

CASE 3194: Appli. of INTERNATIONAL
OIL & GAS CORP. for expansion of
a waterflood project, Eddy County.

CASE NO.

3194

Application,

TRANSCRIPTS,

SMALL Exhibits

ETC.

**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. 3194
Order No. R-2864**

**APPLICATION OF INTERNATIONAL OIL & GAS
CORPORATION FOR EXPANSION OF A WATER-
FLOOD PROJECT, EDDY COUNTY, NEW MEXICO.**

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on January 27, 1965, at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this 11th day of February, 1965, 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, International Oil & Gas Corporation, seeks permission to expand its High Lonesome Waterflood Project authorized by Order No. R-2458 in the High Lonesome Pool by converting to water injection three wells located in Units A, B, and J of Section 15, Township 16 South, Range 29 East, NMPM, Eddy County, New Mexico.

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

(4) That the proposed expansion of the High Lonesome Waterflood Project should result in the recovery of otherwise unrecoverable oil, thereby preventing waste.

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CASE No. 3194

Order No. R-2864

(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, International Oil & Gas Corporation, is hereby authorized to expand its High Lonesome Waterflood Project in the High Lonesome Pool by converting to water injection the following-described wells in Section 15, Township 16 South, Range 29 East, NMPM, Eddy County, New Mexico:

McCallister Federal Well No. 3, located in Unit A
McCallister Federal Well No. 6, located in Unit B
McCallister Federal Well No. 5, located in Unit J

(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 expanded 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.

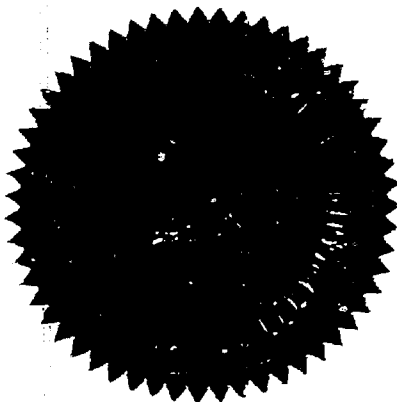
DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

Jack M. Campbell
JACK M. CAMPBELL, Chairman

Guyton B. Hays
GUYTON B. HAYS, Member

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



esr/

January 22, 1965

87501

Mr. A. J. Losee
Attorney at Law
P. O. Drawer 239
Artesia, New Mexico

Dear Mr. Losee:

Your two water flood applications on behalf of International Oil & Gas Corporation are hereby acknowledged. I realize that it is a little late for requesting additional information by correspondence but I would appreciate your having the following information available when you appear for the hearing before the Oil Conservation Commission.

In case 3194 - what is the life expectancy of the project?

What is the completion date of each of the wells?

What was the grade and condition of the casing when installed?

Will produced water be re-injected?

Will any casing tests, other than the one prior to injection, be performed at later dates? If so, when?

In Case 3202 - what is the life expectancy of the project?

What is the completion date of each of the wells?

What was the grade and condition of the casing when installed?

Will produced water be re-injected?

What casing tests will be made prior to injection?

Will any subsequent tests be made? If so, when?

Yours truly,

S. E. Reynolds
State Engineer

FBI/ma
cc-A. L. Porter, Jr.
F. H. Hennighausen

By:
Frank E. Irby
Chief
Water Rights Div.

OIL CONSERVATION COMMISSION

P. O. BOX 2088

SANTA FE, NEW MEXICO

February 11, 1965

C
O
P
Y

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

Dear Sir:

Enclosed herewith is Commission Order No. R-2864, entered in Case No. 3194, approving the International Oil & Gas Corporation High Lonesome Penrose Unit Waterflood Project.

Injection is to be through the three authorized injection wells which, on conversion to water injection shall be pressure-tested to a minimum of 2000 psia. Should any casing string fail to withstand said pressure test, injection in that well shall be through tubing and packer. The Oil Conservation Commission's District Office at Artesia is to be notified, in advance, of the date and hour the pressure tests are to be commenced.

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 308 barrels per day. (This includes the project allowable for the flood authorized by Order No. R-2459).

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.

OIL CONSERVATION COMMISSION

P. O. BOX 2088

SANTA FE, NEW MEXICO

-2-

Mr. A. J. Losee
Losee & Stewart
Attorneys at Law
Post Office Box 239
Artesia, New Mexico
February 11, 1965

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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

ALP/DSN/ir

Enclosure

cc: Mr. Frank Irby
State Engineer Office
Santa Fe, New Mexico

Oil Conservation Commission:
Hobbs, New Mexico
Artesia, New Mexico

Case. 3184

Heard 1-27-64

Rec. 1-27-64

1. Grant International permission to connect 3 wells to water injection wells as an expansion of their High Lonsome waterflood project. These wells are:

International - McCallister Del. #3 NE 1/4 NE 1/4,
" " " " " " #5 NW 1/4 SE 1/4
" " " " " " #6 NW 1/4 NE 1/4
all in sec. 15-165-29E.

2. Shall govern under Rule 701.
3. Perrose section of Lums in this Pool.

- Thur. W.
4. If injection is thru casing rather than tubing, the casing shall be tested to withstand 2000 # p.s.i.

- Edw.

If water is brackish it shall be treated to prevent corrosion.

- Edw.

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. 2776
Order No. R-2458

APPLICATION OF INTERNATIONAL OIL
& GAS CORPORATION FOR A WATERFLOOD
PROJECT, HIGH LONESOME POOL, EDDY
COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on March 20, 1963, at Santa Fe, New Mexico, before Elvis A. Utz, Examiner duly appointed by the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission," in accordance with Rule 1214 of the Commission Rules and Regulations.

