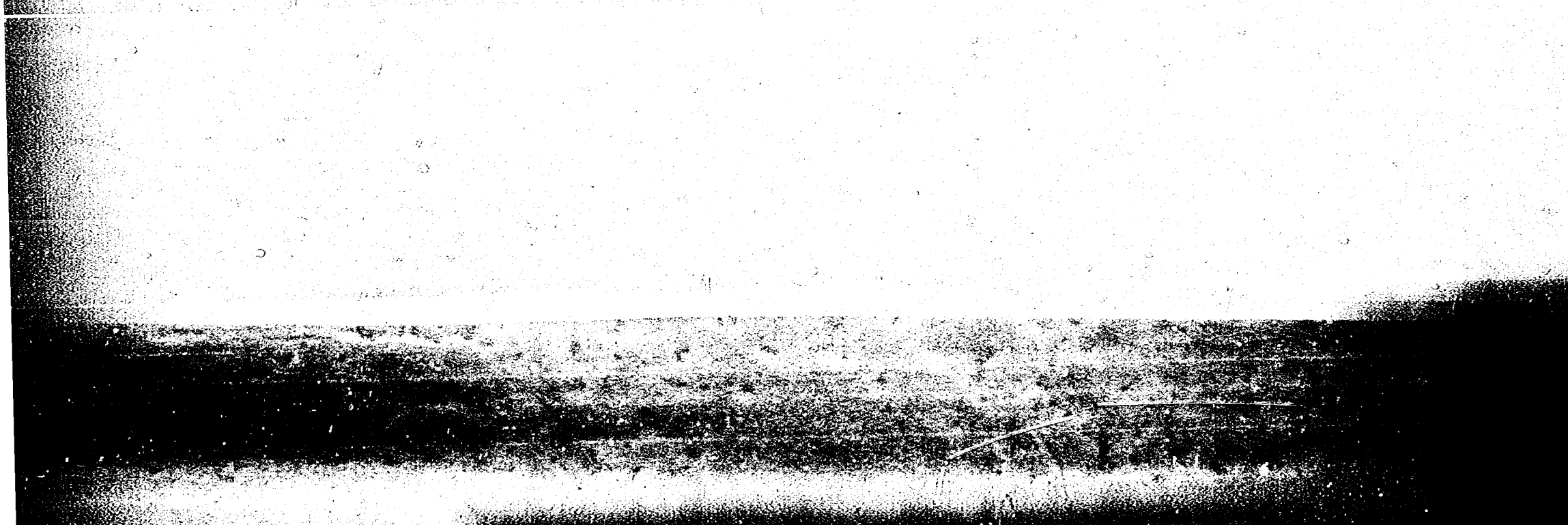
CASE 6715: TEXACO INC. FOR AN UNORTHODOX GAS WELL LOCATION, LEA COUNTY, NEW MEXICO



Case Number

6715

Application

Transcripts.

Small Exhibits

ETC.

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BLDG.
SANTA FE, NEW MEXICO
14 November 1979

EXAMINER HEARING

IN THE MATTER OF:

Application of Texaco, Inc., for an unorthodox gas well location, Lea County, New Mexico. CASE 6715

BEFORE: Daniel S. Nutter

Register in this Transcript

TRANSCRIPT OF HEARING

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NEW MEXICO OIL CONSERVATION COMMISSION

EXAMINER HEARING

SANTA FE, NEW MEXICO

Hearing Date NOVEMBER 14, 1979 Time: 9:00 A.M.

NAME	REPRESENTING	LOCATION
William F. Carr	Campbell & Black, P.A.	Santa Fe
Ken Bateman	White Koch Kelly & McCarthy	Santa Fe
W. P. Kendrick	El Paso Natural Gas Co.	El Paso
Wm. P. Aycock	Radtke, Aycock & Assoc., Inc.	Midland
Tommy Phillips	Alpha Twenty One Prod. Co.	Midland
CHARLES F. KALTEYER	GULF OIL CORP.	MIDLAND
C D STEINBERG	Gulf Oil Corp	MIDLAND
C. Harvey Carr	Southland Royalty Co	Midland
Richard D. Petrie	Southland Royalty Co.	Midland
Tom GILBREATH	COQUINA OIL Corp.	MIDLAND
J. T. Jennings	Jennings, Christy	Roswell
B. O. Welch	Grace Petro. Corp	Okla. City.
Jack B. Shaw	Texaco Inc.	Midland, Tx
R. H. Bayless	Merrion & Bayless	Farmington
Hugh Ingram	Conoco Inc	Hobbs
Roy Edmundson	Edmundson, Inc	Denver
Larry Seright	Depco, Inc.	Midland

NEW MEXICO OIL CONSERVATION COMMISSION

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NAME	REPRESENTING	LOCATION
Bob Hulen	Capitol Observer	Santa Fe
Marchie Burns	Capitol Observer	Santa Fe
Kay Kaltenbach	Tesoro Petroleum	Denver
Thomas F. Watts	HNG Oil Co.	Midland
Raymond Parker	HNG Oil Co	
Jerry L. Shenyhamer	HNGOIL CO.	MIDLAND
Ben Hunter	HNG Oil Co.	Midland
Jason Kellahin	Kellahin & Kellahin	Santa Fe
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Owen H. Lenderm	CONOCO, INC	HOBBS, N.M.
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	EXXON (Modrall)	Midland Tx

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MR. NUTTER: We'll call next Case Number 6715.

MR. PADILLA: Application of Texaco, Inc., for an unorthodox gas well location, Lea County, New Mexico.

MR. BATEMAN: Mr. Examiner, I'm Ken Bateman of White, Koch, Kelly and McCarthy of Santa Fe, and I have two witnesses.

MR. NUTTER: Are there other appearances in this case?

MR. KELLAHIN: If the Examiner please, Jason Kellahin, of Kellahin and Kellahin. I'm appearing for Gulf Oil Corporation. We will also have two witnesses.

MR. NUTTER: Would all witnesses stand and be sworn, please?

(Witnesses sworn.)

PAUL H. DAVIS

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

DIRECT EXAMINATION

BY MR. BATEMAN:

Q Will you state your name, please, and place of employment?

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A. Yes. Paul H. Davis. I work for Texaso, Incorporated, in Midland, Texas.

Q. And in what capacity do you work for Texaso?

A. I'm the Division Proration Engineer.

Q. Have you previously testified before the Commission and made your qualifications a matter of record?

A. Yes, sir, I have.

Q. Are you personally familiar with the area which is the subject of today's application?

A. Yes, sir, I am.

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

MR. NUTTER: Mr. Davis is qualified.

Q. (Mr. Bateman continuing.) Mr. Davis, would you identify what we've marked as Exhibit Number One? And state for the record what Texaco desires from this application?

A. Yes. Texaco desires approval for an unorthodox well location on our Loomis Federal Well No. 1, the well to be located 1600 feet from the north line and 660 from the west line of Section 5, Township 21 South, Range 32 East, in Lea County, New Mexico.

Texaco desires to dedicate the north 324.96 acres in Section 5 to the well.

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MR. NUTTER: What was that acreage again, please?

A. It's 324.96.

MR. NUTTER: Thank you.

A. Exhibit Number One we'll use as an ownership and well location plat, as well as a structure map of the South Salt Lake-Morrow Field.

The acreage shown outlined in red is the lease in question. The green dot on that acreage is the well located 1600 feet from the north line and 660 from the west line.

The offset wells to this acreage are the Texaco "CM", due north of the acreage; the Grace "SL" State Well, in Section 32 to the northeast; the well to the east is the Grace New Mexico Federal Well; we have two wells to the south of this acreage, the Grace Petroleum Company New Mexico Federal "E" and "F" Wells; and a location has been recently approved by the Commission in Section 6 to the southwest of the acreage in questions, and it's called the New Mexico Federal "G" Well.

The -- both the New Mexico Federal "F" and the New Mexico Federal "G" are Grace, were approved as unorthodox locations.

I might mention the distances that they are away from Texaco's lease. The "F" is located 660 feet

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south of the Texaco Loomis Federal and 1980 feet from the west line of Section 5.

The Grace New Mexico Federal "G" to the southwest, is located 660 feet south and west of the Loomis Federal lease, and our distance, of course, to the lease line is 1000 feet from our south line. So we are a greater distance away from the two Grace wells than they are to us.

Q. All right, would you proceed, then, with what's been marked Exhibit Two and identify the production in the offsetting wells, please?

A. Yes. Exhibit Two is a production tabulation of all wells that have been completed in the South Salt Lake-Morrow Gas Pool. The production is by years since the field was discovered through 1978, and the production is by months, then, for January through September of 1979.

We also show the total gas production from each of the wells that have been produced from the Morrow zone.

Several things are of interest on this exhibit. The first is the Grace Petroleum New Mexico Federal Well, which would be the east offset to the acreage in question. It has been shut in since 1977 and is essentially produced to depletion.

Also the well to the north and east of the subject acreage has been shut in since in 1978, and it's

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also been produced to depletion.

Another well, clear over on the east side of the plat, is the Grace Pubco Federal Well No. 1, and it has been shut in for some time. It produced only during a three-year period.

The lack of production on the Little Eddy Audie Richards of Texaco's during the first half of 1979 was due to a workover that was being performed on that well at that time.

One other point for Exhibit Two is that the Texaco New Mexico "CH" State Well was originally completed for a short time in the Morrow but since then has been an Atoka well, and therefore shows no production for the majority of the period shown here.

Q. Proceed, then, with what's been marked Exhibit Number Three.

A. Exhibit Number Three is a well completion and production data of all wells that have been completed in the South Salt Lake Morrow Gas Pool. These wells are listed by ownership of two wells of Belco, the Grace Petroleum Corporation wells, the Texaco Well, and the last is the Teal Petroleum Company well.

What we show on this tabulation is, first of all, the well number; the letter designation; and the section, township and range of each of the wells; its dis-

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tances from the lease lines; the date the well was completed; the initial calculated absolute open flow in each of the wells; the completion interval in the Morrow section; and item number six is the cumulative gas production from each of the wells as of September 30th, 1979.

A couple things I'd like to point out about the cumulative production, we've already mentioned is the Grace Petroleum New Mexico Federal Well just to the east of us has produced slightly over 2-billion cubic feet of gas, and that will be an ultimate recovery from that well.

Also the northeast offset is the Grace "SL" State Well, and it's produced slightly over a half a billion cubic feet, and that's an ultimate recovery from that well.

The -- I think this goes to show that that area of the field has been depleted by these two completions.

Also, I'd like to point out the Texaco "CM" State No. 1 has produced the largest cumulative production of any well in this field by a factor of about three, and it's produced about 7-1/2 billion cubic feet, and we feel like the drainage -- that this well has affected drainage from the east part of the Loomis Federal lease, and would reduce any recovery that could be gotten from the east half of the lease.

The next item on the well completion and production data sheet is the cumulative condensate production

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in barrels.

Item number eight is some pressure data from wells in the field. We show several drill stem tests that were taken, and item B is the initial shut-in wellhead pressure from each of the wells and the date that pressure was taken.

One thing I'd like to point out on this initial shut-in pressure is that the Texaco "CM" State, which is the north offset to this acreage, was completed on September of 1961 and had an initial shut-in tubing pressure of 4075 pounds.

The well just to the south of the subject acreage, the New Mexico Federal "F", was completed in January of this year and had an initial shut-in bottom hole pressure -- or excuse me, a shut-in wellhead pressure of 4570 pounds, and this would indicate that this particular well was unaffected by production from Texaco's "CM" State to the north.

We also show on the tabulation the last reported pressures from each of the wells in the field. I think most of these are -- were taken this year; however, the two Belco wells do reflect last year's reporting to the Commission of shut-in wellhead pressures.

The last item, item number nine, shows the current production in Mcf per month for each of the wells

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in the field. It also shows a reason why some of the wells do not have any production for the month of September of 1979.

Q. All right, sir, well, based on your review of the data, in your opinion will the approval of this application protect the correlative rights of the parties, as well as prevent waste?

A. Yes, sir, I do.

Q. And what do you base your opinion on?

A. As far as protecting the correlative rights of the acreage in question, Texaco feels that we can't drill on the east side because of the deterioration in pay quality as shown by the production and depletion of the wells to the northeast and to the east of the acreage in question.

Also, of course, as we mentioned earlier, the Texaco "CM" State we feel has pretty well depleted the area in the east side of the lease because of its high cumulative production.

I might mention that the "CM" has approximately 1-billion cubic feet of reserves remaining, which would give it an ultimate of about 8-1/2 billion cubic feet.

In addition, the greater pressure shown in the New Mexico Federal Number "F" than what Texaco has in the "CM" shows that there is an undepleted area in the southwest part of the lease, and that Texaco would need to

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have a well in that general area in order to recover rich reserves under that part of the lease.

And we'd need to have a well at the particular location in order to protect Texaco from drainage from the New Mexico Federal "F" and the well, the "G" well that will be drilled to the southwest.

Q. In your opinion will Texaco be more likely to have an economic well at the unorthodox location than at an orthodox location?

A. Yes, sir, it would because of the past production history of the offset wells.

Q. Were Exhibits Two and Three prepared by you or under your direction?

A. Yes, sir, they were.

MR. BATEMAN: I offer Exhibits Two and Three and reserve Exhibit One.

MR. NUTTER: Texaco Exhibits Two and Three will be admitted in evidence.

MR. BATEMAN: That's all I have on direct.

MR. NUTTER: Are there any questions of the witness?

MR. KELLAHIN: Yes, sir.

MR. NUTTER: Mr. Kellahin.

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CROSS EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Davis, on your Exhibit Number One where you show the ownership in Section 6, do you know what the ownership there is?

A. Yes, sir, I have seen the plats of the ownership of that, and this does not reflect the current ownership within Section 6, since it is at this time an undeveloped portion of the field. But I recognize that it does have much more complex ownership than what's shown on here, yes, sir.

Q. You recognize that Gulf Oil Corporation owns a tract of land on that area offsetting your proposed location?

A. Yes, sir, I do.

Q. Now, on your Exhibit Number Three, on your New Mexico Federal "F", you show the initial pressure on that well as 4570 feet.

A. 4570 pounds.

Q. I mean pounds, excuse me, and your latest test, some nine months later, 1690 pounds.

A. Yes, sir.

Q. That's a rather rapid drop, is it not?

A. Yes, sir, it is.

Q. And the production of 325,739 Mcf, does

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that account for that reduction or is that just a bad part of the field?

A. Well, I think it might reflect the quality of the reservoir in that area, and probably, maybe, the limited extent of the reservoir in that area.

Q. And according to your Exhibit Number One, that well is fairly close to the zero line on your contour, is that correct, or your 10,500?

A. I believe that's just a contour line, yes, sir.

Q. I say on your 10,500. There is no production beyond that line, is there?

A. Further down structure?

Q. Yes, sir.

A. No, sir.

Q. So that also would be a factor affecting the quality of the reservoir at that point, would it not?

A. Well, it could be. We don't know the extent of the reservoir to the south. I don't think it's been determined at this time.

Certainly there's been no development of the reservoir down dip from that 10,500 contour.

Q. Now what is the cost of a well in this area? Do you have any estimate on that?

A. Yes. We estimate that this well will cost

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Texaco in the neighborhood of $1.2 million.

Q. And if you got a well that produced as the Federal "F" produced, would it pay out?

A. Yes, sir, it would. Now, let me qualify that. The Federal "F" has produced about 325-million. We feel like it will take about a half a billion in order to pay out a well, so we would, with any reasonable production in the future, if that well approaches a half a billion, it would pay out, yes, sir.

Q. Well, with the pressure decline that well has experienced, would you anticipate it would produce that much?

A. I don't think we have enough data to make that justification. I see on pressure histories of other wells in the field that these wells last for several years at these pressures, between 500 and 1500 pounds. They taper off and produce for some length of time.

Q. Haven't all of the recent wells shown a rather rapid drop in pressures? Or do you know?

A. Yes, sir, they have. I think we can see that on the initial shut-in wellhead pressures that were reported under item eight-B and the current test under item eight-C.

Q. And that also indicates that your "CM" Well in Section 31 has drained a considerable area of the

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reservoir, does it not?

A. I don't know if I would draw that conclusion or not.

Q. Well, I believe you testified on direct examination that you felt that the wells in Section 4 reflected the affect of this drainage.

A. Yes, sir.

Q. So a well located as you are proposing here will also drain a considerable area, would it not?

A. Yes, sir, the well you've proposed would drain it.

Q. Including gas from Section 6.

A. Possibly, if the Federal "G" is over there, that should protect the correlative rights of that acreage to the west, and of course, that's why we're asking for this unorthodox location.

Q. It would protect the Grace acreage, would it not? You're talking about the Grace acreage?

A. Well, I'm saying that the proposed location would protect Texaco from drainage from Grace, as well as the Grace well would protect them from drainage from Texaco.

Q. Yes, but that doesn't protect Gulf in any way, and the Gulf acreage will suffer drainage in your opinion, would it not?

A. I believe some of the Gulf acreage will be

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included in the Federal "G".

Q. But that acreage that is not included, which is the --

A. As I understand it, it's Lot 8 in Section 6, is what would be in the north 320 acres of Section 6 that Gulf owns. That's my understanding.

MR. NUTTER: Mr. Kellahin, I think for the record it would clarify things if you would state what acreage has been dedicated to this proposed Grace Federal Well and also the remaining acreage that Gulf owns.

MR. KELLAHIN: Could you hold on just a second?

MR. NUTTER: We're talking about Gulf acreage being drained and we don't know where it is.

A. Well, as I understand -- you want me to answer that question?

MR. NUTTER: If you know the ownership of all the Gulf acreage, fine. If not, maybe Mr. Kellahin can tell us where it is.

MR. KELLAHIN: We will have an exhibit showing that Gulf owns Lot 8, and dedicated to the Grace Well, is Lot 9, 10, and then the balance is Grace acreage. But Gulf acreage 9 and 10 is dedicated to the Grace well.

MR. NUTTER: All right, now where is Lot 8, Mr. Kellahin?

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MR. KELLAHIN: It's the second tier of lots in that section.

MR. NUTTER: Is this the 40 acres that's directly west of the proposed location?

MR. KELLAHIN: That is correct.

MR. NUTTER: Okay. Now that's a Gulf tract there.

MR. KELLAHIN: That's a Gulf tract.

MR. NUTTER: And what acreage is dedicated to the proposed Grace Federal "G"?

MR. KELLAHIN: Lots 9 and 10 immediately below the Gulf acreage, and that also is Gulf acreage which was pooled, and Lot 15. The balance of that unit is Grace acreage to the south.

MR. NUTTER: Okay, but the acreage that's dedicated to the -- to the Grace Federal Well would be Lots 9 and 10 and the remaining part of the southeast quarter of the section.

MR. KELLAHIN: That is correct.

MR. NUTTER: Okay.

MR. BATEMAN: Excuse me, didn't you say Lot 15 was also dedicated?

MR. KELLAHIN: Yes, sir.

MR. BATEMAN: Is that Gulf acreage, also?

MR. KELLAHIN: That's Gulf acreage.

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MR. BATEMAN: Then 9, 10, and 15?

(There followed a discussion off the record.)

MR. KELLAHIN: I stand corrected. 15 is not Gulf acreage; that's Grace acreage.

Q. (Mr. Kellahin continuing.) Now that we've covered that, you will agree that the Gulf acreage in Lot 8 would suffer drainage more than will the Grace acreage to the south, would you not?

A. Yes, if you consider that that acreage will not be developed at some time in the future, yes, sir.

Q. Now, you did consider an orthodox location for this well, did you not?

A. Yes, sir.

Q. Did you get approval from the USGS for an orthodox well location?

A. Yes, sir, we did.

Q. And what is the status of that permit at the present time?

A. I don't believe I can tell you. I think it's been withdrawn in place of this application.

Q. Do you know whether it has or not?

A. No, sir, I don't.

Q. Would you give the location of -- that you proposed in that application?

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A. I don't know whether I have that or not.

Q. Mr. Davis, could I hand you what we have marked as Gulf Exhibit Number Six and ask you if that is the copy from the government approval?

A. Yes, sir, it is, and it shows a location 1980 feet from the north line and 1980 feet from the east line of Section 5.

MR. KELLAHIN: At this time we'd like to offer our Exhibit Number Six.

MR. NUTTER: Gulf Exhibit Six will be admitted in evidence.

Q. Now, at the time you filed for approval of that location, had Texaco made an evaluation of the reserves underlying that location?

A. I'm sure we have. I wasn't directly connected with that evaluation.

Q. You don't know what figures they came up with?

A. No, sir, I don't.

Q. Do you know whether they made any estimate of recovery to be achieved at a standard location as compared to your proposed location?

A. I'm sure they did. I don't have that information available to me.

Q. Does anyone here have it?

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A. No, sir.

Q. So you just, without any information, you recommend an unorthodox location in preference to an orthodox location, although you don't know what the reserves are.

A. Well, I think Texaco had a reason for doing it. I'm just saying that I don't have those figures available here to testify to today.

Q. Well, obviously Texaco did consider an orthodox location commercial -- a location for a commercial well, did they not?

A. I know that Texaco considered this acreage down here as marginal or sub-marginal well in that there is correspondence in our files that I've read that showed that we were interested in farming that acreage out before we'd be willing to drill a well in the east half of the lease.

Q. Now you say in the east half of the lease. Are you talking about the location of the proposed --

A. Yes, sir, the proposed location.

Q. -- well in this application?

A. Yes, sir.

Q. And that's fairly central in the unit, is it not?

A. Yes, sir.

Q. And actually, you could have had a standard location and moved further west, could you not?

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A. Yes, sir.

Q. Was that considered, or do you know?

A. I think there were other considerations that I think will be brought out by our geological witness that show why we wanted to move as far to the west as our proposed location is, and that why a standard location, say, within Lot 6 would not be acceptable.

Q. Now you are a petroleum engineer, are you not?

A. Yes, sir.

Q. Normally, a well located near the center of a proration unit will more effectively drain that unit than one located at the edge of the unit, would it not?

A. In a virgin reservoir in an undrained condition, yes, that would be true.

Q. But this is not a virgin reservoir and it's not in undrained condision.

A. That's right.

Q. And it's been drained by Texaco's well, hasn't it?

A. Yes, sir, we feel like it has.

MR. KELLAHIN: That's all I have. Thank you.

MR. NUTTER: Are there any other questions this witness? He may be excused.

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JACK GLENN

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

DIRECT EXAMINATION

BY MR. BATEMAN:

Q. Sir, would you state for the record your name and place of employment?

A. My name is Jack Glenn. I work for Texaco, Incorporated, in Midland, Texas.

Q. And in what capacity do you work?

A. I'm Division Development Geologist.

Q. Have you previously testified before the Commission and made your qualifications a matter of record?

A. Yes, sir.

Q. Are you personally familiar with the wells in the area of the application, today's application?

A. Yes, sir.

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

MR. NUTTER: Mr. Glenn is qualified.

Q. (Mr. Bateman continuing.) Mr. Glenn, would you refer to the map and give us a resume of your

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opinion regarding the geology in this area?

A. This is a sub-surface structure map of the Salt Lake South Field, which indicates that it is a southeast plunging nose. The extreme southeast portion of this map is involved in another field called Hat Mesa.

In the area of critical importance to what we are discussing here, wells in this area have indicated a steeper amount of dip than what is normal for the field area. We interpret this steepening of dip, which is evidenced between the Grace No. 1 New Mexico Federal "E" and their No. 1 New Mexico Federal "D" as probable indication of drapage over a fault.

Q. Now, what evidence do you have to indicate that there is a fault other than the steepening of the dip?

A. There is pressure data available on the Grace 1-F, indicating a higher than normal pressure for this area in light of the production that has gone on in this area. There is production in this area from the two Grace wells in Section 5, which is indicative of better production than what is found to the east in their No. 1 New Mexico Federal "D", indicating that there is some barrier which separates the "D" Well from the "E", and the "E" and the "F" Wells from the production to the north. This barrier is probably, this permeability barrier is probably a reflection of the faulting that is not known but is probably there.

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Definite -- the only definite evidence that we have seen of faulting in the area is testimony by a Cleary witness that they had a dipmeter in their No. 1 New Mexico Federal "E", which was entered as evidence in a hearing here on their unorthodox location in Section 5 for their 1-F. This dipmeter indicated a disturbed zone, which I believe was identified as Wolfcamp, but was in this particular area.

Q. Is the Cleary case that you're referring to Case Number 6206?

A. I believe that it is.

MR. BATEMAN: I would ask that the Commission take administrative notice of the testimony in that case.

MR. NUTTER: We will take administrative notice of the testimony in Case Number 6206, is it?

MR. BATEMAN: I believe so.

MR. KELLAHIN: Would that be confined to the evidence as to the dipmeter and fracturing?

MR. NUTTER: Mr. Bateman?

MR. BATEMAN: That's satisfactory.

MR. NUTTER: Notice will be confined to fracturing resulting from the faulting and testimony ing to the dipmeter.

Q. Based on review of that evidence and your edge of the geology in the area, what is your opinion

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regarding the necessity for an unorthodox location?

A. We feel that this barrier, or this separation discontinuity between the two Cleary wells in Section 5, the well to the east and the production to the north here, indicates that it is mandatory that a location be drilled at this unorthodox location in order for Texaco to have a reasonable chance to develop and produce the reserves on our lease.

Q. Was Exhibit Number One prepared by you or under your direction?

A. Yes, sir.

MR. BATEMAN: I offer Exhibit Number One at this time.

MR. NUTTER: Texaco Exhibit One will be admitted in evidence.

MR. BATEMAN: No further direct.

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

MR. KELLAHIN: Yes, sir.

MR. NUTTER: Mr. Kellahin.

CROSS EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Glenn, I'm not quite clear as to where by this fault occurs. Is it between the Cleary Federal

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"E" and the Federal "D", is that what you're talking about?

A. I'm not saying there is a fault there. I'm saying that the increase in dip between these two wells is probable indication of faulting. There is no actual direct evidence of a fault there other than what the Cleary witness had on the dipmeter. It would be between those two wells.

Q. So that would be to the east of the standard location in Section 5 in the north half, in your Loomis acreage.

A. Yes, sir.

Q. Now you heard the previous witness testify that in his opinion the "CM" Well has drained those wells in Section 4, or has had some effect on those wells in Section 4, did you not?

A. Yes, sir.

Q. Do you agree with that testimony?

A. This is probably true. I'm not an expert on drainage of this sort.

Q. Well, assuming that is true, would that indicate there's a discontinuity across from a standard location on to the east?

A. I don't follow you as to what you're --

Q. You say that there's a discontinuity that you're trying to get away from, so you want to move your

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well as far west as possible. I'm trying to find out why you want to move it to the west.

A. The discontinuity, as we would interpret it, would run approximately along strike of the contours here from somewheres between the "D" Well and the "E" Well, going in a northwesterly direction.

Q. Well, that would be almost due east and west, wouldn't it, or are you talking about along the contour there?

A. I said along strike.

Q. Along strike. If it is between the "D" and "E" Well, that would fall on your 10,300 contour, wouldn't it?

A. I don't know exactly where. This is possible, yes, sir.

Q. But if the "CM" Well has had a drainage affect on those wells in Section 4, the discontinuity would not lie between those wells and the "CM" Well, would it?

A. It would be between the -- the Cleary Wells in Section 5 and the "CM" Well, yes, sir.

Q. Between them and the "CM" Well?

A. Yes, sir.

Q. Well, we're not -- I'm talking about the wells in Section 4, though.

A. No, sir, the wells in Section 4 and the

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"CM" are to the north of this discontinuity, this barrier.

Q. Okay, and then all of the Loomis acreage would be to the north of this discontinuity or this barrier, would it not?

A. This is, as we see it, the best logical or best possible location that you could get in light of this discontinuity or this barrier, would be the location that has been chosen.

Q. Well, actually, a location farther north would be better, would it not?

A. This I can't say. We -- we run it across to a northwest/southeast there, and this indicates the corner of the lease down there would be the preferred location.

Q. Well, I'm still not quite clear as to where you think this discontinuity falls.

Now, in reference to the Loomis Federal lease where would a discontinuity fall?

A. Well, I said, as best I can imagine this, and there is no concrete data for it, it would run along strike, and if you ran it along the strike of something like between the 10,200 contour and the 10,300 contour, this would be about it.

Q. Well, a standard location would be farther to the north and farther to the west and away from that discontinuity, would it not?

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A. But it would not be --

Q. Could you mark on your exhibit where you think there might be a discontinuity?

MR. NUTTER: Use a colored pencil, please. Mr. Bateman, would you identify where he's drawn that line for us and identify the line some way or other?

MR. BATEMAN: Well, Mr. Examiner, he's indicated a red line running from the southeast to the northwest.

MR. NUTTER: And what is that exhibit on? Or what is that line on?

MR. BATEMAN: It's on Exhibit One, running just immediately to the north of the green dot at the proposed location.

MR. NUTTER: Is that our exhibit or whose exhibit is that?

MR. BATEMAN: No, I will submit that.

MR. NUTTER: Okay, give it to Mr. Kellahin now. I think he needs it.

Q. (Mr. Kellahin continuing.) Now, Mr. Glenn, you've drawn your discontinuity line immediately to the north and east of your proposed location, is that correct?

A. Yes, sir.

Q. Now, if such a discontinuity exists, what acreage will your proposed location drain?

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A. Well, obviously, it will drain the part of the Loomis there, which is within this boundary or if this exists in this manner. It will also compete with acreage to the south there, with the Cleary Well, a non-standard location, was drilled, and will compete with that. It will compete with the proposed "G" Well to the southwest, and it would probably get some of the gas from the acreage immediately to the west there, unless it is drilled and developed.

Q. But it would not drain the major portion of your Loomis Federal Unit.

A. This I cannot say for sure, but probably it would not.

Q. Now, you were testifying awhile ago that you felt that discontinuity was on strike, which I believe I said would fall about on the 10,200, and you moved it farther to the north and it is not on strike, is that correct?

A. Well, I was indicating approximate direction of what strike is here. It depends on how you may want to shift this a little bit. What it says is that there is something to the north of the two Cleary wells.

Q. But you don't know where.

A. That is exactly correct, as to the exact location.

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Q. But it would not drain the major portion of your Loomis Federal Unit.

A. This I cannot say for sure, but probably it would not.

Q. Now, you were testifying awhile ago that you felt that discontinuity was on strike, which I believe I said would fall about on the 10,200, and you moved it farther to the north and it is not on strike, is that correct?

A. Well, I was indicating approximate direction of what strike is here. It depends on how you may want to shift this a little bit. What it says is that there is something to the north of the two Cleary wells.

Q. But you don't know where.

A. That is exactly correct, as to the exact location.

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Q. But if you drilled the proposed location you've already admitted you'll probably not drain the major portion of your unit. Would a well at a standard location drain that portion of the unit?

A. If there is any reserve left, yes, sir. But it would not protect from the Cleary well.

Q. So you're more interested in protecting than you are in draining your own gas, is this what you're saying?

A. I'm trying to find the optimum location to get the best location I can.

MR. KELLAHIN: That's all the questions. Thank you, Mr. Glenn.

CROSS EXAMINATION

BY MR. NUTTER:

Q. Mr. Glenn, are you suggesting that this fault was the Pre-Pennsylvanian and that the Pennsylvanian just draped over the fault, or are you suggesting that the fault occurred after the Pennsylvanian was laid down?

A. Most likely, sir, it is a fault of Post-Pennsylvanian age. The amount of throw on it here may be very slight, and like most faults in this part of the country, are almost completely identifiable as to the actual evidence of fault; a cut, a repeat, this sort of thing.

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Q. Is there any seismic data in here that shows the fault, that you know of?

A. No, sir.

Q. And no well that you know of that's cut the fault?

A. No, sir.

Q. But this dipmeter that was run on the Cleary --

A. Cleary No. --

Q. -- B, I guess.

A. Yes, sir.

Q. Showed some disturbance there, indicating the possibility of fault, and also the fact that your contour lines are closed in indicates a very steep dip, possibly, or a fault?

A. Yes, sir. This is normal indication, sub-surface contouring of a fault.

Q. But there isn't any real evidence of the fault to date.

A. Nothing other than the dipmeter, sir.

Q. I see. Okay.

MR. NUTTER: Are there any further questions of Mr. Glenn? He may be excused.

MR. BATEMAN: That completes our presentation.

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C. E. STENBERG

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q. Would you state your name, please?

A. C. E. Stenberg.

Q. How do you spell that, Mr. Stenberg?

A. S-T-E-N-B-E-R-G.

Q. And by whom are you employed and in what position?

A. Gulf Oil Corporation, Geologist in Midland.

Q. And where are you located?

A. Midland, Texas.

Q. How long have you been there?

A. In Midland?

Q. Yes, sir.

A. Eight years.

Q. Now, you have -- have you previously testified before the Commission or one of its Examiners and made your qualifications a matter of record?

A. Yes, sir.

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Q. In that connection, Mr. Stenberg, have you had any special experience with the Morrow formation?

A. Well, yes, I've worked with the Morrow in the Permian Basin and Morrow for, well, the whole twenty-six years I've worked for Gulf.

Q. The Morrow has not been one of the producing formations during that period of time all the time, though, has it?

A. Not -- not real strongly. The last five or six years since gas became more popular, all the Morrow play, essentially.

Q. And in the particular area involved in this application, have you had any experience with the Morrow formation?

A. Yes.

Q. And would you describe that?

A. In this particular area?

Q. Yes, sir.

A. Okay. Well, I've reviewed the wells in this -- in this field, I mean for previous hearings, for the previous hearing and for this one, and studied the structural and geological aspects of it.

Q. Now, referring to what has been marked as Gulf's Exhibit Number One, would you identify that exhibit, please?

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A. All right. It's a structure map based on a point in the -- in the middle, center, of the Morrow on a shale bed. The Morrow producers in the area are marked in yellow. The Gulf leases in Section 6 of 21, 32, is cross hatched. The blue circle is the unorthodox location granted to Grace Petroleum in a previous hearing for the South Salt Lake, and the proposed Texaco location is marked in red.

Also, a later exhibit will be cross section A-A', which is also marked on the -- on the exhibit.

The -- I think the structural -- or the structural picture given on Exhibit One shows that, as far as structure is concerned, an unorthodox location would not be necessary to gain structural advantage. In fact, some would be lost moving to the unorthodox location.

And I think that's all until Exhibit Two.

Q. Now you say you would lose some structural advantage at the unorthodox location?

A. At the unorthodox location, yes.

Q. Would you identify Exhibit Number Two, please?

A. All right. Exhibit Two is cross section A-A' as marked on Exhibit One.

Okay, cross section A-A', the top of the Morrow is what the cross section is hung on. Now, I just labeled the correlation lines on here numbers one through

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fifteen for reference.

Cross section line number thirteen is the point on which the structural map is based and the other lines are just for correlation of beds.

Now, the -- this Morrow, this field is -- appears to be a combination of structure and stratigraphic deposition; as was earlier said, this map matches pretty well Texaco's exhibit. There is a southeast plunging nose structure, and the first wells, the first two wells in the cross section are up at a fairly high structural position and the other two on the righthand side are down at the lower structural position.

Now, the -- from the top of the -- line number one is actually the top of the Atoka, or base of the Strawn line, top of the Atoka, and number fifteen at the bottom, is close to the, what would be the Barnett Shale at the bottom of the Morrow.

Now, note there's thickening all the way from the top of the Atoka down through the -- down through line fifteen, between logs two and three, which is the drop down to the lower structural position.

This thickening down in the bottom, or the bottom two logs, is what I think is common on the flank of a structure in Pennsylvanian deposition.

Now, the perforations, which are marked

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dox location. It's not that finite. The contour maps do not reflect any offsets which would require a fault to be entered on the structure map, and I believe the stratigraphic picture on the cross section shows just a regular depositional thickening on the flank of the structure.

The dipmeter that was mentioned on -- in log E, which would be -- that would be the fourth one in the cross section, now the dipmeter data is generally the best in shale beds, and the thickening of the deposition down off the flank of the structure includes a lot of extra shale beds, so therefore there would be a lot of dip data; however, whether or not the dip data actually reflected structure or if it's just because of local stratigraphic units, would make it highly dubious to me that it was -- that it would reflect faulting.

Q. Have you found any evidence of a fault in this area? Anywhere?

A. No, sir, not the way I interpret this area. I found it difficult to believe there would be any faulting.

Q. All right.

A. In the Pennsylvanian level.

Q. Now, Mr. Glenn discussed a discontinuity. I don't know exactly what he meant by a discontinuity, but do you find a discontinuity in the formation across this area?

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with the -- in the righthand of the depth columns, I grouped the stratigraphic columns -- or stratigraphic units down at the bottom of the cross sections, more or less the way the perforations run.

In log number three from the left, notice that at the bottom, the bottom interval had perforations which are not productive. They were tested for production and were found nonproductive, and a plug back is marked at 14,080.

Now, the -- I believe that the bottom, the bottom stratigraphic unit in this case, it was not productive and therefore the Texaco proposed 320-acre proration unit should have the better stratigraphic advantages on logs -- on log two.

Now, the -- I think I would say in conclusion on these exhibits, that the field is a combination of structure and stratigraphy and because of the nonproductive stratigraphic unit on log three, the structural advantage for the Texaco unit would be the same, fairly much the same, no matter where the well was drilled, as far as structure is concerned. In fact, it's better for the stratigraphic units.

And for the, as far as the fault is concerned in the area, I don't believe that a fault, if one is present, can be defined close enough to grant an unortho-

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A. Well, the discontinuity, if present, would be in the deposition; however, the -- as far as the Texaco lease is concerned, I think it's setting up at a structural, combination structural and stratigraphic advantageous place, so that it would not look like the picture in the two righthand wells in the cross section.

Q. From the geologist's point of view, would a well located at a standard location be equally advantageous to Texaco as the non-standard location?

A. Yes, that way, from a geological point of view, the east part of the proration unit looks more advantageous than the west side, both the structure and stratigraphy, and also to the congestion, the wells that's going to end up over there with all the unorthodox locations.

Q. Were Exhibits One and Two prepared by you or under your supervision?

A. Yes, sir.

MR. KELLAHIN: At this time I'll offer Exhibits One and Two.

MR. NUTTER: Gulf Exhibits One and Two will be admitted.

MR. KELLAHIN: I have no further questions of the witness.

MR. NUTTER: Are there any questions of the witness?

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MR. BATEMAN: Yes.

CROSS EXAMINATION

BY MR. BATEMAN:

Q. Mr. Stenberg, first of all, regarding the reliability of the evidence indicated by the dipmeter, have you reviewed the testimony in the case which was referred to, which I think is 6206, regarding the testimony of the witness, which was Mr. William Henry, I believe, regarding that evidence, the evidence of a dip?

A. No. No, sir, I didn't.

Q. Excuse me, a fault. Do you know Mr. Henry personally?

A. I don't believe I do. I don't know if I do or not.

Q. All right.

A. I'd have to see him to know if I know him. I know a Henry but I don't know if it's the right one.

Q. All right. But you haven't reviewed that evidence so you don't know what he based his conclusions on.

A. No, sir.

Q. Now, you also testified that in your opinion the east side of the Texaco acreage, from your point of view, would be a better location for a well.

A. Yes, sir.

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A. Yes, sir.

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Q. And in making that judgment, did you consider any effect, if any, of the Texaco "CM" offsetting to the north and the two wells offsetting to the east, which have had -- or been shut in and produced about all they're going to produce, apparently?

I'm speaking of the -- let's see, if I can find it -- the New Mexico State in Section 32, I believe it is, and the Federal "A", New Mexico Federal, in Section 4?

A. The abandoned one? Well, --

Q. Well, both of those, I believe, are abandoned, if I'm correctly informed.

A. Yes. Well, either place would be more or less surrounded by -- will be, has been or will be surrounded more or less by wells. I was basing it mainly on the -- on the structural - stratigraphic advantage, which actually, on the east side of the location -- of the 320-acre proration unit, there will be more -- there will be more stratigraphic units which will have productive sands, I believe, from my cross section. On log two, for instance, we have production from more or less three -- three units, or whatever you want to call them. I mean, you know, some sand bodies separated by shale. Whereas, there was a lot of stratigraphic area lost down on the lower structural position wells.

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Q. Now, are you saying that in drawing that conclusion you did not consider the effect of the production on those offsetting wells to the north and to the east?

A. Well, I'm sure that's a consideration; however, there's a lot of -- there's quite a bit of area in there, actually, that is not -- does not have a well in it.

Now, initially, maybe a new well might be -- have a little advantage; however, as far as drainage area which is left at the present and in the near future with more drilling, I really can't see, from my point of view, that it would be -- the unorthodox place is advantageous.

Q. Well, let's try a yes or no answer to my --

A. All right.

Q. -- question.

A. Okay.

Q. Did you consider the effect of the possible drainage of the offsetting wells to the north and to the east in coming to the conclusion that the east side of the Texaco acreage is more advantageous?

A. Well --

Q. Yes or no.

A. Yes. Okay, well, the way, what I said before, I guess I'd have to say yes.

Q. On what basis?

A. Well, it would not -- I don't know if it

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actually -- you mean how far -- what each drainage radius would be for each well?

Q. Yes.

A. These producing wells? Well, I base my opinion, actually, quite a bit on the -- on the Texaco "CM", which is the large producer. All right, now if it has, if it has 7.2 Bcf cumulative, roughly, at the present time, somewhere in the neighborhood --

MR. NUTTER: 7.5.

A. 7.5, all right, and we assume that drainage is more or less circular. I mean nobody can say which directions drainage is for certain, unless you have -- I mean except going to stratigraphic - structural information. Therefore, if that drainage pattern were applied to that well, it looks like the east half of that proration unit is going to have just as good a chance as the unorthodox location site.

Q. In coming to your conclusion, you have disregarded the existence of any discontinuity or fault, as has been testified to by the Texaco witness, is that correct?

A. Well, could I make a statement about that, or just say yes or no?

Q. You can go ahead and say what you have to.

A. Well, I said, I think the faulting is -- is not -- is not finite in this case. It can't be pinned

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down that closely. I will accede to a depositional change in the field; however, I don't know if it can be attributed to faulting in the Pennsylvanian, because in this case, you think of faulting as bringing up your permeability barrier, so therefore, as far as drainage is concerned, you don't drain across a fault.

Now, the structure, as far as structure is concerned, there is no doubt faulting in the area. I mean we have seismic deeper, not in Pennsylvanian. That would be difficult to see. If it was there, it would be of very small magnitude.

We have deeper structure faulting, probably, which causes this structural deposition of the Pennsylvanian.

However, I don't believe faulting will have -- have much basis on that proration unit.

Q. Well, presuming there's no fault in the area, what effect do you think the considerable production from the Texaco "CM" would have on the initial pressure, or would you expect it to have on the initial pressure, of wells drilled to the south of that location?

A. Well, south, of course, would be the minimum -- would be the minimum amount of production, so obviously the best place would be southeast of southwest to get out of what would be considered the circle of drainage.

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Q. Southeast or the southwest?

A. Yes, sir.

Q. Would you concede that it should have an effect on the initial pressures? In other words, the initial pressures of a well drilled fifteen years later should be less than what the initial pressure of the "CM" was?

A. Well, this is generally true in the gas field, with that amount of production, yes.

Q. Are you aware that the initial pressure of the Federal "F" was greater than the initial pressure of the "CM"?

A. The pressure of the "F" was greater?

Q. Yes.

A. No, I don't have the pressure data.

Q. Well, let me just show you Applicant's Exhibit Number Three, indicating that the "CM" had an initial pressure in 1961 of 4075 pounds and the "F", January of '79, had an initial pressure of 4570.

A. Is this -- what type pressure is this? Are you talking about initial shut-in pressure?

Q. Initial shut-in pressures.

A. All right.

Q. Would you concede that that would be some evidence of a fault or discontinuity existing between the "F" and the "CM"?

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A. Oh, I seriously doubt it would be due to a fault. Now, this -- now we didn't go into log analysis in this thing. Now, there obviously is a difference, there can be a difference in the stratigraphic units as to porosity and permeability, which is going to have a lot of difference in the production, or some difference in production pressures

Q. Porosity and permeability?

A. Sure.

Q. But it does not necessarily indicate that there is not a fault, does it?

A. Well, now, you really -- it's difficult to prove a fault unless like was testified before, like Mr. Glenn said, to prove a fault, actually you should have repetition or deletion of beds on a log; offsets on a map, which they can be best explained with a map; or possibly seismic, which would be -- which I'd put third, which would -- which I'd think would have to be proved with drilling, and we don't really have the evidence. We don't have any of those evidences that show that's there is faulting there, really.

And those are, I think, the three main ones, yes, sir.

Q. All right.

MR. BATEMAN: No further questions.

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CROSS EXAMINATION

BY MR. NUTTER:

Q. Mr. Stenberg, you stated that you didn't think that the differential in the pressures of the "CM", original pressure being 4075 in 1961, and the Federal "F", the initial pressure being 4570, 500 pounds higher, 18 years later, you didn't think that that would be due to faulting.

What would it be due to? Would it indicate a separation of the two wells by some sort of a barrier?

A. Well, it -- let's see, what was the date of the pressure on the "CM"?

Q. The "CM" was drilled in 1961 and the original pressure was 4075.

The "F" Well, which is 3/4 of a mile south of it, was drilled in 1979, 18 years later, and the initial pressure was 4570, which is 495 pounds higher than the original pressure in the "CM".

A. Okay.

Q. Now, wouldn't -- and that's after the "CM" has produced 7-billion cubic feet of gas 3/4 of a mile away. Now doesn't that indicate some sort of a separation?

A. Well, now that would be between logs two and three on the cross section.

Q. That's between logs two and three on your cross section.

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A. Yes, sir. I still believe it can be explained by deposition.

Now, there are quite a few -- there are some good -- there are some good sand stringers in that number three log. Those perforations shouldn't have been marked that way. I didn't mark them. They were done wrong. That's not continuous perfs. That was a perf interval, which is all I had. However, looking at the gamma ray there in that stratigraphic unit, there are a lot of good sands here, so it's very possible that with the additional section there is a stratigraphic lens -- see now we're going into the area of thickening down in those bottom two wells. Okay, we could pick up a couple additional stratigraphic sands there, which are not present up in the other well.

Q. Well, I could understand this differential, Mr. Stenberg, if you had some sands present in the "F" that aren't present in the "CM", but it's the opposite way around. You've got sands present in the "CM" that aren't present in the "F". I don't see where the pressure in the Federal "F" could be coming from.

A. Isn't that the high pressure one?

Q. The "F" is the high pressure one.

A. That's what I say. There's additional -- there are some good sections in that.

Q. They've been plugged back, though, and the

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other --

A. No, sir, I'm talking about between lines 10 and 11 on the cross section.

Q. Okay, you've got the same zone open in the "CM". It may not be as big, but you've got section 10 open in the "CM".

A. Well, that's --

Q. It's, granted, thicker in the -- right?

A. In the which one? In the "F"?

Q. Zone 10 is thicker in the Federal "F" than it is in the "CM".

A. Well, yes, sir, that's the only conclusion I can come to.

Q. That this pressure differential is because of the change in the thickness of the beds?

A. Yes. Like I said, this is my opinion of this field. It's a combination of structure and stratigraphy. Now, there are, you know, we have Morrows that have a more or less blanket sand which will cover a couple, two or three square miles, in which we can follow the same sand lens, or a main pay. Then, of course, we have a lot of them where they are very lenticular.

Q. Or in channels.

A. We have, roughly, in the same part of the stratigraphic section, yes, wherever they are, but they'll

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be missing or shaly in one well and they will be present in another one. You can drill the next one over and miss everything you've seen so far, and find a new one.

So we can't leave stratigraphy out of a Pennsylvanian well discussion.

MR. NUTTER: Are there any other questions of Mr. Stenberg? He may be excused.

Mr. Kellahin, before we call your next witness, we'll take a fifteen minute recess.

(Thereupon a recess was taken.)

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

CHARLES F. KALTEYER

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q Would you state your name, please?

A Charles F. Kalteyer, K-A-L-T-E-Y-E-R.

Q By whom are you employed and in what position, Mr. Kalteyer?

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A. Gulf Oil Corporation as District Proration Engineer.

Q. Where are you located?

A. In Midland.

Q. And does that district include the area involved in the application that's before the Commission at the present time?

A. Yes, sir, it does.

Q. And have you made a study of the proposed location of Texaco's well?

A. Yes, sir, I have looked into this or have caused to have work done on it.

Q. Referring to what has been marked as Gulf's Exhibit Number Three, would you identify that exhibit, please?

A. Gulf's Exhibit Number Three is a plat of the area immediately surrounding the proposed Texaco location. It shows their Loomis Federal No. 1, 660 from the west line of Section 5, and 1600 from the north line.

I've also shown the location -- we need a correction on the plat to the north in Section 31, that's indicated to be Texaco's State of New Mexico "C", it should be the State of New Mexico "CM", which is located 660 feet from the south line and 1980 feet from the east line of Section 31, T20 South, Range 33 East.

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Also shown in Section 6 is the outline of the acreage currently held by Gulf. This is outlined in yellow. Lot 8 is undeveloped acreage. Lots 9 and 10 are currently included in a proration unit for a well to be drilled by Grace Petroleum as a Federal "G" Com. Gulf also owns another 40-acre tract in Lot 11 to the west of Lot 10.

The proposed location of Texaco's Loomis Federal is some 2167 feet to the northeast. It's also approximately 2167 feet to the northwest of Grace Petroleum's New Mexico Federal "F", which is located in Section 5, 4650 feet from the south line and 1980 feet from the west line.

The purpose of this exhibit is to show the distances of the proposed location to the various wells drilled or proposed.

The Texaco Loomis Federal is located some 2458 feet from Texaco's State of New Mexico "CM" Well.

Our position is that Texaco has ample opportunity to develop and drain the reserves under this unit at an orthodox location of which there are four choices. Perhaps the most optimum to give less interference to outside properties and still recover the -- their proper share of reserves under their lease, would be in a well located to the southeast of their "CM" No. 1 in that standard proration unit area.

This well could be located some 2113 feet

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from Grace's New Mexico Federal "F" No. 1 and thus avoid any interference or reduce the potential of interference with Grace Petroleum's Federal "G" Com, or the undeveloped Gulf acreage in Lot 8.

Q. Do you have anything further with that exhibit, Mr. Kalteyer?

A. No other than as testified earlier, by Texaco, they already have an approved location in the proration unit area to the southeast portion of that proration unit, 1980 feet from the north line and 1980 feet from the east line.

And that -- is that Gulf Exhibit Six?

Q. That's Gulf Exhibit Six, yes, sir.

A. I think that information on that well and the approval of that well is on Gulf's Exhibit Number Six, which has previously been submitted.

Q. And that location is the one for which you have shown the distance from the Grace Petroleum Federal "F" Well?

A. Approximately there. It could be a slightly different position. That's the maximum location they could get from the Federal "F" in that particular proration unit area, or orthodox location unit area.

Q. Now turning to what has been marked as Gulf's Exhibit Number Four, would you identify that exhibit,

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please?

A. That is a tabulation of production data for wells that have produced in '78 and '79 in the South Lake-Morrow Gas Pool, which is similar to an exhibit presented by Texaco.

Q. What is the source of the information for that exhibit?

A. This is from our New Mexico production records, the Engineering Association, and from the records in Hobbs.

Q. That's the Oil Conservation Division?

A. The Oil Conservation Division's records in Hobbs.

Q. And that would be the production for 1979, is that correct?

A. Yes, for the last two months of '79.

Q. And what is the significance of this exhibit, Mr. Kalteyer?

A. This substantially, is the cumulative production of the various wells that have produced from the South Salt Lake-Morrow Gas Pool.

Q. And these are substantially the same as --

A. Yes, sir.

Q. -- an exhibit offered by Texaco?

A. Let me check one thing on their exhibit.

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I see an error in that cumulative figure for the Belco Petroleum Company on the second page of that but the cumulative for '78 is shown as 6 Bcf and that is obviously an error. It will be on the order of 2 Bcf at that time, and comparing it to Texaco's table the total production in September of -- through September of '79 of 3.313270 Bcf. So the figure of 6,794,598 is in error.

Q. Would you give us that corrected figure again, please?

A. Cumulative of 3,313,270 Mcf, which I'm reading from Texaco's Exhibit Number Two.

Q. And you feel that that is a correct figure?

A. Yes, sir, I know that the 6 Bcf is in error.

Q. Now turning to what has been marked as Gulf's Exhibit Number Five, would you identify that exhibit, please?

A. Gulf's Exhibit Number Five is a working plot of the information on wells in the immediate area of the proposed location by Texaco. It is a plot of shut-in wellhead pressure in psi versus time. This exhibit is presented to give a general comparison of pressures. The ideal comparison would be bottom hole pressure with adequate build-up time to compare the various wells.

Q. Is such information available?

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A. Yes, sir, this information was derived from the annual engineering books and the most recent shut-in data from the Hobbs office.

Q. Now what is the significance of the information shown on that exhibit, in your opinion?

A. The -- you'll note in red we have plotted the shut-in wellhead pressure of the Texaco "CM" State 1, which has shown a fairly gradual decline and leveling off over the last six years, but still a general decline, and we have to keep in mind that this is surface pressures and they are subject to the gradient in the wellbore, so we can have some variation due to the liquids or fluids in the wellbore. We have variations in shut-in times. We have no record of -- well, they should be under standard conditions under 24 hours off, some of these -- for the bulk of these pressures.

Then we can go down the list here and refer to the -- to the code of lines here on the right, the magenta or purple line shows the Grace Petroleum New Mexico "SL" State No. 1 in Unit N of Section 32, with a total production of about a half a Bcf. It has dropped to its latest pressure of 1590, and that well is now not on production.

The -- we've already mentioned the Texaco "CM" State 1.

The orange line refers to Grace Petroleum

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New Mexico Federal No. 1 in Unit F of Section 4, 21, 32, which showed after producing some 2.03 Bcf its pressure was down to 1300 plus or minus pounds.

In talking with Grace personnel, I did not have any data other than their comment that the well had made some water, they went in to rework it, and they were unable to re-establish production, so we do not know that it was depleted at that time. We're talking about surface tubing pressures again, now.

Then the next line is in green, is the Grace Petroleum New Mexico Federal "F", which is a recent completion. This is located, of course, in Unit K of Section 5, 21, 32, and it shows the rapid drop to 1677 pounds with approximately 1/3 of a Bcf production.

And our blue curve represents Grace Petroleum New Mexico Federal "D" No. 1 in Unit N of Section 4, 21, 32. It shows a rather rapid drop to 2438 psi with slightly under .1 Bcf of production.

And finally, the yellow curve is for the New Mexico "E" Federal Com. The data indicates that it was first shut-in, reported shut-in pressure was approximately 2200 pounds and has now declined to 1330 pounds after approximately 1.45 Bcf production.

The thrust being that these new completions generally are coming in with high pressures, similar to a

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virgin area, but are rapidly approaching the reservoir pressure of the -- not the reservoir pressure, but rather approaching the pressure of Texaco's "CM", which has been the big producer of some 7-1/2 Bcf.

We -- our interpretation of this is that there is some communication between all these wells and that Texaco is entitled to recover the reserves under their lease, even though they may be depleted, or semi-depleted. The rules are set up to give each operator an opportunity to recover reserves under his lease, and not to drain it from offset property. Of course, there are four orthodox location areas that they can drill to recover the majority of their reserves that remain under their lease.

Q. Now, in your opinion would the well located as proposed by Texaco drain Gulf's acreage?

A. Yes, sir, in all likelihood it should drain radially and should be draining from Gulf's acreage a very short time after completion.

Q. Now that would be in the Lot 8?

A. In Lot 8.

Q. Now, how about in Lots 9 and 10 and 15, would it have any affect on them?

A. Yes, sir, it should also affect that drainage, depending on the rates of withdrawals from Grace Petroleum's well and Texaco's well.

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Q. Now, when Mr Stenberg was testifying there was some question about the initial pressures of the Texaco "CM" Well in Section 31 and, I believe, the Grace Petroleum Corporation Federal "F" Well in Section 5. Do you recall that?

A. Yes, sir. I just wanted to point out that we are dealing with surface pressures and we were talking of some 700 pounds difference. Our scout information shows that 4075 for the Texaco No. 1. We do not know what the length of that surface pressure was, the build-up time on it. We do not know the conditions of the fluids in the tubing, whether there was still, or there's any completion liquids, whether there's any condensate, whether there's any water, that may have had some influence on the surface pressure, but generally in broad terms it, the 4075 would approach those other surface shut-in pressures of the other wells.

We do have in our scout data a drill stem test in Texaco's "CM" Federal in the interval 13,360 to 387, as follows: Open 30 minutes -- well, let's see. It produced 3000 Mcf gas per day and in the initial shut-in pressure, this is actual bottom hole pressure, was 6520 pounds. They also reported on their table another DST in the interval 13,496 to 628, an initial shut-in pressure of 5915. They have indicated on their Exhibit Three a shut-in pressure

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of 5935 and there is also a final shut-in pressure in that interval of 5735.

Q. In your opinion does that cast some doubt on the pressures that were being discussed as between the "CM" Well and the Federal "F"?

A. Yes, sir, I would think that would explain any variation in the "CM" Well having a lower pressure.

Perhaps Texaco could shed some light on that additional information on that pressure, on the "CM" No. 1.

Q. Do you have anything else, Mr. Kalteyer?

A. No, sir. No, sir.

Q. Were Exhibits Two, Three, and Four prepared by you or under your supervision?

A. Yes, sir.

MR. KELLAHIN: At this time we'll offer Exhibits Three, Four, and Five.

A. Yes, sir, they were prepared --

MR. NUTTER: You didn't offer Two.

MR. KELLAHIN: The other witness.

MR. NUTTER: Oh, yes, you did. I'm sorry.

MR. KELLAHIN: At this time we offer Three, Four, and Five.

MR. NUTTER: We've got One, Two, and Six,

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Q. And why is that?

A. Because of the radius of drainage of the Grace Petroleum well.

Q. Because it's closer to the Grace Petroleum well than would be the orthodox location, is that correct?

A. Yes, sir.

Q. All right, now you propose then that we move back to the orthodox location in Lot 7, is that correct?

A. Yes, sir.

Q. Is it also correct that if we did that we're going to be closer to the Grace Petroleum well and the Federal No. "F"?

A. By a slight amount.

Q. And therefore more likely to adversely affect, under your reasoning, Grace Petroleum Federal No. "F", isn't that correct?

A. It would be some by this scaling here, would be some 54 feet closer to the Grace's Federal "F".

Q. So by your reasoning there is a potential adverse affect on the Grace Petroleum Federal "F" but certainly a benefit to the Grace Petroleum Well No. 1 -- I'm not sure what the number is on that, that Gulf has an interest in, is that correct?

A. Federal G-1?

Q. Yes.

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A. Well, my position is that Texaco is entitled to drain the reserves under their unit and the most logical place would be under one of the orthodox location areas, of which there are four.

Q. You don't deny that there's a potential, a strong potential, that Grace Petroleum Federal No. 1 would drain reserves under the Texaco acreage?

A. It's possible.

Q. If it's not otherwise protected.

Now, if we get the orthodox location, or the unorthodox location, would Gulf also have the right to protect its offset to the immediate west by drilling another well?

A. Surely we would have that right to have a hearing for an unorthodox location. To be realistic, I don't know that we would try to drill if there was a cluster of three wells within 1320 feet of each other.

Q. But I believe your statement would be that if you did so, you would request an unorthodox location, isn't that correct?

A. We would have to to drill there. To be realistic, I don't know that we're going to bottom the well there.

Q. You'd have to drill within Lot Number 8, is that correct?

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A. We would have to have a surface location in all probability in 8.

Q. And that would be an unorthodox location, isn't that correct?

A. Only if we bottomed it in Lot 8.

Q. Well, from your knowledge of the likelihood of a successful well, wouldn't you necessarily want to bottom it under Lot Number 8?

A. As far as drainage, as a reservoir engineer, I'd probably want to be away from another wellbore by more than 1320 feet.

Q. All right, now -- that's all I have. Thank you.

REDIRECT EXAMINATION

BY MR. KELLAHIN:

Q. Just to clarify the record, Mr. Kalteyer, you said you'd have to have a surface location in Lot 8. For what reason?

A. Because of the potash area.

Q. In other words, you could not get a surface location in all likelihood in the potash area, is that correct?

A. Correct.

MR. KELLAHIN: That's all I have.

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CROSS EXAMINATION

BY MR. NUTTER:

Q. Mr. Kalteyer, you haven't prepared a contingency plan for today proposing any kind of a penalty on the well should it be approved at the location, have you?

A. No, sir, I have not. I assume that it will be denied.

Q. I see.

MR. NUTTER: Are there any other questions of the witness? He may be excused.

Do you have anything further, Mr. Kellahin?

MR. KELLAHIN: Only a very brief statement, Mr. Nutter.

Under New Mexico law the Oil Conservation Division is required to create proration units which are to be the areas that one well will efficiently and economically drain and develop, and pursuant to that law, the Commission has adopted a 320-acre spacing for this area.

Now, a well with a drainage area of 320 acres is draining roughly about 2100 feet, which, as shown by Mr. Kalteyer's exhibit, is going to be taking gas from the offsetting acreage.

All of the purposes of the New Mexico statutes and the rules and regulations of this Commission

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are directed toward permitting each operator to recover his just and fair share of the oil and gas underlying his tract of land within the pool, and to permit Texaco to move to the west, as they propose here, and admittedly drain the offsetting acreage of Gulf, and also of the Grace Petroleum Corporation's well to the west, denies both Gulf and Grace the opportunity to produce their own gas because it will be going over to the Texaco well.

Now, Texaco, apparently, does not want to drill in an orthodox location, apparently for two reasons, they have stated. One, that area already has been drained and it was drained by the Texaco well. Now they're entitled, certainly, to recover anything left under that tract, but they're not entitled to recover somebody else's gas.

The other reason they have given is that there's some kind of a fault or discontinuity or something which their own witness placed immediately to the north of their proposed location and on cross examination he stated in his opinion, if that situation did exist, the well located as he proposed would not recover any gas from the east half of the section, which is by far the major portion of the Loomis lease.

And under those circumstances we submit that the applicant should not be permitted to change his location. He has already received approval of a well at a

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standard location, to which certainly Gulf has no objection and could have no objection. But we do object to the proposed location as impairing our correlative rights and the correlative rights of the other owners lying to the west of their proposed location.

So we ask that the application be denied.

MR. NUTTER: Mr. Bateman?

MR. BATEMAN: Mr. Examiner, very briefly, I think our position is amply illustrated by Gulf's Exhibit Number Three. It's simply that in order to protect our correlative rights from unorthodox locations, or wells drilled on unorthodox locations, that we must necessarily move to the west, and I would emphasize that the proposed location by Texaco is farther away from the south line of the Texaco proration unit than are either of the two unorthodox locations drilled to the south, and it's patently obvious, I think, from looking at this exhibit alone, why the necessity for this application, or why this application is necessary, or why Texaco's rights would be adversely affected if we're not permitted to proceed.

In addition, I think there's adequate geologic evidence in the record to indicate the -- at least the probability of some discontinuity, if not a fault, which would make this location more likely to return the economic investment, which is considerable, $1,200,000, I believe, was

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stated as the estimated cost of that well.

So, obviously, to prevent economic waste and to protect the correlative rights of Texaco, the unorthodox location is the only one that makes sense, and I therefore urge approval of the application.

MR. NUTTER: Thank you. Does anyone else have anything to offer in Case 6715?

We'll take the case under advisement.

(Hearing concluded.)

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REPORTER CERTIFICATE

I, SALLY W. BOYD, a Certified Shorthand Reporter, DO HEREBY CERTIFY that the foregoing and attached 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 from my notes taken at the time of the hearing.

Sally W. Boyd C.S.R.
Sally W. Boyd, C.S.R.

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 6715 heard by me on 11/14 19 79.

Examiner
Oil Conservation Division

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STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

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February 27, 1980

Mr. Kenneth Bateman
White, Koch, Kelly & McCarthy
Attorneys at Law
Post Office Box 787
Santa Fe, New Mexico

Re: CASE NO. 6715
ORDER NO. R-6275

Applicant:

Texaco Inc.

Dear Sir:

Enclosed herewith are two copies of the above-referenced Division order recently entered in the subject case.

Yours very truly,

JOE D. RAMEY
Director

JDR/fd

Copy of order also sent to:

Hobbs OCD x
Artesia OCD x
Aztec OCD

Other Jason Kellahin

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
DIVISION FOR THE PURPOSE OF
CONSIDERING:

CASE NO. 6715
Order No. R-6275

APPLICATION OF TEXACO INC. FOR
AN UNORTHODOX GAS WELL LOCATION,
LEA COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on November 14, 1979, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 26th day of February, 1980, the Division Director, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

(1) That due public notice having been given as required by law, the Division has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, Texaco Inc., seeks approval of an unorthodox gas well location for its Loomis Federal Well No. 1, which it proposes to drill at a point 1600 feet from the North line and 660 feet from the West line of Section 5, Township 21 South, Range 32 East, NMPM, South Salt Lake-Morrow Gas Pool, Lea County, New Mexico, and to which the N/2 of said Section 5 would be dedicated.

(3) That there is an apparent permeability barrier traversing the NW/4 of the aforesaid Section 5 in a northwesterly/southeasterly direction, and the applicant seeks to complete its well on the south side of this apparent barrier.

(4) That assuming the aforesaid permeability barrier exists and is effective, a well drilled at the proposed location would not drain that portion of the N/2 of Section 5 lying north and east of the barrier.

(5) That drainage of the reservoir by a well at the proposed location would be limited to that portion of the N/2 of Section 5 lying south and west of the barrier and to the offsetting lands to the west, southwest, and south.

(6) That there are approximately 63 acres in the N/2 of Section 5 which lie south and west of the aforementioned barrier and which would be drained by a well at the proposed location.

(7) That in order to protect the applicant's correlative rights, applicant should be permitted to drill a well at a location south of the barrier, which will allow it to recover the reserves underlying the aforesaid 63 acres.

(8) That in order to protect the correlative rights of offset operators, any well drilled at the proposed unorthodox location should be limited in its production, and such limitation should be based upon the amount of acreage in the dedicated 320-acre tract which the well would drain.

(9) That a production limitation factor of 63/320, or 0.20, would protect correlative rights of the applicant as well as those of the owners of offsetting lands.

(10) That in the absence of any special rules and regulations for the prorationing of production from the South Salt Lake-Morrow Gas Pool, the aforesaid production limitation factor should be applied against said well's ability to produce into the pipeline as determined by periodic well tests.

(11) That in order to prevent premature abandonment and subsequent waste, a minimum allowable should be established for the subject well.

(12) That such minimum allowable for the subject well should be reasonable, and 500,000 cubic feet of gas per day is a reasonable figure for such minimum allowable.

(13) That approval of the subject application subject to the above provisions and limitations will afford the applicant the opportunity to produce its just and equitable share of the gas in the subject pool, will prevent the economic loss caused by the drilling of unnecessary wells, avoid the augmentation of risk arising from the drilling of an excessive number of wells, and will otherwise prevent waste and protect correlative rights.

IT IS THEREFORE ORDERED:

(1) That an unorthodox gas well location for the Morrow formation is hereby approved for the Texaco Inc. Loomis Federal Well No. 1, to be drilled at a point 1600 feet from the North line and 660 feet from the West line of Section 5, Township 21 South, Range 32 East, NMPM, South Salt Lake-Morrow Gas Pool, Lea County, New Mexico.

(2) That the N/2 of said Section 5 shall be dedicated to the above-described well.

(3) That said well is hereby assigned a Production Limitation Factor of 0.20 in the Morrow formation.

(4) That in the absence of any Special Rules and Regulations prorating gas production in the South Salt Lake-Morrow Gas Pool, the special rules hereinafter promulgated shall apply.

(5) That the following Special Rules and Regulations for a non-prorated gas well at an unorthodox location shall apply to the subject well:

SPECIAL RULES AND REGULATIONS
FOR THE
APPLICATION OF A "PRODUCTION LIMITATION FACTOR"
TO A NON-PRORATED GAS WELL

APPLICATION OF RULES

RULE 1. These rules shall apply to the Texaco Inc., Loomis Federal Well No. 1, located 1600 feet from the North line and 660 feet from the West line of Section 5, Township 21 South, Range 32 East, NMPM, Lea County, New Mexico, which well's Production Limitation Factor of 0.20 shall be applied to the well's deliverability (as determined by the hereinafter set forth procedure) to determine its maximum allowable rate of production.

ALLOWABLE PERIOD

RULE 2. The allowable period for the subject well shall be six months.

RULE 3. The year shall be divided into two allowable periods commencing at 7:00 o'clock a.m. on January 1 and July 1.

DETERMINATION OF DELIVERY CAPACITY

RULE 4. Immediately upon connection of the well the operator shall determine the open flow capacity of the well in accordance with the Division "Manual for Back-Pressure Testing of Natural Gas Wells" then current, and the well's initial deliverability shall be calculated against average pipeline pressure.

RULE 5. The well's "subsequent deliverability" shall be determined twice a year, and shall be equal to its highest single day's production during the months of April and May or October and November, whichever is applicable. Said subsequent deliverability, certified by the pipeline, shall be submitted to the appropriate District Office of the Division not later than June 15 and December 15 of each year.

RULE 6. The Division Director may authorize special deliverability tests to be conducted upon a showing that the well has been worked over or that the subsequent deliverability determined under Rule 5 above is erroneous. Any such special test shall be conducted in accordance with Rule 4 above.

RULE 7. The operator shall notify the appropriate district office of the Division and all offset operators of the date and time of initial or special deliverability tests in order that the Division or any such operator may at their option witness such tests.

CALCULATION AND ASSIGNMENT OF ALLOWABLES

RULE 8. The well's allowable shall commence upon the date of connection to a pipeline and when the operator has complied with all appropriate filing requirements of the Rules and Regulations and any special rules and regulations.

RULE 9. The well's allowable during its first allowable period shall be determined by multiplying its initial deliverability by its production limitation factor.

RULE 10. The well's allowable during all ensuing allowable periods shall be determined by multiplying its latest subsequent deliverability, as determined under provisions of Rule 5, by its production limitation factor. If the well shall not have been producing for at least 60 days prior to the end of its first allowable period, the allowable for the second allowable period shall be determined in accordance with Rule 9.

RULE 11. Revision of allowable based upon special well tests shall become effective upon the date of such test provided the results of such test are filed with the Division's district office within 30 days after the date of the test; otherwise the date shall be the date the test report is received in said office.

RULE 12. Revised allowables based on special well tests shall remain effective until the beginning of the next allowable period.

RULE 13. In no event shall the well receive an allowable of less than 500,000 cubic feet of gas per day.

BALANCING OF PRODUCTION

RULE 14. January 1 and July 1 of each year shall be known as the balancing dates.

RULE 15. If the well has an underproduced status at the end of a six-month allowable period, it shall be allowed to carry such underproduction forward into the next period and may produce such underproduction in addition to its regularly assigned allowable. Any underproduction carried forward into any allowable period which remains unproduced at the end of the period shall be cancelled.

RULE 16. Production during any one month of an allowable period in excess of the monthly allowable assigned to the well shall be applied against the underproduction carried into the period in determining the amount of allowable, if any, to be cancelled.

RULE 17. If the well has an overproduced status at the end of a six-month allowable period, it shall be shut in until such overproduction is made up.

RULE 18. If, during any month, it is discovered that the well is overproduced in an amount exceeding three times its average monthly allowable, it shall be shut in during that month and during each succeeding month until it is overproduced in an amount three times or less its monthly allowable, as determined hereinabove.

RULE 19. The Director of the Division shall have authority to permit the well, if it is subject to shut-in pursuant to Rules 17 and 18 above, to produce up to 500 MCF of gas per month upon proper showing to the Director that complete shut-in would

cause undue hardship, provided however, such permission shall be rescinded for the well if it has produced in excess of the monthly rate authorized by the Director.

RULE 20. The Division may allow overproduction to be made up at a lesser rate than permitted under Rules 17, 18, or 19 above upon a showing at public hearing that the same is necessary to avoid material damage to the well.

GENERAL

RULE 21. Failure to comply with the provisions of this order or the rules contained herein or the Rules and Regulations of the Division shall result in the cancellation of allowable assigned to the well. No further allowable shall be assigned to the well until all rules and regulations are complied with. The Division shall notify the operator of the well and the purchaser, in writing, of the date of allowable cancellation and the reason therefor.

(6) That jurisdiction of this cause is retained for the entry of such further orders as the Division may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

JOE D. RAMEY
Director

S E A L

fd/

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BLDG.
SANTA FE, NEW MEXICO
14 November 1979

EXAMINER HEARING

IN THE MATTER OF:

Application of Texaco, Inc., for an unorthodox gas well location, Lea County, New Mexico. CASE 6715

BEFORE: Daniel S. Nutter

TRANSCRIPT OF HEARING

A P P E A R A N C E S

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MR. NUTTER: We'll call next Case Number 6715.

MR. PADILLA: Application of Texaco, Inc., for an unorthodox gas well location, Lea County, New Mexico.

MR. BATEMAN: Mr. Examiner, I'm Ken Bateman of White, Koch, Kelly and McCarthy of Santa Fe, and I have two witnesses.

MR. NUTTER: Are there other appearances in this case?

MR. KELLAHIN: If the Examiner please, Jason Kellahin, of Kellahin and Kellahin. I'm appearing for Gulf Oil Corporation. We will also have two witnesses.

MR. NUTTER: Would all witnesses stand and be sworn, please?

(Witnesses sworn.)

PAUL H. DAVIS

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

DIRECT EXAMINATION

BY MR. BATEMAN:

Q Will you state your name, please, and place of employment?

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A. Yes. Paul H. Davis. I work for Texaco, Incorporated, in Midland, Texas.

Q. And in what capacity do you work for Texaco?

A. I'm the Division Proration Engineer.

Q. Have you previously testified before the Commission and made your qualifications a matter of record?

A. Yes, sir, I have.

Q. Are you personally familiar with the area which is the subject of today's application?

A. Yes, sir, I am.

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

MR. NUTTER: Mr. Davis is qualified.

Q. (Mr. Bateman continuing.) Mr. Davis, would you identify what we've marked as Exhibit Number One? And state for the record what Texaco desires from this application?

A. Yes. Texaco desires approval for an unorthodox well location on our Loomis Federal Well No. 1, the well to be located 1600 feet from the north line and 660 from the west line of Section 5, Township 21 South, Range 32 East, in Lea County, New Mexico.

Texaco desires to dedicate the north 324.96 acres in Section 5 to the well.

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MR. NUTTER: What was that acreage again, please?

A. It's 324.96.

MR. NUTTER: Thank you.

A. Exhibit Number One we'll use as an ownership and well location plat, as well as a structure map of the South Salt Lake-Morrow Field.

The acreage shown outlined in red is the lease in question. The green dot on that acreage is the well located 1600 feet from the north line and 660 from the west line.

The offset wells to this acreage are the Texaco "CM", due north of the acreage; the Grace "SL" State Well, in Section 32 to the northeast; the well to the east is the Grace New Mexico Federal Well; we have two wells to the south of this acreage, the Grace Petroleum Company New Mexico Federal "E" and "F" Wells; and a location has been recently approved by the Commission in Section 6 to the southwest of the acreage in questions, and it's called the New Mexico Federal "G" Well.

The -- both the New Mexico Federal "F" and the New Mexico Federal "G" are Grace, were approved as unorthodox locations.

I might mention the distances that they are away from Texaco's lease. The "F" is located 660 feet

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south of the Texaco Loomis Federal and 1980 feet from the west line of Section 5.

