

DEARNLEY-MEIER REPORTING SERVICE, Inc.

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BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
May 10, 1962

EXAMINER HEARING

IN THE MATTER OF:)

Application of Gulf Oil Corporation for)
an unorthodox oil well location and a)
dual completion, Lea County, New Mexico.)
Applicant, in the above-styled cause,)
seeks permission to complete its Lillie)
Well No. 3, located 2310 feet from the)
North line and 330 feet from the West)
line of Section 23, Township 24 South,)
Range 37 East, Lea County, New Mexico, as)
a dual completion (conventional) in the)
Fowler-Fusselman and Fowler-Ellenburger)
Pools with the production oil from both)
zones to be through a parallel strings)
of tubing. Said well is at an unorthodox)
location under the Fowler-Ellenburger)
Pool Rules.)

Case 2556

BEFORE: Daniel S. Nutter, Examiner.

TRANSCRIPT OF HEARING

MR. NUTTER: The hearing will come to order, please.

The next case will be Case 2556.

MR. MORRIS: Application of Gulf Oil Corporation for an
unorthodox oil well location and a dual completion, Lea County,
New Mexico.



MR. KASTLER: I'm Bill Kastler appearing on behalf of Gulf, and at the outset I would like to make an opening statement. This hearing is primarily to establish an exception to the Fowler-Ellenburger Pool Rules which provide for location of wells on 80-acre tracts as being in either the Northwest or Southeast Quarter of each 160 acre section in the pool; and secondarily, to make a dual completion in the Fowler-Fusselman and Fowler-Ellenburger Pools.

Gulf is seeking to obtain an 80-acre allowable in the Fowler-Ellenburger Pool for the acreage of the South Half, Northwest, 23, 24, 37 East, the same to be ascribed to its Lillie Well No. 3 which is located in the Southwest Quarter of the Northwest Quarter of said Section 23, rather than the Southeast Quarter.

Previous hereto Gulf has dedicated the North Half, Northwest of Section 23 to its Ellenburger well known as the Lillie No. 1. Also previous to this hearing Gulf has dedicated the North Half, Southwest of Section 23 to its Ellenburger well known as the Plains Knight Well No. 1. This leaves the South Half, Northwest, which is entirely within the present boundaries of the Fowler-Ellenburger Pool as an undedicated 80-acre unit.

The reason for proposing to complete Lillie No. 3 is strictly in the interests of economics, there being a substantial savings involved when compared to the cost of drilling a separate



well in the orthodox location. The indications are such that by drilling in the Southeast, Northwest we could not expect to encounter any other oil or gas in economic quantities sufficient to anticipate making any other dual or multiple completions. In our opinion the exception applied for here will not operate to impair correlative rights because the Commission has prorated the daily production of oil from this pool by fixing a top allowable for each well in the pool. It is obvious that as long as no single well is entitled to produce more than its just share, the drainage of the pool is being carried out with all due consideration to correlative rights of all operators. It is just as much a matter of correlative rights that each operator be given an equal opportunity to produce his full allowable.

It is my observation that the fixing of well location rules has never been considered by the Commission as being of prime importance, the more important considerations being prevention of waste by utilizing the most economic and efficient methods known so long as they do not impair correlative rights or create waste.

In this case the question is the matter most concerned with economic waste, but in our opinion there is absolutely nothing which would show or tend to show that the orthodox location would produce any greater efficiency or would permit the recovery of more oil.

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The necessity for hearing on the proposal to make a dual completion is also present in this case because this is the first application to dually complete in the Fowler-Fusselman and the Fowler-Ellenburger pools. Our proposal in this matter is to utilize parallel strings of tubing and a Baker Model "D" packer. My two witnesses in this case will be Mr. Lester Marshall and Mr. John Hoover. I request that they both stand to be sworn.

(Witnesses sworn.)

MR. KASTLER: Mr. Marshall, would you like to take the stand?

MR. NUTTER: Are there any other appearances before you proceed, Mr. Kastler?

MR. BUELL: Yes, for Pan American, Guy Buell. By way of an opening statement I'll briefly say we disagree with the statements propounded by Mr. Kastler in that we feel the granting of this application will violate correlative rights.

MR. NUTTER: Mr. Kastler, proceed.

LESTER MARSHALL

called as a witness, having been first duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. KASTLER:

Q Will you please state your name and your employment and



your position?

A I'm Lester Marshall, employed by Gulf Oil Corporation in Roswell, New Mexico as district production geologist.

Q Have you ever previously testified before the New Mexico Oil Conservation Commission?

A No, I have not.

Q Would you briefly outline your educational background, the degrees you have received, and your practical experience?

A I graduated from the University of Texas in 1937, with a Bachelor of Science degree in geology, and since that time have been employed in the field of geology continuously. For the past four years I have been district production geologist for Gulf in Roswell.

Q You have a total of twenty-five years' experience as a petroleum geologist?

A That's correct.

Q Are you familiar with the matters and facts involved in this case, Case 2556?

A Yes, I am.

MR. KASTLER: Are the witness's qualifications acceptable?

MR. NUTTER: Yes, sir.

Q (By Mr. Kastler) Are you familiar with the geology



of the Fowler-Ellenburger Pool?

A Yes, sir, I am.

Q Will you please refer to Exhibit 1, which is a location plat, and describe the lease and the well affected by this hearing?

(Whereupon, Gulf's Exhibit No. 1 was marked for identification.)

A Exhibit No. 1 is a location plat showing the pertinent lease outlined in red, being the Northwest Quarter of Section 23, Township 24 South, Range 37 East, and the pertinent well colored in red, being located 2310 feet from the North line and 330 feet from the West line of Section 23, 24 South, Range 37 East.

Q Have you made a geologic study of the Fowler-Ellenburger Pool?

A Yes, I have.

(Whereupon, Gulf's Exhibit No. 2 was marked for identification.)

Q Refer now, if you please, to Exhibit No. 2, and outline the results of your geologic study.

A Exhibit No. 2 is a structural map of the Fowler-Ellenburger Pool contoured on top of the Ellenburger with a 100-foot contour interval. It shows a Northwest-Southeast trending anticline lying below a thrust fault. The oil-water contact being approximately minus 7300 plus a minus 20 feet. The minus 7300-foot contour on this map is the outside closing contour.



Q What do the red outline rectangles show?

A The red outlines being the North Half of the Northwest Quarter of Section 23, is an 80-acre Ellenburger proration unit dedicated to Gulf's Lillie No. 1 Ellenburger Well.

Q It runs east and west?

A It runs east and west.

Q What is the lower rectangle?

A The North Half of the Southwest Quarter of Section 23 is an 80-acre dedication to Gulf's Plains Knight Ellenburger Well No. 1. It also runs east-west.

Q Are all of the Ellenburger wells in this pool shown by the red dot on Exhibit 2?

A Actually there were 19 Ellenburger tests drilled in this pool. Of this 19, 14 were producers. At the present time there are 12 Ellenburger producers in the pool and they are shown with the red color.

Q Would you please point to the South Half, Northwest of Section 23, which, as I understand, is the acreage involved in this hearing?

A That is the acreage located right here between the two dedicated 80-acre tracts, and it is undedicated.

