Case No.

202

Application, Transcript,
Small Exhibits, Etc.

NOTICE OF PUBLICATION
STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

The State of New Mexico by its Oil Conservation Commission hereby gives notice pursuant to law and the rules and regulations of said Commission promulgated thereunder, of the following public hearing to be held August 24, 1950, beginning at 10:00 o'clock A.M. on that day in the City of Santa Fe, New Mexico, in the Capitol (Hall of Representatives).

STATE OF NEW MEXICO TO:

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

Case 202 (Readvertisement)

In the matter of further hearing upon the application of Rowan Oil Company for an order reducing the allowable of the Brunson Pool, Lea County, New Mexico for the purpose of determining if Order R-4, promulgated January 11, 1950, shall be modified, rescinded or further continued in effect.

Case 233

In the matter of the application of the New Mexico Oil Conservation Commission upon its own motion upon the recommendation of the Northwestern New Mexico Nomenclature Committee:

1. To create a new pool to be known as the West Kutz Canyon (Pictured Cliffs) gas pool, the area of which contains all of Sections 7 and 18 in Twp. 27N-R. 11W and all of Sections 12 and 13 in Twp. 27N-R. 12W, in San Juan County, New Mexico.

2. That the boundaries of LaPlata (Mesaverde) gas pool heretofore created and described should be changed so as to include the following:

Township 31 North, Range 12 West

S½ Section 2
All Section 3
All Section 4
N½ Section 5
E½ Section 9
W½ Section 12
W½ Section 13
E½ Section 16

Township 32 North, Range 12 West

E½ Section 20
All Section 21
W½ Section 22
W½ Section 27
All Section 28
All Section 29
All Section 30
N½ Section 31
All Section 32
All Section 33
W½ Section 34

3. That the boundaries of the Fulcher Basin-Kutz Canyon (Pictured Cliffs) gas pool heretofore created be and the same hereby is enlarged and its boundaries changed only to include all of Section 6 in Twp. 27N-R. 10W, N.M.P.M., in San Juan County, New Mexico.

Case 234

In the matter of the application of American Republics Corporation for an order granting it permission to drill 4 unorthodox 5-spot locations on its F. M. Robinson "B" lease in Sections 27 and 35, Township 17 south, Range 29 east, N.M.P.M., in the Grayburg-Jackson pool of Eddy County, New Mexico.

Given under the seal of the Oil Conservation Commission of New Mexico, at Santa Fe, New Mexico, on August 7, 1950.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

R. R. SPURRIER, SECRETARY

August 7, 1950

HOBBS NEWS SUN

Hobbs, New Mexico

Re: Case 202 (Readvertisement)
Notice of Publication

Gentlemen:

Please publish the enclosed notice once, immediately. Please proof read the notice carefully and send a copy of the paper carrying such notice to this office.

UPON COMPLETION OF THE PUBLICATION SEND PUBLISHER'S AFFIDAVIT IN DUPLICATE.

For payment, please submit statement in duplicate, and sign and return the enclosed voucher.

PLEASE PUBLISH NOT LATER THAN THURSDAY, AUGUST 10, 1950.

Very truly yours,

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

R. R. Spurrier
Secretary-Director

RRS:bu
encl.

August 7, 1950

SANTA FE NEW MEXICAN

Santa Fe, New Mexico

Re: Cases 202, 233 and 234
Notice of Publication

Gentlemen:

Please publish the enclosed notice once, immediately. Please proof read the notice carefully and send a copy of the paper carrying such notice to this office.

UPON COMPLETION OF THE PUBLICATION SEND PUBLISHER'S AFFIDAVIT IN DUPLICATE.

For payment, please submit statement in duplicate, and sign and return the enclosed voucher.

PLEASE PUBLISH NOT LATER THAN THURSDAY, AUGUST 10, 1950.

Very truly yours,

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

R. R. Spurrier
Secretary-Director

RRS:bw
encl.

NOTICE OF PUBLICATION
STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

The State of New Mexico by its Oil Conservation Commission hereby gives notice pursuant to law and the rules and regulations of said Commission promulgated thereunder, of the following public hearing to be held August 21, 1950, beginning at 10:00 o'clock A.M. on that day in the City of Santa Fe, New Mexico, in the Capitol (Hall of Representatives).

STATE OF NEW MEXICO TO:

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

Case 202 (Readvertisement)

In the matter of further hearing upon the application of Rowan Oil Company for an order reducing the allowable of the Brunson Pool, Lea County, New Mexico for the purpose of determining if Order R-4, promulgated January 11, 1950, shall be modified, rescinded or further continued in effect.

Case 223

In the matter of the application of the New Mexico Oil Conservation Commission upon its own motion upon the recommendation of the Northwestern New Mexico Nomenclature Committee:

1. To create a new pool to be known as the West Ruin Canyon (Pictured Cliffs) gas pool, the area of which contains all of Sections 7 and 18 in Twp. 27N—R. 11W and all of sections 12 and 13 in Twp. 27N—R. 12W, in San Juan County, New Mexico.

2. That the boundaries of LaPlata (Mesaverde) gas pool heretofore created and described should be changed so as to include the following:

Township 31 North, Range 12 West
S½ Section 3
All Section 4
N½ Section 5
E½ Section 9
W½ Section 12
W½ Section 13
E½ Section 16

Township 32 North, Range 12 West
E½ Section 20
All Section 21
W½ Section 22
W½ Section 27
All Section 28
All Section 29
All Section 30
N½ Section 31
All Section 32
All Section 33
W½ Section 34

3. That the boundaries of the Fulcher Kutz-Ruin Canyon (Pictured Cliffs) gas pool heretofore created be and the same hereby is enlarged and its boundaries changed only to include all of Section 6 in Twp. 27N-R. 10W, N.M.P.M., in San Juan County, New Mexico.

Case 224

In the matter of the application of American Republics Corporation for an order granting it permission to drill 4 unorthodox 3-spot locations on its F. M. Robinson "B" lease in Sections 27 and 35, Township 17 south, Range 29 east, N.M.P.M., of the Grayburg-Jackson pool of Eddy County, New Mexico.

Given under the seal of the Oil Conservation Commission of New Mexico, at Santa Fe, New Mexico, on August 7, 1950.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION
(SEAL) R. R. SPURRIER,
Secretary.

Pub.: Aug. 10, 1950.

L

at $ 8.70

nes, $

Tax $

$ 8.70

Affidavit of Publication

State of New Mexico }
County of Santa Fe } ss.

I, Will Harrison, being first duly sworn, declare and say that I am the (Business Manager) (Editor) of the Santa Fe New Mexican, a daily newspaper, published in the English Language, and having a general circulation in the City and County of Santa Fe, State of New Mexico, and being a newspaper duly qualified to publish legal notices and advertisements under the provisions of Chapter 167 of the Session Laws of 1937; that the publication, a copy which is hereto attached, was published in said paper one week for one time consecutive weeks, and on the same day of each week in the regular issue of the paper during the time of publication, and that the notice was published in the newspaper proper, and not in any supplement, one week for one time consecutive weeks, the first publication being on the 10th day of August, 1950, and the last publication on the ___ day of ___, ____; that payment for said advertisement has been (duly made), or (assessed as court costs); that the undersigned has personal knowledge of the matters and things set forth in this affidavit.

Will Harrison
Editor (Business Manager)

Subscribed and sworn to before me this 10th day of August, A.D., 1950

Anna T. Ornabee
Notary Public

My Commission expires
June 14, 1953

NOTICE OF PUBLICATION
STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

The State of New Mexico by its Oil Conservation Commission hereby gives notice pursuant to law and the rules and regulations of said Commission promulgated thereunder, of the following public hearing to be held August 24, 1950, beginning at 10:00 o'clock A.M. on that day in the City of Santa Fe, New Mexico, in the Capitol (Hall of Representatives).

STATE OF NEW MEXICO TO:

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

Case 202 (Readvertisement)

In the matter of further hearing upon the application of Rowan Oil Company for an order reducing the allowable of the Brunson Pool, Lea County, New Mexico for the purpose of determining if Order R-4, promulgated January 11, 1950, shall be modified, rescinded or further continued in effect.

Case 233

In the matter of the application of the New Mexico Oil Conservation Commission upon its own motion upon the recommendation of the Northwestern New Mexico Nomenclature Committee:

1. To create a new pool to be known as the West Kutz Canyon (Pictured Cliffs) gas pool, the area of which contains all of Sections 7 and 18 in Twp. 27N-R. 11W and all of Sections 12 and 13 in Twp. 27N - R. 12W, in San Juan County, New Mexico.

2. That the boundaries of LaPlata (Mesaverde) gas pool heretofore created and described should be changed so as to include the following:

Township ~~31~~ 31 N North, Range 12 West

S½ Section 2
All Section 3
All Section 4
N½ Section 5
E½ Section 9
W½ Section 12
W½ Section 13
E½ Section 16

Township 32 North, Range 12 West

E½ Section 20
All Section 21
W½ Section 22
W½ Section 27

Township 32 North, Range 12 West (Continued)

All Section 28
All Section 29
All Section 30
N½ Section 31
All Section 32
All Section 33
W½ Section 34

3. That the boundaries of the Fulcher Basin-Kutz Canyon (Pictured Cliffs) gas pool heretofore created be and the same hereby is enlarged and its boundaries changed only to include all of Section 6 in Twp. 27N-R.10W, N.M.P.M., in San Juan County, New Mexico.

Case 234

In the matter of the application of American Republics Corporation for an order granting it permission to drill 4 unorthodox 5-spot locations on its F. M. Robinson "B" lease in Sections 27 and 35, Township 17 south, Range 29 east, N.M. P.M., in the Grayburg-Jackson pool of Eddy County, New Mexico.

Given under the seal of the Oil Conservation Commission of New Mexico, at Santa Fe, New Mexico, on August 7, 1950.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

R. R. SPURRIER, SECRETARY

SEAL

NOTICE FOR PUBLICATION
STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

The State of New Mexico by its Oil Conservation Commission hereby gives public notice pursuant to law of a public hearing to be held November 22, 1949, beginning at 10:00 o'clock A.M. of that day in the City of Santa Fe, New Mexico, in the Hall of Representatives.

STATE OF NEW MEXICO TO:

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

Case 200

In the matter of the Application of North Drilling Company, Inc. for an order approving an unorthodox location for A. C. Taylor well No. 7-A, 10 ft. from the south line and 1320 ft. east of the west line (SW/4) of Section 12 in Township 18 south, Range 31 east, N.M.P.M., in North Shugart pool, Eddy County, New Mexico.

Case 201

In the matter of the Application of Danciger Oil and Refining Company for an order granting permission to drill twelve unorthodox ("five spot") locations on its Turner "A" and Turner "B" leases in Sections 17, 18, 19 and 20, in Township 17 south, Range 31 east, N.M.P.M., in the Premier pool, Eddy County, New Mexico.

Case 202

In the matter of the Application of Rowan Oil Company for an order reducing the daily allowable of the Brunson pool, Lea County, New Mexico, to 90 barrels per day per well for a period of six months, within which period of time through surveys and studies information may be had for the purpose of determining the maximum efficient rate of production of reservoir.

Case 203

In the matter of the Application of Santa Fe Pacific Railroad Company and Oil Development Company of Texas, for an order allowing an exception from Commission Order No. 779, of July 27, 1948, providing an 80 acre spacing pattern for wells in the Crossroads pool, Lea County, New Mexico.

Case 204

In the matter of the Application of Amerada Petroleum Corporation for an order establishing proration units and uniform spacing of wells for the common source of supply discovered in the H. H. Hamilton #1 well, NE SW Section 35, Township 16 south, Range 38 east, N.M.P.M., Knowles pool, Lea County, New Mexico.

Given under the seal of the Oil Conservation Commission of New Mexico, at Santa Fe, New Mexico, on November 7, 1949.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

R. R. Spurrier

R. R. SPURRIER, SECRETARY

SEAL

AFFIDAVIT OF PUBLICATION

State of New Mexico,
County of Lea

I, Robert L. Summers
Publisher

Of the Hobbs Daily News-Sun, a daily newspaper published at Hobbs, New Mexico, do solemnly swear that the clipping attached hereto was published once a week in the regular and entire issue of said paper, and not in a supplement thereof for a period of One time weeks.

beginning with the issue dated November 9, 1949

and ending with the issue dated November 9, 1949

Robert L. Summers
Publisher.

Sworn and subscribed to before me this 10 day of November, 1949

Betty Beal
Notary Public.

My commission expires January 25, 1953
(Seal)

This newspaper is duly qualified to publish legal notices or advertisements within the meaning of Section 3, Chapter 167, Laws of 1937, and payment of fees for said publication has been made.

LEGAL NOTICE

November 9, 1949

NOTICE FOR PUBLICATION
STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

The State of New Mexico by its Oil Conservation Commission hereby gives public notice pursuant to law of a public hearing to be held November 22, 1949, beginning at 10:00 o'clock A. M. of that day in the City of Santa Fe, New Mexico, in the Hall of Representatives.

STATE OF NEW MEXICO TO: All named parties in the following cases, and notice to the public:

Case 202

In the matter of the Application of Rowan Oil Company for an order reducing the daily allowable of the Brunson pool, Lea County, New Mexico to 90 barrels per day per well for a period of six months, within which period of time through surveys and studies information may be had for the purpose of determining the maximum efficient rate of production of reservoir.

Case 203

In the matter of the Application of Santa Fe Pacific Railroad Company and Oil Development Company of Texas, for an order allowing an exception from Commission Order No. 779, of July 27, 1948, providing an 80 acre spacing pattern for wells in the Crossroads pool, Lea County, New Mexico.

Case 204

In the matter of the Application of Amerada Petroleum Corporation for an order establishing proration units and uniform spacing of wells for the common source of supply discovered in the W. W. Hamilton No. 1 well. NE SW Section 35, Township 16 south, Range 38 east, N. M. P. M., Knowles pool. Lea County, New Mexico.

Given under the seal of the Oil Conservation Commission of New Mexico, at Santa Fe, New Mexico, on November 7, 1949.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION,
R. R. SPURRIER,
Secretary.

(Seal)

November 7, 1949

HOBBS NEWS SUN

Hobbs, New Mexico

Re: Cases 202, 203 and 204
- Notice of Publication

Gentlemen:

Please publish the enclosed notice once, immediately. Please proof read the notice carefully and send a copy of the paper carrying such notice to this office.

UPON COMPLETION OF THE PUBLICATION SEND PUBLISHER'S AFFIDAVIT IN DUPLICATE.

For payment, please submit statement in duplicate, and sign and return the enclosed voucher.

Very truly yours,

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

R. R. Spurrier
Secretary-Director

RRS:bw
encl.

NOTICE FOR PUBLICATION
STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

The State of New Mexico by its Oil Conservation Commission hereby gives public notice pursuant to law of a public hearing to be held November 22, 1949, beginning at 10:00 o'clock A.M. of that day in the City of Santa Fe, New Mexico, in the Hall of Representatives.

STATE OF NEW MEXICO TO:

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

Case 200

In the matter of the Application of North Drilling Company, Inc. for an order approving an unorthodox location for A. C. Taylor well No. 7-A, 10 ft. from the south line and 1320 ft. east of the west line (SW/4) of Section 12 in Township 18 south, Range 31 east, N.M.P.M., in North Shugart pool, Eddy County, New Mexico.

Case 201

In the matter of the Application of Danziger Oil and Refining Company for an order granting permission to drill twelve unorthodox ("five spot") locations on its former "A" and former "B" leases in Sections 17, 18, 19 and 20, in Township 17 south, Range 31 east, N.M.P.M., in the Premier pool, Eddy County, New Mexico.

Case 202

In the matter of the Application of Rowan Oil Company for an order reducing the daily allowable of the Brunson pool, Lea County, New Mexico, to 90 barrels per day per well for a period of six months, within which period of time through surveys and studies information may be had for the purpose of determining the maximum efficient rate of production of reservoir.

Case 203

In the matter of the Application of Santa Fe Pacific Railroad Company and Oil Development Company of Texas, for an order allowing an exception from Commission Order No. 779, of July 27, 1948, providing an 80 acre spacing pattern for wells in the Crossroads pool, Lea County, New Mexico.

Case 204

In the matter of the Application of Amerada Petroleum Corporation for an order establishing proration units and uniform spacing of wells for the common source of supply discovered in the W. H. Hamilton #1 well, NE SW Section 35, Township 16 south, Range 38 east, N.M.P.M., Knowles pool, Lea County, New Mexico.

Given under the seal of the Oil Conservation Commission of New Mexico, at Santa Fe, New Mexico, on November 7, 1949.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

[illegible]

Original

OIL CONSERVATION COMMISSION

STATE of NEW MEXICO

TRANSCRIPT OF HEARING

CASE NO. 202

April 24, 1951

E. E. GREESON
COURT REPORTER
UNITED STATES COURT HOUSE
TELEPHONE 2-0572
ALBUQUERQUE, NEW MEXICO

BEFORE THE
OIL CONSERVATION COMMISSION

April 24, 1951

- -

Case No. 202: This case was continued to April 24 and involves the allowable of the Brunson pool, which has been reduced to 90 barrels per day per well for a period of six months and then extended to April 24 for additional studies.

(Notice of publication and letter requesting postponement read by Mr. Graham.)

CHAIRMAN SHEPARD: Is there any objection to this being continued until the June hearing. If not, it will be continued until the regular hearing to be held on June 21, 1951.

- - - - -

STATE OF NEW MEXICO)
) SS
COUNTY OF BERNALILLO)

I HEREBY CERTIFY that the foregoing and attached transcript of hearing in Case 202 before the Oil Conservation Commission on April 24, 1951, at Santa Fe is a true record of the same to the best of my knowledge, skill and ability.

DATED at Albuquerque, this 25th day of April, 1951.

Ada Dearnley

ADA DEARNLEY

E. E. GREESON
COURT REPORTER
UNITED STATES COURT HOUSE
TELEPHONE 2-0872
ALBUQUERQUE, NEW MEXICO

BEFORE THE
OIL CONSERVATION COMMISSION
STATE OF NEW MEXICO

In re: This case involves the rate of production of the Brunson pool to August 21, 1951, in order that evidence might be collected and analyzed.

Case No. 202

TRANSCRIPT OF HEARING

August 21, 1951

BEFORE THE
OIL CONSERVATION COMMISSION
STATE OF NEW MEXICO

- - - - -

In re: This case involves the rate of production of the Brunson pool and has been successively continued to August 21, 1951, in order that evidence might be collected and analyzed.

No. 202

- - - - -

TRANSCRIPT OF HEARING

August 21, 1951

MR. SPURRIER: The next case is 202. It will be taken up first by request.

(Mr. Graham reads the notice of publication.)

MR. SPURRIER: State your name for the record, please.

MR. DURST: I am Roy T. Durst, representing Rowan Oil Company.

MR. SPURRIER: Do you have any witnesses?

MR. DURST: Yes, I have one witness. I would like to briefly review what has previously taken place with reference to Case No. 202.

During the latter part of 1949, Brunson Pool operators met and reviewed the production history of the Brunson Pool. The available data indicated a comparatively rapid decline in bottom hole pressure for the reservoir as a whole. On the strength of this data the majority of the Brunson Pool operators through the Rowan Oil Company petitioned the Oil Conservation Commission on November 22, 1949, to reduce the per well allowable in the Brunson Pool from its then current 122 barrels per day to 90 barrels per day for a six month test period. During this test period field-wide bottom hole pressures were to be taken and gas-oil ratios checked in order that the performance of the reservoirs under reduced rates of flow could be observed. The 90 barrel allowable was effective February 1, 1950, by Order R-4 of the Oil Conservation Commission, dated January 11, 1950. The six month test period was completed and due to the lack of conclusive data the Oil Conservation Commission was requested

on August 24, 1950, to continue the test period for an additional six months. Order R-30, dated September 29, 1950, granted this request. The re-hearing on this case originally scheduled for April 24th, this year, has been successfully postponed until today in order that the factual data accumulated and results of the studies of the engineering sub-committee could be presented to the Commission.

At this time I would like to introduce Mr. A. T. Guernsey of the Shell Oil Company, Hobbs, New Mexico. Mr. Guernsey is a member of the Brunson Pool Engineering Sub-Committee and will present a summary of the factual and engineering data accumulated and compiled by this committee.

MR. GUERNSEY: Oil Production Rate, that is the lower most curve on the graph.

The Brunson Pool was discovered in September, 1945, when N. G. Penrose completed his Federal Fee Well, No. 1 in Section 9, Township 22S, Range 37E, Lea County, New Mexico. Since discovery, a total of 105 producing wells have been drilled in the Brunson Pool. Oil and gas production is obtained from the Ellenburger formation and the various wells produce from intervals between 7300 feet and 8100 feet. To the east, the up-dip limits of the pool have been defined by post-Ellenburger erosion -- which process has caused complete removal of the producing formation along the east edge of the field. To the west, the down-dip limits of the pool are defined by the contact of the bottom water level and the top of the steeply dipping producing sediments. To the

south, the limits of the pool are determined by minor cross-faulting and/or by poor reservoir development of porosity and permeability. In these three directions, the pool is considered effictively developed, and about 4100 acres have thus far been proved by development. Current drilling is extending the pool to the north. At present, 94 wells are producing and 11 have either been abandoned, shut down, or plugged back to the shallower pay zone.

Until July 1, 1951, the Brunson Pool has produced 10,668,780 barrels of oil, 509,351 barrels of water, and 18,841,964 Mcf of gas. The cumulative gas-oil ratio has been 1766 cubic feet per barrel and the cumulative water cut has been 4.6 per cent of total fluids produced. The original bottom hole pressure at 4300 feet subsea was 2945 psi and the average bottom hole pressure measured in April, 1951, was 1797 psi. The saturation pressure has been reported as 2472 psi and the solution gas-oil ratio at this pressure is 1010 cubic feet per barrel.

It is now obvious that the great bulk of the Brunson Pool is producing under the influence of a dissolved gas drive mechanism, although there may be isolated portions which contain less than 9 per cent of the currently producing wells and probably less than 6 per cent of the acreage which will ultimately become productive, which may behave in a different manner.

At the end of January, 1950, there were 81 producing wells in the Brunson Pool. These wells had accumulated to this date 7,645,647 barrels of oil, 210,703 barrels of water, and 11,011,273

Mcf of gas. The cumulative gas-oil ratio at this time was 1440 cubic feet per barrel and the cumulative water cut was 2.7 per cent of total fluids produced. The average bottom hole pressure in the pool was 1880 psi which represented a drop of 1065 psi from the original pressure.

At this time most operators realized that the Brunson Pool was producing under the influence of a dissolved gas drive, which sort of drive is one of the more inefficient types of reservoir recovery mechanisms. Therefore, the operators felt that if another type of reservoir recovery mechanism could be encouraged ultimate oil recovery from the field could be increased. It was believed that if oil production rates were curtailed, edge water or bottom water might be encouraged to encroach into the reservoir in amounts more nearly equal to reservoir withdrawals. Hence, a higher bottom hole pressure would be maintained, gas-oil ratios would be lessened, wells would flow longer, less gas would break out of solution in the reservoir, operating costs would be reduced, and ultimate recovery would be increased.

Therefore, at the request of one of the Brunson Pool operators, the per well allowable for the Brunson Pool was reduced from 126 to 90 barrels of oil per day for an experimental period of six months during which time the operators would conduct tests and gather data as to the characteristics of the reservoir. The experimental period commenced February 1, 1950. In order to conduct additional

tests and to gather additional data, the Oil Conservation Commission, at the operator's request, ordered the experiment continued for a second six-month period. After this date, the experimental period has been continued about seven more months because of two requests from the operators asking postponement of re-hearing of Case 202. These postponements were asked in order to permit the operators to conduct one more bottom hole pressure survey and to complete their final studies as to the characteristics of the reservoir. On September 1, 1951 the allowable reduction experiment in the Brunson Pool will have lasted 19 months.

During the experimental period oil, water, and gas production have, of course, been measured each month; four field-wide bottom hole pressure surveys have been conducted; numerous operators' meetings have been held; several sub-committees have been appointed for special study purposes; and the operators are now prepared to present the results of their study to the Oil Conservation Commission and to make their recommendations for the manner of producing the pool in the future.

Attachment A is a composite graph of statistics for the Brunson Pool from first production and until July 1, 1951. Oil production rate, gas-oil ratio, percentage water in total fluids, number of producing wells, arithmetic average bottom hole pressure, and weighted average bottom hole pressure are plotted against cumulative oil production from the entire field. The beginning

and end of each year are also shown on the composite graph. The following observations from Graph A are worthy of especial comment:

Oil Production Rate, that is the lowermost curve on the graph, during January, 1950, the pool produced 254,889 barrels of oil. During February, 1950 (the first month of the allowable reduction experiment), the pool produced 159,336 barrels of oil. Because of subsequent development, the production rate increased to 195,474 barrels of oil in June, 1951. This latter rate is still less than the rate in effect at the beginning of the experiment.

At the end of January, 1950, there were 81 producing wells in the pool. During the period of the allowable reduction experiment, 20 additional wells were completed and 7 were abandoned or shut down. Hence, 94 wells were producing in June, 1951.

During January, 1950, the field's producing gas-oil ratio was 2078 cubic feet per barrel. After reduction of allowable in the field, the gas-oil ratio commenced to rise at a rate more rapid than before. The reduction in allowable curtailed production from the wells whose capacities were higher and whose gas-oil ratios were generally lower while the marginal wells whose gas-oil ratios are generally high were not curtailed as much. Hence, a larger percentage of the field's oil was produced by the high gas-oil ratio wells which in turn caused an increase

in pool GOR.

Water production during January, 1950 amounted to 3.4 per cent of total fluids produced. After reduction in allowable, water production percentage continued to increase at a rate higher than before. During June, 1951, water production in total fluids amounted to 9.8 per cent.

The arithmetic average bottom hole pressure of the field continued decline at an ever decreasing rate. This general flattening of bottom hole pressure trends had been commenced prior to the allowable reduction experiment and continued during the experiment. This behavior of bottom hole pressure trends is because of inclusion of first observed pressures of new wells in the various surveys. For instance, between February, 1950 and April, 1951 the average bottom hole pressure varied from 1880 to 1797 psi while the average first observed pressure from new wells drilled in the northern portion of the field amounted to 2513 psi. The inclusion of five such wells in an arithmetic average of 85 wells would be sufficient to raise the average bottom hole pressure from 1700 psi to 1745 prsi. An example of the effect of new wells is noted from comparison of the August, 1950 and April, 1951 surveys. Between the two surveys, the average bottom hole pressure of 68 comparable wells run during each survey declined 133 psi while the average bottom hole pressure of all wells surveyed (72 in August and 82 in April) declined only 12 psi. The error thus introduced by averaging in nearly virgin pressures from

new wells amounted to 121 psi between these two surveys.

A system of weighting the bottom hole pressures for cumulative oil produced at the time of each survey yielded data for the weighted average bottom hole pressure curve. This system resulted in a truer relationship, yet did not completely remove the effect of new wells.

Graphs B and C are comparable well survey plots which show the bottom hole pressure decline for 19 wells which have been surveyed in all except the first of the eleven pool-wide pressure surveys. As no new wells were included in these two graphs, no weighing procedure was necessary and simple arithmetic average bottom hole pressures were used. A graph of this nature is most valuable for studying reservoir performance. Graph B shows the average pressures of these comparable wells plotted against the cumulative oil production of these wells. This case would apply in a very poorly connected reservoir in which case each well would in a sense drain its own reservoir. Graph C shows the same pressures plotted against the cumulative oil production of the entire pool. This case would apply to very permeable reservoirs in which individual well pressures would reflect field-wide conditions. Observations of bottom hole pressures of newly completed wells in the north end of the field which are always less than original but greater than the then current pressure of older wells indicate conditions at Brunson to be somewhere between those implied by Graphs B and C. However, it should be

noted that change in oil production rate at Brunson did not affect the slope of either relationship.

During June, 1951 which is the most recent month for which production figures are available, the pool produced 195,474 barrels of oil, 21,120 barrels of water, and 551,426 Mcf of gas. The gas-oil ratio during this month was 2821 cubic feet per barrel and the water cut was 9.8 per cent.

From Graphs A, B, and C, it is apparent that performance of the Brunson Pool during the period of reduction in allowable experiment may be summarized as follows:

1. Oil production rates have been curtailed to amounts varying from 62 per cent to 77 per cent of previous production rates.

2. 20 additional wells have been drilled.

3. Percentage water production in total fluids has remained small but has increased during the experiment at rates slightly higher than previously.

