

Q All right, what's the first one?

A The first well was drilled by Amerind, their 21 State No. 2, which was drilled at the Section 21 Spot E.

Q All right, that's up in the -- in the northwest quarter and it will be the southwest of the northwest.

A Yes, sir.

Q All right, that's the first one. Okay,

what's the next one?

A The next well was drilled in Spot -- Spot L of Section 21, and it's the Amerind Higgins Trust No. 1.

Q It's the next one due south.

A Yes, sir.

Q Okay.

A And these were drilled approximately three months apart, followed by the Amerind Higgins Trust No. 2, which was drilled in Spot M of Section 21.

Q That's the one out of the southwest corner of 21?

A Yes, sir.

Q And that's the Higgins No. 2?

A Yes.

Q All right, that's the third one. Okay, next.

A Followed by their No. 1 State, which is drilled a location in Spot D of Section 28.

Q Okay.

A And their Cal-Mon, Amerind Cal-Mon No. 1-29.

Q That's in the far northeast corner of 29?

A Yes.

Q Okay.

A Spot A, followed by the drilling -- the

drilling of the H. G. Monteith No. 2 by Texaco, and I need to digress a little bit. I'm not sure of the timing of some of these dry holes that are to the east, but the Lovington Lumpkin 1-Y was drilled subsequent to the No. 1 Speight and before the Cal-Mon 29 and Texaco's H. T. Monteith No. 2, and that's the dry hole in Section 20 in Spot I.

Q All right, the dry hole to the northwest is about, I guess, maybe the fifth well in sequence?

A Yes, sir.

Q And then the -- the Cal-Mon 29 Well will be the next one, approximately, and then the last one is the Texaco Monteith Well --

A No. 2, followed by, I believe, Amerind's well in Spot B of of Section 29, which is a dry hole.

Q All right. Have you satisfied yourself as a geologist that there is adequate well data and information by which you can locate in a reasonable way the orientation of this particular Strawn reservoir?

A Yes, sir.

Q Is there any doubt in your mind about the way you have oriented that reservoir?

A No, sir.

Q Do you -- have you satisfied yourself that this Strawn pod, if you will, is separate and distinct from other Strawn production as we move to the north and

west in the balance of Section 20?

A Yes, I do.

Q In terms of the size and shape of the subject Strawn reservoir we're discussing, are you also satisfied that the well control data and information is sufficient enough and specific enough to cause you to draw this size and shape with any degree of confidence?

A Yes, I do.

Q All right. To what degree of confidence do you have in that information to determine how accurate the zero line is that you have drawn on the exhibit?

A We have -- I have identified these as bioclastic deposits, as I mentioned earlier, and the structural -- the structural nose as represented is clearly a representation of the reservoir quality rock, and based on my zero contour line, it is drawn right off the flank of an apparent structural nose that runs through across our lease and -- and across into Section 21.

Q The shape, size, and orientation of this reservoir, then, is consistent with the structural interpretation --

A Yes, it is.

Q -- that you have determined.

A Yes, sir, it is.

Q In terms of locating the zero line on the

Isopach that's depicted also on this exhibit, you have put the zero line within the 80-acre tract that we're looking at the for the Texaco well.

A Yes.

Q Within that area the zero line then cuts through that wellbore for the Lumpkin No. 2 Well.

A Yes, it does.

Q All right. Could you describe for us what geologic information you got from the Lumpkin No. 2 Well that caused you to put that zero line there?

A We cut approximately 110 feet of core in the Strawn and through core analysis and some research work that was done in Houston by -- by Getty Oil Company, reservoir quality rock was not present in the core that we had. In addition wireline logs showed that there was no porosity development at that particular location.

Q No doubt in your mind that there is sufficient information to cause you to conclude that the reservoir is simply absent in that wellbore.

A I'm -- I'm clearly convinced that it is a dry hole.

Q All right. What percentage of the 80-acre tract, which is the north half of the southeast quarter, what percentage of that tract do you consider would contribute production from this Strawn pod to your proposed

well?

A We have an engineer that will testify in regards to that question.

Q Have you as a geologist made any types of calculation as to what portion of the reservoir underlies that 80-acre tract?

A I have done no engineering works in regards to that question.

Q I didn't ask you about productive acreage. I've asked you what portion of the reservoir you as a geologist --

A What portion of that 80-acre tract? I would say that it is roughly 20 percent productive.

Q And that's assuming production in a reservoir from zero thickness all the way up to what thickness before it leaves that 80-acre tract?

What's your thickest contour line?

A Oh, roughly 40 feet, 45 feet of 4 percent porosity or better.

Q All right, have you as a geologist made any calculations of the acre feet of reservoir that may be present underneath that 80-acre tract?

A No, I haven't.

Q Is that something a geologist could do?

A I suppose that he could do it.

Q And when we talk about acre feet of a reservoir, would it be your understanding that we're talking not ony about the horizontal width of the reservoir but also the varying thickness of that reservoir underneath that tract?

A I don't know for sure. That is beyond my job to look for it.

Q You're not familiar as a geologist with the definition of acre feet of reservoir?

A I have a good idea. I have never read the exact definition of the terminology.

Q You said that you made the recommendation to your management about the proposed unorthodox location. Did I correctly understand that?

A Yes, to my immediate supervisor and then to management.

Q Were there any other geologists involved in making that recommendation and decision?

A Other than my immediate supervisor, who is a geologist, and he concurred with my recommendations.

Q You said part of your recommendation in response to Mr. Carr's direct question awhile ago, depended upon weighting the potential penalty that might be involved at this location.

A Yes.

Q What penalty did you utilize in making your assessment of the proposed unorthodox well location?

A Would you repeat the question, please?

Q Yes, sir. You said you've taken under consideration a potential penalty.

A Yes.

Q To be assessed by the Division for the well location. In making your assessment and evaluation and your ultimate recommendation that management drill the location --

A Yes.

Q -- you took into consideration some penalty number.

A Not an exact number. We knew that there would be a penalty assessed.

Q At what point, at what range of penalty did you conclude that the proposed unorthodox location was still a drillable location for you?

A Is it possible to delay that question until the engineer testifies?

Q Well, you've said it's part of formulating your recommendations to your immediate supervisor.

A Yes.

Q And having said that under direct examination, I would very much appreciate knowing what penalty

factor you were considering that caused you to still believe that it was a drillable location notwithstanding the fact that it's only 150 feet from the line?

A We would like to see a penalty assessed such that we could get a minimum allowable of approximately 150 to 175 barrels of oil, and I -- I guess that that's roughly 35 percent or so, or 65 percent.

Q That would be 65 percent of what?

A Of the allowable of the pool, which is 534 barrels.

Q You're using a top 80-acre oil allowable in the pool of 534?

A Yes. Yes.

Q And you're assuming, then, an allowable that would let you produce 35 percent of that number?

A That's right.

Q And that gives you approximately 150 barrels a day.

A Approximately.

Q Give or take.

A It's probably a little bit more than that.

Q Can you show us on the Exhibit Number One where the closest standard location would fall on that exhibit for your well?

A I should have brought my scale.

Q Well, let me do this. Give us the footage location of the dry hole for the Lumpkin No. 2.

A Okay.

Q Do you know that one?

A The Lumpkin No. 1-Y is -- is 1980 feet from the south line and 660 feet from the east line.

Q All right.

A And we had to skid the rig and I believe that that is the location of the well that we finally tested the Strawn.

Q Help us out. We've got two dry hole symbols. Which one represents the one after you skidded the rig?

A The well that is closest to the section line to the east.

Q And that is the well information then that you've used to base the zero contour --

A Yes, sir.

Q -- line through that wellbore.

A Yes, sir, it is.

Q At this point, then, it's 660 from the east line?

A East line and 1980 from the south line.

Q Okay. And your understanding under the

Strawn field rule is that you could be as close as, I assume, 510, then?

A 510, that's correct.

Q Okay. So the closest standard location would be 510, approximately 510 from the east line.

A Yes.

Q You're seeking 150 feet from the east line. All right.

Take us back 510 from the east line and show us approximately where it would fall on the Isopach.

A It would roughly -- it would be roughly at the 10-foot contour line.

Q In making your evaluation, Mr. McCance, can you summarize for us the methodology that you have taken in reviewing the logs, looking at core information, examining drilling cuttings, whatever it is, lead me through the sequence of how you approached geologically your evaluation for the proposed location so that I'm clear on what choices you have made in reaching your conclusion.

A All right. We had drilled the H. T. Monteith No. 2, if I remember correctly, in April or May of this year, and we achieved 56 feet of 4 percent or better porosity. That was more porosity than we had anticipated by roughly 16 feet. We were looking for something along the lines of what the Amerind Cal-Mon No. 29 had done. Went

back and changed the Isopach map using a 4 percent porosity cutoff with the additional data and changed the structure map accordingly and Amerind following the drilling of that well drilled their unorthodox location in Section 29, which was a dry hole, and incorporated that information using the logs available and changed the map accordingly and recontoured the Isopach map using fairly equal spacing, which is common practice, and obtained the Isopach interpretation that you see.

The core material that we used form the Lumpkin 1-Y and some core chips from I believe it was the Higgins Trust No. 2, I don't recall exactly if it was No. 1 or No. 2 Higgins Trust, which was the reservoir rock, interpreted the reservoir as a bioclastic deposit as opposed to bioherms or reefs that were otherwise thought to represent this reservoir.

Q Did you utilize in making your examination any seismic information at this point?

A We used no seismic.

Q When you have identified for us on Exhibit Number One the area shaded in yellow, what does that represent?

A That is Texaco acreage in -- or acreage that Texaco has over 50 percent interest in in Section 20.

Q Can you identify for us based upon your

understanding what percentage Texaco has in the Monteith No. 2 Well to the south of the location?

A I don't know the exact number but I think it's upwards around 80 percent.

Q Okay, and approximately what interest will you have in the north half of the southeast quarter?

A North half of the southeast quarter, I believe it's approximately 60 percent.

Q When we look at the wells in the immediate area, the ones that we've just been discussing, with the exception of this proposed location, are there any other unorthodox locations?

A With the exception of Amerind's well to the south in Section 29, and I don't know the exact location, but I do know that it's an unorthodox location.

Q In 29, the one out of the northeast northeast?

A Yes.

Q And that was drilled prior to Texaco offsetting it in the north with the Monteith No. 2 Well?

A No, their dry hole was drilled subsequent to the drilling of the H. T. Monteith No. 2.

Q So the unorthodox location is a dry hole.

A Yes.

Q All the producing wells are at standard

locations.

A Yes.

Q Within this pod.

A Yes.

Q Okay. Thank you, Mr. McCance.

MR. KELLAHIN: I have nothing further.

MR. STOGNER: Mr. Carr?

MR. CARR: We have nothing further.

MR. STOGNER: We'll take a fifteen minute recess at this time.

(Thereupon a recess was taken.)

CROSS EXAMINATION

BY MR. STOGNER:

Q Mr. McCance, of the original wells that were on the 80-acre proration unit, Well No. 1, what happened that it had to be skidded over and at what depth were you at before that original well had to be abandoned?

