CASE 6232: HALBS PET. CORP. FOR AN UNORTHODOX LOCATION, EDDY COUNTY, NEW MEXICO

CASE NO.

6232

APPLICATION,

TRANSCRIPTS,

SMALL EXHIBITS,

ETC.

BEFORE THE OIL CONSERVATION DIVISION

OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE APPLICATION OF YATES PETROLEUM CORPORATION FOR AN UNORTHODOX GAS WELL LOCATION, EDDY COUNTY, NEW MEXICO

CASE No. 6232

APPLICATION

COMES NOW YATES PETROLEUM CORPORATION, by its attorneys, and in support hereof, respectfully states:

1. Applicant is the operator of the Wolfcamp and Pennsylvanian formations underlying:

Township 18 South, Range 24 East, N.M.P.M.

Section 13: E/2

and proposes to drill its Cities "JG" No. 1 Well at a point located 660 feet from the South line and 660 feet from the East line of said Section 13.

2. The applicant seeks an exception to the well location requirements of Rule 104-C.2(a) of the Oil Conservation Division to permit the drilling of the well at the above mentioned unorthodox location to a depth sufficient to adequately test the Wolfcamp and Pennsylvanian formations.

3. A standard 320-acre gas proration unit comprising the E/2 of said Section 13 should be dedicated to such well or to such lesser portion thereof as is reasonably shown to be reasonably productive of gas.

4. The approval of this application will afford applicant the opportunity to produce its just and equitable share of gas, will prevent 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.

WHEREFORE, applicant prays:

A. That this application be set for hearing before an examiner and that notice of said hearing be given as required by law.

B. That upon hearing the Division enter its order granting applicant permission to drill a well 660 feet from the South line and 660 feet from the East line of said Section 13 and to dedicate the E/2 of Section 13, which is reasonably presumed to be productive of gas from the Wolfcamp and Pennsylvanian formations.

C. And for such other relief as may be just in the premises.

YATES PETROLEUM CORPORATION

By: Joel M. Carson

Joel M. Carson

LOSEE, CARSON & DICKERSON, P.A.
P. O. Drawer 239
Artesia, New Mexico 88210

Attorneys for Applicant

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

JERRY APODACA
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SECRETARY

POST OFFICE BOX 2088
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SANTA FE, NEW MEXICO 87501
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September 29, 1978

Re: CASE NO. 6232
ORDER NO. R-5832

Mr. A. J. Losee
Losee & Carson
Attorneys at Law
Post Office Box 239
Artesia, New Mexico 88210

Applicant:

Yates Petroleum Corporation

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 OCC x
Artesia OCC x
Aztec OCC

Other Jack M. Campbell, Terry Cross, Don Dent, William F. Carr

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO

MAY 17, 1978

COMMISSION HEARING

IN THE MATTER OF:	
Application of Yates Petroleum Corporation for an unorthodox gas well location, Eddy County, New Mexico	Case 6231
Application of Yates Petroleum Corporation for an unorthodox location, Eddy County, New Mexico.	Case 6232

BEFORE: Richard L. Stamets, Staff Member

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the New Mexico Oil Conservation Commission:

Joe Ramey, Chairman
Emery Arnold, Commissioner
Phil Lucero, Commissioner
Richard L. Stamets, Staff Member

Lynn Teschendorf, Esq., Legal Counsel

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FOR YATES PETROLEUM CORPORATION:

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BY: A. J. Losee, Esquire

FOR GULF OIL CORPORATION:

CAMPBELL, BINGAMAN & BLACK
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San Francisco & N. Guadalupe
Santa Fe, New Mexico 87501
By: Jack M. Campbell, Esquire

Also Appearing:
TERRY CROSS
Attorney at Law
Midland, Texas

FOR MARATHON OIL COMPANY:

CATRON, CATRON & SAWTELL
Attorneys at Law
53 Old Santa Fe Trail
Santa Fe, New Mexico 87501
By: William F. Carr, Esquire

FOR MESA PETROLEUM COMPANY:

DON D. DENT
Attorney at Law
Box 2009
Amarillo, Texas 79105

MR. STAMETS: At this time we'll call Case 6231.

MS. TESCHENDORF: Case 6231. Application of Yates Petroleum Corporation for an unorthodox gas well location, Eddy County, New Mexico.

MR. LOSEE: A. J. Losee appearing on behalf of the Applicant. I have one witness.

MR. STAMETS: Call for other appearances.

MR. CAMPBELL: Jack M. Campbell, Campbell Bingaman & Black, Santa Fe, New Mexico appearing on behalf of Gulf Oil Corporation. I'd like to introduce Terry Cross from Midland, Texas, a member of the Texas bar will be participating in our presentation.

MR. STAMETS: Any other appearances?

MR. DENT: Don Dent, Mesa Petroleum. Associated with me Mr. Dale Gillette, a member of the bar of Texas. I think Mr. Paul Eaton has entered an appearance for us. We will have one witness.

MR. CAMPBELL: We have two witnesses.

MR. STAMETS: Any other appearances in this case?

MR. CARR: William F. Carr, Catron, Catron & Sawtell, Santa Fe, appearing on behalf of Marathon Oil Company and do not intend to call a witness.

MR. STAMETS: Any other appearances?

(No other appearances.)

MR. STAMETS: Let's have all the potential witnesses or all the witnesses stand and be sworn at this time please.

(WHEREUPON, the witnesses were duly sworn.)

MR. LOSEE: Mr. Examiner, before I pass out my witnesses or my exhibits, the testimony in this case, 6231, will be identical from the Applicant's position as to 6232. Each of the unorthodox locations is a mile away, and we'd like to consolidate the two cases.

MR. STAMETS: Any objections to consolidation of these two cases?

MR. DENT: We have no objections.

MR. CAMPBELL: No objections.

MR. STAMETS: At this time we will call Case 6232 and consolidate these two cases for purposes of testimony.

MS. TESCHENDORF: Case 6232. Application of Yates Petroleum Corporation for an unorthodox location, Eddy County, New Mexico.

MR. LOSEE: Same A. J. Losee appearing on behalf of the Applicant.

MR. STAMETS: We register the appearances of all in both cases.

RAY BECK

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

DIRECT EXAMINATION

BY MR. LOSEE:

Q Will you state your name please?

A Ray Beck.

Q Where do you live?

A Artesia, New Mexico.

Q By whom are you employed and in what capacity?

A I'm employed by Yates Petroleum as a geologist.

Q You previously testified before this Commission as an expert witness?

A Yes, sir.

MR. LOSEE: Mr. Beck's qualification and his job acceptable?

MR. STAMETS: They are.

Q (Mr. Losee) Will you state the purpose of the applications in Case 6231 and 6232 please.

A Yates Petroleum Corporation requests approval for the unorthodox location of two proposed gas wells in Township 18 South, Range 24 East, one in Section 25 and one in Section 13.

The Case 6231 location called the Yates No. 1 State JM would be located 660 from the north and east lines of Section 25, and the north half would be dedicated to the well.

The Case 6232 location called the Yates No. 1 Cities JG will be located 660 from the south and east lines of Section 13, and the east half would be dedicated to the well.

Q Would you turn to what has been marked as Exhibit 1 and explain what is shown on this exhibit?

A Exhibit 1 is a Land Plat. It shows the proposed locations and their proration units outlined in red. Acreage in which Yates owned 100% or lesser working interest is shown in yellow.

Q Does this also show the offset operators and the wells located within the area?

A Yes, sir.

Q Is there any significance as far as the relationship of these two unorthodox locations and the Yates acreage in this area?

A Considering the attitude of the proration unit, it may be noted in case of both proposed locations the "unorthodox movement" is toward the short leg or the in-line

of the proration unit rectangle toward proration unit in which Yates has an interest.

Q Please turn to Isopach Map marked as Exhibit 2 and explain what is shown on this exhibit?

A Exhibit Number 2 is the Isopach map showing with solid contours the varying thickness of the Morrow classic interval. That is the interval from the top of the Morrow classic to the top of the erroded chester and osten cycle which is present in this area.

The dotted contours show the structural configuration on the top of the Morrow classics.

Also marked on the map is cross-section A and A prime which will be presented as Exhibit 4. If the examiner would note the Morrow classics thick especially the one which runs generally north and south along or just to the east of the line between ranges 24 East and 25 East. It is within or along the flanks of these thicks that the indicated commercial Morrow gas well, which are colored in red, have been found.

At this time maybe I should say something about the well history in the general area here.

Q Yes, if you have the history of those wells along that thick.

A Just in general, the Antweil Penasco well which was one of the first wells drilled in this four Dinkus area was drill stint tested and had a stabilized flow of 8200 Mcf on 3/8 inch choke. I believe the Penasco well was completed June 1, 1977 according to the completion card.

The current production is 4,530 Mcf per day. Looks like a pretty good well.

The second well completed is Antweil Rio well just to the south of the Penasco well. It was drill stint tested for 9500 Mcf. It was completed in October, no excuse me, in August 23, 1977; and since that time it is depleted to the point, I mean it is dropped down to 566 Mcf per day. Not performing nearly as well as its neighbor to the north or as the drill stint test would've initially indicated.

The next well was the Gulf GK Number 1 which was not tested but flowed at the rate during initial completion flowed at one time at 2500 Mcf at a 1/2 inch choke. Currently-- Let's see that well was completed in November 8, 1977. Now it's down to 674 Mcf per day.

Gulf GK Number 2 was, flowed--it was completed January 2, 1978, flowed on 25/54 inch choke initially at 6626 Mcf. Since that time the well is now still making 2680 Mcf per day. Pretty good well.

The next well was the Yates AB number 4. It was completed on March 13, 1978. Drill stint test, it flowed 10,736 Mcf on 1/2 inch choke. The well had been on production for 60 days, and at the end of that time it was producing 7410 Mcf per day, pretty good well.

That is brought up to date, the wells that have been completed. Since that time, Gulf has drilled a well in Section 18, but they're still in the process of completing it. And Mesa has drilled a well in Section 24, and they are still in the process of completing it.

Q Now does the production history, Mr. Beck, that you've just recited for the examiner support your conclusion that the best wells are along the so called thick area of the Morrow?

A Well, the Penasco and the Rio commercial wells, both of them, are in the thick or on the flank of it. However, the Penasco does have a thicker Morrow classic section than the Rio and is a better well.

The AB 4, GK 1 and GK 2 are either in or along the flanks of the thick.

Q What about wells that have been drilled out on the ridges?

A Well, the Pubco Cass State in Section 25 drilled

on the ridge and is a dry hole. That's in Section 25 1824. The Antweil LaCama was drilled on thin Section 20 1825. It was dry in the Morrow. They did make a gas well out of it. Yates drilled a well in Section 17 on the thin, and it was a dry hole.

Q That was the Four Dinkus?

A Four Dinkus in Section 18. Would you like for me to return to the map?

Q Yes, if you would please.

A To go back to the Isopach Map. Considering the relationship between the Morrow classic thicks and indicate' the commerical Morrow wells, one can see that both proposed 660 locations are prudently placed within a respective designated proration. This and following the exhibit will show that in this area near the sub crop of the Morrow classics Yates in the drilling of extensive 8800 foot Morrow tests would like to have the flexibility of 660 foot locations drilling unnecessary wells to protect correlative rights.

Q Mr. Beck, you mentioned that these two 660 locations were prudently placed. Would you elaborate on the word "prudent"?

A Well, a prudent operator would drill a well in the best place he could in his proration.

Q And in your opinion those two locations are the best places in your proration unit?

A Yes, sir.

Q Are they the locations most likely to encounter commercial production in the Morrow?

A According to the data, as I understand it, I would say that they would.

Q You have any footage locations or footage distances between your two locations and your offset wells?

A Yes, sir. A few just between prospective shear footage standpoint, the northerly location, the City's well Case 6232 is 3600 feet from Gulf GX well, 4,000 feet from Gulf GK #2, 2690 feet from the Mesa Lincoln State. The Mesa Lincoln State itself is 2700 feet away from the GK 2.

Q The Gulf well?

A The Gulf GK 2. The southerly location in Case 6231, the State GM is 3900 feet from the Mesa Lincoln well, 4500 feet from the Gulf GK #2, 3900 feet from the Yates AB4.

Q So with the exception of your northerly unorthodox location and the Mesa Lincoln well, which you said was 2690 feet, your two locations are all over 3600 feet away from the nearest wells?

A Except for that one, yes.

Q Would you please turn to what has been marked as Exhibit 3, your overlay, and explain what is shown by this?

A Exhibit Number 3 is an overlay which can be placed on top of the previous exhibit is an Isolith Map showing the varying footage of clean Morrow sand, Morrow sand cleaner than 50 api gamma radiated units was counted within the whole Morrow classic interval for each well regardless of the position or incline of deposition of the sand. However, the map is useful in showing where the concentration of the clean sand are and the relationship between such sand concentration and other data. The overlay shows that the clean Morrow sand are concentrated in or along the flank of the Morrow classic thick of the previous exhibit.

The overlay also shows both proposed 660 locations are placed within the respective proration units to encounter the projected greatest amount of clean sand. Here again the need for the flexibility of the 660 location is seen.

Q Please turn to what's been marked as Exhibit 4, which is your cross-section and point out the important data on this exhibit?

A I apologize for the size. Exhibit number 4 is west and east cross-section transversed is the main Morrow classic thick previously discussed. The cross-section shows

the Mesa Lincoln State, the Gulf GK #2, the Gulf GK #1 with the Morrow gas well lined in the Morrow classic thick between the top of the Morrow classic and then conform to the line drawn on across there. The Yates AB to the left and Antweil LaCama and Yates 4 Dinkus to the right lie in thin, and I'm saying they contain only thin non-commercial Morrow sand.

This cross-section also shows the stratigraphic non continuity of the Morrow and channel sands, a relatively close spaced well. Such noncontinuity of reservoirs of wells in this cross section as well as reservoirs or wells in this area not on the cross-section is borne in and corraborated by pressure information and well performance history.

That's all I have to offer.

Q Okay. Does-- What support does your statement of the noncontinuity of the channel have to do for your unorthodox locations?

A Well, in order to explore for relatively small but what appear to be commercial channels sands, operators are required a reasonable flexibility in hindsight. It's nice to be able to drill on orthodox locations if it fits your geology, but if your geologist doesn't support it then I think you should be able to go to 660 foot locations.

Q Have you made a study of the Pennsylvanian wells

included in the out-cropping area of Eddy County and several surrounding townships to this field, the 4 Dinkus field?

A Well, yes I have.

Q And you determined for those wells how many were at orthodox locations and how many were at unorthodox locations?

A Yes, sir.

Q What number were unorthodox locations?

A Well, I counted six townships more or less straddlining the Morrow sub-crop area from the 4 Dinkus area on the west to the Kennedy Farms area on the east. And there were 27.2% of the Morrow wells on unorthodox locations.

Q What was that number?

A Thirty-three total unorthodox wells.

Q Out of how many total wells?

A 121.

Q Do you have those townships for the examiner in which you determined the unorthodox or orthodox location of wells?

A I took them by range of 1724 and 1824, moved over to 1725 and 1825 and over to 1626 and 1726.

Q Are the Morrow pools in those townships which you

just testified to similar in your opinion to the 4 Dinkus Morrow Pennsylvania gas pools?

A Yes, sir.

Q Do you know whether or not any of those wells were penalized for their unorthodox, of the 33 wells were penalized for the unorthodox locations?

A To the best of my knowledge, no 660 foot location has ever been penalized. However, in one case a well was drilled on 330 location, and it was penalized 6%.

Q Do you know the name of the company that drilled the well, well name?

A Western Oil produces Plant number 2.

Q And that is in the township right north of the 4 Dinkus pool?

A It's in 1825.

Q And that's the only well that you know that incurred any penalty by reason of an unorthodox location?

A That's the only one I know of in these townships.

Q And that was at 330 and 660?

A Yes, sir.

Q Do you have an opinion as to whether or not the proposed wells located at these 660 locations are best located to obtain commercial production from the Morrow?

A I think that the way that I and the people I work with view the data, we think that these are the best locations to drill within their respective proration unit.

Q Do you feel that approval of this application will employ the drilling of unnecessary wells?

A Yes, sir.

Q Were Exhibits 1 through 6 prepared by you or under your supervision?

A I prepared them.

MR. LOSEE: I move the introduction of the exhibits 1 through 4.

MR. STAMETS: These exhibits will be admitted

MR. LOSEE: I have no further testimony of this witness at this time.

MR. STAMETS: Are there questions of the witness?

MR. DENT: I'm Don Dent of Mesa Petroleum.

CROSS-EXAMINATION

BY MR. DENT:

Q I believe-- Is it a fair statement to say that in a sense have given about three reasons why you think these applications are necessary? One, that prudently placed within designated unit bars any unnecessary wells, and that your geologist would not support the orthodox location. Is that

your testimony?

A Well, I don't know whether I can answer that.

Q Is that a fair statement?

A Why don't you say that again, let me be clear on that.

Q I believe-- Did you state that it was your recommended location because of your opinion, the locations are prudently placed within the designated unit?

A That is one reason why.

Q Did you further state that these locations are necessary because, to avoid the drilling of unnecessary wells?

A Yes, sir.

Q Did you further state that an operator may, if it's necessary in order to drill these wells, you must explore throughout the unit and therefore the geology did not support the drilling of a well at an orthodox location on these units?

A Well, I would say that on those units that the drilling on orthodox locations would not have a good chance of making a commercial well as these unorthodox proposed locations.

Q Well, let's take the last point that you made further. Looking at your Case 6231 in Section 25, where would

the standard or orthodox location be if you placed it as provided for in your proposal?

A It'd be 660 from the north, 1980 from the east.

Q Where would that you that location on your map that you showed, about the contour that you show on the Isopach on Exhibit 2?

A Put on contour about, oh, near 100 contour, maybe a little over it.

Q At about 100 contour?

A Yes, sir.

Q If we put an X there, it comes about 100. Now, according to your proposed location on Case 6232, Section 13, what contour does it appear?

A You mean for orthodox?

Q No, for your proposed unorthodox where you dedicated what contour?

A About 80, a little more than 82.

Q So it is your testimony then that the geology will support the drilling of an unorthodox location at about 83 feet but will not support the drilling of the orthodox location of over 100 feet?

A No, that's not the testimony. You have to take it all into consideration. And the one to the south, for

instance, by moving it over to 660 to the north, 1980 to the east Section 25, you're losing a lot on the sand count depending on the over rate on that. And you're also becoming closer to the Pubco Cass well. In the northerly location-- Well, we haven't got to that yet, but it would be, we had a sand count of about 30 feet.

Q Okay, referring to what you refer to sand count explain just what you mean.

A The standard clay to clean Morrow sand.

Q Okay, referring to exhibit 3 which is an Isolith That's your proposed location at 13, Section 13. Where does it appear on that contour? Is it fair to say at about 35, 35 feet?

A Section 13, the proposed location would be 35 feet.

Q Okay, where would the standard orthodox location in Section 25 be placed if you take the 660 and 1980?

A Well, as previously stated it would be 660 north 1980 from the east.

Q About where on the Isolith map is that, it would be between which contour?

A It would be right around 20 feet.

Q Would it be closer to 30? Your testimony is

between 20 and 30?

MR. STAMETS: Don, are you asking him about Section 25?

MR. DENT: Yes, I'm asking about Section 25, a standard orthodox location.

Q (Mr. Dent) What contour?

A Section 25, 660 from the north, 1980 from the east location, so closer to 20 than any other contour.

Q Is it your testimony then that a commercial well would not be drilled at that point, 20 feet between the Morrow sand?

A No, that's not my testimony. My testimony is that you got a proration there, the north half of 25; and the best place to locate that well is 660 from the north in that section.

Q I believe based on your map the best place to drill would be one foot from the line.

A Well, I'm talking about general tested locations.

Q If you could try the corner-- The corner, that corner would be the best place to drill.

A Yes, it would; but no one is asking for that.

Q What risk from the geological standpoint would be involved as compared to wells proposed location Section

13 as compared to an orthodox location Section 25 where you have approximately 10 or 15 feet difference in what you call the clean sand? Yet you have about the same Morrow, footage of Morrow classic.

A Yates and I don't look at it from that standpoint. I'm looking at it from the standpoint that we got a lease and we got proration units, where's the best place within that proration unit to drill it regarding the jobs are right there and without having any, not necessarily having any relationship to a well drilled in some other section just because they utilize the same contours.

Q Do you take into consideration correlative rights of those offset operators?

A Correlative rights?

Q Um-hum.

A Correlative rights. Well, I'm not sure how to answer that question.

Q I understand as far as Yates is concerned your your location is the best place. When you consider the rights of others, the offset operators--

A Well, as it's been sort of inclusive in direct testimony. There's a big chance that-- There's a chance anyway and possibly a good chance that drilling of either

one of these wells will not affect any of the other previously drilled wells. It's possible, we're not digging out of the blanket sand left overnight. It would be a highly complex classic deposition in this area. I think-- It's been my opinion that there are more single reservoir wells than there are wells that are all connected within one reservoir.

Q I'm referring to the docket. Would you please clarify what is the application for unorthodox location in the 4 Dinkus field, and you have requested unorthodox location for the Morrow testing. Yet you've consolidated these two cases. Are you requesting that you be granted a permit to drill two wells to test the Morrow sand?

MR. LOSEE: I believe the application is two separate applications to drill two Morrow wells. They're consolidated solely for the purpose of hearing testimony.

Q (Mr. Dent) Where it says 4 Dinkus field, it is a Morrow test?

A Yes, it is.

Q What do you intend, Mr. Beck, to do with the application assuming that it's already been approved and is on file for drilling and testing the Morrow in Section 13 of an orthodox location?

A I believe we probably will not drill that well.

Q What do you mean "probably will not drill"?

A Well, you know, wells are drilled and data comes in, these maps change and sometimes previous locations drilled before certain data was available and don't look as good as they did previously.

Q What data are you referring to, any specific data?

A Data that you get from building of a well, electric loads, test data.

Q I can't understand why you made two separate designations in your notice of hearing. If you intended at all times to drill two more test wells.

A I have no answer for that. I don't know why it was stated in that way.

MR. STAMETS: I'm getting a little confused here. I think first off I need to know, Mr. Dent, what well what other well you're referring in Section 13, standard location. Do you have the name?

MR. DENT: I have what has been approved. It's an application by Yates Petroleum Company. It is dated-- It's called, the field is a wild cat Morrow. It was approved as of March 22, 1978. It states that the approximate date the work had started was 3-17-78. It was request for an

application to drill and test the Morrow and intermediate formation. Approximately 300 feet of surface casing will be used to set off the gravel. Casing and intermediate casing will be set 100 feet below the Artesian water zone. This is the location 1980 to the north, 660 to the east in Section 13, 18 South 24 East.

MR. STAMETS: What's the name of that well?

MR. DENT: That would be the Unit 8, Section 13, Amoco JG7.

