

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico

March 10, 1965

EXAMINER HEARING

IN THE MATTER OF:)

APPLICATION OF GULF OIL CORPORATION FOR A)
UNIT AGREEMENT, EDDY COUNTY, NEW MEXICO)

Case No. 3215

BEFORE:

ELVIS A. UTZ

TRANSCRIPT OF HEARING

DEARNLEY-MEIER REPORTING SERVICE, Inc.

FARMINGTON, N. M.
PHONE 325-1182

SANTA FE, N. M.
PHONE 983-3871

ALBUQUERQUE, N. M.
PHONE 243-6691



MR. UTZ: Case Number 3215.

MR. DURRETT: Application of Gulf Oil Corporation for a unit agreement, Eddy County, New Mexico.

MR. KASTLER: If the Examiner please, my name is Bill Kastler, with Gulf Oil Corporation, and I have two witnesses --Mr. Jack Cavanaugh and Mr. Don Garey. Would you please stamp these Exhibits 1, 2 and 3.

* * *

J. P. C A V A N A U G H, the witness, having been duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. KASTLER:

Q Mr. Cavanaugh, please state your name and position, and by whom you are employed.

A My name is J. P. Cavanaugh--Jack Cavanaugh. I am a landman for Gulf Oil Corporation in Roswell, New Mexico.

Q Have you previously been qualified as a witness to testify before the New Mexico Oil Conservation Commission?

A Yes, sir, I have.

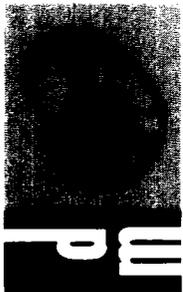
Q Are you familiar with the unit area, the leases involved and the unit operating agreement of the proposed Mescal Wash Unit Area?

A Yes, sir, I am. The unit agreement covers 21,445.78 acres covering all or parts of Sections 34, 35 and 36 in Township 25 South, Range 23 East, Sections 1 through 24, Township

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26 South, Range 23 East, and all or parts of Sections 1, 12, 13, 23, 24, 25 and 26 in Township 26 South, Range 22 East, all in Eddy County, New Mexico.

Q All of this is clearly shown on a plat attached to Exhibit 1, which is part of the unit agreement marked Exhibit A?

A That is correct.

Q What is the character of this land and those leases?

A Of the 21,445.78-acre tract, 91-1/3% approximately of this area of the lands in this area are Federal lands; 7% are State lands, and 1-2/3% are fee lands.

Q Are there any unleased lands in the unit?

A Yes. Tract 49, being the southwest quarter of the southwest quarter of Section 22, Township 26 South, Range 23 East, is a 40-acre fee land tract which is unleased, and the mineral owner did not agree to committing it to the unit area.

Q So it will be in the unit area, but not committed?

A That is correct.

Q And that is only 40 acres?

A Yes.

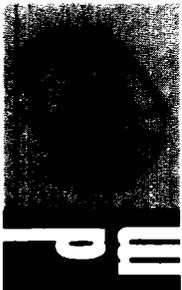
Q Are there any other lands covered by the lease but not committed to the unit?

A Yes, sir, there is one uncommitted 160-acre lease which is Tract 35, being the southeast quarter of Section 11, Township 26 South, Range 23 East. An offer of a dry hole

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contribution in an amount proportionate to the cost of drilling allocated to this 160-acre tract has been made by this non-joining lessee, and it has been accepted by Gulf Oil Corporation, the operator, for the benefit of the unit.

Q So although it has not been committed, it is still a matter in which the lessee has offered a dry hole contribution and that dry hole money has been accepted?

A It has been accepted by Gulf for the account of the paying known operators as well as the operator in this unit.

Q Are you familiar with the unit agreement?

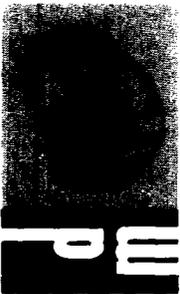
A Yes, sir. This is a Federal style unit agreement providing for commencement of drilling operations within six months after the effective date, drilling to the objective depth of 8,500 feet or to the top of the Mississippian formation in Section 14, Township 26 South, Range 23 East. There is to be continuous drilling of exploratory wells until a discovery has been made and thereafter reasonable continuous development. There are provisions for establishing a participating area, the succession of unit operators, the extension of leases during the life of the unit, subsequent joinder and other such features. In other words, this is the standard, orthodox type of exploratory unit agreement.

Q Calling your attention to Exhibit 2, the unit operating agreement, with provisions for carrying the cost of

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a test well, non-consent operations and such as that?