Q I understand there's not presently any well completed in the Ellenburger, Fowler-Ellenburger Pool on that 80-acre section?



A That's correct.

Q Where is the well that Gulf proposes to dually complete?

A That is the Lillie No. 3 located right here, being 2310 feet from the South line and 330 feet from the West line of Section 23.

Q Mr. Marshall, as a result of this geologic study, what is your conclusion concerning the South Half, Northwest of Section 23, particularly as to its productive possibilities in the Ellenburger formation?

A In my opinion the acreage in question may be reasonably presumed to be productive from the Ellenburger formation.

Q Is the acreage in question entirely within the horizontal boundaries of the present limits of the Ellenburger Pool?

A Yes, it is.

Q Do you have a further exhibit to clarify the geology shown on Exhibit 2?

A Yes, I have.

(Whereupon, Gulf's Exhibit No. 3, 3-A through 3-F were marked for identification.)

Q Refer now to Exhibit 3 and indicate what Exhibit 3 shows.

A Exhibit No. 3 is a map showing the lines of the various cross sections which I have drawn. They are labeled A-A¹, B-B¹, C-C¹, D-D¹, E-E¹ and F-F¹.



Q Do you have other cross sections, or particular cross sections made corresponding to each of those?

A I have made cross sections for each of those.

Q Those are Exhibits 3-A, 3-B and 3-C?

A 3-A, B, C, D, et cetera.

Q 3-E and 3-F? A Yes.

Q Would you proceed to analyze each of the cross sections?

A Exhibit 3-A is cross section A-A¹. It shows a thrust fault transversing this pool, the thrust being from the southwest toward the northeast. The overthrust sheath then was thrust toward the northeast. This is shown by this fault right here. The Ellenburger producing horizon, you'll notice, lies entirely below the thrust sheath. It is colored in purple.

Exhibit No. 3-B is cross section B-B¹. Again, it shows the same thrust fault thrusting toward the northeast. That's the same fault shown on the previous exhibit, and it also shows a minor fault located on the extreme northeast side of the field located here. Again, the Ellenburger formation is colored in purple and is located below the main thrust sheath and is not affected by it.

Cross section C-C¹ --

Q Exhibit 3-C.

A Exhibit 3-C, located here, is simply a continuation of



previous studies, again showing the thrust fault with the Ellenburger below the thrust sheath. I don't have it drawn in purple here for some reason. Here is the Ellenburger right here.

Exhibit 3-D, is cross section D-D¹. Again, it shows the thrust fault, which is always the same thrust fault in each case, and here is the Ellenburger producing formation below the thrust sheath again.

Cross section E-E¹ is Exhibit 3-E. Again, here is the same thrust fault with the Ellenburger below the thrust sheath. We have a little complication in this well which looks like an overturned fold because it has a repetition of some Simpson formation.

Cross section F-F¹, Exhibit 3-F, is the same thrust fault as indicated here, the Ellenburger producing formation below the thrust sheath. We have one minor bifurcation, you might say, of the main thrust fault, which is shown by this line here.

MR. NUTTER: Would you explain what that last word means?

A Bifurcation, branching of fault.

Q Do you find any evidence that this minor underthrust and overthrust might be continued farther south or southeast?

A I find no evidence of that, no, sir.

Q Are you able to conclude from your analysis of these various cross sections that these lines are practically correctly drawn?



A Yes, sir, I believe they are. I arrived at them like this. A certain rate of dip has been established between wells along this flank. I simply continued that rate of dip around and this is the way it comes out.

Q In your cross section did you analyze this Humble J. E. Knight Well?

A Yes, it's located on cross section D-D¹. It is a low well, lies below the Ellenburger oil and water contact.

Q Is it your conclusion that the South Half, Northwest of Section 23 is within an area that would be all-productive in the Ellenburger?

A That is my conclusion.

Q Were these various exhibits prepared by you or at your direction and under your supervision?

A Yes, they were.

Q Do you have anything else you want to add at this time?

A No, I believe that pretty well covers it.

MR. KASTLER: Mr. Examiner, this is the end of my questions on direct examination of Mr. Marshall, and I would like to move for admission of Exhibits 1, 2, 3, 3-A, 3-B, 3-C, 3-D, 3-E and 3-F.

MR. NUTTER: Gulf's Exhibits 1, 2, 3 and 3-A through 3-F will be admitted in evidence.



(Whereupon, Gulf's Exhibits Nos. 1, 2, 3 and 3-A through 3-F were admitted in evidence.)

MR. NUTTER: Any questions of Mr. Marshall?

MR. BUELL: Yes, I have one or two.

MR. NUTTER: Mr. Buell.

CROSS EXAMINATION

BY MR. BUELL:

Q Mr. Marshall, if I tried to cross examine you on your six cross sections there and chased you up and down those faults we might break the Basin-Dakota record as being the longest record before the Commission. Maybe we can agree on some broad general principles and shorten everything a lot. Let me tell you at the outset, you have seen our exhibit so you know it's going to be our contention that the Gulf Lillie Lease does not have 160 productive acres in the Fowler-Ellenburger reservoir. At the outset could you tell me how long Gulf has owned their lease on the Lillie Lease?

A Not directly.

Q Could you look at any of your exhibits and see when your Lillie No. 1 was completed?

A Let's see, our Lillie No. 1 is on E-E¹, and it says 11-5-52.

Q In 1952?

A Yes, sir.



Q When did you make this interpretation, Mr. Marshall, that you are presenting here today?

A Oh, starting several months ago.

Q It's a rather recent interpretation on your part?

A Correct.

Q Could you state for the record the date of the most recent data which you used in this geological study of yours?

A The most recent geological data would be the wells as they were drilled, whatever date they were drilled on, that would be the latest data contributing to this.

Q Do you recall the date that the most recent well from which you obtained control and data was completed in the Fowler-Allenburger Pool?

A No, sir, I don't know that specific date.

Q Could you resort to your records in any way?

A We could certainly find that out. Not here, however, I don't believe we have such records here, but we do have those records.

Q Maybe we can answer it this way and save time and trouble. Do you know of any well, either a producer or a dry hole, that has been completed in the Fowler-Allenburger Oil Pool, or has penetrated the Fowler-Allenburger Oil Pool since 1954?

A No, sir, I do not.



Q So all these data which you have used were available back in 1954?

A That's correct, yes, sir.

Q Would you state to the Examiner and for the record why Gulf has waited eight years to make this application?

A I don't know why Gulf allowed the migration, or why they allowed drainage to exist across a lease line. However, we're trying to rectify that now.

Q Do I understand your testimony to the effect that Gulf, for eight years with this data before it and available to it, has allowed migration of oil off their Lillie Lease, is that your testimony?

A I couldn't conclude that--

Q Sir?

A I don't believe I could conclude differently.

Q Well, is it your testimony?

A Yes.

Q I wonder, Mr. Marshall, all of your cross sections were short two and three-well cross sections in a Southwest-Northeast-erly direction, is that correct?

A Yes, sir. Right angles to the axis of the structure.

Q I wonder, what do you think a cross section running right down the center of this oil pool and terminating with your



Lillie No. 2, well, that's the Plains Knight No. 2?

