BEFORE THE
OIL CONSERVATION COMMISSION
STATE OF NEW MEXICO

The following proceedings came on, pursuant to legal notice and publication, in Santa Fe, New Mexico, April 25, 1950, beginning at 10:00 A. M.

NOTICE OF PUBLICATION
STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

The State of New Mexico by its Oil Conservation Commission hereby gives notice pursuant to law and the rules and regulations of said Commission promulgated thereunder, of the following public hearing to be held April 25, 1950, beginning at 10:00 o'clock A. M. on that day in the City of Santa Fe, New Mexico, in the Capitol (Hall of Representatives).

STATE OF NEW MEXICO TO:

All named parties in the following cases and notice to the public:

Case 217

In the matter of the application of Continental Oil Company for an order granting permission to dually complete E. J. Wells B-1 No. 1 well, in the NW/4NW/4 of Section 1, Twp. 25S, R. 36E, N.M.P.M., in the Cooper-Jal Pool, Lea County, New Mexico.

Case 218

In the matter of the application of Texas Pacific Coal and Oil Company, for an order excepting it from Rule 404 "Natural Gas Utilization" in its operation of said company's No. 9, 10, and 11 oil wells located on its State "A" account No. 1 lease in the SW/4 of section 9, Twp. 23S, R. 36E, N.M.P.M., in the Cooper-Jal Pool, Lea County, New Mexico.

Case 219

In the matter of application of Gulf Oil Corporation for an order granting it permanent exceptions for certain of its oil wells in various pools in Lea County, New Mexico, from Rules 112 (Multiple Zone Completions), 202 (b) (Method of Plugging), 309 (Central Tank Batteries), 404 (Natural Gas Utilization), of the Rules and Regulations of the Oil Conservation Commission, effective January 1, 1950 - Order No. 850.

Given under the seal of the Oil Conservation Commission of New Mexico, at Santa Fe, New Mexico, on April 11, 1950.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

/s/ R. R. Spurrier

SEAL

R. R. SPURRIER, SECRETARY

BEFORE: Honorable R. R. Spurrier, Secretary and Member.

REGISTER

F. S. Carter, Hobbs, N. M., Texas Pacific Coal and Oil Company.

R. S. Blynn, Hobbs, N. M., State of New Mexico.

D. A. Powell, Hobbs, N. M., Drilling & Exploration Co.

J. W. House, Midland, Texas, Humble Oil Company.

R. S. Dewey, Midland, Texas, Humble Oil Company.

J. E. Low, Tulsa, Okla., Amerada Petroleum Corporation.

R. S. Christie, Ft. Worth, Texas, Amerada Petroleum Corporation.

J. O. Hathaway, Ft. Worth, Texas, Amerada Petroleum Corporation.

Lloyd L. Gray, Tulsa, Okla., Gulf Oil Corporation.

Charles L. Follansbee, Tulsa, Okla., Gulf Oil Corporation.

Wm. E. Bates, Midland, Texas, The Texas Company.

Jack M. Campbell, Roswell, N. M., Texas Pacific Coal and Oil Company.

R. G. Schuehle, Midland, Texas, Texas Pacific Coal and Oil Company.

F. C. Barnes, Santa Fe, New Mexico, Oil Conservation Commission.

H. W. Sanders, Ft. Worth, Texas, Continental Oil Company.

E. L. Shafer, Hobbs, N. M., Continental Oil Company.

R. L. Adams, Ft. Worth, Texas, Continental Oil Company.

Paul N. Colliston, Houston, Texas, Continental Oil Company.

R. L. Denton, Midland, Texas, Magnolia Petroleum Company.

Frank D. Gardner, Midland, Texas, Sinclair Oil & Gas Co.

G. L. Shoemaker, Midland, Texas, Stanolind Oil Purchasing Co.

M. T. Smith, Midland, Texas, Shell Oil Co.

G. W. Selinger, Tulsa, Okla., Skelly Oil Co.

A. R. Ballou, Dallas, Texas, Sun Oil Co.

Paxton Howard, Midland, Texas, Shell Oil Co.

M. C. Brunner, Midland, Texas, Shell Oil Co.

Frank R. Lovering, Hobbs, N. M., Shell Oil Co.

S. E. Sanderson, Tulsa, Okla., Gulf Oil Corporation.

E. J. Gallagher, Hobbs, N. M., Gulf Oil Corporation.

C. D. Borland, Hobbs, N. M., Gulf Oil Corporation.

Glenn Staley, Hobbs, N. M., Lea County Operators Committee.

Martin A. Row, Box 2880, Dallas, Texas, Sun Oil Co.

Elvis A. Utz, Santa Fe, N. M., Oil Conservation Commission.

E. E. Kinney, Artesia, N. M., Oil Conservation Commission.

George Graham, Santa Fe, New Mexico, Oil Conservation Commission.

MR. SPURRIER: The meeting will come to order, please. Governor Mabry is out of the state, acting governor Montoya is out of town, and Commissioner Shepard is ill at home. He has instructed me to sit for the purpose of taking the record only. Therefore, there can be no decisions rendered today, and all cases will be referred to the Commission later after we receive the transcript of the proceedings. Now, we will receive nominations from the various companies for the allowable for the purpose of setting the allowable. Mr. Graham, will you read the notice, please?

(Mr. Graham reads the notice as to the allowable)

ELVIS A. UTZ, having been first duly sworn, testified as follows:

DIRECT EXAMINATION BY MR. GRAHAM:

Q. State your name and official position.

A. My name is Elvis A. Utz, oil and gas engineer for the Oil Conservation Commission.

Q. And as such employee is it part of your duty to study the market demand for New Mexico oil for May 1950?

A. Yes, it is, and I have done so.

Q. What sources of information haveyou considered, Mr. Utz?

A. The U. S. Bureau of Mines forecast or estimate of market demand, pipeline runs, crude storage, and the nominations of the purchasers. Would you like me to read the nominations, names of the purchasers?

Q. Please.

A. There are a total of sixteen purchasers.

The total of these nominations is 127,787 barrels per day. Which is a decrease over last month of 3,860 barrels.

Q. Mr. Utz, what is the U. S. Bureau of Mines estimate of market demand for New Mexico oil?

A. I have a wire from A. G. White of the Bureau of Mines which reads, "Forecast May demand New Mexico crude is 139,000 barrels per day."

Q. Is that greater or smaller than previous information?

A. That is, I believe, 2,000 barrels per day increase over last months forecast.

Q. A moment ago you gave the total purchasers' nominations. After you have considered the estimates and nominations and other factors with reference to market demand for New Mexico oil, what is your recommendation of the reasonable market demand for New Mexico oil for May?

A. A reasonable market demand in my opinion would be 138,000 barrels per day for the entire state.

Q. How much of this 138,000 barrels of oil per day, in your opinion, can be met from the production in the unallocated pools in northwestern New Mexico?

A. I believe approximately 1,000 barrels per day.

Q. That would leave then for the allocated pools in southeastern New Mexico?

A. 137,000 barrels per day.

Q. In your opinion, can the southeastern New Mexico pools safely produce without waste this amount of oil?

A. From past proof I think we can consider that they can produce this amount without waste.

Q. In your opinion, is allocation necessary to prevent waste?

A. Yes, I believe it is.

Q. What is your recommendation, Mr. Utz, in barrels of oil for the daily allowable for the allocated pools in Lea, Eddy, and Chaves counties in southeastern New Mexico?

A. 137,000 barrels per day for the allocated pools.

Q. What is your recommendation as to how this production should be distributed?

A. It should be distributed under the present rules and regulations of the Oil Conservation Commission.

Q. What is your recommendation as to the present well allowable, top allowable wells, excuse me.

A. A normal unit allowable of 42 barrels per day should give us approximately 137,000 barrels per day for the allocated pools.

Q. That isn't a mathematical actuality?

A. No, it is approximate.

Q. Will the limitation in proration or production, as you recommended, be reasonable and calculated to prevent waste and protect correlative rights?

A. Yes, it will be.

MR. SPURRIER: Does anyone have any question of the witness ? If not, you may be excused.

E. E. KINNEY, having been first duly sworn, testified as follows :

DIRECT EXAMINATION BY MR. GRAHAM:

Q. Will you state your name, please ?

A. My name is E. E. Kinney, petroleum engineer with the New Mexico Bureau of Mines.

Q. You have heard Mr. Utz testify. Will you care to discuss any point, or are you in substantial agreement with his testimony?

A. As the result of an independent survey of the factors affecting market demand and production ability, I concur in the testimony of Mr. Utz.

