

CASE 4641: Application of RESERVE
OIL AND GAS COMPANY FOR A WATER-
FLOOD EXPANSION, LEA COUNTY.

**CASE 4641: Application of RESERVE
OIL AND GAS COMPANY FOR A WATER-
FLOOD EXPANSION, LEA COUNTY.**

Case Number
4641

Application

Transcripts

Small Exhibits

ETC.

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO
January 5, 1972

EXAMINER HEARING

IN THE MATTER OF:

Application of Reserve Oil and
Gas Company for a waterflood
expansion, Lea County,
New Mexico

Case No. 4641

BEFORE: Daniel S. Nutter,
Alternate Examiner.

TRANSCRIPT OF HEARING

1 MR. NUTTER: Case 4641.

2 MR. HATCH: Case 4641: Application to expand the
3 South Langlie-Jalmat waterflood project in the Jalmat oil pool
4 by conversion to water injection of the South Langlie-Jalmat
5 unit well No. 23.

6 ERD M. JOHNSON

7 A witness, having been first duly sworn according to law, upon
8 his oath, testified as follows:

9 DIRECT EXAMINATION

10 BY MR. LOSEE

11 Q Will you state your name, please?

12 A Erd M. Johnson.

13 Q Where do you live, Mr. Johnson?

14 A Midland, Texas.

15 Q By whom are you employed and in what capacity?

16 A I am employed by Reserve Oil & Gas Company as manager of
17 their Midland district.

18 Q You have not previously testified before this Commission.

19 Would you recite where you graduated and with what
20 degree?

21 A I received a B.S. degree in petroleum engineering from the
22 University of Tulsa in 1952.

23 Q Since then have you been engaged in the petroleum engineer-
24 ing business?

25 A Yes, sir. Since 1954 I have been with Honolulu Oil

1 Corporation, Texaco, James A. Lewis Engineering, and Reserve
2 Oil and Gas Company.

3 Q That has been continuously since 1954?

4 A Yes, sir.

5 Q Mr. Johnson's qualifications acceptable?

6 MR. NUTTER: Yes, they are.

7 Q (By Mr. Losee) What is the purpose of the Application in this
8 Case 4641?

9 A We seek authority to expand the South Langlie-Jalmat water-
10 flood project in the Jalmat Oil Pool by conversion to
11 water injection of the South Langlie-Jalmat Unit Well No.
12 23 located 2,310 feet from the south and west lines of
13 Section 17, Township 25, South, Range 37 East, Lea County,
14 New Mexico.

15 Q Now, the Commission on October 14, 1970 entered Order No.
16 R-4022A, which authorized the South Langlie-Jalmat water-
17 flood project, did it not?

18 A Yes, sir, that is correct.

19 Q How many wells were authorized to be converted to injection
20 by that well?

21 A Ten wells authorized by that order.

22 Q When did you commence injection under the order?

23 A Injection into these ten authorized wells commenced April
24 16th, 1971.

25 Q How much water has been injected up to December 1 of '71?

1 A A total of 731,690 barrels of water had been injected.

2 Q Has there been any response to injection at this time?

3 A No, sir. None of the production wells have shown any
4 response to the water injection program to date.

5 Q How many barrels of oil were produced under primary means
6 in this reservoir?

7 A Approximately 1.2 million barrels.

8 Q Mr. Examiner, we would ask that you take administrative
9 notice of the testimony and evidence in Case No. 4046,
10 which resulted in Order 4022A--R-4406.

11 MR. NUTTER: We will take notice of the Case 4406 and
12 the contents thereof.

13 Q (By Mr. Losee) Please refer to what has been marked as Exhibit
14 A, Mr. Johnson, and explain what is shown by this exhibit.

15 A This is a map of the South Langlie-Jal unit and also the
16 adjoining Langlie-Jal unit.

17 On this map are shown the locations of the existing
18 injection wells as well as the proposed injection well No.
19 23, as well as the proposed injection wells under the
20 Langlie-Jal units.

21 Q Now, who is the unit operator of the Langlie-Jal?

22 A Union Texas Petroleum.

23 Q Has Reserve Oil & Gas Company and Union of Texas entered
24 into a cooperative lease line agreement between these two
25 units?

- 1 A Yes, sir, they have.
- 2 Q By reference to this map will you point out the wells that
- 3 the Langlie-Jal unit is required to convert to injection
- 4 and the wells that the South Langlie-Jal are required to
- 5 convert?
- 6 A The Langlie-Jal unit will convert three wells, No. 79 and
- 7 81, and 89.
- 8 Those are the ones, 79, 81 are the ones stated in the
- 9 cooperative agreement that they have.
- 10 Q That offset?
- 11 A That offset our unit, yes, sir.
- 12 MR. NUTTER: Where is No. 89?
- 13 MR. LOSEE: It is in the east half of 17, Mr. Examiner.
- 14 THE WITNESS: 89, I don't believe, is really a part of
- 15 the agreement, since it is not on the line, but it does complete
- 16 a pattern.
- 17 Q (By Mr. Losee) What wells are you required to convert?
- 18 A Wells Nos. 15 and 23.
- 19 Well No. 15 was one of the ten authorized injection
- 20 wells, and it is presently an injection well, so therefore
- 21 we are now proposing to convert Well No. 23 as a part of
- 22 this cooperative agreement.
- 23 Q Is there any log available on this Well No. 23?
- 24 A No, sir, according to our records there was no log conduc-
- 25 ted on that well.

1 Q Please refer to what has been marked as Exhibit B and
2 explain what is shown on this exhibit.

3 A This is a typical well log in the--of a well in the South
4 Langlie unit.

5 This happens to be Well No. 18, which is nearby the
6 proposed injection well 23.

7 It shows the limits of the unitized interval and the
8 interval we propose to inject into it.

9 Q Please refer to what has been marked as Exhibit C, being
10 the diagrammatic sketch of the proposed injection well, and
11 point out the important items on this exhibit.

12 A 5 1/2" casing in the well was set at 2,792 in order to
13 convert this well to an injection well into the unitized
14 interval we proposed to run a cement liner from approximate-
15 ly 2,700' down to the total depth of 3,305.

16 Then we will log the well and selectively perforate
17 it and stimulate it.

18 After that we will run an internally coated tubing and
19 a tension packer and set the tension packer approximately
20 50' above the top perforation, and place inhibited fresh
21 water in the tubing casing liner annulus.

22 Q And your exhibit shows where the cement is calculated on
23 the surface casing as being 2,100' on the 5 1/2 casing?

24 A Yes. Our records indicate that the 5 1/2" casing was
25 cemented with 200 sacks, which calculates approximately

1 2,100', being the top of the cement.

2 Also, there was a two-stage set at 1,122',
3 cemented with 200 sacks.

4 The surface casing was set--I don't believe I show
5 this--I think it was around 300', and it was cemented with
6 155 sacks.

7 MR. NUTTER: Mr. Johnson, can't you obtain the depth
8 for that surface casing and furnish that to us?

9 THE WITNESS: Yes, I have the well file.

10 MR. NUTTER: If you have the well file, let's get that
11 in the record, if you have got it, please.

12 THE WITNESS: This record indicates that 8 5/8ths was
13 set at 250'.

14 MR. NUTTER: Does it show where that cement circulated
15 or not?

16 THE WITNESS: Yes, it says it was cemented to the
17 surface.

18 Q (By Mr. Losee) What is the source of water for this project
19 and this well?

20 A We purchase water from the Skelly water system.

21 The water is not treated.

22 It is handled in a closed system, and our water
23 analysis to date indicates it is suitable for injection
24 without further treatment.