4. Gas-oil ratios have increased during the experiment at a rate more rapid than before which is partially caused by allowing the higher-gas-oil ratio wells to produce a larger share of the pool's total oil

5. Bottom hole presure decline trends have not been noticeably affected by the change in the oil production rates.

All of these observations are reasonable and are to be

expected in dissolved gas drive reservoirs. Apparently there is no large water quifer in the Ellenburger formation which is in active communication with the Brunson Pool for drastic reduction in producing rates was not able to cause any appreciable movement of this water which could be observed by change in bottom hole pressure trends or any other trends. It is therefore believed, from data thus far accumulated, that the reasonable fluctutations in producing rate, observed in the past, have not affected the ultimate recovery to be expected from the Brunson Pool."

At this time, I believe Mr. Durst with the Rowan Oil Company will present the recommendations for continued production in the Brunson Pool and for the Brunson Pool Operators.

MR. DURST: In view of this information that Mr. Guernsey has submitted the Brunson Pool operators recommend and request that effective September 1, 1951, the allowable reduction experiment at Brunson be ended and that the Brunson Pool be restored to the normal allowable applicable to wells in the 7000 to 8000 depth bracket. The previous depth bracket at Brunson used for allowable purposes prior to the allowable reduction was the 8000 to 9000 foot bracket. However, the Brunson Pool operators respectfully submit the following reasons for using the 7000 to 8000 instead of the 8000 to 9000 foot bracket:

1. 62 wells or 66 per cent of the 94 wells currently producing at Brunson have

total depths in the 7000 to 8000 foot depth range.

2. Allowable production rates commensurate with this depth bracket (currently 122 BOPD) have been observed at Brunson and are known to cause no waste.

3. The 7000 to 8000 foot depth bracket is in use at North Brunson and it is felt that because of probable combination of the pools, the allowables in both pools should be identical.

The Brunson Pool operators further recommend and request the Oil Conservation Commission order semi-annual gas-oil ratio surveys in the Brunson Pool during the months of February-March and August-September. These gas-oil ratios are to be filed with the Commission by the 15th of the month following each survey period and used for proration purposes.

MR. SPURRIER: Anything further?

MR. DURST: That is all.

MR. SPURRIER: Any further questions?

MR. SMITH: M. T. Smith, Shell Oil Company. In regard to the Brunson case, Shell Oil has a producer and purchaser in the field, have a firm market for any additional crude that you might allocate to the Brunson formation and we have transportation facilities for moving it.

MR. SENTER: Frank W. Senter. We would like to join with Mr. Smith as a purchaser in the Brunson Field with a firm market demand and pipeline facilities transporting this, which is to be filed with the Commission.

MR. SPURRIER: Anyone else?

MR. SPELLMAN: D. K. Spellman with Ohio Oil Company. We wish to state that Ohio is in agreement with Rowan on its conclusions and recommendations for the Brunson Pool.

MR. SPURRIER: Anyone else?

MR. SHAFER: E. L. Shafer, Continental Oil Company. Continental is also in agreement with Rowan Oil Company in their recommendation to the Oil Conservation Commission regarding the Brunson Pool.

MR. McPHERON: R. G. McPheron, Gulf Oil Corporation. We would like to say that we helped on the study just presented and we concur with it.

MR. SPURRIER: Anyone else?

MR. GUERNSEY: A. T. Guernsey, Shell Oil Company. Shell Oil Company concurs with the recommendation of the Brunson Pool Sub-Committee.

MR. SPURRIER: Anyone else? You may be excused.

STATE OF NEW MEXICO)
: ss.
COUNTY OF BERNALILLO)

I HEREBY CERTIFY that the foregoing and attached Transcript of Hearing in Case No. 202, before the Oil Conservation Commission, taken at Santa Fe, New Mexico, on August 21, 1951, is a true and correct record of the same to the best of my knowledge, skill and ability.

DATED at Albuquerque, New Mexico this 17th day of September, 1951.

Ada Dearnley
REPORTER

My Commission Expires:
June 19, 1955

BEFORE THE
OIL CONSERVATION COMMISSION
STATE OF NEW MEXICO

TRANSCRIPTION OF HEARING

CASE NO. 202

21 June 1951
(DATE)

E. E. GREESON
ADA DEARNLEY
COURT REPORTERS
BOX 1302
PHONE 2-4547
ALBUQUERQUE, NEW MEXICO

Exh B

BRUNSON POOL BOTTOM HOLE PRESSURES

Pool Datum - 4300' Nominal Shut-in Time 48 hrs.

COMPANY / LEASE	WELL	UNIT	S.T.R.	DATE PRESS. RUN	TIME S.I. HRS/MIN.	GAUGE DEPTH	GRADIENT TBY	B.H.P. @ GAUGE DEPTH	B.H.P. @ FIELD DATUM	PREVIOUS TEST PRESS.	PREVIOUS TEST DATE
AMERADA PET. CORP.											
Corrigan	5	G	4-22-37	11-7-49	51/00	7766			1836	1972	6-3-49
"	6	B	"	"	50/30	7666	30#/100'	1669	1699	1950	"
"	7	H	"	"	54/15	7597	30#/100'	1567	1642	1701	"
"	11	A	"	"	51/50	7559	30#/100'	1993	2053	2168	"
Hare	4	N	33-21-37	"	53/30	7759			2061	2175	6-6-49
"	5	K	"	"	52/45	7756			1871	1853	"
Walden	1	K	15-22-37	11-8-49	51/30	7691			862	1104	6-7-49
"	3	N	"			7693				1066	"
"	4	L	"			7710				1208	"
Wood	5	B	22-22-37	11-8-49	49/00	7675			1605	1640	"
"	6	A	"	"	48/30	7510	30#/100'	1628	1673	1901	"
CARTER, A. G. FOUNDATION											
Elliott	3	C	22-22-37	11-8-49	47/15	7686	Gas		564	490	6-22-49
CITIES SERVICE OIL CO.											
Brunson B	1	I	4-22-37	11-7-49	49/00	7547	30#/100'	2041	2101	2229	6-13-49
"	6	M	3-22-37	"	50/00	7394	30#/100'	2189	2292	2398	"
CONTINENTAL OIL CO.											
Elliott A-15	3	O	15-22-37	11-18-49	50/10	7682			1221	1580	5-5-49
"	5	P	"	"	49/55	7670			1169	1381	"
" B-15	2	I	"	"	49/00	7372	3#/100'	916	925	1036	"
Lockhart A-27	1	E	27-21-37	"	52/30	7700	30#/100'	2718	2727		
Wantz	1	O	21-21-37	"	52/45	7759			2442		
GULF OIL CORP.											
Carson, J.N.	5	J	28-21-37	11-9-49	50/25	7744			2471	2630	5-26-49
"	7	B	33-21-37	"	54/00	7570	30#/100'	2221	2278	2426	5-18-49
"	8	O	28-21-37	"	50/00	7751			2474	2645	"
"	9	K	"	"	52/00	7755			2500	2656	5-26-49
" "C"	5	A	33-21-37	"	52/55	7400	30#/100'	2061	2162	2337	5-18-49
"	6	P	28-21-37	"	51/20	7390	30#/100'	2195	2302	2450	"
"	8	H	"	"	52/00	7560	30#/100'	2009	2061		
Cole "A"	5	I	16-22-37			7716				1015	5-25-49
"	6	B	"	11-10-49	50/25	7718			1157	1241	"

BRUNSON B.H.P. CONT'D.

COMPANY / LEASE	WELL UNIT		S.T.R.	DATE PRESS. RUN	TIME S.I. HRS/MIN.	GAUGE DEPTH	GRADIENT TBY	B.H.P. @ GAUGE DEPTH	B.H.P. @ FIELD DATUM	PREVIOUS TEST PRESS.	PREVIOUS TEST DATE
GULF OIL CONT'D.											
Cole "A"	7	H	16-22-37	11-10-49	51/00	7716			1490	1822	5-19-49
King	7	G	28-21-37	"	52/10	7747			2307	2649	5-20-49
"	10	B	"	"	54/00	7756			2339	2471	5-26-49
"	12	A	"	"	53/50	7741			2474	2573	"
"	15	F	"	"	51/40	7761			2493		
"	17	C	"	"	53/15	7766			2512		
"	18	E	"	"	53/50	7768			2480		
Rinewalt	2	E	4-22-37	11-9-49	49/35	7756			2067	2230	5-19-49
titcher	2	N	"	"	48/50	7740			2073	2208	6-24-49
HUMBLE OIL & RFG. CO.											
Ferrel	2	A	22-22-37			7648			W.O.	2278 Pump	5-30-49
Greenwood	8	K	9-22-37								
"	9	J	"	11-14-49	51/00	7722			1955	2069	5-30-49
"	10	P	"	"	52/00	7578	30#/100'	1746	1791	1798	"
"	12	O	"	"	51/50	7724			1897	1991 Pump	"
"	13	L	"								
MAGNOLIA PET. CO.											
Brunson	9	B	9-22-37	11-15-49	53/20	7736			2137	2305	5-12-49
"	10	G	"	"	53/45	7733			1968	2117	"
"	11	A	"	"	52/50	7542	30#/100'	2054	2109	2112	"
"	16	D	10-22-37	"	52/10	7774	30#/100'	2224	2308		
Carson, E.O.	10	F	33-21-37	11-16-49	66/35	7764			2545	1411	5-9-49
"	13	G	"	11-15-49	49/30	7561	30#/100'	2019	2079	2267	"
"	14	C	"			7771			Kobe	2573	"
"	16	D	"			7774			No Run	2585	"
"	17	N	"	11-15-49	50/00	7761			2435	2607	5-10-49
"	18	M	28-21-37	"	49/30	7761			2343	2630	"
"	19	L	"			7774			Kobe	2615	"
Carson, J.N.	2	H	33-21-37	11-16-49	48/45	7362	30#/100'	1871	1991	2180	"
Corrigan	1	O	"	"	48/45	7577			1871	2107	5-11-49
"	4	J	"	"	49/15	7551	30#/100'	1871	1926	2160	6-8-49
"	7	P	"	"	48/10	7399	30#/100'	1734	1839	2037	5-11-49
PENROSE, N. G.											
Elliott B-9	4	C	9-22-37	11-17-49	49/15	7735			1352	1685	6-23-49
Penrose	1	F	"	"	50/45	7729			1708	1984	"

BRUNSON B.H.P. CONT'D.

COMPANY / LEASE	WELL UNIT	S.T.R.	DATE PRESS. RUN	TIME S.I. HRS/MIN.	GAUGE DEPTH	GRADIENT TBY	B.H.P. @ GAUGE DEPTH	B.H.P. @ FIELD DATUM	PREVIOUS TEST PRESS.	PREVIOUS TEST DATE
PENROSE, N. G. CONT'D.										
Penrose	3 E	9-22-37							Pump	
Walden	4 E	15-22-37	11-17-49	49/50	7708	Gas		1525		
ROWAN OIL CO.										
Elliott B-9	3 D	9-22-37							Pump	
Walden	3 C	15-22-37	11-8-49	54/00	7496	30#/100'	1452	1515	1649	6-27-49
"	6 D	"	"	54/30	7607			1570	1788	"
Elliott A-15	1 J	"	"	55/15	7642	30#/100'	1067	1082	1284	"
SHELL OIL CO.										
Rinewalt	3 F	4-22-37			7756				2194	4-22-49
"	4 C	"	11-18-49	48/00	7748			2080	2187	"
SINCLAIR OIL & GAS CO.										
Brunson	4 O	4-22-37	11-14-49	47/45	7726			2086	2195	6-15-49
"	5 J	"	"	48/20	7699	30#/100'	2064	2079	2165	"
"	8 L	"	"	47/15	7423	30#/100'	2099	2190	2305	"
SKELLY OIL CO.										
Baker B	6 M	10-22-37								
Stitcher	1 K	4-22-37	11-16-49	48/30	7749			2083	2217	6-10-49
"	4 L	"	"	49/10	7756			2089	2217	"
SOUTHERN PET. EXPL. CO.										
Rinewalt B	1 D	4-22-37	11-17-49	49/25	7763			2083	2211	5-13-49
STANOLIND OIL & GAS CO.										
Corrigan	2 I	33-21-37	11-18-49	48/30	7349	3#/100'	1766	1778	1948	6-20-49
TIDEWATER ASSOC. OIL CO.										
Brunson	1 P	4-22-37	11-18-49	52/00	7544	30#/100'	2099	2158	2254	5-27-49
Clifton	2 M	"							Pump	

ALL WELLS RUN	TOTAL PRESSURE	AVERAGE PRESSURE	CHANGE
64 wells run May/June 1949	129,330	2020.8	
64 wells run Nov/Dec. 1949	124,955	1952.4	- 68.4
COMPARABLE WELLS			
56 wells run May/June 1949	113,796	2032.1	
56 wells run Nov/Dec. 1949	106,407	1900.1	- 132.0

Pressures are incomplete. 4 wells have not been run.

BRUNSON POOL

PRESSURE-PRODUCTION DATA

Press. Survey	Press. -4300	Wells Bombed	No. Wells in Pool	Prod. Bbls Period	Prod. Bbls. Cumulative	Press.Drop Period	Press.Drop Cumulative	Bbls/Lb. Drop Period	Bbls/Lb. Drop Cumulative
Sept. 14, 1945	2945	1	1	0	0	0	0	0	0
Dec. 1, 1946	2860	14	15	304,864	304,364	85	85	3,587	3,587
June 1, 1947	2705	25	33	433,641	738,505	155	240	2,798	3,077
Dec. 1, 1947	2551	40	45	812,426	1,550,931	154	394	5,275	3,936
June 1, 1948	2479	51	57	1,169,745	2,720,676	72	466	16,246	5,838
Dec. 1, 1948	2288	56	65	1,398,655	4,119,331	191	657	7,323	6,270
June 1, 1949	2021	64	74	1,520,927	5,640,258	267	924	5,696	6,104
Dec. 1, 1949	1908	68	79	1,507,000	7,147,258	113	1037	13,336	6,892
Feb. 1, 1950	1880	68	79	552,979	7,700,237	28	1065	19,749	7,230
Aug. 1, 1950	1809	72	86	1,007,311	8,707,548	71	1136	14,187	7,665

BRUNSON POOL BOTTOM HOLE PRESSURES
Datum - 4300' Shut-In Time 48 Hours

COMPANY LEASE	WELL UNIT		S.T.R.	1949 May-June	1949 Nov.-Dec.	1950 1st Feb.	1950 1st Apr.	1950 1st June	1950 1st Aug.
AMERADA PET. CORP.									
Corrigan	5	G	4-22-37	1972	1836	1767			1763
"	6	B	"	1950	1699	1582			1765
"	7	H	"	1701	1642				1618
"	11	A	"	2168	2053	1956	1976	1948	1888
Hare	4	N	33-21-37	2175	2061	1962			1905
"	5	K	"	1853	1871	1552	1583	1715	1704
Walden	1	K	15-22-37	1104	862	802	804	744	697
"	3	N	"	1066	872	783			666
"	4	L	"	1208	920	848			709
Wood	5	B	22-22-37	1640	1605	1592			1508
"	6	A	"	1901	1673	1557	1568	1636	1622
CARTER, A. G. FOUNDATION									
Elliott	3	C	22-22-37	490	564				
CITIES SERVICE OIL CO.									
Brunson B	1	I	4-22-37	2229	2101	2044	1971	1926	1874
"	6	M	3-22-37	2398	2292	2140			2121
CONTINENTAL OIL CO.									
Elliott A-15	3	O	15-22-37	1580	1221	1120			1025
"	5	P	"	1381	1169	1260			743
Elliott B-15	2	I	"	1036	925	860			1026
LockhartA-27	1	E	27-21-37		2727	2640			2524
Wantz E	1	O	21-21-37		2442	2280			
"	2	N	"			2050			
GULF OIL CORP.									
Carson,J.N.	5	J	28-21-37	2630	2471	2413			2307
"	7	B	33-21-37	2426	2278	2190			2078
"	8	O	28-21-37	2645	2474	2404	2373	2348	2295
"	9	K	"	2656	2500	2439			2287
Carson C	5	A	33-21-37	2337	2162	2087			1983
"	6	P	28-21-37	2450	2302	2219			2116
"	8	H	"		2061	2048			1804
Cole A	5	I	16-22-37	1015	898	869			628
"	6	B	"	1241	1157	1502			797
"	7	H	"	1822	1490		1184	1083	963
Eubank	5	B	22-21-37						2720
"	6	G	"						2704
King	7	G	28-21-37	2649	2307	2404			2334
"	10	B	"	2471	2339	2069			2098
"	12	A	"	2573	2474	2383			2253
"	15	F	"		2493	2356	2345	2340	2303
"	17	C	"		2512	2387			2330
"	18	E	"		2480	2252			2121
"	21	H	"						2380
Rinewalt	2	E	4-22-37	2230	2067	2012			1855
Stitcher	2	N	"	2208	2073	1999	1941	1911	1924

BRUNSON POOL B.H.P'S CONT'D.

COMPANY / LEASE	WELL	UNIT	S.T.R.	1949 May-June	1949 Nov.-Dec.	1950 1st Feb.	1950 1st Apr.	1950 1st June	1950 1st Aug.
HUMBLE OIL & RFG. CO.									
Ferrel	2	A	22-22-37	2278	Plugged				
Greenwood	8	K	9-22-37	Pump					
"	9	J	"	2069	1955	1850	1826	1749	1658
"	10	P	"	1798	1791	1646			1626
"	12	O	"	1991	1897	1775			1693
"	13	L	"	Pump					
MAGNOLIA PET. CO.									
Brunson	9	B	9-22-37	2305	2137	2026			1886
"	10	G	"	2117	1968	1877			1743
"	11	A	"	2112	2109	2007	2003	1953	1879
"	16	D	10-22-37		2308	2175			2109
Carson,E.O.	10	F	33-21-37	1411	2545	2383			Pump
"	13	G	"	2267	2079	2016			Pump
"	14	C	"	2573	Pump				
"	16	D	"	2585		2354			Pump
"	17	N	"	2607	2435	2304			2260
"	18	M	28-21-37	2630	2343	2291	2294	2224	2210
"	19	L	"	2615	Pump				
Carson,J.N.	2	H	33-21-37	2180	1991	1935	193[illegible]	1933	1952
Corrigan	1	O	"	2107	1871	1867			1775
"	4	J	"	2160	1926	1926			1826
"	7	P	"	2037	1839	1807			1868
OHIO OIL CO.									
Warlick C	5	P	15-21-37						2697
Marshall	7	D	27-21-37						2426
PENROSE, N. G.									
Elliott B-9	4	C	9-22-37	1685	1352	1269			1211
Penrose	1	F	"	1984	1708	1647			1573
"	3	E	"	Pump					
Walden	4	E	15-22-37		1525	1329			1021
ROWAN OIL CO.									
Elliott B-9	3	D	9-22-37	Pump					
Walden	3	C	15-22-37	1649	1515	1303			993
"	6	D	"	1788	1570	1360	1266	1166	1157
Elliott A-15	1	J	"	1284	1082				838
SHELL OIL CO.									
Argo A	6	C	22-21-37						2700
Rinewalt	3	F	4-22-37	2194	2069	1997			1905
"	4	C	"	2187	2080	2003	1955	1941	1886
Turner	7	L	22-21-37			2613			2477
"	9	K	"						2571
SINCLAIR OIL & GAS CO.									
Brunson	4	O	4-22-37	2195	2086	1998			1855
"	5	J	"	2265	2079	1993			1866
"	8	L	3-22-37	2305	2190	2010			1852
SKELLY OIL CO.									
Baker B	14	M	10-22-37			1373			
Stitcher	1	K	4-22-37	2217	2083	2026			1871
"	4	L	"	2217	2089	2034			1878

BRUNSON POOL B.H.P'S CONT'D.

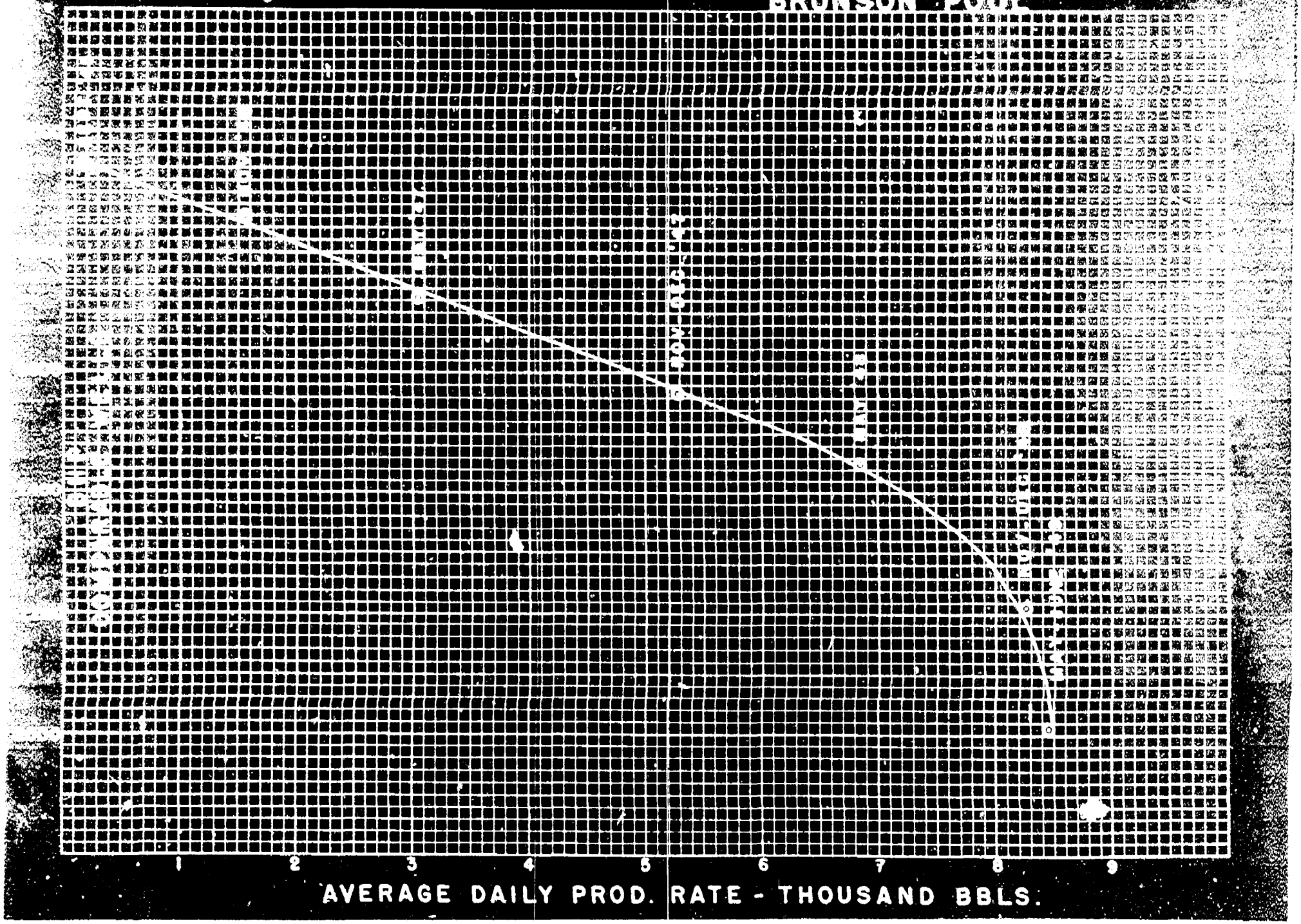
COMPANY / LEASE	WELL	UNIT	S.T.R.	1949 May-June	1949 Nov.-Dec.	1950 1st Feb.	1950 1st Apr.	1950 1st June	1950 1st Aug.
SOUTHERN PET. EXPL. CO.									
Rinewalt	B	1 D	4-22-37	2211	2083	1998			1894
STANOLIND OIL & GAS CO.									
Corrigan	2	I	33-21-37	1948	1778	1782			1767
TIDEWATER ASSOC. OIL CO.									
Brunson	1	P	4-22-37	2254	2158	2037			1995
Clifton	2	M	"	Pump			P. B. To Drinkard		
TOTAL PRESSURES				129330	129714	127839	27023*	26617*	130256
NO. WELLS RUN				64	68	68	15*	15*	72
AVERAGE PRESSURE				2021	1908	1880	1802*	1775*	1809

* Key Well Survey

NO. 340-10 DIETZGEN GRAPH PAPER
10 X 10 PER INCH

EUGENE DIETZGEN CO.
MADE IN U. S. A.

BRUNSON POOL



BRUNSON POOL

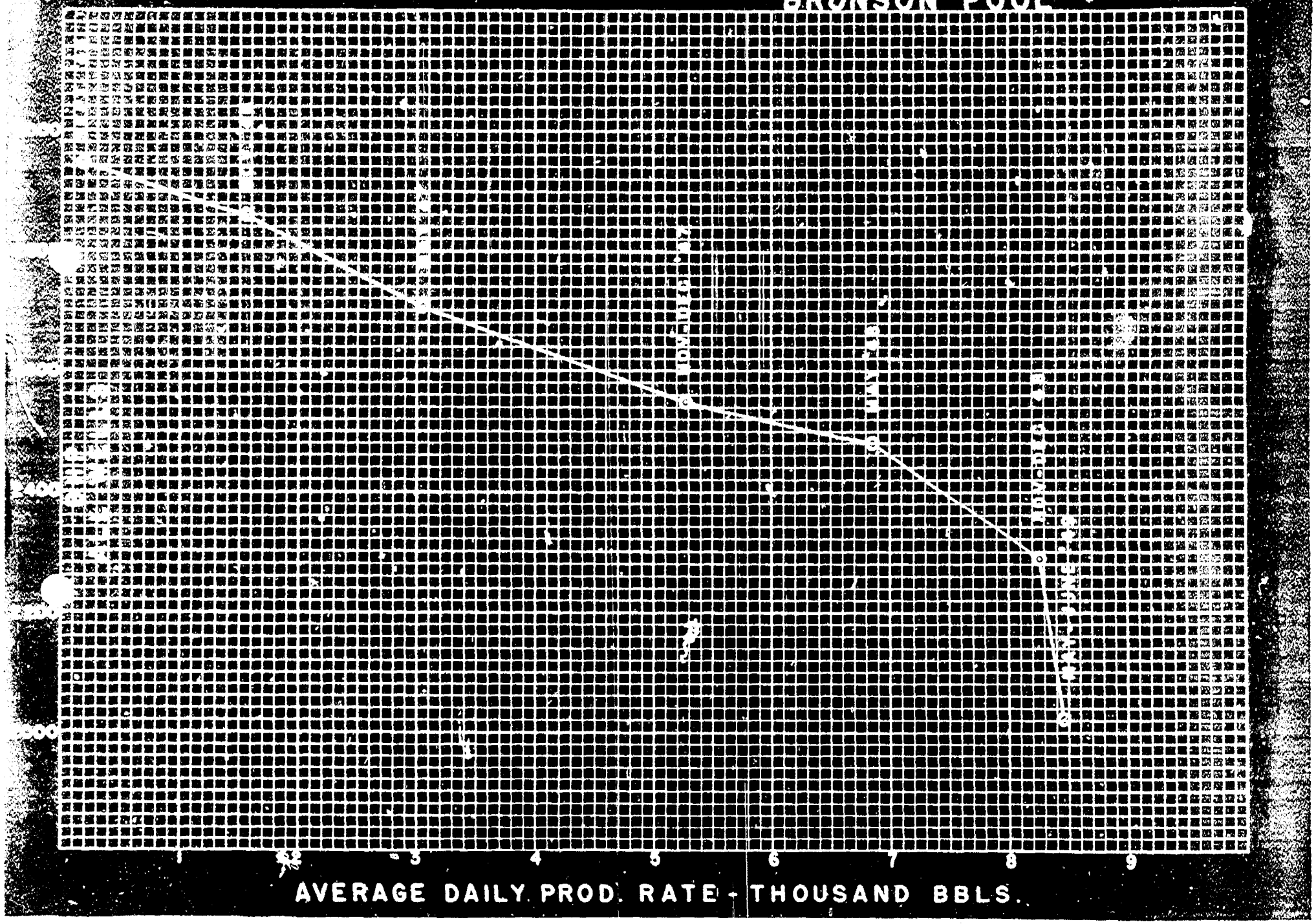
100 200 300 400 500 600 700 800 900

TOTAL BHP DROP

NO. 340-10 DIETZGEN GRAPH PAPER
10 X 10 PER INCH

EUGENE DIETZGEN CO.
MADE IN U. S. A.