A Yes. The operating agreement provides for fixed participation of all working interest owners regardless of where their acreage may be situated. However, the agreement does contain the feature of beneficial interest which provides in effect that a party whose lease is not subject to any overriding royalties or production payments will nevertheless share on a net surface acre basis rather than on a strict surface acre basis. The working interest owners have all agreed to this as a more equitable allocation, particularly in view of the fact that the drill site acreage is covered by an overriding royalty which would otherwise have to be borne entirely by the party owning the lease in Section 17. The usual non-consent drilling provision is incorporated into the agreement and so also is a provision whereby those parties not desiring to participate in the costs of the initial well agree instead to assign one-half of their lease-hold interest to the parties carrying this cost.

Q Is the cost of the initial well underwritten 100 per cent?

A Yes, it is.

Q In your opinion, how would approval of this unit prevent waste and protect correlative rights?

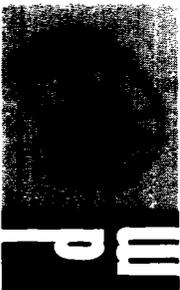
A The drilling of this well is a risk which is more readily borne by a group of operators than by a single lessee.

Therefore, the incentive to drill is a more businesslike

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venture. Furthermore, as Mr. Garey will testify, there is a reasonable possibility of an oil and gas bearing structure being situated within the frame of the unit area which could most economically be developed without waste by carrying on unit operations. To some extent the lessees themselves have attempted to protect their correlative rights but the principal royalty owners, namely the Federal Government and the State of New Mexico, have confirmed that it protects correlative rights.

Q Are there any early expiring leases?

A There are no leases expiring overnight, but we would appreciate an early approval so that drilling could commence without further delay.

Q You stated that the Federal and State Governments have confirmed the advantages of unitization. By that, has this matter been considered and approved by the United States Geological Survey?

A Yes. The Acting Director has designated this area as a logical unit area and has indicated that he would approve the unit agreement when properly subscribed.

Q Has the Commissioner of Public Lands approved this instrument in form and content?

A Yes, his office has approved it after requiring the adoption of certain changes.

Q At this time what percentage of unit working interest

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owner commitment do you have?

A 99.992%.

Q And what percentage of royalty owner commitment do you have at this time?

A 99.995%.

Q When do you anticipate that drilling could commence?

A We are ready as soon as we receive the Oil Conservation Commission's approval to submit this instrument for final approval by the Commissioner of Public Lands for the State of New Mexico, and immediately upon obtaining this it will be submitted to the USGS for its final approval in Washington. If all goes well we expect the effective date to come up on May 1st, but under some unusual circumstances it might be as early as April 1st. We are ready to solicit bids for the drilling at the earliest possible time. We hope to certainly be drilling by May 1st.

Q Are these unit agreements and unit operating agreements labeled Exhibits 1 and 2 true copies of the instruments and exhibits which are now fully signed and ready for submittal to governmental authorities for final approval?

A Yes.

MR. KASTLER: This concludes my questions of this witness on direct examination, and at this time I would like to move for the acceptance of Exhibits 1 and 2 into evidence

in this case.

MR. UTZ: Without objection, Exhibits 1 and 2 are entered into the record of this case. Are there any questions of the witness? ... He may be excused.

(The witness thereupon was excused and withdrew from the stand.)

MR. KASTLER: My next witness will be Don Garey.

* * *

D O N A L D L. G A R E Y, the witness, having been duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. KASTLER:

Q Please state what school you attended--first of all, state your full name.

A My full name is Donald L. Garey, and that's spelled G-a-r-e-y.

Q And you are employed by Gulf?

A I am employed by Gulf as a senior exploration geologist.

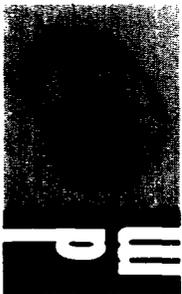
Q Please state your educational background.

A I attended Texas A&M University and have been employed since graduation with Gulf, for twelve years, as an exploration geologist. During that twelve years I spent the entire time in the Permian Basin, and the last five years

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particularly in southeastern New Mexico.

Q Do you have a BS degree?

A Yes.

Q Are you familiar with the area encompassed in the proposed Mescal Wash Unit Agreement?

A Yes.

Q Referring to the isopach marked Exhibit 3F, or F inside of your brochure which is marked Exhibit 3, will you please state what this is.

A This particular exhibit is an isopach map of the Upper Pennsylvanian sediments in the vicinity of the proposed unit.

Q What does it show?