A Yes.

Q Was that a dry hole in the Ellenburger?

A That's correct.

Q It isn't shown as one on your map.

A Well, it's not shown as an Ellenburger well at all.

Q But that well was dry in the Ellenburger?

A The Ellenburger well was dry.

Q What do you think the cross section along the trace or the trend I have just designated right down the center of the field from Northwest to Southeast and terminating with your Plains Knight No. 2, what do you think that would show you?

A That would be roughly along strike with this fault, and instead of having the fault lying like this where you can see it, I have shown the fault would be, more or less be in a horizontal direction down the cross section.

Q Why, in your opinion, Mr. Marshall, was the Gulf's Plains Knight No. 2 a dry hole in the Fowler-Allenburger?

A It is structurally low. As previously stated, the oil-water contact is minus 7300. I have topped the Ellenburger there at 7320, so it was structurally low and dry.

Q When you refer to the oil-water contact, are you referring to the original?



A The original.

Q Or the present?

A The original, I have no data on the present.

Q It's almost redundant to ask you this question, but for the purposes of my next question I am going to ask you. You have confidence in the interpretation that you presented to the Commission here today?

A Yes, I have.

Q Do you have sufficient confidence in this interpretation that you would recommend to your management that they drill this proposed well in an orthodox location?

A I have so recommended, yes, sir.

MR. BUELL: Thank you.

MR. NUTTER: Any further questions of Mr. Marshall?

BY MR. NUTTER:

Q I believe you stated that the wells that were producing from the Ellenburger are colored red on this exhibit, are they?

A On this exhibit, yes.

Q Would you read into the record the wells that have produced from the Ellenburger and the ones that are producing at the present time from the Ellenburger?

A All right. The ones that are producing at the present time.



Q Okay.

A Humble's State "AB" No. 1.

Q What's the location of it, please?

A Located in Section 16, the Southeast of the Northeast, Section 16. Gulf's Sarah Jane Carr No. 5, located in the Southeast of the Southwest of Section 10; Pan American's South Mattix Unit No. 7, located in the Northwest, Northwest of Section 15, and then South Mattix Unit No. 9, located in the Northwest of the Northeast of Section 15. Pan American's South Mattix Unit No. 4, located in the Southeast of the Northwest of Section 15; Pan American's South Mattix Unit No. 6, located in the Northwest of the Southwest of Section 15; Pan American's South Mattix Unit No. 1, located in the Northwest of the Southeast of Section 15; Pan American's South Mattix Unit No. 2, located in the Southeast of the Southwest of Section 15; Pan American's South Mattix Unit No. 8, located in the Southeast of the Southeast of Section 15; Pan American's South Mattix Unit No. 5, located in the Southeast of the Northeast of Section 22; Gulf's Lillie No. 1, located in the Northwest of the Northwest of Section 23; Gulf's Plains Knight No. 1, located in the Northwest of the Southwest of Section 23.

Q Those are all the wells that are currently producing?

A Those are all the wells currently producing from the Fowler-Ellenburger Pool.

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Q Which were the ones that have produced but no longer produce?

A Let me see if I can pick those out. Pan American's South Mattix Unit No. 3, located in the Northwest of the Northeast of Section 22 was a producer at one time.

Q What happened to it?

A It is now producing from the upper Siluro Pool.

Q What happened to it in the Ellenburger?

A It watered out apparently, it also had poor reservoir conditions there. Let's see, Pan American's South Mattix Unit No. 10, I believe that was also a producer at one time. That's located in the Southeast of the Northeast of Section 15. I believe that's all the wells at one time produced.

Q You mentioned that there were five other wells that had been drilled to the Ellenburger but didn't produce.

A Yes.

Q Could you name those wells and their location?

A Gulf's Plains Knight No. 2, located in the Southeast of the Southwest of Section 23.

Q Did it encounter water on initial completion?

A It encountered water. It was below the oil and water contact. Pan American's South Mattix Unit No. 12 Well located in the Southeast of the Southeast of Section 22.



Q Did it make water in the Ellenburger?

A It ran drill stem test, as I recall they all recovered mud in the upper part of the Ellenburger, which was close to the oil-water contact at the top of the Ellenburger. In other words, the Ellenburger was tight in the upper part. Another well drilled to the Ellenburger, Pan American's State A Unit Well No. 1, located in the Southeast of the Southeast of Section 16.

Q What happened to it in the Ellenburger, do you know?

A It was way low, minus 7441, top of the Ellenburger, and below the oil-water contact.

Q I see.

A Here is another one to the Ellenburger, it's a Pan American well, No. 12, I am not sure of the fee name, located in the Southeast of the Southeast of Section 9, also went to the Ellenburger.

Q Do you know why it was not productive from the Ellenburger?

A As I recall, it was tight in the Ellenburger.

Q Then there would be one more, would that be the Humble Knight well over in Section 14?

A That's right. Humble No. 1 J. A. Knight located in the Northwest of the Southwest of Section 14.

Q What was the matter with it in the Ellenburger?



A The top of the Ellenburger, minus 7298, very close to the oil-water contact, it tested tight in the Ellenburger.

MR. NUTTER: Any further questions of Mr. Marshall?

He may be excused.

(Witness excused.)

JOHN HOOVER

called as a witness, having been first duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. KASTLER:

Q Will you please state your name and position?

A John Hoover, petroleum engineer with Gulf Oil Corporation, Roswell, New Mexico.

Q Have you previously testified before the New Mexico Oil Conservation Commission as a production engineer?

A Yes, sir.

Q Are you familiar with Gulf's application in Case No. 2556?

A Yes, sir.

Q Does this application involve a dual completion?

A Yes, it does.

(Whereupon, Gulf's Exhibit No. 4 was marked for identification.)



Q Have you prepared an exhibit, or caused to be prepared an exhibit which shows the proposed mechanical installation in this dual completion, if authorized?

A Yes, sir, we have marked this Exhibit No. 4. What we show here is the well as it is now completed in the upper Fusselman or Fowler-Fusselman Pool, has 13-3/8" OD casing set at 327 feet, and the cement was circulated. We have 9-5/8" casing set at 3896 feet, cemented with 2474 sacks, and temperature survey indicated the top of the cement at 25 feet.

We have 7" casing set at 7299 feet, cemented with 1125 sacks; the temperature survey indicated top of the cement at 100 feet. The Fusselman is now producing from the open hole interval, 7299 to 7490. The original total depth was 7550 feet, the original plug back depth, 7490 feet.

We propose to deepen this well to approximately total depth of 10,100 feet by installing a 4 1/2" liner set at approximately 7250 feet to bottom and would be cemented. We propose to install a Baker Model D packer at approximately 9575 feet. We propose to run two strings of tubing, the short string would be 2 1/2" nominal buttress thread tubing, latched into a parallel string anchor at approximately 7220 feet. We would install 2" nominal buttress thread tubing into the packer for producing the Ellenburger.