Q. Do you have anything special to add?

A. No, sir.

MR. GRAHAM: That's all.

MR. SPURRIER: Does anyone have anything further to add to the allowable case? If not, we will proceed to hear the next case. Case No. 217.

(Mr. Graham reads the notice of publication in Case 217)

MR. SANDERS: I am H. W. Sanders. I am attorney for Continental Oil Company, 1710 Fair Building, Ft. Worth, Texas.

Before we proceed, I would like to present for your consideration a plat of the well. Later on I would like to introduce that in evidence. This is my first appearance before this Commission. This application for this order was filed on March 27, 1950, and it describes the location of the E. J. Wells B-1 No. 1 in the Cooper-Jal pool as being situated in the NWNW of Sec. 1, T. 25S, R. 36E. And attached to the application was a plat which shows that the true location is in the NENE of Sec. 1, T. 25S, R. 36E. There are two offsets to this particular property. The Texas Company has a gas well which offsets it to the northeast. And Cities Service has an oil well which offsets it to the north. Copies of the application were delivered to both the Texas Company and Cities Service, and also the exhibits attached thereto. On April 17, 1950, the Commission was submitted by wire an amendment describing the true location. The Texas Company and Cities Service received a copy of the telegram. So, at this particular time, I believe it would be in order to move this admission, that the amendment be accepted.

MR. SPURRIER: Well, Mr. Sanders, you realize we don't have a forum of the Commission, and I cannot give you permission, or ....

MR. SANDERS: In the absence of any objection by anybody here in the room or anyone else, I believe it would be proper to proceed even though you couldn't make an order.

MR. SPURRIER: Well, let's put it this way, Mr. Sanders. I can recommend, and will recommend, to the Commission to accept the amendment. However, if there be any--and we can proceed here to take the record--however, if there be any objection from any offset operator, or for that matter from any operator ....

MR. SANDERS: Yes, sir.

MR. SPURRIER: It may be that the case will have to be re-advertised and re-heard.

MR. SANDERS: That will be satisfactory.

MR. SPURRIER: If it is all right with you, we go ahead and hear the case.

MR. SANDERS: That will be perfectly satisfactory to us.

MR. SPURRIER: If the Texas Company--has the Texas Company been contacted in this case?

MR. SANDERS: They have received a copy of the application and a copy of the telegram.

MR. SPURRIER: The amendment?

MR. SANDERS: Yes, sir.

MR. SPURRIER: So has Cities Service?

MR. SANDERS: Yes, sir.

MR. SPURRIER: Anderson-Pritchard?

MR. SANDERS: No, sir.

MR. SPURRIER: I think I will leave it to your responsibility to contact Anderson-Pritchard, and if they have any objection, the Commission should be so advised.

MR. SANDERS: I will do that, yes, sir.

MR. SPURRIER: All right.

MR. SANDERS: This is an application for an order granting permission to dually complete the A. J. Wells B-1 No. 1 in the

Cooper-Jal pool, which is in the NENE, Sec. 1, T. 25S, R. 36E. in Lea County, New Mexico. The property is operated by Continental Oil Company. Drilling was completed on March 1, 1950. And we found in this particular well that we hit the Yates sand at approximately 2,790 feet, and it had a depth of about 200 feet. And by drillstem test we determined that the daily production from that formation could be 2,840,000 cu. ft. Then we drilled on down to the Seven Rivers formation. And we perforated and are producing from 3,522 feet to 3,536. We propose to dually complete this well; that is, produce gas from the Yates sand and oil from the Seven Rivers formation. We believe that our method of dual completion will prevent waste and will prevent a commingling of the two horizons inside or outside the casing. There is about 600 feet of formation between the two horizons. And we know that part of the formation between the two horizons doesn't produce either gas or oil. We have run a casing from the top of the hole to the bottom and cemented from the surface to the bottom of the hole, and we are producing through perforations from the Seven Rivers sand. We believe there is no possibility of the two horizons commingling outside of the casing, and we propose to dually complete it inside the casing by producing the oil from the Seven Rivers through a three-inch tubing, and producing gas through the annulus space between the tubing and the casing. We will keep the formations from commingling or the production therefrom by the use of the Baker Type D Packer, which was devised especially for dual production such as we are asking for here. We believe this Baker packer is long past the experimental stage, and has been tried out and found successful both in dual completions and also in obtaining production from a single horizon where some difficulty is encountered with water or high oil-gas rations. This packer is composed of two slips which are separated from each other by a rubber seal. The two slips are made of very hard steel,

which have teeth in them and once set won't allow the packer to slip either up or down. They have to be inserted through the packer, and then removed without disturbing the packer. In fact, the only way to get the packer out of the casing is to drill it out. We believe it would be economically feasible to complete the well dually because it is slightly to the east of what is known as the Seven Rivers reef formation. It is just slightly to the east of the crest. The porosity, on the east side, is tighter than it is on the west side, and consequently production is proportionately lower. Also we are offset to the northwest by a dry hole. And we believe if we were allowed to dually complete it we would have a chance for a fair return on our investment; whereas, if we were required to drill another well, we don't know whether we would get production or not, and certainly are doubtful as to whether we would get a fair return on our investment. We believe no waste of any sort would be committed. The gas formation could be produced to depletion by flowing through the annular space, and we could produce all recoverable oil from the Seven Rivers formation. It is flowing now and when it finishes flowing we believe we can use artificial means to lift this oil from that formation through the 3-inch tubing. Now, this gas we propose to produce has a ready market. We have a contract with the El Paso Natural Gas Co. wherein they have contracted to accept a minimum of 400,000 cu. ft. of gas a day. This property is situated on government land, and we have submitted our dual completion to the U. S. Geological Survey, and they have approved our dual completion based, of course, on the contingency that the Commission will approve the dual completion. In other words, they approve it if the Commission

approves it. We have a letter in writing from them to that effect. And at this time I would like to introduce it. We will introduce it in evidence as Continental Oil Company's Exhibit 1.

MR. SPURRIER: If there is no objection, the exhibit will be received.

MR. SANDERS: At this time I would like to put on some testimony if the Commission would care to hear it?

MR. SPURRIER: Fine.

E. L. SHAFER, having been first duly sworn, testified as follows:

DIRECT EXAMINATION BY MR. SHAFER:

Q. Will you state your name, please?

A. E. L. Shafer.

Q. Where do you reside, Mr. Shafer?

A. Hobbs, N. M.

Q. By whom are you employed?

A. Continental Oil Company.

Q. In what capacity?

A. District superintendent.

Q. Of what area?

A. New Mexico District.

Q. Mr. Shafer, did you prepare the original application?

A. That's right.

Q. And did you mail the application to the Commission?

A. Yes.

Q. And did it have the two plats attached to it?

A. Yes.

Q. Did you mail copies of this application to the Texas Company?

A. That is correct.

Q. What day did you send that?

A. The same date, April 17, 1950.

Q. And where did you address it to?

A. Texas Company, Midland, Texas.

Q. And did you send a copy to the Cities Service Company?

A. That is correct.

Q. And where did you address it?

A. Cities Service, Hobbs, New Mexico.

Q. Mr. Shafer, this application that recites theNWNW rather than the NENE, Sec. 1, was actually a typographical error wasn't it?

A. That is correct.

MR. SANDERS: I have no more questions.

MR. SPURRIER: Have you ever testified before the Commission before ?

A. No, sir.

MR. SPUERRIER: Will you qualify him please as to his education and .....

MR. SANDERS: Well, I thought--that is all the testimony I wat from him right now--and I thought I would qualify this gentlemen here.

MR. SPURRIER: All right.

R. L. ADAMS, having been first duly sworn, testified as follows:

DIRECT EXAMINATION BY MR. SANDERS:

Q. What is your name please?

A. R. L. Adams.

Q. Where do you reside?

A. Ft. Worth, Texas.

Q. By whom are you employed?

A. Continental Oil Company.

Q. In what capacity?

A. Petroleum engineer.

Q. How long have you practiced petroleum engineering?

A. Four years.

Q. Where did you go to school?

A. Texas A. and M.

Q. Did you receive a degree from the Texas A. and M.?

A. Yes, sir, I did.

Q. What course did you take?

A. Petroleum engineering.

Q. When did you receive your degree?

A. 1941.

Q. And you testified that you have been practicing petroleum engineering for four years, is that correct?

A. That is correct.

Q. Mr. Adams, are you acquainted with the operations concerning the E. J. Wells B-1 No. 1 well in the Cooper-Jal pool?

A. Yes, sir, I am.

Q. Has the drilling information been furnished to you?

A. It has.

Q. And have you studied it?

A. I have.

Q. And you are prepared to make statements of opinion, of your opinion, based on the study of the facts available to you?