A I don't recall. The geologist that recommended that location left the company during the drilling of the 1-Y and so I'm not as familiar with -- with the previous attempt as -- as he would be, but to my -- the best

knowledge I have is they drilled the well, they lost the hole, they directionally -- they whipstocked and drilled it again and got fairly deep, I'm going to guess around 10,000 feet, and then lost the hole again and had to skid the rig to the eventual location there that's shown farthest to the east.

MR. STOGNER: Are there any other questions of Mr. McCance?

MR. KELLAHIN: Yes, sir, a follow-up question.

RECROSS EXAMINATION

BY MR. KELLAHIN:

Q Have you run, or has your company conducted any surveys to determine where the bottom hole location was for that well?

A Not to my knowledge.

Q Do you have an opinion as a geologist as to where the bottom hole location of that well may be in relation to the surface location?

A I do not.

MR. STOGNER: Are there any other questions of Mr. McCance?

MR. CARR: No questions.

MR. STOGNER: If not, he may be

excused.

Mr. Carr?

MR. CARR: Mr. Stogner, at this time we call Gary Kern.

GARY KERN,

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

DIRECT EXAMINATION

BY MR. CARR:

Q Will you state your full name and place of residence?

A My name is Gary Robert Kern. I reside at 5011 San Antonio Street in Midland, Texas.

Q Mr. Kern, by whom are you employed?

A I'm the Division Proration Engineer with Texaco, Incorporated.

Q Have you previously testified before this Division and had your credentials as an engineer accepted and made a matter of record?

A Yes, I have.

Q Are you familiar with the application filed in this case?

A I am.

Q Are you familiar with the proposed well?

A Yes, I am.

MR. CARR: Are the witness' qualifications acceptable?

MR. STOGNER: Are there any objections?

MR. KELLAHIN: No objection.

MR. STOGNER: Mr. Kern is so qualified. Is that Kerns or Kern?

A Kern, K-E-R-N.

MR. STOGNER: Mr. Kern is so qualified.

Q Mr. Kern, initially I'd like to direct you back to Exhibit Number One and I'd ask you if you've calculated the number of productive acres as indicated on this Isopach map as drawn by Mr. McCance under the acreage to be dedicated to the proposed well?

A Yes. The productive acreage in the southeast quarter of that proposed 80-acre tract is 24.7 acres.

Q And do you have any idea what percent of the proration unit that might be?

A That represents 31 percent.

Q Now, did you participate in the decision to go forward with the drilling of a well at this location?

A Yes, I did, upon the process of recommending the well, as Mr. McCance has testified to, there was different -- there was the option of where the well might be located and I was asked to look into various penalties or possible penalties that might be assessed and I looked into a location 100 foot out of the corner and also one 200 foot out of the corner.

Q And then you were estimating penalties based on various locations.

A Yes, sir.

Q And that was the extent of your involvement in selecting a location.

A That is correct.

Q Do you believe that a -- that production from the subject well should in fact be penalized due to its unorthodox location?

A Yes, I believe it should be penalized.

Q At this time I'd ask you to refer to what has been marked for identification as Texaco Exhibit Number Three.

First of all if you would identify this for Mr. Stogner and then review the basic information contained thereon.

A This is a plat which was prepared by Piper (sic) Surveying Company. It represents the southeast

quarter of Section 20 as well as, I guess, the western half of Section 21.

I'd like to focus attention to two points, the first one being what the closest to the corner standard location would be and that would be located 554 foot from the east line and 500 -- east line of the section -- and 554 foot from the south -- south line of the north half of Section 21 -- 20, I'm sorry.

Q And that is a point that would be 150 feet from the center of that quarter quarter section.

A Yes, sir, that would be what 554 foot out of that corner represents.

Q Okay, would you go on and review the other points shown on this exhibit?

A Okay. Drawn from there is a radius of 1053 feet, which represents an 80-acre circular pattern. Also I might call attention to what is shown as to be the No. 2 location, what's been identified as the No. 2 location. That's 150 foot out of the corner of that north half proration unit.

Also drawn from there is a radius of 1053 foot.

The cross hatched area represents a total of 27.21 acres, which is the 19.49 acres as well as the 7.72 acres added up. This represents the additional area that is

drained into the offsetting proration tracts over and above a standard location.

Q Now, using this information have you calculated a penalty that you're recommending be imposed on the well at the proposed location?

A Yes, sir, I have.

Q Would you refer to the second page of Exhibit Number Three and review how you calculate a penalty factor?

A Okay. First of all, the top allowable for an oil well in this pool is 534 barrels per day.

One of the Commision's, or the OCD's, accepted standard practices for determining allowables for an unorthodox location would be -- would be summation of ratios based on distances between -- between the proration unit line of a standard location versus the unorthodox location.

I'm showing on approximately line three of the exhibit the north/south limitation factor. That would be 150 foot out of 554 foot, which is saying it's 53 percent closer than a standard location.

The east/west limitation factor is 150 foot out of 554, which once again is 73 percent closer than a standard location.

The additional acreage drained by the proposed well over a standard location is 27.21 acres out of

80, which is 34 percent additional drained area.

Taking and summing the three penalty -- the three penalty factors arrived at from these different limitations, I come up with .27 plus .27 plus .66 divided by 3 gives you a 40 percent allowable, or a 60 percent reduction, 60 percent reduction in the allowable from a top allowable well.

Q And this would be 40 percent of the top depth bracket allowable authorized for this well.

A That is correct.

Q Would you now refer to what has been marked as Texaco Exhibit Number Four and first, Mr. Kern, if you would identify what this is, what it's designed to show, and then if you would review it for Mr. Stogner.

A Okay. This is a comparison of the productive acreage of wells offsetting the proposed Lumpkin tract.

What I did here is take a look at the productive acres on the offsetting Amerind tract, operated wells, which are the Higgins Trust No. 1 and 2, and as well as Texaco's H. T. Monteith Well No. 2.

For productive acreage under the Higgins Trust No. 1, using once again the map contoured by Mr. Cance, I came up with 58.1 acres productive under the Higgins Trust No. 1, and came up with 50.7 productive acres un-

der the Higgins Trust No. 2, and I came up with 57.8 productive acres under the H. T. Monteith Well No. 2.

The proposed Lumpkin 20 Well No. 2, as I have testified to you previously, had 24.7 productive acres underlying it.

I then went about to determine what a reasonable allowable might be based on productive acreage. One of the things I assumed here is that the productive acres, or the allowable set assigned to all three of the offsetting wells, even though the entire 80-acre tract would be non -- portions of the 80-acre tract that are nonproductive, I compared the productive portions of the acreage under the H. T. Monteith -- I'm sorry, the proposed Lumpkin 20 Well No. 2 in comparison to the three offsetting proration units.

For the Higgins Trust I found that there was 24.7 out of 58.1, which is a little under 50 percent, and the top allowable based on that would be some 227 barrels per day.

Under the Higgins Trust No. 2 the comparison was 24.7 versus 50.7, for a top allowable of 260 barrels per day.

Compared to the H. T. Monteith No. 2 came up with a comparison of 24.7 versus 57.8 for an allowable of 228 barrels per day.

I then took an average of these and I

found that that average came to be 238 barrels per day.

Q So an average, the average figure is 238 barrels of oil per day. How does that compare to the figure, the allowable figure that you'd get if you used the more traditional Commission approach that you outlined previously?

A I think it's certainly close and that's one of the reasons why I felt like this was also reasonable, and although I'm not recommending this method, I just feel like it substantiates the allowable calculated under the OCD equation.

Q And it shows that that in fact is an appropriate way to go?

A Yes, sir.

Q Would you now go to what has been marked as Texaco Exhibit Number Five, identify that, please, and review it for Mr. Stogner?

A Texaco's Exhibit Number Five is a collection of three curves and they are the curves on the directly offsetting tracts to our proposed Lumpkin 20 Well No. 2, that being the first curve should be the Higgins Trust Incorporated Well No. 1, and that information should be in the upper righthand corner under the -- just below production versus time.

The point I'd like to point out here is

these are very substantial wells. The Higgins Trust No. 1 had an initial sustained production of some 400 barrels per day. It still is producing in excess of 200 barrels per day; has cumed some 236,000 barrels of oil.

The Amerind -- okay, the second page is a productive curve for the Amerind Higgins Trust Well No. 2. It initialed -- its initial sustained production is some -- approximately some 340 barrels of oil per day. It has declined now to somewhere around 200 barrels per day. That, the last month you see there is somewhere around 150 but in looking at the OCD's records for January -- I mean, I'm sorry, for July, the reported production for the month was -- the Higgins Trust No. 1 -- I'm sorry, No. 2, was 7680 barrels, which is some 247 barrels per day.

So its production has come back up. I might note, too, that it has cumed some 159,000 barrels of oil.

The last curve I have is Texaco's well, the H. T. Monteith Well No. 2. It too is a substantial well. It IP'ed for -- well, its initial sustained rate was -- it's been in excess of 300 barrels per day. It has cumed 17,857 barrels and I believe it came on line somewhere in May of 1986, and that's the reason for its low cum.

Q Okay, and what do these graphs show?

A Okay. These graphs show that, once

again that these are -- these are prolific wells.

I might at this time want to also mention what the initial potentials for these wells were.

The H. T. Monteith Well No. 2, Texaco's well, IP'ed for some 532 barrels per day.

Amerind's Cal-Mon State 29 No. 1 potentialed for 489 barrels a day.

The No. 1, Amerind's Higgins Trust Well No. 1 protentialed for 438 barrels of oil per day, and the Amerind Higgins Trust Well No. 2 potentialed for 436 barrels per day.

What this says to me is that qualitatively these are good wells. They are very productive. They are in all likelihood draining rather a large area and proration unit, and if one is not enabled to get -- to drill and complete a well in a -- in a proration unit adjoining one of these, it is in all likelihood going to be drained.

Q Now, Mr. Kern, if the application of Texaco is not granted and -- or if it is granted and a penalty is imposed in excess of that recommended by Texaco, what effect would that have on Texaco's plans for the area?

A I think if any penalty substantially lower than what we have requested here would be assigned to that well, I couldn't see how we could -- we could proceed ahead in the drilling of this well.

Q What impact would that have on Texaco's ability to recover the reserves under the acreage to be dedicated to the proposed well?

A I believe, based on the producing rates of these wells and the proxmimity of these wells, that our acreage would be drained.

Q Now, Mr. Kern, could you just identify what's been marked as Exhibit Number Six?

A Exhibit Number Six is the notice of the hearing in regard to this matter, which was forwarded to the companies, the offsetting companies, by the law firm of Campbell & Black, P. A., along with the certified receipts for the -- that they were delivered.

Q In your opinion will granting the application as proposed by Texaco enable it to produce its just and fair share of the reserves underlying its tract, which is to be dedicated to the proposed well?

A Yes.

Q In your opinion will granting the application as proposed with the penalty recommended otherwise be in the best interest of conservation, the prevention of waste, and the protection of correlative rights?

A Yes, it will.

Q Were Exhibits Three through Six either prepared by you or compiled under your direction?

A Yes, they were.

MR. CARR: At this time we'd offer into evidence Texaco Exhibits Three through Six.

MR. STOGNER: Are there any objections?

MR. KELLAHIN: No objection.

MR. STOGNER: Exhibits Numbers Three, Four, Five, and Six will be admitted into evidence at this time.

MR. CARR: That concludes my direct examination of Mr. Kern.