BRUNSON POOL



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

P. O. Box 997
Roswell, New Mexico

August 7, 1950

Mr. John E. Cochran, Jr.
Carper Building
Artesia, New Mexico

Re: Lease Las Cruçes 028775(b)

Dear Mr. Cochran:

Reference is made to the application of American Republics Corporation which you, as their attorney, stated you submitted to the Oil Conservation Commission of New Mexico for an order granting permission to drill four unorthodox "five spot" well locations in secs. 27 and 35, T. 17 S., R. 29 E., N.M.P.M., Eddy County, New Mexico.

The land involved in the application is embraced in Federal oil and gas lease Las Cruces 028775(b), which is held and operated by American Republics Corporation. The unorthodox well locations set forth in the application are as follows:

Robinson "B" Well No.	N. of S. line Sec. 27	E. of W. line, Sec. 27
28	1345 feet	2615 feet
	S. of N. line, Sec. 27	W. of E. line, Sec. 27
29	2615 feet	1295 feet
	S. of N. line, Sec. 35	E. of W. line, Sec. 35
30	1295 feet	1345 feet
	S. of N. line, Sec. 27	E. of W. line, Sec. 27
31	2615 feet	2615 feet

Each of the four locations is approximately 25 feet from the boundary of adjoining Federal lease Las Cruces 028775(a) (also held and operated by American Republics Corporation) and is approximately 1295 feet from nearest boundary of any other lease.

Ex. 3

No objection is offered by this office to the well spacing plan providing for drilling of four wells at locations specified in the application to test the producing reservoir of Grayburg-Jackson pool. Drilling of these wells may afford opportunity for additional recovery of oil and gas from the producing reservoir. Approval to drill the wells will be contingent upon approval of the unorthodox locations for proration purposes by the Oil Conservation Commission of the State of New Mexico.

Very truly yours,

Foster Morrell

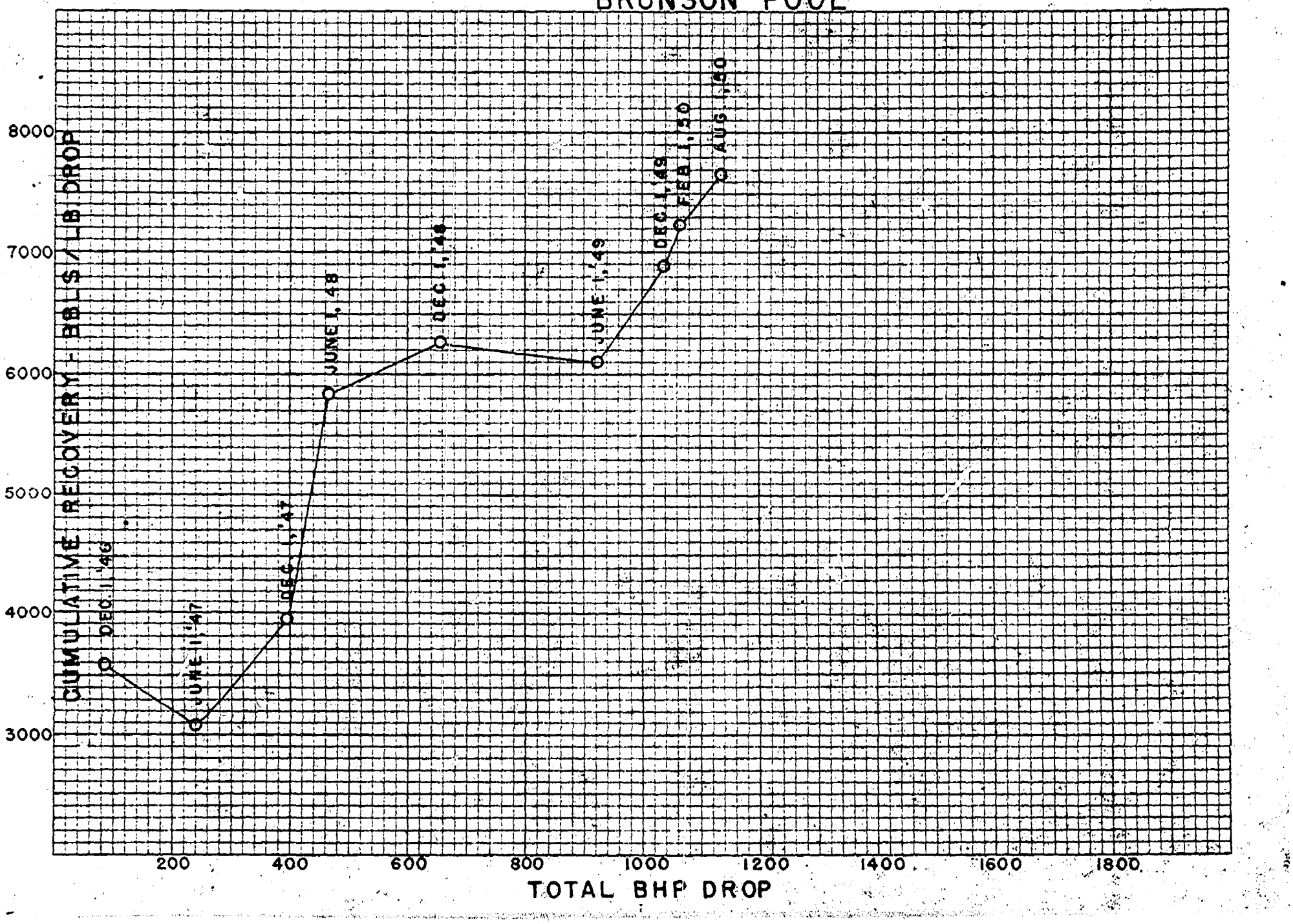
Foster Morrell
Oil and Gas Supervisor
Southwestern Region

cc: Mr. Cochran

NO. 340-10 DIETZGEN GRAPH PAPER
10 X 10 PER INCH

EUGENE DIETZGEN CO.
MADE IN U. S. A.

Ex=3
Case 202



Ex #1 Case 202

BRUNSON POOL

PRESSURE-PRODUCTION DATA

Press. Survey	Press. -4300	Wells Bombed	No. Wells in Pool	Prod. Bbls. Period	Prod. Bbls. Cumulative	Press.Drop Period	Press.Drop Cumulative	Bbls/Lb. Period	Drop Cumulative
Sept. 14, 1945	2945	1	1	0	0	0	0	0	0
Dec. 1, 1946	2860	14	15	304,864	304,864	85	85	3,587	3,587
June 1, 1947	2705	25	33	433,641	738,505	155	240	2,798	3,077
Dec. 1, 1947	2551	40	45	812,426	1,550,931	154	394	5,275	3,936
June 1, 1948	2479	51	57	1,169,745	2,720,676	72	466	16,246	5,838
Dec. 1, 1948	2288	56	65	1,398,655	4,119,331	191	657	7,323	6,270
June 1, 1949	2021	64	74	1,520,927	5,640,258	267	924	5,696	6,104
Dec. 1, 1949	1908	68	79	1,507,000	7,147,258	113	1037	13,336	6,892
Feb. 1, 1950	1880	68	79	552,979	7,700,237	28	1065	19,749	7,230
Aug. 1, 1950	1809	72	86	1,007,311	8,707,548	71	1136	14,187	7,665

BRUNSON POOL BOTTOM HOLE PRESSURES
Datum - 4300' Shut-In Time 48 Hours

COMPANY / LEASE	WELL UNIT		S.T.R.	1949 May-June	1949 Nov.-Dec.	1950 1st Feb.	1950 1st Apr.	1950 1st June	1950 1st Aug.
AMERADA PET. CORP.									
Corrigan	5	G	4-22-37	1972	1836	1767			1763
"	6	B	"	1950	1699	1582			1765
"	7	H	"	1701	1642				1618
"	11	A	"	2168	2053	1956	1976	1948	1888
Hare	4	N	33-21-37	2175	2061	19[illegible]			1905
"	5	K	"	1853	1871	1552	1583	1715	1704
Walden	1	K	15-22-37	1104	862	802	804	744	697
"	3	N	"	1066	872	783			666
"	4	L	"	1208	920	848			709
Wood	5	B	22-22-37	1640	1605	1592			1508
"	6	A	"	1901	1673	1557	1568	1636	1622
CARTER, A. G. FOUNDATION									
Elliott	3	C	22-22-37	490	564				
CITIES SERVICE OIL CO.									
Brunson B	1	I	4-22-37	2229	2101	2044	1971	1926	1874
"	6	M	3-22-37	2398	2292	2140			2121
CONTINENTAL OIL CO.									
Elliott A-15	3	O	15-22-37	1580	1221	1120			1025
"	5	P	"	1381	1169	1260			743
Elliott B-15	2	I	"	1036	925	860			1026
LockhartA-27	1	E	27-21-37		2727	2640			2524
Wantz E	1	O	21-21-37		2442	2280			
"	2	N	"			2050			
GULF OIL CORP.									
Carson,J.N.	5	J	28-21-37	2630	2471	2413			2307
"	7	B	33-21-37	2426	2278	2190			2078
"	8	O	28-21-37	2645	2474	2404	2373	2348	2295
"	9	K	"	2656	2500	2439			2287
Carson C	5	A	33-21-37	2337	2162	2087			1983
"	6	P	28-21-37	2450	2302	2219			2116
"	8	H	"		2061	2048			1804
Cole A	5	I	16-22-37	1015	898	869			628
"	6	B	"	1241	1157	1502			797
"	7	H	"	1822	1490		1184	1083	963
Eubank	5	B	22-21-37						2720
"	6	G	"						2704
King	7	G	28-21-37	2649	2307	2404			2334
"	10	B	"	2471	2339	2069			2098
"	12	A	"	2573	2474	2383			2253
"	15	F	"		2493	2356	2345	2340	2303
"	17	C	"		2512	2387			2330
"	18	E	"		2480	2252			2121
"	21	H	"						2380
Rinewalt	2	E	4-22-37	2230	2067	2012			1855
Stitcher	2	N	"	2208	2073	1999	1941	1911	1824

BRUNSON POOL B.H.P'S CONT'D.

COMPANY LEASE	WELL UNIT	S.T.R.	1949 May-June	1949 Nov.-Dec.	1950 1st Feb.	1950 1st Apr.	1950 1st June	1950 1st Aug.
HUMBLE OIL & REG. CO.								
Ferrel	2 A	22-22-37	2278	Plugged				
Greenwood	8 K	9-22-37	Pump					
"	9 J	"	2069	1955	1850	1826	1749	1658
"	10 P	"	1798	1791	1646			1626
"	12 O	"	1991	1897	1775			1693
"	13 L	"	Pump					
MAGNOLIA PET. CO.								
Brunson	9 B	9-22-37	2305	2137	2026			1886
"	10 G	"	2117	1968	1877			1743
"	11 A	"	2112	2109	2007	2003	1953	1879
"	16 D	10-22-37		2308	2175			2109
Carson,E.O.	10 F	33-21-37	1411	2545	2383			Pump
"	13 G	"	2267	2079	2016			Pump
"	14 C	"	2573	Pump				
"	16 D	"	2585		2354			Pump
"	17 N	"	2607	2435	2304			2260
"	18 M	28-21-37	2630	2343	2291	2294	2224	2210
"	19 L	"	2615	Pump				
Carson,J.N.	2 H	33-21-37	2180	1991	1935	1934	1933	1952
Corrigan	1 O	"	2107	1871	1867			1775
"	4 J	"	2160	1926	1926			1826
"	7 P	"	2037	1839	1807			1868
OHIO OIL CO.								
Warlick C	5 P	15-21-37						2697
Marshall	7 D	27-21-37						2426
PENROSE, N. G.								
Elliott B-9	4 C	9-22-37	1685	1352	1269			1211
Penrose	1 F	"	1984	1708	1647			1573
"	3 E	"	Pump					
Walden	4 E	15-22-37		1525	1329			1021
ROWAN OIL CO.								
Elliott B-9	3 D	9-22-37	Pump					
Walden	3 C	15-22-37	1649	1515	1303			993
"	6 D	"	1788	1570	1360	1266	1166	1157
Elliott A-15	1 J	"	1284	1082				838
SHELL OIL CO.								
Argo A	3 C	22-21-37						2700
Rinewalt	3 F	4-22-37	2194	2069	1997			1905
"	4 C	"	2187	2080	2003	1955	1942	1886
Turner	7 L	22-21-37			2613			2477
"	9 K	"						2571
SINCLAIR OIL & GAS CO.								
Brunson	4 O	4-22-37	2195	2086	1998			1855
"	5 J	"	2265	2079	1993			1866
"	8 L	3-22-37	2305	2190	2010			1852
SKELLY OIL CO.								
Baker B	14 M	10-22-37			1373			
Stitcher	1 K	4-22-37	2217	2083	2026			1871
"	4 L	"	2217	2089	2034			1878

BRUNSON POOL B.H.P'S CONT'D.

COMPANY / LEASE	WELL UNIT	S.T.R.	1949 May-June	1949 Nov.-Dec.	1950 1st Feb.	1950 1st Apr.	1950 1st June	1950 1st Aug.
SOUTHERN PET. EXPL. CO.								
Rinewalt	B 1 D	4-22-37	2211	2083	1998			1894
STANOLIND OIL & GAS CO.								
Corrigan	2 I	33-21-37	1948	1778	1782			1767
TIDEWATER ASSOC. OIL CO.								
Brunson	1 P	4-22-37	2254	2158	2037			1995
Clifton	2 M	"	Pump			P. B. To Drinkard		
TOTAL PRESSURES			129330	129714	127839	27023*	26617*	130356
NO. WELLS RUN			64	68	68	15*	15*	72
AVERAGE PRESSURE			2021	1908	1880	1802*	1775*	1809

* Key Well Survey

NO. 340-10 DIETZGEN GRAPH PAPER
10 X 10 PER INCH

EUGENE DIETZGEN CO.
MADE IN U. S. A.

BRUNSON POOL

100 200 300 400 500 600 700 800 900

TOTAL BHP DROP

CASE 202

Concerning New Mexico Oil Conservation Commission Orders R-4 and R-30 which reduced and continued the reduction of allowable of the Brunson Pool, Lea County, New Mexico.

GENERAL DISCUSSION OF THE BRUNSON POOL

" The Brunson Pool was discovered in September, 1945, when N. G. Penrose completed his Federal Fee Well No. 1 in Section 9, Township 22S, Range 37E, Lea County, New Mexico. Since discovery, a total of 105 producing wells have been drilled in the Brunson Pool. Oil and gas production is obtained from the Ellenburger formation and the various wells produce from intervals between 7300 feet and 8100 feet. To the east, the up-dip limits of the pool have been defined by post-Ellenburger erosion -- which process has caused complete removal of the producing formation along the east edge of the field. To the west, the down-dip limits of the pool are defined by the contact of the bottom water level and the top of the steeply dipping producing sediments. To the south, the limits of the pool are determined by minor cross-faulting and/or by poor reservoir development of porosity and permeability. In these three directions, the pool is considered effectively developed, and about 4100 acres have thus far been proved by development. Current drilling is extending the pool to the north. At present, 94 wells are producing and 11 have either been abandoned, shut down, or plugged back to a shallower pay zone.

" Until July 1, 1951, the Brunson Pool has produced 10,668,780 barrels of oil, 509,351 barrels of water, and 18,841,964 Mcf of gas. The cumulative gas-oil ratio has been 1766 cubic feet per barrel and the cumulative water cut has been 4.6 per cent of total fluids produced. The original bottom hole pressure at 4300 feet subsea was 2945 psi and the average bottom hole pressure measured in April, 1951 was 1797 psi. The saturation pressure has been reported as 2472 psi and the solution gas-oil ratio at this pressure is 1010 cubic feet per barrel.

" It is now obvious that the great bulk of the Brunson Pool is producing under the influence of a dissolved gas drive mechanism, although there may be isolated portions which contain less than 9 per cent of the currently producing wells and probably less than 6 per cent of the acreage which will ultimately become productive, which may behave in a different manner.

DISCUSSION OF THE REDUCTION IN ALLOWABLE EXPERIMENT

" At the end of January, 1950, there were 81 producing wells in the Brunson Pool. These wells had accumulated to this date 7,645,647 barrels of oil, 210,703 barrels of water, and 11,011,273 Mcf of gas. The cumulative gas-oil rati at this time was 1440 cubic feet per barrel and the cumulative water cut was 2.7 per cent of total fluids produced. The average bottom hole pressure in the pool was 1880 psi which represented a drop of 1065 psi from the original pressure.

" At this time most operators realized that the Brunson Pool was producing under the influence of a dissolved gas drive, which sort of drive is one of the more inefficient types of reservoir recovery mechanisms. Therefore, the operators felt that if another type of reservoir recovery mechanism could be encouraged ultimate oil recovery from the field could be increased. It was believed that if oil production rates were curtailed, edge water or bottom water might be encouraged to encroach into the reservoir in amounts more nearly equal to reservoir withdrawals. Hence, a higher bottom hole pressure would be maintained, gas-oil ratios would be lessened,

wells would flow longer, less gas would break out of solution in the reservoir, operating costs would be reduced, and ultimate recovery would be increased.

"Therefore, at the request of one of the Brunson Pool operators, the per well allowable for the Brunson Pool was reduced from 126 to 90 barrels of oil per day for an experimental period of six months during which time the operators would conduct tests and gather data as to the characteristics of the reservoir. The experimental period commenced February 1, 1950. In order to conduct additional tests and to gather additional data, the Oil Conservation Commission, at the operator's request, ordered the experiment continued for a second six-month period. After this date, the experimental period has been continued about seven more months because of two requests from the operators asking postponement of re-hearing of Case 202. These postponements were asked in order to permit the operators to conduct one more bottom hole pressure survey and to complete their final studies as to the characteristics of the reservoir. On September 1, 1951 the allowable reduction experiment in the Brunson Pool will have lasted 19 months.

"During the experimental period oil, water, and gas production have, of course, been measured each month; four field-wide bottom hole pressure surveys have been conducted; numerous operators' meetings have been held; several sub-committees have been appointed for special study purposes; and the operators are now prepared to present the results of their study to the Oil Conservation Commission and to make their recommendation for the manner of producing the pool in the future.

DISCUSSION OF RESERVOIR MECHANICS

"Attachment A is a composite graph of statistics for the Brunson Pool from first production and until July 1, 1951. Oil production rate, gas-oil ratio, percentage water in total fluids, number of producing wells, arithmetic average bottom hole pressure, and weighted average bottom hole pressure are plotted against cumulative oil production from the entire field. The beginning and end of each year are also shown on the composite graph. The following observations from Graph A are worthy of especial comment:

(1) "Oil Production Rate

During January, 1950, the pool produced 254,889 barrels of oil. During February, 1950 (the first month of the allowable reduction experiment), the pool produced 159,336 barrels of oil. Because of subsequent development, the production rate increased to 195,474 barrels of oil in June, 1951. This latter rate is still less than the rate in effect at the beginning of the experiment.

(2) "Number of Producing Wells

At the end of January, 1950, there were 81 producing wells in the pool. During the period of the allowable reduction experiment, 20 additional wells were completed and 7 were abandoned or shut down. Hence, 94 wells were producing in June, 1951.

(3) "Gas-Oil Ratio

During January, 1950, the field's producing gas-oil ratio was 2078 cubic feet per barrel. After reduction of allowable in the field, the gas-oil ratio commenced to rise at a rate more rapid than before. The reduction in allowable curtailed production from the wells whose capacities

were higher and whose gas-oil ratios were generally lower while the marginal wells whose gas-oil ratios are generally high were not curtailed as much. Hence, a larger percentage of the field's oil was produced by the high gas-oil ratio wells which in turn caused an increase in pool GOR.

(4) Percentage Water in Total Fluid

Water production during January, 1950 amounted to 3.4 per cent of total fluids produced. After reduction in allowable, water production percentage continued to increase at a rate higher than before. During June, 1951, water production in total fluids amounted to 9.8 per cent.

(5) Arithmetic Average Bottom Hole Pressure

The arithmetic average bottom hole pressure of the field continued to decline at an ever decreasing rate. This general flattening of bottom hole pressure trends had been commenced prior to the allowable reduction experiment and continued during the experiment. This behavior of bottom hole pressure trends is because of inclusion of first observed pressures of new wells in the various surveys. For instance, between February, 1950 and April, 1951 the average bottom hole pressure varied from 1880 to 1797 psi while the average first observed pressure from new wells drilled in the northern portion of the field amounted to 2513 psi. The inclusion of five such wells in an arithmetic average of 85 wells would be sufficient to raise the average bottom hole pressure from 1700 psi to 1745 psi. An example of the effect of new wells is noted from comparison of the August, 1950 and April, 1951 surveys. Between the two surveys, the average bottom hole pressure of 68 comparable wells run during each survey declined 133 psi while the average bottom hole pressure of all wells surveyed (72 in August and 82 in April) declined only 12 psi. The error thus introduced by averaging in nearly virgin pressures from new wells amounted to 121 psi between these two surveys.

(6) Weighted Average Bottom Hole Pressure

A system of weighting the bottom hole pressures for cumulative oil produced at the time of each survey yielded data for the weighted average bottom hole pressure curve. This system resulted in a truer relationship, yet did not completely remove the effect of new wells.

Graphs B and C are comparable well survey plots which show the bottom hole pressure decline for 19 wells which have been surveyed in all except the first of the eleven pool-wide pressure surveys. As no new wells were included in these two graphs, no weighing procedure was necessary and simple arithmetic average bottom hole pressures were used. A graph of this nature is most valuable for studying reservoir performance. Graph B shows the average pressures of these comparable wells plotted against the cumulative oil production of these wells. This case would apply in a very poorly connected reservoir in which case each well would in a sense drain its own reservoir. Graph C shows the same pressures plotted against the cumulative oil production of the entire pool. This case would apply to very permeable reservoirs in which individual well pressures would reflect field-wide conditions. Observations of bottom hole pressures of newly completed wells in the north end of the field which are always less than original but greater than the then current pressure of older wells indicate conditions at Brunson to be somewhere between those implied by Graphs B and C. However, it should be noted that change in oil production rate at Brunson did not affect the slope of either relationship.

During June, 1951 which is the most recent month for which production figures are available, the pool produced 195,474 barrels of oil, 21,120 barrels of water, and 551,426 Mcf of gas. The gas-oil ratio during this month was 2821 cubic feet per barrel and the water cut was 9.8 per cent.

From Graphs A, B, and C, it is apparent that performance of the Brunson Pool during the period of reduction in allowable experiment may be summarized as follows:

(1) Oil production rates have been curtailed to amounts varying from 62 per cent to 77 per cent of previous production rates.

(2) 20 Additional wells have been drilled.

(3) Percentage water production in total fluids has remained small but has increased during the experiment at rates slightly higher than previously.

(4) Gas-oil ratios have increased during the experiment at a rate more rapid than before which is partially caused by allowing the higher-gas-oil ratio wells to produce a larger share of the pool's total oil.

(5) Bottom hole pressure decline trends have not been noticeably affected by the change in oil production rates.

All of these observations are reasonable and are to be expected in dissolved gas drive reservoirs. Apparently there is no large water aquifer in the Ellenburger formation which is in active communication with the Brunson Pool for drastic reduction in producing rates was not able to cause any appreciable movement of this water which could be observed by change in bottom hole pressure trends or any other trends. It is therefore believed, from data thus far accumulated, that the reasonable fluctuationsin producing rate, observed in the past, have not affected the ultimate recovery to be expected from the Brunson Pool.

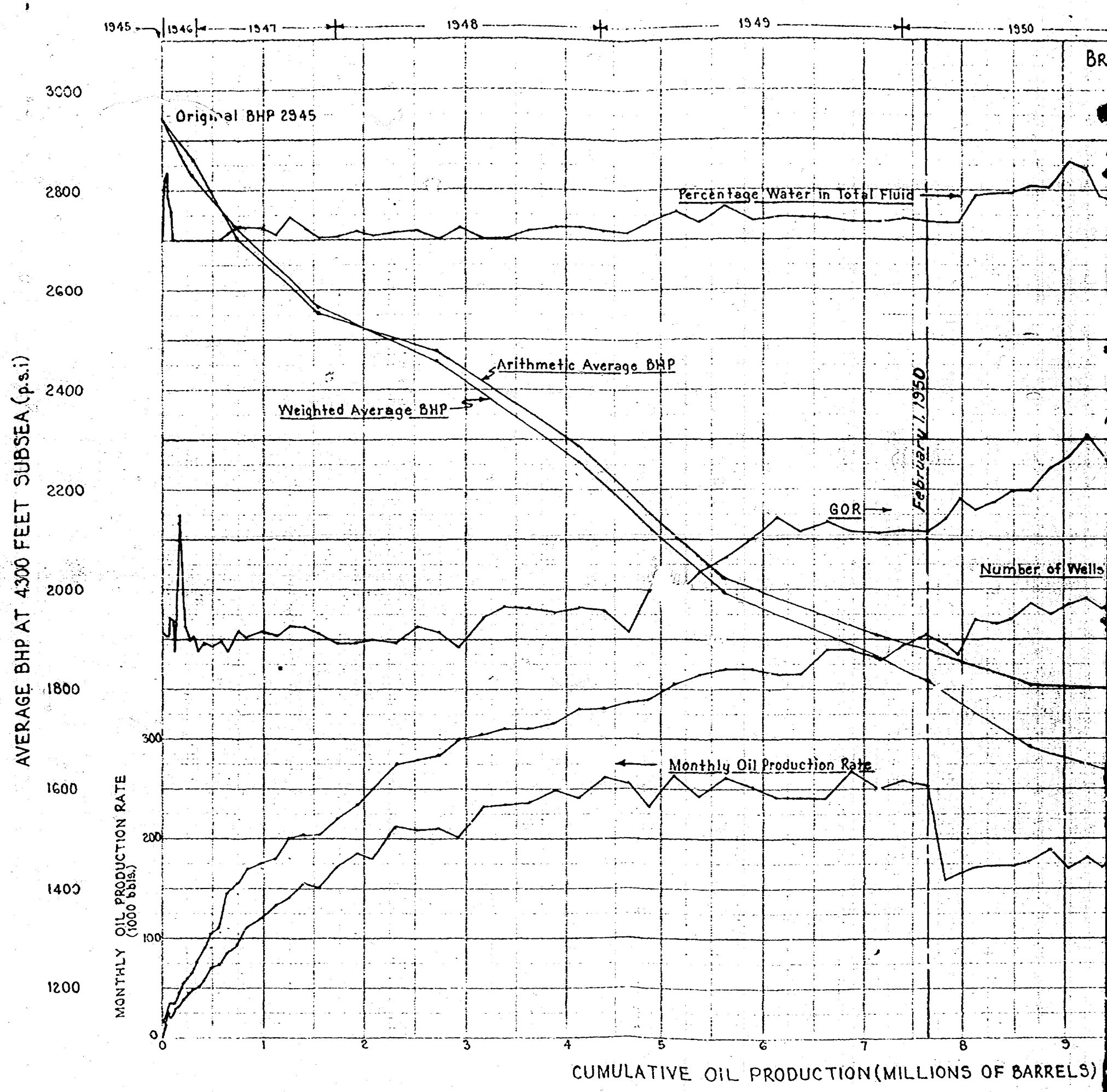
Therefore, the Brunson Pool operators recommend and request that effective September 1, 1951 the allowable reduction experiment at Brunson be ended and that the Brunson Pool be restored to the normal allowable applicable to wells in the 7000 to 8000 depth bracket. The previous depth bracket at Brunson used for allowable purposes prior to the allowable reduction was the 8000 to 9000 foot bracket. However, the Brunson Pool operators respectfully submit the following reasons for using the 7000 to 8000 instead of the 8000 to 9000 foot bracket:

(1) 62 wells or 66 per cent of the 94 wells currently producing at Brunson have total depths in the 7000 to 8000 foot depth range.