MR. STAMETS: And the same in East half of Section 13 is dedicated to that well?

The 102 attached to that does show East half of Section 13. Now, you were a minute ago referring to-- You asked the witness Mr. Beck a question about two wells, and this is a consolidated case. It has a well in Section 25 and a well in Section 13, and I'm confused about whether you're talking about those two wells or whether two wells in Section 13.

MR. DENT: I'm talking about the-- It's my understanding, based on consolidation of these two cases and their testimony, that it is a reque-t to drill a Morrow test at the same location 660 in Section 13 and dedicated to the east half and they confirmed that.

I'm asking him what does he intend to do with the application which has been approved, that is now on file and approved in the event the Commission should grant this application.

A We would let the previous one expire.

Q (Mr. Dent) Well, what information, Mr. Beck, do you have that caused you to file a request for an unorthodox location subsequent to the date that you filed and received this approval of a standard orthodox location in Section 13?

A You're asking what caused us to change our mind after an unorthodox location?

Q I'm asking you if you have any data or information, geological data or information that came into your hands that caused you to do this.

A The electric logs and the chronological history in the Mesa Lincoln State produced new data.

Q Did that data cause you to conclude that a well at 1980 to the north, 660 to the east as a regular location would be a non-commercial well?

A No, it merely shows that the-- It calls for reinterpretation and reevaluation of the maps and showed us that660 location would be more prudent that the original,

originally located well.

Q When did you get those data?

A Oh, I couldn't answer that at any specific-- I don't have that data in front of me.

Q Is it your testimony that if the Commission desires these requests that Yates will not likely drill the proposed wells at the orthodox location?

A Yates would have to evaluate whatever decision Examiners issue. What that decision would be depends on the order given.

Q What negative information did you receive on the Mesa Lincoln State well that caused you to move the well to the south, proposed location to the south?

A No negative information as such. We just plugged in the Mesa information to the map and recontoured the maps and came up with the best location we got for that proration unit.

Q You had planned to commence a well on March 17, 1978 at an approved orthodox location, had you not?

A Yes.

Q And is it your testimony then that you received no information that would negate the drilling of that well by, because of the Mesa Lincoln State completion or drilling

if the well had been drilled there?

A I'm not sure I understand your question if I haven't already answered it.

Q Well, you said you've received no negative information by the drilling of the additional well.

A I saw no negative information--

Q But I believe--

A --as such. The information of information, you plug it in and you reevaluate your maps and pick the best location.

Q I'm going back to your testimony-- First of all, that the geology did not support unorthodox location. And that it proved the place was in the designated unit. Now, I tie that to the decision by Yates back in March of 1978 to drill a well at an orthodox location.

MR. LOSEE: Mr. Dent, I don't believe that's what his testimony has been. I think his testimony has been with respect to that unorthodox location, that that's the best location that Yates can pick on this unit. I don't believe he's testified that he thinks it's better than the orthodox location, but I don't believe he's testified as to whether the orthodox location will or will not produce.

Q (Mr. Dent) Do you have with you, Mr. Beck, an

Isopach which you or someone in your company based the decision to drill a well on Section 13 on a standard orthodox location?

A No, sir.

Q Do you recall from the geological work and data and information that you used in making that decision whether or not it differed greatly from your Isopach map which you presented here today?

A The previous map didn't show a lot of hope for Section 13, however, we did have a short period lease and we attempted to locate the other one primarily on the bases of possible reservoir in the Cisco, as I recall.

Q Is that why the application today may have stated that if, requested to drill a well in the field rather than the Morrow Sand since it was going to be a Cisco test?

A Well, we were going to drill a well in Section 13, and before all the other wells were drilled up to the south, we had to come up with some sort of reason. We thought we had a better shot at the Cisco probably, but as long as we were going to drill as far as Cisco we were also going to take it to the Morrow because you never can tell what's going to happen.

MR. STAMETS: Mr. Dent, I would like to point

out that this is a standard procedure for the Commission when it advertises on the basis of an application from an operator, we will tack an appropriate field name on there if one is not supplied, and that was the case here. So the 4 Dinkus field is terminology added by the Commission for the ad.

MR. DENT: Why was it not added to the one, the request from the Morrow Sand?

MR. STAMETS: I don't know. If I had written it in I could tell you, but I didn't.

MR. DENT: Well, I had assumed, Mr. Examiner, that these were taken, these data and information contained on document were taken directly from information furnished by the operator in his request. That's what I had concluded.

MR. STAMETS: I theorize, Mr. Dent, that there may be other fields in the area and this particular location is not close enough to either one of them to tack a field name onto it.

MR. DENT: Thank you.very much. I pass the witness.

MR. STAMETS: Mr. Campbell?

MR. CAMPBELL: I have a few questions. Mr. Dent, I didn't know Mr. Carr was entering an appearance here. We had a gentlemen's agreement that we won't duplicate the

case anymore than necessary. He has covered a number of the matters I had intended to interrogate the witness about.

CROSS-EXAMINATION

BY MR. CAMPBELL:

Q Mr. Beck, would you state for me one more time how it is that Yates determines where it proposes to drill a well in a drilling unit?

A They utilize all the data that's accent, make up certain maps and pick the best location they can within the proration unit.

Q What do you mean by the best location, the one nearest to the best well or where it falls on the contour? What do you mean?

A No, sir, not exactly. Just for a matter of discussion in case of Section 25 of 18-24, if that proration unit was the East half stand-up 320 we would drill that same as 660 of the east and 1980 from the north because it fit the geology the same, almost the same as the 660 location; but the north half is the proration unit, and 1980 from the north and 660 from the east would be unorthodox just like the 660 from the north and east.

Q Well, when you do that, do you automatically make application for an unorthodox unit if your spot on the

contour, the best spot on the contour happened to be on an unorthodox location? Is that the practice of your company?

A It's not a fast hard rule.

Q You stated that there was some 88 orthodox locations and 33 unorthodox locations in the Morrow and this general area. Do you know how many of those 33 unorthodox locations are Yates' locations or in which Yates has an interest?

A I've got that here. Out of the-- There's 20 Yates unorthodox locations, however, that we must keep in mind that, I don't know for sure, but Yates has probably the bulk of the acreage in the country. So they would be drilling more wells than anyone else.

Q Do you believe, Mr. Beck, that a well drilled at an orthodox location on this unit would adequately drain 320 acres?

MR. LOSEE: Mr. Campbell, which unit are you referring to?

MR. CAMPBELL: I'm talking about the first unit, the south unit on Section 25.

A You're asking if on orthodox and unorthodox--

Q Yes.

A --location would drain it? I really don't know

I'd say that-- I just couldn't answer for sure.

Q Well, do you think unorthodox location you're proposing will adequately drain 320 acres?

A Well, there again I don't really know total gallons or anything. I just couldn't answer that with any sureness.

Q Well, have you made any calculations of the potential reserve under Section 25 at all?

A No, sir, I haven't.

Q Or where those might be located?

A No, sir, I haven't.

MR. CAMPBELL: Do you have a witness who has?

MR. LOSEE: No, sir.

Q (Mr. Campbell) Well, is it a fair statement to say that when you refer to locating wells or recommending location of wells so that they're prudently placed, that prudently placed from your point of view as a geologist in recommendation to your management means the place where that well will gain the greatest production irrespective of the rules with regard to spacing?

A Considering the data we have and the nature of principal reservoir we're after, we would locate at the best possible place according to geology.

Q When you refer to-- When you answered Mr. Losee's question that you felt that these two unorthodox locations would protect correlative rights, whose correlative rights were you referring to, Yates'?

A We protect the correlative rights of the people in the proration unit as described.

Q Just within the unit? You weren't referring to other people's correlative rights in the area?

A I'm talking just about the people in the proration unit.

MR. CAMPBELL: I think that's all.

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

MR. LOSEE: Mr. Examiner, while they're referring--

May I make certain I'm clear on status of these applications. It's my understanding that with regard to the proposed locations in Section 13 that the applicant here did file and obtain approval for an orthodox location for a well to the Morrow, through the Morrow. That was on the Commission's Form C102, and it was on USGS Form 9331C. That's as to the location in Section 13. The application which was filed with the Commission, and I would like to ask

what date that was filed, please, on this same section in Case No. 6232?

MR. STAMETS: As received on May 1, 1978.

MR. LOSEE: That on May 1, 1978, the applicant filed his application for unorthodox location for the Cities JG No. 1 well and sought to use that location drilled to a depth sufficient to adequately test the Wolfcamp and Pennsylvania formations. That's what the application copy I have indicates. The file reflects that does it?

MR. STAMETS: Yes, and also, looking further back, I see here that that was phoned in to me on April 27 by Joe Carson. And I also see that I'm the one who wrote 4 Dinkus on this application, and so I'm responsible--

MR. LOSEE: That is my observation, just so the record will be straight, that when the notice was prepared the notice contained the statement that the proposes unorthodox location for the Cities JG well number 1 was in the 4 Dinkus field, Eddy County, New Mexico. Is that record right on that whole transaction now?

MR. STAMETS: That's how it got in there, and I'm certain that that's the way it's advertised although I don't have a copy of the ad with me. The docket is taken directly from that. I'm sure that's the way it is.

MR. LOSEE: Thank you. What I-- I guess, Mr. Examiner, there's nothing that I saw in the application that indicates 4 Dinkus field. That's what the Commission added when they prepared at the least the circular and probably that.

MS. TESCHENDORF: May I clarify that? Our statutes require that when we advertise that when we advertise we have to name the common source of supply, give notice to the people, and I think probably this was so close to the 4 Dinkus field that that's why it was included.

MR. LOSEE: And the area to which it is as close is not designated as I understand it; is that correct?

MS. TESCHENDORF: Where actually it's not designated--

MR. LOSEE: To the northeast of that, toward the east of that.

MR. STAMETS: Let's go off the record a minute.

(WHEREUPON, a discussion held off the record.)

MR. STAMETS: Let's go back on the record.

Do you have anything further, Mr. Campbell?

MR. CAMPBELL: No, not at this time.

MR. STAMETS: Any other questions of this witness?

He may be excused.

MR. LOSEE: I think that's the applicant's case.

MR. DENT. Mr. Examiner, my name is Don Dent. I have one witness appearing on behalf of Mesa.

We have handed you a packet of exhibits, and it has a cover letter marked Exhibit A. These exhibits are the same for Cases 6231, 6232 and 6213 with the exception of Exhibit 7 of each of the packets. I think you'll find-- The others will be the same exhibits in each case. We made separate packets in the event 6231 and 6232 were not consolidated.

ROY WILLIAMSON, JR.

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

DIRECT EXAMINATION

BY MR. DENT:

Q At this time I'd like to have the witness state his name, please.

A My name is Roy Williamson, Jr. and I'm President of the consultant firm of Sipes, Williamson & Aycock with offices in Midland and Houston, Texas.

Q Mr. Williamson, are you appearing here today at the request and on behalf of Mesa Petroleum Company of

Amarillo, Texas?

A That is correct.

Q In preparation for this hearing, have you made a study of what Mesa categorizes as its Cass Ranch prospect which includes the lands and wells situated and involved in Cases 6231 and 6232?

A That is correct.

Q And further in preparation of this hearing, did you prepare certain exhibits?

A Yes, I did.

Q Also as you prepared for this hearing, did you find that Mesa geologists had prepared certain exhibits for this hearing?

A That is correct also.

Q Because of commitments of these geologists in Midland who are unable to attend that hearing today, did you review the data and the exhibits and map prepared by the geologists?

A That's correct and in some cases where I had a different opinion we changed the map to reflect my opinion.

Q So in your testimony today although Exhibits 1 through 5 were not prepared by you and particularly at all times under your supervision, they have been approved, looked

at and approved by you and you concur in what they show; is that correct?

A Well, I'd like to correct that slightly. One and 2 were the exhibits prepared by Mesa in which I concurred after some changes. The other exhibits were prepared under my direction with the exception again of exhibit 5 which uses the Mesa map as a base with my interpretation which I get into later today.

MR. DENT: With those qualifications on Exhibits 1 and 2, Mr. Examiner, do you have any problems with this witness presenting these exhibits?

MR. STAMETS: No. The witness is considered qualified.

MR. DENT: Thank you.

Q (Mr. Dent) Mr. Williamson, will you refer to what has been marked as Exhibit No. 1 and explain to the Examiner what its intent to show on that exhibit?

A All right, Exhibit No. 1 depicts with the black contour the structure map on the top of the Mississipian. And the red lines indicate our interpretation of the Isopach in the Morrow zone. I will further define this net thickness in the Morrow as being clean sand, it exhibited cross-over between the neutron and density logs which indicate the gas

bearing sand. Also on this map outlined in blue is a cross-section AA prime which will be discussed in Exhibit 2 in a moment.

Q What does the orange acreage indicate on this map?

A The orange acreage indicates that acreage in which the Mesa Petroleum has an interest.

Q Mr. Williamson, what is the difference in nomenclature between an Isolith of clean Morrow sand and Isopach map as you have just explained?

A Well, the way I understand the previous witnesses explanation of his Isolith, it is a clean Morrow sand as depicted by anything cleaner than 15 units on a gamma ray curve. I may stand to be corrected on that, but I believe that's what the witness testified.

I have further defined that pay as being that pay which exhibits cross-over between a neutron and density log which normally indicates gas bearing sand.

Q I noticed that on this exhibit you've noted that a line AA prime. What does this indicate?

A AA prime is a cross-section that will be presented as Exhibit 2.

Q Do you have anything further on this exhibit?

A No.

Q Refer to Exhibit 2 and explain it to the Commission.

A It is a cross-section denoted AA Prime. It is an east-west cross-section as shown on the trace AA Prime with Exhibit 1. And on this map we have various horizons identified such as the top of the Morrow, the Upper Morrow Sandstone, the Lower Morrow, the top of the Mississippian Shale, and the top of the Mississippian Limestone. I'll call your attention to the colors on each of the wells. The yellow color being that about a pay that is indicated to be clean on the gamma ray curve, and the red being that portion of the pay that exhibit cross-over between the neutron and density logs. I'll call your particular attention to the Mesa Petroleum Lincoln State Common #1 which is the second well from the left. We have correlated a zone in here that we believe to be correlible with the producing zones in the other six wells or other five wells plus the dry hole, and we think that this is and we know it is from sample calls a conglomerate section in the Morrow. You will also observe above what we say the Upper Morrow Sandstone, there is additional yellow and additional red coloring. This is a Morrow Sand. It is a fine grain sand and it is completely different type of reservoir rock than we have in the

conglomerate section. I have shown this merely to show that we are picking out the additional zone that has not been tested. Log analysis indicates that it should be productive, but it has not been included in any of our reserve estimates, Isopach calls or any calculations.

Now referring back to Exhibit 1, and in Section 24 we have the Lincoln State well there. You'll notice there the figure 17. That is the net pay that is in the conglomerate zone as previously described. The figure below it in parenthesis is 30 feet, and that is the pay zone that would be counted in the fine grain sand above the conglomerate zone. And that's merely put in there for information. It is not in any of our calculations other than it indicates in our opinion that in this section we're beginning to see an additional build-up of possibly productive sand in the Morrow.

That's about all I have on Exhibit 2.

Q What have you shown on Exhibit 3?

A Exhibit 3 is merely the available production through March of 1978 on Morrow wells that are in the area of interest at this time. We have the Antweil, Penasco well, the Rio Common well, the Bennett & Ryan Lonetree and the Gulf Oil Corporation Eddy GK State No. 1. Our records do not

show any production from the number 2 through March, however, I'm sure this well is being tested as previously indicated by another witness.

Q Have you shown additional data and information on Exhibit 4?

A All right, Exhibit 4 can be called a Well Data Sheet for the wells that appear on the cross-section, Exhibit 2. Listed on the left-handed column is operators, lease, well number, the well location, perforations, drillstint testing information. And I might point out, while we're on that column, that the final shut-in pressure as exhibited by the DST data indicates very good correlation in pressure which correlates with my opinion that this conglomerate section in the Morrow is a continuous sand.

In the Morris Antweil No. 1 well, we had 3252 pounds, the Antweil Penasco 3356, the Yates Petroleum Federal AB 3269, no DST on the Gulf GK 1 or 2, the Mesa Lincoln State Common was 3282, and in the Cass State Common 3111.

The next column shows test data. If a well was subjected to a single point or four point test, we have the prorates denoted, with the final column being the Calculated Absolute Open Flow if it was prepared for the well.

Q Mr. Williamson, refer to Exhibit 1 before we pass to Exhibits 5, 6 and 7.

As depicted on this Isopach, does the geology support the drilling of a well in Section 13 and Section 25 at an orthodox location?

A Yes, sir, it does.

Q Do you have an opinion as to whether or not there will be any loss to Yates that is through recoverable hydrocarbons by the movement of the proposed location to an orthodox in each of those sections?

A In the case of Section 13, my calculations will show as I will testify to later that an orthodox location will generate more reserves than unorthodox locations. In Section 25, the orthodox location will generate slightly less reserves than the unorthodox locations.

Q Is it your opinion that based upon this Isopach and your study that an operator would prudently place his wells at orthodox locations in both of these sections?

A That is correct.

The Morrow field has been developed to date on orthodox locations, and I see nothing in evidence at this time that would say that the operator should depart from this practice.

Q In preparing for this hearing, did management of Mesa instruct you in any way as to its desires or intentions of Yates if they would not drill such wells at an orthodox location?

A Right, I was instructed to read into the record that the Mesa Petroleum will farm out from Yates Petroleum an orthodox location in either Section 13 or 25 under standard industry terms for the area.

Q If you were asked to pick a location and support it at this Commission, do you have an opinion as to whether you would support an orthodox location at each section?

A Yes, sir, I do. I think Exhibit 5 and 7 will support that, and I would like to discuss the way I arrived at both of those conclusions.

Q Okay. Pass then to Exhibit 5 and explain what you've shown on this exhibit.

A Okay, Exhibit 5 we have shown in Section 13 at the unorthodox location a circle that represents 320 acres of drainage, and that circle is partially colored orange, the intent meaning that if that well were drilled there and if we did have a homogeneous isotropic reservoir that we would have a circular drainage radius and it would cover the area as shown on this map. I have shown also in Section

13 an orthodox location which would be 660 from the south line and 1980 from the east line of Section 13, a circle also depicting 320 acres of drainage and partially colored green. Now, I can also say that that orthodox location could be moved north of the unorthodox location or north and west of the orthodox location; and if it were moved north of the unorthodox location, that is to a 660 from the east and 1980 from the south the green circle then would just be moved up and would have the same relationship to offsetting acreage as this one does.

Now down in Section 25, I've shown the same thing. The unorthodox location is 660 out of the corner with the orange circle, the orthodox with the green.

Now the purpose of this was to show what drainage would occur outside of the 320 acre units that would be assigned to the Yates well in either case, this drainage occurring from the offsetting leases.

In order to explain the further calculations, I'd like now to refer to Exhibit 6. And I've entitled Exhibit 6 as Ratable Take Factor. Now I'd like to preface this by saying that in our opinion an unorthodox location either in Section 13 or 25 would not harm recoveries by Yates Petroleum. In our opinion, it would more adequately protect

correlative rights. However, in the case of an unorthodox location is approved, and we are not recommending that at all, I have calculated what a penalty would be based on acres of drainage that would occur from the unorthodox location.

I'll read now from Exhibit 6 saying your orthodox location has drainage encroachment outside of the 320 acre unit which is allowed by the current rules of 86.78 acres. That would be the green portion within the 320 acre circle.

The unorthodox location has drainage encroachment outside of 320 acre unit which would be the solid orange and then the orange and green hazard (sic) would be 151.86 acres.

The additional drainage encroachment of a well at the unorthodox location then is 65.08 acres.

A ratable take factor then could be calculated as follows: Standard Unit acres which is 320 minus additional drainage encroachment acrease which is 65.08 divided by the standard unit acreage of 320 acres which is a factor of .7966. And it would be my opinion that if the unorthodox location were approved, that the minimum ratable take factor would be this .7966 to be applied to that well to protect correlative rights of the offsetting acreage.

MR. DENT: Mr. Examiner, we'd like-- It's Mesa's position that Exhibit 6 has been offered to show or quantify the additional drainage encroachment caused by the unorthodox locations if any. It is not our intentions to offer this as a compromise or a solution to this problem.

We feel that these types of data and testimony is required in a field rule hearing, and it should be taken up in that hearing in the event these applications are granted. We're not offering it for any reason other than to quantify the extent of encroachment.

A I'd like to further clarify the reserve number that I mentioned earlier by referring to Exhibit No. 7 in Case 6231 and to Exhibit No. 7 in 6232. What I have done in each case is calculate, based on the Isopach data from Exhibit No. 1, what the expected ultimate recovery would be from a 320 acre drainage circle at an unorthodox and an orthodox location for both sections 13 and section 25. And I realize that if you move the orthodox location into another orthodox location we might have slightly different numbers, but in my opinion the adequate positions at unorthodox locations exist to adequately drain the gas reserves under the Section 13 and Section 25 unit.

I refer first to Case 6232, Exhibit 7. I've

determined an average porosity, an average bottom hole pressure, a water saturation, a gas gravity and assumed drainage area, a gas formation volume factor, a volumetric calculation of available space in which gas can be stored. I have assumed a recovery factor of 80%, and if somebody wants to argue about those recoveries that's fine. Whatever you do to one you do to the other for the ratios are the same.

For the orthodox location then using the isopach data on Exhibit 1, I calculate a potential recovery of 8,451 MMCF. If you drill at the unorthodox location, based on the mapping from Exhibit No. 1, the well would recover 6,761 MMCF.

I'll be the first to admit that we're not dealing with perfectly radial drainage from each of these wells. I think the data exists to show that either location is roughly the same as far as recovery.

Now, I refer you to Exhibit 7 for Case 6231. I've gone through the same approach. The orthodox location would recover 8,413 MM. The unorthodox location would recover 8,954. So the unorthodox drainer, ignoring drainage from the offset leases would gain approximately a half a billion Mcf in reserves; but it is my contention that the mapping

that we have available, the interpretation of the data that we have available bears that either location would be adequate and that the orthodox location would present unnecessary drainage of the offset operators and therefore would better protect correlative rights, and I can see no reason that it would create underground waste.

Q Is it your recommendation that these applications be denied?

A That is correct.

MR. DENT: We have no further testimony.

MR. STAMETS: Any further questions, Mr. Losee?

CROSS-EXAMINATION

BY MR. LOSEE:

Q Mr. Williamson, you're an engineer, I take it.

A I have a petroleum engineering degree and a geology engineering degree from the University of Oklahoma.

Q I believe your testimony was that Exhibit 1 and 2 were prepared by Mesa geologists and you reviewed the data; is that correct?

A That is correct. And I made some changes which they're made at my direction.

Q What is the name of the geologist that prepared it?

