STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
State Land Office Building
Santa Fe, New Mexico

24 April 1985

EXAMINER HEARING

IN THE MATTER OF:

Application of HNG Oil Company for compulsory pooling, Eddy County, New Mexico.	CASE 8558
Application of Texaco Producing, Inc., for compulsory pooling, Eddy County, New Mexico.	CASE 8580

BEFORE: Michael E. Stogner, Examiner

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation Division:	Maryann Lunderman Attorney at Law Energy and Mineral Department Energy and Minerals Division Santa Fe, New Mexico 87501
For HNG Oil Co.:	William F. Carr Attorney at Law CAMPBELL & BLACK P. A. P. O. Box 2208 Santa Fe, New Mexico
For Texaco Producing Inc.:	Ken Bateman Attorney at Law WHITE, KOCH, KELLY & McCARTHY 220 Otero Street Santa Fe, New Mexico 87501

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: The hearing will come to order.

We'll call next Case 8558, which is the application of HNG Oil Company for compulsory pooling, Eddy County, New Mexico.

MR. CARR: Mr. Stogner, my name is William F. Carr with the law firm Campbell & Black, P. A., of Santa Fe. We represent HNG Oil Company.

We would request at this time that this case be consolidated with the application of Texaco, Inc., in Case 8580. Both applications involve pooling of a 320-acre Pennsylvanian unit in Section 18, Township 24 South, Range 29 East.

MR. STOGNER: Are there any -- I'm sorry.

MR. BATEMAN: Ken Bateman, of White, Koch, Kelly, and McCarthy, representing Texaco Producing, Inc.

We have no objection to consolidation of these two cases.

MR. STOGNER: In that case we will now call Case 8580, which is the application of Texaco Producing, Incorporated, for compulsory pooling, Eddy County, New Mexico.

This case, along with Case 8558 will be consolidated this morning for purposes of testimony.

At this time I will call for appearances in 8580.

MR. CARR: William F. Carr, representing HNG.

MR. BATEMAN: Ken Bateman, White, Koch, Kelly, and McCarthy, appearing for Texaco Producing, Inc.

MR. STOGNER: Are there any other appearances in either one of these cases?

Will the witnesses -- are there any witnesses?

MR. BATEMAN: Yes, I have two.

MR. CARR: And I have two.

MR. STOGNER: Will they all stand and be sworn at this time?

(Witnesses sworn.)

MR. STOGNER: Mr. Carr, since you are with Case 8558, and that was the first one filed, you may proceed.

MR. CARR: At this time I would call Craig Duke.

CRAIG DUKE,

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 Craig Duke, Midland, Texas.

Q Mr. Duke, by whom are you employed and in what capacity?

A HNG Oil Company.

Q Have you -- and how are you employed by HNG?

A As a landman.

Q Have you previously testified before this Division or one of its examiners?

A No, sir, I have not.

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

A I graduated from Pecos High School and attended the University of Texas at Austin, where I received a BA with specialization in petroleum land management.

I then went to work for Exxon Corporation

for approximately one year and a half after graduating and then in June of 1980 went to work for HNG Oil Company; have been there ever since.

Q When did you receive your degree?

A When? In 1978.

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

A Yes, sir.

Q Are you familiar with the subject area and the proposed well?

A Yes, sir, I am.

MR. CARR: Are the witness' qualifications acceptable?

MR. STOGNER: Yes, they are.

MR. BATEMAN: No objection.

MR. STOGNER: Mr. Duke is so qualified.

Q Mr. Duke, will you briefly state what HNG seeks in this case?

A We are seeking to pool the west half of Section 18 of Township 24 South, Range 29 East, Eddy County, New Mexico.

We're going to drill a well at a standard location thereon. I believe our overhead and administrative costs are in line. We wish to be designated as operator of

said well, and we would like the imposition of a risk penalty.

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

A Yes, sir, I have.

Q Would you refer to what's been marked for identification as HNG Exhibit Number One, identify this and review it for Mr. Stogner?

A Exhibit Number One is just a land plat and what it basically shows in red is the proration unit proposed by HNG, along with the well location of the Fort 18 Federal Com No. 1, being 1980 from the north line and 885 from the west line, which is a standard location for a west half unit.

Basically, the solid yellow acreage is HNG's leasehold.

The dashed, or the horizontal, diagonal lines designate farmout to HNG, and then the green acreage is the Getty/Texaco acreage involved.

We currently plan to drill the Fort Well to a depth of 12,400 foot to encounter the Atoka Sands and the plat so designates the ownership.

Q Have you moved this well location?

A Yes, sir, we have. Originally the location was 1980 from the south, 660 from the west. We went

out to survey it and at that particular point in time, because the Pecos River runs right through there, which is not shown in this map, we had to move it to the north along with our -- the other witness to testify will give the geologic reasons of that.

We moved it 1980 from the north line and 660 from the west and at that same point of the surveying date, around March the 7th, thereabouts, there was an alfalfa field out there and the farmer didn't want us to get in that, so we moved it to 885 from the west.

Q Is this still a standard location?

A Yes, sir, it is.

Q What is the current status of the Fort 18 Federal Com No. 1 Well?

A We have drilled the Fort Federal Com 18 No. 1 Well to a depth of 10,650 foot and have set 7-inch intermediate casing.

We have moved the rig off on or about April the 20th of 1985 and are currently waiting pending the outcome of this hearing whenever to finish drilling that well.

Q What is the status of the east half of the northeast quarter of 18?

A It is open Federal acreage.

Q Are there other recent wells in the area

which are not shown on this plat?

A Yes, sir, there are. There, you can see a Section 13 on said plat due west of our proposed location, and in that east half there Tenneco has just recently or are still drilling the Harrison -- I don't -- I guess Harrison No. 1, Com No. 1.

Down about a mile to the south, just off the plat, you see Section 24. Right below that is where HNG has just completed the Craft 25 Federal Com No. 1.

Q Now what is the proposed -- the objective in the proposed well?

A It is a 12,400 foot test and we hope to encounter the Atoka Sands.

Q Would you now refer to what has been marked HNG Exhibit Number Two, identify this and explain what it shows?

A Okay. Exhibit Two basically shows the leasehold owners and/or working interest owners.

The next column shows the number of acres contributed and then the percent of that acreage to the proposed working interest proration unit.

The first is HNG Oil Company and then in the, let's see, the southwest southwest and the northeast northwest quarters of Section 18 is a KGS lease of which HNG has 100 percent working interest.

We also own another undivided 20 acres consisting of the west half of the northwest, the southeast of the northwest, and the northwest southwest, and that's an undivided 20 acres.

Then, as you can see, we've got roughly 20 working interest owners and which we obtained a farmout to HNG on a produce to earn, and that is one base lease consisting of approximately 139.04 acres, and then Texaco, Inc., has their 80 acres in the east half of the southwest, which they acquired from Getty Oil Company, who had the D. S. Harroun Trustee lease, HBP by another well in the immediate area.

Q What percentage of the acreage has been voluntarily committed to the drilling of a well in the west half of this section?

A 75 percent, thereabouts.

Q Would you now refer to what has been marked as HNG Exhibit Number Three, identify this, and then, if you would, would you review the totals on it?

A Yes, sir. This is a copy of HNG's AFE in the drilling of this 12,400 foot Atoka test.

The dry hole cost is $1,116,500. To complete this well would cost another $372,625, bringing the total cost to complete the well of $1,489,125.

Q Has this AFE previously been submitted to

Texaco?

A No, sir, I don't believe so. The costs have not a formal AFE.

Q Are these costs in line with what's being charged by other operators in this area for similar wells?

A Yes, sir, they are.

Q Would you summarize for the examiner your efforts to obtain voluntary joinder of all interest owners under the proposed west half spacing unit?

A Okay. On or about January the 9th of 1985 I -- we had gotten from the geologist permission or approval to go ahead and propose the drilling of this well.

At that particular day I called Woody Woods, who was then employed by Getty and who is now employed, I guess, with Texaco after the merger, subsequent to the merger, and discussed the drilling of this Fort 18 Federal Com No. 1, and asked if Getty/Texaco would join and/or farmout to this well or what, you know, they might do on the thing.

At that particular point Woody stated that they would be inclined to either join and/or farmout. He couldn't commit at this point, but that they would do something.

On 1-11 of '85, two days later, I sent a proposal letter to Woody Woods over at Getty/Texaco asking

them to participate as to their 80 acres, being the east half of the southwest quarter, in the forming of a west half proration unit to drill this 12,400 foot Atoka test.

If Getty did not want to join, the proposal letter stated that we would accept a farm-in from Getty with Getty delivering a 75 percent net revenue interest to us with the option to convert their override, retain the override to a 25 percent working interest after payout of the said well.

I further stated in the proposal letter that HNG, if Getty did farm out, Texaco/Getty, HNG would have the option within 180 days of completion of this Fort Federal Com 18 No. 1, to start a well at a legal location in the east half of the section, form an east half proration unit, with Getty farming out its interest, remaining interest in the section, being southeast quarter, on all the same terms and conditions as was proposed for the initial test.

Q And, Mr. Duke, is HNG Exhibit Number Four a copy of the letter you sent on January 11th to Getty or Texaco, whichever it may be?

A Yes, sir, it is.

Q And at that time you were proposing that this section be developed with two stand up units ultimately.

A Yes, sir, ultimately, right.

Q Okay, would you the review your -- the next contact you had with Getty or Texaco?

A Okay. On February the 20th, 1985, Mr. Bill Lewis of HNG had called Bennie Tidwell of Texaco to see if they had made a decision. What has transpired is Getty, when they had the lease after the merger and transferred this acreage over to their Production Department, or something of that nature, and it was going to be a Production Department decision, and therefore that's the reason Mr. Lewis contacted Mr. Tidwell.

Mr. Tidwell said that it would be next week before they had a decision but all indications were that they were inclined to join us in the drilling of this well.

On or about March the 4th we still, Mr. Tidwell kept postponing us, postponing us, putting us off, and we couldn't wait on Texaco any longer because of certain farmout obligations that we had to this.

We called Mr. Bill Carr here in Santa Fe and told him to file a forced pooling on Texaco, pooling the west half of said section.

Q When did you receive a formal reply from Texaco?

A A formal reply, they reproposed an additional well on March the 22nd of that -- that year. We then

notified them on around March the 11th of the forced pooling notification.

Q All right. How did you do that?

A We got a copy of the application and sent it straight to Texaco, attention Mr. Bennie Tidwell.

Q Did anything happen after March 11th prior to their response on the 22nd?

A No, sir.

Q Will you review what happened exactly on the 22nd?

A On the 22nd Mr. Tidwell called Mr. Bill Lewis of our office and said that he was sending a letter over hand delivered, stating that Texaco would not be interested in joining a well in the west half but now they would be interested in -- nor would they be interested in farming out.

Instead, the letter, simply stated, proposed the drilling of a 12,400 Atoka test to be located 1980 from the west line and 660 from the south line of Section 18, thus forming a south half proration unit, and they didn't give a spud date, simply said they would spud the well in the near future.

Q When did you learn that a forced pooling application had been filed?

A On HNG?

Q Yes.

A Let's see, that was on, I believe, around in April the --

Q Okay.

A -- some, well, let's see, no, it was March sometime.

I'm not for sure of the exact date.

Q Then following the receipt of the letter and the proposal from Texaco, what transpired?

A At that particular time on the 22nd when Mr. Lewis talked with Mr. Tidwell, he explained that we were going to have to go ahead and spud the well three days later, which we did on the 23rd of -- yeah, the 23rd, the 25th, around in there, we spudded the well in order to meet the March 30th farmout obligation, and the -- excuse me.

Q Has there been any contact or negotiation with Texaco since that time?

A No, sir.

Q Now, Mr. Duke, you've testified so far about your efforts to bring in the Getty/Texaco interest, being the east half of the southwest quarter.

Would you now review for Mr. Stogner your efforts to obtain the joinder of the other interest owners in the west half?

A As you can see on the Exhibit One, HNG

has roughly 80 acres that we own ourselves.

The other, roughly, 160 acres is -- there's an old -- it's not shown on the exhibit, but there's an old -- it's called the Malaga Unit. It's an old Federal unit producing, oh, from the surface to roughly 3000 feet. This was back in the fifties when it started out and eventually this Austin Gas Purchasing Company, who you find on Exhibit Two, had bought it and they since had disbursed part of their assets of the corporatio to their shareholders and/or employees, and so we had to start trying to track these people down. They didn't have anything filed in the county or anything like that.

We then -- we've been working on this roughly eighteen months trying to get these working interest owners all together to farm out. We've had to track down probates. We've had several title problems; none of the probates being filed in Eddy County, and whatnot, and finally got them all in the boat, so to speak, back last -- the first part of last fall or in the summer, and we just felt an extension at this point in time would just not be a possible situation since most of the people that we -- that we got the farmouts from were non-industry types or not informed about, you know, didn't know a lot about the oil business, basically.

Q The farmout agreement between HNG and

these interest owners that interest comes from the Austin Gas Purchasing, Inc., does that farmout agreement contain any requirements providing for the drilling of wells by any dates?

A Yes, sir, it does. It provides that we will spud a well on or before March 30th, 1985.

Q And that is the reason you had to go ahead with the well.

A Yes, sir, it is.

Q In your opinion have you made a good faith effort to locate and obtain the voluntary joinder of all interest owners in the west half of Section 18?

A Yes, sir.

Q Has HNG drilled other Pennsylvanian wells in this general area?

A Yes, sir, we have, oh, I would say within a 10-mile radius there, HNG's drilled anywhere from 25 to 30 wells.

Q Were Exhibits One through Four prepared by you or compiled under your direction and supervision?

A Yes, sir, they were.

Q Can you testify as to the accuracy of these exhibits?

A Yes, sir, I can.

MR. CARR: Mr. Stogner, at this

time we would offer into evidence HNG Exhibits One through Four.

MR. STOGNER: If there are no objections, Exhibits One through Four will be admitted into evidence.

Q Mr. Duke, have you made an estimate of the overhead and administrative costs while drilling this well and also while operating it, if in fact it is a successful well?

A Yes, sir. The drilling rates that we use on all wells is $5250 and $525 a month producing.

Q And what is the basis for these figures?

A The COPAS accounting procedure, which we adjust annually.

Q And this -- these are the figures you're using for all wells which you're drilling during this year?

A Yes, sir, it is.

Q Are these costs in line with what's being charged by other operators?

A Yes, sir, they are.