We propose to perforate the Fusselman approximately 3220 feet



to 7360 feet. The Ellenburger perforations at approximately 9625 feet to 9800 feet. Those perforations would, of course, depend upon the log which will be run at that time. As far as bottom hole pressures, we have a recent bottom hole pressure in the Ellenburger which was taken from our Plains Knight Well No. 1, which is the south offset to this Well No. 3, and that was 1949 pounds at a minus 6980.

MR. NUTTER: What was the date of that pressure, please?

A February of '62. Insofar as the bottom hole pressure in the Fusselman, the last bottom hole pressure that we have available was in October of 1958, and that bottom hole pressure at that time was 2345 pounds. The reason that we have no recent bottom hole pressures is because the well has been on pump since that time. The gravity of the Fusselman will be 37.9 degrees approximately, at 60 degrees, it will be semi sweet crude. The gravity on the Ellenburger will be approximately 45 degrees, at 60 degrees Fahrenheit, and it will be a sweet crude. I believe that covers that exhibit.

Q In your opinion will the Baker Model D packer insure adequate protection against the pressure differential of approximately 400 pounds?

A Yes, sir, no question on that.

Q Mr. Hoover, what is the total over-all estimated cost

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for making this dual completion?

A We have estimated the dual completion to run \$90,000.00.

Q What is the total over-all cost that you've estimated for drilling an Ellenburger well in the orthodox location?

A Our estimated cost for that well would be \$181,000.00.

Q What is the amount of savings?

A We would effect a savings of \$90,000.00 by deepening this well.

Q \$91,000.00.

A \$91,000.00, excuse me.

Q Anything else you would like to add to this testimony?

A No, sir, I believe that's all I have.

Q Was Exhibit No. 4 prepared by you?

A Yes, sir.

MR. KASTLER: This concludes my questions on direct examination of Mr. Hoover, and I would like to move that Exhibit No. 4 be entered into evidence.

MR. NUTTER: Gulf's Exhibit No. 4 will be admitted in evidence.

(Whereupon, Gulf's Exhibit No. 4 was admitted in evidence.)

MR. NUTTER: Are there any questions of Mr. Hoover?

MR. BUELL: Yes, I have one or two, Mr. Examiner.

MR. NUTTER: Mr. Buell.



CROSS EXAMINATION

BY MR. BUELL:

Q Mr. Hoover, for the purpose of this question, let's assume that Mr. Marshall's interpretation is correct, or you may want to at this time agree with his interpretation and adopt it.

A Yes, sir, I agree with his interpretation.

Q If that interpretation is correct, then Gulf has been suffering a serious migration loss these last eight or nine years, have they not?

A Yes, sir, except that I feel that it has not worked to the detriment of any offset operators, but rather to the benefit.

Q Yes, sir, I'd say if offset operators were benefiting from migration from your Lillie Lease it would be a benefit.

A Yes, sir.

Q Do you have any idea or estimate of the magnitude that this migration might have been in barrels?

A No, sir, I do not.

Q What's the cumulative production on your Lillie No. 1, to save you the trouble, would you agree with me it's a little over a half million barrels?

A Yes, sir, it's in that neighborhood. It's less than Pan American's South Mattix No. 5. I'll agree with a half million barrels.

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Q Would you say your migration loss has been of that same magnitude?

A I don't know. I can't answer that.

Q Mr. Hoover, would you agree with me if first I asked you to assume that in truth and in fact Mr. Marshall's interpretation is wrong and actually your Lillie Lease has less than 160 productive acres, then should the Commission approve this unorthodox location you are requesting, it would result in the violation of the correlative rights of other operators in the field?

A Well, you are asking me to assume --

Q Yes, sir.

A -- that it is not productive?

Q That there is not 160 productive acres on your Lillie Lease.

A Well, I would rather assume that there is.

Q I know what you would rather do, but we are not here to make you happy, Mr. Hoover, you are an expert witness and you can answer a hypothetical question. Would you like me to restate it or do you want to go ahead and answer it?

A I would say if, on the basis of the evidence presented here today, if the Commission so rules that it is not productive, then we would not expect to get it.

Q Mr. Hoover, I thought perhaps with your answer you didn't



understand my question, so let me restate it.

A All right.

Q I'm asking you to assume for the purpose of this question, in truth and in fact, there is actually less than 160 productive acres on your Lillie Lease, and further assume that the Commission approves this request you are asking for here today for an unorthodox location for your Lillie 3, under those assumptions would not the correlative rights of the other operators in the field be violated?

A Assuming that there is not 160 acres of production?

Q Yes, sir.

A In that case, well, then I would say yes, that is right.

Q Mr. Hoover, could you enlighten us a little from the standpoint of why Gulf has sat there for nine years with 160 productive acres and done nothing about it?

A No, sir. I can not say what the decision of management was at that time. I will say at that time, and which I'm sure Pan American will agree, that there was a very active drilling program in Southeastern New Mexico, and it could have been that the decision was to develop elsewhere. I can not honestly say.

Q Mr. Hoover, does Gulf have a program on now of going back into the older, fully-developed fields and seeing where the opportunity exists for drilling additional infill wells?



A Yes, we are evaluating all of our leases.

Q Do you have sufficient confidence in Mr. Marshall's work, as much as he had to recommend to management that a well be drilled at a regular standard orthodox location?

A Absolutely.

MR. BUELL: Thank you, that's all.

MR. KASTLER: I have a question on redirect.

REDIRECT EXAMINATION

BY MR. KASTLER:

Q Mr. Hoover, making the assumption that Mr. Buell has asked you to, namely that the entire 160 acres, or let's confine it to the 80 acres in question here, assuming that all of that 80 acres is not now productive for the Oil Commission to give Gulf an 80-acre allowable, would that, in your opinion, to any degree tend to compensate for drainage that's already occurred?

A Yes, sir, I believe that it would.

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

MR. BUELL: I have one more, Mr. Examiner, and then I'm through. I should have asked it a minute ago, Mr. Hoover.

RE CROSS EXAMINATION

BY MR. BUELL:

Q In this cost for drilling a single well to the Ellenburger at a standard location, did you run into any unusual



problems there, did you have to bridge a river or fill in a swamp or anything?

A No, sir. In our cost of that well we used the cheapest well that we could get, using 5½" casing.

Q And no unusual things?

A Nothing unusual.

MR. BUELL: That's all. Thank you, Mr. Examiner.

BY MR. NUTTER:

Q I notice that you have a well in the Southeast of the Northwest of Section 23. What formation is that well drilled to?

A Yes, sir, I'm glad that you mentioned that, Mr. Nutter, because those wells are shallow Langlie-Mattix producers, and it's farmed out to Three States Natural Gas Company and those are their wells. The only wells that Gulf has on that Lillie Lease is our Lillie No. 3, the well we're discussing here for dual, being in the, circled in red on that Exhibit 1, and the other two wells is our Lillie No. 1 and No. 2 located in the Northwest of the Northwest of 23.

Q So you don't own the No. 2 in the Southwest, Northwest, nor the No. 3 in the Northeast, Northwest, nor the No. 4 in the Southeast, Northwest?

A Or the No. 1 in the Northwest, Northwest.

Q Or the No. 1 in the Northwest, Northwest.



A There's two No. 1's, the Ellenburger is ours, that is correct.

MR. KASTLER: What is the depth?