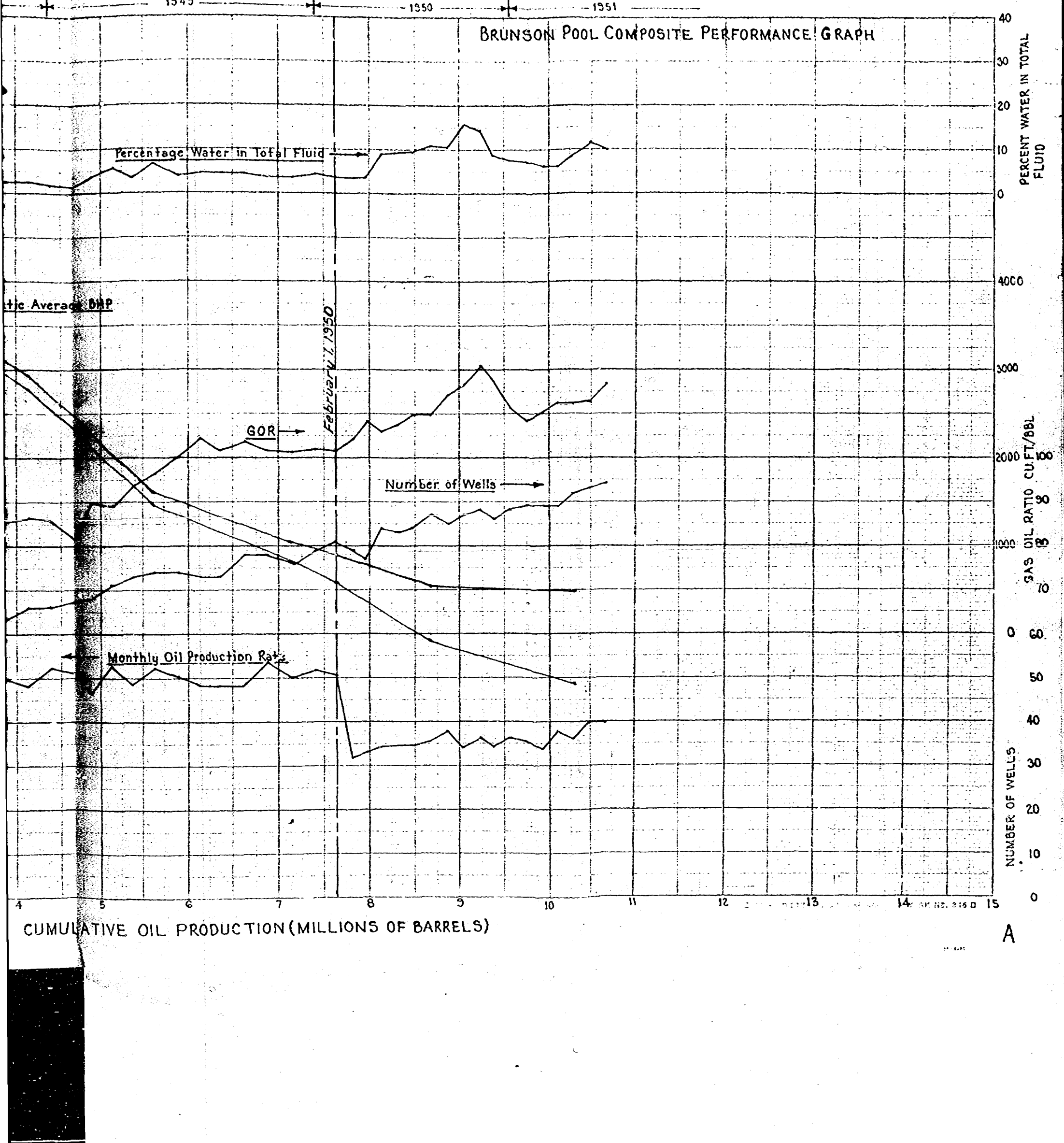
(2) Allowable production rates commensurate with this depth bracket (currently 122 BOPD) have been observed at Brunson and are known to cause no waste.

(3) The 7000 to 8000 foot depth bracket is in use at North Brunson and it is felt that because of probable combination of the pools, the allowables in both pools should be identical.

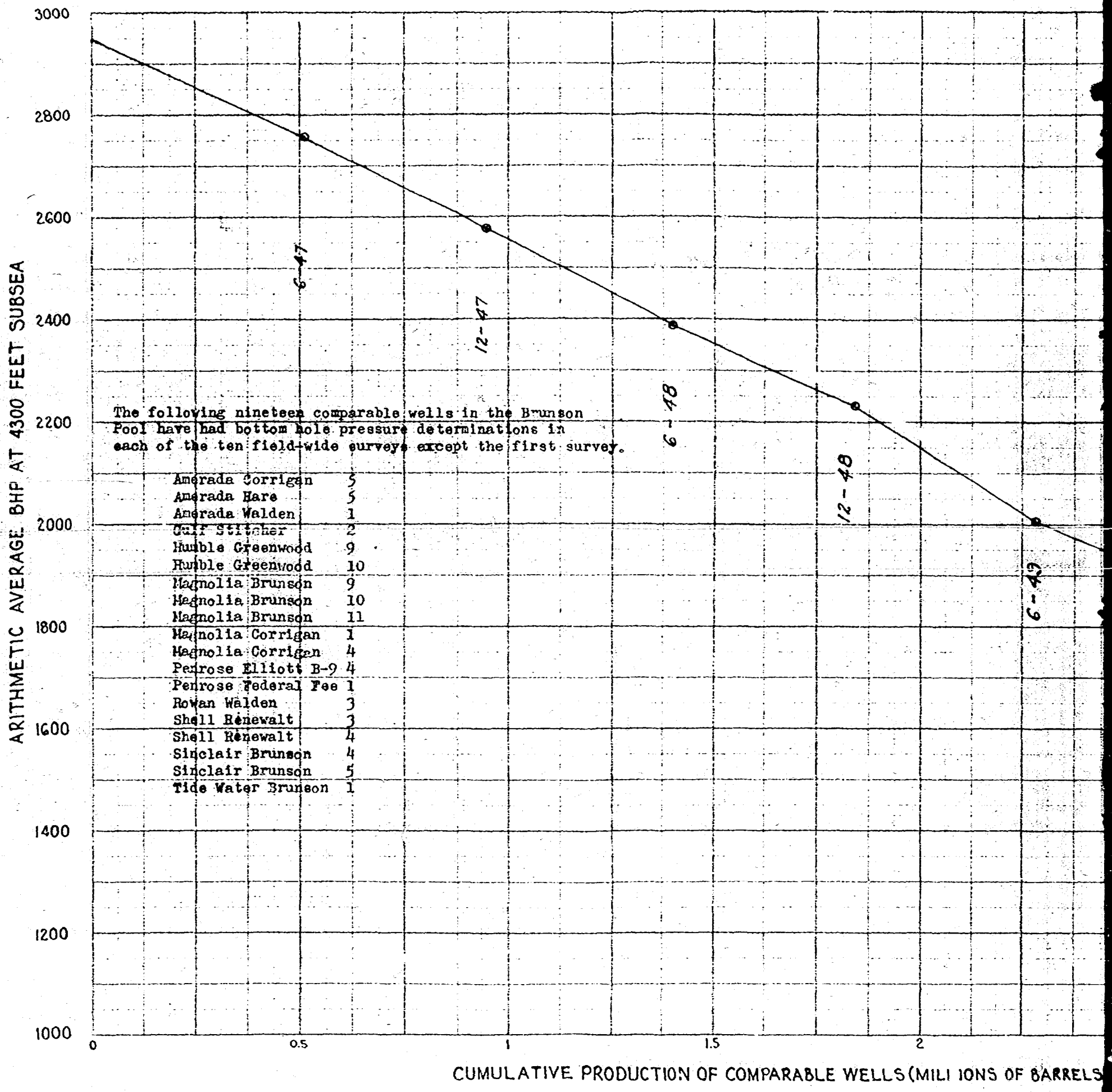
The Brunson Pool operators further recommend and request the Oil Conservation Commission order semi-annual gas-oil ratio surveys in the Brunson Pool during the months of February-March and August-September. These gas-oil ratios are to be filed with the Commission by the 15th of the month following each survey period and used for proration purposes.


1945
1946
1947
1948
1949
1950
BR
3000
2800
2600
2400
2200
2000
1800
1600
1400
1200
AVERAGE BHP AT 4300 FEET SUBSEA (p.s.i)
Original BHP 2945
Percentage Water in Total Fluid
Arithmetic Average BHP
Weighted Average BHP
GOR
February 1, 1950
Number of Wells
Monthly Oil Production Rate
300
200
100
0
MONTHLY OIL PRODUCTION RATE (1000 bbls.)
0
1
2
3
4
5
6
7
8
9
CUMULATIVE OIL PRODUCTION (MILLIONS OF BARRELS)

BRUNSON POOL COMPOSITE PERFORMANCE GRAPH



A



The following nineteen comparable wells in the Brunson Pool have had bottom hole pressure determinations in each of the ten field-wide surveys except the first survey.

Amerada Corrigan	5
Amerada Hare	5
Amerada Walden	1
Gulf Stitcher	2
Humble Greenwood	9
Humble Greenwood	10
Magnolia Brunson	9
Magnolia Brunson	10
Magnolia Brunson	11
Magnolia Corrigan	1
Magnolia Corrigan	4
Penrose Elliott B-9	4
Penrose Federal Fee	1
Rowan Walden	3
Shell Renewalt	3
Shell Renewalt	4
Sinclair Brunson	4
Sinclair Brunson	5
Tide Water Brunson	1

BRUNSON POOL COMPARABLE
WELL SURVEY
9 WELLS

Brunson
ns is
irst survey.

6-48

12-48

6-49

12-49

2-50

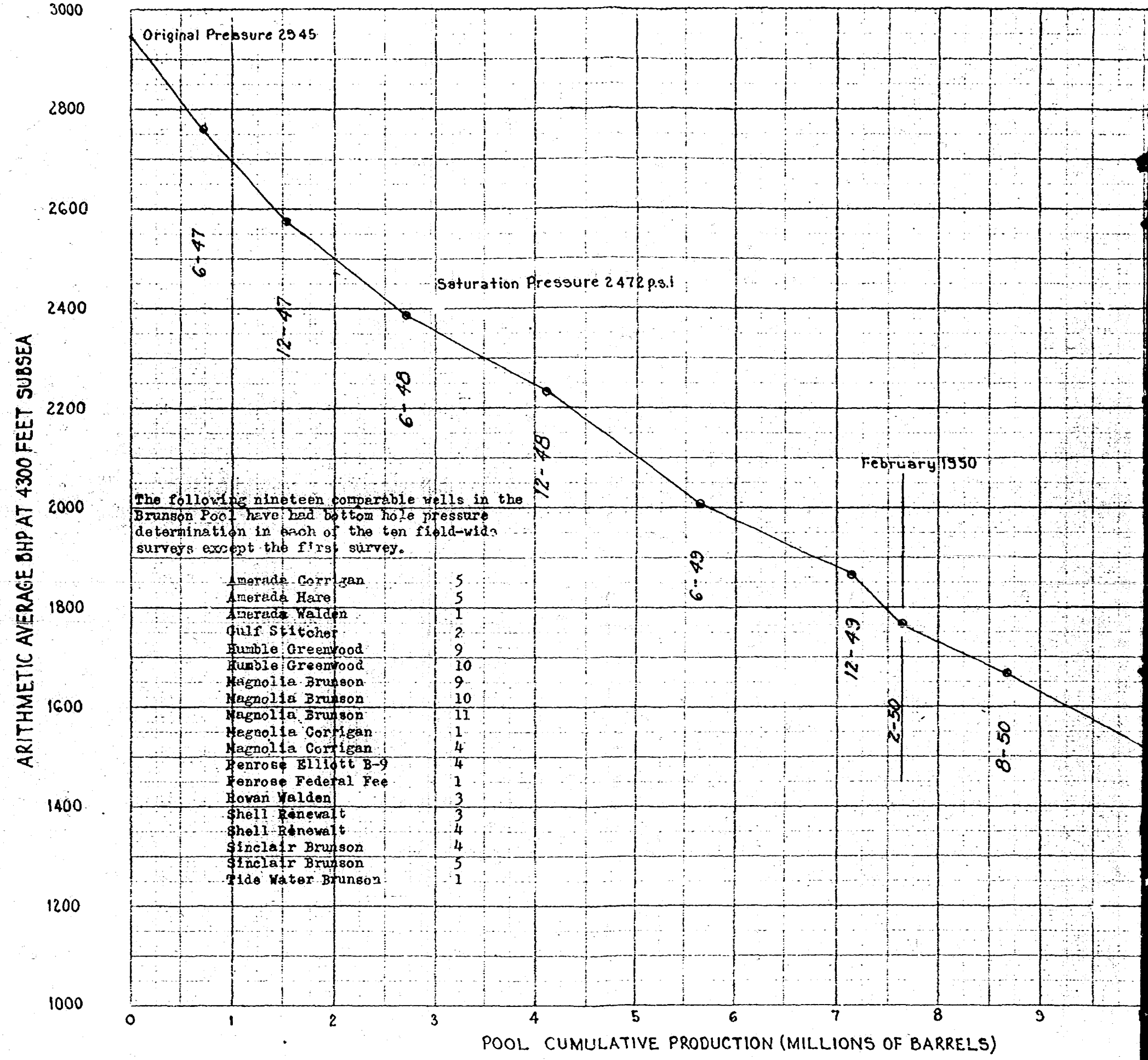
8-50

4-51

1.5 2 2.5 3 3.5

ATIVE PRODUCTION OF COMPARABLE WELLS (MILLIONS OF BARRELS)

B



The following nineteen comparable wells in the Brunson Pool have had bottom hole pressure determination in each of the ten field-wide surveys except the first survey.

Amerada Corrigan	5
Amerada Hare	5
Amerada Walden	1
Gulf Stitcher	2
Humble Greenwood	9
Humble Greenwood	10
Magnolia Brunson	9
Magnolia Brunson	10
Magnolia Brunson	11
Magnolia Corrigan	1
Magnolia Corrigan	4
Penrose Elliott B-9	4
Penrose Federal Fee	1
Rowan Walden	3
Shell Renewalt	3
Shell Renewalt	4
Sinclair Brunson	4
Sinclair Brunson	5
Tide Water Brunson	1

BRUNSON POOL
COMPARABLE WELL SURVEY
19 WELLS

ssure 2472 p.s.i

February 1950

6-49

12-49

2-50

8-50

4-51

5 6 7 8 9 10 11 12 13 14 15

CUMULATIVE PRODUCTION (MILLIONS OF BARRELS)

C

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO
SANTA FE, NEW MEXICO

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
COMMISSION OF NEW MEXICO FOR
THE PURPOSE OF CONSIDERING:

CASE NO. 202
ORDER NO. R-4-B

THE MATTER OF THE APPLICATION
OF ROWAN OIL COMPANY FOR AN
ORDER REDUCING THE ALLOWABLE
OF THE BRUNSON POOL, AND FOR
MODIFICATION, RESCINDING OR
CONTINUING OF CERTAIN ORDERS.

ORDER OF CONTINUANCE

This case came up regularly this 21st day of June, 1951, before the Oil Conservation Commission, and it appearing to the Commission that studies in progress for the proper determination of the matter were not in final form, and upon motion of an interested party for continuance,

IT IS THEREFORE ORDERED: that Case 202 be and the same hereby is continued to the regular August 21, 1951, hearing of this Commission.

DONE at Santa Fe, New Mexico, this 21st day of June, 1951.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

Edwin L. Mechem

EDWIN L. MECHEM, Chairman

Guy Shepard

GUY SHEPARD, Member

R. R. Spurrier

R. R. SPURRIER, Secretary

SEAL

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO
SANTA FE, NEW MEXICO

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
COMMISSION OF NEW MEXICO FOR THE
PURPOSE OF CONSIDERING:

CASE NO. 202
ORDER NO. R-4-A

THE MATTER OF THE APPLICATION OF
ROWAN OIL COMPANY FOR AN ORDER
REDUCING THE ALLOWABLE OF THE BRUNSON
POOL, AND FOR MODIFICATION RESCINDING
OR CONTINUING PREVIOUS ORDERS.

ORDER OF CONTINUANCE

This case came up regularly for further hearing on April 24, 1951, and no objection appearing,

IT IS THEREFORE ORDERED : that Case 202 be and the same hereby is continued to the regular June 21, 1951, hearing of the Commission at Santa Fe, New Mexico.

DONE, at Santa Fe, New Mexico, this 24th day of April, 1951.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

Edwin L Mechem

EDWIN L. MECHEM, Chairman

Guy Shepard

GUY SHEPARD, Member

R. R. Spurrier

R. R. SPURRIER, Secretary

SEAL

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
COMMISSION OF NEW MEXICO FOR THE
PURPOSE OF CONSIDERING:

CASE NO. 202
ORDER NO. R-30A

THE MATTER OF FURTHER HEARING UPON THE
APPLICATION OF ROWAN OIL COMPANY FOR AN
ORDER REDUCING THE ALLOWABLE OF THE BRUNSON
POOL, LEA COUNTY, NEW MEXICO, FOR THE PURPOSE
OF DETERMINING IF ORDER R-4, PROMULGATED
JANUARY 11, 1950, SHALL BE MODIFIED, RESCINDED
OR FURTHER CONTINUED IN EFFECT.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This case came on for hearing at 10 a. m. on April 24, 1951, and at 10 a. m. on August 21, 1951 at Santa Fe, New Mexico before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this 20th day of September, 1951, the Commission, a quorum being present, having fully considered the record, the testimony adduced at said hearings, and the exhibits introduced.

FINDS, (1) That due public notice having been given as required by law, the Commission has jurisdiction of this cause, the persons and matters therein.

(2) That Commission Order No. R-4 authorized a limitation of production in the Brunson Pool to 90 barrels per day for all wells in said pool for a period of six months for the purpose of testing and gathering data upon decline of bottom hole pressures and water encroachment.

(3) That prior to expiration of said Order No. R-4 the Commission issued its Order No. R-30, extending the experiment until further order pending completion of the study.

(4) That following various progress reports at regular hearings before the Commission, a final engineering report and recommendation has been submitted as evidence to the Commission.

(5) That a greater portion of wells within the pools produce from the 7000 to 8000 foot depth range.

IT IS THEREFORE ORDERED:

That effective September 1, 1951, Order R-4 as extended by Order No. R-30 be, and the same hereby is rescinded, and the allowable production per well for the pool as of the date aforesaid is the normal allowable applicable to wells in the 7000 to 8000 foot depth bracket.

IT IS FURTHER ORDERED:

That semi-annual gas-oil ratio surveys shall be made of the wells in said pool as it is now described or as it may hereafter be enlarged, each February, March and August-September of every year, and

IT IS FURTHER ORDERED: That jurisdiction of this case be and it hereby is retained for the purpose of adjusting allowables for said pool as may from time to time be necessary as a result of oil-gas ratio tests hereinabove required, as a matter of prevention of waste and protection of correlative rights.

DONE at Santa Fe, New Mexico this 20th day of September 1951.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

Edwin L. Mechem

EDWIN L. MECHEM, Chairman

Guy Shepard

GUY SHEPARD, Member

R. R. Spurrier

R. R. SPURRIER, Secretary

SEAL

Exhibit A

SUPPLEMENTAL REPORT

BRUNSON POOL

JUNE 30, 1949

September 19, 1949

TO ALL BRUNSON POOL OPERATORS

Re: Supplemental Report on
The Brunson Pool

Gentlemen:

The attached information has been collected and prepared by the Sub-Committee to supplement the reports on the Brunson Pool, Lea County, New Mexico. The initial report was submitted August 18, 1948 and a supplement on April 1, 1949. The present production and bottom hole pressure information is presented in the following tabulations, graphs and maps:

1. Tabulation of pressure-production data.

2. Graph showing the relation between cumulative oil recovery per pound pressure drop and the total bottom hole pressure drop.

3. Graph showing the relation between daily oil production rate and the average bottom hole pressure of all wells.

4. Graph showing the relation between daily oil production rate and the average of the bottom hole pressures taken in comparable wells (Wells used in one survey that were also used in the previous survey.)

5. Graph showing wells, monthly oil production, cumulative production, and bottom hole pressure plotted against time.

6. Tabulation of bottom hole pressures of individual wells by surveys.

7. Bottom hole pressure map - sixth general survey on June 1, 1949.

8. Water Map - June 1949.

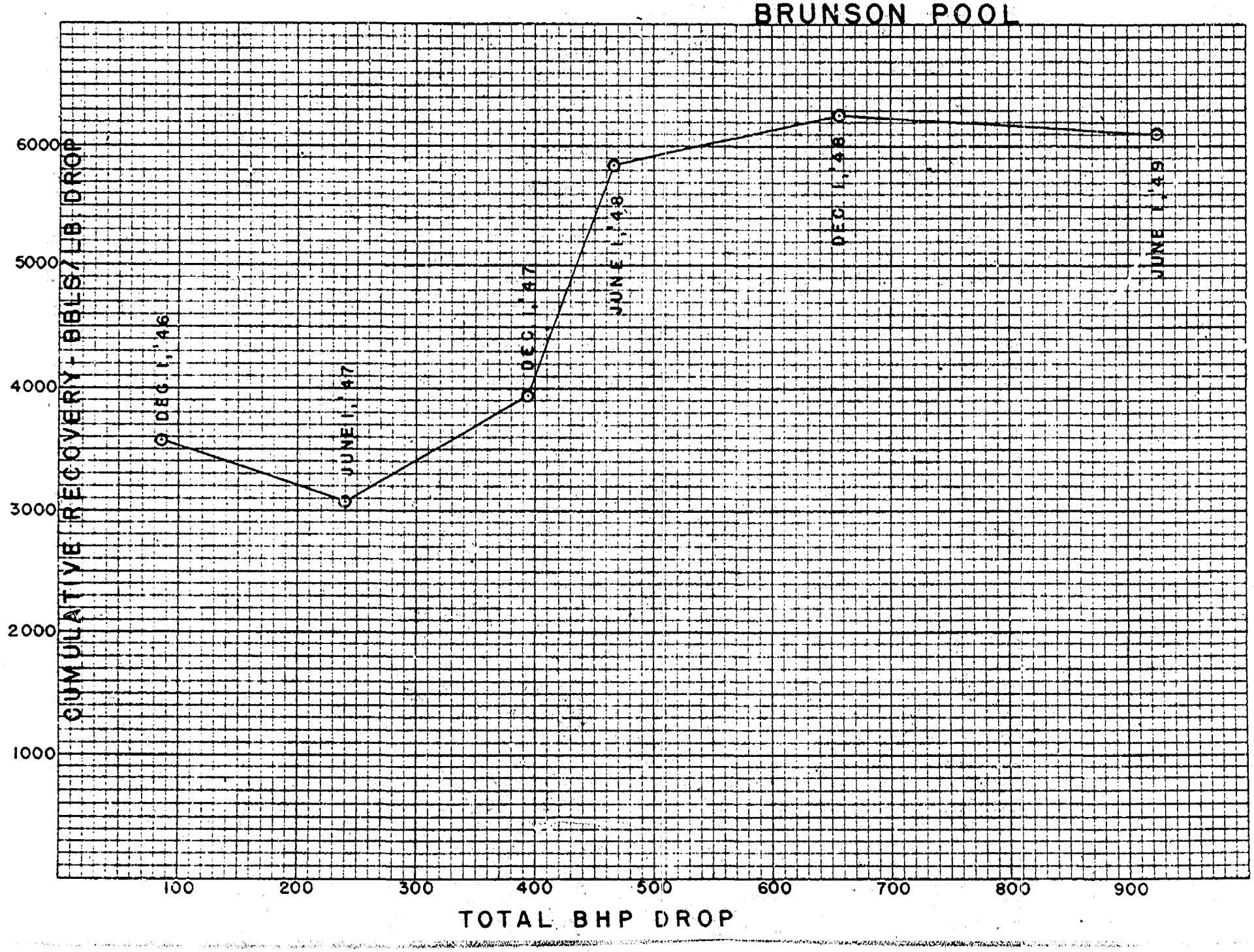
Respectfully submitted,

J. C. Blackwood
Chairman, Sub-Committee
Brunson Pool Operators Committee

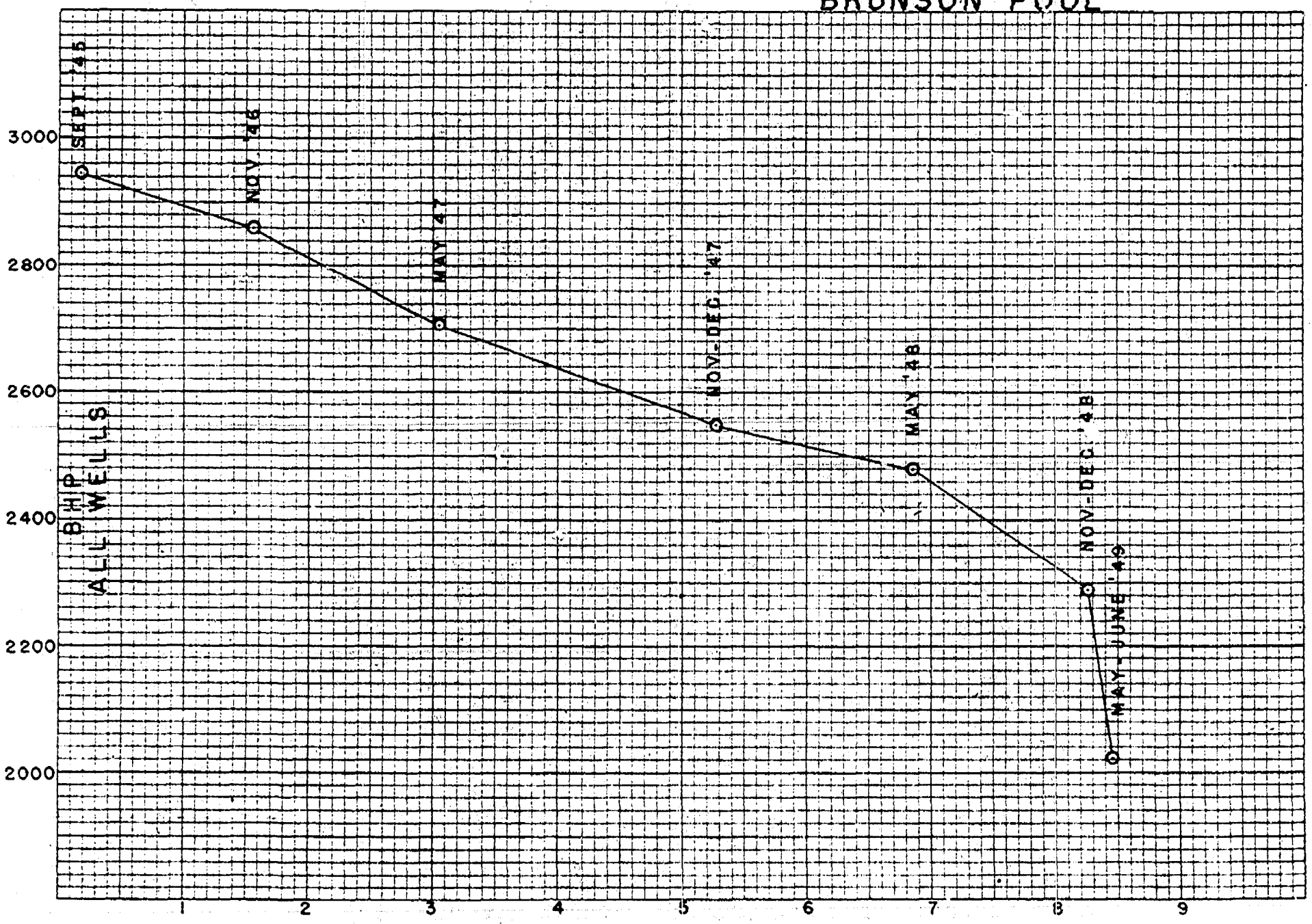
BRUNSON POOL

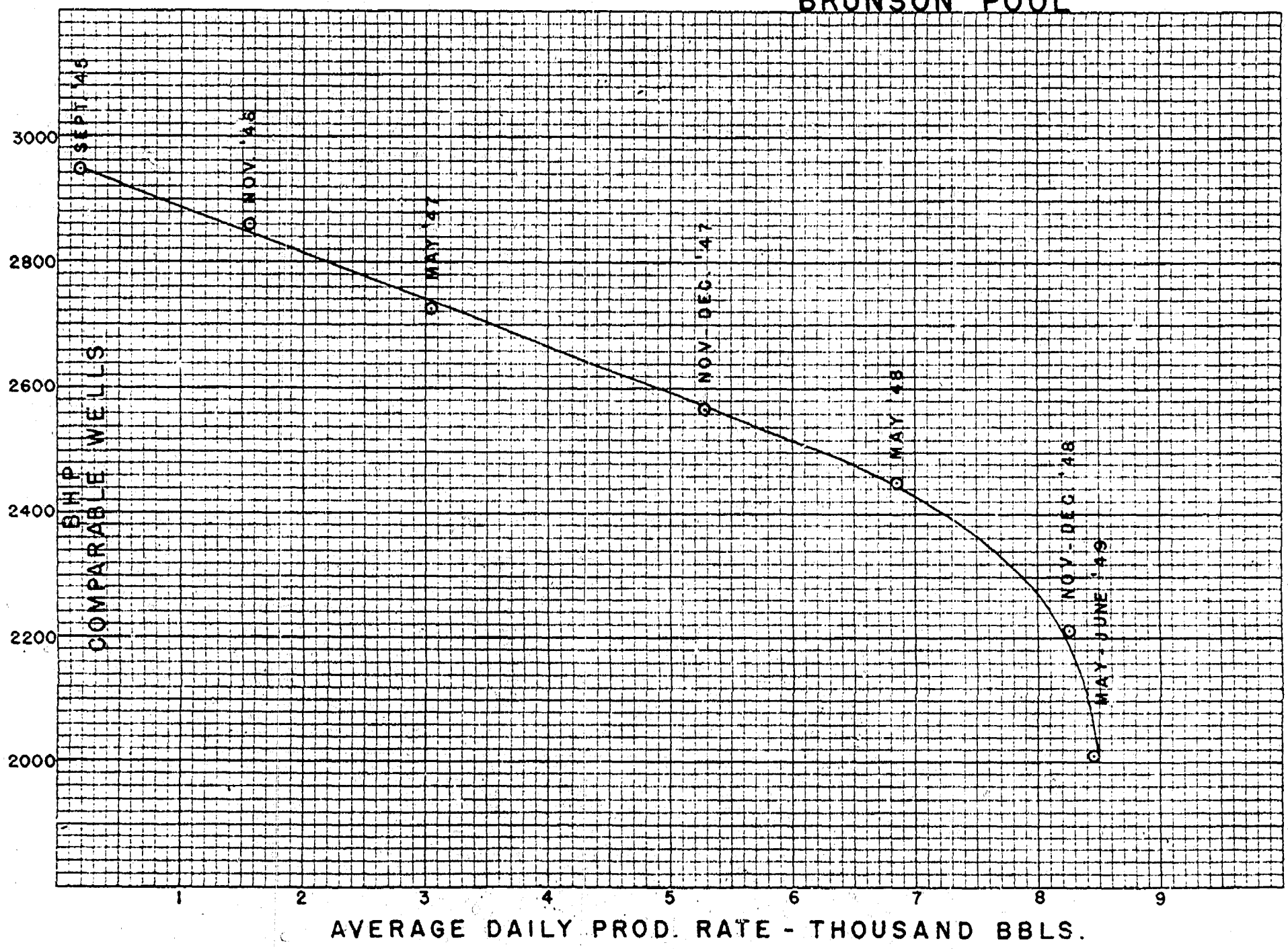
PRESSURE-PRODUCTION DATA

Press. Survey	Press. -4300	Wells Bombed	No. Wells in Pool	Prod. Bbls. Period	Prod. Bbls. Cumulative	Press. Drop Period	Press. Drop Cumulative	Bbls/Lb. Drop Period	Bbls/Lb. Drop Cumulative
Sept. 14, 1945	2945	1	1	0	0	0	0	0	0
Dec. 1, 1946	2860	14	15	304,864	304,864	85	85	3,587	3,587
June 1, 1947	2705	25	33	433,641	738,505	155	240	2,798	3,077
Dec. 1, 1947	2551	40	45	812,426	1,550,931	154	394	5,275	3,936
June 1, 1948	2479	51	57	1,169,745	2,720,676	72	466	16,246	5,838
Dec. 1, 1948	2288	56	65	1,398,655	4,119,331	191	657	7,323	6,270
June 1, 1949	2021	64	74	1,520,922	5,640,253	267	924	5,696	6,104

