

CASE NO. 62

BEFORE THE OIL CONSERVATION COMMISSION OF THE  
STATE OF NEW MEXICO

In the matter of the petition of the Gulf Oil Corporation for revision of Statewide Proration Order No. 538 to provide for increasing the oil allowable progressively according to depth for pools producing below 5000 feet.

Pursuant to notice by the Commission, duly made and published setting May 14, 1945, at 10 o'clock A. M., for hearing in the above entitled matter, said hearing was convened on said day, at said hour, in the Coronado Room of the La Fonda, Santa Fe, New Mexico, the Commission sitting as follows:

HON. JOHN J. DEMPSEY, Governor, Chairman.  
HON. JOHN E. MILES, State Land Commissioner, Member  
HON. CARL B. LIVINGSTON, Chief Clerk & Legal Adviser

R E G I S T E R

<u>NAME</u>	<u>COMPANY</u>	<u>ADDRESS</u>
Hugh L. Sawyers	New Mexico Oil & Gas Ass'n.	Roswell, N. M.
J. L. Griffith	Humble Oil Company	Midland, Texas
Leo R. Manning	Barney Cockburn	Maljamar
R. J. Heard	Grayburg Oil Company	Loco Hills
Glenn Staley	Lea County Operators	Hobbs, N. M.
Barney Cockburn	Cockburn Oil Company	Artesia, N. M.
W. R. Bollinger	Shell Oil Company, Inc.	Hobbs, N. M.
Chas. C. Roripaugh	Shell Oil Company, Inc.	Midland, Texas
H. K. McKinnon	Shell Oil Company, Inc.	Midland, Texas
J. C. Gordon	Byrd Frost, Inc., and Plains Products Company	Dallas, Texas
W. E. Scott	Buffalo Oil Company	Artesia, N. M.
Robert L. Bates	State Bureau of Mines & Mineral Resources	Socorro, N. M.
John M. Kelly	G. P. Livermore, Inc.	Lubbock, Texas
Harry Leonard	Leonard Oil Company	Roswell, N. M.
D. A. Powell	Drilling & Exploration Co.	Hobbs, N. M.
Chas. Schmitz	Sole Owner	San Francisco
Joe Dexter	Grayburg Oil Company of N.M.	Artesia, N. M.
T. J. Dorsey	Atlantic Refining Company	Dallas, Texas
G. H. Gray	Repollo Oil Company	Midland, Texas
Harve H. Mayfield	Magnolia Petroleum Company	Kermit, Texas
D. D. Christner	Continental Oil Company	Ft. Worth, Texas
W. C. Stout	Continental Oil Company	Ft. Worth, Texas
John R. Moran	Continental Oil Company	Houston, Texas
George M. Sellinger	Skelly Oil Company	Tulsa, Okla.
J. N. Dunlavey	Skelly Oil Company	Hobbs, N. M.
H. B. Hurley	c/o Continental Oil Company	Ft. Worth, Texas
M. H. Dubrow	Continental Oil Company	Ft. Worth, Texas
S. V. McCullum	Continental Oil Company	Ft. Worth, Texas
L. F. Shiplet	The Texas Company	Midland, Texas
A. E. Willig	The Texas Company	Ft. Worth, Texas
C. B. Williams	The Texas Company	Ft. Worth, Texas
W. E. Hubbard	Humble Oil Company	Houston, Texas
Neville G. Penrose	Neville G. Penrose, Inc.	Ft. Worth, Texas

REGISTER (cont'd)

<u>NAME</u>	<u>COMPANY</u>	<u>ADDRESS</u>
Weldon Brigance	Rowan Drilling Company	Ft. Worth, Texas
J. W. House	Humble Oil Company	Midland, Texas
Roy O. Yarbrough	Oil Conservation Commission	Hobbs, N. M.
Foster Morrell	U. S. Geological Survey	Hobbs, N. M.
A. K. Montgomery	Stanolind Oil & Gas Company	Santa Fe, N. M.
W. T. Hoey	Stanolind Oil & Gas Company	Midland, Texas
Jas. M. Murray Sr.	Me-Tex	Hobbs, N. M.
L. F. Peterson	Stanolind Oil & Gas Company	Ft. Worth, Texas
S. G. Sanderson	Gulf Oil Corporation	Tulsa, Oklahoma
J. D. Atwood, Atty.	Gulf Oil Corporation	Roswell, N. M.
Lloyd L. Gray	Gulf Oil Corporation	Tulsa, Oklahoma
E. J. Gallagher	Gulf Oil Corporation	Hobbs, N. M.
A. D. Hahn	N. M. Bureau of Mines & Mineral Resources	Socorro, N. M.

"NOTICE FOR PUBLICATION  
STATE OF NEW MEXICO  
OIL CONSERVATION COMMISSION

The Oil Conservation Commission as provided by law hereby gives notice of the following hearing to be held at Santa Fe, New Mexico, at 10 A.M., May 14, 1945:

CASE NO. 62.

In the matter of the petition of the Gulf Oil Corporation for revision of Statewide Proration Order No. 538 to provide for increasing the oil allowable progressively according to depth for pools producing below 5000 feet.

