

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico

"Notice of Publication
State of New Mexico
Oil Conservation Commission

"The Oil Conservation Commission, as provided by law, hereby gives notice of the following hearings to be held at Santa Fe, New Mexico, at 10:00 A. M., April 15, 1947:

CASE NO. 95

In the matter of the application of V. S. Welch for an order granting an unorthodox well location in the NE NE Section 36, Township 16 South, Range 30 East, N.M.P.M. Eddy County, New Mexico and to be located 990 feet South of the North line and 1300 feet West of the East line of said Section 36.

CASE NO. 96

In the matter of the application of the Scheurich Unit for such orders as may be necessary to accomplish the following:

Approval of an operating agreement embracing $S\frac{1}{2}$ of $NW\frac{1}{4}$ and $N\frac{1}{2}$ of $SW\frac{1}{4}$ of Section 32, Township 17 South, Range 30 East, N.M.P.M. containing 160 acres, more or less, Eddy County, New Mexico; amendment of the Loco Hills Pressure Maintenance Order No. 562 in so far as the same applies to said 160-acre tract; the grant of an exception to existing spacing rule so as to permit the location of a well 2310 feet from the North Line and 1260 feet from the West line of said Section 32, and being within the $SW\frac{1}{4}$ of the $NW\frac{1}{4}$ of said section; and the grant of permission to transfer the allowable of Aston and Fair-Scheurich-State No. 4, an input well, upon NE SW of said sections, to one or more other wells or forty-acre proration units within said 160 acre tract.

CASE NO. 97

In the matter of the application of the Oil Conservation Commission upon its own motion for an order regarding tank batteries for separate pools and whether one tank battery shall serve one pool only or whether the separate tank batteries shall be employed for separate pools.

CASE NO. 98

In the matter of the application of the Oil Conservation Commission for an order governing gas-oil ratios for Lea, Eddy, and Chavez counties, New Mexico.

"Given under the seal of said Commission at Santa Fe, New Mexico on March 24th, 1947.

OIL CONSERVATION COMMISSION

By: /s/ R. E. SPURRIER, Secretary

S E A L"

R E G I S T E R

<u>NAME</u>	<u>COMPANY</u>	<u>ADDRESS</u>
Russell Glowe	Gulf Oil Corporation	Tulsa, Oklahoma
Paxton Howard	Shell Oil Company	Midland, Texas
C. W. Faris	Shell Oil Company	Midland, Texas
Lloyd L. Gray	Gulf Oil Corporation	Tulsa, Oklahoma
W. E. Hubbard	Humble Oil Company	Houston, Texas
H. D. Pressler	Humble Oil Company	Houston, Texas

R E G I S T E R (cont'd)

<u>NAME</u>	<u>COMPANY</u>	<u>ADDRESS</u>
J. W. House	Humble Oil Company	Midland, Texas
R. S. Dewey	Humble Oil Company	Midland, Texas
Eugene Harford	Gulf Oil Corporation	Tulsa, Oklahoma
V. S. Welch	Gulf Oil Corporation	Artesia, N. M.
Neil B. Watson	Attorney	Artesia, N. M.
Emery Carper	Carper Drilling Company	Artesia, N. M.
Elmer Patman	Superior Oil Company	Houston, Texas
W. R. Bollinger	Shell Oil Company	Hobbs, New Mexico
John M. Kelly	Independent	Roswell, New Mexico
Harry J. Gibbons	Skelly Oil Company	Tulsa, Oklahoma
J. N. Dunlavey	Skelly Oil Company	Hobbs, New Mexico
G. W. Selinger	Skelly Oil Company	Tulsa, Oklahoma
Chuck Aston	Consultant - Aston & Fair	Artesia, New Mexico
Donald S. Bush	Lawyer	Artesia, New Mexico
Bert Aston	Aston & Fair	Roswell, New Mexico
M. V. Rouskoup	Grayburg Oil Company	Artesia, New Mexico
R. F. Miller	Grayburg Oil Company	Artesia, New Mexico
R. J. Heard	Grayburg Oil Company	Artesia, New Mexico
W. B. Macey	N. M. Oil Conservation Commission	Artesia, New Mexico
H. C. Laird	Otis Engineering Corporation	Dallas, Texas
Paul C. Evans	Gulf Oil Corporation	Hobbs, New Mexico
E. J. Gallagher	Gulf Oil Corporation	Hobbs, New Mexico
J. C. Lowe	Amerada Petroleum Company	Ft. Worth, Texas
W. G. Ricketts	Amerada Petroleum Company	Tulsa, Oklahoma
G. H. Gray	Repollo Oil Company	Midland, Texas
W. N. Little	Tidewater Association	Midland, Texas
D. R. McKeithan	Phillips Petroleum Company	Barbersville, Okla.
E. H. Foster	Phillips Petroleum Company	Amarillo, Texas
Burney Braly	Continental Oil Company	Ft. Worth, Texas
C. B. Wentz	Continental Oil Company	Ponca City, Okla.
Edgar Kraus	Atlantic Refining Company	Dallas, Texas
A. B. Tanco	Atlantic Refining Company	Dallas, Texas
S. B. Christy Jr.	Sun Oil Company	Roswell, N. M.
D. A. Powell	Drilling & Exploration Co.	Hobbs, N. M.
H. F. Beardmore	Barnsdall Oil Company	Tulsa, Oklahoma
T. E. Heath	Sun Oil Company	Dallas, Texas
Martin A. Row	Sun Oil Company	Dallas, Texas
J. E. Regent	Sun Oil Company	Midland, Texas
D. A. Miller	Phillips Petroleum Company	Midland, Texas
H. B. Hurley	Continental Oil Company	Ft. Worth, Texas
A. L. Decker	Continental Oil Company	Ft. Worth, Texas
H. M. Dubrow	Continental Oil Company	Ft. Worth, Texas
Claig H. Perry	Warren Petroleum Company	Tulsa, Oklahoma
R. E. McMillan	Ohio Oil Company	Midland, Texas
N. R. Lamb	N. M. Bureau of Mines & Mineral Research	Artesia, New Mexico
Roy T. Durst	Rowan Drilling Company	Midland, Texas
C. B. Williams	Texas Company	Ft. Worth, Texas
A. E. Willig	Texas Company	Ft. Worth, Texas
H. D. Murray	Texas Company	Midland, Texas
R. G. Schuehle	Texas Pacific Coal & Oil Co.	Midland, Texas
D. S. Googins	Standard of Texas	Midland, Texas
J. E. Wooton	Stanolind Oil & Gas Company	Ft. Worth, Texas
N. H. Card	Stanolind Oil & Gas Company	Ft. Worth, Texas
Lewis Finch, Jr.	Stanolind Oil & Gas Company	Ft. Worth, Texas
J. O. Seth	Stanolind Oil & Gas Company	Santa Fe, N. M.
Ralph L. Gray	Stanolind Oil & Gas Company	Hobbs, New Mexico
Glenn Staley	Lea County Operators	Hobbs, New Mexico
Arch L. Rowan	Rowan Drilling Company	Ft. Worth, Texas
R. W. Tesch	T. P. Coal & Oil Company	Hobbs, New Mexico
Henry Forbes	Continental Oil Company	Hobbs, New Mexico
S. N. McCollum	Continental Oil Company	Hobbs, New Mexico
Foster Morrell	U. S. Geological Survey	Roswell, New Mexico