The Grace New Mexico Federal "G" to the southwest, is located 660 feet south and west of the Loomis Federal lease, and our distance, of course, to the lease line is 1000 feet from our south line. So we are a greater distance away from the two Grace wells than they are to us.

Q All right, would you proceed, then, with what's been marked Exhibit Two and identify the production in the offsetting wells, please?

A. Yes. Exhibit Two is a production tabulation of all wells that have been completed in the South Salt Lake-Morrow Gas Pool. The production is by years since the field was discovered through 1978, and the production is by months, then, for January through September of 1979.

We also show the total gas production from each of the wells that have been produced from the Morrow zone.

Several things are of interest on this exhibit. The first is the Grace Petroleum New Mexico Federal Well, which would be the east offset to the acreage in question. It has been shut in since 1977 and is essentially produced to depletion.

Also the well to the north and east of the subject acreage has been shut in since in 1978, and it's

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also been produced to depletion.

Another well, clear over on the east side of the plat, is the Grace Pubco Federal Well No. 1, and it has been shut in for some time. It produced only during a three-year period.

The lack of production on the Little Eddy Audie Richards of Texaco's during the first half of 1979 was due to a workover that was being performed on that well at that time.

One other point for Exhibit Two is that the Texaco New Mexico "CH" State Well was originally completed for a short time in the Morrow but since then has been an Atoka well, and therefore shows no production for the majority of the period shown here.

Q. Proceed, then, with what's been marked Exhibit Number Three.

A. Exhibit Number Three is a well completion and production data of all wells that have been completed in the South Salt Lake Morrow Gas Pool. These wells are listed by ownership of two wells of Belco, the Grace Petroleum Corporation wells, the Texaco Well, and the last is the Teal Petroleum Company well.

What we show on this tabulation is, first of all, the well number; the letter designation; and the section, township and range of each of the wells; its dis-

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tances from the lease lines; the date the well was completed; the initial calculated absolute open flow in each of the wells; the completion interval in the Morrow section; and item number six is the cumulative gas production from each of the wells as of September 30th, 1979.

A couple things I'd like to point out about the cumulative production, we've already mentioned is the Grace Petroleum New Mexico Federal Well just to the east of us has produced slightly over 2-billion cubic feet of gas, and that will be an ultimate recovery from that well.

Also the northeast offset is the Grace "SL" State Well, and it's produced slightly over a half a billion cubic feet, and that's an ultimate recovery from that well.

The -- I think this goes to show that that area of the field has been depleted by these two completions.

Also, I'd like to point out the Texaco "CM" State No. 1 has produced the largest cumulative production of any well in this field by a factor of about three, and it's produced about 7-1/2 billion cubic feet, and we feel like the drainage -- that this well has affected drainage from the east part of the Loomis Federal lease, and would reduce any recovery that could be gotten from the east half of the lease.

The next item on the well completion and production data sheet is the cumulative condensate production

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in barrels.

Item number eight is some pressure data from wells in the field. We show several drill stem tests that were taken, and item B is the initial shut-in wellhead pressure from each of the wells and the date that pressure was taken.

One thing I'd like to point out on this initial shut-in pressure is that the Texaco "CM" State, which is the north offset to this acreage, was completed on September of 1961 and had an initial shut-in tubing pressure of 4075 pounds.

The well just to the south of the subject acreage, the New Mexico Federal "F", was completed in January of this year and had an initial shut-in bottom hole pressure -- or excuse me, a shut-in wellhead pressure of 4570 pounds, and this would indicate that this particular well was unaffected by production from Texaco's "CM" State to the north.

We also show on the tabulation the last reported pressures from each of the wells in the field. I think most of these are -- were taken this year; however, the two Belco wells do reflect last year's reporting to the Commission of shut-in wellhead pressures.

The last item, item number nine, shows the current production in Mcf per month for each of the wells

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in the field. It also shows a reason why some of the wells do not have any production for the month of September of 1979.

Q. All right, sir, well, based on your review of the data, in your opinion will the approval of this application protect the correlative rights of the parties, as well as prevent waste?

A. Yes, sir, I do.

Q. And what do you base your opinion on?

A. As far as protecting the correlative rights of the acreage in question, Texaco feels that we can't drill on the east side because of the deterioration in pay quality as shown by the production and depletion of the wells to the northeast and to the east of the acreage in question.

Also, of course, as we mentioned earlier, the Texaco "CM" State we feel has pretty well depleted the area in the east side of the lease because of its high cumulative production.

I might mention that the "CM" has approximately 1-billion cubic feet of reserves remaining, which would give it an ultimate of about 8-1/2 billion cubic feet.

In addition, the greater pressure shown in the New Mexico Federal Number "F" than what Texaco has in the "CM" shows that there is an undepleted area in the southwest part of the lease, and that Texaco would need to

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have a well in that general area in order to recover rich reserves under that part of the lease.

And we'd need to have a well at the particular location in order to protect Texaco from drainage from the New Mexico Federal "F" and the well, the "G" well that will be drilled to the southwest.

Q. In your opinion will Texaco be more likely to have an economic well at the unorthodox location than at an orthodox location?

A. Yes, sir, it would because of the past production history of the offset wells.

Q. Were Exhibits Two and Three prepared by you or under your direction?

A. Yes, sir, they were.

MR. BATEMAN: I offer Exhibits Two and Three and reserve Exhibit One.

MR. NUTTER: Texaco Exhibits Two and Three will be admitted in evidence.

MR. BATEMAN: That's all I have on direct.

MR. NUTTER: Are there any questions of the witness?

MR. KELLAHIN: Yes, sir.

MR. NUTTER: Mr. Kellahin.

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CROSS EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Davis, on your Exhibit Number One where you show the ownership in Section 6, do you know what the ownership there is?

A. Yes, sir, I have seen the plats of the ownership of that, and this does not reflect the current ownership within Section 6, since it is at this time an undeveloped portion of the field. But I recognize that it does have much more complex ownership than what's shown on here, yes, sir.

Q. You recognize that Gulf Oil Corporation owns a tract of land on that area offsetting your proposed location?

A. Yes, sir, I do.

Q. Now, on your Exhibit Number Three, on your New Mexico Federal "F", you show the initial pressure on that well as 4570 feet.

A. 4570 pounds.

Q. I mean pounds, excuse me, and your latest test, some nine months later, 1690 pounds.

A. Yes, sir.

Q. That's a rather rapid drop, is it not?

A. Yes, sir, it is.

Q. And the production of 325,739 Mcf, does

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that account for that reduction or is that just a bad part of the field?

A. Well, I think it might reflect the quality of the reservoir in that area, and probably, maybe, the limited extent of the reservoir in that area.

Q. And according to your Exhibit Number One, that well is fairly close to the zero line on your contour, is that correct, or your 10,500?

A. I believe that's just a contour line, yes, sir.

Q. I say on your 10,500. There is no production beyond that line, is there?

A. Further down structure?

Q. Yes, sir.

A. No, sir.

Q. So that also would be a factor affecting the quality of the reservoir at that point, would it not?

A. Well, it could be. We don't know the extent of the reservoir to the south. I don't think it's been determined at this time.

Certainly there's been no development of the reservoir down dip from that 10,500 contour.

Q. Now what is the cost of a well in this area? Do you have any estimate on that?

A. Yes. We estimate that this well will cost

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Texaco in the neighborhood of $1.2 million.

Q And if you got a well that produced as the Federal "F" produced, would it pay out?

A Yes, sir, it would. Now, let me qualify that. The Federal "F" has produced about 225-million. We feel like it will take about a half a billion in order to pay out a well, so we would, with any reasonable production in the future, if that well approaches a half a billion, it would pay out, yes, sir.

Q Well, with the pressure decline that well has experienced, would you anticipate it would produce that much?

A I don't think we have enough data to make that justification. I see on pressure histories of other wells in the field that these wells last for several years at these pressures, between 500 and 1500 pounds. They taper off and produce for some length of time.

Q Haven't all of the recent wells shown a rather rapid drop in pressures? Or do you know?

A Yes, sir, they have. I think we can see that on the initial shut-in wellhead pressures that were reported under item eight-B and the current test under item eight-C.

Q And that also indicates that your "CM" Well in Section 31 has drained a considerable area of the

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reservoir, does it not?

A. I don't know if I would draw that conclusion or not.

Q. Well, I believe you testified on direct examination that you felt that the wells in Section 4 reflected the affect of this drainage.

A. Yes, sir.

Q. So a well located as you are proposing here will also drain a considerable area, would it not?

A. Yes, sir, the well you've proposed would drain it.

Q. Including gas from Section 6.

A. Possibly, if the Federal "G" is over there, that should protect the correlative rights of that acreage to the west, and of course, that's why we're asking for this unorthodox location.

Q. It would protect the Grace acreage, would it not? You're talking about the Grace acreage?

A. Well, I'm saying that the proposed location would protect Texaco from drainage from Grace, as well as the Grace well would protect them from drainage from Texaco.

Q. Yes, but that doesn't protect Gulf in any way, and the Gulf acreage will suffer drainage in your opinion, would it not?

A. I believe some of the Gulf acreage will be

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included in the Federal "G".

Q. But that acreage that is not included, which is the --

A. As I understand it, it's Lot 8 in Section 6, is what would be in the north 320 acres of Section 6 that Gulf owns. That's my understanding.

MR. NUTTER: Mr. Kellahin, I think for the record it would clarify things if you would state what acreage has been dedicated to this proposed Grace Federal Well and also the remaining acreage that Gulf owns.

MR. KELLAHIN: Could you hold on just a second?

MR. NUTTER: We're talking about Gulf acreage being drained and we don't know where it is.

A. Well, as I understand -- you want me to answer that question?

MR. NUTTER: If you know the ownership of all the Gulf acreage, fine. If not, maybe Mr. Kellahin can tell us where it is.

MR. KELLAHIN: We will have an exhibit showing that Gulf owns Lot 8, and dedicated to the Grace Well, is Lot 9, 10, and then the balance is Grace acreage. But Gulf acreage 9 and 10 is dedicated to the Grace well.

MR. NUTTER: All right, now where is Lot 8, Mr. Kellahin?

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MR. KELLAHIN: It's the second tier of lots in that section.

MR. NUTTER: Is this the 40 acres that's directly west of the proposed location?

MR. KELLAHIN: That is correct.

MR. NUTTER: Okay. Now that's a Gulf tract there.

MR. KELLAHIN: That's a Gulf tract.

MR. NUTTER: And what acreage is dedicated to the proposed Grace Federal "G"?

MR. KELLAHIN: Lots 9 and 10 immediately below the Gulf acreage, and that also is Gulf acreage which was pooled, and Lot 15. The balance of that unit is Grace acreage to the south.

MR. NUTTER: Okay, but the acreage that's dedicated to the -- to the Grace Federal Well would be Lots 9 and 10 and the remaining part of the southeast quarter of the section.

MR. KELLAHIN: That is correct.

MR. NUTTER: Okay.

MR. BATEMAN: Excuse me, didn't you say Lot 15 was also dedicated?

MR. KELLAHIN: Yes, sir.

MR. BATEMAN: Is that Gulf acreage, also?

MR. KELLAHIN: That's Gulf acreage.

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MR. BATEMAN: Then 9, 10, and 15?

(There followed a discussion off the record.)

MR. KELLAHIN: I stand corrected. 15 is not Gulf acreage; that's Grace acreage.

Q (Mr. Kellahin continuing.) Now that we've covered that, you will agree that the Gulf acreage in Lot 8 would suffer drainage more than will the Grace acreage to the south, would you not?

A. Yes, if you consider that that acreage will not be developed at some time in the future, yes, sir.

Q. Now, you did consider an orthodox location for this well, did you not?

A. Yes, sir.

Q. Did you get approval from the USGS for an orthodox well location?

A. Yes, sir, we did.

Q. And what is the status of that permit at the present time?

A. I don't believe I can tell you. I think it's been withdrawn in place of this application.

Q. Do you know whether it has or not?

A. No, sir, I don't.

Q. Would you give the location of --- that you proposed in that application?

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A. I don't know whether I have that or not.

Q. Mr. Davis, could I hand you what we have marked as Gulf Exhibit Number Six and ask you if that is the copy from the government approval?

A. Yes, sir, it is, and it shows a location 1980 feet from the north line and 1980 feet from the east line of Section 5.

MR. KELLAHIN: At this time we'd like to offer our Exhibit Number Six.

MR. NUTTER: Gulf Exhibit Six will be admitted in evidence.

Q. Now, at the time you filed for approval of that location, had Texaco made an evaluation of the reserves underlying that location?

A. I'm sure we have. I wasn't directly connected with that evaluation.

Q. You don't know what figures they came up with?

A. No, sir, I don't.

Q. Do you know whether they made any estimate of recovery to be achieved at a standard location as compared to your proposed location?

A. I'm sure they did. I don't have that information available to me.

Q. Does anyone here have it?

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A. No, sir.

Q. So you just, without any information, you recommend an unorthodox location in preference to an orthodox location, although you don't know what the reserves are.

A. Well, I think Texaco had a reason for doing it. I'm just saying that I don't have those figures available here to testify to today.

Q. Well, obviously Texaco did consider an orthodox location commercial -- a location for a commercial well, did they not?

A. I know that Texaco considered this acreage down here as marginal or sub-marginal well in that there is correspondence in our files that I've read that showed that we were interested in farming that acreage out before we'd be willing to drill a well in the east half of the lease.

Q. Now you say in the east half of the lease. Are you talking about the location of the proposed --

A. Yes, sir, the proposed location.

Q. -- well in this application?

A. Yes, sir.

Q. And that's fairly central in the unit, is it not?

A. Yes, sir.

Q. And actually, you could have had a standard location and moved further west, could you not?

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A. Yes, sir.

Q. Was that considered, or do you know?

A. I think there were other considerations that I think will be brought out by our geological witness that show why we wanted to move as far to the west as our proposed location is, and that why a standard location, say, within Lot 6 would not be acceptable.

Q. Now you are a petroleum engineer, are you not?

A. Yes, sir.

Q. Normally, a well located near the center of a proration unit will more effectively drain that unit than one located at the edge of the unit, would it not?

A. In a virgin reservoir in an undrained condition, yes, that would be true.

Q. But this is not a virgin reservoir and it's not in undrained condision.

A. That's right.

Q. And it's been drained by Texaco's well, hasn't it?

A. Yes, sir, we feel like it has.

MR. KELLAHIN: That's all I have. Thank you.

MR. NUTTER: Are there any other questions of this witness? He may be excused.

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JACK GLENN

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

DIRECT EXAMINATION

BY MR. BATEMAN:

Q. Sir, would you state for the record your name and place of employment?

A. My name is Jack Glenn. I work for Texaco, Incorporated, in Midland, Texas.

Q. And in what capacity do you work?

A. I'm Division Development Geologist.

Q. Have you previously testified before the Commission and made your qualifications a matter of record?

A. Yes, sir.

Q. Are you personally familiar with the wells in the area of the application, today's application?

A. Yes, sir.

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

MR. NUTTER: Mr. Glenn is qualified.

Q. (Mr. Bateman continuing.) Mr. Glenn, would you refer to the map and give us a resume of your

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opinion regarding the geology in this area?

A. This is a sub-surface structure map of the Salt Lake South Field, which indicates that it is a southeast plunging nose. The extreme southeast portion of this map is involved in another field called Hat Mesa.

In the area of critical importance to what we are discussing here, wells in this area have indicated a steeper amount of dip than what is normal for the field area. We interpret this steepening of dip, which is evidenced between the Grace No. 1 New Mexico Federal "E" and their No. 1 New Mexico Federal "D" as probable indication of drapage over a fault.

Q. Now, what evidence do you have to indicate that there is a fault other than the steepening of the dip?

A. There is pressure data available on the Grace 1-F, indicating a higher than normal pressure for this area in light of the production that has gone on in this area. There is production in this area from the two Grace wells in Section 5, which is indicative of better production than what is found to the east in their No. 1 New Mexico Federal "D", indicating that there is some barrier which separates the "D" Well from the "E", and the "E" and the "F" Wells from the production to the north. This barrier is probably, this permeability barrier is probably a reflection of the faulting that is not known but is probably there.

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Definite -- the only definite evidence that we have seen of faulting in the area is testimony by a Cleary witness that they had a dipmeter in their No. 1 New Mexico Federal "E", which was entered as evidence in a hearing here on their unorthodox location in Section 5 for their 1-F. This dipmeter indicated a disturbed zone, which I believe was identified as Wolfcamp, but was in this particular area.

Q. Is the Cleary case that you're referring to Case Number 6206?

A. I believe that it is.

MR. BATEMAN: I would ask that the Commission take administrative notice of the testimony in that case.

MR. NUTTER: We will take administrative notice of the testimony in Case Number 6206, is it?

MR. BATEMAN: I believe so.

MR. KELLAHIN: Would that be confined to the evidence as to the dipmeter and fracturing?

MR. NUTTER: Mr. Bateman?

MR. BATEMAN: That's satisfactory.

MR. NUTTER: Notice will be confined to the fracturing resulting from the faulting and testimony relating to the dipmeter.

Q. Based on review of that evidence and your knowledge of the geology in the area, what is your opinion

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regarding the necessity for an unorthodox location?

A. We feel that this barrier, or this separation discontinuity between the two Cleary wells in Section 5, the well to the east and the production to the north here, indicates that it is mandatory that a location be drilled at this unorthodox location in order for Texaco to have a reasonable chance to develop and produce the reserves on our lease.

Q. Was Exhibit Number One prepared by you or under your direction?

A. Yes, sir.

MR. BATEMAN: I offer Exhibit Number One at this time.

MR. NUTTER: Texaco Exhibit One will be admitted in evidence.

MR. BATEMAN: No further direct.

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

MR. KELLAHIN: Yes, sir.

MR. NUTTER: Mr. Kellahin.

CROSS EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Glenn, I'm not quite clear as to where you say this fault occurs. Is it between the Cleary Federal

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"E" and the Federal "D", is that what you're talking about?

A. I'm not saying there is a fault there. I'm saying that the increase in dip between these two wells is probable indication of faulting. There is no actual direct evidence of a fault there other than what the Cleary witness had on the dipmeter. It would be between those two wells.

Q. So that would be to the east of the standard location in Section 5 in the north half, in your Loomis acreage.

A. Yes, sir.

Q. Now you heard the previous witness testify that in his opinion the "CM" Well has drained those wells in Section 4, or has had some effect on those wells in Section 4, did you not?

A. Yes, sir.

Q. Do you agree with that testimony?

A. This is probably true. I'm not an expert on drainage of this sort.

Q. Well, assuming that is true, would that indicate there's a discontinuity across from a standard location on to the east?

A. I don't follow you as to what you're --

Q. You say that there's a discontinuity that you're trying to get away from, so you want to move your

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well as far west as possible. I'm trying to find out why you want to move it to the west.

A. The discontinuity, as we would interpret it, would run approximately along strike of the contours here from somewheres between the "D" Well and the "E" Well, going in a northwesterly direction.

Q. Well, that would be almost due east and west, wouldn't it, or are you talking about along the contour there?

A. I said along strike.

Q. Along strike. If it is between the "D" and "E" Well, that would fall on your 10,300 contour, wouldn't it?

A. I don't know exactly where. This is possible, yes, sir.

Q. But if the "CM" Well has had a drainage affect on those wells in Section 4, the discontinuity would not lie between those wells and the "CM" Well, would it?

A. It would be between the -- the Cleary Wells in Section 5 and the "CM" Well, yes, sir.

Q. Between them and the "CM" Well?

A. Yes, sir.

Q. Well, we're not -- I'm talking about the wells in Section 4, though.

A. No, sir, the wells in Section 4 and the

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"CM" are to the north of this discontinuity, this barrier.

Q. Okay, and then all of the Loomis acreage would be to the north of this discontinuity or this barrier, would it not?

A. This is, as we see it, the best logical or best possible location that you could get in light of this discontinuity or this barrier, would be the location that has been chosen.

Q. Well, actually, a location farther north would be better, would it not?

A. This I can't say. We -- we run it across to a northwest/southeast there, and this indicates the corner of the lease down there would be the preferred location.

Q. Well, I'm still not quite clear as to where you think this discontinuity falls.

Now, in reference to the Loomis Federal lease where would a discontinuity fall?

A. Well, I said, as best I can imagine this, and there is no concrete data for it, it would run along strike, and if you ran it along the strike of something like between the 10,200 contour and the 10,300 contour, this would be about it.

Q. Well, a standard location would be farther to the north and farther to the west and away from that discontinuity, would it not?

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A. But it would not be ---

Q. Could you mark on your exhibit where you think there might be a discontinuity?

MR. NUTTER: Use a colored pencil, please. Mr. Bateman, would you identify where he's drawn that line for us and identify the line some way or other?

MR. BATEMAN: Well, Mr. Examiner, he's indicated a red line running from the southeast to the northwest.

MR. NUTTER: And what is that exhibit on? Or what is that line on?

MR. BATEMAN: It's on Exhibit One, running just immediately to the north of the green dot at the proposed location.

MR. NUTTER: Is that our exhibit or whose exhibit is that?

MR. BATEMAN: No, I will submit that.

MR. NUTTER: Okay, give it to Mr. Kellahin now. I think he needs it.

Q. (Mr. Kellahin continuing.) Now, Mr. Glenn, you've drawn your discontinuity line immediately to the north and east of your proposed location, is that correct?

A. Yes, sir.

Q. Now, if such a discontinuity exists, what acreage will your proposed location drain?

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A. Well, obviously, it will drain the part of the Loomis there, which is within this boundary or if this exists in this manner. It will also compete with acreage to the south there, with the Cleary Well, a non-standard location, was drilled, and will compete with that. It will compete with the proposed "G" Well to the southwest, and it would probably get some of the gas from the acreage immediately to the west there, unless it is drilled and developed.

Q. But it would not drain the major portion of your Loomis Federal Unit.

A. This I cannot say for sure, but probably it would not.

Q. Now, you were testifying awhile ago that you felt that discontinuity was on strike, which I believe I said would fall about on the 10,200, and you moved it farther to the north and it is not on strike, is that correct?

A. Well, I was indicating approximate direction of what strike is here. It depends on how you may want to shift this a little bit. What it says is that there is something to the north of the two Cleary wells.

Q. But you don't know where.

A. That is exactly correct, as to the exact location.

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Q. But if you drilled the proposed location you've already admitted you'll probably not drain the major portion of your unit. Would a well at a standard location drain that portion of the unit?

A. If there is any reserve left, yes, sir. But it would not protect from the Cleary well.

Q. So you're more interested in protecting than you are in draining your own gas, is this what you're saying?

A. I'm trying to find the optimum location to get the best location I can.

MR. KELLAHIN: That's all the questions. Thank you, Mr. Glenn.

CROSS EXAMINATION

BY MR. NUTTER:

Q. Mr. Glenn, are you suggesting that this fault was the Pre-Pennsylvanian and that the Pennsylvanian just draped over the fault, or are you suggesting that the fault occurred after the Pennsylvanian was laid down?

A. Most likely, sir, it is a fault of Post-Pennsylvanian age. The amount of throw on it here may be very slight, and like most faults in this part of the country, are almost completely identifiable as to the actual evidence of fault; a cut, a repeat, this sort of thing.

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Q. Is there any seismic data in here that shows the fault, that you know of?

A. No, sir.

Q. And no well that you know of that's cut the fault?

A. No, sir.

Q. But this dipmeter that was run on the Cleary --

A. Cleary No. --

Q. -- B, I guess.

A. Yes, sir.

Q. Showed some disturbance there, indicating the possibility of fault, and also the fact that your contour lines are closed in indicates a very steep dip, possibly, or a fault?

A. Yes, sir. This is normal indication, sub-surface contouring of a fault.

Q. But there isn't any real evidence of the fault to date.

A. Nothing other than the dipmeter, sir.

Q. I see. Okay.

MR. NUTTER: Are there any further questions of Mr. Glenn? He may be excused.

MR. BATEMAN: That completes our presentation.

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C. E. STENBERG

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q. Would you state your name, please?

A. C. E. Stenberg.

Q. How do you spell that, Mr. Stenberg?

A. S-T-E-N-B-E-R-G.

Q. And by whom are you employed and in what position?

A. Gulf Oil Corporation, Geologist in Midland.

Q. And where are you located?

A. Midland, Texas.

Q. How long have you been there?

A. In Midland?

Q. Yes, sir.

A. Eight years.

Q. Now, you have -- have you previously testified before the Commission or one of its Examiners and made your qualifications a matter of record?

A. Yes, sir.

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Q. In that connection, Mr. Stenberg, have you had any special experience with the Morrow formation?

A. Well, yes, I've worked with the Morrow in the Permian Basin and Morrow for, well, the whole twenty-six years I've worked for Gulf.

Q. The Morrow has not been one of the producing formations during that period of time all the time, though, has it?

A. Not -- not real strongly. The last five or six years since gas became more popular, all the Morrow play, essentially.

Q. And in the particular area involved in this application, have you had any experience with the Morrow formation?

A. Yes.

Q. And would you describe that?

A. In this particular area?

Q. Yes, sir.

A. Okay. Well, I've reviewed the wells in this -- in this field, I mean for previous hearings, for the previous hearing and for this one, and studied the structural and geological aspects of it.

Q. Now, referring to what has been marked as Gulf's Exhibit Number One, would you identify that exhibit, please?

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A. All right. It's a structure map based on a point in the -- in the middle, center, of the Morrow on a shale bed. The Morrow producers in the area are marked in yellow. The Gulf leases in Section 6 of 21, 32, is cross hatched. The blue circle is the unorthodox location granted to Grace Petroleum in a previous hearing for the South Salt Lake, and the proposed Texaco location is marked in red.

Also, a later exhibit will be cross section A-A', which is also marked on the -- on the exhibit.

The -- I think the structural -- or the structural picture given on Exhibit One shows that, as far as structure is concerned, an unorthodox location would not be necessary to gain structural advantage. In fact, some would be lost moving to the unorthodox location.

And I think that's all until Exhibit Two.

Q. Now you say you would lose some structural advantage at the unorthodox location?

A. At the unorthodox location, yes.

Q. Would you identify Exhibit Number Two, please?

A. All right. Exhibit Two is cross section A-A' as marked on Exhibit One.

Okay, cross section A-A', the top of the Morrow is what the cross section is hung on. Now, I just labeled the correlation lines on here numbers one through

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fifteen for reference.

Cross section line number thirteen is the point on which the structural map is based and the other lines are just for correlation of beds.

Now, the -- this Morrow, this field is -- appears to be a combination of structure and stratigraphic deposition; as was earlier said, this map matches pretty well Texaco's exhibit. There is a southeast plunging nose structure, and the first wells, the first two wells in the cross section are up at a fairly high structural position and the other two on the righthand side are down at the lower structural position.

Now, the -- from the top of the -- line number one is actually the top of the Atoka, or base of the Strawn line, top of the Atoka, and number fifteen at the bottom, is close to the, what would be the Barnett Shale at the bottom of the Morrow.

Now, note there's thickening all the way from the top of the Atoka down through the -- down through line fifteen, between logs two and three, which is the drop down to the lower structural position.

This thickening down in the bottom, or the bottom two logs, is what I think is common on the flank of a structure in Pennsylvanian deposition.

Now, the perforations, which are marked

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with the -- in the righthand of the depth columns, I grouped the stratigraphic columns -- or stratigraphic units down at the bottom of the cross sections, more or less the way the perforations run.

In log number three from the left, notice that at the bottom, the bottom interval had perforations which are not productive. They were tested for production and were found nonproductive, and a plug back is marked at 14,080.

Now, the -- I believe that the bottom, the bottom stratigraphic unit in this case, it was not productive and therefore the Texaco proposed 320-acre proration unit should have the better stratigraphic advantages on logs -- on log two.

Now, the -- I think I would say in conclusion on these exhibits, that the field is a combination of structure and stratigraphy and because of the nonproductive stratigraphic unit on log three, the structural advantage for the Texaco unit would be the same, fairly much the same, no matter where the well was drilled, as far as structure is concerned. In fact, it's better for the stratigraphic units.

And for the, as far as the fault is concerned in the area, I don't believe that a fault, if one is present, can be defined close enough to grant an unortho-

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dox location. It's not that finite. The contour maps do not reflect any offsets which would require a fault to be entered on the structure map, and I believe the stratigraphic picture on the cross section shows just a regular depositional thickening on the flank of the structure.

The dipmeter that was mentioned on -- in log E, which would be -- that would be the fourth one in the cross section, now the dipmeter data is generally the best in shale beds, and the thickening of the deposition down off the flank of the structure includes a lot of extra shale beds, so therefore there would be a lot of dip data; however, whether or not the dip data actually reflected structure or if it's just because of local stratigraphic units, would make it highly dubious to me that it was -- that it would reflect faulting.

Q. Have you found any evidence of a fault in this area? Anywhere?

A. No, sir, not the way I interpret this area. I found it difficult to believe there would be any faulting.

Q. All right.

A. In the Pennsylvanian level.

Q. Now, Mr. Glenn discussed a discontinuity. I don't know exactly what he meant by a discontinuity, but do you find a discontinuity in the formation across this area?

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A. Well, the discontinuity, if present, would be in the deposition; however, the -- as far as the Texaco lease is concerned, I think it's setting up at a structural, combination structural and stratigraphic advantageous place, so that it would not look like the picture in the two righthand wells in the cross section.

Q. From the geologist's point of view, would a well located at a standard location be equally advantageous to Texaco as the non-standard location?

A. Yes, that way, from a geological point of view, the east part of the proration unit looks more advantageous than the west side, both the structure and stratigraphy, and also to the congestion, the wells that's going to end up over there with all the unorthodox locations.

Q. Were Exhibits One and Two prepared by you or under your supervision?

A. Yes, sir.

MR. KELLAHIN: At this time I'll offer Exhibits One and Two.

MR. NUTTER: Gulf Exhibits One and Two will be admitted.

MR. KELLAHIN: I have no further questions of the witness.

MR. NUTTER: Are there any questions of the witness?

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MR. BATEMAN: Yes.

CROSS EXAMINATION

BY MR. BATEMAN:

Q. Mr. Stenberg, first of all, regarding the reliability of the evidence indicated by the dipmeter, have you reviewed the testimony in the case which was referred to, which I think is 6206, regarding the testimony of the witness, which was Mr. William Henry, I believe, regarding that evidence, the evidence of a dip?

A. No. No, sir, I didn't.

Q. Excuse me, a fault. Do you know Mr. Henry personally?

A. I don't believe I do. I don't know if I do or not.

Q. All right.

A. I'd have to see him to know if I know him. I know a Henry but I don't know if it's the right one.

Q. All right. But you haven't reviewed that evidence so you don't know what he based his conclusions on.

A. No, sir.

Q. Now, you also testified that in your opinion the east side of the Texaco acreage, from your point of view, would be a better location for a well.

A. Yes, sir.

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Q And in making that judgment, did you consider any effect, if any, of the Texaco "CM" offsetting to the north and the two wells offsetting to the east, which have had -- or been shut in and produced about all they're going to produce, apparently?

I'm speaking of the -- let's see, if I can find it -- the New Mexico State in Section 32, I believe it is, and the Federal "A", New Mexico Federal, in Section 4?

A. The abandoned one? Well, --

Q. Well, both of those, I believe, are abandoned, if I'm correctly informed.

A. Yes. Well, either place would be more or less surrounded by -- will be, has been or will be surrounded more or less by wells. I was basing it mainly on the -- on the structural - stratigraphic advantage, which actually, on the east side of the location -- of the 320-acre proration unit, there will be more -- there will be more stratigraphic units which will have productive sands, I believe, from my cross section. On log two, for instance, we have production from more or less three -- three units, or whatever you want to call them. I mean, you know, some sand bodies separated by shale. Whereas, there was a lot of stratigraphic area lost down on the lower structural position wells.

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Q. Now, are you saying that in drawing that conclusion you did not consider the effect of the production on those offsetting wells to the north and to the east?

A. Well, I'm sure that's a consideration; however, there's a lot of -- there's quite a bit of area in there, actually, that is not -- does not have a well in it.

Now, initially, maybe a new well might be -- have a little advantage; however, as far as drainage area which is left at the present and in the near future with more drilling, I really can't see, from my point of view, that it would be -- the unorthodox place is advantageous.

Q. Well, let's try a yes or no answer to my --

A. All right.

Q. -- question.

A. Okay.

Q. Did you consider the effect of the possible drainage of the offsetting wells to the north and to the east in coming to the conclusion that the east side of the Texaco acreage is more advantageous?

A. Well --

Q. Yes or no.

A. Yes. Okay, well, the way, what I said before, I guess I'd have to say yes.

Q. On what basis?

A. Well, it would not -- I don't know if it

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actually -- you mean how far -- what each drainage radius would be for each well?

Q. Yes.

A. These producing wells? Well, I base my opinion, actually, quite a bit on the -- on the Texaco "CM", which is the large producer. All right, now if it has, if it has 7.2 Bcf cumulative, roughly, at the present time, somewhere in the neighborhood --

MR. NUTTER: 7.5.

A. 7.5, all right, and we assume that drainage is more or less circular. I mean nobody can say which directions drainage is for certain, unless you have -- I mean except going to stratigraphic - structural information. Therefore, if that drainage pattern were applied to that well, it looks like the east half of that proration unit is going to have just as good a chance as the unorthodox location site.

Q. In coming to your conclusion, you have disregarded the existence of any discontinuity or fault, as has been testified to by the Texaco witness, is that correct?

A. Well, could I make a statement about that, or just say yes or no?

Q. You can go ahead and say what you have to.

A. Well, I said, I think the faulting is -- is not -- is not finite in this case. It can't be pinned

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down that closely. I will accede to a depositional change in the field; however, I don't know if it can be attributed to faulting in the Pennsylvanian, because in this case, you think of faulting as bringing up your permeability barrier, so therefore, as far as drainage is concerned, you don't drain across a fault.

Now, the structure, as far as structure is concerned, there is no doubt faulting in the area. I mean we have seismic deeper, not in Pennsylvanian. That would be difficult to see. If it was there, it would be of very small magnitude.

We have deeper structure faulting, probably, which causes this structural deposition of the Pennsylvanian.

However, I don't believe faulting will have -- have much basis on that proration unit.

Q. Well, presuming there's no fault in the area, what effect do you think the considerable production from the Texaco "CM" would have on the initial pressure, or would you expect it to have on the initial pressure, of wells drilled to the south of that location?

A. Well, south, of course, would be the minimum -- would be the minimum amount of production, so obviously the best place would be southeast of southwest to get out of what would be considered the circle of drainage.

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Q. Southeast or the southwest?

A. Yes, sir.

Q. Would you concede that it should have an effect on the initial pressures? In other words, the initial pressures of a well drilled fifteen years later should be less than what the initial pressure of the "CM" was?

A. Well, this is generally true in the gas field, with that amount of production, yes.

Q. Are you aware that the initial pressure of the Federal "F" was greater than the initial pressure of the "CM"?

A. The pressure of the "F" was greater?

Q. Yes.

A. No, I don't have the pressure data.

Q. Well, let me just show you Applicant's Exhibit Number Three, indicating that the "CM" had an initial pressure in 1961 of 4075 pounds and the "F", January of '79, had an initial pressure of 4570.

A. Is this -- what type pressure is this? Are you talking about initial shut-in pressure?

Q. Initial shut-in pressures.

A. All right.

Q. Would you concede that that would be some evidence of a fault or discontinuity existing between the "F" and the "CM"?

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A. Oh, I seriously doubt it would be due to a fault. Now, this -- now we didn't go into log analysis in this thing. Now, there obviously is a difference, there can be a difference in the stratigraphic units as to porosity and permeability, which is going to have a lot of difference in the production, or some difference in production pressures.

Q. Porosity and permeability?

A. Sure.

Q. But it does not necessarily indicate that there is not a fault, does it?

A. Well, now, you really -- it's difficult to prove a fault unless like was testified before, like Mr. Glenn said, to prove a fault, actually you should have repetition or deletion of beds on a log; offsets on a map, which they can be best explained with a map; or possibly seismic, which would be -- which I'd put third, which would -- which I'd think would have to be proved with drilling, and we don't really have the evidence. We don't have any of those evidences that show that's there is faulting there, really.

And those are, I think, the three main ones, yes, sir.

Q. All right.

MR. BATEMAN: No further questions.

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CROSS EXAMINATION

BY MR. NUTTER:

Q. Mr. Stenberg, you stated that you didn't think that the differential in the pressures of the "CM", original pressure being 4075 in 1961, and the Federal "F", the initial pressure being 4570, 500 pounds higher, 18 years later, you didn't think that that would be due to faulting.

What would it be due to? Would it indicate a separation of the two wells by some sort of a barrier?

A. Well, it --- let's see, what was the date of the pressure on the "CM"?

Q. The "CM" was drilled in 1961 and the original pressure was 4075.

The "F" Well, which is 3/4 of a mile south of it, was drilled in 1979, 18 years later, and the initial pressure was 4570, which is 495 pounds higher than the original pressure in the "CM".

A. Okay.

Q. Now, wouldn't --- and that's after the "CM" has produced 7-billion cubic feet of gas 3/4 of a mile away. Now doesn't that indicate some sort of a separation?

A. Well, now that would be between logs two and three on the cross section.

Q. That's between logs two and three on your cross section.

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A. Yes, sir. I still believe it can be explained by deposition.

Now, there are quite a few -- there are some good -- there are some good sand stringers in that number three log. Those perforations shouldn't have been marked that way. I didn't mark them. They were done wrong. That's not continuous perfs. That was a perf interval, which is all I had. However, looking at the gamma ray there in that stratigraphic unit, there are a lot of good sands here, so it's very possible that with the additional section there is a stratigraphic lens -- see now we're going into the area of thickening down in those bottom two wells. Okay, we could pick up a couple additional stratigraphic sands there, which are not present up in the other well.

Q. Well, I could understand this differential, Mr. Stenberg, if you had some sands present in the "F" that aren't present in the "CM", but it's the opposite way around. You've got sands present in the "CM" that aren't present in the "F". I don't see where the pressure in the Federal "F" could be coming from.

A. Isn't that the high pressure one?

Q. The "F" is the high pressure one.

A. That's what I say. There's additional -- there are some good sections in that.

Q. They've been plugged back, though, and the

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other --

A. No, sir, I'm talking about between lines 10 and 11 on the cross section.

Q. Okay, you've got the same zone open in the "CM". It may not be as big, but you've got section 10 open in the "CM".

A. Well, that's --

Q. It's, granted, thicker in the -- right?

A. In the which one? In the "F"?

Q. Zone 10 is thicker in the Federal "F" than it is in the "CM".

A. Well, yes, sir, that's the only conclusion I can come to.

Q. That this pressure differential is because of the change in the thickness of the beds?

A. Yes. Like I said, this is my opinion of this field. It's a combination of structure and stratigraphy. Now, there are, you know, we have Morrows that have a more or less blanket sand which will cover a couple, two or three square miles, in which we can follow the same sand lens, or a main pay. Then, of course, we have a lot of them where they are very lenticular.

Q. Or in channels.

A. We have, roughly, in the same part of the stratigraphic section, yes, wherever they are, but they'll

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be missing or shaly in one well and they will be present in another one. You can drill the next one over and miss everything you've seen so far, and find a new one.

So we can't leave stratigraphy out of a Pennsylvanian well discussion.

MR. NUTTER: Are there any other questions of Mr. Stenberg? He may be excused.

Mr. Kellahin, before we call your next witness, we'll take a fifteen minute recess.

(Thereupon a recess was taken.)

MR. NUTTER: The hearing will come to order please. Mr. Kellahin?

CHARLES F. KALTEYER

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q. Would you state your name, please?

A. Charles F. Kalteyer, K-A-L-T-E-Y-E-R.

Q. By whom are you employed and in what position, Mr. Kalteyer?

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A. Gulf Oil Corporation as District Proration Engineer.

Q. Where are you located?

A. In Midland.

Q. And does that district include the area involved in the application that's before the Commission at the present time?

A. Yes, sir, it does.

Q. And have you made a study of the proposed location of Texaco's well?

A. Yes, sir, I have looked into this or have caused to have work done on it.

Q. Referring to what has been marked as Gulf's Exhibit Number Three, would you identify that exhibit, please?

A. Gulf's Exhibit Number Three is a plat of the area immediately surrounding the proposed Texaco location. It shows their Loomis Federal No. 1, 660 from the west line of Section 5, and 1600 from the north line.

I've also shown the location -- we need a correction on the plat to the north in Section 31, that's indicated to be Texaco's State of New Mexico "C", it should be the State of New Mexico "CM", which is located 660 feet from the south line and 1980 feet from the east line of Section 31, T20 South, Range 33 East.

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Also shown in Section 6 is the outline of the acreage currently held by Gulf. This is outlined in yellow. Lot 8 is undeveloped acreage. Lots 9 and 10 are currently included in a proration unit for a well to be drilled by Grace Petroleum as a Federal "G" Com. Gulf also owns another 40-acre tract in Lot 11 to the west of Lot 10.

The proposed location of Texaco's Loomis Federal is some 2167 feet to the northeast. It's also approximately 2167 feet to the northwest of Grace Petroleum's New Mexico Federal "F", which is located in Section 5, 4650 feet from the south line and 1980 feet from the west line.

The purpose of this exhibit is to show the distances of the proposed location to the various wells drilled or proposed.

The Texaco Loomis Federal is located some 2458 feet from Texaco's State of New Mexico "CM" Well.

Our position is that Texaco has ample opportunity to develop and drain the reserves under this unit at an orthodox location of which there are four choices. Perhaps the most optimum to give less interference to outside properties and still recover the -- their proper share of reserves under their lease, would be in a well located to the southeast of their "CM" No. 1 in that standard proration unit area.

This well could be located some 2113 feet

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from Grace's New Mexico Federal "F" No. 1 and thus avoid any interference or reduce the potential of interference with Grace Petroleum's Federal "G" Com, or the undeveloped Gulf acreage in Lot 8.

Q Do you have anything further with that exhibit, Mr. Kalteyer?

A No other than as testified earlier, by Texaco, they already have an approved location in the proration unit area to the southeast portion of that proration unit, 1980 feet from the north line and 1980 feet from the east line.

And that -- is that Gulf Exhibit Six?

Q That's Gulf Exhibit Six, yes, sir.

A I think that information on that well and the approval of that well is on Gulf's Exhibit Number Six, which has previously been submitted.

Q And that location is the one for which you have shown the distance from the Grace Petroleum Federal "F" Well?

A Approximately there. It could be a slightly different position. That's the maximum location they could get from the Federal "F" in that particular proration unit area, or orthodox location unit area.

Q Now turning to what has been marked as Gulf's Exhibit Number Four, would you identify that exhibit,

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please?

A. That is a tabulation of production data for wells that have produced in '78 and '79 in the South Lake-Morrow Gas Pool, which is similar to an exhibit presented by Texaco.

Q. What is the source of the information for that exhibit?

A. This is from our New Mexico production records, the Engineering Association, and from the records in Hobbs.

Q. That's the Oil Conservation Division?

A. The Oil Conservation Division's records in Hobbs.

Q. And that would be the production for 1979, is that correct?

A. Yes, for the last two months of '79.

Q. And what is the significance of this exhibit, Mr. Kalteyer?

A. This substantially, is the cumulative production of the various wells that have produced from the South Salt Lake-Morrow Gas Pool.

Q. And these are substantially the same as --

A. Yes, sir.

Q. -- an exhibit offered by Texaco?

A. Let me check one thing on their exhibit.

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I see an error in that cumulative figure for the Belco Petroleum Company on the second page of that but the cumulative for '78 is shown as 6 Bcf and that is obviously an error. It will be on the order of 2 Bcf at that time, and comparing it to Texaco's table the total production in September of -- through September of '79 of 3.313270 Bcf. So the figure of 6,794,598 is in error.

Q. Would you give us that corrected figure again, please?

A. Cumulative of 3,313,270 Mcf, which I'm reading from Texaco's Exhibit Number Two.

Q. And you feel that that is a correct figure?

A. Yes, sir, I know that the 6 Bcf is in error.

Q. Now turning to what has been marked as Gulf's Exhibit Number Five, would you identify that exhibit, please?

A. Gulf's Exhibit Number Five is a working plot of the information on wells in the immediate area of the proposed location by Texaco. It is a plot of shut-in wellhead pressure in psi versus time. This exhibit is presented to give a general comparison of pressures. The ideal comparison would be bottom hole pressure with adequate build-up time to compare the various wells.

Q. Is such information available?

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A. Yes, sir, this information was derived from the annual engineering books and the most recent shut-in data from the Hobbs office.

Q. Now what is the significance of the information shown on that exhibit, in your opinion?

A. The -- you'll note in red we have plotted the shut-in wellhead pressure of the Texaco "CM" State 1, which has shown a fairly gradual decline and leveling off over the last six years, but still a general decline, and we have to keep in mind that this is surface pressures and they are subject to the gradient in the wellbore, so we can have some variation due to the liquids or fluids in the wellbore. We have variations in shut-in times. We have no record of -- well, they should be under standard conditions under 24 hours off, some of these -- for the bulk of these pressures.

Then we can go down the list here and refer to the -- to the code of lines here on the right, the magenta or purple line shows the Grace Petroleum New Mexico "SL" State No. 1 in Unit N of Section 32, with a total production of about a half a Bcf. It has dropped to its latest pressure of 1590, and that well is now not on production.

The -- we've already mentioned the Texaco "CM" State 1.

The orange line refers to Grace Petroleum

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New Mexico Federal No. 1 in Unit F of Section 4, 21, 32, which showed after producing some 2.03 Bcf its pressure was down to 1300 plus or minus pounds.

In talking with Grace personnel, I did not have any data other than their comment that the well had made some water, they went in to rework it, and they were unable to re-establish production, so we do not know that it was depleted at that time. We're talking about surface tubing pressures again, now.

Then the next line is in green, is the Grace Petroleum New Mexico Federal "F", which is a recent completion. This is located, of course, in Unit K of Section 5, 21, 32, and it shows the rapid drop to 1677 pounds with approximately 1/3 of a Bcf production.

And our blue curve represents Grace Petroleum New Mexico Federal "D" No. 1 in Unit N of Section 4, 21, 32. It shows a rather rapid drop to 2438 psi with slightly under 1 Bcf of production.

And finally, the yellow curve is for the New Mexico "E" Federal Com. The data indicates that it was first shut-in, reported shut-in pressure was approximately 2200 pounds and has now declined to 1330 pounds after approximately 1.45 Bcf production.

The thrust being that these new completions generally are coming in with high pressures, similar to a

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virgin area, but are rapidly approaching the reservoir pressure of the -- not the reservoir pressure, but rather approaching the pressure of Texaco's "CM", which has been the big producer of some 7-1/2 Bcf.

We -- our interpretation of this is that there is some communication between all these wells and that Texaco is entitled to recover the reserves under their lease, even though they may be depleted, or semi-depleted. The rules are set up to give each operator an opportunity to recover reserves under his lease, and not to drain it from offset property. Of course, there are four orthodox location areas that they can drill to recover the majority of their reserves that remain under their lease.

Q. Now, in your opinion would the well located as proposed by Texaco drain Gulf's acreage?

A. Yes, sir, in all likelihood it should drain radially and should be draining from Gulf's acreage a very short time after completion.

Q. Now that would be in the Lot 8?

A. In Lot 8.

Q. Now, how about in Lots 9 and 10 and 15, would it have any affect on them?

A. Yes, sir, it should also affect that drainage, depending on the rates of withdrawals from Grace Petroleum's well and Texaco's well.

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Q Now, when Mr Stenberg was testifying there was some question about the initial pressures of the Texaco "CM" Well in Section 31 and, I believe, the Grace Petroleum Corporation Federal "F" Well in Section 5. Do you recall that?

A Yes, sir. I just wanted to point out that we are dealing with surface pressures and we were talking of some 700 pounds difference. Our scout information shows that 4075 for the Texaco No. 1. We do not know what the length of that surface pressure was, the build-up time on it. We do not know the conditions of the fluids in the tubing, whether there was still, or there's any completion liquids, whether there's any condensate, whether there's any water, that may have had some influence on the surface pressure, but generally in broad terms it, the 4075 would approach those other surface shut-in pressures of the other wells.

We do have in our scout data a drill stem test in Texaco's "CM" Federal in the interval 13,360 to 387, as follows: Open 30 minutes -- well, let's see. It produced 3000 Mcf gas per day and in the initial shut-in pressure, this is actual bottom hole pressure, was 6520 pounds. They also reported on their table another DST in the interval 13,496 to 628, an initial shut-in pressure of 5915. They have indicated on their Exhibit Three a shut-in pressure

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of 5935 and there is also a final shut-in pressure in that interval of 5735.

Q. In your opinion does that cast some doubt on the pressures that were being discussed as between the "CM" Well and the Federal "F"?

A. Yes, sir, I would think that would explain any variation in the "CM" Well having a lower pressure.

Perhaps Texaco could shed some light on that additional information on that pressure, on the "CM" No. 1.

Q. Do you have anything else, Mr. Kalteyer?

A. No, sir. No, sir.

Q. Were Exhibits Two, Three, and Four prepared by you or under your supervision?

A. Yes, sir.

MR. KELLAHIN: At this time we'll offer Exhibits Three, Four, and Five.

A. Yes, sir, they were prepared --

MR. NUTTER: You didn't offer Two.

MR. KELLAHIN: The other witness.

MR. NUTTER: Oh, yes, you did. I'm sorry.

MR. KELLAHIN: At this time we offer Three, Four, and Five.

MR. NUTTER: We've got One, Two, and Six,

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right.

MR. KELLAHIN: Yes, sir.

MR. NUTTER: Gulf's Exhibits Three, Four, and Five will be admitted in evidence.

MR. KELLAHIN: That's all the questions I have of this witness.

MR. NUTTER: Any questions of Mr. Kalteyer?

MR. BATEMAN: Yes, sir.

MR. NUTTER: Mr. Bateman.

CROSS EXAMINATION

BY MR. BATEMAN:

Q Mr. Kalteyer, just a couple questions about Exhibit Number Three, if I may.

Is it safe to say that in your opinion that a well drilled by Texaco geographically or closer to the Grace Petroleum Well is likely to adversely affect the withdrawal of gas from the Grace Petroleum well that Gulf has interest in?

A Would you run that through again?

Q Is it your position that the well drilled in the unorthodox location is going to adversely affect the withdrawal of gas from the Grace Petroleum well which you have an interest in?

A It could very well, yes, sir.

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Q. And why is that?

A. Because of the radius of drainage of the Grace Petroleum well.

Q. Because it's closer to the Grace Petroleum well than would be the orthodox location, is that correct?

A. Yes, sir.

Q. All right, now you propose then that we move back to the orthodox location in Lot 7, is that correct?

A. Yes, sir.

Q. Is it also correct that if we did that we're going to be closer to the Grace Petroleum well and the Federal No. "F"?

A. By a slight amount.

Q. And therefore more likely to adversely affect, under your reasoning, Grace Petroleum Federal No. "F", isn't that correct?

A. It would be some by this scaling here, would be some 54 feet closer to the Grace's Federal "F".

Q. So by your reasoning there is a potential adverse affect on the Grace Petroleum Federal "F" but certainly a benefit to the Grace Petroleum Well No. 1 -- I'm not sure what the number is on that, that Gulf has an interest in, is that correct?

A. Federal G-1?

Q. Yes.

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A. Well, my position is that Texaco is entitled to drain the reserves under their unit and the most logical place would be under one of the orthodox location areas, of which there are four.

Q. You don't deny that there's a potential, a strong potential, that Grace Petroleum Federal No. 1 would drain reserves under the Texaco acreage?

A. It's possible.

Q. If it's not otherwise protected.

Now, if we get the orthodox location, or the unorthodox location, would Gulf also have the right to protect its offset to the immediate west by drilling another well?

A. Surely we would have that right to have a hearing for an unorthodox location. To be realistic, I don't know that we would try to drill if there was a cluster of three wells within 1320 feet of each other.

Q. But I believe your statement would be that if you did so, you would request an unorthodox location, isn't that correct?

A. We would have to to drill there. To be realistic, I don't know that we're going to bottom the well there.

Q. You'd have to drill within Lot Number 8, is that correct?

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A. We would have to have a surface location in all probability in 8.

Q. And that would be an unorthodox location, isn't that correct?

A. Only if we bottomed it in Lot 8.

Q. Well, from your knowledge of the likelihood of a successful well, wouldn't you necessarily want to bottom it under Lot Number 8?

A. As far as drainage, as a reservoir engineer I'd probably want to be away from another wellbore by more than 1320 feet.

Q. All right, now -- that's all I have. Thank you.

REDIRECT EXAMINATION

BY MR. KELLAHIN:

Q. Just to clarify the record, Mr. Kalteyer, you said you'd have to have a surface location in Lot 8. For what reason?

A. Because of the potash area.

Q. In other words, you could not get a surface location in all likelihood in the potash area, is that correct?

A. Correct.

MR. KELLAHIN: That's all I have.

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CROSS EXAMINATION

BY MR. NUTTER:

Q. Mr. Kalteyer, you haven't prepared a contingency plan for today proposing any kind of a penalty on the well should it be approved at the location, have you?

A. No, sir, I have not. I assume that it will be denied.

Q. I see.

MR. NUTTER: Are there any other questions of the witness? He may be excused.

Do you have anything further, Mr. Kellahin?

MR. KELLAHIN: Only a very brief statement, Mr. Nutter.

Under New Mexico law the Oil Conservation Division is required to create proration units which are to be the areas that one well will efficiently and economically drain and develop, and pursuant to that law, the Commission has adopted a 320-acre spacing for this area.

Now, a well with a drainage area of 320 acres is draining roughly about 2100 feet, which, as shown by Mr. Kalteyer's exhibit, is going to be taking gas from the offsetting acreage.

All of the purposes of the New Mexico statutes and the rules and regulations of this Commission

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are directed toward permitting each operator to recover his just and fair share of the oil and gas underlying his tract of land within the pool, and to permit Texaco to move to the west, as they propose here, and admittedly drain the offsetting acreage of Gulf, and also of the Grace Petroleum Corporation's well to the west, denies both Gulf and Grace the opportunity to produce their own gas because it will be going over to the Texaco well.

Now, Texaco, apparently, does not want to drill in an orthodox location, apparently for two reasons, they have stated. One, that area already has been drained and it was drained by the Texaco well. Now they're entitled, certainly, to recover anything left under that tract, but they're not entitled to recover somebody else's gas.

The other reason they have given is that there's some kind of a fault or discontinuity or something which their own witness placed immediately to the north of their proposed location and on cross examination he stated in his opinion, if that situation did exist, the well located as he proposed would not recover any gas from the east half of the section, which is by far the major portion of the Loomis lease.

And under those circumstances we submit that the applicant should not be permitted to change his location. He has already received approval of a well at a

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standard location, to which certainly Gulf has no objection and could have no objection. But we do object to the proposed location as impairing our correlative rights and the correlative rights of the other owners lying to the west of their proposed location.

So we ask that the application be denied.

MR. NUTTER: Mr. Bateman?

MR. BATEMAN: Mr. Examiner, very briefly, I think our position is amply illustrated by Gulf's Exhibit Number Three. It's simply that in order to protect our correlative rights from unorthodox locations, or wells drilled on unorthodox locations, that we must necessarily move to the west, and I would emphasize that the proposed location by Texaco is farther away from the south line of the Texaco proration unit than are either of the two unorthodox locations drilled to the south, and it's patently obvious, I think, from looking at this exhibit alone, why the necessity for this application, or why this application is necessary, or why Texaco's rights would be adversely affected if we're not permitted to proceed.

In addition, I think there's adequate geologic evidence in the record to indicate the -- at least the probability of some discontinuity, if not a fault, which would make this location more likely to return the economic investment, which is considerable, $1,200,000, I believe, was

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stated as the estimated cost of that well.

So, obviously, to prevent economic waste and to protect the correlative rights of Texaco, the unorthodox location is the only one that makes sense, and I therefore urge approval of the application.

MR. NUTTER: Thank you. Does anyone else have anything to offer in Case 6715?

We'll take the case under advisement.

(Hearing concluded.)

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REPORTER CERTIFICATE

I, SALLY W. BOYD, a Certified Shorthand Reporter, DO HEREBY CERTIFY that the foregoing and attached 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 from my notes taken at the time of the hearing.

Sally W. Boyd, C.S.R.

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 6215 heard by me on 11/14 1979.

, Examiner
Oil Conservation Division

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PRODUCTION TABULATION

SALT LAKE MORROW, SOUTH (GAS) POOL
LEA COUNTY, NEW MEXICO

	Belco Petroleum Corp.		GRACE PETR.									TEXACO	
	Bass Fed #1	Bass Fed #2	NM Fed.	NM Fed. "A"	NM Fed. "C"	NM Fed. "D"	NM Fed. "E" Comm.	NM Fed. "F"	Felmont Fed.	NM "SL" State	Pubco Fed.	Little Eddy Unit Audie Richards	NM "CH" State
1958													
1959													
1960													
1961													
1962													
1963													98,9
1964												130,207	80,0
1965												103,798	-
1966												99,290	-
1967												97,694	-
1968												36,107	4,27
1969												115,112	-
1970												75,987	-
1971												51,595	-
1972												68,360	-
1973												83,932	-
1974			154,287									67,345	-
1975		49,108	754,205									79,706	-
1976	402,707	489,379	653,757									63,590	-
1977	1,149,729	94,123	437,447							242,122	244,175	147,782	-
1978	1,045,048	187,735	25,751							205,503	199,103	120,221	-
Jan. 1979	79,326	152,510	-	118,083	914,228	292,759	371,570			39,962	138,424	128,999	-
Feb. 1979	70,710	11,458	-	19,985	874,922	481,079	664,149			28,173	-	76,424	-
March 1979	88,213	8,761	-	16,938	114,277	33,739	59,007		453,970	1,269	-	5,923	-
April 1979	83,019	11,989	-	13,304	109,209	31,725	48,269	48	136,140	-	-	-	-
May 1979	84,398	13,201	-	10,501	62,470	30,076	48,035	80,001	126,827	-	-	-	-
June 1979	74,788	12,650	-	2,554	9,388	14,002	41,114	57,259	100,275	-	-	-	-
July 1979	81,833	9,433	-	18,804	10,105	1,695	14,111	27,845	87,489	-	-	-	-
Aug 1979	79,039	11,964	-	17,336	109,488	8,872	66,367	6,162	88,986	-	-	-	-
Sept. 1979	74,460	6,804	-	12,882	107,387	9,948	56,516	55,894	107,075	-	-	-	-
		11,435	-	9,912	108,644	20,067	51,432	43,271	96,380	-	-	-	-
					76,510	28,658	33,139	36,133	95,438	-	-	268	-
								19,126	72,669	-	-	492	-
												473	-
Total	3,313,270	1,070,550	2,025,447	240,299	2,496,628	952,620	1,453,709	325,739	1,365,249	517,029	581,702	1,553,305	183,235

BEFORE EXAMINER NUT
OIL CONSERVATION DIVISIO
Applicant EXHIBIT NO. 2
CASE NO. 6715

PRODUCTION TABULATION

SALT LAKE MORROW, SOUTH (GAS) POOL
LEA COUNTY, NEW MEXICO

		GRACE PETR.								TEXACO		
eum Corp. Bass Fed #2	NM Fed.	NM Fed. "A"	NM Fed. "C"	NM Fed. "D"	NM Fed. "E" Comm.	NM Fed. "F"	Felmont Fed.	NM "SL" State	Pubco Fed.	Little Eddy Unit Audie Richards	NM "CH" State	NM "CM" State
											98,940	
										130,207	80,024	112,793
										103,798	-	387,600
										99,290	-	325,053
										97,694	-	349,800
										36,107	4,271	286,936
										115,112	-	319,950
										75,987	-	308,262
										51,595	-	288,186
										68,360	-	732,847
										83,932	-	859,047
										67,345	-	733,049
										79,706	-	562,630
	154,287									63,590	-	343,704
49,108	754,205							242,122	244,175	147,782	-	401,161
489,379	653,757							205,503	199,103	120,221	-	158,301
94,123	437,447							39,962	138,424	128,999	-	381,656
187,735	25,751		914,228	292,759	371,570			28,173	-	76,424	-	452,429
152,510	-	118,083	874,922	481,079	664,149		453,970	1,269	-	5,923	-	309,737
										-	-	
11,458	-	19,985	114,277	33,739	59,007	48	136,140	-	-	-	-	12,418
8,761	-	16,938	109,209	31,725	48,269	80,001	126,827	-	-	-	-	28,701
11,989	-	13,304	62,470	30,076	48,035	57,259	100,275	-	-	-	-	21,729
13,201	-	10,501	9,388	14,002	41,114	27,845	87,489	-	-	-	-	18,205
12,650	-	2,554	10,105	1,695	14,111	6,162	88,986	-	-	-	-	12,259
9,433	-	18,804	109,488	8,872	66,367	55,894	107,075	-	-	-	-	27,025
11,964	-	17,336	107,387	9,948	56,516	43,271	96,380	-	-	268	-	25,291
6,804	-	12,882	108,644	20,067	51,432	36,133	95,438	-	-	492	-	24,812
11,435	-	9,912	76,510	28,658	33,139	19,126	72,669	-	-	473	-	22,652
1,070,550	2,025,447	240,299	2,496,628	952,620	1,453,709	325,739	1,365,249	517,029	581,702	1,553,305	183,235	7,506,233

BEFORE EXAMINER NUTTER
OIL CONSERVATION DIVISION
APPLICANT EXHIBIT NO. 2
CASE NO. 6715

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
DIVISION FOR THE PURPOSE OF
CONSIDERING:

CASE NO. 6715
Order No. R-6275

APPLICATION OF TEXACO INC. FOR
AN UNORTHODOX GAS WELL LOCATION,
LEA COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on November 14, 1979, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 26th day of February, 1980, the Division Director, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

(1) That due public notice having been given as required by law, the Division has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, Texaco Inc., seeks approval of an unorthodox gas well location for its Loomis Federal Well No. 1, which it proposes to drill at a point 1600 feet from the North line and 660 feet from the West line of Section 5, Township 21 South, Range 32 East, NMPM, South Salt Lake-Morrow Gas Pool, Lea County, New Mexico, and to which the N/2 of said Section 5 would be dedicated.

(3) That there is an apparent permeability barrier traversing the NW/4 of the aforesaid Section 5 in a northwesterly/southeasterly direction, and the applicant seeks to complete its well on the south side of this apparent barrier.

(4) That assuming the aforesaid permeability barrier exists and is effective, a well drilled at the proposed location would not drain that portion of the N/2 of Section 5 lying north and east of the barrier.

IT IS THEREFORE ORDERED:

(1) That an unorthodox gas well location for the Morrow formation is hereby approved for the Texaco Inc. Loomis Federal Well No. 1, to be drilled at a point 1600 feet from the North line and 660 feet from the West line of Section 5, Township 21 South, Range 32 East, NMPM, South Salt Lake-Morrow Gas Pool, Lea County, New Mexico.

(2) That the N/2 of said Section 5 shall be dedicated to the above-described well.

(3) That said well is hereby assigned a Production Limitation Factor of 0.20 in the Morrow formation.

(4) That in the absence of any Special Rules and Regulations prorating gas production in the South Salt Lake-Morrow Gas Pool, the special rules hereinafter promulgated shall apply.

(5) That the following Special Rules and Regulations for a non-prorated gas well at an unorthodox location shall apply to the subject well:

SPECIAL RULES AND REGULATIONS
FOR THE
APPLICATION OF A "PRODUCTION LIMITATION FACTOR"
TO A NON-PRORATED GAS WELL

APPLICATION OF RULES

RULE 1. These rules shall apply to the Texaco Inc., Loomis Federal Well No. 1, located 1600 feet from the North line and 660 feet from the West line of Section 5, Township 21 South, Range 32 East, NMPM, Lea County, New Mexico, which well's Production Limitation Factor of 0.20 shall be applied to the well's deliverability (as determined by the hereinafter set forth procedure) to determine its maximum allowable rate of production.

ALLOWABLE PERIOD

RULE 2. The allowable period for the subject well shall be six months.

RULE 3. The year shall be divided into two allowable periods commencing at 7:00 o'clock a.m. on January 1 and July 1.

DETERMINATION OF DELIVERY CAPACITY

RULE 4. Immediately upon connection of the well the operator shall determine the open flow capacity of the well in accordance with the Division "Manual for Back-Pressure Testing of Natural Gas Wells" then current, and the well's initial deliverability shall be calculated against average pipeline pressure.

RULE 5. The well's "subsequent deliverability" shall be determined twice a year, and shall be equal to its highest single day's production during the months of April and May or October and November, whichever is applicable. Said subsequent deliverability, certified by the pipeline, shall be submitted to the appropriate District Office of the Division not later than June 15 and December 15 of each year.

RULE 6. The Division Director may authorize special deliverability tests to be conducted upon a showing that the well has been worked over or that the subsequent deliverability determined under Rule 5 above is erroneous. Any such special test shall be conducted in accordance with Rule 4 above.

RULE 7. The operator shall notify the appropriate district office of the Division and all offset operators of the date and time of initial or special deliverability tests in order that the Division or any such operator may at their option witness such tests.

CALCULATION AND ASSIGNMENT OF ALLOWABLES

RULE 8. The well's allowable shall commence upon the date of connection to a pipeline and when the operator has complied with all appropriate filing requirements of the Rules and Regulations and any special rules and regulations.

RULE 9. The well's allowable during its first allowable period shall be determined by multiplying its initial deliverability by its production limitation factor.

RULE 10. The well's allowable during all ensuing allowable periods shall be determined by multiplying its latest subsequent deliverability, as determined under provisions of Rule 5, by its production limitation factor. If the well shall not have been producing for at least 60 days prior to the end of its first allowable period, the allowable for the second allowable period shall be determined in accordance with Rule 9.

RULE 11. Revision of allowable based upon special well tests shall become effective upon the date of such test provided the results of such test are filed with the Division's district office within 30 days after the date of the test; otherwise the date shall be the date the test report is received in said office.

RULE 12. Revised allowables based on special well tests shall remain effective until the beginning of the next allowable period.

RULE 13. In no event shall the well receive an allowable of less than 500,000 cubic feet of gas per day.

BALANCING OF PRODUCTION

RULE 14. January 1 and July 1 of each year shall be known as the balancing dates.

RULE 15. If the well has an underproduced status at the end of a six-month allowable period, it shall be allowed to carry such underproduction forward into the next period and may produce such underproduction in addition to its regularly assigned allowable. Any underproduction carried forward into any allowable period which remains unproduced at the end of the period shall be cancelled.

RULE 16. Production during any one month of an allowable period in excess of the monthly allowable assigned to the well shall be applied against the underproduction carried into the period in determining the amount of allowable, if any, to be cancelled.

RULE 17. If the well has an overproduced status at the end of a six-month allowable period, it shall be shut in until such overproduction is made up.

RULE 18. If, during any month, it is discovered that the well is overproduced in an amount exceeding three times its average monthly allowable, it shall be shut in during that month and during each succeeding month until it is overproduced in an amount three times or less its monthly allowable, as determined hereinabove.