Given under the seal of said Commission at Santa Fe, New Mexico on April 13th, 1945.

OIL CONSERVATION COMMISSION

BY (SGD)

JOHN J. DEMPSEY  
CHAIRMAN

JOHN E. MILES  
MEMBER

SEAL"

P R O C E E D I N G S

BY MR. J. D. ATWOOD: Gentlemen of the Commission, I appear in behalf of the Petitioner, and request the permission of the Commission for Mr. Sanderson, General Superintendent of the Gulf Oil Corporation to explain the reasons and situation which has caused the Company to file this petition, and I introduce Mr. Sanderson.

MR. SANDERSON: Recently the Gulf Company drilled four wells in the Drinkard area in Lea County, 5,000 to 7,000 feet in depth. At the present time the Company is drilling four additional wells on short term leases in that particular area. These wells cost from 1,000 to 150,000 dollars, depending of the depth of them. It is the desire of the Gulf to develop these deeper reserves, but under present allowable set up, 45 to 46 barrels per well, it will be uneconomical for the Company or any other operators to develop these reserves. Therefore, we thought that the deeper wells should have some additional consideration in regard to allowable, and over the past several months the matter has been discussed with my operators. So far as I know none of the operators object or disagree with the idea. In order to bring the matter to a head, the Company decided to file an application with the Commission for a hearing on the matter, in addition to clarifying the situation. For the convenience of the Commission and other operators, the Company decided to draw up a proposed order and submit to the Commission, which was done. This order was circulated to the various operators in the field. It was not with the idea this would be the same order, but rather it would clarify the situation and give something definite to work on. We realized from the beginning there will doubtless have to be some modifications of this order in order to conform with the present orders of the Commission, but we thought this was a better way to handle it. That is the reason for the Gulf's application for hearing on the additional allowables for the deeper well at this time.

GOVERNOR DEMPSEY: Mr. Sanderson this scale between five and six thousand feet, you will get a rate over the allowable for the lesser depth well?

MR. SANDERSON: Yes sir.

GOVERNOR DEMPSEY: If a well at three or four thousand feet, if the allowable was raised or decreased, would you raise or decrease with that?

MR. SANDERSON: Yes sir.

GOVERNOR DEMPSEY: What time would that continue?

MR. SANDERSON: Indefinitely. We made some calculations in some of those deeper wells - it would require 20 years to pay out. I think from a conservation standpoint it is desirable to develop these deeper reserves because the present fields are exhausting I think rather rapidly. I was surprised with many marginal wells in Lea County, at this time I think thirty of them - I think we should encourage the development of these deeper horizons.

GOVERNOR DEMPSEY: You think there should be no limit of time as to how long this allowable is permitted?

MR. SANDERSON: The way we have the thing figured out, is to make the pay out on these deeper wells approximately the same as on the shallow wells. This present proposal does not quite accomplish that, it is a little too low.

GOVERNOR DEMPSEY: You think <sup>after</sup> ~~the~~ the period when you have recovered the additional amount you should still have the additional allowable?

MR. SANDERSON: Yes sir.

GOVERNOR DEMPSEY: Colonel do you think the Commission has the authority in the present law to do this?

MR. ATWOOD: It is my opinion under the present conservation law the Commission can make classifications for pro rating purposes and for extension of development, so long as the classifications are on a reasonable basis, no complaint can be made. We have now allowance for discovery wells that the

discovery gets when the person who offsets him does not get it. The Commission did that because it is in the Compensation Act that guarantees that every operator will be treated just exactly alike. I understand the Gulf people want to establish a depth as the so-called deeper production, as distinguished from the shallow production. The Gulf thought 5,000 feet would be the proper basis. Of course, a well 4,995 feet wouldn't get the bonus, where 5,001 feet would. There must be some way to draw a line (this is merely a suggestion of the Gulf, 5,000 feet for the beginning of the so-called deep production).

As I understand it, this plan is not so much to take care of the 5,000 foot situation as it is to take care of the deeper stuff, and we have a witness with figures we would like to put in the record, but first would like to have the Commission or anyone interested to ask any questions.

GOVERNOR DEMPSEY: We now have an allowable to deep wells as discovery wells, should that continue with this as additional?

MR. SANDERSON: Yes sir, I think so. Because the original well, just one well in the pool gets the allowable.

GOVERNOR DEMPSEY: For a term, a certain period - What would be the effect upon the discovery well in this condition?

MR. SANDERSON: Wouldn't be affected at all. The discovery gives a certain number of barrels of oil which must be produced within a years' time.

GOVERNOR DEMPSEY: You contemplate they get both?

MR. SANDERSON: Yes.

MR. ATWOOD: It is my understanding a discovery well nearly always costs more than the subsequent wells. That is the reason for giving the bonus is to offset that unusual cost.

GOVERNOR DEMPSEY: Any other persons desire to ask any question?

MR. NEVILLE PENROSE: You estimate your cost on your present development one to one hundred fifty thousand dollars?

MR. SANDERSON: That is right.

MR. PENROSE: In that area there are approximately 800 producing wells of about 4,000 <sup>feet</sup> barrels, what would you estimate the cost was?

MR. SANDERSON: Around 30,000 dollars.