MR. STOGNER: Thank you, Mr. Carr. Mr. Kellahin, your witness.

MR. KELLAHIN: Thank you, Mr. Stogner.

CROSS EXAMINATION

BY MR. KELLAHIN:

Q Mr. Kern, for reference, if you'll find a copy of Exhibit Number One --

A Okay.

Q -- which has the Isopach on the area.

Let me direct your attention to the Texaco 80-acre tract that would be dedicated to the unothodox location. You told us that you have taken the geologist's

Isopach and that you have determined that there are 24.7 acres that will contribute production to that well?

A That is correct.

Q Did you make that calculation by simply determining the area from the zero contour line to the south and east portions of the property, within that triangular area did you simply calculate the number of acres?

A Yes, sir. It was actually planimetered.

Q Yes, sir. With regards to each of the other wells that you've identified on Exhibit Number Four as having certain estimated productive acres, did you use the same method by which you have planimetered the area within those spacing units contained within the zero contour line?

A Yes, sir.

Q In each of those calculations, Mr. Kern, did you attempt to adjust the number to take into consideration the varying thickness of the reservoir?

A Not for the purposes of this calculation.

Q Have you as an engineer made any type of calculations to determine the oil in place in the reservoir underlying the Texaco 80-acre tract that we're discussing?

A Under the Texaco 80-acre tract?

Q Yes, sir.

A Yes, I attempted to make volumetric calculations on all the tracts that adjoin the Texaco proposed

Lumpkin 20 Well No. 2.

Q Okay. What oil in place did you calculate using that method for the Texaco tract?

A Let me say I did not -- I do not feel that the volumetric calcualtions, and this is why I did not present an exhibit, were reflective of the -- of the actual oil in place under these tracts, and just let me explain a little bit of why I make that statement.

I make that statement because I prepared volumetrically the oil in place under the Amerind Higgins Trust Well No. 2 and the Amerind Higgins Trust Well No. 1. Those -- those oil in place calculations showed that the Amerind Higgins Trust Well No. 2, which referring to the curve under Exhibit Number Four -- I'm sorry, yeah, Exhibit Number --

MR. CARR: Five.

A -- Five, is the poorer of the two Amerind wells. That well actually had more volumetric oil in place than the Higgins Trust Well No. 1, and consequently I did not feel like volumetrically was a suitable method of determining the reserves under each tract.

MR. KELLAHIN: Mr. Examiner, I'll ask that the response of the witness be stricken as unresponsive to the question and ask that the witness be directed to answer the question asked, which was, what vol-

ume of oil had he calculated using the volumetric basis underlying the Texaco tract.

MR. STOGNER: Let the record show.

MR. CARR: Go ahead and answer the question.

A Okay. I showed volumetrically under the Texaco tract that there were some 124,000 barrels of oil, or I think. The number is like that. I do not have these calculations with me but the number was somewhere in the range of 124,000, is what I came up with.

Q Just approximately. Do you recall in using your volumetric calculation what approximate water saturation number you used?

A I used somewhere in the range of 24 percent.

Q And for the average porosity used in the calculation what did you use?

A That number I do not recall.

Q Okay. And the formation volume factor, what number did you --

A I used the 1.45.

Q 1.45, okay. Do you recall, Mr. Kern, what the volumetric calculation showed you for the oil in place under any of the other tracts?

A No, and I guess this is the reason I hesitated in answering this question in this first place because I did not -- I cannot recall all of the -- and it, you know, just seems really unfair to me to be testifying to something that I didn't present, and that --

Q Well, I've asked you if you made the calculation and you said you have. The number you recall using for the Texaco tract is approximately 120,000 barrels of oil.

A That's correct.

Q Okay.

A But there's nothing -- okay.

Q What is your understanding of the approximate cost of the Texaco well?

A My understanding is somewhere in the range of $750,000.

Q Have you made any type of economic evaluation of the property to determines whether or not there was an economic justification for drilling the well?

A No, as I indicated before, I became involved in this -- I am the proration engineer. I handle primarily proration matters and I became involved in this at the onset with the question in regard to allowable.

The development engineer would be the one who would have made those economic runs.

Q So you came into the process after --

A Right.

Q -- that was done?

A Yes, sir.

Q Who would be the development engineer that would have done that type of work?

A His name is Russell Poole.

Q Have you conducted any kind of reserve calculations, ultimate recovery calculations or studies, other than the volumetric calculation we've discussed?

A No, sir.

Q That, if it was done, would have been done by someone like Mr. Poole?

A That's correct.

Q Do you know what percentage recovery factor you would recommend or is in fact being utilized by Texaco in making its calculations?

A No, I did not calculate a recovery factor.

Q Do you know what recovery factor is being used by your company?

A For this area?

Q Yes, sir.

A No, sir.

Q You have provided us an exhibit, I be-

lieve it is Number Three, that has used a double circle calculation of a possible penalty for the well location?

A That is correct.

Q Is this something you have done before, Mr. Kern?

A It was done -- I did this originally when I got involved. I'd never -- I'd never calculated previous to my involvement, several months ago, any type of penalty factor in New Mexico, and at that point I just went just went on -- contacted Mr. Carr as to what, you know, what an appropriate penalty might be.

Q So based upon information from Mr. Carr you've done the double circle calculation?

A Yeah, he sent an Order No. 5830 -- 5856-A, which --

Q All right, let me have the number again. It's R-58 --

A 56-A.

Q 5856-A and that was the reference by which you then used the -- used to calculate the double circle penalty.

A Yes, sir.

Q Does that double circle penalty, as you understand it to function, Mr. Kern, take into consideration the relative productive acres a given tract will have within

that spacing unit?

A The formula itself, I guess, does not take into productive acres, but I think it correlates real well with the productive acres calculations that I did, so --

Q The double circle calculation does not, then, in answer to my question, take into consideration the productive acres.

A It does take it into account from a standpoint of the additional acres drained. In other words, that 80 acres is reflective of what -- what would normally be considered under -- productive under an 80-acre tract.

Q The assumption in the calculation, is it not, is that all tracts are homomgeneous and have 100 percent productive acres within each tract.

A Yes, sir.

Q You have identified for us that the top current producing rate under the allowables for any well in this pool is 534 barrels of oil a day.

A Yes, sir.

Q Do you have a quick way that you could run down the list and show us what each of these wells is currently producing?

Perhaps on Exhibit Four might be a convenient place to make that type of notation for us.

A Okay. I guess the most up-to-date information -- well, let me think. I do have a copy of the OCD's oil allowable schedule if that would be --

Q If you'd like to utilize that, sir, perhaps we could make some notes on one of the exhibits so that we know what each of the wells approximately is producing on a daily basis, and you begin wherever you like and let's make a list.

A Okay. The Higgins Trust No. 1 is shown as 295 barrels per day.

Q 295 a day and you're reading from what monthly report?

A This is the latest available and the date's not on there.

Q All right, sir.

A I apologize.

Q We've got 295 for the Higgins Trust No. 1. How about the Higgins Trust No. 2?

A 267 barrels per day.

Q Okay, and the Monteith No. 2? That's a Texaco well?

A Okay, 320 barrels per day.

Q Okay, and then let's skip the Lumpkin No. 2, that's the proposed well, we need, I guess, the Amerind 21, State 21?

A Amerind -- you mean the Cal-Mon 29?

Q All right, sir, let's take that one.

A Okay, that one's shown to be 487.

Q And if we look at, I think it was the Pennzoil Amerind State 21 Well up in the south half of the northwest of 21?

A Okay, that one would be 60 barrels.

Q And the last one to pick up is the one out of the northwest corner of 28, which is the Amerind Speight Well?

A Is it the No. 1?

Q I believe it's the No. 1.

A Okay, that one would be 250 barrels.

Q All right. So we don't have any wells that currently are able to produce the top allowable of 534.

A That is correct.

Q Have you made any types of projections as to what the expected life and the ultimate recovery would be of the Texaco well at this location?

A No, I haven't.

MR. KELLAHIN: Thank you, Mr. Examiner.

MR. STOGNER: Mr. Kellahin. Mr. Carr, any redirect?

REDIRECT EXAMINATION

BY MR. CARR:

Q Mr. Kern, I believe you testified you had decided not to develop volumetric calculations for presentation here today.

A That is correct.

Q Why did you decide not to do that?

A I decided not to do that because when I prepared the volumetric calculations for the Higgins Trust No. 1 and 2 Well, the well which is the better well, and that being the Higgins Trust No. 1, showed to have volumetrically less oil in place.

Also I noticed that the Higgins Trust Well No. 1 is actually, it was the initial -- it was the -- it was drilled at an earlier date than the Higgins Trust No. 2 and yet it was still producing at a higher rate, and due to the apparent discrepancy, let me to discontinue that as a means of further investigation.

Q And, Mr. Kern, you've been -- you've provided the examiner with some production rates, present production rates on wells in the area. How do these wells perform? What do they -- what kind of decline rate do they experience?

A I guess the decline rate that I've seen,

and I've really only analyzed the two offsetting Higgins Trust Wells, the Texaco well has not established a decline yet, but those seem to be somewhere in the range of 30 percent annual decline.

Q And what were their initial producing rates?

A For the Higgins Trust No. 1 it was somewhere around 400 barrels sustained rate and for the Higgins Trust No. 2 it was 340.

MR. CARR: I have no further questions.

MR. STOGNER: Are there any other questions of this witness?

MR. KELLAHIN: No, sir.

CROSS EXAMINATION

BY MR. STOGNER:

Q Mr. Kern, referring to Exhibit Number Three, that is the double circle theory which you alluded to and as an example you used R-5856-A, did you review that case?

A I reviewed the order on it. I have a copy of the order if you'd be interested.

Q I'll take administrative notice, but we should have it here.

So you don't know if the geology or the spacing for that order or that case was similar to this spacing?

A No, I don't.

Q Do you recall, could you look and tell me what pool that was in?

A That was in an undesignated gas pool in Eddy County, New Mexico.

MR. STOGNER: Okay, I have no further questions of Mr. Kern.

Are there any other questions of this witness at this time?

There being none, he may step down.

Mr. Carr, do you have anything further?

MR. CARR: Nothing further on direct.

MR. KELLAHIN: At this time we'll call our first witness. The first witness is Mr. Bob Leibrock, L-I-E-B-R-O-C-K. He is an engineer with Amerind Oil Company.

MR. LEIBROCK: If I may, excuse me, Tom, it's L-E-I -- it's a tough one.

MR. KELLAHIN: L-E-I, thank

you.

ROBERT C. LEIBROCK,

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

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

A My name is Robert C. Leibrock. I am a petroleum engineer and Vice President of Amerind Oil Company in Midland, Texas.

Q Mr. Leibrock, as a petroleum engineer have you testified on other occasions before the Oil Conservation Division of New Mexico?

A Yes, I have.

Q Would you summarize for us what has been your company's involvement and what your involvement personally has been in the specific area that's under discussion, which is this small Strawn reservoir that has been depicted on earlier exhibits?

A Amerind and myself personally have been involved in this reservoir from the beginning. We discovered this reservoir with the State 21 No. 2 Well, which

was previously mentioned.

Q Approximately how long has that been, Mr. Leibrock?

A I believe that was in November of '83.