RULE 19. The Director of the Division shall have authority to permit the well, if it is subject to shut-in pursuant to Rules 17 and 18 above, to produce up to 500 MCF of gas per month upon proper showing to the Director that complete shut-in would

Gulf Ex 4
Ca 6715

GAS PRODUCTION DATA (MCF)
SALT LAKE, SOUTH - MORROW (GAS) POOL
LEA COUNTY, NEW MEXICO
EXHIBIT 4
CASE ~~6612~~ 6715
DATE: 11-14-79
GULF OIL CORPORATION

	GRACE PETROLEUM CORPORATION (RIAL OIL COMPANY)			TEXACO INCORPORATED	
	NEW MEXICO A FEDERAL 2G 421S32E Gas Co. of N.M.	NEW MEXICO E FEDERAL COM. 1P 521S32E Gas Co. of N.M.	PUBCO FEDERAL 1L221S32E Gas Co. of N.M.	LITTLE EDDY UNIT AUDIE RICHARDS 1P 2520S32E Texaco	LITTLE EDDY UNIT CM STATE 1O 3120S33E Texaco
1978					
JAN		57,146	9,894	1,138	27,516
FEB		84,378	8,270	1,482	1,735
MAR		59,052	8,165	- - -	12,750
APR		58,869	8,385	609	28,317
MAY		21,430	7,991	245	34,610
JUNE		78,635	7,715	770	33,861
JULY		603	7,691	241	20,461
AUG	34,044	60,632	7,253	599	24,854
SEPT	29,894	62,649	6,550	775	35,138
OCT	22,283	66,432	7,777	- - -	34,607
NOV	9,064	64,278	7,641	64	26,776
DEC	22,798	50,045	7,566	- - -	29,112
ANNUAL	118,083	664,149	94,898	5,923	309,737
CUMULATIVE	118,083	1,035,719	755,557	2,290,735	7,313,141
1979					
JAN	19,985	59,007	6,469	- - -	12,418
FEB	16,938	48,269	6,662	- - -	28,701
MAR	13,304	48,035	4,948	- - -	21,729
APR	10,501	41,114	4,875	TA	18,205
MAY	2,554	14,111	1,196	- - -	12,259
JUNE	18,804	66,367	9,157	- - -	27,025
JULY	17,336	56,516	6,601	268	25,291
AUG	12,882	51,432	- - -	492	24,812
SEPT	9,912	33,139	- - -	473	22,652
YEAR TO DATE	122,216	417,990	39,908*	1,233	193,092
DAILY AVG. FOR SEPT.	550	1,744	212	16	755
CUMULATIVE (10-1-79)	240,299	1,453,709	795,465	2,291,968	7,506,233

*As of 8-1-79

Gulf Ex 4
Ca 6715

GAS PRODUCTION DATA (MCF)
SALT LAKE, SOUTH - MORROW (GAS) POOL
LEA COUNTY, NEW MEXICO
EXHIBIT 4
CASE ~~6612~~ 6715
DATE: 11-14-79
GULF OIL CORPORATION

	GRACE PETROLEUM CORPORATION (RIAL OIL COMPANY)			TEXACO INCORPORATE
	NEW MEXICO A FEDERAL 2G 421S32E Gas Co. of N.M.	NEW MEXICO E FEDERAL COM. 1P 521S32E Gas Co. of N.M.	PUBCO FEDERAL 1L221S32E Gas Co. of N.M.	LITTLE EDDY UNIT AUDIE RICHARDS 1P 2520S32E Texaco
1978				
JAN		57,146	9,894	1,138
FEB		84,378	8,270	1,482
MAR		59,052	8,165	- - -
APR		58,869	8,385	609
MAY		21,430	7,991	245
JUNE		78,635	7,715	770
JULY		603	7,691	241
AUG	34,044	60,632	7,253	599
SEPT	29,894	62,649	6,550	775
OCT	22,283	66,432	7,777	- - -
NOV	9,064	64,278	7,641	64
DEC	22,798	50,045	7,566	- - -
ANNUAL	118,083	664,149	94,898	5,923
CUMULATIVE	118,083	1,035,719	755,557	2,290,735
1979				
JAN	19,985	59,007	6,469	- - -
FEB	16,938	48,269	6,662	- - -
MAR	13,304	48,035	4,948	- - -
APR	10,501	41,114	4,875	TA
MAY	2,554	14,111	1,196	- - -
JUNE	18,804	66,367	9,157	- - -
JULY	17,336	56,516	6,601	268
AUG	12,882	51,432	- - -	492
SEPT	9,912	33,139	- - -	473
YEAR TO DATE	122,216	417,990	39,908*	1,233
DAILY AVG. FOR SEPT.	550	1,744	212	16
CUMULATIVE (10-1-79)	240,299	1,453,709	795,465	2,291,968

*As of 8-1-79

GAS PRODUCTION DATA (MCF)
SALT LAKE, SOUTH - MORROW (GAS) POOL
LEA COUNTY, NEW MEXICO
EXHIBIT 4
CASE ~~6612~~ 671
DATE: 11-14-79
GULF OIL CORPORATION

GRACE PETROLEUM CORPORATION (RIAL OIL COMPANY)			TEXACO INCORPORATED	
EXICO A FEDERAL 1S32E o. of N.M.	NEW MEXICO E FEDERAL COM. 1P 521S32E Gas Co. of N.M.	PUBCO FEDERAL 1L221S32E Gas Co. of N.M.	LITTLE EDDY UNIT AUDIE RICHARDS 1P 2520S32E Texaco	LITTLE EDDY UNIT CM STATE 1O 3120S33E Texaco
	57,146	9,894	1,138	27,516
	84,378	8,270	1,482	1,735
	59,052	8,165	- - -	12,750
	58,869	8,385	609	28,317
	21,430	7,991	245	34,610
	78,635	7,715	770	33,861
	603	7,691	241	20,461
,044	60,632	7,253	599	24,854
,894	62,649	6,550	775	35,138
,283	66,432	7,777	- - -	34,607
,064	64,278	7,641	64	26,776
,798	50,045	7,566	- - -	29,112
,083	664,149	94,898	5,923	309,737
,083	1,035,719	755,557	2,290,735	7,313,141
,985	59,007	6,469	- - -	12,418
,938	48,269	6,662	- - -	28,701
,304	48,035	4,948	- - -	21,729
,501	41,114	4,875	TA	18,205
,554	14,111	1,196	- - -	12,259
,804	66,367	9,157	- - -	27,025
,336	56,516	6,601	268	25,291
,882	51,432	- - -	492	24,812
,912	33,139	- - -	473	22,652
,216	417,990	39,908*	1,233	193,092
,550	1,744	212	16	755
,299	1,453,709	795,465	2,291,968	7,506,233

GAS PRODUCTION DATA (MCF)
SALT LAKE, SOUTH-MORROW (GAS) POOL
LEA COUNTY, NEW MEXICO
EXHIBIT _____
CASE ~~6612~~ 6715
DATE: 11-14-79
GULF OIL CORPORATION

	BELCO PETROLEUM		GRACE PETROEUM CORP. (RIAL OIL COMPANY)			
	Bass 1F3020S33E Llano, El Paso Nat'l	Bass Federal Com. 2P3020S33E Llano, El Paso Nat'l	Federal C 1Q421S32E Gas Co. of N.M.	Federal D 1N421S32E Gas Co. of N.M.	Felmont Federal 1P2520S32E Gas Co. of N.M.	New Mexico 1K521S32E Gas Co. of
1978						
JAN	90,550	18,019	89,317	30,562		
FEB	78,204	9,930	102,992	40,539		
MAR	90,602	12,480	75,274	56,196		
APR	85,884	13,739	90,085	61,613		
MAY	85,174	8,300	33,851	21,237		
JUNE	76,495	11,930	75,033	49,976		
JULY	83,042	11,197	78,683	58,677		
AUG	93,225	15,441	77,004	51,110		
SEPT	92,323	13,660	76,952	47,840	87,457	
OCT	97,450	13,756	49,422	31,656	149,943	
NOV	89,991	12,472	15,379	3,132	73,080	
DEC	82,108	11,586	110,930	28,541	143,490	
ANNUAL	1,045,048	152,510	874,922	481,079	453,970	
CUMULATIVE	6,078,812	972,855	1,789,080	773,838	453,970	
1979						
JAN	79,326	11,458	114,277	33,739	136,140	
FEB	70,710	8,761	109,209	31,725	126,827	8
MAR	88,213	11,989	62,470	30,076	100,275	5
APR	83,019	13,201	9,388	14,002	87,489	2
MAY	84,398	12,650	10,105	1,695	88,986	
JUNE	74,788	9,433	109,488	8,872	107,075	5
JULY	81,833	11,964	107,387	9,948	96,380	4
AUG	79,039	6,804	108,644	20,067	95,438	3
SEPT	74,460	11,435	76,510	28,658	72,669	1
YEAR TO DATE	715,786	97,695	707,478	178,782	911,279	32
DAILY AVG. FOR SEPT	2,482	423	3,825	955	3,027	
CUMULATIVE (10-1-79)	6,794,598	1,070,550	2,496,558	952,620	1,365,249	32

GAS PRODUCTION DATA (MCF)
SALT LAKE, SOUTH-MORROW (GAS) POOL
LEA COUNTY, NEW MEXICO
EXHIBIT _____
CASE ~~6612~~ 6715
DATE: 11-14-79
GULF OIL CORPORATION

	BELCO PETROLEUM		GRACE PETROEUM CORP. (RIAL OIL COMPANY)			
	Bass Federal Com. 2P3020S33E	Federal C 1Q421S32E	Federal D 1N421S32E	Felmont Federal 1P2520S32E	New Mexico Federal 'F' Com. 1K521S32E	
so Nat'l	Llano, El Paso Nat'l	Gas Co. of N.M.	Gas Co. of N.M.	Gas Co. of N.M.	Gas Co. of N.M.	
50	18,019	89,317	30,562			
04	9,930	102,992	40,539			
02	12,480	75,274	56,196			
84	13,739	90,085	61,613			
74	8,300	33,851	21,237			
95	11,930	75,033	49,976			
42	11,197	78,683	58,677			
25	15,441	77,004	51,110			
23	13,660	76,952	47,840	87,457		
50	13,756	49,422	31,656	149,943		
91	12,472	15,379	3,132	73,080		
08	11,586	110,930	28,541	143,490		
48	152,510	874,922	481,079	453,970		
12	972,855	1,789,080	773,838	453,970		
26	11,458	114,277	33,739	136,140	48	
10	8,761	109,209	31,725	126,827	80,001	
13	11,989	62,470	30,076	100,275	57,259	
19	13,201	9,388	14,002	87,489	27,845	
98	12,650	10,105	1,695	88,986	6,162	
38	9,433	109,488	8,872	107,075	55,894	
33	11,964	107,387	9,948	96,380	43,271	
39	6,804	108,644	20,067	95,438	36,133	
30	11,435	76,510	28,658	72,669	19,126	
36	97,695	707,478	178,782	911,279	325,739	
32	423	3,825	955	3,027	1,275	
98	1,070,550	2,496,558	952,620	1,365,249	325,739	

PRODUCTION TABULATION

SALT LAKE MORROW, SOUTH (GAS) POOL
LEA COUNTY, NEW MEXICO

	Belco Petroleum Corp.		GRACE PETR.									TEXACO	
	Bass Fed #1	Bass Fed #2	NM Fed.	NM Fed. "A"	NM Fed. "C"	NM Fed. "D"	NM Fed. "E" Comm.	NM Fed. "F"	Felmont Fed.	NM "SL" State	Pubco Fed.	Little Eddy Unit Audie Richards	NM "C" Stat
1958													
1959													
1960													98,9
1961												130,207	80,0
1962												103,798	-
1963												99,290	-
1964												97,694	-
1965												36,107	4,2
1966												115,112	-
1967												75,987	-
1968												51,595	-
1969												68,360	-
1970												83,932	-
1971												67,345	-
1972												79,706	-
1973			154,287									63,590	-
1974			754,205	49,108						242,122	244,175	147,782	-
1975			653,757	489,379						205,503	199,103	120,221	-
1976		402,707	437,447	94,123						39,962	138,424	128,999	-
1977		1,149,729	25,751	187,735		914,228	292,759	371,570		28,173	-	76,424	-
1978		1,045,048	-	152,510	118,083	874,922	481,079	664,149		1,269	-	5,923	-
Jan.	1979	79,326	-	11,458	-	19,985	114,277	33,739	59,007	48	136,140	-	-	-	-
Feb.	1979	70,710	-	8,761	-	16,938	109,209	31,725	48,269	80,001	126,827	-	-	-	-
March	1979	88,213	-	11,989	-	13,304	62,470	30,076	48,035	57,259	100,275	-	-	-	-
April	1979	83,019	-	13,201	-	10,501	9,388	14,002	41,114	27,845	87,489	-	-	-	-
May	1979	84,398	-	12,650	-	2,554	10,105	1,695	14,111	6,162	88,986	-	-	-	-
June	1979	74,788	-	9,433	-	18,804	109,488	8,872	66,367	55,894	107,075	-	-	-	-
July	1979	81,833	-	11,964	-	17,336	107,387	9,948	56,516	43,271	96,380	-	-	-	-
Aug	1979	79,039	-	6,804	-	12,882	108,644	20,067	51,432	36,133	95,438	-	-	268	-
Sept.	1979	74,460	-	11,435	-	9,912	76,510	28,658	33,139	19,126	72,669	-	-	492	-
														473	-
Total		3,313,270	2,025,447	1,070,550	240,299	2,496,628	952,620	1,453,709	325,739	1,365,249	517,029	581,702	1,553,305		183,2

BEFORE EXAMINER NUT
OIL CONSERVATION DIVISIO
APPLICANT EXHIBIT NO. 2
CASE NO. 6715

PRODUCTION TABULATION

SALT LAKE MORROW, SOUTH (GAS) POOL
LEA COUNTY, NEW MEXICO

		GRACE PETR.								TEXACO		
um Corp. ass Fed #2	NM Fed.	NM Fed. "A"	NM Fed. "C"	NM Fed. "D"	NM Fed. "E" Comm.	NM Fed. "F"	Felmont Fed.	NM "SL" State	Pubco Fed.	Little Eddy Unit Audie Richards	NM "CH" State	NM "CM" State
											98,940	
										130,207	80,024	112,793
										103,798	-	387,600
										99,290	-	325,053
										97,694	-	349,800
										36,107	4,271	286,936
										115,112	-	319,950
										75,987	-	308,262
										51,595	-	288,186
										68,360	-	732,847
										83,932	-	859,047
										67,345	-	733,049
										79,706	-	562,630
	154,287									63,590	-	343,704
49,108	754,205							242,122	244,175	147,782	-	401,161
489,379	653,757							205,503	199,103	120,221	-	158,301
94,123	437,447							39,962	138,424	128,999	-	381,656
187,735	25,751		914,228	292,759	371,570			28,173	-	76,424	-	452,429
152,510	-	118,083	874,922	481,079	664,149		453,970	1,269	-	5,923	-	309,737
										-	-	
11,458	-	19,985	114,277	33,739	59,007	48	136,140	-	-	-	-	12,418
8,761	-	16,938	109,209	31,725	48,269	80,001	126,827	-	-	-	-	28,701
11,989	-	13,304	62,470	30,076	48,035	57,259	100,275	-	-	-	-	21,729
13,201	-	10,501	9,388	14,002	41,114	27,845	87,489	-	-	-	-	18,205
12,650	-	2,554	10,105	1,695	14,111	6,162	88,986	-	-	-	-	12,259
9,433	-	18,804	109,488	8,872	66,367	55,894	107,075	-	-	-	-	27,025
11,964	-	17,336	107,387	9,948	56,516	43,271	96,380	-	-	268	-	25,291
6,804	-	12,882	108,644	20,067	51,432	36,133	95,438	-	-	492	-	24,812
11,435	-	9,912	76,510	28,658	33,139	19,126	72,669	-	-	473	-	22,652
070,550	2,025,447	240,299	2,496,628	952,620	1,453,709	325,739	1,365,249	517,029	581,702	1,553,305	183,235	7,506,233

BEFORE EXAMINER NUTTER
OIL CONSERVATION DIVISION
APPLICANT EXHIBIT NO. 2
CASE NO. 6715

BEFORE EXAMINER N
OIL CONSERVATION DI
Gulf EXHIBIT NO.
CASE NO. 6715

GAS PRODUCTION DATA (MCF)
SALT LAKE, SOUTH - MORROW (GAS) POOL
LEA COUNTY, NEW MEXICO
EXHIBIT 4
CASE ~~6612~~ 6715
DATE: 11-14-79
GULF OIL CORPORATION

	GRACE PETROLEUM CORPORATION (RIAL OIL COMPANY)			TEXACO INCORPORATED	
	NEW MEXICO A FEDERAL 2G 421S32E Gas Co. of N.M.	NEW MEXICO E FEDERAL COM. 1P 521S32E Gas Co. of N.M.	PUBCO FEDERAL 1L221S32E Gas Co. of N.M.	LITTLE EDDY UNIT AUDIE RICHARDS 1P 2520S32E Texaco	LITTLE CM STA 10 312 Texaco
1978					
JAN		57,146	9,894	1,138	
FEB		84,378	8,270	1,482	
MAR		59,052	8,165	- - -	
APR		58,869	8,385	609	
MAY		21,430	7,991	245	
JUNE		78,635	7,715	770	
JULY		603	7,691	241	
AUG	34,044	60,632	7,253	599	
SEPT	29,894	62,649	6,550	775	
OCT	22,283	66,432	7,777	- - -	
NOV	9,064	64,278	7,641	64	
DEC	22,798	50,045	7,566	- - -	
ANNUAL	118,083	664,149	94,898	5,923	
CUMULATIVE	118,083	1,035,719	755,557	2,290,735	
1979					
JAN	19,985	59,007	6,469	- - -	
FEB	16,938	48,269	6,662	- - -	
MAR	13,304	48,035	4,948	- - -	
APR	10,501	41,114	4,875	TA	
MAY	2,554	14,111	1,196	- - -	
JUNE	18,804	66,367	9,157	- - -	
JULY	17,336	56,516	6,601	268	
AUG	12,882	51,432	- - -	492	
SEPT	9,912	33,139	- - -	473	
YEAR TO DATE	122,216	417,990	39,908*	1,233	
DAILY AVG. FOR SEPT.	550	1,744	212	16	
CUMULATIVE (10-1-79)	240,299	1,453,709	795,465	2,291,968	

*As of 8-1-79

GAS PRODUCTION DATA (MCF)
SALT LAKE, SOUTH - MORROW (GAS) POOL
LEA COUNTY, NEW MEXICO
EXHIBIT 4
CASE ~~6612~~ 6715
DATE: 11-14-79
GULF OIL CORPORATION

BEFORE EXAMINER NUTTER
OIL CONSERVATION DIVISION
Gulf EXHIBIT NO. 4
CASE NO. 6715

CE PETROLEUM CORPORATION (RIAL OIL COMPANY)			TEXACO INCORPORATED	
FEDERAL	NEW MEXICO E FEDERAL COM.	PUBCO FEDERAL	LITTLE EDDY UNIT	LITTLE EDDY UNIT
	1P 521S32E	1L221S32E	AUDIE RICHARDS	CM STATE
.M.	Gas Co. of N.M.	Gas Co. of N.M.	1P 252OS32E	1O 3120S33E
			Texaco	Texaco
	57,146	9,894	1,138	27,516
	84,378	8,270	1,482	1,735
	59,052	8,165	- - -	12,750
	58,869	8,385	609	28,317
	21,430	7,991	245	34,610
	78,635	7,715	770	33,861
	603	7,691	241	20,461
	60,632	7,253	599	24,854
	62,649	6,550	775	35,138
	66,432	7,777	- - -	34,607
	64,278	7,641	64	26,776
	50,045	7,566	- - -	29,112
	664,149	94,898	5,923	309,737
	1,035,719	755,557	2,290,735	7,313,141
	59,007	6,469	- - -	12,418
	48,269	6,662	- - -	28,701
	48,035	4,948	- - -	21,729
	41,114	4,875	TA	18,205
	14,111	1,196	- - -	12,259
	66,367	9,157	- - -	27,025
	56,516	6,601	268	25,291
	51,432	- - -	492	24,812
	33,139	- - -	473	22,652
	417,990	39,908*	1,233	193,092
	1,744	212	16	755
	1,453,709	795,465	2,291,968	7,506,233

GAS PRODUCTION DATA (MCF)
SALT LAKE, SOUTH-MORROW (GAS) POOL
LEA COUNTY, NEW MEXICO
EXHIBIT _____
CASE ~~6612~~ 671 5
DATE: 11-14-79
GULF OIL CORPORATION

	BELCO PETROLEUM		GRACE PETROEUM CORP. (RIAL OIL COMPANY)			
	Bass 1F3020S33E Llano, El Paso Nat'l	Bass Federal Com. 2P3020S33E Llano, El Paso Nat'l	Federal C 1Q421S32E Gas Co. of N.M.	Federal D 1N421S32E Gas Co. of N.M.	Felmont Federal 1P2520S32E Gas Co. of N.M.	New Mexi 1K521S32 Gas Co.
1978						
JAN	90,550	18,019	89,317	30,562		
FEB	78,204	9,930	102,992	40,539		
MAR	90,602	12,480	75,274	56,196		
APR	85,884	13,739	90,085	61,613		
MAY	85,174	8,300	33,851	21,237		
JUNE	76,495	11,930	75,033	49,976		
JULY	83,042	11,197	78,683	58,677		
AUG	93,225	15,441	77,004	51,110		
SEPT	92,323	13,660	76,952	47,840	87,457	
OCT	97,450	13,756	49,422	31,656	149,943	
NOV	89,991	12,472	15,379	3,132	73,080	
DEC	82,108	11,586	110,930	28,541	143,490	
ANNUAL	1,045,048	152,510	874,922	481,079	453,970	
CUMULATIVE	6,078,812 wrong	972,855	1,789,080	773,838	453,970	
1979						
JAN	79,326	11,458	114,277	33,739	136,140	
FEB	70,710	8,761	109,209	31,725	126,827	
MAR	88,213	11,989	62,470	30,076	100,275	
APR	83,019	13,201	9,388	14,002	87,489	
MAY	84,398	12,650	10,105	1,695	88,986	
JUNE	74,788	9,433	109,488	8,872	107,075	
JULY	81,833	11,964	107,387	9,948	96,380	
AUG	79,039	6,804	108,644	20,067	95,438	
SEPT	74,460	11,435	76,510	28,658	72,669	
YEAR TO DATE	715,786	97,695	707,478	178,782	911,279	
DAILY AVG. FOR SEPT	2,482	423	3,825	955	3,027	
CUMULATIVE (10-1-79)	6,794,598 should be 3,313,270	1,070,550	2,496,558	952,620	1,365,249	

GAS PRODUCTION DATA (MCF)
SALT LAKE, SOUTH-MORROW (GAS) POOL
LEA COUNTY, NEW MEXICO
EXHIBIT _____
CASE ~~6612~~ 6715
DATE: 11-14-79
GULF OIL CORPORATION

PETROLEUM	GRACE PETROEUM CORP. (RIAL OIL COMPANY)				
	Bass Federal Com. 2P3020S33E	Federal C 1Q421S32E	Federal D 1N421S32E	Felmont Federal 1P2520S32E	New Mexico Federal F Com. 1K521S32E
1	Llano, El Paso Nat'l	Gas Co. of N.M.	Gas Co. of N.M.	Gas Co. of N.M.	Gas Co. of N.M.
	18,019	89,317	30,562		
	9,930	102,992	40,539		
	12,480	75,274	56,196		
	13,739	90,085	61,613		
	8,300	33,851	21,237		
	11,930	75,033	49,976		
	11,197	78,683	58,677		
	15,441	77,004	51,110		
	13,660	76,952	47,840	87,457	
	13,756	49,422	31,656	149,943	
	12,472	15,379	3,132	73,080	
	11,586	110,930	28,541	143,490	
	152,510	874,922	481,079	453,970	
	972,855	1,789,080	773,838	453,970	
	11,458	114,277	33,739	136,140	48
	8,761	109,209	31,725	126,827	80,001
	11,989	62,470	30,076	100,275	57,259
	13,201	9,388	14,002	87,489	27,845
	12,650	10,105	1,695	88,986	6,162
	9,433	109,488	8,872	107,075	55,894
	11,964	107,387	9,948	96,380	43,271
	6,804	108,644	20,067	95,438	36,133
	11,435	76,510	28,658	72,669	19,126
	97,695	707,478	178,782	911,279	325,739
	423	3,825	955	3,027	1,275
	1,070,550	2,496,558	952,620	1,365,249	325,739

ROUGH

dr/

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
DIVISION FOR THE PURPOSE OF
CONSIDERING:

CASE NO. 6715

Order No. R-6275

APPLICATION OF TEXACO, INC. FOR
AN UNORTHODOX GAS WELL LOCATION,
LEA COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on November 14, 19 79, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this _____ day of January, 1980, the Division Director, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

(1) That due public notice having been given as required by law, the Division has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, Texaco, Inc., seeks approval of an unorthodox gas well location for its Loomis Federal Well No. 1, which it proposes to drill at a point 1600 feet from the North line and 660 feet from the West line of Section 5, Township 21 South, Range 32 East, NMPM, South Salt Lake-Morrow Gas Pool, Lea County, New Mexico, and to which the N/2 of said Section 5 would be dedicated.

(3) That there is an apparent permeability barrier traversing the NW/4 of the aforesaid Section 5 in a northwesterly/southeasterly direction, and the applicant seeks to complete its well on the south side of this apparent barrier.

(4) That assuming the aforesaid permeability barrier exists and is effective, a well drilled at the proposed location would not drain that portion of the N/2 of Section 5 lying north and east of the barrier.

(5) That drainage of the reservoir by a well at the proposed location would be limited to that portion of the N/2 of Section 5 lying south and west of the barrier and to the offsetting lands to the west, southwest, and south.

(6) That there are approximately 63 acres in the N/2 of Section 5 which lie south and west of the aforementioned barrier and which would be drained by a well at the proposed location.

(7) That in order to protect the applicant's correlative rights, applicant should be permitted to drill a well at a location south of the barrier, which will allow it to recover the reserves underlying the aforesaid 63 acres.

(8) That in order to protect the correlative rights of offset operators, any well drilled at the proposed unorthodox location should be limited in its production, and such limitation should be based upon the amount of acreage in the dedicated 320-acre tract which the well would drain.

(9) That a production limitation factor of 63/320, or 0.20, would protect correlative rights of the applicant as well as those of the owners of offsetting lands.

(10) That in the absence of any special rules and regulations for the prorationing of production from the South Salt Lake- Morrow Gas Pool, the aforesaid production limitation factor should be applied against said well's ability to produce into the pipeline as determined by periodic well tests.

(11) That in order to prevent premature abandonment and subsequent waste, a minimum allowable should be established for the subject well.

(12) That such minimum allowable for the subject well should be reasonable, and ~~1,000,000~~ 500,000 cubic feet of gas per day is a reasonable figure for such minimum allowable.

(13) That approval of the subject application subject to the above provisions and limitations will afford the applicant the opportunity to produce its just and equitable share of the gas in the subject pool, will prevent the economic loss caused by the drilling of unnecessary wells, avoid the augmentation of risk arising from the drilling of an excessive number of wells, and will otherwise prevent waste and protect correlative rights.

IT IS THEREFORE ORDERED:

(1) That an unorthodox gas well location for the Morrow formation is hereby approved for the Texaco, Inc., Loomis Federal Well No. 1, to be drilled at a point 1600 feet from the North line and 660 feet from the West line of Section 5, Township 21 South, Range 32 East, NMPM, South Salt Lake-Morrow Gas Pool, Lea County, New Mexico.

(2) That the N/2 of said Section 5 shall be dedicated to the above-described well.

(3) That said well is hereby assigned a Production Limitation Factor of 0.20 in the Morrow formation.

(4) That in the absence of any Special Rules and Regulations prorating gas production in South Salt Lake-Morrow Gas Pool, the Special rules hereinafter promulgated shall apply.

(5) That the following Special Rules and Regulations for a non-prorated gas well at an unorthodox location shall apply to the subject well:

SPECIAL RULES AND REGULATIONS
FOR THE
APPLICATION OF A "PRODUCTION LIMITATION FACTOR"
TO A NON-PRORATED GAS WELL

APPLICATION OF RULES

RULE 1. These rules shall apply to the Texaco, Inc., Loomis Federal Well No. 1, located 1600 feet from the North line and 660 feet from the West line of Section 5, Township 21 South, Range 32 East, NMPM, Lea County, New Mexico, which well's Production Limitation Factor of 0.20 shall be applied to the well's deliverability (as determined by the hereinafter set forth procedure) to determine its maximum allowable rate of production.

ALLOWABLE PERIOD

RULE 2. The allowable period for the subject well shall be six months.

RULE 3. The year shall be divided into two allowable periods commencing at 7:00 o'clock a.m. on January 1 and July 1.

DETERMINATION OF DELIVERY CAPACITY

RULE 4. Immediately upon connection of the well the operator shall determine the open flow capacity of the well in accordance with the Division "Manual for Back-Pressure Testing of Natural Gas Wells" then current, and the well's initial deliverability shall be calculated against average pipeline pressure.

RULE 5. The well's "subsequent deliverability" shall be determined twice a year, and shall be equal to its highest single day's production during the months of April and May or October and November, whichever is applicable. Said subsequent deliverability, certified by the pipeline, shall be submitted to the appropriate District Office of the Division not later than June 15 and December 15 of each year.

RULE 6. The Division Director may authorize special deliverability tests to be conducted upon a showing that the well has been worked over or that the subsequent deliverability determined under Rule 5 above is erroneous. Any such special test shall be conducted in accordance with Rule 4 above.

RULE 7. The operator shall notify the appropriate district office of the Division and all offset operators of the date and time of initial or special deliverability tests in order that the Division or any such operator may at their option witness such tests.

CALCULATION AND ASSIGNMENT OF ALLOWABLES

RULE 8. The well's allowable shall commence upon the date of connection to a pipeline and when the operator has complied with all appropriate filing requirements of the Rules and Regulations and any special rules and regulations.

RULE 9. The well's allowable during its first allowable period shall be determined by multiplying its initial deliverability by its production limitation factor.

RULE 10. The well's allowable during all ensuing allowable periods shall be determined by multiplying its latest subsequent deliverability, as determined under provisions of Rule 5, by its production limitation factor. If the well shall not have been producing for at least 60 days prior to the end of its first allowable period, the allowable for the second allowable period shall be determined in accordance with Rule 9.

RULE 11. Revision of allowable based upon special well tests shall become effective upon the date of such test provided the results of such test are filed with the Division's district office within 30 days after the date of the test; otherwise the date shall be the date the test report is received in said office.

RULE 12. Revised allowables based on special well tests shall remain effective until the beginning of the next allowable period.

RULE 13. In no event shall the well receive an allowable of less than ~~one million~~ 500,000 cubic feet of gas per day.

BALANCING OF PRODUCTION

RULE 14. January 1 and July 1 of each year shall be known as the balancing dates.

RULE 15. If the well has an underproduced status at the end of a six-month allowable period, it shall be allowed to carry such underproduction forward into the next period and may produce such underproduction in addition to its regularly assigned allowable. Any underproduction carried forward into any allowable period which remains unproduced at the end of the period shall be cancelled.

RULE 16. Production during any one month of an allowable period in excess of the monthly allowable assigned to the well shall be applied against the underproduction carried into the period in determining the amount of allowable, if any, to be cancelled.

RULE 17. If the well has an overproduced status at the end of a six-month allowable period, it shall be shut in until such overproduction is made up.

RULE 18. If, during any month, it is discovered that the well is overproduced in an amount exceeding three times its average monthly allowable, it shall be shut in during that month and during each succeeding month until it is overproduced in an amount three times or less its monthly allowable, as determined hereinabove.

RULE 19. The Director of the Division shall have authority to permit the well, if it is subject to shut-in pursuant to Rules 17 and 18 above, to produce up to 500 MCF of gas per month upon proper showing to the Director that complete shut-in would cause undue hardship, provided however, such permission shall be rescinded for the well if it has produced in excess of the monthly rate authorized by the Director.

RULE 20. The Division may allow overproduction to be made up at a lesser rate than permitted under Rules 17, 18, or 19 above upon a showing at public hearing that the same is necessary to avoid material damage to the well.

GENERAL

RULE 21. Failure to comply with the provisions of this order or the rules contained herein or the Rules and Regulations of the Division shall result in the cancellation of allowable assigned to the well. No further allowable shall be assigned to the well until all rules and regulations are complied with. The Division shall notify the operator of the well and the purchaser, in writing, of the date of allowable cancellation and the reason therefor.

(6) That jurisdiction of this cause is retained for the entry of such further orders as the Division may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year herein-above designated.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

JOE D. RAMEY
Director

S E A L

fd/

TEXACO

PETROLEUM PRODUCTS

PRODUCING DEPARTMENT
WEST UNITED STATES
MIDLAND DIVISION

TEXACO. INC.
P. O. BOX 3109
MIDLAND, TEXAS 79702

October 19, 1979

RECEIVED
OCT 22 1979
OIL CONSERVATION DIVISION
SANTA FE

UNORTHODOX LOCATION
TEXACO INC.
C. A. LOOMIS-FEDERAL WELL NO. 1
SOUTH SALT LAKE MORROW GAS POOL
LEA COUNTY, NEW MEXICO

Case 6715

The State of New Mexico
Department of Energy & Minerals
Oil Conservation Division
P. O. Box 2088
Santa Fe, NM 87501

Attention: Mr. Joe D. Ramey

Gentlemen:

Texaco Inc. respectfully requests that a hearing be scheduled for an unorthodox location for Texaco's C. A. Loomis-Federal Well No. 1 at a location 1600' FNL & 660' FWL, Section 5, T-21-S, R-32-E, Lea County, New Mexico. Texaco Inc. is applying for a 320 acre standard gas proration unit comprised of the north half of Section 5.

Yours very truly,

D. T. McCreary
Division Manager

By R G Brown
R. G. Brown
Assistant to Division Manager

PHD/lt

This is recycled paper

1 Apt. acts. well to cost 1.2 million

E. offset depleted SI since 1977

Depleted SI since 1978

for east side & Ex 1

PRODUCTION TABULATION

SALT LAKE MORROW, SOUTH (GAS) POOL
LEA COUNTY, NEW MEXICO

	Belco Petroleum Corp.		GRACE PETR.								TEXACO	
	Bass Fed #1	Bass Fed #2	NM Fed.	NM Fed. "A"	NM Fed. "C"	NM Fed. "D"	NM Fed. "E" Comm.	NM Fed. "F"	Pelmont Fed.	NM "SL" State	Pubco Fed.	Little Eddy Unit Audie Richards	NM "CL" State
1958													
1959													98,94
1960												130,207	80,02
1961												103,798	-
1962												99,290	-
1963												97,694	-
1964												36,107	4,27
1965												115,112	-
1966												75,987	-
1967												51,595	-
1968												68,360	-
1969												83,932	-
1970												67,345	-
1971												79,706	-
1972												63,590	-
1973			154,287									147,782	-
1974			754,205	49,108						242,122	244,175	120,221	-
1975			653,757	489,379						205,503	199,103	128,999	-
1976		402,707	437,447	94,123						39,962	138,424	76,424	-
1977		1,149,729	25,751	187,735		914,228	292,759	371,570		28,173	-	5,923	-
1978		1,045,048	-	152,510	118,083	874,922	481,079	664,149		1,269	-	-	-
Jan.	1979	79,326	-	11,458	-	19,985	114,277	33,739	59,007	48	136,140	-	-	-
Feb.	1979	70,710	-	8,761	-	16,938	109,209	31,725	48,269	80,001	126,827	-	-	-
Mch.	1979	88,213	-	11,989	-	13,304	62,470	30,076	48,035	57,259	100,275	-	-	-
Apl.	1979	83,019	-	13,201	-	10,501	9,388	14,002	41,114	27,845	87,489	-	-	-
May	1979	84,398	-	12,650	-	2,554	10,105	1,695	14,111	6,162	88,986	-	-	-
June	1979	74,788	-	9,433	-	18,804	109,488	8,872	66,367	55,894	107,075	-	-	-
July	1979	81,833	-	11,964	-	17,336	107,387	9,948	56,516	43,271	96,380	-	-	-
Aug.	1979	79,039	-	6,804	-	12,882	108,644	20,067	51,432	36,133	95,438	-	-	268
Sept.	1979	74,460	-	11,435	-	9,912	76,510	28,658	33,139	19,126	72,669	-	-	492
Total		3,313,270	1,070,550	2,025,447	240,299	2,496,628	952,620	1,453,709	325,739	1,365,249	517,029	581,702	1,553,305	183,23

no prod. in this 40 ac. tract however in program

BEFORE EXAMINER NUT
OIL CONSERVATION DIVISIO
Applicant EXHIBIT NO. 2
CASE NO. 6715

E. offset depleted SI since 1977

PRODUCTION TABULATION

SALT LAKE MORROW, SOUTH (GAS) POOL
LEA COUNTY, NEW MEXICO

Depleted SI since 1978

for east side of Ex 1

orig a Morrow well for short time only - then re-completed in Atoka

Corp. s Fed #2	GRACE PETR. NM Fed.	NM Fed. "A"	NM Fed. "C"	NM Fed. "D"	NM Fed. "E" Comm.	NM Fed. "F"	Felmont Fed.	NM "SL" State	Pubco Fed.	TEXACO Little Eddy Unit Audie Richards	NM "CH" State	NM "CM" State
											98,940	
										130,207	80,024	112,793
										103,798	-	387,600
										99,290	-	325,053
										97,694	-	349,800
										36,107	4,271	286,936
										115,112	-	319,950
										75,987	-	308,262
										51,595	-	288,186
										68,360	-	732,847
										83,932	-	859,047
										67,345	-	733,049
										79,706	-	562,630
	154,287									63,590	-	343,704
49,108	754,205							242,122	244,175	147,782	-	401,161
89,379	653,757							205,503	199,103	120,221	-	158,301
94,123	437,447							39,962	138,424	128,999	-	381,656
87,735	25,751		914,228	292,759	371,570			28,173	-	76,424	-	452,429
52,510	-	118,083	874,922	481,079	664,149		453,970	1,269	-	5,923	-	309,737
										-	-	
11,458	-	19,985	114,277	33,739	59,007	48	136,140	-	-	-	-	12,418
8,761	-	16,938	109,209	31,725	48,269	80,001	126,827	-	-	-	-	28,701
11,989	-	13,304	62,470	30,076	48,035	57,259	100,275	-	-	-	-	21,729
13,201	-	10,501	9,388	14,002	41,114	27,845	87,489	-	-	-	-	18,205
12,650	-	2,554	10,105	1,695	14,111	6,162	88,986	-	-	-	-	12,259
9,433	-	18,804	109,488	8,872	66,367	55,894	107,075	-	-	-	-	27,025
11,964	-	17,336	107,387	9,948	56,516	43,271	96,380	-	-	-	-	25,291
6,804	-	12,882	108,644	20,067	51,432	36,133	95,438	-	-	268	-	24,812
11,435	-	9,912	76,510	28,658	33,139	19,126	72,669	-	-	492	-	22,652
										473	-	
70,550	2,025,447	240,299	2,496,628	952,620	1,453,709	325,739	1,365,249	517,029	581,702	1,553,305	183,235	7,506,233

no prod. activity 1979 workover in progress

BEFORE EXAMINER NUTTER
OIL CONSERVATION DIVISION
Applicant EXHIBIT NO. 2
CASE NO. 6715

Gulf Ex 4
CA 6715

GAS PRODUCTION DATA (MCF)
SALT LAKE, SOUTH - MORROW (GAS) POOL
LEA COUNTY, NEW MEXICO
EXHIBIT 4
CASE ~~6612~~ 6715
DATE: 11-14-79
GULF OIL CORPORATION

	GRACE PETROLEUM CORPORATION (RIAL OIL COMPANY)			TEXACO INCORPORA	
	NEW MEXICO A FEDERAL 2G 421S32E Gas Co. of N.M.	NEW MEXICO E FEDERAL COM. 1P 521S32E Gas Co. of N.M.	PUBCO FEDERAL 1L221S32E Gas Co. of N.M.	LITTLE EDDY UNIT AUDIE RICHARDS 1P 2520S32E Texaco	LI CM 1O Tex
1978					
JAN		57,146	9,894	1,138	
FEB		84,378	8,270	1,482	
MAR		59,052	8,165	- - -	
APR		58,869	8,385	609	
MAY		21,430	7,991	245	
JUNE		78,635	7,715	770	
JULY		603	7,691	241	
AUG	34,044	60,632	7,253	599	
SEPT	29,894	62,649	6,550	775	
OCT	22,283	66,432	7,777	- - -	
NOV	9,064	64,278	7,641	64	
DEC	22,798	50,045	7,566	- - -	
ANNUAL	118,083	664,149	94,898	5,923	
CUMULATIVE	118,083	1,035,719	755,557	2,290,735	
1979					
JAN	19,985	59,007	6,469	- - -	
FEB	16,938	48,269	6,662	- - -	
MAR	13,304	48,035	4,948	- - -	
APR	10,501	41,114	4,875	TA	
MAY	2,554	14,111	1,196	- - -	
JUNE	18,804	66,367	9,157	- - -	
JULY	17,336	56,516	6,601	268	
AUG	12,882	51,432	- - -	492	
SEPT	9,912	33,139	- - -	473	
YEAR TO DATE	122,216	417,990	39,908*	1,233	
DAILY AVG. FOR SEPT.	550	1,744	212	16	
CUMULATIVE (10-1-79)	240,299	1,453,709	795,465	2,291,968	

*As of 8-1-79

GAS PRODUCTION DATA (MCF)
SALT LAKE, SOUTH - MORROW (GAS) POOL
LEA COUNTY, NEW MEXICO
EXHIBIT 4
CASE ~~6612~~ 6715
DATE: 11-14-79
GULF OIL CORPORATION

GRACE PETROLEUM CORPORATION (RIAL OIL COMPANY)			TEXACO INCORPORATED	
CO A FEDERAL 2E of N.M.	NEW MEXICO E FEDERAL COM. 1P 521S32E Gas Co. of N.M.	PUBCO FEDERAL 1L221S32E Gas Co. of N.M.	LITTLE EDDY UNIT AUDIE RICHARDS 1P 2520S32E Texaco	LITTLE EDDY UNIT CM STATE 1O 3120S33E Texaco
	57,146	9,894	1,138	27,516
	84,378	8,270	1,482	1,735
	59,052	8,165	- - -	12,750
	58,869	8,385	609	28,317
	21,430	7,991	245	34,610
	78,635	7,715	770	33,861
	603	7,691	241	20,461
44	60,632	7,253	599	24,854
94	62,649	6,550	775	35,138
83	66,432	7,777	- - -	34,607
64	64,278	7,641	64	26,776
98	50,045	7,566	- - -	29,112
83	664,149	94,898	5,923	309,737
83	1,035,719	755,557	2,290,735	7,313,141
85	59,007	6,469	- - -	12,418
38	48,269	6,662	- - -	28,701
04	48,035	4,948	- - -	21,729
01	41,114	4,875	TA	18,205
54	14,111	1,196	- - -	12,259
04	66,367	9,157	- - -	27,025
36	56,516	6,601	268	25,291
32	51,432	- - -	492	24,812
12	33,139	- - -	473	22,652
16	417,990	39,908*	1,233	193,092
0,	1,744	212	16	755
9,	1,453,709	795,465	2,291,968	7,506,233

GAS PRODUCTION DATA (MCF)
SALT LAKE, SOUTH-MORROW (GAS) POOL
LEA COUNTY, NEW MEXICO
EXHIBIT _____
CASE ~~6612~~ 6715
DATE: 11-14-79
GULF OIL CORPORATION

	BELCO PETROLEUM		GRACE PETROEUM CORP. (RIAL OIL COMPANY)			
	Bass 1F3020S33E Llano, El Paso Nat'l	Bass Federal Com. 2P3020S33E Llano, El Paso Nat'l	Federal C 1Q421S32E Gas Co. of N.M.	Federal D 1N421S32E Gas Co. of N.M.	Felmont Federal 1P2520S32E Gas Co. of N.M.	New Mexic 1K521S32E Gas Co. o
1978						
JAN	90,550	18,019	89,317	30,562		
FEB	78,204	9,930	102,992	40,539		
MAR	90,602	12,480	75,274	56,196		
APR	85,884	13,739	90,085	61,613		
MAY	85,174	8,300	33,851	21,237		
JUNE	76,495	11,930	75,033	49,976		
JULY	83,042	11,197	78,683	58,677		
AUG	93,225	15,441	77,004	51,110		
SEPT	92,323	13,660	76,952	47,840	87,457	
OCT	97,450	13,756	49,422	31,656	149,943	
NOV	89,991	12,472	15,379	3,132	73,080	
DEC	82,108	11,586	110,930	28,541	143,490	
ANNUAL	1,045,048	152,510	874,922	481,079	453,970	
CUMULATIVE	6,078,812	972,855	1,789,080	773,838	453,970	
1979						
JAN	79,326	11,458	114,277	33,739	136,140	
FEB	70,710	8,761	109,209	31,725	126,827	
MAR	88,213	11,989	62,470	30,076	100,275	
APR	83,019	13,201	9,388	14,002	87,489	
MAY	84,398	12,650	10,105	1,695	88,986	
JUNE	74,788	9,433	109,488	8,872	107,075	
JULY	81,833	11,964	107,387	9,948	96,380	
AUG	79,039	6,804	108,644	20,067	95,438	
SEPT	74,460	11,435	76,510	28,658	72,669	
YEAR TO DATE	715,786	97,695	707,478	178,782	911,279	
DAILY AVG. FOR SEPT	2,482	423	3,825	955	3,027	
CUMULATIVE (10-1-79)	6,794,598	1,070,550	2,496,558	952,620	1,365,249	

GAS PRODUCTION DATA (MCF)
SALT LAKE, SOUTH-MORROW (GAS) POOL
LEA COUNTY, NEW MEXICO
EXHIBIT _____
CASE ~~6612~~ 6715
DATE: 11-14-79
GULF OIL CORPORATION

CO PETROLEUM		GRACE PETROEUM CORP. (RIAL OIL COMPANY)			
	Bass Federal Com.	Federal C	Federal D	Felmont Federal	New Mexico Federal F Com.
	2P3020S33E	1Q421S32E	1N421S32E	1P2520S32E	1K521S32E
at'l	Llano, El Paso Nat'l	Gas Co. of N.M.	Gas Co. of N.M.	Gas Co. of N.M.	Gas Co. of N.M.
	18,019	89,317	30,562		
	9,930	102,992	40,539		
	12,480	75,274	56,196		
	13,739	90,085	61,613		
	8,300	33,851	21,237		
	11,930	75,033	49,976		
	11,197	78,683	58,677		
	15,441	77,004	51,110		
	13,660	76,952	47,840	87,457	
	13,756	49,422	31,656	149,943	
	12,472	15,379	3,132	73,080	
	11,586	110,930	28,541	143,490	
	152,510	874,922	481,079	453,970	
	972,855	1,789,080	773,838	453,970	
	11,458	114,277	33,739	136,140	48
	8,761	109,209	31,725	126,827	80,001
	11,989	62,470	30,076	100,275	57,259
	13,201	9,388	14,002	87,489	27,845
	12,650	10,105	1,695	88,986	6,162
	9,433	109,488	8,872	107,075	55,894
	11,964	107,387	9,948	96,380	43,271
	6,804	108,644	20,067	95,438	36,133
	11,435	76,510	28,658	72,669	19,126
	97,695	707,478	178,782	911,279	325,739
	423	3,825	955	3,027	1,275
	1,070,550	2,496,558	952,620	1,365,249	325,739

Docket No. 42-79

Dockets Nos. 43-79 and 44-79 are tentatively set for November 28 and December 12, 1979. Applications for hearing must be filed at least 22 days in advance of hearing date.

DOCKET: EXAMINER HEARING - WEDNESDAY - NOVEMBER 14, 1979

9 A.M. - OIL CONSERVATION DIVISION CONFERENCE ROOM,
STATE LAND OFFICE BUILDING, SANTA FE, NEW MEXICO

The following cases will be heard before Daniel S. Nutter, Examiner, or Richard L. Stamets, Alternate Examiner:

ALLOWABLE: (1) Consideration of the allowable production of gas for December, 1979, from fifteen prorated pools in Lea, Eddy, and Chaves Counties, New Mexico.

(2) Consideration of the allowable production of gas for December, 1979, from four prorated pools in San Juan, Rio Arriba, and Sandoval Counties, New Mexico.

CASE 6715: Application of Texaco Inc. for an unorthodox gas well location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of its Loomis Fed. Well No. 1 to be drilled 1600 feet from the North line and 660 feet from the West line of Section 5, Township 21 South, Range 32 East, South Salt Lake-Morrow Gas Pool, the N/2 of said Section 5 to be dedicated to the well.

CASE 6707: (Continued from October 31, 1979, Examiner Hearing)

Application of Gulf Oil Corporation for a unit agreement, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks approval for the Southeast Bisti Unit Area, comprising 7,048 acres, more or less, of State and Federal lands in Townships 24 and 25 North, Range 10 West.

CASE 6716: Application of Alpha Twenty-One Production Company for two non-standard proration units and approval of infill drilling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of a 40-acre non-standard proration unit comprising the NW/4 SE/4 of Section 8, Township 25 South, Range 37 East, Jalmat Gas Pool, to be dedicated to El Paso Natural Gas Company's Langlie Federal Well No. 3, and also a 120-acre unit comprising the E/2 SE/4 and SW/4 SE/4 of said Section 8 to be dedicated to a well to be drilled by applicant at a standard location thereon; applicant further seeks a waiver of existing well spacing requirements and a finding that the drilling of said well is necessary to effectively and efficiently drain that portion of an existing proration unit which cannot be so drained by the existing well.

CASE 6717: Application of O. H. Berry for a non-standard proration unit and an unorthodox gas well location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for a 160-acre non-standard gas proration unit comprising the NE/4 of Section 15, Township 24 South, Range 36 East, Jalmat Gas Pool, to be dedicated to his Isbell Well No. 6 at an unorthodox location 418 feet from the North line and 351 feet from the East line of said Section 15.

CASE 6718: Application of Southland Royalty Company for an unorthodox gas well location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of a Morrow test well to be drilled 1325 feet from the North line and 2303 feet from the East line of Section 14, Township 19 South, Range 29 East, Oil-Potash Area, the E/2 of said Section 14 to be dedicated to the well.

CASE 6719: Application of Sam H. Snoddy for an amendment to Order No. R-5521, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the amendment of Order No. R-5521, which authorizes the directional drilling of the Federal Well No. 2 in Section 25, Township 20 South, Range 32 East, to permit the well to be bottomed at approximately 1014 feet from the South line and 1285 feet from the West line of said Section 25.

CASE 6710: (Continued from October 31, 1979, Examiner Hearing)

Application of ARCO Oil and Gas Company for downhole commingling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the downhole commingling of Blinebry and Montoya production in the wellbores of the following wells on its State Y Lease: No. 3 located in Unit B, No. 6 located in Unit H, and No. 7 located in Unit A, all in Section 25, Township 25 South, Range 37 East.

CASE 6720: Application of ARCO Oil and Gas Company to drill a horizontal drainhole, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval to drill and complete its Empire Abo Unit Well No. J-213, located in Unit E of Section 6, Township 18 South, Range 28 East, Empire-Abo Pool, with a single horizontal drainhole of about 200 feet in length in the Abo formation.

CASE 6721: Application of Aminoil USA, Inc. for compulsory pooling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Wolfcamp-Pennsylvanian formations underlying the N/2 of Section 10, Township 24 South, Range 28 East, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision. Also to be considered will be the designation of applicant as operator of the well and a charge for risk involved in drilling said well.

CASE 6684: (Continued from October 31, 1979, Examiner Hearing)

Application of CO_2-In-Action, Inc. for creation of a new carbon dioxide gas pool and special pool rules, Harding County, New Mexico. Applicant, in the above-styled cause, seeks the creation of the North Bueyeros-Santa Rosa CO_2 Gas Pool and the promulgation of special pool rules therefor, including a provision for 40-acre spacing and proration units. Said pool would comprise all or parts of Sections 1 thru 4, Township 20 North, Range 30 East, and Sections 8, 9, 10, 15, 16, 17, 20, 21, 22, 27, 28, 32, 33 and 34, Township 21 North, Range 30 East.

CASE 6722: Application of Lloyd Davidson for an unorthodox oil well location, McKinley County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of his Santa Fe Pacific Well No. 1, a Gallup-Entrada-Dakota test 960 feet from the South line and 1230 feet from the East line of Section 29, Township 16 North, Range 6 West, the SE/4 SE/4 of said Section 29 to be dedicated to the well.

CASE 6723: Application of Merrion & Bayless for compulsory pooling, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Pictured Cliffs formation underlying the SW/4 of Section 27, Township 24 North, Range 2 West, South Blanco-Pictured Cliffs Pool, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision. Also to be considered will be the designation of applicant as operator of the well and a charge for risk involved in drilling said well.

CASE 6713: (Continued from October 31, 1979, Examiner Hearing)

Application of Depco Inc. for a unit agreement, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks approval for the White Ranch Unit Area, comprising 18,962 acres, more or less, of State, Federal, and fee lands in Townships 12 and 13 South, Ranges 29 and 30 East.

CASE 6724: Application of Coquina Oil Corporation for a non-standard gas proration unit and an unorthodox location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of a well to be drilled 660 feet from the South line and 1650 feet from the East line of Section 7, Township 19 South, Range 32 East, Lusk-Morrow Gas Pool, the S/2 of said Section 7 to be dedicated to the well as a non-standard 320-acre proration unit.

CASE 6725: Application of Tenneco Oil Company for three non-standard gas proration units, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks approval of a 291.23-acre non-standard gas proration unit comprising the W/2 of Section 6 and the NW/4 of Section 7, a 347.58-acre unit comprising the W/2 of Section 19 and the NW/4 of Section 30, and a 375.17-acre unit comprising the SW/4 of Section 30 and the W/2 of Section 31, all in Township 29 North, Range 8 West, Basin-Dakota Pool, each unit to be dedicated to a well to be drilled at a standard location thereon.

CASE 6726: Application of Tesoro Petroleum Corporation for a waterflood project, McKinley County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project in the South Hospah-Upper Sand Oil Pool by the injection of water into the Upper Hospah Sands through three wells located in Units E and M of Section 5 and Unit I of Section 8, Township 17 North, Range 8 West. Applicant further seeks an administrative procedure for expansion of said project.

CASE 6727: Application of Conoco Inc. for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water in its Anderson Ranch Unit Well No. 8 located in Unit I of Section 11, Township 16 South, Range 32 East, Anderson Ranch Field. Applicant would dispose into the Wolfcamp, Mississippian, and Devonian formations in the overall interval from 9775 feet to 13,620 feet through selective perforations.

CASE 6728: Application of Conoco Inc. for pressure maintenance expansion, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the expansion of its Scarborough Eaves PM Project by the conversion of its Eaves "A" Well No. 7 located in Unit J of Section 19, Township 26 South, Range 37 East, to water injection in the Yates-Seven Rivers formations.

CASE 6729: Application of Adams Exploration Company for compulsory pooling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Pennsylvanian formation underlying Section 16, Township 20 South, Range 36 East, North Osudo-Morrow Gas Pool, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision. Also to be considered will be the designation of applicant as operator of the well and a charge for risk involved in drilling said well.

CASE 6730: Application of Petroleum Development Corporation to limit 640-acre spacing, Eddy and Lea Counties, New Mexico. Applicant, in the above-styled cause, seeks an order limiting the applicability of the 640-acre spacing and well location rules for the Lusk-Morrow Gas Pool to the present boundaries of said pool so that wells drilled nearby but outside the pool would be governed by Rule 104 of the Division's Rules.

CASE 6731: Application of Petroleum Development Corporation for a non-standard gas proration unit and an unorthodox location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of a well to be drilled 660 feet from the North and West lines of Section 13, Township 19 South, Range 31 East, Lusk-Morrow Gas Pool, the N/2 of said Section 13 to be dedicated to the well as a non-standard 320-acre proration unit.

CASE 6709: (Continued from October 31, 1979, Examiner Hearing)

Application of HNG Oil Company for compulsory pooling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Pennsylvanian formation underlying the N/2 of Section 33, Township 16 South, Range 35 East, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision. Also to be considered will be the designation of applicant as operator of the well and a charge for risk involved in drilling said well.

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION COMMISSION FOR THE PURPOSE OF CONSIDERING:

CASE NO. ~~6609~~ 6715 DE NOVO
Order No. R-~~6120-A~~ 6275-A

APPLICATION OF ~~NAPECO~~ TEXACO INC. FOR ~~POOL CREATION AND SPECIAL POOL RULES~~ AN UNORTHODOX GAS WELL LOCATION, ~~EDDY~~ LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing De Novo at 9 a.m. on ~~April 16~~ May 20, 1980, at Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this ~~14th~~ day of ~~May~~ June, 1980, the Commission, a quorum being present, having considered the testimony, the record, and the exhibits, and being fully advised in the premises,

FINDS:

(1) That due public notice having been given as required by law, the Division has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, ~~Napeco~~ Texaco Inc., seeks ~~the creation~~ an unorthodox of a new pool for Strawn production in Eddy County, New Mexico, and the promulgation of special rules therefor, including a provision for 160-acre spacing and proration units.

(3) That this cause came on for hearing before Examiner Daniel S. Nutter on ~~June 26, 1979~~ November 14, 1979 and the Division entered its Order No. ~~R-6120~~ R-6275 on ~~October 16~~ November 27, 1979, denying the application on the grounds that the applicant had failed to establish that one well could effectively and efficiently drain 160 acres.

(4) That on November 4, 1979, Napeco Inc. filed timely application for Hearing De Novo of Case No. 6609, whereupon this matter was set for hearing on November 27, 1979.

(2) That the applicant, Texaco, Inc., seeks approval of an unorthodox gas well location for its Loomis Federal Well No. 1, which it proposes to drill at a point 1600 feet from the North line and 660 feet from the West line of Section 5, Township 21 South, Range 32 East, NMPM, South Salt Lake-Morrow Gas Pool, Lea County, New Mexico, and to which the N/2 of said Section 5 would be dedicated.

(3) That this cause came on for hearing before Examiner Daniel S. Nutter on November 14, 1979, and the Division entered its Order No. R-6275 on February 26, 1980, approving the application, but applying a production limitation factor of 63/320 or 0.20.

(4) That said production limitation factor was based upon evidence ~~tending to demonstrate~~ that only 63 acres within the N/2 of said Section 5 might reasonably be expected to be productive from the Morrow Formation ~~in this pool~~ at the proposed unorthodox location.

(5) That on March 25, 1980, and March 27, 1980, respectively, Boss Enterprises Production Company, ~~Inc.~~ and Texaco, Inc. filed timely applications for Hearing De Novo of Case 6715, whereupon this matter was set for hearing on May 20, 1980.

(6) That according to the evidence adduced at said hearing de novo, the ~~said~~ ~~N/2~~ of entire N/2 of said Section 5 can reasonably be ~~presumed~~ to be productive of gas from the Morrow Formation.

(6) That the N/2 of said Section
S is offset by wells, ~~[illegible] of~~
~~Unorthodox locations, to the south~~
to the south & south west by wells

at unorthodox locations.

(8) That ~~the unorthodox locations~~ aforesaid wells to the south & southwest of the N/2 of said Section 5 encountered producing intervals in the Morrow not present in other wells offsetting the N/2 of said Section 5. ~~at unorthodox locations~~

~~(8) That a well drilled at the above unorthodox location should encounter~~

(9) That a well drilled at an orthodox location in the N/2 of said Section 5 would probably not encounter all potential producing intervals underlying the N/2 of said Section 5.

(10) That a well drilled at the proposed unorthodox location will prevent waste and will offer the maximum opportunity to recover the reserves under the N/2 of said Section 5, to encounter said additional producing intervals and and will therefore serve to prevent waste.

(11) That approval of the unorthodox location will afford the applicant maximum correlative rights protection.

(12) That the application should be approved.

IT IS THEREFORE ORDERED:

(1) That an unorthodox gas well location for the Morrow formation is hereby approved for the Texaco, Inc. Loomis Federal Well No. 1, to be drilled at a point 1600 feet from the North line and 660 feet from the West line of Section 5, Township 21 South, Range 32 East, NMPM, South Salt Lake-Morrow Gas Pool, Lea County, New Mexico.

(2) That the N/2 of said Section 5 shall be dedicated to the above-described well.

(3) Jurisdiction

PC-394
R-1905

Phillips/Vigil
Sandia Base
Machine

not present in other wells offsetting ~~the~~ applicant's proposed proration Unit

(10) That a well drilled at the proposed unorthodox location should more effectively and efficiently drain all of the productive intervals in the Morrow Formation ~~that~~ than a well at a standard location.

(12) That a well drilled at the proposed unorthodox location should ~~enjoy~~ have the opportunity for ~~equivalent~~ a radius of drainage equal to ~~the~~ said offset wells at ~~same~~ said unorthodox locations.

Case Number

6715

Application

Transcripts.

Small Exhibits

ETC.

STATE OF NEW MEXICO

ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION COMMISSION

RECEIVED
JUL 17 1980
OIL CONSERVATION DIVISION
SANTA FE

OIL CONSERVATION DIVISION
SANTA FE

IN THE MATTER OF THE APPLICATION OF TEXACO, INC. FOR AN UNORTHODOX GAS WELL LOCATION, LEA COUNTY, NEW MEXICO.

CASE 6715 De Novo

No action will count to a denial. Ask Joe if he wants to rehear

APPLICATION FOR REHEARING

Comes now GULF OIL CORPORATION, by and through its undersigned attorneys, and hereby makes application to the Oil Conservation Commission for rehearing in respect to all matters determined by Order No. R-6275-A, entered by the Commission in this case on June 27, 1980, and in support thereof, states:

1. Gulf Oil Corporation owns certain oil and gas rights in Lot 8 of Section 6, Township 21 South, Range 32 East, NMPM, which immediately offsets to the West the unorthodox well location proposed by Texaco, Inc. in this case.

2. Texaco, Inc. proposes to drill a well 1600 feet from the North line and 660 feet from the West line of Section 5, Township 21 South, Range 32 East, NMPM, South Salt Lake-Morrow Gas Pool, Lea County, New Mexico.

3. On November 14, 1979, this matter came on for hearing before an examiner of the Oil Conservation Division and on February 26, 1980, the Oil Conservation Division entered its Order No. R-6275 approving the application of Texaco, Inc. but assessing a production limitation factor against said well.

4. At the time of said hearing, Gulf Oil Corporation appeared in opposition to the application of Texaco, Inc. and offered evidence which showed that granting this application would cause waste and impair its correlative rights in this gas pool.

5. Bass Enterprises Production Company, an interest owner in the proration unit to be dedicated to the proposed well, and Texaco, Inc. filed applications for hearing de novo in this case.

6. On May 20, 1980, this matter came on for hearing before the Oil Conservation Commission and on June 27, 1980, the Oil Conservation Commission entered its Order No. R-6275-A granting the application of Texaco, Inc. for the proposed unorthodox well location but imposing no production limitation factor on said well.

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8. Gulf Oil Corporation is adversely affected by said Commission Order No. R-6275-A and believes it to be erroneous and invalid for the following reasons:

a) Finding No. 9 of said Order is not supported by substantial evidence. To the contrary, the evidence established that a well drilled at an orthodox location in the N/2 of said Section 5 could encounter producing intervals in the Morrow formation that would not be

encountered by a well drilled at the proposed unorthodox location.

b) The Order is void for, as it appears from Findings No. 9 and 11 of said Order, it is based on evidence of producing intervals underlying the N/2 of said Section 5 other than producing intervals in the Morrow formation. (Evidence on the characteristics of other formations is outside the call of the case for Texaco's application and the notice given of this case were limited to the Morrow formation, and, although the Commission permitted testimony into the record concerning other formations over the objection of Gulf Oil Corporation, it did not have jurisdiction to consider such testimony in rendering its decision.

c) Said Order is invalid in that it contains insufficient findings to disclose, explain, support or indicate the reasoning of the Commission in reaching its ultimate finding that the application should be granted to prevent waste for the findings are confusing and indicate that the Order is based on evidence concerning formations outside the call of the case over which the Commission had no jurisdiction.

d) Finding No. 10 of said Order is not supported by substantial evidence. To the contrary, the evidence clearly shows a well at a standard location could produce the reserves from the Morrow underlying the entire proration unit dedicated thereto.

e) Finding No. 11 of said Order is not supported by substantial evidence. To the contrary, the evidence

clearly shows that the applicant has substantially drained the reserves underlying the N/2 of said Section 5 with other wells and that a well drilled to and producing from the Morrow formation at the proposed unorthodox location would drain substantial reserves from adjoining properties.

f) Finding No. 12 of said Order is not supported by substantial evidence. There is nothing in the record to indicate that by drilling a well at an unorthodox location the applicant would have a greater opportunity for a radius of drainage than by drilling a well at any other location in this pool.

g) The Order is invalid and void for Finding No. 13 which states, "That approval of the unorthodox location will afford the applicant maximum correlative rights protection" is not the equivalent of, nor a proper substitute for, the statutorily required finding that the Order will protect the correlative rights of all property owners in the pool. Since this finding on correlative rights is a basic jurisdictional finding in all Oil Conservation Commission Orders, it is a necessary requisite to a valid Commission Order.

h) Finding No. 13 of said Order R-6275-A is inconsistent with the statutory directive to the Oil Conservation Commission to protect the correlative rights of the owners of each property in a pool for by approving this unorthodox well location, the Commission authorizes drainage from Lot 8 of Section 6, which is not offset by

counterdrainage and, furthermore, Order R-6275-A fails to impose any penalty on the production from said well to offset the advantage obtained by the applicant over other producers by reason of the unorthodox location.

i) Even if the correlative rights findings were sufficient, the Order is invalid in that it contains insufficient findings to disclose, explain, support or indicate the reasoning of the Commission in reaching its ultimate finding that granting of the application of Texaco, Inc. would afford the applicant maximum correlative rights protection.

j) Said Order is erroneous, invalid, void and inconsistent with the duties imposed upon the Commission by the Oil and Gas Statutes of the State of New Mexico in that the effect of said Order will be to cause waste and violate the correlative rights of Gulf Oil Corporation and other mineral interest owners who offset the proposed location.

WHEREFORE, applicant prays that the Oil Conservation Commission enter its Order granting this Application for Rehearing, superseding Orders No. R-6275 and R-6275-A, and after notice and hearing as required by law and the rules of the Commission, entering its Order denying the application of Texaco, Inc. in this case, or, in the alternative, assessing a limitation factor against the production from said well which will reasonably offset the advantage gained by Texaco, Inc. against offsetting mineral interests owners by virtue of the proposed well's unorthodox location.

Respectfully submitted,

CAMPBELL AND BLACK, P.A.

By William F. Carr

William F. Carr
Post Office Box 2208
Santa Fe, New Mexico 87501
Attorneys for Gulf Oil Corporation

Certificate of Service

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By William F. Carr

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STATE OF NEW MEXICO

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OIL CONSERVATION COMMISSION

RECEIVED
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Respectfully submitted,

CAMPBELL AND BLACK, P.A.

By _____
William F. Carr
Post Office Box 2208
Santa Fe, New Mexico 87501
Attorneys for Gulf Oil
Corporation

Certificate of Service

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_____
William F. Carr

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION COMMISSION
STATE LAND OFFICE BLDG.
SANTA FE, NEW MEXICO
20 May 1980

COMMISSION HEARING

IN THE MATTER OF:

Application of Texaco, Inc., for an unorthodox gas well location, Lea County, New Mexico.

CASE 6715

BEFORE: Commissioner Ramey
Commissioner Arnold

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation Division: Ernest L. Padilla, Esq.
Legal Counsel to the Commission
State Land Office Bldg.
Santa Fe, New Mexico 87501

For Bass Enterprises Production Company: Harold Hensley, Esq.
HINKLE LAW FIRM
Roswell, New Mexico

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A P P E A R A N C E S

For Texaco, Inc.:

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I N D E X

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MR. RAMEY: The hearing will come to order. We have one case on the docket this morning, Case Number 6715.

MR. PADILLA: Application of Texaco, Inc., for an unorthodox gas well location, Lea County, New Mexico.

MR. RAMEY: Ask for appearances at this time.

MR. HENSLEY: I'm Harold L. Hensley, Junior, with the law firm of Hinkle, Cox, Eaton, Coffield, and Hensley, Roswell, New Mexico, for Bass Enterprises Production Company, who will proceed with the evidence in this case with the consent of the Applicant, Texaco.

MR. RAMEY: How many witnesses do you have, Mr. Hensley?

MR. HENSLEY: We have three witnesses, Mr. Chairman.

MR. BATEMAN: Ken Bateman, with White, Koch, Kelly, and McCarthy of Santa Fe, and on behalf of Texaco.

MR. RAMEY: Do you have any witnesses, Mr. Bateman?

MR. BATEMAN: No witnesses.

MR. CARR: William F. Carr, Campbell and Black, P. A., Santa Fe, apeparing on behalf of Gulf Oil Corporation, and I have two witnesses.

MR. RAMEY: Any other appearances? Ask

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that the witnesses stand and be sworn at this time.

(Witnesses sworn.)

JIMMS HANSEN

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

DIRECT EXAMINATION

BY MR. HENSLEY:

Q. Will you state your name, please?

A. Jimms Hansen.

Q. What is your address, Mr. Hansen?

A. My address is 1104 Purdue, Arlington, Texas.

Q. And by whom are you employed?

A. Bass Enterprises Production Company.

Q. In what capacity are you employed with Bass Enterprises Production Company?

A. Division Landman for the New Mexico, West Texas, and Mid-Continent Divisions.

Q. Have you had occasion, sir, in the past to testify before the New Mexico Oil Conservation Division and have your qualifications as a petroleum landman accepted?

A. They have.

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MR. HENSLEY: Are the qualifications of the witness as a petroleum landman acceptable?

MR. RAMEY: Yes, they are accepted.

Q. Mr. Hansen, was the original application in this case filed by Texaco?

A. Yes, it was.

Q. And does Bass Enterprises Production Company own an interest in the proration unit which was proposed for the subject well?

A. Yes.

Q. What is the principal ownership in the proposed well?

A. The principal ownership in the proposed well is Texaco with approximately 49.9 percent; Bass Enterprises Production Company and Perry R. Bass, collectively, owning a 39.2 percent interest; and the remaining working interest is owned by multiple working interest owners.

Q. Is Bass Enterprises Production Company proceeding in this case with the consent of the original applicant, Texaco?

A. It is.

Q. What do Texaco and Bass seek by the application filed in this case?

A. The approval of an unorthodox location for the drilling of a Morrow test well with no penalty on

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allowable.

Q. Is the proposed proration unit part of a larger unit?

A. It is.

Q. And have you prepared an exhibit to demonstrate the relationship of the proration unit to the larger unit?

A. Yes.

Q. Directing your attention to what has been marked for identification, Mr. Hansen, as Bass Enterprises Exhibit Number One, would you please identify that exhibit for the Commission?

A. That exhibit reflects the approved participating areas approved by the United States Geological Survey for the Upper Morrow, Lower Morrow, and Yates formation.

The proration unit, proposed proration unit, consisting of Lots 1 through 8, Section 5, of Township 21 South, Range 32 East, is part of the Lower Morrow formation participating area assigned to the Texaco "CM" Well, which is located in Section 31, Township 20 South, Range 33 East.

And that location within Section 31 would be in the southwest quarter of the southeast quarter, of the "CM" Well.

Q. Is there an Atoka participating --

A. Yes.

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Q. -- area there too?

A. Yes, that is correct. There is an Atoka participating area as shown by the green outline, which is assigned to the Texaco "CH" Well.

Q. And where is the "CH" Well located?

A. It's located in Section -- it's in the southeast quarter of the northeast quarter of Section 36, Township 20 South, Range 32 East.

Q. Have you been notified by the United States Geological Survey to drill a location in the proposed proration unit?

A. That's correct.

Q. Let me hand you what has been marked for identification as BEPCO Exhibit Number Two and ask if you will first of all identify the exhibit?

A. The exhibit is a letter dated March 30th, 1979, from the United States Department of Interior, Geological Survey, from a Mr. Gene F. Daniel, who is the oil and gas supervisor. We received the letter on April the 9th, 1979, and it is a demand in which to either drill a well or to pay compensatory royalty for drainage, and the letter further states that the drainage is occurring from the Grace Petroleum Corporation No. 1 Well, located in Lot 11, Section 5, Township 21 South, Range 32 East.

Q. Have you also prepared or caused to be

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prepared in connection with your testimony, Mr. Hansen, a land plat?

A. Yes.

Q. Directing your attention to what has been marked for identification as Bass Enterprises Exhibit Number Three. First of all, identify the exhibit.

A. The Exhibit reflects offsetting ownership by color code.

The orange -- the area colored orange is owned now by Holly Energy.

The area colored red is owned by Gulf.

The area of green is owned by Grace, and the area in yellow is owned by Bass.

The proposed participating area -- I mean, excuse me, the proration unit, which is Lots 1 through 8 in Section 5, is identified with a brown outline.

Also indicated on the map are the proration units for the "G" Well, the "F" Well, and the "E" Well.

Q. Okay, for the benefit of the Commission, can you detail the location of those three wells?

A. Yes. The Grace 1-G Well is located 4650 feet from the south line and 660 feet from the east line in Section 6, Township 21 South, Range 32 East. Around this well in red tape indicates the proration unit assigned to

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this well and additionally we have located an area of orthodox location, which reflects the distance the well is from the area of orthodox location.

Q. So that well is located at an unorthodox location?

A. It is an unorthodox location.

The Grace 1-E Well is 4650 feet from the south line and 1980 feet from the west line, Section 5, Township 21 South, Range 32 East. It also has a proration unit indicated in red tape with an area of orthodox location, which also indicates that this well is at an unorthodox location.

And likewise the Grace Petroleum 1-E Well, located 660 feet from the south line and 3300 feet from the east line is -- has a participating area indicated with red tape, indicating the east half, or Lots 9 and 10, 1560 in the southeast quarter of Section 5 with red tape. This well is at an orthodox location.

MR. RAMEY: Mr. Hansen, shouldn't those figures be reversed on that No. 1-E Well?

A. That's correct, they should. That's a typographical error, I suppose.

Q. Have the offset operators been duly notified of the subject application as required by Rule 104?

A. Yes, they have.

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Q. Let me next have you identify what has been marked for identification as Bass Enterprises Exhibit Number Four and ask if you'll please identify that exhibit?

A. That is a Telex that was sent to Holly Energy Corporation in Dallas pursuant to their purchasing the acreage known as Lots 1 through 7 in Section 6, Township 21 South, Range 32 East, at the BLM Oil and Gas Lease Sale held April 15th. March 15th, excuse me.

Q. No, April 15th.

A. April 15th.

Q. Were Exhibits One through Three prepared either by you or under your direct supervision?

A. They were.

MR. HENSLEY: At this time we would offer Bass Enterprises Exhibits One through Four.

MR. RAMEY: Exhibits One through Four will be admitted.

MR. HENSLEY: And we pass the witness for cross examination.

MR. RAMEY: Any questions of Mr. Hansen?

CROSS EXAMINATION

BY MR. CARR:

Q. Mr. Hansen, when did Bass acquire its interest in the proposed proration unit?

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A. The Federal Unit was put together in 1952 and it was around that time period that we acquired our participation.

Q. So you've been participating in terms of your interest in this unit with Texaco for some period of time?

A. That's correct. It was originally farmed out, uh-huh.

Q. Now this proration unit is part of a larger unit but we're really today directing our attention to a single proration unit in a Morrow Pool, is that correct?

A. That's correct.

Q. And, actually, testimony relating to the Atoka is out of that scope of this hearing.

A. That's not for me to decide.

Q. Now, your letter from USGS, your Exhibit Number Two, this is not the first time the USGS has been involved in the development of this proration unit, is it? Did you not file for -- was not an application approved to drill a well in that -- on that proration unit earlier this year?

A. I don't think I'm following your question.

Q. Did the USGS approve an application and an orthodox well location for this proration unit previous to writing this particular letter?

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A. If they did, it was not sent in by me. I have no knowledge of it. I don't deny it exists, but I have no knowledge of it.

Q. You wouldn't know if Texaco had obtained prior approval to drill a well on this unit?

A. No, I don't know.

I know we considered a -- we had a meeting with Texaco and we considered an orthodox location but it was our opinion that -- for several reasons --

Q. When the USGS wrote this letter they did not specify any particular location on the unit, did they?

A. No, they didn't, but they did ask us to protect from drainage.

Q. At the time the Grace well was drilled, do you have any idea whether or not Bass appeared in opposition to them?

A. It's not to my knowledge that we opposed that hearing, no.

Q. Do you know if you did or did not?

A. No, I don't. I don't think we did.

Q. Now this proposed location is how close to the western boundary of this proration unit?

A. This proposed location is 660 feet from the west line.

Q. And what is the standard -- would be a

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standard location, standard setback required from the west line?

A. It would be 1980 feet.

Q. So you're advancing on the offsetting property to the west a total of 1320 feet?

A. That's correct. That is, however, less than the "G" Well advanced north in a proration unit. They are 630 feet.

Q. Did anyone -- but you believe no one appeared in opposition to that location, is that correct?

A. No, I don't think we appeared, no.

Q. Now, -- well I have no further questions. I -- you're calling an engineer, I suppose, so I have no further questions.

MR. RAMEY: Any other questions of the witness? Mr. Bateman?

MR. BATEMAN: No questions.

MR. RAMEY: The witness may be excused.

MR. HENSLEY: Call Mr Larry Hoover.

LARRY HOOVER

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

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DIRECT EXAMINATION

BY MR. HENSLEY:

MR. HENSLEY: Mr. Chairman, we're going to have several large exhibits here. Would it be preferable to hang them on the wall or would you prefer just to pass them out as we have these other plats?

(There followed a discussion.)

MR. HENSLEY: If the Commission please, we'll proceed.

MR. RAMEY: Yes, sir, Mr. Hensley.

Q. Will you state your name, please, sir?

A. Larry Hoover.

Q. What is your residence, Mr. Hoover?

A. I live at 2800 Marquez Circle East, in Arlington, Texas.

Q. And by whom are you employed?

A. Bass Enterprises Production Company.

Q. What is your position with Bass Enterprises at the present time?

A. I'm a geological engineer.

Q. Have you had occasion in the past to testify before the New Mexico Oil Conservation Division?

A. Yes, I have.

Q. And have your qualifications as a geological engineer been accepted in prior cases?

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A. Yes, it has.

MR. HENSLEY: We ask if the qualifications of the witness are acceptable?

MR. RAMEY: They are.

Q. I'd like to first direct your attention, Mr. Hoover, to what has been marked for identification as Bass Enterprises Exhibit Number Five. Would you please explain to the Commission what this exhibit purports to show?

A. Okay. This is a structure map which is contoured on the top of the Lower Morrow. What it shows basically is, structurally, is a southeast plunging nose, which has a steeper flank on the southwest side than on the northeast, northeast flank.

The proration unit is shown in yellow on here and the proposed location in red. The area of orthodox or standard location is shown in a dashed line in the center of the proration unit.

Q. What is the geologic significance of structure to the application?

A. Well, in previous testimony on this case, it has been mentioned that there's a permeability barrier which separates the west or southwest portion of the proration unit from the rest of the proration unit, either possibly in the form of a fault or some kind of discontinuity.

Q. How does the mapping of structure as in-

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dicated on Exhibit Number Five support or demonstrate the lack of any faulting or permeability barriers in the area of the proposed proration unit?

A. Well, with the control points that we have on the top of the Lower Morrow, you can easily map a structure without any degree of faulting shown in here.

About the steepest dips one can map, just based on the control points, is probably over by the "E" and "D" Wells where there's probably dip in the order of 11, maybe as much as 12, degrees, just based on the contouring.

Now across the proration unit itself, based on the structure map, the dips are on the order of 8 degrees. Now, this is not abnormally high dips. There does not necessarily have to be any faulting here in order to map this feature.

Q. In connection with your preparation of this structure map did you prepare or cause to be prepared a structure cross section?

A. Yes, I did.

Q. And has that been marked for identification as Bass Enterprises Exhibit Number Six?

A. Yes, it has.

Q. And is it affixed to the wall here?

A. Yes, sir, the far section, far wall.

Q. All right, if you would, with the Com-

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mission -- Mr. Chairman, may the witness leave his seat and --

MR. RAMEY: Yes. We request that he speak up for the reporter.

Q. First of all, explain what this exhibit shows and how it was prepared.

A. This is an index plat here. It shows the proration unit in yellow and the line of section across here. It involves three wells, the Grace "E" 1, which was drilled to the far left side, southwest side of the structure; coming up structure to the "B" Well which is a projected well into the structural cross section; then a well on more or less the axis of the structure, which is this New Mexico Federal 1 Well in Section 4.

Now the scale here is 1-inch equals 100-feet, and it's true to scale; that is, the horizontal scale is the same as the vertical scale in this particular case.

It shows the delineation of the different horizons or formations, the Lower Morrow down here, Middle Morrow, Upper Morrow, Atoka, Strawn, Wolfcamp, and then up to the base of the Bone Spring section.

One thing I wanted to point out about the structural cross section was that in determining -- I don't know if you all can see this or not, but the dips over here on the far left side are indicative of an area that is thickening on a structural high; that is, as you go from

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older beds to younger beds, you get this decrease, and in this case, I measured off the section by 12-1/2 degrees, 11 here; 8 and 7, you come to about 5 degrees. This is indicative of a situation where you've got thickening on flanks of the structure.

Q. Mr. Hoover, is the fact that you have a demonstrated depth and thickening of section off the axis of the structure, any indication geologically that you have any pemeability barrier or any faulting mechanism?

A. No, it is not. This would just be a natural thickening off the flanks of the structure. It's not that great. We're talking about in the order of 10, 12, 7, 8 degrees, and it's not indicative of a fault. If there was a fault it's possible that if the sediments were laid down and then broken afterwards, they would all more or less have -- and bent. they'd all be the same dip, for instance, or they may be flat. They may just be flat. This drop down and this would also be very low angle.

But what I'm trying to show here, basically, is that the dips on the structure section formed the structure map.

Q. Are you indicating that if there had been a faulting mechanism involved in the deposition of this structure, that you would either observe a gain or loss of section?

A. Yes, at a particular point where there

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was suspected to be a fault, but this is just a gradual thickening in this particular case.

Q. Do I understand that -- your answer, then, that there's no indication geologically --

A. No, there's not.

Q. -- of any gain or loss of section?

A. No, there is none.

Q. On the lefthand side of this exhibit there appears to be a mockup of a dipmeter log, is that correct?

A. Yes. There was a dipmeter run on the Grace New Mexico Federal "E" Well, and there was a dipmeter anomaly, as pointed in previous testimony, at this location here, which I have put in at the Bone Spring formation. I think it was mentioned as Wolfcamp in the previous case.

Q. Have you caused a duplication of that dipmeter log to be prepared as an exhibit for this hearing?

A. Yes, I have.

Q. I would direct your attention to what has been marked for identification as Bass Enterprises Exhibit Number Seven, and if it would be more convenient to your explanation of the relevance of this exhibit, let's put it on the wall up here next to your map.

Now, directing your attention to what has been marked for identification as Bass Enterprises Exhibit Seven, first of all, Mr. Hoover, what is a dipmeter?

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A. Well, a dipmeter is a 4-arm device which measures resistivity to determine what the dip of the beds are in relationship to the angle of the hole, and on a plot to show what the dip and strike is, they're measured, they're plotted as a display in what's called tadpoles, which are these small circles with a line drawn. The line is drawn in the direction of the dip.

In this particular case the legend at the bottom does show that we're going from zero degrees here up to about 45 degrees across this side of the scale.