NOW, on this 27th day of March, 1963, the Commission, a quorum being present, having considered the application, the evidence adduced, and the recommendations of the Examiner, Elvis A. Utz, 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, International Oil & Gas Corporation, seeks permission to institute a waterflood project in the High Lonesome Pool by the injection of water into the Penrose section of the Queen formation through its McCallister Federal Well No. 4, located in the SE/4 SE/4 of Section 15, Township 16 South, Range 29 East, NMPM, Eddy 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 waterflood project is in the interest of conservation and should result in recovery of otherwise unrecoverable oil.

(5) That the applicant proposes to inject water down 5 1/2-inch OD casing into an open hole interval at approximately 1969

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CASE No. 2776
Order No. R-2458

to 1999 feet; that in order to assure adequate protection of producing formations in the area, if the casing will not withstand 2000 pounds pressure psi, injection should be accomplished through internally plastic-coated tubing installed in a packer set above the injection interval.

(6) That the subject application should be approved and the project should be governed by the provisions of Rule 701 of the Commission Rules and Regulations.

IT IS THEREFORE ORDERED:

(1) That the applicant, International Oil & Gas Corporation, is hereby authorized to institute a waterflood project in the High Lonesome Pool by the injection of water into the Penrose section of the Queen formation through its McCallister Federal Well No. 4, located in the SE/4 SE/4 of Section 15, Township 16 South, Range 29 East, NMPM, Eddy County, New Mexico.

(2) That the applicant shall test the casing in the subject well prior to injection and upon notification to the Commission's Artesia office, and if the casing will not withstand 2000 pounds pressure psi, injection shall be accomplished through internally plastic-coated tubing installed in a packer set above the injection interval.

(3) That the subject waterflood project shall be governed by the provisions of Rule 701 of the Commission Rules and Regulations, including the allowable provisions thereof, and including the provisions with respect to expansion of the waterflood project.

(4) That monthly progress reports of the waterflood project herein authorized shall be submitted to the Commission in accordance with Rules 704 and 1119 of the Commission Rules and Regulations.

(5) 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

JACK M. CAMPBELL, Chairman

E. S. WALKER, Member

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

S E A L

esr/

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE APPLICATION OF :
INTERNATIONAL OIL & GAS CORPORATION :
FOR A WATERFLOOD PROJECT, HIGH LONESOME : No. 3194
POOL, EDDY COUNTY, NEW MEXICO :

APPLICATION

COMES INTERNATIONAL OIL & GAS CORPORATION, by its attorneys,
Losee and Stewart, and states:

1. That it is the operator and the sole working interest owner of six producing oil wells located within the High Lonesome Pool, Eddy County, New Mexico, and within the proposed project area covered by this application; said project area is described as follows:

Township 16 South, Range 29 East, N.M.P.M.

Section 15: NE/4 and NW/4 SE/4

containing 200 acres, more or less.

2. That there is attached hereto and by reference made a part hereof, a plat showing the location of the proposed injection wells and the location of all other wells and lessees within a radius of one mile from the proposed injection wells.

3. That the Oil Conservation Commission of New Mexico in Case No. 2776 by its Order No. R-2458 entered on March 27, 1963, authorized the applicant to institute a waterflood project in the High Lonesome Pool by the injection of water through its McCallister Federal Well No. 4, located in the SE/4 SE/4 of said Section 15.

4. That the six wells within the project area covered by this application have reached the advanced or "stripper" state of depletion and applicant proposes to inject water into the producing Penrose section of the Queen formation in sufficient quantities and under sufficient pressure to stimulate the production of oil from the producing wells in the project area.

5. That applicant proposes to inject water at the rate of approximately 300 barrels per well per day into the producing Penrose section of the Queen formation in the following wells located in Section 15, Township 16 South, Range 29 East, N.M.P.M., to wit:

McCallister Federal No. 3 well, located
in the NE/4 NE/4,

McCallister Federal No. 5 well, located
in the NW/4 SE/4,

McCallister Federal No. 6 well, located
in the NW/4 NE/4.

6. There is attached hereto, and by reference made a part hereof, copies of the electric logs on the three proposed injection wells.

7. There is attached hereto, and by reference made a part hereof, a graphic description of the proposed injection well casing program. As to those wells in which applicant proposes to inject water down the casing, applicant agrees to comply with the casing testing provisions of said Order No. R-2458 namely. Applicant shall test the casing in the said proposed injection wells prior to injection and upon notification to the Commission, Artesia office, and if the casing will not withstand 2,000 lbs. pressure psi, injection shall be accomplished through tubing in-

stalled in a packer set above the injection interval.

8. Caprock Water Company will furnish the water for this project from its wells in the East Red Lake area.

9. That applicant will conduct said waterflood project in accordance with the applicable provisions of Rule 701 of the New Mexico Oil Conservation Commission.

10. The approval of this waterflood project will be in the interest of conservation and will prevent waste, and correlative rights will be protected.

11. That a copy of this application and all exhibits attached hereto have been sent to the State Engineer's Office, Attention Mr. Frank Irby, Capital Building, Santa Fe, New Mexico, certified mail, return receipt requested.

WHEREFORE, applicant prays that an order be entered authorizing the applicant to institute the aforesaid waterflood project and for such other relief as may be just in the premises.

INTERNATIONAL OIL & GAS
CORPORATION

By: _____



A. J. Losee of
Losee and Stewart
Attorneys at Law
P. O. Drawer 239
Artesia, New Mexico

Docket No. 3-65

DOCKET: EXAMINER HEARING - WEDNESDAY - JANUARY 27, 1965

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

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

CASE 3193: Application of International Oil & Gas Corporation for a unit agreement, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval of the High Lonesome Penrose Unit Area comprising 320 acres of State and Federal lands in Section 15, Township 16 South, Range 29 East, Eddy County, New Mexico.