A. Yes, sir.

Q. Is that correct?

A. Yes, sir.

Q. Now, do you know why this particular well was drilled in this particular location?

A. The purpose of drilling the well was to meet producing offsets.

Q. And will you state the offsets and where they are located?

A. The E. J. Wells B-1 No. 1 is offset to the north by Cities Service State No. 1, which is an oil well producing from the Seven Rivers formation; and by the Texas Fristo No. 2, which is a gas well, and located to the northeast of the subject well, producing gas from the Yates formation.

Q. And will you state the precise location of the E. J. Wells B-1 No. 1?

A. Located NENE, Sec. 1, T. 25S., R. 26E., Lea County, N. M.

Q. Now, Mr. Adams, I will hand you what has been identified as Exhibit 3 and ask you what it is?

A. A plat showing a radio activity log in Well B-1 No. 1, and a schematic diagram of the proposed completion, and another diagram showing a drill stem test by which gas was found by drill stem test.

Q. Will you state to the Commission where and at what depth you found the Yates sand?

A. The Yates sand was topped at 2,790 as shown on this plat.

Q. And how thick is it?

A. In this particular well it is approximately 210 feet in thickness.

Q. Was there a drillstem test run on it?

A. Yes, sir, there was.

Q. What did you determine from the drillstem test?

A. The first drillstem was taken from 2,770 to 2,890 and recovered--the volume of gas was 2,840,000 cu.ft. per day.

Q. How many cut. ft. per day?

A. 2,840,000.

Q. Did you top the Seven Rivers formation?

A. Yes, sir, we did.

Q. And will you tell us where that was topped?

A. The Seven Rivers formation was topped at 2,998.

Q. And where is it producing from?

A. The oil production is found, being produced through perforations from 3,522 to 3536.

Q. And how much barrier does that leave between the two formations?

A. Well, from the area considered to be gas productive--we consider from the top of the Yates, which is 2,790 to 2,930, to be gas productive in the Yates sand. Drillstem tests in the upper part of the Seven Rivers indicated very small quantities of gas, and from 3,230 to 3,435 there were no shows of oil or gas; and we mostly recovered a small quantity of sulphur water, indicating no connection whatsoever between the two zones.

Q. Can you state to the Commission how much oil can be produced from the Seven Rivers horizon by actual test?

A. The initial potential from the Seven Rivers oil horizon was 192 barrels of oil in ten hours through a 3/4 inch choke.

Q. Now, will you explain to the Commission your diagram as to drillstem tests other than the one you have already testified about?

A. You want me to give each one of them?

Q. No, just tell what they disclose.

A. The first drillstem test was in the Yates sand. It tested 2,840,000 cut. ft. of gas per day. The second drillstem test

was taken in the Seven Rivers formation from 2,965 to 3,038. A light blow of gas was all that was recovered. The third from 3,040 to 3,090 was 260 MCF of gas per day. Drillstem test No. 4, 3,090 to 3,160, 114 MCF of gas per day. No. 5, 3,160 to 3,230, a light blow of gas. And then there were two additional drillstem tests taken below that, and on those two we recovered no gas or oil, mostly a small amount of sulphur water.

Q. Now, will you describe generally the Yates formation to the Commission?

A. The Yates formation is primarily a sand reservoir. In this particular well, toward the base of it, limestone stringers appear in the lower portion of the Yates formation. The gas productive area is sand production.

Q. And will you describe to the Commission the Seven Rivers formation as disclosed by this well?

A. The Seven Rivers formation is primarily a dolomite reservoir, and toward the base or lower in the Seven Rivers section there are sand and shale stringers and impervious dolomite sections.

Q. Would you say the Yates sand and Seven Rivers horizon are two separate and distinct horizons, and separated by an impenetrable barrier?

A. Yes, sir, I would.

Q. Where is this well located with regard to the Seven Rivers reef formation?

A. The well is located slightly to the east of the main Seven Rivers reef structure, the crest of it.

Q. Is that any different, is there any difference in the porosity and permeability on the east of the crest of this

reef structure from the crest itself and the west flank of the structure?

A. The past performance of wells has indicated that porosity and permeability is considerably lower and more spotty on the east side as compared with the western flank of the reef structure.

Q. What does that mean?

A. It generally indicates poor productivity of wells.

Q. Now, are there any dry holes within the particular area of this well?

A. There is one that is located northeast, a northwest offset to our Wells B-1 No. 1. That is Cities Service State No. 2.

Q. If we were required to drill a second well within that particular area, could you predict whether or not we would get a producer? What would you say the chances of getting a producer are?

A. Production would probably be of a marginal status.

Q. Can you state the approximate cost of completing and equiping this well dually?

A. It is estimated that the cost to dually complete the Wells B-1 No. 1 and produce it to depletion would be approximately $57,000.00.

Q. And if you completed it only as an oil well, how much would it cost?

A. Approximate cost is estimated to be $45,000.00.

Q. And if we were required to drill a gas well, how much would it cost to drill and equip it?

A. It is estimated the cost to drill a gas well would be $33,000.00.

Q. And if we were allowed to dually complete this well rather

than drill another gas well, what savings would we affect?

A. By dually completing the Wells B-1 No. 1 we can affect a saving of approximately $21,000.

Q. Now, Mr. Adams, will you describe to the Commission how we propose to dually complete this particular well? First, I would like for you to start with the outside of the casing and then progress to the inside of the casing.

A. On the E. J. Wells B-1 No. 1 we have set pipe on the bottom through the Yates formation and through the Seven Rivers pay zone. The Seven Rivers pay zone has been perforated, and the cemented casing was run. It was cemented, and cement was circulated out at the surface. So we have a cement bond on the outside of the casing which will prevent any communication or commingling of the production from the two zones outside the casing. As I stated, the Seven Rivers has been perforated, and it is proposed to set a Baker retainer-type packer above the perforations in the Seven Rivers after having perforated the Yates gas sand opposite the productive zone. After the packer has been set and the tubing run in the oil, the gas from the Yates sand will be produced between the annulus of the casing and the tubing, and the oil production from the Seven Rivers will be produced through the tubing and will prevent any commingling of the fluid from either zone.

Q. Now, does this schematic drawing of this proposed dual completion appear in Exhibit 3 in evidence?

A. Yes, sir, it does.

Q. At this time we would like to introduce our Exhibit 3 in evidence.

MR. SPURRIER: There being no objection, Exhibit 3 will be accepted.

Q. I will ask you to examine what has been designated Exhibit 4, and ask you to state what it is?

A. Exhibit 4 is a cut-a-way section of the Baker Model D Retainer Production Packer.

Q. And using this diagram will you explain to the Commission just how this Baker packer works?

A. The packer consists of the packer rubber and has two sets of slips, one in the top of the packer assembly and the other in the bottom of the packer assembly. The packer is run independently of the production string, and is set, and the rubber is expanded and the slips are automatically collapsed, and as the rubber is expanded they are pulled together. They act opposite each other and prevent any movement of the packer upward or downward.

Q. And how much pressure can it withstand?

A. It is designed to withstand 2,000 pounds differential.

Q. What is the greatest differential pressure you estimate will be placed on that packer?

A. I estimate the maximum will be 650 pounds

Q. Per square inch?

A. Per square inch.

Q. Is it your opinion that this packer will prevent any communication or commingling of the productions from the two horizons inside of the casing?

A. Yes, sir, in my opinion it will.

Q. Do you know whether or not this Baker packer has been used before in the Cooper-Jal area?

A. I do not know for sure.

Q. Do you know whether or not it has been tested before?

A. Yes, sir, it has been used and it is recognized by the

industry as an acceptable packer for this type of work.

Q. Now, Mr. Adams, if we are allowed to dually complete this well, do you think we can produce from both horizons without waste?

A. Yes, sir, I do.

Q. Will you elaborate on that statement?

A. We can produce the gas from the Yates sand through the annulus between the casing and the tubing and it will blow to depletion. Production from the Seven Rivers formation, oil production, will be flowing through tubing, and at such time as it will cease to flow, it will be possible to use artificial means to lift the oil from the Seven Rivers through this 3-inch tubing.

MR. SANDERS: At this time I would like to introduce in evidence Exhibit 4.

MR. SPURRIER: There being no objection, Exhibit 4 will be accepted.