Basically what we're seeing on the dipmeter display is that in the Lower Morrow, we're looking at around 10 degrees, or so, which pretty well conforms here with what I'm calling 12-1/2 degrees. We may be flattening out in this particular part of the structure.

As you go up on the log the dip is getting less and less. They still continue dipping in the same direction, which is in a southwesterly direction which forms the structure map. The dips generally are getting less and less, somewhere in the order of 7 to 8 degrees up here at 13,500. Then there's a splice on this particular log. We don't have any data between there and up in the -- about up here at 11,500, the base of the Bone Spring.

Now the dip up in the Bone Spring basically is running in a southwesterly direction around less than

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5 degrees; probably about 4. Again, I think that's -- conforms fairly well to what can be mapped just based on the structure and the structural cross section.

There has been some anomalous points that have been pointed out as possible faults in previous testimony. There is one around 11,100, or 11,150, down to about 11,170. Let's see, 11,050 to 11,170, right in here. There are some higher tips in that area.

There also are some at 11,400 to 11,500. I think in the previous testimony it was thought that this may be faulting, but I just want to point out it can be argued that this could be due to just bedding, erratic bedding, at these particular places due to deposition, either some kind of channel-type of a deposition or it could even be festooning type. There are any number of explanations due to deposition rather than faulting.

Also you can get areas where the data is not very good, that you don't have good bedding in the rock, and in those cases lots of times we give mis-correlations with a difference. So that may also be an explanation for this.

If there really was faulting in there, then you should be able to see either a loss of zone from the logs or bedding, and you don't see either. You don't see any cut or gain in the cross section, that you can correlate from one log to the other.

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So I don't believe that there is any faulting here; this probably is something due to depositional or possibly poor rock quality at that particular point.

Q. Mr. Hoover, even if you assume that you could some way, some how, correlate the anomaly on the dipmeter in the Wolfcamp, with some suggested faulting mechanism in the lower beds in the Morrow, for example, isn't it a fact geologically that any evidence of any anomaly which would be picked up on the log would have to be the southwest direction because the dip is in the southwest direction off the axis of the structure?

A. Well, if there was a faulting, a normal type faulting, you'd expect the faulting to be like this, that is dropping to the southwest of this "E" Well, and we've already pointed out that if there is a fault in there it would be between the "E" Well and "D" Well, and so it would be difficult for that fault to cross between these two wells.

Q. On your exhibit, your structure map, which I believe was Exhibit Five, there is an indication there of what you've identified as the "G" Well. When was that well drilled and is that the well that's located immediately to the south and to the west of the proposed unorthodox location?

A. Yes, it is. That well was drilled sometime early this year.

Q. And --

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A. I don't have the exact date.

Q. -- have you examined the log on the well?

A. Yes, I have.

Q. And do you intend in connection with your stratigraphic cross section which you prepared, to discuss the logs on that well?

A. Yes.

Q. Does the fact that that well has been drilled and logged substantiate your opinion as to the mapping of the structure indicated on Defendant's -- on BEPCO Exhibit Number Five?

A. Yes. It, again in this particular case, it shows that the dips are -- in fact are not as steep as between the "E" and "D" Wells; therefor, even less liklihood that there's any faulting between the "CM" -- Texaco "CM" Well up-dip and the down-dip Grace "G" Well.

Q. What is your conclusion, Mr. Hoover, from your review of the various structural maps which you've utilized here in connection with your study, being Exhibits Five, Six, and Seven?

A. Well I don't believe that there's any real evidence of any fault in here.

Q. Okay. If you'll next direct your attention to what has been marked for identification as Bass Enterprises Exhibit Number Eight. Is it located here on the

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wall?

A. Yes. It's a stratigraphic cross section in this particular case. Again you'll note the index map at the bottom, showing which wells are involved. The "G" Well here would be the well to the far left. The next well is the Grace "F" Well here. Then coming north across the proration unit, the Texaco "CM" Well here, and proceeding east to the Grace New Mexico State "SL" Well up here, and then south or southeast down to the Grace New Mexico Federal 1 in Section 4.

Q. Now is the purpose of this stratigraphic cross section, Mr. Hoover, to investigate the -- whether or not there's any evidence of a permeability barrier over the proration unit?

A. Yes, it is. It's to point out basically what we're looking at here in the Morrow, and this is the Middle Morrow and the Lower Morrow, which are the main producing horizons, that there are multiple sands in which some appear to possibly connect with adjacent wells and others which do not. Perforations on this map are shown in red, and of course, the sands in yellow.

I just wanted to point out even the wells that are fairly close together, such as the "G" Well and the "F" Well, you can see that there's really quite a change going on in sand distribution between these two wells, and one can assume that perhaps some of these sands, lenticular sand mem-

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bers of the Morrow, probably communicate and others do not.

Now, there's no reason to believe that -- we know we've got certain sand members that don't connect all the way across the proration unit, but there's no reason to believe that the connection -- interconnection is any different going from the two Grace wells to the "CM" Well, as between the "CM" Well here and, say, the New Mexico State "SL" to the east, and down to the Grace New Mexico Federal 1. There is discontinuity, minor discontinuities, between all of them, but overall they are -- there is continuity in the sense that there are members, sand members, that do connect, or we believe connect.

Q. Is this tracking mechanism in the Morrow Sands basically a stratigraphic mechanism?

A. Yes, very definitely.

Q. And if I understand your testimony correctly, this exhibit reflects that these sands are lenticular in nature, is that correct?

A. Yes.

Q. Some may be connected and some may not be.

A. That's right.

Q. In that respect, then, is it unlike what is generally referred to as a structural reservoir where you may have more continuity of permeability and porosity?

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A. No, it is not. It's a structure may play some role in the fact that wells high on the structure may have a greater chance of finding hydrocarbons, if the zone is continuous a long distance. There may be zones, Middle Morrow commonly is not found wet in most areas, whether on a structural high or off a structural high.

Q. What does this exhibit demonstrate, Mr. Hoover, insofar as your application to this Commission is concerned, and that is that an unorthodox location at the location requested, should be permitted without any allowable reduction?

A. Yes. I believe that the location here should not be cut for anything indicating that there's a complete permeability barrier between it and any other portion of the proration unit, because we do have some sand members that do continue across this proration unit, even though there are a number that do not.

I might point out that previous testimony has thought that these wells with a higher pressure probably indicated they were not in communication with the "CM" Well, but I think this can simply be explained it's got some -- they have -- well, this "F" Well and this "E" Well, which is not on this section, they have different members present, as well as some that are continuous; therefor, the members which are not in contact with the "CM" Well probably will

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yield the higher pressures and give one the indication that if was one common reservoir, just one reservoir, then therefor there had to be a barrier.

But showing it, pointing out that you have multiple reservoirs, and some of those reservoirs are not connected, therefor you can expect higher pressures, or normal type pressures, when you open up several zones together in an offset well. This would be typical.

Q. By that testimony are you saying that in the instance where these lenses are continuous in nature that you might -- you might find some amount of drainage indicated by reason of production offsetting the proration unit, but there are also other lenses which would be affected by that offset production, is that correct?

A. That is correct.

Q. Is there any indication of any kind of permeability barrier on the unit from your study of this structural cross section?

A. No, there is not.

Q. Next I'd like to direct your attention, MR. Hoover, to what has been marked for identification as Bass Enterprises Exhibit Number Nine.

Directing your attention to Bass Exhibit Number Nine, Mr. Hoover, what is this exhibit designed to show?

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A. This is just a completion map which is taken off the scout tickets and off of logs, showing which zones are completed, color coded to show different horizons, the Lower Morrow in green; Middle Morrow in red; Upper Morrow in blue; and Atoka, or Strawn in orange, and basically what the point of this is is to show that really there's multiple or many different horizons throughout this field and it's definitely a stratigraphic trapping. In some areas you get Upper Morrow production, such as way down to the southeast. That's where most of this production is, and stratigraphically porosity disappears throughout most of the south Salt Lake Area except locally in some areas like Section 32, and Section 4.

Middle Morrow is generally present throughout this whole area.

The Lower Morrow is -- is present throughout more or less the central part of it, and the Atoka to the north and the South Salt Lake Area, and then off the structure way to the north, Section 27 and down here in Section 2.

But the point of this exhibit is primarily just to point out we're talking about multiple zones throughout this area.

Q. Has your study of the proposed location also involved an analysis of the porosity in the Atoka Sands

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which would be intersected in connection with the drilling of this Morrow Well?

A. Yes, it has.

Q. In that connection I'd like to direct you to what has been marked for identification as Bass Enterprises Exhibit Number Ten.

First of all, if you will, Mr. Hoover, identify what this exhibit shows.

A. This is a map which displays porosity in what is called the Atoka pay sand. If you look up at the wall, the Atoka pay sand is that sand colored in yellow up on the top of the stratigraphic cross section.

MR. CARR: May it please the Commission, I'm going to object to testimony as it relates to the Atoka and to this exhibit. The case is confined by its call to the South Salt Lake Morrow Gas Pool and we submit that anything concerning the Atoka is irrelevant and outside the call of the case and we object to it.

MR. HENSLEY: I think in view of the fact that stratigraphically you must intersect the Atoka while drilling the Morrow Sands, that whatever gas reserves may be present and could be efficiently recovered as a secondary objective would be relevant to -- to the proposed location for a well.

MR. CARR: We would submit that the case

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is confined to the Morrow. We're dealing about an unorthodox location and we're talking about the Little Eddy Unit, unit and Morrow production in the area, and that going outside of the call of the case and trying to bring in evidence about secondary objectives is simply irrelevant and it's something which it would be improper for the Commission to consider.

MR. HENSLEY: Well I think the Commission can take administrative notice of the fact that there is in fact Atoka production in the Little Eddy Unit.

The Texaco 1-CH State has produced in excess of 3 Bcf from the Atoka and is involved in a proration unit and a participating unit within the confines of the Little Eddy Unit.

MR. CARR: We still fail to see how this has any relevance to the question of drilling a proposed well at an unorthodox location in the Morrow.

MR. RAMEY: I'm going to overrule your objection, Mr. Carr. The information dealing with the Atoka is not in the call of the hearing, but I'd like to hear it.

Q. Directing your attention, Mr. Hoover, to Bass Exhibit Number Ten, first of all explain what the legend of this exhibit demonstrates.

A. Okay. Pointing out that this is a -- this

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one Atoka pay sand, which has produced in this area in the "CH" State over 3 Bcf, the legend here indicates first of all those wells in which there are neutron logs only. These are generally older wells drilled in 1957 and '61, in which they had a neutron log run and as consequently very difficult to calculate any porosity from.

Next we have what's called kind of a ratio here. It's a net porous sand over the net total sand thickness. I say net porous sand in this case, we're talking about sand that has porosity greater than 6 percent, equal to or greater than 6 percent, and that's kind of underlined in orange throughout this whole map area.

And below that we're discussing the porosity range within this, anything over 6 percent, that is it could be 6 to 9-1/2 percent, or whatever, and below that would be the average porosity taken from the logs, but the average porosity, the total porous sand.

Okay. In showing this, in looking at the data, logs in this area, one can point out that the Cleary "F" Well has about an average porosity of 13 percent underlined in red there, and underlined in orange it's about 8 feet of porous sand, which is the total sand thickness. So based on my evaluation, this looks like it ought to be a producable formation here. In fact, I believe that this well actually kicked during the drilling of the well, so we

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know that it had pressure and permeability.

To the left is the "G" Well, the Grace "G" Well, which has about 8 feet of porous sand, ranging from 6 to 9-1/2 percent based off the sonic log, and an average of 8-1/2 percent, not quite as high average, but again, it looks like it has a very good chance of possibly being productive.

As we move to the east from the "F" Well to the "E" Well, for instance, the "E" Well shows only about 1 foot of 7 percent porosity. It would be somewhat questionable whether it would, you know, be productive, based on the thinness of it and the low porosity.

Other wells to the east, the 1 New Mexico Federal in Section 4 there, 2 feet of 10 percent; up to the north we've got zero feet of greater than 6 percent.

So in general what we're talking about is higher porosity values and thicker total porosity towards the west side of the proration unit area, as opposed to the east.

The wells to the north, the "CH" State and the "CM", like I say, it would be very difficult to try to make any porosity evaluation off of the logs themselves, and of course we know that the "CH" did produce over 3 Bcf. We know it must be porous and permeable at that location.

And the "CM" Well, currently had gas in

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it. It was completed but apparently never produced. There was indication of gas on the initial completion; however, it appears that it was probably not permeable enough to be commercially productive, at least at that time.

Q. Is the proposed unorthodox location, Mr. Hoover, on trend with the best porosity development in the Atoka in this area?

A. Yes, it is. It actually lies on a line between the "CH" Well and the Grace Cleary "F" Well, so Atoka porosity trend seems to be oriented pretty much in this northeast -- or northwest/southeast direction.

Q. Based upon your geologic study of the area in question and the proposed unorthodox location for a well in the proration unit, do you have an opinion as a geological engineer as to whether the proposed unorthodox location is required to protect correlative rights, prevent waste and be in the interest of conservation?

A. Yes, it is. A well drilled in an orthodox location for the Atoka very possibly would be of a lower porosity. It may not even be productive at that point. It would be difficult to get the hydrocarbons because of possibly lower porosity and less total pay.

And a well to the west side of the proration unit has a much better chance to efficiently drain the 320-acres of porous sand.

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Q. In your opinion and based on your study which you have conducted, Mr. Hoover, do you find any geologic basis for concluding that a permeability exists on the east portion of the proration unit which would prevent a well located in the west quadrant at an unorthodox location from draining the entire proration unit?

A. No, I do not.

Q. Were Exhibits Five through Ten, except for the dipmeter log, prepared by you or under your direct supervision?

A. Yes, they were.

MR. HENSLEY: At this time, Mr. Chairman, we would offer Bass Enterprises Exhibits Five through Ten.

MR. RAMEY: Exhibits Five through Ten will be admitted.

I don't think the Commission can put much weight on the testimony or the -- concerning Exhibit Ten, Exhibit Ten or the testimony concerning this.

MR. HENSLEY: All right, sir. We pass the witness for cross examination.

CROSS EXAMINATION

BY MR. RAMEY:

Q. Mr. Hoover, you said there's, from what I gather, there is no advantage to your unorthodox location

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except for the Atoka, is that what you said essentially?

A. Yes, and also to protect correlative rights of the unorthodox wells to the south of us.

As far as draining the total reservoirs in the field, there are -- we believe that there are Morrow sands throughout the 320-acre proration unit.

Q. Do you think you will encounter the best Morrow Sands at this location, or would you encounter better sands at the orthodox location?

A. Well, I believe it's an area of -- it's an area of recent development. It's an area where it has been reported that we know that there's good production at this particular time. So on that basis, you know, we could say that it may be an area that the sands are better, or maybe perhaps less drainage.

MR. RAMEY: Any other questions? Mr. Carr?

CROSS EXAMINATION

BY MR. CARR:

Q. Mr. Hoover, I want to be sure I understand your testimony.

I believe you concluded by saying that you did not -- that you believed a well drilled at this unorthodox location would be able to drain the entire proration

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unit. That was your conclusion?

A. That was -- we were talking about the Atoka at that time, I believe, when I said that.

Q. Well, do you believe the entire proration unit is productive in the Atoka?

A. Well, I -- that is a question that I can't answer for sure. There's an indication that there is some porous sand on the east side of the proration unit, as indicated by the wells that offset that proration unit, 2 feet in the well in Section 4; 1 foot in the "E" Well, and you can surmise that there is probably some Atoka throughout the whole 320-acre proration unit. We would merely want to get in the place where it would be the most permeable with the best chance to drain it efficiently.

Q. Was it your testimony that a well at the unorthodox location would drain the entire proration unit in the Morrow?

A. It would to the -- it would to the extent that the sands are connected across the 320-acre proration unit.

Q. So it is your testimony --

A. So any sand that -- that is not already drained, for instance, or that is connected across, we should be able to efficiently drain.

Q. I'd like to know, was it your testimony

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that a well at this location would drain the entire proration unit in the Morrow, assuming that you do have -- are in one of these continuous sands?

A. Yes, if there is no -- if it is permeable or across the entire 320-acre proration unit, yes.

Q. And you believe that certain sands do correlate across this proration unit?

A. Definitely they do in general. There are certain intervals that do correlate. I think I've pointed out on the stratigraphic cross section. There's others we know do not.

Q. Would it be logical to assume that since some of these correlate across this entire proration unit that they would also extend into the properties to the west of the proration unit?

A. Yes.

Q. And if you were producing those from an unorthodox location wouldn't you be draining the acreage to the west?

A. You may drain some, yes.

Q. And by moving to an unorthodox location and gaining 66 + advantage on those properties, wouldn't you anticipate that a disproportionate share of the reserves would be coming from the offsetting property and not your proration unit?

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A. Well, it's difficult to say for sure. On the interconnection of these Morrow Sands they come and go, a lot of them so quickly, some may be across the proration line and -- or not, you know, it's just very difficult to answer that question.

Q. Didn't you answer it?

A. Only to the extent that they're connected across the proration unit.

Q. All right, didn't you just say a few moments ago that it was logical to assume that some of these continuous sands would extend to the properties west of the proposed proration unit?

A. Some of them may. We don't have any control to the due west, due west from here.

Q. Do they appear also to the south and west?

A. We know -- we know that they are Morrow sands to the southwest and southeast from in between the new wells that were drilled in that area.

Q. Do you have any evidence that would indicate they do not extend to the property, Gulf property, in lot 8 directly west of your proposed location?

A. I don't have any evidence either way.

Q. Do you believe that this proration unit, the entire proration unit, is productive in the Middle Morrow?

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As I look at your Exhibit Number Nine I see that the Middle Morrow is color coded and all the wells surrounding this proration unit.

A. Right.

Q. Would not that be indicative that the Morrow is productive throughout this proration unit?

A. Yes, I would say it is, to the extent that you know, it's not drained some place.

Q. And if it was drained, it would be drained by the "CM" Well directly to the north? Would that be a logical assumption?

A. That could -- that would very definitely be one well that may have drained some of the acreage, yes.

Q. By moving to this unorthodox location you're getting away from the area that might be drained. Is that a correct statement?

A. Well, --

Q. Would that also be --

A. Not necessarily. There is, I think there is a chance that there could be some drainage in this area from the "CM". We really don't know.

Q. Was that a consideration in picking this location?

A. But we can point out that we do know in the "F" and the "G" Well that there are zones that definitely

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not drained in this area and also looking at the stratigraphic correlation section.

Q. Was drainage a consideration in picking this location?

A. Only to the extent that we know we've got -- we definitely have zones here which do have -- well, they do have a high pressure from the recent drilling, and therefor we know that there are zones that are not drained. We are -- it's more questionable on the other side, or we don't have a control. We can assume that there probably are some zones that are undrained but we don't really know.

Q. If the entire proration unit is productive in the Middle Morrow, could it not be effectively developed with a well at an orthodox location?

A. To the -- to the extent that the zones are connected throughout the 320-acre proration unit.

Q. And assuming that they are connected throughout the unit, then the answer would be yes?

A. Yes.

Q. Now, if you could produce the proration unit from a standard location, by moving to the west 1320 feet are you not gaining substantial advantage on the properties to the west?

A. Well, it's just difficult to say with

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the Morrow. I mean it's very possible that -- that you may or may not. We don't -- we don't really know. Each case is just like a wildcat out there because you've got so many different sands.

Q. If you have a continuous stringer that crosses this proration unit and the acreage in Lot 8 in Section 6, the lot immediately offsetting to the west of the proposed location, would you anticipate draining more reserves from under the property to the west at the proposed location or from an orthodox location?

A. If the same stringer goes all the way to the orthodox location?

Q. Yes, if you had one common stringer through the --

A. Okay, and it's permeable throughout, I would believe that you'd be able to drain from the orthodox location all the way across the line, yes, it would be possible.

Q. And would you anticipate a greater drainage of the offsetting property with a 660 location than you would with the 1980 location?

A. Now, pardon, that question again?

Q. By moving to the 660 location would a greater portion of the reserves come from Lot Number 8 in Section 6 than they would if you were producing from the

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orthodox location?

A. Well, it's possible that it would; however, is this continuous across there, like I say, permeable across, you may drain that whole reservoir irregardless of what, you know, where the well location is.

Q. And if you can drain it irregardless of any location, why won't you drill at an orthodox location?

A. Well, you could possibly drill the Morrow at an orthodox location.

Q. You could possibly drill there?

A. Oh, yeah, I mean for the Morrow alone, yes.

Now, we -- certainly we wouldn't be protecting our total correlative rights if we drilled from the orthodox location area from the wells to the south.

Q. And why not?

A. Well, only to the extent that the zones are continuous. The zones that are not continuous into the orthodox location that are being -- that are possibly being drained by the "G" Well, for instance, possibly the "F", we would not -- we would not be in that particular minute -- that special reservoir, so therefor we would not be able to drain it.

Q. But by the same token there might be stringers that you would pick up at an orthodox location

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that would not be available to you at the unorthodox location.

A. There might, yes, I mean you can conjecture that.

Q. If you moved to a 660 location and are gaining an advantage on the offsetting property in the Middle Morrow, do you still believe a penalty is inappropriate?

A. Yes, I do.

Q. And you -- why?

A. Well, because we're basically just protecting our correlative rights and trying to drain our -- our proration unit.

Q. I believe you stated that you could drain the Morrow from an orthodox location.

A. I said only to the extent that it is connected, the particular zone, a particular horizon, is connected.

Q. But we all agree that if it's not -- if you don't have the stringer in the well, you can't produce it.

A. Yeah.

Q. I'd like to ask you a couple of questions about the Atoka. I believe the drift of your testimony from Exhibit Ten --

A. Uh-huh.

Q. -- was the best pay in the Atoka was found

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to be -- and correct me if this is wrong -- south and west.

A. Southeast and southwest, yes. Well, the "F" and "G" Well, obviously, looking at the porosity logs, they have the best porosity development in the area.

Q. Isn't it possible that you would also encounter better Atoka pay in the -- or that you will encounter better Atoka sands in Lot 8 in Section 6, which is the Gulf property?

A. Well, it is possible; however, the best Atoka well appears to be the "F", not the "G", and therefor one might -- might say that the best development could be on the west side of the 320-acre proration unit.

Q. And if the best productive area in the Atoka is on the west side of the proposed location, and Lot 8 being directly west of your location could be presumed to have Atoka sands and be productive?

A. It could, yes. It could have some.

Q. And you would likewise be gaining an advantage on Lot 8 by moving from an orthodox location in the Atoka.

A. Well, drilling the Atoka from an orthodox location it is very possible, it's very high risk there, we probably could not produce our reserves on our proration unit, because it may be -- the permeability may be so low and the sand thickness so thin that we may not be able to

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efficiently drain our reserves.

Q. Well, in draining your reserves, would you not also be draining the reserves from Section 6?

A. We may drain some, yes, it is possible.

Q. And by moving to the unorthodox location your well is moving 66 percent closer to the Lot 8 than it would be at an orthodox location?

A. Yes, that's where it is.

MR. CARR: I have no further questions.

MR. HENSLEY: If the Commission please, I have a few additional questions.

REDIRECT EXAMINATION

BY MR. HENSLEY:

Q. Mr. Hoover, all the questions which Mr. Carr propounded to you about whether or not the proposed unorthodox location would in fact recover a disproportionate share of gas from the Morrow, assume that there was a continuous stringer of permeability and porosity in the Morrow Sands. Let me ask you this: Assuming this continuity of permeability, if you do not locate your Morrow well at the unorthodox location, will a disproportionate share of the gas underlying your proration unit be drained from you by the "F" and "G" Wells?

A. Yes, I believe so, to the extent that any

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of the zones in either one of those wells connects across the full proration unit.

Q. Is it therefor necessary in your opinion as a geologist that in order to efficiently drain your share of the gas in the Morrow, that the location to offset these unorthodox locations must be in an unorthodox location in the west part of the unit?

A. Yes, that is true.

Q. Now, also a number of questions were asked you by Mr. Carr concerning the advantage of the unorthodox location in that it might possibly drain some of the Gulf acreage located in Section 8, do you recall those questions?

A. You mean in Section 6, don't you?

Q. In Section 6.

A. Yes.

Q. Lot 8 in Section 6.

A. Yes, right.

Q. That assumes, does it not, that any well which would be proposed by Gulf would be at an orthodox location?

A. I guess that is a laydown proration unit in the top half of Section 6, is it not?

Q. An orthodox unit would be 1980 feet from the east line?

A. Uh-huh, that is correct.

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Q. If Gulf made application for an unorthodox location, as all the other operators have done surrounding your proration unit, and if a well were drilled at an unorthodox location, geologically would that well drain more than its fair share of gas on the boundary of your proration unit, so that a disproportionate share of gas would in fact be drained by Gulf from your unit?

A. Well, I'm -- there's a good chance of that to the extent that any of those reservoirs go across the proration unit line there.

Q. And would the same geological reasons support an application for an unorthodox location on Gulf's acreage as supported the unorthodox location by Grace Petroleum in connection with the "G" Well?

A. Yes.

MR. HENSLEY: We pass the witness.

MR. RAMEY: Mr. Carr?

RECROSS EXAMINATION

BY MR. CARR:

Q. Mr. Hoover, as I understand your answer to Mr. Hensley's last question, you're moving to the proposed unorthodox location because if you do not do so a disproportionate share of the gas under your proration unit would be drained by the "F" and "G" Wells, is that correct?

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A. Yes, that is correct.

Q. Moving that way you also are moving toward Gulf acreage, which is not dedicated to a well, is that correct?

A. Yes, that's my understanding.

Q. And you would be draining from the Gulf tract.

A. To the extent that any reservoirs connect across there, yes, we would.

Q. Now, it was proposed that -- Mr. Hensley suggested that if Gulf drilled on Lot 8 at an unorthodox location a disproportionate share of the gas being produced by that well would be draining from your proposed proration unit, is that not correct?

A. Yes, if we do not drill on the west portion of the acreage. There probably will be zones that do cut across proration units that will be drained by a well that Gulf would drill there, yes.

Q. Isn't the converse of that true, assuming your well at the unorthodox location and no well on Lot Number 8?

A. Pardon now?

Q. Isn't exactly the converse true, that a disproportionate share of the reserves will be drained by a hypothetical Gulf well in Lot 8, if you just reverse that

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and have just the proposed unorthodox location on your proration unit, won't you in fact have the same situation only in reverse, a disproportionate share being drained from the Gulf tract?

A. Yeah, I think the reverse would be true.

Q. Would you be willing to give us a waiver if we wanted to come in and drill at an unorthodox location?

A. I don't believe --

Q. If so, if we were proposing to drill that, would you believe it appropriate for the Commission to impose a penalty on the production from the well in Lot Number 8, to limit what rates of withdrawal?

A. No, not in my opinion, I don't believe, no.

Q. You don't believe if Gulf was proposing to drill at 660 from the lease line that a penalty would be appropriate?

A. No, I don't.

MR. CARR: I have no further questions.

MR. RAMEY: Any other questions of the witness?

MR. HENSLEY: No further questions of Mr. Hoover.

MR. RAMEY: Do you have anything else, Mr. Carr?

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MR. CARR: No, I have nothing further, Mr. Ramey.

MR. RAMEY: The witness may be excused and let's take a fifteen minute recess.

MR. HENSLEY: Before we take the recess, may I ask one further question of this witness, Mr. Ramey?

MR. RAMEY: Yes.

REDIRECT EXAMINATION

BY MR. HENSLEY:

Q. I apologize, it just came to me as we were breaking up.

I believe the testimony in this record, Mr. Hoover, shows that the "G" Well, which has recently been completed, is at an unorthodox location, is that correct?

A. Yes, that is correct.

Q. Directing your attention to what's been introduced into evidence as Bass Enterprises Exhibit Number Three, as I understand it, a standard proration unit for the "G" Well would be substantially to the south of its actual location as indicated on Exhibit Three, is that correct?

A. That is correct.

Q. And by virtue of the close proximity of the "G" Well to the Gulf acreage in Lot 8, Section 6, as a geologist would you suspicion that some drainage might occur

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from the Gulf acreage by reason of the proximity of the unorthodox location of the "G" Well?

A. Yes, I would imagine that to some extent there may be some drainage.

MR. HENSLEY: No further questions.

MR. RAMEY: Mr. Carr?

RECROSS EXAMINATION

BY MR. CARR:

Q. In the case for the unorthodox location for the "G" Well, do you happen to know whether or not Bass appeared in opposition to that application, or Texaco?

A. Not to my knowledge.

MR. CARR: No further questions.

MR. HENSLEY: Thank you, sir.

MR. RAMEY: Short recess.

(Thereupon a recess was taken.)

MR. RAMEY: The hearing will come to order.

MR. HENSLEY: Bass Enterprises will call Mr. David Davis as the next witness.

DAVID DAVIS

being called as a witness and having been duly sworn upon

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his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. HENSLEY:

Q. Would you state your name, please?

A. My name is David Davis.

Q. Where do you live, Mr. Davis?

A. My address is 2403 Northtown Court, Midland, Texas.

Q. And what is your occupation?

A. I am an Assistant Division Engineer for Bass Enterprises Production Company.

Q. What is your professional education?

A. I received a Bachelor of Science degree in petroleum engineering and chemical engineering from Texas Tech University.

Q. Have you had occasion in the past to testify before the Oil Conservation Division and have your qualifications as a petroleum engineer accepted?

A. Yes, they were.

MR. HENSLEY: Are the qualifications of the witness acceptable?

MR. RAMEY: Yes, they are.

Q. Mr. DAvis, have you made a reservoir study of the producing characteristics of the Morrow forma-

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tion in the vicinity of the proposed well?

A. Yes, I have.

Q. I'd like to direct your attention to what has been marked for identification as Bass Exhibit Number Eleven, and ask if you will please explain the significance of this exhibit to the application?

A. Okay. This is a plot of the shut-in wellhead pressure for various wells in the South Salt Lake Morrow Field versus time, and as you can see, there's about seven wells and what it indicates to me is that there's not direct relationship between the date of completion of the well and the shut-in wellhead pressure, pressure which is indicative of the bottom hole pressure for each well.

This indicates that each new well has a good chance to find undrained reservoir lenses at every location. It also indicates that even though, from the cross sections presented in the geological evidence, that some of the sands might be continuous, the pressure indication a lot of times indicates that they may not be in pressure communication.

Q. Are those the principal conclusions that you reach as a consequence of this pressure study?

A. I conclude that a well on this proration unit has an excellent chance to find new reserves in the Morrow formation due to the lenticularity of the Morrow form-

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ation, and I think that all areas of the proration unit should have significant gas reserves.

Q. Notwithstanding the fact that there may be offset wells which have been producing for a period of time, is that correct?

A. That is correct.

Q. Next I'd like to direct your attention, Mr. Davis, to what has been marked for identification as Bass Exhibit Twelve.

A. Okay. This exhibit is hand calculations of volumetrics based on information from Texaco, that gives their Texaco "CM" State No. 1 Well, the location in Section 31, 20 South, 33 East.

They indicate that they have about 8-1/2 Bcf recoverable reserves from the well. The pressure they indicate is 5935 pounds, and I assume some values which would be what I think are representative of the Morrow formation. These would be that the water saturation would be about -- approximately 25 percent; the porosity is 8 percent average; and the gas recovery factor would be 80 percent.

If you divide the recoverable reserves by the recovery factor you come up with 10.6 Bcf of gas in place.

If I put that volume of gas in the indicated 130 foot of pay that has been perforated by Texaco,

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the drainage area would be approximately 110 acres. That's not to say that that would -- the well would not affect a much larger area, and this is because that the pods, or lenses that are perforated in that well are not in all likelihood going to be concentric with the wellbore in the middle of each sand.

It's also quite obvious that the sands are going to have different areal extent in each of the lenses that you penetrate, and in all likelihood the individual lenses are not cylindrical, which is what I assumed in the calculation.

Q. Do I understand by that testimony that depending on how the deposition of these sands is in fact stratigraphically located, that you may have some drainage from the south of this well into the east portion of the proposed proration unit, but there's no definitive way of concluding that all of the Morrow Sands have been drained by virtue of the "CM" Well, is that correct?

A. That's correct. I believe that there's a good chance that some of the lenses on the proposed proration unit would have been partially drained by the, for instance, Texaco "CM" State No. 1 Well.

Q. Okay. Would you explain, Mr. Davis, what engineering effects may be encountered where you drill a well into an area where you may have partially depleted the

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reservoir in some of the sand strings?

A. I feel very strongly, and it is Bass' opinion, that the Morrow formation, and I think this is the consensus of most operators, that the Morrow formation is very, very sensitive to fluids that you drill with. With the lower pressure in some of these sands you're going to have much deeper invasion into those sands, which causes more damage, which makes it that much more difficult to make a successful completion in the Morrow, that particular lens.

Also, if you have a wellbore that penetrates a low pressure sand and a high pressure sand, your ability to complete both of those successfully and completely is decreased because you're going to have to -- or the amount of treatment fluids or stimulation fluids you put in the low pressure zone may be quite a bit more than you put in the high pressure zone, and also when you do stimulate the low pressure zone, it is without the natural reservoir energy in there to help recover your load. You have much more difficulty recovering that.

Another factor would be that if you really -- if you drilled a well and penetrated the sand that had virgin reservoir pressure, indicating that it was a new reservoir, under the current price guidelines set up by the NGPA, it is economically to your advantage to keep that gas separate from any gas that might be lower pressured. It would be a

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difference of approximately 20 cents an Mcf, which is very significant consideration in the thing. That would mean you'd have to -- if you wanted to isolate them, you'd have to have more expense in the completion of the well.

Another reason is if you had a high pressure zone in manmade communication with a low pressure zone, you'd have cross-flow of gas from the high pressure zone into the low pressure zone. The low pressure zone would obviously be a result of partial drainage from an offset wellbore and this would allow some of your reserves to be produced through your manmade communication into the offset well.

And finally, by the same token, if you did deplete, or if you did equalize pressure from a high pressure zone to a lower pressure zone, your deliverability in that well would be decreased in the high pressure zone, due to the fact that the driving force, the differential pressure driving force in the well, would also be reduced.

Q. As a petroleum engineer, Mr. Davis, do these factors and considerations cause you to favor the unorthodox location for the Morrow as opposed to a standard orthodox location on the unit?

A. First let me give an example of what I was stating.

Shown on the map that we submitted, Exhibit

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Number Five, which is a structure map, just for reference, in Section 10, Township 21 South, 32 East, Bass has drilled -- it's indicated as a Bass Franks No. 1 Hat Mesa, and upon drilling that well Bass was drilling the Middle Morrow formation and stopped and took the drill stem test, which indicated conclusively that there was a low pressure zone in the Middle Morrow; went ahead and drilled through the Lower Morrow and found a new sand. We completed the well. We felt like that the sand in the Lower Morrow was not in communication with any other wellbore, since we hadn't seen it in any offset logs. We were forced to make a dual completion to isolate the bottom sand, as I said before, to protect our interests under the NGPA pricing rules, and to also successfully get a successful completion in the Middle Morrow. And the pressure in the Middle Morrow was about half of what it was in the Lower Morrow formation.

Now, could you ask your question again?

Q. Well, assuming that there may have been some partial drainage to the proration unit by virtue of the close proximity of the Texaco "CM" Well, would you as a petroleum engineer, favor the unorthodox location as a more efficient means of recovering the Morrow reserves?

A. I do believe that's true. This location gets us equidistance, I believe, from the Grace New Mexico Federal "G" and "F" Well, and also gives us a reasonable

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distance from the Texaco "CM" Well, which allows us to protect our correlative rights in the southwest portion of the lease and also gets far enough away that we feel like we'll have less trouble with the partially drained lenses in the orthodox location.

Q. Based on your study of the reservoir characteristics of the Morrow formation in the vicinity of the proposed location, are you able to formulate an opinion, Mr. Davis, as to whether or not commercial reserves of gas exist on the entire 320-acre unit?

A. I believe they definitely do.

Q. Now there's been a lot of testimony in the case about the fact that the proposed location for an unorthodox well site is in close proximity to the west line of the proration unit. I believe the testimony showed some 66 percent advantage from a distance standpoint.

As a petroleum engineer, Mr. Davis, do you feel that the unorthodox location is necessary in order for Texaco and Bass to recover their fair share of the hydrocarbons from the proration unit?

A. Yes, I do. I believe that due to the allowance or the previous unorthodox locations that have been allowed, that to offset the -- what we consider to be the most immediate problem of drainage from the New Mexico "G" Well, which we have records to indicate that that well

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is going to be a good well, and the "F" Well, that we need to offset those wells to protect our correlative rights.

Q. To the extent that there are or may be continuous sands stringers present in the Morrow formation between the orthodox location and the area proposed for the unorthodox location, is there any engineering reason that you know of, Mr. Davis, as to why a well at the unorthodox location could not or would not efficiently drain the unit?

A. There's no information that I have that indicates that.

Q. In your opinion, sir, will the approval of the requested nonstandard location, together with the full allowable, be in the interest of conservation, prevention of waste, and the protection of the correlative rights of the parties?

A. Yes, I do. Re-emphasizing what I said, I think it will decrease some of the problems we have on our completion. It will protect the unit from the already allowed unorthodox locations, the New Mexico "G" Federal, the 1-F Federal, and quite possibly a new well that might be drilled to the west by Gulf. And it also improves our chances to have a successful completion in the Atoka.

Q. Were Exhibits Eleven and Twelve prepared by you or under your direction and supervision?

A. Yes, they were.

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MR. HENSLEY: At this time Bass offers Exhibits Eleven and Twelve, Mr. Chairman.

MR. RAMEY: Exhibits Eleven and Twelve will be admitted.

MR. HENSLEY: We pass the witness for cross examination.

MR. RAMEY: Mr. Carr, do you have a question?

MR. CARR: I have a few.

CROSS EXAMINATION

BY MR. CARR:

Q. Mr. Davis, I believe you testified that all areas in this proration unit contain substantial gas reserves, is that correct?

A. I believe that's true.

Q. So you could drill a standard location and produce the Middle Morrow from that location?

A. Let me refer to the completion map.

I believe that's -- yes, that's true.

Q. As I understood your testimony, one of the reasons you decided to drill at this unorthodox location is to avoid completion problems that will result from drilling in a reservoir that has been partially depleted, is that correct?

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A. Part of the sand that we will penetrate will be quite possibly partially depleted and they could cause us problems when we try to drill and complete.

Q. And they were depleted in part by this Texaco "CM" Well located immediately to the north of the proposed proration unit?

A. It is quite possible that they were partially depleted by that well.

Q. Do you know if Bass participates with Texaco in that well to the north?

A. I believe they do. I'm not positive.

Q. So in other words, you're moving to the unorthodox location because you've already depleted part of the proration unit.

A. No, that's not true.

Q. It is not?

A. The reason we're doing that is to get over and protect ourselves in what we feel is the best location to affect a successful completion and to also protect our correlative rights from the new wells that are unorthodox to the southwest and the south.

Q. I thought I understood your testimony to be that one of the reasons you desired to drill at the unorthodox location was to get away from the pressure differentials that you might encounter at an orthodox location.

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A. In some of the lenses.

Q. And some of the pressures differentials were of your own creating. That's what I meant. Is that true?

A. That is possible.

Q. Now, one of the reasons, as I understand your testimony, for drilling at the proposed location is to get away from, again it's the same question, I think, from Middle Morrow production in the area, and so by moving to the proposed location you're getting away from the "CM", at the same time offsetting the "F" and "G".

A. It essentially puts us equidistant, I believe, from the "F" and "G" and still gives us a good location distance away from the "CM" State No. 1.

Q. If your real objective is just getting away from other Middle Morrow production, then you would have been able to drill just as easily in the east half of this proration unit.

A. That was part of reason, though, to drill an offset, the demands that have already been made by the -- to meet our offset obligations and to offset depletion that quite possibly can occur from the unorthodox locations in the "G" and "F" wells.

Q. And to meet the demand from the USGS? Couldn't that demand have also been met with drilling a well

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at an orthodox location?

A. I don't --

Q. If you drill at the proposed location and get a successful Morrow completion, I believe you testified that it would enable you to get your fair share of the reserves under that tract.

A. I agree, as was stated by Larry Hoover, that as long as the sands are continuous, that that well will be able to drain that -- that east half of the proration unit.

For example, in the Hat Mesa No. 1 Well that I referred to, the nearest wells that could have depleted the one zone were approximately 3000 feet away, and it's very hard to believe that those sands in that case stopped at one -- we just penetrated on the edge of one wellbore. We hit the edge of the sand in the offset well, at least one of them hit it, so it's -- there is potential for quite large sands in some cases.

So I believe that you can effectively drain the unit as long as the sands are continuous.

Q. Now here again, assuming continuous sands, which I think you have to do for this question, would a well at the proposed unorthodox location drain more reserves from Section 6 than would a well at an orthodox location?

A. That I can't -- can't say. I would say

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that it would protect our rights from being drained -- let me say it this way. If the "F", "G", and possibly a well to the west also penetrate the same sand that would be penetrated by our unorthodox location, we would have to have a -- our wellbore would have to protect our correlative rights from being drained by the offset wells.

Q. Okay, if you have to have your well to protect your correlative rights from a well drilled by Gulf, you just made reference to, that could be drilled by Gulf in Section 6, isn't it logical to assume that absent a well by -- a Gulf well in Section 6, that you're impairing their correlative rights by this nonstandard location?

A. I don't guess I understand your question. Would you ask it again?

Q. I think you just said that if we assume that there's a well in -- well, Lot A, the Gulf well, offsetting your well, and the two wells south of the proposed location, that you have to have that well at the proposed location to protect your correlative rights, is that correct?

A. It is not necessary. It seems to be the best place to locate to protect our rights from an unorthodox location, and I believe that if you allow the two unorthodox wells to be permitted, and it is apparent to us, or at least to me, that based on the structure map, that the application for those wells was to get as high up structure

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as you could get, on the Grace wells, that it is our obligation to protect that immediate offset. That's the most immediate production, possible drainage, that we will see.

Q. I guess my question is, while attempting to protect from drainage from those two wells are you not also crowding the north half of Section 6 and thereby draining a disproportionate share of reserves from the offset property?

A. I don't believe so.

MR. CARR: No further questions.

MR. RAMEY: Any other questions of the witness? He may be excused.

MR. HENSLEY: No further questions. That concludes the direct case of the applicant, Bass Enterprises Production Company, Mr. Chairman.

MR. RAMEY: Thank you, Mr. Hensley. Mr. Carr, do you want to present testimony?

MR. CARR: At this time I would call C. D. Stenberg.

C. D. STENBERG

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

DIRECT EXAMINATION

BY MR. CARR:

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

A. C. D. Stenberg, Gulf Oil Corporation, Midland, Texas.

Q. Mr. Stenberg, what is your present position with Gulf Oil?

A. Geologist.

Q. Have you previously testified before this Commission and had your credentials accepted and made a matter of record?

A. Yes, sir.

Q. Are you familiar with the application of Texaco in this case and the subject area?

A. Yes, sir.

MR. CARR: Are the witness' qualifications acceptable?

MR. RAMEY: Yes.

Q. Will you please refer to what has been marked for identification as Gulf's Exhibit Number One and explain to the Examiner, or to the Commission, what it is and what it shows?

A. Exhibit One is a location plat showing the Salt Lake Morrow South Gas Pool. The structure contours are based on a Mid-Morrow Shale. This will be line thirteen on the cross section which will follow.

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The contour interval is 100 feet and the structure shows a southeast plunging nose. Also shown are the proposed locations of the Texaco-Bass proposed location in red and the blue is the Grace "G" Well, which has now been drilled, and also in yellow are the other Morrow producers in the field.

Also, at this time R-111-A area is outlined with the blue hachured, heavy hachured line. This is the State potash and oil area.

Gulf owns Lot 8, which is the west offset to the proposed location.

The map contours on the Pennsylvania shale marker; can be contoured without drawing a fault in the structure as has been previously testified.

The information we have so far from the Grace "G" Well, which has been drilled and logged, shows that the proration unit of Texaco and Bass is surrounded by productive acreage. If there is any structural advantage to be gained in the proration unit, it would appear that the east half of the proration unit is better structurally situated, according to the center well in the cross section of Exhibit Eight, where we have thick sands and a large -- large cumulative, if structure has any part in the thickness of the sand lenses.

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Line A-A' on the map is a line of cross section, which is Exhibit Two.

Q. Mr. Stenberg, from a geological point of view, can you see any reason for developing this proration unit at the unorthodox location?

A. No, sir.

Q. Could it be drained, in your opinion, from a well located at a standard location?

A. Yes, sir.

Q. Will you refer to what has been marked as Gulf Exhibit Number Two and review this for the Commission?

A. Exhibit Number Two is a cross section which was line A-A' on the structure map, and the cross section is hung on the top of the Morrow, which is line number six.

The correlation lines drew predominantly shale zones and zones that contain the sands. Three main zones that are productive are the zones between lines ten and eleven, twelve and thirteen, and fourteen and fifteen.

Other wells to the east also correlate with these zones and also with, I think, probably with some of the wells in the other -- other exhibits, defining the various parts of the Morrow.

Well, that's -- that's about all that actually shows. It just shows the correlation of the -- of

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the zones that are producing that are fairly predominant throughout the field.

Q. Would you anticipate that these zones that correlate throughout the field would also be present in Lot 8 of Section 6 immediately to the west of the proposed well location?

A. Yes, sir.

Q. And that a well at the proposed location would be capable of producing reserves from that tract, I mean the adjoining tract?

A. Yes.

Q. Do you believe a well at the standard location would be the logical location to produce the reserves under that particular -- under the proposed proration unit?

A. Yes, sir.

Q. Do you have anything further to add to your testimony?

A. Well, just make one conclusion, that on the basis of previous testimony of the thick sands in the Texaco "CM" Well and the fact that the sands do correlate all the way around the -- sand zones, zones with sand, let me say, correlate all the way around the proration unit, that therefor a standard location will be the logical place to drill a well to drain the proration unit without -- without

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leaving gas reserves behind that would not be drained otherwise.

MR. CARR: I have nothing further on direct.

Oh, were Exhibits One and Two prepared by you or under your direction?

A. Yes, sir.

MR. CARR: At this time I would offer Gulf Oil Corporation Exhibits One and Two.

MR. RAMEY: Exhibits One and Two will be admitted.

MR. CARR: I have no further questions of Mr. Stenberg on direct.

MR. RAMEY: Do you have any questions of the witness?

MR. HENSLEY: Yes, sir.

MR. RAMEY: Mr. Hensley.

CROSS EXAMINATION

BY MR. HENSLEY:

Q. Mr. Stenberg, reference has been made in the course of the testimony to date that a well has been recently completed in Section 6, denominated as the Grace Petroleum "G" Federal, at an unorthodox location immediately to the south and west of the proposed unorthodox location,

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immediately to the south and west of the proposed unorthodox location, is that correct?

A. Yes, sir.

Q. Does Gulf own an interest in that well?

A. Yes, sir, 25 percent.

Q. To your knowledge does Bass Enterprises Production Company own any interest in the "G" Well?

A. I don't know who are the other owners, sir, except Grace.

Q. Now, you've indicated that from your review of the geology underlying the proposed well, that there is no evidence of any fault, is that correct?

A. That's correct.

Q. In that respect, then, I assume that you agree with Mr. Hoover's testimony to the effect that you just simply have a southwest dipping off the axis of the structure.

A. Yes, sir.

Q. Is there anything as a geologist that would indicate to you that this -- that this dip would create any type of permeability barrier?

A. That the depth would?

Q. Yes, the dip.

A. Oh, the dip, excuse me. No, not -- not directly.

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Q. Now, what is the position of the "G" Well structurally to the "F" Well?

A. It's essentially flat, almost flat. It's a -- that's a good picture up there on your Exhibit Eight there. It's hung on a datum. The "F" and the "G" are within 10 feet, 10 or 15 feet, datum-wise.

Just like it's contoured on the map there, just practically on strike.

Q. Actually, it appears to me that your Exhibit Number One, as far as your efforts to map the structure, in the Mid-Morrow Shale, or the top of the Mid-Morrow Shale, conform in almost all respects with the Bass exhibit, which I believe was Exhibit Number Five, showing Mr. Hoover's structure map, is that correct?

A. Yes, sir.

Q. You indicated that you felt that the east side of the proration unit was probably structurally high. Is that indicated by this map?

A. The east half, the northeast part is higher, is the highest structurally.

Q. Is there any reason to believe that there's any relationship between the thickness of the Morrow Sands and the amount of structure present? From your study of this area?

A. Mainly from the one well I mentioned,

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which is the Texaco "CM", which has the highest -- I believe it's the highest cumulative and also has the thickest sands.

Q. Actually we have more sand bodies present, though, down-dip from that, do you not? Maybe not as thick but --

A. Down-dip, which one do you --

Q. Well, let's take the "F" Well.

A. Well, there are quite a few sand stringers there but none of them are -- none of them are as thick.

Q. I see. You indicated that from your cross section map, which you identified as Exhibit Number Two, that there is a correlation of the MIddle Morrow Sands on all these logs, is that correct?

A. The correlation lines on my cross section agree, I think, with previous area maps and cross sections in this area.

Q. Now these correlations, as you explained in your direct testimony, are simply correlations of zones that have sand bodies present, is that correct?

A. Yes, sir, that's more or less what I've zones off, yes.

Q. Is it not a fact geologically that the Morrow deposition stratigraphically does consist of lenticular sands which are not -- do not cover a very large areal extent normally?

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A. Very frequently they don't cover a very large area, no.

Q. And by your testimony that you're able to show correlation of zones with sand stringers, you don't mean to imply by that testimony, do you, Mr. Stenberg, that you can actually correlate these productive stringers in all of these wells?

A. No, sir, not every individual stringer.

Q. You've got some areas where you've got virgin stringers, and other areas where you might be able to draw some type of correlation, based on the stratigraphic depth of those stringers, is that not true?

A. Yes, that's true.

Q. Is there any reason to believe from your geologic investigation of the Morrow horizons underlying the proposed well that recoverable reserves of hydrocarbons in the Morrow formation still exist and can be recovered by a well drilled on this proration unit?

A. Are you talking about a standard location or anywhere on the unit?

Q. Anywhere on the unit.

A. Yes, I believe there are reserves to be recovered under any part of the unit.

Q. The fact that the "CM" Well is in close proximity would not indicate to you as a geologist, would

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it, that all of the Morrow formation underlying the proration unit on the east portion of the unit has been drained by that well?

A. That's a long question.

Q. Well, I'll restate the question.

A. All right.

Q. There's not any reason to believe, is there, that the proximity of the "CM" Well would cause a complete drainage of the Morrow reservoir underlying the proration unit?

A. No, sir, I don't believe it would.

Q. Now, you indicated in your testimony that you assumed that the same correlation of the Morrow sand structure would exist to the west of the subject unit into the acreage in Section 6, owned by Gulf.

A. Yes.

Q. Is that correct?

A. Yes, sir.

Q. That correlation would be the same type of correlation that you've just delineated, would it not, insofar as being able to tie up stratigraphically the zones where sand stringers are present?

A. Yes, sir.

Q. It doesn't necessarily imply that there would be any continuity in the deposition of those stringers

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to the west of the unit any more than there would be complete continuity all through the proration unit?

A. No, sir. The continuity -- also no continuity in the porosity and permeability characteristics.

Q. Now you indicated that in your opinion, sir, that a standard location would efficiently drain all of the Morrow reservoir under the unit.

A. I believe I stated that I believe unless one is drilled closer to the east half of the proration unit it will leave behind undrained reserves.

Q. Okay. Does that assume that there are no continuity -- or there is no continuity at all in these stringers in the Middle Morrow throughout the unit?

A. Well, that's based mainly -- partly on the fact that the stringers do vary; the sands to vary in porosity and permeability and thickness.

Q. To the extent that there is a continuity and an interconnection between these lenticular sands, a well drilled anywhere on the unit would still affect drainage from a reservoir, would it not?

A. Yes, sir.

Q. As a geologist, Mr. Stenberg, well, first of all, let me ask you, you are familiar, are you not, sir, with the location of the "F" and the "G" Wells to the south and southwest of the proposed unit?

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A. Yes, sir.

Q. And those were both nonstandard locations which are crowded within 660 feet to the proration boundary line for the subject unit, are they not?

A. Yes, sir.

Q. As a geologist would you concur that unless those unorthodox locations are offset by an unorthodox location, as proposed by Texaco and Bass, that those owners would not be able to recover a fair and equitable share of the hydrocarbons in the Morrow zone?

A. I still believe I'd be more swayed by the fact that the east half would be left sitting there undrained.

Q. But there's not much question as a geologist, is there, Mr. Stenberg, that this -- if this unorthodox location is not approved, that there are going to be hydrocarbons in the Morrow formation drained from underneath these lands on the proration unit by virtue of the close proximity of the "F" and "G" Wells to the proration unit boundary?

A. Yes, sir, that's true. That's true in any spacing. You can be 660 from somebody else's lease line on an orthodox location.

Q. Now, does Gulf propose to drill a well in the proration unit encompassing Lot 8 of Section 6?

A. We only own the one lot, which would be

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the proration unit, and I certainly wouldn't know.

Q. Okay. To your knowledge are any efforts underway at this time by Gulf to effect pooling of those leases so that a full unit could be drilled?

A. No. The other seven lots are owned by Holly Energy Corporation, which were just recently purchased in the last couple of months, I believe, or whenever they were up for sale. So therefor I don't -- I don't know of any negotiations as yet.

Q. To your knowledge did Gulf try to bid at that sale? For that acreage?

A. Yes, sir.

Q. And Holly was the successful bidder?

A. Oh, yes, Holly -- Holly was successful, right.

Q. Do you know anything about the surface ownership in the proration unit which would embrace those properties to the west of the proration unit?

A. Only that it's within the State potash, the potash and oil area. The Rule R-111-A.

Q. Would all the balance of the acreage, excepting Lot 8, be within R-111-A boundaries, to your knowledge?

A. Yes, sir.

Q. Would that necessitate the surface loca-

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tion in Section 8?

A. That would necessitate the location, surface location, in Lot 8, right.

Q. Okay. And that would be within 8 or 900 feet maximum from the west boundary line of the proposed unit, would it not?

A. Well, I don't know what that rule would be.

Q. It would be in close proximity?

A. It would, right. It would have to be within the lot, yes, sir.

Q. Let me ask you, in view of the fact that Gulf owns an interest in the "G" Well, which is at an unorthodox location immediately to the southwest corner of the proposed proration unit, what was the reason that Gulf and Grace felt it necessary to locate that well in such close proximity to this proposed unit?

A. At that time I presume it was because of the structural position of the other wells, the projected structure. There was a hearing on that where Gulf opposed them and also wanted a different proration unit, but I was not at that --

Q. I see.

A. -- at that hearing, so I'm not very -- not real familiar with it.

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Q. Did Gulf also seek an unorthodox location? And seek to be operator of the well?

A. Did we? Yes.

Q. And was that unorthodox location also within 660 feet from the west line of the proposed unit?

A. Of your proposed proration unit?

Q. Yes.

A. I don't have a plat and I don't recall. I've seen it, but I don't recall which was the Gulf proration unit proposal.

Q. Thank you, sir.

MR. HENSLEY: Pass the witness.

MR. RAMEY: Mr. Carr?

MR. CARR: I have a couple of questions.

REDIRECT EXAMINATION

BY MR. CARR:

Q. Mr. Stenberg, as I understand your testimony, even with all the irregularities that we encounter in the Morrow, you still testify that there are stringers in this proration unit and you would anticipate that they would also appear in the properties to the west of the proration unit, is that correct?

A. Yes, sir.

Q. You testified in response to one of Mr.

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Hensley's questions that any well in that pool would affect drainage from the reservoir. Do you believe that there would be a greater impact on the Gulf acreage in Section 6 with the well at the proposed unorthodox location than drilled at the standard location?

A. Definitely.

Q. If Gulf drills -- if Bass and Texaco drill at an unorthodox location to protect themselves from drainage from the unorthodox locations for the "F" and "G" Wells, will the unorthodox location by virtue of the unorthodox location be encroaching or crowding the Gulf acreage to the west?

A. Yes, sir.

Q. In your opinion will it drain a disproportionate share of the reserves from that offsetting property?

A. Yes, sir.

MR. CARR: I have nothing further.

MR. RAMEY: Any other questions of the witness?

MR. HENSLEY: No further questions.

MR. RAMEY: He may be excused.

MR. CARR: I call Mr. Kalteyer.

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CHARLES F. KALTEYER

being called as a witness and having been 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. Charles F. Kalteyer, K-A-L-T-E-Y-E-R. I'm located in Midland.

Q. By whom are you employed and in what capacity?

A. Employed by Gulf Oil Corporation as Chief Proration Engineer for the Southwest District.

Q. Have you previously testified before this Commission and had your credentials accepted and made a matter of record?

A. Yes, sir, I have.

Q. Are you familiar with the application of Texaco in this case and the subject area?

A. Yes, sir.

MR. CARR: Are the witness' qualifications acceptable?

MR. RAMEY: Yes.

Q. Will you please refer to what has been

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marked for identification as Exhibit Number Three, Mr. Kalteyer, and explain to the Commission what it is and what it shows?

A. Gulf's Exhibit Number Three is prepared basically to show the four areas of orthodox locations that would be permissible for the Texaco-Bass application.

It also shows the approximate distances between the various wells, the Grace Petroleum "F" Federal, or Federal "F" No. 1; the proposed Texaco Loomis Federal; and the Grace Federal "G" in Section 6, as well as the distance to the Texaco "CM" No. 1 in Section 31.

Q. This unit also has depicted in red the proposed proration unit, is that correct?

A. Yes, sir.

Q. Mr. Kalteyer, there are arrows drawn to a well. It is the -- a box, which I guess indicates the orthodox location. It's the southeasternmost box on this exhibit for an orthodox location. Could you explain why you've drawn arrows to that particular point?

A. Of course the purpose of this was to show the potential of drilling in that southeast portion of the proration unit, the distance being 2113 feet from the Grace Federal "F", which is approximately the same distance as the 2167 feet to the Texaco proposed Loomis Federal.

Q. And the four boxes in this proration unit

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indicate the orthodox locations?

A. Yes, sir.

Q. Is the R-111-A boundary indicated on this exhibit?

A. Yes, sir, it is. It's noted as the potash area and a hachured line.

Q. And the potash area is on the west part of this plat?

A. That's correct.

Q. If Gulf decided to drill a well to develop the north half of Section 6, would Gulf have to locate the well in Lot Number 8, which is the area outside the potash area?

A. Yes, sir, it would in all likelihood have to be in Lot 8.

Q. Now, to your knowledge did Texaco at one time propose to develop this proration unit with a standard location?

A. Yes, sir.

Q. I'll hand you what is marked for identification as Gulf Exhibit Number Six, and ask you to just identify that for the Commission.

A. Gulf's Exhibit Number Six is a letter from the U. S. Department of Interior, Geological Survey, addressed to Texaco, and the date indicated is August 22nd,

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1979, and it indicates the approval of the No. 1 "CA" Loomis Federal in Lot 7, Section 5, Township 21 South, Range 32 East, which is within the southeast orthodox location area, as shown on Gulf's Exhibit Three.

Q. Do you happen to know the status of that application at the present time?

A. It is my understanding that that application has been withdrawn by Texaco. The location on the request was 1980 feet from the north line and 1980 feet from the east line of Section 5, Township 21 South, Range 32 East.

Q. Mr. Kalteyer, what conclusions can you drawn from this Exhibit Number Three?

A. It's obvious that Texaco and if Bass was their partner in this, they intended to drill a well at this location and apparently they though it would be a commercial well.

Q. I now ask you to direct your attention to what has been marked for identification as Gulf's Exhibit Number Four and explain this to the Commission.

A. Exhibit Number Four, A and B, it's in two parts, and it does give the monthly production since 1978 of the wells in the area and gives cumulative data as of the 1st of March for the various wells.

Q. Would you please refer to this exhibit, which is Exhibit Four A and B, first of all, Mr. Kalteyer,

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what was the source of the information on these exhibits?

A. This is the New Mexico Oil and Gas Association, Engineering Association.

Q. All right. Will you now refer to these exhibits and to what has been marked Exhibit Number Five, and explain the data contained thereon?

A. Exhibit Number Five is a plot similar to the one that was presented by the Bass witness, only it goes back to the year 1961, and traces the shut-in wellhead pressure versus time. Of course, we must realize that this is the shut-in wellhead pressure and does not truly indicate the exact bottom hole pressure, due to the variations in possible shut-in times, liquid or fluid in the wellbore, but it is generally representative of the pressure in the reservoir from surface condition, and we note that the wells have come in at pressures in the range from 4000 to some 5500 pounds. The recent wells have had a very rapid decline and this, I believe, would tie into the theory that there is communication within the -- some type of communication, how tortuous it may be, there is still communication.

The wells come in with virtually virgin pressure but are -- have been drawn down very rapidly, at least the wells that have been completed since 1973.

MR. NUTTER: Mr. Kalteyer, let me interrupt you one moment while you're on that exhibit.

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Is this original pressure for the "CM" the -- or the first pressure, the original pressure in that reservoir?

A. That was the first pressure that we were able to establish. We obtained it from a scout card. It had no information as to the condition of the well, how long it had been shutin or -- but it was the first pressure we were able to obtain on the --

MR. NUTTER: It's very early pressure on the well?

A. Right, on the Texaco well. We do -- there were some actual drill stem test pressures, but we didn't have bottom hole pressure tests to compare it to, so this was just a comparison of the surface pressures.

We do have -- our records on the "CM" State 1 show one pressure at 6520 psi and another at 5735 in the depth range of 13,300 to 13,500.

MR. NUTTER: Those are bottom hole pressures.

A. Those are actual drill stem test data.

One thing I did want to point out on Exhibit Five is the green curve for the Grace Petroleum Federal "F" No. 1. The initial shutin pressure was indicated to be 4570 psi and it rapidly declined -- that was in January of '79 -- and then by August of '79 it had dropped to 1664

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pounds, and it had produced some 306,000 Mcf, or .3 Bcf, with that rapid decline, and as of --- as of the February production data we see it was producing at the rate of only 557 Mcf per day average for February, whereas it initially started out producing in the vicinity of 2 to 3000 Mcf a day.

The point being made there is Bass has indicated they needed protection from drainage in this well is projected down if it is rapidly approaching depletion, or the area that's indicated by the Texaco "CM" Well.

Q. Now, Mr. Kalteyer, you've heard the testimony here today. In your opinion will a well at the proposed location drain reserves from the Gulf tract in Section 6?

A. Yes, sir, I think it will.

Q. If Gulf does not drill a well, do you believe it will be -- what will Gulf have to do to protect its correlative rights?

A. A well would have to be drilled.

Q. Do you believe that drilling a well in Lot 8 would result in effective well spacing pattern for the development of the Morrow in this area?

A. No, sir, it would not, especially if the Loomis application is approved.

Q. Do you believe that a third well in this area would be in fact an unnecessary well to produce the Morrow?

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A. Yes, sir.

Q. In your opinion if this application is approved, with the correlative rights of Gulf be impaired?

A. Yes, sir.

Q. Do you have a recommendation to make to the Commission as to what action they should take upon the application?

A. Yes, sir.

I recommend that the application be denied.

Q. Do you believe there is any other way to treat this application and thereby avoid impairing the correlative rights of Gulf Oil Corporation in this area?

A. Yes, sir, the granting of a permit to drill at one of the other orthodox locations would not impair the correlative rights of Gulf.

Q. Do you have anything else to offer in regard to your testimony?

A. One point that I had wanted to make was that there has been concern, or testimony, that the production of the Texaco "CM" Well No. 1 was probably draining the east half of the proposed location of Texaco and Bass, when in fact, if you will look on any of the plats submitted, the Texaco "CM" Well is actually more to the western side of that proration unit than to the east, and consequently, we

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would anticipate that if the "CM" 1 was responsible for draining the area in the proposed proration unit, then it would be more likely that it would have drained the western half of Texaco's proration unit than the eastern half, and would give more credence to drilling a well on the eastern half of the Texaco proration unit.

Q. Mr. Kalteyer, were Exhibits Three, Four, and Five prepared by you or under your direction and supervision?

A. Yes.

MR. CARR: At this time we would offer into evidence Gulf Exhibits Three through Six.

MR. RAMEY: Gulf Exhibits Three through Six will be admitted.

MR. CARR: I have nothing further of Mr. Kalteyer on direct.

MR. RAMEY: Questions, Mr. Hensley?

MR. HENSLEY: Yes, sir.

CROSS EXAMINATION

BY MR. HENSLEY:

Q. As I understand it, Mr. Kalteyer, you are aware of the fact that Gulf owns an interest in the "G" Well?

A. Yes, sir.

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Q. 25 percent, is that correct?

A. That's my understanding.

Q. And in that connection, do you know when that well was spudded?

A. No, sir, I don't.

Q. Would that be December of '79?

A. I have it in the records.

Q. Okay.

A. In my records.

Q. Directing your attention, if I may, to Gulf Exhibit Number Six, which is the application of Texaco to drill its "CA" Loomis Federal on a standard location in Lot 7, that application was filed before the "G" Well was drilled, was it not?

A. Yes, sir.

Q. And it's your information that the reason it was withdrawn was because of the drilling of the "G" Well?

A. I'm not aware of why Texaco withdrew the application.

Q. Now, as a reservoir engineer, sir, do you concur with the proposition that unless an unorthodox well is drilled in the vicinity of the proposed location, that the "G" and "F" Wells will drain more than their fair share of the gas underlying the west half of the proration unit?

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A. That was a pretty long question.

Q. All right, I'll restate the question.

As a reservoir engineer, are you satisfied that the "F" and "G" Wells are both effecting some drainage to occur from the western portion of the proposed proration unit?

A. It's possible that they are draining it. A portion of it.

Q. In the absence of an unorthodox well being located in the vicinity of the proposed well, a well at the standard location would not efficiently recover a fair share of the Morrow hydrocarbons underlying the proration unit, would it?

A. I would think it would have a better chance of draining that entire 320-acre plus proration unit if it were at an orthodox location rather than over in the corner over there.

Q. Do you think it would have a better chance of draining -- offsetting the drainage which is occurring from the "G" and "F" Wells?

A. It would have a better chance to drain the reserves that are under its unit and if they're going to encounter any undrained lenses, that you'd stand a better chance of exploiting the reservoir under the proration unit at a central -- at a more central location in the proration

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unit.

Q. Well, to the extent that there are undrained portions of the reservoir, the only active drainage now taking place, besides the "CM" Well, would have to be from the "G" and "F" Wells to the south and southwest, would they not?

A. Currently.

Q. The wells to the north and to the east, being the Grace Petroleum well in Section 32 and the Grace Petroleum New Mexico Federal in Section 4, have already reached their economic limit, have they not?

A. Are these the wells?

Q. Yes, sir, I'm sorry. 32 and 4.

A. Yes, sir, I believe they have.

Q. So that at this time the only active drainage mechanism taking place would be the "F", the "G", and the "CM".

A. Right.

Q. And the "CM" has been on production since what, the early '60s?

A. Yes, sir, from 1961. It, what I've indicated, that it is from -- based on my Exhibit Number Five, that it has drained, or caused reduction in pressure, in a large area, and the new completions are rapidly approaching that lower pressure when they're placed on production. So

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consequently, as far as drainage by phrasing it only as current active drainage, then it's possible that the "F" and the "G" could drain currently, but the area is probably, the area of the Federal "F" and the Federal "G", may possibly have been drained already by other wells, either the "CM" or other wells in the reservoir, connected.

Q. Well, in that connection, I'd like to direct your attention, if I may, sir, to your Exhibit Five.

A. Yes.

Q. Now, if I understood the conclusion which you reached from that exhibit, it is that there is, since there is some stabilization of pressure after these initial high pressures are encountered, they fall and at some point stabilize, that there's an indication to you that there is in fact some communication in the Morrow reservoir between these wells?

A. Yes, sir.

Q. Assuming that to be correct engineering analysis of these reservoir conditions, Mr. Kalteyer, there is no reason to believe, is there, that a well at the proposed unorthodox location would not and could not economically and efficiently drain all of the remaining gas in the proration unit?

A. I think the chances of it effectively draining the reserves under the entire proration unit without

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first having impaired the correlative rights of other operators by draining other reserves would be almost impossible.

Q. But assuming that continuity and communication, a well at the proposed location would drain the entire reservoir, would it not?

A. Only theoretically. We're talking about trying to drain some -- in excess of -- in a radius in excess of 4000 feet to the east, whereas we're only 660 from the offsetting lease line.

Q. Well, you indicated that the main drainage pattern on the "CM" would be to the west portion of the proposed unit, so that to the -- to the extent that any drainage at all has occurred on the east portion, that drainage would principally have been from the two wells which have now ceased to produce.

A. Well, I'd have to check these cums. I don't know if they were sufficient to have -- whether they were compared, compared at all to the drainage of the "CM".

Q. Now, in that connection, directing your attention again to Exhibit Number Five, you have indicated that the "F" Well experienced a very sharp decline from its original shutin wellhead pressure.

A. Yes, sir.

Q. Are you aware, Mr. Kalteyer, of the fact that that well has recently been recompleted?

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A. No, sir.

Q. If I told you that the delivery -- deliverability of that well has already been improved severalfold, more than twofold, without stimulation, would that be an indication to you that additional recoverable reserves have in fact been located in the wellbore in the Morrow?

A. If you told me that, it possibly would.

Q. And assuming that to be the case, would it be fair to assume that additional drainage will occur by reason of the close proximity of the "F" Well to the south boundary line of the proposed proration unit?

A. It's possible.

Q. And do I understand that you still believe, sir, that a well at a standard location could still recover its fair share of the Morrow hydrocarbons without an offset location?

A. Yes, sir. There are certain imperfections in trying to locate a well at an optimum location on a 320-acre tract. They're just built into the shape of those units.

Q. Let me ask you another question in connection with this sharp decline which you noted in connection with the "F" Well.

Is it possible from a reservoir engineering standpoint that that reduction or decline could just as

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easily be caused by small reserves in the lenticular lenses having been encountered in the wellbore --

A. Yes.

Q. -- as opposed to a continuous stringer?

A. Yes, it could.

MR. HENSLEY: I believe that concludes our cross examination.

MR. RAMEY: Any questions of Mr. Kaltwyer?

MR. CARR: No redirect.

MR. RAMEY: Any other questions of this witness? He may be excused.

Do you have a statement you wish to make, Mr. Carr?

MR. CARR: Yes, Mr. Ramey.

I believe everyone recognizes that the basic statutory charge to this Commission is the protection of correlative rights and the prevention of waste.

In carrying out this statutory charge, this Commission has promulgated certain rules, and the rules which were made for approval of nonstandard locations, the rule states that to approve a nonstandard location you may take such action as will offset any advantage gained by the operator over other operators, and producers in the field.

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We submit in the case before you today we have a situation where without effective action on the part of this Commission we are going to have a situation where correlative rights will be impaired and where waste will be if not permitted perhaps even authorized by the Commission's action.

We're looking at an area that is developed on 320-acre spacing, 320-acre spacing because this is the area that one well is presumed to be able to effectively and efficiently drain.

In the proration unit being considered here today there are four orthodox locations available to Texaco and Bass and the testimony here today, I think, supports that a well on these locations would produce the Morrow reserves under that proration unit.

Now, Texaco at one time had another location approved on the unit. That has -- they have now decided to move this to the west and the testimony here today says that the reason for moving it is partially because other acreage has been drained, but also, and primarily because they are trying to protect themselves from drainage from offsetting properties.

The problem with this is that it only looks at a portion of the problem for when they move to protect this proration unit from drainage from offsetting

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wells they are also crowding acreage directly to the west, acreage which is not dedicated to any well.

Now this is not a normal tract to the west because it is backed up against the R-111-A area and it may be difficult, if not impossible, to locate a well anywhere except immediately offsetting the lease line at a 660 location. Now that would be necessary if they were permitted to go ahead and produce this well without any penalty whatsoever.

The problem with that is it results in an ineffective spacing pattern and you would be jambing a bunch of wells into an area and it would not be an efficient way to produce the Morrow. The testimony here today shows that what in effect you would have is an unnecessary well and by definition an unnecessary well is waste.

Now the Morrow formation throughout this area, particularly the Middle Morrow, is clearly productive. But Texaco has decided they will place their well on the fringe of the unit, on this proration unit, thereby draining substantial reserves from the offsetting properties.

I think it's important to remember that the definition of correlative rights in our statutes is that it gives an operator an opportunity to produce his equitable share of the reserves and those are his proportionate share of the reserves under his tract, and what we have here is a

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situation where without a penalty the well would be located in the position where it would drain substantial reserves from the offsetting properties.

The testimony here today has been considerable concern expressed for the necessity of protecting from drainage from offsetting properties.

I would point out in this regard that when all of these wells that are offsetting at unorthodox locations south of the proposed proration unit, when all of these wells were drilled, they were drilled only after a hearing in which Bass had an opportunity to come in and object and they didn't do it, and now they're trying to come in and redeem their position in this hearing today.

If they need protection from the wells to the south it seems like conversely there ought to be some protection afforded to the acreage on the west because it will be drained from their proposed well.

We submit there is only one logical way to deal with this application, however, and that is to deny the application of Texaco and Bass and if they decide to develop this acreage, let them go and drill at an orthodox location. In doing this you will not be creating waste. You will not be impairing correlative rights. What you will be doing is effectively carrying out and exercising your statutory charge.

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MR. RAMEY: Thank you, Mr. Carr. Mr. Hensley?

MR. HENSLEY: If the Commission please. I think it would be important to view this matter in the context of development has in fact occurred in these adjoining fields. I think the concern of Gulf, as fairly evidenced by not only the evidence but by the statement made by Mr. Carr, and that is that their concern is strictly of theoretical drainage which may occur if they're able to pool their acreage with the acreage of Holly, and if a well is drilled, and if a well is drilled at a standard location. And I can go on with the hypothetical "ifs" of the concern.

But the fact of the matter is, and the bottom line as far as Texaco and Bass is concerned, is simply that drainage is in fact necessarily occurring by reason of the close proximity of the unorthodox well locations to the south and the west of the property.

This is uncontroverted in the evidence. Mr. Kalteyer admitted that from a reservoir engineering standpoint some drainage necessarily had to be taking place. It is a fact that the "F" Well has been recently reworked. The productivity on a natural basis unstimulated is, as I understand it, some 800,000 a day, and the indications are that there will be substantial deliverability effective,

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which will only result in more drainage occurring.

I think in effect, to paraphrase it in a different way, is what Gulf is saying, that it is permissible for them to drain hydrocarbons from the Morrow formation underlying our proration unit by reason of the close proximity of the unorthodox well denominated as the Grace "G", but on the other hand it's not fair and it's not equitable to permit Texaco and Bass to equilize that drainage effect by the location of a nonstandard well, which necessarily must be approved in order for Bass and Texaco to recover the fair share of hydrocarbons underlying their proration unit.

Likewise, I would comment that this question as to whether or not any well is required is a moot question here. The record in this case is uncontroverted that there are recoverable hydrocarbons in the Morrow formation that remain to be recovered throughout the entire unit, not just the west half, but the entire unit. And the evidence which has been adduced at the hearing shows, I believe, uncontrovertedly also, that there is no reason to believe that a well at the unorthodox location would not and could not efficently and economically drain the reserves from the Morrow to the east portion of the unit.

In support of that conclusion you will recall that the testimony of Mr. Kalteyer was to the effect

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that the principal drainage from the "CM" Well, which is a well which has already had a cumulative of over 8 BCF, has affected the westernmost portion of the unit, not the easternmost portion.