D I R E C T E X A M I N A T I O N

MEETING was called to order by Commissioner John E. Miles, and he requested that everyone stand in a moment of silence to the memory of the late Carl B. Livingston, who recently passed away.

Docket read by Mr. George Graham, Attorney.

BY MR. NEIL B. WATSON:

We would like to file with the Commission a consent of John Kelly, the operator of the adjoining 40 acre lease to the south, previously filed with the Commission - the consent of the Carper Drilling Company on the adjoining 40 acres.

(After being duly sworn, the witnesses testified as follows)

EXAMINATION OF MR. V. S. WELCH

Mr. WATSON:

You are V. S. Welch, the Petitioner in this case?

MR. WELCH:

Yes, sir.

MR. WATSON:

You are the owner of an 80 acre state lease, No. B-2884, covering the N/2 N/2 of Section 36?

MR. WELCH:

Yes, sir.

MR. WATSON:

The two 40 acres included in the same state lease?

MR. WELCH:

Yes, sir.

MR. WATSON:

And the same institutional funds?

MR. WELCH:

Yes, sir.

MR. WATSON:

You have how many wells on that?

MR. WELCH:

Two wells.

MR. WATSON:

Where are those wells located?

MR. WELCH:

In the center of each 40 acres.

MR. WATSON:

I hand you Petitioner's Exhibit No. 1 - what does that represent?

MR. WELCH:

Represents the production from the two wells on the 80 acres from the time the first wells were drilled up until and including March 1947.

MR. WATSON:

When did the Exhibit start?

MR. WELCH:

January 1942.

MR. WATSON:

What is the present production from the Lea?

MR. WELCH:

Is about - around 400 barrels.

MR. WATSON:

Where is it you propose drilling this additional well?

MR. WELCH:

330 feet north of the south line of the 80 and 1300 feet west of the east line.

MR. WATSON:

Will that well be any closer than 330 feet from the exterior boundaries of your lease?

MR. WELCH:

No, sir.

MR. WATSON:

What reasons do you have to give the Commission?

MR. WELCH:

I don't think one well in 40 acres is giving full recovery, and I am curious to know whether it is or not. The only way to determine it is to drill an additional well.

COMMISSIONER MILES:

What is the production in 1942?

MR. WELCH:

The production from the first well drilled in January 1942, the first and second well in October 1942, production was 15,204 barrels. In 1943 28,112 barrels. In 1944 31,432 barrels. In 1945 12,486 barrels. In 1946 7,166 barrels.

MR. WATSON:

Your present production is considerably lower than the allowable?

MR. WELCH:

Yes, sir.

COMMISSIONER MILES:

Do I understand this production is from just one well?

MR. WELCH:

Two wells.

COMMISSIONER MILES:

That included from the two wells.

MR. WELCH:

Both go into the same battery tank.

COMMISSIONER MILES:

Been two wells all the time?

MR. WELCH:

Yes, sir.

COMMISSIONER MILES:

Exhibit No. 1, has been filed.

MR. SPURRIER:

Who owns the acreage west of you Mr. Welch?

MR. WELCH:

I do.

MR. SPURRIER:

Who owns the acreage just west of this proposed well?

