BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
February 5, 1964

EXAMINER HEARING

IN THE MATTER OF:

Application of Gulf Oil Corporation for a unit agreement, Lea County, New Mexico.

&

Application of Gulf Oil Corporation for a waterflood project, Lea County, New Mexico.

Case No. ~~2981~~ & 2982

BEFORE: DANIEL S. NUTTER, EXAMINER

TRANSCRIPT OF HEARING

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
February 5, 1964

EXAMINER HEARING

IN THE MATTER OF:	
Application of Gulf Oil Corporation for a unit agreement, Lea County, New Mexico;	CASE NO. 2981
&	&
Application of Gulf Oil Corporation for a waterflood project, Lea County, New Mexico.	CASE NO. 2982

BEFORE: DANIEL S. NUTTER, EXAMINER

TRANSCRIPT OF HEARING

MR. NUTTER: Call Case 2981.

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

MR. KASTLER: If the Examiner please, I am Bill Kastler, from Roswell, New Mexico, appearing on behalf of the Gulf Oil Corporation. For the purpose of this hearing, I would like to have Case No. 2981 and Case No. 2982 combined.

MR. NUTTER: Well, now, we will call Case No. 2982.

MR. DURRETT: Application of Gulf Oil Corporation for a

waterflood project, Lea County, New Mexico.

MR. NUTTER: It is your motion, Mr. Kastler, for the consolidation, for the purposes of this hearing, Case 2981 and 2982, correct?

MR. KASTLER: Yes, sir.

MR. NUTTER: They will be consolidated.

MR. KASTLER: We have prepared most of our exhibits in the brochure form here, and they are marked, but we have also for introduction some 14 logs,three copies of each, which will have to be separately marked as they are introduced.

J. L. HUTCHISON,

called as a witness herein, having been first duly sworn on oath, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. KASTLER:

Q Will you please state your name, position and employer?

A My name is J. L. Hutchison, I am District Production Geologist, Gulf Oil Corporation, Roswell, New Mexico.

Q Have you previously appeared and qualified as an expert production geologist and testified before the New Mexico Oil Conservation Commission?

A Yes, sir, I have.

Q Are you familiar with the geological aspects of Case No. 2981 and 2982 in which Gulf seeks the approval of the Northwest

Eumont Unit?

A Yes, sir, I am.

Q All right.

MR. KASTLER: Are the qualifications of the witness satisfactory?

MR. NUTTER: Yes, sir, they are.

Q (By Mr. Kastler) Will you please state why the leases in the Northwest Eumont should be unitized?

A Well, in looking at Exhibit One, we feel like that the wells in their late stages of primary production can be waterflooded, and in order to recover more oil by secondary means.

Q Would you state what Exhibit One is and what it shows, please?

A Exhibit One is a map in central Lea County, New Mexico, depicting the area of the proposed Northwest Eumont waterflood area. The area in yellow on our exhibit shows the area of the proposed Eumont unit.

Q What are the geological characteristics of the reservoir to be waterflooded?

A Well, the Northwest Eumont area is in the oil section of the Eumont Gas. The Eumont Gas field includes the Yates, Seven Rivers and Queen sections. These wells are on the west flange of the Eumont structure or Monument structure, more commonly called, and the oil is produced in a down dip section from the Momument-Eumont Gas Pool.

Q I take it that gas is produced in the higher portion of the structure and oil is produced around the periphery?

A Yes, sir.

Q Have you prepared a structure map showing the Northwest portion of the Eumont Pool, which is involved in that proposed unit?

A Yes, I have.

Q Is that Exhibit No. Two?

A That is Exhibit No. Two.

Q Will you please describe what is shown on Exhibit Number Two?

A On Exhibit Number Two is the hachured area, that is the proposed Northwest Eumont area. It is a structure map on the top of the Penrose marker and this map shows a west by northwest dip, at a rate of approximately 350 to 400 feet per mile. The contour interval on this map is 20 feet.

Q And what does that dashed line depict?

A That depicts a datum of minus 150 feet. This is more or less the datum at which the gas-oil contact is established in this field.

Q And substantially all of your oil wells exist in this depiction, north and west of this dashed line; is that correct?

A That's correct, yes, sir.

