CASE NO. 47

BEFORE THE OIL CONSERVATION COMMISSION OF THE STATE OF NEW MEXICO.

IN THE MATTER OF: THE APPLICATION OF THE NEW MEXICO OIL CONSERVATION COMMISSION, UPON ITS OWN MOTION, FOR AN ORDER, APPLICABLE TO DEEP POOLS AND DEEP FIELDS IN EDDY AND LEA COUNTIES, AUTHORIZING UPON A REASONABLE BASIS THE INCREASE OF DAILY ALLOCATION OF CRUDE PETROLEUM OIL TO SUCH DEEP POOLS OR FIELDS AND THE CORRESPONDING INCREASE OF ALLOWABLE TO THE PRORATION UNITS THEREIN; FIXING THE SIZE OF SUCH PRORATION AND DRILLING UNITS AND REGULATING THE WELL SPACING THEREIN; DEFINING THE DEPTH OR DEPTHS OF DEEP POOLS OR FIELDS; FOR THE PURPOSE OF SUCH ORDER AMENDING THE STATEWIDE PRORATION ORDER OR OTHER ORDER IN CONFLICT.

Pursuant to notice by the Commission, duly made and published, setting August 3, 1943, at ten 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, La Fonda, Santa Fe, New Mexico, the Commission sitting as follows:

HON. JOHN J. DEMPSEY, Governor of New Mexico, Chairman
HON. JOHN M. KELLY, State Geologist, Secretary
HON. H. R. RODGERS, Commissioner of Public Lands, Member
HON. CARL B. LIVINGSTON, Chief Clerk and Legal Adviser.

APPEARANCES:

Name	Company	Address
A. S. Willig	The Texas Company	Ft. Worth, Texas
Harvey E. Yates	Harvey E. Yates	Artesia, N.M.
Roy Yarborough		Hobbs, N.M.
Walter P. Luck	N .M.Asphalt & Ref. Co.	Artesia, N.M.
C. H. Brooke	Agua Negra Ranch	Santa Rosa, N.M.
A. M. McCorkle	Stanolind Oil & Gas Co.	Ft. Worth, Texas
P. H. Lillie	Agua Negra Ranch	Santa Rosa, N.M.
Leo Fry	Stanolind Oil & Gas Co.	H obbs, N. M.
L. F. Peterson	Stanolind Oil & Gas Co.	Ft. Worth, Texas
Lake J. Frazier	Maryland Casualty Co.	Roswell, N. M.
Geo. P. Livermore	Geo. P. Livermore,Inc.	Lubbock, Texas
U. S. Welch	Flynn, Welch & Yates	Artesia, N. M.
F. W. Brigance	Rowan Drilling Co.	Ft. Worth, Texas
R. V. Fitting	Shell Oil Co.,Inc.	Midland, Texas
H . J. Kemler	Shell Oil Co.,Inc.	Midland, Texas
R. B. F. Hummer	Phillips Petroleum Co.	Bartlesville, Okla.
C. A. Daniels	Phillips Petroleum Co.	Amarillo, Texas
E. H. Foster	Phillips Petroleum Co.	Amarillo, Texas
Lloyd L. Gray	Gulf Oil Corp.	Tulsa, Okla.
Neville G. Penrose		Ft. Worth, Texas
Rice Tilley		Ft. Worth, Texas
Harvey Hardison		Houston, Texas
Edgar Kraus	Atlantic Oil & Ref.Co.	Dallas, Texas
R. F. Windjohr	Nash, Windjohr & Brown	Ft. Worth, Texas
James M. Murray	Me-Tex Co's	Hobbs, N.M.
J. C. Echlin	American Employers Ins.Co.	El Paso, Texas
Glenn Staley	Lea County Operators	Hobbs, N.M.
K. M. Fagin	Magnolia Petroleum Co.	Dallas, Texas
S. P. Hannafin	Magnolia Petroleum Co.	Roswell, N.M.
C. G. Campbell	Texas Pacific Coal & Oil Co.	Midland, Texas