MR. PENROSE: About 80 of those wells are still in the red, and some of them are 7 or 8 years old?

MR. SANDERSON: I don't know about that.

MR. PENROSE: In an effort to get a release, would the Gulf Company apply to the OPA for an increase for the price of the oil?

MR. SANDERSON: Not that I know of.

MR. GEORGE SELLINGER: Governor, in answer directly to your question in regards to the Commission, in my opinion sections 11 and 12 give you the authority to grant the application as set forth by the Gulf. I believe under those two sections you can grant that authority.

(After being duly sworn to tell the truth, the whole truth and nothing but the truth, Mr. Lloyd Gray testified as follows)

MR. ATWOOD: Where do you live?

MR. GRAY: Tulsa.

MR. ATWOOD: What is your official connection with the Gulf?

MR. GRAY: Chief production engineer.

MR. ATWOOD: For how long?

MR. GRAY: 17 years.

MR. ATWOOD: How long in the present capacity?

MR. GRAY: 5 or 6 years.

MR. ATWOOD: You have heard the introductory statement by Mr. Sanderson with reference to the increased cost of drilling to deeper depths, have you compiled any figures on samples of drilling costs in New Mexico, in the area in which your Company operates?

MR. GRAY: Yes sir.

MR. ATWOOD: Gentlemen of the Commission, we offer Exhibit A, in evidence, after first having it identified by the witness. - Is this exhibit a graph showing the increase in cost of increasing depth?

MR. GRAY: Yes sir.

MR. ATWOOD: You prepared that?

MR. GRAY: I had it prepared.

MR. ATWOOD: Will you make a detailed explanation to the Commission of this graph?

MR. GRAY: The line that goes diagonally across the page shows the cost for varying distances down to 12,000 feet on the right hand side of the curve is shown the figures for distances actually drilled wells at the present time.

GOVERNOR DEMPSEY: Wildcat I presume?

MR. GRAY: No not wild cat figures.

It has the cost of a completed well. Starts around 3,800 for \$29,000, 7,000 feet \$130,000, 10,000 feet estimate cost \$207,000. These cost figures, I believe, will fairly represent an exploration mark. The cost of drilling these deep wells is enormous. I don't believe at the present time the return on investment is satisfactory. As a matter of fact, it is entirely possible if the allowable is not increased the natural resources might not be exploited.

MR. ATWOOD: Any member of the Commission desire to ask any question?

(No questions)

MR. ATWOOD: Have you prepared any estimate or sample costs for wells at 7 and 10 thousand feet, to show the time required for paying off on those costs on the present allowable basis?

MR. GRAY: Yes sir.

(Exhibit B presented to the Commission)

MR. ATWOOD: The figures for the 10,000 foot well, go ahead and explain those items.

MR. GRAY: This is a sample calculation showing the required pay for wells of a greater depth than the present wells. One is 10,000 feet and the other is 7,000 feet. The 10,000 foot well is estimated at \$270,000 and the estimated operating cost for it \$120 a month, I believe that would be conservative.

MR. ATWOOD: On the assumption it is a flowing well?

MR. GRAY: Yes sir, an allowable of 35 barrels per day, revenue of \$1,040 per month - 21.6 years.

MR. ATWOOD: If discounted at 5%, approximately what increase would there be in time?

MR. GRAY: 25 to 27 years. 7,000 feet, \$130,000 on the same basis as the one previously would pay out in 10.4 years, at a discount of 5% per year would pay out in a period of 14.5 years.

MR. ATWOOD: On the assumption both wells are flowing the allowable?

MR. GRAY: Yes sir.

MR. ATWOOD: If the wells should not flow you would have a pumping cost in addition to the cost you have shown here?

MR. GRAY: That is correct.

MR. ATWOOD: Any member of the Commission have any question on that exhibit?

GOVERNOR DEMPSEY: No.

MR. ATWOOD: Mr. Gray, based upon these figures, I believe you have stated it is doubtful there will be any general development on the present allowable basis.

MR. GRAY: That is correct.

MR. ATWOOD: With these figures set forth in a petition, using the present allowable as the basic unit, and step up as suggested in the petition by increasing the depth, about how much time would be required then?

MR. GRAY: I have not made a calculation on that, but I would estimate in the neighborhood of 7 or 8 years.

MR. ATWOOD: What is the normal pay out time the Company figures on the wells?

MR. GRAY: I don't believe they could operate much longer than 7 or 8 years.

MR. ATWOOD: You heard Mr. Sanderson's statement - how many deep wells the Gulf is drilling in Lea County - are there any other wells they are drilling?

MR. GRAY: I believe about 17.

MR. ATWOOD: Drilling wildcatting or necessity?

MR. GRAY: Quite a number through necessity.

MR. ATWOOD: In order to hold the lease. If the allowable is not increased is there any likelihood these companies drilling these wells will proceed to develop the pools?

MR. GRAY: With the low return I don't believe they would be justified.

MR. ATWOOD: The fact that some of these companies drill through necessity, is there any likelihood another company would drill through necessity.

MR. GRAY: That is correct.

MR. ATWOOD: State whether or not in your opinion economic waste results in using funds in drilling wells that will not pay out in 20 years.