A Mr. Joe Jeffers.

Q Anyone else with Mesa?

A Not to my knowledge. Marion Causey who was the district exploration manager was involved in this, but I do not believe he prepared any of the exhibits or worked on them.

Q I recall your prefact to your discussion on Exhibit 5 which is the circular exhibit that that assumed a homogeneous reservoir?

A Yes, sir. Homogeneous drainage.

Q Well, would that also be a similar reservoir, homogeneous in character?

A I think you can say that it would be, right.

Q Well, is this reservoir or reservoirs that we're dealing with in the Morrow in this area a homogeneous reservoir?

A I'm sure it isn't. I don't think there's a reservoir in existence as it is.

Q Well, isn't it true that the Morrow generally speaking is probably the least homogeneous reservoir in southeast New Mexico?

A I couldn't necessarily say that. I would say that in my opinion, and I've looked at a lot of Morrow, that

the Morrow that we can correlate with our cross-section in this area is more homogeneous than most I've seen.

Q Turning to your Exhibit 4, two Morris Antweil wells, one the Rio No. 1 and one the Morris R. Antweil No. 1, would you explain the reason and the difference in the bottom whole pressure of some 300 pounds upon completion of those weels?

A The only way I can explain that is the DST pressure was not projected to a pressure build-up analysis. and unless you do that on a dimetrical time basis and extrapolate it to the metrical time we cannot adequately relate within these numbers of pounds the two pressures. I have not had access to the DST pressure record. If I did I could analyze them and tell you exactly what the pressure difference was, but in my opinion I would estimate that the difference is based upon the degree of buildup that was measured in each of these tests.

Q Well, now, let me ask this on your exhibit.

A Which exhibit, sir?

Q Well, the same one, Exhibit 4. The Morris R. Antweil shows set in BHP, bottom hole pressure, 2447? Isn't that actually the wellhead shut-in wellhead pressure, the four point test?

A Well, according to the record that we have, that was a measured bottom hole pressure, but I do not have access to the initial data.

Q All right, well, Morris R. Antwell Penasco No. 1 shows SIWHP. Is that shut-in wellhead pressure?

A I would imagine the difference there again is question of buildup time. Again, I have not analyzed those data completely.

Q Well, if you adjusted that shut-in wellhead pressure of 2700 pounds to the bottom hole pressure, the difference would increase dramatically between those two wells?

A Well, it would increase by the weight of the column of fluid in the Penasco well depending on whether it was gas or water, but without a pressure buildup the correlation of those pressures is indefinable.

Q Well, if you adjusted the wellhead pressure to the bottom hole pressure--

A It would be higher, yes, sir. And the difference would be greater, but if those were indeed buildup pressures extrapolated to dimensionless time then you would say that the pressure in the two wells were different; but I cannot state that because I don't have the basic data.

Q Well, what you're saying is that you can, you think you're dealing with the same reservoir in the Rio well of Morris R. Antweil as you are in the Penasco, and you show that the shut-in bottom hole pressure of the Rio well at completion was 2447 pounds and you show that the shut-in wellhead pressure of the Penasco adjoining well was 2703 pounds. You think they are producing out of the same reservoir.

A From all that we can do by interpreting the correlation of the log, I would say they are. I think the difference, and again it's only an opinion cause I don't have the date, I think the difference is function of the buildup time for that pressure in each well. I cannot testify that because I don't know. That is merely an opinion that I have. The Rio well produces inferior to the Penasco well. Whether that's a function of permeability characteristic of the reservoir of which we have no way of really measuring without doing some DST, I mean some pressure buildup work. It's obviously an inferior well. So something has happened, but I do believe from the log work that it is a correlable reservoir.

Q Notwithstanding-- You make that statement notwithstanding the rather dramatic pressure differences and

the rather dramatic production history difference between those two wells?

A Yes, sir, from the log they're correlable zones. What happens to the permeability, we don't have a tool as yet that measures that unless we do some buildup pressure work which could be done on the wells to define what the permeability variation is in the two wells.

Q Your exhibits 5 which is the circular exhibit and your Exhibit 6 on your proposed ratable take factor are both based on an assumption that you are dealing with a homogeneous reservoir?

A They're based on the assumption that we have an equal radius drainage area around each well.

Q Do you think that's true?

A Probably not, but I don't think anybody could measure it. There's no way to measure it unless you want to drill a well on every 40 acres and do some very detailed correlation and geologic and pressure work.

Q You say it's probably not true. How would you expect the Commission to rely on this data in responding to this application?

A Well, they rely upon data they have done historically because as reservoir engineers we must make our

assumptions and calculate with some data that are measurable, and I think we all know that the fact that you drill a well and log it, that log has a certain radius investigation. You know whether it's going to be the same 50 feet out as it is 20. So we take the data that we have and make the best interpretation that we can and we drill our well on that basis.

Q Well, isn't it true that many of the reservoirs that the Commission deals with are readily susceptible to a radial drainage much more so than the Morrow is in this area?

A I can't make that statement because any reservoir that you're dealing with is going to have a variation in thickness, it's going to have a variation in porosity, it's going to have a variation in permeability. All of these will affect what the actual drainage radius of that well actually is.

Q Well, isn't it true that the Morrow is the least predictable out from the wellboard as o thickness, continuity?

A In some cases it is. As I stated earlier in my opinion this is one of the most predictable Morrow sands that I have seen because you can correlate essentially the

same section from well to well, you have essentially the same pressure originally. I think what we've seen after some time of production is that there's a permeability factor in the reservoir that we can't measure, and I can't make a statement that it is less predictable than the other reservoirs.

Q Well, if you can't pick the permeability, how do you determine that the drainage is in a radial fashion?

A Because that's the only basis upon which we can make that assumption. If you want my real opinion as to what would happen, I think the unorthodox locations in 13 and 25 would drain preferentially from the offset area and probably would drain more when the offset leaves because that is the known reservoir at this time. So if I made a calculation, I would say that would be an egg shaped drainage pattern more on the offset lease than on the 10 and 20 acre units that I have shown on this exhibit, but I have not tried to predict that because I don't know.

Q The oldest well in this field has been in, what seven months? Is that about it between--

A Apparently the Penasco and Rio Common started producing in September of '77 according to State records.

Q And based on that production history, you feel

that you can determine the reserves?

A No, sir. I don't think that the trend has been established whereby you can take production history and extrapolate it. At this point you're dealing with a biometric calculation having the same drainage area, thickness and recovery.

Q Which you admit is not present in this reservoir, uniform thickness, uniform permeability?

A Well the thickness we have-- We have printed an Isopach map back in Exhibit 1 which is a contouring of the available data. We take the thickness in each well, extrapolate it off the log, and we assume then that the reservoir between these wells act as we see. It would make a contour. That's a normal approach to a structure map, an isopach map, any kind of map which has scatter data points and you make a correlation or interpretation between those points.

MR. LOSEE: I think that's all.

MR. STAMETS: We'll take about a 15 minute coffee break.

(WHEREUPON, a short recess wasttaken.)

MR. STAMETS: Back on the record.

I have a few questions here.

MR. DENT: Mr. Examiner, before you ask your questions, we would like at this time to have the witness refer to what has been marked as Exhibit 8.

These are data and information which he has obtained from the files of the Commission during the recess.

REDIRECT EXAMINATION

BY MR. DENT:

Q We would like to offer that exhibit, and explain what it is.

A Yes, sir. The prime purpose of Exhibit 8 is to make a correction on our Exhibit No. 4 on which we have shown the Morris R. Antweil Rio No. 1 to have a shut-in bottom hole pressure of 2447, and our scout ticket that we took it off of was in error and we actually have the Form C-122 which shows that to be a tubing pressure. So it is a shut-in tubing pressure which is still different, of course, from the Penasco well but it's not as much as it was before. Twenty-four forty-seven then is a tubing pressure rather than a bottom hole pressure.

MR. DENT: At this time we would like to offer Exhibits 1 through 8 into evidence.

MR. STAMETS: These exhibits will be admitted.

(WHEREUPON, Exhibits 1 thru 8 admitted into evidence.)

MR. STAMETS: Are you through now?

MR. DENT: Yes, sir.

EXAMINATION

BY MR. STAMETS:

Q Mr. Williamson, in unprorated Pennsylvanian Wolfcamp gas pools, if the Commission grants-- Well, let me go back. In these unprorated pools, is there any effective way for the Commission to offset an advantage gained by an operator who crowds proration unit lines?

A Well, the only advantage, I mean the only correction that could be made to that advantage would be to restrict the producing rates of that well at the unorthodox location such that correlative rights across these lines would be protected.

Q And in the same prorated pool, is there any effective way for the Commission to do that?

A Well, I understand, and I may stand corrected on this. I understand that these wells are all producing essentially at capacity. And the only thing then you could do is take the capacity of that well, that is trying, of course I think you would have to come with some relative calculation of capacity and then penalize the well that's nearer than an orthodox location. In other words, you would

then say that in this case capacity is allowable. Of course, if we had field rules and had that established which I think obviously has got to be done very shortly in this field, you can handle it with an allowable situation. Until that allowable is set, I think the only way you could do it then is, as in this case you do have capacity production from each well, take the capacity production and reduce it by the ratable take factor.

Q Okay. Your Exhibit No. 6 is an indication of how much encroachment there is on your acreage resulting from the unorthodox locations, and this is calculated for each Case 6231 and 6232 as to the northern well. Now, you have figured this on the basis of a lay down proration unit, and what's proposed as the stand up proration unit would be--

A --it'd be the same calculation.

Q It's the same calculation, but the result would be different?

A No, sir. The result would be the same. Just take what you got and turn it to the side, and you would have the same amount of drainage encroachment from the orthodox location as you do now. In other words, you swing it up to the north of the unorthodox location.

Q I'm speaking specifically as to Mesa's acreage. If you move--

A Oh, Yes, sir, as to Mesa's, I'm not specifying Mesa as being encroached. Whoever owns that lease outside the 320 acres assigned to A-12. Now then, if the A-12 moved to take a stand up on the east half and put it 660 from the west and 1980 to the south, then that would reduce encroachment from either case then because most of that proration unit then or the drainage area as we depicted would be in the Section 13, 320 acres to the south.

Q In recent orders where the Commission has assigned ratable take factors to wells which have crowded the line in addition to the net additional drainage encroachment, the Commission has taken into consideration the percentage, well a factor that is a percent derived by taking the standard location and then the unorthodox location dividing the former into the latter and doing this for both the north-south/east-west standard locations and adding the three together and dividing by three, and you feel this is appropriate formula for determining the penalty factor?

A I must admit I didn't quite follow you.

Q The theory behind this is that if you just strictly go on drainage, you could move clear off of your

proration unit and still have some drainage rights.

A I see, okay.

Q But you really don't have any rights to drill over there. So if we assume that in a standard location you have 100% rights to drill and your neighbors probably have 0%. As you move from the standard to the nonstandard your rights diminish so that half way between standard and off toyour property you had 50%.

A Oh, I see.

Q The same is true with north-south/east-west. So you add all three of these together, for instance you add your 79% based on encroachment and say 50% based on north-south and 100% based on east-west, divide these by three and that would be the ratable rate factor.

Does that seem a reasonable way to take all these things into account?

A Well, I really, I'd have to sit down and calculate what you're saying there, but I think that the approach that would be the most straightforward would be to take something like this. In other words, you got to take into account where the well will be drilled as opposed to where it should be drilled. And I think that the rules as the State provides now allow for encroachment on the 660 side.

Obviously that would be "a standard allowed encroachment" and you move in towards then the 660 location you would be gaining more and more encroachment until you got the maximum encroachment at the 660 location.

So I could see if you want to drill half way in between on a side between a standard and a 660, then there would be some other factor in there, but I think you would need to take into account actually where that well is drilled as opposed to averaging all the possibilities that could be taken that if I understand what you're saying, you're saying that you're averaging all the possibilities of where the standard location could be as opposed to nonstandard.

Q I think you misunderstood me. It's not averaging the possibilities, it's just taking the closest, the nearest standard location and then come up with a percentage of how that varies to the non-standard location.

A Non-standard. Yes, sir, basically that's what I've done here I think on the 1980 versus the 660.

Q You indicated this particular Morrow sand is more predictable than the normal Morrow sand. Why is that?

A Well, the mapping that we have here indicates a channel sand of some kind, and I guess you get a pretty argument of whether it's channel sand; but we see from our

going back to Exhibit 1 that we have some other Morrow wells down in southeastern part of the map in Section 10, Section 4, Section 3; and utilizing all the available data, we see a trend here, sort of a north-west/south-east trend and by looking at least the 7 wells that we looked at that were adjacent to the acreage in the cases under consideration, the zones seemed to be generally correlable, seemed to have more or less the same characteristics and eventhough we see some differing characteristics of the wells I think that's going to always happen, but I've seen many Morrow wells that are only, fields that are only one or two wells in size. I've seen some that look great on DST, you set pipe and perforate them and nothing comes out. They obviously have a very small drainage area. I've seen some Morrow wells that produced outstandingly for a while and then because of limited drainage areas declined in production very rapidly. And by interpreting the correlation between these wells, it seems that this is a more or less correlable zone to a fairly large distance.

Q On Exhibit 1 in Section 14 on northwest part of the exhibit, there's a marathon well showed to be a Wolfcamp producer. Do you know if that well was drilled to the Wolfcamp or Morrow rather?

A No, sir, that NDE means not deep enough.

Q Okay.

Q So it would not have a Morrow point in that well.

MR. STAMETS: Any other questions of this witness?

Q (By Mr. Losee) Mr. Williamson, does the completion work on the Mesa's Lincoln State indicate that it's going to be a pretty good well?

A I have not analyzed the completion on that well. I understand that it's just been perforated and is on the test now, but I have not seen any data.

Q Has it been isostasized (sic)?

A I don't know.

MR. LOSEE: That's all I have.

MR. STAMETS: If there's nothing further, the witness will be excused.

C. D. STENBERG

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

DIRECT EXAMINATION

BY MR. CROSS:

Q Would you state your name, employer, position

and location for the record?

A My name is C. D. Stenberg. I work for Gulf Oil Corporation in Midland, Texas.

Q Have you previously testified before the Commission and stated your qualifications as a production geotechnologist?

A Yes, I have.

MR. CROSS: Is the witness qualified?

MR. STAMETS: Yes, witness is considered q ualified.

Q (Mr. Cross) Mr. Stenberg, do you have an exhibit which shows the area in which the three Yates unorthodox locations are portrayed?

A Yes, I have, it's labeled Exhibit No. 1.

Q Would you please explain your interpretation of your Exhibit No. 1 to the Examiner?

A Okay, Exhibit No. 1 is a combination structure Contour map and Isopach map of pay thicknesses over 5% porosity. The structural contour are the light colored solid lines which range in values from 40-- about 4650 down to -5250 sea level data. The heavy dash lines are the Isopach thicknesses of porosity 5% or more. Now these 5% porosity figures are based mainly on cross-plot porosity

of neutron density logs two or three wells had only a density or a sonic log but by and large the cross-plot porosity values are pretty good values.

Q What does the red line mark A-A' depict?

A This is the subject of our Exhibit No.2 which is the cross-section--

Q Before you go any further, would you please explain your appendage on your Exhibit No. 2?

A Oh, yes, that was late data after we went to print with the first part, therefore, they look a little different, right. We don't have-- I don't have the well data, some of the well data and so forth at the bottom of the logs.

Now, these-- The cross-section is hung on a reference, the reference datum is the same point from which the structural contours are drawn on Exhibit No. 1. For ease of correlation purposes, they're colored in blue. There are two lines colored blue which are the correlation markers which are used to construct the cross-section.

Below the reference line is a row of yellow colored zones and this depicts the main Morrow sands through the cross-section interval. This, I believe this correlation here bears out what the Mesa witness said that through this

area there is a very good correlative zone and it is a continuous pay section through several miles that the cross-section covers.

Now, opposite the yellow marks are the red colored porosity which is the, shows the porosity that's 5% or greater in all these wells.

Now, listed down at the bottom in the well data for each well in the cross-section have the perforation zones, completion dates, calculated open flow or initial potentials and the amount of net pay in each well. And the amount of net pays coincide with the Isopach thicknesses of pay on Exhibit No. 1.

I believe some of the wells towards the left-hand side of the cross-section will show why an unorthodox location in the North half of Section 25 18 South, 24 East would not have to be drilled. These are the Yates No. 4AB which is the 5th well from the left-hand side on the cross-section, the Mesa Well on Section 17 which is on one of the second one on the left from the appendages on the end. And the last one on the left-hand side of the cross-section which is the Pubco No. 1 Cass State Comm. Now referring to Exhibit No. 1, these three wells mentioned which are in Section 14, 18 and 25 and the Mesa well in Section 24, 18-24 and in the

section south the Pubco well in Section 25, these three wells form a triangle which appends the northeast quarter of Section 25 where the proposed, the location in question is located.

Now, the values of these wells are respectively 14 feet, 17 feet and I give the Pubco well a value of 16 feet. Now, we have, now, there is a correlation difference on the Mesa Petroleum well. The Mesa Petroleum geologist correlated it and his reference, his point of reference is below my yellow colored lines and is down on the bottom bed which is colored red. Now what this amounts to is is really, as far as I'm concerned, is regardless of which way, which is the correct correlation what we have is a 17 foot pay zone, one of those which will correlate with the rest of the zones in the cross-sections in the other wells, and also we have 17 more feet which is not developed in the other wells. So that the Isopach map is based on 17 feet, however, actually for completion purposes are actually 34 feet of producible porosity in the Mesa wells.

One more, I'd like to mention the drill stint test in the Pubco well which is in the left-hand side of the cross-section. As you notice, there's a drill stint test up in what I believe would normally be called the Atoka part

of the Pennsylvanian and it did not cover the Morrow sands down at the bottom. So therefore, we have what I consider 16 feet of potential pay sand down in the bottom of the Pubco well which was not tested before it was drilled and abandoned.

The Mesa geologist did inform me in Midland that they are attempting to talk their management into going back into the Pubco well which they now own, Mesa now owns and test those things and see if they are productive. From log indications, they look like they could be productive.

Q What does your Exhibit 2 suggest regarding the application in Section 13?

A Okay, now section 13 we're concerned with the east half of the section. In this, from the cross-section we have, as has already been previously established with other testimony, we have a very good sand or this pay sand from the southeast up to the northwest. I think the main wells to be considered here are the Gulf GK 1 and GK 2 wells in Section 13 of 18-25, the Mesa well again in Section 24, and with the thicknesses of pay that are involved it shows a very good trend in the northwest direction. So therefore, it appears that an orthodox location will encounter enough, as much pay section, not as much pay section but it will encounter enough pay section to be commercial versus the

unorthodox location.

Q If your company owned these tracts, would you recommend that they drill a well in orthodox locations?

A Yes, I would.

Q If your company owned this acreage, would you request an unorthodox location?

A No, I would not request an unorthodox.

Q If this acrease was available for sublease, would Gulf be interested in it under the premise of drilling at an orthodox location?

A Yes, if it were available for sublease, Gulf would be very interested in an agreement to drill at an orthodox location.

Q You have anything to add?

A Well, yes, I could add a few statements why I believe that I would recommend that if it were available for me to do so. This trend that's established to the west and the northwest without any closer control out to the west to indicate that we're going to come to the end of productive sand with all the proponderance of information that we have up to this point that we have a good trend established in production that with good explortation work instead of prod-ding locations in toward known producers the best explortation

work would be to develop acreage with orthodox locations, therefore, outlining production in a better manner and obviously or evidently we could therefore recover more gas.

Q Were Exhibits 1 and 2 prepared by you or under your supervision?

A Yes, sir.

MR. CROSS: No more testimony.

MR. STAMETS: Questions of this witness?

No questions.

MR. CROSS: I offer Exhibits 1 and 2.

MR. STAMETS: These exhibits will be admitted.

(WHEREUPON, Gulf Exhibits 1 and 2 admitted into the record.)

MR. STAMETS: The witness has not been excused yet.

EXAMINATION

BY MR. STAMETS:

Q Mr. Stenberg, I now have three maps on the Morrow none of which agree as to, general as to thicknesses and how they lie in here and where the thick parts are and where the thin parts are. I will say that they seem to all agree that there is a thin section in the northwest quarter of Section 20 and that's about the extent of their agreement.

A Section 20, sir, where?

Q Section 20--

A Oh, 18-25. Okay.

Q Yes. You had a chance to look at the Yates Exhibits data interpretation, the geology?

A No, sir, not until just while they were testifying.

Q They seem to show a thick sand body that runs north-south through the area whereas your interpretation seens to show a thick sand body coming into the area from the west. Do you have any information on that?

A Well, from the east-- Well, as far as my Isopach map is concerned?

Q Yes.

A All right. Well, the main difference is-- Well, of course there are several different approaches to looking for in this case the Morrow sands. Now, the-- Mr. Beck said he was working on the premise of the gamma ray which would generally depicted the correlation curve and depicts how thick the bed might be.

Now, there is sometimes some relationship and sometimes not very much at all as to how thick the sand can be and how much net porosity will be contained in it. This

map is based on strictly on 5% porosity or greater within the same body, within this one sand body down in the Morrow that is colored in yellow in Exhibit 2.

Now, I could say for instance we have a thick sand in the Gulf No. 1 GS which is in the south, it's 1980, 660 south--no, it isn't, it's 800 and something south and 20, 30 roughly east of Section 18. It has a value of 2 feet on it, 18-25, 18 south, 25 east, Section 18. Now, it has a value of 2 feet. It's contour is just not far from the zero line. All right, now, that sand actually is thick. I mean on the log, it's a thick sand. However, the porosity development in it is very poor. In addition to that 2 feet there are about 4 more feet of porosity which would be up above my reference lying on the logs and they are running, they have run casing on the well and they will try to make a producer out of it, but generally that is quite relative that with that number of feet it will probably make a very poor producer. So therefore this type of map is actually what you might call "Effective Pay". As far as-- Maybe I could clarify that. Here's a sheet from-- Now, Slumber J had a seminar down in Midland May 4 and 5, this month. Now generally from Morrow sand, in the Morrow sand trend we had a pretty good idea of what the water registivity is of the

formation in most of them, whether there is water measurable they generally do quite well.

Now the porosity will vary from 5 to 20%, 20% is quite high. About the highest I've ever seen is maybe 22%, but 5% is generally considered sort of an arbitrary cut-off number. In fact, usually if you have less than 5% porosity you can't anticipate very much fluid from the formation because the permeability and the porosity are fairly relative and therefore you just won't have permeability to produce and the water saturations run from 8 to 80%. And like I said before, using the cross-plot porosity the neutron density log of which these all are on here I think except the Pubco well which is a sonic log. The neutron density cross-plot is generally a very good accepted porosity figure. There aren't many cores taken in the Morrow, but in a lot of formations where the neutron density log is run and is giving a lot of formations, then it will agree almost 100% with the core analysis measured porosity.