MR. WELCH:

I do.

MR. SPURRIER:

You do?

MR. WELCH:

Yes.

MR. WATSON:

Your well will be on the south side of the 80 acre tract?

MR. WELCH:

Yes, sir.

MR. WATSON:

And you have the consent of the owners of the leases adjoining you to the south?

MR. WELCH:

Yes, sir.

COMMISSIONER MILES:

Are they filed?

MR. WATSON:

Yes, they are filed with the Commission.

EXAMINATION OF MR. EMERY CARPER

MR. WATSON:

State your name.

MR. CARPER:

Emery Carper.

MR. WATSON:

Mr. Carper, you have heard Mr. Welch testify?

MR. CARPER:

Yes, sir.

MR. WATSON:

Is the Carper Drilling Company interested in the lease adjoining this same acreage?

MR. CARPER:

We own one-half interest, and we are the operators.

MR. WATSON:

What is the description of your lease?

MR. CARPER:

I don't believe I could give that without a map.

MR. WATSON:

Is the lease in the SW/4 of NE/4 of Section 36?

MR. CARPER:

I believe that is right - joining the Welch property on the south.

MR. WATSON:

Is it your desire this well be drilled for information purpose and to determine whether or not this well in the center of the 40 will obtain all the recovery remaining?

MR. CARPER:

Yes, we have given our consent in writing.

MR. WATSON:

How long have you been in the oil business?

MR. CARPER:

About 23 years.

MR. WATSON:

You are interested in other fields?

MR. CARPER:

Yes, I have interests in most of the major pools in Eddy and some in Lea County.

MR. WATSON:

Have there been any recent developments in fields in which you are interested which would indicate one well in 40 acres is not sufficient to adequate drilling?

MR. CARPER:

We have done some drilling recently and find these wells have been approximately as good as the original wells where our production is now - they are approximately what the original pressure was.

MR. WATSON:

The wells drilled in the Maljamar - where are they located?

MR. CARPER:

In the middle of 160 acres. The four wells around those wells - it would be $\frac{1}{2}$ of $\frac{1}{4}$ plus the diagonal distance.

MR. WATSON:

The input wells would be approximately the same situation as this well Mr. Welch has proposed drilling?

MR. CARPER:

Approximately, they are on the line and 330 feet north of the line.

MR. WATSON:

Does the Commission have any questions?

(No questions)

Then I have some additional evidence, but I realize the Commission has a lot of work. Unless they particularly desire to hear from some other witnesses, I will close my case at this time.

COMMISSIONER MILES:

In the additional drilling of these wells, is that additional allowable?

MR. WATSON:

No, sir. The 40 acre unit allowable would remain the same.

MR. SPURRIER:

Mr. Watson, You have some facts and figures on paper, would you like to introduce them.

MR. WATSON:

I have no more than this production in Exhibit #1.

COMMISSIONER MILES:

Anyone else want to testify, ask questions or make a statement?

(No Response)

If not, the Commission will take the case under advisement.

CASE NO. 96

BY MR. DONALD S. BUSH - Artesia, New Mexico:

This petition involves 160 acres of land in the N/2 of the SW/4 and S/2 NW/4 of Section 32, Township 17S, and Range 30E, in Eddy County. The petition requests three things. This acreage was originally one basic state lease, it was also one institutional lease. It is joined in by the Loco Hills Pressure Maintenance Association.

The first thing the petition asks for is an allocation of Order No. 562. Prior to that Order, which was effective April 1, 1944; Paragraph 3 of Order #339 was in effect, which allowed a transfer of allowable to one of the wells on the same lease to compensate owners of ensuing wells for their loss of production. The Order #562, as I understand it, was made of record

with the understanding that the Loco Pressure Maintenance Association would pay the owners of the input wells 60% of their loss production because the well was taken over as an ensuing well. The Aston and Fair-Scheurich #4 well is an input well, and the result that the owners of that well are now without compensation for the loss of that production because Pressure Maintenance has stopped paying the 60% of that loss allowable. In order to compensate them for that loss allowable it is the desire of the Petitioner to drill this well on the unorthodox location as set out in the petition, so that the production from that unorthodox location can be transferred to the production that would have been obtained from this input well. In order to handle the mechanics of the thing, the petition also requests that there be approved a unit operating agreement so that the production could be divided between the owners of the four 40 acre tracts within this unit.

A map has been prepared which shows all these facts and circumstances, and I would like to present Mr. Chuck Aston as a witness in this case.

EXAMINATION OF MR CHUCK ASTON

(After being duly sworn, Mr. Chuck Aston testified as follows)

MR. BUSH:

State your name please.

MR. ASTON:

Chuck Aston.

MR. BUSH:

What is your occupation?

MR. ASTON:

Consulting Geologist - Artesia, New Mexico.

MR. BUSH:

Have you been qualified as an expert witness before this Commission?

MR. ASTON:

Yes, sir.

MR. BUSH:

Does the Commission desire for me to qualify Mr. Aston?

MR. SPURRIER:

No.

MR. BUSH:

Mr. Aston, I would like to ask you to state to the Commission the reason why you desire this unorthodox location as requested.

MR. ASTON:

To obtain more adequate drainage of this 160 acre tract, as well as to do away with an inequity to the operators of the Aston Fair-Scheurich #4.