25 Q It is non-potable water?

- 1 A That is right.
- 2 Q What is the present production of this well 23, oil
- 3 production?
- 4 A During November of 1971 Well 23 produced 25 barrels of oil.
- 5 Q How much oil?
- 6 A 35 barrels.
- 7 Q What has been the cumulative oil production up through
- 8 November of this well?
- 9 A 41,140 barrels.
- 10 Q Please refer to Exhibit D, which is a graph of the
- 11 production in the months of this Well 23.
- 12 A This is the plot of the oil production history for the
- 13 past five years from Well 23.
- 14 Q In your opinion, has this well reached a stripper state of
- 15 depletion?
- 16 A Yes, it has.
- 17 Q Will the conversion of Well No. 23 result in an efficient
- 18 waterflood pattern and sweep of the reservoir?
- 19 A Yes, we feel that conversion of this well to injection will
- 20 result in a more thorough and efficient sweep of the oil by
- 21 the waterflood.
- 22 Q Do you have an opinion as to whether the conversion of this
- 23 well will prevent waste and protect correlative rights?
- 24 A Yes, we believe it will.
- 25 Q What has been marked as Exhibit E is a cooperative

1 waterflood agreement between Union of Texas and Reserve.

2 Do you have anything further to comment on that
3 agreement?

4 A No.

5 Q Your testimony has already covered it?

6 A Yes.

7 Q Did you prepare Exhibits A through D or were they prepared
8 under your direction?

9 A They were.

10 MR. LOSEE: We move the introductions of Exhibits A
11 through E.

12 MR. NUTTER: Exhibits A through E will be admitted in
13 evidence.

14 MR. LOSEE: I have nothing further of the witness at
15 this time, Mr. Examiner.

16 CROSS-EXAMINATION

17 BY MR. NUTTER

18 Q What will be the treatment of the annulus in this injection
19 well?

20 A We plan to place inhibited fresh water above the packer in
21 the casing liner annulus.

22 Q Then it would be equipped with a pressure gauge at the
23 surface?

24 A Yes.

25 MR. NUTTER: Further questions of the witness?

1 You may be excused.

2 Do you have anything further, Mr. Losee?

3 MR. LOSEE: No, sir.

4 MR. NUTTER: Does anybody have anything they wish to
5 offer in this case?

6 We will take the case under advisement.
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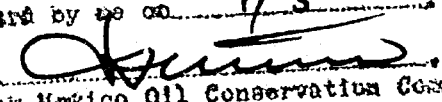
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FIRST NATIONAL BANK BLDG. EAST ALBUQUERQUE, NEW MEXICO 87108

1 STATE OF NEW MEXICO)
2) ss.
3 COUNTY OF BERNALILLO)

4 I. RICHARD STURGES, a Certified Shorthand Reporter, in and
5 for the County of Bernalillo, State of New Mexico, do hereby
6 certify that the foregoing and attached Transcript of Hearing
7 before the New Mexico Oil Conservation Commission was reported
8 by me; and that the same is a true and correct record of the
9 said proceedings to the best of my knowledge, skill and ability.

10 
11 CERTIFIED SHORTHAND REPORTER

22 I do hereby certify that the foregoing is
23 a complete record of the proceedings in
24 the Examiner hearing of Case No. 4641
25 heard by me on 1/5 1972

Examiner
New Mexico Oil Conservation Commission

I N D E XWITNESSPAGE

FRD M. JOHNSON

Direct Examination by Mr. Losee

3

Cross-Examination by Mr. Nutter

10

E X H I B I T SAPPLICANT'SMARKEDOFFERED AND
ADMITTED

Exhibit A

5

10

Exhibit B & C

7

10

Exhibit D & E

9

10



OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO
P. O. BOX 2088 - SANTA FE
87501

GOVERNOR
BRUCE KING
CHAIRMAN

LAND COMMISSIONER
ALEX J. ARMIJO
MEMBER

STATE GEOLOGIST
A. L. PORTER, JR.
SECRETARY - DIRECTOR

January 12, 1972

Mr. A. J. Losee
Losee & Carson
Attorneys at Law
Post Office Box 239
Artesia, New Mexico 88210

Re: Case No. 4641
Order No. R-4240
Applicant:
Reserve Oil and Gas Co.

Dear Sir:

Enclosed herewith is a copy of the above-referenced Commission order recently entered in the subject case. Letter pertaining to conditions of approval and maximum allowable to follow.

Very truly yours,

A. L. PORTER, Jr.
Secretary-Director

ALP/ir

Copy of order also sent to:

Hobbs OCC x
Artesia OCC
Aztec OCC
State Engineer x

Other

OIL CONSERVATION COMMISSION
P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

March 1, 1972

C Mr. A. J. Losee
Losee & Carson
Attorneys at Law
Post Office Box 239
Artesia, New Mexico 88210

Dear Mr. Losee:

O Reference is made to Commission Order No. R-4240, recently entered in Case No. 4641, approving the expansion of the South Langlie Jal Unit Jalmat Waterflood Project.

P Additional injection was authorized into operator's South Langlie Jal Unit Well No. 23, with injection to be through 2 3/8 inch internally-lined tubing set in a packer at approximately 3100 feet. The casing-tubing annulus is to be loaded with an inert fluid and equipped with a pressure gauge at the surface.

Y As to allowable, our calculations indicate that when all of the authorized injection wells have been placed on active injection, the maximum allowable which this project will be eligible to receive under the provisions of Rule 701-E-3 is 1134 barrels per day when the Southeast New Mexico normal unit allowable is 42 barrels per day or less.

Please report any error in this calculated maximum allowable immediately, both to the Santa Fe office of the Commission and the appropriate district proration office.

In order that the allowable assigned to the project may be kept current, and in order that the operator may fully benefit from the allowable provisions of Rule 701, it behooves him to promptly notify both of the aforementioned Commission offices by letter of any change in the status of wells in the project area, i.e., when active injection commences, when additional injection or producing wells are drilled, when additional wells are acquired through purchase or unitization, when wells have received a response to water injection, etc.

OIL CONSERVATION COMMISSION
P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

-2-

Mr. A. J. Losee
Losee & Carson
Attorneys at Law
Artesia, New Mexico

March 1, 1972

C Your cooperation in keeping the Commission so informed as to the
status of the project and the wells therein will be appreciated.

Very truly yours,

A. L. PORTER, Jr.
Secretary-Director

O
P
Y
ALP/DSH/lr

cc: Oil Conservation Commission
Hobbs, New Mexico

Mr. D. E. Gray
State Engineer Office
Santa Fe, New Mexico

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. 4641
Order No. R-4240

APPLICATION OF RESERVE OIL AND
GAS COMPANY FOR A WATERFLOOD
EXPANSION, LEA COUNTY, NEW
MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on January 5, 1972, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 12th day of January, 1972, the Commission, a quorum being present, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

- (1) That due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.
- (2) That the applicant, Reserve Oil and Gas Company, seeks authority to expand its South Langlie Jal Unit Jalmat Waterflood Project in the Jalmat Oil Pool by the conversion to water injection of its Unit Well No. 23 located 2310 feet from the South line and 2310 feet from the West line of Section 17, Township 25 South, Range 37 East, NMPM, Lea County, New Mexico.
- (3) That the wells in the project area are in an advanced state of depletion and should properly be classified as "stripper" wells.
- (4) That the proposed expansion of the subject waterflood project should result in the recovery of otherwise unrecoverable oil, thereby preventing waste.

-2-

CASE NO. 4641
Order No. R-4240

(5) That the subject application should be approved and the expanded project should be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations.

IT IS THEREFORE ORDERED:

(1) That the applicant, Reserve Oil and Gas Company, is hereby authorized to expand its South Langlie Jal Unit Jalmat Waterflood Project in the Jalmat Oil Pool by the injection of water into the Seven Rivers and Queen formations through its Unit Well No. 23 located 2310 feet from the South line and 2310 feet from the West line of Section 17, Township 25 South, Range 37 East, NMPM, Lea County, New Mexico.

(2) That the expanded waterflood project shall be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations.