Q. Mr. Adams, do you know whether or not there is a market for the gas which could be produced from the Yates sand in this well?

A. Yes, sir, there is.

Q. Who will buy it?

A. We have a contract with El Paso Natural Gas to take a minimum of 400,000 cu. ft. per day.

Q. Did you submit a plan of the dual completion to the U. S. Geological Survey?

A. Yes, sir, I did.

Q. Did you receive an answer from them?

A. Yes, sir, I did.

Q. I will hand you what has been marked Exhibit 1 and ask

you if that is the letter which you received?

A. Yes, sir, this is the letter.

Q. Mr. Adams, if we are allowed to dually complete this well, do we have enough acreage in this particular lease to make this a 160-acre unit?

A. Yes, sir, we will. This is the only well located on the lease, and provided we are allowed to dually complete it as an oil and gas well, we will have sufficient acreage to allocate a 160-acre proration unit to that gas production.

Q. At this time I would like to introduce in evidence Exhibit 5 which is a plat of the location of the well.

MR. SPURRIER: There being no objection, Exhibit 5 will be received.

MR. SANDERS: I have no more questions.

MR. SPURRIER: Of either witness?

MR. SANDERS: Of either witness.

MR. SPURRIER: Where has your experience been, Mr. Adams?

A. I was first located in Hobbs, N. M. I was out here from January 1, 1946, until September--I beg your pardon--until July 1946, and was transferred to Big Spring, and worked there for two years in the west Texas district. Early in 1948 I was transferred back to Hobbs, N. M., and spent a two-months period here before being transferred to Borger, Texas as district engineer of the Panhandle district of the Continental Oil Co. December 1 I was transferred to Ft. Worth, Texas as New Mexico federal unit engineer.

Q. You might state for the record what the New Mexico federal unit is.

A. It is the acreage which is operated by four producing companies in the State of New Mexico on federal land. My

job is to take care of the engineering work pertaining to those lands.

MR. SPURRIER: That is fine, thank you. Mr. Shafer, would you care to give us a short resume of your experience? Where did you graduate from school?

A. New Mexico School of Mines located at Socorro in 1947 with a B.S. in petroleum engineering. Prior to entering school I had worked approximately eight years in the oil fields of Northern Texas and New Mexico. Subsequent to graduation I have been employed as a petroleum engineer at Hobbs, N. M. as New Mexico federal unit engineer for the--Ft. Worth, Texas--and as district superintendent for the New Mexico district at Hobbs, N. M.; all for Continental Oil Co. Is that enough detail?

MR. SPURRIER: That is fine. Does anyone have any further questions of these witnesses? If there are no further questions of these witnesses, they will be excused. Mr. Adams, will you answer one question for me, please? Is either the oil or gas to be produced from this well sour? Does it have corrosive properties? Mr. Shafer, would you care to answer?

A. I could only answer in generalities because I don't know what the sulphur content is. But I would say in general oil field terms it is sweet from the Yates, and the gas produced from the Seven Rivers will be sour I should say.

MR. SPURRIER: We will take a five-minute recess.

(Recess)

MR. SPURRIER: We will hear Case No. 218 now.

(Mr. Graham reads the notice of publication.)

MR. CAMPBELL: Please enter an appearance for Jack M. Campbell of Atwood, Malone & Campbell, Roswell, N. M. for the applicant

Texas Pacific Coal and Oil Company, Ft. Worth, Texas.

R. G. SCHUEHLE, having been first duly sworn, testified as follows:

DIRECT EXAMINATION BY MR. CAMPBELL:

Q. Will you state your name?

A. R. G. Schuehle.

Q. Where do you reside?

A. Midland, Texas.

Q. By whom are you employed?

A. Texas Pacific Coal and Oil Company.

Q. In what capacity?

A. Assistant superintendent, West Texas, New Mexico division.

Q. What is your profession?

A. Petroleum engineer.

Q. Have you testified on previous occasions before this Commission?

A. I have.

Q. Will the Commission accept his qualifications as a petroleum engineer?

MR. SPURRIER: They will.

Q. Mr. Schuehle, are you acquainted with the operations of the Texas Pacific Coal and Oil Company on its State "A" account No. 1 lease in the SW¼ of Section 9, T.23S, R. 36E, Lea County, N. M.?

A. I am.

Q. Are you acquainted with the production history of your oil wells Nos. 9, 10, and 11?

A. I am.

Q. Will you relate briefly to the Commission the production history of those three wells?

A. Yes, sir. Wells Nos. 9, 10, and 11 are currently being operated on gas lift, gas being taken from the State "A" account No. 1 lease Nos. 14 and 18 in the same section. Well No. 9, oil well, is in the SWSW. Well No. 10 is in the NWSW. Well No. 11 is located in the SESW of Section 9-23-36. The gas wells, referred to above, Well No. 14 is located in the SWNW. Well No. 18 is located in the NWNW of Section 9 23-36, Cooper-Jal area. Well No. 10, of the "A" account 1, Well No. 10 was completed in October 22, 1943, producing through perforations in 5½-inch casing located between the depths of 3,606 and 3,622. The initial potential of this well was 449 barrels of oil, 127 barrels of water,per day plus 2,346,000 cu. ft. of gas. In July 1945 the well had become watered, the previous producing section had been squeezed off and the well recompleted flowing through casing perforations between 3,480 and 3,495. The potential upon recompletion was 216 barrels of oil and 54 barrels of water per day flowing through 19/64-inch tubing choke. By October 1945 the water production had increased to thirty per cent and the well wouldn't flow. Pumping equipment was then installed. In November of 1947 the well was pumping 18 barrels of oil and 190 barrels of water per day, which was about the capacity of the equipment on the well. Gas lift was then installed in this well. And on December 1, 1947, the well was replaced on production, producing 38 barrels of oil and 213 barrels of water per day. Water has steadily increased in this well and the oil capacity has declined. Present status of this well: It is producing 10 barrels of oil and 334 barrels of water per day. 306,00 cu. ft. of gas per day being required to lift this well. This well is being considered for

recompletion or for repairs. We anticipate increased water production. Well No. 11 was completed March 8, 1944. It is producing through 5-inch casing--5½-inch casing--perforations located between depths 3,620 and 3,644. The initial potential of this well was 430 barrels of oil and 1,200,000 cu..ft. of gas per day. In April 1946 the well had become watered and would no longer flow. Gas lift was installed and the well replaced on production. It tested 67 barrels of oil and 244 barrels of water per day. At the present time this well is producing 35 barrels of oil and 294 barrels of water per day. Well No. 9: completed on September 14, 1943, producing through casing perforations between the depths of 3,678 and 3,693 feet. Initial potential was 336 barrels of oil, 2,000,000 cu. ft. of gas per day. In November 1946 the well had become exhausted and was producing 100 per cent water and was reperforated after squeezing the oil perforations between the depths of 3,512 and 3,520, and tested 8 barrels of oil and 260 barrels of water on gas lift. The casing was then perforated 3,482 to3,490. The lower perforations were temporarily shut off by a Hookwell packer and the well recompleted, flowing 286 barrels of oil and 122 barrels of water per day. In May 1946 the well was replaced on gas lift, tested 149 barrels of oil and 294 barrels of water per day. In November 1948 the packer separating the two sets of perforations was removed, and the well replaced on production, producing 48 barrels of oil and 162 barrels of water per day. The water had increased until it had reached 2,720 barrels of water and the oil had declined to 12 barrels of oil. On April 18, 1950, an application was made and approved to repair this well. The lower perforations, those between 3,512 and 3,520, were squeezed

off and well has just been replaced on production and is being tested. The status of the rework job has not as yet been determined.

Q. All three of these wells are now being produced with gas lift from gas wells 14 and 18?

A. That's right.

Q. What are the nearest facilities for marketing or outlets of the low pressure gas that comes from the oil wells after the gas lift process?

A. The Charles Eneu Johnson Company, a carbon black plant in the South Eunice field approximately ten miles north, have a low pressure gas system. And the El Paso Natural Gas Co. has a low pressure system approximately the same distance to the south of this lease.

Q. Has your company considered the possibility of the installation of compressors and utilization of the gas in the high pressure line?

A. They have. It isn't economical.

Q. You consider the investment involved wouldn't justify the expense?

A. We do. It would cost approximately an estimated $30,000. to install compressors in there. That is the installation cost.