So it seems that good sense and logic mandate that if the purpose of the statutes is to afford the owners of these proration units the right to recover their fair and equitable portion of the hydrocarbons in place, that it would only be possible for that to occur in view of the current active drainage patterns by virtue of production from the "F" and "G" Wells for a direct offset at an unorthodox location to be permitted as proposed.

I think that the evidence is likewise clear that there is no reason geologically or from an engineering standpoint to assign or impose an allowable penalty on the proposed well. The only basis I would presume for the imposition of such a penalty would have to be predicated on the fact of some faulting mechanism in the Morrow stratigraphy or the possibility of some indication of a permeability barrier being present to the east of the proposed unorthodox location.

To the contrary, the uncontroverted evidence by both Bass and by Gulf is that there is no permeability barrier. There is no faulting mechanism. And there is no reason to suspicion that the well at the unortho-

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dox location would not efficiently and economically drain the gas reserves remaining on the east portion of the unit, while at the same time, and possibly more important, afford Bass and Texaco the opportunity to recover their fair and equitable portion of the gas in the western portion of the proration unit where active drainage is now occurring.

On this basis we respectfully submit that the application of Texaco and Bass for an unorthodox location should be approved and full allowable assigned.

MR. RAMEY: Thank you, Mr. Hensley.

Any other statements?

MR. PADILLA: Mr. Chairman, we have received, or the Commission has received a message from Joel Carson, representing Holly Energy, Inc., and I'd like to read that statement into the record, if I may.

MR. RAMEY: Proceed.

MR. PADILLA: Holly Energy, Inc., has recently acquired the unleased acreage in Section 6, Township 21 South, Range 32 East, offsetting the proposed Texaco unorthodox location.

We join Gulf in protesting this unorthodox location unless the Commission takes such action as may be necessary to offset any advantage gained by Texaco.

MR. RAMEY: Anything further in the case? If not, we'll take the case under advisement.

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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 Commission was reported by me; that the said transcript is a full, true, and correct record of the hearing, prepared by me to the best of my ability.

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NEW MEXICO OIL CONSERVATION COMMISSION

COMMISSION HEARING

SANTA FE, , NEW MEXICO

Hearing Date MAY 20, 1980 Time: 9:00 A.M.

NAME	REPRESENTING	LOCATION
C.F. KALTEYER	GULF Oil CORP	MIDLAND
C.D. STENBERG	GULF OIL CORP	MIDLAND
Herald Hensley	Hinkle Law Firm (BEPCO)	Roswell
William F. Carr	Campbell + Black	Santa Fe
Ray L. Hoover	Oil Cons.	Santa Fe
Bob Hughes	Byram	Midland
Ken Battenhouse	White, Koch, Kelly & McCarthy	Santa Fe
Paul H Davis	Texaco	Midland
Jess Hansen	Bass Enterprises Prod. Co.	Ft Worth
David Davis	Bass Enterprises Prod. Co.	Midland

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION COMMISSION
STATE LAND OFFICE BLDG.
SANTA FE, NEW MEXICO
20 May 1980

COMMISSION HEARING

IN THE MATTER OF:

Application of Texaco, Inc., for an unorthodox gas well location, Lea County, New Mexico.

CASE 6715

BEFORE: Commissioner Ramey
Commissioner Arnold

TRANSCRIPT OF HEARING

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MR. RAMEY: The hearing will come to order. We have one case on the docket this morning, Case Number 6715.

MR. PADILLA: Application of Texaco, Inc., for an unorthodox gas well location, Lea County, New Mexico.

MR. RAMEY: Ask for appearances at this time.

MR. HENSLEY: I'm Harold L. Hensley, Junior, with the law firm of Hinkle, Cox, Eaton, Coffield, and Hensley, Roswell, New Mexico, for Bass Enterprises Production Company, who will proceed with the evidence in this case with the consent of the Applicant, Texaco.

MR. RAMEY: How many witnesses do you have, Mr. Hensley?

MR. HENSLEY: We have three witnesses, Mr. Chairman.

MR. BATEMAN: Ken Bateman, with White, Koch, Kelly, and McCarthy of Santa Fe, and on behalf of Texaco.

MR. RAMEY: Do you have any witnesses, Mr. Bateman?

MR. BATEMAN: No witnesses.

MR. CARR: William F. Carr, Campbell and Black, P. A., Santa Fe, apeparing on behalf of Gulf Oil Corporation, and I have two witnesses.

MR. RAMEY: Any other appearances? Ask

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that the witnesses stand and be sworn at this time.

(Witnesses sworn.)

JIMMS HANSEN

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

DIRECT EXAMINATION

BY MR. HENSLEY:

Q. Will you state your name, please?

A. Jimms Hansen.

Q. What is your address, Mr. Hansen?

A. My address is 1104 Purdue, Arlington, Texas.

Q. And by whom are you employed?

A. Bass Enterprises Production Company.

Q. In what capacity are you employed with Bass Enterprises Production Company?

A. Division Landman for the New Mexico, West Texas, and Mid-Continent Divisions.

Q. Have you had occasion, sir, in the past to testify before the New Mexico Oil Conservation Division and have your qualifications as a petroleum landman accepted?

A. They have.

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MR. HENSLEY: Are the qualifications of the witness as a petroleum landman acceptable?

MR. RAMEY: Yes, they are accepted.

Q. Mr. Hansen, was the original application in this case filed by Texaco?

A. Yes, it was.

Q. And does Bass Enterprises Production Company own an interest in the proration unit which was proposed for the subject well?

A. Yes.

Q. What is the principal ownership in the proposed well?

A. The principal ownership in the proposed well is Texaco with approximately 49.9 percent; Bass Enterprises Production Company and Perry R. Bass, collectively, owning a 39.2 percent interest; and the remaining working interest is owned by multiple working interest owners.

Q. Is Bass Enterprises Production Company proceeding in this case with the consent of the original applicant, Texaco?

A. It is.

Q. What do Texaco and Bass seek by the application filed in this case?

A. The approval of an unorthodox location for the drilling of a Morrow test well with no penalty on

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allowable.

Q. Is the proposed proration unit part of a larger unit?

A. It is.

Q. And have you prepared an exhibit to demonstrate the relationship of the proration unit to the larger unit?

A. Yes.

Q. Directing your attention to what has been marked for identification, Mr. Hansen, as Bass Enterprises Exhibit Number One, would you please identify that exhibit for the Commission?

A. That exhibit reflects the approved participating areas approved by the United States Geological Survey for the Upper Morrow, Lower Morrow, and Yates formation.

The proration unit, proposed proration unit, consisting of Lots 1 through 8, Section 5, of Township 21 South, Range 32 East, is part of the Lower Morrow formation participating area assigned to the Texaco "CM" Well, which is located in Section 31, Township 20 South, Range 33 East.

And that location within Section 31 would be in the southwest quarter of the southeast quarter, of the "CM" Well.

Q. Is there an Atoka participating --

A. Yes.

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Q -- area there too?

A Yes, that is correct. There is an Atoka participating area as shown by the green outline, which is assigned to the Texaco "CH" Well.

Q And where is the "CH" Well located?

A It's located in Section -- it's in the southeast quarter of the northeast quarter of Section 36, Township 20 South, Range 32 East.

Q Have you been notified by the United States Geological Survey to drill a location in the proposed proration unit?

A That's correct.

Q Let me hand you what has been marked for identification as BEPCO Exhibit Number Two and ask if you will first of all identify the exhibit?

A The exhibit is a letter dated March 30th, 1979, from the United States Department of Interior, Geological Survey, from a Mr. Gene F. Daniel, who is the oil and gas supervisor. We received the letter on April the 9th, 1979, and it is a demand in which to either drill a well or to pay compensatory royalty for drainage, and the letter further states that the drainage is occurring from the Grace Petroleum Corporation No. 1 Well, located in Lot 11, Section 5, Township 21 South, Range 32 East.

Q Have you also prepared or caused to be

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prepared in connection with your testimony, Mr. Hansen, a land plat?

A. Yes.

Q. Directing your attention to what has been marked for identification as Bass Enterprises Exhibit Number Three. First of all, identify the exhibit.

A. The Exhibit reflects offsetting ownership by color code.

The orange -- the area colored orange is owned now by Holly Energy.

The area colored red is owned by Gulf.

The area of green is owned by Grace, and the area in yellow is owned by Bass.

The proposed participating area -- I mean, excuse me, the proration unit, which is Lots 1 through 8 in Section 5, is identified with a brown outline.

Also indicated on the map are the proration units for the "G" Well, the "F" Well, and the "E" Well.

Q. Okay, for the benefit of the Commission, can you detail the location of those three wells?

A. Yes. The Grace 1-G Well is located 4650 feet from the south line and 660 feet from the east line in Section 6, Township 21 South, Range 32 East. Around this well in red tape indicates the proration unit assigned to

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this well and additionally we have located an area of orthodox location, which reflects the distance the well is from the area of orthodox location.

Q. So that well is located at an unorthodox location?

A. It is an unorthodox location.

The Grace 1-E Well is 4650 feet from the south line and 1980 feet from the west line, Section 5, Township 21 South, Range 32 East. It also has a proration unit indicated in red tape with an area of orthodox location, which also indicates that this well is at an unorthodox location.

And likewise the Grace Petroleum 1-E Well, located 660 feet from the south line and 3300 feet from the east line is -- has a participating area indicated with red tape, indicating the east half, or Lots 9 and 10, 1560 in the southeast quarter of Section 5 with red tape. This well is at an orthodox location.

MR. RAMEY: Mr. Hansen, shouldn't those figures be reversed on that No. 1-E Well?

A. That's correct, they should. That's a typographical error, I suppose.

Q. Have the offset operators been duly notified of the subject application as required by Rule 104?

A. Yes, they have.

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Q. Let me next have you identify what has been marked for identification as Bass Enterprises Exhibit Number Four and ask if you'll please identify that exhibit?

A. That is a Telex that was sent to Holly Energy Corporation in Dallas pursuant to their purchasing the acreage known as Lots 1 through 7 in Section 6, Township 21 South, Range 32 East, at the BLM Oil and Gas Lease Sale held April 15th. March 15th, excuse me.

Q. No, April 15th.

A. April 15th.

Q. Were Exhibits One through Three prepared either by you or under your direct supervision?

A. They were.

MR. HENSLEY: At this time we would offer Bass Enterprises Exhibits One through Four.

MR. RAMEY: Exhibits One through Four will be admitted.

MR. HENSLEY: And we pass the witness for cross examination.

MR. RAMEY: Any questions of Mr. Hansen?

CROSS EXAMINATION

BY MR. CARR:

Q. Mr. Hansen, when did Bass acquire its interest in the proposed proration unit?

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A. The Federal Unit was put together in 1952 and it was around that time period that we acquired our participation.

Q. So you've been participating in terms of your interest in this unit with Texaco for some period of time?

A. That's correct. It was originally farmed out, uh-huh.

Q. Now this proration unit is part of a larger unit but we're really today directing our attention to a single proration unit in a Morrow Pool, is that correct?

A. That's correct.

Q. And, actually, testimony relating to the Atoka is out of that scope of this hearing.

A. That's not for me to decide.

Q. Now, your letter from USGS, your Exhibit Number Two, this is not the first time the USGS has been involved in the development of this proration unit, is it? Did you not file for -- was not an application approved to drill a well in that -- on that proration unit earlier this year?

A. I don't think I'm following your question.

Q. Did the USGS approve an application and an orthodox well location for this proration unit previous to writing this particular letter?

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A. If they did, it was not sent in by me. I have no knowledge of it. I don't deny it exists, but I have no knowledge of it.

Q. You wouldn't know if Texaco had obtained prior approval to drill a well on this unit?

A. No, I don't know.

I know we considered a -- we had a meeting with Texaco and we considered an orthodox location but it was our opinion that -- for several reasons --

Q. When the USGS wrote this letter they did not specify any particular location on the unit, did they?

A. No, they didn't, but they did ask us to protect from drainage.

Q. At the time the Grace well was drilled, do you have any idea whether or not Bass appeared in opposition to them?

A. It's not to my knowledge that we opposed that hearing, no.

Q. Do you know if you did or did not?

A. No, I don't. I don't think we did.

Q. Now this proposed location is how close to the western boundary of this proration unit?

A. This proposed location is 660 feet from the west line.

Q. And what is the standard -- would be a

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standard location, standard setback required from the west line?

A. It would be 1980 feet.

Q. So you're advancing on the offsetting property to the west a total of 1320 feet?

A. That's correct. That is, however, less than the "G" Well advanced north in a proration unit. They are 630 feet.

Q. Did anyone -- but you believe no one appeared in opposition to that location, is that correct?

A. No, I don't think we appeared, no.

Q. Now, -- well I have no further questions. I -- you're calling an engineer, I suppose, so I have no further questions.

MR. RAMEY: Any other questions of the witness? Mr. Bateman?

MR. BATEMAN: No questions.

MR. RAMEY: The witness may be excused.

MR. HENSLEY: Call Mr. Larry Hoover.

LARRY HOOVER

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

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DIRECT EXAMINATION

BY MR. HENSLEY:

MR. HENSLEY: Mr. Chairman, we're going to have several large exhibits here. Would it be preferable to hang them on the wall or would you prefer just to pass them out as we have these other plats?

(There followed a discussion.)

MR. HENSLEY: If the Commission please, we'll proceed.

MR. RAMEY: Yes, sir, Mr. Hensley.

Q. Will you state your name, please, sir?

A. Larry Hoover.

Q. What is your residence, Mr. Hoover?

A. I live at 2800 Marquez Circle East, in Arlington, Texas.

Q. And by whom are you employed?

A. Bass Enterprises Production Company.

Q. What is your position with Bass Enterprises at the present time?

A. I'm a geological engineer.

Q. Have you had occasion in the past to testify before the New Mexico Oil Conservation Division?

A. Yes, I have.

Q. And have your qualifications as a geological engineer been accepted in prior cases?

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A. Yes, it has.

MR. HENSLEY: We ask if the qualifications of the witness are acceptable?

MR. RAMEY: They are.

Q. I'd like to first direct your attention, Mr. Hoover, to what has been marked for identification as Bass Enterprises Exhibit Number Five. Would you please explain to the Commission what this exhibit purports to show?

A. Okay. This is a structure map which is contoured on the top of the Lower Morrow. What it shows basically is, structurally, is a southeast plunging nose, which has a steeper flank on the southwest side than on the northeast, northeast flank.

The proration unit is shown in yellow on here and the proposed location in red. The area of orthodox or standard location is shown in a dashed line in the center of the proration unit.

Q. What is the geologic significance of structure to the application?

A. Well, in previous testimony on this case, it has been mentioned that there's a permeability barrier which separates the west or southwest portion of the proration unit from the rest of the proration unit, either possibly in the form of a fault or some kind of discontinuity.

Q. How does the mapping of structure as in-

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dicated on Exhibit Number Five support or demonstrate the lack of any faulting or permeability barriers in the area of the proposed proration unit?

A. Well, with the control points that we have on the top of the Lower Morrow, you can easily map a structure without any degree of faulting shown in here.

About the steepest dips one can map, just based on the control points, is probably over by the "E" and "D" Wells where there's probably dip in the order of 11, maybe as much as 12, degrees, just based on the contouring.

Now across the proration unit itself, based on the structure map, the dips are on the order of 8 degrees. Now, this is not abnormally high dips. There does not necessarily have to be any faulting here in order to map this feature.

Q. In connection with your preparation of this structure map did you prepare or cause to be prepared a structure cross section?

A. Yes, I did.

Q. And has that been marked for identification as Bass Enterprises Exhibit Number Six?

A. Yes, it has.

Q. And is it affixed to the wall here?

A. Yes, sir, the far section, far wall.

Q. All right, if you would, with the Com-

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mission -- Mr. Chairman, may the witness leave his seat and --

MR. RAMEY: Yes. We request that he speak up for the reporter.

Q. First of all, explain what this exhibit shows and how it was prepared.

A. This is an index plat here. It shows the proration unit in yellow and the line of section across here. It involves three wells, the Grace "E" 1, which was drilled to the far left side, southwest side of the structure; coming up structure to the "B" Well which is a projected well into the structural cross section; then a well on more or less the axis of the structure, which is this New Mexico Federal 1 Well in Section 4.

Now the scale here is 1-inch equals 100-feet, and it's true to scale; that is, the horizontal scale is the same as the vertical scale in this particular case.

It shows the delineation of the different horizons or formations, the Lower Morrow down here, Middle Morrow, Upper Morrow, Atoka, Strawn, Wolfcamp, and then up to the base of the Bone Spring section.

One thing I wanted to point out about the structural cross section was that in determining -- I don't know if you all can see this or not, but the dips over here on the far left side are indicative of an area that is thickening on a structural high; that is, as you go from

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older beds to younger beds, you get this decrease, and in this case, I measured off the section by 12-1/2 degrees, 11 here; 8 and 7, you come to about 5 degrees. This is indicative of a situation where you've got thickening on flanks of the structure.

Q. Mr. Hoover, is the fact that you have a demonstrated depth and thickening of section off the axis of the structure, any indication geologically that you have any pemeability barrier or any faulting mechanism?

A. No, it is not. This would just be a natural thickening off the flanks of the structure. It's not that great. We're talking about in the order of 10, 12, 7, 8 degrees, and it's not indicative of a fault. If there was a fault it's possible that if the sediments were laid down and then broken afterwards, they would all more or less have -- and bent. they'd all be the same dip, for instance, or they may be flat. They may just be flat. This drop down and this would also be very low angle.

But what I'm trying to show here, basically, is that the dips on the structure section formed the structure map.

Q. Are you indicating that if there had been a faulting mechanism involved in the deposition of this structure, that you would either observe a gain or loss of section?

A. Yes, at a particular point where there

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was suspected to be a fault, but this is just a gradual thickening in this particular case.

Q. Do I understand that -- your answer, then, that there's no indication geologically --

A. No, there's not.

Q. -- of any gain or loss of section?

A. No, there is none.

Q. On the lefthand side of this exhibit there appears to be a mockup of a dipmeter log, is that correct?

A. Yes. There was a dipmeter run on the Grace New Mexico Federal "E" Well, and there was a dipmeter anomaly, as pointed in previous testimony, at this location here, which I have put in at the Bone Spring formation. I think it was mentioned as Wolfcamp in the previous case.

Q. Have you caused a duplication of that dipmeter log to be prepared as an exhibit for this hearing?

A. Yes, I have.

Q. I would direct your attention to what has been marked for identification as Bass Enterprises Exhibit Number Seven, and if it would be more convenient to your explanation of the relevance of this exhibit, let's put it on the wall up here next to your map.

Now, directing your attention to what has been marked for identification as Bass Enterprises Exhibit Seven, first of all, Mr. Hoover, what is a dipmeter?

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A. Well, a dipmeter is a 4-arm device which measures resistivity to determine what the dip of the beds are in relationship to the angle of the hole, and on a plot to show what the dip and strike is, they're measured, they're plotted as a display in what's called tadpoles, which are these small circles with a line drawn. The line is drawn in the direction of the dip.

In this particular case the legend at the bottom does show that we're going from zero degrees here up to about 45 degrees across this side of the scale.

Basically what we're seeing on the dipmeter display is that in the Lower Morrow, we're looking at around 10 degrees, or so, which pretty well conforms here with what I'm calling 12-1/2 degrees. We may be flattening out in this particular part of the structure.

As you go up on the log the dip is getting less and less. They still continue dipping in the same direction, which is in a southwesterly direction which forms the structure map. The dips generally are getting less and less, somewhere in the order of 7 to 8 degrees up here at 13,500. Then there's a splice on this particular log. We don't have any data between there and up in the -- about up here at 11,500, the base of the Bone Spring.

Now the dip up in the Bone Spring basically is running in a southwesterly direction around less than

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5 degrees; probably about 4. Again, I think that's -- conforms fairly well to what can be mapped just based on the structure and the structural cross section.

There has been some anomalous points that have been pointed out as possible faults in previous testimony. There is one around 11,100, or 11,150, down to about 11,170. Let's see, 11,050 to 11,170, right in here. There are some higher tips in that area.

There also are some at 11,400 to 11,500. I think in the previous testimony it was thought that this may be faulting, but I just want to point out it can be argued that this could be due to just bedding, erratic bedding, at these particular places due to deposition, either some kind of channel-type of a deposition or it could even be festooning type. There are any number of explanations due to deposition rather than faulting.

Also you can get areas where the data is not very good, that you don't have good bedding in the rock, and in those cases lots of times we give mis-correlations with a difference. So that may also be an explanation for this.

If there really was faulting in there, then you should be able to see either a loss of zone from the logs or bedding, and you don't see either. You don't see any cut or gain in the cross section, that you can correlate from one log to the other.

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So I don't believe that there is any faulting here; this probably is something due to depositional or possibly poor rock quality at that particular point.

Q. Mr. Hoover, even if you assume that you could some way, some how, correlate the anomaly on the dipmeter in the Wolfcamp, with some suggested faulting mechanism in the lower beds in the Morrow, for example, isn't it a fact geologically that any evidence of any anomaly which would be picked up on the log would have to be the southwest direction because the dip is in the southwest direction off the axis of the structure?

A. Well, if there was a faulting, a normal type faulting, you'd expect the faulting to be like this, that is dropping to the southwest of this "E" Well, and we've already pointed out that if there is a fault in there it would be between the "E" Well and "D" Well, and so it would be difficult for that fault to cross between these two wells.

Q. On your exhibit, your structure map, which I believe was Exhibit Five, there is an indication there of what you've identified as the "G" Well. When was that well drilled and is that the well that's located immediately to the south and to the west of the proposed unorthodox location?

A. Yes, it is. That well was drilled sometime early this year.

Q. And --

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A. I don't have the exact date.

Q. -- have you examined the log on the well?

A. Yes, I have.

Q. And do you intend in connection with your stratigraphic cross section which you prepared, to discuss the logs on that well?

A. Yes.

Q. Does the fact that that well has been drilled and logged substantiate your opinion as to the mapping of the structure indicated on Defendant's -- on BEPCO Exhibit Number Five?

A. Yes. It, again in this particular case, it shows that the dips are -- in fact are not as steep as between the "E" and "D" Wells; therefor, even less liklihood that there's any faulting between the "CM -- Texaco "CM" Well up-dip and the down-dip Grace "G" Well.

Q. What is your conclusion, Mr. Hoover, from your review of the various structural maps which you've utilized here in conne tion with your study, being Exhibits Five, Six, and Seven?

A. Well I don't believe that there's any real evidence of any fault in here.

Q. Okay. If you'll next direct your attention to what has been marked for identification as Bass Enterprises Exhibit Number Eight. Is it located here on the

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wall?

A. Yes. It's a stratigraphic cross section in this particular case. Again you'll note the index map at the bottom, showing which wells are involved. The "G" Well here would be the well to the far left. The next well is the Grace "F" Well here. Then coming north across the proration unit, the Texaco "CM" Well here, and proceeding east to the Grace New Mexico State "SL" Well up here, and then south or southeast down to the Grace New Mexico Federal 1 in Section 4.

Q. Now is the purpose of this stratigraphic cross section, Mr. Hoover, to investigate the -- whether or not there's any evidence of a permeability barrier over the proration unit?

A. Yes, it is. It's to point out basically what we're looking at here in the Morrow, and this is the Middle Morrow and the Lower Morrow, which are the main producing horizons, that there are multiple sands in which some appear to possibly connect with adjacent wells and others which do not. Perforations on this map are shown in red, and of course, the sands in yellow.

I just wanted to point out even the wells that are fairly close together, such as the "G" Well and the "F" Well, you can see that there's really quite a change going on in sand distribution between these two wells, and one can assume that perhaps some of these sands, lenticular sand mem-

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bers of the Morrow, probably communicate and others do not.

Now, there's no reason to believe that -- we know we've got certain sand members that don't connect all the way across the proration unit, but there's no reason to believe that the connection -- interconnection is any different going from the two Grace wells to the "CM" Well, as between the "CM" Well here and, say, the New Mexico State "SL" to the east, and down to the Grace New Mexico Federal 1. There is discontinuity, minor discontinuities, between all of them, but overall they are -- there is continuity in the sense that there are members, sand members, that do connect, or we believe connect.

Q. Is this tracking mechanism in the Morrow Sands basically a stratigraphic mechanism?

A. Yes, very definitely.

Q. And if I understand your testimony correctly, this exhibit reflects that these sands are lenticular in nature, is that correct?

A. Yes.

Q. Some may be connected and some may not be.

A. That's right.

Q. In that respect, then, is it unlike what is generally referred to as a structural reservoir where you may have more continuity of permeability and porosity?

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A. No, it is not. It's a structure may play some role in the fact that wells high on the structure may have a greater chance of finding hydrocarbons, if the zone is continuous a long distance. There may be zones, Middle Morrow commonly is not found wet in most areas, whether on a structural high or off a structural high.

Q. What does this exhibit demonstrate, Mr. Hoover, insofar as your application to this Commission is concerned, and that is that an unorthodox location at the location requested, should be permitted without any allowable reduction?

A. Yes. I believe that the location here should not be cut for anything indicating that there's a complete permeability barrier between it and any other portion of the proration unit, because we do have some sand members that do continue across this proration unit, even though there are a number that do not.

I might point out that previous testimony has thought that these wells with a higher pressure probably indicated they were not in communication with the "CM" Well, but I think this can simply be explained it's got some -- they have -- well, this "F" Well and this "E" Well, which are not on this section, they have different members present, as well as some that are continuous; therefor, the members that are not in contact with the "CM" Well probably will

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yield the higher pressures and give one the indication that if was one common reservoir, just one reservoir, then therefor there had to be a barrier.

But showing it, pointing out that you have multiple reservoirs, and some of those reservoirs are not connected, therefor you can expect higher pressures, or normal type pressures, when you open up several zones together in an offset well. This would be typical.

Q. By that testimony are you saying that in the instance where these lenses are continuous in nature that you might -- you might find some amount of drainage indicated by reason of production offsetting the proration unit, but there are also other lenses which would be affected by that offset production, is that correct?

A. That is correct.

Q. Is there any indication of any kind of permeability barrier on the unit from your study of this structural cross section?

A. No, there is not.

Q. Next I'd like to direct your attention, Mr. Hoover, to what has been marked for identification as Bass Enterprises Exhibit Number Nine.

Directing your attention to Bass Exhibit Number Nine, Mr. Hoover, what is this exhibit designed to

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A. This is just a completion map which is taken off the scout tickets and off of logs, showing which zones are completed, color coded to show different horizons, the Lower Morrow in green; Middle Morrow in red; Upper Morrow in blue; and Atoka, or Strawn in orange, and basically what the point of this is is to show that really there's multiple or many different horizons throughout this field and it's definitely a stratigraphic trapping. In some areas you get Upper Morrow production, such as way down to the southeast. That's where most of this production is, and stratigraphically porosity disappears throughout most of the south Salt Lake Area except locally in some areas like Section 32, and Section 4.

Middle Morrow is generally present throughout this whole area.

The Lower Morrow is -- is present throughout more or less the central part of it, and the Atoka to the north and the South Salt Lake Area, and then off the structure way to the north, Section 27 and down here in Section 2.

But the point of this exhibit is primarily just to point out we're talking about multiple zones throughout this area.

Q. Has your study of the proposed location also involved an analysis of the porosity in the Atoka Sands

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which would be intersected in connection with the drilling of this Morrow Well?

A Yes, it has.

Q In that connection I'd like to direct you to what has been marked for identification as Bass Enterprises Exhibit Number Ten.

First of all, if you will, Mr. Hoover, identify what this exhibit shows.

A This is a map which displays porosity in what is called the Atoka pay sand. If you look up at the wall, the Atoka pay sand is that sand colored in yellow up on the top of the stratigraphic cross section.

MR. CARR: May it please the Commission, I'm going to object to testimony as it relates to the Atoka and to this exhibit. The case is confined by its call to the South Salt Lake Morrow Gas Pool and we submit that anything concerning the Atoka is irrelevant and outside the call of the case and we object to it.

MR. HENSLEY: I think in view of the fact that stratigraphically you must intersect the Atoka while drilling the Morrow Sands, that whatever gas reserves may be present and could be efficiently recovered as a secondary objective would be relevant to -- to the proposed location for a well.

MR. CARR: We would submit that the case

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is confined to the Morrow. We're dealing about an unorthodox location and we're talking about the Little Eddy Unit, unit and Morrow production in the area, and that going outside of the call of the case and trying to bring in evidence about secondary objectives is simply irrelevant and it's something which it would be improper for the Commission to consider.

MR. HENSLEY: Well I think the Commission can take administrative notice of the fact that there is in fact Atoka production in the Little Eddy Unit.

The Texaco 1-CH State has produced in excess of 3 Bcf from the Atoka and is involved in a proration unit and a participating unit within the confines of the Little Eddy Unit.

MR. CARR: We still fail to see how this has any relevance to the question of drilling a proposed well at an unorthodox location in the Morrow.

MR. RAMEY: I'm going to overrule your objection, Mr. Carr. The information dealing with the Atoka is not in the call of the hearing, but I'd like to hear it.

Q. Directing your attention, Mr. Hoover, to Bass Exhibit Number Ten, first of all explain what the legend of this exhibit demonstrates.

A. Okay. Pointing out that this is a -- this

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one Atoka pay sand, which has produced in this area in the "CH" State over 3 Bcf, the legend here indicates first of all those wells in which there are neutron logs only. These are generally older wells drilled in 1957 and '61, in which they had a neutron log run and as consequently very difficult to calculate any porosity from.

Next we have what's called kind of a ratio here. It's a net porous sand over the net total sand thickness. I say net porous sand in this case, we're talking about sand that has porosity greater than 6 percent, equal to or greater than 6 percent, and that's kind of underlined in orange throughout this whole map area.

And below that we're discussing the porosity range within this, anything over 6 percent, that is it could be 6 to 9-1/2 percent, or whatever, and below that would be the average porosity taken from the logs, but the average porosity, the total porous sand.

Okay. In showing this, in looking at the data, logs in this area, one can point out that the Cleary "F" Well has about an average porosity of 13 percent underlined in red there, and underlined in orange it's about 8 feet of porous sand, which is the total sand thickness. So based on my evaluation, this looks like it ought to be a producable formation here. In fact, I believe that this well actually kicked during the drilling of the well, so we

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know that it had pressure and permeability.

To the left is the "G" Well, the Grace "G" Well, which has about 8 feet of porous sand, ranging from 6 to 9-1/2 percent based off the sonic log, and an average of 8-1/2 percent, not quite as high average, but again, it looks like it has a very good chance of possibly being productive.

As we move to the east from the "F" Well to the "E" Well, for instance, the "E" Well shows only about 1 foot of 7 percent porosity. It would be somewhat questionable whether it would, you know, be productive, based on the thinness of it and the low porosity.

Other wells to the east, the 1 New Mexico Federal in Section 4 there, 2 feet of 10 percent; up to the north we've got zero feet of greater than 6 percent.

So in general what we're talking about is higher porosity values and thicker total porosity towards the west side of the proration unit area, as opposed to the east.

The wells to the north, the "CH" State and the "CM", like I say, it would be very difficult to try to make any porosity evaluation off of the logs themselves, and of course we know that the "CH" did produce over 3 Bcf. We know it must be porous and permeable at that location.

And the "CM" Well, currently had gas in

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it. It was completed but apparently never produced. There was indication of gas on the initial completion; however, it appears that it was probably not permeable enough to be commercially productive, at least at that time.

Q. Is the proposed unorthodox location, Mr. Hoover, on trend with the best porosity development in the Atoka in this area?

A. Yes, it is. It actually lies on a line between the "CH" Well and the Grace Cleary "F" Well, so Atoka porosity trend seems to be oriented pretty much in this northeast -- or northwest/southeast direction.

Q. Based upon your geologic study of the area in question and the proposed unorthodox location for a well in the proration unit, do you have an opinion as a geological engineer as to whether the proposed unorthodox location is required to protect correlative rights, prevent waste and be in the interest of conservation?

A. Yes, it is. A well drilled in an orthodox location for the Atoka very possibly would be of a lower porosity. It may not even be productive at that point. It would be difficult to get the hydrocarbons because of possibly lower porosity and less total pay.

And a well to the west side of the proration unit has a much better chance to efficiently drain the 320-acres of porous sand.

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Q. In your opinion and based on your study which you have conducted, Mr. Hoover, do you find any geologic basis for concluding that a permeability exists on the east portion of the proration unit which would prevent a well located in the west quadrant at an unorthodox location from draining the entire proration unit?

A. No, I do not.

Q. Were Exhibits Five through Ten, except for the dipmeter log, prepared by you or under your direct supervision?

A. Yes, they were.

MR. HENSLEY: At this time, Mr. Chairman, we would offer Bass Enterprises Exhibits Five through Ten.

MR. RAMEY: Exhibits Five through Ten will be admitted.

I don't think the Commission can put much weight on the testimony or the -- concerning Exhibit Ten, Exhibit Ten or the testimony concerning this.

MR. HENSLEY: All right, sir. We pass the witness for cross examination.

CROSS EXAMINATION

BY MR. RAMEY:

Q. Mr. Hoover, you said there's, from what I gather, there is no advantage to your unorthodox location

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except for the Atoka, is that what you said essentially?

A. Yes, and also to protect correlative rights of the unorthodox wells to the south of us.

As far as draining the total reservoirs in the field, there are -- we believe that there are Morrow sands throughout the 320-acre proration unit.

Q. Do you think you will encounter the best Morrow Sands at this location, or would you encounter better sands at the orthodox location?

A. Well, I believe it's an area of -- it's an area of recent development. It's an area where it has been reported that we know that there's good production at this particular time. So on that basis, you know, we could say that it may be an area that the sands are better, or maybe perhaps less drainage.

MR. RAMEY: Any other questions? Mr. Carr?

CROSS EXAMINATION

BY MR. CARR:

Q. Mr. Hoover, I want to be sure I understand your testimony.

I believe you concluded by saying that you did not -- that you believed a well drilled at this unorthodox location would be able to drain the entire proration

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unit. That was your conclusion?

A. That was -- we were talking about the Atoka at that time, I believe, when I said that.

Q. Well, do you believe the entire proration unit is productive in the Atoka?

A. Well, I -- that is a question that I can't answer for sure. There's an indication that there is some porous sand on the east side of the proration unit, as indicated by the wells that offset that proration unit, 2 feet in the well in Section 4; 1 foot in the "E" Well, and you can surmise that there is probably some Atoka throughout the whole 320-acre proration unit. We would merely want to get in the place where it would be the most permeable with the best chance to drain it efficiently.

Q. Was it your testimony that a well at the unorthodox location would drain the entire proration unit in the Morrow?

A. It would to the -- it would to the extent that the sands are connected across the 320-acre proration unit.

Q. So it is your testimony --

A. So any sand that -- that is not already drained, for instance, or that is connected across, we should be able to efficiently drain.

Q. I'd like to know, was it your testimony

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that a well at this location would drain the entire proration unit in the Morrow, assuming that you do have -- are in one of these continuous sands?

A. Yes, if there is no -- if it is permeable or across the entire 320-acre proration unit, yes.

Q. And you believe that certain sands do correlate across this proration unit?

A. Definitely they do in general. There are certain intervals that do correlate. I think I've pointed out on the stratigraphic cross section. There's others we know do not.

Q. Would it be logical to assume that since some of these correlate across this entire proration unit that they would also extend into the properties to the west of the proration unit?

A. Yes.

Q. And if you were producing those from an unorthodox location wouldn't you be draining the acreage to the west?

A. You may drain some, yes.

Q. And by moving to an unorthodox location and gaining 66 + advantage on those properties, wouldn't you anticipate that a disproportionate share of the reserves would be coming from the offsetting property and not your proration unit?

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A. Well, it's difficult to say for sure. On the interconnection of these Morrow Sands they come and go, a lot of them so quickly, some may be across the proration line and -- or not, you know, it's just very difficult to answer that question.

Q. Didn't you answer it?

A. Only to the extent that they're connected across the proration unit.

Q. All right, didn't you just say a few moments ago that it was logical to assume that some of these continuous sands would extend to the properties west of the proposed proration unit?

A. Some of them may. We don't have any control to the due west, due west from here.

Q. Do they appear also to the south and west?

A. We know -- we know that they are Morrow sands to the southwest and southeast from in between the new wells that were drilled in that area.

Q. Do you have any evidence that would indicate they do not extend to the property, Gulf property, in lot 8 directly west of your proposed location?

A. I don't have any evidence either way.

Q. Do you believe that this proration unit, the entire proration unit, is productive in the Middle Morrow?

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As I look at your Exhibit Number Nine I see that the Middle Morrow is color coded and all the wells surrounding this proration unit.

A. Right.

Q. Would not that be indicative that the Morrow is productive throughout this proration unit?

A. Yes, I would say it is, to the extent that you know, it's not drained some place.

Q. And if it was drained, it would be drained by the "CM" Well directly to the north? Would that be a logical assumption?

A. That could -- that would very definitely be one well that may have drained some of the acreage, yes.

Q. By moving to this unorthodox location you're getting away from the area that might be drained. Is that a correct statement?

A. Well, --

Q. Would that also be --

A. Not necessarily. There is, I think there is a chance that there could be some drainage in this area from the "CM". We really don't know.

Q. Was that a consideration in picking this location?

A. But we can point out that we do know in the "F" and the "G" Well that there are zones that definitely

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not drained in this area and also looking at the stratigraphic correlation section.

Q. Was drainage a consideration in picking this location?

A. Only to the extent that we know we've got -- we definitely have zones here which do have -- well, they do have a high pressure from the recent drilling, and therefor we know that there are zones that are not drained. We are -- it's more questionable on the other side, or we don't have a control. We can assume that there probably are some zones that are undrained but we don't really know.

Q. If the entire proration unit is productive in the Middle Morrow, could it not be effectively developed with a well at an orthodox location?

A. To the -- to the extent that the zones are connected throughout the 320-acre proration unit.

Q. And assuming that they are connected throughout the unit, then the answer would be yes?

A. Yes.

Q. Now, if you could produce the proration unit from a standard location, by moving to the west 1320 feet are you not gaining substantial advantage on the properties to the west?

A. Well, it's just difficult to say with

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the Morrow. I mean it's very possible that -- that you may or may not. We don't -- we don't really know. Each case is just like a wildcat out there because you've got so many different sands.

Q. If you have a continuous stringer that crosses this proration unit and the acreage in Lot 8 in Section 6, the lot immediately offsetting to the west of the proposed location, would you anticipate draining more reserves from under the property to the west at the proposed location or from an orthodox location?

A. If the same stringer goes all the way to the orthodox location?

Q. Yes, if you had one common stringer through the --

A. Okay, and it's permeable throughout, I would believe that you'd be able to drain from the orthodox location all the way across the line, yes, it would be possible.

Q. And would you anticipate a greater drainage of the offsetting property with a 660 location than you would with the 1980 location?

A. Now, pardon, that question again?

Q. By moving to the 660 location would a greater portion of the reserves come from Lot Number 8 in Section 6 than they would if you were producing from the

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orthodox location?

A. Well, it's possible that it would; however, is this continuous across there, like I say, permeable across, you may drain that whole reservoir irregardless of what, you know, where the well location is.

Q. And if you can drain it irregardless of any location, why won't you drill at an orthodox location?

A. Well, you could possibly drill the Morrow at an orthodox location.

Q. You could possibly drill there?

A. Oh, yeah, I mean for the Morrow alone, yes.

Now, we -- certainly we wouldn't be protecting our total correlative rights if we drilled from the orthodox location area from the wells to the south.

Q. And why not?

A. Well, only to the extent that the zones are continuous. The zones that are not continuous into the orthodox location that are being -- that are possibly being drained by the "G" Well, for instance, possibly the "F", we would not -- we would not be in that particular minute -- that special reservoir, so therefor we would not be able to drain it.

Q. But by the same token there might be stringers that you would pick up at an orthodox location

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that would not be available to you at the unorthodox location.

A. There might, yes, I mean you can conjecture that.

Q. If you moved to a 660 location and are gaining an advantage on the offsetting property in the Middle Morrow, do you still believe a penalty is inappropriate?

A. Yes, I do.

Q. And you -- why?

A. Well, because we're basically just protecting our correlative rights and trying to drain our -- our proration unit.

Q. I believe you stated that you could drain the Morrow from an orthodox location.

A. I said only to the extent that it is connected, the particular zone, a particular horizon, is connected.

Q. But we all agree that if it's not -- if you don't have the stringer in the well, you can't produce it.

A. Yeah.

Q. I'd like to ask you a couple of questions about the Atoka. I believe the drift of your testimony from Exhibit Ten --

A. Uh-huh.

Q. -- was the best pay in the Atoka was found

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to be -- and correct me if this is wrong -- south and west.

A. Southeast and southwest, yes. Well, the "I" and "G" Well, obviously, looking at the porosity logs, they have the best porosity development in the area.

Q. Isn't it possible that you would also encounter better Atoka pay in the -- or that you will encounter better Atoka sands in Lot 8 in Section 6, which is the Gulf property?

A. Well, it is possible; however, the best Atoka well appears to be the "I", not the "G", and therefor one might -- might say that the best development could be on the west side of the 320-acre proration unit.

Q. And if the best productive area in the Atoka is on the west side of the proposed location, and Lot 8 being directly west of your location could be presumed to have Atoka sands and be productive?

A. It could, yes. It could have some.

Q. And you would likewise be gaining an advantage on Lot 8 by moving from an orthodox location in the Atoka.

A. Well, drilling the Atoka from an orthodox location it is very possible, it's very high risk there, we probably could not produce our reserves on our proration unit, because it may be -- the permeability may be so low and the sand thickness so thin that we may not be able to

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efficiently drain our reserves.

Q. Well, in draining your reserves, would you not also be draining the reserves from Section 6?

A. We may drain some, yes, it is possible.

Q. And by moving to the unorthodox location your well is moving 66 percent closer to the Lot 8 than it would be at an orthodox location?

A. Yes, that's where it is.

MR. CARR: I have no further questions.

MR. HENSLEY: If the Commission please, I have a few additional questions.

REDIRECT EXAMINATION

BY MR. HENSLEY:

Q. Mr. Hoover, all the questions which Mr. Carr propounded to you about whether or not the proposed unorthodox location would in fact recover a disproportionate share of gas from the Morrow, assume that there was a continuous stringer of permeability and porosity in the Morrow Sands. Let me ask you this: Assuming this continuity of permeability, if you do not locate your Morrow well at the unorthodox location, will a disproportionate share of the gas underlying your proration unit be drained from you by the "F" and "G" Wells?

A. Yes, I believe so, to the extent that any

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of the zones in either one of those wells connects across the full proration unit.

Q. Is it therefor necessary in your opinion as a geologist that in order to efficiently drain your share of the gas in the Morrow, that the location to offset these unorthodox locations must be in an unorthodox location in the west part of the unit?

A. Yes, that is true.

Q. Now, also a number of questions were asked you by Mr. Carr concerning the advantage of the unorthodox location in that it might possibly drain some of the Gulf acreage located in Section 8, do you recall those questions?

A. You mean in Section 6, don't you?

Q. In Section 6.

A. Yes.

Q. Lot 8 in Section 6.

A. Yes, right.

Q. That assumes, does it not, that any well which would be proposed by Gulf would be at an orthodox location?

A. I guess that is a laydown proration unit in the top half of Section 6, is it not?

Q. An orthodox unit would be 1980 feet from the east line?

A. Uh-huh, that is correct.

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Q. If Gulf made application for an unorthodox location, as all the other operators have done surrounding your proration unit, and if a well were drilled at an unorthodox location, geologically would that well drain more than its fair share of gas on the boundary of your proration unit, so that a disproportionate share of gas would in fact be drained by Gulf from your unit?

A. Well, I'm -- there's a good chance of that to the extent that any of those reservoirs go across the proration unit line there.

Q. And would the same geological reasons support an application for an unorthodox location on Gulf's acreage as supported the unorthodox location by Grace Petroleum in connection with the "G" Well?

A. Yes.

MR. HENSLEY: We pass the witness.

MR. RAMEY: Mr. Carr?

RECROSS EXAMINATION

BY MR. CARR:

Q. Mr. Hoover, as I understand your answer to Mr. Hensley's last question, you're moving to the proposed unorthodox location because if you do not do so a disproportionate share of the gas under your proration unit would be drained by the "F" and "G" Wells, is that correct?

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A. Yes, that is correct.

Q. Moving that way you also are moving toward Gulf acreage, which is not dedicated to a well, is that correct?

A. Yes, that's my understanding.

Q. And you would be draining from the Gulf tract.

A. To the extent that any reservoirs connect across there, yes, we would.

Q. Now, it was proposed that -- Mr. Hensley suggested that if Gulf drilled on Lot 8 at an unorthodox location a disproportionate share of the gas being produced by that well would be draining from your proposed proration unit, is that not correct?

A. Yes, if we do not drill on the west portion of the acreage. There probably will be zones that do cut across proration units that will be drained by a well that Gulf would drill there, yes.

Q. Isn't the converse of that true, assuming your well at the unorthodox location and no well on Lot Number 8?

A. Pardon now?

Q. Isn't exactly the converse true, that a disproportionate share of the reserves will be drained by a hypothetical Gulf well in Lot 8, if you just reverse that

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and have just the proposed unorthodox location on your proration unit, won't you in fact have the same situation only in reverse, a disproportionate share being drained from the Gulf tract?

A. Yeah, I think the reverse would be true.

Q. Would you be willing to give us a waiver if we wanted to come in and drill at an unorthodox location?

A. I don't believe --

Q. If so, if we were proposing to drill that, would you believe it appropriate for the Commission to impose a penalty on the production from the well in Lot Number 8, to limit what rates of withdrawal?

A. No, not in my opinion, I don't believe, no.

Q. You don't believe if Gulf was proposing to drill at 660 from the lease line that a penalty would be appropriate?

A. No, I don't.

MR. CARR: I have no further questions.

MR. RAMEY: Any other questions of the witness?

MR. HENSLEY: No further questions of Mr. Hoover.

MR. RAMEY: Do you have anything else, Mr. Carr?

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MR. CARR: No, I have nothing further, Mr. Ramey.

MR. RAMEY: The witness may be excused and let's take a fifteen minute recess.

MR. HENSLEY: Before we take the recess, may I ask one further question of this witness, Mr. Ramey?

MR. RAMEY: Yes.

REDIRECT EXAMINATION

BY MR. HENSLEY:

Q. I apologize, it just came to me as we were breaking up.

I believe the testimony in this record, Mr. Hoover, shows that the "G" Well, which has recently been completed, is at an unorthodox location, is that correct?

A. Yes, that is correct.

Q. Directing your attention to what's been introduced into evidence as Bass Enterprises Exhibit Number Three, as I understand it, a standard proration unit for the "G" Well would be substantially to the south of its actual location as indicated on Exhibit Three, is that correct?

A. That is correct.

Q. And by virtue of the close proximity of the "G" Well to the Gulf acreage in Lot 8, Section 6, as a geologist would you suspicion that some drainage might occur

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from the Gulf acreage by reason of the proximity of the unorthodox location of the "G" Well?

A. Yes, I would imagine that to some extent there may be some drainage.

MR. HENSLEY: No further questions.

MR. RAMEY: Mr. Carr?

RECROSS EXAMINATION

BY MR. CARR:

Q. In the case for the unorthodox location for the "G" Well, do you happen to know whether or not Bass appeared in opposition to that application, or Texaco?

A. Not to my knowledge.

MR. CARR: No further questions.

MR. HENSLEY: Thank you, sir.

MR. RAMEY: Short recess.

(Thereupon a recess was taken.)

MR. RAMEY: The hearing will come to order.

MR. HENSLEY: Bass Enterprises will call Mr. David Davis as the next witness.

DAVID DAVIS

being called as a witness and having been duly sworn upon

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his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. HENSLEY:

Q. Would you state your name, please?

A. My name is David Davis.

Q. Where do you live, Mr. Davis?

A. My address is 2403 Northtown Court, Midland, Texas.

Q. And what is your occupation?

A. I am an Assistant Division Engineer for Bass Enterprises Production Company.

Q. What is your professional education?

A. I received a Bachelor of Science degree in petroleum engineering and chemical engineering from Texas Tech University.

Q. Have you had occasion in the past to testify before the Oil Conservation Division and have your qualifications as a petroleum engineer accepted?

A. Yes, they were.

MR. HENSLEY: Are the qualifications of the witness acceptable?

MR. RAMEY: Yes, they are.

Q. Mr. DAvis, have you made a reservoir study of the producing characteristics of the Morrow forma-

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tion in the vicinity of the proposed well?

A. Yes, I have.

Q. I'd like to direct your attention to what has been marked for identification as Bass Exhibit Number Eleven, and ask if you will please explain the significance of this exhibit to the application?

A. Okay. This is a plot of the shut-in wellhead pressure for various wells in the South Salt Lake Morrow Field versus time, and as you can see, there's about seven wells and what it indicates to me is that there's not direct relationship between the date of completion of the well and the shut-in wellhead pressure, pressure which is indicative of the bottom hole pressure for each well.

This indicates that each new well has a good chance to find undrained reservoir lenses at every location. It also indicates that even though, from the cross sections presented in the geological evidence, that some of the sands might be continuous, the pressure indication a lot of times indicates that they may not be in pressure communication.

Q. Are those the principal conclusions that you reach as a consequence of this pressure study?

A. I conclude that a well on this proration unit has an excellent chance to find new reserves in the Morrow formation due to the lenticularity of the Morrow form-

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ation, and I think that all areas of the proration unit should have significant gas reserves.

Q. Notwithstanding the fact that there may be offset wells which have been producing for a period of time, is that correct?

A. That is correct.

Q. Next I'd like to direct your attention, Mr. Davis, to what has been marked for identification as Bass Exhibit Twelve.

A. Okay. This exhibit is hand calculations of volumetrics based on information from Texaco, that gives their Texaco "CM" State No. 1 Well, the location in Section 31, 20 South, 33 East.

They indicate that they have about 8-1/2 Bcf recoverable reserves from the well. The pressure they indicate is 5935 pounds, and I assume some values which would be what I think are representative of the Morrow formation. These would be that the water saturation would be about -- approximately 25 percent; the porosity is 8 percent average; and the gas recovery factor would be 80 percent.

If you divide the recoverable reserves by the recovery factor you come up with 10.6 Bcf of gas in place.

If I put that volume of gas in the indicated 130 foot of pay that has been perforated by Texaco,

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the drainage area would be approximately 110 acres. That's not to say that that would -- the well would not affect a much larger area, and this is because that the pods, or lenses that are perforated in that well are not in all likelihood going to be concentric with the wellbore in the middle of each sand.

It's also quite obvious that the sands are going to have different areal extent in each of the lenses that you penetrate, and in all likelihood the individual lenses are not cylindrical, which is what I assumed in the calculation.

Q. Do I understand by that testimony that depending on how the deposition of these sands is in fact stratigraphically located, that you may have some drainage from the south of this well into the east portion of the proposed proration unit, but there's no definitive way of concluding that all of the Morrow Sands have been drained by virtue of the "CM" Well, is that correct?

A. That's correct. I believe that there's a good chance that some of the lenses on the proposed proration unit would have been partially drained by the, for instance, Texaco "CM" State No. 1 Well.

Q. Okay. Would you explain, Mr. Davis, what engineering effects may be encountered where you drill a well into an area where you may have partially depleted the

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reservoir in some of the sand strings?

A. I feel very strongly, and it is Bass' opinion, that the Morrow formation, and I think this is the consensus of most operators, that the Morrow formation is very, very sensitive to fluids that you drill with. With the lower pressure in some of these sands you're going to have much deeper invasion into those sands, which causes more damage, which makes it that much more difficult to make a successful completion in the Morrow, that particular lens.

Also, if you have a wellbore that penetrates a low pressure sand and a high pressure sand, your ability to complete both of those successfully and completely is decreased because you're going to have to -- or the amount of treatment fluids or stimulation fluids you put in the low pressure zone may be quite a bit more than you put in the high pressure zone, and also when you do stimulate the low pressure zone, it is without the natural reservoir energy in there to help recover your load. You have much more difficulty recovering that.

Another factor would be that if you really -- if you drilled a well and penetrated the sand that had virgin reservoir pressure, indicating that it was a new reservoir, under the current price guidelines set up by the NGPA, it is economically to your advantage to keep that gas separate from any gas that might be lower pressured. It would be a

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difference of approximately 20 cents an Mcf, which is very significant consideration in the thing. That would mean you'd have to -- if you wanted to isolate them, you'd have to have more expense in the completion of the well.

Another reason is if you had a high pressure zone in manmade communication with a low pressure zone, you'd have cross-flow of gas from the high pressure zone into the low pressure zone. The low pressure zone would obviously be a result of partial drainage from an offset wellbore and this would allow some of your reserves to be produced through your manmade communication into the offset well.

And finally, by the same token, if you did deplete, or if you did equalize pressure from a high pressure zone to a lower pressure zone, your deliverability in that well would be decreased in the high pressure zone, due to the fact that the driving force, the differential pressure driving force in the well, would also be reduced.

Q. As a petroleum engineer, Mr. Davis, do these factors and considerations cause you to favor the unorthodox location for the Morrow as opposed to a standard orthodox location on the unit?

A. First let me give an example of what I was stating.

Shown on the map that we submitted, Exhibit

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Number Five, which is a structure map, just for reference, in Section 10, Township 21 South, 32 East, Bass has drilled -- it's indicated as a Bass Franks No. 1 Hat Mesa, and upon drilling that well Bass was drilling the Middle Morrow formation and stopped and took the drill stem test, which indicated conclusively that there was a low pressure zone in the Middle Morrow; went ahead and drilled through the Lower Morrow and found a new sand. We completed the well. We felt like that the sand in the Lower Morrow was not in communication with any other wellbore, since we hadn't seen it in any offset logs. We were forced to make a dual completion to isolate the bottom sand, as I said before, to protect our interests under the NGPA pricing rules, and to also successfully get a successful completion in the Middle Morrow. And the pressure in the Middle Morrow was about half of what it was in the Lower Morrow formation.

Now, could you ask your question again?

Q. Well, assuming that there may have been some partial drainage to the proration unit by virtue of the close proximity of the Texaco "CM" Well, would you as a petroleum engineer, favor the unorthodox location as a more efficient means of recovering the Morrow reserves?

A. I do believe that's true. This location gets us equidistance, I believe, from the Grace New Mexico Federal "G" and "F" Well, and also gives us a reasonable

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distance from the Texaco "CM" Well, which allows us to protect our correlative rights in the southwest portion of the lease and also gets far enough away that we feel like we'll have less trouble with the partially drained lenses in the orthodox location.

Q. Based on your study of the reservoir characteristics of the Morrow formation in the vicinity of the proposed location, are you able to formulate an opinion, Mr. Davis, as to whether or not commercial reserves of gas exist on the entire 320-acre unit?

A. I believe they definitely do.

Q. Now there's been a lot of testimony in the case about the fact that the proposed location for an unorthodox well site is in close proximity to the west line of the proration unit. I believe the testimony showed some 66 percent advantage from a distance standpoint.

As a petroleum engineer, Mr. Davis, do you feel that the unorthodox location is necessary in order for Texaco and Bass to recover their fair share of the hydrocarbons from the proration unit?

A. Yes, I do. I believe that due to the allowance or the previous unorthodox locations that have been allowed, that to offset the -- what we consider to be the most immediate problem of drainage from the New Mexico "G" Well, which we have records to indicate that that well

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is going to be a good well, and the "F" Well, that we need to offset those wells to protect our correlative rights.

Q. To the extent that there are or may be continuous sands stringers present in the Morrow formation between the orthodox location and the area proposed for the unorthodox location, is there any engineering reason that you know of, Mr. Davis, as to why a well at the unorthodox location could not or would not efficiently drain the unit?

A. There's no information that I have that indicates that.

Q. In your opinion, sir, will the approval of the requested nonstandard location, together with the full allowable, be in the interest of conservation, prevention of waste, and the protection of the correlative rights of the parties?

A. Yes, I do. Re-emphasizing what I said, I think it will decrease some of the problems we have on our completion. It will protect the unit from the already allowed unorthodox locations, the New Mexico "G" Federal, the 1-F Federal, and quite possibly a new well that might be drilled to the west by Gulf. And it also improves our chances to have a successful completion in the Atoka.

Q. Were Exhibits Eleven and Twelve prepared by you or under your direction and supervision?

A. Yes, they were.

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MR. HENSLEY: At this time Bass offers Exhibits Eleven and Twelve, Mr. Chairman.

MR. RAMEY: Exhibits Eleven and Twelve will be admitted.

MR. HENSLEY: We pass the witness for cross examination.

MR. RAMEY: Mr. Carr, do you have a question?

MR. CARR: I have a few.

CROSS EXAMINATION

BY MR. CARR:

Q. Mr. Davis, I believe you testified that all areas in this proration unit contain substantial gas reserves, is that correct?

A. I believe that's true.

Q. So you could drill a standard location and produce the Middle Morrow from that location?

A. Let me refer to the completion map. I believe that's -- yes, that's true.

Q. As I understood your testimony, one of the reasons you decided to drill at this unorthodox location is to avoid completion problems that will result from drilling in a reservoir that has been partially depleted, is that correct?

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A. Part of the sand that we will penetrate will be quite possibly partially depleted and they could cause us problems when we try to drill and complete.

Q. And they were depleted in part by this Texaco "CM" Well located immediately to the north of the proposed proration unit?

A. It is quite possible that they were partially depleted by that well.

Q. Do you know if Bass participates with Texaco in that well to the north?

A. I believe they do. I'm not positive.

Q. So in other words, you're moving to the unorthodox location because you've already depleted part of the proration unit.

A. No, that's not true.

Q. It is not?

A. The reason we're doing that is to get over and protect ourselves in what we feel is the best location to affect a successful completion and to also protect our correlative rights from the new wells that are unorthodox to the southwest and the south.

Q. I thought I understood your testimony to be that one of the reasons you desired to drill at the unorthodox location was to get away from the pressure differentials that you might encounter at an orthodox location.

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A. In some of the lenses.

Q. And some of the pressures differentials were of your own creating. That's what I meant. Is that true?

A. That is possible.

Q. Now, one of the reasons, as I understand your testimony, for drilling at the proposed location is to get away from, again it's the same question, I think, from Middle Morrow production in the area, and so by moving to the proposed location you're getting away from the "CM", at the same time offsetting the "F" and "G".

A. It essentially puts us equidistant, I believe, from the "F" and "G" and still gives us a good location distance away from the "CM" State No. 1.

Q. If your real objective is just getting away from other Middle Morrow production, then you would have been able to drill just as easily in the east half of this proration unit.

A. That was part of reason, though, to drill an offset, the demands that have already been made by the -- to meet our offset obligations and to offset depletion that quite possibly can occur from the unorthodox locations in the "G" and "F" wells.

Q. And to meet the demand from the USGS? Couldn't that demand have also been met with drilling a well

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at an orthodox location?

A. I don't ---

Q. If you drill at the proposed location and get a successful Morrow completion, I believe you testified that it would enable you to get your fair share of the reserves under that tract.

A. I agree, as was stated by Larry Hoover, that as long as the sands are continuous, that that well will be able to drain that -- that east half of the proration unit.

For example, in the Hat Mesa No. 1 Well that I referred to, the nearest wells that could have depleted the one zone were approximately 3000 feet away, and it's very hard to believe that those sands in that case stopped at one -- we just penetrated on the edge of one wellbore. We hit the edge of the sand in the offset well, at least one of them hit it, so it's -- there is potential for quite large sands in some cases.

So I believe that you can effectively drain the unit as long as the sands are continuous.

Q. Now here again, assuming continuous sands, which I think you have to do for this question, would a well at the proposed unorthodox location drain more reserves from Section 6 than would a well at an orthodox location?

A. That I can't -- can't say. I would say

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that it would protect our rights from being drained -- let me say it this way. If the "F", "G", and possibly a well to the west also penetrate the same sand that would be penetrated by our unorthodox location, we would have to have a -- our wellbore would have to protect our correlative rights from being drained by the offset wells.

Q. Okay, if you have to have your well to protect your correlative rights from a well drilled by Gulf, you just made reference to, that could be drilled by Gulf in Section 6, isn't it logical to assume that absent a well by -- a Gulf well in Section 6, that you're impairing their correlative rights by this nonstandard location?

A. I don't guess I understand your question. Would you ask it again?

Q. I think you just said that if we assume that there's a well in -- well, Lot A, the Gulf well, offsetting your well, and the two wells south of the proposed location, that you have to have that well at the proposed location to protect your correlative rights, is that correct?

A. It is not necessary. It seems to be the best place to locate to protect our rights from an unorthodox location, and I believe that if you allow the two unorthodox wells to be permitted, and it is apparent to us, or at least to me, that based on the structure map, that the application for those wells was to get as high up structure

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as you could get, on the Grace wells, that it is our obligation to protect that immediate offset. That's the most immediate production, possible drainage, that we will see.

Q. I guess my question is, while attempting to protect from drainage from those two wells are you not also crowding the north half of Section 6 and thereby draining a disproportionate share of reserves from the offset property?

A. I don't believe so.

MR. CARR: No further questions.

MR. RAMEY: Any other questions of the witness? He may be excused.

MR. HENSLEY: No further questions. That concludes the direct case of the applicant, Bass Enterprises Production Company, Mr. Chairman.

MR. RAMEY: Thank you, Mr. Hensley. Mr. Carr, do you want to present testimony?

MR. CARR: At this time I would call C. D. Stenberg.

C. D. STENBERG

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

DIRECT EXAMINATION

BY MR. CARR:

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

A. C. D. Stenberg, Gulf Oil Corporation, Midland, Texas.

Q. Mr. Stenberg, what is your present position with Gulf Oil?

A. Geologist.

Q. Have you previously testified before this Commission and had your credentials accepted and made a matter of record?

A. Yes, sir.

Q. Are you familiar with the application of Texaco in this case and the subject area?

A. Yes, sir.

MR. CARR: Are the witness' qualifications acceptable?

MR. RAMEY: Yes.

Q. Will you please refer to what has been marked for identification as Gulf's Exhibit Number One and explain to the Examiner, or to the Commission, what it is and what it shows?

A. Exhibit One is a location plat showing the Salt Lake Morrow South Gas Pool. The structure contours are based on a Mid-Morrow Shale. This will be line thirteen on the cross section which will follow.

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The contour interval is 100 feet and the structure shows a southeast plunging nose. Also shown are the proposed locations of the Texaco-Bass proposed location in red and the blue is the Grace "G" Well, which has now been drilled, and also in yellow are the other Morrow producers in the field.

Also, at this time R-111-A area is outlined with the blue hachured, heavy hachured line. This is the State potash and oil area.

Gulf owns Lot 8, which is the west offset to the proposed location.

The map contours on the Pennsylvania shale marker; can be contoured without drawing a fault in the structure as has been previously testified.

The information we have so far from the Grace "G" Well, which has been drilled and logged, shows that the proration unit of Texaco and Bass is surrounded by productive acreage. If there is any structural advantage to be gained in the proration unit, it would appear that the east half of the proration unit is better structurally situated, according to the center well in the cross section of Exhibit Eight, where we have thick sands and a large -- large cumulative, if structure has any part in the thickness of the sand lenses.

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Line A-A' on the map is a line of cross section, which is Exhibit Two.

Q. Mr. Stenberg, from a geological point of view, can you see any reason for developing this proration unit at the unorthodox location?

A. No, sir.

Q. Could it be drained, in your opinion, from a well located at a standard location?

A. Yes, sir.

Q. Will you refer to what has been marked as Gulf Exhibit Number Two and review this for the Commission?

A. Exhibit Number Two is a cross section which was line A-A' on the structure map, and the cross section is hung on the top of the Morrow, which is line number six.

The correlation lines drew predominantly shale zones and zones that contain the sands. Three main zones that are productive are the zones between lines ten and eleven, twelve and thirteen, and fourteen and fifteen.

Other wells to the east also correlate with these zones and also with, I think, probably with some of the wells in the other -- other exhibits, defining the various parts of the Morrow.

Well, that's -- that's about all that actually shows. It just shows the correlation of the -- of

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the zones that are producing that are fairly predominant throughout the field.

Q. Would you anticipate that these zones that correlate throughout the field would also be present in Lot 8 of Section 6 immediately to the west of the proposed well location?

A. Yes, sir.

Q. And that a well at the proposed location would be capable of producing reserves from that tract, I mean the adjoining tract?

A. Yes.

Q. Do you believe a well at the standard location would be the logical location to produce the reserves under that particular -- under the proposed proration unit?

A. Yes, sir.

Q. Do you have anything further to add to your testimony?

A. Well, just make one conclusion, that on the basis of previous testimony of the thick sands in the Texaco "CM" Well and the fact that the sands do correlate all the way around the -- sand zones, zones with sand, let me say, correlate all the way around the proration unit, that therefor a standard location will be the logical place to drill a well to drain the proration unit without -- without

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leaving gas reserves behind that would not be drained otherwise.

MR. CARR: I have nothing further on direct.

Oh, were Exhibits One and Two prepared by you or under your direction?

A. Yes, sir.

MR. CARR: At this time I would offer Gulf Oil Corporation Exhibits One and Two.

MR. RAMEY: Exhibits One and Two will be admitted.

MR. CARR: I have no further questions of Mr. Stenberg on direct.

MR. RAMEY: Do you have any questions of the witness?

MR. HENSLEY: Yes, sir.

MR. RAMEY: Mr. Hensley.

CROSS EXAMINATION

BY MR. HENSLEY:

Q Mr. Stenberg, reference has been made in the course of the testimony to date that a well has been recently completed in Section 6, denominated as the Grace Petroleum "G" Federal, at an unorthodox location immediately to the south and west of the proposed unorthodox location,

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immediately to the south and west of the proposed unorthodox location, is that correct?

A. Yes, sir.

Q. Does Gulf own an interest in that well?

A. Yes, sir, 25 percent.

Q. To your knowledge does Bass Enterprises Production Company own any interest in the "G" Well?

A. I don't know who are the other owners, sir, except Grace.

Q. Now, you've indicated that from your review of the geology underlying the proposed well, that there is no evidence of any fault, is that correct?

A. That's correct.

Q. In that respect, then, I assume that you agree with Mr. Hoover's testimony to the effect that you just simply have a southwest dipping off the axis of the structure.

A. Yes, sir.

Q. Is there anything as a geologist that would indicate to you that this -- that this dip would create any type of permeability barrier?

A. That the depth would?

Q. Yes, the dip.

A. Oh, the dip, excuse me. No, not -- not directly.

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Q. Now, what is the position of the "G" Well structurally to the "F" Well?

A. It's essentially flat, almost flat. It's a -- that's a good picture up there on your Exhibit Eight there. It's hung on a datum. The "F" and the "G" are within 10 feet, 10 or 15 feet, datum-wise.

Just like it's contoured on the map there, just practically on strike.

Q. Actually, it appears to me that your Exhibit Number One, as far as your efforts to map the structure, in the Mid-Morrow Shale, or the top of the Mid-Morrow Shale, conform in almost all respects with the Bass exhibit, which I believe was Exhibit Number Five, showing Mr. Hoover's structure map, is that correct?

A. Yes, sir.

Q. You indicated that you felt that the east side of the proration unit was probably structurally high. Is that indicated by this map?

A. The east half, the northeast part is higher, is the highest structurally.

Q. Is there any reason to believe that there's any relationship between the thickness of the Morrow Sands and the amount of structure present? From your study of this area?

A. Mainly from the one well I mentioned,

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which is the Texaco "CM", which has the highest -- I believe it's the highest cumulative and also has the thickest sands.

Q. Actually we have more sand bodies present, though, down-dip from that, do you not? Maybe not as thick but --

A. Down-dip, which one do you --

Q. Well, let's take the "F" Well.

A. Well, there are quite a few sand stringers there but none of them are -- none of them are as thick.

Q. I see. You indicated that from your cross section map, which you identified as Exhibit Number Two, that there is a correlation of the MIddle Morrow Sands on all these logs, is that correct?

A. The correlation lines on my cross section agree, I think, with previous area maps and cross sections in this area.

Q. Now these correlations, as you explained in your direct testimony, are simply correlations of zones that have sand bodies present, is that correct?

A. Yes, sir, that's more or less what I've zones off, yes.

Q. Is it not a fact geologically that the Morrow deposition stratigraphically does consist of lenticular sands which are not -- do not cover a very large areal extent normally?

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A. Very frequently they don't cover a very large area, no.

Q. And by your testimony that you're able to show correlation of zones with sand stringers, you don't mean to imply by that testimony, do you, Mr. Stenberg, that you can actually correlate these productive stringers in all of these wells?

A. No, sir, not every individual stringer.

Q. You've got some areas where you've got virgin stringers, and other areas where you might be able to draw some type of correlation, based on the stratigraphic depth of those stringers, is that not true?

A. Yes, that's true.

Q. Is there any reason to believe from your geologic investigation of the Morrow horizons underlying the proposed well that recoverable reserves of hydrocarbons in the Morrow formation still exist and can be recovered by a well drilled on this proration unit?

A. Are you talking about a standard location or anywhere on the unit?

Q. Anywhere on the unit.

A. Yes, I believe there are reserves to be recovered under any part of the unit.

Q. The fact that the "CM" Well is in close proximity would not indicate to you as a geologist, would

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it, that all of the Morrow formation underlying the proration unit on the east portion of the unit has been drained by that well?

A. That's a long question.

Q. Well, I'll restate the question.

A. All right.

Q. There's not any reason to believe, is there, that the proximity of the "CM" Well would cause a complete drainage of the Morrow reservoir underlying the proration unit?

A. No, sir, I don't believe it would.

Q. Now, you indicated in your testimony that you assumed that the same correlation of the Morrow sand structure would exist to the west of the subject unit into the acreage in Section 6, owned by Gulf.

A. Yes.

Q. Is that correct?

A. Yes, sir.

Q. That correlation would be the same type of correlation that you've just delineated, would it not, insofar as being able to tie up stratigraphically the zones where sand stringers are present?

A. Yes, sir.

Q. It doesn't necessarily imply that there would be any continuity in the deposition of those stringers

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to the west of the unit any more than there would be complete continuity all through the proration unit?

A. No, sir. The continuity -- also no continuity in the porosity and permeability characteristics.

Q. Now you indicated that in your opinion, sir, that a standard location would efficiently drain all of the Morrow reservoir under the unit.

A. I believe I stated that I believe unless one is drilled closer to the east half of the proration unit it will leave behind undrained reserves.

Q. Okay. Does that assume that there are no continuity -- or there is no continuity at all in these stringers in the Middle Morrow throughout the unit?

A. Well, that's based mainly -- partly on the fact that the stringers do vary; the sands to vary in porosity and permeability and thickness.

Q. To the extent that there is a continuity and an interconnection between these lenticular sands, a well drilled anywhere on the unit would still affect drainage from a reservoir, would it not?

A. Yes, sir.

Q. As a geologist, Mr. Stenberg, well, first of all, let me ask you, you are familiar, are you not, sir, with the location of the "F" and the "G" Wells to the south and southwest of the proposed unit?

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A. Yes, sir.

Q. And those were both nonstandard locations which are crowded within 660 feet to the proration boundary line for the subject unit, are they not?

A. Yes, sir.

Q. As a geologist would you concur that unless those unorthodox locations are offset by an unorthodox location, as proposed by Texaco and Bass, that those owners would not be able to recover a fair and equitable share of the hydrocarbons in the Morrow zone?

A. I still believe I'd be more swayed by the fact that the east half would be left sitting there undrained.

Q. But there's not much question as a geologist, is there, Mr. Stenberg, that this -- if this unorthodox location is not approved, that there are going to be hydrocarbons in the Morrow formation drained from underneath these lands on the proration unit by virtue of the close proximity of the "F" and "G" Wells to the proration unit boundary?

A. Yes, sir, that's true. That's true in any spacing. You can be 660 from somebody else's lease line on an orthodox location.

Q. Now, does Gulf propose to drill a well in the proration unit encompassing Lot 8 of Section 6?

A. We only own the one lot, which would be

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the proration unit, and I certainly wouldn't know.

Q. Okay. To your knowledge are any efforts underway at this time by Gulf to effect pooling of those leases so that a full unit could be drilled?

A. No. The other seven lots are owned by Holly Energy Corporation, which were just recently purchased in the last couple of months, I believe, or whenever they were up for sale. So therefor I don't --- I don't know of any negotiations as yet.

Q. To your knowledge did Gulf try to bid at that sale? For that acreage?

A. Yes, sir.

Q. And Holly was the successful bidder?

A. Oh, yes, Holly -- Holly was successful, right.

Q. Do you know anything about the surface ownership in the proration unit which would embrace those properties to the west of the proration unit?

A. Only that it's within the State potash, the potash and oil area. The Rule R-111-A.

Q. Would all the balance of the acreage, excepting Lot 8, be within R-111-A boundaries, to your knowledge?

A. Yes, sir.

Q. Would that necessitate the surface loca-

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tion in Section 8?

A. That would necessitate the location, surface location, in Lot 8, right.

Q. Okay. And that would be within 8 or 900 feet maximum from the west boundary line of the proposed unit, would it not?

A. Well, I don't know what that rule would be.

Q. It would be in close proximity?

A. It would, right. It would have to be within the lot, yes, sir.

Q. Let me ask you, in view of the fact that Gulf owns an interest in the "G" Well, which is at an unorthodox location immediately to the southwest corner of the proposed proration unit, what was the reason that Gulf and Grace felt it necessary to locate that well in such close proximity to this proposed unit?

A. At that time I presume it was because of the structural position of the other wells, the projected structure. There was a hearing on that where Gulf opposed them and also wanted a different proration unit, but I was not at that --

Q. I see.

A. -- at that hearing, so I'm not very -- not real familiar with it.

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Q. Did Gulf also seek an unorthodox location? And seek to be operator of the well?

A. Did we? Yes.

Q. And was that unorthodox location also within 660 feet from the west line of the proposed unit?

A. Of your proposed proration unit?

Q. Yes.

A. I don't have a plat and I don't recall. I've seen it, but I don't recall which was the Gulf proration unit proposal.

Q. Thank you, sir.

MR. HENSLEY: Pass the witness.

MR. RAMEY: Mr. Carr?

MR. CARR: I have a couple of questions.

REDIRECT EXAMINATION

BY MR. CARR:

Q. Mr. Stenberg, as I understand your testimony, even with all the irregularities that we encounter in the Morrow, you still testify that there are stringers in this proration unit and you would anticipate that they would also appear in the properties to the west of the proration unit, is that correct?

A. Yes, sir.

Q. You testified in response to one of Mr.

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Hensley's questions that any well in that pool would affect drainage from the reservoir. Do you believe that there would be a greater impact on the Gulf acreage in Section 6 with the well at the proposed unorthodox location than drilled at the standard location?

A. Definitely.

Q. If Gulf drills -- if Bass and Texaco drill at an unorthodox location to protect themselves from drainage from the unorthodox locations for the "F" and "G" Wells, will the unorthodox location by virtue of the unorthodox location be encroaching or crowding the Gulf acreage to the west?

A. Yes, sir.

Q. In your opinion will it drain a disproportionate share of the reserves from that offsetting property?

A. Yes, sir.

MR. CARR: I have nothing further.

MR. RAMEY: Any other questions of the witness?

MR. HENSLEY: No further questions.

MR. RAMEY: He may be excused.

MR. CARR: I call Mr. Kalteyer.

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CHARLES F. KALTEYER

being called as a witness and having been 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. Charles F. Kalteyer, K-A-L-T-E-Y-E-R. I'm located in Midland.