MR. BUSH:

Why did you decide on this particular location as requested here as shown on this map?

MR. ASTON:

The reason for that location - the location of the two or three dry holes and one plugged producer of the 80 acres owned by the Scheurich group - any well drilled within this 80 acres would be possibly an exception with the well and also a possibility of a channel of the gas. This location was picked attempting to set it in so far as possible as to furnish maximum ultimate recovery of oil, and will serve to compensate the owners of said Scheurich State #4 well for their lost production. This will produce from another sand entirely than the other wells, it produces from sand more productive than any surrounding wells. The possibility of producing within the unit would be definitely limited in that location - therefore, the location approximately as equally between the two wells as possible.

MR. BUSH:

Would you be able - in your opinion - that this location will tend to conserve oil by obtaining an increase in production?

MR. ASTON:

Yes, sir.

MR. BUSH:

Any of the other operators of the four 40 acre tracts have any objection to this proposed plan?

MR. ASTON:

No, sir. They are co-signers to the petition and unit agreement.

MR. BUSH:

Does the Commission desire to question the witness?

(No questions)

COMMISSIONER MILES:

I don't understand what the case is about in the discussion.

Would you make a statement to the crowd?

MR. BUSH:

This is a petition to accomplish three things:

1. It is desired to correct what is a basic inequity in Loco Hills' four 40 acre units - producing wells on three units within the 160 acres. Under a previous Order of the Commission, before April 1, 1944, the Commission allowed a transfer of allowable from one well on a 40 acre unit that was taken over as an input well, to another well on the same lease. April 1, 1944, that Order was changed and no longer allowed by the Commission. With the understanding the Loco Hills Pressure Maintenance Association would pay 60%. As a result there has been no payment or compensation to the well taken over as an input well, there is an inequity existing as to the owners of the input well. To cure that inequity it is desired to drill another well so that it will make production for the owner of that 40 acre unit in lieu of the input well. If that particular well is located on the same 40 acres it would do one of two things - if it went to the south or if it went to the north it would be too close to the input well, and would only waste the casing put into it. Consequently, there is a request for an unorthodox location in the 40 acres immediately north of this input well. All the owners of the 40 acre units have agreed. If the unorthodox location is allowed and a well is

drilled, it is the desire of the four 40 acre units to operate it as a unit.

COMMISSIONER MILES:

Anybody have any question or statement?

MR. STALEY:

Yes - the change in allocation to this well to the other wells on the same basic lease - the production that belongs to the input well was done at the request of the Loco Hill Association or was changed by the Commission of its own volition?

MR. BUSH:

I believe it was changed at the request of the Loco Hills.

MR. ASTON:

Yes, sir, it was.

COMMISSIONER MILES:

Anybody else have a question or statement?

(No Response)

The case will be taken under advisement.

CASE NO. 97

BY MR. BURNEY BRALY (Continental Oil Company)

I represent the Continental Oil Company and the federal unit group of operators. I just have to offer for consideration by the Commission a proposed rule to effectuate the proposal stated, and it is just for your consideration. A number of operators have agreed to it.

In the absence of any specific rule proposed in this notice sent out, they were interested in the question and wanted to offer this for the consideration of the Commission:

"Mr. R. R. Spurrier
New Mexico Oil Conservation Commission
P. O. Box 871
Santa Fe, New Mexico

Dear Mr. Spurrier:

"Reference is made to the notice issued by the Oil Conservation Commission of hearings to be held at Santa Fe, New Mexico, at 10:00 a.m., April 15, 1947, and in particular to Case No. 97, in the matter of the application of the Oil Conservation Commission upon its own motion for an order regarding tank batteries for separate pools and whether one tank battery shall serve one pool only or whether separate tank batteries shall be employed for separate pools.

"In Order No. 633, Case No. 70 of the Oil Conservation Commission of the State of New Mexico, approved January 15, 1946, defining oil and gas pools in Lea, Eddy and Chaves Counties, New Mexico, effective as of January 1, 1946, under section 6 it is provided that 'each pool shall be produced as a single common reservoir and wells shall be completed, cased, and maintained to that end'. The operation of a pool as a single common reservoir would seem to imply without question that the oil produced from each pool must be physically separated for measurement and sale.

"On March 7, 1946, I issued an order to oil and gas lessees and operators on public land of the United States in Lea, Eddy and Chaves Counties, New Mexico, requiring that production must be physically separated, measured and sold from separate tanks designated for receiving oil produced from specific wells from the separate pools. It was provided that the separate tanks so designated may be located with other tanks in a single tank battery, but no connection shall be made between tanks for oil from different pools. Separate oil and gas separators, gun-barrels, manifolds or common metering devices shall be used for tanks receiving oil from different pools. The co-mingling of oil in the same tanks or intermediate connections between wellheads and tanks and estimating production from the different pools is prohibited.

"As stated in my order of March 7, 1946, the physical separation of oil from different pools is considered necessary and desirable among other reasons to obtain proper adequate records for the determination of oil recoveries from separate common reservoirs and for engineering studies, to obtain benefits of increased allowables under orders of the Oil Conservation Commission for pools producing below 5,000 feet, to avoid conflict with the Connally Act, and to provide records and means for obtaining any premiums or differentials in price that might result from such physical separation of the oil.