MR. GRAY: I think that is right.

MR. ATWOOD: These figures here represent the nearest expense incurred in drilling company wells?

MR. GRAY: Correct.

MR. ATWOOD: Doesn't that consider risks sustained in drilling dry holes?

MR. GRAY: No sir.

MR. ATWOOD: Is that item likely to be a considerable item in the Lea County area.

MR. GRAY: It usually is a sizeable item in the early stages.

MR. ATWOOD: Hasn't there been a number of dry wells drilled already in Lea County?

MR. GRAY: I think that is correct.

MR. ATWOOD: That is all for me gentlemen.

GOVERNOR DEMPSEY: Any questions from any of you gentlemen?

(No questions)

MR. SELLENGER: In drilling a well through necessity by offsetting operator where economically would not be justified, would that in your opinion be termed drilling of an unnecessary well?

MR. GRAY: Not necessarily that, but are unprofitable.

MR. SELLENGER: Economically it would not pay the operator to operate that well?

MR. GRAY: Yes sir.

MR. SELLENGER: But at the same time would have a tendency of not permitting full development of that reservoir?

MR. GRAY: I believe that is correct.

MR. ATWOOD: (Next witness)

Please State Your name.

MR. WILLIAMS. C. B. Williams.

MR. ATWOOD: I believe you estimate the cost of a 7,000 foot well at \$130,000.

MR. WILLIAMS: That is correct.

MR. ATWOOD: It occurs to me to be rather high, but I just wondered is that your estimate of the cost of the wildcat well or discovery well?

MR. WILLIAMS: On our original well \$150,00 was the cost, and the 2000 foot well \$135,000. That would not be on regular exploitation. Those other figures were drilling cost and service equipment.

MR. ATWOOD: Do you believe after a discovery is made in the field where the depth is 7,000 feet the cost of the subsequent wells and development of the field would average \$130,000?

MR. WILLIAMS: I don't believe it would miss it very far.

MR. ATWOOD: Your estimate is based on the operation in the Drinkard Area?

MR. WILLIAMS: That is correct.

MR. ATWOOD: Do you feel one could go far enough to predict a 7,000 foot well in some other part of Lea County would cost the same?

MR. WILLIAMS. I think the drilling conditions in the various portions of the County would be essentially the same.

MR. ATWOOD: Then you feel the allowable proposed should be set up as a basis for determining the permanent allowables of all future wells drilled in those tracts?

MR. WILLIAMS: That is correct. These figures on the left hand side of this graph show a cost of a 3800 foot well, for example a 7,000 foot well is going to cost 4.48 times as a 3800 foot well. In the sample order a 7,000 foot well is

---from 6 to 7 thousand feet, for 1.77 the ratio we put on allowable is not anywhere near where the actual cost ratio is. I think for that reason you are justified in making that permanent allowable.

MR. ATWOOD: These estimates are made under present conditions?

MR. WILLIAMS: That is right.

MR. ATWOOD: Do you not think of the cost of development under present conditions as being abnormally high?

MR. WILLIAMS: That is right.

MR. ATWOOD: In the past years the wells have cost a good deal less than they do now, is that right?

MR. WILLIAMS: That is right. I feel the ratio of cost for various depths is right. In a few years when there are normal conditions the ratio of 7,000 feet and 3800 feet will probably be similar.

MR. ATWOOD: Your factors are based primarily on economics or reasonable profits?

MR. WILLIAMS: Yes sir.

MR. ATWOOD: Do you not feel there are many other factors in determining the permanent allowable of the field other than just the depth of the well?

MR. WILLIAMS: I don't know how they could be brought into form. New Mexico has been outstanding. They have had a formula for allocation and so far as I have been able to observe everybody has been quite happy with the use of the formula. What we have tried to do is to cut this depth factor into the old formula.

MR. ATWOOD: Yes I agree our basis of allocation of allowables in the past has been quit satisfactory, but in order to determine the efficient rate on which a well should be set, should one consider the character of the reservoir. The type of the reservoir, type of energy you have with the formation such as water deposit or gas deposit.

MR. WILLIAMS: I think those items should be considered, but the study of that will naturally be taken care of by individual pools.

MR. ATWOOD: I am not trying to find objection to your idea for your allowable for new wells or new pools, but it occurs to me that as more wells are drilled and we have more technical information on the field, that those things should be considered in fixing the state allowable any higher than the formula based just on depth alone might be very far out of line in some pools. Do you not feel the rate of production you have proposed in some cases, those were too low, for others, they might be entirely too high in order to get sufficient recovery of the oil.

MR. WILLIAMS: I think that is possible, but still feel that should be taken care of by individual pools.

MR. ATWOOD: I understand you proposed to set these factors up to hold as a general rule, to fix the permanent allowable to wells - Do I understand after the first 4 or 5 or 6 wells in a pool are completed and more information on the type of reservoirs is available, it would be hard to consider those various factors in order to determine for the allowables for those wells?

MR. WILLIAMS: I think that could be done. To my knowledge we have never gone back and studied the matter.

GOVERNOR MILES: What do you refer to about formula?