CASE 3194: Application of International Oil & Gas Corporation for expansion of a waterflood project, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to expand its High Lonesome Waterflood Project by the conversion to water injection of three wells located in Units A, B, and J, Section 15, Township 16 South, Range 29 East, High Lonesome Pool, Eddy County, New Mexico.

CASE 3195: Application of H & M Oil Company, et al for a waterflood project, Eddy County, New Mexico. Applicants, H & M Oil Company, Kincaid & Watson, N. E. Salsich, Jr., and Kersey, seek authority to institute a waterflood project in the Square Lake Pool by the injection of water into the Grayburg and San Andres formations through six injection wells in Section 1, Township 17 South, Range 29 East and one injection well in Section 6, Township 17 South, Range 30 East, Eddy County, New Mexico.

CASE 3196: Application of Texas Pacific Oil Company for a non-standard gas proration unit, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of a 320-acre non-standard gas proration unit comprising the N/2 of Section 8, Township 22 South, Range 36 East, Jalmat Gas Pool, Lea County, New Mexico, to be simultaneously dedicated to its State "A" A/c-2 Well No. 49 located in Unit C and to its State "A" A/c-2 Well No. 43 located in Unit H of said Section 8.

CASE 3197: Application of Texas Pacific Oil Company for a non-standard gas proration unit, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of a 320-acre non-standard gas proration unit comprising the S/2 of Section 5, Township 22 South, Range 36 East, Jalmat Gas Pool, Lea County, New Mexico, to be simultaneously dedicated to its State "A" A/c-2 Well No. 41 located in Unit M and its State "A" A/c-2 Well No. 27 located in Unit P of said Section 5.

CASE 3198: Application of Texaco Inc. for an amendment of Order No. R-2758, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an amendment to Rule 6 of Order No. R-2758, which order promulgated special pool rules for the Tooto Dome-Pennsylvanian "D" Pool, San Juan County, New Mexico. Applicant seeks a 150-acre proportional factor for said pool of 4.77 rather than a factor of 2.77 as previously established by the Commission.

January 27, 1965, Examiner Hearing

CASE 3199: Application of Sinclair Oil & Gas Company for a non-standard gas proration unit, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of a 240-acre non-standard gas proration unit comprising the NW/4 and the N/2 SW/4 of Section 20, Township 24 South, Range 37 East, Jalmat Gas Pool, Lea County, New Mexico, to be dedicated to its William H. Harrison "C" WN Well No. 3 located in Unit L of said Section 20.

CASE 3189: (Continued from the January 6, 1965, Examiner Hearing)
Application of Continental Oil Company for a dual completion, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks approval of the dual completion (conventional) of its Jicarilla Apache 30 Well No. 2 located in Unit C of Section 29, Township 25 North, Range 4 West, Rio Arriba County, New Mexico, to produce gas from the Chacra formation and oil from the Gallup formation through the casing-tubing annulus and tubing, respectively.

CASE 3200: Application of Cabot Corporation for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Wolfcamp formation through perforations from 9406 to 10,037 feet in its Lowe "G" Well No. 1 located in Unit O of Section 26, Township 12 South, Range 37 East, King Field, Lea County, New Mexico.

CASE 3201: Application of Union Texas Petroleum, Division Allied Chemical Corporation, for an exception to Rule 14(A) of the General Rules and Regulations for Prorated Gas Pools in Northwest New Mexico under Order No. R-1670, as amended. Applicant, in the above-styled cause, seeks an exception to the underproduction cancellation provisions of Rule 14(A) of Order No. R-1670 for its Johnson Federal No. 4 Well, located in the SW/4 NE/4 of Section 33, Township 31 North, Range 9 West, Blanco-Mesaverde Gas Pool, San Juan County, New Mexico, to permit said well to carry forward into the next gas proration period the unproduced allowable which was previously carried forward and to permit the same to be produced during the proration period beginning February, 1965, in addition to the allowable currently assigned to said well.

CASE 3202: Application of International Oil & Gas Corporation for a waterflood project, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project in the Artesia Pool by the injection of water into the Queen, Grayburg, and San Andres formations through 9 wells in Sections 10 and 11, Township 18 South, Range 28 East, Eddy County, New Mexico.

A. J. LOSEE
EDWARD B. STEWART

LAW OFFICES
LOSEE AND STEWART
CARPER BUILDING - P. O. DRAWER 239
ARTESIA, NEW MEXICO

AREA CODE 505
746-3508

January 18, 1965

Mr. Elvis A. Utz, Examiner
Oil Conservation Commission of New Mexico
P. O. Box 2088
Santa Fe, New Mexico

Re: Case No. 3194
Application of International
Oil & Gas Corporation for a
Waterflood Project, High
Lonesome Pool

Dear Mr. Utz:

Enclosed herewith you will please find three copies of the Application in the subject case with attached plat, copy of available electric logs, and a graphic description of the proposed injection well casing program on each of the wells.