"By letter of March 13, 1946, to our office at Roswell you appear to have fully concurred in the position taken by the Roswell office of the Geological Survey with respect to Federal lands by stating that order No. 633 is interpreted by your office to require separation of oil produced from separate pools whether these pools be separated by 1,000 feet vertically or 100 miles horizontally, that it is not your purpose however to specifically designate how the separation will be accomplished and that it will be suggested to operators on state and patented land that separation should be accomplished in separate tanks for the following reasons:

- (1) To protect the operator from suspicion or prosecution under the Connally Act.
- (2) To provide accurate production records for each pool concerned.
- (3) To realize the maximum price (if any differential) from the higher gravity oils.

"You further stated that if the pools which overlies one another and are separated by feet, were separated by miles horizontally, the pool or lease would of necessity require a separate battery of tanks, however, if the operator can save the expense of complete tank batteries and use only separate tanks, it would seem advisable.

"Restatement of the same interpretation is contained in your letter of July 22, 1946, to Mr. George Selinger, Skelly Oil Company, Tulsa, Oklahoma. However, by letter of November 15, 1946, to Mr. Glenn Staley you stated that all operators may make use of common tank batteries as they see fit until a hearing may be called to promulgate a suitable order with reference to the separation of oil produced from separate pools and/or leases, provided that the reporting of production from all pools be kept separate; that is separate C-115s shall be used in reporting the production of oil and gas from all pools. Case 97 to be heard April 15 apparently is intended to provide information and data essential to the issuance of such suitable order.

"The necessity and justification for the physical separation in separate tanks of oil produced from separate pools as expressed by both your office and the Roswell office of the Geological Survey appear self-explanatory and seemingly need no additional comment except for the fact that one or two operators have raised the question as to why separate tankage is necessary, and objected solely on the basis of the economics involved in the relatively small expense involved in the additional tankage.

"The majority of operators and this office are firmly convinced that accurate records of production from separate pools must be obtained in order to permit proper evaluation and engineering studies for both primary and secondary phases of production. It is a well recognized fact that the present records now maintained by the Oil Conservation Commission of withdrawals from individual wells in any single pool where oil is co-mingled in the same tank and the oil actually withdrawn from each well can only be estimated, are meaningless so far as study of individual well performance is concerned. The record of crude oil withdrawals as contained in the proration schedules of the Oil Conservation Commission and in the Lea County Operators Engineering reports can be used only for a lease or area study. It would be most undesirable and unfortunate if the records of crude oil withdrawals as between separate pools or common reservoirs should be allowed to be confused in like manner. Any exception granted that would allow co-mingling of oil from separate pools into a single tank, regardless of measuring or metering devices, could only result in confusion of essential records. Supervisory forces of both the State and Federal governments are insufficient to adequately police any system of measuring or metering co-mingled oil from separate pools and subterfuge could easily result in the serious detriment of all other parties involved.

"What is need to record properly and accurately the production of crude oil from individual wells is separate tankage for each well. This may be considered uneconomic under existing conditions in the industry. The nearest approach to this ultimate of recording well productivity is a periodic test into a separate tank of each individual well normally connected to two or more wells.

"It is suggested that consideration be given by the Commission to the issuance of an order requiring a 24 hour test of each individual oil well in Lea, Eddy and Chaves Counties, not less often than three months periods, to determine and record a daily capacity at least equal to the current top unit oil allowable and if the daily capacity is less than such top unit allowable, to determine and record the actual productivity of each oil well.

"These data are essential for efficient operation of leases and for proper remedial work. Uniform application of the principle of individual well tests should result in reducing present oil 'underages' on the proration schedule sufficient to increase the current top well allowable for the benefit of wells where the additional production would not adversely affect reservoir conditions.

"Effective January 9, 1947, several purchasers of crude oil in Lea County posted price schedules for segregated oil produced from the Blinbry, Drinkard and Brunson pools amounting to six cents per barrel in excess of the price posted for oil of equal gravity from other pools in Lea County. In announcing the new price schedules for the high quality, high gravity crude oil from these three pools it was stated by the purchasing companies that pipeline facilities had been made for segregation of these premium oils in delivery to refineries.

"It appears unquestionable that the premium differential obtained for oil produced from these three pools could have been obtained only by reason of prior physical separation of the oil withdrawn from these pools in separate tanks for measurement and sale. The desirability for continuation of physical separation of oil from these pools by use of separate tanks is obvious. It is not unreasonable to assume that other premium prices might later be established for other pools producing premium quality oil where such oils are physically separated by separate tanks.

"Furthermore, we have under consideration at this time the question of computing royalties on crude oil from Federal Oil and gas leases on the basis of the number of producing wells from each separate pool where the royalty rate is based on the average daily production per day. This becomes necessary because of the wide difference in rates of production between the wells approaching the stripper stage in the upper Permian pools and the flush, high allowable wells in the new deeper pools. Physical separation of the oil from each pool is essential under such procedure as to Federal leases.

"The benefits to be obtained thereby far exceed the slight additional inconvenience or cost of physically separating oil from separate pools in separate tanks, and it is recommended that the Oil Conservation Commission issue such order or interpretation as may be necessary to re-state the principal of use of separate tanks for use of oil produced from the separate pools as originally provided under section 6 of order No. 633.