Leo R. Manning	State Land Office	Santa Fe, N.M.
W. K. Davis	El Paso Nat. Gas Co.	Jal, N.M.
Foster Morrell	U. S. Geological Survey	Roswell, N.M.
Harry Leonard	Leonard Oil Co.	Roswell, N.M.
Hugh L. Sawyers	N.M.Oil & Gas Asso.	Roswell, N.M.
John P. Morgan	Sun Oil Co.	Dallas, Texas
J. O. Seth	Seth & Montgomery	Santa Fe, N.M.
R. S. Dewey	Humble Oil Co.	Midland, Texas
W. L. Morrison	Honolulu Oil Corp.	Lubbock, Texas

The meeting was called to order by the Chairman, and upon request of the Secretary, the Chief Clerk read the call of the meeting, as follows:

"NOTICE FOR PUBLICATION
STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

The Oil Conservation Commission, by law invested with jurisdiction as the oil and gas regulatory body of the State of New Mexico hereby gives notice of the following hearing to be held at Santa Fe, New Mexico:

Case No. 47

In the matter of the application of the New Mexico Oil Conservation Commission, upon its own motion, for an order, applicable to deep pools and deep fields in Eddy and Lea Counties, authorizing upon a reasonable basis the increase of daily allocation of crude petroleum oil to such deep pools or fields and the corresponding increase of allowable to the proration units therein; fixing the size of such proration and drilling units and regulating the well spacing therein; defining the depth or depths of deep pools or fields; for the purpose of such order amending the Statewide Proration Order or other order in conflict. This case is set for 10 A. M., August 3, 1943.

Any person having any interest in the subject of said hearing is entitled to be heard.

The foregoing Notice of Publication was made pursuant to the direction of the Commission at its Executive Meeting June 22, 1943.

Given under the seal of said Commission at Santa Fe, New Mexico, on July 8, 1943.

OIL CONSERVATION COMMISSION

Seal By (Sgd) John M. Kelly"

BY MR. KELLY: The Commission has felt that deep drilling in New Mexico could be stimulated by changing somewhat our present proration plan, in order that we may take in the economic factor in figuring an allowable for deeper wells, and has,

therefore, called this hearing to obtain all information possible from its operators, as to what they believe is a reasonable proration plan for the deeper formations. The Commission would like to hear from Mr. Fitting, of the Shell Oil Company, at this time.

R. U. FITTING

being first duly sworn to tell the truth, the whole truth, and nothing but the truth, was asked to give his testimony in regard to the matter under consideration.

BY MR. FITTING: Mr. Dewey and I recognize that the Commission probably would need some cost data on deeper wells that had been drilled in the Permian Basin. We further recognize that very few deep wells had been drilled in the State of New Mexico, and therefore, we should probably have to borrow the information from the Permian Basin in Texas, in order to arrive at some cost data on which to base an allocation to deeper wells. From several operators we have obtained the costs of wells below 5000 feet to a maximum depth of 10,000 feet. This data is based on some 20 wells, and is, therefore, quite sketchy, because we don't yet know all of the facts as to what these wells will encounter. And furthermore, our data is not based on all the wells that have been drilled, but only the costs we have been able to procure.

We found, in general, the wells drilled to a depth of about 5500 feet would cost about $45,000. That is, the normal drilling costs, it includes no unusual drilling problems, and is an average of several wells. We also found that the costs in a straight line relationship down to a depth of about 8000 feet cost around $90,000. Below that depth, due to the fact that the wells drilled below the base of the Permian Basin formation, and then go into some other formation, depended on where located, encountered various formations, or various drilling hazards and costs. The costs

below that depth of 8000 feet were very erratic, although it might be said that a well to the depth of 10,000 feet would cost between $220,000 and $300,000.