Q And that then constitutes the unitized interval below the dashed line?

A Yes, sir, in the area there. The unitized unit will be from the top of the Queen to the top of the Grayburg. This includes the zones where the oils are produced in these wells.

Q How many injection wells are proposed for the unit?

A At the outset, we are proposing 15 injection wells in the Phase One portion of the north part of the unit.

Q Now, do you have copies of all logs for all 15 wells to be introduced in evidence at this hearing?

A No, sir. I have 14 of the 15 logs. One log was not available through the West Texas Electric Log Service, but I do have three copies of each of the other 14 wells and I think these should be marked as Exhibit Number Three, and probably sub-titled "A" through "O", I suppose.

Q Now, Mr. Hutchison, realizing that Mr. Hendrick will later on testify and identify the particular wells- -

A Yes.

Q - -they will be as shown on Exhibit No. 7 to be introduced later; is that correct?

A Yes, sir, that's correct.

Q And would you please review again or state again which well it is that you don't have a log for, which of the injection wells?

A (No answer)

Q Would you have to eliminate all the other wells to get this?

A No, just a moment, and I think I can find it here. It is the Southern Petroleum No. One State. It is in the Unit "E" of Section 23.

Q Section 23, Township 19 South, Range 36 East?

A Yes, sir.

Q That constitutes the Southwest Quarter of the Northwest Quarter where that well is located; is that correct?

A Yes, that is correct.

Q Were Exhibits One through Three prepared by you or at your direction and under your supervision?

A Under my supervision, yes, sir.

MR. KASTLER: This concludes the questions I have for this witness on direct examination, Mr. Nutter. And later on, I would propose to introduce all exhibits into evidence.

MR. NUTTER: That will be fine.

MR. KASTLER: But, these may be marked.

MR. NUTTER: Are there questions of Mr. Hutchison?

CROSS EXAMINATION

BY MR. NUTTER:

Q Mr. Hutchison, is the Gulf planning to flood all production or productive zones in the Eumont here?

A Yes, sir, all zones that are productive of oil within the interval, yes, sir, they are.

Q Now, what formations is it that constitute the Eumont,

Yates, Seven Rivers and Queen?

A Queen, yes, sir, Eumont Gas Pool.

Q Are all three of those formations open in some of these wells?

A No, sir. I think most of them open over here will be low. We are going off very steep structurally. Most of the sections will be the Queen primarily. It will be open in this area.

Q Almost all of the flooding will be in the Queen formation?

A Yes, sir.

Q All right.

MR. NUTTER: Are there other questions of Mr. Hutchison?

MR. DURRETT: Mr. Kastler, will your other witness testify concerning the unit agreement and progress?

MR. KASTLER: Yes, he will.

MR. NUTTER: The witness may be excused.

VANCE HENDRICK,

called as a witness herein, having been first duly sworn on oath, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. KASTLER:

Q Will you please state your name and your position?

A Vance Hendrick, Petroleum Engineer for Gulf Oil Corporation.

Q Have you previously appeared before the New Mexico Oil Conservation Commission and qualified as an expert witness and given testimony?

A Yes, sir, I have.

Q Are you familiar with the technical and unitization aspects pertinent to this case?

A Yes, sir.

Q All right.

MR. KASTLER: The witness' qualifications acceptable?

MR. NUTTER: Yes, sir.

Q (By Mr. Kastler) Have you prepared or supervised the preparation of an exhibit showing the production history and present status of the wells in the Northwest Eumont Pool?

A Yes, sir, I have, Exhibit Number Four.

Q Please explain Exhibit Number Four?

A Exhibit Number Four is a group of curves showing the performance of 69 Eumont wells in the proposed unit, the uppermost line on the curve shown in green is nothing more than a well count, showing that most of thewells were drilled in 1955 and 1956. Of the unit's 69 wells, there are two Eumont gas wells, 58 producing oil wells, and eight wells are shut in, and there is one dry hole.

Q What does the orange line in the middle of Exhibit Nmmber Four depict?

A The orange line immediately below is a plot of the average reservoir pressure. You can see that the pressure has

dropped from 1323 pounds to about 300 pounds. Below the pressure curve drawn in red is the producing gas-oil ratio. October, 1963, the average gas-oil ratio was 7515 cubic feet per barrel of oil.