Q Do you recommend that these figures be incorporated into any order which results from this hearing?

A Yes, sir, I do.

Q Does HNG seek to be designated operator of the proposed well?

A Yes, sir, we do.

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

MR. STOGNER: Thank you, Mr. Carr.

Mr. Bateman, your witness.

MR. BATEMAN: Thank you, Mr. Examiner. Just a few questions concerning HNG interest in the area.

CROSS EXAMINATION

BY MR. BATEMAN:

Q You didn't mention Section 19, I don't believe, in your testimony. What does HNG own in Section 19, the offset to the south?

A We own the north half proration unit which we drilled on a Phillips farmout several years ago.

Q Do you own any interest in the south half?

A Yes, sir, we do.

Q What interest is that?

A I believe it's roughly 50 percent.

Q Who owns the other 50 percent?

A Phillips.

Q Is that covered under the farmout you re-

ferred to?

A Yes, sir.

Q So you either own or control the south half of 19, right?

A We don't own or control it. We own an interest in it, yes, sir.

Q What else do you own in the immediate offsetting area?

A We own acreage in the north half of Section 24 and we also have acreage under or we have contractual rights under Section 6 to the north, of which we are a working interest owner in the Getty Harroun Well, and we have various small interests in Section 7.

Q The Queen Lake Federal No. 1, shown in Section 19, is completed in what interval, do you know?

A It's the Atoka Lime, I believe. You'ld probably do better to cross examine the geological witness on that, but I believe it is the Atoka Lime.

Q All right. Now, with respect to Exhibit Number Four, you testified that Texaco has offered two options with respect to the drilling of a well but you identified the well -- let's see, the reference here is 1980 from the south line and 660 from the west line. Now that in fact is not the location of the well that's spudded, right?

A That is -- in fact, no, it is not.

Q Now was Texaco notified of the change in location?

A No, sir.

Q And you testified that that was because of terrain and geologic?

A Yes, sir.

Q From terrain considerations, how far away from the river was it required to move?

A I can't -- explain that.

Q How far away from the river did you have to move?

A After they got out there and looked at it, I'm not for sure of the exact footage, but at that particular point they had done some more geological work after surveying it, and had decided to go with 1980 from the north.

Q And at this time it's 660 from the west.

A Yes, sir.

Q So you wound up with a third location, which was what, 880 from the west?

A No, sir, 885. That was due --

Q 885.

A -- to the alfalfa field, as I previously testified.

Q So you had during that period three pos-

sible locations, only one of which you notified Texaco, is that correct?

A That is correct.

Q You were also requested to join in drilling a well in the south half, is that correct --

A Yes, sir, --

Q -- by Texaco?

A -- that's correct.

Q Was there any response to that request?

A We didn't receive the request until, as I stated, March the 22nd, and at that particular time we spudded our well the next day, as they were aware of.

Q So that was the response, I take it.

A That is exactly right.

Q No formal response, phone call, letter, or any response other than the spudding the well?

A No, sir, there was a phone call, as I told you, on the 22nd with Mr. Lewis and Mr. Tidwell, and Bill Lewis told Mr. Tidwell that we were going ahead with the spudding of our well due to farmout obligations.

Q But that wasn't in response to Texaco's request, was it?

A No, sir.

Q Now you never did submit an AFE, just a total figure, is that correct?

A That is correct.

Q So they have an AFE that's here, was prepared in connection with this hearing, is that correct?

A Sir?

Q The AFE that's here as Exhibit Number Three was prepared in connection with this hearing, is that right?

A No, sir, that is not correct. It was prepared for the drilling of the well.

Q But nevertheless, it hadn't been submitted to Texaco.

A At such time as Texaco would have told us whether they were going to join or farmout, they would have had the right to approve a mutually acceptable operating agreement along with an AFE.

Q The question is whether it was submitted and I think the answer is no.

A I already said no.

MR. BATEMAN: No further questions.

MR. STOGNER: Mr. Carr, any more direct?

MR. CARR: Yes, Mr. Stogner, just two questions.

REDIRECT EXAMINATION

BY MR. CARR:

Q Mr. Duke, at the time you received the proposal from Texaco on March 22nd, had HNG already built the location for their well in the northwest quarter of Section 18?

A Yes, sir, we had.

Q And if I look at Exhibit Number Three, the AFE, there are a number of initials on the bottom and dates after those.

Would you explain what those show?

A Well, the way an AFE is generated, the engineers draw up their casing design and all of that, the tangible and intangible well costs, and then they start circulating it for all the Vice Presidents. You've got the Vice President of Drilling. You've got the Vice President, Production; Vice President of the Land; Vice President of Production Geology. You've got the Executive Vice President. You've got -- then the President.

Q And you have to do this every time you get an AFE?

A Every single time.

Q All of these initials are various company employees?

A Yes, sir, they are.

Q And then the dates after that indicate the date they approved?

A That's the date they signed it, that is correct.

Q The very first -- the very -- above all of this there are some initials and another signature. What is that? Or another -- initials and another date?

A That is from our Joint Interest Department, the date they got it. They don't really initial it for approval but just being circulated, is the date that -- you know.

Q Do you know if this AFE has been changed since it started receiving approval?

A No, sir, it has not.

Q What is the earliest date on this?

A 2-18-85.

Q And that's when this was prepared?

A It was probably prepared a week or so before that but that's when it started circulating.

Q At that time were you aware that this matter would have to come up for hearing?

A No, sir.

MR. CARR: I have nothing further.

CROSS EXAMINATION

BY MR. STOGNER:

Q Now let's go to Exhibit One, Mr. Duke.

A Yes, sir.

Q You said the mighty Pecos River goes through here.

A Yes, sir.

Q Approximately where?

A Well, roughly it -- it's meandering coming down through there, but roughly it goes -- it takes a turn back to the southwest, cutting across the Harroun Texaco Lease and then winding back around through the Queen Lake Well down there, around like that. So it's kind of an "S" shaped type situation.

Q Does HNG have a map with the river on it, by any chance, that they're going to be submitting as an exhibit today?

A No, sir.

Q Mr. Duke, I'm going to hand you my copy of Exhibit One.

A Yes, sir.

Q And let you roughly draw where the Pecos River is in there.

A Okay. That's real rough.

Q No problem. The dot that is on this par-

ticular exhibit represents the well as it is now, is that correct, where it exists, is that correct?

A Yes, sir, it does.

Q And how far is it from the west line?

A 885 feet.

Q How far is it from the north line?

A 980 feet -- 1980 feet, I'm sorry.

Q What is the present status of that well?

A We have drilled the well to 10,650 foot, set 7-inch intermediate casing, and moved the rig off location.

Q 10,000-what?

A 650.

Q 650. And you don't know the exact date and time that you spudded that well?

A Yes, sir, it was the 25th -- 25th of March.

Q Do you know the date that you penetrated the Pennsylvanian formation?

A No, sir, we're, like I said, at 10,650 foot. We've set intermediate casing, 7-inch, just fixing to start into the Wolfcamp.

Q Okay. On January 11th -- I'm sorry, let's back up two more days, if I heard it right, and correct me if I'm wrong -- on January 9th, 1985, you contacted

a Woody Wood?

A Woody Woods.

Q Woody Woods at the -- this address in Midland?

A At Getty, which is in the Midland National Bank Tower Two, fourth floor, I believe.

Q Okay, now Woody Woods, is he a Getty -- was he an old time Getty employee?

A Yes, sir, he was.

Q This letter was set out on March 11th, 1985. Was there ever a --

A No, sir, January 11th, 1985.

Q I'm sorry, January 11th, 1985. Was there a return receipt sent with this?

A No, sir, it was just sent by mail across the street.

Q So you don't know if Getty received it.

A Yes, sir, I do. I talked with Mr. Woods on several occasions after that.

Q When? Did he tell you he received the letter?

A Yes, sir.

Q When did he ever tell you that he received the letter?

A He told me he received the letter approximately a week to ten days later.

imately a week to ten days later.

Q Okay. Now on March 20th, 1985, I have here from your testimony that Mr. Lewis of your office contacted Mr. Tidwell and had a discussion?

A No, sir, that was on February 20th.

Q Thank you. I want to make sure and get my dates right.

A Yes, sir.

Q Okay. Who is Mr. Tidwell?

A I, like I said, I've had several discussions with Mr. Woods, just calling to see where it was at, where they were at on our proposal, and he had told us somewhere between the 11th of January and roughtly the 1st of February that he had shifted it over to Texaco Production, or whatever, I don't -- I'm not familiar with that, but anyway, Mr. Tidwell is some type of a landman, a head guy. He's not -- I don't know if he's District Landman or what exactly his title is, but he is with Texaco and Mr. Lewis is acquainted with him.

Q Okay, so as far as your understanding goes, Mr. Tidwell, he was with Texaco all this time.

A Yes, sir, he has been for thirty years, I guess, or twenty.

Q In Midland?

A Yes, sir.

Q Subsequent or after February 20th, 1985, where does Mr. Woods fit into this?

A Mr. Woods, once Mr. Lewis contacted Mr. Tidwell, Mr. Woods had told me that he had transferred it over to the Texaco Production Office and Mr. Wood -- Mr. Lewis knowing Mr. Tidwell over at Texaco, that's why he contacted him, and Mr. Tidwell was handling it.

Q So we -- we are now contacting Mr. Tidwell.

A Yes, sir.

Q Okay, so Mr. Woods is out of it?

A Yes, sir.

Q Okay. Did Mr. Tidwell, by chance, send any correspondence concerning this conversation on February 20?

A No, sir, he did not. It was just a conversation over the phone that they were waiting on their committee, or whatever they do to get approval.

Q Any correspondence from Lewis to Tidwell?

A No, sir.

Q Correct me if I'm wrong, on February -- I'm sorry -- March 11th, 1985, that's when HNG filed for compulsory pooling?

A No, sir. March the 4th is when I called Mr. Carr.

On March the 11th we received Notice of Application for the pooling and that same day we sent a copy straight to Texaco, attention Mr. Bennie Tidwell.

Q Was that sent out return receipt requested?

A No, sir.

Q Now did you correspond with them or did you know if they had received that particular application? Or when they received it?

A No, sir, I don't know.

Q Obviously they received it or they wouldn't be here today.

A Yes, sir.

Q Okay. Which portion of your lease was expiring on March 30th, 1985? When I say "your", HNG.

A It wasn't expiring on '85. It was an obligation from a farmout from all of these 20-some odd working interest owners that on the deep rights, that we would spud a well by that time.

Q And in spudding the well on the time you did, these obligations were met.

A Yes, sir.

Q Now your overhead charges, $5250 while drilling, $525 while producing, is that correct?

A Yes, sir.

Q And these are adjusted annually?

A Yes, sir, April 1st, annually.

Q Okay. Are these higher than they were a year ago?

A Yes, sir.

Q Are these higher than they were three years ago?

A Naturally.

Q Is the drilling cost higher today than what they were a year ago?

A You'd probably have to talk to my geologic witness. I don't know.

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

Are there any further questions of this witness?

If not, he may be excused.

We are going to take a lunch break at this time and resume at 1:15.

(Thereupon the noon recess was taken.)

MR. STOGNER: The hearing will resume to order.

You may continue, Mr. Carr.

MR. CARR: At this time I call Mr. Cherryholmes.

TERRY CHERRYHOLMES,

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 Okay. Terry Cherryholmes, Midland, Texas.

Q Mr. Cherryholmes, by whom are you employed and in what capacity?

A I'm employed by Houston Natural Gas Oil Company and I'm the Manager of Production Geology.

Q Have you previously testified before the Division and had your credentials as a geologist accepted and made a matter of record?

A Yes, sir.

Q Would you -- are you familiar with the application filed in this case on behalf of HNG?

A Yes, sir.

Q Are you familiar with the subject area and the proposed well?

A Yes, sir.

MR. CARR: Are the witness' qualifications acceptable?

MR. STOGNER: If there are no objections Mr. Cherryholmes is so qualified.

Q Mr. Cherryholmes, have you prepred certain exhibits for introduction in this case?

A Yes, sir.

Q Would you refer to what has been marked as HNG's Exhibit Number Five, identify this, and review the information contained thereon?

A Okay. Exhibit Number Five is a line of cross section plat, scale one inch equals 2000 feet.

This plat shows a portion of Eddy County, New Mexico, about 20 miles southeast of Carlsbad and about 2 miles east of the little village of Malaga.

It shows Section 18 of Township 24 South, Range 29 East, where the HNG Fort 18 Com No. 1 is located in the west half of the northwest quarter of Section 18.

This location is a 12,400 foot Atoka-Culebra Bluff sand test with a secondary objective being the Atoka Queen Lake Lime zone that produces in several wells in this area, including our Federal 19 No. 1.

Q That's the well due south of the --

A Due south on the line of cross section.

This plat also describes a 2-well north/south cross section that goes from HNG's well on the south, the Federal 19-1, generally due north to the Getty Malaga Harroun Well about three miles to the north.

Also shown on this exhibit is the proposed Texaco location in the southeast quarter of the southwest quarter of Section 18.

Q Now, Mr. Cherryholmes, I'd like you to go to Exhibit Six and it may be easier for you to work from the copy of the exhibits on the wall.

A Okay.

Q Identify this and review for Mr. Stogner what it shows.

A Okay. This is cross section A-A'. It's a 2-well cross section from south to north from HNG's Queen Lake 19 Federal No. 1 on the south to Getty's -- the Getty well on the north.

I would like to point out several factors that become obvious from this cross section here, and I'll probably refer to this cross section later.

The Getty Harroun Well to the north is 250 feet structurally high on the top of the Strawn Lime to HNG's well three miles south. You have -8626 subsea top and -8876 subsea top.

By the way, the top of the Strawn Lime is

what the State of New Mexico also calls the top of the Atoka.

This Isopach interval that's shown on this cross section from the top of the Strawn to the top of what we call the Lower Atoka Lime marker, is 462 feet thick in the Getty well to the north and is 333 feet thick in the Federal 19 No. 1 three miles to the south.

This Isopach interval includes the Culebra Bluff Atoka Sands that are developed within this interval in this part of Eddy County, New Mexico.

This well, as I pointed out, is 70 feet thicker in this total interval than the well on the south, HNG's well.

The Isopached interval that I've mentioned here is used in making the forthcoming Exhibit Number Seven, which is an Isopach map from the top of this to the top of the Atoka Lime marker.