(3) That monthly progress reports of the waterflood project herein authorized shall be submitted to the Commission in accordance with Rules 704 and 1120 of the Commission Rules and Regulations.

(4) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION



Bruce King

BRUCE KING, Chairman

Alex J. Armiijo

ALEX J. ARMIJO, Member

A. L. Porter, Jr.

A. L. PORTER, Jr., Member & Secretary

S E A L

dr/

RESERVE OIL AND GAS COMPANY

1700 FIDELITY UNION TOWER, DALLAS, TEXAS 75201
TELEPHONE: RIVERSIDE 8-0861, AREA CODE 214

February 7, 1972

RECEIVED

FEB - 8 1972

OIL CONSERVATION COMM.
SANTA FE

PLEASE REPLY TO:
FIRST SAVINGS BUILDING
MIDLAND, TEXAS 79704

Oil Conservation Commission
P. O. Box 2088
Santa Fe, New Mexico 87501

Attention Mr. A. L. Porter, Jr.

Re: Reserve Oil and Gas Company
South Langlie Jal Unit
Lea County, New Mexico
Order No. 4240

*File
Case 4641*

Gentlemen:

Please be advised that water injection into the Reserve Oil and Gas Company South Langlie Jal Unit Well No. 23, located in Unit K, Section 17, Township 25-S, Range 37-E, Lea County, New Mexico, commenced February 4, 1972.

Very truly yours,

RESERVE OIL AND GAS COMPANY



Erd M. Johnson

ca

cc: Mr. Joe Ramey
Mr. M. Wyndell Thomas

(Case 4638 continued)

and surface commingling, Roosevelt County, New Mexico. Applicant, in the above-styled cause, seeks authority to commingle production from the Todd Lower-San Andres Pool and the Todd Upper-San Andres Gas Pool in the wellbores of its BA Wells Nos. 1 and 2, located respectively, in Units A and H of Section 34, Township 7 South, Range 35 East, Roosevelt County, New Mexico. Applicant further seeks authority to commingle, on the surface, production from said wells prior to measurement.

CASE 4639: Application of Great Western Drilling Company to directionally drill, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to drill out its State Well No. 1, having a surface location 330 feet from the North and East lines of Section 17, Township 16 South, Range 35 East, Townsend-Morrow Gas Pool, Lea County, New Mexico, to a depth of approximately 8,000 feet and whipstock the well in a southwesterly direction to a bottom-hole location within the NE/4 of said Section 17 at a depth of approximately 11,800 feet.

CASE 4640: Application of Amoco Production Company for special pool rules, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the promulgation of special rules for the East Gem-Yates Pool, Lea County, New Mexico, including a provision for 80-acre spacing and proration units.

CASE 4641: Application of Reserve Oil and Gas Company for a waterflood expansion, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to expand its South Langlie Jal Unit Jalmat Waterflood Project, Jalmat Oil Pool, by the conversion of water injection of its Unit Well No. 23, located 2310 feet from the South and West lines of Section 17, Township 25 South, Range 37 East, Lea County, New Mexico.

CASE 4642: Application of Fluid Power Pump Company for special pool rules and a pressure maintenance project, Sandoval County, New Mexico. Applicant, in the above-styled cause, seeks the promulgation of special rules for the Media-Entrada Pool, including a provision for 160-acre spacing and proration units. Applicant further seeks authority to institute a pressure maintenance project in said pool by the injection of water into the Entrada formation through various wells located in Sections 10, 11, 22, and 23 of Township 19 North, Range 3 West, Sandoval County, New Mexico, and promulgation of rules for said project including a procedure whereby additional injection or production wells at orthodox or unorthodox locations may be approved administratively.

Docket No. 1-72

DOCKET: EXAMINER HEARING - WEDNESDAY - JANUARY 5, 1972

9 A.M. - OIL CONSERVATION COMMISSION CONFERENCE ROOM,
STATE LAND OFFICE BUILDING - SANTA FE, NEW MEXICO

The following cases will be heard before Daniel S. Nutter, Examiner,
or Elvis A. Utz, Alternate Examiner:

CASE 4621: (Continued from the November 10, 1971 Examiner Hearing)

Application of Jack L. McClellan for a dual completion, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks approval for the dual completion (conventional) of his Bar-J Federal Well No. 1 located in Unit E of Section 15, Township 6 South, Range 27 East, Chaves County, New Mexico, in such a manner as to produce oil from an undesignated Siluro-Devonian pool through tubing and gas from the Haystack-Cisco Gas Pool through the casing-tubing annulus.

CASE 4609: (Continued from the November 17, 1971 Examiner Hearing)

Application of Jack L. McClellan for a unit agreement, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks approval of the Sulimar-Queen Unit Area comprising 1520 acres, more or less, of Federal lands in Sections 13, 23, 24, 25, and 26 of Township 15 South, Range 29 East, and Sections 18 and 19 of Township 15 South, Range 30 East, Chaves County, New Mexico.

CASE 4482: (Reopened):

In the matter of Case 4482 being reopened pursuant to the provisions of Order No. R-4093, which order established 160-acre spacing units and established a maximum gas-oil ratio limitation of 3,000 cubic feet of gas for each barrel of oil produced for the Parkway-Strawn Pool, Eddy County, New Mexico. All interested parties may appear and show cause why said pool should not be developed on 40-acre or 80-acre spacing units and why the limiting gas-oil ratio should not revert to the statewide limit of 2,000 to one.

CASE 3709 (Reopened):

In the matter of Case 3709 being reopened pursuant to the provisions of Order No. R-3366-B, which order continued 80-acre spacing for the Akah Nez-Devonian Oil Pool, San Juan County, New Mexico, for an additional one-year period. All interested persons may appear and show cause why said pool should not be developed on 40-acre spacing units.

CASE 4638: Application of Holder Petroleum Corporation for downhole

CASE 4619: (Continued from the December 1, 1971, Examiner Hearing)

Application of Corinne Grace for compulsory pooling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests from the surface of the ground down to and including the Morrow formation underlying the N/2 of Section 25, Township 22 South, Range 26 East, which acreage is within one mile of the South Carlsbad-Morrow Gas Pool, Eddy County, New Mexico. Said acreage to be dedicated to a well to be drilled to the Morrow formation at a location 1980 feet from the North and East lines of said Section 25. Also to be considered will be the costs of drilling said well, a charge for the risk involved, a provision for the allocation of actual operating costs, and the establishment of charges of supervision of said well.

CASE 4620: (Continued from the December 1, 1971, Examiner Hearing)

Application of Corinne Grace for compulsory pooling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests from the surface of the ground down to and including the Morrow formation underlying the N/2 of Section 24, Township 22 South, Range 26 East, which acreage is in the vicinity of the South Carlsbad-Morrow Gas Pool, Eddy County, New Mexico. Said acreage to be dedicated to a well to be drilled to the Morrow formation at a location 1980 feet from the North and East lines of said Section 24. Also to be considered will be the costs of drilling said well, a charge for the risk involved, a provision for the allocation of actual operating costs, and the establishment of charges for supervision of said well.

CASE 4643: Application of Cities Service Oil Company for compulsory pooling and unorthodox gas well location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Morrow formation underlying the N/2 of Section 19, Township 22 South, Range 27 East, South Carlsbad-Morrow Gas Pool, Eddy County, New Mexico, to form a standard 320-acre proration unit for the production of gas from the Morrow formation with said unit to be dedicated to a well to be drilled at an unorthodox location 2173 feet from the North line and 1200 feet from the East line of said Section 19.

CASE 4644: Application of Continental Oil Company for four non-standard gas proration units and rededication of acreage, Lea County New Mexico. Applicant, in the above-styled cause, seeks the rededication of acreage and the establishment of the following-described non-standard gas proration units for wells on its Meyer A-29 Lease in Section 29, Township 22 South, Range 36 East, Jalmat Gas Pool, Lea County, New Mexico.