Q How were these curves obtained; what was the data for this?

A The New Mexico Oil and Gas Engineering Committee.

Q Was it an average of - -

A Of several wells, yes, sir.

Q - -several wells, and they were exemplified wells, just as a sample?

A Yes, sir.

Q Is the blue curve a plot of the aggragate monthly production for all wells in the unit?

A Yes, sir. You can see that it has been steady decline since 1956. The current monthly oil production in October, 1963, was 12,141 barrels. This monthly figure represents an average daily rate as shown of 6.8 barrels per day.

Q Per well?

A Yes. The lower curve which is yellow is a water production curve. It shows that the water production is now averaging 1.5 barrels per well per day, and accumulative oil production, all of the wells in the unit as of November 1, 1963, 3,293,559 barrels. From this exhibit, it can be concluded that the wells in this area are in the late stages of primary depletion.

Q That is by assuming all of this information,that there is a decline in reservoir pressure, that is, there is a decline of

production to 6.8 barrels average daily oil production during the month of October?

A That is correct.

Q And one and a half barrels daily average water production?

A That's correct.

Q Have you prepared an exhibit showing the proposed injection wells and the waterflood pattern to be used?

A Yes, I might add that Exhibit Number Five is a tabulation of the production of water, oil and gas for the wells shown on Exhibit No. 4. In answer to your question, I have prepared Six.

Q In other words, Exhibit Number Five is really a verification proving the data shown on Exhibit Number Four?

A That's correct.

Q Now, would you refer to Exhibit No. Six and tell me what it shows?

A Yes, Exhibit No. Six is a combination map and diagramatic sketch of the proposed injection wells. First, the proposed 80 acre five spot water injection pattern, as shown, and the line connections of the proposed injection wells, which have been circled or enclosed with a square. Phase Number One are the ones circled, It will be installed immediately after unitization and approval of this application. Phase Number Two are the wells that have squares around them, after Phase One has shown satisfactory performance.

Q You say for each of your 15 proposed injection wells, in

Phase Number One, you have shown diagrammatically the other data pertaining to that well?

A Yes, a diagram that is depicting the down hole equipment that will exist when the wells are prepared for injection. I might state that the yellow, which is in the upper right-hand corner, is Gulf's lease, State DA No. 2. As you can see, the oil string is 9 5/8ths inch set at 342 feet with 275 sacks of cement circulated, seven inch OD casing, which is set at 3889 feet, with 1200 sacks of cement, temperature surface indicated the top outside of seven inch casing to be at 1500 feet. The wells will be equipped with internally plastic coated tubing with a tension packer so that the injection will be underneath the packer, and those packers will be set about 50 feet from the casing shoe or top of perforations.

Q And for each well of your injection wells, you have used a corresponding color?

A Yes, sir.

Q And the color corresponds with the data over here?

A That's correct. The color on the map corresponds with the color of the diagrammatic sketch.

Q What will be the source of the injection water and what type of water will be used and state any other matters?

A Well, referring back to Exhibit Number One, you will see a well circled in Section 19 of 19 South, R-37 East. This well is an abandoned Monument Unit exploratory well. It is our hope

that the working interest owners can re-enter this well and recomplete it in the San Andres formation, and produce the water from that well to provide the necessary water for Phase One. It is estimated that the daily injection per well will be about five hundred barrels per day, so that the initial water needs will be 7500 barrels per day. The surface equipment will be corrosion resistant. The initial injection pressure is estimated to be about 500 pounds rising to about 2,000 pounds as it floods.

Q You say this is going to be brackish water?

A Yes, sir.

Q Is this in a water restricted area?

A Yes, this is in the Lea County Water Basin.

Q And all fresh water is already appropriated?

A That is my understanding.

Q But, at any event, Gulf, as the proposed unit operator, does not plan to make any application or purchase or use of fresh water?

A That's correct.

Q But, to develop a source of brackish water preferably on Section 19 and secondarily, what are your plans, if this should fail?

A We have secured water easements within the unit boundary in Sections 14, 22 of 19 South, Range 36 East.

Q You have gotten these water easements from the State of New Mexico?