The cross section is pretty clear. It's showing that as you move north from the HNG well, that you have a greater interval in which to develop this Culebra Bluff Sand, or the Atoka Sands here.

A third thing to notice is that the structurally higher and thicker interval Getty well on the north also has, one, Culebra Bluff-Atoka Sand developed in it.

It also has another Atoka Sand developed that's below the lime marker.

It also, in fact, has a good-looking, from what we can tell from the log, a Queen -- Atoka Queen Lake Lime pay that has not been tested in this well.

This Atoka Queen Lake Lime pay is what produces in HNG's well in Section 19, and if you will notice, the HNG well is structurally lower, structurally with a thinner interval to develop this Culebra Bluff Sand and, in fact, it has no sand developed in it. The only pay which is shown on this log is the Atoka Lime.

Q So neither of the sand stringers were present in the HNG well.

A That's correct.

Okay, Exhibit Number Seven is a structure map on the top of what we call the Strawn Lime, that I just pointed out on the cross section, and this structure map is contoured on the interval of 50 feet and it's on a scale of one inch equals 2000 feet.

This structure map is a 12-section area, a small portion of a regional map of Eddy County, New Mexico, within -- that includes Section 18 here that we're talking about today.

The regional dip from this structure map is to the east and to the southeast, so you get structurally

higher to the north, to the northwest, and to the west.

It shows that the Getty Harroun Well is 250 feet structurally higher than HNG's well in Section 19.

Although not clearly obvious on this map, the other exhibits will show it later, there are three Atoka Sand producers on this map, the Getty Harroun, the Eastland Fortson Well in Section 12, and the Coquina Craft Well in Section 13.

Besides HNG's Federal 19 No. 1, the Santa Fe Burkham Well produces from the Atoka Lime.

This map also indicates that the proposed Texaco location would be approximately 80 feet structurally lower than the HNG's Fort 18 Com No. 1, and also about halfway closer to HNG's Queen Lake 19 No. 1 that has no Atoka Sand developed in it.

Q Now, Mr. Cherryholmes, if I understand your testimony, you are saying that you have a better prospect the higher you get structurally in this area?

A Structure is definitely related to the producers in this area.

Q Mr. Cherryholmes, I'd like for you to take a look at just Section 18 and look at each of the quarter sections in that section and if you can, would you evaluate or rank those quarter sections as to which of those quarter sections offers from a structural point of view the

best place to drill an Atoka well?

A Okay, by quarter sections?

Q Yes.

A Based on HNG's interpretation the northwest quarter would be the best location.

The northeast quarter and the southwest quarter would be about a toss up, based on structure.

And the southeast quarter would be the -- the worst, if you want to put it that way.

Q All right, would you now go to your Exhibit Number Eight and review that, please?

A Exhibit Number Eight is an Isopach map from the top of the Strawn Line to the top of the Lower Atoka Lime marker, as I pointed out on the cross section. It covers the same 12-section area that the structure map covered and it also is a portion of a larger regional map of this area.

It's on a scale of one inch equals 2000 feet.

This gross Isopach map shows the Getty Harroun Well to the north with the thickest interval, 406 feet, and the Queen Lake 19 Federal No. 1 with the thinnest Isopach interval, 336 feet.

So, as you can see from this map, this interval where the Atoka Sands, the Culebra Bluff sands are

developed, this interval gets thicker to the west, to the northwest and to the north, as the line of section shows.

It gets thinner, conversely, to the south.

The interpretation shows that HNG's Fort 18 Com No. 1 location is expected to be about 20 to 25 feet thicker than the proposed Texaco location.

This Ispach indicates that the HNG Fort location should have approximately the same thickness as the Coquina Craft 13-1 that's on the map here, that's located one mile to the west, and this well completed from a Culebra Bluff Atoka sand 18 feet thick for a calculated absolute open flow of 7.1-million per day.

This well has accumulated 832-million cubic feet of gas to date.

This Isopach map shows that a location as proposed by Texaco in the southeast of the southwest quarter of Section 18 would be thinner in Atoka section than the recently logged Tenneco Harrison No. 1 to the west in Section 13. The Tenneco well was no Atoka sand developed in it.

Q Mr. Cherryholmes, the purpose of this exhibit is to show that the thickness of the sand or the interval also is a factor to look at in determining where to drill a well, is that correct?

A It sure is.

Q Now I'd ask you again to look at each of the quarter sections in Section 18 and applying the information and your interpretation, the structural interpretation and also your Isopach, and again I'd ask you to rate in order of priority the quarter sections as to which would be the best location or the best quarter section on which to locate an Atoka well.

A Okay. Based on the Isopach map the northwest quarter I still say would be the best.

The northeast quarter becomes better than the southwest quarter due to the thickness of the interval.

The southwest quarter would be third and the southeast quarter, probably, fourth.

Q Based on this information and your interpretation, do you have an opinion as to whether or not it would be more prudent to develop with stand-up or lay-down units?

A I think it would be better to develop this with stand-up units.

Q And why is that?

A Because both legal locations, you would have one in the northwest quarter and one in the northeast quarter.

Q You were present at the hearing earlier

today when there were discussions with Mr. Duke about moving the location of the well from the southwest quarter to the northwest quarter, were you not?

A Yes, sir.

Q Have you -- can you render an opinion as to what the effect from a geologic point of view was of this move?

A The move was -- was actually a combination of, as we mentioned before, the river, the topography, but also at the same time we had -- we were doing additional geological work in this area and, as was mentioned this morning, we have a Queen Lake Lime Well in Section 25, the Craft 25-1, that initially looked like it was going to be a good well out of the Atoka Lime, we have no sand, and suddenly the production deteriorated to today it's making less that 200 MCF a day.

Q Now where is that well?

A It's off of this plat here. It's just to the south of Section 24.

Q All right.

A It will show up on a later map.

Plus the fact that we did a little more Isopaching and refining our structure map, and we -- we came to the conclusion that the northwest quarter would be the -- the west half in the northwest quarter would be the best lo-

cation.

Q You also said you had refined the Isopach. How recently have you refined it?

A Saturday, which would have been the 20th, I believe.

Q And why did you do it at that time?

A We received the log on this Tenneco well.

Q And that's the well in Section 13?

A Yes, sir.

Q Would you now go to HNG Exhibit Number Nine and review that?

A Okay. Exhibit Number Nine is a current zone of completion and productio status map as of 1-1-85.

This map is on a scale of one inch equals 4000 feet and it covers a larger are of Eddy County.

This map shows Atoka Sand producers in red; Atoka Queen Lake Lime producers in blue; and Morrow Sand producers in orange.

This map quickly shows that the Atoka Sand completions in this area are predominantly located to the west, northwest, and north from Section 18. This agrees with the previous exhibits and the cross section that show the least risky Atoka Sand locations are up dip and in thicker gross Isopach intervals.

This is why HNG's Fort 18 Com No. 1 was

located in the west half of the northwest quarter of Section 18 finally.

Q Mr. Cherryholmes, this plat also shows the location of the HNG Craft 25 Well in Section 25 down there that you previously testified about.

A Yes, sir.

Q Would you now go to Exhibit Number Ten?

A Okay. Exhibit Number Ten is an Atoka Sand distribution plat and it, too, is on a scale of one inch equalf 4000 feet and it covers the same area of Eddy County as Exhibit Number Nine did.

This plats shows wells with Atoka Sand completions with what I call red snowflakes, or the gas, little red gas symbols.

It shows wells with Atoka Sand developed in the well but not as yet completed with red circles.

And it also shows Atoka tests with no Atoka sands developed with black circles.

Once again, as you can see, the further northwest you can move in Section 18, at least this is what it tells me, that the better chance we have of making an Atoka Sand completion. That's combined with the location of the completions and the development of the Atoka Sands, and looking southward to the black dots where there's no Atoka Sands developed.

Q Mr. Cherryholmes, are you prepared to make a recommendation to the Examiner as to the risk penalty that should be assessed against any nonconsenting or non-joining interest owners in a west half unit?

A Yes, sir.

Q And what is that?

A It woud be the maximum of 200 percent.

Q Upon what do you base this 200 percent recommendation?

A Okay, we believe that it's possible to drill a noncommercial well out here and, also, we will be carrying a quarter of the interest of the well and I'm really not aware of any other joint operating agreements in common use in the industry that provide for such a small risk factor as this.

Q Do you think that's necessary to compensate HNG for the risk it would be carrying?

A Yes, sir.

Q In your opinion will granting this application be in the best interest of conservation, the prevention of waste, and the protection of correlative rights?

A Yes.

Q Were Exhibits Five through Ten prepared either by you or under your direction and supervision?

A Yes, sir.

Q Can you testify as to their accuracy?

A Yes, sir.

MR. CARR: At this time, Mr. Stogner, we would offer into evidence HNG Exhibits Five through Ten.

MR. STOGNER: If there are no objections, Exhibits One through Ten, or Five through Ten will be admitted into evidence.

Q Mr. Cherryholmes, does HNG request that this order, the order that results from this hearing be expedited?

A Yes, sir.

Q And why is that?

A We have already commenced this well due to the terms of our farmout agreement and we're anxious to complete this well at the earliest possible time.

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

MR. STOGNER: Mr. Bateman, your witness.

CROSS EXAMINATION

BY MR. BATEMAN:

Q Mr. Cherryholmes, to make clear in my

mind a couple of points you made in your testimony, the HNG proposed location, well, first of all, the primary objective, as I understood you, is the Atoka Culebra Bluff Sands, is that right?

A That's correct.

Q And the secondary objective is the Atoka Queen Lake Lime.

A That's correct.

Q Now, on your cross section initially, Exhibit Number Six, you do not show that Atoka Culebra Bluff Sand existing in the Queen Lake No. 19, is that right?

A That's correct.

Q None whatsoever?

A That -- no -- no commercial, no sand development that had any gas in it. There would be a real tight sand in there. We say there's no sand in the well.

Q But you show the Atoka Queen Lake Lime, which is perforated in the Queen Lake 19 and not in the Malaga Harroun No. 1.

A That's correct.

Q Is the scale correct? Is it essentially about the same amount of structure in both wells?

A Structure of what?

Q Atoka Queen Lake Lime?

A I don't have a structure map as an exhi-

bit in here on it. It's -- the interval is thicker from the structure map I made in the Harroun Well, the interval is thicker than in the Queen Lake Federal 19, but as you can see, this is hung on the subsea datum and the top of the Atoka Queen Lake Lime in the HNG well is quite a bit lower than -- than it is in the Getty Harroun Well.

Q Okay. Now, you also testified that you just got the Tenneco log on the offset to the west?

A That's correct.

Q That doesn't show any Atoka Culebra Bluff Sand, either, does it?

A The log showed no -- no sand development.

Q In Exhibit Number Ten you show none of that sand in the -- well, the offsets to the west and the south except for the Coquina Craft No. 1 at the north end of Section 13.

A That's correct.

Q But you do show the Atoka Queen Lake Lime, is that right?

A On the -- on which exhibit?

Q Well, wait a minute, it's not shown on Exhibit Ten, is it?

Well, let's go down to Section 19 a minute and talk about the Queen Lake 19.

I take it you're -- are you pretty famil-

liar with that well?

A Yes, sir.

Q And have you been responsible for the geology on that well that was drilled?

A I was, yes, I participated in the geology on that well.

Q So do you have in mind what the cumulative production is on that well?

A Yes, sir, it's written on the cross section, 9 -- it's actually 916-million cubic feet of gas. I believe that showed a 901.

Q Nearly a billion.

A Yes, sir.

Q When was that completed?

A I don't actually have the date of the completion, I don't believe.

Q Could you guess how long it's been in production?

A Let's see. I would say a year but it may be a month or two either side of that.

Pardon? Two years, okay.

Q Two years?

A Two years.

Q Do you have any information about what the porosity is of the -- what you show as the Atoka Queen Lake

Lime as it exists in the Queen Lake 19?

A It's very poor.

Q How poor is it?

A It's -- it's so poor that it's hard to pick up on the -- on the electric log.

On this particular log it shows, let's see, with this it shows one -- one percent porosity and the neutron shows three percent.

Q So two percent would be a good guess, would it?

A It's not a guess. It's from the log.

Q In between.

A Yes. If you cross plot the porosity you would have in between the two.

Q In other words, you find the Atoka Queen Lake Lime essentially throughout this area, and it's what you'd call laterally consistent, I take it, or you might call it that.

A The -- the limestone development itself is pretty well present over this part of Eddy County.

Q Okay. Now, let me ask you about the south half of 19 before we come back to geology.

I understand HNG has an interest in there.

A We have an interest. I'm not fur sure --

you'd have to ask Mr. Duke what our interest is.

I would like to correct, or at least add something here.

This Queen Lake 19 No. 1 was drilled 1950 feet from the east line and 1980, I believe, from the north line, and it is an east half proration unit, not a north half proration unit.

Q Let me get those figures again. You got 1980?

A It's 1980 by 1950 and I believe the scale here, it looks to me like it's 1980 from the north line and 1950 from the -- well, let me see.

Q From the east?

A It's 1950 from the north line and 1980 from the east line.

Q Is that an orthodox location in the east half?

A It was adusted 30 feet for something. I really can't remember what for.

Q Well, is that orthodox?

A It's -- apparently no one went against our location at the time we drilled it. I can't remember for sure.

Q I assume it's unorthodox, then.

A You assume it's what?

Q An unorthodox location.

A It's unorthodox probably by 30 feet.

Q Okay, I'm going to have to mark this as an exhibit; I'll put a number on it later, if that's all right with you and Mr. Carr.

MR. CARR: That's all right with Mr. Carr.

Q I have here what appears to be a well location and acreage dedication plat for the Queen Lake 19 Federal, signed by Bennie (not understood), Regulatory Analyst for HNG Oil Company, and ask if you can identify that as being a document submitted by your company to the Oil Conservation Division?

A Yes, it is.

Q Doesn't that show a lay-down proration unit?

A It sure does. I may stand, you know, to be corrected on this . I was thinking that at the time it was an east half proration unit but this describes a north half proration unit.

Q Okay, so as far as we know now it's a lay-down proration unit.

A Yes.

Q Okay, getting back to the question of the south half of 19, I believe my question was, or my statement

was I understood that HNG has an interest in the south half. Is that correct?

A We do -- I'm not aware of how much. I mean I can't give you the details on what we have.

Q Have you done any study of the geology underlying the south half of 19?

A Yes, it's included on our maps.

Q Have you made any recommendations with respect to the drilling of a well in the south half of 19?

A No.