A The map shows the variation in thickness of the Upper Pennsylvanian sediments, with a thicker area suggesting vertical reef development.

Q What does Exhibit 3B in the same brochure show?

A This particular exhibit shows the areal extent and location of the Shelf Transition and Basin Facies of the Upper Pennsylvanian sediments. These are primarily indicative of the structure, subsurface-wise, that is to be found in there.

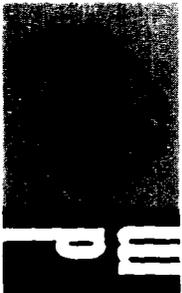
Q I call your attention to Exhibit 3C. What does Exhibit 3C show?

A Exhibit 3C is actually a composite exhibit. The

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solid contours indicate a low magnetic area which we feel indicates a low area in the basement rocks, and the dashed contours represent a positive residual gravity, and it is our opinion that this positive gravity trend is suggestive of a carbonate buildup in the subsurface sediments.

Q What do Exhibits 3D and 3E show?

A Exhibit 3D is a columnar section of the anticipated geologic section to be penetrated.

Q And Exhibit 3E?

A Exhibit 3E is a pictorial generalized cross-section of the anticipated subsurface under the proposed unit.

Q What formations are to be tested?

A We feel that we will adequately test all formations on Exhibit 3E to the Mississippian Limestone.

Q Would you refer to Exhibit 3E and name and identify those formations, please.

A We feel we will adequately test the Delaware, the Bone Spring, the Wolfcamp and Pennsylvanian and Mississippian formations.

Q When you drill, will you drill through the Mississippian formation or simply into it?

A Simply into it.

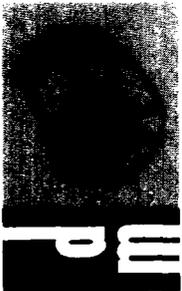
Q What would this test penetrate in the Delaware?

A We should penetrate the entire section, which would

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be Bell Canyon, Cherry Canyon and Brushy Canyon formations.

Q What would the Bone Springs consist of?

A We anticipate 1700 feet of limestone shale and sandstone, which should be predominantly limestone.

Q This is all reflected on Exhibit 3E?

A Yes, sir.

Q What would the Wolfcamp section consist of?

A It will be predominantly dark shale, with some limestone.

Q Would there be a reef buildup in the Upper Pennsylvanian?

A The isopach map of the Upper Pennsylvanian sediments and observed changes in facies indicate conditions in the vicinity of the proposed unit are favorable for reef development. This reef buildup was encountered twelve miles and eight miles to the south and southwest of this unit area.

Q In two different wells?

A Yes. And the anticipated section is very similar to the Indian Basin-Indian Hills area.

Q Do you feel that if this well has a chance of recovery of oil or gas, it would be similar to the gas in the Indian Hills area?

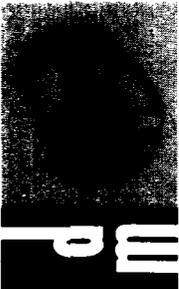
A Yes.

Q What about the Lower Pennsylvanian?

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A The structure formation has a potential for reef building but reefing is not anticipated in the Atoka and Morrow formations.

Q Do you expect to encounter some sandstone?

A Yes. The Morrow formation, which is Lower Pennsylvanian in age, has considerable deposits of sandstone and there are always potential stratigraphic traps in the Permian basin.

Q As you would pick these, and without wanting to be quoted after the well is drilled, before the well is drilled what would you think the formation tops would be?

A I believe probably in the Delaware sandstone at five to 600 feet, and the Bone Springs--

Q This is shown on Exhibit E?

A Yes. And the Columbus Section on Exhibit D would show this very well. We should encounter the Bone Springs at around 3200 feet; the Wolfcamp at around 4900; the Upper Pennsylvanian, which we anticipate would be a pay, around 5300 feet; the Strawn, which has a pay potential, at 6500 to 6600 feet, and the Morrow, which is also another anticipated pay, at around 7500 to 7600 feet; and we should encounter the Mississippian lime around 8400 feet.

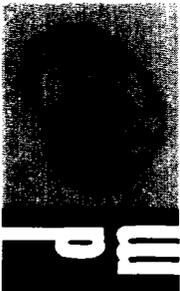
Q What is the estimated cost of the well?

A The estimated cost is approximately \$105,000 as a dry hole and approximately \$137,000 as a producer.

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Q How long would it take to drill the well?

A With good luck, thirty days, approximately.

Q Is this in your opinion a reasonable test for oil or gas?

A Yes.

Q Has any other similar test been made in this particular unit area?

A No.