MR. STAMETS: Any other questions of this witness?

He may be excused.

CHARLES KALTEYER

a witness herein, having been previously sworn upon his oath, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. CROSS:

Q State your name, employer, position in this case?

A Charles F. Kalteyer, K-A-L-T-E-Y-E-R, employed by Gulf Oil Corporation, Midland, Texas and I'm currently classified as Chief Proration Engineer.

Q Have you previously stated your qualifications as a petroleum engineer before this Commission?

A Yes, I have.

MR. CROSS: The witness qualified?

MR. STAMETS: Witness is considered qualified.

Q (Mr. Cross) Mr. Kalteyer, you have an exhibit showing the proposed location of Yates?

A Yes, sir, I have, Gulf Exhibit No. 3.

Q Would you explain that exhibit?

A We present Exhibit No. 3 to show the proposed location of the Yates State JM 660 out of the northeast corner and their Cities JG 660 feet out of the southeast corner of Section 13, Township 18, Range 24 East.

The purpose of this exhibit is also to show

the wells in the immediate vicinity of these two proposed locations. Immediately to the east of the State JM is Yates AB Federal No. 4 completed in March of this year with indicated production in excess of 10,700 Mcf per day. And to the north in Section 19 Gulf State GK well No. 1 completed in October of '77 with forced deliveries to El Paso in January of this year at the rate of 3,000 Mcf per day. And also in Section 19 is Gulf's No. 2 State GK and this is sales to El Paso in January of '7--, completed in January of '78, initial sales to El Paso in April at 3610 Mcf per day. Of course, we discussed the Gulf State GX which has not been completed in Section 18, Township 18, South Range 25E and of course of the Mesa Lincoln State Comm No. 1 in Section 24 of 18-24.

Q Mr. Kalteyer, in your opinion are there orthodox locations available to Yates that would adequately drain reserves under their tract?

A Yes, sir. Normally, there would be four orthodox location areas in each 320 acre as such, and they could be pointed out in each of these sections, Section 25 it'd be 660 from the north and 1980 from the east, 1980 from the north and 660 from the north, and 1980 from the west and 1980 from the north and west for Section 25. And for Section

13, 660 from the east line and 1980 from the south, 660 from the east line and 1980 from the north, 1980 from the north and 1980 for the east, 1980 from the south and 1980 from the east.

Q Have you made a study regarding the radius of drainage of a well completed in the Morrow in this area?

A Yes, sir, our Exhibit No. 4 is the calculation that we prepared. The radius of drainage, the radius of investigation defines the the circular system with the pseudosteady-state pressure distribution from a well. This form is found in the Society of Petroleum Engineers Monograph Volume V where the radius of drainage is equivalent to a constant times the square root of the permeability times time over porosity, viscosity and compressibility factor.

In principle this equation will give the time required for pressure disturbance or pressure sync created by production of the well to propogate away from the well-board. This radius of drainage, our investigation will move out and will eventually stop increasing when it reaches the reservoir boundary or the drainage regions of an adjacent well.

In this equation on Exhibit 4, the time is in hours, r is radius of drainage in feet, ø is porosity in

a decimal fraction, μ is viscosity, C is the compressibility factor psi, and k is permeability. By substituting known and reasonable values for the region an average porosity of 10%, viscosity as established from bottom hole pressure, viscosity .019975, a compressibility factor of $.2204 \times 10^{-3}$ and permeability of 1 millidarce which was established by, as an average of two separate buildup tests that Gulf made on their Eddy GK State well No. 1.

We feel these values are all very representative for that area, possibly are conservative.

You'll note in the table that it takes on the 9-1/2 days for pressure disturbances to be registered at the radius of 660 feet. The significance of this time is that after only 9-1/2 days of withdrawal from a well located 660 from the lease line, it will be drawing reserves across that lease line from the assumption that it's not reached the reservoir boundary or reached the region of the adjacent wells, and so long we've indicated that 1320 feet at 38 days time elapsed, 1980 feet, 85-1/2 day lapse, and for a radius of 2106 feet which is a radius of a 320 acre circular unit the time elapsed will be 96.8 days.

The other significance of this data besides the drainage is that a well completed in the Morrow pay with such

permeability can drain a 320 acre drainage pattern.

Q Does your Exhibit 4 lead you to any other conclusions?

A Well, any well that is placed on a 660 feet from the offset operator property line will have a significant advantage in drainage of reserves across the line. In order to protect correlative rights, ideally it would be proper that our sections would be arranged to allow a well to be drilled in the center of a 320 acre circle. Since our sections are not layed out in this manner, the next best approach would be to locate a well at the midpoint of a 320 acre half section, this being 2640 feet from the end boundary and 1320 from the inside boundary. Of course, this would be ideal. The OCD has seen fit to grant considerable flexibility in placing the wells 300 and 320 acre half section allowing them to be drilled only 660 feet from a side boundary and 1980 from the end boundary.

Q In your opinion wells located at 660 feet from the side of Section 13 and 25 were very shortly after completion infringed on the correlative rights of adjoining tracts?

A Yes, sir, that's correct. It's obvious that even with the permeability of only one millidarce it would

not be necessary for a well to be drilled only 660 feet to adequately drain the reserves under either of the sections.

Q Mr. Kalteyer, what are your recommendations regarding this application?

A My recommendation that the applicant request for an unorthodox location in both cases be denied and that they be allowed to drill wells at orthodox locations.

In the event that a permit is granted, it is recommended that a ratable take factor be applied to the reduction from the wells.

Q Have you devised a ratable take factor that would be applicable to this case?

A Yes, sir, Gulf's Exhibit No. 5 contains a ratable take factor determination which we recommend being applied in this case if the Commission so grants this unorthodox location.

By referring to Exhibit 3, you will note that circles have been drawn around the unorthodox requested locations and around orthodox locations. The circles are utilizing radius of 2,106 feet which is a radius of 320 acre circles.

By referring to Exhibit 5, the first part, the drainage encroachment outside of 320 unit by well at orthodox

location which has been accepted by the Commission, see sections A, B and C and X, Y and Z. The ABC being those for the drainage encroachment on orthodox locations of 102.81 acres. And in the case of the unorthodox, a total of 170.01 acres outside the 320 acre unit. It shows an extra drainage encroachment of 67.20 acres, and by solving the equation for ratable take factor of a standard unit minus the extra drainage encroachment over a standard unit size is, you come up with a .79 factor which is similar to that presented by Mesa.

Q In your opinion, would granting of these applications prevent either economic waste or the waste of hydrocarbons?

A No, sir, an unorthodox location is not necessary to prevent waste because the well located at a regular location could drain the reserves under that proration unit.

Q Would the granting of this application protect correlative rights?

A No, sir, on the contrary. It would not be in the interest of protecting correlative rights, but rather would infringe on the rights of the offset property owners.

Q Do you believe there should be some method provided for monitoring a division order which includes a

ratable take factor?

A Yes, sir.

Q Do you have any suggestions regarding what monitoring procedures would be appropriate?

A Well, lacking field rules and an allocation upon it, it would appear that semi annual deliverability tests could be made under normal operating conditions on such unorthodox wells. I think the test should be witnessed by Oil Conservation Division personnel. The ratable take factor should then be applied against deliverability, and the system would necessarily be adopted by the Oil Conservation Division for monthly monitoring of the gas purchaser for ratable take factor.

Q Are there similarly any unorthodox locations in this area of this pool?

A No, sir, there are not. My records indicate there are 6 wells that have been completed in the area, in the Morrow with standard locations. Two have reached total depth, and one other well has been permeated.

Q Have you anything to add in addition to your testimony?

A No, sir.

Q Were Exhibits 3 through 5 prepared by you and

under your supervision?

A Yes.

MR. CROSS: I move they be admitted.

MR. STAMETS: These exhibits will be admitted.

(WHEREUPON, Gulf Exhibits 3, 4 and 5 admitted into the record.)

MR. CROSS: No further questions.

MR. STAMETS: Any questions of this witness?

MR. LOSEE: I have a couple of questions.

CROSS-EXAMINATION

BY MR. LOSEE:

Q Mr. Kalteyer, with your calculation formula on the radius of drainage shown on Exhibit 4 apply to Gulf State GX No. 1 well in the south half of Section 18?

A Would it apply?

Q Yes.

A Yes, sir, this was my whole basis that the average data and applied from the GK 1.

Q Well, I'm talking about my statement the GX No. 1.

A The GX?

Q No. 1 which is the north well of Gulf.

A Would it apply?

Q Yes.

A Yes, sir, those calculations would apply on the basis that this would expand until it reached the barrier or the interference pattern of another well.

Q Have you, has Gulf completed this GX No. 1 well in the Morrow?

A No, sir, I'm not up-to-date on whether we have actually perforated the well or not. I understand that we are to set pipe on it. Maybe our other witness could--

Q I think he offered some doubt as to whether that well could be completed in the Morrow.

A That's correct, I recall that; but I believe we're scheduled to set pipe.

Do you know?

MR. STENBERG: That's the last report I got.

Q (Mr. Losee) Does your formula on Exhibit 4, it does does it not, assume the constant uniform permeability and porosity?

A Yes, sir, on those average figures.

Q And if the permeability is not constant throughout the reservoir, the formula would not be adequate?

A No, sir, I think if the very conservative value for permeability was used in this particular--

Q But if it wasn't a constant permeability--

A That's true.

Q --it wouldn't be applicable?

Under that formula, isn't the, when and if it's completed, this Mesa Lincoln State well will actually be draining the acreage that the GK No. 2 is on in, what 9-1/2 days?

A Yes, sir, that should be draining across that line.

Q Do you think the Morrow in this area is uniform, has uniform constant permeability characteristics?

A I have not be able to study any other than the one, the data from Gulf, 1 GK. I don't know if other pressure buildup tests have been run to establish permeability in the other wells or not. We might have some information based on emperical formula that would be applied by our logging experts on the basis of porosity and water saturation resistivity.

Q Is the porosity uniform throughout the area in the Morrow?

A From the data that I've looked at, it's generally ranges around 10%. The average would be, and of course it varies from no porosity on up.

MR. LOSEE: I think that's all.

EXAMINATION

BY MR. STAMETS:

Q Mr. Kalteyer, this proposal that you put forth today is new in controlling the effects of crowding unit boundaries, proration unit boundaries by limiting the productions to a percentage of the deliverability of the well based on the ratable take factor. Looking at the practicality of things, is there some point in time when we should stop applying the ratable take factors assuming that we did approve the wells and did apply a ratable take factor?

Obviously when the well has declined to its potential of 100 Mcf per day, no real value would be achieved by applying this ratable take factor. Have you got some kind of cut-off limits that--

A I have no objection to a cut-off if they dropped down to 100 Mcf a day.

Q When in your opinion is that-- Where should that cut-off point be to make-- Do you feel a million a day is an appropriate figure?

A No, sir, I don't believe so. We're proposing that as I see it, it would be an interim until we can get rules and allocations formally adopted. I have not talked to the operators about it nor cleared it with management,

but I can foresee by the rates of production that just by the time we would apply for it to get geared up, our rules would definitely apply and there's going to be a lot of gas pooled out of there when some of the wells are being pooled at 5,000,000 a day average, some at 10,000,000 a day average, excuse me 7,000,000 a day average that many inequities will be developed by the time pool rules and an allocation formula would be adopted.

Gulf is just trying to protect its Section 19 where we already have three wells 660 from the line, and here where applicant is requesting two additional wells would be crowding our acrease, and then this regular application today will be another well to crowd our Section 19.

Q Just assuming for the moment that we did approve the non-standard locations and we did adopt your proposal now and nothing else happened, this was the end of it with no special pool rules were adopted. Now, you indicated that we would stop applying this ratable take factor 100,000 a day or some figure. What about the situation where the offset wells decline 100,000 a day even though this well might still be capable of a higher rate of production, wouldn't that be indicative that there'd be no need to continue applying the ratable take factor to the wells, non-standard location?

A I'd say this is still tied to recovery and their advantage. They'd still be getting an advantage even at 100 Mcf per day whether it's a slow rate or not they have an additional advantage of recovering those reserves. Now, I have no recommendation to make at this time. I have to study that phase of it as far as the cut-off.

MR. STAMETS: Any other questions of this witness?

He may be excused.

Does anyone else have any further testimony they would like to present in this case?

Are there any closing statements to be made? Applicant gets to go last.

Mr. Campbell?

MR. CAMPBELL: Mr. Examiner, I'll try to make this as brief as possible and applicable only to these two cases that you've just heard.

I guess I have the good fortune of not being affected by previous hearing and testimony in the Morrow sands. I gather that many people here have, and it's my impression that the Applicant has used the information that has apparently been obtained from other areas in which the Morrow's involved and made assumptions as they exist here.

Certainly the Applicant offered no evidence with regard to non-homogeneity, to lack of correlation between the wells in the, that are shown in the cross sections of this case. This is a new field. It has thick wells and a couple more that are about to be completed. The first well was drilled about a year ago. None of the wells that have been drilled to this date are unorthodox locations. The present rules provide very lenient and substantial deviations from what would be the center of a 320 acre drilling unit, and we se absolutely no reason why a non-orthodox location should be authorized in this field and certainly not at these two locations because the testimony of both Mesa and Gulf here show that orthodox locations at either of these units would be productive and both Mesa and Gulf have even suggested they would be delighted to farm in this acreage to drill unorthodox locations in the event Yates decided that they didn't want to drill the orthodox location.

It seems to me that the standard rules for spacing should apply unless and until there's clear and convincing evidence, that the recovery from the reservoir cannot be complete or from a particular person's area cannot be complete without unorthodox locations.

The rule for the rights, correlative rights in

the statutes is not that a person has the right to find a place on his unit which is most liekly to produce the most oil or gas. It is that he will be given a reasonable opportunity to recover his fair share of the oil or gas in the reservoir.

Orthodox locations at either of these two units certainly give the Applicant that right. We believe that it would be a serious abuse of our correlative rights to allow either of these unorthodox locations, and they would simply open the door to all out war for snuggling in to the best wells that can be located in this reservoir which is totally contrary to whole concept that proper spacing either for drainage or for protection of correlative rights, and we therefore request that the Application in this case be denied.

MR. STAMETS: Mr. Dent?

MR. DENT: Mr. Examiner, in attempt to be brief, it is Mesa's position that Applicant in these two cases has totally failed to show the location is necessary to prevent waste by recovery of additional hydrocarbons that would not otherwise be recovered at an orthodox location.

The applicant further fails to show that it was necessary that these unorthodox locations be granted

and special permits be given in order to protect correlative rights. To the contrary, the evidence presented today overwhelmingly has shown that by the granting of this application, damage will result to the correlative rights in the Mesa and thereby confiscation of recoverable hydrocarbons will be permitted.

The Applicant by his own geological interpretation has stated that in Section 25, in Case 6231, that the orthodox location will, based on his geological interpretation, be in as good a location as the one requested in Section 13.

Lastly, much has been said both by the Commission, by the Examiner and by witnesses by Gulf and Mesa as to a ratable take factor. These determinations and data have been made and presented only to point out that if such application is granted that there is sufficient justification to invoke a restriction will be allowed on a ratable take. Of course, this Commission has authority. It can make such orders as is necessary to prevent the or protect the correlative rights.

When the clear and convincing evidence overwhelmingly shows that these rights are going to be violated, why do we ask is it necessary to grant such exceptions at

this time.

We feel that if the Commission desires of going to the unorthodox location and non-standard units that it compels the operators in the field to call a field rule here, and these are matters which must be dealt with in depth in that case so that in order to be entered it would adequately protect the correlative rights of all operators, and therefore we must oppose these applications and request that they both be denied.

MR. STAMETS: Mr. Carr?

MR. CARR: Mr. Examiner, Marathon Oil Company concurs with the position taken today by Mesa and Gulf in this hearing. Marathon requests that the Oil Conservation Commission take whatever steps are necessary to prevent drainage from the east half of Section 24 which will not be compensated for by counterd range.

We urge the Division to penalize production from any wells drilled at the proposed unorthodox location if in fact these applications before the Commission today are approved. We also want to emphasize that the penalty must be an amount sufficient to offset any advantage gained by Yates by way of these unorthodox locations.

MR. STAMETS: Mr. Losee?

MR. LOSEE: Mr. Examiner, the testimony of both Gulf and Mesa with respect to the area of drainage are all based on circular drainage and they assume the homogeneous nature of the reservoir. These wells have not been on production for a long period of time, but as you look at the Morris Antweil Rio well and the Penasco well located just 1/2 mile apart correlate perfectly on the log, one at 19 feet and one in 25 feet of pay. Similarly, drill stint data, the pressure data, accepted pressure data is 3-- to 400 pounds, and after 5 months of production one of them is making something like seven times the other well is. To our position, reflecting that they are not homogeneous in nature, and there is not, at least in those two wells, any particular cross-drainage and therefore we feel that the utilization of a circular drainage pattern in this Morrow field as is also true in most other Morrow fields in southeast New Mexico is incorrect assumption.

Now obviously as the Examiner pointed out, there are three interpretations of the Morrow. Mesa has theirs and Gulf has theirs and Yates has theirs. Gulf's interpretation of the Morrow as reflected in this Isopach and in Mr. Beck's testimony is that the wells that have made well also have been in the thick portion of the classic or on the

banks thereof, and when we get down to the thin section they haven't made well in the Morrow. And it appears to Yates in this field and based on its experience in drilling Morrow wells in southeastern New Mexico that the location selected in each of these cases are the most likely to encounter commercial production.

We believe the statutes on waste and protection of our correlative rights, that is to say the rights of the royalty owners, underlying our spacing units permit us to pick such a location. We grant the Commission rule with respect to offsetting any advantage that may be gained by these unorthodox locations, but I am not sure that a circular pattern in trying to figure a penalty feature whether it be on deliverability or in appliable is a correct assumption in the Morrow.

We respectfully ask that the Commission approve the two applications for unorthodox locations.

MR. STAMETS: Mr. Dent, do you have something?

MR. DENT: Mr. Examiner, there was delivered to Mesa a letter from Northern Natural which states that they are opposed to the above application being 6231 and 6232 and request that they be denied.

That's all.

MR. STAMETS: Okay, if nothing further, these two cases will be taken under advisement.

(WHEREUPON, the hearing on these two cases was concluded.)

LANPHERE REPORTING SERVICE
P. O. BOX 449
58 SOUTH FEDERAL PLACE
SANTA FE, NEW MEXICO 87501

REPORTER'S CERTIFICATE

I, BETTY J. LANPHERE, CSR-RPR with offices in Santa Fe, New Mexico, do hereby certify that the foregoing transcript is a complete and accurate record of said proceedings as the same were recorded by me stenographically and reduced to typewritten transcript by me or under my supervision.

DATED at Santa Fe, New Mexico, this _____ day of _____, 1978.

_____
Betty J. Lanphere, Court Reporter

I do hereby certify that the foregoing is
a complete record of the proceedings in
the Examiner hearing of Case No. 6232
heard by me on May 17, 1978.

Richard L. Stamets, Examiner
Oil Conservation Division

LANPHERE REPORTING SERVICE
P. O. BOX 449
58 SOUTH FEDERAL PLACE
SANTA FE, NEW MEXICO 87501

I N D E X

LANPHERE REPORTING SERVICE
P.O. BOX 449
58 SOUTH FEDERAL PLACE
SANTA FE, NEW MEXICO 87501

E X H I B I T S

	IDENTIFIED	ADMITTED
Applicant's Exhibits:		
1. Land Plat	7	17
2. Isopach Map	8	17
3. Overlay	13	17
4. Cross-Section Map	13	17
Mesa's Exhibits:		
1. Structure Map	39	59
2. Cross-Section Map	41	59
3. Production Data	42	59
4. Well Data Sheet	43	59
5. Cass Ranch Structures	45	59
6. Ratable Take Factor Chart	46	59
7. Reserve Calculations	48	59
8. Data & Info from OCC files	59	59
Gulf's Exhibits:		
1. Structure Contour & Isopach Map	67	73
2. Cross-Section Map	68	73
3. Map Showing Proposed Locations	77	85
4. Radius of Drainage	79	85
5. Ratable Take Factor	82	85

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. 6232
Order No. R-5832

APPLICATION OF YATES PETROLEUM
CORPORATION FOR AN UNORTHODOX GAS
WELL LOCATION, EDDY COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on May 17, 1978, at Santa Fe, New Mexico, before Examiner Richard L. Stamets.

NOW, on this 29th day of September, 1978, 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, Yates Petroleum Corporation, seeks approval of an unorthodox gas well location for its Cities "JG" Well No. 1 to be located 660 feet from the South line and 660 feet from the East line of Section 13, Township 18 South, Range 24 East, NMPM, to test the Morrow formation, in an Undesignated Morrow Gas Pool, Eddy County, New Mexico.

(3) That the E/2 of said Section 13 is to be dedicated to the well.

(4) That a well at said unorthodox location will better enable applicant to produce the gas underlying the proration unit.

(5) That the offset operators have objected to the proposed location.

(6) That a well at the proposed location is at a standard location relative to the East and West lines of said Section 13.

(7) That a well at the proposed location is 67 percent closer to the South line of said Section 13 than permitted by Division Rules and Regulations.

(8) That a well at the proposed location will have an area of drainage in the Morrow formation which extends an additional 67.2 net acres outside Section 13, an amount of acreage equivalent to 21 percent of a standard proration unit in said pool.

(9) That to offset the advantage gained over the protesting offset operators, production from the well at the proposed unorthodox location should be limited from the Morrow formation.

(10) That such limitation should be based upon the variation of the location from a standard location and the 67.2 net-acre encroachment described in Finding No. (9) above, and may best be accomplished by assigning a well at the proposed location an allowable limitation factor of 0.71 (100 percent East/West factor plus 33 percent North/South factor plus 79 percent net-acre factor divided by 3).

(11) That in the absence of any special rules and regulations for the prorationing of production from said Undesignated 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.

(12) That the minimum calculated allowable for the subject well should be reasonable, and 1,000,000 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 Yates Petroleum Corporation's Cities "JG" Well No. 1 to be located at a point 660 feet from the South line and 660 feet from the East line of Section 13, Township 18 South, Range 24 East, NMPM, Undesignated Morrow Gas Pool, Eddy County, New Mexico.

(2) That the E/2 of said Section 13 shall be dedicated to the above-described well.

(3) That said well is hereby assigned a Production Limitation Factor of 0.71 in the Morrow formation.

(4) That in the absence of any Special Rules and Regulations prorating gas production in said Undesignated 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 Yates Petroleum Corporation Cities "JG" Well No. 1, located 660 feet from the South line and 660 feet from the East line of Section 13, Township 18 South, Range 24 East, NMPM, Eddy County, New Mexico, which well's Production Limitation Factor of 0.71 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 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/

Dockets Nos. 41-78 and 42-78 are tentatively set for hearing on December 20, 1978 and January 3, 1979. Applications for hearing must be filed at least 22 days in advance of hearing date.