MR. WILLIAMS: Our allocation formula, regular formula for individual well and also allowable for pool.

GOVERNOR MILES: The object of the past development, generally speaking, most of that production has come from the sand area section, it is quite likely the character of the reservoir is more uniform than at the deeper zones.

MR. WILLIAMS: The reservoir energy of the deeper pools is substantially greater than on the shallow horizons. 7,000 feet probably for 2200 or 2800. The gas in the solution on shallow horizons are from 400 to 600 Cu. Ft. I think in general the deeper horizons wells support higher rates.

GOVERNOR MILES: Do you think as deeper development progresses it may be found from the spacing of wells proposed in your order might be preferable and afford a better basis for allocation, taking into account the economics and the rate to which wells should be produced and of course economically I refer to the rate of return on your investment, also the ultimate rate and that it might be some other spacing of wells might be desirable.

When you talk about spacing - this proposal you will have as I understand is based on one well to 40 acres and the spacing is 300.

MR. WILLIAMS: The area should be 330.

GOVERNOR DEMPSEY: That is the boundary line - 360 is the boundary line?

MR. WILLIAMS: So far as that state is concerned, but then again I believe that should be taken care of on individual pool.

MR. PENROSE: Isn't there a possibility if this request is granted it might not work a hardship on many of the smaller operators in New Mexico?

MR. WILLIAMS: I do not believe it work any hardship - at the present time there is a number of wells in Lea County unable to make their allowable. I believe we should discover more wells to maintain the wells in the state.

MR. PENROSE: There are a lot of operators in Lea County I don't suppose have \$150,000 to drill a well. A lot of wells in Eddy and Lea County still in the red - when was your application made?

MR. WILLIAMS: About a month ago.

MR. PENROSE: In the length of time there has been a great many changes in the world conditions and in the oil business, and I would say we have every reason to believe we will get smaller allowables ~~sooner~~ sooner or later as the allowables of the state are reduced it is going to have to be proportioned with the owners of the smaller wells. In the last two or three weeks there have been two or three places in Texas crude has gone into storage, no demand for it.

MR. WILLIAMS: I think the additional allowable for deep wells has been shown to be justified. In Oklahoma one field the allowable is 150 (is 150) barrels a day, so we are well within what other states allow.

MR. PENROSE: Our allowable is now 110, <sup>two</sup> barrels. Suppose it would have to be cut, wouldn't the people with the smaller wells have to take a lower allowable?

MR. WILLIAMS: It is going to affect them either way. I think you will find the decrease in the allowable - the decrease in capacity will take care of these pools.

MR. SANDERSON: In regard to Mr. Williams' statement, due to high gas-oil ratios, perhaps we should not have a flat allowable. You have provided in this order that where there are special pool allocations that they will conform to that, subject to progress.

MR. WILLIAMS: That is correct.

MR. SANDERSON: If some wells should be allowed to produce more than others, this would prohibit that.

GOVERNOR DEMPSEY: Assume the Commission would grant this order. If a deep well was drilled and expended - do you think it would be good on the part of the Commission to cut them back?

MR. SANDERSON: I see no reason why these general orders should be expected to last indefinitely.

GOVERNOR DEMPSEY: That was the first you asked for.

MR. SANDERSON: I think that as conditions change, it is necessary that these orders be changed, as Mr. Williams suggested, the cost of drilling should drop to half what it is at the present time it would be uneconomical to use these old figures, I think the Commission should take care of those conditions.

GOVERNOR DEMPSEY: Don't you think that qualification should be included in this order?

MR. SANDERSON: Yes sir.

MR. ATWOOD: I understood Mr. Sanderson to say, Governor, when you asked him if this should be permanent - I understood him to say permanent until changed by the Commission.

GOVERNOR DEMPSEY: Yes.

MR. ATWOOD: The situation has arisen now that was not when the original program was set up. Now we have conditions which call for the method and basis of allocation conditions, and in the future will call for another change. There is no order that cannot be set aside or modified by the Commission at a future date.

GOVERNOR DEMPSEY: I think the Commission should have more time on that, and include it in the order and not cause any misunderstanding. I do not agree that this allowable is going to drop

to 74,000 barrels a day after the first year, I think they do not like to have you increase it not. We have set the allowable at a smaller amount than Senator \_\_\_\_\_ has requested.

MR. SANDERSON: What I understood was this - that ~~XX~~ <sup>after</sup> a well is paid out, then it should automatically be set back to the normal allowable.

GOVERNOR DEMPSEY: That was one question following the other question.

MR. SANDERSON: I think the Commission should retain jurisdiction regarding the conditions which the order should be changed.

MR. ATWOOD: Much has been made here of the considerable number of marginal wells in Lea County, and the Chairman of the Commission has just referred to the fact that we have called for a higher allowable than the Commission has been allowed to grant, is that due to normal production?

MR. SANDERSON: No, I do not think so, those pools are getting very old.

MR. ATWOOD: In the future, if in our new reserves or discoveries when this is reclaimed by reason of old age - would be still less allowable to meet the allowable as at the present time.

MR. SANDERSON: That is correct.

MR. ATWOOD: Where, in your opinion, lies the best chance for developing - large or deeper reserves, or shallow or deeper drilling?