Q There are no dry holes there?

A No, sir. There are shallow Delaware Sand dry holes, but nothing deeper.

Q There are shallow Delaware Sand tests in this same unit area?

A Yes.

Q So actually your testimony to the previous question, one or two questions back, is that in the Delaware Sands you might encounter a pay that is quite sketchy?

A I would like to correct that last answer. There are shallow Delaware Sand tests in the area, but not within the unit outline itself.

Q Which substance do you expect it is most likely you will encounter--oil or gas?

A I believe in this particular part of the Permian Basin we would anticipate gas.

Q Was composite Exhibit 3 prepared by you or at your direction or supervision?

A Yes.

MR. KASTLER: These are all the questions I have of this witness. I would like to move that Exhibit 3 with all of its counterpart exhibits be admitted into evidence.

MR. UTZ: Exhibit 3 and its counterparts will be admitted as part of this record. Are there other questions of this witness?

CROSS-EXAMINATION

BY MR. PORTER:

Q What is the projected total depth?

A 8,500 feet.

Q That would be to the Mississippian, or through it?

A To it--enough penetration to know we were actually in it.

Q And you anticipate 30-day drilling?

A Yes, sir, that's what the drilling date is estimated at--thirty days.

MR. PORTER: That's all I have.

MR. UTZ: Gulf has a producing well north of this area?

A Yes, in the Estelaria.

MR. KASTLER: That's the White City Penn--that's

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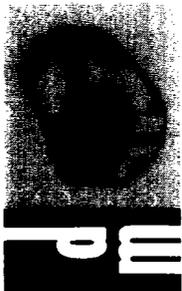
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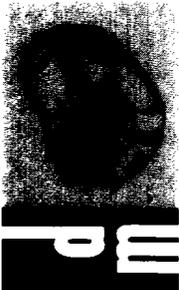
A I am employed by Gulf as a senior exploration geologist.

Q Please state your educational background.

A I attended Texas A&M University and have been employed since graduation with Gulf, for twelve years, as an exploration geologist. During that twelve years I spent the entire time in the Permian Basin, and the last five years

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particularly in southeastern New Mexico.

Q Do you have a BS degree?

A Yes.

Q Are you familiar with the area encompassed in the proposed Mescal Wash Unit Agreement?

A Yes.

Q Referring to the isopach marked Exhibit 3F, or F inside of your brochure which is marked Exhibit 3, will you please state what this is.

A This particular exhibit is an isopach map of the Upper Pennsylvanian sediments in the vicinity of the proposed unit.

Q What does it show?

A The map shows the variation in thickness of the Upper Pennsylvanian sediments, with a thicker area suggesting vertical reef development.

Q What does Exhibit 3B in the same brochure show?

A This particular exhibit shows the areal extent and location of the Shelf Transition and Basin Facies of the Upper Pennsylvanian sediments. These are primarily indicative of the structure, subsurface-wise, that is to be found in there.

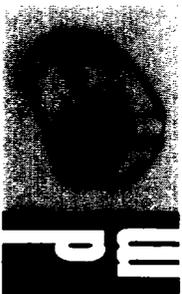
Q I call your attention to Exhibit 3C. What does Exhibit 3C show?

A Exhibit 3C is actually a composite exhibit. The

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solid contours indicate a low magnetic area which we feel indicates a low area in the basement rocks, and the dashed contours represent a positive residual gravity, and it is our opinion that this positive gravity trend is suggestive of a carbonate buildup in the subsurface sediments.

Q What do Exhibits 3D and 3E show?

A Exhibit 3D is a columnar section of the anticipated geologic section to be penetrated.

Q And Exhibit 3E?

A Exhibit 3E is a pictorial generalized cross-section of the anticipated subsurface under the proposed unit.

Q What formations are to be tested?

A We feel that we will adequately test all formations on Exhibit 3E to the Mississippian Limestone.

Q Would you refer to Exhibit 3E and name and identify those formations, please.

A We feel we will adequately test the Delaware, the Bone Spring, the Wolfcamp and Pennsylvanian and Mississippian formations.

Q When you drill, will you drill through the Mississippian formation or simply into it?

A Simply into it.

Q What would this test penetrate in the Delaware?

A We should penetrate the entire section, which would



be Bell Canyon, Cherry Canyon and Brushy Canyon formations.

Q What would the Bone Springs consist of?

A We anticipate 1700 feet of limestone shale and sandstone, which should be predominantly limestone.

Q This is all reflected on Exhibit 3E?

A Yes, sir.

Q What would the Wolfcamp section consist of?