We found that there was a very noticeable relation between the $45,000 cost at 5500 feet and the $90,000 cost at around 8000 feet, which would make it appear that in similar proportion to those depths they should have a double income for a well that cost $90,000, as compared to the $45,000 well. The reason that the costs below 8000 feet deep vary tremendously is that, in some cases, the Devonian Chert, or Montoya sections may or may not be encountered. Those sections are drilled with great difficulty and at an extremely high cost, and, obviously, some wells may go to a depth of 9000 feet, without encountering these formations, and the cost for such well would be less than a well of similar depth that encounters the hard Chert formations.

Our thought was that, since the proration unit in New Mexico is 40 acres, this could be limited to a depth of 5500 feet, and that a well could be granted 80 acres where the depth was 8000 feet, with each acre getting the same allocation as at present, but thereby a well between 5500 and 8000 feet in depth would secure 86 barrels, and would place the percentability on about the same basis as the shallow drilling is at the present time. And between 10,000 and 8000 feet in depth, that 160 acres be allocated to the well, and each 40 acre unit be allowed 43 barrels and the well lease, figure 172 barrels allowability.

In addition to these allowances,which we would suggest continue over the life of the well, also that development of the field will be made on the same basis as shallower drilling at the present time. We would suggest that a bonus be given to the first well so that this venture, which is usually a speculation, as contrasted with the later wells, will be induced, and we suggest that the allowability be doubled for

some sale. If for a period of three years the operator could expect his money back and 100% profit, or doubled for a period of 18 months, his pay-out would be shortened to about that period.

BY GOVERNOR DEMPSEY: What would happen in the event the off-set owner had only 80 acres?

BY MR. FITTING: In the case of those to which 160 acres had been ascribed.

BY GOVERNOR DEMPSEY: Yes?

BY MR. FITTING: As I read the statutes, it appears to me that the Commission can force that 80 acres to be grouped with another 80 acres, so as to arrive at the 160 acres to be ascribed to it.

BY GOVERNOR DEMPSEY: You mean under unitization?

BY MR. FITTING: Yes.

(Witness excused)

EDGAR KRAUS

being called as a witness, and being first duly sworn, was asked to give his testimony in regard to the matter under consideration.

BY MR. KRAUS: If the Commission please, I think we should clarify, really, what we are doing. Fundamentally, the State of New Mexico has been operating under a plan of proration whereby the allocation to the various pools in Eddy and Lea Counties, among the pools, I am talking about, is on a straight acreage basis, unit basis. Now I think we are talking about a change of that fundamental plan, and for the moment I would like to keep out of the talks any allowable within the pool itself, but merely among the pools, and we are saying now that, besides this factor of acreage or units, we should inject some other factors. One of those factors mentioned is cost, and we are saying that cost, in some measure, is reflected by the depth of the well. Recognizing that it is an inexact measure, of necessity, my own opinion is that it is a valid factor to

inject in any allocation plan. It has been recommended by such bodies as the Well Spacing and Allocation Committe of the American Petroleum Institute. But you will note that I say it is a factor, and by no means is it the only or most important factor.

I think we should not think about allocating to pools entirely on the basis of depth. We should still consider,as a very important factor, acreage, or productive units. We should also consider, in my opinion, reserves. It is true that in the past reserves have been reflected, in great measure, by the acreage. The larger the pool, the larger the reserves, in general.

Now, getting specific, and having allotted to a pool, if it is fully developed on the basis of these other factors, we then have other problems within the pool, itself. And they should be considered on a pool basis alone. Those problems, among others, well spacing, and I believe that should be considered only on a pool basis, when we have enough information to warrant it. That information would include knowing what formation we are producing from, and we should know something about the pressures, something about the viscosity of the oil, etc. Spacing is not nearly as important as the total allocation to the pool, which should never exceed some maximum rate. I believe we should never forget, in all talks, these figures are given to carry with them that caution that the rate for any pool should never automatically reach an inefficient high rate. That would mean that,after the first producing well is drilled in any new area, a hearing be called to determine what the most desirable spacing would be. Getting the testimony from the operators and using that and the Commission's discretion in determining what the proper spacing is for that particular pool.