Q. Why isn't it the wells could continue to be pumped and the oil produced that way?

A. The volume of water is excessive. We have no means available to lift that amount of fluid.

Q. Does your company own other gas wells in that area?

A. They do.

Q. Is the gas from some of those wells being marketed?

A. Yes, sir, to El Paso.

Q. What is the average approximate price for that dry gas?

A. Approximately 3½¢ per thousand.

Q. That is the same type and same pressure as gas produced from wells 14 and 18?

A. It is.

Q. Is all of this acreage state acreage?

A. It is.

Q. The State of New Mexico is the only royalty owner?

A. To my knowledge, yes.

Q. These operations of gas lift gas have been in effect since December 1, 1947, is that correct? The first one on Well N_o. 10?

A. No, the first one on Well N_o. 9. That was the first well that went on gas lift.

Q. And that began in June 1946 and prior to the promulgation of the new rules and regulations of January 1, 1950, this operation was a proper one?

A. It was.

Q. Would the denial of this application in your opinion result in the abandonment of these three oil wells as non-commercial?

A. It would.

Q. Would it result in the loss of oil that might otherwise be produced with the use of this gas lift gas?

A. It would.

MR. CAMPBELL: I think that is all.

MR. SPURRIER: Does anyone have any question of the witness?

MR. BLYNN: I would like to ask a question about the proximity of the El Paso low pressure taking system. How far is your

No. 9 from No. 17?

A. No. 17 is over in Range 37.

MR. BLYNN: There is a low pressure taking system in there?

A. That is around 7 miles.

MR. BLYNN: Is it 7 miles across there?

A. It is over in the Langlie-Mattix area and this is on the west edge of the Cooper-Jal pool.

MR. BLYNN: I thought it was around 3 miles across there.

A. I don't have a map here. By road--I don't recall--I don't have a map with me.

MR. BLYNN: El Paso does take the gas off 17, off your separator gas? I know they take it off the south offset to it.

A. I don't believe they do. I would have to check and verify that. My recollection is that they don't take that gas. That produced very little gas. They are taking high pressure gas from the same area within a mile or so.

MR. BLYNN: They are taking low pressure off Western Natural Langford to my knowledge.

A. That may be.

MR. SPURRIER: Is the gas now used for lifting flared, Mr. Schuehle?

A. It is.

MR. SPURRIER: Did I understand you to say that there is no pump which will handle that amount of fluid per day?

A. The ordinary standard beam pump, we have had tests and we have produced those at rates--well, the distance we have there makes it unlikely. We have handled at times as high as 2,720--as high as 4,670 barrels of water a day from those three wells.

MR. SPURRIER: By gas lift?

A. By gas lift. When you get up to that volume in the depth we have it would be a little difficult to produce that amount of fluid.

MR. SPURRIER: Would the cost of a Rita pump be prohibitive?

A. The cost would be high, but it wasn't considered because there isn't any power line within a reasonable distance, and the pumpers are using gas to light their houses.

MR. SPURRIER: In other words, no electricity available to operate a Rita pump?

A. That is it.

MR. LOVERING: From the distance you are pumping, couldn't you use casing pumps?

MR. SPURRIER: The question is, to get you straight, Mr. Lovering, could you use a casing pump.

MR. LOVERING: At the volume and depth they have.

MR. SELINGER: I represent Skelly Oil Co. We are an operator in this field, and we recently conducted a test ....

MR. SPURRIER: Just a minute, George.

MR. SELINGER: I want to answer his question direct. We recently conducted tests on casing pumps and found it to be entirely unsatisfactory. We determined that the gas lift is the only possible means of producing oil from our leases in the Cooper-Jal field, producing that large a volume of water.

A. I might add something along that same line. That we have used casing pumps in this same area. Not in these wells. On our Well No. 7. You may be--you possibly are acquainted with the lime scale problem.

MR. SPURRIER: Lime scale?

A. That's right. We get surface lime deposits in the well bore. I might add with a casing pump we lost the well because

we couldn't get it out. It scaled up so badly. And even drilling doesn't get that scale out. Our experience with casing pumps hasn't been satisfactory.

MR. LOVERING: It isn't a question of pumping to get the volume of fluid, but a question of scale deposits and not being able to get the volume of fluid desired from that depth. That answers my question.

MR. SPURRIER: Does anyone else have a question or two?

MR. CAMPBELL: I would like to make a very brief statement for the record the Commission is making here. This application, as the Commission knows, is necessitated by the promulgation of Rule 404 of this Commission on January 1, 1950. It involves an operation which has been carried on since June 1946 under a--a valid operation under pre-existing rules and regulations. It is apparent that the only way by which the oil can be recovered is by gas lift, and there is no available market for the gas that is used for that purpose. As a result it is being flared in violation of Rule 404. And it is for an exception to that rule that this application is made. That is all I have.

MR. SELINGER: I would like to make another comment on this particular case. We, as an operator in this field, concur in the application of the Texas Pacific Coal and Oil Company, not because we believe the application is necessary but we believe probably Rule 404 should be more or less clarified for the benefit of the operators. If you will recall at the time of the discussion of these state-wide rules that very question was raised. I believe it was raised by Mr. Frazier with the Sinclair, and I believe there were several of us that made some comments on that. As a result of bringing up that discussion if you will recall in the printed file copy

or of the filed rules you will find that Rule 404, subparagraph 3, originally read, used to gas lift oil wells unless all gas produced is processed in a gasoline plant, and then it was ended. As a result of some of these operators raising their objection to the rule as then written this phrase was inserted, or beneficially used thereafter without waste. And I felt that the insertion of beneficial use, the beneficial use standard, permitted operators to use gas lift for gas lifting oil from oil wells if he could demonstrate to the Commission that the necessity for using that gas was for the purpose of producing oil which would otherwise be lost. And I feel and my company feels that the applicant here has indicated a wholly economical and advantageous use of that gas for the production of oil. And we feel that the application really isn't necessary because I believe it comes under subparagraph 3 of the rule. But if the Commission decides that a specific hearing and application is necessary, then it will force a number of us to come in with similar applications. But in any event we think the Commission should grant this application as well as some others similarly situated.

MR. SPURRIER: Does anyone else have a comment? No further questions of this witness? If not, you may be excused. Mr. Dewey?

MR. DEWEY: Yes, sir.

MR. SPURRIER: Would you care to make any comments for the record since you were chairman of the committee that wrote this rule? What your interpretation is?

MR. DEWEY: 404?

MR. SPURRIER: Yes, sir.

MR. DEWEY: Mr. Spurrier, I don't believe I have anything to

offer relative to Rule 404 other than what is adopted here. There was a great deal of discussion concerning this rule. It finally resolved itself into an attempt to write a short and concise rule of general application. It is almost impossible to promulgate any rule that will fit all circumstances and all conditions. And I think it was the consensus of most of the members of the committee that worked on the rules that it was preferable to make them as general as possible and as concise as possible, knowing that particular circumstances and conditions would arise where rules might be too general and would need to be revised by the Commission. I think that is all I have, Mr. Spurrier.

MR. SPURRIER: Thank you, Mr. Dewey. Gentlemen, we will proceed with Case No. 219.

(Mr. Graham reads the notice of publication)

MR. FOLLANSBEE: This is an appearance by Charles L. Follansbee, Tulsa, Oklahoma, attorney for Gulf Oil Corporation. Mr. Commissioner, we would like to ask that the witness Mr. Borland be sworn.

(Witness sworn by Mr. Graham)

MR. FOLLANSBEE: Mr. Commissioner, the application of Gulf Oil Corporation requests permanent exceptions for certain of its wells in Lea County, New Mexico, from the Commission's rules 112, 202 (b), 309, and 404. All of the wells involved in this application were lawfully drilled and completed under former rules of the Commission. Production has continued under the temporary exception granted by paragraph No. 3 of the Commission's Order No. 850 adopted December 9, 1949 in Case No. 189. Most of the questions presented by this application demonstrate the need for certain clarifications or interpretations

of the four s ections last mentioned in the new rules. The company's principal purpose in presenting this application is to submit these questions to the Commission for its consideration. Other operators in New Mexico have similar problems and will no doubt be guided by the action taken by the Commission on this application. Withthe Commissioner's approval, we would like to present this application in four parts inasmuch as it in a sense constitutes four separate applications presented simultaneously. We propose at the end of each of the four presentations to offer opportunity for questioning and cross-examination on any of the points developed.

MR. SPURRIER: Fine.