Q As an officer of your company and as a petroleum engineer, have you made both engineering and geologic investigations of the subject matter of this case?

A Yes, I have.

Q And have you caused to be prepared certain geologic exhibits?

A Yes.

Q And have you reached certain conclusions about a penalty factor that ought to be assessed against the Texaco well location?

A Yes, I have.

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

MR. CARR: We have no objection.

MR. STOGNER: Mr. Leibrock is so qualified.

Q Let me direct your attention first of all, if you please, to what we've marked as Amerind Oil Company Exhibit Number A, and have you identify and describe that exhibit for us.

A Exhibit A is a structure map contoured on top of the Lower Strawn. The Strawn producing areas in this trend consist generally of relatively narrow Strawn ridges or mounds trending southwest to northeast.

The reservoir with which we're concerned in this hearing is outlined. The reservoir limit on the west is indicated by the Getty Lumpkin 1-Y and on the east by the Tom Brown Monteith 21 No. 1 dry hole.

Q When we look at this exhibit, let's use it as a reference point, Mr. McCance identified the location of the Lumpkin 1 and the 1-Y Well for us. He told us that the rig after being skidded was 660 from the east boundary line. Is that your understanding of where that well is located?

A I don't have my records with me, either, but it was my understanding that it was further east than that indicated.

Q Is the -- are all the Amerind wells that produce from this reservoir located at standard well locations?

A Yes, all the Amerind wells, including the -- both locations in the northeast of 29, are at standard locations.

Excuse me, the north half of the northeast of 29.

Q Okay. Are you generally in agreement with Mr. McCance about the orientation and the shape of this Strawn reservoir?

A Yes, in general.

Q All right. Let's go then, to Exhibit Number B, which is the cross section.

A Exhibit B is a cross section through this reservoir, which terminates on each end with the two dry holes I mentioned on Exhibit A, the Getty 1-Y on the left and the Tom Brown Monteith on the right, with the Amerind Higgins Trust No. 2 producing well, the proposed Lumpkin No. 2 location, also showing the top of the Lower Strawn through these four wells and the indicated reservoir.

Q Do you concur with Mr. McCance that the information available from the Getty Lumpkin 1-Y Well confirms and satisfies for you that the reservoir is absent --

A Yes, I do concur.

Q -- as we move to the west and north of that well?

A Yes.

Q Have you taken the information available to you, Mr. Leibrock, and prepared a net effective Strawn pay Isopach?

A Yes, I have, and that is Exhibit C.

Q All right, sir, let's turn to that exhi-

bit, and before we explain your interpretation, you might show us where you and Mr. McCance may differ on parameters that you've used.

A Okay. Let me just run through my analysis of this Isopach.

Q Okay. All right.

A Okay. As you mentioned, Exhibit C is an Isopach of net effective Strawn pay. The effective pay was determined by using a 2 percent porosity cutoff but very similar results are obtained if 3, 4, 5, or 6 percent porosity cutoff is used.

The total reservoir area is 406 acres and the productive area within the Lumpkin No. 2 proration unit, which is highlighted in yellow, is 20 acres, or 5 percent of the total reservoir area.

I would like to emphasize here that the indicated reservoir area in the Texaco Lumpkin No. 2 proration unit assumes that the effective portion of the reservoir extends all the way to the Lumpkin 1-Y dry hole.

As we previously testified, there's no indication of any porosity in the 1-Y dry hole so that actual reservoir extent is probably significantly less than shown on Exhibit C.

Exhibit C is also used to compare reservoir volumes.

Q All right, let's take a moment here and discuss how you and Mr. Kern may have approached this differently.

Mr. Kern has just testified for us that he has not taken into consideration the varying thicknesses of the reservoir. He's excluded volume in making his determination of the relationship of his tract to the balance of the reservoir.

Have you done something similar or different to that?

A Well, my approach has been to take the indicated reservoir volume because we feel that the well density in this area is quite sufficient to construct this type of volumetric map with quite a degree of accuracy.

Q Do you share with Mr. Kern his reluctance to use volumetric calculations for determining oil in place?

A No, I have no reluctance at all to make volumetric calculations.

Q Okay. Do you believe your approach to assessing the volume of the reservoir and Texaco's relative percentage of that reservoir to be one that is fair, reasonable, and accurate?

A No, sir.

Q I didn't make myself clear. Do you believe that your method as opposed --

A Oh, I --

Q -- to Mr. Kern's method, I was asking you your method.

A Okay.

Q All right. Let's change the question.

A All right.

Q Do you think Mr. Kern's method of excluding reservoir volume in assessing the reservoir percentage productive acreage and the Texaco share of it, is one that's fair and reasonable?

A No, sir.

Q All right, why not?

A For the reason that I just stated. I think with the degree of well control here, it is quite reasonable to construct this type of volumetric map.

Q Let me discuss with you now the reason that you're here, the question of correlative rights.

What is your position with regards to the proposed unorthodox location by Texaco insofar as it affects the correlative rights of Amerind and the other owners of the reservoir?

A Okay. On the matter of correlative rights the existing wells will assure the protection of correlative rights. Any additional wells will upset this balance.

On Exhibit C the reservoir area highlighted in yellow is associated with the Texaco Lumpkin No. 2 proration unit while the Texaco Monteith No. 2 proration unit covers that portion of the reservoir highlighted in orange.

The total Texaco area represented by the yellow and orange together is 61 acres or 15 percent of the total reservoir area.

Now, on a reserovir volume basis this same area is associated with 153 acre feet, or 16.5 percent of the total reservoir volume.

The other five wells in the reservoir cover on the average about the same reservoir area and volume so correlative rights are very well balanced with the existing wells.

Q Let's go back and have you explain some of the numbers. When you first discussed Exhibit Number C you discussed for us your calculation of the total reservoir area as being 406 acres.

A Yes.

Q What does that mean to you when you say total reservoir area?

A That's just simply the surface area within the zero contours on this map.

Q Within that area, then, if we look at the

Texaco tract for the unorthodox location, you've told us, using just areal extent, they have 20 acres out of the 406 acres in the reservoir.

A That's correct.

Q Would you agree with Mr. Kern that that would provide a method by which you could commence the calculation of a penalty and a producing rate for the Texaco well?

A No, I don't agree.

Q What in your opinion is the more appropriate way to share the reservoir among the various tracts?

A As I mentioned, an additional well on the Texaco proration unit would upset correlative rights and Amerind therefore thinks that a well at this location is not warranted; however, if the Commission prefers to leave this decision to Texaco, Amerind recommends that a penalty allowable be assigned to the Texaco Lumpkin No. 2 Well.

Q Let's talk about how you might recommend or approach that a penalty be assessed against that well.

A There were -- previously it was testified by a Texaco witness that the certain numbers on the current producing rates of each of the offset wells, I would like to let the record reflect that the actual average producing rate is presently about 200 barrels per day for each of the offset wells, plus or minus a few barrels.

Now based on that, I think a reasonable penalty can be established based on current average production. Earlier I presented evidence that only about 5 percent of the reservoir area and about the same percent of reservoir volume lie within the Lumpkin No. 2 proration unit. Based on that, Amerind recommends that a penalty of 95 percent be assigned to the Lumpkin No. 2.

Q Do you believe a penalty in whatever fashion it is constructed, that is pegged on a top allowable of of 534 a day is one that is going to result in the protection of correlative rights of the owners in the pool?

A No, I don't, one reason being that, as previously testified, none of the wells in this reservoir, even on initial potential sustained that rate for any period at all. Most of the potentials were considerably less.

Q If the penalty for the well is pegged on the top allowable of 534, would that result in a producing rate for the Texaco well at that location that would cause it to have an unfair rate of production in relation to the balance of the wells in the pool?

A I believe so.

Q When we talked about the reservoir pore volume, Mr. Leibrock, you gave us a number that combined both the Texaco tracts, the Monteith No. 2 and the tract for the Lumpkin No. 2 together.

A Yes.

Q Do you have information that could separate out for us the acres or the percentage only insofar as the northern tract is concerned?

A Yes. As I testified on the northern tract, namely the Lumpkin No. 2 on both an area and volume basis it's 5 percent each of the reservoir.

Q Your calculation for the area involved with the Lumpkin well, I mean with the unorthodox location well, assumes what with regards to the extent of the reservoir at the Lumpkin location?

A The Lumpkin 2 location?

Q Yeah, the Lumpkin 2 location?

A Okay, as far as reservoir thickness?

Q Yes, sir.

A Oh, this would be on the order of 65 feet at the thickest location.

Q Were Exhibits A, B, and C prepared by you or compiled under your direction?

A Yes.

MR. KELLAHIN: We'd move the introduction of Amerind's Exhibits A, B, and C, Mr. Examiner.

MR. STOGNER: Are there any objections?

MR. CARR: I have no objection.

MR. STOGNER: Amerind's Exhibits A, B, and C will be admitted into evidence.

Mr. Kellahin, do you have anything further?

MR. KELLAHIN: No, sir, that concludes my direct examination of Mr. Leibrock.

MR. STOGNER: Mr. Carr, your witness.

CROSS EXAMINATION

BY MR. CARR:

Q Mr. Leibrock, I'd like you to look at your Exhibit Number C, the Isopach map. If we take the zero line as you depict it -- as you have depicted on this map, that is your interpretation of the reservoir limit.

A Yes.

Q What control, or what did you use to draw the zero line as far to the south and east as you did?

A Okay. Well, on the east, as I testified, certainly the Tom Brown dry hole is a limit and to the south and southwest the limit is presented by two dry holes in 29, and also as testified, the Getty 1-Y on the west, and then to the north, the Pennzoil State 21. And that's -- that's our control.

Q And so as we look in Section 28 there's actually no control in 28, is there?

A Well, there's not the degree that you have directly in some of these other areas, but looking at the control taken as a whole, and we do feel that there is some degree of symmetry to these reservoirs, and we think that this is a very reasonable interpretation.

Q So based on just these control points you've pointed out, that's where you place the zero line as it comes across the northwest of 28.

A Yes.

Q And then it's based on this interpretation of the reservoir that you come up with a penalty, that being that only 5 percent of that acreage is within the spacing unit to be dedicated to the proposed well.

A That's correct.

MR. CARR: That's all I have.

MR. STOGNER: Thank you, Mr. Carr.

Mr. Kellahin, any redirect?

MR. KELLAHIN: No, sir.

CROSS EXAMINATION

BY MR. STOGNER:

Q Mr. Leibrock, let me refer back to your

testimony of you suggested a 98 percent penalty.

A 95.

Q 95 percent, is what it was.

A Yes, sir.

Q Is that 95 percent off the depth bracket allowable of 530?

A No, sir, I would recommend off of the current average producing rate of the offset wells, which is about 200 barrels per day each.

Q Again explain to me why do you think that is a just and reasonable penalty.

A Mr. Examiner, we think that that is just and reasonable, first of all, as I've mentioned, based on the current offset well producing rates, but primarily based on an analysis of the reservoir area and volume, both of which quite clearly indicate that the percent of the reservoir within the Lumpkin No. 2 proration unit is about 5 percent of the total reservoir.

So conversely, the allowable should be 95 percent, or a penalty allowable of 95 percent.

Q When I look at your Exhibit Number C and Texaco's Exhibit Number One, a couple of things stand out and maybe you can help explain this to me.