Q Have you not been requested to do so --

A No.

Q -- by anybody in your company?

A I did it myself.

Q So that's not presently the consideration?

A No.

Q Okay, I'll come back to that in a minute, too, but looking then up in the north half, then, the Queen Lake No. 19 and a million cumulative production over two years and two percent porosity, how do you account for that amount of production out of a limestone that is so low in porosity?

A It's probably fractured but I don't know that it is.

Q With that be your best professional guess, then?

A Yes.

Q Have you done, or attempted to make any study on what area is being drained by the Queen Lake Federal No. 19?

A No.

Q It's not been of concern here (not understood)? It was not a consideration, then, I take it, in determining the location of a proposed location in the east half of Section 18 by HNG?

A We didn't turn in an east location. Is that what you asked?

Q A west half, I'm sorry.

A No, not really, because what we knew from the 19 and our Craft 25 and another well or two is that there was no sand developed and we -- our primary objective was the Atoka Sands, not the Atoka Lime.

Q The Culebra Bluff Sand, not the Harroun Sands underneath --

A We would take any Atoka Sand we could find.

Q Now I'm kind of confused about that because it seems to me that I don't know what the cumulative production is of the sand to the north, the Getty Malago

Harroun, do you know what that is?

A Let's see, it's 200 -- about 201-million since December of "84.

Q And I wonder how long that's been in production?

A I don't know for sure.

Q Do you know whether this is an older well than the Queen Lake No. 19?

A Yes, it is, I believe. I believe it is.

Q So that's over a period at least as long as two years and probably longer, then.

A I believe that's correct. I -- I really don't know, to be honest with you, myself.

Q From a geologic point of view, why is the sand so interesting to you with that kind of production out of the Queen Lake Lime?

A That's not the only well that produces out here. If you'll look at all these red dots, we have EURs anywhere from 3 to 6 BCF from some of the Atoka Sands; some of those Atoka wells.

Q And as already pointed out, your Exhibit Number Ten shows that this apparently hasn't been encountered in a number of the offsets to the south and west.

A Which sand?

Q The Atoka Sand.

A In the wells with black dots?
Q Right.
A They had no sands in them.
Q Well --
A The -- the Getty Malaga Well, Harroun Well, was completed in February of 1984, so it's been on about a year, a little over a year.
Q Which one is that now?
A That's the north well up here.
Q What was that date again?
A February of 1984.
Q So that would not be as old as the Queen Lake.
A That's correct. I was wrong; I couldn't remember exactly.
Q You have an Isopach of the Culebra Sands? Is that one of your exhibits?
A No, it is not. The interval that includes the Culebra Bluff Sand is -- is what was -- the Isopach map was made of.
Q Excuse me. Do you have any knowledge then, if the map is mostly a limeston, what percentage is -- is sand?
A I don't know. That's just the interval that the Atoka Culebra Bluff Sand develops in normally, and

what we've -- what I've seen from my work is that you stand a better chance to get the Atoka Culebra Bluff Sand developed in the thicker intervals of this Isopach.

Q I assume you're saying that you would expect a greater percentage of sand exists in the thicker interval, huh?

A That's correct.

Q What about this -- this, again, the offset to the south? You haven't considered drainage, is your testimony. Wouldn't it be true that the proposed location having been moved from the original location as presented to Texaco farther to the north would have less of an effect in protecting this acreage in the south from drainage by the HNG Queen Lake Federal? Isn't that a fact?

A I'm not for sure I understood your question. Are you saying -- are you asking if that's why we moved our location?

Q No, I'm asking you wouldn't -- isn't it a fact that moving the location farther to the north has a concomitant result of less protection to the acres in the south from the potential drainage by the HNG Queen Lake Federal?

A It depends on what we get in this location.

Q Well, just --

A We don't have any --

Q Just by a matter of geography, wouldn't you say that's a fact?

A Geography plays not too much part in some of these subsurface formations that you complete in.

Q It must play some part because obviously we have some rules regarding locations of wells that are rather strictly adhered to.

Isn't that a fact?

A I don't know and I don't think you know what this well is draining, what area this Federal 19 is draining.

Q Well, I don't know but I know somebody who does, I think.

A Yes.

Q So I guess your -- your point is that your location moved to the north had to do with the geology that you lately developed based on a variety of things, one of which is as recently as Saturday, but obviously you'd already picked that location at that point.

A What I said was, this Isopach was revised Saturday.

Q Well, the point being, however, is you think that -- your testimony is that this is your best guess as to where you will encounter the sands that you're looking for.

A In Section 18 this is the best legal location we can drill, in my estimation.

Q Are there any other wells producing from the Atoka Sand in the area that are anywhere nearly as productive on a cumulative basis as the Queen Lake 19?

A Yes, sir.

Q Which ones are those?

A I don't have that at my hand, but the HNG Williams Well in Section 35 to the northwest has produced over 3 BCF of gas.

Q Which one is that, now?

A The HNG Williams 35-1, way up to the northwest on your map.

Q I'm sorry, I can't find it. Okay, okay, I think that's it.

A That well has produced over 3 BCF of gas from the Atoka Sand.

The 35 No. 2 has produced 1.6 BCF of gas.

Q 1.6?

A Yes. The Maddox Malaga No. 1 in Section 3 of 24, 28, has produced 6-1/2 BCF of gas from the Atoka Sand.

The well in Section 26 of 23, 28, the Maddox Pardue Farms 26, has produced 5-1/2 BCF.

And several of these closer wells to Sec-

tion 18 are newer developments that we don't have the production history on.

Q And those up there in Section 2 of 24, Phillips Malaga A-2, didn't encounter the sands, is that right, on Exhibit 10? The one right under your finger?

A Yes, sir.

Q And then up in Section 25 it didn't --

A That's -- that's correct.

Q What do you think is the role of structure in all this, when it seems to be a somewhat --

A It's a combination of structure and thickness which increases or decreases your risk of making a beyond commercial well.

The better wells that I've just given you the cumulative production are structurally higher than these wells down here to the south, and in fact, in Section 18. They are older wells but they are better wells than some of these others down here.

Q What zone do you expect to -- the Tenneco Harrison 13 to be completed in, do you have any idea? Can you guess from looking at the log?

A We have no interest in that well.

Q You didn't think much after you looked at the log?

A I have more important things to do than

try to figure out somebody else's problem.

Q Did you see the Atoka Queen Lake Lime in that log?

A Yes.

Q Very significantly? Was it essentially --

A It's comparable.

Q -- as shown on that one?

A It's comparable to the two logs on the cross section.

Q Would a legal location in the north on a lay-down, a lay-down proration unit in Section 18 be as desireable? The 1980 from the west or 1980 from the east, I guess you have those choices?

A Be as desireable as our Fort?

Q Yes.

A Not in my estimation, it wouldn't.

Q And why -- why is that?

A Well, you're, using the exhibits that I've talked about, you're moving --

Q Because of the structure?

A Although I've -- we're talking about not too much difference, but when we make locations for the cost of these wells we try to -- try to get the best location we can.

On the Strawn structure map a legal location 1980 from the west line would be slightly lower structurally than the Fort.

Q Just marginally lower, right? Marginally lower?

A About 40 feet.

Q What does it show on the Isopach here? This is Exhibit Eight. Does that show there?

A You could actually, depending upon where you locate this well 1980 from the west, if you're 660 from the north, the way I show it you could have a little bit thicker interval there.

Q So that might be marginally better, then.

A Correct.

Q Okay, let's look at Exhibit Number Eight, which is the gross Isopach.

A Okay.

Q Can you tell me how a gross Isopach to a prevalently limestone sequence helps chase these sands when this interval thickens?

A First off, to make an Isopach map you want to be sure that you have a good top and a good bottom point to Isopach.

The top of the Strawn and the top of this Atoka Lime marker are both tops that can be readily corre-

lated in this area.

This interval includes the Atoka Culebra Bluffs sand interval and, as the other exhibits show, the thicker the interval the better chance you have to hit these Atoka sands, as Exhibit Ten shows.

Q Just a second.

MR. BATEMAN: That's all I have.

A Okay.

MR. STOGNER: Thank you, Mr. Bateman.

Mr. Carr, any redirect?

MR. CARR: No redirect.

MR. STOGNER: I have no questions for this witness at this time.

Mr. Carr, does that conclude your testimony?

MR. CARR: That concludes our direct case.

MR. BATEMAN: Mr. Chairman, I'd request a brief recess and I'll put my pictures on the wall.

MR. STOGNER: You may.

MR. CARR: Let's have a brief recess and I'll take mine down.

(Thereupon a recess was taken.)

MR. STOGNER: Mr. Bateman, you may proceed.

MR. BATEMAN: Okay.

RAYMOND KEITH WILLIAMS,

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

DIRECT EXAMINATION

BY MR. BATEMAN:

Q Would you state your full name and place of employment for the record, please?

A Raymond Keith Williams; employed by Texaco, Inc., in Midland, Texas.

Q Mr. Williams, how are you employed and in what capacity?

A I'm a development geologist working in southeast New Mexico primarily.

Q Have you previously testified before the Division?

A No, I haven't.

Q And would you state for the record what your educational and work experience has been?

A I have a BS in geology from Texas Tech University and I've been employed since May, 1980, approximately five years.

Q By Texaco?

A Yes, sir.

Q What's your experience with the area which is the subject of Texaco Producing's application today?

A Not -- it doesn't date that far back, only probably two, two months, something like that, in this specific area here.

Q What is your experience in -- with respect to acreage owned by Texaco in New Mexico?

A It's pretty extensive. I've worked the Hobbs District Area for about three and a half years. I know pretty well what our leasehold position and properties are in the area.

Q And in your position, then, have you familiarized yourself with the geology of the area which is the question of the application today?

A Yes, sir.

MR. BATEMAN: I offer Mr. Williams as an expert.

MR. STOGNER: He is so qualified if there are no objections.

Q Mr. Williams, what is Texaco Producing requesting by its application today?

A We're requesting to drill a 12,400 foot well to test the Atoka formation at a legal location 1980 from the west line, 660 from the south, Section 18, 24 South, 29 East.

Q Now, in connection with that application did you prepare Exhibit One?

A Yes, sir.

Q Would you review Exhibit One for the Examiner?

A Okay. Exhibit One is a structure map. It's on top of the massive Atoka interval and it basically shows regional dip off to the east/southeast at approximately 150 feet per mile.

The wells are coded as to Morrow production and primarily broken out as to producing interval within the Atoka series and the Strawn interval there.

And Texaco's acreage in question is shown in yellow there in Section 18.

"A" is our location there with the arrow, and it does show an unprotected offset there to the south in Section 19, being the HNG Queen Lake Federal.

Q Now you've shown also locations proposed and actually occupied by HNG, have you not?

A Yes, I've showed the original proposal to us and the currently drilling well up there in the north, and I've showed the other -- the other deep either complete or drilling wells, being the Pogo Lightfoot Com and the Tenneco Harrison to the west in Section 13.

Q Would you proceed with what's been marked Exhibit Two?

A Exhibit Two is the original proposal to Texaco from HNG and primarily it just states the -- what's shown on the map.

The original proposed location was the 1980 from south and 660 from the west line of Section 18.

Q Can you tell me why you recommended, I presume you recommended, the Texaco location?

A After reviewing this -- this area and considering -- all things considered, it appeared that -- I think Gary will talk about it a little bit -- that the potential for drainage was pretty high out of the -- out of the interval that the HNG Queen Lake Federal is -- is completed out of, what we call the Ivanovia Bank Zone, with reference to its type of algae it appears to be composed of, and primarily thought, or still feel that a location as proposed would better protect our lease from drainage in that zone than would -- than would either the original proposal or the currently drilling HNG Fort 18 Com.

Q What would be the primary objective, then, of the well drilled at Texaco's proposed location?

A It would be this, what we would call the Ivanovia Bank Zone, which HNG referred to as the Queen Lake Federal Zone.

Q You mean those two are one and the same, is that correct?

A Yes, sir.

Q Would you proceed, then, with what's been marked Exhibit Three?

A Okay. Exhibit Three is -- the trace of Exhibit Three is A-A' on Exhibit One, running roughly east/west from the Superior Mayer Federal Com in Section 26 up the north, to the Maddox Energy Malaga Well in Section 3.

This is a stratigraphic section. It's the big one. It shows -- it's hung on a shale break within the Strawn-Atoka carbonate interval here, and shows the consistency of the Atoka-Ivanovia-Queen Lake Limestone. It's the uppermost one colored in yellow, being the same zone colored in blue on HNG's cross section.

Q Just for the record, then, the wells included in the cross section A-A' are shown on Exhibit One or identified on Exhibit One, is that correct?

A Yes, sir. To point out some of these wells, this is HNG's well completed in that zone there.

This is a Coquina well completed out of the sand that sits immediately above that bank interval. This well --

Q Which well do you point to?

A The Coquina, this first one here.

MR. STOGNER: What is the name of the well?

A It's Coquina Craft No. 1.

MR. STOGNER: Okay, and that is the third one from the right?

A Yes, sir. It's in Section 13 on that map.

It is completed as an Atoka Clastic producer. This well has subsequently been, according to the monthly committee production books, been obtained by Santa Fe Energy, which is the next well on the section, which is the recent completion, has been obtained by them from I think now probably defunct Coquina, and this well is completed in this Ivanovia Zone, as is this.

This well was drilled on an unorthodox location forming a south half proration unit in between these two wells, which --

MR. STOGNER: Whoa, whoa, what are "these two wells"?

A I'm sorry, the map, this map number one,

you can follow with that.

Okay, I'm talking about these --

MR. STOGNER: Well, name those wells because the transcripts aren't going to be able to --

A Okay.

MR. STOGNER: -- distinguish between "these" wells and "that" well and "this" well.

A Okay. The Coquina Craft Well is the one that is not perforated across the same interval.

Santa Fe Burkham Federal was a well that was drilled recently and is completed out of that interval.

Eastland Coursen (sic) Federal in Section 12 also had the Bank interval but it completed out Atoka zones above the Bank.

This well, the Santa Fe Burkham Fed, which was completed in -- I don't believe it's had a potential test, potential filed here.

The last test it had a COF of 2.1 out of this zone. This well attests to the productivity of the wells either side, being the Eastland Coursen Fed, and the Coquina Craft Well.

Log comparisons on all these wells show that these wells that have been perforated in that interval would indeed show this zone to be productive across this acreage here.