DOCKET: COMMISSION HEARING - TUESDAY - DECEMBER 12, 1978

OIL CONSERVATION COMMISSION - 9 A.M. - ROOM 205
STATE LAND OFFICE BUILDING, SANTA FE, NEW MEXICO

CASE 6213: (DE NOVO)

Application of Morris R. Antweil for an unorthodox location and simultaneous dedication, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of his Rio Well No. 2, a Morrow test to be drilled at a point 660 feet from the North and West lines of Section 29, Township 18 South, Range 25 East, Eddy County, New Mexico, the N/2 of said Section 29 to be simultaneously dedicated to the aforesaid well and to applicant's Rio Well No. 1 located in Unit G of Section 29.

Upon application of Gulf Oil Corporation this case will be heard De Novo pursuant to the provisions of Rule 1220.

CASE 6231: (DE NOVO)

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 its State "JM" Well No. 1, a Morrow test to be located 660 feet from the North and East lines of Section 25, Township 18 South, Range 24 East, Eddy County, New Mexico, the N/2 of said Section 25 to be dedicated to the well.

Upon application of Gulf Oil Corporation this case will be heard De Novo pursuant to the provisions of Rule 1220.

CASE 6232: (DE NOVO)

Application of Yates Petroleum Corporation for an unorthodox location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of its Cities "JG" Well No. 1 to be located 660 feet from the South and East lines of Section 13, Township 18 South, Range 24 East, Fordinkus Field, Eddy County, New Mexico, the E/2 of said Section 13 to be dedicated to the well.

Upon application of Gulf Oil Corporation this case will be heard De Novo pursuant to the provisions of Rule 1220.

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

Application of Yates Petroleum Company for an unorthodox gas well location, Eddy County, New Mexico.	))))	Case No. 6232

APPLICATION FOR DE NOVO HEARING

COMES NOW Gulf Oil Corporation (Gulf), a party to the above-styled matter and, pursuant to Chapter 255, Section 48, Laws of 1977 and Rule 1220 of the Oil Conservation Division, applies for a de novo hearing before the Commission in this matter, and as its grounds therefor states:

1. Order No. R 5832 issued in this matter on 29 September 1978 provides, among other things, under Rule 13 therein as follows:

> "Rule 13. In no event shall the well receive an allowable of less than one million cubic feet of gas per day."

2. Said Rule 13 adversely affects applicant's correlative rights and has the effect of nullifying other provisions of said Order limiting Yates Petroleum Company's production from the proposed well.

WHEREFORE, Gulf seeks a hearing de novo in this matter before the New Mexico Oil Conservation Commission and, following such hearing, for an order modifying said proposed Rule 13, in such a manner that the correlative rights of Gulf shall be protected as provided by law.

Respectfully submitted,
GULF OIL COMPANY

CAMPBELL, BINGAMAN AND BLACK, P.A.

Dated: October 27, 1978.

By Jack M. Campbell
Jack M. Campbell

PRODUCTION DATA
UNDESIGNATED MORROW POOL - CASS RANCH AREA
T-18-S, R-25-E
EDDY COUNTY, NEW MEXICO

	ANTWEIL, MORRIS R. Penasco 1 0 20 18S 25E		ANTWEIL, MORRIS R. Rio Com. 1 G 29 18S 25E		BENNETT & RYAN Lonetree 1 C 32 18S 25E		GULF OIL CORPORATION Eddy CK State Com. 1 I 19 18S 25E		GULF OIL CORPORATION Eddy CK State Com. 2 F 19 18S 25E	
	GAS MCF	COND BBL	GAS MCF	COND BBL	GAS MCF	COND BBL	GAS MCF	COND BBL	GAS MCF	COND BBL
1977										
September	69,733	224	27,226	131	---	---	---	---	---	---
October	183,897	557	47,260	93	---	---	---	---	---	---
November	159,355	464	33,089	52	13,419	---	---	---	---	---
December	151,703	428	29,460	45	11,055	---	---	---	---	---
1978										
January	150,037	428	25,653	37	6,225	---	29,835	105	---	---
February	126,387	346	19,708	31	4,397	---	62,867	170	---	---
March	141,973	350	21,467	31	2,882	---	47,087	99	---	---
TOTALS	983,085	2,797	203,863	420	37,978		139,789	374		

BEFORE EXAMINER STAMETS
OIL CONSERVATION COMMISSION
EXHIBIT NO. 3
CASE NO. 6231
Submitted by MESA PET.
Hearing Date

CASE NO. 6231
CASE NO. 6232
CASE NO. 6213
EXHIBIT 3

ROY C. WILLIAMSON, JR., P.E./cn MAY 17, 1978
1100 GIHLS TOWER WEST MIDLAND, TEXAS 79701
SIPES, WILLIAMSON & AYCOCK, INC.
for MESA PETROLEUM CO.

CASE NO. 6231
CASE NO. 6232
CASE NO. 6213
EXHIBIT 3

CASS RANCH AREA

EDDY COUNTY, NEW MEXICO

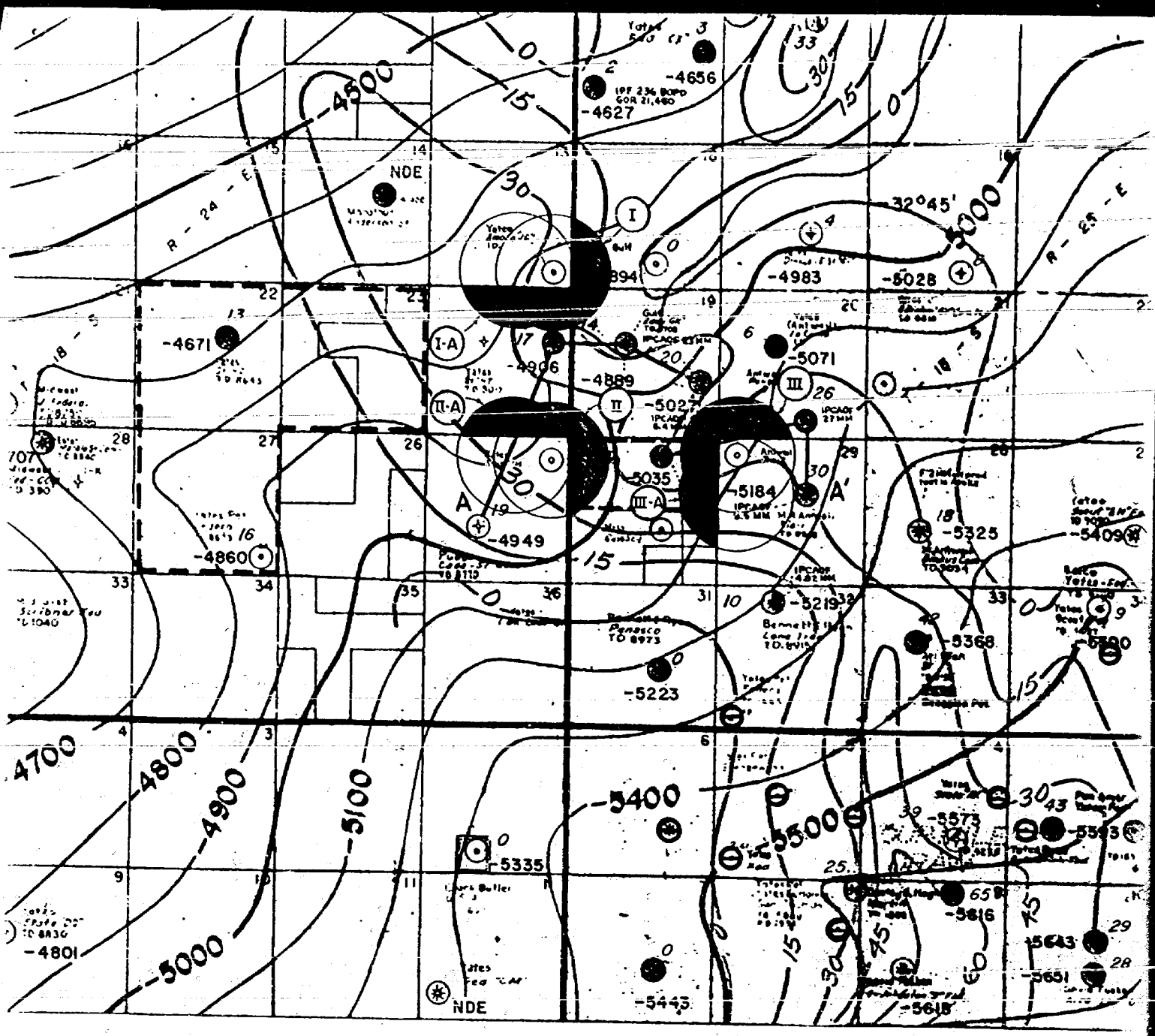
X-SECTION WELL INFORMATION

OPERATOR LEASE WELL NO.	WELL LOCATION	PERFORATIONS	DST INFO.	TEST DATA	CAOF
Morris R. Antweil Rio No. 1	Sec. 29-18S-25E 1980' FN & E	8685'-93'; 8694'-98'; 8700'-13' (Morrow)	8640'-8738' (Morrow) Rec. 500' O&GCM FSIP 3252#	F/919 MCFGPD, 1/8" ch., 60 min., TP2412# F/2007 MCFGPD, 3/16" ch., 60 min., TP2260# F/3268 MCFGPD, ¼" ch., 60 min., TP2025# F/5073 MCFGPD, 5/16" ch., 60 min., TP1989#	6,516 MCFGPD Dry; Gas Grav. .626 SIBHP 2447#
Morris R. Antweil Penasco No. 1	Sec. 20-18S-25E 660' FS & 1980' FE	8634'-62' (Morrow)	8610'-8705' (Morrow) Rec. 180' cond. & 120' DM FSIP 3356#	F/1049 MCFGPD, Orifice, 60 min., TP2639# F/1500 MCFGPD, Orifice, 60 min., TP2609# F/2295 MCFGPD, Orifice, 60 min., TP2558# F/3143 MCFGPD, Orifice, 60 min., TP2489#	27,143 MCFGPD GOR 382,000/1 Gas Grav. .614 SIWHP 2703#
Yates Petr. Corp. Federal "AB" No. 4	Sec. 30-18S-25E 660' FN & 1980' FE	8570'-90' (Morrow)	8545'-8642' (Morrow) Rec. 60' oil, 90' O&GCM FSIP 3269# (Also DST in Wlfcp.)	F/13,300 MCFGPD, 3/4" ch., 24 hr., TP918#	-
Gulf Oil Corp. Eddy "GK" St. Com. No. 1	Sec. 19-18S-25E 1980' FS & 660' FE	8603'-07'; 8618'-27'; 8634'-41' (Morrow)	NO DST	F/1062 MCFGPD, 1.5" Orif., 60 min., TP2320# F/1528 MCFGPD, 1.5" Orif., 60 min., TP2240# F/2099 MCFGPD, 1.5" Orif., 60 min., TP2130# F/2992 MCFGPD, 1.5" Orif., 60 min., TP1902#	6,424 MCFGPD Dry SIWHP 2425#
Gulf Oil Corp. Eddy "GK" St. Com. No. 2	Sec. 19-18S-25E 2310' FN & 1980' FW	8478'-80'; 8486'-98' (Morrow)	NO DST	F/3310 MCFGPD, 15/64" ch., 60 min., TP2450# F/4642 MCFGPD, 19/64" ch., 60 min., TP2330# F/6626 MCFGPD, 25/64" ch., 60 min., TP2095# F/9022 MCFGPD, 28/64" ch., 60 min., TP1645#	22,869 MCFGPD
Mesa Petr. Co. Lincoln St. Com. No. 1	Sec. 24-18S-24E 2030' FN & 660' FE	8497'-8513' (Morrow)	8402'-8552' (Morrow) Rec. 350' GCDM FSIP 3282#		
Pubco Petr. Corp. Cass St. Com. No. 1	Sec. 25-18S-24E 1980' FS & W	None Reported	8245'-8475' Rec. 420' GCM FSIP 3111# (Also DST in Wlfcp.)		P&A

ROY C. WILLIAMSON, JR., P.E./cn MAY 17, 1978
1100 GIHLS TOWER WEST MIDLAND, TEXAS 79701
SIPES, WILLIAMSON & AYCOCK, INC.
for MESA PETROLEUM CO.

CASE NO. 6231
CASE NO. 6232
CASE NO. 6213
EXHIBIT 4

CASE NO. 6231
CASE NO. 6232
CASE NO. 6213
EXHIBIT 4



PRODUCTION CODE

- San Andres
- Yeso
- Wolfcamp
- Cisco-Canyon
- Atoka
- Morrow A-I
- Morrow B-II
- Morrow B-III

BEFORE EXAMINER STAMETS
OIL CONSERVATION COMMISSION
EXHIBIT NO. 5
CASE NO. 6232
Submitted by MESA PET.
Hearing Date

MAY 17, 1978
CASE NO. 6231
CASE NO. 6232
CASE NO. 6213
EXHIBIT 5

MESA PETROLEUM CO.
PERMIAN BASIN DIVISION

CASS RANCH PROSPECT
Eddy County, New Mexico

STRUCTURE
Top/Mississippian
C.I. = 100'

ISOPACH
Morrow A-I
C.I. = 15'

BY J.W.J
DATE 4-10-78
DRAWN BY T.D.M.
SCALE 1" = 5000'

CASS RANCH AREA

EDDY COUNTY, NEW MEXICO

RATABLE TAKE FACTOR

AREA II & II-A

Orthodox Location - Drainage Encroachment Outside of 320 Unit = 86.78 ac.

Unorthodox Location - Drainage Encroachment Outside of 320 Unit = 151.86 ac.

Additional Drainage Encroachment of Well at Unorthodox Location = 65.08 ac.

$$\text{Ratable Take Factor} = \frac{\text{(STD Unit, ac.) - (Additional Drainage Encroachment, ac.)}}{\text{STD Unit, ac.}}$$

$$= \frac{\text{(320 ac.) - (65.08 ac.)}}{\text{(320 ac.)}}$$

$$= .7966*$$

* To Be Applied to Well Allowable for Standard 320 Acre Unit.

BEFORE EXAMINER STAMETS
OIL CONSERVATION COMMISSION
EXHIBIT NO. 6
CASE NO. 6231
Submitted by: MESA PET.
Hearing Date

ROY C. WILLIAMSON, JR., P.E./cn MAY 17, 1978
1100 GIHLS TOWER WEST MIDLAND, TEXAS 79701
SIPES, WILLIAMSON & AYCOCK, INC.
for MESA PETROLEUM CO.

CASE NO. 6231
EXHIBIT 6

CASE NO. 6231
EXHIBIT 6

CASS RANCH AREA
EDDY COUNTY, NEW MEXICO

RESERVE CALCULATIONS FOR
ORTHODOX AND UNORTHODOX LOCATIONS

AREA II & II-A

Section 25

Porosity, percent	14
Bottom-hole Pressure, psig	3290
Water Saturation, percent	15
Gas Gravity	.63
Drainage Area, acres	320

Gas Formation Volume Factor, $B_g = \frac{(35.35)(3305 \text{ psia})}{(0.86)(600^{\circ}R)} = 226.4 \frac{SCF}{RCF}$

$(43{,}560 \frac{Ft^3}{AF})(\text{Porosity } 0.14)(\text{Gas Saturation } .85) = 5{,}183.6 \frac{RCF}{AF} (226.4 \frac{SCF}{RCF})$

$= 1{,}174 \frac{MCF}{AF} (0.80 \text{ Rec.}) = 939 \frac{MCF}{AF}$

Orthodox Location:

$(320 \text{ Ac}) \left[(0.6)(30)+(0.4)(25)\right] (939 \frac{MCF}{AF}) =$ 8,413 MMCF

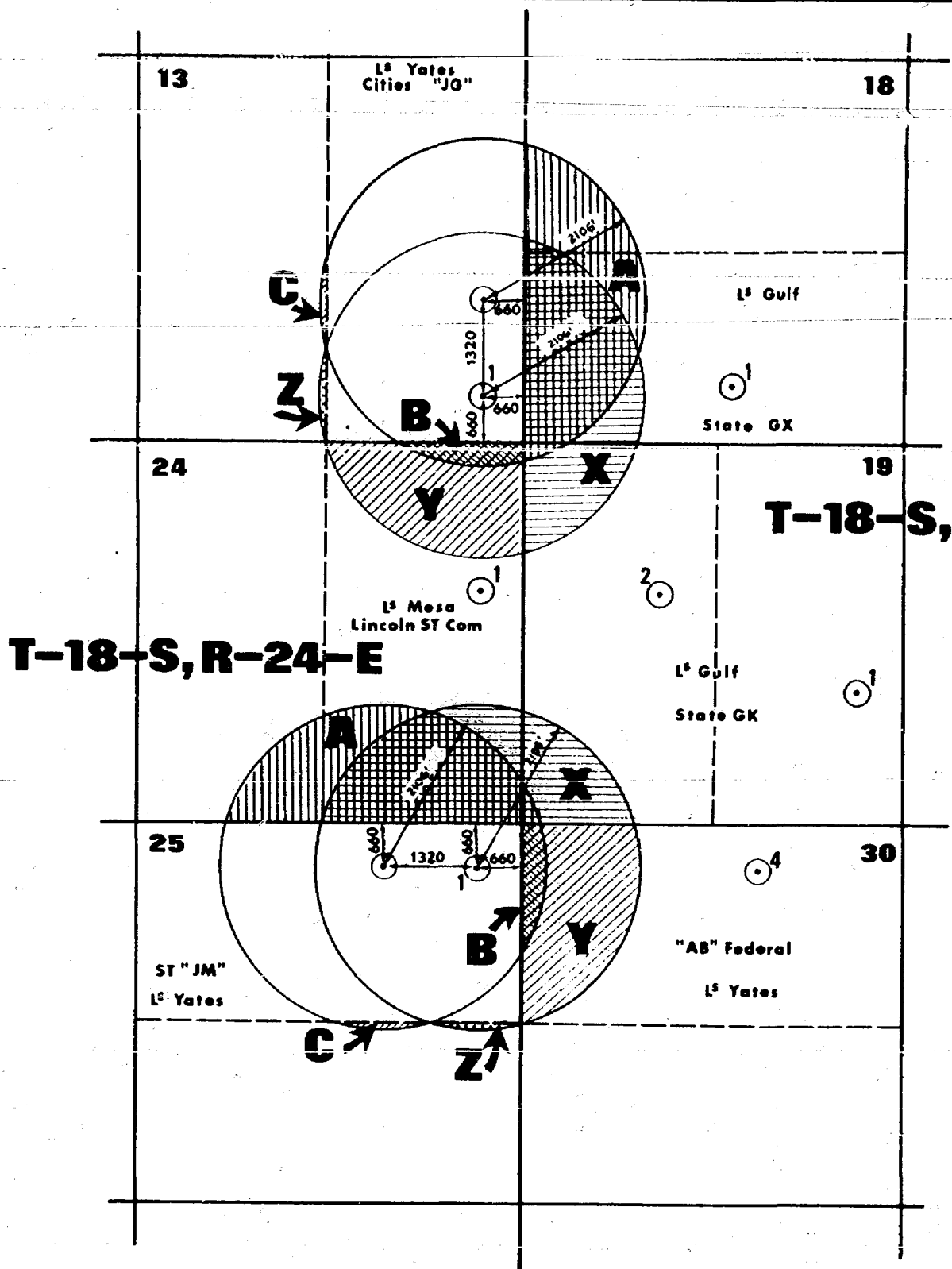
Unorthodox Location:

$(320 \text{ Ac}) \left[(0.9)(30)+(0.1)(28)\right] (939 \frac{MCF}{AF}) =$ 8,954 MMCF

BEFORE EXAMINER STAMETS
OIL CONSERVATION COMMISSION
EXHIBIT NO.
CASE NO.
Submitted by
Hearing Date

ROY C. WILLIAMSON, JR., P.E./pw MAY 17, 1978
1100 GIHLS TOWER WEST MIDLAND, TEXAS 79701
SIPES, WILLIAMSON & AYCOCK, INC.
for MESA PETROLEUM CO.