A Those are approximately 3800 feet.

Q What kind of a lease is this Lillie Lease, a state, federal or fee lease?

A I believe it's a fee lease.

Q Has any request ever been made of Gulf by the royalty owners to drill additional Ellenburger wells on this lease?

A To my knowledge there has not.

MR. NUTTER: Any further questions of Mr. Hoover?

MR. BUELL: I have one more, Mr. Examiner, and this is the last one, believe it or not.

BY MR. BUELL:

Q Mr. Hoover, in view of your recent testimony, Mr. Marshall's earlier statement that at an orthodox location, a standard location between the Ellenburger and the surface, there are no other productive sands is erroneous, is it not?

A Well, I thought the testimony was that no other economical.

Q There are other productive sands, Gulf just doesn't happen to own that particular horizon?

A Are you talking about in our lease or in the area?



Q The orthodox location for this Lillie 3 well.

A We own it below 4,000 feet. Above 4,000 we do not.

Q And there are productive sands above 4,000 feet at that orthodox location?

A Yes, sir.

Q So that at an orthodox location there are other productive horizons, Gulf just does not have a lease on it?

A That is correct.

MR. BUELL: Thank you, that is all, Mr. Examiner.

MR. NUTTER: If there are no further questions of Mr. Hoover, he may be excused.

(Witness excused.)

MR. NUTTER: Do you have anything further, Mr. Kastler?

MR. KASTLER: I believe I want to make a statement after the opposition has concluded its case.

MR. BUELL: We have one witness who did not get sworn at the opening of the hearing.

(Witness sworn.)

JAMES T. RODGERS

called as a witness, having been first duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. BUELL:



Q Would you state your complete name, by whom you are employed, in what capacity and what location?

A James T. Rodgers, employed by Pan American in Lubbock as petroleum engineer.

Q Mr. Rodgers, you've testified at a prior Commission hearing and your qualifications as a petroleum engineer are a matter of public record, are they not?

A Yes, sir.

MR. BUELL: Any questions as to this witness's qualifications as a petroleum engineer?

MR. NUTTER: No, sir, Mr. Buell. Please proceed.

(Whereupon, Pan American's Exhibit No. 1 was marked for identification.)

Q (By Mr. Buell) Would you look now at what has been marked as Pan American's Exhibit No. 1 and briefly state for the record what that exhibit reflects?

A It is a structural map contoured on top of the productive Ellenburger in the Fowler area.

Q How have you designated the wells that either have produced or are producing from this reservoir?

A These wells are designated by the solid blue dots on this map. I might add that the only wells that are shown on the map are wells that are producing from the Ellenburger or penetrated



the Ellenburger.

Q Do you recall, Mr. Rodgers, which well was the discovery well for this pool?

A Yes, sir, the South Mattix Unit No. 1, Pan American well, located in the Northwest Quarter of the Southeast Quarter of Section 15 was the discovery well. This well is approximately on the center of the structure, a little bit Northwest of it.

Q When was that well completed?

A This well was completed in 1948.

Q Do you also recall when the most recent well was completed in this reservoir that produced oil from this reservoir?

A Yes, sir, that would be Pan American South Mattix Unit No. 10, located in the Southeast Quarter of the Northeast Quarter, also of Section 15.

Q When was that, Mr. Rodgers?

A That well was completed in 1953.

Q So it's been almost nine years since we have had a well that was drilled to this reservoir that produced any oil from it?

A Yes, sir, that's correct.

Q We have been talking about the South Mattix Unit, in that connection let me ask you what is the significance of the area enclosed within the red border on your Exhibit No. 1?

A That is the unit outline, or boundary of the South Mattix



Unit.

Q Do you recall how many different working interests there are in this unit?

A Yes, sir, there are five.

Q Who are they?

A They are Pan American, Continental, Standard of Texas, Atlantic and Delhi-Taylor. I might add here that this is an old map and Delhi-Taylor took over what is shown on here as Three States on our exhibit.

Q And Pan American is the operator of the South Mattix Unit?

A That's right.

Q Since Gulf's application, Mr. Rodgers, is for an exception to the existing pool rules, perhaps it would be well to briefly review the history of these rules. Would you briefly state for the record the hearings from which these permanent rules resulted?

A Yes, sir, I will. These are referred to as Case 391. There were three hearings involved in 1952, 1953 and 1954. The first two hearings in '52 and '53 established temporary 80-acre proration units, and then in 1954 the permanent 80-acre proration unit was established with the field rules.

Q Now, Mr. Kastler did a very good job of summarizing the



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pertinent pool rules in this case, but in order that the record will be crystal clear, I am going to ask you to read Rule B of the pool rules governing this field so that the Examiner and everyone here can analyze and evaluate your testimony from the standpoint of the exact rule for which an exception is being requested.

A Yes, sir. Reading from Order No. R-195-B, Rule B, "That all wells drilled in the Fowler-Ellenburger Pool shall be located in the center of either the Northwest Quarter or the Southeast Quarter of each governmental quarter section with a tolerance of 150 feet in any direction to avoid surface obstructions."

Q So, then, actually, Mr. Rodgers, this Gulf request really encompasses two exceptions, one, their requested location is in the wrong quarter, quarter section, and two, they're also violating the surfacing distance requirements of the rules?

A Yes, sir, that is correct.

Q Just looking at Exhibit 1 here, and the development pattern that we can see with the naked eye, it would appear to my naked eye that we have, it looks to me like 100% uniform 80-acre spacing in this pool. Is that observation correct?

A Yes, sir. We do have. There's only one exception to this spacing rule, and that is the Gulf Lillie No. 1, located on the 40-acre tract north of the subject well, and this well is



located 330 feet from the West line of that section. That's in Section 23, the Northwest Quarter of the Northwest Quarter.

Q So with that one exception, all wells in this pool were drilled in conformance or in conformance with the spacing rule; as I recall, that Lillie well was probably spudded prior to the adoption of the first rules?

A Yes, sir, it was.

Q As a matter of interest, the Fowler-Ellenburger Pool was the first pool that the New Mexico Oil Conservation Commission adopted 80-acre oil proration units, is that not correct?

A That's my understanding, yes, sir.

Q Mr. Rodgers, still looking at Exhibit No. 1 and around the periphery of the Ellenburger reservoir, I notice there are several dry holes. How many are there?

A There are six dry holes around this field that actually penetrated the Ellenburger.

Q Were all six of these dry holes drilled and located in conformance with the current existing spacing rules?

A Yes, sir, they were.

Q Mr. Rodgers, this may be interesting, I wonder if you would go around the edge of the field with respect to these dry holes and let's see in how many of these six instances where we have a dry hole it would have been possible, had the operator

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located his well at an unorthodox location, to have made a producing well.

A All right. Referring to this Exhibit 1, I'll start on the east side of the field with the Humble J. A. Knight No. 1. This well is located in the Northwest Quarter of the Southwest Quarter of Section 14. As you can see, this well was drilled on standard location.

Q That well, excuse me, Mr. Rodgers, that well is immediately north of the Lillie Lease in question here at this hearing?