And it continued on to the -- on to the west pretty good, and there are some more producers, being the Pogo Lightfoot Com did have some perforations across the zone. It also had some Upper Strawn perforations.

The Coquina Marek Well is a completion out of the Ivanovia Bank.

The Coquina Vest Well is -- is a clastic well again, and again it came into an Atoka Clastic zone, therefore did not test the Ivanovia Bank interval, as do apparently a lot of -- a lot of wells as they come into any -- any sand intervals they would rather complete in those more obvious pays than they would this -- this tight, consistent limestone through here.

This A-A' primarily tries to show stratigraphically the consistency of this -- of this Bank interval and the tests and its projectivity in those wells where it has been tested.

And it also points out that the productivity in all the wells that it is completed out of, the porosity is apparently as low as that of the Queen Lake Federal 19, all in a range of one to two percent on a -- on a porosity log.

I think that's all I have.

Q Proceed, then, with what's been marked as Exhibit Number Four, which is an Isopach map of the area.

A Exhibit Number Four is a gross Isopach of this interval we're talking about, this Ivanovia Bank interval, across these -- these townships here. In general it thickens to the east, as you see on that cross section, and on this map, and thins to the west and eventually pinches out over there in Sections 15 and 22.

It shows it to be of uniform thickness surrounding the lease and the proposed location, with the Coquina Craft Well in Section 13 having 16 feet.

The Eastland Coursen Federal Well in Section 12 having 14 feet; Santa Fe Burkham completion within that zone having 14 feet; Tenneco Harrison Well, which is not tested as of yet, having 14 feet; and HNG Queen Lake Fed, which is productive out of that zone having 14 feet.

Up towards the north in the Getty Harroun Well, which is not tested, either, it also has 16 feet.

This Isopach shows good continuity through this zone over most of this area centering around this lease here.

While we believe that the gross interval and the Bank interval is -- is consistent around this lease, we don't believe that the productivity of it will be as consistent. The apparent low porosity and low permeability attests to the the fact that the zone is fractured and while this map shows possible production in all areas, it's prob-

ably misleading due to -- due to better fractured areas.

I think you can safely say, though, that a stand-up proration unit, our acreage forming the east half, would be a riskier location by the fact that you're off a trend which shows consistently 14 feet and shows the zone to be productive along that trend.

That, coupled with the fact that a stand-up location in the east half by Texaco would have to necessarily, to be orthodox, would be 1980 from the lease line and not 660, as proposed, which would incur further drainage problems by us on top of -- on top of having a riskier location in the east half.

Q All right, will you proceed here with what's on the wall here marked Exhibit Five?

A Okay. Exhibit Five is just the second cross section that runs north/south from the Getty Well. It's essentially, it's got the same two wells as the HNG cross section, the Getty Well, HNG Queen Lake Well. It goes to the HNG Craft Well and down to the Amoco well in Section 35 of 24, 28.

Again you can see the consistency of the -- of the Ivanovia Bank in these wells and the perforated intervals in both the HNG Craft Well and the HNG Queen Lake Federal Well.

The proposed location shows there to be

just the -- to the right of the HNG well.

And again, it just kind of shows the continuity of the zone through -- through the acreage in question, through the proposed location.

We really don't feel that there's much of a chance that these sandstones out here can be sold as they do -- they are good producers when you come into them but, as you can tell by HNG's exhibits and our exhibits, that they're awful chancey stratigraphic reservoirs, whereas with this -- this limestone, you're at least dealing with a consistent unit and only possibly the quality of the production is in question, not -- not the fact that it's possibly not there at all.

Q Is quality of production a function of fracturing in your opinion?

A I think it has to be, yes, sir, from examining all the logs, the type of invasion profiles relatively, and things, the kind of porosity in what Gary has to show later, I think that fracturing is the controlling factor.

Q What is your opinion, then, of the -- of the attraction of Texaco's proposed location as compared to HNG's proposed actual location?

A Our attraction is to -- to keep from suffering drainage, further drainage, primarily from the well

-- from both their proposed locations.

This well that's currently drilling by HNG is offsetting a well that they -- that they say and that we say has no Atoka Sand in it, and it gets down to the fact that the chances are that they'll probably have to look to completing into something else if they do not come into any sands, and this limestone is primarily the bail out zone which, which would drain our acreage to a large degree, as well as keep us from draining their Queen Lake Federal by drilling a well at our proposed location.

Q Are you familiar with the efforts that were made to form a unit by Texaco?

A Yes, sir.

Q Would you refer to what's been marked Five-A and describe that to the Examiner?

A This was just Texaco's counter-proposal, or proposal to drill our test, dated March 22nd. At this time their well had already been spud. It still was within the time that we were given on the initial letter, which was a spud date around March 30th, 1985.

Q To your knowledge is Texaco prepared to proceed and spud a well had it gotten approval?

A Yes, sir.

Q What can you tell us about the time frame in making a decision on this proposal that HNG made?

A It was handled under the circumstances in the most timely fashion that we handle out. It had a couple weeks leeway where we had evidently been lost a little bit. It had gone to a different office and then made its way to our office through -- through our land people.

Q When did the responsibility for Getty acreage get transferred to Texaco Producing?

A Primarily the date of the merger, which was January 1st, '85.

This is an on-going project evaluating the status of a lot of Getty leases. We have been -- have been doing that. This is part of that project also.

Q Mr. Williams, do you have an opinion concerning the risk potential involved in drilling a well at the Texaco proposed location?

A Risk, I'm sorry, I don't understand.

Q The risk of obtaining production.

A Oh, I don't believe that the risk is that high for our well completing in the same zone. It looks -- it looks real good in the -- it has produced real well in the Queen Lake Well. It looks consistent across Section 13. This well projects into that cross section and everywhere you have any doubt the zone is not tested.

So I think that there -- the risk would not be high at that -- at that location.

Q Not as high as it would be in the other location, is that --

A Right.

Q -- your testimony?

A Yes, sir.

Q Do you have anything further to add?

A Just -- just one comment about this gross Isopach. In looking at these sands --

Q Excuse me, let's identify it for the record.

A Exhibit Number Eight, HNG's exhibit, which is the top of the Strawn, top of the Atoka Limestone, which roughly -- which roughly on these two cross sections, being our cross sections, Exhibit Number Three and Number Five, is an interval that shows anywhere from 336 feet to 406 feet that's predominantly a carbonate interval that is part of the Strawn Bank.

You can see on Section A-A', Exhibit Number Three, how this unit builds up between the Queen Lake Federal Well and the Coquina Craft Well. This is a Bank interval. The chances of mapping that gross interval with 300 feet and using that to try to explore or develop an 8-foot Atoka sand stringer is -- is somewhat, I think, impossible. There is no Isopach of the Atoka zones, the sand zones in which -- which HNG Fort 18 Com is supposedly supposed to

come into. There are no Isopachs, nor is there any sand in the well in Section 13 to -- to the west, being the Tenneco Harrison.

I think that that makes that a higher risk location as far as coming into a sand. If it comes into only this Ivanovia or Queen Lake Lime, then again it's the problem of drainage on our lease from the north and the south.

Q Mr. Williams, were Exhibits One through Five-A prepared by you or under your direction?

A Yes, sir.

MR. BATEMAN: I offer Exhibits One through Five-A at this time.

MR. STOGNER: If there are no objections --

MR. CARR: There are no objections.

MR. STOGNER: -- Exhibits One through Five will be admitted into evidence at this time.

MR. BATEMAN: No further direct.

MR. STOGNER: Mr. Carr, your witness.

MR. CARR: Thank you.

CROSS EXAMINATION

BY MR. CARR:

Q Mr. Williams, let's look at your Exhibit Number One, the structure map.

Is this structured on top of the same interval as the map previously, the structure map presented by HNG?

A Let's see, do you have a copy of that structure map there?

MR. BATEMAN: Which exhibit are you referring to? I'm sorry.

MR. CARR: The structure map, which is Exhibit Seven.

A No, sir.

Q The HNG structure map is on what horizon?

A It is on top of the Strawn.

Q And you're on the top of the Atoka?

A The top of the Atoka, Massive Atoka interval, which sits right above or right below, excuse me, the pay in the Queen Lake Federal.

Q Do you know of anything in here which would tend to -- they seem to be fairly close, one to the other. In your experience do the two structure maps seem to -- do the structures seem to parallel one another pretty

much?

A No, sir, they don't. If you refer to Exhibit Number Three, between the HNG well and Coquina Craft Well --

MR. BATEMAN: Just for the record, you've got these identified by numbers at the top.

Which wells are you speaking of?

A The No. 2 and the No. 3, right in the area of interest.

You see, it gets back to this thing being a bank and if you match structure on the top of that dark line up there, you'll get a normal, a normal amount of dip on that because of the fact that it's a facies change and it's not a regional structure line and I think it's kind of misleading, the fact that this map doesn't really pick out points to the east where this stuff totally, pretty much shales out at the top.

MR. BATEMAN: You're referring to Exhibit Number Seven now.

A Yes.

Q If we look at your Exhibit Number Three, the HNG structure map is on the top of the Strawn, which is the top line across your cross section, is that not correct?

A Yes, sir.

Q And which is the interval which you have mapped on that cross section? Where would be the top?

A It would be Atoka Limestone, the structural marker right here.

Q So you're looking at the -- at the limestone area instead of the netire interval that was being addressed in the cross section, or in the structure map of HNG.

A Yes, sir. I'm looking at the interval that sits immediately below the pay in the Queen Lake Federal and best mirrors structure on that zone without mapping itself, it itself.

Q And your testimony, you're focusing actually on the -- on the limestone interval.

A Yes, sir.

Q That is below the other sand stringers that HNG testified to.

A Yes, sir.

Q Now I'd like to, before we go through some of the other exhibits, talk to you for a minute about sequence of events which led up to these proposals.

You testified, I believe, that you were aware of the efforts made by HNG and Texaco to reach a voluntary agreement.

Are you aware of any letter other than

your letter that's marked as your Exhibit Five-A to HNG concerning the drilling of a well in the south half of this section?

A No, sir, I am not.

Q Are you aware of any communications prior to that time concerning the drilling of a well?

A I'm aware of a phone conversation from Bennie Tidwell to I'm not sure, the HNG landman that spoke to the same things as that later did.

Q Did that precede the March 22nd letter?

A Yes, sir.

Q By how much time?

A The date on that fell somewhere in between -- I don't have an exact date. It's somewhere in between the 13th and the 22nd.

Q Were you aware of what was going on in this section, say, on March 22nd, 1985?

A In this section? You mean in --

Q In Section 18?

A Yes, sir.

Q Were you aware at that time that HNG had already drilled a location of their well?

A I believe so. We keep with the current -- I do believe it came out in the Midland Reporter Telegram. I think that that was prior to the spud date there.

Q So you were aware that they had already constructed a location at the time you made this formal proposal to them.

A I'd have to say yes, sir.

Q Now this proposal only gives HNG the opportunity to simply pay their share and participate in the well, is that correct?

A Yes, sir.

Q Were there any other offers made or any other alternatives proposed to HNG?

A Not that I know.

Q Are you aware of any other correspondence at all concerning the drilling of Texaco's well to HNG?

A No.

Q Are you aware of any telephone conversations other than those you've just recited?

A No, sir.

Q Are you aware of any meetings that were held?

A No, sir.

Q This is the only -- one telephone call and this letter constitute all of Texaco's efforts to obtain voluntary joinder in the well?

A As far as I know.

Q When did you first learn of HNG's pro-

posal?

A On or about February 6th.

Q Do you have any idea when it was that a decision was actually made by Texaco to not participate in the well that HNG was proposing?

A I think it was just prior to March 6th. I'm not sure how much.

Q To March 6th?

A March 6th.

Q Okay. When did you first personally become involved in studying this area?

A Right around that date, February 6th date.

Q And to your knowledge was anyone else working on this prospect prior to that time?

A Yes, sir, we had two, two Getty geologists that had kept current with the area and were -- were at least following activity.

Q Do you know who they were?

A One was Dennis Kuhful and I think it's Dick Rickli, it was, at least, their area of responsibility prior to my first exposure to it.

Q How long have you been with Texaco?

A It will be five years next month.

Q During that period of time has your area

of responsibility for the company included this portion of southeast New Mexico?

A Oh, yes, sir.

Q How many wells during that period of time has Texaco drilled in the Atoka in this general area, say within even ten miles of the area?

A Well, I'd say none, probably.

Q You're not aware of any?

A No, sir.

Q Now if I understand, looking at these plats, your real concern in proposing this well location is to protect this acreage from drainage.

A Yes.

Q Your proposed location would be 660 feet off the common lease line.

A Yes, sir.

Q And HNG's location would be either 1950 or 1980 off that common lease line.

A Their original proposed location?

Q No, the location of the Queen Lake Federal.

A Oh, yes, sir. Yes, sir.

Q And so you would be virtually 2/3rds closer to that common lease line than HNG.

A Yes, sir.

Q This would give you an advantage, would it not?

A Yes, sir.

Q Now, could you tell me again why it is you propose to locate the well where you did and not to the west? I'm sorry, not to the east --

A Not to the east?

Q -- from that location? Yes.

A Like the cross section, Exhibit Three, has shown here, we're shown the continuity through the -- through where the wells are located. Just the fact that the wells are located to the east -- or to the west and not the east, and you can see similar characteristics on the logs through those intervals where it is not tested, leads us to believe that that is a much safer location where it's proposed and not in the east half.

Again, an east half would be 1980 from the south line, which is as far, practically as far north as HNG's currently drilling location.

Q You have standard locations for a south half unit in the southwest quarter of 18, do you not?

A Pardon?

Q There are standard locations in the southeast quarter of 18 if you have a lay-down unit, do you not?

A We have a -- the well where it is proposed or you mean one to the --

Q You could move to the east of that location --

A Oh.

Q -- in the south half of 18.

A Yes, sir.

Q And still be at a standard location.

A Right.

Q That would put you in closer proximity to the HNG well, would it not?

A Yes, sir, by a small margin.

Q And yet you're preferring to be structurally -- are you closer to the wells off to the west than you are getting close to the well in which you believe you have such good sand -- or limestone development.

A We're trying to get closer on a line drawn between the Queen Lake Federal and the next production, or the Santa Fe Burkham in Section 12, which is the next production out of that zone and the similar characteristics in the same zone in Section 13 that is not tested, and that puts it in that location right there.

Q And that's the Santa Fe Burham in Section 12.

A Yes, sir.

Q And so you are attempting to be on a line between those two wells.