CHARLES D. BORLAND, having been first duly sworn, testified as follows:

DIRECT EXAMINATION BY MR. FOLLANSBEE:

Q. What is your name?

A. Charles D. Borland.

Q. You have been sworn in this matter?

A. Yes, sir, I have.

Q. Have you previously testified before this Commission?

A. No, sir.

Q. What is your address, Mr. Borland?

A. Hobbs, New Mexico.

Q. Who is your employer?

A. Gulf Oil Corporation.

Q. What position do you hold with that company?

A. District engineer of the New Mexico district.

Q. Do you mean petroleum engineer?

A. That is correct.

Q. Would you briefly outine the formal education you have had

to qualify you for this position?

A. I graduated from Pennsylvania State College in 1937 with a B.S. degree in pe troleum engineering.

Q. What has been your experience in the field of petroleum engineering?

A. On July 1, 1937, I was employed as an engineer by Gulf. I completed a two-year training program for engineers, and was then stationed as an engineer in Oklahoma, Kansas, Illinois, and New Mexico.

Q. You have been constantly engaged since the date you mentioned in 1937 in petroleum engineering work for Gulf Oil Corporation?

A. Yes, sir, that's right.

Q. How long have you been Gulf's district engineer at Hobbs?

A. Since September 15, 1949.

Q. Have you had previous experience in New Mexico in this type of work?

A. I spent a short period of time in New Mexico in 1940 and also in 1941.

Q. Mr. Commissioner, do you have any additional questions? You accept the qualifications?

MR. SPURRIER: Fine.

MR. FOLLANSBEE: The Commission's attention is called to the first page of the application near the middle of the page where a request for exception to Rule 112 is presented. That rule, involving multiple-zone completions, provides that a multiple-zone completion not only will include a Bradenhead gas well--provides that in any well, including a Bradenhead gas well, may be permitted only by order of the Commission upon hearing. Gulf has three wells which have each produced for more than the past eleven years gas from the Bradenhead

and oil in a normal manner through the oil string casing and tubing. This is an instance where other operators are faced with a similar problem. That is, whether an operator is required under the new rules and regulations to now secure exceptions authorizing continued operation of wells previously authorized by the Commission under the old regulations. The Commission's attention is called to the six exhibits attached to the application; three of which, Nos. 1, 3, 5, show the area involved and the offsetting wells and leases. Exhibits Nos. 2, 4, and 6 illustrate the construction of each well, all as required by the present rules. With reference to each of the three wells described on pages 1 and 2 of the application under the heading "A" I will now ask Mr. Borland some questions.

Q. Mr. Borland, would you please explain the construction of these three wells?

A. Well No. 2 located in the SESE of Sec. 8, T. 21S, R. 36E, Lea County, N. M. is constructed as follows: 10-inch surface pipe set at 365 feet and cemented with 225 sacks of cement. 6-5/8 intermediate string set at 2,789 feet and cemented with 450 sacks. Bradenhead gas is being produced from the Yates sand topped at approximately 2,927 feet. A 5-inch oil string is set at 3,748 feet and cemented with 40 sacks. The top of the Grayberg oil pay is located at 3,745 feet. The total depth of the well is 3,916 feet. The string of 2-3/8 inch tubing is set at 3,913 feet. The gas in this well is produced from the Yates sand between the intermediate string and the oil string.

Q. Mr. Borland, do you have an opinion whether there is any communication between the Bradenhead gas producing zone and the oil producing zone in any of the three wells?

A. It is m y opinion that no communication exists between the

Bradenhead gas producing zone and the oil producing zone.

Q. Would you give us the information on the other two wells?

A. The B. V. Culp No. 1 located in the NENW of Sec. 19, T. 19S, R. 37E, Lea County, N. M. is constructed as follows: 13-inch surface pipe set at 241 feet and cemented with 225 sacks. 9-5/8 intermediate casing set at 2,512 feet and cemented with 875 sacks. There are three possible gas-producing zones exposed in this well as follows: The Yates zone is topped at 2,744. Seven Rivers at 2,900 feet. The queen zone at 3,438 feet. The string of 7-inch casing is cemented at 3,760 feet with 150 sacks. The top of the oil pay, which is Grayberg, is found at 3,910 feet. The total depth of this well is 3,970 feet. The string of 2-3/8 O.D. tubing is set at 3,970 feet.

Q. Could you tell us, Mr. Borland, what the gas is used for from this lease?

A. Yes, sir. The gas from this lease is used for domestic purposes at a company house on the B. V. Culp lease.

Q. Would you continue, please, with the other well?

A. Yes, sir. The third well is the Graham State No. 2 located in the NENENE of Sec. 24, T.18S, R. 37E, Lea County, N. M. In this well is 13-3/8 surface pipe set at 229 feet and cemented with 200 sacks. The string of 9-5/8 inch intermediate casing is set at 2,790 feet, and cemented with 600 sacks. Two possible gas producing zones. Basal-Yates located at 2,810, Seven Rivers located at 2,950 feet. 6-5/8 inch oil string is set at 3,975 feet and cemented with 250 sacks. The oil pay in this well is the Hobbs Lime topped at 4,042 feet. Total depth, 4,217 feet. A string of 2-3/8 inch tubing is located at 4,187 feet. As was the case in the other wells, gas is produced between the intermediate string and the oil

string, both of which are cemented.

Q. You stated a moment ago, I believe, Mr. Borland, that in your opinion there is no communication between the Bradenhead gas producing zone and the oil producing zone in any of the three wells, is that correct?

A. Yes, sir, that is correct.

MR. FOLLANSBEE: Mr. Commissioner, if we are required under Rule 112 to obtain exceptions in order to continue the production of the Bradenhead gas from these three wells, we respectfully request that such exceptions be issued to us. Are there any questions by the Commissioner? Or would the attorney care to cross-examine the witness?

MR. BLYNN: On that Culp well you mentioned two, possibly three, sources of that gas. Is that where you are producing it out of the Bradenhead between the 5-inch and the intermediate string?

A. Yes, we are.

MR. FOLLANSBEE: You no longer take gas off the 5½-inch ports above the packer?

A. Not to my knowledge, we don't.

MR. BLYNN: The reason I brought that up is because at one time there was considerable volumes taken off that port and from above that packer for drilling purposes. If that process was still in progress that might conceiveably be construed as exhaust gas, but inasmuch as you don't take it off there it is Bradenhead gas with a distinct separation.

MR. FOLLANSBEE: Do you have any further comment, Mr. Borland?

A. No, sir.

MR. SPURRIER: Does anyone care to question this witness further?

MR. SELINGER: In view of the fact that the applicant is going on four divisions, I want to confine my remarks to the first part about dual completions. We would like to join with the Gulf in requesting the Commission to give us a clarification as to Rule 112 for the benefit not only of Gulf and Skelly but all other operators in knowing how to proceed from here on out. I want to make this comment about dual completions. There are some fifty wells in the state which have Bradenhead and dual completions which are not excepted in the first part of the rule except by order--which are not excepted in the first part of the rule specifically by orders. If the Commission takes the position that the adoption of Order No. 850, effective January 1, requires a burden on each operator of each of those wells to come in, obviously we are going to have some 50 applications. I want to also comment specifically on the fact that a number of operators--not only that, but a number of operators have had within the last two or three years applications for dual completions, and those orders were not specifically excepted in the Order No. 850. We have one, and frankly we don't know the status of it now. But we hope the Commission will issue a clarification as a result of Gulf's application so that we will know where we are headed for. I also want to comment on the fact that these rules were supposed to have been effective January 1, and in your findings, paragraph 3, it starts out, an exception from the rules and regulations hereby adopted is granted until March 31. That is on the second page following the case number and order number. In my opinion, the paragraph 3 is an attempt on the part of the Commission to make this order retroactive. As Gulf pointed

out they had three wells where Bradenhead--which had been on Bradenhead for eleven years. We have four wells on Bradenhead for approximately fourteen years. It was always my feeling that since the order was effective January 1 that the Commission wouldn't attempt to enforce paragraph 3 on the grounds that it would be retroactive. If you will look at Rule 112 it starts out by saying, the multiple-zone completions. If these orders are effective January 1, it obviously seems to indicate that any well completed after January 1, 1950, would necessitate a hearing. I felt the way the interpretation of the two paragraphs of the present rules, if interpreted together, would seem to indicate it wasn't an attempt by this Commission to make these rules retroactive prior to January 1, but only apply to multiple-zone completions that were after January 1, 1950. But in any event, we join with the Gulf and plead with the Commission to get out some sort of explanatory memorandum for the guidance of the operators.