"It is further requested that this letter be read at the hearing and entered in the minutes of such hearing at Santa Fe on April 15, 1947.

Very truly yours,

COPY(Original Signed) Foster Morrell

FOSTER MORRELL,
Supervisor, Oil and Gas Operations."

COMMISSIONER MILES:

We would be glad to have this discussed.

Anyone else have a statement or suggestion?

(No Response)

The matter will be taken under consideration.

CASE NO. 98

COMMISSIONER MILES:

Anybody who wants to discuss the matter or present evidence please come forward.

MR. R. S. CHRISTIE (Amerado Petroleum Company)

We have worked up some information on gas-oil ratios in the monument field, and would like to present some evidence on that question.

EXAMINATION OF MR. W. T. JORDAN

(After being duly sworn, Mr. Jordan testified as follows)

MR. CHRISTIE:

State your name.

MR. JORDAN:

W. T. Jordan.

MR. CHRISTIE:

By whom are you employed?

MR. JORDAN:

Amerado Petroleum Corporation.

MR. CHRISTIE:

In what capacity?

MR. JORDAN:

Petroleum Engineer.

MR. CHRISTIE:

Does the Commission require any qualifications?

MR. SPURRIER: Have you appeared before
the Commission Mr. Jordan?

MR. JORDAN:

No, sir.

MR. SPURRIER:

I think you should qualify him a little
more.

MR. CHRISTIE:

State where you attended the university.

MR. JORDAN:

University of Oklahoma.

MR. CHRISTIE:

When did you graduate?

MR. JORDAN:

In 1939.

MR. CHRISTIE:

What degree?

MR. JORDAN:

B.S. degree in Petroleum Engineering, and production engineering.

MR. CHRISTIE:

What practical experience have you had?

MR. JORDAN:

Approximately 12 years in the field in production engineering and
completion reservoir analysis.

MR. CHRISTIE:

Mr. Jordan, are you acquainted with the Monument pool?

MR. JORDAN:

Yes, sir.

MR. CHRISTIE:

You recently made a study of the gas-oil ratio situation in this field?

MR. JORDAN:

Yes, sir.

MR. CHRISTIE:

Could you tell the Commission the present weighted gas-oil ratio under
the present limiting ratio?

MR. JORDAN:

The present weighted gas in the Monument pool is 2166.

MR. CHRISTIE:

How did you arrive at that figure?

MR. JORDAN:

This figure is taken from the C-116 Annual Reports on gas-oil ration individual well tests, times each unit's allowable oil production. It embraces all the wells carried on the monthly production rate schedule.

MR. CHRISTIE:

Have you arrived at another gas-oil ratio figure for that field?

MR. JORDAN:

Yes, sir. I have a weighted gas-oil ratio of 2581. This figure is based on reports from the major operators of the pool on approximately 90% of the wells and pools. The reported sanded gas figures and gasoline plant sales from the metered records, and those wells weren't reported by the operators. The gasoline figures, I obtained by going to the plant and where they were not connected used calculated gas production from each individual well's annual test ratio - the individual one.

MR. CHRISTIE:

Is it your opinion this last ratio you gave is a more accurate reflection on the gas-oil ratio field?

MR. JORDAN:

Yes, sir. It is.

MR. CHRISTIE:

What is the weighted average gas-oil ratio based on the formula used - 2,000 cu. ft. per barrel?

MR. JORDAN:

1448.

MR. CHRISTIE:

Have you estimated what would be the average weighted gas-oil ratio if the limiting ratio for the field were 3,000 cu. ft.?

MR. JORDAN:

1860.

MR. CHRISTIE:

What is the calculated monthly gas under the present formula, present limiting ratio of 4,000?

MR. JORDAN:

1,182,000 cu. ft.

MR. CHRISTIE:

Have you calculated the monthly gas that would be produced under a ratio of 2,000 cu. ft. ?

MR. JORDAN:

Yes, sir. 792,000,000 cu. ft.

MR. CHRISTIE:

Have you further calculated the estimated monthly gas produced under 3,000 cu. ft.?

MR. JORDAN:

1,017,000,000.

MR. CHRISTIE:

Assuming it had a limiting ratio of 2,000 cu. ft., approximately how much gas do you think would be saved producing from 2,000?

MR. JORDAN:

34 percent.

MR. CHRISTIE:

If the ratio was reduced from 4,000 to 3,000 - have you estimated what the percentage of saving would be?

MR. JORDAN:

Yes, sir. 14 percent.

MR. CHRISTIE:

Have you calculated the monthly gas that has been for the year?

MR. JORDAN:

Yes, sir. 240,000,000 cu. ft.

MR. CHRISTIE:

Based on the present limiting ratio?

MR. JORDAN:

Yes, sir.

MR. CHRISTIE:

Have you calculated what that figure would be if the ratio was reduced to 3,000?

MR. JORDAN:

140,000,000.

MR. CHRISTIE:

What would be the amount of gas saved if the ratio was reduced to 3,000?

MR. JORDAN:

Yes, I estimated it to be a saving of 60,000,000 cu. ft.

MR. CHRISTIE:

What percent would that be?

MR. JORDAN:

25 percent.

MR. CHRISTIE:

How many wells would be penalized if the ratio was reduced to 2,000?

MR. JORDAN:

142.

MR. CHRISTIE:

If the ratio was reduced to 3,000 cu. ft. per barrel?