MR. SANDERSON: Deeper drilling is the best opportunity right now.

MR. ATWOOD: You are going right back into the areas that have been contoured and bring in these deeper wells?

MR. SANDERSON: That is correct.

GOVERNOR DEMPSEY: Should the Commission increase the allowable, wouldn't that be detrimental to the conservation program?

MR. SANDERSON: I think that depends somewhat on the type of well.

GOVERNOR DEMPSEY: Don't you feel the Commission in the past, the course they have taken is mostly responsible for the recovery we are getting in New Mexico?

MR. SANDERSON: I think so. We submitted a sample letter of our letter of transmittal and should have been a couple of corrections - in the first paragraph 300 feet should have been 330 - the matter of form of one of the other paragraphs should be revised.

GOVERNOR DEMPSEY: In that matter I suggest you revise it and submit to the Commission.

MR. SANDERSON: Paragraph (e) provides for the Department classification to be on the basis of the average depth - I think it would be less confusing if they would just take the depth of the first well - wouldn't have to be working on averages.

MR. ATWOOD: The sample order here is just something given to the Commission to assist in starting a from, and if you do consider it, whatever change the Commission thinks should be put in there we will be glad to cooperate in any way we can, I would like for other operators affected to offer any suggestions they have. This order as drawn applies only to Eddy and Lea Counties. The petition makes no reference to counties. The rest, I am not sure about.

MR. LIVINGSTON: What the Gulf asked for was revision of state wide proration order 485, with the depth factor of the proration order only proration in Lea and Eddy Counties, so nothing was advertised as to changing the proration status in the other counties.

MR. ATWOOD: At present that problem is not in other counties. The Commission can make the order to apply to any other county in which deep wells should be drilled.

MR. W. E. HUBBARD - Humble Oil Company.

We agree in principal with the goal of the Gulf. Certainly if your resources of the state are to be developed the greater risk on the investment has got to be taken into consideration or they won't be developed. The order as I read it, does not provide for a unit any larger than 40 acres, does not say it can be anymore than 40 acres. Our thought is that undoubtedly we are faced with a wider drilling than 40 acres on the basis there not being enough oil down there, other wells of 40 acres. Economically we feel probably most of these deeper

pools will be based on approximately 80 acres and may go to 160, I should like to see that part amended so that the unit would not be less than 40 acres, and allow us to go above 40 acres if the situation warrants it. We have had much information develop since the war started as to the maximum efficient rate that pools can go without waste. I notice in the table of the Gulf, it allows wells of 40 acres to produce up to 308 barrels, which is almost 7 barrels per acre. I don't know of any pool where that had been exceeded or even approached. Our pools in East Texas, the maximum rate in those pools is about 3 barrels per acre. Some wells over there, Yates probably, the best pool is between  $2\frac{1}{2}$  and 3 barrels. I am afraid the Commission will be faced with the duty, after these wells are drilled, of having to cut them back on account of wasting the reservoir. Our engineers came to the conclusion that after a pool has been drilled, it can produce about as much per day whether on a 20, 40, 10 or 80 acre basis. A well or the pool would not waste anymore. For that reason I should also like to see put in the formula something about acreage. If the wells could produce more without waste I think they should do so. Don't know how that could be worked in the formula, but would like to have that.

MR. WILLIAMS: I agree with it. I think the question of acreage would be a matter that the Commission could operate on a basis of depth or economics alone. In other words, assume that 40 acres is the unit on all the other fields above 4,000 feet, then if the deep ones were drilled 1 to 80 you could double the allowable and still keep an equitable basis between the deep and the shallow ones. Assume the very deep wells were spaced 1 to 160, you could give more profitably from an economical standpoint, and from a conservation standpoint and the Commission should not adopt an order that was not based on both.

GOVERNOR DEMPSEY: Wouldn't that be a question for the individual pools?

MR. WILLIAMS: Yes sir, after three or four wells you would know what you could do. You shouldn't tie yourself down and it should be variable, so that when the fields were drilled up, you could vary in accordance. It is very important to these that have shallow production.

MR. A. E. WILLIG - The Texas Company.

I have a statement to read and submit as part of the record from the Texas Company:

"CASE NO. 62

BEFORE THE OIL CONSERVATION COMMISSION  
OF THE STATE OF NEW MEXICO  
MAY 14, 1945

IN THE MATTER OF: THE PETITION OF THE GULF OIL CORPORATION FOR REVISION OF STATEWIDE PRORATION ORDER NO. 538 TO PROVIDE FOR INCREASING THE OIL ALLOWABLE PROGRESSIVELY ACCORDING TO DEPTH FOR POOLS PRODUCING BELOW 5000 FEET.

"The Texas Company respectfully requests leave to file this statement in its behalf in connection with the hearing called to consider the subject matter.

"On August 3, 1943, a hearing was held on the application of the New Mexico Oil Conservation Commission upon its own motion on this same matter. At that hearing considerable testimony and evidence were introduced which are pertinent to a further consideration of this matter. We respectfully request that the record of that hearing be made a part of and considered by the Commission in addition to the testimony to be offered on May 14.