A Yes, it's actually two 40's north of the Lillie Lease. At the time this well was drilled, which was in 1953, if it had been drilled in an unorthodox location on the 40 acres due south of it, which would be the extreme Southwest 40 of this section, and had been drilled at 330 foot spacing from the section boundaries, it undoubtedly would have been an oil well.

Q Go right on around to the Northwest and pick up the next dry hole.

A If we go up counter clockwise from that well, the next dry hole is located in the extreme Northwest portion of this structure, that well being the U.S.A. Cortland Meyers No. 12, drilled by Pan American. This well, again, was drilled on standard location. If it had been crowded on a 330 there is a possibility

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it would have produced some quantities of oil. At the time it was completed it was at the oil-water contact. If it had been higher up-structure the 330 would have helped it.

Q So actually that well was a wet well instead of a tight well?

A That's right, it was a wet well.

Q Go to the next dry hole.

A The next dry hole is Stanolind State DE which was Pan American's, located in the extreme Southeast 40 of Section 16. Again, this well is on a standard location. This well was drilled by pooling this 40-acre tract with the 40 acres immediately north of it owned by Humble, or leased by Humble. Had Humble and Stanolind asked for an exception to the field rules and drilled that well in the north 40 of that 80 acres and crowded it on a 330 spacing, it should have been a good well. It would have been structurally equivalent to Humble's AB which is still producing.

Q That situation would be exactly in conformance with the Gulf request, they are asking for an unorthodox location in the wrong quarter, quarter, and also crowding the line?

A That's right.

Q Go right on to the next dry hole.

A The next dry hole is immediately Southeast of the one we just looked at, on the Sinclair Lease. This well was wet and



encountered the Ellenburger below the oil and water contact. It is on a standard location. If it had been crowded on a 330 there is an excellent chance it would still have been wet.

The next one will be the last one. It's located on the southern part of the field within the South Mattix Unit. It's the Pan American South Mattix No. 12. Again, it's drilled at a standard location, encountered the reef at the oil-water contact, and drill stem tested free water. If the location had been placed again in the 40 acres north of that well in unorthodox location, it would still have been the 80 acres that would have been dedicated to it and crowded on a 330, it would have been a productive well.

Q You said last, actually that's next to last, because we don't want to overlook Gulf's No. 2 Plains Knight.

A I have one more down here. The Gulf No. 2 Plains Knight, located in Section 23 in the Southeast Quarter of the Southwest Quarter was non-productive, a dry hole in the Ellenburger. If at that time Gulf had done as they are now, and asked for an unorthodox location, they could have moved to the 40 west of that well and made a producing well.

Q It appears that perhaps Gulf has learned their lesson. If I followed you correctly, Mr. Rodgers, out of the six dry holes that ring the periphery of this field, five of those six could have made a well if they had been located at an unorthodox location



similar to Gulf's request here today?

A That's correct.

Q Now, Mr. Rodgers, did you actually physically draw these structural contours that are on this Exhibit No. 1?

A No, sir, I did not.

Q Who did do that?

A This interpretation was drawn by Mr. Tom Ingram who works for me in the Pan American office in Roswell. It was actually done as a detailed study by his staff at the time they were requesting 80-acre proration units. They had a large-scale model of this reservoir and studied the fault system and the structure.

Q So actually, although Tom Ingram did the contours, this represents the work of a great number of people and a detailed investigation?

A Yes, that is correct.

Q Have you reviewed all available data?

A Yes, I have.

Q As a result of that review and analysis, do you concur and agree with the interpretation shown here by Mr. Ingram?

A Yes, I do.

Q Actually, Mr. Ingram was Pan American's geological witness at the three different hearings on Case 391 that you mentioned earlier, was he not?



A That's right, he was.

Q Did Mr. Ingram also present a structural interpretation at the 1953 portion of Case 391?

A Yes, sir, he did. He presented a structural interpretation very similar to this one in 1953.

Q Have you gone to the Commission's files and critically examined that interpretation?

A Yes, I have.

Q Would you briefly state for the record any significant difference between that interpretation presented by Ingram in '53 and the interpretation presented here on Pan American's Exhibit No. 1?

A Yes, sir, I will. In the year between 1953 and 1954 Gulf drilled their Plains Knight No. 2 dry hole, which is located in Section 23, Southeast of the Southwest. That was the last dry hole we discussed a while ago. This well came in east of the trace shown here of the lower thrust fault in this area and gave them a confirming, you might say, pick or location of this fault. So actually, the only difference, he did not change the fault trace of either the upper or lower thrust faults, but he did add these contours on the downthrown Ellenburger penetrated by this dry hole.

Q So, Mr. Rodgers, if I placed my hand over those contour



lines, the Southeast of the fault along the eastern edge of the field, we would be looking at substantially the same interpretation that was presented in '53?

A Yes, sir, that's right.

Q Now, actually this interpretation on Exhibit No. 1 is that presented by Ingram at the '54 hearing, is that not correct?

A Yes, sir, this is the identical map, photo copy or direct reproduction of the map in the Commission files from that hearing.

Q Let me ask you this. 1954 was about eight years ago, have any of the data which have been acquired since 1954 caused any change or revision in this interpretation or, on the contrary, has it confirmed it?

A The data obtained since 1954 has confirmed this interpretation.

Q What data have been acquired subsequent to the hearing in 1954?

A The data acquired are shown on this exhibit as being the two wells in red with the large red arrows pointing to them. The well located in the northwestern portion of the field was drilled after that hearing. It's the Pan American USA Courtland Meyers B No. 12. This well encountered the top of the Ellenburger at minus 7244. As you can tell on this, we have it located here, or crowding minus 7250, approximately the same top, and it did



confirm his structure. There was so little difference we didn't feel it was justified to change the structure map some six or so feet.

Q Would you agree with me, Mr. Rodgers, that an interpretation that was originally made in 1953, and that every single bit of data that have been acquired since that time confirmed that interpretation, would you agree with me that this interpretation has withstood the test of time?

A Yes, sir, it has. I might add that this other one down here with the large arrow also confirmed it identical to that one at the top.

Q With the exception of the unit outline, and with the exception of the two wells you have just discussed and the legend there in red by those wells, as well as the location of the Gulf's Lillie No. 3 which is also shown in red, this is identical to the interpretation presented in 1954?

A Yes, sir, it is.

Q Do you feel that there are 160 productive acres on the Gulf's Lillie Lease in the Fowler-Ellenburger reservoir?

A No, sir, I do not.

Q Approximately how many productive acres do you think this lease has?

A I think this lease has approximately 93 productive acres.



Q For the purpose of this question, Mr. Rodgers, assume that the Commission approves the Gulf request that they've asked for, they asked for this unorthodox location with a full 80-acre allowable, assume that's granted, in your opinion will that violate the correlative rights of the other owners of interest in this pool?

A Yes, sir, in my opinion it would be a gross violation of correlative rights.

Q If Gulf should be successful in their endeavor here today and get this unorthodox unorthodox location, would you then recommend to Pan American in every instance around the periphery of this field where the physical facts would allow us to similarly drill at an unorthodox location and assign scenery to the well, would you recommend that Pan American do it?

A Yes, sir, I would be forced to recommend that we drill additional wells.