A It will be predominantly dark shale, with some limestone.

Q Would there be a reef buildup in the Upper Pennsylvanian?

A The isopach map of the Upper Pennsylvanian sediments and observed changes in facies indicate conditions in the vicinity of the proposed unit are favorable for reef development. This reef buildup was encountered twelve miles and eight miles to the south and southwest of this unit area.

Q In two different wells?

A Yes. And the anticipated section is very similar to the Indian Basin-Indian Hills area.

Q Do you feel that if this well has a chance of recovery of oil or gas, it would be similar to the gas in the Indian Hills area?

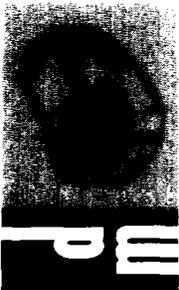
A Yes.

Q What about the Lower Pennsylvanian?

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A The structure formation has a potential for reef building but reefing is not anticipated in the Atoka and Morrow formations.

Q Do you expect to encounter some sandstone?

A Yes. The Morrow formation, which is Lower Pennsylvanian in age, has considerable deposits of sandstone and there are always potential stratigraphic traps in the Permian basin.

Q As you would pick these, and without wanting to be quoted after the well is drilled, before the well is drilled what would you think the formation tops would be?

A I believe probably in the Delaware sandstone at five to 600 feet, and the Bone Springs--

Q This is shown on Exhibit E?

A Yes. And the Columbus Section on Exhibit D would show this very well. We should encounter the Bone Springs at around 3200 feet; the Wolfcamp at around 4900; the Upper Pennsylvanian, which we anticipate would be a pay, around 5300 feet; the Strawn, which has a pay potential, at 6500 to 6600 feet, and the Morrow, which is also another anticipated pay, at around 7500 to 7600 feet; and we should encounter the Mississippian lime around 8400 feet.

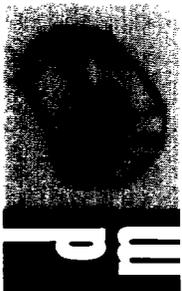
Q What is the estimated cost of the well?

A The estimated cost is approximately \$105,000 as a dry hole and approximately \$137,000 as a producer.

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Q How long would it take to drill the well?

A With good luck, thirty days, approximately.

Q Is this in your opinion a reasonable test for oil or gas?

A Yes.

Q Has any other similar test been made in this particular unit area?

A No.

Q There are no dry holes there?

A No, sir. There are shallow Delaware Sand dry holes, but nothing deeper.

Q There are shallow Delaware Sand tests in this same unit area?

A Yes.

Q So actually your testimony to the previous question, one or two questions back, is that in the Delaware Sands you might encounter a pay that is quite sketchy?

A I would like to correct that last answer. There are shallow Delaware Sand tests in the area, but not within the unit outline itself.

Q Which substance do you expect it is most likely you will encounter--oil or gas?

A I believe in this particular part of the Permian Basin we would anticipate gas.

Q Was composite Exhibit 3 prepared by you or at your direction or supervision?

A Yes.

MR. KASTLER: These are all the questions I have of this witness. I would like to move that Exhibit 3 with all of its counterpart exhibits be admitted into evidence.

MR. UTZ: Exhibit 3 and its counterparts will be admitted as part of this record. Are there other questions of this witness?

CROSS-EXAMINATION

BY MR. PORTER:

Q What is the projected total depth?

A 8,500 feet.

Q That would be to the Mississippian, or through it?

A To it--enough penetration to know we were actually in it.

Q And you anticipate 30-day drilling?

A Yes, sir, that's what the drilling date is estimated at--thirty days.

MR. PORTER: That's all I have.

MR. UTZ: Gulf has a producing well north of this area?

A Yes, in the Estelaria.

MR. KASTLER: That's the White City Penn--that's



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the name of the well?

A Yes.

MR. PORTER: Is that well being produced at the present time?

A Yes, it is.

MR. UTZ: Are there any other questions? ... The witness may be excused. Are there other statements in this case? The case will be taken under advisement.

* * *

STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

I, ELIZABETH K. HALE, Notary Public and Court Reporter, do hereby certify that the proceedings in the foregoing case were taken and transcribed by me, and that the foregoing is a true and correct transcript of proceedings to the best of my knowledge, skill and ability.

IN WITNESS WHEREOF, my hand and seal of office this 30th day of March, 1965.

Elizabeth K. Hale
Notary Public

My commission expires

May 23, 1968.

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 3245 heard by me on *March 10*, 1965.

Shirley D. ... Examiner
New Mexico Oil Conservation Commission