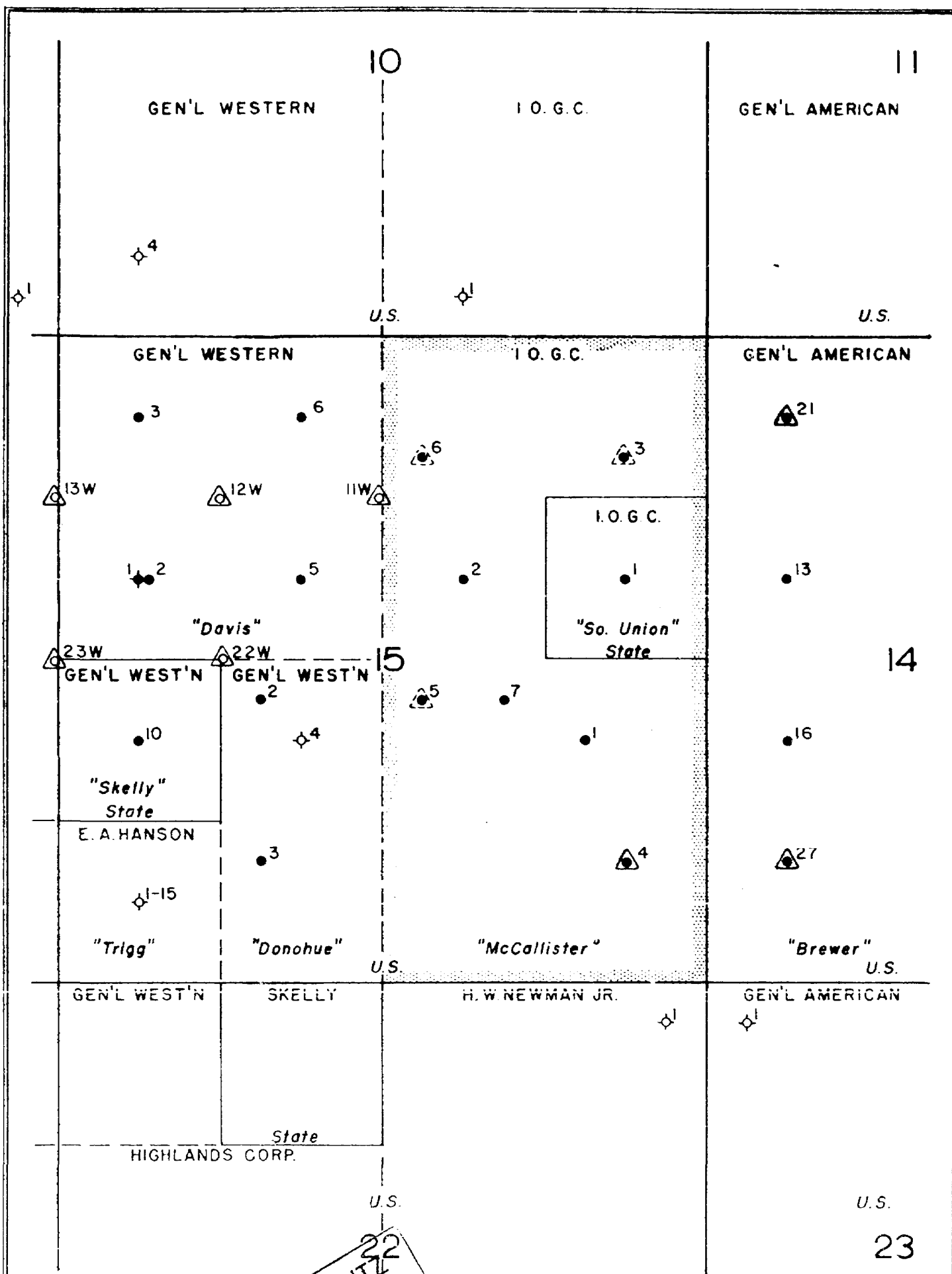
With a carbon copy of this letter, we are furnishing Mr. Frank Irby with a copy of the Application and the above described attachments.

Very truly yours,


A. J. Losee

AJL/jc

cc: State Engineer's Office
P. O. Box 1079
Santa Fe, New Mexico
ATTENTION: Mr. Frank Irby
(cc by certified mail)
Enclosures:



22
 BEFORE EXAMINER UTZ
 OIL CONSERVATION DIVISION
 EXHIBIT NO. 1
 CASE NO. 3774

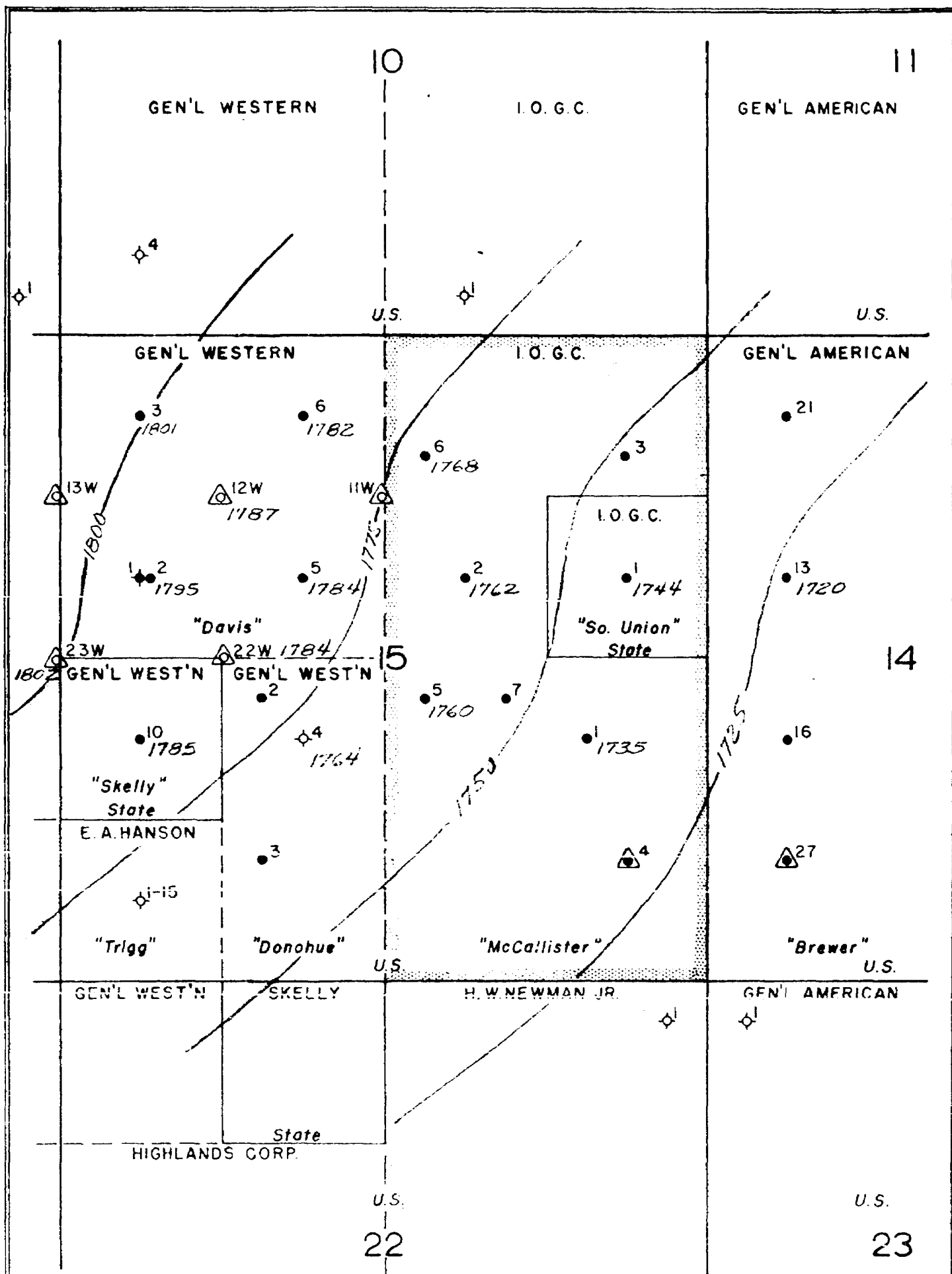
INTERNATIONAL OIL & GAS CORPORATION
HIGH LONESOME PENROSE UNIT

E 1/2, Sec. 15, T 16 S, R 29 E, NMPM
 Eddy County, New Mexico

PROPOSED WATER INJECTION PATTERN

- △ Present Water Injection Well
- ⊗ Proposed Water Injection Well

Scale: 1 inch = 1000 feet



BEFORE EXAMINER UTZ
 OIL CONSERVATION COMMISSION
 EXHIBIT NO. _____
 CASE NO. _____

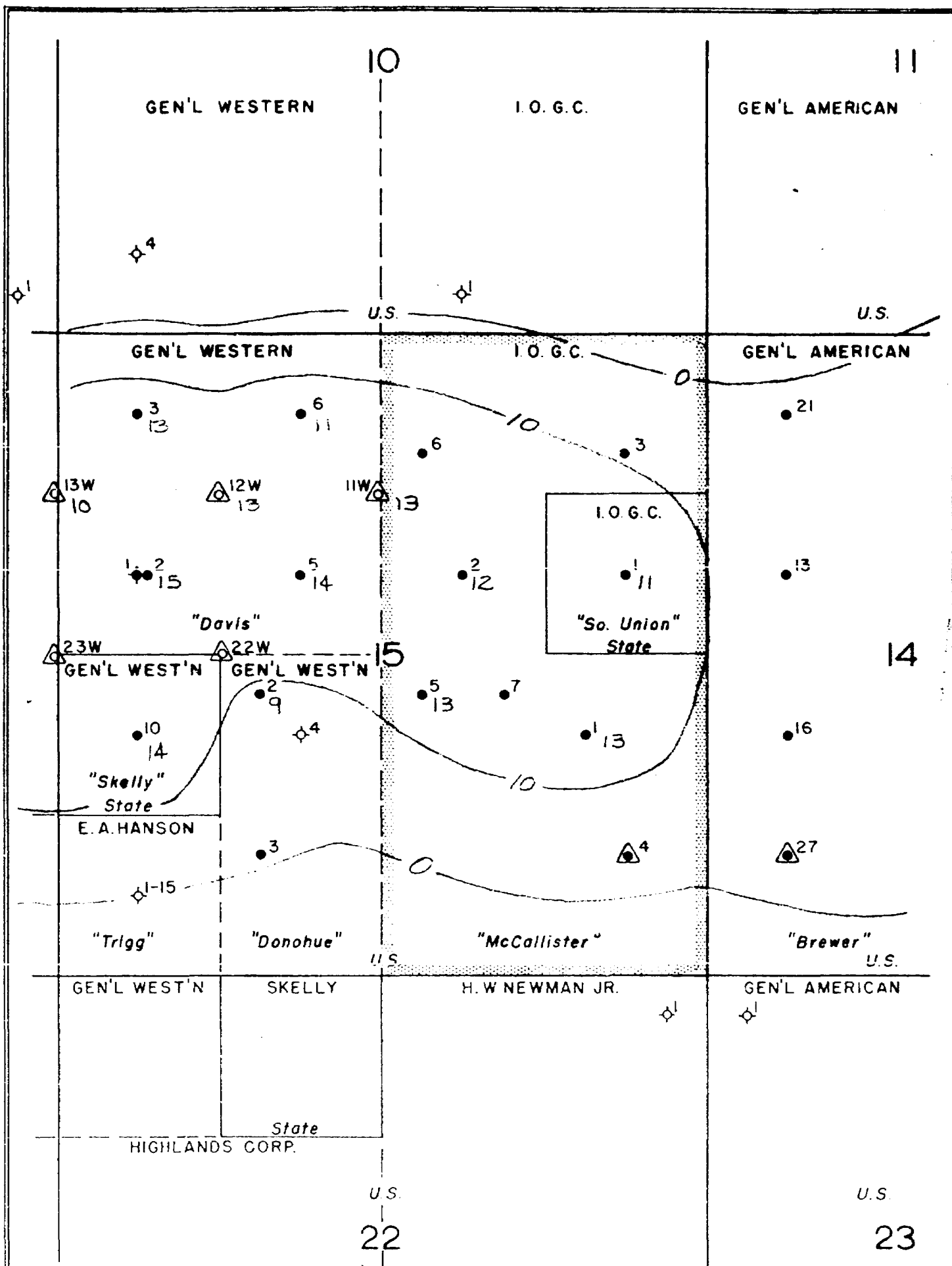