Q . Why would you so recommend?

A To protect our correlative rights.

Q Let's take another trip around the periphery, Mr. Rodgers, and this time let's look for similar situations to the Gulf Lillie situation where an unorthodox or unorthodox unorthodox well, we can make a location and assign scenery and produce a full 80-acre allowable.



A All right. I have here, I have exactly --

Q Do you have a red pencil there with you?

A Yes, sir.

Q Would you come around here and lean over the Examiner's shoulder and place an "X" at each one of these locations so that the official exhibit as well as the transcript will refer and reflect where these situations are? We want this to get into the record too.

A All right, I'll read these locations, the first "X" I will place will be on the Gulf Plains Knight Lease, the Southwest Quarter of the Southwest Quarter. These are going to be extremely rough. I'm going to try to crowd them on 330's.

Q Well, that's where the Gulf well is.

A The second one will be within the South Mattix Unit in Section 22, in the Northeast Quarter of the Southeast Quarter. The next one will also be in Section 22 in the extreme Northeast 40 on what is shown here as the Three States Lease. And moving over to the west side of the field on the Humble State AB Lease, this would be a location we discussed previously, if they had applied prior to drilling a dry hole, it's located in the Northeast Quarter of the Southeast Quarter of Section 16.

Also on the Humble Lease in the extreme Northeast 40 they have another one. Moving up to the Gulf Carr Lease, the northern



portion of the field we have one in the extreme Southwest Quarter of Section 10. We have one more again on the South Mattix Unit Section 15, the Southwest Quarter of the Northeast Quarter.

Q Are you through? A Yes.

Q Now, count your red "X's". I counted seven as you were marking.

A That's right.

Q So, if we included the Gulf Lillie No. 3, that would be eight wells similarly situated?

A Yes, sir, that's correct.

Q First, let me ask you this, with respect to the Gulf Lillie 3 alone. In your opinion, will the approval of this request here today serve conservation in that this Lillie 3 will increase the ultimate recovery of oil from this reservoir?

A No, sir, it will not. It was shown in the hearings to establish 80-acre prorationing that we had excellent communication within this formation.

Q Would the same thing be true of seven similar locations, assuming that the race around the edge goes on and they are all drilled, will any of the wells, including the Lillie well, will any of them contribute to conservation and increase ultimate recovery of oil from the pool?

A These wells would not, no, sir.



Q Looking at the exhibit with the seven red "X's" that you have made, it would appear to me that, just at a glance, that at least from a productive acreage standpoint if these additional eight wells are drilled, and by eight I'm including the Gulf Lillie No. 3, that actually on a productive acreage basis we would have the field drilled down to the density of one well for every 40 acres.

A Yes, it would be approaching one well to 40 acres on a productive acreage basis.

Q Even though the field would be down to a density of one well to 40 on a productive acreage basis, all wells that could make it would still be producing the 80-acre allowable?

A That's right.

Q What is your engineering recommendation to this Commission to the Gulf request that includes the unorthodox unorthodox location?

A Well, I would recommend that Gulf's request be denied on the basis of violation of correlative rights and the resultant development that we have shown here.

Q Do you have anything else you would like to add, Mr. Rodgers?

A No, sir, I don't.

MR. BUELL: May it please the Examiner, that's all we

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have by way of direct, and may I formally offer Pan American's Exhibit No. 1?

MR. NUTTER: Pan American's Exhibit No. 1 will be admitted in evidence.

(Whereupon, Pan American's Exhibit No. 1 was admitted in evidence.)

MR. NUTTER: Does anyone have any questions of the witness?

MR. KASTLER: Yes.

MR. NUTTER: Mr. Kastler.

CROSS EXAMINATION

BY MR. KASTLER:

Q Your testimony was to the effect that there are a number of dry holes going around the periphery of the Fowler-Ellenburger Pool counter clockwise, and as a result of those dry holes there has been actually productive acreage which has not been allowed its chance to recover its fair share of oil or gas in place, isn't that correct?

A Yes, sir, that's correct, I believe that's true in any field.

Q In other words, the field rules, the rules providing for the orthodox location of wells have actually and visually in this pool operated to the detriment of many of the royalty owners



who actually did and do own oil and gas in place?

A No, sir, I can't say that the 80-acre proration units have actually done that. I think that's true, as I said before, in any field there you can't drill every five acres, and I don't say we can blame that entirely on 80-acre proration units. It could be on 10 acres or 20 or anything else.

Q Would you say that there is a rule, an arbitrary rule, to some degree, that these wells must be located on pattern and nowhere else, that thereby owners of oil should be deprived of the right to produce that oil?

A Would you repeat that one?

Q In effect I'm asking you if the arbitrary rule that has been adopted, providing for a regular spacing pattern of wells, should actually be allowed to continue to operate to the detriment, to the deprivation of the rights of other owners of oil and gas?

A Well, yes, sir, I don't feel that they operate to the detriment of their rights. I think we are looking here where the exception violates correlative rights of other operators.

Q You have testified in these numerous dry holes in six of the seven cases, or seven of the eight cases, in all but one case, at least, that if they had been permitted, and if they had in fact located their well at a somewhat unorthodox pattern they would then have been able to recover their share of oil in place?



A Well, I think you'll find if you examine this, that most of this acreage is now or has been dedicated to another well on 80. We are putting scenery in here, so we are actually adding to the acreage that we are dedicating to it in a matter of having 80 productive acres at these locations.

Q Do you feel that every acreage in this pool that is productive is dedicated?

A Well, I haven't looked at it from that angle.

Q Do you feel that Gulf's South Half, Southwest, that's the acreage involved in this hearing?

A Just the acreage that runs east-west.

Q Yes.

A Do I feel it has any productive acreage?

Q Yes.

A Yes, I do.

Q Do you believe that acreage is presently dedicated?

A I believe it should be dedicated to the Lillie No. 1.

Q Are you acquainted with the fact that the two rectangles on Gulf's Exhibit No. 2 indicate our acreage dedication to two 80-acre units, and it leaves the third one in there that is at present undedicated, at least on 80, and which you testified even yourself that it has some productive oil and gas in place?

A I'm aware that that is the dedication, sir, but I do not agree with your opinion that those are 80 productive units outlined in red.

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Q It's not my opinion, it appears to be a fact that there is productive acreage that is not presently dedicated, isn't that correct?

A Oh, yes, sir. Yes, sir, that is a fact.

MR. BUELL: May it please the Examiner, the witness testified on direct that the Lillie Lease has 93 productive acreage, that's 13 over and above what's assigned. If the Gulf will amend their request to a well at this location with a 13-acre allowable, we will withdraw our opposition.

Q (By Mr. Kastler) Mr. Rodgers, you have introduced an exhibit here that was obviously prepared by Mr. Tom Ingram some time ago?

A That's right.

Q But you have testified that you have verified it and that the field experience has, in effect, verified it to a great degree?

A That's right.

Q How do you justify the drawing of this line down here? I don't know just what words that I might use, have you found evidence that these definite fault cuts exist which limit the eastern and northeastern boundaries of the pool?

A Yes, sir, there is evidence to that effect. I might add also that this --



Q What evidence is there?