"Experience has shown that the cost of drilling and operation of wells varies in some proportion with the depth. Experience, however, has shown that this variation is not pre-determined and varies considerably from one area to another as shown by the testimony in the hearing of August 3, 1943. It is generally known that the deeper the well the higher drilling and operating costs will be. We are in accord with recommendations made heretofore that some recognition in the form of higher allowables be accorded wells drilled to deeper depths. We feel, however, that the measure of such consideration should be carefully determined by the Commission in accord with the authority vested in it by the New Mexico Conservation Statutes. We refer to and quote for your ready reference Paragraph 2 of Section 12 of the Session Laws of New Mexico, 1935, Chapter 72.

"No owner of a property in a pool should be required by the Commission, directly or indirectly, to drill more wells than are reasonably necessary to secure his proportionate part of the production. To avoid the drilling of unnecessary wells, a proration unit for each pool may be fixed and such being the area which may be efficiently and economically drained and developed by one well. The drilling of unnecessary wells creates fire and other hazards conducive to waste, and unnecessarily increases the cost of products to the ultimate consumer'.

"Much constructive work has been done on the problem of well spacing, and since as far back as 1936 there has been a definition of unnecessary drilling which is generally recognized by Oil Operators and the Oil Industry. The following is a pertinent quotation from the report of an I.P.A.A. Sub-Committee of Nine on 'Unnecessary and Excessive Drilling' which appeared in the Oil Weekly of December 28, 1936.

"It is generally recognized that much of the drilling in proven fields in most of the oil-producing states can be classified as 'unnecessary or excessive drilling' in that from the wells already drilled or from a fewer number of wells properly spaced approximately the same amount of oil could be recovered, therefore the drilling of additional wells would not, and will not, materially increase the ultimate recovery from the field. In other words, in most fields the data are amply sufficient at an early stage in the development of the field to determine to reasonable accuracy the efficient and economical drainage area of a well. The drilling of more than one well to drain such area results in excessive or unnecessary drilling as those terms are used herein'.

"The area which may be efficiently and economically drained by any particular well, regardless of depth, will vary with the physical characteristics of the reservoir from which such well produces, and these characteristics may not be determined with any exactitude until such well has been brought into production and the pertinent factors have been determined. We, therefore, recommend and strongly urge to the Commission that no arbitrary, pre-determined allowable be assigned to deeper wells until testimony and evidence by competent parties has been introduced and considered in the case of each separate reservoir. Such evidence would necessarily include, among other things, the cost of drilling and operating wells of the particular depth under consideration and would be considered in determining the allowable of wells drilled in that particular field. Thereupon, from such hearings the Commission may determine, under the requirements of Section 12 quoted above, the proper spacing and proration unit, and, further, under Section 11 of the same Statutes, may 'allocate or distribute the allowable production among the fields of the State.....on a reasonable basis.....'. Thus, an Operator in undertaking the drilling of a deep well would have the assurance, prior to the commencement of the well, that the costs peculiar to and encountered in the drilling and operation of his well would be given due consideration in fixing the allowable for such well.

"It is recognized that, before the pertinent physical characteristics of the reservoir may be determined, it is desirable to have available the data from a number of wells in a new reservoir. During the interim from the drilling of the discovery well and the further wells required for the reasonable determination of the reservoir's characteristics, we recommend the application of a modified form of the present 'Bonus Discovery Allowable' Order No. 573 of the New Mexico Oil Conservation Commission adopted September 6, 1944. Modifications of this Order should include:

- "1. Reasonable daily top allowable rates based on various depth brackets for the discovery well.
- "2. The application of such top daily allowables to the next subsequent four wells completed in the same reservoir within the eighteen months or two year period next following the completion of the discovery well.
- "3. Prior to the expiration of the period adopted for bonus discovery allowables, the Commission will call a hearing to determine the proper spacing, proration unit, and regular top allowables to be assigned to all wells in such field. The regular top allowable so determined may thereafter be maintained in an amount in the same proportion theretofore assigned to other fields.

"We further respectfully submit that the pre-determined allowables for deeper wells submitted by the applicant in this cause are arbitrary and, as pointed out before, do not take into consideration the pertinent data necessary and available only after completion of

a sufficient number of wells in a given reservoir.

"In conclusion, we wish further to recommend that the adoption and application of both bonus and regular allowables contemplated under this cause be made subject to the prevention of avoidable physical waste.

Respectfully submitted,

THE TEXAS COMPANY

BY: /s/ C. B. WILLIAMS

May 14, 1945"

GOVERNOR DEMPSEY: You are requesting that this Commission make part of this record of hearing held in August 1943, that would be very inconsistent.

MR. WILLIG: Yes sir.

GOVERNOR DEMPSEY: There may be part of the hearing of August 1943 that the men here today know nothing about. If there is any of the hearing of August 1943 not consistent with the hearing held here today, I would be glad to have you point it out. I think it is well to call the Commission's attention so that they can do that, but cannot put part of that hearing into this one.

MR. WILLIAMS: I shall be glad to briefly qualify Mr. Willig so that he may testify.

(After being sworn to tell the truth, whole truth and nothing but the truth, Mr. Willig testified as follows:)

MR. WILLIAMS: You are employed by the Texas Company?