CASE NO. 6231
EXHIBIT 7



EDDY COUNTY, NEW MEXICO
Scale: 1" = 2000'

BEFORE EXAMINER STAMETS
OIL CONSERVATION COMMISSION
GULF EXHIBIT NO. 3
CASE NO. 6231 & 6232
Submitted by GULF
Hearing Date 5-17-78

EXHIBIT 3
CASE 6231
DATE 5-17-78

Gulf Oil Corporation

RADIUS OF DRAINAGE

Pseudosteady-State Flow of Circular Gas System
SPE Monograph Volume V

$$r_d = 0.029 \left[\frac{kt}{\phi \mu C_t} \right]^{.5}$$

$$t = \frac{r_d^2 \quad (\phi \ \mu \ C_t)}{8.41 \times 10^{-4} \ k}$$

t = Time in hours
r = Radius of drainage
ϕ = Porosity
μ = Viscosity
C = Compressibility
k = Permeability

$$t = \frac{r^2 \quad (.10)(.019975)(.2204 \times 10^{-3})}{(8.41 \times 10^{-4}) \quad (1)}$$

RADIUS (FEET)	TIME (HOURS)	TIME (DAYS)
660	228	9.5
1320	912	38.0
1980	2052	85.5
2106	2322	96.8

BEFORE EXAMINER STAMETS
OIL CONSERVATION COMMISSION
GULF Exhibit NO. 4
CASE NO. 6231 & 6232
Submitted by GULF
Hearing Date 5-17-78

EXHIBIT 4
CASE NO. 6231
DATE: May 17, 1978
GULF OIL CORPORATION

EXHIBIT 5
CASE NO. 6231
DATE: May 17, 1978
GULF OIL CORPORATION

RATEABLE TAKE FACTOR

1) Drainage Encroachment Outside of 320 Acre Unit By Well at Orthodox Location

A.	97.22 Acres
B.	2.79 Acres
C.	2.80 Acres
	102.81 Acres

2) Drainage Encroachment Outside of 320 Acre Unit By Well at Unorthodox Location

X.	97.22 Acres
Y.	70.00 Acres
Z.	2.79 Acres
	170.01 Acres

3) Extra Drainage Encroachment of Well at Unorthodox Location

Unorthodox Well	170.01 Acres
Orthodox Well	-102.81 Acres
	67.20 Acres

4) Rateable Take Factor

$$RTF = \frac{\text{(Standard Unit Acres) - (Extra Drainage Encroachment Acres)}}{\text{Standard Unit Acres}}$$

$$= \frac{320.00 - 67.20}{320.00}$$

$$= \frac{252.80}{320}$$

$$= .79$$

BEFORE EXAMINER STAMETS
OIL CONSERVATION COMMISSION
GULF EXHIBIT NO. 5
CASE NO. 6231 & 6232
Submitted by GULF
Hearing Date 5-17-78

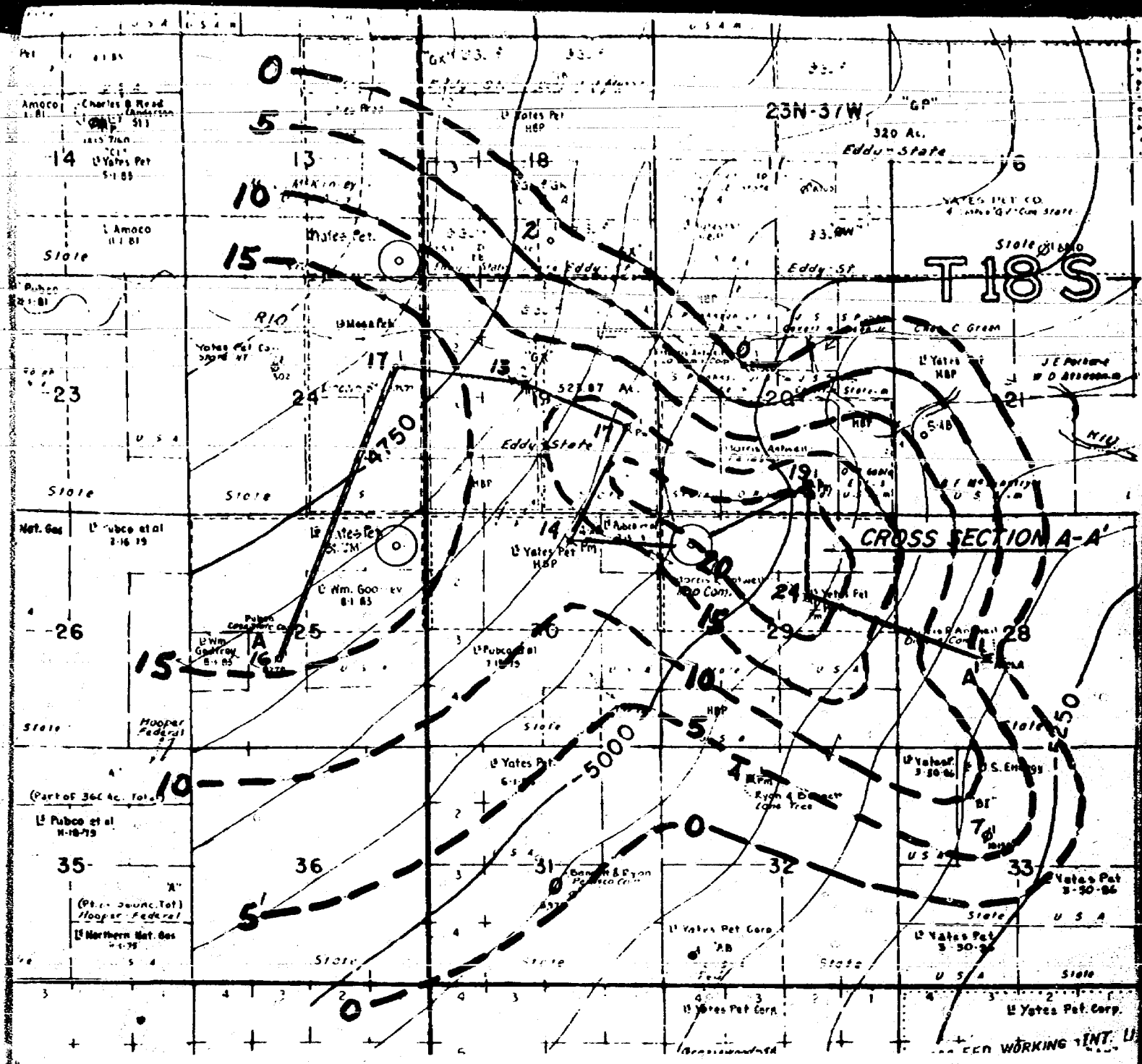


EXHIBIT NO. 1
CASE
DATE 5-17-78

UNDESIGNATED MORROW
EDDY CO., NEW MEXICO

ISOPACH OF MORROW SAND ≥ 5% POROSITY
CONTOUR INTERVAL 5'

⊙ PROPOSED LOCATION
STRUCTURE-TOP MORROW MARKER
CONTOUR INTERVAL 50'
SCALE: 1"=3000'

GULF OIL CORPORATION — SOUTHWEST DISTRICT
MIDLAND, TEXAS

BEFORE EXAMINER STAMETS
OIL CONSERVATION COMMISSION
GULF EXHIBIT NO. 1
CASE NO. 6231 & 6232
Submitted by GULF
Hearing Date 5-17-78

SIPES, WILLIAMSON & AYCOCK, INC.
CONSULTING ENGINEERS

Midland

1100 GIHLS TOWER WEST
MIDLAND, TEXAS 79701
915 683-1841

1212 THE MAIN BUILDING
SUITE 002
HOUSTON, TEXAS 77002
713 658-8278

May 17, 1978

New Mexico Oil Conservation Commission
State Land Office Building
Santa Fe, New Mexico 87501

Attention Mr. D. S. Nutter
Chief Engineer

Gentlemen:

Subject: Case No. 6231
Case No. 6232
Case No. 6213

This letter will serve to introduce the exhibits and present related testimony on the behalf of Mesa Petroleum Co.

Exhibit No. 1 is a combination structure and isopach map for the Morrow formation. A cross section trace is also shown on the map.

Exhibit No. 2 is a cross section of seven wells showing a correlation of the Morrow Conglomerate section between wells. The Mesa Lincoln State Comm. No. 1 has a fine grained sand section in the Morrow above the Conglomerate section. This section has not been included in the isopach or reserve calculations but should contribute to production.

Exhibit No. 3 shows available production from wells in the Cass Ranch area.

Exhibit No. 4 shows well locations, perforations, drill stem test information and test data for wells on the cross section (Exhibit No. 2).

Exhibit No. 5 shows 320-acre circular drainage areas for the requested unorthodox location and an orthodox location. Note the increase in the drainage encroachment on acreage outside the 320 unit assigned to the well.

Exhibit No. 6 calculates the ratable take factor that should be applied to a well's producing rate to account for the additional drainage encroachment acres that would result from drilling a well at an unorthodox location.

BEFORE EXAMINER STAMETS
OIL CONSERVATION COMMISSION
EXHIBIT NO. A
CASE NO. 6232
Submitted by MESA PET.
Hearing Date

Exhibit No. 7 calculates the expected ultimate recovery from orthodox and unorthodox locations utilizing the isopach map (Exhibit No. 1). Case 6232 and 6213 show an increase in reserves for a well drilled at the orthodox location. Case 6231 shows a slight reduction in reserves for the orthodox location over the unorthodox location.

Summary and Requests:

1. Orthodox locations will not result in inferior recovery as compared to the unorthodox locations requested in Cases 6231, 6232 and 6213.

2. The field has been developed to date on orthodox locations and there is no reason to change now.

3. Continued development of this field on orthodox locations will prevent underground waste and protect correlative rights.

4. Mesa will farm in all three standard locations that are counterparts to the unorthodox locations requested in Cases 6231, 6232 and 6213.

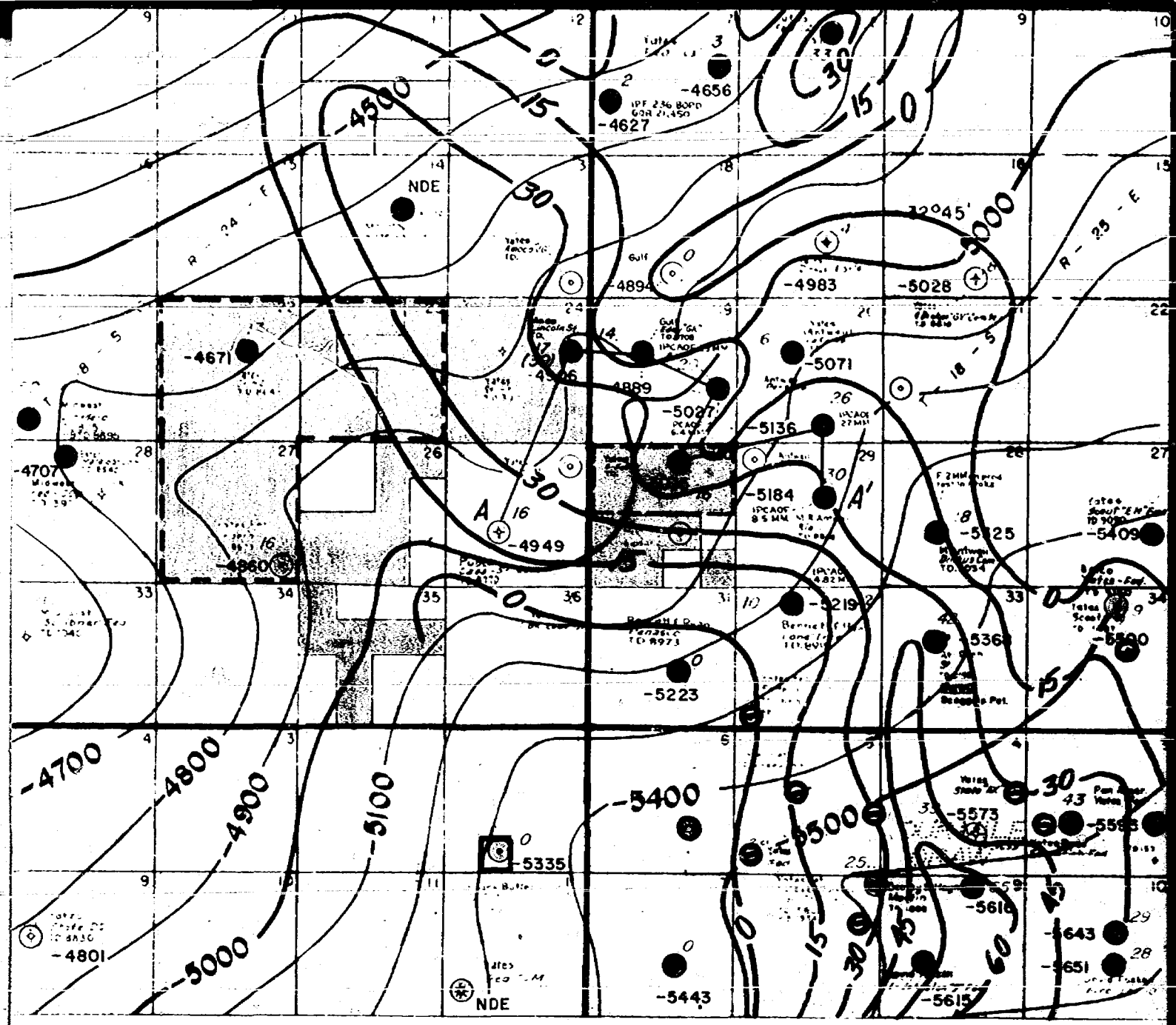
Respectfully submitted,

SIPES, WILLIAMSON & AYCOCK, INC.

Roy C. Williamson, Jr., P.E.
Consultant for Mesa Petroleum Co.

/pw

attachments



PRODUCTION CODE

- San Andres
- Yeso
- Wolfcamp
- Cisco - Canyon
- Atoka
- Morrow A-I
- Morrow B-II
- Morrow B-III

BEFORE EXAMINER STAMETS
OIL CONSERVATION COMMISSION
EXHIBIT NO. 1
CASE NO. 6232
Submitted by MESA PET.
Hearing Date

MAY 17, 1978
CASE NO. 6231
CASE NO. 6232
CASE NO. 6213
EXHIBIT 1

MESA PETROLEUM CO.
PERMIAN BASIN DIVISION

CASS RANCH PROSPECT

Eddy County, New Mexico

STRUCTURE
Top/Mississippian
C.I. = 100'

ISOPACH
Morrow A-I
C.I. = 15'

BY J.W.J	DRAWN BY T.D.M.
DATE 4-10-78	SCALE 1" = 5000'

PRODUCTION DATA
UNDESIGNATED MORROW POOL - CASS RANCH AREA
T-18-S, R-25-E
EDDY COUNTY, NEW MEXICO

	ANTWEIL, MORRIS R.				BENNETT & RYAN		GULF OIL CORPORATION			
	Penasco		Rio Com.		Loretree		Eddy GK State Com.			
	1 O 20 18S 25E		1 G 29 18S 25E		1 C 32 18S 25E		1 I 19 18S 25E		2 F 19 18S 25E	
	GAS MCF	COND BBL	GAS MCF	COND BBL	GAS MCF	COND BBL	GAS MCF	COND BBL	GAS MCF	COND BBL
1977										
September	69,733	224	27,226	131	---	---	---	---	---	---
October	183,897	557	47,260	93	---	---	---	---	---	---
November	159,355	464	33,089	52	13,419	---	---	---	---	---
December	151,703	428	29,460	45	11,055	---	---	---	---	---
1978										
January	150,037	428	25,653	37	6,225	---	29,835	105	---	---
February	126,387	346	19,708	31	4,397	---	62,867	170	---	---
March	141,973	350	21,467	31	2,882	---	47,087	99	---	---
TOTALS	983,085	2,797	203,863	420	37,978		139,789	374		

ROY C. WILLIAMSON, JR., P.E./cn MAY 17, 1978
1100 GIHLS TOWER WEST MIDLAND, TEXAS 79701
SIPES, WILLIAMSON & AYCOCK, INC.
for MESA PETROLEUM CO.

BEFORE EXAMINER STAMETS
OIL CONSERVATION COMMISSION
EXHIBIT NO. 3
CASE NO. 6232
Submitted by MESA PET.
Hearing Date

CASE NO. 6231
CASE NO. 6232
CASE NO. 6213
EXHIBIT 3

CASE NO. 6231
CASE NO. 6232
CASE NO. 6213
EXHIBIT 3

CASS RANCH AREA

EDDY COUNTY, NEW MEXICO

X-SECTION WELL INFORMATION

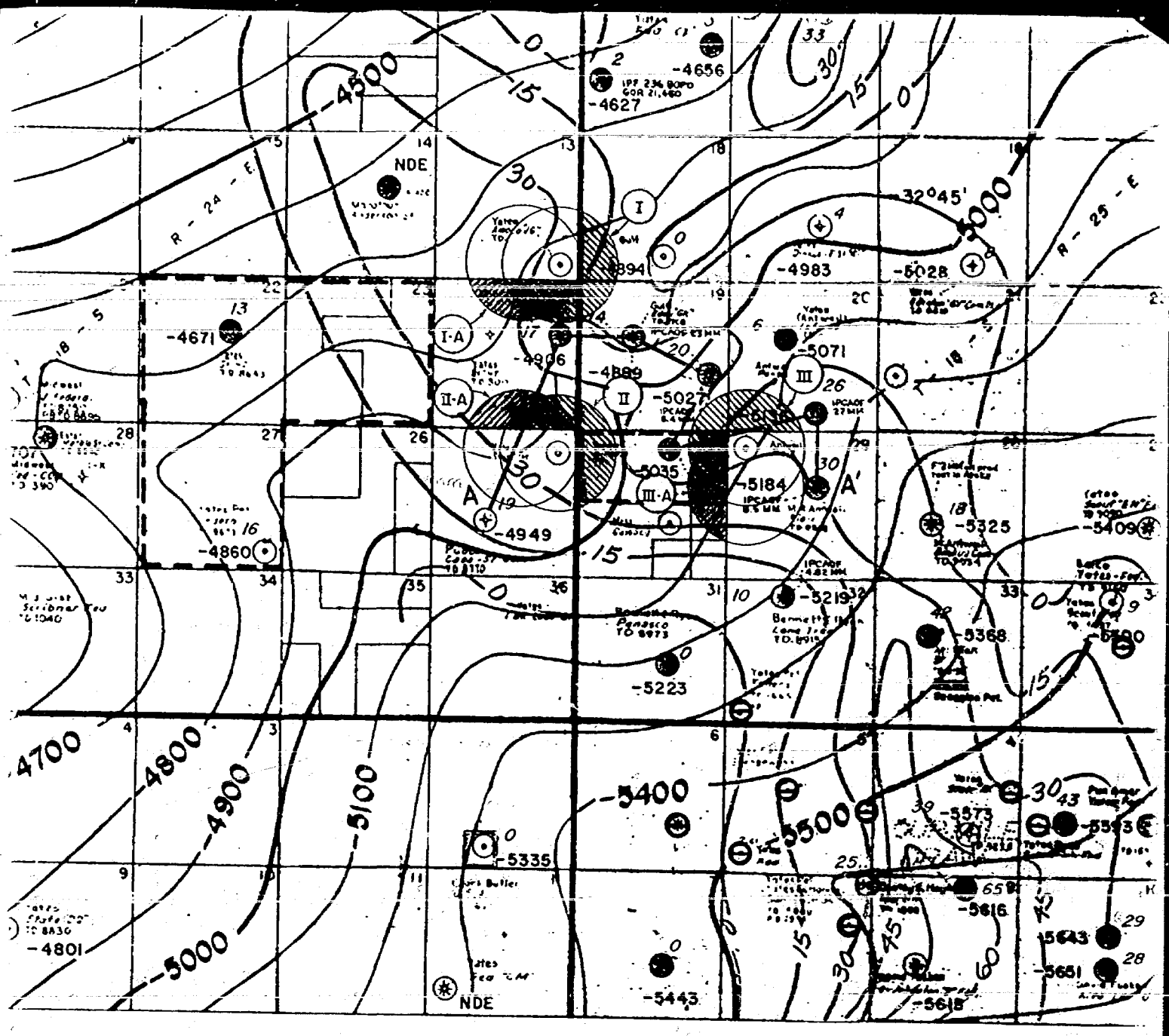
OPERATOR LEASE WELL NO.	WELL LOCATION	PERFORATIONS	DST INFO.	TEST DATA	CAOF
Morris R. Antweil Rio No. 1	Sec. 29-18S-25E 1980' FN & E	8685'-93'; 8694'-98'; 8700'-13' (Morrow)	8640'-8738' (Morrow) Rec. 500' O&GCM FSIP 3252#	F/919 MCFGPD, 1/8" ch., 60 min., TP2412# F/2007 MCFGPD, 3/16" ch., 60 min., TP2260# F/3268 MCFGPD, ¼" ch., 60 min., TP2025# F/5073 MCFGPD, 5/16" ch., 60 min., TP1989#	6,516 MCFGPD Dry; Gas Grav. .626 SIBHP 2447#
Morris R. Antweil Penasco No. 1	Sec. 20-18S-25E 660' FS & 1980' FE	8634'-62' (Morrow)	8610'-8705' (Morrow) Rec. 180' cond. & 120' DM FSIP 3356#	F/1049 MCFGPD, Orifice, 60 min., TP2639# F/1500 MCFGPD, Orifice, 60 min., TP2609# F/2295 MCFGPD, Orifice, 60 min., TP2558# F/3143 MCFGPD, Orifice, 60 min., TP2489#	27,143 MCFGPD GOR 382,000/1 Gas Grav. .614 SIWHP 2703#
Yates Petr. Corp. Federal "AB" No. 4	Sec. 30-18S-25E 660' FN & 1980' FE	8570'-90' (Morrow)	8545'-8642' (Morrow) Rec. 60' oil, 90' O&GCM FSIP 3269# (Also DST in Wlfcp.)	F/13,300 MCFGPD, 3/4" ch., 24 hr., TP918#	-
Gulf Oil Corp. Eddy "GK" St. Com. No. 1	Sec. 19-18S-25E 1980' FS & 660' FE	8603'-07'; 8618'-27'; 8634'-41' (Morrow)	NO DST	F/1062 MCFGPD, 1.5" Orif., 60 min., TP2320# F/1528 MCFGPD, 1.5" Orif., 60 min., TP2240# F/2099 MCFGPD, 1.5" Orif., 60 min., TP2130# F/2992 MCFGPD, 1.5" Orif., 60 min., TP1902#	6,424 MCFGPD Dry SIWHP 2425#
Gulf Oil Corp. Eddy "GK" St. Com. No. 2	Sec. 19-18S-25E 2310' FN & 1980' FW	8478'-80'; 8486'-98' (Morrow)	NO DST	F/3310 MCFGPD, 15/64" ch., 60 min., TP2450# F/4642 MCFGPD, 19/64" ch., 60 min., TP2330# F/6626 MCFGPD, 25/64" ch., 60 min., TP2095# F/9022 MCFGPD, 28/64" ch., 60 min., TP1645#	22,869 MCFGPD
Mesa Petr. Co. Lincoln St. Com. No. 1	Sec. 24-18S-24E 2030' FN & 660' FE	8497'-8513' (Morrow)	8402'-8552' (Morrow) Rec. 350' GCDM FSIP 3282#		
Pubco Petr. Corp. Cass St. Com. No. 1	Sec. 25-18S-24E 1980' FS & W	None Reported	8245'-8475' Rec. 420' GCM FSIP 3111# (Also DST in Wlfcp.)		P&A

ROY C. WILLIAMSON, JR., P.E./cn MAY 17, 1978
1100 GIHLS TOWER WEST MIDLAND, TEXAS 79701
SIPES, WILLIAMSON & AYCOCK, INC.
for MESA PETROLEUM CO.

BEFORE EXAMINER STAMETS
OIL CONSERVATION COMMISSION
EXHIBIT NO. 4
CASE NO. 6232
Submitted by MESA PET.
Hearing Date

CASE NO. 6231
CASE NO. 6232
CASE NO. 6213
EXHIBIT 4

CASE NO. 6231
CASE NO. 6232
CASE NO. 6213
EXHIBIT 4



PRODUCTION CODE

- San Andres
- Yeso
- Wolfcamp
- Cisco-Canyon
- Atoka
- Morrow A-I
- Morrow B-II
- Morrow B-III

BEFORE EXAMINER STAMETS
OIL CONSERVATION COMMISSION
EXHIBIT NO. 5
CASE NO. 6231
SUBMITTED BY MESA PET.
HEARING

MAY 17, 1978
CASE NO. 6231
CASE NO. 6232
CASE NO. 6213
EXHIBIT 5

MESA PETROLEUM CO.
PERMIAN BASIN DIVISION

CASS RANCH PROSPECT
Eddy County, New Mexico

STRUCTURE
Top/Mississippian
C.I. = 100'

ISOPACH
Morrow A-I
C.I. = 15'

BY J.W.J
DATE 4-10-78
DRAWN BY J.D.M.
SCALE 1" = 5000'

CASS RANCH AREA

EDDY COUNTY, NEW MEXICO

RATABLE TAKE FACTOR

AREA I & I-A

Orthodox Location - Drainage Encroachment Outside of 320 Unit = 86.78 ac.