A We have, yes, sir, and in the event the working interest owners choose, we may develop the Santa Rosa water source under these easements in the Santa Rosa, the water is also brackish.

Q Do you intend to use any of the brine or water that is produced with oil as a source of water or supplemental source?

A Only in a cycling method once that the return water comes.

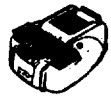
Q What results are expected from the project?

A It is believed that the proposed waterflood unit will add additional oil in a magnitude of 60 percent of what was produced in primary. In terms of barrels, there would be two and a quarter million barrels of oil.

Q What other reasons for the project, and what recommendation does Gulf, as the unit operator, have to make?

A Since the oil reservoir is in a late stage of depletion, Gulf, in association with Amerada, Cities Service and Continental, Marathon, Phillips, Shell, Skelly and Texaco, and others, has concluded that the best course of action is the unitization of these 69 wells in this portion of the Eumont Pool. Therefore, Gulf Oil Corporation, as the proposed Northwest Eumont Unit operator, respectfully requests that the Oil Conservation Commission approve the application and grant a unit allowable equal to the sum of current allowable for 30 wells not offset by water injection, plus the allowable earned by the 39 wells in the waterflood area as provided in Rule 701.

Q In other words, you want to proceed strictly under 701



to receive the maximum allowable there?

A That's correct.

Q Mr. Hendrick, what is Exhibit Number Seven?

A Exhibit Number Seven was prepared to show the unit in an enlarged map. It has all of the wells in the unit and all wells that offset the unit to the east. There are no wells that offset the unit to the west, only dry holes.

Q Were Exhibits Four, Five, Six and Seven prepared by you or at your direction and under your supervision?

A They were.

MR. KASTLER: Mr. Nutter, this concludes the direct testimony insofar as the engineering and technical aspects of it are concerned. Would you prefer to cross examine now or have me go on through?

MR. NUTTER: This witness can testify to the unit, too?

MR. KASTLER: Yes.

MR. NUTTER: I have got a couple of questions. Are there any questions of Mr. Hendrick?

MR. DURRETT: I have one or two.

CROSS EXAMINATION

BY MR. DURRETT:

Q Mr. Hendrick, am I correct now that you are just seeking approval of the first stage of your project as presented here?

A Yes, and I have designated that Phase One.

Q Phase One.

A And those are wells that are circled on Exhibit No. 7, and that is essentially the northern half of the unit.

Q Then, you would propose to proceed with the expansion of your project by administrative approval?

A If possible, yes.

Q Is that correct? Now, did you testify concerning the average production per well?

A Yes.

Q If you did, will you do it again?

A Very well. I might have mislead you. For all of the wells that are producing within the unit, average production is 6.8 barrels per day per well. For the wells that are in Phase One that we just discussed, it is about three barrels per well per day.

MR. DURRETT: All right, sir. Thank you.

* * * *

MR. NUTTER: Mr. Irby.

CROSS EXAMINATION

BY MR. IRBY:

Q Mr. Hendrick, the questions and answers concerning the source of your water leads me to believe you may not be well informed.

A That may very well be the case, Mr. Irby.

Q I am going to get in the legal aspects, and I don't have

any objection to your talking to your attorney about this, but since this is in a declared basin, I hope you realize that any well you drill for water must be drilled by a driller licensed by the State Engineer's Office.

A I was not aware of that specific fact. I am aware that the administrative regulations regarding the drilling for water, regardless of whether it is in the shallow water basin, has to be under the jurisdiction of the State Engineer's Office.

Q Well, that is what the next thing I want to bring to your attention is, and may I ask if you have filed an application to drill or appropriate in this area?

A In Section No. 19?

Q Yes.

A Referring back to Exhibit Number One, we have not done so in Section 19, the reason being that this well is an abandoned well at the present time, and Gulf plans to attempt a Monument-Blinebry completion in this well. In the event that this well is capable of producing in the Monument-Blinebry, then its candidacy as a water source well will not be available. We will have to use some other well, preferably without drilling a new well, for that reason, we have not made any effort to obtain a water lease in this section.

MR. KASTLER: Drilling permit.

A A drilling permit at this time.

Q (By Mr. Irby) Then, if your oil test at this location is

unsuccessful, you would want to preforate in the San Andres for water; is that the idea?