I believe the allocation to the pool should remain automatic as it is now, so that every operator would always know

and be able to check a proration schedule. That can be done by making the allocation on the depth factor in some proportion to the top allocation as we now know it, or the top allowable. My own idea about what that percentage should be is purely guess work. I think anybody has a right to express their ideas, and with plenty of information , what those measures should be. I would like to give my ideas,for the purpose of the record, and let anybody else give theirs.

I would suggest that all wells up to 5000 feet, or all pools up to 5000 feet in depth, be given the present allowable. I mean by that, a top allowable. That,when the pool is producing from a depth between 5000 and 6000 feet, the basic allowable be multiplied by 1.25. If between 6000 and 7000 feet, it be multiplied by 1½ times the normal allowable. From 7000 to 8000 feet, by 1.75. From 8000 to 9000 feet, twice the allowable. From then on, a more rapid increase. From 9000 to 10,000 feet, 2½ times the allowable. And any field that is producing from a depth below 10,000 feet, by giving three times the normal allowable.

Remember, I am still talking about fields, so that this would actually be on our same 40 acre basis. If, after the first well is discovered, and the testimony warrants, and the conditions are proper, and the Commission sees fit to establish drilling units greater in size than 40 acres, I would see nothing wrong in giving those larger units proportionately larger allowables. The problem is within the pool, and should be handled purely as such. I think that expresses my ideas about as well as I can. I haven't given much thought to the idea of discovery allowable, because it wasn't specifically included in the call. I would suggest that, if the Commission wishes to institute bonuses for discovery wells, they make every effort to avoid some of the pitfalls that have resulted in other States. It encourages not only wildcatting, but also

inefficient high rates of production for the first few wells that are drilled, and probably cause danger to the reservoir.

BY MR. GRAY: In determining the particular point to take for the depth dimensions it would be averaged, but should we not have a definite point on which to base that average?

BY MR. KRAUS: Yes, I believe the simplest way to determine where the pool should come within these blankets, the one that would cause the least trouble would be to use the first well producing zone, the top of the producing zone of the first well. Now it is sometimes very difficult to determine exactly where the top of the pay is. It might be a question of opinion. Perhaps the method to use would be to say that the casing point would be the operator's idea of where his top of pay was. Or if the casing went completely through it, I believe the first perforation would be his idea as to the top of the pay, and that point would be used as the depth to which his allocation would be given.

BY MR. GRAY: I notice the intervals you recommend are about 1000 feet each, as compared to 2500 to 2000 feet, or more, in Mr. Fitting's testimony. Is there any particular advantage in having the smaller spacing, or intervals?

BY MR. KRAUS: Personally, I think it would work fewer hardships, fewer inequities, if the intervals chosen were even smaller than 1000 feet. A man who happens to be in a pool just shy of a 6000 foot interval, for example, and one just a little greater that 7000 feet, might have too much difference in their allocations, whereas, if the intervals taken were of lesser degree, the curve would be smoothed out, and there would be less likelihood of complaint.

BY MR. GRAY: Some several years ago I believe evidence was presented to the Commission regarding the creation of a 40 acre drilling unit. I believe at that time there was quite a bit of reservoir information available, and other information, on which

could be based whether the well could probably drain that particular area. I am wondering now if we have enough experience in these formations of greater depth to justify predicting what the allocation or unit size should be.

BY MR. KRAUS: I want to make it plain, before answering your question, that, in general, I am known as a wide-spacer, and my feelings are all toward wide spacing. Nevertheless, I feel that we would be inexpert in now attempting to set up what would be a proper allocation unit, for there are so many possible variations in these deeper formations. Most of the people in this room, I imagine, are thinking of Ellenberger's production in the deeper formations. There are parts of Lea and Eddy Counties, however, which at these greater depths will be producing from zones in the Permian, maybe even in the Pennsylvania, and if you want to include northwestern New Mexico, might even be producing from the Dakota, and I, as a geologist and engineer would not now wish to set up any allocation unit that would cover all those possible formations.