MR. FOLLANSBEE: The next division of the application deals with the need for exceptions under Rule 202 (b) which specifies that if a well is to be temporarily abandoned and no casing pulled, then a plug shall be placed at the top and bottom of the casing in such a manner as to prevent entrance of any foreign matter into the well. Gulf has eight shutin oil wells. These have been shutin for periods of from 1 to 5 years. The Commission's attention is referred to Exhibit 7 to the application for information concerning construction of the eight wells. This is another instance where other operators are confronted with the same questions of interpretation facing this applicant. That is, when is a well

temporarily abandoned? To phrase it another way, is there any difference between a well being shutin and temporarily abandoned. If so, what is the difference? In the application we have referred to the eight wells as being temporarily abandoned wells. This was done only for the purpose of bringing the matter before the Commission. No casing has been removed from any of the wells. The rods, tubing, pumping units, and other equipment remain in place in six of the eight wells. Which, if any, of the eight wells should be treated as temporarily abandoned? Consequently to be plugged at the top and bottom of the casing?

Q. Mr. Borland, what was the oil--pardon me, was the oil string casing cemented in each of the eight wells at the time of completion?

A. Yes, it was.

Q. Has the casing been pulled in any of the eight wells?

A. No casing has been removed from any of the wells in question.

Q. Are the surface fittings adequate to control the pressures that may be encountered in the well bore in each of the eight wells?

A. Yes, they are.

MR. SPURRIER: The top of the well in actuality is effectively plugged then, isn't it?

MR. FOLLANSBEE: That is the question we are raising, Mr. Commissioner.

MR. SPURRIER: All right.

Q. Out of the eight wells shutin?

A. All of the eight wells are closed in at the surface with fittings having a working pressure in excess of 1,000 lbs per

square inch, and, therefore, in no case are any of these wells exposed to the atmosphere.

Q. In your opinion, Mr. Borland, is there a difference between temporarily abandoned and shutin wells?

A. Yes, sir. In my opinion ....

Q. What is the difference in your opinion?

A. In my opinion, a non-productive shutin well, retaining all of the producing equipment should be classified as a shutin well. Upon removal of all the producing equipment, not including any casing, the well could be calssified as temporarily abandoned.

Q. In your opinion, Mr. Borland, how many of the eight wells described in the application should be regarded as temporarily abandoned?

A. One and possibly two.

Q. One of the eight wells should be treated as temporarily abandoned in your opinion?

A. S. J. Carr No. 1 and W.A. Ramsay "B" No. 2. However, that well has possibilities of producing gas from an upper horizon.

Q. The Commission's attention is called to the bottom of page 2. Those two wells listed by him are included in the list listed at the bottom of page 2 of the application. Mr. Borland, is it your opinion that a closed valve can constitute a plug at the top of the casing for operator purposes under Rule 202 (b)?

A. Yes, it is, provided that valve has adequate working pressure to control the well pressure encountered.

MR. SPURRIER: Which these wells do have?

A. Yes, sir.

MR. FOLLANSBEE: Mr. Commissioner, it is the view of the

applicant that the S. J. Carr No. 1 well is the only one of the eight wells which can probably be classified as a temporarily abandoned well under the present rules and regulations; provided, that the W. A. Ramsay "B" No. 2 well might also be so classified even though it may be plugged back for a gas well. In either well, a plug in the bottom of the oil string casing should be adequate under the present rules. Are there any questions, Mr. Commissioner?

MR. SPURRIER: I have none. Does anyone have a question of the witness on this part of the case? You may proceed.

MR. FOLLANSBEE: Thank you, sir. The attention of the Commission is called to Section "C" of the application near the middle of page 3 concerning Rule 309, which stipulates that common tankage is limited to eight units on the same basic lease. Gulf has three leases with more than eight units producing into common tankage. We understand that other operators are faced with a similar situation. Permits to Gulf were issued by the Commission under the old regulations covering tankage for the three leases. The question of interpretation presented is whether we may continue to operate under the old permits or are now required to apply for new exceptions. We have in our application asked for a permanent exception covering the three leases to bring the matter before the Commission for its interpretation. Previous orders were cancelled by the new regulations. But old permits are not expressly cancelled. Was it the intent of the Commission to cancel old permits by implication?

Q. Mr. Borland, does Gulf have adequate facilities on each of the three leases to separately test each well on each lease?

A. Yes, sir. Each lease is equipped with a test separator and

test tank so that individual wells can be tested. The producing header is so constructed that any one well can be switched to the test separator and into the test tank at any time.

Q. Mr. Borland, if the company should be required to install additional tankage on each of the three leases, what in your opinion would be the cost to the company of the necessary installations?

A. The cost of additional tankage would range between 5 and 10 thousand dollars per tank battery depending upon the amount of additional tankage required. Additional expense would also be necessary if draining facilities are required, and the changing of the presently laid lines.

Q. Are you of the opinion, Mr. Borland, that any useful purpose would be served by the installation of additional tankage on any or all of the three leases?

A. In view of the fact that we are presently set up to adequately test each individual well, it is my opinion that additional tankage would serve no purpose.

MR. FOLLANSBEE: Mr. Commissioner, if the applicant is required to secure exceptions under Rule 309 of the new regulations in order to continue to produce oil into and run oil from common tankage now used on the three leases, we respectfully make application for such exceptions. Are there any questions, Mr. Commissioner?

MR. SPURRIER: Does anyone have any question on this part of the case of the witness. If not, you may proceed.

MR. FOLLANSBEE: The fourth division of the application concerns Rule 404 described beginning in paragraph "D", the last paragraph, on page three of the application and continuing through the end of page four. Rule 404 among other things

stipulates that no gas from a natural gas well shall be used to gas-lift oil wells unless all gas produced is processed in a gasoline plant or beneficially used thereafter without waste. Gulf has 124 wells producing oil in Lea County by gas-lift method. Of these the 40 wells described in this section of the application are wells from which gas is partially or wholly vented. We have eight additional wells in which we plan to utilize gas-lift and vent the gas temporarily. Although in this application we have asked for permanent exceptions covering all 48 wells, we are now of the opinion that our needs will be served by temporary relief on 47 of the 48 wells. We believe a permanent exception will be necessary only with respect to the Vinson-Ramsay No. 1 well, which well is described at the top of page 4 of the application.

Q. Mr. Borland, where is the Vinson-Ramsay No. 1 well located?

A. Vinson-Ramsay No. 1 is located in the SESE of Section 12, T. 26S, R. 36E, Lea County, N. M. It is located in the Eaves pool.

Q. Is this well connected to a gas gathering line?

A. No, it isn't.

Q. How far distant is the well from a low pressure gas gathering line?

A. To my knowledge, the closest line is approximately three miles east.

Q. What quantity of gas is used to produce the well?

A. The average volume of gas injected in this well per month will give a daily average of 60,000 cu. ft., to lift 42 barrels of oil and 275 barrels of water.

Q. Do you have an opinion whether it would be economical to lay a line at least three miles to the lease to take gas from

this well?

A. I seriously doubt that it would be economical to lay this line. The Vinson-Ramsay No. 1 has been producing as a gas-lift well since June 1945, and since that time there has been no market for the produced gas.

MR. FOLLANSBEE: The Commission's attention is next called to the five wells described in paragraph No. 2, and eight of the ten wells in paragraph No. 4 on page 4 of the application. The applicant withdraws La Munyon No. 3 and La Munyon No. 4 wells described in paragraph 4 on page 4 of the application for the reason that gas produced from these wells is now being purchased by El Paso Natural Gas Co.

MR. SPURRIER: Effective what date?

MR. GRAY: Sometime back. Quite a while. Several years.

MR. FOLLANSBEE: Of the 5 wells described in paragraph 2, and the 8 wells remaining of the 10 described in paragraph 4, eliminating the two last named, we have a total of 13 wells. All 13 wells are in La Munyon field near Teague Switch in Lea County. The last two listed on the page are drilling wells. The remaining 11 are producing wells. All of the wells except G. G. Travis No. 1 and Saltmount No. 1 are on federal land. The 5 wells listed in paragraph 2 produce oil by gas-lift. They are not presently connected to a gas gathering system. But we anticipate that the gas will be gathered in the near future.

Q. Mr. Borland, what are the prospects for disposing of gas from the 5 wells listed in paragraph No. 2?

A. At present the Gulf Oil Corporation is formulating plans covering the installation of a gasoline plant in the La Munyon field. In addition, El Paso Natural Gas Co. has a gasoline

plant located approximately 5 miles south of the La Munyon field. It is our opinion that they will shortly extend their gathering system to La Munyon field.