INTERNATIONAL OIL & GAS CORPORATION
HIGH LONESOME PENROSE UNIT

E 1/2, Sec. 15, T 16S, R 29 E, NMPM
 Eddy County, New Mexico

STRUCTURE—TOP OF PENROSE SAND
 Contour Interval—25 feet

Scale: 1 inch = 1000 feet

Exhibit
 No. 3



BEFORE EXAMINER UTZ
OIL COLLECTION COMMISSION
EXHIBIT NO. 4
CASE NO. 344

INTERNATIONAL OIL & GAS CORPORATION
HIGH LONESOME PENROSE UNIT

E1/2, Sec. 15, T16S, R29 E, NMPM
Eddy County, New Mexico

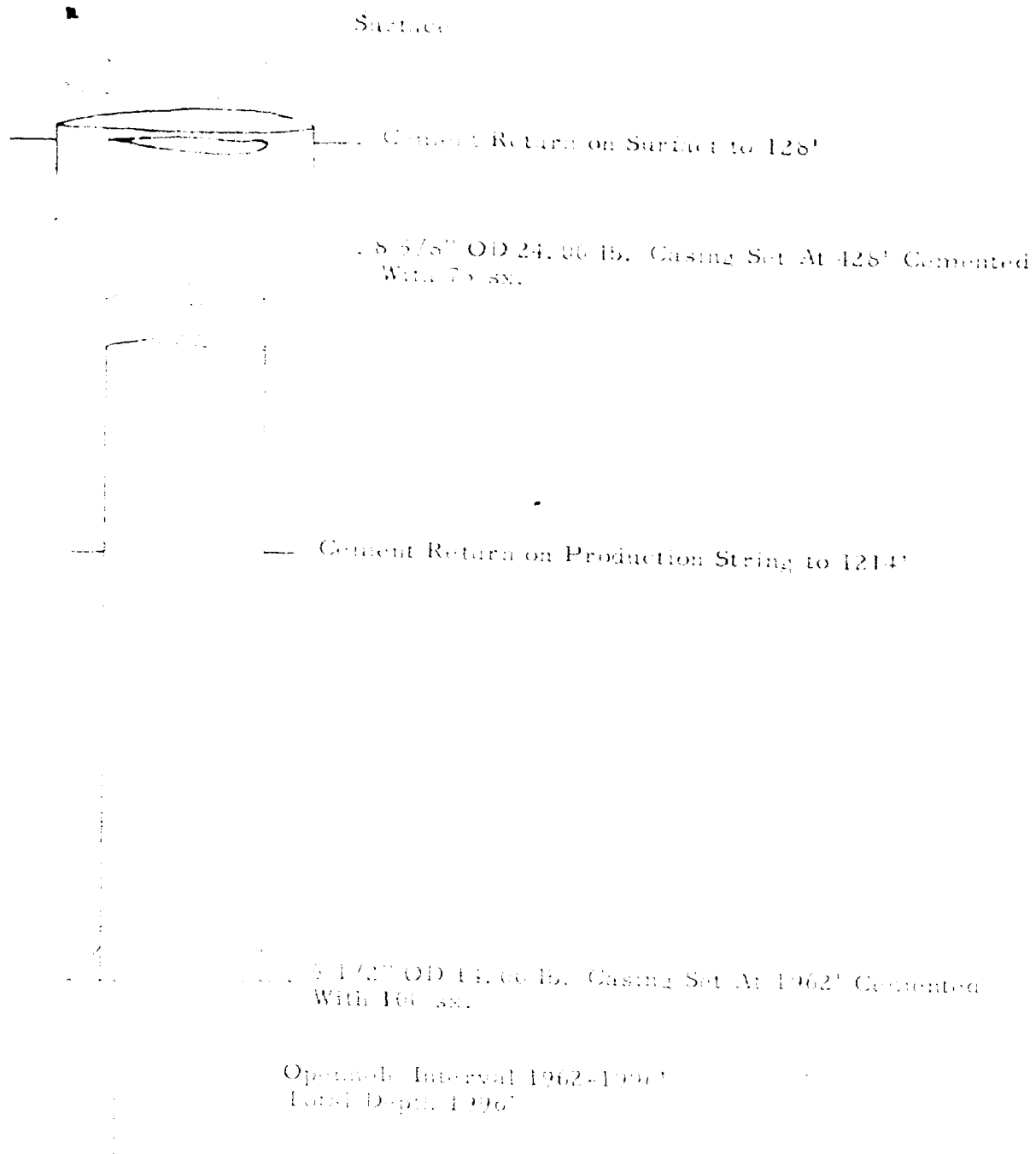