A What evidence?

MR. BUELL: Go ahead and finish your answer to the previous question.

A What I was going to add, that in addition to my addition to my studies, that this map has been reviewed by our Lubbock Geological Department prior to coming to the hearing, and they confirmed this interpretation also.

Q Now, what evidence have you found?

A All right, the fault can be located in the South Mattix Unit No. 9. That's in Section 15 in the Northwest of the Northeast. I might add that this is all on record in the '54 hearing. This map was verified on the record.

Q By cross sections?

A Yes, sir. If I'm not mistaken, it was also located at that hearing. Well, I'm not mistaken, it was located in South Mattix No. 5, Gulf Plains Knight No. 1 and Gulf Plains Knight No. 2. These wells line up diagonally from Section 22 to Section 23 going Southeast. Would you like me to repeat those?

Q What evidence do you have that this fault cut exists beyond Well No. 9, which is the first well that you indicated, on around to Gulf Plains Knight Lease?

A Would you repeat that, please?



Q What evidence do you have that the fault cuts exist from this Well No. 9 of your unit well--

A Yes.

Q -- on southeastward around to the Plains Knight Lease?

A These cross sections indicate that this is a continuous fault and this trace was obtained by extrapolation of that fault plane and it's interpretation with the top of the Ellenburger formation.

Q But it's merely an extrapolation of a line that you found definite up in this Well No. 9 and which Mr. Marshall found also in his cross examination study, but it's extrapolated from there clear on around to the Plains Knight Lease, isn't that correct?

A That's correct, but the fault is tied down by four picks.

Q What four picks?

A Four wells I gave you.

Q Is that a thrust fault or a normal fault?

A That is a thrust fault.

MR. BUELL: What's the other kind, graben or horst?

MR. KASTLER: Normal fault or thrust fault. That's all.

MR. NUTTER: Are there any other questions of Mr.

Rodgers?



BY MR. NUTTER:

Q In your opinion did Pan American have one 160 productive acres in the Northeast Quarter of Section 15?

A No, sir, we only have one well producing there, sir, the No. 10 is abandoned.

Q You did have 160 acres dedicated to two wells at one time?

A Yes, sir, we ~~did~~ at one time.

MR. BUELL: May it please the Examiner, the reason we didn't go ahead and show No. 10, No. 12 as being abandoned, we wanted to keep it as much as we could identical to the way it was submitted in 1954.

MR. NUTTER: Any further questions of Mr. Rodgers? He may be excused.

(Witness excused.)

MR. NUTTER: Do you have anything further, Mr. Buell?

MR. BUELL: No, sir, just a closing statement.

MR. NUTTER: Would you proceed with your statement, Mr. Buell?

MR. BUELL: May it please the Examiner and the Commission, naturally it's our recommendation to this Commission that this request for an unorthodox unorthodox location be denied in its entirety. Actually, the Commission has before it here two structural interpretations, neither of which, regardless of the

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one the Commission selects as being the most reasonable or being the most accurate, neither of which justifies the granting of this request.

I would like to say this with respect to our interpretation as Mr. Rodgers has testified, it's an interpretation that's been on file with the Commission, for all practical purposes it was introduced at two hearings in 1953 and 1954, and incidentally hearings in which Gulf concurred. All data which have been acquired subsequent to this original interpretation have confirmed it as being reasonable, actually Gulf drilled a dry hole because they didn't pay any attention to it. I think they've learned their lesson now, and I frankly submit to the Commission that's why they're here today for this unorthodox location.

Pan American drilled two dry holes, helping to confirm this interpretation, I believe that this interpretation has stood the test of time and all data confirm it. With respect to the Gulf interpretation, as their witness has freely, frankly and honestly admitted, all data which he used was available to Gulf back in 1954 when they were concurring in these field rule hearings. He has no new data that would change their geological interpretation, he's just presenting you here in 1962 an interpretation that he could have presented in 1954. Frankly I don't believe that Gulf is that imprudent an operator. I think they are far too prudent in a

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field with reserves of the magnitude of the Fowler-Ellenburger Oil Pool to have only one well on 160 productive acres for a period of almost nine years. Gulf is too prudent to do that.

We've also had a frank and honest admission from Mr. Hoover, the engineering witness for Gulf, that Gulf is engaged on a program of going back into the older, fully-developed fields and trying to find locations for infill drilling, unfortunately with a lot of the major companies, I'm not saying that Pan American has even completely escaped it, the race for current income is on. We have also tried to point out to the Commission that if this request is approved it's going to be the trigger for a race around the periphery, because the ink wouldn't be dry on the Commission order till the ink will be wet on an application from Pan American for as many unorthodox locations as we can find similar to Gulf's where we can drill at an unorthodox location, make a productive well, assign scenery to it and merely produce away an 80-acre allowable.

In conclusion, Mr. Examiner, it seems to me that regardless of the interpretation the Commission selects, both Mr. Hoover, both Mr. Marshall say they would recommend drilling at an orthodox location. The only justification, the only justification that even Gulf submits is that if you let them crowd they can save money. Well, I submit to this Commission that the saving of a few

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thousand dollars does not justify gross violation of correlative rights.

MR. KASTLER: Mr. Examiner, in substance, the opponent is arguing that Pan American has some kind of a legal right to continue draining at least 40 of our undedicated acres. This does not appear to be in the interest of correlative rights. The fact that your approval of this application might lead to a race of drilling around the periphery is not quite true because of this. I believe where a 40-acre tract, or an 80-acre tract has been condemned by a dry hole, that there would be some reluctance to go on in on a newer location just a few feet away and to attempt to drill and complete a well that might produce that 40 acres.

I think then that the Commission would have to take into consideration the fact that the 40 acres might entirely, quite obviously it is not entirely productive, because another well has been drilled there. As I indicated, our sole reason for approaching you for this unorthodox location permission is in the interest of economics, \$91,000.00 is a sizeable amount of money to lay out for the mere sake of maintaining a well spacing pattern, particularly when it can not be shown that the reservoir will be any more efficiently drained.

It would seem that we would be entitled, after all these years, of perhaps having our head in the sand, or whatever may have

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occurred. as a result of this, we should be given the opportunity now at last to go ahead and complete our 80-acre well location and to produce our fair share of oil in place under that lease.

At the time that Gulf concurred in the original 80-acre spacing, I have been told that Gulf requested more latitude in the rule pertaining to the well locations.

Finally, I would like to ask that the staff geologist and engineers diligently study these exhibits and attempt to come up with the sensible answer. We are not trying to steal anybody's oil, we are trying to protect our own, and that's all.

MR. BUELL: In view of your last statement there, I wonder if I could have leave, and leave of the Examiner to submit to the Commission an electric log, on our Plains Knight No. 2, the dry hole down in the southeastern portion of the field as Exhibit 2. I feel the Commission would then have sufficient logs so they could more critically examine the southeastern area.

MR. KASTLER: We have no objection.

MR. BUELL: It's in the Commission records in Case 391, but I would like, if it's all right with the Examiner and Mr. Kastler has no objection, to submit one so it could become a part of this case.

(Whereupon, Pan American's Exhibit No. 2 was marked and admitted in evidence.)

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