1. A 240-acre unit comprising the SE/4 and E/2 SW/4 to be dedicated to Well No. 3 in Unit N;
2. An 80-acre unit comprising the W/2 SW/4 to be dedicated to Well No. 4 in Unit L;
3. An 80-acre unit comprising the E/2 NE/4 to be dedicated to Well No. 5 in Unit A;
4. A 240-acre unit comprising the NW/4 and W/2 NE/4 to be dedicated to Well No. 9 in Unit E.

CASE 4563: (Continued from the December 1, 1971, Examiner Hearing) Application of Corrinne Grace for special gas-oil ratio limitation and pressure maintenance project, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks authority to produce her State Well No. 1 located in Unit A of Section 1, Township 15 South, Range 29 East, Double L-Queen Pool, Chaves County, New Mexico, with no gas-oil ratio limitation, strip the liquids, and institute a pressure maintenance project by the injection of all said gas back into the producing formation through her State Well No. 2 located in Unit B of said Section 1, Applicant further seeks to transfer an oil allowable from said Well No. 2 to said Well No. 1.

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. 4641
Order No. R-4240

APPLICATION OF RESERVE OIL AND
GAS COMPANY FOR A WATERFLOOD
EXPANSION, LEA COUNTY, NEW
MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

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NOW, on this 12th day of January, 1972, the Commission, a quorum being present, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

(1) That due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, Reserve Oil and Gas Company, seeks authority to expand its South Langlie Jal Unit Jalmat Waterflood Project in the Jalmat Oil Pool by the conversion to water injection of its Unit Well No. 23 located 2310 feet from the South line and 2310 feet from the West line of Section 17, Township 25 South, Range 37 East, NMPM, Lea County, New Mexico.

(3) That the wells in the project area are in an advanced state of depletion and should properly be classified as "stripper" wells.

(4) That the proposed expansion of the subject waterflood project should result in the recovery of otherwise unrecoverable oil, thereby preventing waste.

-2-

CASE NO. 4641
Order No. R-4240

(5) That the subject application should be approved and the expanded project should be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations.

IT IS THEREFORE ORDERED:

(1) That the applicant, Reserve Oil and Gas Company, is hereby authorized to expand its South Langlie Jal Unit Jalmat Waterflood Project in the Jalmat Oil Pool by the injection of water into the Seven Rivers and Queen formations through its Unit Well No. 23 located 2310 feet from the South line and 2310 feet from the West line of Section 17, Township 25 South, Range 37 East, NMPM, Lea County, New Mexico.

(2) That the expanded waterflood project shall be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations.

(3) That monthly progress reports of the waterflood project herein authorized shall be submitted to the Commission in accordance with Rules 704 and 1120 of the Commission Rules and Regulations.

(4) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

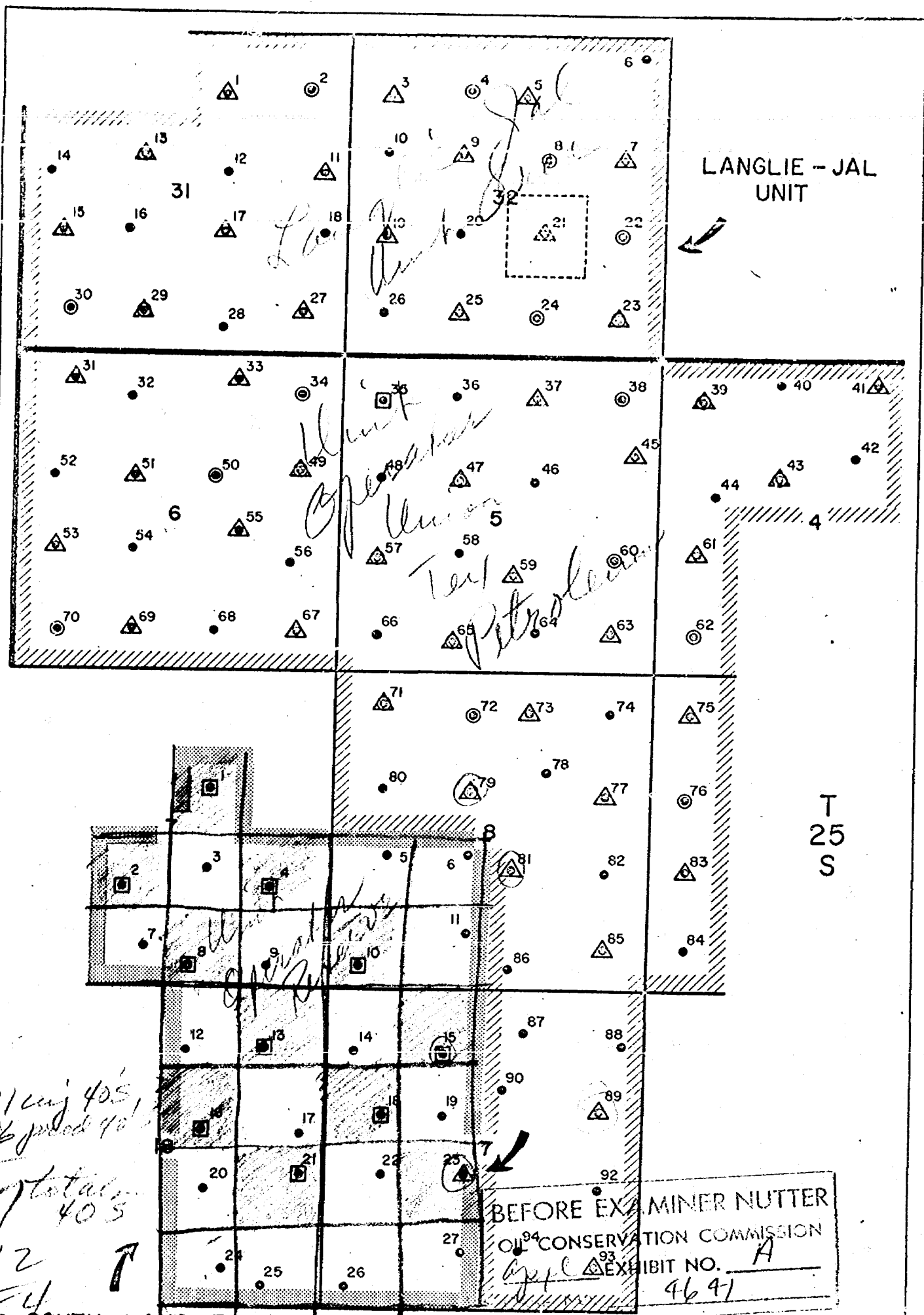
BRUCE KING, Chairman

ALEX J. ARMIJO, Member

A. L. PORTER, Jr., Member & Secretary

S E A L

dr/



11 well 405
 16 prod 405
 27 total
 405
 42
 54
 108
 1134

- Existing Well
- ⊙ Well to be Drilled
- ▲ Proposed Injection Well
- ◻ Existing Injection Well
- South Langleie-Jal Unit Boundary
- Langlie-Jal Unit Boundary