A Yes, sir.

Q Do you believe that there is -- would be any trending of the fracturing or should I --

A Yes, sir.

Q -- reserve that?

A Just based on where -- where it occurs, I would say that, you know, that there is -- that is where you see it. That is the only reason why you'd want to be in that spot.

Q And so trying to line up between those two wells is the reason that you are --

A At that location.

Q -- at that location and not to the east --

A Yes.

Q -- in the south half.

If you proposed a stand-up west half unit you could more in line between those two wells, could you not?

A Yes, sir, but not on our acreage.

Q But it would be within the pooled acreage, would it not?

A Right.

Q And you would have the right to drill on there if you were able to obtain a pooling order, or do you know?

A I couldn't say.

Q Now your cross section is used to demonstrate the presence of the limestone. Does it show anything beyond that?

A Yes, sir, it shows the -- the current lack of porosity in the Queen Lake Federal Well consistently in that zone all the way across that section, and it gets back to the wells that -- that don't produce out of it, apparently because they come into additional pays and they don't -- it's not a very obvious pay. It's back to the fracturing and how -- how you evaluate your logs and things like that. There's nothing looking at a log percent porosity that you could say that you could make a BCF out of or more than that.

Q So what this shows is the presence of a sand and the lousy porosity throughout, whether you have a well there or not.

A Of the sand?

Q Of the limestone.

A Yes, sir. It shows -- it shows the consistency of the unit and it shows that those wells that are not tested in that unit have as good a log character as

those that are producers within that unit.

Q So if we look at the HNG Queen Lake Federal Well, we see the presence of the sand body and from log character --

A Of the limestone?

Q Of the limestone --

A Yes, sir.

Q -- and the -- you see the presence of the limestone and you also, from the log on the HNG Queen Lake Federal Well, can see that from a porosity point of view it's fairly poor, from the log.

A Yes, sir.

Q And then if we go to, say, the Santa Fe Energy Burkham No. 1, we see virtually the same thing --

A Yes.

Q -- the presence and poor porosity in that limestone.

Also, if we go to the HNG Craft we can see presence of the limestone, would we not?

A Yes, sir.

Q And we'd also see that it's from log characteristics fairly poor.

A Yes, sir.

Q So really all that we can gather from these cross sections is that you've got the limestone and

that when you look at it just from the log that it's fairly comparable.

A Yes, sir. The other witness does have an exhibit that breaks that out a little bit better.

Q Yes.

A Having to do with additional logs run on these wells.

Q Okay, he's going to build on what you've got.

A Yes.

Q But what we've got here is just that.

A Right.

Q Now if we go to your Isopach map, Exhibit Four, you have built this map, this is a map of the limestone again.

A Yes, sir.

Q It doesn't -- it isn't a map of the same sort of interval that HNG was mapping when they were looking at everything up through the top of the Strawn.

A No, sir, it's just the pay in the offset well to the south.

Q Okay. And what you're really doing is you're, if I understand your testimony, is you're stating that Texaco's interest is the limestone and not the possible sand bodies that might be encountered.

A I think after evaluation, initially we like to stay optimistic and say that you would come in through, I think, the new control in Section 13, and knowing how these sands come and go, I would say that that would have to be correct.

Q And so you're focusing just on the one interval.

A Yes.

Q It is possible that if you were able to complete in these sand stringers that that would increase the chance of having a successful well, is that not true?

A Yes, sir, but if I understand correctly, where we drill offsets, we primarily stay in the zones that remain competitive and would have to, by that fact, complete in this limestone that is completed in Section 19 down there.

Q Okay, so you're looking at the limestone just to offset any possible drainage that might be occurring.

A Yes.

Q You didn't consider the chance of -- the secondary consideration was the chance of any sand development.

A Yes, sir.

Q And you characterized that as sort of

chancey, did you not?

A Yes.

Q A number of people have been quite successful to the west of this location taking that chance, have they not?

A Yes, sir, in the area.

Q To the north and west; immediately to the north and west of Section 18, is that correct?

A Yes.

Q But you have not been focusing on this looking on the additional opportunity you would have if in fact you were able to get into those sand stringers.

A No, sir, but like I stated, the opportunity is very low with the two wells on either side that -- that do not have much of any sand in them.

Q And the opportunity to intercept those sand stringers would be increased, however, if you moved to the north and west towards them, would it not?

A Towards?

Q Towards the wells that are completed in the sand.

A The -- yes, sir, but it would be -- it would be off the area we're talking about.

Q Thank you.

MR. CARR: I have no further

questions.

MR. STOGNER: Mr. Bateman, any redirect?

REDIRECT EXAMINATION

BY MR. BATEMAN:

Q Just one question, Mr. Williams.

If you had gone to a stand-up proration unit on the east half of Section 18, you still have, do you not, the consideration of drainage of the acreage you obtained -- excuse me, I'm getting my directions mixed up.

On the west half, if you're involved in a west half stand-up, you still have considerations of drainage on the east half, do you not?

A Yes, sir.

Q And if you then were able to drill a well on the east half, where would it have to be located?

A It would have to be located on an orthodox -- on a stand-up would have to be 1980 from the lease line, from the south lease line.

Q It may be somewhat repetitive, but that is somewhat more distant from the offset than the proposed location, is that correct?

A Yes.

Q And by drilling at the proposed location

you would be able to protect the entire acreage from drainage if it's productive, I assume.

A Yes, sir.

MR. BATEMAN: No further questions.

MR. CARR: I'm going to be repetitive, too.

MR. STOGNER: Mr. Carr, you may be repetitive.

RECROSS EXAMINATION

BY MR. CARR:

Q Mr. Williams, I think in answer to Mr. Bateman's question you just stated that you would be more distant from the offsetting HNG Well if you had to develop an east half unit.

A Yes, sir.

Q You would in that situation be about the same distance from the common lease line as the HNG Well, is that not true?

A That would be the -- that would be the exact distance, approximate -- it would be the exact distance from the lease line as the original proposal would but not as the drilling proposal that's currently drilling.

Q How far from that common lease line is

the HNG Well to the south?

A The -- the --

Q I'm talking about the well down -- I'm sorry, the section directly south of 18.

A You're not -- okay. That one is 1950, I believe.

Q And you would have to be 1980.

A Yes, sir.

Q Okay. Thank you.

MR. STOGNER: Mr. Bateman, re-direct?

MR. BATEMAN: No, not at the moment.

CROSS EXAMINATION

BY MR. STOGNER:

Q On redirect by Mr. Carr you were referred to Exhibit Number Five-A and in your testimony I understood that there were two Getty geologists. I call them Getty geologists because they were with Getty before the Texaco takeover. Dennis what was his last name, Dennis --

A Kuhful. I believe it's K-U-H-F-U-L.

Q Kuhful, and a Mr. Dick Rigli?

A Rickli. I believe that's R-I-C-K-L-I.

Q Were they taken off the project?

A Yes, sir, they -- Dennis is still in -- he helped prepare these exhibits and work with me on this.

Dick was moved to another area of responsibility.

Q Let's go to your Exhibit Number Two, which is the HNG letter, and scribbled up in the upper righthand corner, is that the order in which people see them or what exactly is this scribbling?

A Yes, sir, that's -- that's kind of the routing procedure.

Q Okay, who's the number one?

A It's the same as number three, which would be H. L. Woods, which would be Woody Woods, the Getty land person we talked about earlier.

Q Okay, he was the first one to see it, I assume, because it was sent to him.

Okay, how about the number two?

A The one that's marked out or the one that -- I guess -- I really couldn't tell you the number two or the number four.

Mr. Woods, which is the one that it ended up with is the only one that I would recognize.

Q When did you first see this letter?

A Let's see, I think it was right around that February 6th date.

Q What's that little number 71 up there circled?

A When they receive a sublease and farmout request from other companies they're -- in this routing sequence they get a number. This would be number 71.

Starting out for the year, starting January 1st, there were 70 others through the 11th then.

Q So this is a unique number given by Getty?

A Texaco.

Q Was Mr. Woods in a -- let me back up a little bit.

Where is your office?

A We are in the Heritage Center on Lorraine, which is about three or four blocks from Getty's offices in the First City Bank Tower No. 2.

Q Okay. Does Texaco still occupy that building where Getty used to be?

A There are just a few Getty personnel left over there, very few, but as far as I understand it, the money for the moving of some of those people has kind of been deferred, or whatever, and there's only a few left.

Q Well when did Mr. Woods' group and the group that was working on this with Getty, when did they get moved over to your -- to the Texaco office?

A I can't say when that time was but evidently -- I really don't know.

I know that he's over there now and has been for awhile but I don't know when that move was. They've been coming for some time now, all departments.

Q Sounds like a big mess.

MR. STOGNER: Okay, that's all I have for Mr. Williams.

Are there any other questions of this witness?

If not, he may be excused.

Mr. Bateman?

GARY ROBERT KERN,

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

DIRECT EXAMINATION

BY MR. BATEMAN:

Q Would you state your full name and place of employment for the record, please?

A My name is Gary Robert Kern. I'm employed with Texaco as the Division Operations and Proration Engineer in the Midland Division Office.

Q Mr. Kern, have you previously testified

before the Division and made your credentials a matter of record?

A Yes, I have.

Q Are you familiar -- do you work with the area in question in this application?

A Yes, sir.

MR. BATEMAN: I offer Mr. Kern as an expert.

MR. STOGNER: If there are no objections, Mr. Kern is so qualified.

Q Mr. Kern, would you refer to what's been marked Exhibit Number Six, I believe?

A Exhibit Number Six is a map which shows several things, and I'll kind of talk about them piecemeal.

First of all, the Texaco acreage in the immediate area is outlined in yellow. The Texaco proposed location is so highlighted as the proposed location.

The HNG location, which as I believe has been testified today, has been drilled to some 10,000 feet, is shown as a location.

We've got what basically -- basically the dots surrounding the wells, they're colored, are wells that based on the latest information I have, are completed in one of three Atoka Pools, one being the Malaga, or however you want to say it, Malago Atoka Pool, those being the green

colored dots.

The orange or gold colored dots completed in the Undesignated Atoka, Eddy County Undesignated Atoka Gas Pool.

And the pink being in the Willow Lake Atoka Gas Pool.

Also shown is the proration unit associated with the wells immediately surrounding the section in question, that being Section 18.

I might note that perhaps the most significant of the -- of the -- of the producing proration units surrounding Section 18 would be the HNG Queen Lake Federal 19 Well No. 1. That -- that, of course, as we talked about earlier, is a lay-down there in that section, as is -- as is the location in Section 25 for HNG, the HNG Craft.

The Coquina, Coquina Oil Craft there in Section 13, which has a green dot surrounding it, that, and I'm going to be referencing that later on, and as I think Keith has mentioned, that well has somehow been transferred to Santa Fe Energy, and some curves and other information that I will show in the future will -- will reflect that.

But, as you can see, the only producing proration unit immediately adjoining, even at a point, are the two lay-downs in Section 12, as well as the lay-down below us in Section 19.

And the next thing that I've indicated on the map is indicating areas ultimately drained. What these are is areas which we say with no additional development will in all probability, or I say will in all probability, be drained by the existing wells, and here once again, this -- this was more or less done on a basis of just -- just the wells immediately surrounding the section in question, and that being, of course, Section 18.

In support of these -- of these drainage circles, or drainage areas, the ultimate drainage areas, I have some additional information.

First of all, I'd like to present Exhibit Number Seven, which is a curve, producing curve of the -- of the Craft Well which is in Section 13, producing from what's in the Malaga Atoka Gas Pool.

The well, as shown, went on production sometime in mid-1983. Let's see, the well to date has produced some -- the lastest information would include December of 1984, has produced some 772,378,000 cubic feet of gas.

Of course the curve there shows a decline rate, or a slight decline, I didn't really draw the line through it on the exhibit, but I used -- utilized a 19 percent exponential decline rate.

I might add that the gas produced through 9-84 (not understood) a figure of 772. That was through De-

cember. This curve is only through September. It showed that the cumulative at that point, September, is the 715-million cubic feet of gas.

This curve, taken to an economic limit of 100 MCF a day would yield a gas remaining of 3,219,000,000 cubic feet of gas, yielding an ultimate 3,935,000,000 cubic feet of gas.

The next exhibit I'd like to present is Exhibit Number Eight. It's drainage calculations for the Santa Fe Energy Company's Craft Well No. 1, or the Coquina Energy Well No. 1 in Section 13.

The well had initial from Dwight's information, had initial shutin pressure of 4937 psi. That yield's an extrapolated bottom hole pressure of 6214 psi, gas gravity of .57, and an abandonment pressure of 1000 psi, indicates an initial gas formation volume factor of 314 standard cubic foot per cubic feet and a gas formation volume factor at abandonment of 59.6 standard cubic feet per cubic feet.

The recovery factor yielded from that is 81 percent.

I then went into a recoverable gas in place calculation volumetrically for the -- for a standard 320-acre proration unit, and that showed some 2,047,867,000 standard cubic feet.

The area ultimately drained there, I then substitute the ultimate, the estimated ultimate recovery of 3,935,530,000 cubic feet into the same gas volumetric calculation.

That yielded an area ultimately drained of some 615 acres and an ultimate drainage radius of 2920 feet.

I might add that -- that this well, as the exhibits have shown, does -- is not completed out of the same zone as the Queen Lake Federal 19 is completed in, but drainage calculations were still done it because that zone, you know, could conceivably appear and I was -- I was making an attempt to show, of course, that there is no drainage affecting this -- this section from the west.

Okay. The next thing I'd like to present is the curve, the production versus time curve for the Queen Lake Federal 19, that being produced by what's been HNG -- or by HNG this time, and that curve, that well, of course, went on -- that's Exhibit Number Nine, I'm sorry. That well went on production in approximately, oh, May to June of 1983.

It has to date, I think the numbers have probably been thrown out today once, but 936,972,000 cubic feet of gas; nearly -- nearly a billion cubic feet of gas.

The thing I'd like to note there is the

-- just the steadiness of the curve. The well has held up, certainly, excellently, and I'll talk a little bit more about why I might believe that it going on here in a little bit.

The next exhibit I'd like to present is some supportive data in regard to P/z plot, which is -- the supportive data is Exhibit Ten. The P/z -- the actual P/z plot is Exhibit Eleven.

This was obtained from -- actually from HNG in conversation between Russell Poole with our office and, I believe, Mr. Duke of HNG.