Q. In other words, Mr. Borland, a permanent exception will probably not be required for these 5 wells?

A. That's right. It is believed to be a temporary situation.

Q. The eight wells listed in paragraph 4, eliminating the La Munyon Nos. 3 and 4, include two drilling wells. La Munyon Nos. 13 and 14. The other wells are producing wells. None of them are yet on gas-lift. However, Gulf anticipates the need in the near future of gas-lifting all eight wells. Mr. Borland, why will it be necessary to gas-lift these 8 wells?

A. Periodic bottomhole pressure surveys indicate a very rapid decline in bottomhole pressure, which will soon result in the lack of sufficient reservoir energy to permit continued natural flow.

Q. It is true then that the 8 wells are in the same category as the 5 wells described in paragraph 2? That is, that a permanent exception will not be required since the company anticipates that the gas will be gathered in the near future? Correct?

A. That's right, yes, sir.

MR. FOLLANSBEE: Lastly, the Commission's attention is called to paragraph 3 on page 4 of the application dealing with 32 wells connected to the company's Eunice gasoline plant. We mentioned in the application in paragraph 3 that we had approximately 34 wells. We now find that there are 32 wells. These wells produce oil by gas-lift and vent a portion of the gas because of too lean gasoline content and because of the plant's

enability to take and process all available gas. However, a permanent exception is not believed necessary because the company has made plans and has requested an appropriation to permit work to be commenced to expand the facilities at the Eunice plant to relieve this situation.

Q. Mr. Borland, how much gas is involved in gas-lifting the 32 wells?

A. Approximately 2,000,000 cu. ft. per day.

Q. How much gas is utilized in the gas-lift system from which the 32 wells are operated?

A. The Eunice gas-lift system handles approximately 11,000,000 cu. ft. per day.

Q. Then isn't that approximately twenty per cent of the total gas put into the entire gas-lift system?

A. Yes, sir, that's right.

Q. What percentage of the gas produced from the 32 wells is vented, Mr. Borland?

A. During the five-month period ending March 1, 1950, approximately thirty per cent of the gas was vented, which represents a volume of 600,000 cu. ft. This in turn represents less than six per cent of the total gas handled by the Eunice gas system.

MR. FOLLANSBEE: Any questions?

MR. SPURRIER: What is the daily oil production of these 32 wells? Do you know that figure?

A. No, sir, I don't believe I have that available.

MR. SPURRIER: That is all right.

Q. What would be your estimate, Mr. Borland, without having a figure before you?

A. Roughly, it would be in the neighborhood of 20 barrels per day per well.

MR. FOLLANSBEE: Is that sufficient information, Mr. Commissioner?

MR. SPURRIER: Yes. Does anyone have any question of this witness?

MR. FOLLANSBEE: That concludes our presentation, and we thank you for your courtesies.

MR. SPURRIER: If there are no further questions of the witness, you may be excused, Mr. Borland. Does anyone have any further comment for the record?

MR. CHRISTIE: We have no objections to the first three parts of Gulf's petition, but I think in fairness to the Amerada and other operators probably we should be given a little more time to study the fourth part. I presume all those things set out in the petition are true, but we are not familiar with the particular wells in most cases and where they are located. I think before the Commission gives its decision we should have an opportunity to check a little further. It is rather an important problem I think in Lea County, and there probably will be a number of wells come up in the future that will want to use gas for gas-lift, and I think each well should probably stand on its own merits and not give a blanket permit for a number of wells without sufficient hearing. I think probably all these cases can be justified, but it seems to me we haven't had enough information to take a real good look at it.

MR. SPURRIER: Thank you, Mr. Christie. Anyone else?

MR. FOLLANSBEE: Mr. Chairman, I would like to tender a copy of the application for publication, either by the Commission or Lea County Operators Committee if that is desired.

MR. SPURRIER: Fine, thank you. Gentlemen, is there no one else? It seems to me we have some peculiar problems here.

It has been suggested, and I should like to know, if any other operator would care to enter this case, in such instance the hearing could be recessed or continued, or whether you feel that an interpretation by the Commission, whatever it might be, can be followed by your own application if necessary. In so doing I am only trying to provide a convenience here. I don't know what the Commission's attorneys will recommend on these various questions. But I certainly feel that I will recommend to the Commission myself that some steps be taken to clarify this without having an endless series of hearings, if that is possible. Does anyone have any further comment?

MR. GRAHAM: Would Mr. Campbell yield to a question?

MR. CAMPBELL: Yes, sir.

MR. GRAHAM: You are on the legal committee, Mr. Campbell. What is your theory? We discussed it a number of times. Concerning field rules, pool rules, being superseded by these rules? These are of general application and could be varied by field and pool rules for each pool?

MR. CAMPBELL: Yes, sir. All state-wide rules are subject to pool rules. I presume, though I haven't checked personally, that some of the rules in the various pools remain in effect despite the promulgation of the new state-wide rules. I don't think they effect the pool-wide existing rules. I think so far as these questions raised heretoday are concerned, the one that concerns me particularly is the last one as to the interpretation to be placed there. I think that has a more marked effect than any other question. The multiple completions complaint, it seems to me, is resolved along the lines Mr. Sanders suggested. It refers to completion of wells not in

your production from existing wells, but would apply to wells completed subsequent to January 1. However, the interpretation I would like to place on Rule 404 I think requires a considerable straining of the language on that rule. I would prefer that this Commission revise that rule rather than straining the interpretation of it. I do think it is ambiguous the way it is. Our interpretation of it is that it requires a separate application in all cases where gas-lift is being used and not being utilized in accordance with that rule.

MR. GRAY: I was a little confused awhile ago whether Mr. Christie was talking about paragraph 4 or paragraph 3. I understand it is paragraph 3 of the application about the 32 wells. We don't name in the application the 32 wells. But those wells are distributed between the Penrose pool, Penrose sand, all small, most of them on intermittent gas-lift. The balance of them are in the Arrowhead area. Would you like to have a list of those wells?

MR. CHRISTIE: Yes, sir.

MR. GRAY: We can give a list to the reporter or do you want them read aloud?

MR. SPURRIER: If you have a list which you want to submit as an exhibit, we will be glad to take it. I don't think it is necessary at this time to read the list.

MR. GRAY: Can we submit it later?

MR. SPURRIER: Surely. I might add to Mr. Graham's question and Mr. Campbell's reply that the facts are now being gathered for pool rules. And the Commission contemplates a hearing to setup pool rules in the not too distant future. Are there any other comments?

MR. SELINGER: My thought in interpreting Rule 404, natural

gas utilization, was for the obvious prupose of eliminating the great number of hearings that would necessarily have to be gone into. My hope was to eliminate all these hearings; and if, for example, the Texas Pacific application could be considered as the application for the Cooper-Jal field, the Commission lay down a general rule on the pool applicable to the Cooper-Jal so that all operators would know that gas-lift is permitted for producing oil wells if they meet certain general requirements which this Commission can setup. All the operator would have to do would be to file the necessary form and perhaps give notice to offsets and the Commission could automatically grant that request. I was hoping to eliminate a vast number of hearings that would necessarily result. If you take it up pool by pool, the first application filed in a particular pool the Commission could set the general policy of the Commission and all operators follow it for that particular pool.

MR. SPURRIER: Thank you. I am inclined to say that I agree with Mr. Campbell because I don't think you can interpret that rule as you say you would like to see the Commission interpret it. I think probably the rule should be changed rather than to make an interpretation which is--which would certainly be difficult for me to make.

MR. SELINGER: Of Course, we are in trouble now as to how it should be changed. I don't know whether you can change it now in the present position in the hearing.

MR. SPURRIER: I don't think we can. But there is no rule in the book that can't be changed after hearing.

MR. SELINGER: We sure can interpret it now because we operators now are being forced to obey those rules. That

particular rule, we don't know what it is. And I think in the interests of protecting all the operators it behooves this Commission to immediately setup interpretations of Rule 112 and Rule 404 in addition to the two other rules Gulf has asked. It may be merely temporary, but it should be done immediately on the grounds that it is for the good of the operators.

MR. SPURRIER: I agree with you entirely except that the Commission isn't available at this moment. Any other comments? If not, the meeting is adjourned.

STATE OF NEW MEXICO)
: SS
COUNTY OF BERNALILLO)

I HEREBY CERTIFY That the foregoing transcript is a true record of the matters therein set forth.

DATED at Albuquerque, New Mexico, this 16th day of May, 1950 A. D.

E. E. GREESON
Notary Public

My Commission Expires: 8-4-52