A That's correct. And before doing that, we would, of course, seek your approval.

Q Then, you say this well is drilled to what formation?

A This was a- - it was drilled to 10,900 feet,in that neighborhood, so it was a deep test. I am not well versed as to the formation, but it would be a very deep test.

Q Is this well plugged and abandoned now?

A It is, sir.

Q And then, you first intend to try to- - Well, you will re-enter the well, try to complete it as an oil producer, and if that is unsuccessful, then is this oil test to be below the San Andres or above?

A It will be below it, sir.

Q Below. Then, if this is unsuccessful, you would plug back to the San Andres, perforate there in the hopes of getting water?

A And recognizing all regulations that will have to be observed.

Q Now, do you have a good record of this well construction?

A We do, sir, yes, sir.

Q Now, if you determine that you are going to use this well for water production for this flood, we would require a complete construction record of the well, and the same would be true in case

you use some other existing well.

A Yes. Now, that was my previous statement, that we are aware that we have to have your approval when we are dealing in the water basin, even though we are going below it. In regard to the record, we have excellent records on the abandonment of the well. We will be re-entering the well, any work that is done in the re-entering will be provided to you at that time. Also, I might add that the reason we haven't done this, is that in obtaining these water easements, the Sections 14 and 22, it is very possible that we will not use those, even though that we made the application for them. So, what we want to do is find out is the well available before we make any effort to seek all the administrative necessities.

Q Well, I didn't realize to begin with that this proposed water well was an abandoned well. This is what brought about my confusion.

MR. KASTLER: May I ask a question to clear up my own mind about this, about the legality of it? Is it true that Gulf will have to make a contract with a licensed driller in order to go farther in the event we deem it necessary to test this well for water?

(IRBY) I wouldn't say yes or no without consulting my attorney. My personal opinion is that since this well was originally drilled for oil and not for water, that if we have a good clean construction record on the well, we can back up and perforate without Gulf having to employ a licensed water well driller. Now, this is,

understand, is my personal opinion.

MR. KASTLER: Well, we will certainly be agreeable to confer with you before we do anything further toward completing this well or testing it as a water well.

MR. IRBY: Thank you.

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

MR. IRBY: No, sir, that is all.

MR. NUTTER: Does anyone have any further questions of Mr. Hendrick?

MR. KASTLER: I would like to clear up one point for the future testimony. You have spoken of Phase One and Phase Two of the project, Mr. Hendrick, and I also notice that in the unit agreement you have a primary phase participation and a secondary phase participation. There is no correlation between Phase One and Phase Two of your technical aspects and the primary and secondary participation formulas, is there?

A None whatsoever. They are entirely two different matters.

MR. KASTLER: That is all. May I proceed now?

MR. NUTTER: No, sir. I want to ask him some questions.

CROSS EXAMINATION

BY MR. NUTTER:

Q Mr. Hendrick, in taking this map which shows the gas-oil contact,and transposing the locations of the injection wells onto that, I find that in some places, the injection wells appear to be

fairly close to the gas-oil contact and other places they are some distance from it. I wonder if you have given consideration to the possibility of this injected water forcing oil up into the drier sand?

A We have- -

Q Above the gas-oil contact?

A Yes, sir, we have given this consideration. We have prepared cross sections through each tier of wells of east-west cross sections. And we have studied each individual row and have correlated this section from its lowest point up to the minus 150 feet, which is the gas-oil contact and it is our intention to inject water into these Penrose members of the Queen formation well below the gas-oil contact. Now, as you progress to the east, or up structure, as you pointed out, this well- - this member approaches the gas-oil contact. We have in Exhibit No. 7 made an attempt to pick a waterflood pattern that will effectively waterflood this oil rim and yet give reasonable protection to the gas cap.

Now, we have spaced the injection wells in a five spot pattern down structure, and we have in every case a producing oil well, between the gas cap and the injection well, and in some cases, we actually have two wells. And it is joint thinking of the working interest owners that this waterflood can be inaugurated and that these wells that are to the east can be produced and afford protection to the gas cap.

Q Well, now, how about up here on Gulf's- - is it the Lee State?

A Yes, sir.

Q You don't have an injection well between Two and Five and the gas cap.