The original shut-in wellhead pressure there was shown to be 7 -- was shown to be 5850 psi. From that an estimated bottom hole pressure was obtained of 7404 psi. The associated P/z point was calculated and another pressure was obtained on 3-1-85, a shutin wellhead pressure of 4300 psi, yielding an estimated bottom hole pressure of 5442 psi and a P/z of 5209.

The cumulative to 3-1-84 had to be estimated. It was estimated based on the previous rates at 1.9-million cubic feet a day, which yielded for January and February of 1985, 112-million cubic feet of gas produced over that increment.

That was to have been added to the 936-million cubic feet of gas, which had been produced prior to

January 1, 1985.

That yielded an estimated cumulative to 3-1-85 of 1,049,000,000 cubic feet of gas.

This data was then plotted on a P/z plot with the two points and extrapolated down to a P/z at abandonment of some 1,066.9.

That yielded an estimated ultimate recovery for this well of 5.210 BCF.

I might add, I know that the 5.21-billion cubic feet sounds -- sounds large. The well has produced a billion cubic feet. As of September it was still producing 2-million cubic feet a day.

A decline curve analysis of that, although I don't show it, down through an economic limit of 200 MCF a day, yields some 6.9-billion BCF.

In my calculations which are to follow I chose the most conservative of those two, and that being the 5.2-billion cubic feet of gas per day estimated this well will recover.

Once again I more or less did the same drainage calculations or I performed the same calculations which I performed on the Coquina, or Santa Pe Craft Well in Section 13, getting a recovery factor, determining the recoverable gas in place under a 320-acre proration unit, and once again determining the area ultimately drained.

This figure came up to be an area ultimately drained, 2572 acres, and an ultimate drainage radius of 5,972 feet.

That's what's reflected in the -- in the large red circle which encompasses all of the south half of Section 18 and portions of the north half of Section 18.

I guess a question that I -- a very obvious question that came to my mind is how can a -- how can a reservoir that has two percent porosity produce that much gas and also, not only produce that much gas, but produce at a rate of 2,000,000 cubic feet a day for nearly two years now, and I think the witness for HNG, the geologist, indicated that there is fracturing that -- that he believed that there could be fracturing in it.

I -- I took a look at HNG's logs on the Queen Lake 19 Federal No. 1 and maybe we didn't distribute these.

Section 6 to the north.

MR. BATEMAN: Can we go off the record just a minute?

MR. STOGNER: All right, Sally, let's go off the record.

(Thereupon a discussion was had off the record.)

A Okay, Exhibit Number Thirteen is a neutron density log on the Queen Lake 19 Federal No. 1 HNG Well.

Exhibit Fourteen is the resistivity log and that being a -- through that interval it's a dual induction log.

Once again, I think it's been fairly clearly established today that porosity in that Ivanovia Bank Zone, or the Queen Lake Zone, as HNG has called it, is very low. There you're seeing on the neutron density a porosity somewhere in the range of two percent.

The thing -- one -- one good method of -- when you're looking at logs, as far as log analysis, is to really look for an anomaly or an anomalous situation. I asked myself the question, how could a -- let me point out that the anomalous situation I'm referring to is the separation that is shown on the two curves, the medium and the deep induction log curves.

This separation is not characteristic for a tight, a very tight formation, what you typically see as a two percent zone. To back that up you might go up on the log into the section around 11,890. You notice the two resistivity curves in Section -- I mean in Exhibit Number Fourteen. They're almost stacking on top of each other.

That's typically what you see when you are drilling a well with a high resistivity fluid, which

this is. It was drilled with an oil-based mud, as indicated in the title block for that run.

In other words, you're invading the formation with a higher resistivity filtrate or higher resistivity fluid. You see no -- you see no separation. In essence, the fluid is, or the resistivity log is reading the same resistivity with the medium as well as the deep -- but that's in contrast to what you see in the zone of interest marked in yellow for the interval of -- that the -- that the HNG Well is completed in.

You see a great deal of separation there. You see separation from probably an average of 50 ohms up to somewhere in the range of 80 ohms; your deep curve reading the low resistivity fluid, your medium curve reading the high resistivity fluid because you've invaded the zone with a high resistivity fluid.

I suppose there could be quite a few explanations for that type of characteristic behavior, but in conjunction with the cumulative of the well, with the conjunction of the rate of the well, it indicates to me that if that's the anomaly you see, that explains at least in some part why a two percent rock would produce that kind of nearly one billion cubic feet of gas and still be producing at a very high rate.

I might contrast that, after having gone

through that rather length explanation, with the well marked as Exhibits Numbers Fifteen and Sixteen, those being the Getty Well in Section 6. This zone has not been tested in this well but once again you see a porosity very similar to the porosity you see down in the Queen Lake Federal -- 19 Federal Well, but yet you don't see the separation on the log.

That would tend to indicate to me that possibly fracturing or that the fracturing is not apparent there.

Q Mr. Kern, do you have any further testimony concerning these exhibits?

A I guess the only thing that I -- further I'd like to add is I have examined other logs in the area. In fact, I've examined the Tenneco log there in Section 13. It's showing the same resistivity separation.

I've examined the Santa Fe Burkham Well. Once again it shows the same resistivity separation.

There tends to be -- there tends to be fracturing shown in this portion of the reservoir and this portion of -- certainly in this section, well, in this area, let's say.

Q Fracturing is consistently shown, is that it?

A Right, in that immediate area. Now there

are other wells, like the one I pointed out way to the north of the Getty Well, that do not show that.

Q Were the drainage radius calculations made by standard calculations which are standard in the industry?

A That's correct. That's correct.

Q Now, on another point, has an AFE been prepared on the proposed well?

A Yes, it has.

Q And what would it cost to drill and complete the well?

A I believe the figure is given in the letter (not understood), although the AFE was not attached.

There is a dry hole cost of approximately $947,000 and a completed well cost of approximately $1,558,000.

Q Those are roughly the same figures that HNG had.

A I believe they're very close.

Q Do you request that Texaco produce and be designated the operator of the unit?

A Yes, sir, I do, with a 70 -- and what would be a 75 percent working interes, I would propose that they be the operator.

Q And what do you expect the cost, the

supervisory cost to be?

A I really didn't prepare an exhibit or anything for that, but I certainly can prepare one or we would be willing to use exactly what HNG has proposed.

Q Those costs you think are reasonable in the industry?

A Yes.

Q What risk penalty do you request?

A I would think the standard 200 percent risk penalty would be appropriate here. The -- the well -- the well to the north in Section 6 did not encounter this Bank Zone.

It's fairly continuous but, you know, there are no absolutes.

Q Do you believe that the approval of this application would be in the best interest of conservation, protection of correlative rights?

A I think it would be in the best interest of protecting correlative rights from a well that's drained -- that has produced some billion cubic feet of gas 1980 feet to the south, and which, unless something dramatically happens, it's going to produce a significant amount of gas.

I certainly do think that a well in the south half proration unit suggested by Texaco, that being the south half, which would more protect this section from

any drainage.

Q Do you think it's in the best interest of conservation?

A Yes, sir.

Q And would it prevent waste in your opinion?

A Yes, sir.

Q Were Exhibits Six through Fourteen, if I'm not mistaken --

A Sixteen.

Q -- Sixteen, excuse me, prepared by you or under your direction?

A Yes, they were.

MR. BATEMAN: At this time I'd offer Exhibits Six through Sixteen.

MR. CARR: No objection.

MR. BATEMAN: I'd request that the Form C-102 that I referred to earlier be marked Exhibit Seventeen.

MR. CARR: We have no objection to that and we'll stipulate it's a north half unit.

MR. STOGNER: Okay, Exhibits Six through Sixteen will be admitted into evidence at this time.

And you have just marked this

Exhibit Seventeen?

MR. CARR: We have no objection to that.

MR. STOGNER: There being no objection, we'll offer into evidence Exhibit Number Seventeen and accept it.

Mr. Carr, your witness.

CROSS EXAMINATION

BY MR. CARR:

Q Okay, Mr. Kern, let's see if I can understand some of this.

A Okay.

Q I think you testified a minute ago, and correct me if this is wrong, that this lime zone, Atoka Lime zone that is the primary zone Texaco is interested in, does not appear in the Getty Well in Section 6, is that right?

A The zone does appear. In fact, it's shown on the log.

Q All right.

A What I testified to was -- was that I would question its productivity and I might emphasize that there's no -- there's no production test.

In other words, that interval has not been perforated.

Q Does it show poorer porosity than the other zones?

A Everything shows poor porosity. I don't know -- let me see, glance at that.

It may show slightly poorer porosity but it's not really significant.

Q But you're ruling it out.

A Well, I, being as Texaco is now the owner of that well, I think I'd certainly perforate it and test it.

Q Now, when you talk about the resistivity log, if I can say that --

A Okay.

Q You talk about stacking curves.

A Right.

Q If I understand that, that means when your curve, the lines come together; there isn't a separation between the two.

A Right.

Q You've looked at logs in a number of wells in this area, have you not?

A Right. Yes, sir, I have.

Q And there are various things that are shown by stacking curves, isn't that true?

A Yes, I --

Q Isn't one of those things a tight formation?

A A tight formation can, but you have to, in order to have any invasion in a tight formation you have to have some permeability and it --

Q When they're stacked does that show permeability?

A The stacking shows, the stacking shows zero permeability. In fact, I'd reference you to a lime or to a shale, let's say take Exhibit Number Fourteen, and you might reference the shale that lies immediately above the Bank Zone, which is highlighted in yellow, and that's a shale.

Notice the resistivity curves are laying virtually on top of each other. They're reading the same resistivity and that's typically because there's no invasion.

Q Shows no porosity.

A Shows no porosity. Well, shows no permeability.

Q Now wouldn't that be a tight formation?

A Shales, due to their nature, as I understand it, they'll read very high porosity zones and -- on the -- on the neutron density log.

In fact, if you'll look at the neutron

log on the -- well, let's take the Exhibit -- Exhibit Thirteen, the neutron log in the zones I've just referenced --

Q Uh-huh.

A -- right above there, is reading off scale.

Q Uh-huh.

A Now, the porosity in the reading on the density, is reading somewhere around six percent.

In other words, while the logs read porosity, the -- and may indeed have porosity, but the effective permeability in a shale is in essence very, very low.

Q But it is fair to say that one of the things that is shown when you have this kind of stacking is that you have a tighter reservoir.

A Yes, definitely.

Q Now, if I look at Exhibit Number Six, the big exhibit --

A Okay.

Q -- what you're doing with these red circles is showing the area that could be drained by the well in the center of each of those.

A Right. Right.

Q Did you work any data on the HNG Craft Well down in Section 25?

A No, I sure did not.

Q Do you think that that might not be a well that's draining from the west?

You said there were none.

A Draining the section, Section 18?

Q Or this general area.

A The section in question?

Q Uh-huh, Section 19, also. What you're saying --

A Well, there is, of course, there is protection in Section 19. There's a well completed in that interval in Section 19.

Q But wouldn't there be some drainage from the -- you indicated that because there was a gap between circles, or at least I thought that you showed there was -- used this to show there was no drainage from the -- from the west, is what you testified.

A If I understand your question, you're saying that I should have taken the Section 25 well into consideration?

I might add there that if it did affect, if it did affect Section 19, it would actually void some gas that I had basically been crediting to being in Section 19, and was drained by that well.

So, in essence, I guess, that would even further support a larger drainage area.

Q But you don't think that that well is -- I'm trying to find out if in 25 you believe that that well is also draining out of this common limestone zone.

A That well, as I understand it, is completed, is completed in the same Ivanovia Bank Zone, yes, sir.

Q And so it would be draining.

A It would be draining, certainly, but whether it would be affecting Section 18, I -- I sincerely doubt that.

I've got the cums, probably, on that well, I can see.

Q Well, if you want to, but my question is really would it be having the same sort of effect as what you're projecting for the HNG Queen Lake Federal Well in 19?

A You mean would it have the same type drainage radius?

Q Yes.

A I would have to -- in order to make a reasonably, or an intelligent statement about that, I'd have to do some additional work.

Q Is it a comparable well, in terms of its producing ability, with the -- with the HNG well?

A I believe, as I understood, you all testified earlier this morning, or earlier that it was not.

Q And assume that it is not, would it drain that same kind of area, or is your producing rate a factor which you use in determining how wide an area it drains?

A Let me answer one question at a time.

Q Okay.

A I do not have cums or production curves on that well.

Q Okay. Well, if we go just to your well, or the well in Section 19, the HNG well, did you use the producing rate as a factor in determining that it was draining the number of acres, hopefully would drain the acres shaded in red?

A No, what I -- I used the producing rate to come up with a -- with an estimate of ultimate recovery as far as -- in comparison with the P/z data.

Q Uh-huh.

A As I testified to, the -- that came out to some number in the range of 6.8 billion cubic feet.

The number that was actually used in the calculation was 5.2 billion cubic feet, which is a lower volume of gas, or smaller volume of gas, which, of course, yields a smaller drainage radius.

Q Okay, so the smaller the volume that's produced, the smaller the drainage radius.

A Right, that's correct, assuming, you

know, your other thing is constant here.

Q Down in Section 25, if it has a smaller producing rate, would you anticipate a smaller radius of drainage?

A Probably so.

Q And that would also show that there are probably some other -- there are possibly some other reservoir properties which are different, as well.

A In Section 25?

Q Uh-huh.

A Like -- see, I don't have any -- I don't know the -- I don't know the character -- I don't know what the rate is. I don't know what the cumulatives are.

Q Do you know that the area shaded in red is a homogeneous deposit that would be drained in a radial fashion?

A Certainly I don't.

Q And so this isn't necessarily a depiction of the drainage pattern for that well.

A No, it's the best -- it's the best one can do with the information given.

Q Okay, and it's based just on information from that one well.

A Yes, sir, that particular circle is, as well as, I might add there that you did mention continuity

as far as the reservoir.

I think the curves, the cross sections that Keith has presented, as well as your geologist has presented, clearly show that in this area that the Ivanovia Bank zone, or Queen Lake Federal zone, is -- seems to be, seems to appear very, and porosity appears to be the same, and we looked three miles to the north and saw the Getty Well with a porosity very similar once again.

This is probably more homogeneous than you normally find.

Q If that's the case, would you expect wells completed in this lime interval to produce and drain in a similar fashion?

A Yes, but you have to keep in mind that -- that the -- that the area certainly -- that the Queen Lake 19 Federal Well has possibly drained area that maybe an additional completion may be draining. So --

Q Would you expect -- would you expect the Craft Well in Section 25 to be in that case where it would have been draining?