If I look at that Amerind State 21 Well No. 2 in Section 21, that is the well in the southwest quar-

ter of the northwest quarter, I see a little number 66 there. What does that designate?

A 66 feet of net pay.

Q Now does that correspond to your perforations?

A We don't have that much perforated but from production history and our understanding of this reservoir, we think that using a 2 percent porosity cutoff is reasonable and that's how I arrived at that number, even though we did not actually perforate that much.

What I'd like to hasten to add here, I did not submit this as an exhibit, but using the 4 percent which Texaco used for the cutoff, which would result in somewhat different net pay figures, we still come up with very, very similar percentages of the total reservoir within the Texaco unit.

Q Let's go back to that areal extent of 20 acres.

A Uh-huh.

Q So I can put everything together, you're saying of that area of 10 to 20 acres you're approximately -- that's approximately 5 percent of the total reservoir. We're just looking at areal.

A Yes, sir.

Q How about the volumetric?

A Same thing; very close. And also, as I mentioned, I think we're definitely giving them the benefit of the doubt here by showing the limit of the reservoir all the way to the 1-Y dry hole.

Q If we look at the proposed Well No. 2, what do you think would be the net effective Strawn pay if the well was there?

A Using, as I say, consistent with my map here, using the 2 percent cutoff I would give them roughly 65 feet net pay.

Q If we used a 4 percent net pay, would you venture a guess how much net pay would be there?

A Oh, it would probably be, I believe as Mr. McCance testified, 40 or 45 feet, something on that order.

MR. STOGNER: Are there any other questions of Mr. Leibrock?

MR. KELLAHIN: No, sir.

MR. STOGNER: There being none, he may step down.

MR. KELLAHIN: Mr. Examiner, we'll call at this time Mr. Greg Hair.

GREGORY L. HAIR,

being called as a witness and being duly sworn upon his

oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q Mr. Hair, for the record would you please identify yourself and describe for us what you do?

A My name is Gregory L. Hair. I'm District Geologist for Pennzoil Company in Midland, Texas.

Q Mr. Hair, have you previously testified before the Oil Conservation Division as a petroleum geologist?

A Yes, I have.

Q Would you give us a summary of what your involvement has been on behalf of your company in doing the exploration and development geology with regards to Strawn development in Lea County, New Mexico?

A This has been my area of responsibility with Pennzoil for about 7-1/2 years. I have worked other areas during that time but this has been my main area of responsibility.

Pennzoil has drilled several wells over the last few years under my direction. We have done both exploration and development geology as one entity; we do not separate them, so I am responsible for all the geology of the Lovington area.

Q With regards to the Texaco application today, and the Strawn reservoir that's under consideration, have you made a geologic examination of that information?

A Yes, I have.

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

MR. STOGNER: Are there any --

MR. CARR: We have no objection.

MR. STOGNER: There being no objection Mr. Hair is so qualified.

Q Mr. Hair, let me direct you to what we have marked as Pennzoil Exhibit Number One, and first of all, if you'll take a moment and simply identify that exhibit for us.

A That is an Isopach map of Strawn porosity greater than 4 percent in the Strawn limestone that we've been talking about here today.

It shows several pods of porosity in this area and six Federal sections, being square mile sections in the area.

Q What do you conclude as a geologist with regard to your examination of the information that's shown on Exhibit Number One?

A Exhibit Number One is simply to orient

the Examiner and those present as to the location of this porosity pod in relation to the other pods in the area, giving the approximate size, showing it's very similar in size to most of the rest of them. Also to point out clearly, which has been testified to by other witnesses, the division between it and the pod of porosity to the north and west.

Q Based upon your experience in examining the geology of these various Strawn pods, are you satisfied that the pod under consideration today is separate and distinct from the pod that's identified to the north and west in Section 20?

A Absolutely.

Q Are you also satisfied that the orientation, the general shape and size of this particular pod is accurate and reliable?

A Yes. We don't purport this to be any different than any of the other interpretations; slight variations but no -- no big differences between anyone's interpretation, showing how well the well control fits.

Q Let's turn now to Pennzoil Exhibit Number Two.

A This is the same Strawn porosity Isopach again; shows only the reservoir in question; we got rid of all the extraneous reservoirs, divided the tracts, the proration unit tracts, up under the reservoir into tracts which

are numbered on there, one, two, three, four, five, six, and seven.

There is a tabulation at the bottom. Our engineering witness will testify to that. It's on there for reference at a future -- at a future time. I'll only testify to the geology at this time.

Q Let us discuss the (unclear) case and the differences between Mr. McCance's interpretation of the Isopach and yours.

A I believe the Examiner can see that the interpretations are very similar. The pods are drawn in the same orientation. They are approximately the same size. I don't know the exact -- whether they're the exact same area or not. I would say that there is only one major difference in the interpretation.

As Mr. Leibrock just testified, he gave Texaco every benefit of the doubt in taking the zero contour line to the Getty Lovington Lumpkin Well.

I did not give them that benefit of the doubt. I don't feel based on the knowledge of the reservoir that we have that that is a reasonable interpretation.

Therefore, that zero line has been moved away from the Lovington Lumpkin Well. Conversely, it has also been moved away from the Tom Brown Well in Section 21, the dry hole which defines the eastern edge of the reser-

voir. So that's happened on both sides. In my interpretation I just don't feel it's reasonable to take that zero line clear out to a known zero value and say that two feet away there was probably effective reservoir.

Q You and Mr. McCance have used both a 4 percent porosity cutoff?

A That is correct.

Q All right, is there anything else you'd like to discuss for us about either of your exhibits?

A Again, just to point out the similarities of all the exhibits you've seen today. The geology is so well set because there is such good well control. I think it shows that we can accurately predict the size and shape of this reservoir on all the tracts in question and that based on three different maps there is very little dissimilarity between the tracts.

Q In your opinion there is adequate and sufficient information from which we can not only orient the reservoir but determine its size and shape.

A Absolutely.

MR. KELLAHIN: That concludes my examination of Mr. Hair.

We move the introduction of Pennzoil Exhibits One and Two.

MR. CARR: I have no questions

of Mr. Hair.

MR. STOGNER: Exhibits One and Two will be admitted into evidence.

CROSS EXAMINATION

BY MR. STOGNER:

Q Mr. Hair, is it my understanding that you did not set these acre feet numbers?

A No, I did not.

Q Okay. Or the percentages (unclear).

A No, I did not.

Q Okay. If I look in Section 29 to the plugged and abandoned well in Unit B, that being the northwest quarter of the northeast quarter --

A Yes, sir.

Q What is the footage or the -- you contoured that within the zero line.

A Yes.

Q What kind of footage does that show?

A I have four feet of porosity in that well. There is some indication of porosity on the logs.

By personal communication with Mr. Leibrock, he said that that was tested and was not effective porosity, but I count it as porosity strictly for the sake of consistency because I do not have drill stem test data on

every well present in this entire area, not just in this small area, so I attempt to make my map consistent by counting that as porosity.

Q Thank you, Mr. Hair.

MR. STOGNER: I have no questions of this witness. You may be excused.

Mr. Kellahin.

MR. KELLAHIN: Mr. Randy Hodgins is my next witness. It's H-O-D-G-I-N-S. Did I get it right?

MR. HODGINS: Yes, sir.

MR. KELLAHIN: Okay, and he's a petroleum engineer with Pennzoil.

RANDY M. HODGINS,

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

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

A I'm Randy M. Hodgins. I'm a petroleum engineer for Pennzoil Company.

Q Mr. Hodgins, would you describe for the

Examiner when and where you obtained your degree in engineering?

A I attended Mississippi State University; earned a degree, a BS degree in petroleum engineering.

Q And I'm sorry, what year was that?

A 1981.

Q Subsequent to graduation, Mr. Hodgins, would you summarize for us what has been your employment experience as a petroleum engineer?

A Yes. I've been working with Pennzoil since that time. The last two years I've been in Pennzoil's Midland District as a production reservoir engineer. We don't differ between the two.

Q As a production or reservoir engineer for your company what kinds of things do you normally do?

A I routinely calculate oil and gas reserves specifically in the Lovington area. That Lovington area represents a significant amount of reserves for our district and so I spend a lot of time just with that area.

Q Have you also made an analysis of a recommendation to the Examiner of a penalty factor to be assessed against the Texaco tract?

A Yes, I have.

MR. KELLAHIN: We tender Mr. Hodgins as an expert petroleum engineers.

MR. CARR: I have no objection.

MR. STOGNER: Mr. Hodgins is so qualified.

Q Mr. Hodgins, let's take, if you have before you, Pennzoil Exhibit Number Two, which is Mr. Hair's Isopach, and referring you to the information on the lower left corner of that exhibit, can you generally describe for us what methodology you used as a reservoir engineer to assign values to each of the tracts?

And first of all let me ask you to identify what you mean when you show Tracts One through Seven. What are those?

A The first thing I did with this was outline each proration unit. These Tracts Numbers One through Seven are these proration units, Number One tract being the tract in which the proposed location is located.

Q All right. When the information shows acre feet and you show a total acre footage number in the reservoir of 14,110 feet, what have you done as an engineer to get that number?

A I've planimetered the area, the reservoir, and taken that area, considering thicknesses I have arrived at a reservoir volume of acre feet.

Q All right. So when we look at Tract Number One, the Texaco tract, and the legend says acre feet of

220 acres, what does that tell you?

A I arrived at that 220 acres by planimetering the reservoir area in Tract One, considering the thickness, the number was 220 acre feet.

Q And how does that differ from the method by which Mr. Kern attempted to determine the productive acres involved in that tract?

A I really think he was considering just the reservoir area, which I really don't think is relevant. I think we should be considering reservoir volume and take into consideration the thicknesses.

Q Is it the normal custom of your profession and your practice to take into consideration the thickness of the reservoir when you make calculations of reserves in this reservoir?

A Sure.

Q The third column over shows a percentage and what is that?

A That's simply a percentage per tract of the acre feet of reservoir volume in the tract, which was just taking the volume per tract divided by the total reservoir volume of (unclear) Tract One, 220 acre feet divided by the total reservoir volume of 14,110 acre feet shows a percentage of total reservoir to be 1.6 percent.

Q Having got that far in your analysis,

what then is the next thing you do as a reservoir engineer in order to begin to calculate the reserves in place for the entire reservoir?

A You need to establish reservoir -- parameters for the reservoir.

Q And have you done that?

A Yes, I have.

Q Let me direct your attention to Pennzoil Exhibit Number Three, Mr. Hodgins, and ask you to identify that exhibit.

A This Exhibit Number Three shows the average reservoir parameters that were derived from well logs, from all available core data, pvt fluid studies in the area, pressure, pressure build-up analysis, a few of the things which really affected volumetric calculations, which I'm going to show later on.

Q Just a second here, here's make sure we're up with you.

In making a study to determine the reservoir parameters that you want to use, that you feel to be the most accurate and reliable, what information did you have available to you and use in order to give you confidence in these parameters?

A I had core data, all the well logs in the reservoir, presssure build-up analysis, two of the wells in

the reservoir, and we have pvt fluid studies of other similar reservoirs in the area.

Q In your opinion is that sufficient information from which you can reasonably rely upon the development of accurate parameters to use for this reservoir?

A Yes.