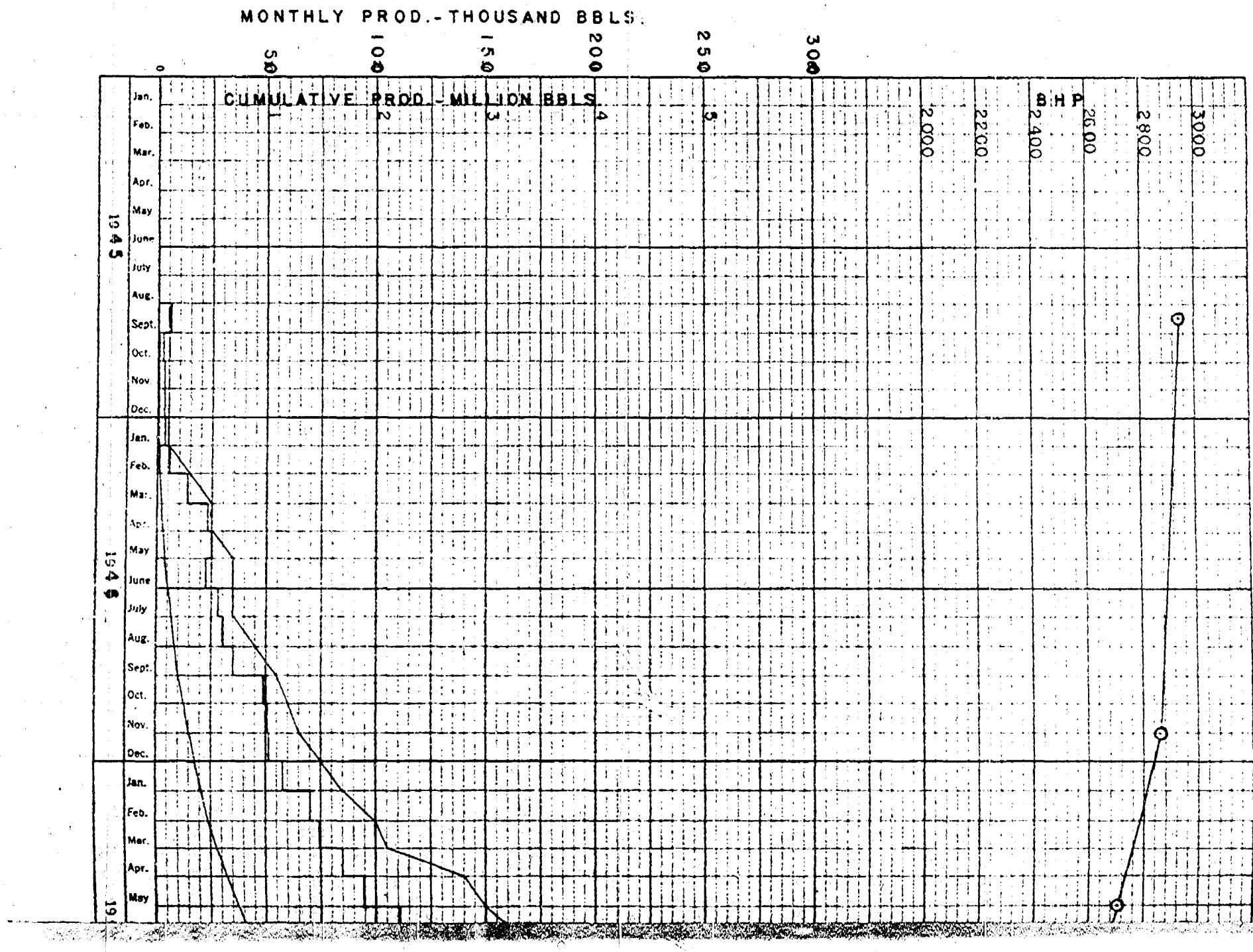


BRUNSON POOL

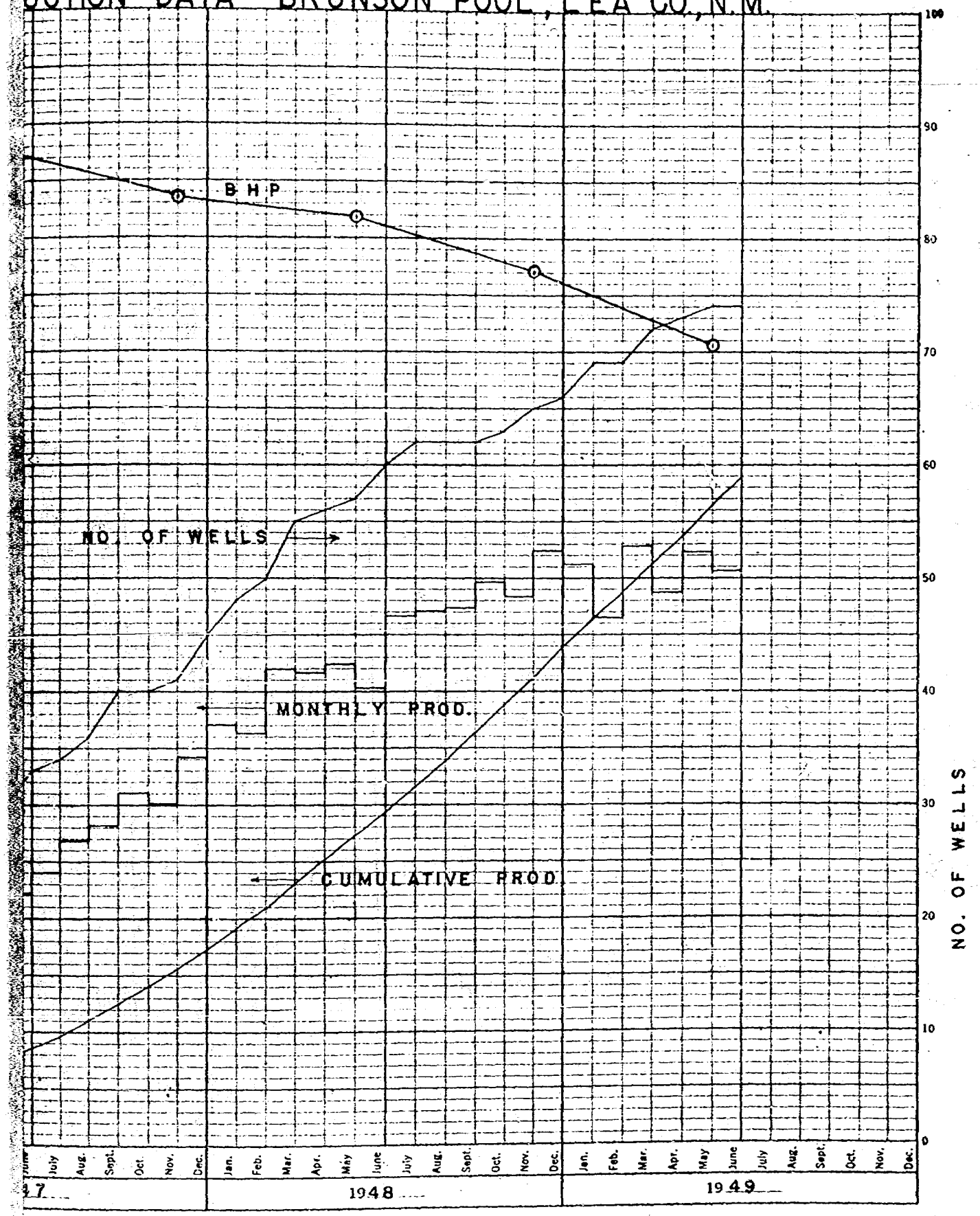




KEUFFEL & ESSER CO., N. Y. NO. 368-132L
Five Years by Months.
Months Lengthwise of Paper.
MADE IN U. S. A.



UCTION DATA BRUNSON POOL, LEA CO, N.M.

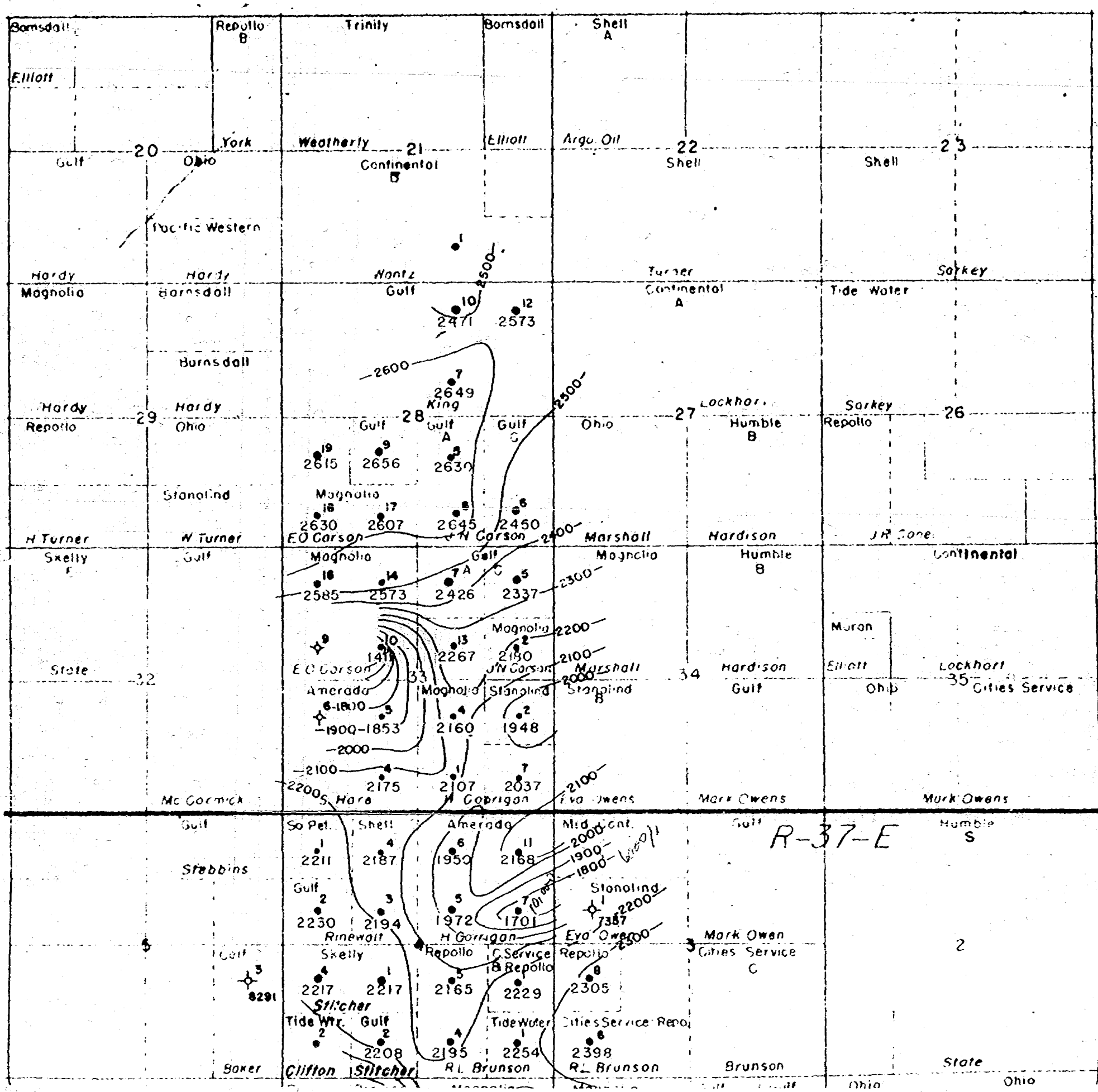


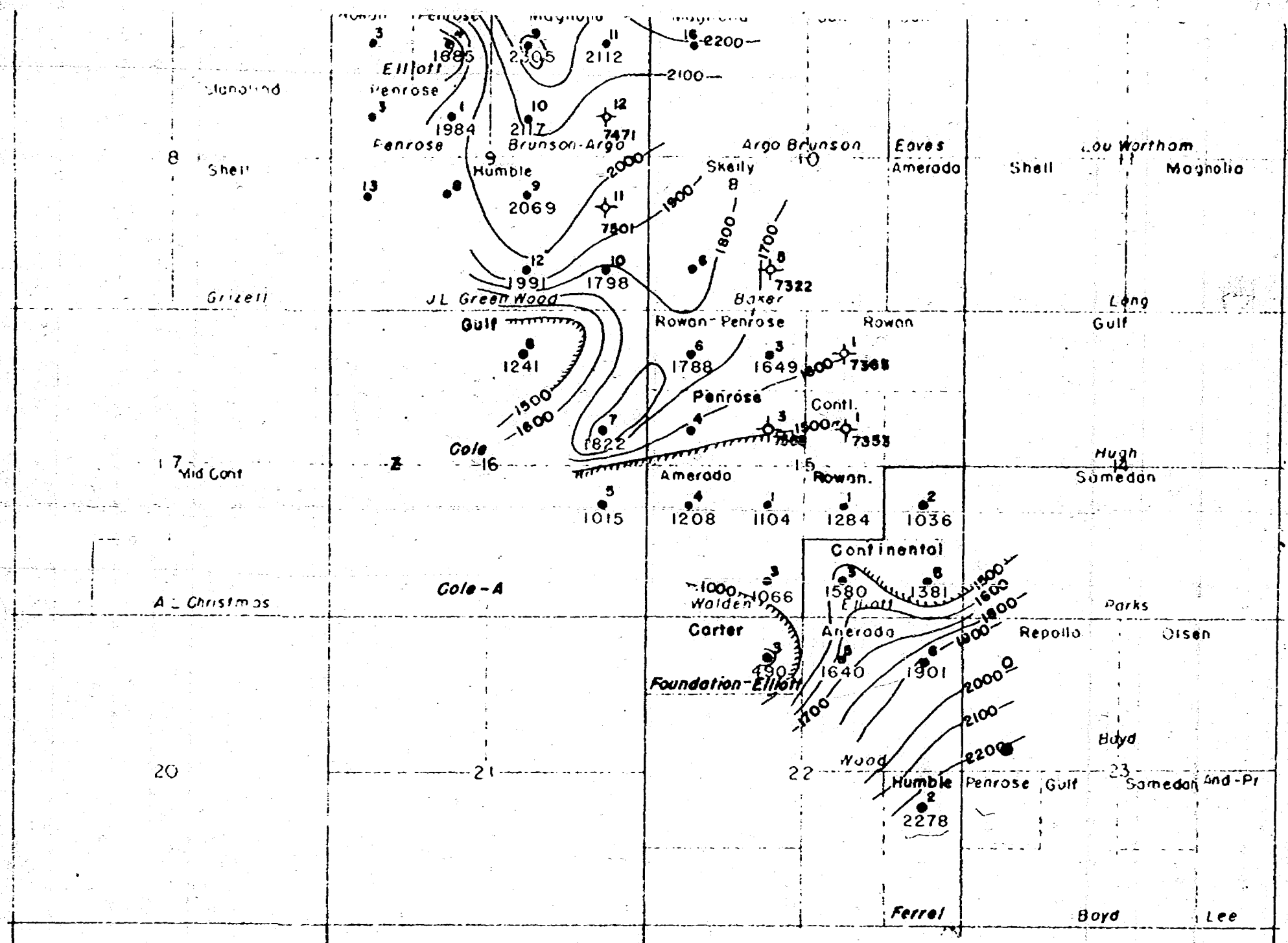
BRUNSON POOL BOTTOM HOLE PRESSURES
DATUM -4300' SHUT IN TIME 48 HRS.

COMPANY / LEASE	WELL	UNIT	S.T.R.	1946 NOV.	1947 MAY	1947 NOV-DEC.	1948 MAY JUNE	1948 NOV. DEC.	1949 MAY JUNE
AMERADA PET. CORP.									
Corrigan H	5	G	4-22-37	2940	2752	2520	2434	2135	1972
"	6	B	"		2709	2459	2383		1950
"	7	H	"		2636	2360	2187	1848	1701
"	11	A	"				2562	2323	2168
Hare	4	N	33-21-36		2808	2671	2550		2175
"	5	K	"		2790	2409	2358	1914	1853
Walden	1	K	15-22-37		2826	2515	2174	1671	1104
"	3	N	"			2443	2159	1667	1066
"	4	L	"			2461	2235	1716	1208
Wood	5	B	22-22-37			2715	2426	2059	1640
"	6	A	"				2605	2244	1901
CARTER, A. G. FOUNDATION									
Elliott	3	C	22-22-37						490
CITIES SERVICE OIL CO.									
Brunson B	1	I	4-22-37			2733	2648	2416	2229
"	6	M	3-22-37					2577	2398
CONTINENTAL OIL CO.									
Elliott A-15	3	O	15-22-37			2747	2482	2005	1580
"	5	P	"				2392	1823	1381
Elliott B-15	2	I	"						1036
Wantz	1	O	21-21-37					3004	
GULF OIL CORPORATION									
Carson, J.N.	5	J	28-21-37				2956	2787	2630
"	7	B	33-21-37					2579	2426
"	8	O	28-21-37						2645
"	9	K	"						2656
Carson "C"	5	A	33-21-37						2337
"	6	P	28-21-37						2450
Cole "A"	5	I	16-22-37					1874	1015
"	6	B	"				2376	2059	1241
"	7	H	"				2494	2109	1822
King	7	G	28-21-37					2803	2649
"	10	B	"					2690	2471
"	12	A	"						2573
Rinewalt	2	E	4-22-37			2658	2563	2380	2230
Stitcher	2	N	"	2930	2825	2642	2558	2391	2208
HUMBLE OIL & REFINING COMPANY									
Ferrel	2	A	22-22-37						2278
Greenwood	8	K	9-22-37	2732	2625		2386	Pump	Pump
"	9	J	"		2655	2539	2308	2199	2069
"	10	P	"		2713	2545	2444	2061	1798
"	12	O	"			1831	2394	2138	1991
"	13	L	"			2518			Pump
MAGNOLIA PET. CO.									
Brunson	9	B	9-22-37	2920	2874	2720	2609	2403	2305
"	10	G	"	2797	2717	2545	2411	2255	2117
"	11	A	"	2924	2830	2720	2626	2509	2112
"	16	D	10-23-37				2735	2460	
Carson, E.O.	10	F	33-21-37				2598	2244	1411

BRUNSON PRESSURES - CONT'D.

COMPANY LEASE	WELL UNIT		S.T.R.	1946 NOV.	1947 MAY	1947 NOV-DEC.	1948 MAY JUNE	1948 NOV. DEC.	1949 MAY JUNE
MAGNOLIA PET. CO. - CONT'D.									
Carson, E.O.	13	G	33-21-37			2749	2635	2455	2267
"	14	C	"				2906	2731	2573
"	16	D	"					2735	2585
"	17	N	"					2803	2607
"	18	M	28-21-37					2803	2630
"	19	L	"						2615
Carson, J.N.	2	H	33-21-37				2592	2351	2180
Corrigan	1	O	"		2860	2640	2520	2352	2107
"	4	J	"		2898	2691	2557	2364	2160
"	7	P	"			2667	2524	2258	2037
PENROSE, N. G.									
Elliott B-9	4	C	9-22-37	2648	2185	2071	2049	2131	1685
Penrose	1	F	"	2699	2630	2424	2249	2014	1984
"	3	E	"		2771	2540			Pump
Walden	4	E	15-22-37				2424	2086	
ROWAN OIL CO.									
Elliott B-9	3	D	9-22-37	2853		2658	2337	Pump	
Walden	3	C	15-22-37	2779		2616	2410	2087	1649
"	6	D	"			1532	2456	2092	1788
Elliott A-15	1	J	"				2335	1797	1284
SHELL OIL CO.									
Rinewalt	3	F	4-22-37		2831	2640	2482	2378	2194
"	4	C	"		2834	2655	2486	2380	2187
SINCLAIR OIL & GAS CO.									
Brunson	4	O	4-22-37	2915	2811	2655	2573	2369	2195
"	5	J	"	2940	2810	2643	2588	2346	2165
"	8	L	"					2426	2305
SKELLY OIL CO.									
Baker B	6	M	10-22-37		1394				
Stitcher	1	K	4-22-37			2676	2547	2345	2217
"	4	L	"			2691	2545	2336	2217
SOUTHERN PET. EXPL. CO.									
Rinewalt B	1	D	4-22-37			2656	2562	2361	2211
STANOLIND OIL & GAS CO.									
Corrigan	2	I	33-21-37		2883	2690	2494		1948
TIDEWATER ASSOC. OIL CO.									
Brunson	1	P	4-22-37	2941	2762	2723	2560	2443	2254
Clifton	2	M	"	2920	2818	2681	2540	2346	Pump
TOTAL PRESSURES				40045	73026	102049	126424	128132	129330
NO. WELLS RUN				14	27	40	51	56	64
AVERAGE PRESSURE				2860	2705	2551	2479	2288	2021
AVERAGE PRESSURE (COMPARABLE WELLS)					2724	2565	2451	2212	2010


Bornsdall
Repollo B
Trinity
Bornsdall
Shell A
Elliott
York
Weatherly
Elliott
Argo Oil
20
21
22
23
Gulf
Ohio
Continental B
Shell
Shell
Pacific Western
Hardy
Magnolia
Hardy
Bornsdall
Nantz
Gulf
Turner
Continental A
Sorkey
Tide Water
2500
10
2471
12
2573
2600
7
2649
Burnsdall
Hardy
Repollo
Hardy
Ohio
29
King
28
Gulf
Gulf A
Gulf C
Ohio
27
Lockhart
Humble B
Sorkey
Repollo
26
19
2615
9
2656
8
2630
6
2450
Stonolind
Magnolia
16
2630
17
2607
8
2645
H Turner
W Turner
E O Carson
J N Carson
2400
Marshall
Hardison
J R Cone
Skelly
Gulf
Magnolia
Gulf
Magnolia
Humble
8
Continental
16
2585
14
2573
7
2426
5
2337
2300
Magnolia
2200
9
10
13
2
Moran
State
32
E O Carson
1411
2267
2180
2100
J N Carson
Marshall
33
34
Hardison
Elliott
Lockhart
35
Amerada
Magnolia
Stanolind
Stanolind
Gulf
Ohio
Cities Service
6-1800
3
4
2
2000
1900-1853
2160
1948
2000
2100
4
1
7
2200
2175
2107
2037
McCormick
S. Hare
H Corrigan
Eva Owens
Mark Owens
Mark Owens
Gulf
So Pet.
Shell
Amerada
Mid Cont.
Gulf
Humble
R-37-E
1
4
6
11
S
2211
2187
1950
2168
2000
1900
1800
Stabbins
Gulf
2
3
5
7
Stanolind
2230
2194
1972
1701
1
2200
7387
Rinewalt
H Corrigan
Eva Owens
Mark Owen
5
4
3
2
Gulf
Skelly
Repollo
C Service
Repollo
Repollo
Cities Service
3
8291
4
1
5
8
C
2217
2217
2165
2229
2305
Stitcher
Tide Wtr.
Gulf
Tide Water
Cities Service Repo.
2
2
4
1
6
2208
2195
2254
2398
Boxer
Clifton
Stitcher
R L Brunson
R L Brunson
Brunson
State
Ohio
Ohio



Number of wells in pool. 74

Number of wells B.H.P. 64

Average Pressure 2020.8

Contour Interval 1500 Up 100 P.S.I.
0 - 1500 500 P.S.I.

Magnolia Petroleum Company
Petroleum Engineering Dept.

BRUNSON FIELD

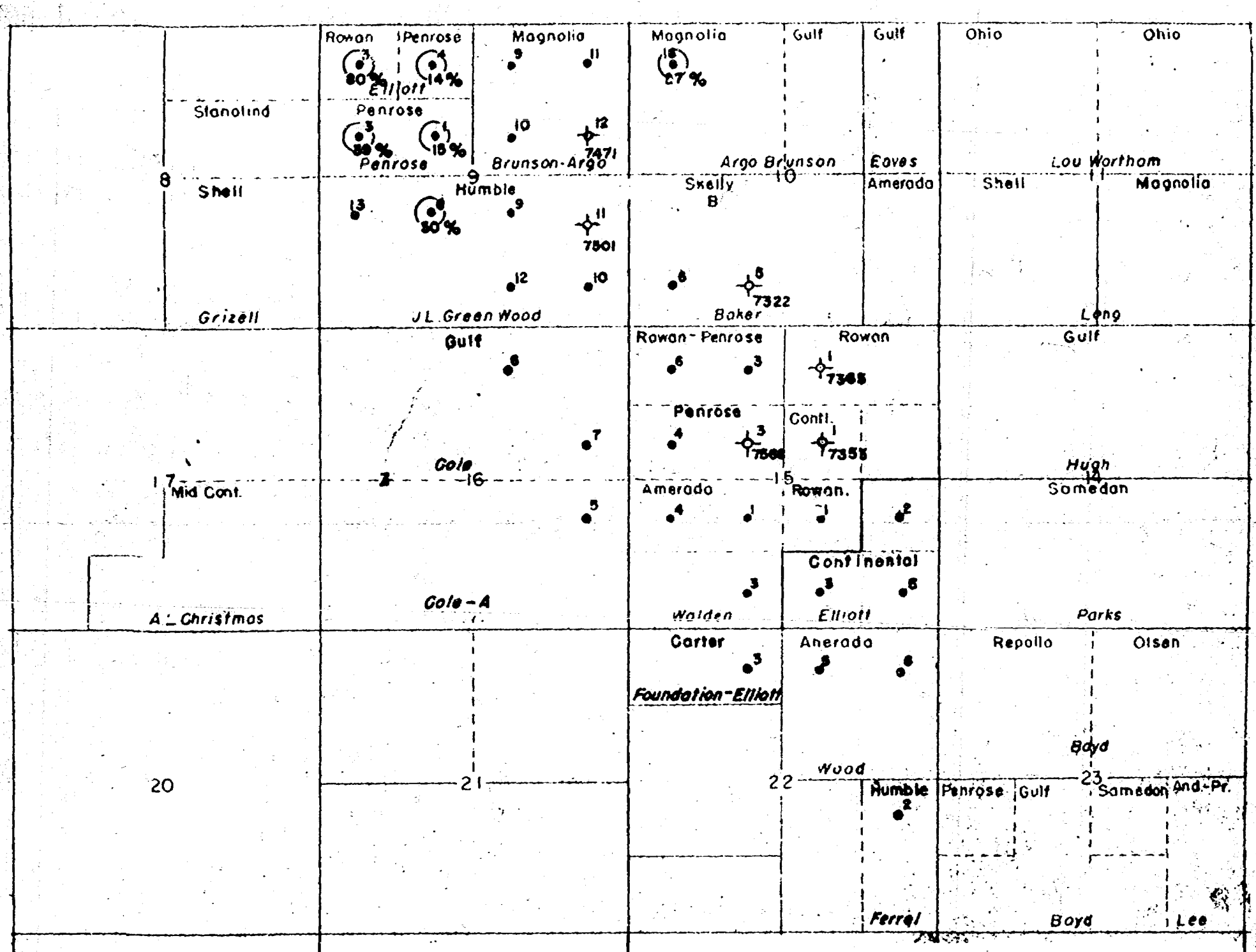
Lea County, N.M.