A Would have been drained by now, at this time?

Q Within two years?

A Two years from now?

Q No, two years from the time the Queen

Lake Federal was drilled?

A I would, I guess based on my drainage, my ultimate drainage radius curve, I'd have to say no, that I would not have expected it to have been pressure affected at that point.

Q Do you have any explanation for why that well is so poor in comparison to this one, then?

A No, I really -- you know, as I testified earlier, I did not --

Q So your study would have been limited just to this well.

A Yes.

Q And from that you're analogizing for the entire lime section throughout the entire area?

A Of course, one thing, you know, you need to keep in mind is that when you assume, when you assume an 80 percent recovery factor, 81 or 83, depending on which one of the wells you're looking at, you assume that -- this -- this assumes that this entire -- all this area has been drained down to within an 83 percent recovery factor.

That in reality doesn't happen. You -- you would see, you would probably see an area further, even further, even larger, that would be pressure affected.

What I'm saying is this is what it would drain with an 83 percent recovery factor given (not under

stood.)

Q Mr. Kern, if I understand what you were saying, you were saying that these red circles on Exhibit Number Six, showing a drainage radius, in drawing these circles and computing and determining how much area should be included within them, you used an 83 percent recovery factor.

A Right.

Q Isn't that an unusually high recovery factor?

A No, not for a depletion type gas reservoir. In fact depletion type gas reservoirs generally range in the range -- or have a range of 80 or 90 percent.

Q And that's what you would expect to recover out of that well?

A That's correct, right.

Q If you had a lower recovery factor, the radius gets smaller, is that right?

A That's correct.

Q Okay. Now what you've done is you've shown pure radial drainage, and with the tools you've got that's what you can show.

A That's about it.

Q In a fractured reservoir isn't radial drainage less likely than in a reservoir that's, say, is a

homogeneous sand body?

A I'd say the answer to that is probably yes, but on -- coming back -- if so, the fractures in this area appear by the logs from the Santa Fe or Coquina Craft, the Santa Fe, you know, once again using the separation as a tool for determining where fractures may or may not exist, the Santa Fe Burkham, they seem to be very widespread and if it was just one trend of fractures, then, you know, that -- that would be, you know, a definite yes.

With fractures as extensive as they are, then I'd say that you have to say that -- I guess I answered that yes and I should have said no.

I don't think you can quantitatively say that the fractures go in one direction and therefore the drainage area should be all skewed up to the northeast or northwest.

Q Your testimony is that you believe that this lime, the Atoka Lime is fairly evenly fractured throughout.

A In this immediate area, yes, I'd have to say so, because I've seen -- looked at the logs on the Tenneco Harrison, the logs on the Coquina or Santa Fe Craft, I can't really say that I've looked at the logs further to the west or further, you know, of course I've looked at the Getty logs that are three miles to the north --

Q Have you looked at the Craft log in 25?

A I may have looked at it but I don't remember what it looked like, to be honest with you.

Q And what you're producing out of when you're producing in one of these wells is the void, the fracture state.

A Void and, of course, any (not understood), you know, but I'd say with fractures that that porosity is probably all fractures like that.

Q Now the Queen Lake Federal Well, that's the well that is giving Texaco concern.

A Yeah.

Q And you're concerned about drainage from that well.

A Sure.

Q And yet you didn't become concerned about it until HNG had built a location and was ready to drill a well.

A Well, if you're saying that we, you know, purposely allowed HNG to go out there and build their location so we could say, oh, you know, let's shut you all down at this point, no, it wasn't anything like that. That was the evaluation process.

I -- I got involved in it primarily from the -- once -- once it was known that it was going to go to

hearing, or conceived it would go to hearing.

Mr. Williams, as well as Mr. Poole, the engineer there, were involved in it more from the inception point.

Q Your evaluation of the area was triggered, then, by the application of HNG.

A My particular evaluation or -- or --

Q You stated that the evaluation just occurred when you became aware of this application.

A My evaluation did. Of course, Keith has testified that -- that Texaco has, or Getty at that point, has had -- has had geologists looking at this area for quite awhile now.

You know, we are, at Texaco we are going and reviewing a lot of Getty acreage at this point and seeing if Texaco standars won't -- we can't drill on something.

So, this, you know, quite possibly could have been one that we'd have found without it, you know, because, you know, it's rather fairly obvious that a well, you know, 1980 feet of the lease line that's recovered nearly a billion cubic feet, you know, take more than casual interest in it, and certainly you can, I think you can appreciate a merger the size of Texaco and Getty, and allowing us a little time.

I'm not trying to use that as an excuse, but certainly it is a consideration.

Q But apparently the people with Getty who were watching the area did not consider this as an area where an offset needed to be drilled.

A I didn't talk to them about it but they didn't drill one.

Q But the situation we're in today was triggered by HNG's proposal, not necessarily the drilling of the Queen Lake Federal Well.

A I'd say that has a certain -- a lot to do with it.

Q Is Getty -- I'm sorry, is Texaco prepared to drill the well in the south half of 18?

A Yes, sir.

Q When would you spud that well? Do you have any idea?

A Probably within a month after the order came out approving our proration unit.

MR. CARR: That's all I have.

MR. STOGNER: Mr. Bateman, any direct?

MR. BATEMAN: No, no redirect.

CROSS EXAMINATION

BY MR. STOGNER:

Q Mr. Kern, you were asked about overhead charges but you were not prepared at this time to present any?

A That's correct. I --

Q How long you been working on this?

A Well, I've been -- I've been working on it for about two or three weeks. I, you know, I certainly apologize for not having that prepared.

I have never -- Texaco just has not done very much compulsory pooling and I guess you might say it slipped through, but we'll -- we'll be happy to do whatever is required to meet that obligation.

MR. STOGNER: I have no further questions of this witness at this time.

Are there any other questions of Mr. Kern?

If not, he may be excused.

Mr. Carr, Mr. Bateman, do you plan to bring back any of your witnesses at this time?

MR. CARR: I do not.

MR. BATEMAN: No, thank you.

MR. STOGNER: Mr. Carr, I'm going to ask HNG a question and I will have either one of

the gentlemen to come back up on the stand and answer that question.

The question is, if Texaco is awarded the south half of Section 18 to drill the well, how would HNG suffer already having a well down to 10,000 feet, or whatever it is, and having to seek a, presumably, a proration unit in the north half?

MR. DUKE: Basically the way HNG feels, we'd be denied a northeast location in the northeast quarter up there, plus the fact we'd be penalized on our allowable by the New Mexico Oil Conservation Commission rules and regulations because the opening 80 acres in the east half of the northeast quarter by 25 percent.

Further, we don't know and neither does the State nor the Federal Government at this particular time know the status of that 80 acres, as to whether they'd be able to -- whoever drew it or whether it would be on simultaneou or KGS, if they'd be able to force their way in without any penalty, 100 percent. It's an unsettled situation at this point.

Further consideration is the fact that we've moved our rig off pending the outcome of this and if denied, we would have cost of that, moving it back, and whatnot.

MR. STOGNER: That leads up to

another question.

That particular 80 acres that you alluded to, I believe, is the east half of the northeast quarter?

MR. DUKE: Yes, sir, it is.

MR. STOGNER: When -- when does the U. S. BLM plan to put that up?

MR. DUKE: Well, as we understand it, it was on the May list and all of a sudden for some reason the Roswell Branch of the BLM jerked it off, and you know how -- that they've got certain criteria set up to set out KGS tracts, but that old Malaga Unit has been producing since the fifties and the tract has not been KGS classified yet, and according to the criteria it should be.

Then it comes up on the simultaneous filing for May and for some unknown reason is jerked off, which we have no idea why.

MR. STOGNER: And you at this time don't know when it will put back on, I guess.

MR. DUKE: It could be next month. It could be next ten years, for that matter.

MR. CARR: Mr. Stogner, we checked with the BLM and they advised that it would probably be up in August.

MR. STOGNER: Up in August.

Okay.

That's all the questions I have.

Are there any other questions of the witnesses before we have closing statements?

There being none, Mr. Bateman, you may go first.

Mr. Carr, you may go last.

Mr. Bateman.

MR. BATEMAN: Mr. Chairman, very briefly, the question of drainage, I think, ultimately has to -- should determine the outcome of this application.

Your final questions had to do with what could happen if we had stand-up proration units in Section 18.

The east half of Section 18 has the problem with the 80 acres in the north -- northeast quarter.

We also have, of course, the difficulty of protecting the 160 acres in the southeast quarter of Section 18 from the drainage which I think has been unquestionably demonstrated by the testimony from Section 19, the offset to the south.

There's been some implication of some wrongdoing in decision making. I think that that's

been responded to. Obviously there's been no intent to mishandle the thing to the detriment of HNG.

I think that the considerations are amply demonstrated by the evidence, consideratons for drilling the lay-down proration unit, which, of course, has to do with the fact that the offset is lay-down as well. I think that is a major consideration to be taken into account by the Division.

That simply is consistent with what's happened to the south.

So for all those reasons, we believe that Texaco's application should be approved.

The final consideration, of course, is that first in time doesn't necessarily mean first in right, I don't believe, in this case or any other. The spudding a well doesn't, in my view, necessitate going to 10,000 feet in order to protect your rights, but that, of course, is a decision made by HNG and we haven't tried to second guess that, but I don't think that that should be a consideration in deciding this case.

Thank you.

MR. STOGNER: Thank you, Mr. Bateman.

Mr. Carr.

MR. CARR: Mr. Stogner, you

have two applications before you seeking the pooling of certain acreage in Section 18, Township 24 South, Range 29 East.

There are a lot of things that aren't in dispute.

HNG on one hand is seeking a west half stand-up unit; Texaco, a lay-down south half unit; both have 75 percent; both propose to drill on their own acreage and both would drill at a standard location.

There doesn't seem to be any question about the imposition of the 200 percent risk penalty. No one has disputed it, no argument on that.

There doesn't seem to be an issue as to the cost. The AFEs are not being challenged by either one. They remain estimates and whoever prevails, if the other joins, they'll pay their proportionate share ultimately of what the actual costs happen to be.

So the costs are ot in issue.

There's no question as to overhead and administrative costs. We proposed figures.

There's been no quarrel with them and whoever prevails, those figures can be incorporated into the order.

There are, however, we submit, several differences.

We think that one thing that Texaco has been emphasizing, which is of little and probably no merit whatsoever, is the fact that the north half of 19 is developed as a lay-down unit. That might be of some consequence if we were 660 off the north line of that section but we're 1950. We're only 30 feet closer than we would be if it were on a stand-up, been developed as stand-up units.

They're naturally concerned about what they might do to protect their interest in the south half of 18 and they feel the way to do that is with a lay-down unit.

We submit the reason they want a lay-down unit is not because they would like to have an equal chance at a limestone interval which they say is somehow uniformly fractured and could be drained as if it were virtually a homogeneous situation. They don't want to be able to have an equal chance; they want to be two-thirds closer to that common lease line than HNG is with its well down in Section 19.

If they really wanted an equal chance, and if we believe their interpretation of this limestone zone, one that can be drained great distances by wells completed therein because of the network of fracturing, then they certainly could develop an east half unit and drill 1980 from the lease line and virtually protect their rights.

They don't want to do that and they don't want to do that because what they're here doing, we submit, is trying to gain an advantage for one stringer and one stringer alone.

They'd like to put us in a situation where we'd have to go with a north half unit, being the north half of 18.

That, frankly, results in an imprudent development pattern for Section 18, not perhaps, if you want to put your blinders on, if you want to look just at the limestone zone that they're interested in, but if you look at what can be completed in an Atoka well looking at the sandstones as well as the limestone, clearly the evidence presented by HNG shows that the prudent development pattern requires the development of the stand-up units and wells in the northeast quarter and the northwest quarter.

That's the way, without waste, to protect the correlative rights of the interest owners in Section 18, and we submit that must be controlling in your decision.

It simply is a question of who can, with the proposed locations, prudently develop this tract.

Only HNG stands before you with a technically competent presentation which shows how Section

18 must be developed.

This is what they originally proposed to Getty. This is what they propose here today. They didn't do it for purposes of the hearing. They did it because it is the right way to develop Section 18.

HNG doesn't believe that first in time is first in right, but we have been working through a complicated title situation. We spent eighteen months unraveling this problem. We've had to drill a well to prevent loss of a farmout that we could not get extended. We think what we have done is what any prudent operator would do in trying to put together a spacing unit in Section 18.

It's not our fault that Getty and Texaco don't communicate very well in the midst of the transition, which I submit is not their fault either, but we do believe we have been out there and have shown that we've been working for eighteen months, put this together, built our location, and then in March along came the man who wears the star, and he'd like to take away.

We submit that that is inappropriate. It is not supported by the evidence before you here today; that to authorize them to go forward at this proposed location is inconsistent with your directives to prevent waste and protect correlative rights, and that you on this record must enter an order granting the application of HNG

and denying that of Texaco.

MR. STOGNER: Thank you, Mr. Carr.

Mr. Carr, Mr. Bateman, I'd like for both of you to submit to me a rough order within -- what's today, the 24th? What would be a sufficient amount of time for each one of you to have rough orders in?

MR. BATEMAN: Two weeks?

MR. CARR: Yeah, that would be fine.

MR. STOGNER: Within two weeks.

Is there anything further in either Case Number 8558 or 8589 at this time?

There being none, the record will remain open pending the additional information, being the roughs, within two weeks.

That concludes this hearing for Docket Number 13-85.

(Hearing concluded.)

C E R T I F I C A T E

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

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. _____, heard by me on _____ 19____.

_____, Examiner
Oil Conservation Division

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

10 April 1985

COMMISSION HEARING

IN THE MATTER OF:

Application of HNG Oil Company for compulsory pooling, Eddy County, New Mexico. CASE 8558

BEFORE: Gilbert P. Quintana, Examiner

TRANSCRIPT OF HEARING

A P P E A R A N C E S

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

For the Applicant:

MR. QUINTANA: We'll call Case 8558.

MR. TAYLOR: The application of HNG Oil Company for compulsory pooling, Eddy County, New Mexico.

The applicant has requested that this case be continued.

MR. QUINTANA: Case 8558 will be continued until April 24, 1985.

(Hearing concluded.)

C E R T I F I C A T E

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

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. 8558, heard by me on APRIL 10 1985.

Gilbert P. Quintana Examiner
Oil Conservation Division