EXHIBIT A
 SOUTH LANGLIE - JAL AREA
 LEA COUNTY, NEW MEXICO

DATE BY	DATE BY	RESERVE OIL & GAS COMPANY
APPROVED BY	APPROVED BY	
DATE	DATE	

RESERVE OIL AND GAS COMPANY
South Langlie Jal Unit No. 18
Sec. 17 T-25-S, R-37-E

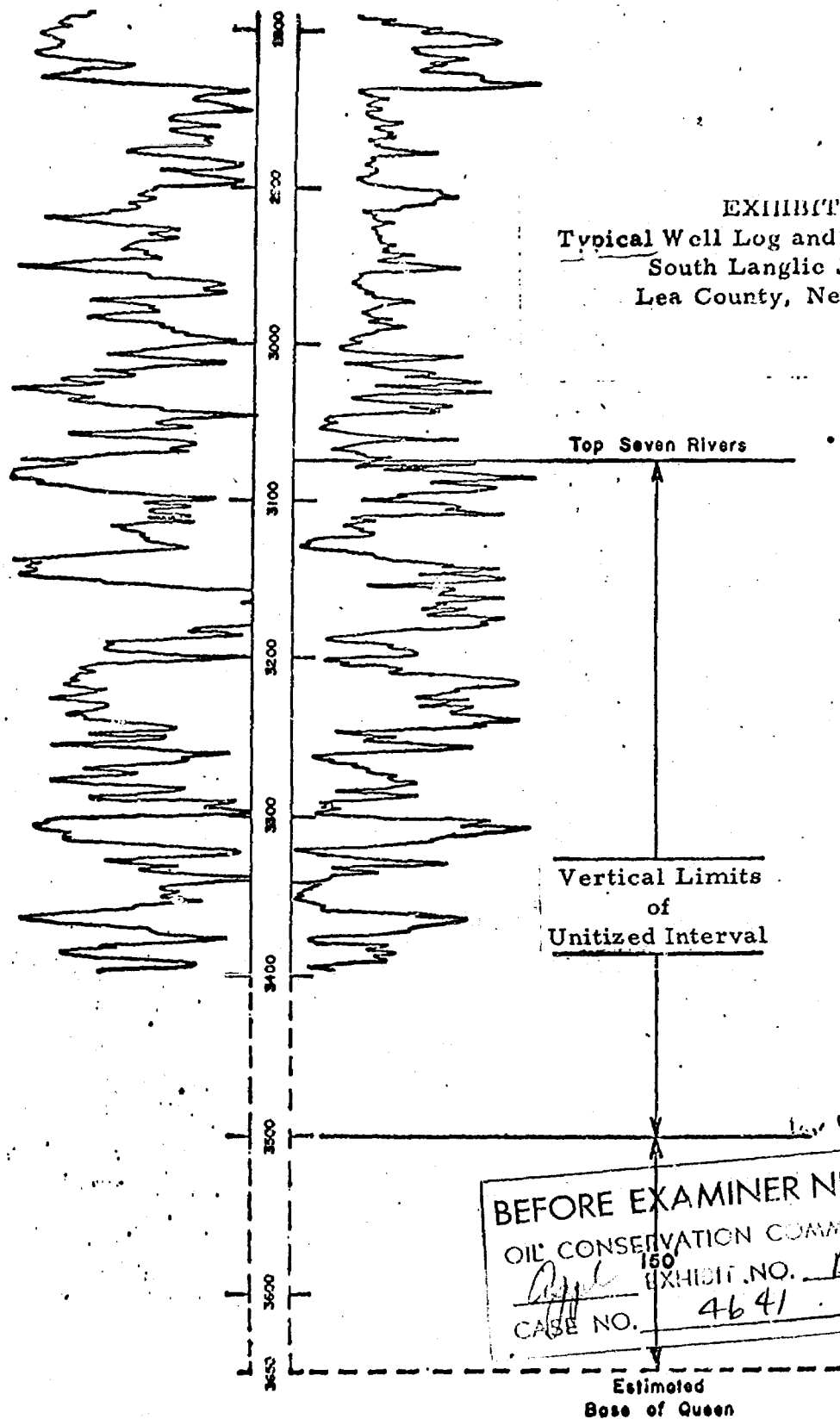
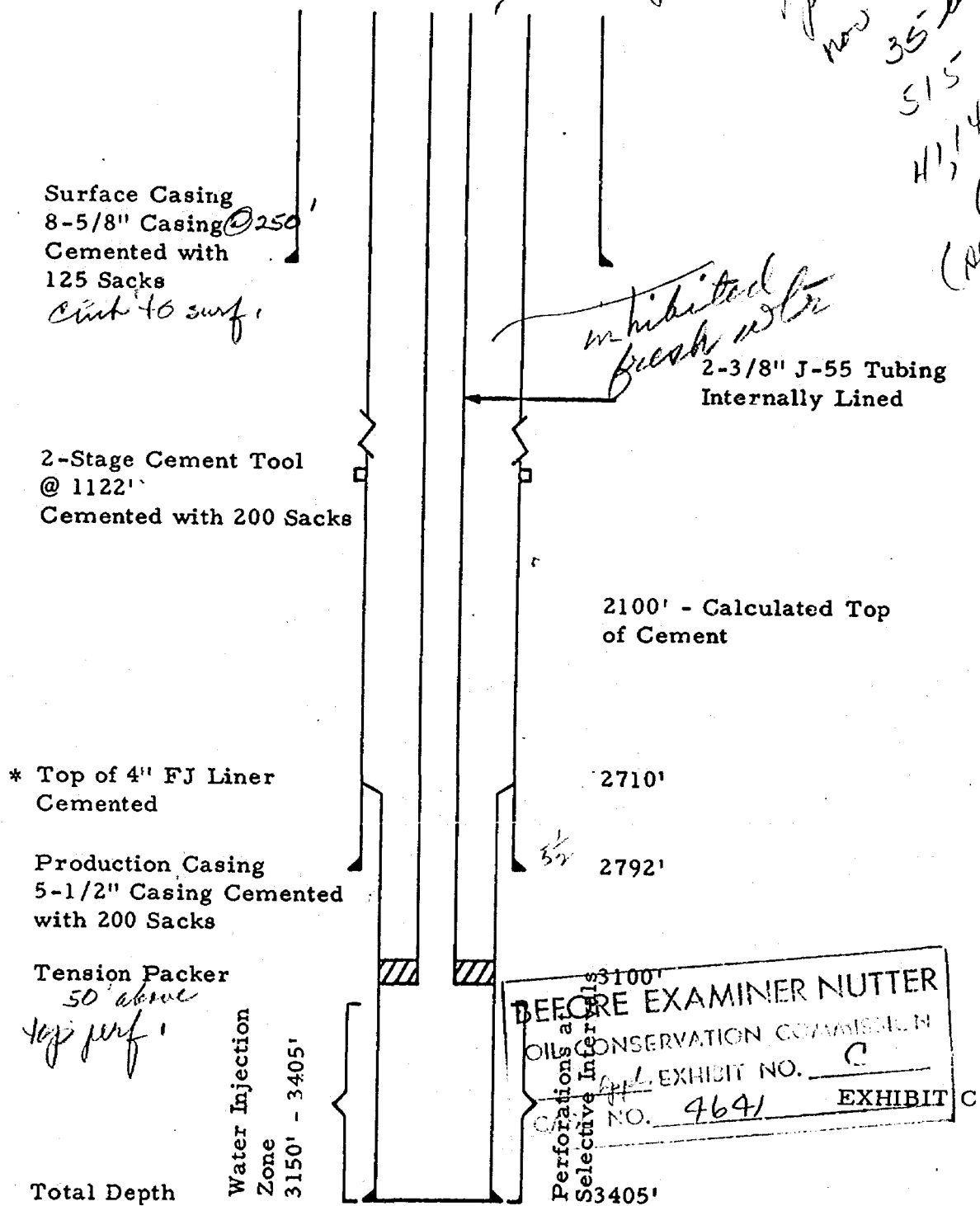