Q The Examiner and even Mr. Carr is familiar with volumetric calculations, and we all know there are certain parameters in there that have a range of reason, and let's look at the average porosity, which I think is probably the first one. You have assigned a 4 percent porosity average.

A Yes.

Q What is the basis upon which you have used that percentage?

A I've assigned an 8 percent porosity average, not 4.

Q I'm sorry. I was thinking of the range. What -- you assigned 8 percent. Why did you choose that percentage?

A Based on available core data and well logs.

Q What is the range of average porosity that you might expect within a reservoir of this type?

A 4 to 14 percent. The range of acceptable

porosity values is 4 to 14 percent.

Q And you have utilized 8. All right.

The next factor that is commonly varied within a certain range is the average water saturation. You have used a 15 percent number.

A Yes, I have.

Q All right, and what is the basis for believing that is to be accurate and reliable?

A The basis for that number is from the well logs.

Q When we talk about the water saturation what is the range of possibilities for use in the calculation?

A In this particular reservoir the water saturations range from 10 to 25 percent.

Q I believe Mr. Kern said that he recalled using 24 percent in his volumetric calculation.

For the record, what happens if the water saturation percentage is the higher end of that range as opposed to the lower end?

A Your volumetric oil in place goes down.

Q All right. The formation volume factor is another one that there is some disagreement about occasionally. You have used 1.5?

A Yes, I have.

Q What's the basis for that number?

A That 1.5 comes from pvt, fluid analysis for reservoirs in the area. I believe it's already been testified to by Mr. Kern that he used 1.45 and I'm comfortable with either one of those numbers, so I've chosen 1.5.

Q In determining whether or not the calculation applied equitably to all the tracts, does it matter whether or not those parameters vary if you're calculating the reservoir volume in place and using the same parameters for each of the tracts?

A As long as you use the same parameters for each of the tracts the percentage of the ratios doesn't matter.

Q Let's go back, then, to the last issue that you have on the list of parameters and that's a recovery factor. You've utilized a 25 percent recovery factor?

A Yes.

Q And what is the basis for using that percentage?

A That 25 percent is a number that can't be calculated. It's strictly our experience, my experience in the area of the Lovington Northeast area. I feel that it applies to this reservoir because it's just like all the other reservoirs in the area that I've seen .

Q Let's exclude for a moment the calculation of the recoverable oil and let me ask you whether or

not you've used the volumetric calculation to come up with the total oil in place for the entire reservoir?

A Yes, I have.

Q And is that shown on Exhibit Number Four?

A Yes.

Q And what have you calculated to be the total volume of original oil in place in the entire reservoir?

A Original in place oil I've calculated to be 4,962,000 barrels.

Q From that number have you subtracted the volume of oil that has been produced out of the reservoir?

A Yes, and that is shown as remaining recoverable reservoir reserves.

Q Remaining recoverable reservoir reserves are the 589,000 barrels of oil?

A Yes.

Q And to get from the total oil in place you have simply subtracted what?

A Well, I'd like to back up here a little bit.

Going from original oil in place to initial oil in place you need to use your 25 percent recovery factor and you have an ultimate -- original recovery of

1,241,000 barrels.

Q And then it's from that number that you subtracted the actual production?

A Yes.

Q The cumulative recovery as of August 1st of 86 is the 652,000 barrels of oil?

A Yes, it is.

Q And that's simply taken off of Commission forms?

A Yes, sir.

Q All right, sir. Taking this information now, Mr. Hodgins, have you assigned to each of the seven tracts the volume of oil that in your opinion was originally in place under each of the tracts?

A Yes, I have and it's shown in Exhibit Number Five.

Q Let's turn to Exhibit Number Five. Starting from left and going to right, would you simply identify for us what is indicated by the abbreviations as we read the tabulation?

A This tabulation is a tabulation of reservoir ownership by tract.

The first column is the tract number. The second and third columns are the numbers that have already been shown in Exhibit Number Two. By multiplying the

original oil in place, which I have established from Exhibit Number Four, of 4.962-million barrels, using these percentages of the total reservoir acre feet per tract and simple multiplication gives you original oil in place per tract.

Q All right, let's stop for a moment and see how that's done.

If we take Tract Number One and you have determined that it has 1.6 percent of the reservoir and that the total oil in place in the reservoir is the approximately 5-million barrels of oil, you have simply taken 1.6 percent of the 5-million.

A That's correct.

Q And that gets you 80,000 barrels of oil in place underneath Tract Number One.

A Original oil in place.

Q All right. What does the next column show us?

A The next column is initial recoverable reserves by tract, which is simply taking the original in place oil in the previous column multiplied by that recovery factor, which in Tract One, 25 percent of the 80,000 originally in place shows an initial recoverable reserves of 20,000 barrels.

Q All right, what's the last column show?

A The last column is by taking our remain-

ing recoverable reserves of 589,000 barrels is going back and taking your percentage of your total resevoir acre foot, which can contribute to that 589,000 barrels and multiplying those and getting a remaining recoverable per tract, which is -- Tract One would be 9.4 thousand barrels, or 9400 barrels remaining.

The numbers in the last column on the right are simply remaining reserves recoverable by tract, which is arrived at by taking the percentage of the acre feet in column three, multiplied by the total remaining reserves per reservoir, which is in Tract One's case 9400 barrels.

Q All right, sir, let's use this information now and make some assumptions.

Let's assume that the Examiner decides to allow Texaco to recover a volume of oil that equals the original -- the initial recoverable reserves for that tract, the 20,000 barrels of oil.

If you'll turn to Exhibit Number Six, have you made a calculation to show how the Examiner, if he decides to do it that way, can peg the daily producing rate that will allow Texaco to recover a volume of oil that approximates the original recoverable oil for that tract?

A Yes, I've made that calculation.

Q All right, sir, let's turn to Exhibit

Number Six and see how you would make that calculation.

Explain to us what you have assumed and what you have done to get us to the 20 barrels of oil daily producing rate.

A We have proposed a maximum daily allowable of 20 barrels a day. That 20 barrels a day of constant production for three years would be 21,900 barrels, which exceeds the original recoverable oil in place of Tract One.

Q In making calculations of anticipated ultimate recoveries from various wells in this particular type of reservoir is it fair and reasonable to make an assumption of a three year period of recovery?

A Yes, the three years is a conservative estimate just to make sure that they do get their 21,900 barrels. Actually the life of these wells will probably run a range of five to six year minimum.

Q So using a 30 percent decline per year would be a conservative number in terms of the total barrels of oil to be recovered in this one.

A Yes.

Q And you simply have calculated then what the daily allowable would be that would allow Texaco to recover approximately 22,000 barrels of oil.

A Yes. I'd also like to point out that

being penalized to 20 barrels a day, that 30 percent decline is not going to apply because you're always going to be able to make that allowable.

Q If the Examiner decides to allow Texaco only to recover its remaining share of the recoverable reserves that are left in the reservoir, how then would he adjust the daily producing rate in order to more closely approximate the 9,400 barrels of oil that are left to be recovered underneath Texaco's tract?

A That daily rate for three years, which would allow Texaco to recover their remaining reserves underneath the tract would be 9 barrels a day.

Q If the Examiner decides to set up a penalty in whatever formula he decides, but a formula that includes taking a penalty off of the top allowable for a well, the 534 barrels a day, in order to allow Texaco to recover no more than the oil that was initially recoverable from their tract, what percentage penalty would that be?

A That would be a 96 percent penalty.

Q If the Examiner decides to allow Texaco a penalty that is less than that amount, what happens with regards to the production of the remaining oil in the reservoir as allocated among the tracts?

A Any production rate greater than 9 barrels a day is going to give more than what's remanining un-

der the tract right now, so it would give Texaco more than what's rightfully theirs.

Q And where is that oil going to come from?

A It's going to come from other parts of the reservoir, other people's oil, other people's reserves.

Q Is the method by which you have analyzed the reserves, the recoveries per tract, one that is a standard methodology that's applied by your company and other companies to do this kind of work?

A Yes, it is, especially with this type of well control here.

Q What utilization does your company make of work that you perform like this?

A The work that I do of calculating reserves are used for the companies books, which is an asset to the company, so that type of work is very important.

Q Is there a degree of reliability and confidence you and your company place upon this type of work?

A Yes, sir.

Q And what is that?

A I have great confidence in this work.

Q Does your company expend money and make investments based upon this same type of analysis for other reservoirs?

A Yes, they do.

Q And for this reservoir?

A Yes.

Q Have you had an opportunity to make similar double circle calculations like Mr. Kern has done?

A Yes, I have.

Q Do you think, Mr. Hodgins, that that type of penalty is one that's fair and appropriate for this well?

A No, my double circle calculations are similar to Mr. Kern's and as I've already testified, any rate above 9 barrels a day, which that rate would be over 150 barrels a day, that would not assure correlative rights.

Q What are the inherent weaknesses in applying the double circle penalty to a well in this type of reservoir with this extensive well control and information?

A Well, I'm not that familiar with the double circle method other than just cranking through the calculations which have already been done, but I believe that the calculations, especially for the factor that takes into account encroachment, is based on an 80-acre productive acreage, which has shown everybody's in agreement that all 80 acress of this proration unit is not productive.

Q What in your opinion is the appropriate penalty then that more accurately reflects the actual evidence and information available for this well that you would recommend the Examiner use and utilize for assessing a pen-

alty against Texaco?

A 96 percent.

MR. KELLAHIN: That concludes my examination of this witness.

We'd move the introduction of Three through Six, Pennzoil Three through Six.

MR. STOGNER: Are there any objections?

MR. CARR: No objection.

MR. STOGNER: Exhibits Three through Six of Pennzoil's will be admitted into evidence at this time.

We'll take a fifteen minute recess.

(Thereupon a recess was taken.)

MR. STOGNER: Mr. Carr, I believe we're ready for cross examination.

CROSS EXAMINATION

BY MR. CARR:

Q Mr. Hodgins, initially I want to warn you that when your attorney stated I knew something about volumetrics he may have been misleading you.

If I understand what you've done, you initially, you work off of the information you get from the geologist in terms of what they map the reservoir to be, is that correct?

A Well, I think I'd go back a little further. I have to take his interpretation using engineering data that's available and see if I concur with it, which in this case I do.

Q Okay. And then that's what you start with.

A Yes.

Q Now, then you have certain reservoir parameters that you bring to bear, that become a part of your study, and those are various factors which you have to determine for this particular (unclear).

A Yes.

Q Now, in this particular case you've used an average porosity of 8 percent.

A Yes.

Q If I understood your testimony you stated there was a porosity range in this area that was from 4 to 14 percent.

A Yes, there is.

Q Is that the individual porosities in the various wells that you had information on?

A That was a range of porosities within a single wellbore.

Q Within a single wellbore, so you had some wells with a 4 percent and some of them with as high as 14.

A Within the same well.

Q Okay. Did you utilize the -- the 4 percent figure, when we talk about a 4 percent porosity figure, did you utilize the figure that was testified to earlier for the well which is in the northwest of the northeast of Section 29, which is a dry hole just inside the zero contour line?

A Would you repeat that question, please?

Q There's a dry hole indicated, I believe, in the northwest on Exhibit Number Two.

A Yes.

Q In the northwest of the northeast of Section 29. Did you use any information from that well?