Q. By whom are you employed and in what capacity?

A. Employed by Gulf Oil Corporation as Chief Proration Engineer for the Southwest District.

Q. Have you previously testified before this Commission and had your credentials accepted and made a matter of record?

A. Yes, sir, I have.

Q. Are you familiar with the application of Texaco in this case and the subject area?

A. Yes, sir.

MR. CARR: Are the witness' qualifications acceptable?

MR. RAMEY: Yes.

Q. Will you please refer to what has been

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marked for identification as Exhibit Number Three, Mr. Kalteyer, and explain to the Commission what it is and what it shows?

A. Gulf's Exhibit Number Three is prepared basically to show the four areas of orthodox locations that would be permissible for the Texaco-Bass application.

It also shows the approximate distances between the various wells, the Grace Petroleum "F" Federal, or Federal "F" No. 1; the proposed Texaco Loomis Federal; and the Grace Federal "G" in Section 6, as well as the distance to the Texaco "CM" No. 1 in Section 31.

Q. This unit also has depicted in red the proposed proration unit, is that correct?

A. Yes, sir.

Q. Mr. Kalteyer, there are arrows drawn to a well. It is the -- a box, which I guess indicates the orthodox location. It's the southeasternmost box on this exhibit for an orthodox location. Could you explain why you've drawn arrows to that particular point?

A. Of course the purpose of this was to show the potential of drilling in that southeast portion of the proration unit, the distance being 2113 feet from the Grace Federal "F", which is approximately the same distance as the 2167 feet to the Texaco proposed Loomis Federal.

Q. And the four boxes in this proration unit

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indicate the orthodox locations?

A. Yes, sir.

Q. Is the R-111-A boundary indicated on this exhibit?

A. Yes, sir, it is. It's noted as the potash area and a hachured line.

Q. And the potash area is on the west part of this plat?

A. That's correct.

Q. If Gulf decided to drill a well to develop the north half of Section 6, would Gulf have to locate the well in Lot Number 8, which is the area outside the potash area?

A. Yes, sir, it would in all likelihood have to be in Lot 8.

Q. Now, to your knowledge did Texaco at one time propose to develop this proration unit with a standard location?

A. Yes, sir.

Q. I'll hand you what is marked for identification as Gulf Exhibit Number Six, and ask you to just identify that for the Commission.

A. Gulf's Exhibit Number Six is a letter from the U. S. Department of Interior, Geological Survey, addressed to Texaco, and the date indicated is August 22nd,

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1979, and it indicates the approval of the No. 1 "CA" Loomis Federal in Lot 7, Section 5, Township 21 South, Range 32 East, which is within the southeast orthodox location area, as shown on Gulf's Exhibit Three.

Q. Do you happen to know the status of that application at the present time?

A. It is my understanding that that application has been withdrawn by Texaco. The location on the request was 1980 feet from the north line and 1980 feet from the east line of Section 5, Township 21 South, Range 32 East.

Q. Mr. Kalteyer, what conclusions can you drawn from this Exhibit Number Three?

A. It's obvious that Texaco and if Bass was their partner in this, they intended to drill a well at this location and apparently they though it would be a commercial well.

Q. I now ask you to direct your attention to what has been marked for identification as Gulf's Exhibit Number Four and explain this to the Commission.

A. Exhibit Number Four, A and B, it's in two parts, and it does give the monthly production since 1978 of the wells in the area and gives cumulative data as of the 1st of March for the various wells.

Q. Would you please refer to this exhibit, which is Exhibit Four A and B, first of all, Mr. Kalteyer,

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what was the source of the information on these exhibits?

A. This is the New Mexico Oil and Gas Association, Engineering Association.

Q. All right. Will you now refer to these exhibits and to what has been marked Exhibit Number Five, and explain the data contained thereon?

A. Exhibit Number Five is a plot similar to the one that was presented by the Bass witness, only it goes back to the year 1961, and traces the shut-in wellhead pressure versus time. Of course, we must realize that this is the shut-in wellhead pressure and does not truly indicate the exact bottom hole pressure, due to the variations in possible shut-in times, liquid or fluid in the wellbore, but it is generally representative of the pressure in the reservoir from surface condition, and we note that the wells have come in at pressures in the range from 4000 to some 5500 pounds. The recent wells have had a very rapid decline and this, I believe, would tie into the theory that there is communication within the -- some type of communication, how tortuous it may be, there is still communication.

The wells come in with virtually virgin pressure but are -- have been drawn down very rapidly, at least the wells that have been completed since 1973.

MR. NUTTER: Mr. Kalteyer, let me interrupt you one moment while you're on that exhibit.

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Is this original pressure for the "CM" the -- or the first pressure, the original pressure in that reservoir?

A. That was the first pressure that we were able to establish. We obtained it from a scout card. It had no information as to the condition of the well, how long it had been shutin or -- but it was the first pressure we were able to obtain on the --

MR. NUTTER: It's very early pressure on the well?

A. Right, on the Texaco well. We do -- there were some actual drill stem test pressures, but we didn't have bottom hole pressure tests to compare it to, so this was just a comparison of the surface pressures.

We do have -- our records on the "CM" State 1 show one pressure at 6520 psi and another at 5735 in the depth range of 13,300 to 13,500.

MR. NUTTER: Those are bottom hole pressures.

A. Those are actual drill stem test data.

One thing I did want to point out on Exhibit Five is the green curve for the Grace Petroleum Federal "F" No. 1. The initial shutin pressure was indicated to be 4570 psi and it rapidly declined -- that was in January of '79 -- and then by August of '79 it had dropped to 1664

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pounds, and it had produced some 306,000 Mcf, or .3 Bcf, with that rapid decline, and as of --- as of the February production data we see it was producing at the rate of only 557 Mcf per day average for February, whereas it initially started out producing in the vicinity of 2 to 3000 Mcf a day.

The point being made there is Bass has indicated they needed protection from drainage in this well is projected down if it is rapidly approaching depletion, or the area that's indicated by the Texaco "CM" Well.

Q. Now, Mr. Kalteyer, you've heard the testimony here today. In your opinion will a well at the proposed location drain reserves from the Gulf tract in Section 6?

A. Yes, sir, I think it will.

Q. If Gulf does not drill a well, do you believe it will be -- what will Gulf have to do to protect its correlative rights?

A. A well would have to be drilled.

Q. Do you believe that drilling a well in Lot 8 would result in effective well spacing pattern for the development of the Morrow in this area?

A. No, sir, it would not, especially if the Loomis application is approved.

Q. Do you believe that a third well in this area would be in fact an unnecessary well to produce the Morrow?

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A. Yes, sir.

Q. In your opinion if this application is approved, with the correlative rights of Gulf be impaired?

A. Yes, sir.

Q. Do you have a recommendation to make to the Commission as to what action they should take upon the application?

A. Yes, sir.

I recommend that the application be denied.

Q. Do you believe there is any other way to treat this application and thereby avoid impairing the correlative rights of Gulf Oil Corporation in this area?

A. Yes, sir, the granting of a permit to drill at one of the other orthodox locations would not impair the correlative rights of Gulf.

Q. Do you have anything else to offer in regard to your testimony?

A. One point that I had wanted to make was that there has been concern, or testimony, that the production of the Texaco "CM" Well No. 1 was probably draining the east half of the proposed location of Texaco and Bass, when in fact, if you will look on any of the plats submitted, the Texaco "CM" Well is actually more to the western side of that proration unit than to the east, and consequently, we

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would anticipate that if the "CM" 1 was responsible for draining the area in the proposed proration unit, then it would be more likely that it would have drained the western half of Texaco's proration unit than the eastern half, and would give more credence to drilling a well on the eastern half of the Texaco proration unit.

Q. Mr. Kalteyer, were Exhibits Three, Four, and Five prepared by you or under your direction and supervision?

A. Yes.

MR. CARR: At this time we would offer into evidence Gulf Exhibits Three through Six.

MR. RAMEY: Gulf Exhibits Three through Six will be admitted.

MR. CARR: I have nothing further of Mr. Kalteyer on direct.

MR. RAMEY: Questions, Mr. Hensley?

MR. HENSLEY: Yes, sir.

CROSS EXAMINATION

BY MR. HENSLEY:

Q. As I understand it, Mr. Kalteyer, you are aware of the fact that Gulf owns an interest in the "G" Well?

A. Yes, sir.

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Q. 25 percent, is that correct?

A. That's my understanding.

Q. And in that connection, do you know when that well was spudded?

A. No, sir, I don't.

Q. Would that be December of '79?

A. I have it in the records.

Q. Okay.

A. In my records.

Q. Directing your attention, if I may, to Gulf Exhibit Number Six, which is the application of Texaco to drill its "CA" Loomis Federal on a standard location in Lot 7, that application was filed before the "G" Well was drilled, was it not?

A. Yes, sir.

Q. And it's your information that the reason it was withdrawn was because of the drilling of the "G" Well?

A. I'm not aware of why Texaco withdrew the application.

Q. Now, as a reservoir engineer, sir, do you concur with the proposition that unless an unorthodox well is drilled in the vicinity of the proposed location, that the "G" and "F" Wells will drain more than their fair share of the gas underlying the west half of the proration unit?

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A. That was a pretty long question.

Q. All right, I'll restate the question.

As a reservoir engineer, are you satisfied that the "F" and "G" Wells are both effecting some drainage to occur from the western portion of the proposed proration unit?

A. It's possible that they are draining it. A portion of it.

Q. In the absence of an unorthodox well being located in the vicinity of the proposed well, a well at the standard location would not efficiently recover a fair share of the Morrow hydrocarbons underlying the proration unit, would it?

A. I would think it would have a better chance of draining that entire 320-acre plus proration unit if it were at an orthodox location rather than over in the corner over there.

Q. Do you think it would have a better chance of draining -- offsetting the drainage which is occurring from the "G" and "F" Wells?

A. It would have a better chance to drain the reserves that are under its unit and if they're going to encounter any undrained lenses, that you'd stand a better chance of exploiting the reservoir under the proration unit at a central -- at a more central location in the proration

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unit.

Q. Well, to the extent that there are undrained portions of the reservoir, the only active drainage now taking place, besides the "CM" Well, would have to be from the "G" and "F" Wells to the south and southwest, would they not?

A. Currently.

Q. The wells to the north and to the east, being the Grace Petroleum well in Section 32 and the Grace Petroleum New Mexico Federal in Section 4, have already reached their economic limit, have they not?

A. Are these the wells?

Q. Yes, sir, I'm sorry. 32 and 4.

A. Yes, sir, I believe they have.

Q. So that at this time the only active drainage mechanism taking place would be the "F", the "G", and the "CM".

A. Right.

Q. And the "CM" has been on production since what, the early '60s?

A. Yes, sir, from 1961. It, what I've indicated, that it is from -- based on my Exhibit Number Five, that it has drained, or caused reduction in pressure, in a large area, and the new completions are rapidly approaching that lower pressure when they're placed on production. So

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consequently, as far as drainage by phrasing it only as current active drainage, then it's possible that the "F" and the "G" could drain currently, but the area is probably, the area of the Federal "F" and the Federal "G", may possibly have been drained already by other wells, either the "CM" or other wells in the reservoir, connected.

Q. Well, in that connection, I'd like to direct your attention, if I may, sir, to your Exhibit Five.

A. Yes.

Q. Now, if I understood the conclusion which you reached from that exhibit, it is that there is, since there is some stabilization of pressure after these initial high pressures are encountered, they fall and at some point stabilize, that there's an indication to you that there is in fact some communication in the Morrow reservoir between these wells?

A. Yes, sir.

Q. Assuming that to be correct engineering analysis of these reservoir conditions, Mr. Kalteyer, there is no reason to believe, is there, that a well at the proposed unorthodox location would not and could not economically and efficiently drain all of the remaining gas in the proration unit?

A. I think the chances of it effectively draining the reserves under the entire proration unit without

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first having impaired the correlative rights of other operators by draining other reserves would be almost impossible.

Q. But assuming that continuity and communication, a well at the proposed location would drain the entire reservoir, would it not?

A. Only theoretically. We're talking about trying to drain some -- in excess of ... in a radius in excess of 4000 feet to the east, whereas we're only 660 from the offsetting lease line.

Q. Well, you indicated that the main drainage pattern on the "CM" would be to the west portion of the proposed unit, so that to the -- to the extent that any drainage at all has occurred on the east portion, that drainage would principally have been from the two wells which have now ceased to produce.

A. Well, I'd have to check these cums. I don't know if they were sufficient to have -- whether they were compared, compared at all to the drainage of the "CM".

Q. Now, in that connection, directing your attention again to Exhibit Number Five, you have indicated that the "F" Well experienced a very sharp decline from its original shutin wellhead pressure.

A. Yes, sir.

Q. Are you aware, Mr. Kalteyer, of the fact that that well has recently been recompleted?

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A. No, sir.

Q. If I told you that the delivery -- deliverability of that well has already been improved severalfold, more than twofold, without stimulation, would that be an indication to you that additional recoverable reserves have in fact been located in the wellbore in the Morrow?

A. If you told me that, it possibly would.

Q. And assuming that to be the case, would it be fair to assume that additional drainage will occur by reason of the close proximity of the "F" Well to the south boundary line of the proposed proration unit?

A. It's possible.

Q. And do I understand that you still believe, sir, that a well at a standard location could still recover its fair share of the Morrow hydrocarbons without an offset location?

A. Yes, sir. There are certain imperfections in trying to locate a well at an optimum location on a 320-acre tract. They're just built into the shape of those units.

Q. Let me ask you another question in connection with this sharp decline which you noted in connection with the "F" Well.

Is it possible from a reservoir engineering standpoint that that reduction or decline could just as

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easily be caused by small reserves in the lenticular lenses having been encountered in the wellbore --

A. Yes.

Q. -- as opposed to a continuous stringer?

A. Yes, it could.

MR. HENSLEY: I believe that concludes our cross examination.

MR. RAMEY: Any questions of Mr. Kaltreyer?

MR. CARR: No redirect.

MR. RAMEY: Any other questions of this witness? He may be excused.

Do you have a statement you wish to make, Mr. Carr?

MR. CARR: Yes, Mr. Ramey.

I believe everyone recognizes that the basic statutory charge to this Commission is the protection of correlative rights and the prevention of waste.

In carrying out this statutory charge, this Commission has promulgated certain rules, and the rules which were made for approval of nonstandard locations, the rule states that to approve a nonstandard location you may take such action as will offset any advantage gained by the operator over other operators, and producers in the field.

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We submit in the case before you today we have a situation where without effective action on the part of this Commission we are going to have a situation where correlative rights will be impaired and where waste will be if not permitted perhaps even authorized by the Commission's action.

We're looking at an area that is developed on 320-acre spacing, 320-acre spacing because this is the area that one well is presumed to be able to effectively and efficiently drain.

In the proration unit being considered here today there are four orthodox locations available to Texaco and Bass and the testimony here today, I think, supports that a well on these locations would produce the Morrow reserves under that proration unit.

Now, Texaco at one time had another location approved on the unit. That has -- they have now decided to move this to the west and the testimony here today says that the reason for moving it is partially because other acreage has been drained, but also, and primarily because they are trying to protect themselves from drainage from offsetting properties.

The problem with this is that it only looks at a portion of the problem for when they move to protect this proration unit from drainage from offsetting

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wells they are also crowding acreage directly to the west, acreage which is not dedicated to any well.

Now this is not a normal tract to the west because it is backed up against the R-111-A area and it may be difficult, if not impossible, to locate a well anywhere except immediately offsetting the lease line at a 660 location. Now that would be necessary if they were permitted to go ahead and produce this well without any penalty whatsoever.

The problem with that is it results in an ineffective spacing pattern and you would be jambing a bunch of wells into an area and it would not be an efficient way to produce the Morrow. The testimony here today shows that what in effect you would have is an unnecessary well and by definition an unnecessary well is waste.

Now the Morrow formation throughout this area, particularly the Middle Morrow, is clearly productive. But Texaco has decided they will place their well on the fringe of the unit, on this proration unit, thereby draining substantial reserves from the offsetting properties.

I think it's important to remember that the definition of correlative rights in our statutes is that it gives an operator an opportunity to produce his equitable share of the reserves and those are his proportionate share of the reserves under his tract, and what we have here is a

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situation where without a penalty the well would be located in the position where it would drain substantial reserves from the offsetting properties.

The testimony here today has been considerable concern expressed for the necessity of protecting from drainage from offsetting properties.

I would point out in this regard that when all of these wells that are offsetting at unorthodox locations south of the proposed proration unit, when all of these wells were drilled, they were drilled only after a hearing in which Bass had an opportunity to come in and object and they didn't do it, and now they're trying to come in and redeem their position in this hearing today.

If they need protection from the wells to the south it seems like conversely there ought to be some protection afforded to the acreage on the west because it will be drained from their proposed well.

We submit there is only one logical way to deal with this application, however, and that is to deny the application of Texaco and Bass and if they decide to develop this acreage, let them go and drill at an orthodox location. In doing this you will not be creating waste. You will not be impairing correlative rights. What you will be doing is effectively carrying out and exercising your statutory charge.

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MR. RAMEY: Thank you, Mr. Carr. Mr. Hensley?

MR. HENSLEY: If the Commission please. I think it would be important to view this matter in the context of development has in fact occurred in these adjoining fields. I think the concern of Gulf, as fairly evidenced by not only the evidence but by the statement made by Mr. Carr, and that is that their concern is strictly of theoretical drainage which may occur if they're able to pool their acreage with the acreage of Holly, and if a well is drilled, and if a well is drilled at a standard location. And I can go on with the hypotheti al "ifs" of the concern.

But the fact of the matter is, and the bottom line as far as Texaco and Bass is concerned, is simply that drainage is in fact necessarily occurring by reason of the close proximity of the unorthodox well locations to the south and the west of the property.

This is uncontroverted in the evidence. Mr. Kalteyer admitted that from a reservoir engineering standpoint some drainage necessarily had to be taking place. It is a fact that the "F" Well has been recently reworked. The productivity on a natural basis unstimulated is, as I understand it, some 800,000 a day, and the indications are that there will be substantial deliverability effective,

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which will only result in more drainage occurring.

I think in effect, to paraphrase it in a different way, is what Gulf is saying, that it is permissible for them to drain hydrocarbons from the Morrow formation underlying our proration unit by reason of the close proximity of the unorthodox well denominated as the Grace "G", but on the other hand it's not fair and it's not equitable to permit Texaco and Bass to equilize that drainage effect by the location of a nonstandard well, which necessarily must be approved in order for Bass and Texaco to recover the fair share of hydrocarbons underlying their proration unit.

Likewise, I would comment that this question as to whether or not any well is required is a moot question here. The record in this case is uncontroverted that there are recoverable hydrocarbons in the Morrow formation that remain to be recovered throughout the entire unit, not just the west half, but the entire unit. And the evidence which has been adduced at the hearing shows, I believe, uncontrovertedly also, that there is no reason to believe that a well at the unorthodox location would not and could not efficently and economically drain the reserves from the Morrow to the east portion of the unit.

In support of that conclusion you will recall that the testimony of Mr. Kalteyer was to the effect

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that the principal drainage from the "CM" Well, which is a well which has already had a cumulative of over 8 BCF, has affected the westernmost portion of the unit, not the easternmost portion.

So it seems that good sense and logic mandate that if the purpose of the statutes is to afford the owners of these proration units the right to recover their fair and equitable portion of the hydrocarbons in place, that it would only be possible for that to occur in view of the current active drainage patterns by virtue of production from the "F" and "G" Wells for a direct offset at an unorthodox location to be permitted as proposed.

I think that the evidence is likewise clear that there is no reason geologically or from an engineering standpoint to assign or impose an allowable penalty on the proposed well. The only basis I would presume for the imposition of such a penalty would have to be predicated on the fact of some faulting mechanism in the Morrow stratigraphy or the possibility of some indication of a permeability barrier being present to the east of the proposed unorthodox location.

To the contrary, the uncontroverted evidence by both Bass and by Gulf is that there is no permeability barrier. There is no faulting mechanism. And there is no reason to suspicion that the well at the unortho-

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Phone (505) 455-7409

dox location would not efficiently and economically drain the gas reserves remaining on the east portion of the unit, while at the same time, and possibly more important, afford Bass and Texaco the opportunity to recover their fair and equitable portion of the gas in the western portion of the proration unit where active drainage is now occurring.

On this basis we respectfully submit that the application of Texaco and Bass for an unorthodox location should be approved and full allowable assigned.

MR. RAMEY: Thank you, Mr. Hensley.

Any other statements?

MR. PADILLA: Mr. Chairman, we have received, or the Commission has received a message from Joel Carson, representing Holly Energy, Inc., and I'd like to read that statement into the record, if I may.

MR. RAMEY: Proceed.

MR. PADILLA: Holly Energy, Inc., has recently acquired the unleased acreage in Section 6, Township 21 South, Range 32 East, offsetting the proposed Texaco unorthodox location.

We join Gulf in protesting this unorthodox location unless the Commission takes such action as may be necessary to offset any advantage gained by Texaco.

MR. RAMEY: Anything further in the case? If not, we'll take the case under advisement.

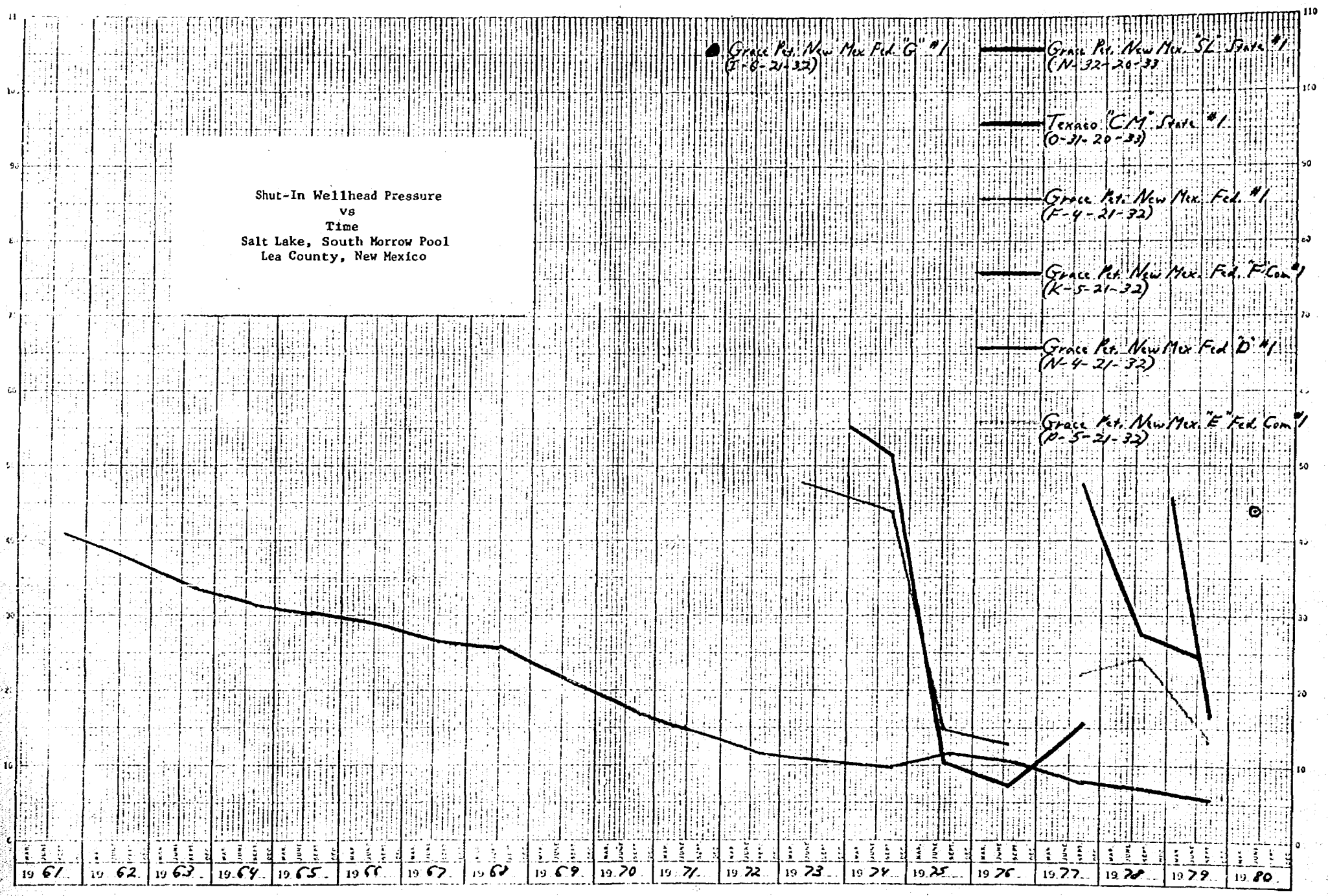
SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

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 Commission was reported by me; that the said transcript is a full, true, and correct record of the hearing, prepared by me to the best of my ability.

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

Shut-In Wellhead Pressure
vs
Time
Salt Lake, South Morrow Pool
Lea County, New Mexico



Ex. #5
Case 6715

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
Conservation Division
P. O. Box 26124
Albuquerque, New Mexico 87125

IN REPLY REFER TO:

EXHIBIT _____

CASE 6715

AUG 2 2 1979

OIL CONSERVATION DIVISION
SANTA FE

Texaco Inc.
P. O. Box 3109
Midland, Texas 79702

Gentlemen:

Your Application for Permit to Drill well No. 1 C. A. Loomis Federal in Lot 7, sec. 5, T. 21 S., R. 32 E., Lea County, New Mexico, lease New Mexico 04229-C, to a depth of 13,665 feet to test the Morrow formation in the Oil Potash area is hereby approved, as amended by stipulations attached to the application.

One copy of the application is returned herewith. Please notify the District Engineer, Geological Survey, Hobbs, New Mexico, in sufficient time for a representative to witness all cementing operations.

Sincerely yours,

(ORIG. SGD.) GENE F. DANIEL

Acting Oil and Gas Supervisor, SRMA

Enclosure

cc: Conservation Manager, Denver
Area Mining Supervisor, Albuquerque (2)
NMOCD, Hobbs (2) (w/2 copies Notice)
Roswell Area Office (2)
Hobbs District Office

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6715 Exhibit No. 6
Submitted by Gulf
Hearing Date May 20 1980

Ex 6

Form 9-331 C
(May 1963)

COPY TO O. G.

SUBMIT IN TRIPLICATE*
(Other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R1425.

30-025-26452

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

5. LEASE DESIGNATION AND SERIAL NO.: NM-04229-C

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: NA

7. UNIT AGREEMENT NAME: Little Eddy Unit 14-08-001-3464

8. FARM OR LEASE NAME: C.A. Loomis-Fed.

9. WELL NO.: 1

10. FIELD AND POOL, OR WILDCAT: South Salt Lake

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: Sec. 5, T-21-S R-32-E

12. COUNTY OR PARISH: Lea | 13. STATE: N. Mex.

1a. TYPE OF WORK: DRILL [X] DEEPEN [ ] PLUG BACK [ ]

b. TYPE OF WELL: OIL WELL [ ] GAS WELL [X] OTHER — SINGLE ZONE [ ] MULTIPLE ZONE [ ]

2. NAME OF OPERATOR: Texaco Inc. c/o D. T. McCreary

3. ADDRESS OF OPERATOR: P. O. Box 3109, Midland, Texas 79702

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*)
At surface: 1980 FNL & 1980 FEL, Sec. 5, T-21-S, R-32-E
At proposed prod. zone: Same

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*: 31 Miles west of Eunice, New Mexico

RECEIVED
JUL 16 1979
U. S. GEOLOGICAL SURVEY
ROSWELL, NEW MEXICO

15. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drlg. unit line, if any)	16. NO. OF ACRES IN LEASE	17. NO. OF ACRES ASSIGNED TO THIS WELL
703'	80	324.96
18. DISTANCE FROM PROPOSED LOCATION* TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT.	**19. PROPOSED DEPTH**	**20. ROTARY OR CABLE TOOLS**
3181'	13,665	Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.): 3152 Gr.

22. APPROX. DATE WORK WILL START*: Aug. 15, 1979

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
17-1/2"	13-3/8" New	48 H-40	600'	* 626 Sx.(200% to Circulate)
11"	8-5/8" New	24-32 K55 & S80	5700'	**2050 Sx.(200% to Circulate
7-7/8"	4-1/2" New	13.5 N-80 SS-95	13665'	***2875 Sx.(200% to 150% to Circulate)

* 626 Sx. Class "C" W/2% $CaCl_2$

** 1850 Sx. LW @ 12.8 PPG W/15 lb. Salt/Sx, 1/4 lb. Flocele & 5 lb. Gilsonite/Sx., followed by 200 Sx. Class "C" W/1/4 lb. flocele and friction reducer and water loss additives.

*** Stage I - 700 Sx. LW Cmt(12.8 PPG) W/1/4 lb. flocele/sx., followed by 475 sx. Class "H" W/1/4 lb. flocele/sx. & FR & WL additives.

Stage II - 1700 Sx. LW (12.8 PPG) W/1/4 lb, flocele and 5 lb. salt/sx.

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout preventer program, if any.

24.

SIGNED [signature] TITLE Ass't. Div. Engineer DATE July 12, 1979

(This space for Federal or State office use)

PERMIT NO. _____ APPROVAL DATE _____

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

*See Instructions On Reverse Side

3. Surface Formation: Quarternary Alluvium

7.

FORMATION TOPS

Depth	Formation	Oil	Gas	Water	Minerals
0					
100'	Ogallala			X	
1500'	Rustler			X	
3375'	Yates				
8370'	Bone Springs	X			
11565'	Wolfcamp	X			
12355'	Strawn	X			
12505'	Atoka	X			
13275'	Morrow Clastics		X		
13455'	Morrow FGIS II Sd		X		
13515'	Morrow FGIS I		X		

10. Blowout Preventer (see Exhibit "A") will be installed after surface pipe is set at 600 feet. Testing frequency every 8 hours.

11.

MUD PROGRAM

Depth	Type	Weight	Viscosity
0 - 600'	Spud Mud	6.6 - 9.0	32-34
600-5700'	Brine	10.0	28-30
5700-11000'	Fresh Water	8.4 - 10.0	28-30
11000 - TD	Gelled-Water	10.0 - 11.5	32-38

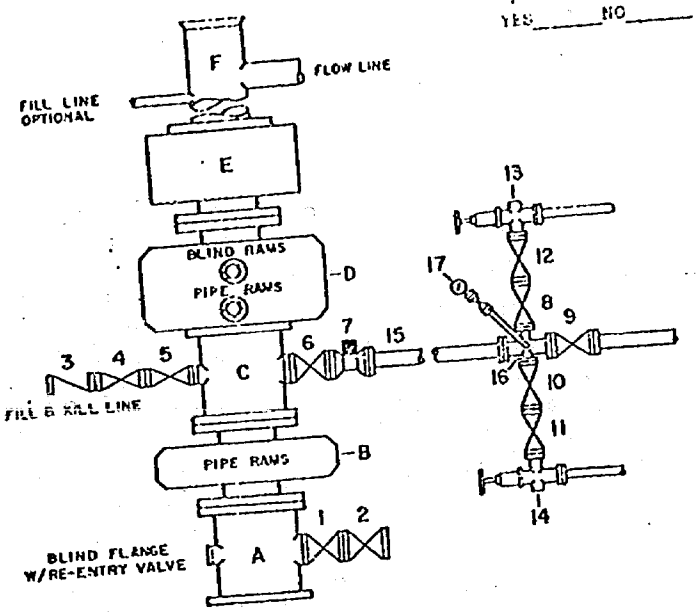
12. This well will test the Morrow FGIS II and Morrow FGIS I. A combination Gamma Ray-Neutron-Density and Dual Induction Lateral Log will be run.

13. No abnormal pressures or temperatures or hazardous gases are anticipated to be encountered in this well.

14. Anticipated starting date will be August 15, 1979.

DRILLING CONTROL
CONDITION IV-5000 PSI WP

H.S TRIM REQUIRED
YES_____NO_____



DRILLING CONTROL

MATERIAL LIST - CONDITION IV

A	Texaco Wellhead
B	5000# Single Ram type preventer, hydraulic operated with 1" steel, 5000# W.P. control lines
C	5000# W.P. Drilling Spool with a minimum 2" flanged outlet for kill line and 3" minimum flanged outlet for choke line.
D	5000# W.P. Dual Ram Type preventer, hydraulic operated with, 1" steel, 5000# W.P. control lines
E	5000# W.P. Annular Preventer, hydraulic operated with 1" steel, 3000# W.P. control lines
F	Bell Nipple with flowline and fill-up outlets (kill line may also be used for fill-up line).
1,2,4,5, 8,10,11, 12	2" minimum 5000# W.P. flanged full opening steel gate valve or Halliburton Lo Torc plug valve
3	2" minimum 5000# W.P. back pressure valve
6,9	3" minimum 5000# W.P. flanged full opening steel gate valve, or Halliburton Lo Torc Plug valve
7	3" minimum 5000# W.P. flanged hydraulic valve
15	3" minimum Schedule 160, Grade B, seamless line pipe
16	2" minimum x 3" minimum 5000# W.P. flanged cross
13,14	2" minimum 5000# W.P. adjustable choke with carbide trim
17	Cameron Mud Gauge or equivalent (location in choke line optional.)

SCALE:	DATE	EST. NO.	DRG. NO.
DRAWN BY			
CHECKED BY			
APPROVED BY			

TEXACO, INC.
PRODUCING DEPARTMENT-U.S. (CENT.)
MIDLAND, TEXAS

EXHIBIT A

ATTACHMENT TO EXHIBITS "A" THRU "J"

1. Use of double blowout preventers is optional to using two single flanged BOPs provided either upper or lower sets of rams may be changed without opening doors on the other compartment. Flanged side outlets of blowout preventers may be utilized in lieu of drilling spools.

2. All BOP units will be hydraulically operated. Ram type preventers must be equipped with stem extensions, universal joints (if needed) and operating wheels. Steel piping to be utilized in hydraulic lines.

3. The contractor will furnish all valves and piping as indicated on the attached sketch for the BOP stack, manifolding and blow off lines except for valves on the casinghead. Valves employed must be acceptable to Texaco as to make and type. Valve and pipe sizes shown must be indicated size or larger.

4. The choke manifold and lines to pits must be supported and anchored adequately. Sufficient working room must be provided for operating the adjustable chokes and valves.

5. The choke manifold must be connected to valves on the BOP stack by conventional flanged piping.

6. Extra sets of rams must be available on location for each size of drill pipe used in the hole.

7. *Minimum operating equipment for the preventers is:

   (a) an air operated pump,

   (b) an accumulator or accumulators equipped to obtain a fluid charge of sufficient volume to close all the hydraulically operated units at the same time with 25 percent reserve, and,

   (c) separate pressurized gas system sufficient to charge the accumulators to the closing pressure of the units one time.

8. *A kelly cock with the pressure rating specified for other BOP equipment on the well must be included in the drill string below the kelly.

Form C-102
Supersedes C-128
Effective 1-1-65

NEW MEXICO OIL CONSERVATION COMMISSION
WELL LOCATION AND ACREAGE DEDICATION PLAT

All distances must be from the outer boundaries of the Section.

Operator: Texaco Inc.		Lease: C. A. Loomis-Federal		Well No.: 1
Unit Letter: G	Section: 5	Township: T-21-S	Range: R-32-E	County: Lea
Actual Footage Location of Well: 1980 feet from the FN line and 1980 feet from the FE line				
Ground Level Elev.: 3652	Producing Formation: Morrow FGIS I & II	Pool: South Salt Lake - Morrow Gas		Dedicated Acreage: 324.96 Acres

1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.

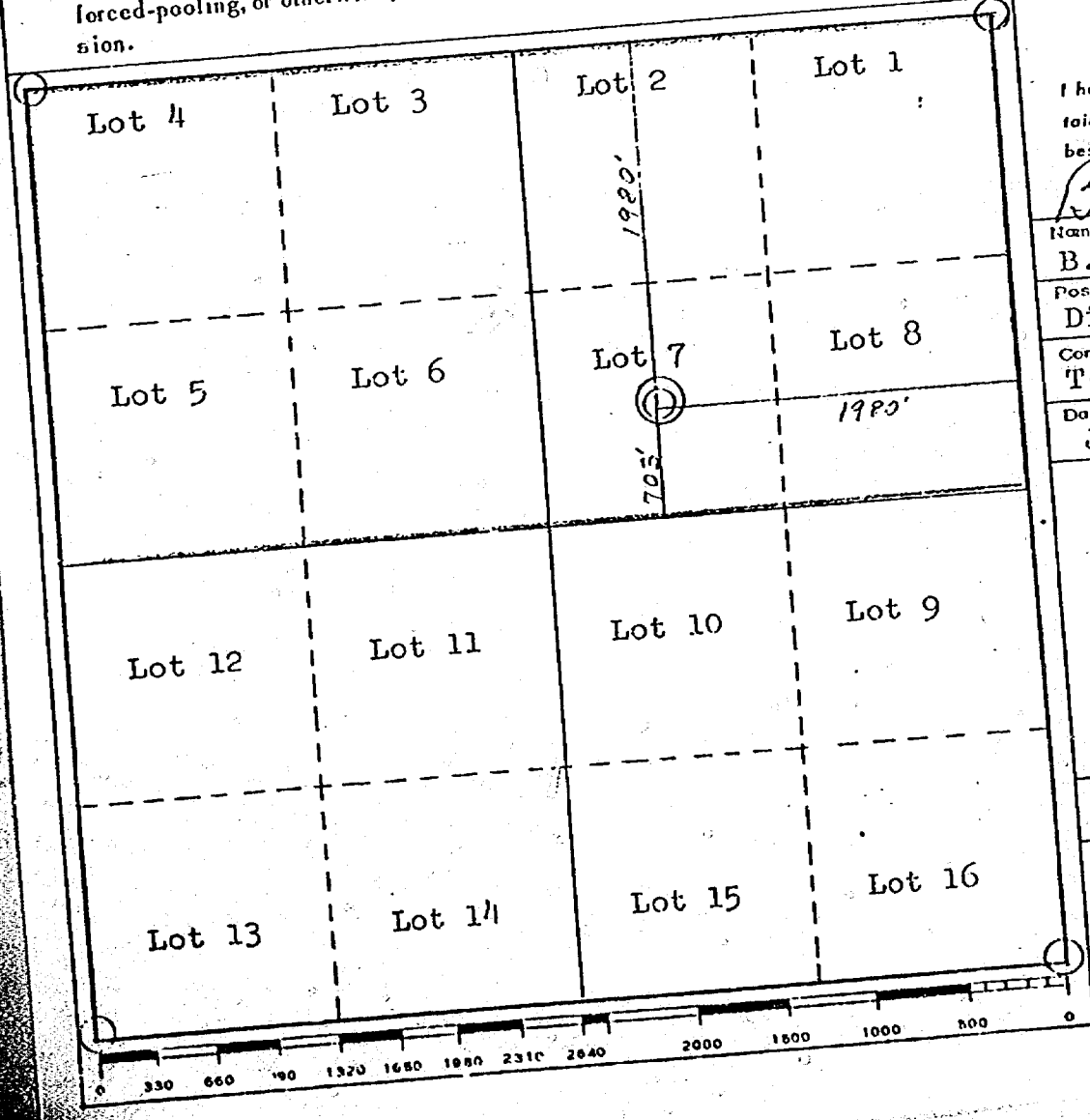
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).

3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling. etc?

[X] Yes [ ] No If answer is "yes," type of consolidation Unitization

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.)

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission.



CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.

B. L. Eiland

Name: B. L. Eiland

Position: Division Surveyor

Company: Texaco Inc.

Date: July 13, 1979

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

July 6, 1979

Date Surveyed

B. L. Eiland

Registered Professional Engineer and/or Land Surveyor

B. L. EILAND

Certificate No. 1386

MULTI-POINT SURFACE USE AND OPERATORS PLAN

TEXACO INC.
C. A. LOOMIS-FEDERAL NO. 1
1980 FNL & 1980 FEL, SEC.5
T-21-S R-32-E LEA COUNTY, NEW MEXICO

This plan is submitted with the Application for Permit to Drill the above described well. The purpose of the plan is to describe the location of the proposed well, the proposed construction activities and operations plan, the magnitude in rehabilitating the surface after completion of the operation so that a complete appraisal can be made of the environmental effects associated with the operation.

1. EXISTING ROADS

A. Exhibit "A" is a portion of topographic map showing the location of the proposed well as staked. This location can be reached from the intersection of U. S. Highway 62 and 180, and State Highway No. 128 (approximately 0.6 mile northeast of Halfway, New Mexico). Proceed east on State Highway 176 for 0.8 mile to a cattle guard, turn right (south) along graded county road for 0.9 mile, turn left (east) on caliche lease road, at 0.3 mile road turns right (south), at 1.3 mile road turns left (east), at 2.3 miles to a point where a new lease road will be built south to the location. Exhibit "B" shows all roads within a one mile radius.

2. PLANNED ACCESS ROAD

A. Length and Width: 2500' of new road will be built. It will be 12' feet wide and surfaced with 6" of caliche, watered, compacted and crowned to allow drainage. This new road is color coded and shown on Exhibit "A". The center line of the proposed new road has been staked and flagged with the flags being visible from any one to the next.

B. Maximum Grade: The new access road is over flat sandy land.

C. Turnouts: One passing turnout will be constructed as shown on Exhibit "B". These turnouts will increase the width of the road to 20 feet for a distance of 30 feet.

D. Drainage Design: 6" of watered and compacted caliche will be used on the new road and the finished surface will be crowned to allow for drainage.

E. Location and Size of Culverts: None will be required.

F. Surface Material: Caliche will be used to surface the new road and well pad.

G. Gates, Cattleguards or Fence Cuts: No gates or cattleguards will be required.

3. LOCATION OF EXISTING WELLS:

All existing wells within a one mile radius are shown on Exhibit "B".

4. LOCATION OF EXISTING AND PROPOSED FACILITIES

A. Location of the well and tank battery located on Texaco's New Mexico "CM" State Lease is shown on Exhibit "B". This lease is a part of the Little Eddy Unit.

B. If the proposed well is completed as a producer, a tank battery (60' x 230') will be built at the southeast corner of the existing well pad. Since the tank battery will be built on the well pad no additional surface will be disturbed and no flow line will be needed.

5. LOCATION AND TYPE OF WATER SUPPLY

Water for drilling this well will be purchased commercially at Arkansas Junction and trucked to the drill site over the route described in Item 1.

6. SOURCE OF CONSTRUCTION MATERIALS

A. Caliche for the road and well pad will be obtained from an existing pit located in Lot 3, Section 4, T-21-S, R-32-E, Lea County, New Mexico.

B. This caliche pit is located on Federal land. The contractor who builds the road and well pad will haul the materials from the pit to the road and well pad on roads as shown in Exhibit "B".

7. METHOD OF HANDLING WASTE DISPOSAL

A. Drilling cuttings will be disposed of in the drilling pits.

B. Drilling fluids will be allowed to evaporate in the drilling pits until they are dry.

C. Water produced during tests will be disposed of in the drilling pits. Oil produced during tests will be stored in test tanks until sold.

D. Current laws and regulations pertaining to the disposal of human wastes will be complied with.

E. Trash, waste paper, garbage and junk will be buried in a separate trash pit and covered with a minimum of 24 inches of dirt. All waste material will be contained to prevent scattering by the wind. Location of trash pit is shown on Exhibit "C".

F. All trash and debris will be removed from the well site within 30 days after finishing drilling and/or completion operations.

8. ANCILLARY FACILITIES

A. None will be required.

9. WELL SITE LAYOUT

A. Exhibit "C" shows the relative location and dimensions of the well pad, mud pits, reserve pit, trash pit and location of major rig components.

B. Only minor leveling will be required. No significant cuts and fills will be necessary.

C. The reserve pit will be plastic lined.

D. The pad and pit area has been staked and flagged.

10. PLANS FOR RESTORATION OF THE SURFACE

A. After completion of drilling and completion operations, all equipment not needed for operations will be removed. Pits will be filled and location cleaned of all trash and junk.

B. Any unguarded pits containing fluids will be fenced until they are filled.

C. After abandonment, any special rehabilitation and/or revegetation requirements of the Surface Management Agency will be complied with and accomplished as expeditiously as possible.

D. Drilling operations on this well will begin on August 15, 1979, and will be completed in 90 days.

11. OTHER INFORMATION

A. Topography: Land surface is very sandy with numerous dunes and slopes to the northwest.

B. Soil: Very sandy.

C. Flora and Fauna: The vegetative cover is mesquite, shinnery oak and perennial native grasses. Wildlife in the area is typical of a semi-arid desert and includes coyotes, rabbits, reptiles.

D. Ponds and Streams: There are no rivers, lakes or ponds in this area.

E. Residences: The nearest ranch house is 1.6 miles west of the location.

F. Land Use: Grazing.

G. Surface Ownership: Wellsite and road is on Federal surface.

12. OPERATOR'S REPRESENTATIVE

The field representative responsible for assuring compliance with the approved surface use and operations plan are as follows:

H. S. Messimer
Box 1065
Eunice, New Mexico
Office 'Phone (505) 394-2585

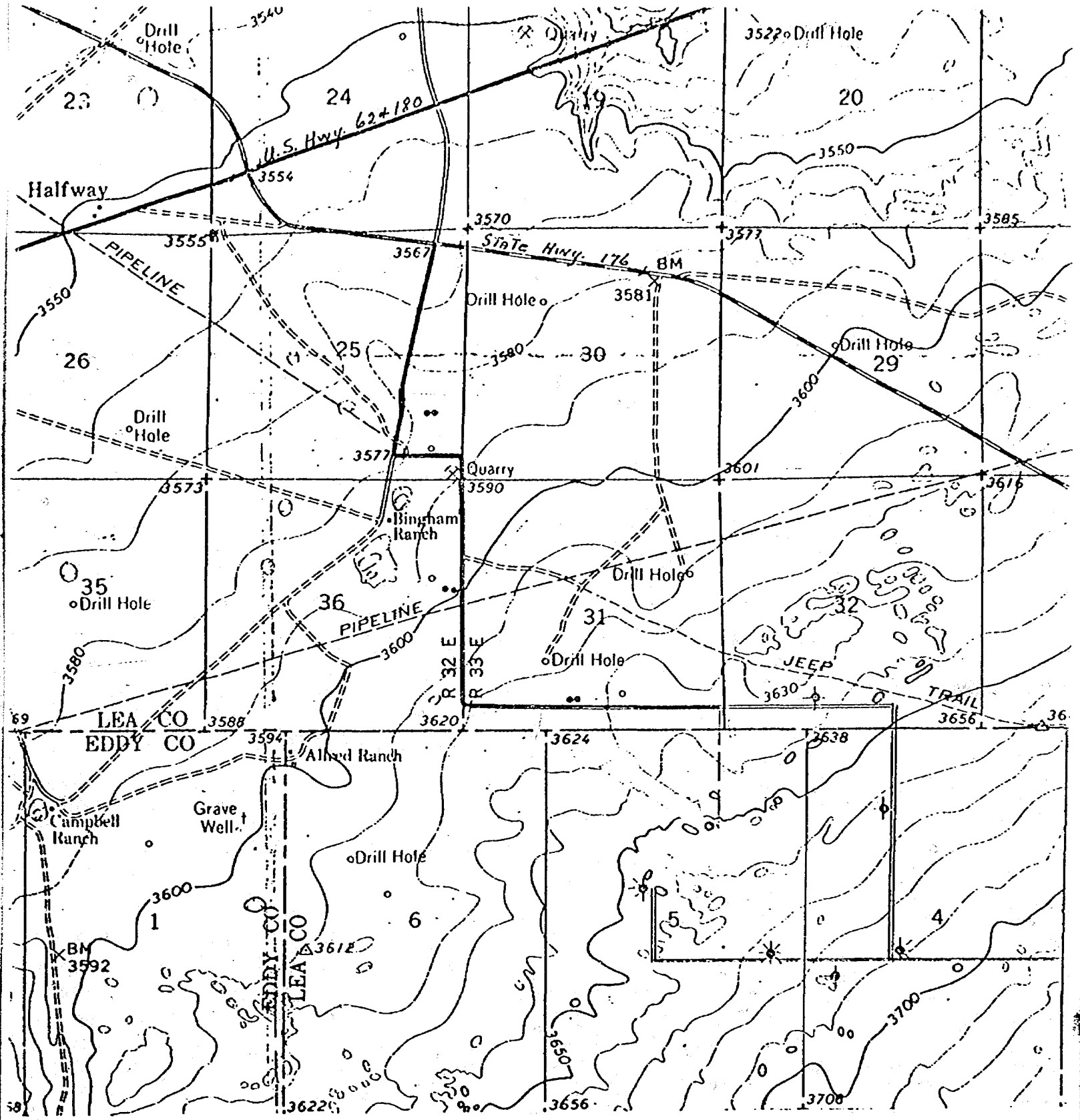
J. A. Schaffer
Box 728
Hobbs, New Mexico
Office 'Phone: (505) 393-7191
Home 'Phone : (505) 392-8387

13. CERTIFICATION

I hereby certify that I, or persons under my direct supervision, have inspected the proposed drillsite and access route; that I am familiar with the conditions which presently exist; that the statements made in this plan are, to the best of my knowledge true and correct; and, that the work associated with the operations proposed herein will be performed by Texaco Inc. and its contractors and subcontractors in conformity with this plan and the terms and conditions under which it is approved.

7-16-79
Date

J. A. Schaffer
Name and Title
Asst. Dist. Supt.



LEGEND

STATE HIGHWAY

GRADED ROAD

NEW LEASE ROAD

EXHIBIT "A"

TEXACO INC.
C. A. LOOMIS-FEDERAL NO. 1
1980 FNL & 1980 FEL, SEC.5
T-21-S R-32-E LEA COUNTY, NEW MEXICO

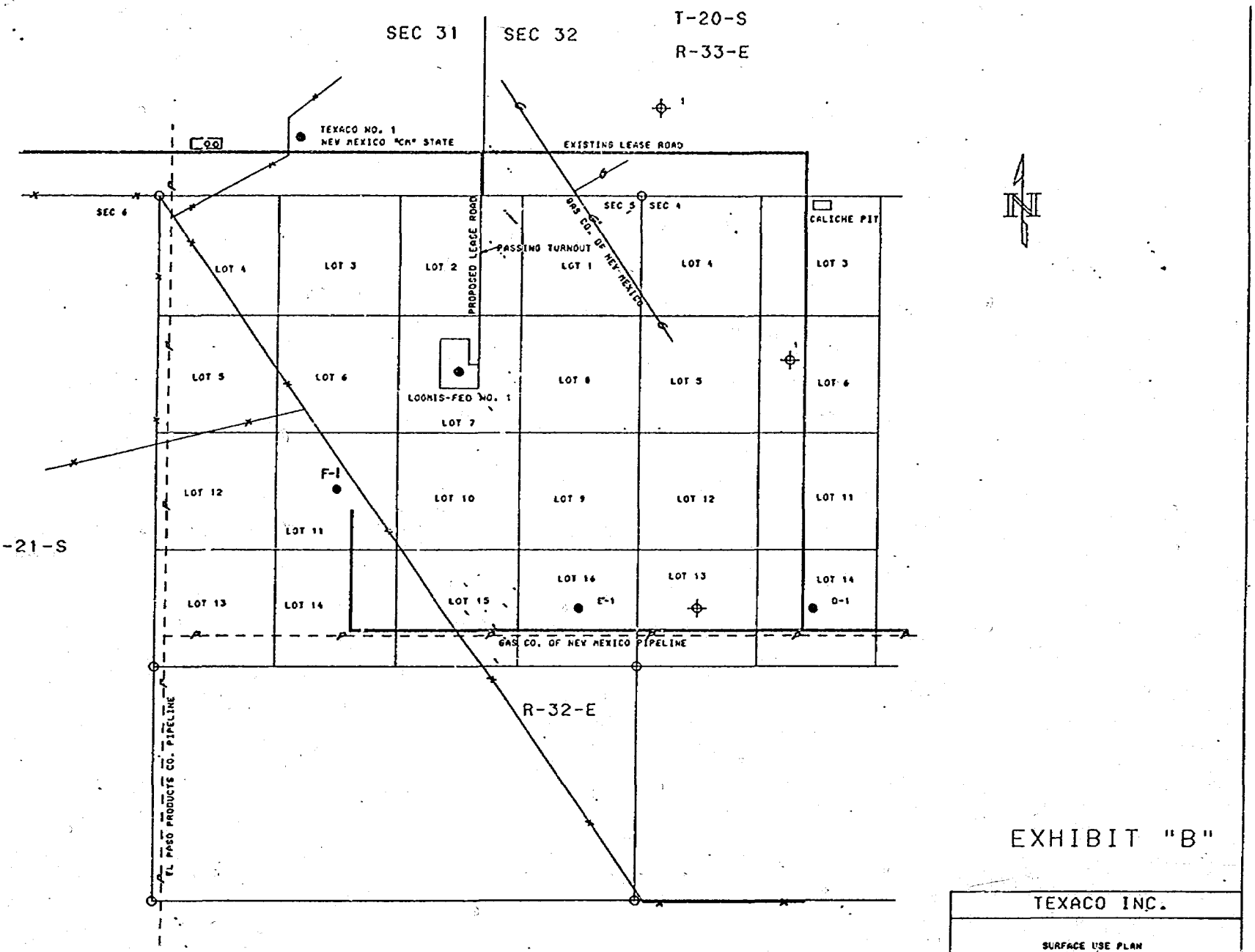
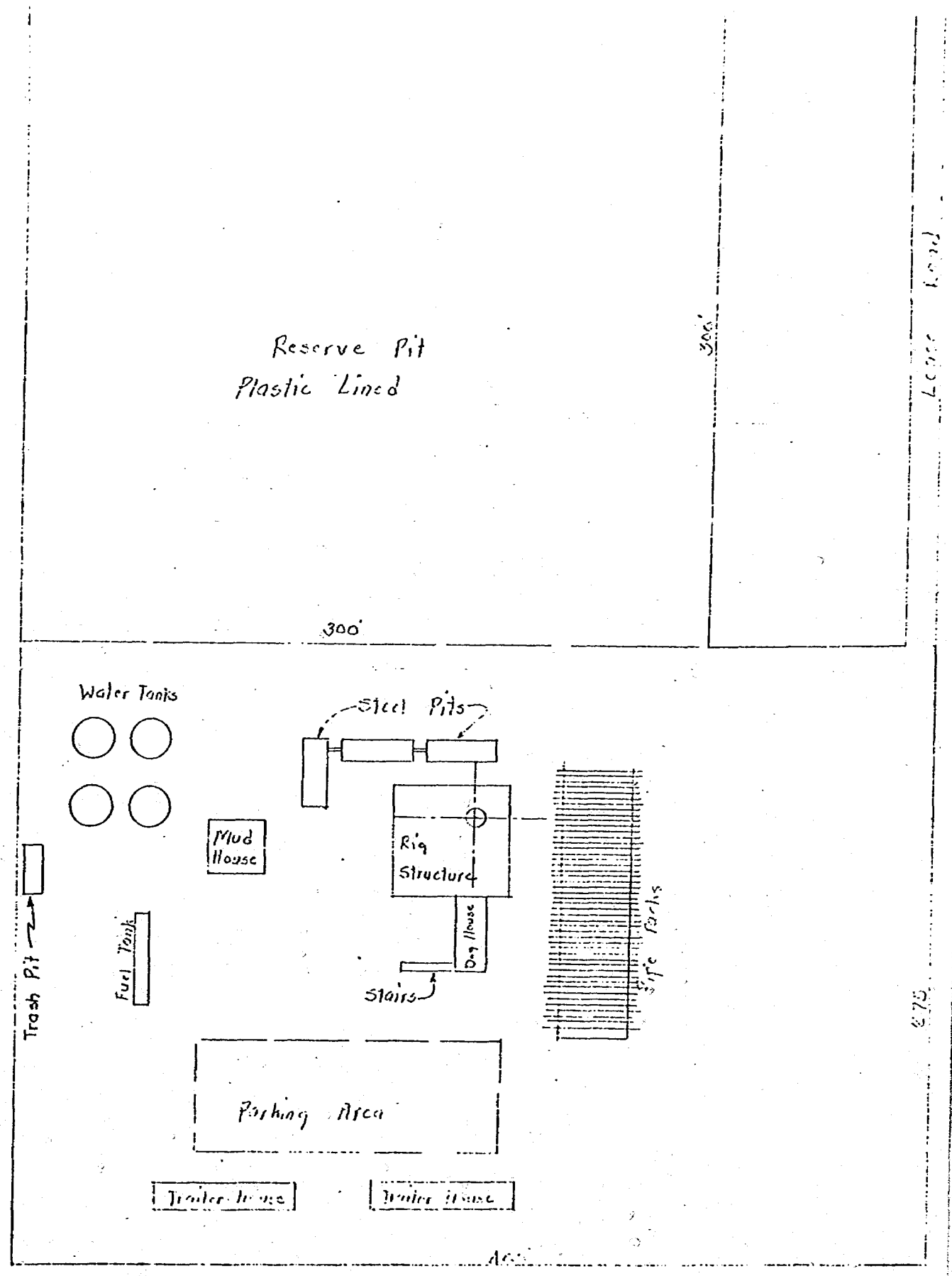


EXHIBIT "B"

TEXACO INC.

SURFACE USE PLAN
C. A. LOOMIS-FEDERAL NO. 1
1980' FNL & 1980' FEL SEC 5
T-21-S R-32-E
LEA COUNTY, NEW MEXICO
SCALE: 1"=1000' 7-10-79


Reserve Pit
Plastic Lined
300'
300'
Water Tanks
Steel Pits
Mud House
Rig Structure
Dog House
Fuel Tank
Trash Pit
Stairs
Fire Racks
Parking Area
Trailer House
Trailer House
675'

Scale 1" = 50'

IN REPLY REFER TO:

EXHIBIT _____

CASE 6715

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
Conservation Division
P. O. Box 26124
Albuquerque, New Mexico 87125

AUG 22 1979

RECEIVED
OIL CONSERVATION DIVISION
SANTA FE

Texaco Inc.
P. O. Box 3109
Midland, Texas 79702

Gentlemen:

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One copy of the application is returned herewith. Please notify the District Engineer, Geological Survey, Hobbs, New Mexico, in sufficient time for a representative to witness all cementing operations.

Sincerely yours,

(ORIG. SGD.) GENE F. DANIEL

Acting Oil and Gas Supervisor, SRMA

Enclosure

cc: Conservation Manager, Denver
Area Mining Supervisor, Albuquerque (2)
NMOCD, Hobbs (2) (w/2 copies Notice)
Roswell Area Office (2)
Hobbs District Office

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6715 Exhibit No. 6
Submitted by Gulf
Hearing Date May 20 1980

Ex 6

Form 9-331 C
(May 1963)

COPY TO O. G. SUBMIT IN TRIPLICATE*
(Other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R1425.

30-025-26452

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. TYPE OF WORK: DRILL ☒ DEEPEN ☐ PLUG BACK ☐

b. TYPE OF WELL: OIL WELL ☐ GAS WELL ☒ OTHER — SINGLE ZONE ☐ MULTIPLE ZONE ☐

2. NAME OF OPERATOR: Texaco Inc. c/o D. T. McCreary

3. ADDRESS OF OPERATOR: P. O. Box 3109, Midland, Texas 79702

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At surface: 1980 FNL & 1980 FEL, Sec. 5, T-21-S, R-32-E
At proposed prod. zone: Same

5. LEASE DESIGNATION AND SERIAL NO.: NM-04229-C

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: NA

7. UNIT AGREEMENT NAME: Little Eddy Unit 14-08-001-3464

8. FARM OR LEASE NAME: C.A. Loomis-Fed.

9. WELL NO.: 1

10. FIELD AND POOL, OR WILDCAT: South Salt Lake

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: Sec. 5, T-21-S R-32-E

12. COUNTY OR PARISH: Lea | 13. STATE: N. Mex.

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*: 31 Miles west of Eunice, New Mexico

RECEIVED
JUL 16 1979
GEOLOGICAL SURVEY
ROSWELL, NEW MEXICO

15. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drlg. unit line, if any)	16. NO. OF ACRES IN LEASE	17. NO. OF ACRES ASSIGNED TO THIS WELL
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3181'	13,665	Rotary

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22. APPROX. DATE WORK WILL START*: Aug. 15, 1979

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17-1/2"	13-3/8" New	48 H-40	600'	* 626 Sx.(200% to Circulate)
11"	8-5/8" New	24-32 K55 & S80	5700'	**2050 Sx.(200% to Circulate
7-7/8"	4-1/2" New	13.5 N-80 SS-95	13665'	***2875 Sx.(200% to 150% to Circulate)

* 626 Sx. Class "C" W/2% $CaCl_2$

** 1850 Sx. LW @ 12.8 PPG W/15 lb. Salt/Sx, 1/4 lb. Flocele & 5 lb. Gilsonite/Sx., followed by 200 Sx. Class "C" W/1/4 lb. flocele and friction reducer and water loss additives.

*** Stage I - 700 Sx. LW Cmt(12.8 PPG) W/1/4 lb. flocele/sx., followed by 475 sx. Class "H" W/1/4 lb. flocele/sx. & FR & WL additives.

Stage II - 1700 Sx. LW (12.8 PPG) W/1/4 lb. flocele and 5 lb. salt/sx.

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout preventer program, if any.

24.

SIGNED [signature] TITLE Ass't. Div. Engineer DATE July 12, 1979

(This space for Federal or State office use)

PERMIT NO. _____ APPROVAL DATE _____

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

*See Instructions On Reverse Side

3. Surface Formation: Quarternary Alluvium

7. FORMATION TOPS

Depth	Formation	Oil	Gas	Water	Minerals
0					
100'	Ogallala			X	
1500'	Rustler			X	
3375'	Yates	X			
8370'	Bone Springs	X			
11565'	Wolfcamp	X			
12355'	Strawn	X			
12505'	Atoka		X		
13275'	Morrow Clastics		X		
13455'	Morrow FGIS II Sd		X		
13515'	Morrow FGIS I				

10. Blowout Preventer (see Exhibit "A") will be installed after surface pipe is set at 600 feet. Testing frequency every 8 hours.

11. MUD PROGRAM

Depth	Type	Weight	Viscosity
0 - 600'	Spud Mud	6.6 - 9.0	32-34
600-5700'	Brine	10.0	28-30
5700-11000'	Fresh Water	8.4 - 10.0	28-30
11000 - TD	Gelled-Water	10.0 - 11.5	32-38

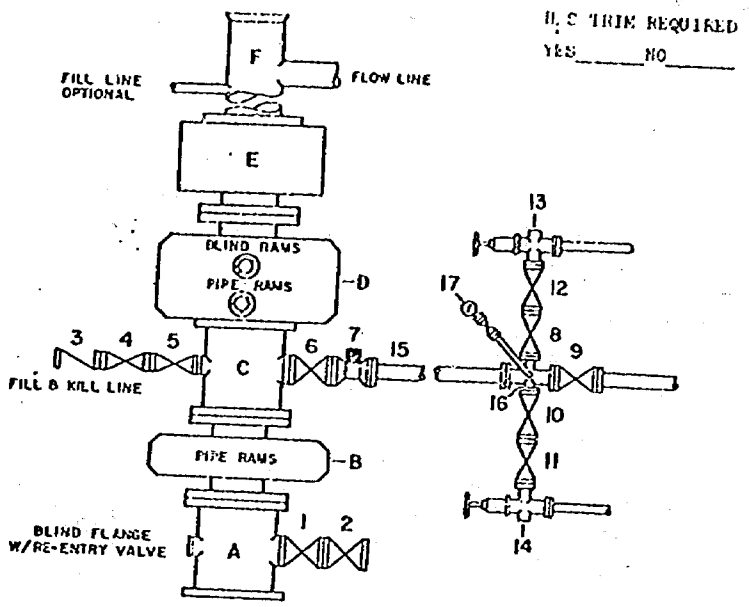
12. This well will test the Morrow FGIS II and Morrow FGIS I. A combination Gamma Ray-Neutron-Density and Dual Induction Lateral Log will be run.

13. No abnormal pressures or temperatures or hazardous gases are anticipated to be encountered in this well.

14. Anticipated starting date will be August 15, 1979.

DRILLING CONTROL
CONDITION IV-5000 PSI WP

H. S TRIM REQUIRED
YES_____NO_____



DRILLING CONTROL

MATERIAL LIST - CONDITION IV

A	Texaco Wellhead
B	5000# Single Ram type preventer, hydraulic operated with 1" steel, 5000# W.P. control lines
C	5000# W.P. Drilling Spool with a minimum 2" flanged outlet for kill line and 3" minimum flanged outlet for choke line.
D	5000# W.P. Dual Ram Type preventer, hydraulic operated with 1" steel, 5000# W.P. control lines
E	5000# W.P. Annular Preventer, hydraulic operated with 1" steel, 3000# W.P. control lines
F	Bell Nipple with flowline and fill-up outlets (kill line may also be used for fill-up line).
1,2,4,5, 8,10,11, 12	2" minimum 5000# W.P. flanged full opening steel gate valve or Halliburton Lo Torc plug valve
3	2" minimum 5000# W.P. back pressure valve
6,9	3" minimum 5000# W.P. flanged full opening steel gate valve, or Halliburton Lo Torc Plug valve
7	3" minimum 5000# W.P. flanged hydraulic valve
15	3" minimum Schedule 160, Grade B, seamless line pipe
16	2" minimum x 3" minimum 5000# W.P. flanged cross
13,14	2" minimum 5000# W.P. adjustable choke with carbide trim
17	Cameron Mud Gauge or equivalent (location in choke line optional.)

SCALE:	DATE	EST. NO.	DRG. NO.
DRAWN BY			
CHECKED BY			
APPROVED BY			

TEXACO, INC.
PRODUCING DEPARTMENT-U.S. (CENT.)
MIDLAND, TEXAS

EXHIBIT A

ATTACHMENT TO EXHIBITS "A" THRU "J"

1. Use of double blowout preventers is optional to using two single flanged BOPs provided either upper or lower sets of rams may be changed without opening doors on the other compartment. Flanged side outlets of blowout preventers may be utilized in lieu of drilling spools.

2. All BOP units will be hydraulically operated. Ram type preventers must be equipped with stem extensions, universal joints (if needed) and operating wheels. Steel piping to be utilized in hydraulic lines.

3. The contractor will furnish all valves and piping as indicated on the attached sketch for the BOP stack, manifolding and blow off lines except for valves on the casinghead. Valves employed must be acceptable to Texaco as to make and type. Valve and pipe sizes shown must be indicated size or larger.

4. The choke manifold and lines to pits must be supported and anchored adequately. Sufficient working room must be provided for operating the adjustable chokes and valves.

5. The choke manifold must be connected to valves on the BOP stack by conventional flanged piping.

6. Extra sets of rams must be available on location for each size of drill pipe used in the hole.

7. *Minimum operating equipment for the preventers is:

   (a) an air operated pump,

   (b) an accumulator or accumulators equipped to obtain a fluid charge of sufficient volume to close all the hydraulically operated units at the same time with 25 percent reserve, and,

   (c) separate pressurized gas system sufficient to charge the accumulators to the closing pressure of the units one time.

8. *A kelly cock with the pressure rating specified for other BOP equipment on the well must be included in the drill string below the kelly.

NEW MEXICO OIL CONSERVATION COMMISSION

WELL LOCATION AND ACREAGE DEDICATION PLAT

Form C-102
Supersedes C-128
Effective 1-1-65

All distances must be from the outer boundaries of the Section.

Operator	Lease	Well No.
Texaco Inc.	C. A. Loomis-Federal	1

Unit Letter	Section	Township	Range	County
G	5	T-21-S	R-32-E	Lea

Actual Footage Location of Well:
1980 feet from the FN line and 1980 feet from the FE line

Ground Level Elev.	Producing Formation	Pool	Dedicated Acreage:
3652	Morrow FGIS I & II	South Salt Lake - Morrow Gas	324.96 Acres

1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.

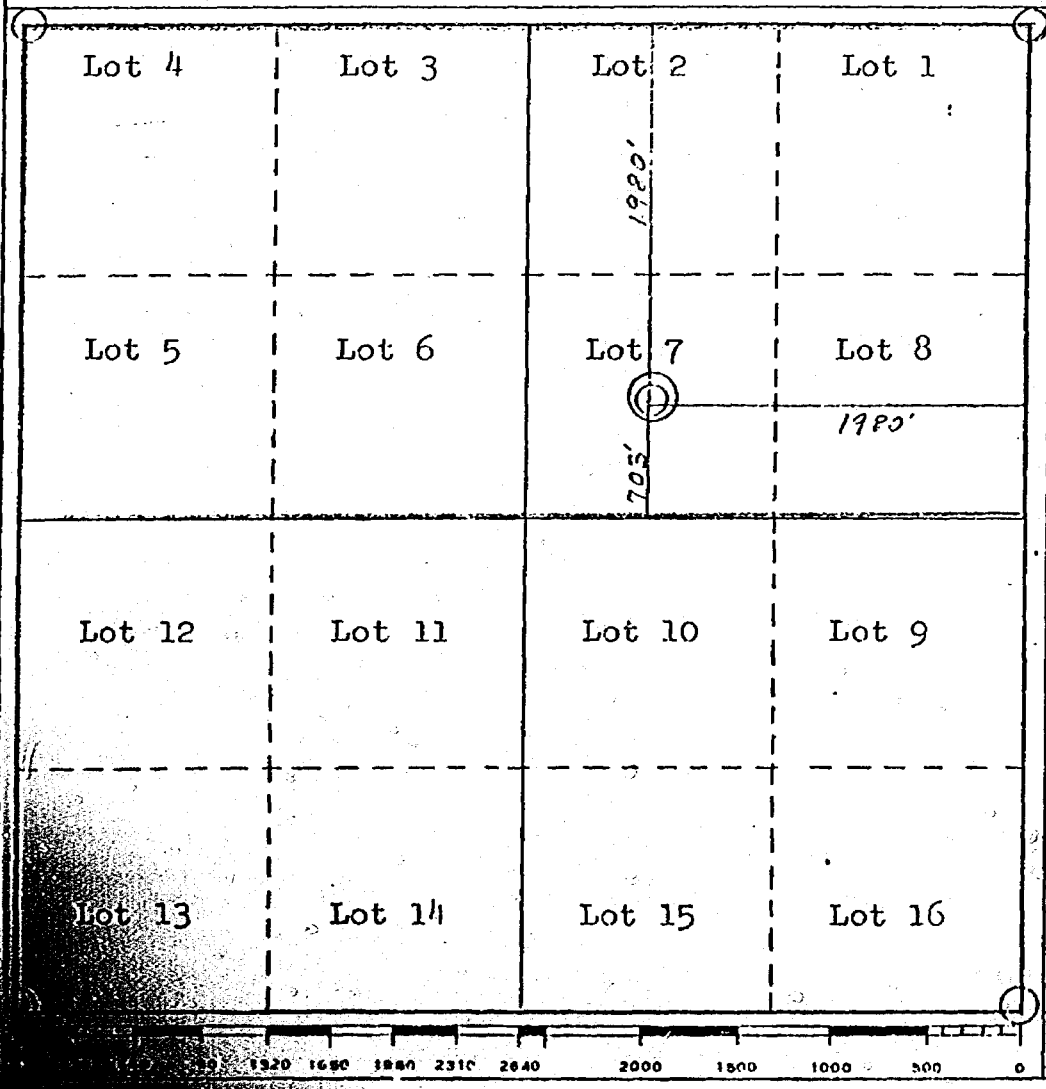
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).

3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling. etc?

[X] Yes [ ] No If answer is "yes," type of consolidation Unitization

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) _____

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission.



CERTIFICATION

I hereby certify that the information contoined herein is true and complete to the best of my knowledge and belief.

B. L. Eiland

Name: B. L. Eiland

Position: Division Surveyor

Company: Texaco Inc.

Date: July 13, 1979

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

July 6, 1979

Date Surveyed

B. L. Eiland

Registered Professional Engineer and/or Land Surveyor

B. L. EILAND

Certificate No. 4386

MULTI-POINT SURFACE USE AND OPERATORS PLAN

TEXACO INC.
C. A. LOOMIS-FEDERAL NO. 1
1980 FNL & 1980 FEL, SEC.5
T-21-S R-32-E LEA COUNTY, NEW MEXICO

This plan is submitted with the Application for Permit to Drill the above described well. The purpose of the plan is to describe the location of the proposed well, the proposed construction activities and operations plan, the magnitude in rehabilitating the surface after completion of the operation so that a complete appraisal can be made of the environmental effects associated with the operation.

1. EXISTING ROADS

A. Exhibit "A" is a portion of topographic map showing the location of the proposed well as staked. This location can be reached from the intersection of U. S. Highway 62 and 180, and State Highway No. 128 (approximately 0.6 mile northeast of Halfway, New Mexico). Proceed east on State Highway 176 for 0.8 mile to a cattle guard, turn right (south) along graded county road for 0.9 mile, turn left (east) on caliche lease road, at 0.3 mile road turns right (south), at 1.3 mile road turns left (east), at 2.3 miles to a point where a new lease road will be built south to the location. Exhibit "B" shows all roads within a one mile radius.

2. PLANNED ACCESS ROAD

A. Length and Width: 2500' of new road will be built. It will be 12' feet wide and surfaced with 6" of caliche, watered, compacted and crowned to allow drainage. This new road is color coded and shown on Exhibit "A". The center line of the proposed new road has been staked and flagged with the flags being visible from any one to the next.

B. Maximum Grade: The new access road is over flat sandy land.

C. Turnouts: One passing turnout will be constructed as shown on Exhibit "B". These turnouts will increase the width of the road to 20 feet for a distance of 30 feet.

D. Drainage Design: 6" of watered and compacted caliche will be used on the new road and the finished surface will be crowned to allow for drainage.

E. Location and Size of Culverts: None will be required.

F. Surface Material: Caliche will be used to surface the new road and well pad.

G. Gates, Cattleguards or Fence Cuts: No gates or cattleguards will be required.

3. LOCATION OF EXISTING WELLS:

All existing wells within a one mile ridius are shown on Exhibit "B".

4. LOCATION OF EXISTING AND PROPOSED FACILITIES

A. Location of the well and tank battery located on Texaco's New Mexico "CH" State Lease is shown on Exhibit "B". This lease is a part of the Little Eddy Unit.

B. If the proposed well is completed as a producer, a tank battery (60' x 230') will be built at the southeast corner of the existing well pad. Since the tank battery will be built on the well pad no additional surface will be disturbed and no flow line will be needed.

5. LOCATION AND TYPE OF WATER SUPPLY

Water for drilling this well will be purchased commercially at Arkansas Junction and trucked to the drill site over the route described in Item 1.

6. SOURCE OF CONSTRUCTION MATERIALS

A. Caliche for the road and well pad will be obtained from an existing pit located in Lot 3, Section 4, T-21-S, R-32-E, Lea County, New Mexico.

B. This caliche pit is located on Federal land. The contractor who builds the road and well pad will haul the materials from the pit to the road and well pad on roads as shown in Exhibit "B".

7. METHOD OF HANDLING WASTE DISPOSAL

A. Drilling cuttings will be disposed of in the drilling pits.

B. Drilling fluids will be allowed to evaporate in the drilling pits until they are dry.

C. Water produced during tests will be disposed of in the drilling pits. Oil produced during tests will be stored in test tanks until sold.