BY MR. GRAY: I believe Mr. Fitting testified that, in his opinion, if the cost of drilling was doubled, the allocation should be doubled. In your present discussion you mentioned that cost was one factor, while reserves, and possibly operating expenses are other factors. It is your opinion, is it, that the factor to be used should be a compromise between all these factors?

BY MR. KRAUS: I don't like the word "compromise". I think a combination of all of the factors.

BY MR. GRAY: And in making that recommendation, is it being assumed that the reserves of the deeper horizons will approximate the already developed reserves per acre?

BY MR. KRAUS: I wish I knew, Mr. Gray. That is why I insisted on saying I would like to leave that matter for the individual fields. Certainly the reserves in one formation will be different than in another, and they might even differ in the same formation in different fields, depending on thickness,

permeability, etc.

BY MR. DEWEY: Mr. Kraus, in your mind, wouldn't it be preferable to establish wide spacing as soon as possible in a newly discovered pool, with the thought in mind that,when the characteristics of the pool become established, it is much easier to go back and develop the density of the wells, at that time based on good information, than to try to be able to use unnecessary wells that might be drilled on too close spacing in the early life of the pool?

BY MR. KRAUS: I think you have answered your own question. I don't think there is any question but that the first well, and even subsequent wells, in a pool should be drilled in such a way that the spacing pattern should not be frozen either too large or too small. Further answering you, I might say that the proper spacing for the first well should be in the center of the 160 acres.

BY MR. DEWEY: No, I would rather keep in the center of the 40 acres.

BY MR. KRAUS: You might do that by drilling four wells.

BY MR. DEWEY: My thought was that in deeper wells with 160 acres spacing to first drill in the center of some 40, and in time it would be possible to come back and drill fields witha density of two wells to the 160 acres, and still keep the 40 acre pattern by using alternate acres.

BY MR. KRAUS: Would we object to that proceeding if we know there would be a determination of the spacing pattern soon after discovery? Otherwise we might have 40 acre spacing forced upon us by drilling offsets, and all operators in the field and the Commission would prefer to see 160 acre spacing.

BY MR. LIVERMORE: The purpose of that has been to encourage wildcatting in New Mexico, and in New Mexico we have lots of 40 acre units. We have so far talked about the idea of spacing for drilling purposes, and with little or no consideration of the economic interest that might be under these units, and personally, don't you think that without the establishment of wildcat units, in which the economic interests of all parties

are taken care of, will retard wildcatting in New Mexico, or even deep developments. Personally, I have quite a few 40 acre tracts, and if we go into 160 acre spacing, in some instances the whole 160 acres are owned by one party, and unless the interests of everyone in these units are taken care of by some program of the Commission, that is going to retard wildcatting.

BY MR. KRAUS: I don't believe it would retard wildcatting, it might retard development after the discovery had been made.

BY MR. LIVERMORE: If the State goes on to a program, which apparently it is going to have to do, if you don't take care of that economic interest at the time, when are you going to? That should be taken care of beforehand, because if you don't, you are going to end up with 40 acre units, and the whole program will be broken up. I think what we are very much interested in is under the conditions right now, where the Federal Government is telling you what you can do.

BY GOVERNOR DEMPSEY: But the State is not doing it, and is not going to do it. I think, so far as wildcatting is concerned, we needn't worry about that. There is not going to be wildcatting until oil gets to the price that would encourage it.