A No, I didn't.

Q When you talk about porosity, are you talking about effective porosity?

A Yes.

Q So if there was porosity, like in that well, that's considered, it was testified earlier as being not effective porosity, you would not consider that.

A I would consider that zero porosity line.

Q What do you mean by effective porosity? I'm not trying to put words in your mouth. I'm trying to figure this out.

A Effective porosity is porosity which can contribute to storage and flow of hydrocarbons or oil.

Q And if there was not effective porosity that would be porosity that wouldn't contain hydrocarbons.

A Yes.

Q So if there's a well within the zero contour that has porosity but it's not effective, that would not indicate to you an area that would contain hydrocarbons.

A Yes.

Q And so even though your zero contour contains a well within it that had porosity that was described as not effective, you included all that acreage in the reservoir.

A Well, I'd like to say that's a very small amount and that mine is almost on the well and with those thicknesses there, the significance is very small.

Q And that's virtually the only control point in that 40-acre tract, however, is it not?

A Yes, sir.

Q Now, -- do the wells in this area produce water?

A Yes.

Q Now you've indicated a water saturation range of 10 percent to 25 percent.

A Yes.

Q In that range from 15 to 25 you -- I'm sorry, from 10 to 25, you picked 15. Any particular reason for that?

A Yes, that was an average water saturation as shown on the well logs.

Q And if that saturation, water saturation is higher it would tend to reduce the reserves and conversely, if there was no water, there would be greater reserves in the reservoir.

A Yes.

Q What is, and you may not know this, what is Pennzoil's interest in this area, what ownership interest? Do you know?

A No.

MR. CARR: I have no further questions.

MR. STOGNER: Thank you, Mr. Carr.

Mr. Kellahin, any redirect?

MR. KELLAHIN: No, sir.

CROSS EXAMINATION

BY MR. STOGNER:

Q Mr. Hodgins, let's take a look at Exhibit Number Two, and we'll take a look at the zero porosity line that's going along in there. Now, did you planimeter the whole zero planimeter line?

A I planimetered it a number of different ways.

To answer your question, yes, but I also planimetered each tract individually.

Q Okay, each tract individually. If I look up into the far north end and to the extreme east end, I show a part of that zero line that extends outside of the designated tracts, and also if I go to the extreme southwest end I have the same thing. What happened to that acreage?

A That acreage or reservoir volume was allocated to the nearest tract, which in the northeastern part of th ereservoir you made reference to it was attributed to Tract Three and in the southwestern, Tract -- it was contributed to Tract Seven.

Q Why?

A My interpretation is that's -- that part of the reservoir will be drained by the nearest well and those are the nearest wells.

Q So the well in Tract Number Seven, you

are saying, will drain that portion over in the far south-western portion.

A Yes. It's a possibility it may not drain it totally, that some could flow over into Tract Two.

Q And if we go up there to Tract Three?

A Same, same thing could happen, except we only have one well up there and I think most of the -- most of the oil would flow towards that one well as opposed to your ones down in Tract Two and Seven.

Q Would that not blow the theory of 180 -- I mean 80-acre drainage in this?

A 80-acre drainage?

Q Yeah, this pool was set up on 80-acre proration units?

A Well, it's my -- it's my interpretation that the wells will drain 80 acres, if not possibly more.

Q But look at that well in Tract Four, then it's foreseeable that it's draining off of Tract One, is that right?

A That's correct.

Q And the same with the well in Tract Two.

A That's also correct.

Q So Tract One is foreseeably being drained on two sides.

A Yes.

Q Okay. Bear with me here, if we go to Exhibit Number Five, I got a little bit lost in the last column. I followed everything up to that portion.

How was that figure in the last column calculated?

A By taking the remaining recoverable reserves, 589,000 barrels is the total --

Q Uh-huh.

A -- by multiplying the percentage of acre feet per tract by that -- into that volume of oil, it would be the remaining recoverable reserves by tract.

For an example, in Tract One, 1.6 percent of the reservoir volume is under Tract One.

Q Uh-huh.

A And my interpretation is that of the remaining 589,000 barrels 1.6 percent of the reservoir would contribute to that remaining recovery.

Q So you multiply --

A Yes, sir.

Q -- the 1.6 percent times 589?

A Yes, sir.

Q 589?

A 589 is the initial recoverable reserves of 1.24-million barrels minus what's already been produced of 652,000 barrels.

Q Okay. That's where I got -- on Exhibit Number Six, the allowable penalty of 96 percents, what's that, 96 percent of the depth bracket allowable or average production, or what?

A 96 percent of the allowable, 534 barrels, is 20 barrels a day.

Q So that's what you're basing it on.

A And it just coincidentally corresponded with their three years of production would be their initial recoverable reserves under Tract One.

Q Let's extend this thinking back to Tract One here. That's the tract which we're talking about.

Do you know what that zero line is any part -- is inside any part of that 150 feet of the center of a quarter quarter section for a standard location?

A I'm sorry, could you repeat that question?

Q Okay, let me rephrase it.

The standard location in this pool is 150 feet in a quarter quarter section of a proration unit, is that correct?

A Yes.

Q Does that area, 150 feet of a quarter quarter, within a center of a quarter quarter section, within -- falls with inside that zero porosity lined on Exhibit

Number Two?

A Is -- if the well -- let me make sure I'm understanding your question, if the well was at a legal location would it be in the reservoir?

Q Yeah.

A It looks to me like it would be right about the zero percent cutoff line.

Q According to this map here.

A Yes.

Q Let's say that that zero line extended maybe a little bit further and this falls within, let's say, (not clearly understood) for the sake of arguing here. If this would occur, would there still be a penalty need to be assessed in Tract Number One?

A Yes.

Q There would? Why?

A Because I feel the well would -- the well would produce more than 9 barrels a day and anything beyond 9 barrels a day is going to allow Texaco to drain more than their fair share of the reserves that's under their tract.

Q You just got through saying that the well in Tract Four and Tract Two would drain a portion of Tract One, is that right?

A Yes, and I'm also saying that we are draining Tract One but I feel like we -- they should, if

they drill the well, they should be able to produce only their amount of reserves that they own.

MR. STOGNER: No further questions. Are there any questions of this witness?

MR. KELLAHIN: No, sir.

MR. CARR: No, sir.

MR. STOGNER: Mr. Kellahin?

MR. KELLAHIN: Call my last witness, Mr. Bob Curtis, Standard Oil.

ROBERT E. CURTIS,

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

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

A Robert E. Curtis. I am the Production Geology Area Coordinator for Standard Oil Company, specifically covering the greater Permian Basin Area, which does, in fact, include the Northeast Lovington Field Area.

Q Have you previously testified before the Oil Conservation Division of New Mexico?

A No, I have not.

Q Would you summarize for the Examiner what is your educational and work experience as a geologist?

A I was graduated from the University of Missouri, Kansas City, in 1971, Bachelor of Science.

In 1978 I received a Master of Science from the University of Texas, El Paso.

Thereafter I assumed a position with Exxon Company, USA, in Midland, Texas.

Since that time I have worked with various employers covering various areas of the United States exploring for and developing reserves found, be they for oil or gas.

I have spent approximately four years of that approximate eight years working in or supervising work done in the southeast New Mexico, Lea County area.

MR. KELLAHIN: Mr. Examiner, we tender Mr. Curtis as an expert petroleum geologist.

MR. STOGNER: Mr. Curtis is so qualified.

Q Mr. Curtis, let's have you identify and describe for us your Exhibit Number One.

A Exhibit Number One is a Strawn net pay map, Isopach map, in and around the area of the proposed No. 2 Lovington Lumpkin.

Using a bit of geologic license I have

selected a porosity cutoff of 6 percent to contour. I would also suggest that of the various dry holes and marginal producers in the area that a reservoir thickness of at least 5 feet would be required to expect a commercial amount of hydrocarbons to be recovered from a well drilled in this reservoir.

Q What is identified by the area shaded or at least outlined in the green marker?

A The area outlined by the green marker is the south half of the southeast quarter of Section 20. It is an area in which Standard Oil Production Company owns a 12-1/2 percent mineral interest.

Q What percentage interest does Texaco have, if you know, in that particular spacing tract?

A I am not aware of their interest.

Q What is -- let's use this as a point to discuss your company's position, Mr. Curtis. What is your position with regards to Texaco's application before the Commission today?

A I also would request that if this location is allowed, a severe penalty be imposed upon Texaco.

Q What causes you to share that opinion with Pennzoil and Amerind with regards to a severe penalty?

A If one looks at any of the four Isopach maps presented, it's apparent that the amount of reservoir

contained within the north half of the southeast quarter of Section 20, when compared to the total reservoir, or the total reservoir volume, is very mimimal. I have not planimetered the area myself but by visual inspection it would appear to be a number in the 5 percent net area range.

Q Have you done your work independently of the geologic and engineering work that was done by the other witnesses that have testified today?

A Yes, I have. We are, in effect, also competitors in the area so we would be loath to share information.

Q Okay. Let's turn to Exhibit Number Two, please, Mr. Curtis, and have you identify that exhibit for us.

A Exhibit Number Two is a structure map drawn on the top of the Strawn lime, as has been done by the other people and companies testifying today.

Once again the details may vary somewhat but in generalities we are all again in agreement.

Q Do you have an opinion as to what the effect will be if the Examiner approves this location? We've talked about penalty for awhile.

A Uh-huh.

Q Let's discuss potential of whether this location ought to be approved at all.

Is there a sufficient volume of reservoir geologically that if you were recommending to Texaco's management, as a geologist, and hadn't made this choice for them, would you recommend that a well be drilled at that location for the amount of reservoir that you have depicted underlying that tract?

A I would not have recommended such a location. If one assumes the Pennzoil calculations are in the ballpark and that there were initially 20,000 plus or minus even 100 percent, barrels of crude remaining to be recovered under that location, if one again can assume that over the life of the well we might be looking at a net $10.00 per barrel price to the company, we're looking at a number of 200 -- or excuse me, we're looking at a number of $200 to $400,000 recoverable from a well that Texaco has testified would cost approximately $750,000 to drill and complete.

Q What type of exploration geology have you preformed generally for your company, Mr. Curtis?

A I have explored for carbonate reservoir traps in the Michigan Basin and in the Harwood Basin of Texas; also for sandstone traps in the Ardmore Basin of southern Oklahoma.

Q Does this case represent an example where in your opinion correlative rightss are adversely affected if Texaco's allowed to drill at this location?

A Yes, I do.

Q Is it unusual to find in the practice of your profession that there will be instances in which a company, yours included, will have to avoid drilling of a well knowing that there will be offset wells that will produce that oil?

A Yes.

Q Is this one of those type of situations?

A I would suggest so.

Q Do you see any way that the Division can equitably protect the correlative rights of all parties and yet approve the Texaco location as proposed?

A The only way I could see of that being done would be to impose the 20 barrel per day allowable number, which again happens to work out to be about a 95 percent penalty of the top allowable figure.

The double circle rule as applied by Texaco works quite well in reservoirs that are continuous and homogeneous over the entire spacing unit. All four companies have testified, however, that the reservoir is not continuous and homogeneous over the entire spacing unit.

The double circle rule in this case does not apply.

Q Were Exhibits One and Two by your company prepared by you or under your direction?