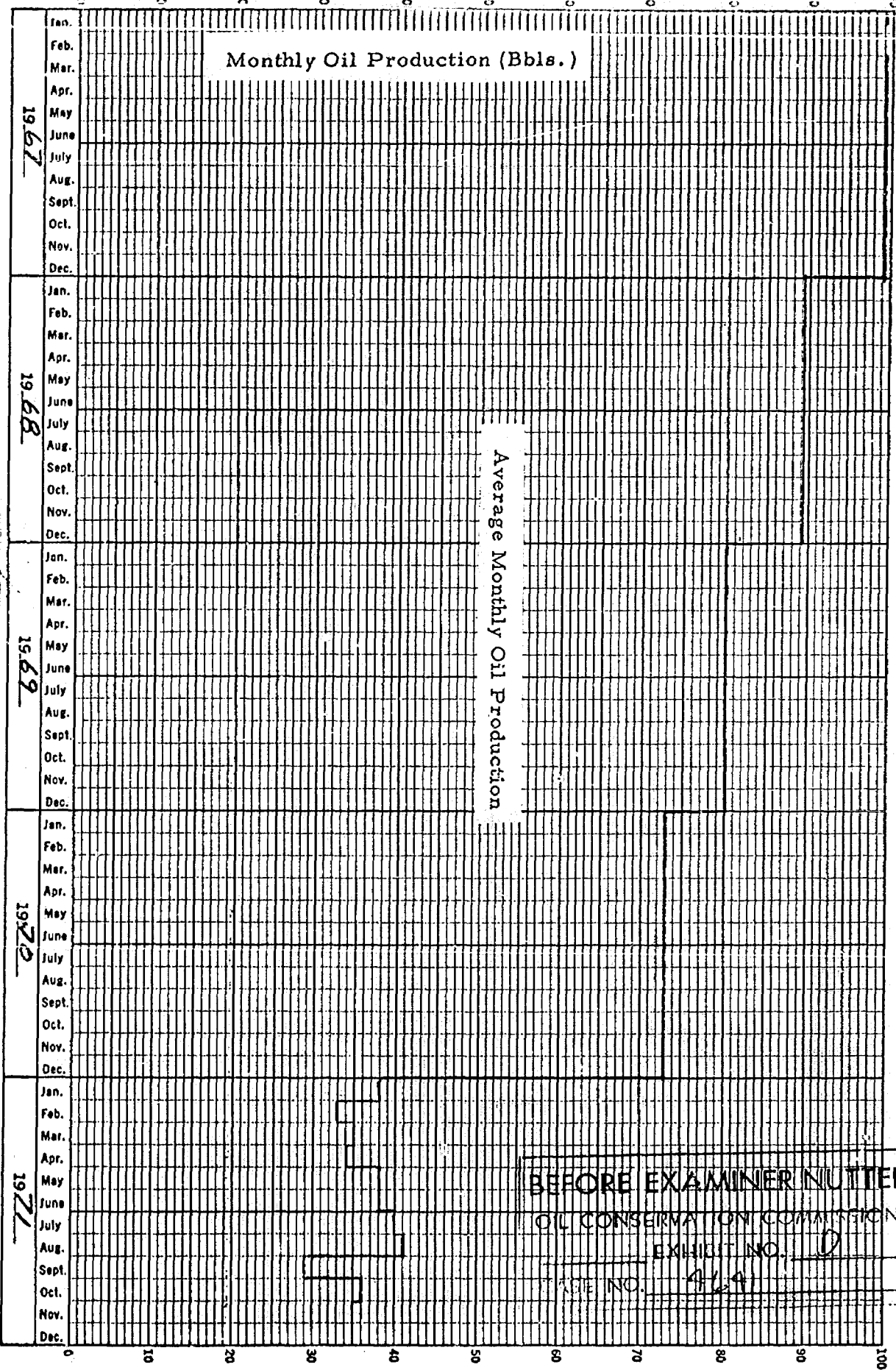
EXHIBIT B
Typical Well Log and Vertical Limit
South Langlie Jal Unit
Lea County, New Mexico

Diagrammatic Sketch
of
SOUTH LANGLEIE JAL UNIT
WELL NO. 23
2970' FNL and 2970' FEL Sec. 17 T25S R37E
Unit Location K
Elevation 3102' Ground Level



* 4" FJ Liner will be set, cemented and perforated prior to the commencement of Injection Operations

K&E 5 YEARS BY MONTHS 46 3653
X 100 DIVISIONS
MADE IN U.S.A.
KEUPPEL & ESSER CO.



Five-Year Oil Production History
Reserve Oil and Gas Company
South Langlie Jail Unit No. 23

STATE OF NEW MEXICO I

COUNTY OF LEA I

COOPERATIVE WATERFLOOD AGREEMENT

THIS AGREEMENT, entered into and effective as of 15 September
1971, between Union Texas Petroleum, a Division of Allied Chemical Corporation, hereinafter sometimes referred to as "Union Texas"; and Reserve Oil and Gas Company, hereinafter sometimes referred to as "Reserve".

W I T N E S S E T H:

Union Texas is the Operator of the Langlie-Jal Unit which covers among other lands, the east half of Section 17, the east half and northwest quarter of Section 8, Township 25 South, Range 37 East, Lea County, New Mexico.

Reserve is the Operator of the South Langlie-Jal Unit which covers among other lands, the west half of Section 17 and the southwest quarter of Section 8, Township 25 South, Range 37 East, Lea County, New Mexico.

Union Texas and Reserve each in their indicated capacity as Operator wish to operate their respective properties above described but desire to cooperate with one another in a waterflood operation to the extent and in the manner hereinafter provided, it being the opinion of the parties hereto that by so doing each of said properties will be benefited by an increase in the production of crude oil from the Langlie Mattix oil pool and a portion of the Jalmat oil pool hereinafter referred to as the "Unitized Formation" (as described by the New Mexico Oil Conservation Commission) underlying said properties, and the correlative rights of all of the owners of said properties will be protected:

NOW, THEREFORE, it is agreed as follows:

1. Union Texas agrees to drill, equip, maintain, and operate a well for water injection in the Unitized Formation at an approximate total depth of 3,750' in the manner hereinafter provided, such well to be located as follows:

BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
EXHIBIT NO. E
4691

✓ Langlie-Jal Unit Well No. 79 located in the southeast quarter of the northwest quarter (SE/4 NW/4) of Section 8, 1,980' FNL and 2,310' FWL of Section 8 Township 25 South, Range 37 East, Lea County, New Mexico.

Union Texas further agrees to convert, equip, maintain, and operate a well for water injection in the Unitized Formation in the manner herein- after provided, the well to be located as follows:

✓ Langlie-Jal Unit Well No. 81 located in the northwest quarter of the southeast quarter (NW/4 SE/4) of Section 8, Township 25 South, Range 37 East, Lea County, New Mexico.

and said wells being shown circled in red on the plat attached hereto as Exhibit "A". Said wells will be completed with all oil bearing porous intervals in the lower 100' of the Seven Rivers and Queen zones open to injection.

2. Reserve agrees to convert, equip, maintain and operate two (2) wells for water injection in the Unitized Formation in the manner hereinafter provided, such wells being located as follows:

✓ (1) South Langlie-Jal Unit Well No. 15 located in the north- east quarter of the northwest quarter (NE/4 NW/4) of Section 17, Township 25 South, Range 37 East, Lea County, New Mexico.

✓ (2) South Langlie-Jal Unit Well No. 23 in the northeast quarter of the southwest quarter (NE/4 SW/4) of Section 17, Town- ship 25 South, Range 37 East, Lea County, New Mexico;

such wells being shown circled in green on the plat attached hereto as Exhibit "A". Said wells will be completed in all oil bearing porous formations at an approximate total depth of 3,380' as to Well No. 15 3,405' as to Well No. 23.

3. Each party hereto agrees, at its sole risk and expense, to convert, equip, maintain, and operate its water input wells so that water may be injected into the Unitized Formation in the manner hereinafter provided and to perform any workover or remedial work on such wells neces- sary to take water at the rate and volume and under the pressure limitation herein prescribed.