Unorthodox Location - Drainage Encroachment Outside of 320 Unit = 151.86 ac.

Additional Drainage Encroachment of Well at Unorthodox Location = 65.08 ac.

$$\text{Ratable Take Factor} = \frac{\text{(STD Unit, ac.) - (Additional Drainage Encroachment, ac.)}}{\text{STD Unit, ac.}}$$

$$= \frac{\text{(320 ac.) - (65.08 ac.)}}{\text{(320 ac.)}}$$

$$= .7966^{*}$$

* To Be Applied to Well Allowable for Standard 320 Acre Unit.

BEFORE EXAMINER STAMETS
OIL CONSERVATION COMMISSION
EXHIBIT NO. 6
CASE NO. 6232
Submitted by MESA PET.
Hearing Date

ROY C. WILLIAMSON, JR., P.E./cn MAY 17, 1978
1100 GIRLS TOWER WEST MIDLAND, TEXAS 79701
SIPES, WILLIAMSON & AYCOCK, INC.
for MESA PETROLEUM CO.

CASE NO. 6232
EXHIBIT 6

CASE NO. 6232
EXHIBIT 6

CASS RANCH AREA
EDDY COUNTY, NEW MEXICO

RESERVE CALCULATIONS FOR
ORTHODOX AND UNORTHODOX LOCATIONS

AREA I & I-A

Section 13

Porosity, percent	14
Bottom-hole Pressure, psig	3290
Water Saturation, percent	15
Gas Gravity	.63
Drainage Area, acres	320

Gas Formation Volume Factor, $B_g = \frac{(35.35)(3305 \text{ psia})}{(0.86)(600^{\circ}R)} =$ 226.4 $\frac{SCF}{RCF}$

(43,560 $\frac{Ft^3}{AF}$)(Porosity 0.14)(Gas Saturation 1-.15) = 5,183.6 $\frac{RCF}{AF}$ (226.4 $\frac{SCF}{RCF}$)

= 1,174 $\frac{MCF}{AF}$ (0.80 Rec.) = 939 $\frac{MCF}{AF}$

Orthodox Location:

(320 Ac) $\left[(0.625)(30)+(0.375)(25)\right]$ (939 $\frac{MCF}{AF}$) = 8,451 MMCF

Unorthodox Location:

(320 Ac)(22.5)(939 $\frac{MCF}{AF}$) = 6,761 MMCF

BEFORE EXAMINER STAMETS
OIL CONSERVATION COMMISSION
EXHIBIT NO. 7
CASE NO. 6232
Submitted by MESA PET.
Hearing Date

ROY C. WILLIAMSON, JR., P.E. MAY 17, 1978
1100 GIHLS TOWER WEST MIDLAND, TEXAS 79701
SIPES, WILLIAMSON & AYCOCK, INC.
for MESA PETROLEUM CO.

CASE NO. 6232
EXHIBIT 7

Dockets Nos. 19-78 and 20-78 are tentatively set for hearing on June 7 and 21, 1978. Applications for hearing must be filed at least 22 days in advance of hearing date.

DOCKET: EXAMINER HEARING - WEDNESDAY - MAY 17, 1978

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:

CASE 6225: Application of Petroleum Development Corporation for a dual completion, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the dual completion (conventional) of its Sun McKay Federal Well No. 2 located in Unit G of Section 10, Township 19 South, Range 32 East, Lea County, New Mexico, in such a manner as to produce oil from the Wolfcamp formation thru tubing and gas from the Morrow formation thru the casing tubing annulus by means of a cross-over assembly.

CASE 6226: Application of Barber Oil, Inc. for a waterflood project, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project on its Saladar Unit, by the injection of water into the Yates formation through five wells located in Units K, L, N and O of Section 33, Township 20 South, Range 28 East, Saladar-Yates Pool, Eddy County, New Mexico.

CASE 6227: Application of Union Texas Petroleum for a non-standard proration unit, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks approval of a 209.5-acre non-standard gas proration unit comprising the W/2 of Section 7, Township 31 North, Range 9 West, Blanco Pictured Cliffs Pool, San Juan County, New Mexico, to be dedicated to a well drilled at a standard location thereon.

CASE 6228: Application of Depco, Inc., for an unorthodox location, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of its R&S Federal Com Well No. 1 to be located 1980 feet from the South line and 990 feet from the West line of Section 17, Township 15 South, Range 28 East, Buffalo Valley-Pennsylvanian Gas Pool, Chaves County, New Mexico, the S/2 of said Section 17 to be dedicated to the well.

CASE 6229: Application of Texas Oil & Gas Corporation for a unit agreement, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for its South Wilson State Unit Area comprising 3,200 acres, more or less, of State land in Township 21 South, Range 34 East, Lea County, New Mexico.

CASE 6230: Application of Texas Oil & Gas Corporation for an unorthodox gas well location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval of an unorthodox location for its Duffield Fed. Com Well No. 1, a Wolfcamp-Pennsylvanian test to be located 1980 feet from the South line and 660 feet from the West line of Section 28, Township 16 South, Range 27 East, Eddy County, New Mexico, the S/2 of said Section 28 to be dedicated to the well.

CASE 6215: (Continued from May 3, 1978, Examiner Hearing)

Application of Texas Oil & Gas Corporation for a non-standard unit and an unorthodox gas well location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for a 320-acre non-standard proration unit comprising the N/2 of Section 29, Township 20 South, Range 36 East, North Osudo-Morrow Gas Pool, Lea County, New Mexico, to be dedicated to a well to be located at an unorthodox location 660 feet from the North and West lines of said Section 29.

CASE 6231: 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 its State "JM" Well No. 1, a Morrow test to be located 660 feet from the North and East lines of Section 25, Township 18 South, Range 24 East, Eddy County, New Mexico, the N/2 of said Section 25 to be dedicated to the well.

CASE 6232: Application of Yates Petroleum Corporation for an unorthodox location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of its Cities "JG" Well No. 1 to be located 660 feet from the South and East lines of Section 13, Township 18 South, Range 24 East, Fordinkus Field, Eddy County, New Mexico, the E/2 of said Section 13 to be dedicated to the well.

CASE 6233: Application of Amoco Production Company for salt water disposal, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Ojo Alamo formation through the perforated interval from 1175 feet to 1230 feet in its Cahn Gas Com Well No. 3 located in Unit F of Section 33, and from 1104 feet to 1122 feet in its Keys Gas Com "F" Well No. 1, located in Unit K of Section 27, all in Township 32 North, Range 10 West, Mt. Nebo-Fruitland Pool, San Juan County, New Mexico.

DRAFT

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. 6232

ORDER NO. R-5832

APPLICATION OF YATES PETROLEUM CORPORATION FOR AN UNORTHODOX GAS WELL LOCATION, EDDY COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on May 17, 19 78, at Santa Fe, New Mexico, before Examiner Richard L. Stamets

~~NOW, on this~~ ______ day of ~~May~~ ______, 19 78, 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, Yates Petroleum Corporation, seeks approval of an unorthodox gas well location/ for its Ghc. "JG" Well No. 1 to be located 660 feet from the South line and 660 feet from the East line of Section 13, Township 18 South, Range 24 East, NMPM, to test the Morrow formation, in Undesignated Morrow Gas Pool, Eddy County, New Mexico.

(3) That the E/2 of said Section ~~23~~ 13 is to be dedicated to the well.

(4) That a well at said unorthodox location will better enable applicant to produce the gas underlying the proration unit.

~~(5) That no offset operator objected to the proposed unorthodox location.~~

(5) That the offset operators have objected to the proposed location.

(6) That a well at the proposed location is at a standard location relative to the ~~North~~ East and ~~South~~ West lines of said Section 13.

(7) That a well at the proposed location is 67 percent closer to the ~~East~~ South line of said Section 13 than permitted by Division Rules and Regulations.

(8) That a well at the proposed location will have an area of drainage in the Morrow formation which extends an additional 67.2 net acres outside Section 13, ~~location on said spacing unit.~~ an amount of acreage equivalent to more than a well located at a standard ~~to 21 percent of a~~ standard proration unit in said pool.

(9) That to offset the advantage gained over the protesting offset operators, production from the well at the proposed unorthodox location should be limited from the Morrow formation.

(10) That such limitation should be based upon the variation of the location from a standard location and the 67.2 net-acre encroachment described in Finding No. (9) above, and may best be accomplished by assigning a well at the proposed location an ~~acreage~~ allowable limitation factor of 0.71 (100 percent ~~North/South~~ East/West factor plus 33 percent ~~East/West~~ North/South factor plus 79 percent net-acre factor divided by 3).

(11) That in the absence of any special rules and regulations for the prorationing of production from said Undesignated Morrow Gas Pool, ~~said acreage~~ aforesaid production limitation factor should be applied against said well's ability to produce into the pipeline as determined by periodic well tests, ~~and average pipeline pressure data.~~

(12) That the minimum calculated allowable for the subject well should be reasonable, and 1,000,000 cubic feet of gas per day is a reasonable figure for such minimum allowable.

(3). 6232 R-

(13) That approval of the subject application subject to the above provisions limitation, 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 Yates Petroleum Corporation's ~~State "JM"~~ Cities "JG" Well No. 1 to be located at a point 660 feet from the ~~North~~ South line and 660 feet from the East line of Section 23, Township 18 South, Range 24 East, NMPM, Undesignated Morrow Gas Pool, Eddy County, New Mexico.

(2) That the E/2 of said Section 23 13 shall be dedicated to the above-described well.

(3) That said well is hereby assigned ~~an acreage~~ a Production Limitation Factor of 0.71 in the Morrow formation.

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

(5) That ~~the following~~ Special Rules and Regulations for ~~the application of production limitations on~~ non-prorated gas wells ~~in Southeast New Mexico are hereby promulgated as follows:~~ 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 GASWELL

APPLICATION OF RULES

RULE 1. These rules shall apply to the Yates Petroleum Corporation ~~State "JM"~~ Cities "JG" Well No. 1, located 660 feet from ~~the North~~ South line and 660 feet from the East line of Section ~~23~~ 13, Township 18 South, Range 24 East, NMPM, Eddy County, New Mexico, which well's Production Limitation Factor of 0.71 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 ~~all wells subject to these rules~~ the subject well shall be six months.

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

DETERMINATION OF DELIVERY CAPACITY

RULE 4. ~~That~~ Immediately upon connection of ~~any~~ the well ~~subject to these rules~~ the operator shall determine the open flow capacity of ~~such~~ 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 ~~for~~ 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. ~~That~~ The Division Director may authorize special deliverability tests to be conducted upon a showing that ~~a~~ the well has been worked over or that the ~~subsequent~~ 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. ~~Allowables to newly completed wells~~ The well's allowable for the shall commence upon the date of connection ~~of the well~~ 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 ~~for the well~~ during its first ~~proration~~ allowable period shall be determined by multiplying ~~the well's~~ its initial deliverability by its ~~acreage~~ production limitation factor.

RULE 10. The well's allowable ~~for any well during~~ the during all ensuing ~~second proration~~ allowable periods shall be determined by multiplying ~~the~~ its latest subsequent deliverability, as determined under provisions of Rule 5, by ~~the acreage~~ its production limitation factor. If ~~any~~ the well shall not have been producing for at least 60 days prior to the end of its first allowable period, ~~a period sufficient to have obtained a subsequent deliverability,~~ the allowable for the second ~~proration~~ allowable period shall be determined in accordance with Rule ~~8~~ 9.

~~RULE 11. That allowable to any well following its second proration period shall be determined by mulipiying the subsequent deliverability filed in accordance with Rule 5 by its acreage factor.~~

RULE 11. Revision of allowables based upon special well tests shall become effective upon the date of such test provided the results of such test are filed with the ~~appropriate Division~~ 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. ~~That~~ Revised allowables based on special well tests shall remain effective until the beginning of the next allowable ~~proration~~ period. ~~following receipt of the first subsequent deliverability following the special well test.~~

RULE 13. ~~That no well~~ In no event shall the well subject to these rules receive an allowable of less than one million cubic feet of gas per day.

BALANCING OF PRODUCTION

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

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

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

RULE 17. ~~Overproduction. Any~~ If the well ~~which~~ has an overproduced status ~~as of~~ at the end of ~~a gas proration~~ 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~~ 19. The Director of the Division shall have authority to permit ~~a~~ the well, ~~which~~ if it is subject to shut-in pursuant to Rules 17 and 18 ~~18, 19, and 21~~ 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 ~~any~~ 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 ~~18, 19, or 20~~ 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 2[illegible]. 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 ~~affected~~ well. No further allowable shall be assigned to the ~~affected~~ 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.

BEFORE THE OIL CONSERVATION DIVISION

OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE APPLICATION OF YATES PETROLEUM CORPORATION FOR AN UNORTHODOX GAS WELL LOCATION, EDDY COUNTY, NEW MEXICO	:	CASE No. 6232

APPLICATION

COMES NOW YATES PETROLEUM CORPORATION, by its attorneys, and in support hereof, respectfully states:

1. Applicant is the operator of the Wolfcamp and Pennsylvanian formations underlying:

Township 18 South, Range 24 East, N.M.P.M.

Section 13: E/2

and proposes to drill its Cities "JG" No. 1 Well at a point located 660 feet from the South line and 660 feet from the East line of said Section 13.

2. The applicant seeks an exception to the well location requirements of Rule 104-C.2(a) of the Oil Conservation Division to permit the drilling of the well at the above mentioned unorthodox location to a depth sufficient to adequately test the Wolfcamp and Pennsylvanian formations.

3. A standard 320-acre gas proration unit comprising the E/2 of said Section 13 should be dedicated to such well or to such lesser portion thereof as is reasonably shown to be reasonably productive of gas.

4. The approval of this application will afford applicant the opportunity to produce its just and equitable share of gas, will prevent 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.

WHEREFORE, applicant prays:

A. That this application be set for hearing before an examiner and that notice of said hearing be given as required by law.

B. That upon hearing the Division enter its order granting applicant permission to drill a well 660 feet from the South line and 660 feet from the East line of said Section 13 and to dedicate the E/2 of Section 13, which is reasonably presumed to be productive of gas from the Wolfcamp and Pennsylvanian formations.

C. And for such other relief as may be just in the premises.

YATES PETROLEUM CORPORATION

By: Joel M. Carson
Joel M. Carson

LOSEE, CARSON & DICKERSON, P.A.
P. O. Drawer 239
Artesia, New Mexico 88210

Attorneys for Applicant

LAW OFFICES
LOSEE & CARSON, P.A.
300 AMERICAN HOME BUILDING
P. O. DRAWER 239
ARTESIA, NEW MEXICO 88210

A. J. LOSEE
JOEL M. CARSON
CHAD DICKERSON

AREA CODE 505
746-3508

28 April 1978

Mr. Joe D. Ramey, Director
New Mexico Oil Conservation Division
P. O. Box 2088
Santa Fe, New Mexico 87501

Dear Mr. Ramey:

Enclosed for filing, please find three copies of Application of Yates Petroleum Corporation for an unorthodox gas well location for its Cities "JG" No. 1 Well in Eddy County, New Mexico.

We ask that this case be set for hearing before an examiner and that we be furnished with a copy of the docket for said hearing.

Yours truly,

LOSEE, CARSON & DICKERSON, P.A.

Joel M. Carson

JMC:bjm
Enclosures

cc w/enclosure: Mr. Jack W. McCaw

BEFORE THE OIL CONSERVATION DIVISION

OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE APPLICATION OF YATES PETROLEUM CORPORATION FOR AN UNORTHODOX GAS WELL LOCATION, EDDY COUNTY, NEW MEXICO

CASE No. 6232

APPLICATION

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Section 13: E/2

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C. And for such other relief as may be just in the premises.

YATES PETROLEUM CORPORATION

By: Joel M. Carson

Joel M. Carson

LOSEE, CARSON & DICKERSON, P.A.
P. O. Drawer 239
Artesia, New Mexico 88210

Attorneys for Applicant

NSL Joel Carson 4-27-78

Yates Petroleum Corp.
Cities "JG" No 1 660S 660E
13-18S-24E E/2 dedicate
Wolfcamp - Pennsylvanian
~~Richards Knob~~ Fordinkus Field
Eddy Co

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
State Land Office Building
Santa Fe, New Mexico
7 February 1979
COMMISSION HEARING

IN THE MATTER OF:

Application of Yates Petroleum Corporation for an unorthodox location, Eddy County, New Mexico. CASE 6232

BEFORE: Commissioner Ramey
Commissioner Armijo

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation Division: Lynn Teschendorf, Esq.
Legal Counsel for the Commission
State Land Office Bldg.
Santa Fe, New Mexico 87503

For the Applicant: Jerry Losee, Esq.
LOSEE, CARSON, & DICKERSON P.A.
Artesia, New Mexico

For Gulf Corporation: W. Thomas Kellahin, Esq.
KELLAHIN & KELLAHIN
500 Don Gaspar
Santa Fe, New Mexico 87501

I N D E X

E X H I B I T S

MR. RAMEY: We'll call next Case 6232. Application of Yates Petroleum for an unorthodox location, Eddy County, New Mexico.

And we have application of Gulf Oil Corporation that this case be heard de novo pursuant to provisions of Rule 1220.

MR. LOSEE: A. J. Losee, appearing on behalf of the Applicant, and I have one witness.

MR. KELLAHIN: I am Tom Kellahin of Santa Fe, New Mexico, appearing on behalf of Gulf Oil Corporation.

Mr. Ramey, it appears from the evidence introduced in Case 6231, de novo, heard here earlier today that the Morrow formation as tested in the Yates "JG" No. 1 Well located in Section 13, and which is the subject of this case, 6232, is not commercially productive in the Morrow and therefore, based upon that, Gulf Oil Corporation would withdraw its application for a de novo hearing and we have no objection to that particular location.

MR. RAMEY: Very good. We will dismiss your application for a de novo hearing and proceed to hear the case.

RAY BECK

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

DIRECT EXAMINATION

BY MR. LOSEE:

Q State your name, residence, and occupation, please.

A Ray Beck, geologist with Yates, Artesia, New Mexico.

Q Have you previously testified before this Commission and had your qualifications accepted?

A Yes, sir.

Q Please refer to what's been marked as Exhibit One and explain what is portrayed by this exhibit.

A Exhibit One is a land plat showing the location of the Yates Cities "JG" No. 1 and the designated proration unit outlined in red.

MR. RAMEY: Let's have the record show that this witness has been sworn and is still under oath from the previous case.

Q Please refer to what's been marked as Exhibit Two and explain what is shown by this.

A Exhibit Two is an index map showing the subject well and other nearby wells. The Cities "JG" is an indicated gas producer from the Chester limestone of the Mississippian system. No other nearby wells produce from the Chester. The nearest well to produce from the Chester is the Yates Ross "EG" in Section 20 of 19, 25, 19 South,

25 East, approximately seven miles to the south. That well was recompleted as salvage in the Chester for an IPF of 1650 Mcf per day but quickly fell off and now produces about 50 Mcf per day.

On the index map the linesradiating from the subject well connect to pertinent nearby wells, of which xeroxed copies have been made of the logs to show their respective correlative Mississippian section, that is to compare it with the Cities in the Mississippian for perforated interval in the Cities "JG" Well.

Q Please turn to Exhibit There, your neutron density log on the "JG" Well and explain what is important in this exhibit.

A. Exhibit Three is a compensated neutron formation density log and on the second page, a dual lateral log of the Cities "JG" Well.

At 8551 to 8557 is the indicated producing zone. On the neutron density the porosity is only 3-1/2 percent but on the dual lateral log it shows an extremely high deep lateral log reading, which indicates abnormally high pressure dry gas along with no invasion, since the shadow lateral log and the RXO are off scale.

The zone had a drilling break in a gas kick while drilling. After the well was perforated and treated with a small acid job, it flowed 2.6 million cubic feet per

day and had a bottom hole pressure of 4654 pounds beari..g out the log interpretation.

Q Have you tested the well recently?

A. Yes, we have, but I don't know what the results of those tests were, unless Peyton would know it.

Q Do you know what it flowed at?

A. Not recently, no, unless you have that information.

MR. RAMEY: You did have an IP on the well, though.

A. Here -- wait a minute.

MR. RAMEY: I thought he mentioned that to you awhile ago.

MR. LOSEE: It initially --

A. It may not have been -- it may not have been completed yet. I mean for an official IPF.

MR. LOSEE: Why don't we go off the record.

(Thereupon a discussion was had off the record.)

Q Turn to your Exhibit Four, which are the five logs, and summarize what those logs show.

A. Exhibit Four comprises five sets of log segments in the nearby pertinent wells on the index map. All the neutron density logs show low porosity and no gas effect in the subject zoning. All the dual lateral logs

show the subject zoning to be tight; therefore, the indicated gas bearing zone in the Mississippian of the Cities "JG" would not be draining from the nearby five offset wells.

MR. LOSEE: If I don't get the answer to my question in a minute, that concludes our case, Mr. Commissioner.

MR. RAMEY: Okay. Any questions of the witness?

Anyone have anything further to add to this case?

The Commission will take the case under advisement.

(Hearing concluded.)

REPORTER'S CERTIFICATE

I, SALLY WALTON BOYD, a Court Reporter, DO HEREBY CERTIFY that the foregoing and attached Transcript of Hearing before the Oil Conservation Division was reported by me; that said transcript is a full, true, and correct record of the hearing, prepared by me to the best of my ability, knowledge, and skill, from my notes taken at the time of the hearing.

Sally W. Boyd, C.S.R.

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. 6232 DE NOVO
Order No. R-5832-A

APPLICATION OF YATES PETROLEUM CORPORATION FOR AN UNORTHODOX GAS WELL LOCATION, EDDY COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on February 7, 1979, at Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this 20th day of February, 1979, the Commission, a quorum being present, having considered the testimony presented and the exhibits received at said hearing, 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, Yates Petroleum Corporation, seeks approval of an unorthodox gas well location for its Cities "JG" Well No. 1 to be located 660 feet from the South line and 660 feet from the East line of Section 13, Township 18 South, Range 24 East, NMPM, Fordinkus Field, Eddy County, New Mexico.

(3) That upon receipt of the application of Yates Petroleum Corporation in this matter, the same was set for hearing on May 17, 1978, before Examiner Richard L. Stamets.

(4) That subsequent to said hearing the Commission entered Order No. R-5832 approving the unorthodox location of said well for the Morrow formation.

(5) That subsequent to the entry of said Order No. R-5832, Gulf Oil Corporation, an offset operator, filed timely application for hearing De Novo of Case No. 6232, and the matter was set for hearing before the Commission.

(6) That the matter came on for hearing De Novo on February 7, 1979.

(7) That on the date of said De Novo hearing, applicant had completed said Cities "JG" Well No. 1 as a dry hole in the Morrow formation and as a producing well in a wildcat Mississippian gas pool.

(8) That at said De Novo hearing Gulf Oil Corporation withdrew its objection to the unorthodox location of said well.