BY MR. LIVERMORE: I think if you go into some kind of a program like this, the power to regulate unites, you would also have to take into consideration the Federal regulations. Incidentally, on this particular well we asked no assistance for Government materials, except from the small drilling contractor's standpoint, bits, etc. The Company does the drilling and furnishes all the pipe, tubing, casing, and we asked no assistance. Yet when the well was 6000 feet deep they put out an order and made it retroactive, and that well today is setting there, a 9100 foot well, with no allowable because the Federal Government said we couldn't produce. In the State of Texas, in an area which they had already given them a unit. I think you should consider the economic interests of everybody under a

unit. If I buy from Mr. Rodgers 40 acres, and somebody owns the other 120 acres in that 160 acre unit, I think I have an interest in that 160 acres, even if I am only drilling 40 acres. I think New Mexico should protect the 40 acre units,they sold it that way. I think all of those interests should be taken care of in a program like this, every economic interest should be taken care of along with the rest of it.

BY MR. KEMLER: I was just wondering if there couldn't be some solution of the problem--both you and Mr. Fitting mentioned the difference in depth, but skipping from 1000 to 2000 feet. Couldn't you and Gray, or a couple of engineers, sit down and draw a curve where every well at its respective depth would have its respective amount, equitable and fair to everyone? Then you wouldn't need to hold a hearing every time they discovered a new field and a deeper well.

BY MR. KRAUS: There would be no objection to that, except it might complicate things for the proration office. Whereas, a table once prepared, even at 100 foot intervals, might be more applicable.

BY MR. KEMLER: I really think probably when you skip only 50 feet it would bring about some inequities.

BY MR. KRAUS: I wasn't sent up here as an expert on that. I am just answering your questions the best I can.

BY MR. KEMLER: I am going also to ask you whether perhaps we are not getting too technical about this spacing thing. I agree every well perhaps has different producing characteristics. There are many factors that can't be determined until the well is drilled, but we are trying to get the ball rolling, and therefore just looking at it from a practical standpoint, and recognizing there is a scarcity of materials, there is a war on, and a great man shortage, what we want to do is outline a plan. Couldn't we show Mr. Dewey, or suggest, a spacing plan that would permit lower density if it appeared both

economically and technically proper?

BY MR. KRAUS: I would like to divide your question into two parts. I agree with you that at the moment we are in an emergency, and I am prayerfully hopeful that the war won't last forever, and what we are doing here now and for the next few months will be useful to the state, even after the emergency passes, as far as this allocation is concerned. If you look at it that way, I think we should be rather slow and careful in making decisions. We will have more man power, more materials, at a later time than we do now.

BY MR. KEMLER: And higher prices?

BY MR. KRAUS: Yes, and I agree with you that the larger drilling proration unit is desirable, if it can be worked out. It is a temporary experiment, which will be corrected after we get the necessary information. When we get a new field or producer, I think you know already I will be aligned on the side of those who want to space as wide as possible. I cannot but feel that spacing is relatively important, that the total pool characteristics are important, but the industry should be cautious that the spacing is meeting economic loss, and how far a well will drill in that formation, and I would hate to advise spacing in trying to get a system of allocation.

(Witness excused)

ELLIOTT PETERSON

being called as a witness, and being first duly sworn, was examined by Mr. J. O. Seth, and testified as follows:

BY MR. SETH: By whom are you employed?

BY MR. PETERSON: By the Stanolind Oil and Gas Company.

BY MR. SETH: In what capacity?

BY MR. PETERSON: Division Engineer.

BY MR. SETH: State briefly your training.

BY MR. PETERSON: I finished Texas A. & M. College in 1936, with a B. S. Degree in Petroleum Engineering. I have been with

Stanolind seven years in various engineering capacities. At the present time I am employed at the Fort Worth Division, which operates the New Mexico properties.

BY MR. SETH: Have you prepared a statement on this matter?

BY MR. PETERSON: Yes sir.

BY MR. SETH: Please read it to the Commission.

BY MR. PETERSON: (Reading) 1. Stanolind would favor a plan whereby the allowable for wells at depths below the present producing horizons would be proportional to depth and/or cost of development. Deeper weels in Southeastern New Mexico will cost amounts greatly exceeding the cost of present wells and up to $250,000.00 or more. This depends upon the nature of the geological formations to be drilled. The expense of drilling and completing wells in the lower formations increases in a greater proportion than the depth due to the harder formations to be penetrated, greater mechanical difficulties, and increased hazards. For instance, we would favor an allowable based on a sliding scale whereby a 10,000' producer would realize an allowable of approximately four times that of a 5,000' producer, and with wells in between these depths receiving allowables commensurate with their respective depths.