MR. JORDAN:

104.

MR. CHRISTIE:

What percent of wells in the Monument pool would be penalized at ahat ratio?

MR. JORDAN:

Approximately 10 percent.

MR. CHRISTIE:

Have you estimated how many would be penalized if the ratio was reduced to 3,000?

MR. JORDAN:

Yes, sir. 21 percent.

MR. CHRISTIE:

If it was reduced to 2,000 cubic ft., how many would be penalized?

MR. JORDAN:

28 percent.

MR. CHRISTIE:

At the present time what percent of oil and gas produced by wells have a ratio above the present ratio?

MR. JORDAN:

Approximately 10 percent of the oil.

MR. CHRISTIE:

Do you believe it would be in the interest of conservation if the limitine ratio reduced to 3,000 cu. ft.?

MR. JORDAN:

I do.

MR. CHRISTIE:

I believe that is all.

BY MR. R. G. LOWE:

Mr. Jordan, you recommend a reduction of ratio to 3,000?

MR. JORDAN:

Yes, sir, I do.

COMMISSIONER MILES:

Anybody else want to ask questions or make a statement?

EXAMINATION OF MR. H. M. DUBROW

(After being duly sworn, Mr. Dubrow testified as follows)

MR. BRALY:

Mr. Dubrow, you are a Petroleum Engineer by profession?

MR. DUBROW:

That is correct.

MR. BRALY:

Give a short history of your education.

MR. DUBROW:

I graduated from the New Mexico School of Mines in 1936 with a B.S. degree in Mining Engineering, and since that time - for approximately the past eleven years have been employed by the Continental Oil Company as Petroleum Engineer. At the present time I am Region Petroleum Engineer in the Southwest, which includes the production in Lea and Eddy County, New Mexico.

MR. BRALY:

Have you made some study of these two fields on the proposal by the Commission as to the gas-oil ratio allowable for that field - would you make a statement to the Commission?

MR. DUBROW:

We have studied the Eaves field with regard to the gas-oil ratio limits. At the present time 25 producing wells in the field and we have gas-oil ratio measurements on 14 of these wells. Most of the others are pumping wells which have a small volume of gas production. At the present time the gas-oil ratio limit in these fields is 4,000 cu. ft. per barrel of oil. The average weighted ratio based on the 14 wells is 1,003.

The Continental Oil Company operates for the New Mexico Federal Unit and two of the 25 wells. At the present time there are only two wells which have gas of ratios in excess of 2,000 cu. ft. per barrel of oil, and we understand since the last survey one of these wells has declined in gas of a ratio to a figure below 2,000, so that at the present time there is only one well with gas of a ratio in excess of 2,000 cu. ft. per barrel; its being 4009.

On behalf of the Continental Oil Company, I would recommend that the present gas-oil ratio limit of 4,000 cu. ft. be reduced to 2,000 cu. ft. per barrel of oil in order to conserve as much gas as possible. Although, the reduction at the present time will be rather small, we do believe at such time as additional drilling be put in the pool it will serve as an incentive to affect completion at the lowest possible gas-oil ratio.

MR. BRALY:

That is all on that field.

COMMISSIONER MILES

Any questions or statements?

MR. DUBROW:

The Skaggs field, and at the present time there are three wells - producing oil wells, in the field operated by the Continental Oil Company and jointly owned by the New Mexico Federal Unit. One well is pumping well, while two are flowing wells. The present

gas-oil ratio limit is 5,000 cu. ft. per barrel. The latter gas-oil ratio survey of one well had a gas-oil ratio of 4360 cu. ft. per barrel. The other flowing well had a gas-oil ratio of 1583 cu. ft. per barrel of oil. The average weighted gas-oil ratio is 3478 cu. ft.

The average weighted gas-oil ratio is 3478 cu. ft. per barrel, based on these two wells. We would recommend the gas-oil ratio limit in the Skaggs pool be reduced from 5,000 cu. ft. per barrel of oil to 2,000 cu. ft. per barrel of oil, in order to effect as much savings and produce gas as possible. There are no other operators in this particular pool.

COMMISSIONER MILES:

Any other statement?

(No Response)

We will take the next field.

MR. S. G. SANDERSON (Lea County Operators' Committee)

Yesterday, at the annual meeting, the Lea County Operators' Committee, the proposed order which Mr. Spurrier issued in January was considered by the Committee, and after considerable discussion it was the consensus of those present that the gas-oil ratios as set out in Mr. Spurrier's order should be adopted and would be satisfactory so far as they pertained to Eddy County pools, with the exception of the ratio for Monument, Eaves and Skaggs pools.

It was the consensus of the group that the gas-oil ratios recommended by the two witnesses this morning should be adopted for those pools. In addition, it was the opinion of the committee that included in the order should be a schedule of gas-oil ratio tests. At the present time, the order provides a gas-oil test shall be made of each well once a year, but there is no schedule for the time of these tests. There has been, in the past, a volume schedule but it is the opinion of the Committee that this volume schedule should be included in the order, and that the conservation engineer, Mr. Staley, should get with the Commission and work that schedule out in detail.

MR. J. O. SETH:

The Lea County Operators recommend some changes in the form of the order, more for the purpose of clarification.