4. Each party hereto agrees to commence the injection of water into its water input wells not later than sixty (60) days after the effective date of this agreement, or as soon thereafter as it is agreed it is practical, and thereafter to inject water through its water input wells into the Unitized Formation at rates mutually agreed upon, it being agreed that the parties hereto will endeavor to control their respective operations in such manner that water will be injected into each water input well at a uniform rate, so that the volume injected into each well in any month will be equal to that injected into each other well covered hereby, as nearly as it is possible to do so; provided, however, in no event shall either party inject water into its respective water input wells at wellhead pressures in excess of the formation fracture pressure determined by rate-pressure tests without the mutual agreement of both parties. In the event that mutual agreement on injection rates is not reached, then each party agrees to inject a minimum daily volume of water into each lease line input well of 100 barrels of water per day provided that the formation fracture pressure is not exceeded at this rate. In order that the volumes of water injected into the input wells covered hereby shall be equal at all times, insofar as practicable, each party agrees to furnish monthly reports to the other party showing the volumes and pressures of water injected into its water input wells. Also, it is understood that oil and water production information on the properties covered hereby will be exchanged between the parties, as may be mutually agreed upon from time to time. The parties hereto, at their sole risk, shall have access to the premises subject to this agreement at all reasonable hours and the right to inspect pertinent records in connection therewith at all such times.

It is further agreed that each party hereto shall carry on waterflood operations in the manner herein provided, until the property it operates no longer derives any reasonable benefit from same. It is the intention of the parties hereto that nothing herein contained shall be construed to require either party hereto to continue to operate any

water input well if such operation is no longer economically profitable to it.

5. At any time either of the parties hereto shall determine that water injection into any of its water input wells is no longer economically profitable to it, then said party shall have the right to cease injection into said well or wells upon giving thirty (30) days written notice to the other party of such intention. The other party hereto may, at its sole risk and expense, take over and operate said well or wells. In such event, the party taking over the said well or wells is hereby granted, without warranty expressed or implied, the right of ingress and egress and all rights-of-way and easements necessary for continued operation of said well or wells, insofar as it is possible for the party electing not to continue operation of said well or wells to make such a grant. The parties further agree to execute and deliver such additional instruments as may be required to accomplish the foregoing. The party taking over said well or wells shall pay for the equipment taken over on the basis of its current salvage value in place, and when said party wishes to discontinue its waterflood operation, said party shall plug and abandon said well or wells at its sole risk and expense and salvage all equipment in and on said well or wells for its sole account. The party taking over said well or wells hereby agrees to indemnify and hold the other party hereto harmless from all damages and any liability to any third party, caused as a result of its subsequent operations.

6. Subject to the limitations of time expressed in Section 4 hereinabove, the term of this agreement shall commence as of the date hereto and extend for ninety (90) days from said date and as long thereafter as the properties covered hereby derive any reasonable benefit from the waterflood operations provided for herein.

7. Under no circumstances shall this agreement be construed as creating a partnership, agency, or any other type of association

between the parties hereto. The liability of the parties hereto shall be several and not joint or collective.

8. Each party hereto agrees that this agreement shall not constitute a partnership, as defined in the Internal Revenue Code, and specifically elects to be excluded from the application of all of Subchapter K of the Internal Revenue Code of 1954 pursuant to Section 761 thereof.

9. Any sale, assignment, unitization or transfer of any interest of any party hereto in the leases and lands covered hereby shall be made expressly subject to this agreement, and any party acquiring any such interest shall assume the obligations hereof and be entitled to the benefits accruing hereunder. In the event any party not a signatory party to this contract thereafter shall acquire any interest subject to this contract by assignment, operation of law, or otherwise, such party shall forthwith furnish to all other parties having an interest subject to this contract evidence of the acquisition of such interest. Failure to comply herewith shall constitute a waiver by such party as to any notice required or permitted hereunder, and said party shall be deemed to have received any such notice where such notice was given to such party's predecessor in title and any action taken or any notice received by such party's predecessor in title shall be binding upon any such party.

10. All terms and provisions herein shall be subject to all valid orders, rules and regulations of the New Mexico Oil Conservation Commission and all other applicable State and Federal laws, rules and regulations.

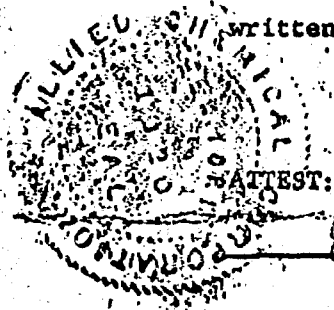
11. If any party to this agreement is rendered unable, in whole or in part, by force majeure to carry out its obligations under this agreement, then such obligations, so far as they are affected by the force majeure, shall be suspended during, but no longer than, the continuance of the force majeure; provided, however, all reasonable efforts shall be made to remove the force majeure as quickly as possible. The term "force majeure", as employed herein, shall mean an act of God, strike, lockout,

or other industrial disturbance, act of the public enemy, war, blockade, public riot, lightning, earthquake, storm, flood, explosions, governmental restraint, unavailability of equipment, failure of water supply, and any other cause, whether or not of the character above enumerated, which is not reasonably within the control of the party claiming suspension. It is understood that the settlement of strikes or lockouts shall be entirely within the discretion of the party concerned, and the requirement that all reasonable efforts shall be made to remedy the force majeure promptly, shall not require the settlement of strikes or lockouts contrary to its wishes.

12. This agreement and all terms, covenants, and conditions hereof shall extend to and be binding upon the parties hereto, their successors and assigns, respectively, and shall constitute covenants running with the lands and leasehold estates affected hereby.

THIS AGREEMENT, executed as of the day and year first above

written.



ATTEST:

Barry A. Ren
ASSISTANT SECRETARY

UNION TEXAS PETROLEUM, a DIVISION
of ALLIED CHEMICAL CORPORATION

By: *John M. Pearson*

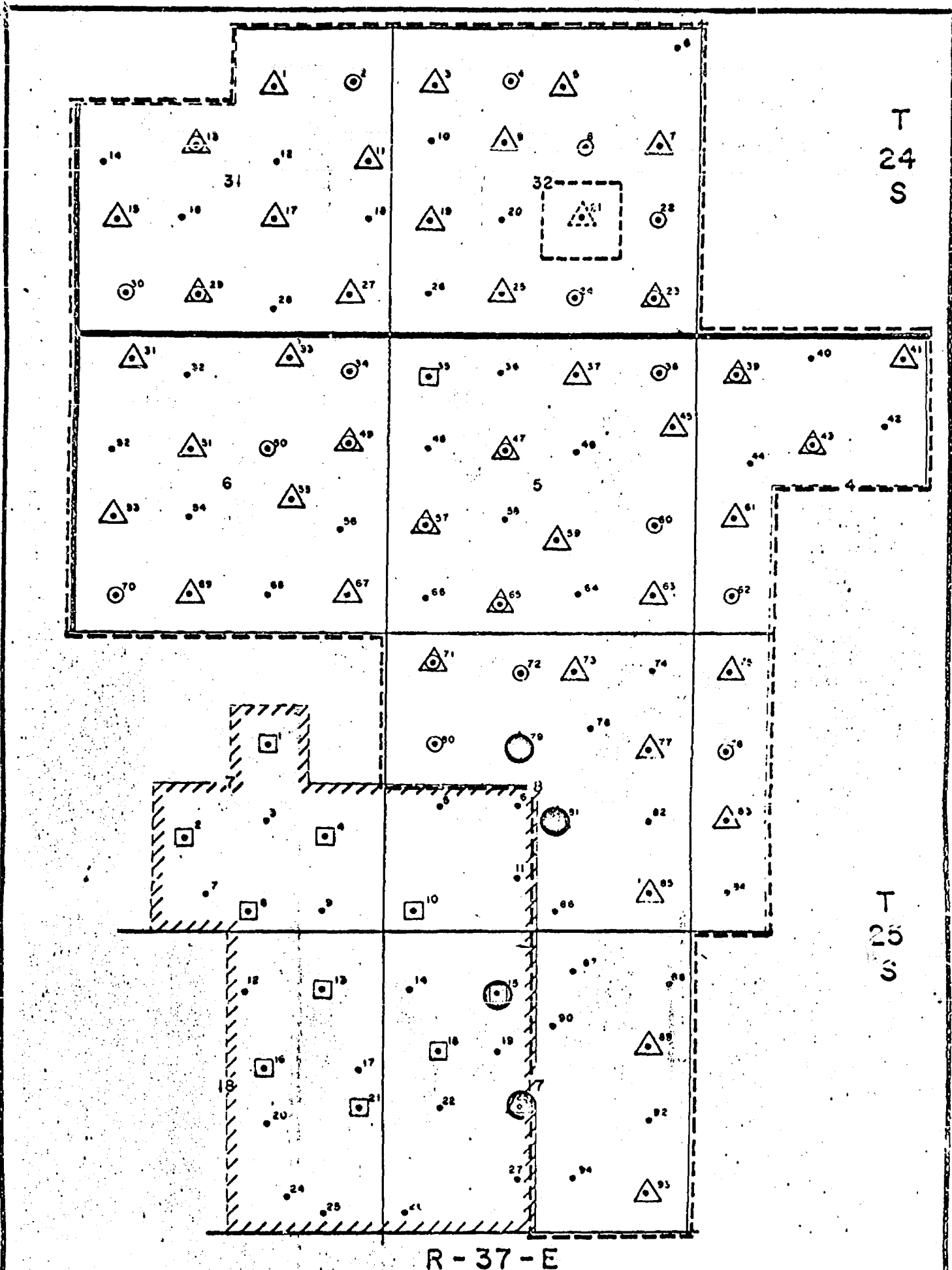
Vice-President

John M. Pearson

ATTEST:

RESERVE OIL AND GAS COMPANY

John M. Pearson
Attorney-in-Fact



RESERVE OIL AND GAS COMPANY RECEIVED

1700 FIDELITY UNION TOWER, DALLAS, TEXAS 75201

TELEPHONE: RIVERSIDE 8-0861, AREA CODE 214

DEC - 7 1971

OIL CONSERVATION

PLEASE REPLY TO:

FIRST SAVINGS BUILDING
MIDLAND, TEXAS 79704

December 6, 1971

New Mexico Oil Conservation Commission
P. O. Box 2088
Santa Fe, New Mexico 87501

Attention Mr. A. L. Porter, Jr.

Case 4641

Re: Reserve Oil and Gas Company
South Langlie Jal Unit
Jalmat Waterflood Project
Lea County, New Mexico

Gentlemen:

New Mexico Oil Conservation Commission Order No. R-4022A, dated October 14, 1970, authorized Reserve to initiate a waterflood project in the South Langlie Jal Unit, Jalmat Oil Pool, by the injection of water into the Seven Rivers and Queen formations through ten injection wells. The injection of water into the ten authorized wells was commenced April 16, 1971.

Reserve respectfully requests an Examiner hearing during January, 1972 for the purpose of presenting evidence in support of our proposal to inject water into the Seven Rivers and Queen formations of South Langlie Jal Unit Well No. 23, located 2310 feet FSL and 2310 feet FWL, Section 17, T-25-S, R-37-E, Lea County.

The conversion of South Langlie Jal Unit Well No. 23 to an injection well will result in an improvement in the injection pattern of the waterflood project which should result in a more thorough and efficient sweep of the oil by the waterflood.

Very truly yours,

RESERVE OIL AND GAS COMPANY

Erd M. Johnson

Erd M. Johnson

cc: A. J. Losee

DOCKET MARKED

Date 12-21-71

DRAFT

GMH/dr

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. 4641

Order No. R-4240

APPLICATION OF RESERVE OIL AND GAS COMPANY
FOR A WATERFLOOD PROJECT, LEA COUNTY,
NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on January 5, 1972,
at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this day of January, 1972, the Commission, a
quorum being present, having considered the testimony, the record,
and the recommendations of the Examiner, and being fully advised
in the premises,

FINDS:

(1) That due public notice having been given as required by
law, the Commission has jurisdiction of this cause and the subject
matter thereof.

(2) That the applicant, Reserve Oil and Gas Company,
seeks authority to ~~institute a waterflood project in the~~ expand its South
Waterflood Project in the
Langlie Jal Unit Jalmat ~~Unit area~~, Jalmat Oil Pool
Commission to water injection of its unit well No. 23
by the injection of water into the formation
located in the 2310 ft from the south line and 2310
through one injection well in Section 17

Township 25 ~~NORTH~~, South, Range 37 ~~West~~, East,
NMPM, Lea County, New Mexico.

(3) That the wells in the project area are in an advanced
state of depletion and should properly be classified as "stripper"
wells.

(4) That the proposed expansion of the subject waterflood project should result in
the recovery of otherwise unrecoverable oil, thereby preventing
waste.

(5) That the subject application should be approved and ^{expanded} the project should be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations.

IT IS THEREFORE ORDERED:

(1) That the applicant, Reserve Oil and Gas Company,
is hereby authorized to ^{expand its} ~~institute a waterflood project in the~~ South
Langlie Jal Unit Jalmat ^{waterflood project in the} ~~Unit Area,~~ Jalmat Oil Pool 131
by the injection of water into ~~the~~ ^{xxx} San Juan River and Juncos formations
through ^{its Unit well No. 23 located 2310 feet from the south line and 2310} ~~the following described well in~~ Section 19, Township 25
Nxxx, South, Range 37 Wxxx, East, NMPM, Lea
County, New Mexico:

(2) That the ^{expanded} ~~subject~~ waterflood project is ~~hereby designated~~
the ~~Waterflood Project~~ and shall
be governed by the provisions of Rules 701, 702, and 703 of the
Commission Rules and Regulations.

(3) That monthly progress reports of the waterflood project
herein authorized shall be submitted to the Commission in accor-
dance with Rules 704 and 1120 of the Commission Rules and Regula-
tions.

(4) That jurisdiction of this cause is retained for the
entry of such further orders as the Commission may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove
designated.

ROUGH DRAFT FOR WATERFLOOD LETTERS

Mr. A. J. Losee
Losee & Carson
Attorneys at Law
Post Office Box 239 - Artesia, N.M.

Dear Sir:

recently
~~Reference is made to~~ Commission Order No. R-4240, entered in Case No. 4641, approving the expansion of the South Langlie Jal Unit Jalmat Waterflood Project.

Additional injection was authorized into operated South Langlie Jal Unit W.D. No. 23, with injection to be through 2 7/8 inch internally lined tubing set in a packer at approximately 3100 feet. The casing tubing annulus is to be packed with an inert fluid and equipped with a pressure gauge.
As to allowable, our calculations indicate that when all of the authorized injection wells have been placed on active injection, the maximum allowable which this project will be eligible to receive under the provisions of Rule 701-E-3 is 1134 barrels per day when the Southeast New Mexico normal unit allowable is 42 barrels per day or less.

Please report any error in this calculated maximum allowable immediately, both to the Santa Fe office of the Commission and the appropriate district proration office.

In order that the allowable assigned to the project may be kept current, and in order that the operator may fully benefit from the allowable provisions of Rule 701, it behooves him to promptly notify both of the aforementioned Commission offices by letter of any change in the status of wells in the project area, i.e., when active injection commences, when additional injection or producing wells are drilled, when additional wells are acquired through purchase or unitization, when wells have received a response to water injection, etc.

Your cooperation in keeping the Commission so informed as to the status of the project and the wells therein will be appreciated.

Very truly yours,

A. L. PORTER, Jr.
Secretary-Director

cc: OCC: Hobbs X
Artesia
Aztec

USGS

~~XXXXXXXXXX~~ State Engineer Office, Santa Fe, New Mexico
Mr. D. E. Gray,