NET PAY THICKNESS - PENROSE SAND

Isopach Interval - 10 feet

Scale: 1 inch = 1000 feet

Exhibit
No. 4

INTERNATIONAL OIL & GAS CORPORATION
MOGALLISTER FEDERAL NO. 3

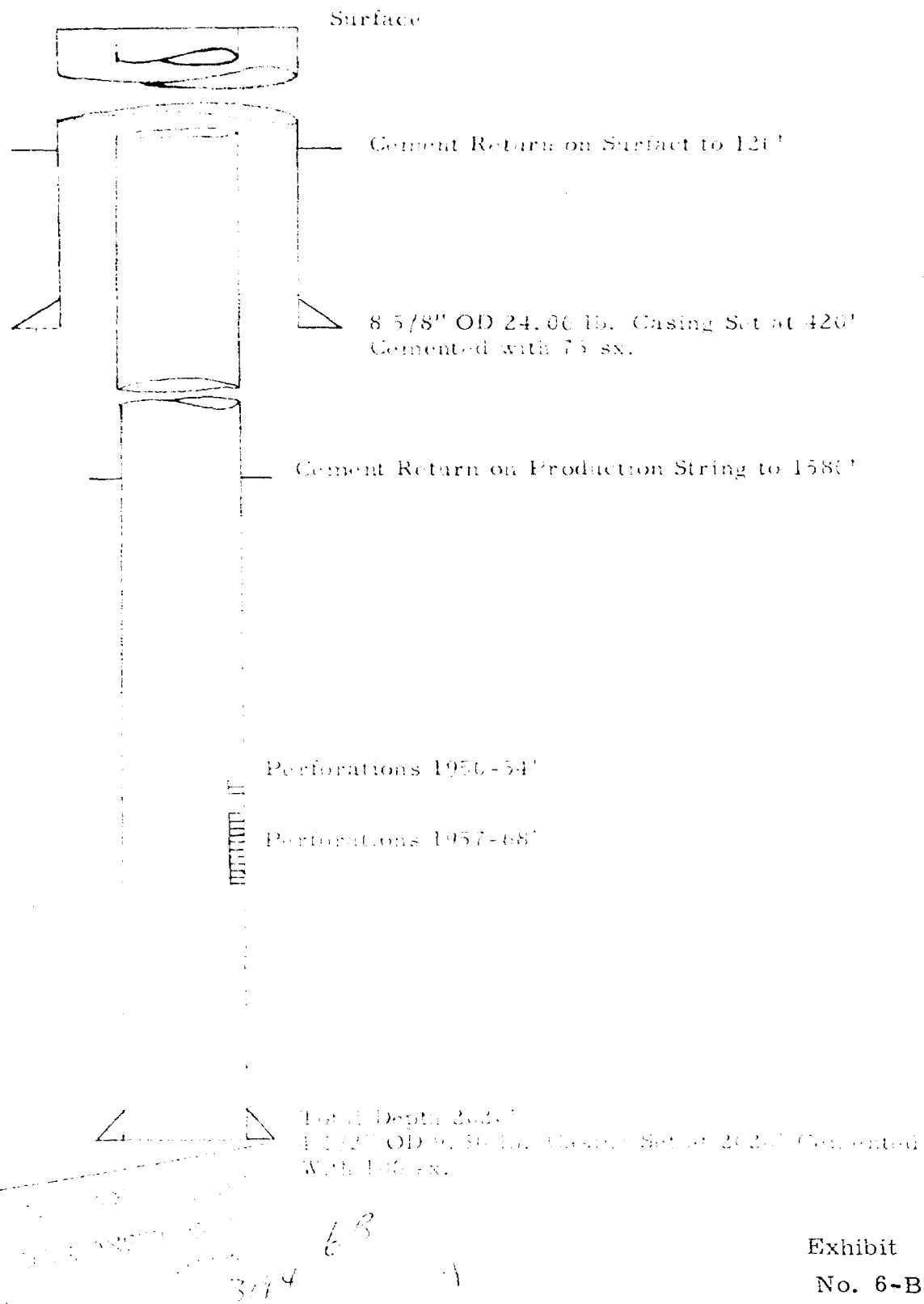


PLAN TO INJECT DOWN CASING INTO OPENHOLE INTERVAL 1962' - 1996'

BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
EXHIBIT NO. 64
CASE NO. 3194

Exhibit
No. 6-A

INTERNATIONAL OIL & GAS CORPORATION
MCCALLISTER FEDERAL No. 5



FLUID TO INJECT DOWN Casing INTO PERFORATIONS 1956-54' & 1957-68'