Recommended along the line of what Mr. Sanderson has just said, that there be an addition to Rule I (1), a sub-division I, the recommendation is as follows:

"With respect to Rule 1 (1) of the proposed Gas Oil Ratio Order of the Commission, pertaining to the time prescribed for conducting the official Gas Oil Ratio Tests, it is recommended that a definite schedule be adopted for conducting and submitting such tests on wells in each pool. Since there is a tentative schedule now being followed, it is further recommended that Mr. Glenn Staley's office submit a definite schedule for review and adoption by the Commission."

The main recommendation in that the Lea County Operators make - is that the following substitute for Rule 3-A of the suggested order -

"Any proration unit which on the basis of the latest Official Gas-Oil Ratio Test has a gas-oil ratio in excess of the limiting gas-oil ratio for the pool in which it is located shall be permitted to produce daily that number of barrels of oil which shall be determined by multiplying the current top unit allowable by a fraction, the numerator of which fraction shall be the limiting gas-oil ratio for the pool and the denominator of which fraction shall be the gas-oil ratio of said proration unit as determined on the latest Official Gas-Oil Ratio Test.

MR. SETH:

And to amend 1 (1) by inserting before the gas-oil ratio test the word "official", to make it match up with this order.

Some gas is not being sold to purchasers, but the purpose of this rule is to fix the matter of the gas-oil ratio test so that the allowable of oil remains constant until the next gas-oil ratio test, and any gas produced shall be lawful gas so there will be no question of the right of the producer to sell it or the right of the purchaser to pay it.

MR. RAY MILLER: (Grayburg Oil Company)

The Grayburg Oil Company is not prepared to qualify a witness, and would like to submit this data.

MR. SPURRIER:

You have appeared before the Commission before haven't you?

MR. MILLER:

Yes, sir.

In this sample gas-oil ratio issued by the Commission limiting the ratio to 2,000 barrels - was set up for the Grayburg-Jackson ares. Within the limits of this area the Grayburg Oil Company is the operator of 72 producing wells; six input wells north of what is known as the Grayburg Unit Area. In connection with this production, our average gas-oil for the month of March was 1610 to 1, but some of our older wells are very far in excess of the proposed 2,000 barrel limit. Of this gas produced, approximately all except one or two percent goes into the nearest pressuring plant, is stripped and 77% of the available gas is returned to earth.

In view of these circumstances in this particular area, in view also of the type of gas we have, which is solution gas, does not lend itself to remedial work - the Grayburg Oil Company would like to recommend a limit gas-oil ratio of 5,000 to 1 in the Grayburg-Jackson pool.

I have here also a recap of oil and gas production for the month of March - we do not care to take up the Commission's time too much. Anytime you wish to inspect our Company records we have for the last 5 years complete records on bottom-hole pressure.

MR. FOSTER MORRELL:

In your statement you were dealing primarily with the Grayburg unit?

MR. MILLER:

Yes, sir.

MR. MORRELL:

You made a recommendation for Grayburg-Jackson as a whole?

MR. MILLER:

I did.

MR. MORRELL:

I wonder if the sample order does not already take care of your situation without changing the field ratio. A section of that proposed order provides "proration unit as determined on the latest Official Gas-Oil Ratio Test."

I was wondering why the field should be involved, in view of that qualification in the order.

MR. MILLER:

The rest of the field is not being re-pressured. Still the type of production and the gas solution. I do not believe much remedial work can be done, there will be an inequity on operators throughout the rest of the pool if they are limited to 2,000 cu. ft. per barrel.

MR. MORRELL:

The test was limited wholly to the unit?

MR. MILLER:

Yes, sir.

COMMISSIONER MILES:

Anyone else?

MR. SELINGER:

Just in order to keep the record clear, I think the present limit gas-oil ratio in the Grayburg is four and not two.

MR. MILLER:

There is no present ratio.

MR. SELINGER:

The suggest gas-oil ration sent by Mr. Spurrier suggests a 4,000 gas-oil ratio.

COMMISSIONER MILES:

Anybody else like to ask a question or make a statement?

(No Response)

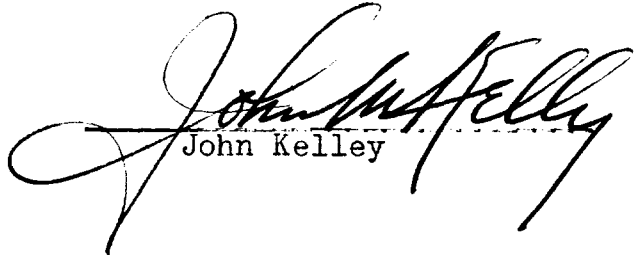
MEETING ADJOURNED.

C O N S E N T

John Kelley hereby acknowledges receipt of a copy of the Petition of V. S. Welch of Artesia, New Mexico to make an unorthodox location on State of New Mexico lease B-2884, said location to be known as State Well No. 3, 990 feet south of the north line and 1300 feet west of the east line of said Section 36, Township 16 South, Range 30 East, N.M.P.M.

That said John Kelley is the operator of a forty acre oil and gas lease offsetting the NE $\frac{1}{4}$ NE $\frac{1}{4}$ of Section 36, Township 16 South, Range 30 East, N.M.P.M., and the undersigned hereby consents to the granting of said Petition.

DATED this 11 day of April, 1947.


John Kelley