(9) That no other offset operator objected to the unorthodox location of said well.

(10) That a well at said unorthodox location will better enable applicant to produce the gas underlying the proration unit.

(11) That approval of the subject application 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.

(12) That Division Order No. R-5832, which approved an unorthdox location for the subject well in the Morrow formation, subject to certain restrictions, should be rescinded.

IT IS THEREFORE ORDERED:

(1) That an unorthodox gas well location for the Mississippian formation is hereby approved for the Yates Petroleum Corporation Cities "JG" Well No. 1 located at a point 660 feet from the South line and 660 feet from the East line of Section 13, Township 18 South, Range 24 East, NMPM, Eddy County, New Mexico.

(2) That the E/2 of said Section 13 shall be dedicated to the above-described well.

(3) That Division Order No. R-5832 is hereby rescinded.

(4) 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

S E A L

fd/

OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO
P. O. BOX 2088 · SANTA FE
87501

DIRECTOR
JOE D. RAMEY

LAND COMMISSIONER
PHIL R. LUCERO

STATE GEOLOGIST
EMERY C. ARNOLD

February 21, 1979

Mr. A. J. Losee
Losee & Carson
Attorneys at Law
Post Office Box 239
Artesia, New Mexico 88210

Re: CASE NO. 6232
ORDER NO. R-5832-A

Applicant:

Yates Petroleum Corporation

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 Mr. Tom Kellahin

DRAFT

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. 6232 DE NOVO

ORDER NO. R-5832-A

APPLICATION OF Yates Petroleum Corporation

FOR AN UNORTHODOX GAS WELL LOCATION,

Eddy COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on ~~May 16, 1978~~ February 7, 1979, at Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this ~~13th~~ day of ~~June 1978,~~ the Commission, a quorum being present, having considered the testimony presented and the exhibits received at said hearing, 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, Yates Petr. Corp., for its Cities "JG" Well No. 1, to be located seeks approval of an unorthodox gas well location 660 feet from the South line and 660 feet from the East line of Section ~~13~~ 13, Township 18 South, Range 24 East, NMPM, ~~to test the~~ ~~Mississippian~~ ~~formation~~ Fordinkus, Field Undesignated ~~Pool~~, Eddy County, New Mexico.

(3) That upon receipt of the application of ~~Southland Royalty Company~~ Yates Petroleum Corporation in this matter, the same was set for hearing on ~~February 22~~ May 17, 1978, before Examiner Richard L. Stamets.

(4) That subsequent to said hearing the Commission entered Order No. R-~~5676~~ 5832 approving the ~~two 120-acre non-standard gas~~ unorthodox location of said well for the Morrow formation.

(5) That subsequent to the entry of said Order No. R-~~5676~~ 5832, Gulf Oil Corporation ~~William M. Callaway~~, an offset operator, filed timely application for hearing De Novo of Case No. ~~6232~~, and the matter was set for hearing before the Commission.

(6) That the matter came on for hearing De Novo on ~~May 16~~ February 7, 1979.

(7) That on the date of said De Novo hearing, applicant had completed said Cities "J G" Well No 1 as a dry hole in the Morrow formation and as a producing well in a wildcat Mississippian gas pool.

(8) That at said De Novo hearing Gulf Oil Corporation withdrew its objection to the unorthodox location of said well.

(9) That ~~there were no~~ no other offset operator objected to the unorthodox location of said well.

(10) That a well at said unorthodox location will better enable applicant to produce the gas underlying the proration unit.

(11) That approval of the subject application 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.

(12)

IT IS THEREFORE ORDERED:

(1) That an unorthodox gas well location for the Mississippian formation is hereby approved for The Yates Petroleum Corporation Cities "JG" Well No. 1 ~~A well to be~~ located at a point 660 feet from the South line and 660 feet from the East line of Section 13, Township 18 South, Range 24 East NMPM, ~~Undesignated~~ Loco Hills, Eddy County, New Mexico.

(2) That the S/2 of said Section 13 shall be dedicated to the above-described well.

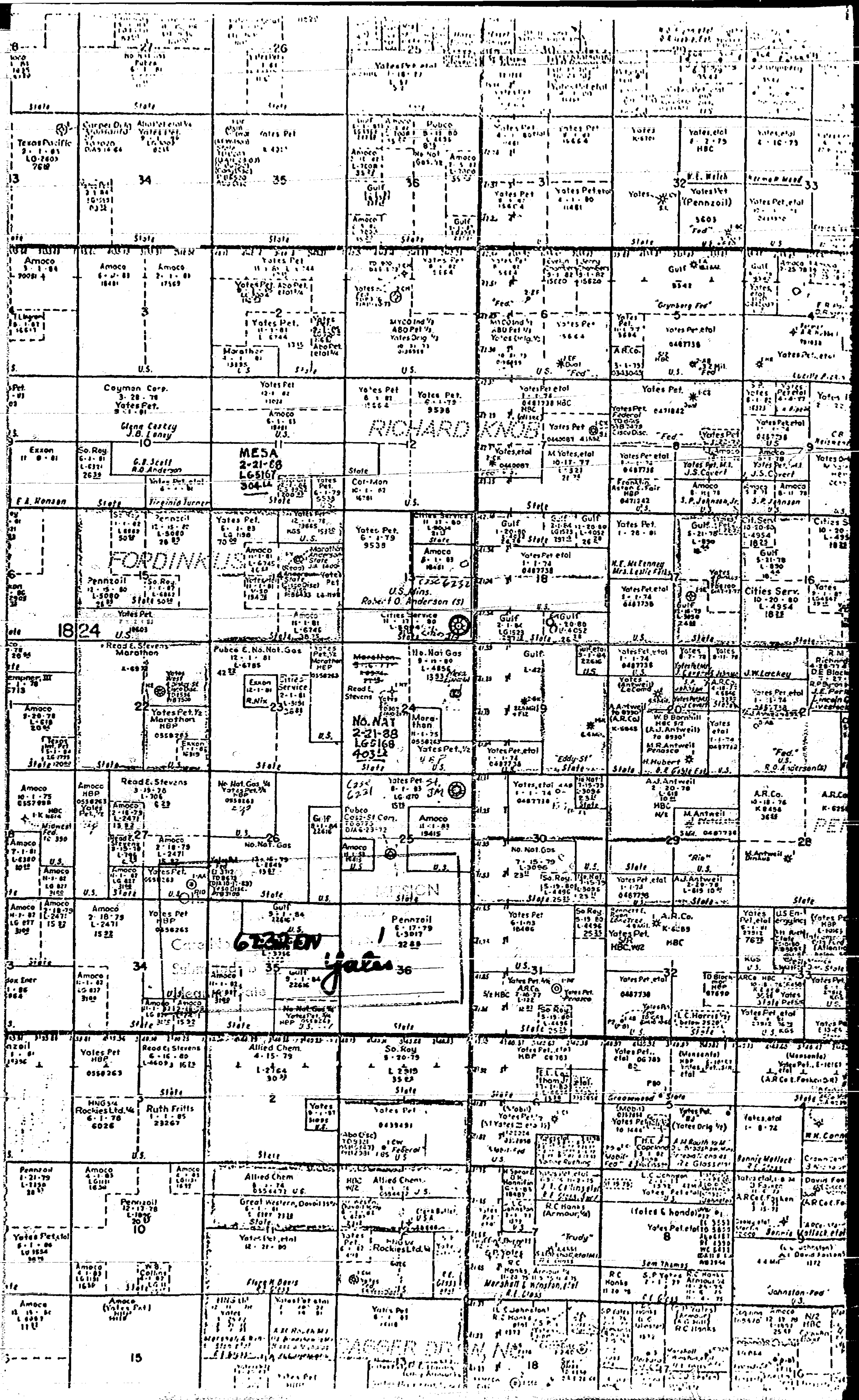
(3)

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

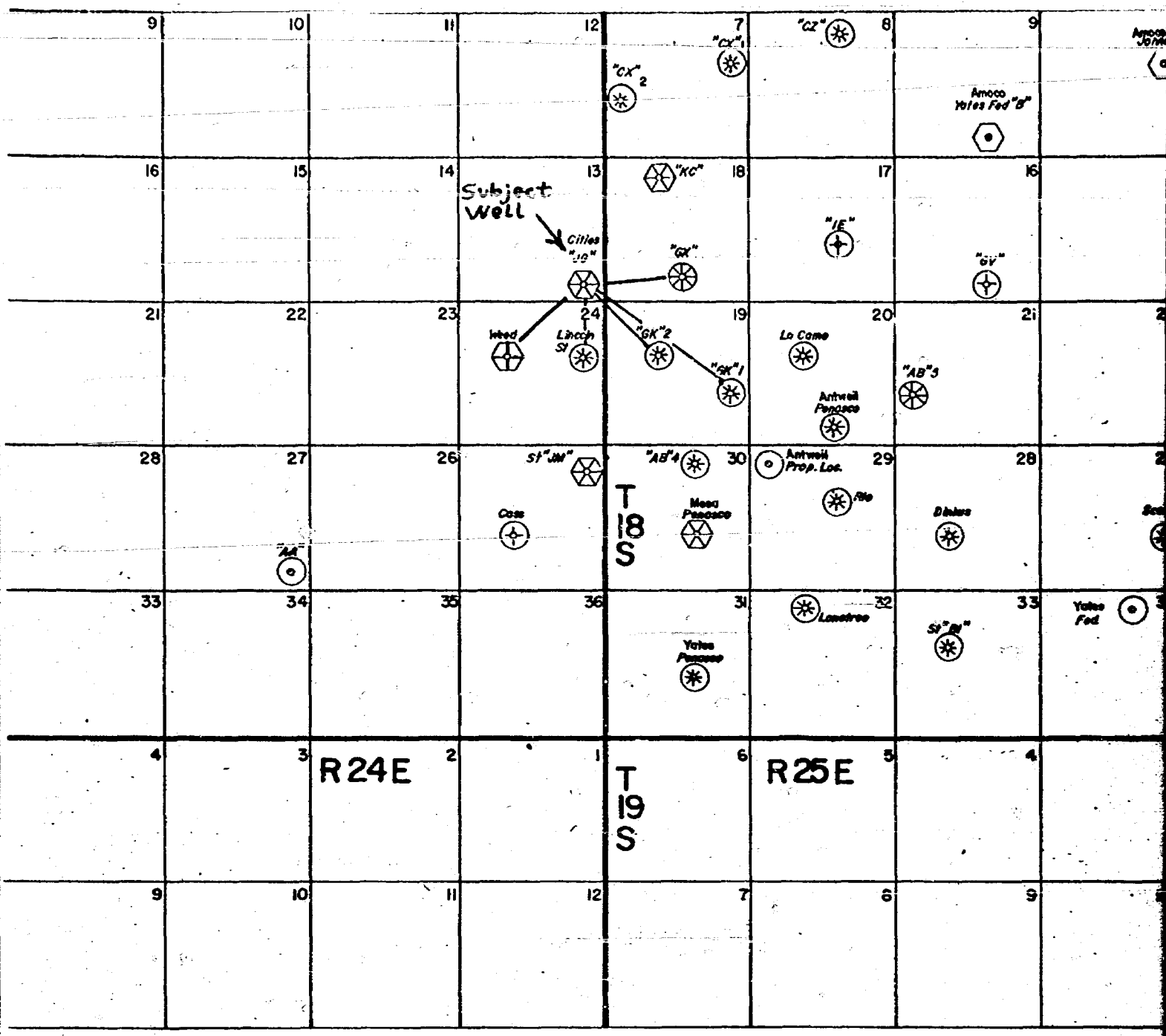
DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

(12) That Division Order No. R-5832, which approved an unorthodox location for the subject well in the Morrow formation, subject to certain restrictions, should be rescinded.

(3) That Division Order No. R-5832 is hereby rescinded.



Texas Pacific
2-1-81
LG-2603
Amoco
Yates Pet.
Yates Pet, etal
Yates Pet (Pennzoil)
W.E. Welch
Gulf
Grynberg Fed
MYCO Ind 1/3
ABO Pet 1/3
Yates Drig 1/3
Marathon
Cayman Corp.
3-28-78
Glenn Castey
J.B. Laney
Exxon
So. Roy.
G.B. Scott
R.O. Anderson
MESA
2-21-88
LG5167
304.44
E.A. Hanson
Virginia Turner
Cor-Mon
RICHARD KNOB
M. Yates, etal
Franklin, Aston & Fair
S.P. Johnson, Jr.
J.S. Covert
Pennzoil
FORDINKUS
Cities Service
U.S. Mins.
Robert O. Anderson (S)
Cities Serv.
H.E. McKenney
Mrs. Leslie Fills
Read & Stevens
Marathon
Pubco & No. Nat. Gas
Yates Pet. 1/2 Marathon HBP
R. Nix
No. NAT
2-21-88
LG5168
403.12
J.W. Lackey
A.J. Antweil
W.B. Barnhill
M.R. Antweil
Penasco
H. Hubert
R.O. Anderson (S)
Eddy-St
Midwest Fed.
No. Nat. Gas
Pubco
Cosa-St Com.
A.R. Co.
M. Antweil
Dinkus
Rio
Case No 6232 EN
Yates
Bennett & Ryan
Allied Chem.
So. Roy
Ruth Fritts
HNG 3/4 Rockies Ltd. 1/4
Pennzoil
Great Western, Dovoil
E.L. Latham Jr.
Greenwood
Mobil
H.L. Copeland
R.C. Hanks
Armour
Trudy
Sam Thomas
Bonnie Wallack
A.R. Co. & Fasken
Johnston-Fed
W.B. Collins
Flora M. Beers
Marshall & Winston, etal
R.E. Glass
David Fasken
State
U.S.
Fed.



SCALE 1"=5000'

OIL CONSERVATION COMMISSION

Case 6232 DN Exhibit No. 2

Submitted by Yates

Hearing Date

DOCKET: COMMISSION HEARING - WEDNESDAY - FEBRUARY 7, 1979

OIL CONSERVATION COMMISSION - 9 A.M. - ROOM 205
STATE LAND OFFICE BUILDING, SANTA FE, NEW MEXICO

The following cases are continued from the January 24, 1979, Commission Hearing.

CASE 6231: (DE NOVO)

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 its State "JM" Well No. 1, a Morrow test to be located 660 feet from the North and East lines of Section 25, Township 18 South, Range 24 East, Eddy County, New Mexico, the N/2 of said Section 25 to be dedicated to the well.

Upon application of Gulf Oil Corporation this case will be heard De Novo pursuant to the provisions of Rule 1220.

CASE 6232: (DE NOVO)

Application of Yates Petroleum Corporation for an unorthodox location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of its Cities "JG" Well No. 1 to be located 660 feet from the South and East lines of Section 13, Township 18 South, Range 24 East, Fordinkus Field, Eddy County, New Mexico, the E/2 of said Section 13 to be dedicated to the well.

Upon application of Gulf Oil Corporation this case will be heard De Novo pursuant to the provisions of Rule 1220.

DOCKET: COMMISSION HEARING - WEDNESDAY - JANUARY 24, 1979

OIL CONSERVATION COMMISSION - 9 A.M. - ROOM 205
STATE LAND OFFICE BUILDING, SANTA FE, NEW MEXICO

The following cases are continued from the December 12, 1978, Commission Hearing.

CASE 6231: (DE NOVO) (Continued and Readvertised)

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 its State "JM" Well No. 1, a Morrow test to be located 660 feet from the North and East lines of Section 25, Township 18 South, Range 24 East, Eddy County, New Mexico, the N/2 of said Section 25 to be dedicated to the well.

Upon application of Gulf Oil Corporation this case will be heard De Novo pursuant to the provisions of Rule 1220.

CASE 6232: (DE NOVO) (Continued and Readvertised)

Application of Yates Petroleum Corporation for an unorthodox location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of its Cities "JG" Well No. 1 to be located 660 feet from the South and East lines of Section 13, Township 18 South, Range 24 East, Fordinkus Field, Eddy County, New Mexico, the E/2 of said Section 13 to be dedicated to the well.

Upon application of Gulf Oil Corporation this case will be heard De Novo pursuant to the provisions of Rule 1220.

CASE 6213: (DE NOVO) (Continued and Readvertised)

Application of Morris R. Antweil for an unorthodox location and simultaneous dedication, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of his Rio Well No. 2, a Morrow test to be drilled at a point 660 feet from the North and West lines of Section 29, Township 18 South, Range 25 East, Eddy County, New Mexico, the N/2 of said Section 29 to be simultaneously dedicated to the aforesaid well and to applicant's Rio Well No. 1 located in Unit G of Section 29.

Upon application of Gulf Oil Corporation this case will be heard De Novo pursuant to the provisions of Rule 1220.

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
December 12, 1978

COMMISSION HEARING

IN THE MATTER OF:	
Application of Morris R. Antweil for an unorthodox location and simultaneous dedication, Eddy County New Mexico.	CASE 6213 (DE NOVO)
Application of Yates Petroleum Corporation for an unorthodox gas well location, Eddy County, New Mexico.	CASE 6231 (DE NOVO)
Application of Yates Petroleum Corporation for an unorthodox location, Eddy County, New Mexico.	CASE 6232 (DE NOVO)

BEFORE: Joe D. Ramey, Director

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the New Mexico Oil Conservation Commission: Lynn Teschendorf
Legal Counsel for the Commission
State Land Office Building
Santa Fe, New Mexico

MR. RAMEY: Call Cases 6213, 6231, and 6232.

MS. TESCHENDORF: Case 6213, application of Morris R. Antweil for an unorthodox location and simultaneous dedication, Eddy County, New Mexico. Upon application of Gulf Oil Corporation this case will be heard De Novo.

Case 6231, application of Yates Petroleum Corporation for an unorthodox gas well location, Eddy County, New Mexico. Upon application of Gulf Oil Corporation this case will be heard De Novo.

Case 6232, application of Yates Petroleum Corporation for an unorthodox location, Eddy County, New Mexico. Upon application of Gulf Oil Corporation this case will be heard De Novo.

It is requested that these cases be continued.

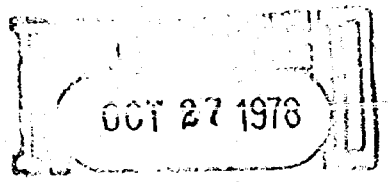
MR. RAMEY: This hearing is hereby continued indefinitely. The hearing is adjourned.

CAMPBELL, BINGAMAN AND BLACK, P. A.
LAWYERS

JACK M. CAMPBELL
JEFF BINGAMAN
BRUCE D. BLACK
MICHAEL B. CAMPBELL

POST OFFICE BOX 2208
JEFFERSON PLACE
SANTA FE, NEW MEXICO 87501
TELEPHONE (505) 988-4421

October 27, 1978



Mr. Joe D. Ramey, Director
Oil Conservation Division
Department of Energy and Minerals
State of New Mexico
State Land Office Building
Santa Fe, New Mexico 87503

Re: Application of Yates Petroleum Company For An Unorthodox Gas Well Location, Eddy County, New Mexico, Case No. 6232.

Dear Mr. Ramey:

We are enclosing for filing Applications for De Novo hearing in the captioned matter.

We would appreciate your taking the necessary steps to set this matter down for hearing before the Oil Conservation Commission.

Very truly yours,

Jack M Campbell

Jack M. Campbell

JMC:ama

Enclosures

cc: Mr. A. J. Losee

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

Application of Yates Petroleum Company for an unorthodox gas well location, Eddy County, New Mexico.	)))))	Case No. 6232

APPLICATION FOR DE NOVO HEARING

COMES NOW Gulf Oil Corporation (Gulf), a party to the above-styled matter and, pursuant to Chapter 255, Section 48, Laws of 1977 and Rule 1220 of the Oil Conservation Division, applies for a de novo hearing before the Commission in this matter, and as its grounds therefor states:

1. Order No. R 5832 issued in this matter on 29 September 1978 provides, among other things, under Rule 13 therein as follows:

> "Rule 13. In no event shall the well receive an allowable of less than one million cubic feet of gas per day."

2. Said Rule 13 adversely affects applicant's correlative rights and has the effect of nullifying other provisions of said Order limiting Yates Petroleum Company's production from the proposed well.

WHEREFORE, Gulf seeks a hearing de novo in this matter before the New Mexico Oil Conservation Commission and, following such hearing, for an order modifying said proposed Rule 13, in such a manner that the correlative rights of Gulf shall be protected as provided by law.

Respectfully submitted,
GULF OIL COMPANY

CAMPBELL, BINGAMAN AND BLACK, P.A.

Dated: October 27, 1978.

By Jack M. Campbell
Jack M. Campbell

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

Application of Yates Petroleum Company for an unorthodox gas well location, Eddy County, New Mexico.	))))	Case No. 6232

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Respectfully submitted,
GULF OIL COMPANY

CAMPBELL, BINGAMAN AND BLACK, P.A.

Dated: October 27, 1978.

By Jack M. Campbell
Jack M. Campbell

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
State Land Office Building
Santa Fe, New Mexico
24 January 1979

COMMISSION HEARING

IN THE MATTER OF:

Application of Yates Petroleum Corporation for an unorthodox gas well location, Eddy County, New Mexico.

CASE 6231 and CASE 6232

BEFORE: Commissioner Ramey
Commissioner Arnold

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation Division: Lynn Teschendorf, Esq.
Legal Counsel for the Division
State Land Office Bldg.
Santa Fe, New Mexico 87501

For the Applicant:

MR. RAMEY: Call next Case 6231.

MS. TESCHENDORF: Case 6231. Application of Yates Petroleum Corporation for an unorthodox gas well location, Eddy County, New Mexico.

Upon application of Gulf Oil Corporation this case will be heard de novo.

(There followed a brief recess.)

MR. RAMEY: We'll call also Case 6232.

MS. TESCHENDORF: Case 6232. Application of Yates Petroleum Corporation for an unorthodox gas well location, Eddy County, New Mexico.

Upon application of Gulf Oil Corporation this case will be heard de novo.

MR. RAMEY: We have indications from the parties concerned that the case should be continued until February 7 at 9:00 a. m. in this same room.

With that the hearing is adjourned.

(Hearing concluded.)

SALLY WALTON BOYD
CERTIFIED SHORTHAND REPORTER
3010 Plaza Blanca (505) 471-2462
Santa Fe, New Mexico 87501

REPORTER'S CERTIFICATE

I, SALLY W. BOYD, a Court Reporter, DO HEREBY CERTIFY that the foregoing and attached Transcript of Hearing before the Oil Conservation Division was reported by me; that said transcript is a full, true, and correct record of the hearing, prepared by me to the best of my ability, knowledge, and skill, from my notes taken at the time of the hearing.

Sally W. Boyd, C.S.R.

SALLY WALTON BOYD
CERTIFIED SHORTHAND REPORTER
3010 Plaza, Blanca (505) 471-2462
Santa Fe, New Mexico 87501