A The well that you have reference to is the Lee State No. One, and it is a Eumont Gas well. This well has been for most years a Eumont Oil well, and recently been reclassified as a Eumont Gas well by virtue of the gas-oil ratio.

Q This well formerly had a low GOR?

A Well, sir, not low. It was the first well completed in this general area before this development began, and- -

MR. KASTLER: Completed as an oil well.

A It was completed as an oil well, but initially, there was some- - the initial gas-oil ratio was in excess of 100,000 to one, but the well was fracture treated, and subsequent to that fracture treatment of the open hole, it had a gas-oil ratio of well below 100,000, so it was completed as an oil well, after the fracture treatment.

Q (By Mr. Nutter) And was produced as an oil well?

A Until just these last two or three months.

Q It has since been reclassified then as a gas well?

A Yes, sir.

Q Is there any producing wells in the Southwest Quarter of Section 12 up in the far north end of your exhibit?

A There are none, sir.

Q And that area is entirely outside of the unit area here, isn't it?

A Yes, sir.

Q Is the sand thinning as you get up into that northern area or just tightening up or what; what are the characteristics of the reservoir up there?

A There is no seeming thinning of the section.

Q I am wondering about the injection well, No. 7, moving oil to the east that would not be recovered because there is no producing well to the east.

A That is correct. There is no producing well in the Southwest Quarter of Section 12; that particular 40 acre tract, that is, the 40 acres on which No. 7 is producing, produced only 13,000 barrels of oil.

Q For the three wells?

A No, sir, just for No. 7.

Q No. 7 produced 13,000 barrels. You must be getting into the tight section of the reservoir up in there then.

A Yes, sir. I have looked at some of the pressures, I can't come to any firm conclusion, but there seems to be something between the oil rim and the gas cap.

Q What about that Phillips No. 2 well up there, has it produced very much oil?

A Yes. May I answer you in generality? It has not. I can

give you the specific number, if you like.

Q Well, it is in our records. Do you anticipate that Phillips No. 2 will receive any response from water injection into your No. 7?

A It is unlikely. It was included in the unit because it was there and it was the last well in the pool and if it had been omitted, it would have been outside the project, and that was why it was included.

Q Has that little 40 acre tract been non-contiguous, except on a point, been approved by the land office or whoever- -

A There is no federal land, but we have preliminary approval from the State Land Commission.

Q I see. I believe that is all on this phase of the testimony, Mr. Kastler.

* * * *

REDIRECT EXAMINATION

BY MR. KASTLER:

Q Now, Mr. Hendrick, do you have for introduction into evidence in this case an executed copy or three executed copies of the proposed unit agreement, designated as Exhibit Number Eight, and three executed copies of the proposed unit operating agreement, designated as Exbibit Number Nine, executed by Gulf Oil Corporation?

A I do, sir.

Q You have testified that there is no federal acreage in

this proposed unit; is that correct?

A I believe that is right.

Q Is there only State and fee acreage in this unit?

A That's correct.

Q Has the unit been submitted for preliminary approval to the office of the State Land Commissioner and been approved by the division unit preliminarily?

A Yes, it has.

Q Does Exhibit Eight of the unit agreement show what portion of the unit land ownership is State land and what amount is private land?

A Yes, sir, it does on Page Three of Exhibit "B", of the unit agreement. There is a summary that shows the State of New Mexico leases of 1720 acres in the unit and the fee leases represent 1,040 acres for a total of 2760 acres.

Q What percentage of the working interest owners have executed counterparts and ratification and joinders to the unit instruments at this time?

A 95 percent of the working interests have executed the instruments, and I might add that 100 percent of the working interest owners in the State leases have executed.

Q And the five percent of working interest owners who have not executed the instrument, have they tentatively agreed to go along, have they attended your meetings, and so forth, shown some interest in this?

A Yes, they have.

Q Are negotiations pending for the purchase of those- - of some of the interests which have not yet been committed?

A Purchase is under consideration, however, those- - nothing has definitely been decided.

Q Yes. Have all the royalty interest owners of record been invited to join the unit?

A Yes, sir, they have.

Q What percentage of the royalty owners have now signed the unit agreement?

A 66 percent of the royalty ownership have executed.