Bottom Hole Pressure Map
for
May / June 1949 Survey

Drawn by J.V.N. Chk. by Q.E.V.

R-37-E

Bornsdall | Repollo B | Trinity | Bornsdall | Shell A
Elliott | York | Weatherly | Elliott | Argo Oil
20 | 21 | 22 | 23
Gulf | Ohio | Continental D | Shell | Shell
Pacific Western
Hardy | Hardy | Wantz | Turner | Sorkey
Magnolia | Bornsdall | Gulf | Continental A | Tide Water
Bornsdall
Hardy | Hardy | King | Lockhart | Sorkey
29 | 28 | 27 | 26
Repollo | Ohio | Gulf | Gulf A | Gulf C | Ohio | Humble B | Repollo
72% | 5%
Stanolind | Magnolia
H Turner | W. Turner | E.O. Carson | J.N. Carson | Marshall | Hardison | J.R. Cone
Skelly E | Gulf | Magnolia | Gulf A | C | Magnolia | Humble D | Continental
3.8% | 45%
Magnolia | Moran.
Stote | E.O. Carson | J.N. Carson | Marshall | Hardison | Elliott | Lockhart
32 | 33 | 34 | 35
Amerada | Magnolia | Stanolind | Stanolind B | Gulf | Ohio | Cities Service
2/10 %
Mc Cormick | S Hare | H Corrigan | Eva Owens | Mark Owens | Mark Owens
Gulf | So. Pet. | Shell | Amerada | Mid. Cont. | Gulf | Humble S
Stebbins
Gulf | Stanolind
7387
Rinewalt | H. Corrigan | Eva Owen | Mark Owen.
5 | 4 | 3 | 2
Gulf | Skelly | Repollo | C. Service & Repollo | Repollo | Cities Service C
8231
Stitcher
Tide Wtr. | Gulf | Tide Water | Cities Service-Repo
85%
Baker | Clifton | Stitcher | R.L. Brunson | P.L. Brunson | Brunson | State



LEGEND

Well Producing Water

⊙ 0.0. % Water Production

Percent of Total Fluid

Magnolia Petroleum Company

Petroleum Engineering Dept

BRUNSON FIELD

Lea County, N. M.

Water Map

July 1, 1949

Drawn by J.V.N. Chk by O.E.V.

ROWAN OIL COMPANY

FAIR BUILDING
FORT WORTH 2, TEXAS

June 13, 1951

file case 202

State of New Mexico
Oil Conservation Commission
P. O. Box 871
Santa Fe, New Mexico

Gentlemen:

Reference is made to Oil Conservation Commission Case No. 202 and Order No. R-4 dated 11 January, 1950, and Order No. R-30 dated 29 September, 1950, pertaining thereto.

This case was called for hearing on April 21, 1951, and was postponed at the request of the undersigned on behalf of the operators until June 21, 1951, due to lack of sufficient accurate and conclusive data.

On June 12, 1951, a meeting of the operators was held in the offices of the Gulf Oil Corporation in Fort Worth. At this meeting the accumulated engineering data was reviewed and various interpretations were submitted by Company representatives present. In addition, the possibility of the North Brunson Pool eventually connecting with the existing Brunson Pool was also discussed. In view of the latter possibility and also in view of the desires of most of the operators to devote more time and study to the Brunson Pool Reservoir, it was the majority opinion that the hearing scheduled for June 21 should be postponed until August, 1951.

It is therefore respectfully requested that the June 21, 1951, hearing on Case No. 202 be again postponed until August, 1951.

In the event the Oil Conservation Commission sees fit to postpone the June 21 hearing until the regular date in August as requested, it is understood, by virtue of Order No. R-30 now in effect, that the 90 barrel per day allowable will remain in effect until ordered otherwise by the commission.

Yours very truly,

ROWAN OIL COMPANY

By _____
Roy T. Hurst

OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
JUN 15 1951
RECEIVED

RTD:al
CC: Mr. Glen Staley
New Mexico Oil & Gas Eng. Committee
CC: Mr. R. G. McPherson
Gulf Oil Corporation
Hobbs, New Mexico

DOMESTIC SERVICE

...k the class of service desired; ...erwise this message will be ...ent as a full rate telegram

...LL RATE TELEGRAM		SERIAL	
DAY LETTER		NIGHT LETTER	

WESTERN UNION

1206

W. P. MARSHALL, PRESIDENT

INTERNATIONAL SERVICE

Check the class of service desired; otherwise this message will be sent at the full rate

FULL RATE		LETTER TELEGRAM	
VICTORY LETTER		SHIP RADIOGRAM	

NO. WDS.-CL. OF SVC.	PD. OR COLL.	CASH NO.	CHARGE TO THE ACCOUNT OF	TIME FILED

Send the following message, subject to the terms on back hereof, which are hereby agreed to

JUNE 15 1951

In reply to L.D. call Staley as to whether from Glenn Case 202 would be postponed

MR CHEVIN STALEY
NEW MEXICO OIL AND GAS ENGINEERING COMMITTEE
HOBBS NEW MEXICO

ROMAN APPLICATION OF JUNE 13 ASKS CASE 202 POSTPONEMENT UNTIL AUGUST. IN SPURRIER'S ABSENCE GEORGE GRAHAM ADVISES THAT POSTPONEMENT SURE TO BE APPROVED BY COMMISSION.

OIL CONSERVATION COMMISSION

Copy: File
Accounting

Case 202

CLASS OF SERVICE

This is a full-rate Telegram or Cablegram unless its deferred character is indicated by a suitable symbol above or preceding the address.

WESTERN UNION

1201

W. P. MARSHALL, PRESIDENT

SYMBOLS

DL=Day Letter
NL=Night Letter
LT=Int'l Letter Telegram
VLT=Int'l Victory Ltr.

The filing time shown in the date line on telegrams and day letters is STANDARD TIME at point of origin. Time of receipt is STANDARD TIME at point of destination

1281

LA62 DC027 FWA55F

W BJ033 PD=BJ FTWORTH TEX 28 1022A= 1951 MAR 28 AM 9 44

R R SPURRIER=

OIL CONSERVATION COMM SANTA FE NMEX=

REFERENCE CASE NO. 202 ORDER NO. R-30 DATED SEPT. 29, 1950. STOP. DUE TO LACK OF SUFFICIENT CONCLUSIVE DATA ON BRUNSON POOL IT IS URGENTLY REQUESTED THAT HEARING SCHEDULED FOR APRIL 24 BE POSTPONED 60 DAYS OR UNTIL JUNE HEARING=

BRUNSON POOL OPERATORS COMMITTEE BY ROY T DURST
ROWAN OIL CO=

202 R-30 29 1950 24 60=

ROWAN OIL COMPANY
FAIR BUILDING
FORT WORTH 2, TEXAS

April 6, 1951

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

Dear Dick:

Your letter of April 3rd has been received, and, in the same mail, the transcript of the August 24th hearing was received from Miss Nancy Royal. Your action in obtaining this transcript is greatly appreciated.

In your letter reference is made to Case 202 regarding the Brunson Pool allowable. Apparently you did not receive my wire of March 28th, a copy of which I attach.

At our meeting in Hobbs on March 27th, it was discovered that some of the bottom hole pressure information was in error, and, in addition, there was no uniformity of opinion among the operators as to conclusions from the test data accumulated thus far. In view of these facts, it was the consensus of opinion of all present at the meeting that the hearing should be postponed until June if at all possible. My wire of March 28th is self-explanatory, and we would greatly appreciate postponement of this hearing of Case 202 if at all possible.

In the event the Oil Conservation Commission sees fit to postpone the hearing from April 24th until the regular hearing date in June, it is understood, by virtue of the order in effect, that the 90 barrels per day allowable will remain in effect until ordered otherwise by the Commission.

I always look forward to a trip to Santa Fe and to a pleasant visit with you. For that reason I regret that we are not prepared for the April 24th hearing; however, I am still looking forward to seeing you in June.

Sincerely,

Roy T. Durst

Roy T. Durst

RTD:ks
Attachment

DOMESTIC SERVICE
Check the class of service desired; otherwise this message will be sent as a full rate telegram

FULL RATE TELEGRAM	SERIAL
DAY LETTER	NIGHT LETTER

WESTERN UNION

1200

NEWCOMB CARLTON, CHAIRMAN · FRANK B. GALLAGHER, PRESIDENT · J. C. WILLEVER, VICE PRESIDENT · E. P. MARSHALL, PRESIDENT

INTERNATIONAL SERVICE
Check the class of service desired; otherwise this message will be sent at the full rate

FULL RATE	
CODE	NIGHT LETTER

NO. WDS.-CL. OF SVC.	FD. OR COLL.	CASH NO.	CHARGE TO THE ACCOUNT OF	TIME FILED
			ROWAN OIL COMPANY 1901 FAIR BLDG.	

Send the following message, subject to the terms on back hereof, which are hereby agreed to

C O P Y

3-28-51

MR. R. R. SPURRIER
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO

REFERENCE CASE NO. 202 ORDER NO. R-30 DATED SEPT. 29, 1950.

STOP. DUE TO LACK OF SUFFICIENT CONCLUSIVE DATA ON BRUNSON POOL IT IS URGENTLY REQUESTED THAT HEARING SCHEDULED FOR APRIL 24 BE POSTPONED 60 DAYS OR UNTIL JUNE HEARING.

BRUNSON POOL OPERATORS COMMITTEE

BY: ROY T. DURST
ROWAN OIL COMPANY

COPY TO: NEW MEXICO OIL &
GAS ENGINEERING COMMITTEE, HOBBS
ATTENTION: GLENN STALEY

OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO

April 3, 1951

Mr. Roy T. Durst
Rowan Oil Company
Fair Building
Fort Worth 2 - Texas

Dear Roy:

Your Case (No. 202) on the Bravenec Pool allowable is set up for hearing on April 24, 1951, as you no doubt noted from notices recently released by this office.

As you requested in your letter of March 12, I ordered a copy of that portion of the transcript of the August [illegible] hearing made up for you - that part which contained testimony with direct bearing on the case. You should have it by this time.

I will look forward to seeing you here later this month.

Sincerely,

R. R. Spurrier

RRS:mr

C O P Y

ROWAN OIL COMPANY

FAIR BUILDING
FORT WORTH 2, TEXAS

March 12, 1951

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

Dear Dick:

If my records serve me correctly, the time is approaching for the hearing on Case No. 202, "In the Matter of the Application of the Rowan Oil Company for an Order Reducing the Allowable of the Brunson Pool, Lea County, New Mexico".

In an effort to obtain answers to questions that may be thrown at the witnesses by the Honorable Oil Conservation Commission, it would be greatly appreciated if you could and would use your influence in obtaining a copy of the transcript of the hearing held last August 24th on the same case.

I realize that it is rather late to be requesting a transcript of a hearing held some five months ago; however, if the transcript is available, I would like very much to receive a copy and will reimburse the proper person for the correct fee, whatever it may be.

Mr. Rowan joins me in extending our kindest personal regards.

Yours very truly,

ROWAN OIL COMPANY

Roy T. Durst

Roy T. Durst

RTD:ks

BEFORE THE

OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO

PROCEEDINGS

The following matter came on for consideration before a hearing of the Oil Conservation Commission of the State of New Mexico pursuant to legal notice, at Santa Fe, New Mexico, on August 24, 1950, at 10:00 A. M.

NOTICE OF PUBLICATION
STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

The State of New Mexico by its Oil Conservation Commission hereby gives notice pursuant to law and the rules and regulations of said Commission promulgated thereunder, of the following public hearing to be held August 24, 1950, beginning at 10:00 o'clock A.M. on that day in the City of Santa Fe, New Mexico, in the Capitol (Hall of Representatives).

STATE OF NEW MEXICO TO:

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

Case 202 (Readvertisement)

In the matter of further hearing upon the application of Rowan Oil Company for an order reducing the allowable of the Brunson Pool, Lea County, New Mexico, for the purpose of determining if Order R-4, promulgated January 11, 1950, shall be modified, rescinded or further continued in effect.

Case 233

In the matter of the application of the New Mexico Oil Conservation Commission upon its own motion upon the recommendation of the Northwestern New Mexico Nomenclature Committee:

1. To create a new pool to be known as the West Kutz Canyon (Pictured Cliffs) gas pool, the area of which contains all of Sections 7 and 18 in Twp. 27N-R. 11W and all of Sections 12 and 13 in Twp. 27N - R. 12W, in San Juan County, New Mexico.

2. That the boundaries of LaPlata (Mesaverde) gas pool heretofore created and described should be changed so as to include the following:

Township 31 North, Range 12 West

S½ Section 2
All Section 3
All Section 4
N½ Section 5
E½ Section 9
W½ Section 12
W½ Section 13
E½ Section 16

Township 32 North, Range 12 West

E½ Section 20
All Section 21
W½ Section 22
W½ Section 27
All Section 28
All Section 29
All Section 30
N½ Section 31
All Section 32
All Section 33
W½ Section 34

3. That the boundaries of the Fulcher Basin-Kutz Canyon (Pictured Cliffs) gas pool heretofore created be and the same hereby is enlarged and its boundaries changed only to include all of Section 6 in Twp. 27N-R.10W, N.M.P.M., in San Juan County, New Mexico.

Case 234

In the matter of the application of American Republics Corporation for an order granting it permission to drill 4 unorthodox 5-spot locations on its F. M. Robinson "B" lease in Sections 27 and 35, Township7 south, Range 29 east, N.M. P.M., in the Grayburg-Jackson pool of Eddy County, New Mexico.

Given under the seal of the Oil Conservation Commission of New Mexico, at Santa Fe, New Mexico, on August 7, 1950.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

/s/ R. R. Spurrier
/t/ R. R. SPURRIER, SECRETARY

SEAL

BEFORE:

R. R. Spurrier, Commissioner

REGISTER:

Frank R. Lovering
Hobbs, New Mexico
For Shell Oil Company

C. D. Borland
Hobbs, New Mexico
For Gulf Oil Corporation

E. W. Showen
Odessa, Texas
For Gulf Oil Corporation

E. E. Merkle, Jr.
Ft. Worth, Texas
For Gulf Oil Corporation

M. L. Patterson
Odessa, Texas
For Phillips Petroleum Company

H. H. Toone
Kermit, Texas
For Magnolia Petroleum Company

Paul N. Colliston
Houston, Texas
For Continental Oil Company

A. R. Ballou
Dallas, Texas
For Sun Oil Company

Elvis A. Utz
Santa Fe, New Mexico
For the New Mexico Oil Conservation Commission

W. B. Macey
Artesia, New Mexico
For American Republics Corporation

John E. Cochran, Jr.
Artesia, New Mexico
For American Republics Corporation

C. M. Hinton
Houston, Texas
For American Republics Corporation

E. E. Kinney
Artesia, New Mexico
For New Mexico Bureau of Mines

A. H. Rowan
Ft. Worth, Texas
For Rowan Oil Company

R. T. Durst
Ft. Worth, Texas
For Rowan Oil Company

Glenn L. Shoemaker
Midland, Texas
For Stanolind Oil Purchasing Company

Wm. E. Bates
Midland, Texas
For Texas Company

Roy Yarbrough
Hobbs, New Mexico
For the New Mexico Oil Conservation Commission

J. N. Dunlavey
Hobbs, New Mexico
For Shelly Oil Company

Don McCormick
Carlsbad, New Mexico
For the New Mexico Oil Conservation Commission

MR. SPURRIER: Gentlemen, the meeting is open. In the absence of any other member of the Commission, I will sit for the purpose of taking the testimony only today. Now we have a little distraction outside, and I would suggest everybody come forward and get right up on the front row, and everyone make a special effort to speak loudly. I think this will be a short hearing, and if we can all sound off it will be much easier. Mr. McCormick, will you take up the allowable hearing,please.

MR. McCORMICK: Mr. Utz, will you take the stand please.

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

DIRECT EXAMINATION BY MR. McCORMICK:

Q. State your name, please.

A. Elvis A. Utz.

Q. And what position do you hold with the Oil Conservation Commission?

A. Engineer.

Q. Is it a part of your duties to make a study of the market demand for oil in the State of New Mexico?

A. Yes, it is.

Q. Please state what sources you use to make such a study?

A. Ordinarily, the United States Bureau of Mines estimate,

which hasn't arrived as of th[illegible] minute, but which last month was 150,000 barrels a day, the pipeline runs and crude storage and nominations of purchasers.

Q. Have you received nominations from all purchasers in the state for the month of September 1950?

A. Yes, sir, we have.

Q. What is the total of those nominations?

A. 128,104 barrels per day for the state.

Q. How does that compare with the nominations for the preceding month?

A. 1,689 barrels decrease or 1.3 per cent.

Q. And you have also made a study of the actual runs for the current month or preceding month?

A. We haven't made a study of the actual runs for this month.

Q. But for the preceding month?

A. But for the preceding month we have done as well as we can with the figures we have at the present moment. Usually those runs can only be figured two months back.

Q. On the basis of the information you have, do you have an opinion as to what the reasonable market demand for oil for the entire state will be for the month of September 1950?

A. In my opinion, it will be 145,500 barrels for the state. 800 barrels of that would be for the San Juan Basin, and 144,700 barrels for the allocated pools of Southeastern New Mexico. I believe the 49 barrel normal unit allowable will give you that.

Q. On the basis of the 49 barrel normal unit allowable for the month of August, the proration schedule actually figured up about 144,500 barrels. did it not?

A. That is correct. The allowable for this month was 144,566 barrels. We estimated 147,500 barrels, which was 2,934 barrels short of our estimate. This can be explained by the fact that

in the Drinkard Pool new gas-oil ratios were submitted in July. Some of these gas-oil ratios were increased to the extent that there was 2,480 barrel decrease in the allowable for the Drinkard Pool even though we raised two barrels on the normal unit allowable. The remaining 454 barrels was due to decrease in the nominations for marginal wells.

Q. I will ask you if, in your opinion, it is necessary to allocate and distribute and limite the production of oil in the state for the month of September in order to prevent waste?

A. Yes, I believe it is.

Q. And do you have a recommendation as to how this allocation and limitation should be carried out?

A. It should be carried out in accordance with the present rules and regulations of the Oil Conservation Commission.

Q. Do you have any other testimony you would like to offer at this time?

A. I don't believe I do.

MR. McCORMICK: Any questions by anyone? That is all, Mr. Utz.

(Witness dismissed.)

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

DIRECT EXAMINATION BY MR. McCORMICK:

Q. State your name, please.

A. Ed Kinney.

Q. What is your position, Mr. Kinney?

A. Petroleum engineer, New Mexico Bureau of Mines.

Q. As petroleum engineer for the State Bureau of Mines have you for several months been making a study of the market demand for oil in the State of New Mexico?

A. Yes, sir, I have.

Q. Please state briefly the extent of that study and what it

covers?

A. A study of the demand of the purchasers, a study of the storage above ground, both new crude and refined stocks, study of pipeline movements.

Q. On the basis of your study do you have an opinion as to what the reasonable market demand for oil for the month of September would be?

A. The reasonable demand for the month of September from New Mexico would be above 145,000 barrels.

Q. You testified here last month, did you not?

A. Yes, sir.

Q. At that time what was the condition of storage, the withdrawals from storage?

A. The withdrawals from storage from December 4 up to July 16 had been at an average rate of 3,000 barrels per day.

Q. And do you know what the current withdrawals from storage are running?

A. Current withdrawals are approximately 300 barrels a day for the past 30 days.

Q. Are you speaking of New Mexico storage, or New Mexico and West Texas?

A. The New Mexico pro rata share.

Q. Do you have a recommendation as to the total amount of oil to be allocated to the pools of southeastern New Mexico?

A. Approximately 145,000 barrels per day.

MR. McCORMICK: Any questions from anyone?

MR. LOVERING: I have a question. I don't see how you can sit there and make a statement this oil can be produced without waste unless they have considered the operating conditions of every field. To make a flat basic allowable and say all fields

can be produced without waste; I would like to know if they have considered and studied each field, its ability to produce, its gas-oil ratio decrease, and so forth. If they have made those studies before making that statement; do you have anything to say about that?

A. It isn't within my province to make studies of different fields.

MR. LOVERING: Did you make any statement about whether it could be produced without waste?

A. No, sir.

MR. McCORMICK: I didn't ask Mr. Kinney that.

MR. LOVERING: Is it all right to go back to this other gentleman?

MR. McCORMICK: Mr. Utz, come forward, please.

MR. LOVERING: Did you hear my question?

A. Well, I heard some of it, but there was so much noise that I didn't hear all of it.

MR. LOVERING: My question was whether or not the statement there that this oil could be produced without waste if we hadn't considered each field individually. It seems to me strangetthat you could set a flat basic 49 barrel unit allowable to apply to all fields because there is a big difference in the production ability of those fields. And some of the fields we know have surprisingly high gas-oil ratios now, and some have some surprisingly large drops in bottom hole pressures in the barrel production, and I wonder before making that statement if you considered the ability of each field to produce before making that statement?

A. We have considered each pool as far as our present information will allow us, Mr. Lovering. We have no evidence it is hurting the pools. Withe the exception of Drinkard, the high gas-oil

ratio showed quite an increase in July. But we can't see with the present information we have available that that is the cause, the increased allowable.

MR. McCORMICK: Do you anticipate, Mr. Utz, that as time goes on that you will make a continuing study of the effect of these high allowables on the different pools?

A. It will be necessary, yes, sir.

Q. And it is possible that special allowables will have to be given to certain pools after an engineering study?

A. Undoubtedly as we have more information on which to base our opinions and decisions, we will have to have proration formulas for separate pools. We do some of them now.

Q. At the present time you have no reason to believe that any pool is being injured by producing at the rate of 49 barrels normal unit allowable?

A. No, I wouldn't say we had any information that would say we were injuring them.

Q. You still think that might develop later on after there is more history on it?

A. Yes, sir, I do.

MR. McCORMICK: Any more questions?

MR. LOVERING: It seems to me before we continue with the increased allowables and increase them arbitrarily we should have those facts.

MR. McCORMICK: Mr. Utz, has recommended that the normal unit allowable of 49 barrels, which is the same as for the current month of August--

MR. LOVERING: I feel it is pretty high for some fields. Drinkard is one.

MR. McCORMICK: Do you have any other pools in mind, Mr. Lovering, that might be injured you think?

MR. LOVERING: We are making a study now. I don't know about that. We are trying to get data ourselves in the Brunson.

MR. McCORMICK: That is a flat 90 barrel allowable?

MR. LOVERING: If we go back to the unit allowable on the duct factor, it will automatically increase our allowable. But in that particular pool we shall have enough information to know whether or not we are going up or down and whether it is adversely affecting the Brunson Pool. But I feel actually we don't have the data to say whether or not we can produce this oil at a 49 barrel rate without any loss from reservoir energy or what not.

MR. McCORMICK: Isn't it one way to leave it there for a while and see what happens?

MR. LOVERING: Providing we take steps to obtain data from given wells on some basis that will give you that information.

MR. McCORMICK: Anyone else have any comments or questions? The Commission welcomes any comments from anyone regarding this allowable. It is a very vital matter. If anyone here feels it is too high, we should hear from them. And if they feel it is too low, we should hear from them.

MR. LOVERING: I just had the feeling we were operating a little bit blind.

MR. McCORMICK: That is all, Mr. Utz.

MR. SPURRIER: I want to talk to Mr. Lovering a minute. Are you suggesting, Frank, that we get into the maximum, efficient rate which was recently abandoned by the State of Texas?

MR. LOVERING: The maximum, efficient rate in Texas has been a variable and used as a tool. To raise and lower allowables, to curtail oil production, and depended on market demand. It has never been a true and tried figure. They have raised and

lowered it at will for the last five years. A true NER cannot be raised or lowered.

MR. SPURRIER: You mean it can't be raised or lowered if not within a certain period of time?

MR. LOVERING: You see they raised and lowered it in Texas. If they made an error why they raised it, if they didn't need it, they had people come out and show cause why it should be lowered.

MR. SPURRIER: That would be your suggestion in New Mexico if we had a 25 per cent increase in demand?

MR. LOVERING: We couldn't produce it.

MR. SPURRIER: You know that now?

MR. LOVERING: That's right.

MR. SPURRIER: How do you know it?

MR LOVERING: I have enough knowledge of enough fields to know most of our wells are operating at or near capacity. We don't have the type of reservoir and the oil capacity they have in West Texas.

MR. SPURRIER: You mean to say that the wells in the Permian Basin on the New Mexico side are different from those on the Texas side?

MR. LOVERING: Yes, sir.

MR. SPURRIER: Absolutely.

MR. LOVERING: Quite a few.

MR. SPURRIER: Well, Frank, I am a little puzzled. You seem convinced we are producing about all we can, and yet you talk about going into detailed studies of each pool to determine what the real--let's not say any are--but the best producing rates should be.

MR. LOVERING: Well, I don't b feel you can arbitrarily set and

decrease allowables to affect our fields in a sound proportion because certainly we have some fields where increased allowables are liable to hurt. It wouldn't be true economy in the operation of those fields. If you have an increased market demand, you should see where it can best be obtainable without undue loss of reservoir energy or what not.

MR. SPURRIER: Do you feel if the allowable is set at 49 barrels for top unit allowable wells that you are forced to produce at least that much every day from each of your wells?

MR. LOVERING: I am as a matter of protection if the man next to me produces his. It is a matter of self-defense.

MR. SPURRIER: That brings up a good point. If you made a survey of these pools and found one pool capable of producing 75 and another 50, what about the legal aspect of that?

MR. LOVERING: You are talking about two separate fields?

MR. SPURRIER: Yes, sir, two separate pools.

MR. LOVERING: Well, I think if you have a unit allowable in one field that should be less than another one, I would say order it and make it stick.

MR. SPURRIER: Does anyone have anything further on the matter of allowables?

MR. UTZ: I would like to ask Mr. Lovering if he would have any recommendations for the Drinkard?

MR. LOVERING: Well, I seem to be alone in commenting here. I would rather refer those to the Drinkard Pool Committee who probably have sufficient data on hand to answer the questions. As a matter of fact, I think before making a blind increase in allowables throughout the state that the various committees from those pools might be asked what they thought about the effect of increasing or decreasing allowables.

MR. UTZ: Do you feel we should run bottom hole pressure tests of the Drinkard Pool in order to determine its ability to produce?

MR. LOVERING: I think enough runs--I think enough runs already have been made and enough data should be available and in the hands of the Drinkard Pool Committee that they could make a fair statement as to the probability of damage to reservoirs upon excessive withdrawals. Also a study has been made of the gas-oil ratio in that pool.

MR. UTZ: We would welcome any information we could get.

MR. LOVERING: You will have to go out and ask for it. Nobody seems to be willing to come in here and volunteer.

MR. SPURRIER: Well, I might say that it is unfortunate when the attitude this Commission has always taken has been to ask the operators for their information, from the engineering committees. If such a situation as that exists, if that information isn't bbought into this Commission.