We feel that the increased allowables for deeper development are necessary to stimulate and encourage such development and to increase the known reserves for the State. Encouraging deeper productions prevents waste since the deeper reserves would likely not be developed otherwise. An extension into New Mexico of the present drilling campaign in West Texas Ordovician production should be encouraged.

2. Regarding the establishment of a definite size of drilling unit for deeper production, it is difficult to assign a certain number of acres to each well prior to the accumulation of pertinent subsurface data. However, Stanolind favors a relatively wider spacing of wells. For Ordovician production, we favor 160 acre drilling units. With this size of units,

the productive limits of the field and general characteristics of the reservoir rock--such as permeability, porosity, fluid content, and type of reservoir energy or control-- can be determined with a minimum number of wells. If these facts indicate the need for a closer spacing pattern to insure maximum ultimate recovery from the pool, more wells may be drilled at a later date on fractional parts of the basic 160 acre units.

The Commission should require the drilling of each well on the 160 acre unit in the center of some 40 acre tract. This would preclude the establishment of a non-uniform spacing pattern for later drilling.

BY MR. LIVERMORE: As an independent operator in the State of New Mexico, I would advise you to be careful about your wording, so they could not force you into compulsory unitization. They tried it in Texas, but were unable to get it through the Legislature there. I don't think the independent operators in New Mexico, or elsewhere, want compulsory unitization.

(Witness excused).

A. E. WILLIG

being called as a witness, and being first duly sworn, testified as follows:

BY MR. WILLIG: The Texas Company is in agreement concerning the cost of drilling deeper wells with the other witnesses that have testified before the Commission. That apparently is about the only thing we know about the proposition of deeper production in New Mexico, at the present time. If the costs, as stated by Mr. Fitting are approximately in line with the figures he gave, that at least for the discovery allowable three chief brackets could be used. That is, the present allowable down to 6000 feet, and a slightly higher allowable from 6000 to 8000 feet, and the top or highest allowable for wells below 8000 feet. When consideration is given to spacing

I think, at the present time, the most important thing, as these other parties have brought out, is that a spacing pattern ought to be selected that is uniform, or can be made uniform when information develops later on about the characteristics of the pool. One suggestion which would result in uniform spacing would be to space wells not closer than 555 feet from 40 acre unit lines, and not nearer than 1700 feet together, with a minimum of 1700 feet apart. That is, assuming the eventual use of an 80 acre unit. Now in looking the situation over, we feel that complaints, such as Mr. Livermore has brought up, will arise in using a 160 acre unit. However the occasions that will arise by using an 80 acre unit will be less than one-third, probably, than if you use the 160 acre unit. It appears now, if comparable reserves in the deeper production are found to that in Texas, that it will probably be economical to drill one well to the 80 acres to the deeper pays. In maintaining a uniform pattern on such a unit, the wells would have to be spaced at diagonal forms over the 160 acre units, and in order to overcome certain cases where unitization is found to be impossible the operator could drill a well on 40 acres, but his allowable should be in proportion to the square of the acreage, rather than direct proportion to the acreage. That would not deny the operator the right to drill a well on which he could make a profit.

(Witness excused)

BY GOVERNOR DEMPSEY: The Commission willtake the matter under advisement.

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CERTIFICATE.

I hereby certify that the foregoing and attached sixteen and a fraction pages of typewritten matter constitute a true, correct and complete transcript of the shorthand notes taken by me in Case No. 47, on the 3rd day of August, 1943, and by me extended into typewriting; that the original of the statement read by the witness Peterson, is attached to the original of this transcript.

Witness my hand this 10th day of August, 1943.

Alice Stewart

Alice Stewart.