Q And you have already stated you have the preliminary approval of the State Land Office for the State acreage?

A Yes, sir.

Q Does the unit agreement provide for enlargement or constriction of the unit only after the approval by the State Land Commissioner and the Oil Conservation Commission?

A Yes, sir, it does.

Q How were the percentages of participation arrived at?

A The tract participation, which is shown on Article Five of the unit agreement, on Page Nine, shows that there is a primary phase and a secondary phase participation. The primary phase participation was determined on the basis of one-half the total tract remaining primary reserves subsequent to February 1, 1962 as that bore to the total unit remaining primary reserves, and

the other half was the tract producing revenue for six months period prior to February, 1962, as it bore to the producing revenue for the previous six months to February, '62. This secondary phase participation, which will become effective after 752,551 barrels have been produced, after 7 A. M. on the first day of February, 1962, is based on 100 percent primary ultimate.

Q And what was the figure, 761,000, what does that represent?

A That represents the estimated remaining primary oil reserves for oil wells in the proposed unit.

Q Calculated as of what date?

A February 1, 1962.

Q That was what remained to be primarily recoverd without any secondary recovery project?

A That's correct.

Q And until that amount of barrels of oil has been recovered, this unit will be in the primary phase of participation?

A That's correct.

Q When do the working interest owners plan to initiate the installation of needed equipment and start waterflooding?

A As soon as possible after the effective date.

Q Recognizing that you still have to locate a source of water?

A That's correct.

Q Were Exhibits Four through Nine prepared under your

direction or supervision for introduction into evidence?

A They were prepared under my direction.

Q Mr. Hendrick, if approved, would this unit agreement not prevent waste and protect correlative rights?

A Yes, sir, it would.

Q This concludes my direct examination and I would like at this time to offer Exhibits One through Nine into evidence.

MR. NUTTER: Gulf's Exhibit One through Nine will be admitted in evidence. Are there any questions of Mr. Hendrick?

RECROSS EXAMINATION

BY MR. NUTTER:

Q Mr. Hendrick, during your previous testimony, you stated that the unit area here had produced 3,293,000 barrels, and that was through December of 1963; is that correct?

A Yes, sir. If you are wanting to know how many remaining barrels of oil are remaining now, it is approximately 460 thousand barrels.

Q Of remaining primary oil?

A Yes, as of November 1, 1963.

Q I see. And you anticipate that there would be- - How many total primary barrels were estimated to exist?

A 751,000.

Q Well, that was as of February 1, 1962. I mean all totaled?

A I beg your pardon. Primary ultimate?

Q The ultimate primary?

A Yes, sir. Be the sum--- I have it here. The estimated primary ultimate for all the wells within the proposed unit is 3,751,859 barrels.

Q That is ultimate primary, and you are predicting 60 percent of this, or two and a quarter million barrels of secondary?

A That's correct.

MR. NUTTER: I believe that is all. Are there any further questions of Mr. Hendrick? He may be excused. Do you have anything further, Mr. Kastler?

MR. KASTLER: No, sir.

MR. NUTTER: Does anyone have anything they wish to offer in Case 2981 or 2982? If there is nothing, we will take the cases under advisement.

MR. STOKES: D. D. Stokes appearing for Sheel Oil Company, owner of 17 percent of this unit, and agrees with Gulf's proposal in these two cases.

MR. NUTTER: Thank you. Anything further? Take the cases under advisement.

* * * * *

DEARNLEY, MEIER, WILKINS and CROWNOVER
General Court Reporting Service
Suite 1120 Simms Building Albuquerque, New Mexico Phone 243-6691

STATE OF NEW MEXICO }

COUNTY OF BERNALILLO }

I, ROY D. WILKINS, Notary Public in and for the County of Bernalillo, State of New Mexico, do hereby certify that the foregoing and attached Transcript of Hearing before the New Mexico Oil Conservation Commission was reported by me, and that the same is a true and correct record of the said proceedings, to the best of my knowledge, skill, and ability.

WITNESS my Hand and Seal of Office, this 17th day of February, 1964.

NOTARY PUBLIC

My Commission Expires:

September 6, 1967.

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 2981-2982 heard by me on 2/5, 1964.

....., Examiner
New Mexico Oil Conservation Commission