MR. LOVERING: Well, there has been a certain reluctance from anybody to volunteer the information. I don't know why.

MR. SPURRIER: Any more questions or comments? If not,we will take up Case No. 202. Mr. McCormick, will you read the advertisement, please?

(Mr. McCormick reads the notice of publication.)

MR. McCORMICK: I am sure that most of you are familiar with the order R-4. It was entered here on the recommendation of the Brunson Pool Operating Committee,and under that a flat, top allowable of 90 barrels was invoked for a period ending today, starting in January, a six-months' period. Does the Rowan Oil Company have a representative here?

MR. ROWAN: Yes, sir.

MR. McCORMICK: Will you proceed, please?

MR. ROWAN: If the Commission please, we would like to petition the Commission to continue this order R-4 in effect for another six-months' period, at the end of which the bottom hole pressure surveys will be made and the gas-oil ratio tests taken and the data available, and an engineering study made of the reservoir to be presented to this Commission so as to correctly determine what the allowable for the Brunson Pool should be. We feel the continuation of this order for another six months' period would not hurt the pool or any other operator in the pool. We are also of the opinion that the operators are either favorable to this or acquiesce in it. The Pool Committee has developed certain statistics and engineering data, and if the Commission would like a copy of our information, what information has been obtained in this test period for the past six months, we would be glad to file a copy of it with the Commission.

MR. McCORMICK: Do you have an engineer here who can testify as to that information?

MR. ROWAN: Yes, sir.

MR. McCORMICK: I think you had better put him on. What is his name?

MR. ROWAN: Ray Durst.

(Mr. Durst sworn.)

MR. McCORMICK: You wish to question Mr. Durst?

MR. ROWAN: No, I don't want to cross examine him, but, if it please the Commission, Mr. Durst can give you a resume of the engineering data that has been compiled and can explain the attitude of the engineering committee of that pool that the six months' tests run is not considered conclusive, and the information is not such that they can base any recommendation on

at this particular moment.

MR. SPURRIER: That will be fine, Mr. Rowan.

MR. DURST: I would like to submit as Exhibits1, 2, and 3 data that has been accumulated thus far by the Brunson Pool Engineering Sub-committee.

MR. McCORMICK: Is this No. 1 here?

MR. DURST: That would be No. 1. Exhibit 1 is a tabulation of the bottom hole pressures and production data reflecting the bottom hole pressure drops by periods from September 14, 1945, to August 1, 1950. This tabulation also reflects the net recovery of oil from the Brunson Reservoir. Attached to Exhibit 1 is a tabulation showing the bottom hole pressures of all wells in the Brunson Pool, both before and after the six months' test period, and in addition bottom hole pressures during the six months' period are reflected for fifteen key wells. Exhibit 2 is a graph reflecting the information contained on the Exhibit 1 in tabular form, and moreover shows the cumulative production of oil from the reservoir, monthly water production from the reservoir, rate of oil production, total number of wells, gas-oil ratio, and bottom hole pressure information. Exhibit 3 is a graph that reflects the cumulative recovery of oil from the Brunson Pool Reservoir per pound drop in bottom hole pressure. I would like to point out that during this six months' test period the total recovery of oil only, with no figures available for gas or water, indicates that a total of 14,187 barrels of oil were recovered per pound drop in bottom hole pressure during the six months' test period. For the two months immediately prior to the six months' test period the rate of withdrawal of oil was 19,749 barrels per

pound drop. For the six months immediately prior to that the recovery at the normal allowable was 13,336 barrels per pound drop in bottom hole pressure. As you can see there is some confusion under reduced rates of withdrawal of oil; that is, under the 90 barrels per day top allowable, there was a decrease in the recovery of oil per pound drop in bottom hole pressure. This drop--this information is not readily explainable to the majority of the operators on the Brunson Pool, and by virtue of that it was the opinion of the majority of the operators that this test period should continue for an additional six months' period of time. At the end of that time it was their recommendation a further bottom hole pressure survey be taken and a general gas-oil ratio survey be taken and also that an additional hearing be scheduled before the Oil Conservation Commission not earlier than sixty days after the termination of the six months' test period in order that sufficient time will allowed for the operators to accumulate and analyze the data in order that the recommendation to the Oil Conservation Commission may be made.

MR. McCORMICK: Have you testified before the Commission before, Mr. Durst?

MR. DURST: Yes, sir, I have.

MR. McCORMICK: You are a petroleum engineer?

MR. DURST: That's right.

Q. You are employed by the Rowan Oil Company?

A. That's right.

Q. You are producing less oil per pound drop in bottom hole pressure now than you did before this program was invoked?

A. The rate of production at the present time, we assume at the

present time, to be definite about it, during the six months' test period the rate of production per pound drop in bottom hole pressure was less than the two months' period immediately prior to the beginning of the test period.

Q. How do you explain that?

A. I would yield your question to another engineer who might be present. Possibly the Shell Oil Company has made some study of this reservoir condition and maybe Mr. Lovering could enlighten us a little bit this morning.

Q. Well, what evidence do you have that this 90 barrel top allowable has helped the reservoir?

A. We have this evidence only, and that is from December 1, 1946, until June 1, 1948, the recovery rate per pound drop in bottom hole pressure varied from approximately 2800 barrels to approximately 5,275 barrels which is substantially less than the rate of withdrawal during the test period. However, during the six months' test period--I mean six months' production period--and June 1, 1948, the recovery was in excess of 16,000 barrels per pound drop in bottom hole pressure. For the ensuing six months' period the recovery decreased to slightly in excess of 7300 barrels per pound drop, and the next six months ending June 1, 1949, the recovery was approximately 5700 barrels per pound drop. This information is somewhat erratic. There are certain reservoir conditions that obviously affect it. One is the bubble point of oil in the reservoir, the effect of which can be guessed at by any number of people. There may be bottom hole sample information available to some of the companies, there may be core analysis information that is available to some of the companies, the combination of all this data may explain the variations in the recovery per pound

drop

drop in bottom hole pressure throughout the life of the Brunson Reservoir.

Q. Hasn't that information been correlated yet by the Operators' Committee?

A. I am not in a position to answer the question. I am here as representative of the Rowan Oil Company which isn't representing the majority of the operators, and I am not prepared to testify as to those particular details. I don't have that information that is possibly on hand by some of the major companies.

Q. How has the water production been during this last six months' period?

A. The curve in Exhibit 2 reflects the trend and monthly water production from the reservoir. As you can see, it is also somewhat erratic, but still comparatively low. From this curve it appears at the present time the monthly water production is approximately 37,000 barrels.

Q. Well, you are producing more water now than you did when this program went into effect, isn't that true?

A. That is correct.

Q. How do you explain that?

A. Well, I am not in a position to explain that.

Q. What type of reservoir is this? Is it strictly a water drive?

A. To the best of my knowledge, and from information I have obtained the consensus of opinion is that it is a closed reservoir and isn't subject to an active water drive. If a water drive is present, it is probable it is very minor compared with the withdrawals rates that we have experienced in the past in the Brunson Reservoir.

Q. Then your water production figure wouldn't be especially material?

A. It is my opinion that the water production would not be of material value in analyzing the recovery from the Brunson Pool.

Q. Is it possible that there are two or more reservoirs actually within the area now designated as the Brunson Pool?

A. It is my personal opinion that decreased permeabilities in local areas throughout the Brunson Reservoir tend to make the Brunson Field approach separate reservoirs. Why the permeability is zero or a relatively small number I am not prepared to say, but the bottom hole pressure maps that have been produced and prepared by the Lea County Operators and distributed in the past have reflected anything but a uniform bottom hole pressure condition. That is further pointed out by the data attached to Exhibit 1.

Q. There is quite a difference between the bottom hole pressure history of the northern field and in the southern part, isn't there?

A. Yes, there is. That may be possibly due to the fact that the southern part of the field has experienced a little bit longer life in certain areas, new wells are being drilled in the north end of the field at this time, and it is possible that the boundary of the reservoir has not been defined as yet.

Q. But the key wells you have testified throughout the pool have been rather erratic as between the north and south, have they not?

A. That is correct. They are also erratic as between wells which could be accounted for by strictly individual well conditions, completion techniques and foreign matter in the pay zone and other numerous problems, and numerous things that could affect the productivity of any particular well.

Q. Do you know of any way the continuation of the 90 barrel top allowable could injure the pool?

A. I do not.

Q. You think it is possible it might help it?

A. It is possible it may be of great help. It is also probable that additional information will be obtained which will prove to be a base for definite recommendations to the Oil Conservation Commission.

Q. It is your own recommendation that the order be continued in effect for another six months' period?

A. Yes.

MR. McCORMICK: Anyone else like to question Mr. Durst?

MR. SPURRIER: Does anyone have a comment?

MR. LOVERING: He says it is his personal recommendation. Is it also a recommendation of the Engineering Committee of the Pool?

A. That is in the record previously, I think.

MR. LOVERING: One thing I feel--I assume your per pound drop curve doesn't include water. To be a true curve shouldn't it include the water?

A. To go a little further a true curve should include water as well as gas, depending upon the type of information you want.

MR. LOVERING: You have enough data to enable us to compute the volume of that gas originally in the reservoir?

A. I would think the Shell might be more in a position to answer that question. As far as the Rowan Oil Company is concerned, we would look to the Lea County Operators Committee for any available data in the way of history of the reservoir, and I am not prepared--

MR. LOVERING: Was it ever suggested in the Operating Committee that they considered the volume water and gas?

A. From my own recollection I do not recall any recommendation that was made which will reflect on a curve the original and present volume of the reservoir considering gas, oil, and water.

MR. LOVERING: Do you anticipate another meeting of the operators prior to the conclusion of this test?

A. No, however, if any of the operators feel that a meeting is in order, they have the privilege of so requesting one.

MR. LOVERING: Don't you feel that after this hearing today there should be a little get together about what was discussed here as far as water and gas is concerned, and it is about time to get all our neighbors together to know exactly what we are going to do when the test is over. We will have only sixty days to put this thing in order.

A. If it is your desire that be done, I am sure that the operators in the Brunson Pool will be extremely cooperative.

MR. LOVERING: I am merely suggesting it as one representative in that committee.

A. We will have as far as the time element goes six months while the second test is being conducted, during which time the data accumulated both prior to the beginning of the second test period and during the second test period can be dijested and put in any form that may be thought to be of advantage.

MR. SPURRIER: Is it possible that we have a misunderstanding here? You are talking about sixty days, Frank, and you are talking about six months, Ray. Now what is the recommendation for the continuance of this case?

MR. LOVERING: I think before the--I think it wise that the

results of this test would brought to the Commission sixty days after the six months' period was up.

A. That's right.

MR. LOVERING: Six months to wind up the test, and sixty days toformulate opinions andmmake any recommendations to the Commission.

MR. McCORMICK: Mr. Durst, what allowable will you have then at the end of the six months' period and before the matter is reported back to the Commission, what do you recommend?

A. It was the desire of the Oil Conservation Commission at the termination of the first six months' test period that the 90 barrel per day allowable be continued as it is today, and it is my recommendation that the 90 barrel per day allowable be continued from the end of the six months' test period until the ensuing hearing, that that 90 barrel per day allowable be continued for the two months' period.

MR. McCORMICK: Wouldn't it be better to continue it until a further order of the Commission and set a hearing six months hence to receive additional testimony?

A. Yes, I believe it would.

MR. McCORMICK: Do you have any data about the per acre recovery down there?

A. I do not.

MR. McCORMICK: According to the proration schedule there are fifty-nine wells that are now making the 90 barrel top allowable. If we did not have that limitation, the allowable would be 147 barrels per day. Do you have any opinion as to how manyof those wells could make 147 barrels?

A. No, sir, I don't. lPossibly some of the other companies represented could give you some information on that.

MR. ROWAN: May I ask a question?

MR. SPURRIER: Certainly.

MR. ROWAN: It is certainly contemplated if the Commission grants the request for the six months' extension of this order that this bottom hole pressure data and gas-oil ratio data and accumulated production and what other data will be available will be assembled and studied and a report made so that it should be presented to the Commission after the six months' period had expired.

MR. SPURRIER: Yes, sir.

MR. ROWAN: Than answers your question, Frank? The Rowan Oil Company will assume the responsibility of calling such a meeting of the operators in Hobbs or anywhere else it meets their pleasure.

MR. SPURRIER: Now, the actual period here that is recommended to the Commission that this case be continued is actually eight months?

MR. ROWAN: That is correct.

MR. SPURRIER: Does anyone have any comment on that period? Does anyone have any other comment on any question of the witness?

MR. TOONE: My name is H. H. Toone, Magnolia Petroleum Company. I would like to make a statement.

MR. SPURRIER: Come forward, please. You may make a statement without being sworn.

MR. TOONE: I wanted to state as the representative of the Magnolia that we concur in the recommendation of the Rowan Oil Company in this matter.

MR. SPURRIER: Thank you.

MR. COLLISTON: Paul Colliston of the Continental Oil Company. I would like to state Continental's position in this matter. Our study has not convinced us that curtailment is necessary or desirable, and a continuance of this order is desirable; however, we are willing to go along with the majority of the operators.

MR. BORLAND: C. D. Borland with the Gulf Oil Corporation. Our analysis of the data accumulated during the six months' test period indicates we cannot make any definite conclusion as to whether or not we are preserving the reservoir under reduced allowable. On that basis we are very much in favor of continuing the 90 barrel allowable for the additional period.

MR. SPURRIER: Eight months?

MR. BORLAND: Six months' test period and sixty days.

MR. SPURRIER: All right.

MR. LOVERING: Ditto for Shell.

MR. SPURRIER: Does anyone have any further comment? I have two telegrams both from the same company, Sinclair.

(Mr. Spurrier then reads the following telegrams.)

"1950 Aug 23. R. R. Spurrier, Secretary, State of New Mexico Oil Conservation Commission, Santa Fe, New Mexico.

"Re Case 202 Brunson Pool Lea County New Mexico Hearing August 24, 1950 Stop due to absences on vacation of some of our personnel who are more conversant with this situation unable to have anyone present at hearing to present our views. We feel that the test period should be continued for an additional six months and during such period production permitted at the rate of ninety barrels per well per day. Any reduction in allowables is not justified under the present situation and will result in final analysis in transferring markets from New Mexico during this peak period of demand. Sinclair Oil & Gas Co. by T. H. Hammett."

"1950 Aug 23. R. R. Spurrier, Oil Conservation Comm., Santa Fe, New Mexico. Reference Case 202 Brunson Pool, Lea County, New Mexico, to be heard August 24, 1950, Sinclair Oil & Gas Company recommends continuance of Test Period of 90

90 barrels oil per well per day for additional 6 months interval. Sinclair Oil & Gas Co., G. H. Gray."

MR. SPURRIER: Does anyone have any further comment in this case? Well, in view of the testimony presented here, gentlemen, I will recommend to the Commission, and a subsequent order will be issued, I will recommend to the Commission that the case be continued until April, the April allowable hearing which will be some time between the 20th and 25th of April approximately eight months hence. If there are no further comments, we will take up the next case, Case No. 233. Will you read the advertisement of that, please.

(Mr. McCormick reads the notice of publication.)

MR. McCORMICK: Mr. Utz, will you come forward please?

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

DIRECT EXAMINATION BY MR. McCORMICK:

MR. McCORMICK: Let the record show Mr. Utz has been sworn.

Q. Your name is Elvis Utz?

A. That is correct.

Q. You are an engineer of the Oil Conservation Commission?

A. Yes, sir.

Q. You have before you the notice in Case No. 233?

A. Yes, sir, I do.

Q. The Northwestern New Mexico Nomenclature Committee has recommended the creation of a new pool to be known as the West Kutz Canyon (Pictured Cliffs) gas pool, the description being set forth in the notice. On the basis of the information available in your office, do you join in this recommendation?

A. Yes, sir, I do.

Q. And it is on the basis of such information that it would be

reasonable to designate the pool as recommended?

A. On the basis of the information at the time this recommendation was made, I would recommend it be extended as stated.

Q. Now, as to the LaPlata (Mesaverde) gas pool, recommendations have been made to restablish the boundaries. On the basis of the information which is available in your office, do you recommend to the Commission that the boundaries be restablished as shown in the notice?

A. I would concur in the recommendation and recommend the same.

Q. And such restablished boundaries would be reasonable in your opinion?

A. Yes, sir.

Q. Item 3 in the notice relates to the boundaries of the Fulcher Basin-Kutz Canyon (Pictured Cliffs) gas pool. It is recommended the pool be changed to include all of Section 6 and Township 27N- R.10W, in San Juan County, New Mexico. On the basis of information available in your office, do you join in recommendation for the reestablishment of such boundaries?

A. Yes, sir, I do.

Q. And the same would be reasonable in your opinion?

A. In my opinion it would be, yes, sir.

MR. McCORMICK: Does anyone have any questions or comments regarding these pools in the San Juan? That is all Mr. Utz.

MR. SPURRIER: Does anyone have any objection to the extension as proposed? Does anyone have any further comment in this case? Mr. Lovering?

MR. LOVERING: No, sir.

MR. SPURRIER: If not, we will take up Case No. 234.

(Mr. McCormick reads the notice of publication in Case No. 234.)

W. B. MACEY, having been first duly sworn, testified as follows:

DIRECT EXAMINATION BY MR. COCHRAN:

MR. COCHRAN: If the Commission please, some sixteen months ago American Republics Corporation was granted permission to drill eight unorthodox five-spot locations on what is designated as its Robinson B Lease in the Grayburg-Jackson pool of Eddy County, New Mexico. In this present application they ask that they be permitted to drill four additional five-spot locations on the Robinson B Lease.

Q. Will you state your name, please, sir.

A. William B. Macey.

Q. Where do you live, Mr. Macey?

A. In Artesia, New Mexico.

Q. By whom are you employed?

A. I am employed by the American Republics Corporation.

Q. In what capacity?

A. I am District Superintendent.

Q. Are you in charge of American Republics' New Mexico production?

A. Yes, sir.

Q. Are you familiar with the Robinson B Lease?

A. Yes, sir.

Q. That is described in the application on file?

A. Yes, sir.

Q. Have you previously testified before the Commission?

A. Yes, sir, I have.

Q. Are you a graduate petroleum engineer?

A. Yes, sir.

MR. COCHRAN: Does the Commission accept Mr. Macey's qualifications?

MR. SPURRIER: Yes, sir.

Q. Mr. Macey, how many wells have been drilled on the Robinson B lease?

A. We have drilled to date a total of 24 wells on the B Lease.

Q. How many of those wells are producing or have been plugged and abandoned?

A. Two of the wells have been drilled as dry holes, Nos. 3 B and 18B, and were plugged at the time they were drilled.

Q. From what horizon is the remaining well producing?

A. There are twenty-two producing wells, and of the twenty-two wells twenty are producing from the upper San Andres pay in the Grayburg-Jackson pool. The other two wells are producing from the Grayburg-Keeley zone. The Grayburg-Keeley zone being encountered at approximately 3,275 feet. The Grayburg-Jackson pool producing at approximately 2800 feet.

Q. Now, with reference to the wells that are producing from the Grayburg-Jackson pay, what was the original spacing pattern?

A. All of the original wells drilled were drilled on one well to the 40 acre spacing with each well being centered in each 40-acre unit.

Q. Of the number of producing wells on this lease have you completed any five-spot locations to the Grayburg-Jackson pay?

A. Yes, we have completed three five-spot wells on this lease, Nos. 23, 24, 25.

Q. Now, Mr. Macey, I believe that at a previous hearing before the Commission you testified that in your opinion one well to forty acres wasn't sufficient to adequately drain the forty acres, is that correct?

A. Yes, sir.

Q. Now, that you have completed a number of five-spot wells on this lease, would you tell the Commission the results that you have obtained and whether you have had any reason to change your opinion?

A. We have completed the three five-spot wells on the B Lease, and since completing the wells we have run bottom hole pressure tests. We are still of the same opinion that one well isn't draining forty acres. Our bottom hole pressure tests have indicated that the new wells, five-spot wells, are producing oil which normally would never have been recovered had we continued our normal, forty acre spacing pattern.

Q. Do you have any reason to believe since the completion of these five-spot wells that they have had any effect at all on the capacity of the adjoining wells to produce?

A. We have had no decline whatsoever in the productivity of offset wells other than a normal curve.

Q. Mr. Macey, are you of the opinion in this particular area that the drilling of such five-spot wells is in the interest of conservation?

A. Very definitely.

Q. Mr. Macey, would you indicate on the map--on your map and on the map the Commission has before it--the four proposed locations?

A. This is the B Lease here. We are preparing to drill Nos. 28, 29, 30, and 31. All wells would be on the B Lease.

Q. Now, Mr. Macey, the exact location of those wells on the lease, from the lease lines, are as shown in the application on file?

A. From the section lines, yes, sir.

Q. From the section lines. Those proposed locations appear to be very near the lease lines. How near are they to the lease line?

A. They are 25 feet from the lease boundary line.

Q. And across the line is in each instance a different lease?

A. That's right.

Q. Now, Mr. Macey, who owns the adjoining leases?

A. American Republics Corporation.

Q. What lease do you call that?

A. That is our Robinson A Lease.

Q. Now on the Robinson B Lease are there any overriding royalty interests or oral payment obligations?

A. No, sir.

Q. And are there any overriding royalty interests or oral payment obligations on the adjoining Robinson A lease?

A. There is a 7½ per cent overriding royalty in addition to the government royalty on the Robinson A lease.

Q. Then the drilling of these wells so near the Robinson A lease line would be of concern to the Robinson A overriding interest owners, would it not?

A. Yes, sir.

Q. Now, would you tell the Commission what steps you have taken or what arrangements you have made, if any, to work out a satisfactory arrangement with the overriding royalty interest?

A. We have prepared an agreement between the corporation and the overriding royalty holders whereby they will agree to permit us to drill these wells within 25 feet of the lease line, which they hold the overriding royalty on. The royalty agreement provides that the overriding royalty holders shall participate in the income from the sale of oil and gas produced by these wells in the proportion they bear to 7½ per cent, their interest being in one-half of the oil and gas produced by wells 28, 29, and 30, and their interest being one-fourth of the oil and gas produced from well No. 31.

Q. That is to say that insofar as three wells are concerned those royalty owners would be paid one-half of 7½ per cent

of all deliveries?

A. That is quite right.

Q. And in the case of the corner well--

A. That will pay at one fourth of 7½--7½ per cent of one-fourth of the oil and gas produced.

Q. One-fourth of 7½ per cent?

A. Yes.

Q. Now, do you have a copy of the proposed form of agreement that you are now testifying about?

A. Yes, sir, I have a blank copy here.

Q. Mr. Macey, the overriding royalty owners as a part of this agreement make certain promises in which they agree never to demand that an offset well be drilled to any of these four wells, is that correct?

A. That is correct.

MR. COCHRAN: Will you mark that as Applicant's Exhibit 2. We offer in evidence a copy of the Agreement with Robinson A royalty owners, to which signatures are now being obtained. That is simply the form of the agreement.

MR. McCORMICK: What assurance do you have that this agreement will be signed by all the royalty owners?

A. We have contacted all the royalty owners and have the signatures of all but one of the royalty owners, and the last signature, the man representing this lady has approved our form of agreement, and we have sent it to her for signature.

Q. He has recommended--

A. He has recommended that she execute it.

MR. SPURRIER: Is it possible that she could change her mind?

A. It is possible.

Q. The agreement provides that it will only become effective when all overriding royalty interests owners have executed it.

It will only become effective also when the United States Geological Survey has approved it and the Oil Conservation Commission has approved it. In other words, if this lady for--which I have reason to believe won't change her mind--but if she should, then the wells could not be drilled.

MR. McCORMICK: Who is that, Mrs. Higgins?

MR. COCHRAN: (Shaking head indicating assent) Ralph Shugart has represented that family and done their accounting work for a number of years, and the usual practice is that anything Mr. Shugart sends her and recommends she sign, she does so promptly.

MR. McCORMICK: You would anticipate that the Commission if it entered an order approving this application would make it contingent upon the complete execution of the royalty agreement?

MR. COCHRAN: That's right. However, we feel before the Commission signs the order we can furnish you a photostatic copy of the executed instrument.

Q. Mr. Macey, you are familiar with the Robinson A and Robinson B lease divisions to the extent of the royalty provided to be paid to the government?

A. Yes, sir. The royalty under the Robinson A lease payable to the government is now 12½ per cent, but it varies. It ranges from 12½ to 25 per cent, and the royalty is 12½ when the production is over 110 barrels per well per day. This lease is an exchange lease. It was originally carried as 5 per cent royalty to the government. The royalty payable to the government under the B lease varies from 12½ to 32 per cent, and if the production exceeds 50 barrels per well per day the higher scale royalty shall prevail. But if the production is less than 50 barrels per well per day, the royalty at 12½ per cent shall prevail.

Q. In other words, the wells being located on the Robinson B lease if there came a time when they produced more than 50 barrels per well per day the government would benefit by the higher royalty?

A. That is correct.

MR. McCORMICK: That is the average well on the lease?

MR. COCHRAN: Yes, sir.

MR. McCORMICK: The average over a one month period, I believe, is the way you figure, but it is an average of all wells on the lease not in any particular one well?

A. Yes, sir.

MR. McCORMICK: It isn't likely those wells will produce more than 50 barrels a day?

A. Your allowable would have to be--it isn't likely. That is correct.

MR. McCORMICK: They wouldn't produce it, would they?

A. No, sir, they wouldn't make it.

Q. How do you propose to separate the oil produced from these four wells and account to the royalty interest owners for their part?

A. We are going to set separate tank batteries to measure the production from wells 28 and 29, separate tank batteries for well 30, and a separate tank battery for well No. 31. We will have separate division yields drawn for each battery.

Q. Now, Mr. Macey, in your application you ask that you be granted permission to drill these wells. You do not ask you be given any increase in allowable. Now, what is the proposed arrangement with reference to the allowable for these four wells?

A. In April 1949 in Case 180 the Commission entered an order No. 819 whereby certain specific tracts were set out and unitized

for proration and allowable purposes only. This order further authorized us to produce the allowable as fixed by the Commission for the total number of developed 40 acre tracts--40 acre units--on any one tract. It further authorized us to produce the oil from all of the producing wells which had been completed or which might hereinafter be drilled. We are simply asking that this order be continued, that the allowable from these wells be assigned in accordance with this order.

Q. In other words, these wells being located on tracts unitized for proration purposes the proration order applicable to that tract would govern?

A. That is correct.

Q. Mr. Macey, permission and approval have been obtained from the United States Geological Survey?

A. Yes, sir.

Q. For these proposed locations?

A. Yes, sir.

MR. COCHRAN: I have a letter written by Foster Morrell, Oil and Gas Supervisor, addressed to John E. Cochran, Jr., Artesia, dated August 7, 1950, which reads in part as follows:

MR. McCORMICK: Do you have a copy you could introduce in evidence?

MR. COCHRAN: I will give you the copy, but I just wanted to give you the part in which they state they have no objection.

"No objection is offered by this office to the well spacing plan providing for drilling of four wells at locations specified in the application to test the producing reservoir of Grayburg-Jackson pool. Drilling of these wells may afford opportunity for additional recovery of oil and gas from the producing reservoir. Approval to drill the wells will be contingent upon approval of the unorthodox locations for proration

purposes by the Oil Conservation Commission of the State of New Mexico."

That is all I have.

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

MR. McCORMICK: Mr. Macey, are you now producing any one well in excess of the normal unit allowable?

A. No, I should have pointed that out. Order 819 provided that no well located upon any unitized tract should be permitted to produce at a rate in excess of the top allowable as fixed by the Commission.

MR. McCORMICK: But there are specific 40-acre tracts that would have two wells in them and would produce more than the normal unit allowable?

A. Yes.

MR. SPURRIER: Would that same thing apply to a 160 acre tract, Bill?

A. I don't follow you.

MR. SPURRIER: He said there are 40-acre tracts on which there are two wells, and that 40-acre tract actually produces more than the 40-acre unit allowable?

A. I see what you mean. YOu mean are there any 160-acre tracts that would produce more than say four allowables?

MR. SPURRIER: Right.

A. No.

MR. McCORMICK: You mentioned earlier that two of those wells in this pool were producing from a lower horizon than the other wells?

A. Separate pools

MR. McCORMICK: Which are those two wells?

A. Wells Nos. 21 and 27. We spaced those on ten acre spacing.

MR. McCORMICK: What horizon do you contemplate producing the fourwells from you are applying for.