A Yes, they were.

MR. KELLAHIN: We move the introduction of Standard Oil Exhibits One and Two.

MR. CARR: No objection.

MR. STOGNER: Exhibits, Standard Oil Exhibits Number One and Two will be admitted into evidence.

MR. KELLAHIN: That concludes my examination of Mr. Curtis.

MR. STOGNER: Mr. Carr, your witness.

CROSS EXAMINATION

BY MR. CARR:

Q Mr. Curtis, the area outlined in green on both your exhibits, I believe you testified is acreage in which Standard owns a 12-1/2 percent mineral interest.

A Yes, sir.

Q Does Standard own any interest in the acreage that would be dedicated to the proposed No. 2 Lumpkin Well?

A No, sir, it does not.

MR. CARR: That's the only question I have.

MR. STOGNER: Thank you, Mr. Carr.

CROSS EXAMINATION

BY MR. STOGNER:

Q Mr. Curtis, I'm a little bit confused from the testimony which you give.

You're saying Standard Oil would not drill a well here if this was their acreage, is that right?

A I would not recommend a well be drilled there.

Q Okay. Because of the cost you don't think it was cost effective or you wouldn't get paid back on it, is that the reason?

A Yes, sir.

Q Okay. What makes you say it won't get pay back?

A With the current price of a barrel of oil that operators are receiving, fluctuating right now around $15.00, if one assumes that perhaps two-thirds of that will actually go to the operator, at least $10.00 per barrel net to the operator, to recoup a $750,000 drilling and completing cost, one would therefore need 75,000 barrels of oil.

As Pennzoil testified, they can calculate only 20,000 barrels ever having been recoverable under this tract. Even if one assumes that they are 100 percent in error or even 200 percent in error, that does not equal 75,000

barrels; therefore a well in such a location is doomed to economic failure, unless one does produce oil contained in someone else's tract.

Q And which you think will occur here?

A Yes, sir.

Q Now if this well -- so you're not taking into account if they're drawing in oil from somebody else's acreage in your economics, is that right?

A No, sir, we are not.

Q So the economics which you're applying is to your penalty in which you were requesting.

Does Standard Oil operate a well in this pool?

A Yes, sir, we do operate the No. 1 Monteith in the northeast of the southwest quarter of Section 20, which, as depicted on Mr. Hair's Isopach map, would be the entirely different pod of porosity.

Q But Standard today is coming and objecting to this as a 20 percent interest owner in the south half of the southeast quarter, is that correct?

A As a 12-1/2 percent, yes, sir.

Q I'm sorry.

MR. STOGNER: I have no further questions of Mr. Curtis.

Are there any other questions of

this witness?

MR. KELLAHIN: No, sir.

MR. STOGNER: He may be excused.

Mr. Kellahin, do you have anything further?

MR. KELLAHIN: That concludes our direct presentation in response to the application.

MR. STOGNER: Mr. Carr, do you wish to --

MR. CARR: We do not intend to offer rebuttal testimony.

MR. STOGNER: Okay, I think we're ready for closing statements.

Mr. Kellahin, you may go firsts. Mr. Carr, you may (unclear).

MR. KELLAHIN: Mr. Stogner, there are a number of important issues in this case and I realize we've spent considerable time this morning, but I think there are certain fundamental things that we need to remind all of us.

First of all, what has occurred up to this point in this reservoir is entirely consistent with the laws of conservation of the Division; that is, that wells at standard locations are allowed to set up a mechan-

ism of drainage and counter-drainage. It means that there will in fact be oil that will migrate back and forth across tract lines.

It makes no difference that during the life of these wells acreage involved in Tract No. 1, the Texaco tract, may eventually be drained by one of the offset wells. Correlative rights is simply the opportunity to produce the share of the hydrocarbons underlying your tract.

Texaco has the obligation or the right to drill this tract at any time they wanted and in fact they have already drilled it once, resulting in a dry hole.

What we consider in terms of balancing equities between the tracts is not what happened in the past but what happens in the future. It's a prospective view of correlative rights.

Our evidence has demonstrated that there are only left 9,400 barrels of oil recoverable from the Texaco tract. Obviously, if they don't drill it it's going to be drained. The point is, though, that if the well is drilled the only way it's economic is at the considerable expense of all the adjoining tracts.

I think we need to spend a little time to dispel the argument that the double circle pen-

alty ought to apply. As you know, that double circle penalty is used by the Division when there is no other reasonable information from which to accurately calculate how adjust the producing rates of the various wells.

It certainly doesn't apply here. We have abundant well control and data to justify some other approach.

Let's take for example, though, some of the inherent weaknesses that Texaco has made in the calculation.

First of all, they have taken the top allowable, which we know none of the wells will produce, but you start with a top allowable of 534 barrels a day. They say using the double circle penalty the allowable should be 40 percent, approximately, of that number.

That gets you down to 213 barrels a day. What that calculation has not yet taken into consideration is Texaco's own admission the dry hole has proved there's only 25 percent of that 80-acre tract that contributes anything.

If you want to use that formula, then, you must then take 25 percent of the 213 barrels a day and that gets you down to a penalty which will allow Texaco to produce approximately 54 barrels a day.

If you want to continue with

analyzing that approach, you still have forgotten a key element. Texaco's testimony has excluded the relatively -- the relative thickness of the reservoirds as it thins to the location. You're going to have to further take into consideration, then, the thickness of the reservoir.

That's sort of a convoluted way to get to a penalty. We think the approach that has been used in the past by the Commission and the one that you ought to utilize now, is the one based upon the recoverable share of the reservoir underlying each tract.

For purposes of analyzing our testimony, it makes no difference at all that the witness may have attributed reservoir acreage to Tract Three outside of that tract. It doesn't matter. It doesn't matter about Tract Seven, either, because neither one affect the calculation for Tract One. If you look only at Tract One, you can see that the engineer has utilized all the reservoir that he can. He has said that that tract has no more than 80,000 barrels of oil originally in place.

Even if you attribute that volume of oil to them, you know it's not an economic prospect. There is simply no justification for approving this location and I think you're reasonably free to deny it. But if you want to come up with a penalty that's consistent with the actions of the Division in the past, it must be one that

is specifically tailored to this tract's share of the reservoir and nothing else.

The calculation is that that share is 1.6 percent and if you use that as the benchmark of any other calculation you make, then you'll have founded your order with the substantial evidence in this case.

We've given you several choices on how to do that. You can take a percentage off the current producing rates of the wells that offset it, four, five, six percent. As long as you key it back in, though, I think you'll be safe with the decision in this case. Any other choice of the choices given to you by Texaco would be blatant violations of our correlative rights and ought to be denied.

We appreciate the opportunity to appear before you. It's a case that we are vehemently against. We think it's a frivolous case that merits strong opposition and we have come fully prepared to discuss the issue with you today and appreciate the opportunity to do that.

MR. STOGNER: Thank you, Mr. Kellahin.

Mr. Carr?

MR. CARR: May it please the Examiner, Texaco is before you today seeking authority to drill

a well at an unorthodox well location.

There's a great deal about which we agree with all of those who've appeared in opposition.

We agree that the central question is correlative rights and correlative rights be definition relates to the opportunity afforded to each interest owner in a pool to produce its just and fair share of the reserves in that pool.

We're talking here about the reserves under the Texaco tract and everybody here agrees reserves are under the tract which Texaco proposes to dedicate to the Lumpkin Well, and we all agree that the well should be penalized. We're seeking a penalty which is large enough to protect the offsets yet small enough so that Texaco can go out, develop the property, and produce the reserves that are under its tract.

Now beyond that agreement starts to break down.

Mr. Leibrock states that existing wells in the pool will protect correlative rights; additional wells will upset that.

Of course that's true unless you're the guy who has a tract on which there is no well.

But Amoco -- I'm sorry, Amerind

and Pennzoil come in and they want to advance a number of various approaches to you whereby a penalty should be imposed in the range of 95-96 percent. On the one hand Mr. Kellahin will say, well, it doesn't make any difference what happens in Tract Seven or Tract One, we're talking about the tract under the Texaco property, and as part of his case he said for Amerind we're going to find out how much is in the reservoir and give you your share.

Their case is an example of grabbing every possible argument you could contrive and trying to dump it on you and asking you then to sort it out, and it's this kind of mess that resulted in the Commission adopting the approach which we presented here to you today with the two circles and the basic penalty, based on the drainage advantage being gained on the offsetting property.

Yes, they're here talking about a penalty; a penalty 95-96 percent but in fact, if we really look at this, they want no well drilled out there at all, and they've developed evidence to give a penalty, if you would buy their argument, of 95 percent, which is the same thing as nothing at all and would prevent the develpment of the tract.

I think their real motive and their real interest here was demonstrated by Mr. Hodgins when he stated that he didn't even think the well should be

entitled a full allowable if it was at a standard lcoation.

I think you can see what they want. They want no development out there, and they want no development out there because as Mr. Hodgins again stated, that tract is already being drained by the offsets. It's already being drained by them.

Now, we submit that you could talk till the cows come home about the reservoir, but we're talking about the individual tract involved in this case and the reason we have to talk in terms of the individual tracts is because, as was evidenced from Mr. Curtis' testimony, the ownership is different under each of these tracts and there are owners under the acreage that will be dedicated to the proposed well whose correlative rights we think can only be protected if a well is drilled there and a reasonable penalty is set which will permit them to go ahead and with the development.

Now we've talked about volumetrics and I don't understand a great deal of that, according to -- contrary to what Mr. Kellahin says, but I do see that it's all based on the geology and the geology here, although for four geologists they came pretty close together, I would say, they -- it still varies, and we're talking about porosity and when we start talking about porosity, well, we can include within the reservoir porosity that isn't effective, that won't give up anything, but it's

still within the reservoir.

We talk about water saturation, fluctuations in that drastically affect the overall outcome.

We looked at volumetrics and we concluded because it didn't match with well performance for the Higgins Wells One and Two, that it was not a reliable way to approach this problem, and so we didn't go that way. We came in with what is, I guess, a traditional Oil Commission approach, where we calculated a penalty based on the encroachment and the advantage gained on the offsetting property.

Now Mr. Kellahin would suggest you should take that and divide it further again and again. We anticipated that and that's the reason we compared the productive acres available to the Texaco well and those available to the offsets and we showed when you took that times a full allowable that the penalty was actually pretty much in the ballpark and it was appropriate and a reliable way for you to approach this.

We think what we propose to you is the only way that you can carry out your statutory duty of affording each interest owner the opportunity to produce their just and fair share of the reserves and we therefore ask you to grant the application of Texaco and impose a penalty, the penalty we recommended being 40 percent, or 40

percent allowable factor, 60 percent penalty.

MR. STOGNER: Thank you, Mr. Carr.

Is there anything further in Case Number 8993 today?

There being none, this case will be taken under advisement and this hearing is adjourned.

(Hearing concluded.)

C E R T I F I C A T E

I, SALLY W. BOYD, C.S.R., DO HEREBY CERTIFY the foregoing Transcript of Hearing before the Oil Conservation Division (Commission) was reported by me; that the said transcript is a full, true, and correct record of the hearing, prepared by me to the best of my ability.

Sally W. Boyd CSR

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 8993 heard by me on 8 October 1986.

Examiner
Oil Conservation Division