D. Current laws and regulations pertaining to the disposal of human wastes will be complied with.

E. Trash, waste paper, garbage and junk will be buried in a separate trash pit and covered with a minimum of 24 inches of dirt. All waste material will be contained to prevent scattering by the wind. Location of trash pit is shown on Exhibit "C".

F. All trash and debris will be removed from the well site within 30 days after finishing drilling and/or completion operations.

8. ANCILLARY FACILITIES

A. None will be required.

9. WELL SITE LAYOUT

A. Exhibit "C" shows the relative location and dimensions of the well pad, mud pits, reserve pit, trash pit and location of major rig components.

B. Only minor leveling will be required. No significant cuts and fills will be necessary.

C. The reserve pit will be plastic lined.

D. The pad and pit area has been staked and flagged.

10. PLANS FOR RESTORATION OF THE SURFACE

A. After completion of drilling and completion operations, all equipment not needed for operations will be removed. Pits will be filled and location cleaned of all trash and junk.

Any unguarded pits containing fluids will be fenced until they are filled.

After abandonment, any special rehabilitation and/or revegetation requirements of the Surface Management Agency will be complied with and accomplished as expeditiously as possible.

Drilling operations on this well will begin on August 15, [illegible] and will be completed in 90 days.

11. OTHER INFORMATION

A. Topography: Land surface is very sandy with numerous dunes and slopes to the northwest.

B. Soil: Very sandy.

C. Flora and Fauna: The vegetative cover is mesquite, shinnery oak and perennial native grasses. Wildlife in the area is typical of a semi-arid desert and includes coyotes, rabbits, reptiles.

D. Ponds and Streams: There are no rivers, lakes or ponds in this area.

E. Residences: The nearest ranch house is 1.6 miles west of the location.

F. Land Use: Grazing.

G. Surface Ownership: Wellsite and road is on Federal surface.

12. OPERATOR'S REPRESENTATIVE

The field representative responsible for assuring compliance with the approved surface use and operations plan are as follows:

H. S. Messimer
Box 1065
Eunice, New Mexico
Office 'Phone (505) 394-2585

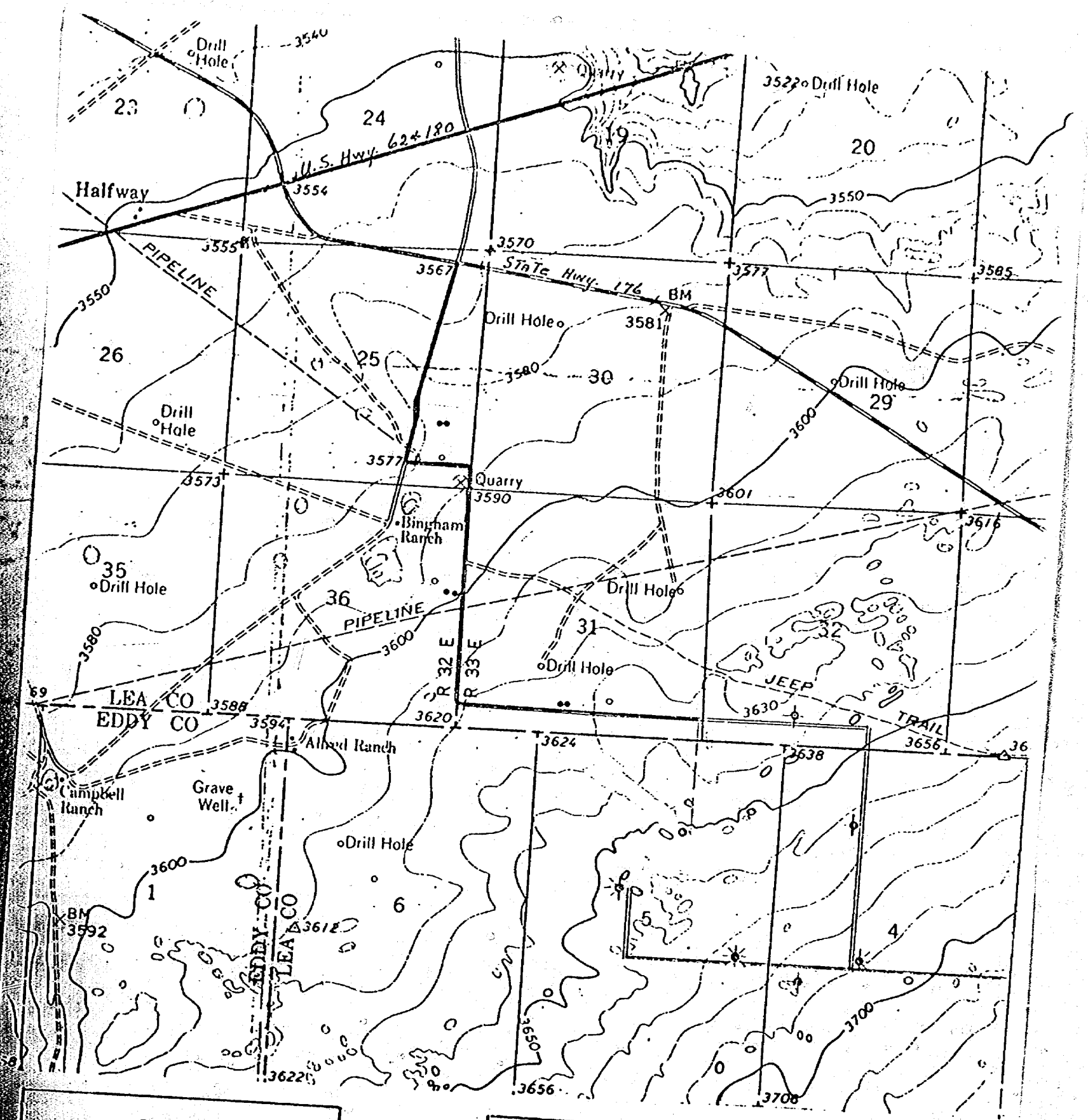
J. A. Schaffer
Box 728
Hobbs, New Mexico
Office 'Phone: (505) 393-7191
Home 'Phone : (505) 392-8387

13. CERTIFICATION

I hereby certify that I, or persons under my direct supervision, have inspected the proposed drillsite and access route; that I am familiar with the conditions which presently exist; that the statements made in this plan are, to the best of my knowledge true and correct; and, that the work associated with the operations proposed herein will be performed by Texaco Inc. and its contractors and subcontractors in conformity with this plan and the terms and conditions under which it is approved.

7-16-79
Date

J. A. Schaffer
Name and Title
Asst. Dist. Supt.



LEGEND

STATE HIGHWAY

GRADED ROAD

NEW LEASE ROAD

EXHIBIT "A"

TEXACO INC.
C. A. LOOMIS-FEDERAL NO. 1
1980 FNL & 1980 FEL, SEC.5
T-21-S R-32-E LEA COUNTY, NEW MEXICO

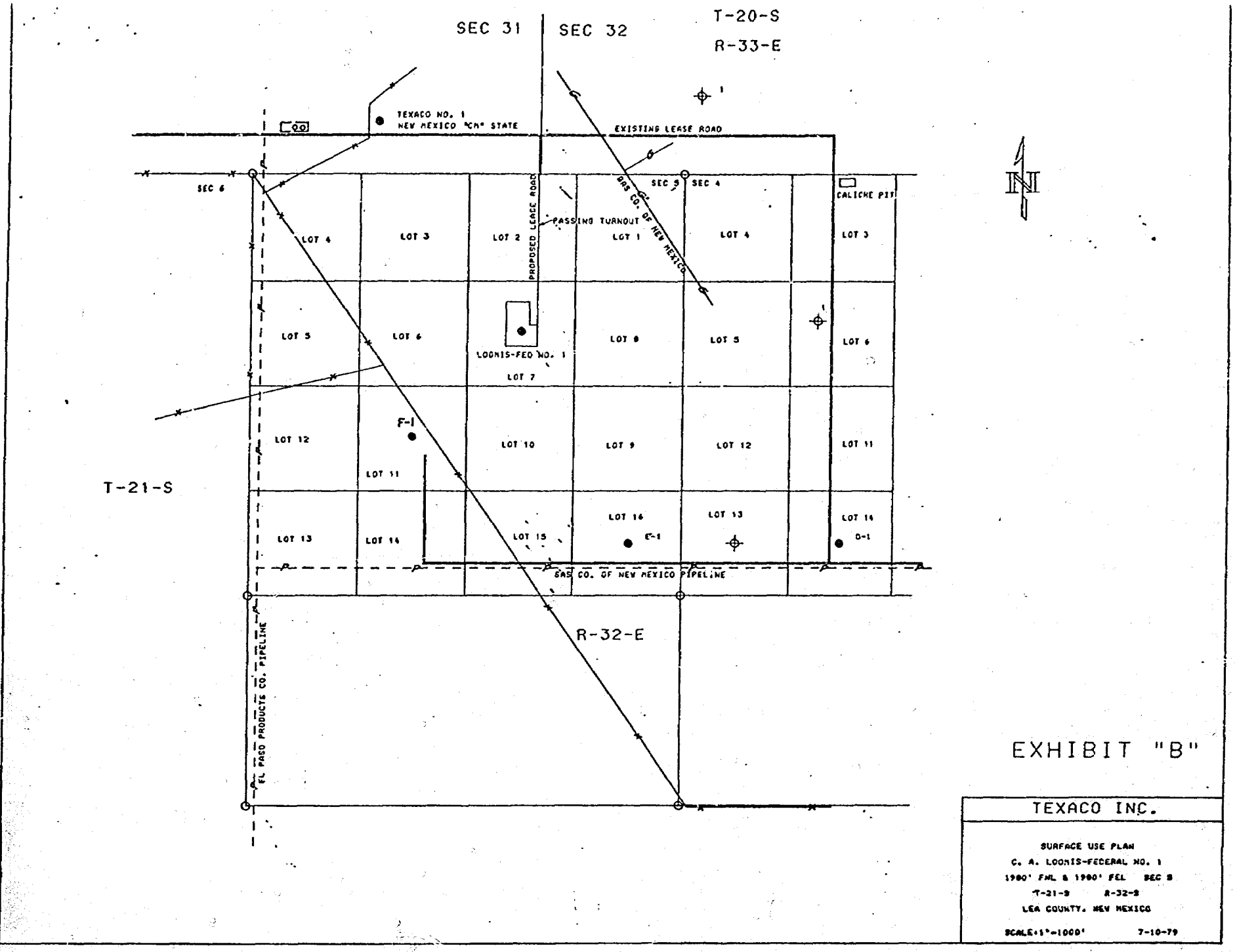


EXHIBIT "B"

TEXACO INC.

SURFACE USE PLAN
C. A. LOOMIS-FEDERAL NO. 1
1980' FNL & 1980' FEL SEC 5
T-21-S R-32-E
LEA COUNTY, NEW MEXICO
SCALE: 1"=1000' 7-10-79

Reserve Pit
Plastic Lined

300'

300'

Lease Road

Water Tanks

Steel Pits

Mud House

Rig Structure

Dog House

Pipe Racks

Fuel Tank

Trash Pit

Stairs

Parking Area

Trailer House

Trailer House

175'

Scale 1" = 50'

GAS PRODUCTION DATA (MCF)
SALT LAKE SOUTH MORROW (GAS) POOL
LEA COUNTY, NEW MEXICO
EXHIBIT C/P
CASE 6715

GULF OIL CORPORATION

	BELCO PETROLEUM		GRACE PETROLEUM CORP. (RIAL OIL COMPANY)			
	Bass 1F3020S33E Llano, El Paso Nat'l	Bass Federal Com. 2P3020S33E Llano, El Paso Nat'l	Federal C 1Q421S32E Gas Co. of N.M.	Federal D 1N421S32E Gas Co. of N.M.	Felmont Federal 1P2520S32E Gas Co. of N.M.	New Mex 1K521S3 Gas Co.
1978						
JAN	90,550	18,019	89,317	30,562		
FEB	78,204	9,930	102,992	40,539		
MAR	90,602	12,480	75,274	56,196		
APR	85,884	13,739	90,085	61,613		
MAY	85,174	8,300	33,851	21,237		
JUNE	76,495	11,930	75,033	49,976		
JULY	83,042	11,197	78,683	58,677		
AUG	93,225	15,441	77,004	51,110		
SEPT	92,323	13,660	76,952	47,840	87,457	
OCT	97,450	13,756	49,422	31,656	149,943	
NOV	89,991	12,472	15,379	3,132	73,080	
DEC	82,108	11,586	110,930	28,541	143.490	
ANNUAL	1,045,048	152,510	874,922	481,079	453,970	
CUMULATIVE	6,078,812	972,855	1,789,080	773,838	453,970	
1979						
JAN	79,326	11,458	114,277	33,739	136,140	
FEB	70,710	8,761	109,209	31,725	126,827	
MAR	88,213	11,989	62,470	30,076	100,275	
APR	83,019	13,201	9,388	14,002	87,489	
MAY	84,398	12,650	10,105	1,695	88,986	
JUNE	74,788	9,433	109,488	8,872	107,075	
JULY	81,833	11,964	107,387	9,948	96,380	
AUG	79,039	6,804	108,644	20,067	95,438	
SEPT	74,460	11,435	76,510	28,658	72,669	

GAS PRODUCTION DATA (MCF)
SALT LAKE SOUTH MORROW (GAS) POOL
LEA COUNTY, NEW MEXICO
EXHIBIT A/F
CASE 6715

GULF OIL CORPORATION

LCO PETROLEUM		GRACE PETROLEUM CORP. (RIAL OIL COMPANY)			
	Bass Federal Com. 2P3020S33E	Federal C 1Q421S32E	Federal D 1N421S32E	Felmont Federal 1P2520S32E	New Mexico Federal F. 1K521S32E
t'l	Llano, El Paso Nat'l	Gas Co. of N.M.	Gas Co. of N.M.	Gas Co. of N.M.	Gas Co. of N.M.
	18,019	89,317	30,562		
	9,930	102,992	40,539		
	12,480	75,274	56,196		
	13,739	90,085	61,613		
	8,300	33,851	21,237		
	11,930	75,033	49,976		
	11,197	78,683	58,677		
	15,441	77,004	51,110		
	13,660	76,952	47,840	87,457	
	13,756	49,422	31,656	149,943	
	12,472	15,379	3,132	73,080	
	11,586	110,930	28,541	143.490	
	152,510	874,922	481,079	453,970	
	972,855	1,789,080	773,838	453,970	
	11,458	114,277	33,739	136,140	48
	8,761	109,209	31,725	126,827	80,001
	11,989	62,470	30,076	100,275	57,259
	13,201	9,388	14,002	87,489	27,845
	12,650	10,105	1,695	88,986	6,162
	9,433	109,488	8,872	107,075	55,894
	11,964	107,387	9,948	96,380	43,271
	6,804	108,644	20,067	95,438	36,133
	11,435	76,510	28,658	72,669	19,126

GAS PRODUCTION DATA (MCF)
SALT LAKE SOUTH MORROW (GAS) POOL
LEA COUNTY, NEW MEXICO
EXHIBIT _____
CASE _____

GULF OIL CORPORATION

	BELCO PETROLEUM		GRACE PETROLEUM CORP. (RIAL OIL COMPANY)			
	Bass 1F3020S33E Llano, El Paso Nat'l	Bass Federal Com. 2P3020S33E Llano, El Paso Nat'l	Federal C 1Q421S32E Gas Co. of N.M.	Federal D 1N421S32E Gas Co. of N.M.	Felmont Federal 1P2520S32E Gas Co. of N.M.	New 1K5 Gas
1979 cont.						
OCT.	76,184	10,428	22,448	34,883	56,857	
NOV.	67,653	10,765	67,101	35,924	58,665	
DEC.	74,570	10,157	89,577	34,515	73,339	
ANNUAL	934,293	129,045	886,604	284,104	1,100,140	
CUMULATIVE	7,013,105	1,101,900	2,675,684	1,057,942	1,554,110	
1980						
JAN	72,171	12,430	67,097	32,638	77,313	
FEB	67,471	9,668	79,530	30,984	68,304	
1980 YEAR TO DATE	139,642	22,098	146,627	63,622	145,617	
Daily Avg. For Feb.	2,326	358	2,840	1,106	2,530	
Cumulative (3-1-80)	7,152,747	1,123,998	2,822,311	1,121,564	1,699,727	

GAS PRODUCTION DATA (MCF)
SALT LAKE SOUTH MORROW (GAS) POOL
LEA COUNTY, NEW MEXICO
EXHIBIT _____
CASE _____

GULF OIL CORPORATION

BELCO PETROLEUM		GRACE PETROLEUM CORP. (RIAL OIL COMPANY)			
	Bass Federal Com. 2P3020S33E	Federal C 1Q421S32E	Federal D 1N421S32E	Felmont Federal 1P2520S32E	New Mexico Federal F. 1K521S32E
Nat'l	Llano, El Paso Nat'l	Gas Co. of N.M.	Gas Co. of N.M.	Gas Co. of N.M.	Gas Co. of N.M.
	10,428	22,448	34,883	56,857	5,688
	10,765	67,101	35,924	58,665	6,630
	10,157	89,577	34,515	73,339	35,753
	129,045	886,604	284,104	1,100,140	373,810
	1,101,900	2,675,684	1,057,942	1,554,110	373,810
	12,430	67,097	32,638	77,313	28,894
	9,668	79,530	30,984	68,304	10,019
	22,098	146,627	63,622	145,617	38,913
	358	2,840	1,106	2,530	557
	1,123,998	2,822,311	1,121,564	1,699,727	412,723

SCARPON-FTW

MAY 14, 1980

HOLLY ENERGY CORP.

DALLAS, TX

TWX 910-861-4938

REFERRENCE: CASE #6715

ORDER #R-6275

UNORTHODOX LOCATION

LOOMIS FEDERAL #1

1600' FNL 660' FWL

N/2, SEC. 5, T21S - R32E

LEA COUNTY, NEW MEXICO

ATTENTION: BILL BOYLES

WE HAVE BEEN ADVISED BY MR. DANIEL GONZALES THAT LOTS 1-7, SEC.6 T-21S - R32E, WERE BOUGHT FOR THE ACCOUNT OF HOLLY ENERGY CORP. AT THE APRIL 15, 1980 BUREAU OF LAND MANAGEMENT LEASE SALE.

THEREFORE WE HEREBY ADVISE HOLLY ENERGY CORP. OF THE HEARING WHICH WILL BE HELD AT 9 A.M. TUESDAY MAY 20, 1980 IN ROOM 205 IN THE STATE LAND OFFICE BUILDING, SANTA FE, NEW MEXICO AT WHICH TIME BASS ENTERPRISES PRODUCTION CO. AND TEXACO, INC. WILL BE SEEKING APPROVAL FOR AN UNORTHODOX LOCATION FOR OUR LOOMIS FEDERAL #1, 1600' FNL AND 660' FWL, SEC. 5, T-21S - R32E, SOUTH SALT LAKE MORROW GAS POOL, N-2 OF SAID SEC 5 SHALL BE THE PRORATION UNIT FOR THE WELL.

THIS CASE WILL BE HEARD DE NOVO PURSUANT TO THE PROVISIONS OF RULE NUMBER 1220.

SINCERLEY,

JENS HANSEN

DIVISION LANDMAN

BASS ENTERPRISES PRODUCTION CO.

3100 FORT WORTH NATIONAL BANK BLDG.

FORT WORTH, TX 76102

TWX 910 893 5009

SCARPON-FTW

HOLLY CORP DAL

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6715 Exhibit No. 4
Submitted by BEPCO
Hearing Date 5-20-80

(2)

United States Department of the Interior

GEOLOGICAL SURVEY
P. O. Box 26124
Albuquerque, New Mexico 87125

LAND
RE... D
APR 09 ...
WAH
JTW
JG
MA
JH

MAR 3 0 1979

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Perry R. Bass
Fort Worth National Bank Building
Fort Worth, Texas 79702

Gentlemen:

Our records show that the Little Eddy unit area, Lea County, New Mexico, is subject to drainage by the Grace Petroleum Corporation No. 1 well located in Lot 11 of sec. 5, T. 21 S., R. 32 E., N.M.P.M. Such well commenced production from the Morrow on January 25, 1979.

Perry R. Bass as unit operator of the Little Eddy unit is hereby requested to advise this office within 30 days, following receipt of this letter, of his plans to protect the Little Eddy unit area from drainage pursuant to Section 18 of the unit agreement.

Sincerely yours,

Gene F. Daniel
GENE F. DANIEL
ACTING Oil and Gas Supervisor, SRMA

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6715 Exhibit No. 2
Submitted by BEPCO
Hearing Date 5-20-80

AMERICAN REVOLUTION BICENTENNIAL 1776-1976

GRACE (CLEARY) 1-Felmount-Fed. 0/8

BELCO PET. 1-Bass-Fed 0/7

GRACE PET. 25 2 Felmont-Fed.

TEXACO 1-Richards ?/11

BELCO PET. 2-Bass-Fed 0/5

30

29

TEXACO 1-"CH"-St. ?/14

36 LITTLE

ATOKA COMPLETION 3.0 BCFG Cum.

31 EDDY UNIT

TEXACO 1-"CM"-St ?/7

ATOKA PERFORATED NO PRODUCTION

GRACE (AMINI) 1-Aztec-Fed.

32 GRACE (AMINI) 1-New Mex. SL-St. 0/12

GRACE (AMINI) 1-NM-Fed 2/8 10%

GRACE (AMINI) 2-NM-Fed

PROPOSED LOCATION

GRACE PET. 1-Mex."G" Fed. 8/11

6 6%-9.5% 8.5%

GRACE (CLEARY) 1-"F" Fed 8/8 10%-17% 13%

5

CLEARY 1-E-Fed. 1/8 7%

5/5 7%-9% 8%

4 GRACE (CLEARY) 1-"D"-Fed

GRACE (CLEARY) 1-"C"-Fed

Shaley

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6715 Exhibit No. 10
Submitted by: BASS
Hearing Date 5-20-80

UNION 1-Halfway-Fed. 0/8

7

8

9

CO.

CO.

LEA

18

-LEGEND-

NEUTRON LOG ONLY

NET POROUS SAND (Feet) (≥6% Ø)
NET TOTAL SAND THICKNESS (Ft.)

POROSITY RANGE
AVERAGE POROSITY

BASS ENTERPRISES PRODUCTION COMPANY

WEST TEXAS DIVISION

SOUTH SALT LAKE FIELD

LEA Co., NEW MEXICO

-ATOKA PAY SAND-

POROSITY MAP

Date 5-16-80	Interp. By L.W.H.	Scale 1" = 2000'
Revised	Drafts. By D.A.C.	By [illegible]

BASS ENTERPRISES PRODUCTION COMPANY

PAGE NO. _____

SUBJECT	DATE	DEPARTMENT	PREPARED BY

Texaco gives 8.5 BCF - Texaco "CM" State No. 1

I.P = 5935 psi @ 13562' mid-pt.

130' pay perforated

Assumed values

S_w = 25%

ϕ = 8%

Rec. Fac = 20%

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6715 Exhibit No. 12
Submitted by BEPCO
Hearing Date 5-20-80

Gas in place = 10,625,000 MCF

Gas in place = $43560\ (\phi)(1-S_w)(B_{gi})\ Ah$

$B_{gi} = 34.61\ p/zT$

Gas Gravity from Hat Mesa : .650

T = 220° F

p = 5935 psi

z = 1.056

B_{gi} = 286.1 SCF/cu.ft.

$$\text{Gas in place} = \frac{43560\ ft^3}{\text{acre ft}}(0.08)(0.75)\left(\frac{286.1\ SCF}{ft^3}\right)$$

$$= 747,633\ \frac{SCF}{\text{acre ft}}$$

BASS ENTERPRISES PRODUCTION COMPANY

PAGE NO. _____

SUBJECT	DATE	DEPARTMENT	PREPARED BY

For wellbore conditions h = 130'

$$A = \frac{10{,}625 \text{ MMSCF}}{0.748 \text{ MMSCF/acre-ft (130 ft)}}$$

$$= 109 \text{ acres}$$

BEFORE
OIL CONSERVATI
Santa Fe, N
Case No. 6715
Submitted by
Hearing Date 5

GAS PRODUCTION DATA (MCF)
SALT LAKE SOUTH MORROW (GAS) POOL
LEA COUNTY, NEW MEXICO
EXHIBIT 4A
CASE 6715

GULF OIL CORPORATION

	BELCO PETROLEUM		GRACE PETROLEUM CORP. (RIAL OIL COMPANY)			
	Bass 1F3020S33E Llano, El Paso Nat'l	Bass Federal Com. 2P3020S33E Llano, El Paso Nat'l	Federal C 1Q421S32E Gas Co. of N.M.	Federal D 1N421S32E Gas Co. of N.M.	Felmont Federal 1P2520S32E Gas Co. of N.M.	New Me 1K521S Gas Co
1978						
JAN	90,550	18,019	89,317	30,562		
FEB	78,204	9,930	102,992	40,539		
MAR	90,602	12,480	75,274	56,196		
APR	85,884	13,739	90,085	61,613		
MAY	85,174	8,300	33,851	21,237		
JUNE	76,495	11,930	75,033	49,976		
JULY	83,042	11,197	78,683	58,677		
AUG	93,225	15,441	77,004	51,110		
SEPT	92,323	13,660	76,952	47,840	87,457	
OCT	97,450	13,756	49,422	31,656	149,943	
NOV	89,991	12,472	15,379	3,132	73,080	
DEC	82,108	11,586	110,930	28,541	143.490	
ANNUAL	1,045,048	152,510	874,922	481,079	453,970	
CUMULATIVE	6,078,812	972,855	1,789,080	773,838	453,970	
1979						
JAN	79,326	11,458	114,277	33,739	136,140	
FEB	70,710	8,761	109,209	31,725	126,827	
MAR	88,213	11,989	62,470	30,076	100,275	
APR	83,019	13,201	9,388	14,002	87,489	
MAY	84,398	12,650	10,105	1,695	88,986	
JUNE	74,788	9,433	109,488	8,872	107,075	
JULY	81,833	11,964	107,387	9,948	96,380	
AUG	79,039	6,804	108,644	20,067	95,438	
SEPT	74,460	11,435	76,510	28,658	72,669	

GAS PRODUCTION DATA (MCF)
SALT LAKE SOUTH MORROW (GAS) POOL
LEA COUNTY, NEW MEXICO
EXHIBIT 4A
CASE 6715

GULF OIL CORPORATION

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6715 Exhibit No. 4A
Submitted by: Gulf
Hearing Date 5-20-80

ELCO PETROLEUM		GRACE PETROLEUM CORP. (RIAL OIL COMPANY)			
	Bass Federal Com.	Federal C	Federal D	Felmont Federal	New Mexico Federal F.
	2P3020S33E	1Q421S32E	1N421S32E	1P2520S32E	1K521S32E
Nat'l	Llano, El Paso Nat'l	Gas Co. of N.M.	Gas Co. of N.M.	Gas Co. of N.M.	Gas Co. of N.M.
	18,019	89,317	30,562		
	9,930	102,992	40,539		
	12,480	75,274	56,196		
	13,739	90,085	61,613		
	8,300	33,851	21,237		
	11,930	75,033	49,976		
	11,197	78,683	58,677		
	15,441	77,004	51,110		
	13,660	76,952	47,840	87,457	
	13,756	49,422	31,656	149,943	
	12,472	15,379	3,132	73,080	
	11,586	110,930	28,541	143.490	
	152,510	874,922	481,079	453,970	
	972,855	1,789,080	773,838	453,970	
	11,458	114,277	33,739	136,140	48
	8,761	109,209	31,725	126,827	80,001
	11,989	62,470	30,076	100,275	57,259
	13,201	9,388	14,002	87,489	27,845
	12,650	10,105	1,695	88,986	6,162
	9,433	109,488	8,872	107,075	55,894
	11,964	107,387	9,948	96,380	43,271
	6,804	108,644	20,067	95,438	36,133
	11,435	76,510	28,658	72,669	19,126

GAS PRODUCTION DATA (MCF)
SALT LAKE SOUTH MORROW (GAS) POOL
LEA COUNTY, NEW MEXICO
EXHIBIT _____
CASE _____

GULF OIL CORPORATION

	BELCO PETROLEUM		GRACE PETROLEUM CORP. (RIAL OIL COMPANY)			
	Bass 1F3020S33E Llano, El Paso Nat'l	Bass Federal Com. 2P3020S33E Llano, El Paso Nat'l	Federal C 1Q421S32E Gas Co. of N.M.	Federal D 1N421S32E Gas Co. of N.M.	Felmont Federal 1P2520S32E Gas Co. of N.M.	New 1K52 Gas
1979 cont.						
OCT.	76,184	10,428	22,448	34,883	56,857	
NOV.	67,653	10,765	67,101	35,924	58,665	
DEC.	74,570	10,157	89,577	34,515	73,339	
ANNUAL	934,293	129,045	886,604	284,104	1,100,140	3
CUMULATIVE	7,013,105	1,101,900	2,675,684	1,057,942	1,554,110	3
1980						
JAN	72,171	12,430	67,097	32,638	77,313	2
FEB	67,471	9,668	79,530	30,984	68,304	1
1980 YEAR TO DATE	139,642	22,098	146,627	63,622	145,617	3
Daily Avg. For Feb.	2,326	358	2,840	1,106	2,530	
Cumulative (3-1-80)	7,152,747	1,123,998	2,822,311	1,121,564	1,699,727	41

GAS PRODUCTION DATA (MCF)
SALT LAKE SOUTH MORROW (GAS) POOL
LEA COUNTY, NEW MEXICO
EXHIBIT _____
CASE _____

GULF OIL CORPORATION

BELCO PETROLEUM		GRACE PETROLEUM CORP. (RIAL OIL COMPANY)			
	Bass Federal Com.	Federal C	Federal D	Felmont Federal	New Mexico Federal F.
	2P3020S33E	1Q421S32E	1N421S32E	1P2520S32E	1K521S32E
so Nat'l	Llano, El Paso Nat'l	Gas Co. of N.M.	Gas Co. of N.M.	Gas Co. of N.M.	Gas Co. of N.M.
	10,428				
	10,765	22,448	34,883	56,857	5,688
	10,157	67,101	35,924	58,665	6,630
		89,577	34,515	73,339	35,753
	129,045	886,604	284,104	1,100,140	373,810
	1,101,900	2,675,684	1,057,942	1,554,110	373,810
	12,430	67,097	32,638	77,313	28,894
	9,668	79,530	30,984	68,304	10,019
	22,098	146,627	63,622	145,617	38,913
	358	2,840	1,106	2,530	557
	1,123,998	2,822,311	1,121,564	1,699,727	412,723

GAS PRODUCTION DATA (MCF)
SALT LAKE, SOUTH MORROW (GAS) POOL
LEA COUNTY, NEW MEXICO
EXHIBIT 4B
CASE 6715
GULF OIL CORPORATION

BEFOR
OIL CONSERVA
Santa Fe,
Case No. 6715
Submitted by
Hearing Date 5

	GRACE PETROLEUM CORPORATION (RIAL OIL COMPANY)			TEXACO INCORPORATED	
	NEW MEXICO A FEDERAL 2G 421S32E Gas Co. of N.M.	NEW MEXICO E FEDERAL COM. 1P 521S32E Gas Co. of N.M.	PUBCO FEDERAL 1L221S32E Gas Co. of N.M.	LITTLE EDDY UNIT AUDIE RICHARDS 1P 2520S32E Texaco	LIT CM 10 Tex
1978					
JAN		57,146	9,894	1,138	
FEB		84,378	8,270	1,482	
MAR		59,052	8,165	-----	
APR		58,869	8,385	609	
MAY		21,430	7,991	245	
JUNE		78,635	7,715	770	
JULY		603	7,691	241	
AUG	34,044	60,632	7,253	599	
SEPT	29,894	62,649	6,550	775	
OCT	22,283	66,432	7,777	-----	
NOV	9,064	64,278	7,641	64	
DEC	22,798	50,045	7,566	----	
ANNUAL	118,083	664,149	94,898	5,923	
CUMULATIVE	118,083	1,035,719	755,557	2,290,735	7
1979					
JAN	19,985	59,007	6,469	----	
FEB	16,938	48,269	6,662	----	
MAR	13,304	48,035	4,948	----	
APR	10,501	41,114	4,875	TA	
MAY	2,554	14,111	1,196	---	
JUNE	18,804	66,367	9,157	----	
JULY	17,336	56,516	6,601	268	
AUG	12,882	51,432	6,657	492	
SEPT	9,912	33,139	5,092	473	
OCT	14,980	15,271	-----	778	

GAS PRODUCTION DATA (MCF)
SALT LAKE, SOUTH MORROW (GAS) POOL
LEA COUNTY, NEW MEXICO
EXHIBIT 4B
CASE 6715
GULF OIL CORPORATION

Before the
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6715 Exhibit No. 4B
Submitted by Gulf
Hearing Date 5-20-80

PETROLEUM CORPORATION (RIAL OIL COMPANY)			TEXACO INCORPORATED	
RAL	NEW MEXICO E FEDERAL COM. 1P 521S32E Gas Co. of N.M.	PUBCO FEDERAL 1L221S32E Gas Co. of N.M.	LITTLE EDDY UNIT AUDIE RICHARDS 1P 2520S32E Texaco	LITTLE EDDY UNIT CM STATE 10 3120S33E Texaco
	57,146	9,894	1,138	27,516
	84,378	8,270	1,482	1,735
	59,052	8,165	-----	12,750
	58,869	8,385	609	28,317
	21,430	7,991	245	34,610
	78,635	7,715	770	33,861
	603	7,691	241	20,461
	60,632	7,253	599	24,854
	62,649	6,550	775	35,138
	66,432	7,777	-----	34,607
	64,278	7,641	64	26,776
	50,045	7,566	----	29,112
	664,149	94,898	5,923	309,737
	1,035,719	755,557	2,290,735	7,313,141
	59,007	6,469	----	12,418
	48,269	6,662	----	28,701
	48,035	4,948	----	21,729
	41,114	4,875	TA	18,205
	14,111	1,196	---	12,259
	66,367	9,157	----	27,025
	56,516	6,601	268	25,291
	51,432	6,657	492	24,812
	33,139	5,092	473	22,652
	15,271	-----	778	7,794

GAS PRODUCTION DATA (MCF)
SALT LAKE, SOUTH MORROW (GAS) POOL
LEA COUNTY, NEW MEXICO
EXHIBIT _____
CASE _____
GULF OIL CORPORATION

	GRACE PETROLEUM CORPORATION (RIAL OIL COMPANY)			TEXACO INCORPORATED
	NEW MEXICO A FEDERAL 2G 421S32E Gas Co. of N.M.	NEW MEXICO E FEDERAL COM. 1P 521S32E Gas Co. of N.M.	PUBCO FEDERAL 1L221S32E Gas Co. of N.M.	LITTLE EDDY UNIT AUDIE RICHARDS 1P 2520S32E Texaco
1979 cont.				
NOV.	12,766	24,852	12,588	2,684
DEC.	10,090	49,633	6,605	3,278
ANNUAL	160,052	507,746	46,513	7,973
CUMULATIVE	278,135	1,543,465	802,070	2,298,708
1980				
JAN.	10,023	45,027	6,376	3,769
FEB.	9,355	40,379	6,167	2,563
1980 YEAR TO DATE	19,378	85,406	12,543	6,332
Daily Average for Feb.	334	1,496	220	88
Cumulative (3-1-80)	297,513	1,628,871	814,613	2,305,040

GAS PRODUCTION DATA (MCF)
SALT LAKE, SOUTH MORROW (GAS) POOL
LEA COUNTY, NEW MEXICO
EXHIBIT _____
CASE _____
GULF OIL CORPORATION

GRACE PETROLEUM CORPORATION (RIAL OIL COMPANY)			TEXACO INCORPORATED	
EXICO A FEDERAL 1S32E o. of N.M.	NEW MEXICO E FEDERAL COM. 1P 521S32E Gas Co. of N.M.	PUBCO FEDERAL 1L221S32E Gas Co. of N.M.	LITTLE EDDY UNIT AUDIE RICHARDS 1P 2520S32E Texaco	LITTLE EDDY UNIT CM STATE 10 3120S33E Texaco
12,766	24,852	12,588	2,684	8,063
10,090	49,633	6,605	3,278	8,355
60,052	507,746	46,513	7,973	217,304
78,135	1,543,465	802,070	2,298,708	7,530,445
10,023	45,027	6,376	3,769	7,345
9,355	40,379	6,167	2,563	6,145
19,378	85,406	12,543	6,332	13,490
334	1,496	220	88	212
97,513	1,628,871	814,613	2,305,040	7,543,935

Shut-In Wellhead Pressure
vs
Time
Salt Lake, South Morrow Pool
Lea County, New Mexico

SIWHP (PSIG)

7000
6000
5000
4000
3000
2000
1000
0

110
100
90
80
70
60
50
40
30
20
10
0

Grace Pet. New Mex Fed. "G" #1 (I-6-21-32)

Grace Pet. New Mex. "SL" State #1 (N-32-20-33)

Texaco "CM" State #1 (O-31-20-33)

Grace Pet. New Mex. Fed. #1 (F-4-21-32)

Grace Pet. New Mex. Fed. "F" Com #1 (K-5-21-32)

Grace Pet. New Mex Fed "D" #1 (N-4-21-32)

Grace Pet. New Mex. "E" Fed. Com #1 (P-5-21-32)

19 61 | 19 62 | 19 63 | 19 64 | 19 65 | 19 66 | 19 67 | 19 68 | 19 69 | 19 70 | 19 71 | 19 72 | 19 73 | 19 74 | 19 75 | 19 76 | 19 77 | 19 78 | 19 79 | 19 80

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6715 Exhibit No. 5
Submitted by Gulf
Hearing Date 5-20-80

IN REPLY REFER TO:

EXHIBIT _____

CASE 6715

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
Conservation Division
P. O. Box 26124
Albuquerque, New Mexico 87125

AUG 22 1979

RECEIVED
OIL CONSERVATION DIVISION
SANTA FE

Texaco Inc.
P. O. Box 3109
Midland, Texas 79702

Gentlemen:

Your Application for Permit to Drill well No. 1 C. A. Loomis Federal in Lot 7, sec. 5, T. 21 S., R. 32 E., Lea County, New Mexico, lease New Mexico 04229-C, to a depth of 13,665 feet to test the Morrow formation in the Oil Potash area is hereby approved, as amended by stipulations attached to the application.

One copy of the application is returned herewith. Please notify the District Engineer, Geological Survey, Hobbs, New Mexico, in sufficient time for a representative to witness all cementing operations.

Sincerely yours,

(ORIG. SGD.) GENE F. DANIEL

Acting Oil and Gas Supervisor, SRMA

Enclosure

cc: Conservation Manager, Denver
Area Mining Supervisor, Albuquerque (2)
NMOCD, Hobbs (2) (w/2 copies Notice)
Roswell Area Office (2)
Hobbs District Office

Ex 6

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6
6715
Submitted by Gulf
Hearing Date May 20, 1980

Form 9-331 C
(May 1963)

COPY TO O. G. SUBMIT IN TRIPLICATE* (Other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R1425.

30-025-26452

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. TYPE OF WORK: DRILL ☒ DEEPEN ☐ PLUG BACK ☐

b. TYPE OF WELL: OIL WELL ☐ GAS WELL ☒ OTHER — SINGLE ZONE ☐ MULTIPLE ZONE ☐

2. NAME OF OPERATOR: Texaco Inc. c/o D. T. McCreary

3. ADDRESS OF OPERATOR: P. O. Box 3109, Midland, Texas 79702

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*)
At surface: 1980 FNL & 1980 FEL, Sec. 5, T-21-S, R-32-E
At proposed prod. zone: Same

5. LEASE DESIGNATION AND SERIAL NO.: NM-04229-C

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: NA

7. UNIT AGREEMENT NAME: Little Eddy Unit 14-08-001-3464

8. FARM OR LEASE NAME: C.A. Loomis-Fed.

9. WELL NO.: 1

10. FIELD AND POOL, OR WILDCAT: South Salt Lake

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: Sec. 5, T-21-S R-32-E

12. COUNTY OR PARISH: Lea 13. STATE: N. Mex.

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*: 31 Miles west of Eunice, New Mexico

15. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drlg. unit line, if any): 703'

16. NO. OF ACRES IN LEASE: 80

17. NO. OF ACRES ASSIGNED TO THIS WELL: 324.96

18. DISTANCE FROM PROPOSED LOCATION* TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT.: 3181'

19. PROPOSED DEPTH: 13,665

20. ROTARY OR CABLE TOOLS: Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.): 3152 Gr.

22. APPROX. DATE WORK WILL START*: Aug. 15, 1979

RECEIVED
JUL 16 1979
U. S. GEOLOGICAL SURVEY
ROSWELL, NEW MEXICO

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
17-1/2"	13-3/8" New	48 H-40	600'	* 626 Sx.(200% to Circulate)
11"	8-5/8" New	24-32 K55 & S80	5700'	**2050 Sx.(200% to Circulate
7-7/8"	4-1/2" New	13.5 N-80 SS-95	13665'	***2875 Sx.(200% to 150% to Circulate)

* 626 Sx. Class "C" W/2% $CaCl_2$

** 1850 Sx. LW @ 12.8 PPG W/15 lb. Salt/Sx, 1/4 lb. Flocele & 5 lb. Gilsonite/Sx., followed by 200 Sx. Class "C" W/1/4 lb. flocele and friction reducer and water loss additives.

*** Stage I - 700 Sx. LW Cmt(12.8 PPG) W/1/4 lb. flocele/sx., followed by 475 sx. Class "H" W/1/4 lb. flocele/sx. & FR & WL additives.

Stage II - 1700 Sx. LW (12.8 PPG) W/1/4 lb, flocele and 5 lb. salt/sx.

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout preventer program, if any.

SIGNED [signature] TITLE Ass't. Div. Engineer DATE July 12, 1979

(This space for Federal or State office use)

PERMIT NO. _____ APPROVAL DATE _____

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

*See Instructions On Reverse Side

3. Surface Formation: Quarternary Alluvium

7. FORMATION TOPS

Depth	Formation	Oil	Gas	Water	Minerals
0					
100'	Ogallala			X	
1500'	Rustler			X	
3375'	Yates	X			
8370'	Bone Springs	X			
11565'	Wolfcamp	X		--	
12355'	Strawn	X			
12505'	Atoka		X		
13275'	Morrow Clastics		X		
13455'	Morrow FGIS II Sd		X		
13515'	Morrow FGIS I				

10. Blowout Preventer (see Exhibit "A") will be installed after surface pipe is set at 600 feet. Testing frequency every 8 hours.

11. MUD PROGRAM

Depth	Type	Weight	Viscosity
0 - 600'	Spud Mud	6.6 - 9.0	32-34
600-5700'	Brine	10.0	28-30
5700-11000'	Fresh Water	8.4 - 10.0	28-30
11000 - TD	Gelled-Water	10.0 - 11.5	32-38

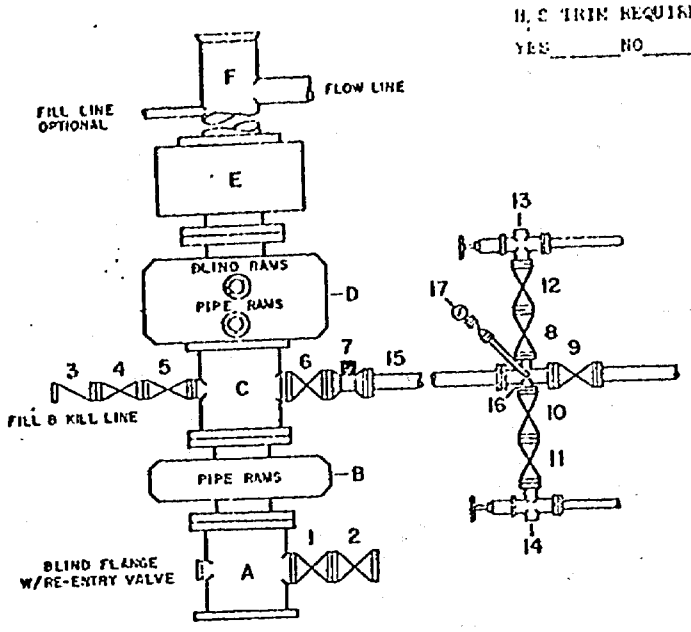
12. This well will test the Morrow FGIS II and Morrow FGIS I. A combination Gamma Ray-Neutron-Density and Dual Induction Lateral Log will be run.

13. No abnormal pressures or temperatures or hazardous gases are anticipated to be encountered in this well.

14. Anticipated starting date will be August 15, 1979.

DRILLING CONTROL
CONDITION IV-5000 PSI WP

H. S TRIM REQUIRED
YES_____NO_____



DRILLING CONTROL

MATERIAL LIST - CONDITION IV

A	Texaco Wellhead
B	5000# Single Ram type preventer, hydraulic operated with 1" steel, 5000# W.P. control lines
C	5000# W.P. Drilling Spool with a minimum 2" flanged outlet for kill line and 3" minimum flanged outlet for choke line.
D	5000# W.P. Dual Ram Type preventer, hydraulic operated with 1" steel, 5000# W.P. control lines
E	5000# W.P. Annular Preventer, hydraulic operated with 1" steel, 3000# W.P. control lines
F	Bell Nipple with flowline and fill-up outlets (kill line may also be used for fill-up line).
1,2,4,5, 8,10,11, 12	2" minimum 5000# W.P. flanged full opening steel gate valve or Halliburton Lo Torc plug valve
3	2" minimum 5000# W.P. back pressure valve
6,9	3" minimum 5000# W.P. flanged full opening steel gate valve, or Halliburton Lo Torc Plug valve
7	3" minimum 5000# W.P. flanged hydraulic valve
15	3" minimum Schedule 160, Grade B, seamless line pipe
16	2" minimum x 3" minimum 5000# W.P. flanged cross
13,14	2" minimum 5000# W.P. adjustable chokes with carbide trim
17	Cameron Ind Gauge or equivalent (location in choke line optional.)

TEXACO, INC.
PRODUCING DEPARTMENT U S (CENT.)
MIDLAND, TEXAS

SCALE:	DATE	EST. NO.	DRG. NO.
DRAWN BY			
CHECKED BY			
APPROVED BY			

EXHIBIT A

ATTACHMENT TO EXHIBITS "A" THRU "J"

1. Use of double blowout preventers is optional to using two single flanged BOPs provided either upper or lower sets of rams may be changed without opening doors on the other compartment. Flanged side outlets of blowout preventers may be utilized in lieu of drilling spools.

2. All BOP units will be hydraulically operated. Ram type preventers must be equipped with stem extensions, universal joints (if needed) and operating wheels. Steel piping to be utilized in hydraulic lines.

3. The contractor will furnish all valves and piping as indicated on the attached sketch for the BOP stack, manifolding and blow off lines except for valves on the casinghead. Valves employed must be acceptable to Texaco as to make and type. Valve and pipe sizes shown must be indicated size or larger.

4. The choke manifold and lines to pits must be supported and anchored adequately. Sufficient working room must be provided for operating the adjustable chokes and valves.

5. The choke manifold must be connected to valves on the BOP stack by conventional flanged piping.

6. Extra sets of rams must be available on location for each size of drill pipe used in the hole.

7. *Minimum operating equipment for the preventers is:

   (a) an air operated pump,

   (b) an accumulator or accumulators equipped to obtain a fluid charge of sufficient volume to close all the hydraulically operated units at the same time with 25 percent reserve, and,

   (c) separate pressurized gas system sufficient to charge the accumulators to the closing pressure of the units one time.

8. *A kelly cock with the pressure rating specified for other BOP equipment on the well must be included in the drill string below the kelly.

NEW MEXICO OIL CONSERVATION COMMISSION

WELL LOCATION AND ACREAGE DEDICATION PLAT

Form C-102
Supersedes C-128
Effective 1-1-65

All distances must be from the outer boundaries of the Section.

Operator	Lease	Well No.
Texaco Inc.	C. A. Loomis-Federal	1

Unit Letter	Section	Township	Range	County
G	5	T-21-S	R-32-E	Lea

Actual Footage Location of Well:
1980 feet from the FN line and 1980 feet from the FE line

Ground Level Elev.	Producing Formation	Pool	Dedicated Acreage:
3652	Morrow FGIS I & II	South Salt Lake - Morrow Gas	324.96 Acres

1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.

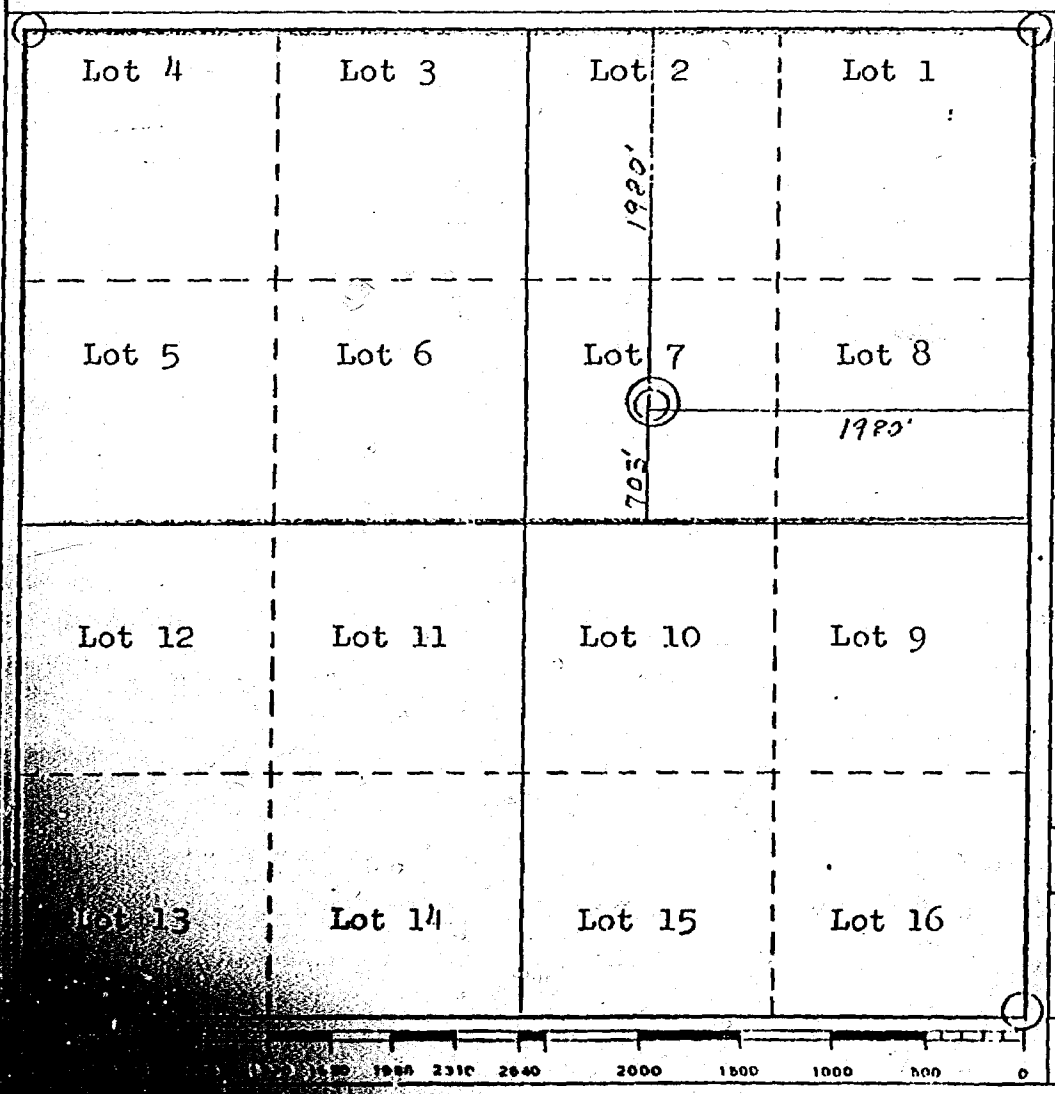
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).

3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling. etc?

[X] Yes [ ] No If answer is "yes," type of consolidation Unitization

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.)_____

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission.



CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.

B. L. Eiland

Name
B. L. Eiland

Position
Division Surveyor

Company
Texaco Inc.

Date
July 13, 1979

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

July 6, 1979

Date Surveyed

B. L. Eiland

Registered Professional Engineer and/or Land Surveyor

B. L. EILAND

Certificate No.
4386

MULTI-POINT SURFACE USE AND OPERATORS PLAN

TEXACO INC.
C. A. LOOMIS-FEDERAL NO. 1
1980 FNL & 1980 FEL, SEC.5
T-21-S R-32-E LEA COUNTY, NEW MEXICO

This plan is submitted with the Application for Permit to Drill the above described well. The purpose of the plan is to describe the location of the proposed well, the proposed construction activities and operations plan, the magnitude in rehabilitating the surface after completion of the operation so that a complete appraisal can be made of the environmental effects associated with the operation.

1. EXISTING ROADS

A. Exhibit "A" is a portion of topographic map showing the location of the proposed well as staked. This location can be reached from the intersection of U. S. Highway 62 and 180, and State Highway No. 128 (approximately 0.6 mile northeast of Halfway, New Mexico). Proceed east on State Highway 176 for 0.8 mile to a cattle guard, turn right (south) along graded county road for 0.9 mile, turn left (east) on caliche lease road, at 0.3 mile road turns right (south), at 1.3 mile road turns left (east), at 2.3 miles to a point where a new lease road will be built south to the location. Exhibit "B" shows all roads within a one mile radius.

2. PLANNED ACCESS ROAD

A. Length and Width: 2500' of new road will be built. It will be 12' feet wide and surfaced with 6" of caliche, watered, compacted and crowned to allow drainage. This new road is color coded and shown on Exhibit "A". The center line of the proposed new road has been staked and flagged with the flags being visible from any one to the next.

B. Maximum Grade: The new access road is over flat sandy land.

C. Turnouts: One passing turnout will be constructed as shown on Exhibit "B". These turnouts will increase the width of the road to 20 feet for a distance of 30 feet.

Drainage Design: 6" of watered and compacted caliche will be used on the new road and the finished surface will be crowned to allow for drainage.

E. Location and Size of Culverts: None will be required.

F. Surface Material: Caliche will be used to surface the new road and well pad.

G. Gates, Cattleguards or Fence Cuts: No gates or cattleguards will be required.

3. LOCATION OF EXISTING WELLS:

All existing wells within a one mile radius are shown on Exhibit "B".

4. LOCATION OF EXISTING AND PROPOSED FACILITIES

A. Location of the well and tank battery located on Texaco's New Mexico "CM" State Lease is shown on Exhibit "B". This lease is a part of the Little Eddy Unit.

B. If the proposed well is completed as a producer, a tank battery (60' x 230') will be built at the southeast corner of the existing well pad. Since the tank battery will be built on the well pad no additional surface will be disturbed and no flow line will be needed.

5. LOCATION AND TYPE OF WATER SUPPLY

Water for drilling this well will be purchased commercially at Arkansas Junction and trucked to the drill site over the route described in Item 1.

6. SOURCE OF CONSTRUCTION MATERIALS

A. Caliche for the road and well pad will be obtained from an existing pit located in Lot 3, Section 4, T-21-S, R-32-E, Lea County, New Mexico.

B. This caliche pit is located on Federal land. The contractor who builds the road and well pad will haul the materials from the pit to the road and well pad on roads as shown in Exhibit "B".

7. METHOD OF HANDLING WASTE DISPOSAL

A. Drilling cuttings will be disposed of in the drilling pits.

B. Drilling fluids will be allowed to evaporate in the drilling pits until they are dry.

C. Water produced during tests will be disposed of in the drilling pits. Oil produced during tests will be stored in test tanks until sold.

D. Current laws and regulations pertaining to the disposal of human wastes will be complied with.

E. Trash, waste paper, garbage and junk will be buried in a separate trash pit and covered with a minimum of 24 inches of dirt. All waste material will be contained to prevent scattering by the wind. Location of trash pit is shown on Exhibit "C".

F. All trash and debris will be removed from the well site within 30 days after finishing drilling and/or completion operations.

8. ANCILLARY FACILITIES

A. None will be required.

9. WELL SITE LAYOUT

A. Exhibit "C" shows the relative location and dimensions of the well pad, mud pits, reserve pit, trash pit and location of major rig components.

B. Only minor leveling will be required. No significant cuts and fills will be necessary.

C. The reserve pit will be plastic lined.

D. The pad and pit area has been staked and flagged.

10. PLANS FOR RESTORATION OF THE SURFACE

A. After completion of drilling and completion operations, all equipment not needed for operations will be removed. Pits will be filled and location cleaned of all trash and junk.

B. Any unguarded pits containing fluids will be fenced until they are filled.

C. After abandonment, any special rehabilitation and/or revegetation requirements of the Surface Management Agency will be complied with and accomplished as expeditiously as possible.

D. Drilling operations on this well will begin on August 15, 1979, and will be completed in 90 days.

11. OTHER INFORMATION

A. Topography: Land surface is very sandy with numerous dunes and slopes to the northwest.

B. Soil: Very sandy.

C. Flora and Fauna: The vegetative cover is mesquite, shinnery oak and perennial native grasses. Wildlife in the area is typical of a semi-arid desert and includes coyotes, rabbits, reptiles.

D. Ponds and Streams: There are no rivers, lakes or ponds in this area.

E. Residences: The nearest ranch house is 1.6 miles west of the location.

F. Land Use: Grazing.

G. Surface Ownership: Wellsite and road is on Federal surface.

12. OPERATOR'S REPRESENTATIVE

The field representative responsible for assuring compliance with the approved surface use and operations plan are as follows:

H. S. Messimer
Box 1065
Eunice, New Mexico
Office 'Phone (505) 394-2585

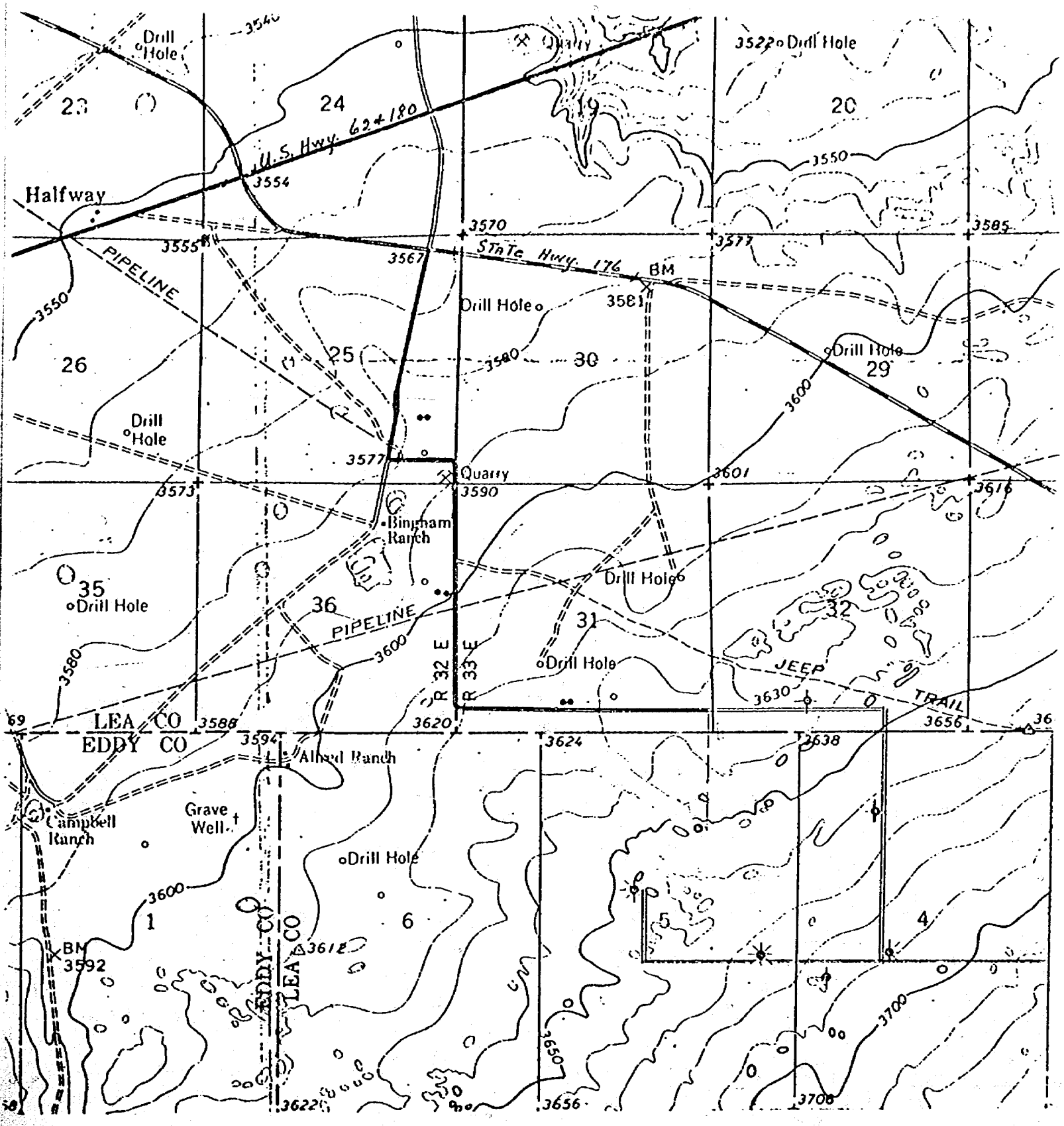
J. A. Schaffer
Box 728
Hobbs, New Mexico
Office 'Phone: (505) 393-7191
Home 'Phone : (505) 392-8387

13. CERTIFICATION

I hereby certify that I, or persons under my direct supervision, have inspected the proposed drillsite and access route; that I am familiar with the conditions which presently exist; that the statements made in this plan are, to the best of my knowledge true and correct; and, that the work associated with the operations proposed herein will be performed by Texaco Inc. and its contractors and subcontractors in conformity with this plan and the terms and conditions under which it is approved.

6.79
Date

J. A. Schaffer
Name and Title
Asst. Dist. Supt.



LEGEND

STATE HIGHWAY

GRADED ROAD

NEW LEASE ROAD

EXHIBIT "A"

TEXACO INC.
C. A. LOOMIS-FEDERAL NO. 1
1980 FNL & 1980 FEL, SEC.5
T-21-S R-32-E LEA COUNTY, NEW MEXICO

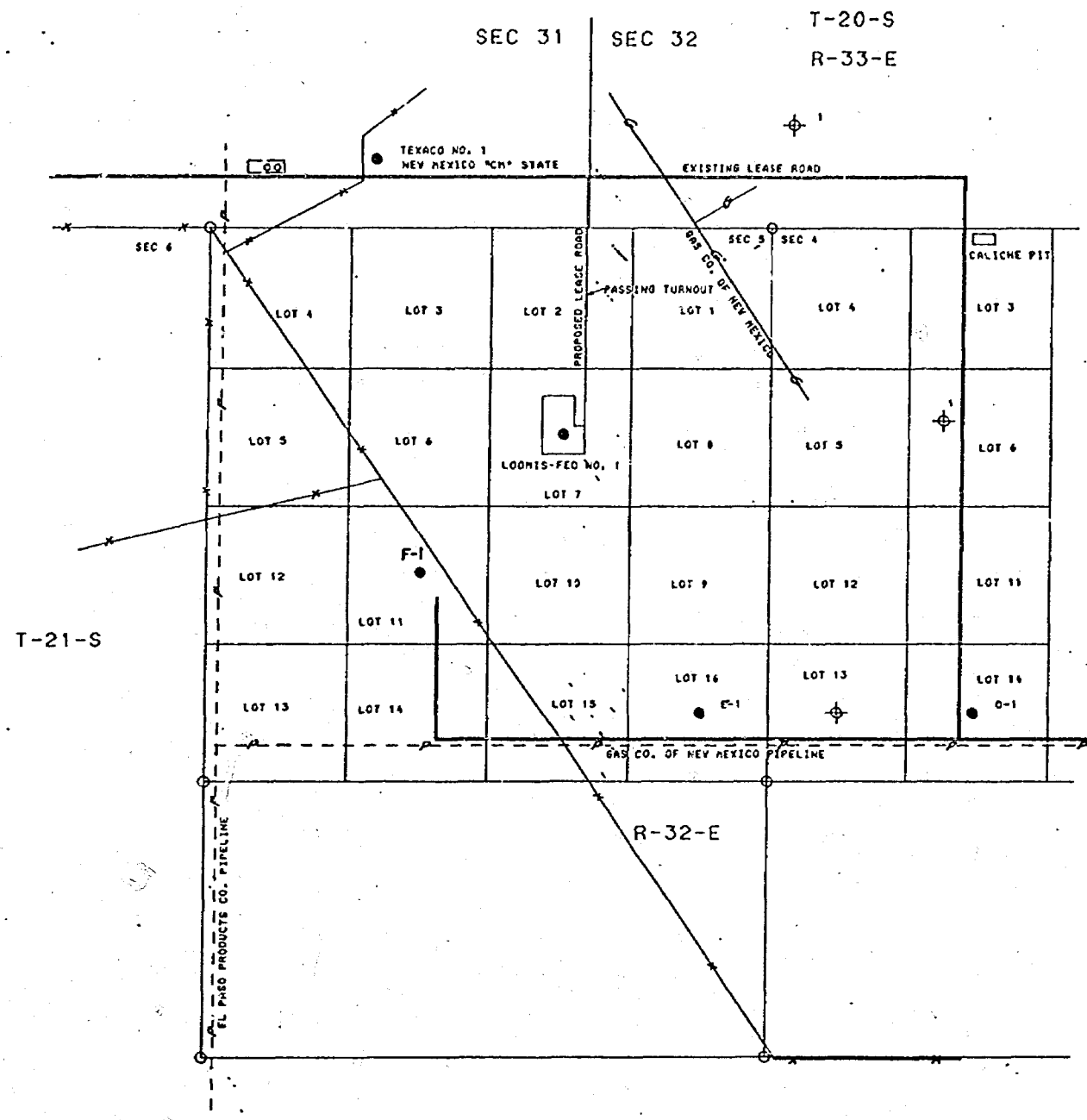


EXHIBIT "B"

TEXACO INC.

SURFACE USE PLAN
C. A. LOOMIS-FEDERAL NO. 1
1980' FNL & 1980' FEL SEC 5
T-21-S R-32-E
LEA COUNTY, NEW MEXICO
SCALE: 1"=1000' 7-10-79

Reserve Pit
Plastic Lined

300'

300'

Lease Road

Water Tanks

Steel Pits

Mud House

Rig Structure

Dog House

Fire Barrels

Fuel Tank

Trash Pit

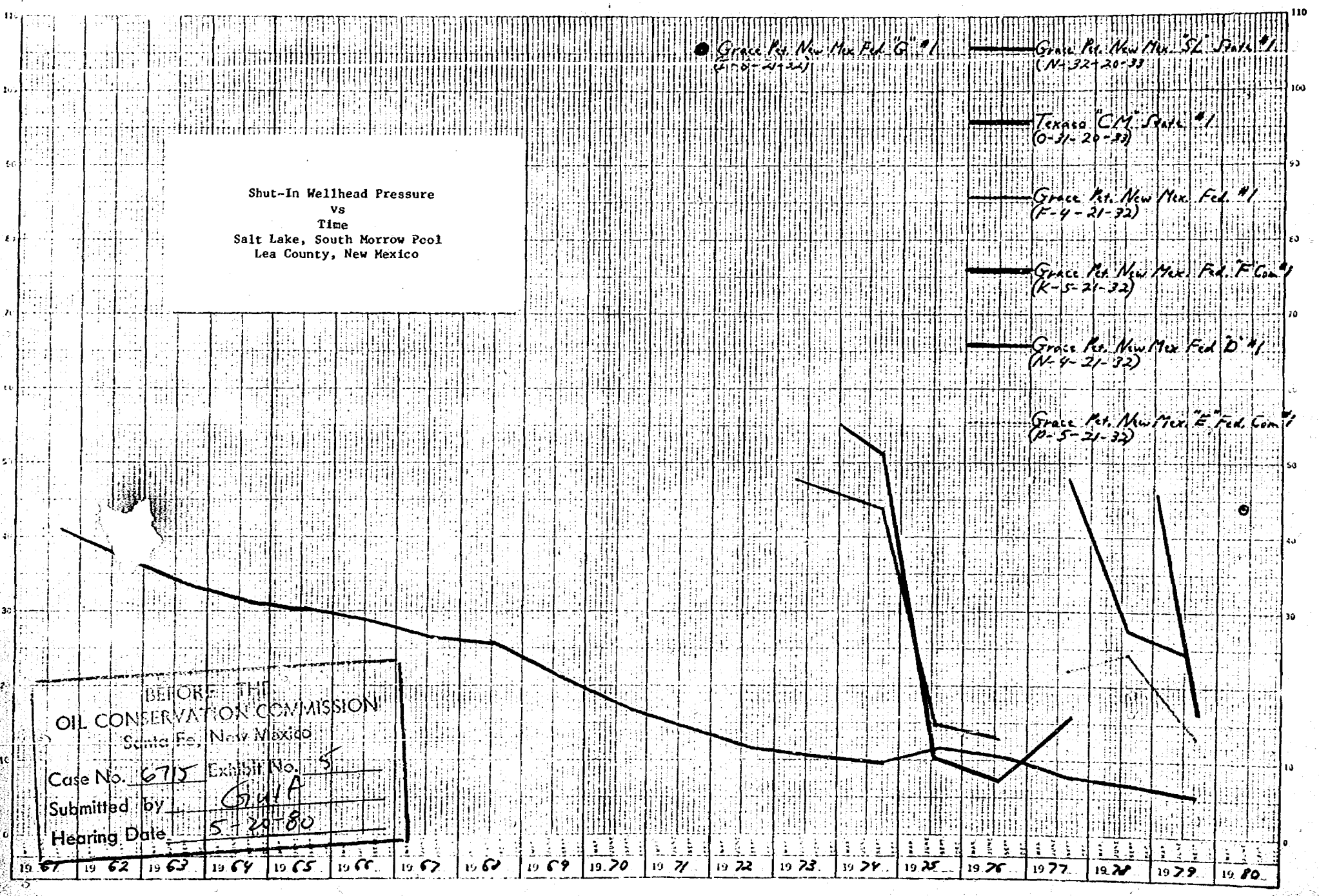
Stairs

Parking Area

Trailer House

Trailer House

Scale 1" = 50'


Shut-In Wellhead Pressure
vs
Time
Salt Lake, South Morrow Pool
Lea County, New Mexico
SIWHP (PSIG)
7000
6000
5000
4000
3000
2000
1000
0
110
100
90
80
70
60
50
40
30
20
10
0
Grace Pet. New Mex Fed. "G" #1 (L-5-21-32)
Grace Pet. New Mex. "SL" State #1 (N-32-20-33)
Texaco "CM" State #1 (O-31-20-33)
Grace Pet. New Mex. Fed. #1 (F-4-21-32)
Grace Pet. New Mex. Fed. "F Com" #1 (K-5-21-32)
Grace Pet. New Mex Fed "D" #1 (N-4-21-32)
Grace Pet. New Mex. "E" Fed. Com #1 (P-5-21-32)
1967
1968
1969
1970
1971
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1976
1977
1978
1979
1980
BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6715 Exhibit No. 5
Submitted by GW+A
Hearing Date 5-28-80

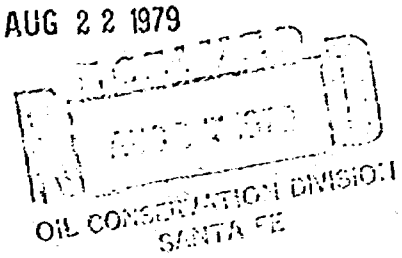
IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
Conservation Division
P. O. Box 26124
Albuquerque, New Mexico 87125

EXHIBIT _____

CASE 6715

AUG 22 1979



Texaco Inc.
P. O. Box 3109
Midland, Texas 79702

Gentlemen:

Your Application for Permit to Drill well No. 1 C. A. Loomis Federal in Lot 7, sec. 5, T. 21 S., R. 32 E., Lea County, New Mexico, lease New Mexico 04229-C, to a depth of 13,665 feet to test the Morrow formation in the Oil Potash area is hereby approved, as amended by stipulations attached to the application.

One copy of the application is returned herewith. Please notify the District Engineer, Geological Survey, Hobbs, New Mexico, in sufficient time for a representative to witness all cementing operations.

Sincerely yours,

(ORIG. SGD.) GENE F. DANIEL

Acting Oil and Gas Supervisor, SRMA

Enclosure

cc: Conservation Manager, Denver
Area Mining Supervisor, Albuquerque (2)
NMOCD, Hobbs (2) (w/2 copies Notice)
Roswell Area Office (2)
Hobbs District Office

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
6715 Exhibit No. 6
Gulf
May 29 1980

Ex 6

Form 9-331 C
(May 1963)

COPY TO O. G. SUBMIT IN TRIPLICATE*
(Other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R1425.

30-025-26452

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. TYPE OF WORK: DRILL ☒ DEEPEN ☐ PLUG BACK ☐

b. TYPE OF WELL: OIL WELL ☐ GAS WELL ☒ OTHER — SINGLE ZONE ☐ MULTIPLE ZONE ☐

2. NAME OF OPERATOR: Texaco Inc. c/o D. T. McCreary

3. ADDRESS OF OPERATOR: P. O. Box 3109, Midland, Texas 79702

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*)
At surface: 1980 FNL & 1980 FEL, Sec. 5, T-21-S, R-32-E
At proposed prod. zone: Same

5. LEASE DESIGNATION AND SERIAL NO.: NM-04229-C

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: NA

7. UNIT AGREEMENT NAME: Little Eddy Unit 14-08-001-3464

8. FARM OR LEASE NAME: C.A. Loomis-Fed.

9. WELL NO.: 1

10. FIELD AND POOL, OR WILDCAT: South Salt Lake

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: Sec. 5, T-21-S, R-32-E

12. COUNTY OR PARISH: Lea 13. STATE: N. Mex.

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*: 31 Miles west of Eunice, New Mexico

RECEIVED
JUL 16 1979
U. S. GEOLOGICAL SURVEY
ROSWELL, NEW MEXICO

15. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drlg. unit line, if any)	16. NO. OF ACRES IN LEASE	17. NO. OF ACRES ASSIGNED TO THIS WELL
703'	80	324.96
18. DISTANCE FROM PROPOSED LOCATION* TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT.	**19. PROPOSED DEPTH**	**20. ROTARY OR CABLE TOOLS**
3181'	13,665	Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.): 3152 Gr.

22. APPROX. DATE WORK WILL START*: Aug. 15, 1979

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
17-1/2"	13-3/8" New	48 H-40	600'	* 626 Sx.(200% to Circulate)
11"	8-5/8" New	24-32 K55 & S80	5700'	**2050 Sx.(200% to Circulate
7-7/8"	4-1/2" New	13.5 N-80 SS-95	13665'	***2875 Sx.(200% to 150% to Circulate)

* 626 Sx. Class "C" W/2% $CaCl_2$

** 1850 Sx. LW @ 12.8 PPG W/15 lb. Salt/Sx, 1/4 lb. Flocele & 5 lb. Gilsonite/Sx., followed by 200 Sx. Class "C" W/1/4 lb. flocele and friction reducer and water loss additives.

*** Stage I - 700 Sx. LW Cmt(12.8 PPG) W/1/4 lb. flocele/sx., followed by 475 sx. Class "H" W/1/4 lb. flocele/sx. & FR & WL additives.