A. The Grayburg-Jackson pay, the normal field pay, the upper sands.

MR. SPURRIER: Does anyone have any further questions? Any further comment. If there are no further questions of the witness, he may be excused. If there are no further comments, the cases are all completed, and the hearing is over, except that I wish to say that all these cases must be taken under advisement for lack of a quorum. I wish further to say that in all cases, all numbered cases, with the exception of Case 202, which I have already commented on, that I will recommend to the Commission approval as requested, as the cases are presented. In the case of the allowable hearing I cannot say at this time what the recommendation will be. Does anyone have anything further to bring before the Commission? If not, the meeting is adjourned.

- - - - - - - -

STATE OF NEW MEXICO)
: SS
COUNTY OF BERNALILLO)

I HEREBY CERTIFY that the foregoing transcript of hearing before the Oil Conservation Commission is a true record of the same to the best of my knowledge, skill and ability.

DATED at Albuquerque, New Mexico, this 12 day of September 1950.

E. E. Gleason
NOTARY PUBLIC

My Commission Expires
August 4, 1952

October 9, 1950

Mr. T. H. Hammett
Sinclair Oil & Gas Company
Sinclair Building
Tulsa, Oklahoma

Dear Mr. Hammett:

In reply to your letter of October 2, we enclose herewith, copy of the latest order issued in connection with the Brunson Pool, Lea County, New Mexico.

Very truly yours,

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

R. R. Spurrier
Secretary-Director

RRS:bw
encl.

SINCLAIR OIL & GAS COMPANY

SINCLAIR BUILDING

TULSA, OKLAHOMA

October 2, 1950

T. H. HAMMETT
VICE-PRESIDENT

Mr. R. R. Spurrier,
Secretary, State of New Mexico,
Oil Conservation Commission,
Santa Fe, New Mexico.

In re: Brunson Pool - Lea County, New Mexico

Dear Sir:

Has any final decision been made with respect to the hearing held August 24, 1950 in Case No. 202, Brunson Pool, for fixing of allowables?

Yours very truly,

T. H. Hammett

THH/as

GEORGE L. REESE, JR.
DON G. McCORMICK
S. M. RUTHERFORD, III

REESE AND McCORMICK
ATTORNEYS AT LAW
BUJAC BUILDING
CARLSBAD, NEW MEXICO

September 1, 1950

Mr. R. R. Spurrier
State Oil Conservation Commission
Santa Fe, New Mexico

Dear Dick:

Enclosed are orders which I have drafted and which I recommend you adopt in cases No. 202 and 233. The proper order number should be inserted on each order.

I presume you have received the Minutes of the meeting of the Lea County Operators held on 29 August, 1950. As you will see from an examination of these minutes, Mr. Porter has presented the data showing what the results would be if the Hobbs and Monument proration orders were rescinded and those pools placed on the same basis as the rest of the state.

This demonstrates that there is now no real need for separate proration plans in these pools and I think that the proration plans should be done away with. We seemed to have the same idea when we discussed the matter in Santa Fe a few days ago, although neither of us had the benefit of this data.

Therefore, I recommend that you call a hearing for 24 October, 1950 to consider the rescission of Order No. 33, relating to the Monument Pool and Order No. 398, relating to the Hobbs Pool.

I would suggest that notice of this hearing be given as soon as possible so that the operators will have adequate time to consider the matter before the October hearing. If we give too short a period of time, I know someone will ask for a continuance.

Very truly yours,

Don G. McCormick

Enclosures.

DGM:mjt

OIL CONSERVATION COMMISSION

SANTA FE, NEW MEXICO

September 19, 1950

COPY

MEMORANDUM TO:

Hobbs Aztec
Artesia

We are enclosing one copy of the transcript of Hearing held August 24, 1950 re Cases 202 (readvertisement), Case 233, and Case 234.

Secretary and Director

L CONSERVATION COMMIS[illegible]ON
SANTA FE, NEW MEXICO

C

O

P

Y

Rowan Oil Company
Fort Worth, Texas

RE: Case No. 202, Order No. R-30, dated 9-29-50

Gentlemen:

We are enclosing signed copy of Order No. R-30 concerning your application for an order reducing the allowable of the Brunson pool, Lea County, New Mexico.

Very truly yours,

bpw

Secretary and Director

cc: Pete Porter
Proration Office,
Hobbs, N. M.

CLASS OF SERVICE

This is a full-rate Telegram or Cablegram unless its deferred character is indicated by a suitable symbol above or preceding the address.

WESTERN UNION

1220

W. P. MARSHALL, PRESIDENT

SYMBOLS
DL = Day Letter
NL = Night Letter
LC = Deferred Cable
NLT = Cable Night Letter
Ship Radiogram

The filing time shown in the date line on telegrams and day letters is STANDARD TIME at point of origin. Time of receipt is STANDARD TIME at point of destination

LA71 KA381

1950 AUG 23 PM 3 26

K TUB485 DL PD WUX TULSA OKLA 23 402P

R R SPURRIER SECRETARY STATE OF NEW MEXICO

OIL CONSERVATION COMMISSION SANTA FE NMEX

RE CASE 202 BRUNSON POOL LEA COUNTY NEW MEXICO HEARING AUGUST 24 1950 STOP DUE TO ABSENCES ON VACATION OF SOME OF OUR PERSONNEL WHO ARE MORE CONVERSANT WITH THIS SITUATION UNABLE TO HAVE ANYONE PRESENT AT HEARING TO PRESENT OUR VIEWS STOP WE FEEL THAT THE TEST PERIOD SHOULD BE CONTINUED FOR AN ADDITIONAL SIX MONTHS AND DURING SUCH PERIOD PRODUCTION PERMITTED AT THE RATE OF NINETY BARRELS PER WELL PER DAY STOP ANY REDUCTION IN ALLOWABLES IS NOT JUSTIFIED UNDER THE PRESENT SITUATION AND WILL RESULT IN FINAL ANALYSIS IN TRANSFERRING MARKETS FROM NEW MEXICO DURING THIS PEAK PERIOD OF DEMAND

SINCLAIR OIL & GAS CO BY T H HAMMETT

202 24 1950

CLASS OF SERVICE

This is a full-rate Telegram or Cablegram unless its deferred character is indicated by a suitable symbol above or preceding the address

WESTERN UNION

1201

W. P. MARSHALL, PRESIDENT

SYMBOLS

DL = Day Letter
NL = Night Letter
LC = Deferred Cable
NLT = Cable Night Letter
Ship Radiogram

The filing time shown in the date line on telegrams and day letters is STANDARD TIME at point of origin. Time of receipt is STANDARD TIME at point of destination

OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
RECEIVED
AUG 23 1950

LA95 DB163

D NDA121 PD MIDLAND TEX 23 1105A

R R SPURRIER

OIL CONSERVATION COMM SANTA FE NMEX

REFERENCE CASE 202 BRUNSON POOL LEA COUNTY NEW MEXICO

TO BE HEARD AUGUST 24 1950 SINCLAIR OIL & GAS COMPANY RECOMMENDS CONTINUANCE OF TEST PERIOD OF 90 BARRELS OIL PER WELL PER DAY FOR ADDITIONAL 6 MONTHS INTERVAL

SINCLAIR OIL AND GAS CO G H GRAY

THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION COMMISSION OF THE STATE OF NEW MEXICO FOR THE PURPOSE OF CONSIDERING:

CASE NO. 202
ORDER NO. R- 30

IN THE MATTER OF THE APPLICATION OF ROWAN OIL COMPANY FOR AN ORDER REDUCING THE ALLOWABLE OF THE BRUNSON POOL, LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

This case came on for hearing on 24 August, 1950, pursuant to the provisions of Order No. R-4 entered herein and the Commission having heard the evidence and being duly advised,

FINDS:

1. It has jurisdiction of the subject matter and of the interested parties, due notice of the hearing having been given.

2. The top unit allowable of the Brunson Pool should be continued at 90 barrels per day for a further period in order for the operators to conduct additional tests and gather additional data as to the characteristics of the reservoir.

3. To increase the top unit allowable above 90 barrels per day could possibly result in waste and to limit it to 90 barrels per day will prevent waste.

IT IS THEREFORE ORDERED:

1. Until the further order of the Commission, the top unit allowable for the Brunson Pool shall be 90 barrels per day.

2. The general rules pertaining to gas-oil ratio tests (Rule 301) and gas-oil ratio limitation (Rule 506) shall remain in effect, the gas-oil ratio limit being 2000 cubic feet of gas for each barrel of oil produced.

3. A further hearing will be held in April, 1951, to determine if this order should be modified, rescinded or continued in effect.

DONE this 29 day of September, 1950 at Santa Fe, New Mexico

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

By Guy Shepard

R. R. Spurrier

January 13, 1950

Mr. A. H. Rowan
Rowan Oil Company
Commercial Standard Building
Fort Worth 2, Texas

Dear Mr. Rowan:

We enclose herewith, signed copy of Order No. R-4, issued by the Oil Conservation Commission, January 11, 1950, in connection with the hearing held in Santa Fe, New Mexico, on November 22, 1949.

Very truly yours,

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

R. R. Spurrier
Secretary-Director

RRS:bw
encl.

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION COMMISSION OF THE STATE OF NEW MEXICO FOR THE PURPOSE OF CONSIDERING:

CASE NO. 202
ORDER NO. R-4

IN THE MATTER OF THE APPLICATION OF ROWAN OIL COMPANY FOR AN ORDER REDUCING THE ALLOWABLE OF THE BRUNSON POOL, LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This case came on for hearing on November 22, 1949 and the Commission having heard the evidence, the argument of counsel and being duly advised,

FINDS:

1. It has jurisdiction of the subject matter and of the interested parties, due notice of the hearing having been given.

2. Under the rate of production heretofore adhered to the Brunson Pool has suffered a rapid decline in bottom hole pressures and increasing irregular water encroachment, which are causing waste.

3. To prevent waste the top unit allowable of the Brunson Pool should be reduced to 90 barrels per day for a period of not less than 6 months, during which period the operators may conduct tests and gather data as to the characteristics of the reservoir.

IT IS THEREFORE ORDERED:

1. Commencing February 1, 1950, and until the further order of the Commission, the top unit allowable for the Brunson Pool shall be 90 barrels per day.

2. The general rules pertaining to gas-oil ratio tests (Rule 301) and gas-oil ratio limitation (Rule 506) shall remain in effect, the gas-oil ratio limit being 2000 cubic feet of gas for each barrel of oil produced.

3. On August 24, 1950, a further hearing shall be held to determine if this order shall be modified, rescinded or continued in effect.

DONE this 11th day of January, 1950, at Santa Fe, New Mexico.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

THOMAS J. MABRY, CHAIRMAN

GUY SHEPARD, MEMBER

R. R. SPURRIER, SECRETARY

WESTERN UNION
1201
W. P. MARSHALL, PRESIDENT

...d day letters in STANDARD TIME at point of origin. Time of receipt is STANDARD TIME at point of destination

FWA52DA212

1949 NOV 21 AM 11 01

D=MDA070 PD=MIDLAND TEX 21 1030A=

ARCH ROWAN=

CARE ROWAN DLG CO COMML STD BLDG FTW=

IN RE PRODUCTION RATE BRUNSON POOL LEA COUNTY NEW MEXICO HUMBLE RECOMMENDS 75 BARREL TOP ALLOWABLE INSTEAD OF 90 FOR THE 6 MONTH TEST PERIOD AND AT THE ENDOF THE 6 MONTH TEST PERIOD THE TEST DATA BE REVIEWED AND THE TOP ALLOWABLE BE DETERMINED FROM THESE DATA RATHER THAN REVERTING BACK TO THE 122 BARREL TOP ALLOWABLE=

HUMBLE OIL AND REFINING CO BY J W HOUSE=

75 90 6 6 122=

FORM 629 2-49

STANOLIND OIL AND GAS COMPANY

FAIR BUILDING

FORT WORTH, TEXAS

C. F. BEDFORD
DIVISION PRODUCTION SUPERINTENDENT

November 18, 1949

File: JEF-8631-171

Subject: Request for Allowable Reduction
Brunson Pool, Lea County, New Mexico

Case 202

State of New Mexico
Oil Conservation Commission
Santa Fe, New Mexico

Gentlemen:

This will have reference to the application of the Rowan Oil Company for reduction of the top per well allowable in the Brunson Pool, the hearing for which has been set for November 22, 1949.

As operator in the Brunson Pool, we wish to respectfully request that the application of the Rowan Oil Company to reduce the top per well allowable to 90 barrels of oil per day be considered favorably. We believe that such a reduction in allowable is necessary in order to allow operators in the pool opportunity to observe the reservoir performance under decreased withdrawals. We believe that the procedure outlined in the applicant's petition is in the interest of conservation and waste prevention.

Very truly yours,

C F Bedford

BRL/lp

Case 202

October 18, 1949

Mr. A. H. Rowan
Rowan Oil Company
Fort Worth, Texas

Dear Mr. Rowan:

We have your petition of October 14, 1949 where you ask for a hearing before the Commission concerning rapid decline in bottom hole pressure of the Brunson field and corrective measures to be taken to conserve reservoir energy.

The Commission requires three copies of a petition together with supporting data. Therefore, we would appreciate receiving two more copies of petition of October 14.

We shall advise you of the earliest date this matter can be brought up before the Commission.

Very truly yours,

bpw

Secretary and Director

ROWAN OIL COMPANY
COMMERCIAL STANDARD BUILDING
FORT WORTH 2, TEXAS
TELEPHONE 2-2393
L. D. 193

October 14, 1949

State of New Mexico
Oil Conservation Commission
Santa Fe, New Mexico

ATTENTION: Mr. R. R. Spurrier

Gentlemen:

On September 27, 1949, and October 11, 1949, the Brunson Pool Operators Committee met for the purpose of discussing the rapid decline in bottom hole pressure of the Brunson field and what corrective measures, if any, should be taken to retain the remaining reservoir energy.

As a result of these meetings, it is respectfully requested that a hearing be scheduled before the Oil Conservation Commission for the purpose of our petitioning the Commission to reduce the current top per well allowable of each well in the Brunson field to 90 barrels per day for a 6 months test period only in order that the performance of the reservoir can be studied and that data under reduced withdrawal rates can be obtained. The data thus obtained will be of utmost importance in determining the maximum efficient rate of production of the reservoir.

Specifically, the procedure to be recommended as a part of the above petition is as follows:

1. A general bottom hole pressure survey will be taken of all wells in the Brunson field in the manner prescribed by the Oil Conservation Commission and immediately prior to the effective date of the reduced allowable.

2. A limited number of key wells, to be designated by the sub-committee of the Brunson Pool Operators Committee, will have gas-oil ratio tests taken immediately prior to the bottom hole pressure survey outlined above. In addition, gas-oil ratio tests and bottom hole pressure tests as prescribed by the Commission will be taken on the designated key wells only at 60-day intervals until a total of 6 months has elapsed.

3. During the 6 month period, the top per well allowable for the Brunson field will be fixed at 90 barrels of oil per day. Wells producing gas in excess of the limiting gas-oil ratio of 2000 cubic feet per barrel will be penalized downward from 90 barrels per day.

4. Immediately prior to the termination of the 6 month test period, a general bottom hole pressure survey will again be taken of all wells in the Brunson field in the manner prescribed by the Oil Conservation Commission.

5. At the end of the test period, the top per well allowable for the Brunson field will revert to the normal as presently prescribed by the Oil Conservation Commission.

The results of all bottom hole pressure and gas-oil ratio tests enumerated above will be made available to all operators in the field for review and study. Further recommendations to the Commission will be made subsequent to the accumulation of this data, if recommendations are in order.

The above request is submitted in the interest of conservation and to eliminate waste of the natural resources of the State of New Mexico.

Yours very truly,

ROWAN OIL COMPANY

A. H. Rowan

Enclosure: (Supplemental Report - Brunson Pool - June 30, 1949)

CC: Lea County Operators Committee
Hobbs, New Mexico

HTD:blp

Copy

ROWAN OIL COMPANY
COMMERCIAL STANDARD BUILDING
FORT WORTH 2, TEXAS

October 14, 1949

State of New Mexico
Oil Conservation Commission
Santa Fe, New Mexico

ATTENTION: Mr. R. R. Spurrier

Gentlemen:

On September 27, 1949, and October 11, 1949, the Brunson Pool Operators Committee met for the purpose of discussing the rapid decline in bottom hole pressure of the Brunson field and what corrective measures, if any, should be taken to retain the remaining reservoir energy.

As a result of these meetings, it is respectfully requested that a hearing be scheduled before the Oil Conservation Commission for the purpose of our petitioning the Commission to reduce the current top per well allowable of each well in the Brunson field to 90 barrels per day for a 6 months test period only in order that the performance of the reservoir can be studied and that data under reduced withdrawal rates can be obtained. The data thus obtained will be of utmost importance in determining the maximum efficient rate of production of the reservoir.

Specifically, the procedure to be recommended as a part of the above petition is as follows:

1. A general bottom hole pressure survey will be taken of all wells in the Brunson field in the manner prescribed by the Oil Conservation Commission and immediately prior to the effective date of the reduced allowable.

2. A limited number of key wells, to be designated by the sub-committee of the Brunson Pool Operators Committee, will have gas-oil ratio tests taken immediately prior to the bottom hole pressure survey outlined above. In addition, gas-oil ratio tests and bottom hole pressure tests as prescribed by the Commission will be taken on the designated key wells only at 60-day intervals until a total of 6 months has elapsed.

3. During the 6 month period, the top per well allowable for the Brunson field will be fixed at 90 barrels of oil per day. Wells producing gas in excess of the limiting gas-oil ratio of 2000 cubic feet per barrel will be penalized downward from 90 barrels per day.

4. Immediately prior to the termination of the 6 month test period, a general bottom hole pressure survey will again be taken of all wells in the Brunson field in the manner prescribed by the Oil Conservation Commission.

5. At the end of the test period, the top per well allowable for the Brunson field will revert to the normal as presently prescribed by the Oil Conservation Commission.

The results of all bottom hole pressure and gas-oil ratio tests enumerated above will be made available to all operators in the field for review and study. Further recommendations to the Commission will be made subsequent to the accumulation of this data, if recommendations are in order.

The above request is submitted in the interest of conservation and to eliminate waste of the natural resources of the State of New Mexico.

Yours very truly,

ROWAN OIL COMPANY

A. H. Rowan

Enclosure: (Supplemental Report - Brunson Pool - June 30, 1949)

CC: Lea County Operators Committee
Hobbs, New Mexico

RTD:blp

Copy

ROWAN OIL COMPANY
COMMERCIAL STANDARD BUILDING
FORT WORTH 2, TEXAS

October 14, 1949

State of New Mexico
Oil Conservation Commission
Santa Fe, New Mexico

ATTENTION: Mr. R. R. Spurrier

Gentlemen:

On September 27, 1949, and October 11, 1949, the Brunson Pool Operators Committee met for the purpose of discussing the rapid decline in bottom hole pressure of the Brunson field and what corrective measures, if any, should be taken to retain the remaining reservoir energy.

As a result of these meetings, it is respectfully requested that a hearing be scheduled before the Oil Conservation Commission for the purpose of our petitioning the Commission to reduce the current top per well allowable of each well in the Brunson field to 90 barrels per day for a 6 months test period only in order that the performance of the reservoir can be studied and that data under reduced withdrawal rates can be obtained. The data thus obtained will be of utmost importance in determining the maximum efficient rate of production of the reservoir.

Specifically, the procedure to be recommended as a part of the above petition is as follows:

1. A general bottom hole pressure survey will be taken of all wells in the Brunson field in the manner prescribed by the Oil Conservation Commission and immediately prior to the effective date of the reduced allowable.

2. A limited number of key wells, to be designated by the subcommittee of the Brunson Pool Operators Committee, will have gas-oil ratio tests taken immediately prior to the bottom hole pressure survey outlined above. In addition, gas-oil ratio tests and bottom hole pressure tests as prescribed by the Commission will be taken on the designated key wells only at 60-day intervals until a total of 6 months has elapsed.

3. During the 6 month period, the top per well allowable for the Brunson field will be fixed at 90 barrels of oil per day. Wells producing gas in excess of the limiting gas-oil ratio of 2000 cubic feet per barrel will be penalized downward from 90 barrels per day.

4. Immediately prior to the termination of the 6 month test period, a general bottom hole pressure survey will again be taken of all wells in the Brunson field in the manner prescribed by the Oil Conservation Commission.

5. At the end of the test period, the top per well allowable for the Brunson field will revert to the normal as presently prescribed by the Oil Conservation Commission.

The results of all bottom hole pressure and gas-oil ratio tests enumerated above will be made available to all operators in the field for review and study. Further recommendations to the Commission will be made subsequent to the accumulation of this data, if recommendations are in order.

The above request is submitted in the interest of conservation and to eliminate waste of the natural resources of the State of New Mexico.

Yours very truly,

ROWAN OIL COMPANY

A. H. Rowan

Enclosure: (Supplemental Report - Brunson Pool - June 30, 1949)

CC: Lea County Operators Committee
Hobbs, New Mexico

RTD:blp

SUPPLEMENTAL REPORT

BRUNSON POOL

JUNE 30, 1949

September 19, 1949

TO ALL BRUNSON POOL OPERATORS

Re: Supplemental Report on
The Brunson Pool

Gentlemen:

The attached information has been collected and prepared by the Sub-Committee to supplement the reports on the Brunson Pool, Lea County, New Mexico. The initial report was submitted August 18, 1948 and a supplement on April 1, 1949. The present production and bottom hole pressure information is presented in the following tabulations, graphs and maps:

1. Tabulation of pressure-production data.

2. Graph showing the relation between cumulative oil recovery per pound pressure drop and the total bottom hole pressure drop.

3. Graph showing the relation between daily oil production rate and the average bottom hole pressure of all wells.

4. Graph showing the relation between daily oil production rate and the average of the bottom hole pressures taken in comparable wells (Wells used in one survey that were also used in the previous survey.)

5. Graph showing wells, monthly oil production, cumulative production, and bottom hole pressure plotted against time.

6. Tabulation of bottom hole pressures of individual wells by surveys.

7. Bottom hole pressure map - sixth general survey on June 1, 1949.

8. Water Map - June 1949.

Respectfully submitted,

J. C. Blackwood
Chairman, Sub-Committee
Brunson Pool Operators Committee

BRUNSON POOL

PRESSURE-PRODUCTION DATA

Press. Survey	Press. -4300	Wells Bombed	No. Wells in Pool	Prod. Bbls. Period	Prod. Bbls. Cumulative	Press. Drop Period	Press. Drop Cumulative	Bbls/Lb. Drop Period	Bbls/Lb. Drop Cumulative
Sept. 14, 1945	2945	1	1	0	0	0	0	0	0
Dec. 1, 1946	2860	14	15	304,864	304,864	85	85	3,587	3,587
June 1, 1947	2705	25	33	433,641	738,505	155	240	2,790	3,077
Dec. 1, 1947	2551	40	45	812,426	1,550,931	154	394	5,275	3,936
June 1, 1948	2479	51	57	1,169,745	2,720,676	72	466	16,246	5,838
Dec. 1, 1948	2288	56	65	1,398,655	4,119,331	191	657	7,323	6,270
June 1, 1949	2021	64	74	1,520,922	5,640,253	267	924	5,696	6,104

BRUNSON POOL BOTTOM HOLE PRESSURES
DATUM -4300' SHUT IN TIME 48 HRS.

COMPANY / LEASE	WELL	UNIT	S.T.R.	1946 NOV.	1947 MAY	1947 NOV-DEC.	1948 MAY JUNE	1948 NOV. DEC.	1949 MAY JUNE
AMERADA PET. CORP.									
Corrigan H	5	G	4-22-37	2940	2752	2520	2434	2135	1972
"	6	B	"		2709	2459	2383		1950
"	7	H	"		2636	2360	2187	1848	1701
"	11	A	"				2562	2323	2168
Hare	4	N	33-21-36		2808	2671	2550		2175
"	5	K	"		2790	2409	2358	1914	1853
Walden	1	K	15-22-37		2826	2515	2174	1671	1104
"	3	N	"			2443	2159	1667	1066
"	4	L	"			2461	2235	1716	1208
Wood	5	B	22-22-37			2715	2426	2059	1640
"	6	A	"				2605	2244	1901
CARTER, A. G. FOUNDATION									
Elliott	3	C	22-22-37						490
CITIES SERVICE OIL CO.									
Brunson B	1	I	4-22-37			2733	2648	2416	2229
"	6	M	3-22-37					2577	2398
CONTINENTAL OIL CO.									
Elliott A-15	3	O	15-22-37			2747	2482	2005	1580
"	5	P	"				2392	1823	1381
Elliott B-15	2	I	"						1036
Wantz	1	O	21-21-37					3004	
GULF OIL CORPORATION									
Carson, J.N.	5	J	28-21-37				2956	2787	2630
"	7	B	33-21-37					2579	2426
"	8	O	28-21-37						2645
"	9	K	"						2656
Carson "C"	5	A	33-21-37						2337
"	6	P	28-21-37						2450
Cole "A"	5	I	16-22-37					1874	1015
"	6	B	"				2376	2059	1241
"	7	H	"				2494	2109	1822
King	7	G	28-21-37					2803	2649
"	10	B	"					2690	2471
"	12	A	"						2573
Rinewalt	2	E	4-22-37			2658	2563	2380	2230
Stitcher	2	N	"	2930	2825	2642	2558	2391	2208
HUMBLE OIL & REFINING COMPANY									
Ferrel	2	A	22-22-37						2278
Greenwood	8	K	9-22-37	2732	2625		2386	Pump	Pump
"	9	J	"		2655	2539	2308	2199	2069
"	10	P	"		2713	2545	2444	2061	1798
"	12	O	"			1831	2394	2138	1991
"	13	L	"			2518			Pump
MAGNOLIA PET. CO.									
Brunson	9	B	9-22-37	2920	2874	2720	2609	2403	2305
"	10	G	"	2797	2717	2545	2411	2255	2117
"	11	A	"	2924	2830	2720	2626	2509	2112
"	16	D	10-23-37				2735	2460	
Carson, E.O.	10	F	33-21-37				2598	2244	1411

BRUNSON PRESSURES - CONT'D.

COMPANY LEASE	WELL	UNIT	S.T.R.	1946 NOV.	1947 MAY	1947 NOV-DEC.	1948 MAY JUNE	1948 NOV, DEC.	1949 MAY JUNE
MAGNOLIA PET. CO. - CONT'D.									
Carson, E.O.	13	G	33-21-37			2749	2635	2455	2267
"	14	C	"				2906	2731	2573
"	16	D	"					2735	2585
"	17	N	"					2803	2607
"	18	M	28-21-37					2803	2630
"	19	L	"						2615
Carson, J.N.	2	H	33-21-37				2592	2351	2180
Corrigan	1	O	"		2860	2640	2520	2352	2107
"	4	J	"		2898	2691	2557	2364	2160
"	7	P	"			2667	2524	2258	2037
PENROSE, N. G.									
Elliott B-9	4	C	9-22-37	2648	2185	2071	2049	2131	1685
Penrose	1	F	"	2699	2630	2424	2249	2014	1984
"	3	E	"		2771	2540			Pump
Walden	4	E	15-22-37				2424	2086	
ROWAN OIL CO.									
Elliott B-9	3	D	9-22-37	2853		2658	2337	Pump	
Walden	3	C	15-22-37	2779		2616	2410	2087	1649
"	6	D	"			1532	2456	2092	1788
Elliott A-15	1	J	"				2335	1797	1284
SHELL OIL CO.									
Rinewalt	3	F	4-22-37		2831	2640	2482	2378	2194
"	4	C	"		2834	2655	2486	2380	2187
SINCLAIR OIL & GAS CO.									
Brunson	4	O	4-22-37	2915	2811	2655	2573	2369	2195
"	5	J	"	2940	2810	2643	2588	2346	2165
"	8	L	"					2426	2305
SKELLY OIL CO.									
Baker B	6	M	10-22-37		1394				
Stitcher	1	K	4-22-37			2676	2547	2345	2217
"	4	L	"			2691	2545	2336	2217
SOUTHERN PET. EXPL. CO.									
Rinewalt B	1	D	4-22-37			2656	2562	2361	2211
STANOLIND OIL & GAS CO.									
Corrigan	2	I	33-21-37		2883	2690	2494		1948
TIDEWATER ASSOC. OIL CO.									
Brunson	1	P	4-22-37	2941	2762	2723	2560	2443	2254
Clifton	2	M	"	2920	2818	2681	2540	2346	Pump
TOTAL PRESSURES				40045	73026	102049	126424	128132	129330
NO. WELLS RUN				14	27	40	51	56	64
AVERAGE PRESSURE				2860	2705	2551	2479	2288	2021
AVERAGE PRESSURE (COMPARABLE WELLS)					2724	2565	2451	2212	2010