MR. WILLIG: Yes sir.

MR. WILLIAMS: How long have you been employed by this Company?

MR. WILLIG: 25 years.

MR. WILLIAMS: In what capacity now?

MR. WILLIG: Divisional engineer for West Texas Division.

MR. WILLIAMS: State your responsibility in that capacity to take care of matters on behalf of the Company in connection with the proration, allocation of wells and matters that come under the subject of this order here you propose to file with the Commission - a copy of this statement you have just read.

Does that statement represent your views with reference to the subject matter of this hearing?

MR. WILLIG: It does.

MR. WILLIAMS: I questioned Mr. Gray about factors of depth, I believe the letter you just read generally reviews the thoughts you have in connection with the various factors to be considered in the allocation of production does it not?

MR. WILLIG: Yes sir.

MR. WILLIAMS: Do you feel that the allowables of wells should be based on depth alone?

MR. WILLIG: No sir, I think the cost of wells of the same depth may vary considerably, depending on the area in which they are drilled. I think the efficient drainage of a well considering the economics involved should be considered.

MR. WILLIAMS: Do you think the ultimate recovery, kind of reservoir and type of energy should be given due consideration?

MR. WILLIG: Yes sir they are all important factors.

MR. WILLIAMS: All these factors cannot be known of course.

MR. WILLIG: No, it will take several years to determine that degree of exactitude.

MR. WILLIAMS: Then you are in accord with the proposal that some higher allowable than the allowable at the present time being followed in Lea County be temporarily assigned to these deeper wells do you not.

MR. WILLIG: Yes, I think it would help the development of deeper fields.

MR. WILLIAMS: As the composition of several wells in a pool, it is your recommendation that the factors then known regarding that pool be considered regarding the allocation of production in that pool.

MR. WILLIG: That is right.

GOVERNOR MILES: The allocation of production you talk about, the allowable space or both factors?

MR. WILLIG: The allowable.

GOVERNOR MILES: You think the matter of proper spacing of wells should also be considered?

MR. WILLIG: Yes sir.

GOVERNOR MILES: Should include the amount of acreage and distance between wells?

MR. WILLIG: That is right.

GOVERNOR DEMPSEY: Any other questions?

(No further questions)

MR. H. B. HURLEY - Continental Oil Company.

I wish to go on record and state the Continental Oil Company favors in principal the plan as submitted by the Gulf here today.

MR. CHAS. RORIPAUGH - Shell Oil Company

We are also in favor of the principals as set out in the Gulf's order. I think that possibly some of the controversy on the problem might be alleviated somewhat if consideration was given to insertion in the order as proposed that permanent fields would be adopted before a hearing through the Commission.

MR. T. J. DORSEY - Atlantic Refining Company

The Atlantic Refining Company also agrees with the Gulf order in principal.

MR. HARVE H. MAYFIELD - Magnolia Petroleum Company.

The Magnolia Petroleum Company also agrees with the Gulf's order in principal.

MR. GEORGE M. SELLINGER - Skelly Oil Company agrees in principal with the Gulf Oil Corporation, we favor the allocation of of wells based on a scale as to depth, I don't know what the other operators have in mind with reference to principal, but I imagine they feel like we do. The question of waste or proper spacing, that the Commission should call a hearing to determine that. The Commission itself can call the hearing, or the operator of any single well in the field or any interested wells, and if there is waste being made by the drilling of unnecessary wells (or a small spacing) in that matter, can be presented at that time. The well spacing and the allocation of allowable can likewise be brought up. I think all operators are agreeable - these particular matters are not known until enough wells in the field. I think the Commission should put a schedule so the operator would know what the allowable would be. If conditions should arise so that this could not be maintained, there would be no bad break in the Commission, in the meantime, more than the small wells being cut. This jurisdiction is continuing and all allowables are based according to the conditions.

GOVERNOR DEMPSEY: Gentlemen if that is all who desire to be heard we will bring this meeting to a close.

The Commission will approve Cases 63, 64 and 66. Take this 62 under advisement.

MR. SELLINGER: If it is in order I think it would be good idea if the operators in Eddy County would be allowed to file a statement of information regarding these deep wells. We are planning on drilling a deep well and I don't think anything would come up that would interfere with us if we can send a statement I believe it would help.

GOVERNOR DEMPSEY: We would be happy to have a statement from any of the operators in either Lea or Eddy County.

MR. ATWOOD: In case any of the Gulf people have a copy of any operators files, that statement could be sent to me.

GOVERNOR DEMPSEY: That would be all right to send Colonel Atwood a Statement.

C E R T I F I C A T E

I, Vastie Fowler, Reporter for the Oil Conservation Commission, hereby certify that I took down the statements made at the hearing held before the Commission on May 14, 1945, in the Matter of the Petition of the Gulf Oil Corporation for revision of Statewide Proration Order No. 538 to provide for increasing the oil allowable progressively according to depth for pools producing below 5000 feet, and that the foregoing transcript constitutes, to the best of my knowledge and belief, a true and correct copy of all the oral statements and exhibits presented before the Commission.

Vastie Fowler  
Vastie Fowler, Reporter.