Stage II - 1700 Sx. LW (12.8 PPG) W/1/4 lb, flocele and 5 lb. salt/sx.

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout preventer program, if any.

24.

SIGNED _____ TITLE Ass't. Div. Engineer DATE July 12, 1979

(This space for Federal or State office use)

PERMIT NO. _____ APPROVAL DATE _____

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

*See Instructions On Reverse Side

3. Surface Formation: Quarternary Alluvium

7. FORMATION TOPS

Depth	Formation	Oil	Gas	Water	Minerals
0					
100'	Ogallala			X	
1500'	Rustler			X	
3375'	Yates	X			
8370'	Bone Springs	X			
11565'	Wolfcamp	X			
12355'	Strawn	X			
12505'	Atoka		X		
13275'	Morrow Clastics		X		
13455'	Morrow FGIS II Sd		X		
13515'	Morrow FGIS I				

10. Blowout Preventer (see Exhibit "A") will be installed after surface pipe is set at 600 feet. Testing frequency every 8 hours.

11. MUD PROGRAM

Depth	Type	Weight	Viscosity
0 - 600'	Spud Mud	6.6 - 9.0	32-34
600-5700'	Brine	10.0	28-30
5700-11000'	Fresh Water	8.4 - 10.0	28-30
11000 - TD	Gelled-Water	10.0 - 11.5	32-38

12. This well will test the Morrow FGIS II and Morrow FGIS I. A combination Gamma Ray-Neutron-Density and Dual Induction Lateral Log will be run.

13. No abnormal pressures or temperatures or hazardous gases are anticipated to be encountered in this well.

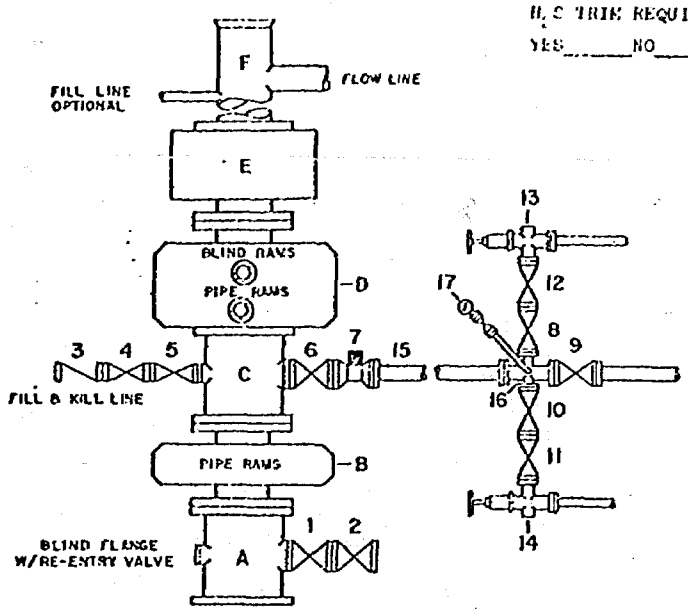
14. Anticipated starting date will be August 15, 1979.

DRILLING CONTROL

CONDITION IV-5000 PSI WP

H, S TRIM REQUIRED

YES_____NO_____



DRILLING CONTROL

MATERIAL LIST - CONDITION IV

A	Texaco Wellhead
B	5000# Single Ram type preventer, hydraulic operated with 1" steel, 5000# W.P. control lines
C	5000# W.P. Drilling Spool with a minimum 2" flanged outlet for kill line and 3" minimum flanged outlet for choke line.
D	5000# W.P. Dual Ram Type preventer, hydraulic operated with 1" steel, 5000# W.P. control lines
E	5000# W.P. Annular Preventer, hydraulic operated with 1" steel, 3000# W.P. control lines
F	Bell Nipple with flowline and fill-up outlets (kill line may also be used for fill-up line).
1,2,4,5, 8,10,11, 12	2" minimum 5000# W.P. flanged full opening steel gate valve or Halliburton lo Torc plug valve
3	2" minimum 5000# W.P. back pressure valve
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15	3" minimum Schedule 160, Grade B, seamless line pipe
16	2" minimum x 3" minimum 5000# W.P. flanged cross
13,14	2" minimum 5000# W.P. adjustable chokes with carbide trim
17	Cameron Mud Gauge or equivalent (location in choke line optional.)

SCALE:	DATE	EST. NO.	DRG. NO.
DRAWN BY			
CHECKED BY			
APPROVED BY			

TEXACO, INC.
PRODUCING DEPARTMENT-U S (CENT.)
MIDLAND, TEXAS

EXHIBIT A

ATTACHMENT TO EXHIBITS "A" THRU "J"

1. Use of double blowout preventers is optional to using two single flanged BOPs provided either upper or lower sets of rams may be changed without opening doors on the other compartment. Flanged side outlets of blowout preventers may be utilized in lieu of drilling spools.

2. All BOP units will be hydraulically operated. Ram type preventers must be equipped with stem extensions, universal joints (if needed) and operating wheels. Steel piping to be utilized in hydraulic lines.

3. The contractor will furnish all valves and piping as indicated on the attached sketch for the BOP stack, manifolding and blow off lines except for valves on the casinghead. Valves employed must be acceptable to Texaco as to make and type. Valve and pipe sizes shown must be indicated size or larger.

4. The choke manifold and lines to pits must be supported and anchored adequately. Sufficient working room must be provided for operating the adjustable chokes and valves.

5. The choke manifold must be connected to valves on the BOP stack by conventional flanged piping.

6. Extra sets of rams must be available on location for each size of drill pipe used in the hole.

7. *Minimum operating equipment for the preventers is:

   (a) an air operated pump,

   (b) an accumulator or accumulators equipped to obtain a fluid charge of sufficient volume to close all the hydraulically operated units at the same time with 25 percent reserve, and,

   (c) separate pressurized gas system sufficient to charge the accumulators to the closing pressure of the units one time.

8. *A kelly cock with the pressure rating specified for other BOP equipment on the well must be included in the drill string below the kelly.

NEW MEXICO OIL CONSERVATION COMMISSION

WELL LOCATION AND ACREAGE DEDICATION PLAT

Form C-102
Supersedes C-128
Effective 1-1-65

All distances must be from the outer boundaries of the Section.

Operator	Lease	Well No.
Texaco Inc.	C. A. Loomis-Federal	1

Unit Letter	Section	Township	Range	County
G	5	T-21-S	R-32-E	Lea

Actual Footage Location of Well:
1980 feet from the FN line and 1980 feet from the FE line

Ground Level Elev.	Producing Formation	Pool	Dedicated Acreage:
3652	Morrow FGIS I & II	South Salt Lake - Morrow Gas	324.96 Acres

1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.

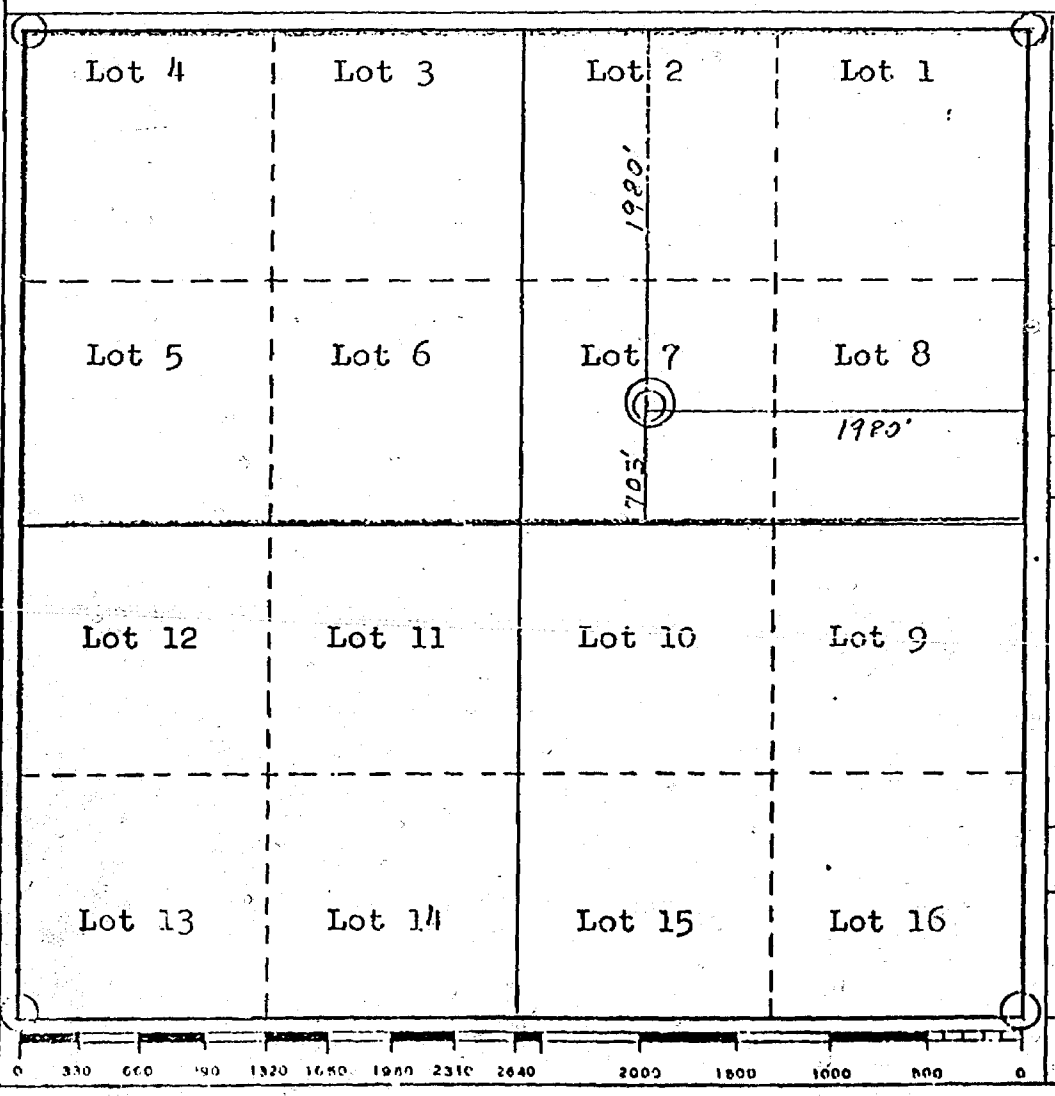
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).

3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling. etc?

[X] Yes [ ] No If answer is "yes," type of consolidation Unitization

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) _____

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission.



CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.

B. L. Eiland

Name: B. L. Eiland

Position: Division Surveyor

Company: Texaco Inc.

Date: July 13, 1979

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

July 6, 1979

Date Surveyed

B. L. Eiland

Registered Professional Engineer and/or Land Surveyor

B. L. EILAND

Certificate No. 4386

MULTI-POINT SURFACE USE AND OPERATORS PLAN

TEXACO INC.
C. A. LOOMIS-FEDERAL NO. 1
1980 FNL & 1980 FEL, SEC.5
T-21-S R-32-E LEA COUNTY, NEW MEXICO

This plan is submitted with the Application for Permit to Drill the above described well. The purpose of the plan is to describe the location of the proposed well, the proposed construction activities and operations plan, the magnitude in rehabilitating the surface after completion of the operation so that a complete appraisal can be made of the environmental effects associated with the operation.

1. EXISTING ROADS

A. Exhibit "A" is a portion of topographic map showing the location of the proposed well as staked. This location can be reached from the intersection of U. S. Highway 62 and 180, and State Highway No. 128 (approximately 0.6 mile northeast of Halfway, New Mexico). Proceed east on State Highway 176 for 0.8 mile to a cattle guard, turn right (south) along graded county road for 0.9 mile, turn left (east) on caliche lease road, at 0.3 mile road turns right (south), at 1.3 mile road turns left (east), at 2.3 miles to a point where a new lease road will be built south to the location. Exhibit "B" shows all roads within a one mile radius.

2. PLANNED ACCESS ROAD

A. Length and Width: 2500' of new road will be built. It will be 12' feet wide and surfaced with 6" of caliche, watered, compacted and crowned to allow drainage. This new road is color coded and shown on Exhibit "A". The center line of the proposed new road has been staked and flagged with the flags being visible from any one to the next.

B. Maximum Grade: The new access road is over flat sandy land.

C. Turnouts: One passing turnout will be constructed as shown on Exhibit "B". These turnouts will increase the width of the road to 20 feet for a distance of 30 feet.

D. Drainage Design: 6" of watered and compacted caliche will be used on the new road and the finished surface will be crowned to allow for drainage.

E. Location and Size of Culverts: None will be required.

F. Surface Material: Caliche will be used to surface the new road and well pad.

G. Gates, Cattleguards or Fence Cuts: No gates or cattleguards will be required.

3. LOCATION OF EXISTING WELLS:

All existing wells within a one mile radius are shown on Exhibit "B".

4. LOCATION OF EXISTING AND PROPOSED FACILITIES

A. Location of the well and tank battery located on Texaco's New Mexico "CM" State Lease is shown on Exhibit "B". This lease is a part of the Little Eddy Unit.

B. If the proposed well is completed as a producer, a tank battery (60' x 230') will be built at the southeast corner of the existing well pad. Since the tank battery will be built on the well pad no additional surface will be disturbed and no flow line will be needed.

5. LOCATION AND TYPE OF WATER SUPPLY

Water for drilling this well will be purchased commercially at Arkansas Junction and trucked to the drill site over the route described in Item 1.

6. SOURCE OF CONSTRUCTION MATERIALS

A. Caliche for the road and well pad will be obtained from an existing pit located in Lot 3, Section 4, T-21-S, R-32-E, Lea County, New Mexico.

B. This caliche pit is located on Federal land. The contractor who builds the road and well pad will haul the materials from the pit to the road and well pad on roads as shown in Exhibit "B".

7. METHOD OF HANDLING WASTE DISPOSAL

A. Drilling cuttings will be disposed of in the drilling pits.

B. Drilling fluids will be allowed to evaporate in the drilling pits until they are dry.

C. Water produced during tests will be disposed of in the drilling pits. Oil produced during tests will be stored in test tanks until sold.

D. Current laws and regulations pertaining to the disposal of human wastes will be complied with.

E. Trash, waste paper, garbage and junk will be buried in a separate trash pit and covered with a minimum of 24 inches of dirt. All waste material will be contained to prevent scattering by the wind. Location of trash pit is shown on Exhibit "C".

F. All trash and debris will be removed from the well site within 30 days after finishing drilling and/or completion operations.

8. ANCILLARY FACILITIES

A. None will be required.

9. WELL SITE LAYOUT

A. Exhibit "C" shows the relative location and dimensions of the well pad, mud pits, reserve pit, trash pit and location of major rig components.

B. Only minor leveling will be required. No significant cuts and fills will be necessary.

C. The reserve pit will be plastic lined.

D. The pad and pit area has been staked and flagged.

10. PLANS FOR RESTORATION OF THE SURFACE

A. After completion of drilling and completion operations, all equipment not needed for operations will be removed. Pits will be filled and location cleaned of all trash and junk.

B. Any unguarded pits containing fluids will be fenced until they are filled.

C. After abandonment, any special rehabilitation and/or revegetation requirements of the Surface Management Agency will be complied with and accomplished as expeditiously as possible.

D. Drilling operations on this well will begin on August 15, 1979, and will be completed in 90 days.

11. OTHER INFORMATION

A. Topography: Land surface is very sandy with numerous dunes and slopes to the northwest.

B. Soil: Very sandy.

C. Flora and Fauna: The vegetative cover is mesquite, shinnery oak and perennial native grasses. Wildlife in the area is typical of a semi-arid desert and includes coyotes, rabbits, reptiles.

D. Ponds and Streams: There are no rivers, lakes or ponds in this area.

E. Residences: The nearest ranch house is 1.6 miles west of the location.

F. Land Use: Grazing.

G. Surface Ownership: Wellsite and road is on Federal surface.

12. OPERATOR'S REPRESENTATIVE

The field representative responsible for assuring compliance with the approved surface use and operations plan are as follows:

H. S. Messimer
Box 1065
Eunice, New Mexico
Office 'Phone (505) 394-2585

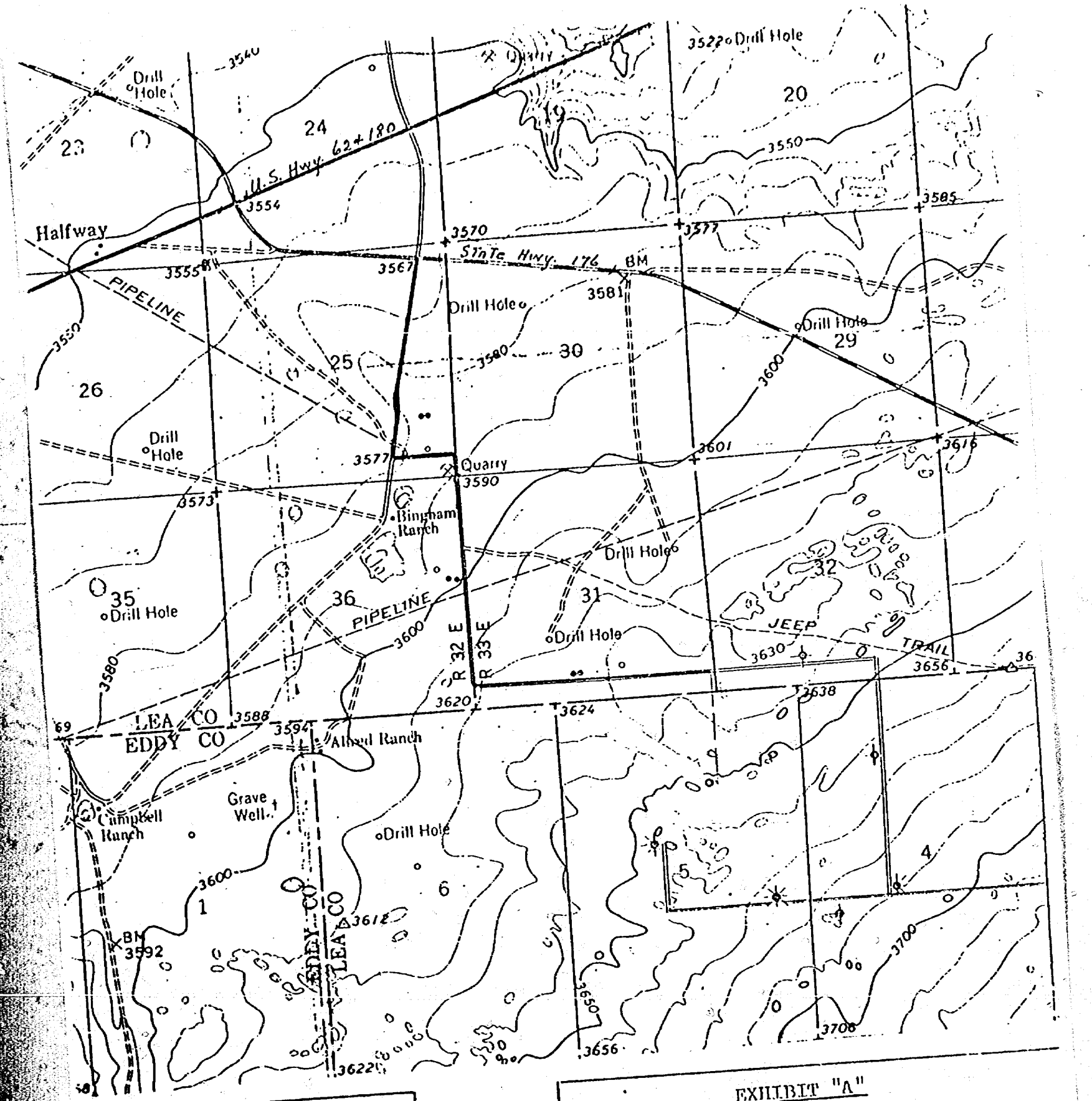
J. A. Schaffer
Box 728
Hobbs, New Mexico
Office 'Phone: (505) 393-7191
Home 'Phone : (505) 392-8387

13. CERTIFICATION

I hereby certify that I, or persons under my direct supervision, have inspected the proposed drillsite and access route; that I am familiar with the conditions which presently exist; that the statements made in this plan are, to the best of my knowledge true and correct; and, that the work associated with the operations proposed herein will be performed by Texaco Inc. and its contractors and subcontractors in conformity with this plan and the terms and conditions under which it is approved.

7-16-79
Date

J. A. Schaffer
Name and Title
Asst. Dist. Supt.



LEGEND

STATE HIGHWAY

GRADED ROAD

NEW LEASE ROAD

EXHIBIT "A"

TEXACO INC.
C. A. LOOMIS-FEDERAL NO. 1
1980 FNL & 1980 FEL, SEC.5
T-21-S R-32-E LEA COUNTY, NEW MEXICO

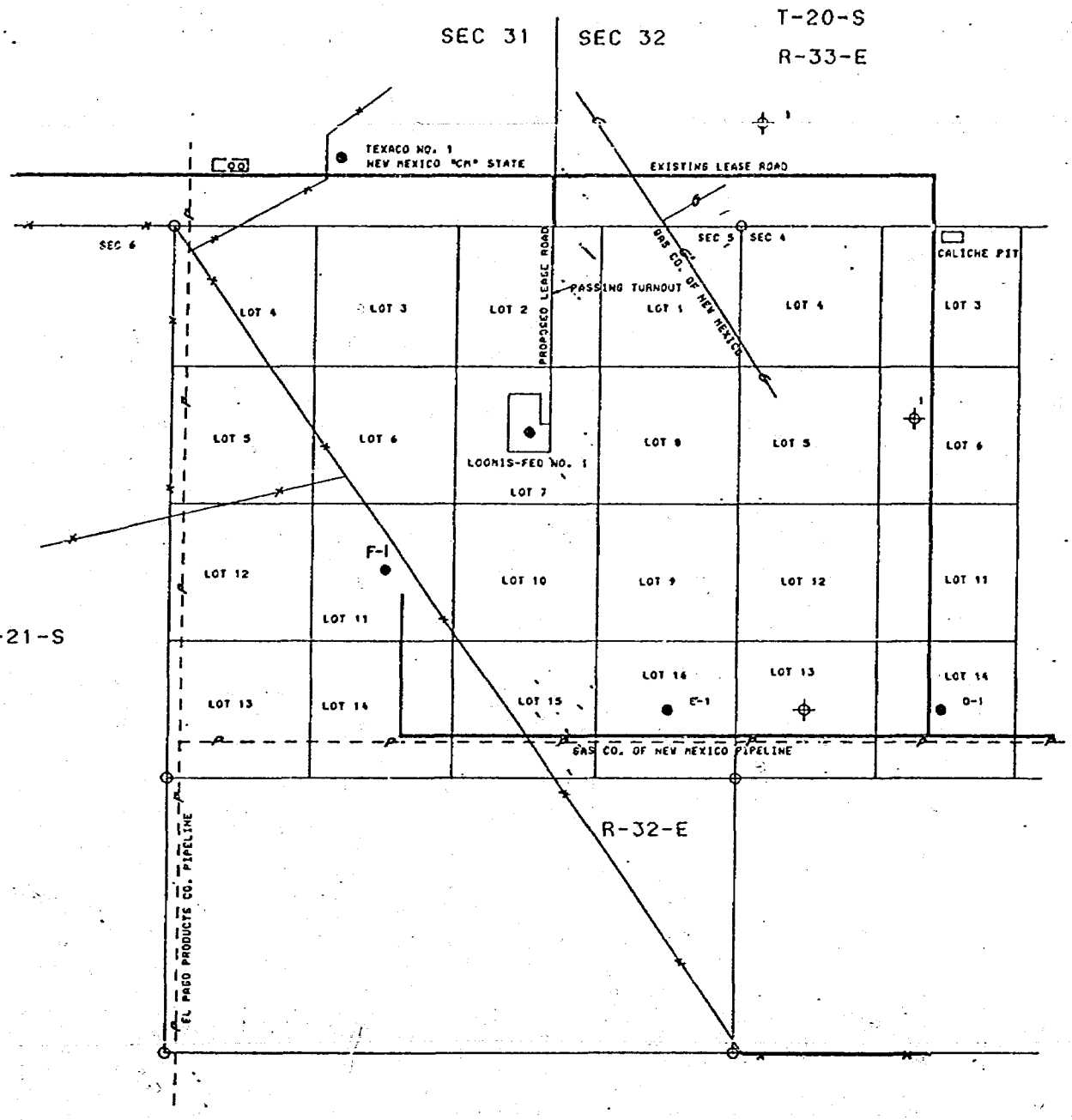
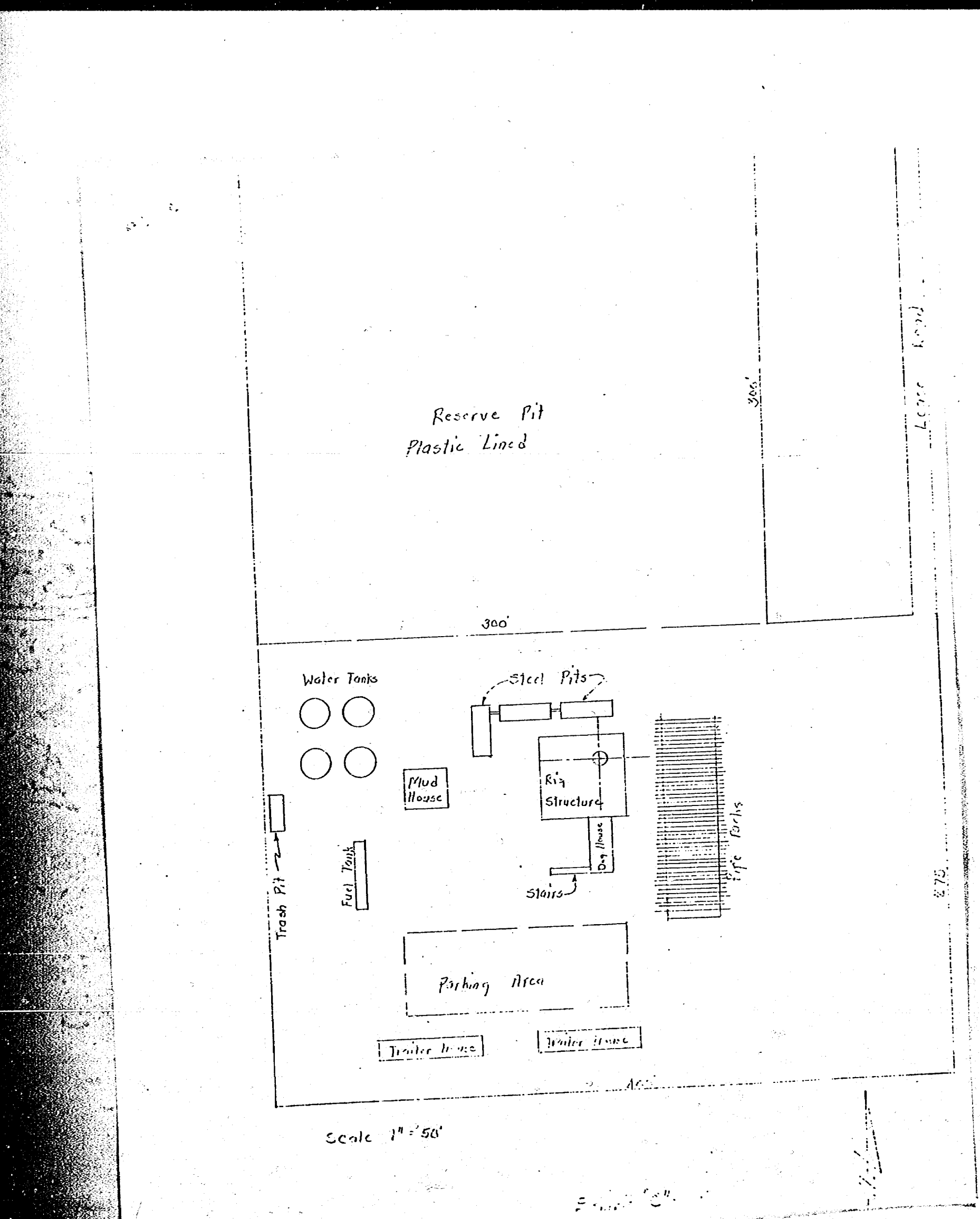


EXHIBIT "B"

TEXACO INC.

SURFACE USE PLAN
C. A. LOOMIS-FEDERAL NO. 1
1980' FNL & 1980' FEL SEC 5
T-21-S R-32-S
LEA COUNTY, NEW MEXICO
SCALE: 1"=1000' 7-10-79


Reserve Pit
Plastic Lined
300'
300'
Water Tanks
Steel Pits
Mud House
Rig Structure
Dog House
Fuel Tank
Trash Pit
Stairs
Pipe Racks
Parking Area
Trailer House
Trailer House
Scale 1" = 50'

GAS PRODUCTION DATA (MCF)
SALT LAKE SOUTH MORROW (GAS) POOL
LEA COUNTY, NEW MEXICO
EXHIBIT 10
CASE 6715

GULF OIL CORPORATION

	BELCO PETROLEUM		GRACE PETROLEUM CORP. (RIAL OIL COMPANY)			
	Bass 1F3020S33E Llano, El Paso Nat'l	Bass Federal Com. 2P3020S33E Llano, El Paso Nat'l	Federal C 1Q421S32E Gas Co. of N.M.	Federal D 1N421S32E Gas Co. of N.M.	Felmont Federal 1P2520S32E Gas Co. of N.M.	New M 1K521 Gas C
1978						
JAN	90,550	18,019	89,317	30,562		
FEB	78,204	9,930	102,992	40,539		
MAR	90,602	12,480	75,274	56,196		
APR	85,884	13,739	90,085	61,613		
MAY	85,174	8,300	33,851	21,237		
JUNE	76,495	11,930	75,033	49,976		
JULY	83,042	11,197	78,683	58,677		
AUG	93,225	15,441	77,004	51,110		
SEPT	92,323	13,660	76,952	47,840	87,457	
OCT	97,450	13,756	49,422	31,656	149,943	
NOV	89,991	12,472	15,379	3,132	73,080	
DEC	82,108	11,586	110,930	28,541	143.490	
ANNUAL	1,045,048	152,510	874,922	481,079	453,970	
CUMULATIVE	6,078,812	972,855	1,789,080	773,838	453,970	
1979						
JAN	79,326	11,458	114,277	33,739	136,140	
FEB	70,710	8,761	109,209	31,725	126,827	
MAR	88,213	11,989	62,470	30,076	100,275	
APR	83,019	13,201	9,388	14,002	87,489	
MAY	84,398	12,650	10,105	1,695	88,986	
JUNE	74,788	9,433	109,488	8,872	107,075	
JULY	81,833	11,964	107,387	9,948	96,380	
AUG	79,039	6,804	108,644	20,067	95,438	
SEPT	74,460	11,435	76,510	28,658	72,669	

GAS PRODUCTION DATA (MCF)
SALT LAKE SOUTH MORROW (GAS) POOL
LEA COUNTY, NEW MEXICO
EXHIBIT 10
CASE 6715

GULF OIL CORPORATION

LCO PETROLEUM		GRACE PETROLEUM CORP. (RIAL OIL COMPANY)			
	Bass Federal Com.	Federal C	Federal D	Felmont Federal	New Mexico Federal F.
	2P3020S33E	1Q421S32E	1N421S32E	1P2520S32E	1K521S32E
t'l	Llano, El Paso Nat'l	Gas Co. of N.M.	Gas Co. of N.M.	Gas Co. of N.M.	Gas Co. of N.M.
	18,019	89,317	30,562		
	9,930	102,992	40,539		
	12,480	75,274	56,196		
	13,739	90,085	61,613		
	8,300	33,851	21,237		
	11,930	75,033	49,976		
	11,197	78,683	58,677		
	15,441	77,004	51,110		
	13,660	76,952	47,840	87,457	
	13,756	49,422	31,656	149,943	
	12,472	15,379	3,132	73,080	
	11,586	110,930	28,541	143.490	
	152,510	874,922	481,079	453,970	
	972,855	1,789,080	773,838	453,970	
	11,458	114,277	33,739	136,140	48
	8,761	109,209	31,725	126,827	80,001
	11,989	62,470	30,076	100,275	57,259
	13,201	9,388	14,002	87,489	27,845
	12,650	10,105	1,695	88,986	6,162
	9,433	109,488	8,872	107,075	55,894
	11,964	107,387	9,948	96,380	43,271
	6,804	108,644	20,067	95,438	36,133
	11,435	76,510	28,658	72,669	19,126

GAS PRODUCTION DATA (MCF)
SALT LAKE SOUTH MORROW (GAS) POOL
LEA COUNTY, NEW MEXICO
EXHIBIT _____
CASE _____

GULF OIL CORPORATION

	BELCO PETROLEUM		GRACE PETROLEUM CORP. (RIAL OIL COMPANY)			New
	Bass 1F3020S33E Llano, El Paso Nat'l	Bass Federal Com. 2P3020S33E Llano, El Paso Nat'l	Federal C 1Q421S32E Gas Co. of N.M.	Federal D 1N421S32E Gas Co. of N.M.	Felmont Federal 1P2520S32E Gas Co. of N.M.	1K52 Gas
1979 cont.						
OCT.	76,184	10,428	22,448	34,883	56,857	
NOV.	67,653	10,765	67,101	35,924	58,665	
DEC.	74,570	10,157	89,577	34,515	73,339	
ANNUAL	934,293	129,045	886,604	284,104	1,100,140	
CUMULATIVE	7,013,105	1,101,900	2,675,684	1,057,942	1,554,110	
1980						
JAN	72,171	12,430	67,097	32,638	77,313	
FEB	67,471	9,668	79,530	30,984	68,304	
1980 YEAR TO DATE	139,642	22,098	146,627	63,622	145,617	
Daily Avg. For Feb.	2,326	358	2,840	1,106	2,530	
Cumulative (3-1-80)	7,152,747	1,123,998	2,822,311	1,121,564	1,699,727	

GAS PRODUCTION DATA (MCF)
SALT LAKE SOUTH MORROW (GAS) POOL
LEA COUNTY, NEW MEXICO
EXHIBIT _____
CASE _____

GULF OIL CORPORATION

ELCO PETROLEUM	GRACE PETROLEUM CORP. (RIAL OIL COMPANY)				
	Bass Federal Com.	Federal C	Federal D	Felmont Federal	New Mexico Federal F.
	2P3020S33E	1Q421S32E	1N421S32E	1P2520S32E	1K521S32E
at'l	Llano, El Paso Nat'l	Gas Co. of N.M.	Gas Co. of N.M.	Gas Co. of N.M.	Gas Co. of N.M.
	10,428	22,448	34,883	56,857	5,688
	10,765	67,101	35,924	58,665	6,630
	10,157	89,577	34,515	73,339	35,753
	129,045	886,604	284,104	1,100,140	373,810
	1,101,900	2,675,684	1,057,942	1,554,110	373,810
	12,430	67,097	32,638	77,313	28,894
	9,668	79,530	30,984	68,304	10,019
	22,098	146,627	63,622	145,617	38,913
	358	2,840	1,106	2,530	557
	1,123,998	2,822,311	1,121,564	1,699,727	412,723

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

BRUCE KING
GOVERNOR

LARRY KEHOE
SECRETARY

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
(505) 827-2434

July 1, 1980

Re: CASE NO. 6715
ORDER NO. R-6275-A

Mr. Harold Hensley
Hinkle, Cox, Eaton, Coffield
& Hensley
Attorneys at Law
Post Office Box 10
Roswell, New Mexico 88201

Applicant:

Texaco Inc.

Dear Sir:

Enclosed herewith are two copies of the above-referenced Commission order recently entered in the subject case.

Yours very truly,

JOE D. RAMEY
Director

JDR/fd

Copy of order also sent to:

Hobbs OCC x
Artesia OCC x
Aztec OCC

Other Ken Bateman, William F. Carr

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
COMMISSION FOR THE PURPOSE OF
CONSIDERING:

CASE NO. 6715 DE NOVO
Order No. R-6275-A

APPLICATION OF TEXACO INC. FOR AN
UNORTHODOX GAS WELL LOCATION, LEA
COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing De Novo at 9 a.m. on May 20, 1980, at Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this 27th day of June, 1980, the Commission, a quorum being present, having considered the testimony, the record, and the exhibits, and being fully advised in the premises,

FINDS:

(1) That due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, Texaco Inc., seeks approval of an unorthodox gas well location for its Loomis Federal Well No. 1, which it proposes to drill at a point 1600 feet from the North line and 660 feet from the West line of Section 5, Township 21 South, Range 32 East, NMPM, South Salt Lake-Morrow Gas Pool, Lea County, New Mexico, and to which the N/2 of said Section 5 would be dedicated.

(3) That this cause came on for hearing before Examiner Daniel S. Nutter on November 14, 1979, and the Division entered its Order No. R-6275 on February 26, 1980, approving the application, but applying a production limitation factor of 63/320 or 0.20.

(4) That said production limitation factor was based upon evidence that only 63 acres within the N/2 of said Section 5 might reasonably be expected to be productive from the Morrow formation at the proposed unorthodox location.

(5) That on March 25, 1980, and March 27, 1980, respectively, Bass Enterprises Production Company and Texaco Inc. filed timely applications for Hearing De Novo of Case 6715, whereupon this matter was set for hearing on May 20, 1980.

(6) That according to the evidence adduced at said hearing de novo, the entire N/2 of said Section 5 can reasonably be presumed to be productive of gas from the Morrow formation.

(7) That the N/2 of said Section 5 is offset to the south and southwest by wells at unorthodox locations.

(8) That the aforesaid wells at unorthodox locations to the south and southwest of the N/2 of said Section 5 encountered producing intervals in the Morrow not present in other wells offsetting the N/2 of said Section 5.

(9) That a well drilled at an orthodox location in the N/2 of said Section 5 would probably not encounter all potential producing intervals underlying the N/2 of said Section 5.

(10) That a well drilled at the proposed unorthodox location should more effectively and efficiently drain all of the productive intervals in the Morrow formation than a well at a standard location.

(11) That a well drilled at the proposed unorthodox location will offer the maximum opportunity to encounter said additional producing intervals and to recover the reserves under the N/2 of said Section 5 and will therefore serve to prevent waste.

(12) That a well drilled at the proposed unorthodox location should have the opportunity for a radius of drainage equal to said offset wells at said unorthodox locations.

(13) That approval of the unorthodox location will afford the applicant maximum correlative rights protection.

(14) That the application should be approved.

IT IS THEREFORE ORDERED:

(1) That an unorthodox gas well location for the Morrow formation is hereby approved for the Texaco Inc. Loomis Federal Well No. 1, to be drilled at a point 1600 feet from the North line and 660 feet from the West line of Section 5, Township 21 South, Range 32 East, NMPM, South Salt Lake-Morrow Gas Pool, Lea County, New Mexico.

(2) That the N/2 of said Section 5 shall be dedicated to the above-described well.

(3) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

ALEX J. ARMIJO, Member

EMERY C. ARNOLD, Member

JOE D. RAMEY, Member & Secretary

SEAL

fd/

CASE 6715: DE NOVO MAY 20, 1980
TEXACO, INC. FOR AN UNORTHODOX GAS WELL
LOCATION, LEA COUNTY, NEW MEXICO

United States Department of the Interior

GEOLOGICAL SURVEY
P. O. Box 26124
Albuquerque, New Mexico 87125

RECEIVED
APR 09
WAH
JTW
MA
JG
MH

MAR 30 1979

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Perry R. Bass
Fort Worth National Bank Building
Fort Worth, Texas 79702

Gentlemen:

Our records show that the Little Eddy unit area, Lea County, New Mexico, is subject to drainage by the Grace Petroleum Corporation No. 1 well located in Lot 11 of sec. 5, T. 21 S., R. 32 E., N.M.P.M. Such well commenced production from the Morrow on January 25, 1979.

Perry R. Bass as unit operator of the Little Eddy unit is hereby requested to advise this office within 30 days, following receipt of this letter, of his plans to protect the Little Eddy unit area from drainage pursuant to Section 18 of the unit agreement.

Sincerely yours,

Gene F. Daniel

GENE F. DANIEL
ACTING Oil and Gas Supervisor, SRMA

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6715 Exhibit No. 2
Submitted by BEPCO
Hearing Date 5-20-80

AMERICAN REVOLUTION BICENTENNIAL 1776-1976

SCARPON-FTW

MAY 14, 1980

HOLLY ENERGY CORP.

DALLAS, TX

TWX 910-861-4938

REFERRENCE: CASE #6715

ORDER #R-6275

UNORTHODOX LOCATION

LOOMIS FEDERAL #1

1600' FNL 660' FWL

N/2, SEC. 5, T21S - R32E

LEA COUNTY, NEW MEXICO

ATTENTION: BILL BOYLES

WE HAVE BEEN ADVISED BY MR. DANIEL GONZALES THAT LOTS 1-7, SEC.6 T-21S - R32E, WERE BOUGHT FOR THE ACCOUNT OF HOLLY ENERGY CORP. AT THE APRIL 15, 1980 BUREAU OF LAND MANAGEMENT LEASE SALE.

THEREFORE WE HEREBY ADVISE HOLLY ENERGY CORP. OF THE HEARING WHICH WILL BE HELD AT 9 A.M. TUESDAY MAY 20, 1980 IN ROOM 205 IN THE STATE LAND OFFICE BUILDING, SANTA FE, NEW MEXICO AT WHICH TIME BASS ENTERPRISES PROLUCTION CO. AND TEXACO, INC. WILL BE SEEKING APPROVAL FOR AN UNORTHODOX LOCATION FOR OUR LOOMIS FEDERAL #1, 1600' FNL AND 660' FWL, SEC. 5, T-21S - R32E, SOUTH SALT LAKE MORROW GAS POOL. N-2 OF SAID SEC 5 SHALL BE THE PRORATION UNIT FOR THE WELL.

THIS CASE WILL BE HEARD DE NOVO PURSUANT TO THE PROVISIONS OF RULE NUMBER 1220.

SINCERLEY,

JENS HANSEN

DIVISION LANDMAN

BASS ENTERPRISES PRODUCTION CO.

3100 FORT WORTH NATIONAL BANK BLDG.

FORT WORTH, TX 76102

TWX 910 893 5009

SCARPON-FTW

HOLLY CORP LTR

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6715 Exhibit No. 4
Submitted by BEPCO
Hearing Date 5-20-80

GRACE (CLEARY) 1-Felmount-Fed. 0/8

BELCO PET. 1-Bass-Fed 0/7

GRACE PET. 25 2 Felmont-Fed.

TEXACO 1-Richards ?/11

30

BELCO PET. 2-Bass-Fed 0/5

29

TEXACO 1-"CH"-St. ?/14

ATOKA COMPLETION 3.0 BCFG Cum.

36 LITTLE EDDY 31 UNIT

TEXACO 1-"CM"-St ?/7

ATOKA PERFORATED NO PRODUCTION

GRACE (AMINI) 1-Aztec-Fed.

32 GRACE (AMINI) 1-New Mex. SL-St. 0/12

GRACE (AMINI) 1-NM-Fed 2/8 10%

GRACE (AMINI) 2-NM-Fed

PROPOSED LOCATION

GRACE PET. 1-Mex."G" Fed. 8/11 6%-9.5% 8.5%

6

GRACE (CLEARY) 1-"F" Fed 8/8 10%-17% 13%

5

CLEARY 1-E-Fed. 1/8 7%

5 4 GRACE (CLEARY) 1-"D"-Fed 5/5 7%-9% 8% Shaley

GRACE (CLEARY) 1-"C"-Fed

BEFORE THE OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6715 Exhibit No. 10
Submitted by BASS
Hearing Date 5-20-80

UNION 1-Halfway-Fed. 0/8

7 8 9

CO. CO.

EDDY LEA

18

-LEGEND-

NEUTRON LOG ONLY

NET POROUS SAND (Feet) (≥6% Ø)
NET TOTAL SAND THICKNESS (Ft.)

POROSITY RANGE
AVERAGE POROSITY

BASS ENTERPRISES PRODUCTION COMPANY
WEST TEXAS DIVISION

SOUTH SALT LAKE FIELD
LEA Co., NEW MEXICO
-ATOKA PAY SAND-
POROSITY MAP

Date 5-16-80	Interp. By L.W.H.	Scale 1" = 2000'
Revised	Drafted By D.A.C.	Proj. [illegible]

SOUTH SALT LAKE (MORROW)
LEA COUNTY, NEW MEXICO
SIWHP vs. TIME

———	O - 31 - 20S - 33E	Texaco	"CM" Sta
———	F - 4 - 21S - 32E	Grace	New Mexico
———	L - 2 - 21S - 32E	Grace	Pubco Fed
———	N - 32 - 20S - 33E	Grace	New Mexico
———	P - 5 - 21S - 32E	Grace	New Mexico
———	K - 5 - 21S - 32E	Grace	New Mexico
⊙	I - 6 - 21S - 32E	Grace	New Mexico

DEPT. OF THE
OIL CONSERVATION COMMISSION
State of New Mexico

Case No. 6715 No. 11
Submitted by BEPCO
Hearing Date 5-20-80

Pressure psig

6000 5000 4000 3000 2000 1000 0

100 90 80 70 60 50 40 30 20 10

Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.

19_71_ 19_72_ 19_73_ 19_74_ 19_75_ 19_76_ 19_77_ 19_78_ 19_79_

TH SALT LAKE (MORROW)
COUNTY, NEW MEXICO
/HP vs. TIME

O - 31 - 20S - 33E	Texaco	"CM" State No.1
F - 4 - 21S - 32E	Grace	New Mexico Federal No.1
L - 2 - 21S - 32E	Grace	Pubco Federal No.1
N - 32 - 20S - 33E	Grace	New Mexico SL State No.1
P - 5 - 21S - 32E	Grace	New Mexico Fed. E Comm No.1
K - 5 - 21S - 32E	Grace	New Mexico Fed. F Comm. No.1
⊙ I - 6 - 21S - 32E	Grace	New Mexico Fed. G Comm. No.1

RECEIVED
CONSERVATION COMMISSION
Santa Fe, New Mexico

No. 6715 Exhibit No. 11
Prepared by BEPCO
Date 5-20-80

100
90
80
70
60
50
40
30
20
10
0

19_73_ 19_74_ 19_75 19_76_ 19_77_ 19_78_ 19_79_ 19_80_

BASS ENTERPRISES PRODUCTION COMPANY

PAGE NO ____

SUBJECT	DATE	DEPARTMENT	PREPARED BY

Texaco gives 8.5 BCF - Texaco "CM" State No. 1

IP = 5935 psi @ 13562' mid-pt.

130' pay perforated

Assumed values

S_w = 25%

ϕ = 8%

Rec. Fac = 20%

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6715 Exhibit No. 12
Submitted by BEPCO
Hearing Date 5-20-80

Gas in place = 10,625,000 MCF

Gas in place = $43560\ (\phi)(1-S_w)(B_{gi})\ Ah$

$B_{gi} = 34.61\ p/zT$

Gas Gravity from Hat Mesa = .1650

T = 22.0° F
p = 5935 psi
z = 1.056

B_{gi} = 286.1 SCF/cu.ft.

$$\text{Gas in place} = \frac{43560\ ft^3}{\text{acre ft}}(0.08)(0.75)\left(\frac{286.1\ SCF}{ft^3}\right)$$

$$= 747{,}633\ \frac{SCF}{\text{acre ft}}$$

BASS ENTERPRISES PRODUCTION COMPANY

PAGE NO. _____

SUBJECT	DATE	DEPARTMENT	PREPARED BY

For wellbore conditions h = 130'

$$A = \frac{10{,}625 \text{ MMSCF}}{0.748 \text{ MMSCF/acre-ft (130 ft)}}$$

$$= 109 \text{ acres}$$

United States Department of the Interior

GEOLOGICAL SURVEY
P. O. Box 26124
Albuquerque, New Mexico 87125

MAR 3 1979

LAND
RECEIVED
APR 09 19
SWAH JTW
JG MA
MH

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Perry R. Bass
Fort Worth National Bank Building
Fort Worth, Texas 79702

Gentlemen:

Our records show that the Little Eddy unit area, Lea County, New Mexico, is subject to drainage by the Grace Petroleum Corporation No. 1 well located in Lot 11 of sec. 5, T. 21 S., R. 32 E., N.M.P.M. Such well commenced production from the Morrow on January 25, 1979.

Perry R. Bass as unit operator of the Little Eddy unit is hereby requested to advise this office within 30 days, following receipt of this letter, of his plans to protect the Little Eddy unit area from drainage pursuant to Section 18 of the unit agreement.

Sincerely yours,

Gene F. Daniel
GENE F. DANIEL
ACTING Oil and Gas Supervisor, SRMA

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6715 Exhibit No. 2
Submitted by BEPCO
Hearing Date 5-20-80

AMERICAN REVOLUTION BICENTENNIAL 1776-1976

SCARPON-FTW

MAY 14, 1980

HOLLY ENERGY CORP.

DALLAS, TX

TWX 910-861-4938

REFERRENCE: CASE #6715

ORDER #R-6275

UNORTHODOX LOCATION

LOOMIS FEDERAL #1

1600' FNL 660' FWL

N/2, SEC. 5, T21S - R32E

LEA COUNTY, NEW MEXICO

ATTENTION: BILL BOYLES

WE HAVE BEEN ADVISED BY MR. DANIEL GONZALES THAT LOTS 1-7, SEC.6 T-21S - R32E, WERE BOUGHT FOR THE ACCOUNT OF HOLLY ENERGY CORP. AT THE APRIL 15, 1980 BUREAU OF LAND MANAGEMENT LEASE SALE.

THEREFORE WE HEREBY ADVISE HOLLY ENERGY CORP. OF THE HEARING WHICH WILL BE HELD AT 9 A.M. TUESDAY MAY 20, 1980 IN ROOM 205 IN THE STATE LAND OFFICE BUILDING, SANTA FE, NEW MEXICO AT WHICH TIME BASS ENTERPRISES PRODUCTION CO. AND TEXACO, INC. WILL BE SEEKING APPROVAL FOR AN UNORTHODOX LOCATION FOR OUR LOOMIS FEDERAL #1, 1600' FNL AND 660' FWL, SEC. 5, T-21S - R32E, SOUTH SALT LAKE MORROW GAS POOL, N-2 OF SAID SEC 5 SHALL BE THE PRORATION UNIT FOR THE WELL.

THIS CASE WILL BE HEARD DE NOVO PURSUANT TO THE PROVISIONS OF RULE NUMBER 1220.

SINCERLEY,

JENS HANSEN

DIVISION LANDMAN

BASS ENTERPRISES PRODUCTION CO.

3100 FORT WORTH NATIONAL BANK BLDG.

FORT WORTH, TX 76102

TWX 910 893 5009

SCARPON-FTW

HOLLY CORP DAL

OIL CONSERVATION COMMISSION
New Mexico
Case 6715 Exhibit No. 4
Submitted by BEPCO
Hearing Date 5-20-80

GRACE (CLEARY) 1-Felmount-Fed. 0/8

BELCO PET. 1-Bass-Fed 0/7

GRACE PET. 2 Felmont-Fed. 25

TEXACO 1-Richards ?/11

30

BELCO PET. 2-Bass-Fed 0/5

29

TEXACO 1-"CH"-St. ?/14

ATOKA COMPLETION 3.0 BCFG Cum.

GRACE (AMINI) 1-Aztec-Fed.

36 LITTLE EDDY 31 UNIT 32

GRACE (AMINI) 1-New Mex. SL-St. 0/12

TEXACO 1-"CM"-St ?/7

ATOKA PERFORATED NO PRODUCTION

GRACE (AMINI) 1-NM-Fed 2/8 10%

GRACE (AMINI) 2-NM-Fed

PROPOSED LOCATION

GRACE PET. 1-Mex."G" Fed. 8/11

GRACE (CLEARY) 1-"F" Fed 8/8 10%-17% 13%

6 6%-9.5% 8.5%

5

CLEARY 1-E-Fed. 1/8 7%

5/5 7%-9% 8% Shaley

4 GRACE (CLEARY) 1-"D"-Fed

GRACE (CLEARY) 1-"C"-Fed

BEFORE THE OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6715 Exhibit No. 10
Submitted by BASS
Hearing Date 5-20-80

UNION 1-Halfway-Fed. 0/8

7 8 9

EDDY CO. LEA CO.

-LEGEND-

NEUTRON LOG ONLY

NET POROUS SAND (Feet)(≥6% Ø)

NET TOTAL SAND THICKNESS(Ft.)

POROSITY RANGE

AVERAGE POROSITY

18

BASS ENTERPRISES PRODUCTION COMPANY

WEST TEXAS DIVISION

SOUTH SALT LAKE FIELD

LEA Co., NEW MEXICO

-ATOKA PAY SAND-

POROSITY MAP

Date 5-16-80	Draw. By L.W.H.	Scale 1" = 2000'
Revised	Drafted By D.A.C.	Engr.

SOUTH SALT LAKE (MORROW)
LEA COUNTY, NEW MEXICO
SIWHP vs. TIME

EXHIBIT NO.
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6715
Submitted by BEPCO
Hearing Date 9-20-80

O - 31 - 20S - 33E	Texaco	"CM" St
F - 4 - 21S - 32E	Grace	New Mexic
L - 2 - 21S - 32E	Grace	Pubco Fed
N - 32 - 20S - 33E	Grace	New Mexic
P - 5 - 21S - 32E	Grace	New Mexic
K - 5 - 21S - 32E	Grace	New Mexi
I - 6 - 21S - 32E	Grace	New Mexi

Pressure Psig
6000 5000 4000 3000 2000 1000 0
60 50 40 30 20 10

19_71 19_72 19_73 19_74 19_75 19_76 19_77 19_78 19_79

H SALT LAKE (MORROW)
COUNTY, NEW MEXICO
HP vs. TIME

RECEIVED
CONSERVATION COMMISSION
Santa Fe, New Mexico
6715 Exhibit No. 11
BEPCO
Date 5-20-80

O-31-20S-33E	Texaco	"CM" State No.1
F-4-21S-32E	Grace	New Mexico Federal No.1
L-2-21S-32E	Grace	Pubco Federal No.1
N-32-20S-33E	Grace	New Mexico SL State No.1
P-5-21S-32E	Grace	New Mexico Fed. E Comm. No.1
K-5-21S-32E	Grace	New Mexico Fed. F Comm. No.1
I-6-21S-32E	Grace	New Mexico Fed. G Comm. No.1

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19 73 | 19 74 | 19 75 | 19 76 | 19 77 | 19 78 | 19 79 | 19 80

BASS ENTERPRISES PRODUCTION COMPANY

PAGE NO. _____

SUBJECT	DATE	DEPARTMENT	PREPARED BY

Texaco gives 8.5 BCF + Texaco "CM" State No. 1

I.P = 5935 psi @ 13562' mid-pt

130' pay perforated

Assumed values

S_w = 25%

ϕ = 8%

Rec. Fac = 20%

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico

Case No. 6715 Exhibit No. 12

Submitted by BEPCO

Hearing Date 5-20-80

Gas in place = 10,625,000 MCF

Gas in place = $43560\ (\phi)(1-S_w)(B_{gi})\ Ah$

$B_{gi} = 34.61\ p/zT$

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B_{gi} = 286.1 SCF/cu.ft.

$$\text{Gas in place} = \frac{43560\ ft^3}{\text{acre ft}}(0.08)(0.75)\left(\frac{286.1\ SCF}{ft^3}\right)$$

$$= 747,633\ \frac{SCF}{\text{acre ft}}$$

BASS ENTERPRISES PRODUCTION COMPANY

PAGE NO _____

SUBJECT	DATE	DEPARTMENT	PREPARED BY

For wellbore conditions h = 130'

$$A = \frac{10{,}625 \text{ MMSCF}}{0.748 \text{ MMSCF/acre-ft} (130 \text{ ft})}$$

$$= 109 \text{ acres}$$

Docket No. 14-80

Dockets Nos. 16-80 and 17-80 are tentatively set for June 4 and 25, 1980. Applications for hearing must be filed at least 22 days in advance of hearing date.

DOCKET: COMMISSION HEARING - TUESDAY - MAY 20, 1980

OIL CONSERVATION COMMISSION - 9 A.M. - ROOM 205
STATE LAND OFFICE BUILDING, SANTA FE, NEW MEXICO

CASE 6715: (DE NOVO)

Application of Texaco Inc. for an unorthodox gas well location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of its Loomis Fed. Well No. 1 to be drilled 1600 feet from the North line and 660 feet from the West line of Section 5, Township 21 South, Range 32 East, South Salt Lake-Morrow Gas Pool, the N/2 of said Section 5 to be dedicated to the well.

Upon application of Texaco Inc. and Bass Enterprises Production Company this case will be heard De Novo pursuant to the provisions of Rule 1220.

****

Docket No. 15-80

DOCKET: EXAMINER HEARING - WEDNESDAY - MAY 21, 1980

9 A.M. - OIL CONSERVATION DIVISION CONFERENCE ROOM,
STATE LAND OFFICE BUILDING, SANTA FE, NEW MEXICO

The following cases will be heard before Richard L. Stamets, Examiner, or Daniel S. Nutter, Alternate Examiner:

ALLOWABLE: (1) Consideration of the allowable production of gas for June, 1980, from fifteen prorated pools in Lea, Eddy, and Chaves Counties, New Mexico.

(2) Consideration of the allowable production of gas for June, 1980, from four prorated pools in San Juan, Rio Arriba, and Sandoval Counties, New Mexico.

CASE 6891: In the matter of the hearing called by the Oil Conservation Division on its own motion to permit Midwest Refining Company and all other interested parties to appear and show cause why the State Well No. 1 located in Unit A of Section 16, Township 33 South, Range 14 West, Hidalgo County, should not be plugged and abandoned in accordance with a Division-approved plugging program.

CASE 6859: (Continued from April 9, 1980, Examiner Hearing)

Application of R & G Drilling Company for an unorthodox gas well location, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of a well to be drilled 1890 feet from the North line and 1830 feet from the East line of Section 28, Township 28 North, Range 11 West, Kutz-Fruitland Pool, the NE/4 of said Section 28 to be dedicated to the well.

CASE 6886: (Continued from May 7, 1980, Examiner Hearing)

Application of Aminoil USA, Inc. for compulsory pooling and an unorthodox location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Wolfcamp and Pennsylvanian formations underlying the S/2 of Section 10, Township 24 South, Range 28 East, to be dedicated to a well to be drilled at an unorthodox location 2080 feet from the South line and 1773 feet from the East line of said Section 10. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision. Also to be considered will be the designation of applicant as operator of the well and a charge for risk involved in drilling said well.

CASE 6884: (Continued from May 7, 1980, Examiner Hearing)

Application of Supron Energy Corporation for compulsory pooling and a dual completion, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Mesaverde and Dakota formations underlying the N/2 of Section 4, Township 30 North, Range 11 West, to be dedicated to a proposed dual completion to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision. Also to be considered will be the designation of applicant as operator of the well and a charge for risk involved in drilling said well.

CASE 6892: Application of Merrion & Bayless for compulsory pooling, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the South Blanco-Pictured Cliffs Pool underlying the SW/4 of Section 27, Township 24 North, Range 2 West, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision. Also to be considered will be the designation of applicant as operator of the well and a charge for risk involved in drilling said well.

CASE 6878: (Readvertised)

Application of Stevens Oil Company for a non-standard gas proration unit and unorthodox location, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks approval of a 160-acre non-standard gas proration unit comprising the N/2 SW/4 and S/2 NW/4 of Section 25, Township 8 South, Range 28 East, Twin Lakes-San Andres Associated Pool, to be dedicated to its O'Brien "F" Well No. 4 at an unorthodox location 1650 feet from the South line and 2310 feet from the West line of said Section 25.

CASE 6893: Application of Stevens Oil Company to amend Order No. R-5353, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks a revision of the special rules for the Twin Lakes-San Andres Associated Pool as promulgated by Order No. R-5353 to provide that each well, oil or gas, shall be located no nearer than 330 feet to any quarter-quarter section line, except that any well drilled in a known gas productive area shall be located within 150 feet of the center of the quarter-quarter section.

CASE 6894: Application of Sun Oil Company for an unorthodox well location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of its Jennings-Federal "B" Well No. 1, a Yates test to be drilled 2440 feet from the South line and 2290 feet from the West line of Section 15, Township 19 South, Range 32 East, Lusk Field, the NE/4 SW/4 to be dedicated to the well.

CASE 6895: Application of Sun Gas Company for an NGPA determination, Lea County, New Mexico. Applicant, in the above-styled cause, seeks findings that the drilling of its J. A. Akens Well No. 10 located in Unit N of Section 3, Township 21 South, Range 36 East, was necessary to effectively and efficiently drain that portion of an existing proration unit which could not be drained by the existing well.

CASE 6896: Application of John E. Schalk for a non-standard gas proration unit and an unorthodox gas well location, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks approval of a 160-acre non-standard Blanco Mesaverde gas proration unit comprising the NE/4 of Section 8, Township 25 North, Range 3 West, to be dedicated to his Gulf Well No. 2 to be drilled at an unorthodox location 1925 feet from the North line and 790 feet from the East line of said Section 8.

CASE 6897: Application of McClellan Oil Corporation for two compulsory poolings, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests from 1200 feet below the surface to the base of the Abo formation underlying the SW/4 and the SE/4 of Section 30, Township 6 South, Range 26 East, each to be dedicated to a proposed gas well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said wells and the allocation of the cost thereof as well as actual operating costs and charges for supervision. Also to be considered will be the designation of applicant as operator of the wells and a charge for risk involved in drilling said wells.

CASE 6898: Application of Conoco Inc. for an unorthodox gas well location and simultaneous dedication, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of its Meyer B-28 Well No. 4 to be drilled 560 feet from the North line and 1980 feet from the West line of Section 28, Township 20 South, Range 37 East, Eumont Gas Pool, to be simultaneously dedicated with its Meyer B-28 Well No. 1 in Unit G to the NE/4 and E/2 NW/4 of said Section 28.

CASE 6899: Application of Yates Petroleum Corporation for an unorthodox gas well location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of a Morrow test well to be drilled 660 feet from the South and East lines of Section 9, Township 17 South, Range 26 East, the E/2 of said Section 9 to be dedicated to the well.

CASE 6900: Application of Yates Petroleum Corporation for a non-standard oil proration unit, unorthodox well location, and downhole commingling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of an 80-acre non-standard oil proration unit comprising the N/2 SE/4 of Section 22, Township 16 South, Range 33 East, Kemnitz Field, to be dedicated to its Sombrero "MS" State Well No. 1 at an unorthodox location 1650 feet from the South and East lines of said Section 22. Applicant also seeks approval for the downhole commingling of Wolfcamp and Cisco production in the wellbore of said well.

CASE 6901: Application of Harvey E. Yates Company for compulsory pooling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Wolfcamp thru Mississippian formations underlying the E/2 of Section 19, Township 14 South, Range 36 East, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision. Also to be considered will be the designation of applicant as operator of the well and a charge for risk involved in drilling said well.

CASE 6902: Application of Harvey E. Yates Company for a dual completion, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the dual completion (conventional) of its Young Deep Unit Well No. 1 located in Unit D of Section 10, Township 18 South, Range 32 East, to produce gas from the Morrow formation and oil from the Bone Springs formation thru parallel strings of tubing.

CASE 6903: Application of Harvey E. Yates Company for an unorthodox gas well location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of a Pennsylvanian-Mississippian test well to be drilled 660 feet from the South line and 990 feet from the East line of Section 33, Township 13 South, Range 36 East, the S/2 of said Section 33 to be dedicated to the well.

CASE 6904: Application of Harvey E. Yates Company for a unit agreement, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the McDonald Unit Area, comprising 1,440 acres, more or less, of fee lands in Townships 13 and 14 South, Range 36 East.

CASE 6905: Application of Harvey E. Yates Company for a unit agreement, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks approval for the Buffalo Lake Unit Area, comprising 2,560 acres, more or less, of Federal, State, and fee lands in Township 15 South, Range 27 East.

Telegram western union Telegram

RECEIVED
MAR 25 1980
OIL CONSERVATION DIVISION
SANTA FE

IPMFEKA SANA
4-067916S085 03/25/80
ICS IPMBNGZ CSP
8173354591 TDBN FORT WORTH TX 144 03-25 0600P EST
PMS NEW MEXICO OIL CONSERVATION DIVISION, ATTN JOE RAMEY DIRECTOR RPT
DLY MGM, FONE 5058272533, DLR
310 OLD SANTA FE TRAIL
SANTA FE NM 87501
REFERENCE NEW MEXICO OIL CONSERVATION DIVISION ORDER #R-6275 IN CAUSE
#6715 LITTLE EDDY C A LOOMIS FEDERAL #1 660 FEET FWL AND 1640 FEET
FNL SECTION 5 21 SOUTH 32 EAST EDDY COUNTY NEW MEXICO

GENTLEMEN UNDER DATE OF FEBRUARY 26, 1980 THE NEW MEXICO OIL
CONSERVATION DIVISION ISSUED ORDER #R6275 PURSUANT TO A HEARING
BEFORE THE TRAIL EXAMINER REQUESTING AN UNORTHODOX LOCATION. BASS
ENTERPRISES PRODUCTION CO., A SUBSTANTIAL INTEREST OWNER UNDER THIS
PROPOSED WELL WAS REPRESENTED BY TEXACO OPERATOR OF THE WELL AT THE
HEARING.

IT IS THE OPINION OF BASS ENTERPRISES PRODUCTION CO. THAT SAID ORDER
WAS ISSUED WITHOUT BENEFIT OF ALL PERTINENT EVIDENCE. THEREFORE, WE
ARE HEREBY APPEALING SUCH ORDER AND RESPECTFULLY REQUEST A HEARING DE
NOVO SO THAT ADDITIONA RELATIVE TESTIMONY MAY BE GIVEN IN THIS CAUSE.

SINCERELY,
JENS HANSEN DIVISION LANDMAN BASS ENTERPRISES PRODUCTION CO
3100 FORT WORTH NATIONAL BANK BLDG
FORT WORTH TX 76102

1803 EST

IPMFEKA SANA

STATE OF NEW MEXICO

ENERGY AND MINERALS DEPARTMENT

RECEIVED
MAR 27 1980
OIL CONSERVATION DIVISION
SANTA FE

OIL CONSERVATION DIVISION

NO. 6715

APPLICATION FOR HEARING DE NOVO

COMES NOW Texaco Inc., the Applicant in Case No. 6715, heard by the Division Examiner on November 4, 1979, and applies to the Commission for a hearing de novo on its Application and as cause therefor respectfully shows the Commission that in its opinion and in the opinion of Bass Oil Company, a substantial working interest owner in the pro rata unit involved, Order No. R 6275 entered on February 26, 1980, unduly restricts potential production from the well proposed to be drilled on the unorthodox location such that the drilling of the well is uneconomic. The special rules imposed by the Order will result in the loss of the production to which the mineral interest owners are otherwise entitled. A true copy of Order No. R 6275 is attached.

Accordingly, the applicant requests that this matter be set for public hearing at the next regularly scheduled hearing of the Division.

The application is made pursuant to Sec. 70-2-13 N.M.S.A. 1978 Comp. on behalf of Texaco Inc. and Bass Oil Company.

WHITE, KOCH, KELLY & McCARTHY

By: Kenneth Bateman

Kenneth Bateman, Esq.
P. O. Box 787
Santa Fe, New Mexico 87501
Attorneys for Texaco Inc.

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
DIVISION FOR THE PURPOSE OF
CONSIDERING:

CASE NO. 6715
Order No. R-6275

APPLICATION OF TEXACO INC. FOR
AN UNORTHODOX GAS WELL LOCATION,
LEA COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on November 14, 1979, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 26th day of February, 1980, the Division Director, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

(1) That due public notice having been given as required by law, the Division has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, Texaco Inc., seeks approval of an unorthodox gas well location for its Loomis Federal Well No. 1, which it proposes to drill at a point 1600 feet from the North line and 660 feet from the West line of Section 5, Township 21 South, Range 32 East, NMPM, South Salt Lake-Morrow Gas Pool, Lea County, New Mexico, and to which the N/2 of said Section 5 would be dedicated.

(3) That there is an apparent permeability barrier traversing the NW/4 of the aforesaid Section 5 in a northwesterly/southeasterly direction, and the applicant seeks to complete its well on the south side of this apparent barrier.

(4) That assuming the aforesaid permeability barrier exists and is effective, a well drilled at the proposed location would not drain that portion of the N/2 of Section 5 lying north and east of the barrier.

(5) That drainage of the reservoir by a well at the proposed location would be limited to that portion of the N/2 of Section 5 lying south and west of the barrier and to the offsetting lands to the west, southwest, and south.

(6) That there are approximately 63 acres in the N/2 of Section 5 which lie south and west of the aforementioned barrier and which would be drained by a well at the proposed location.

(7) That in order to protect the applicant's correlative rights, applicant should be permitted to drill a well at a location south of the barrier, which will allow it to recover the reserves underlying the aforesaid 63 acres.

(8) That in order to protect the correlative rights of offset operators, any well drilled at the proposed unorthodox location should be limited in its production, and such limitation should be based upon the amount of acreage in the dedicated 320-acre tract which the well would drain.

(9) That a production limitation factor of 63/320, or 0.20, would protect correlative rights of the applicant as well as those of the owners of offsetting lands.

(10) That in the absence of any special rules and regulations for the prorationing of production from the South Salt Lake-Morrow Gas Pool, the aforesaid production limitation factor should be applied against said well's ability to produce into the pipeline as determined by periodic well tests.

(11) That in order to prevent premature abandonment and subsequent waste, a minimum allowable should be established for the subject well.

(12) That such minimum allowable for the subject well should be reasonable, and 500,000 cubic feet of gas per day is a reasonable figure for such minimum allowable.

(13) That approval of the subject application subject to the above provisions and limitations will afford the applicant the opportunity to produce its just and equitable share of the gas in the subject pool, will prevent the economic loss caused by the drilling of unnecessary wells, avoid the augmentation of risk arising from the drilling of an excessive number of wells, and will otherwise prevent waste and protect correlative rights.

IT IS THEREFORE ORDERED:

(1) That an unorthodox gas well location for the Morrow formation is hereby approved for the Texaco Inc. Loomis Federal Well No. 1, to be drilled at a point 1600 feet from the North line and 660 feet from the West line of Section 5, Township 21 South, Range 32 East, NMPM, South Salt Lake-Morrow Gas Pool, Lea County, New Mexico.

(2) That the N/2 of said Section 5 shall be dedicated to the above-described well.

(3) That said well is hereby assigned a Production Limitation Factor of 0.20 in the Morrow formation.

(4) That in the absence of any Special Rules and Regulations prorating gas production in the South Salt Lake-Morrow Gas Pool, the special rules hereinafter promulgated shall apply.

(5) That the following Special Rules and Regulations for a non-prorated gas well at an unorthodox location shall apply to the subject well:

SPECIAL RULES AND REGULATIONS
FOR THE
APPLICATION OF A "PRODUCTION LIMITATION FACTOR"
TO A NON-PRORATED GAS WELL

APPLICATION OF RULES

RULE 1. These rules shall apply to the Texaco Inc., Loomis Federal Well No. 1, located 1600 feet from the North line and 660 feet from the West line of Section 5, Township 21 South, Range 32 East, NMPM, Lea County, New Mexico, which well's Production Limitation Factor of 0.20 shall be applied to the well's deliverability (as determined by the hereinafter set forth procedure) to determine its maximum allowable rate of production.

ALLOWABLE PERIOD

RULE 2. The allowable period for the subject well shall be six months.

RULE 3. The year shall be divided into two allowable periods commencing at 7:00 o'clock a.m. on January 1 and July 1.

DETERMINATION OF DELIVERY CAPACITY

RULE 4. Immediately upon connection of the well the operator shall determine the open flow capacity of the well in accordance with the Division "Manual for Back-Pressure Testing of Natural Gas Wells" then current, and the well's initial deliverability shall be calculated against average pipeline pressure.

RULE 5. The well's "subsequent deliverability" shall be determined twice a year, and shall be equal to its highest single day's production during the months of April and May or October and November, whichever is applicable. Said subsequent deliverability, certified by the pipeline, shall be submitted to the appropriate District Office of the Division not later than June 15 and December 15 of each year.

RULE 6. The Division Director may authorize special deliverability tests to be conducted upon a showing that the well has been worked over or that the subsequent deliverability determined under Rule 5 above is erroneous. Any such special test shall be conducted in accordance with Rule 4 above.

RULE 7. The operator shall notify the appropriate district office of the Division and all offset operators of the date and time of initial or special deliverability tests in order that the Division or any such operator may at their option witness such tests.

CALCULATION AND ASSIGNMENT OF ALLOWABLES

RULE 8. The well's allowable shall commence upon the date of connection to a pipeline and when the operator has complied with all appropriate filing requirements of the Rules and Regulations and any special rules and regulations.

RULE 9. The well's allowable during its first allowable period shall be determined by multiplying its initial deliverability by its production limitation factor.

RULE 10. The well's allowable during all ensuing allowable periods shall be determined by multiplying its latest subsequent deliverability, as determined under provisions of Rule 5, by its production limitation factor. If the well shall not have been producing for at least 60 days prior to the end of its first allowable period, the allowable for the second allowable period shall be determined in accordance with Rule 9.

RULE 11. Revision of allowable based upon special well tests shall become effective upon the date of such test provided the results of such test are filed with the Division's district office within 30 days after the date of the test; otherwise the date shall be the date the test report is received in said office.

RULE 12. Revised allowables based on special well tests shall remain effective until the beginning of the next allowable period.

RULE 13. In no event shall the well receive an allowable of less than 500,000 cubic feet of gas per day.

BALANCING OF PRODUCTION

RULE 14. January 1 and July 1 of each year shall be known as the balancing dates.

RULE 15. If the well has an underproduced status at the end of a six-month allowable period, it shall be allowed to carry such underproduction forward into the next period and may produce such underproduction in addition to its regularly assigned allowable. Any underproduction carried forward into any allowable period which remains unproduced at the end of the period shall be cancelled.

RULE 16. Production during any one month of an allowable period in excess of the monthly allowable assigned to the well shall be applied against the underproduction carried into the period in determining the amount of allowable, if any, to be cancelled.

RULE 17. If the well has an overproduced status at the end of a six-month allowable period, it shall be shut in until such overproduction is made up.

RULE 18. If, during any month, it is discovered that the well is overproduced in an amount exceeding three times its average monthly allowable, it shall be shut in during that month and during each succeeding month until it is overproduced in an amount three times or less its monthly allowable, as determined hereinabove.

RULE 19. The Director of the Division shall have authority to permit the well, if it is subject to shut-in pursuant to Rules 17 and 18 above, to produce up to 500 MCF of gas per month upon proper showing to the Director that complete shut-in would

cause undue hardship, provided however, such permission shall be rescinded for the well if it has produced in excess of the monthly rate authorized by the Director.

RULE 20. The Division may allow overproduction to be made up at a lesser rate than permitted under Rules 17, 18, or 19 above upon a showing at public hearing that the same is necessary to avoid material damage to the well.

GENERAL

RULE 21. Failure to comply with the provisions of this order or the rules contained herein or the Rules and Regulations of the Division shall result in the cancellation of allowable assigned to the well. No further allowable shall be assigned to the well until all rules and regulations are complied with. The Division shall notify the operator of the well and the purchaser, in writing, of the date of allowable cancellation and the reason therefor.

(6) That jurisdiction of this cause is retained for the entry of such further orders as the Division may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

JOE D. RAMEY
Director

S E A L

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