INTERNATIONAL OIL & GAS CORPORATION
MCCALLISTER FEDERAL No. 6

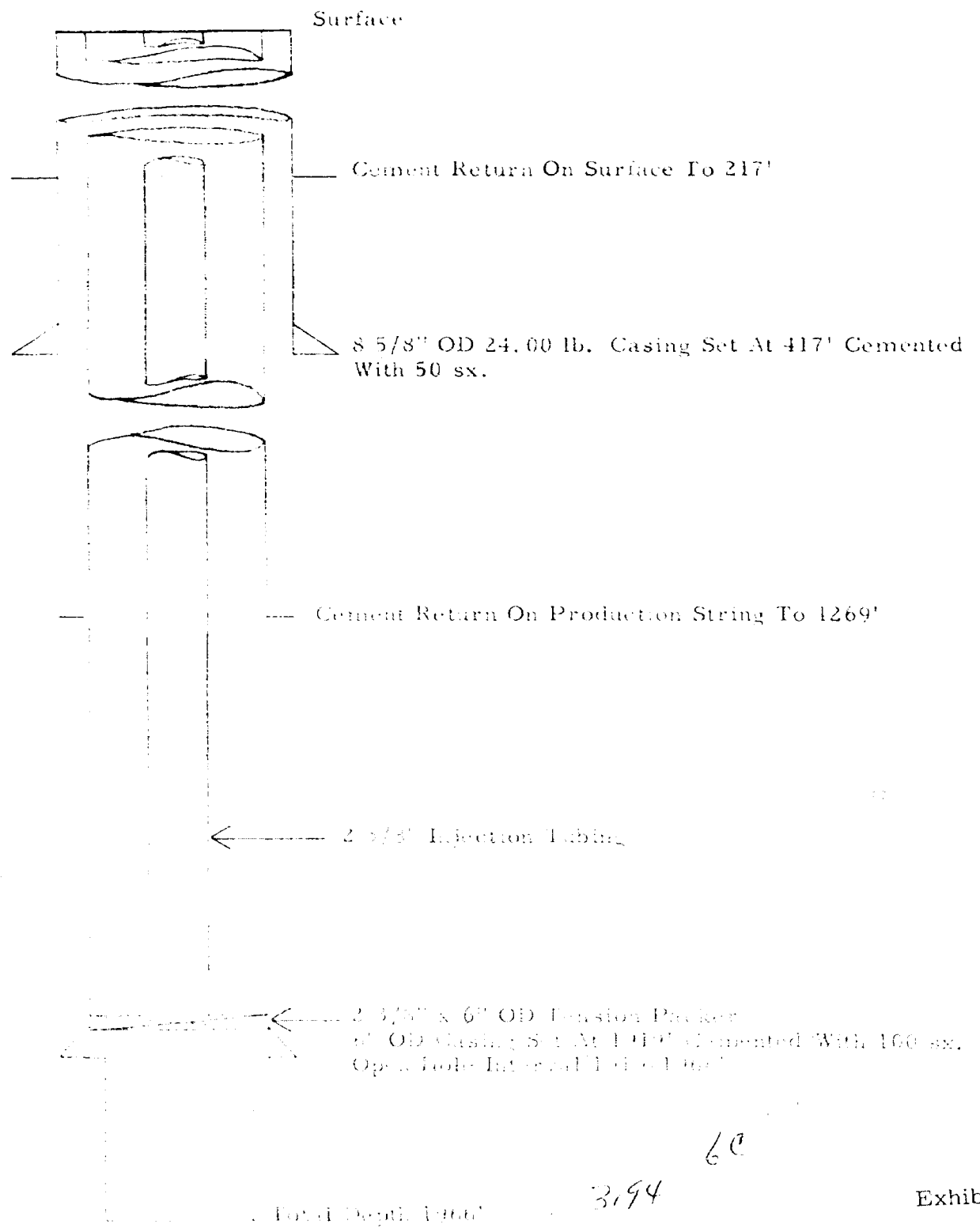
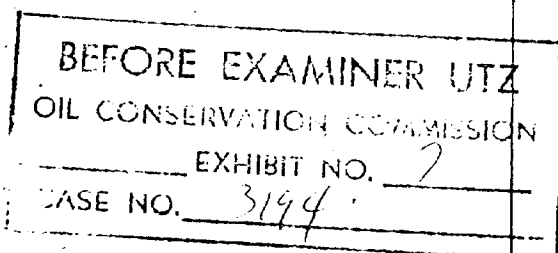


Exhibit
No. 6-C

PLAN TO INJECT DOWN TUBING UNDER A PACKER INTO OPENHOLE INTERVAL 1419-1600'

HIGH LONESOME PENROSE UNIT PROPOSED INJECTION WELLS

<u>WELL NO.</u>	<u>SURFACE CASING, AND CEMENT</u>	<u>PRODUCTION CASING, GRADE AND CEMENT</u>	<u>COMPLETION DATE</u>	<u>T. D.</u>
McCallister No. 3	8 5/8", 24#, 8rd smls @ 428' / 75 sx	5 1/2", 14#, 8rd smls @ 1965' / 100 sx (New casing)	October 1, 1959	1996'
McCallister No. 5	8 5/8" @ 420' w / 75 sx	4 1/2", 9 1/2# @ 2020' with 100 sx. Cement top 1605' (New casing)	March 5, 1956	2020'
McCallister No. 6	8 5/8", 24#, 8rd @ 417' with 50 sx	6", 15#, @ 1919' with 100 sx (Used casing)	June 20, 1956	1966'



dearnley-meier reporting service, inc.

SPECIALIZING IN: DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS

1120 SIMMS BLDG. • P. O. BOX 1092 • PHONE 243-6491 • ALBUQUERQUE, NEW MEXICO

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
January 27, 1965

EXAMINER HEARING

IN THE MATTER OF:

APPLICATION OF INTERNATIONAL OIL & GAS
CORPORATION FOR EXPANSION OF A WATERFLOOD
PROJECT, EDDY COUNTY, NEW MEXICO

Case No. 3194

BEFORE:

ELVIS A. UTZ

TRANSCRIPT OF HEARING

MR. UTZ: Case Number 3194.

MR. DURRETT: Application of International Oil & Gas Corporation for expansion of a waterflood project, Eddy County, New Mexico.

MR. LOSEE: Mr. Examiner, A. J. Losee appearing on behalf of International Oil & Gas Corporation. I have one witness, Mr. Appledorn.

MR. UTZ: Are there other appearances in Case Number 3194? ... You may proceed.

MR. DURRETT: Let the record show that Mr. Appledorn was sworn in the previous case.

DIRECT EXAMINATION

BY MR. LOSEE:

Q State your name, please.

A Conrad Appledorn.

Q You are the production superintendent for International Oil & Gas Corporation in Artesia?

A Yes.

Q Have you previously testified before the Oil Conservation Commission?

A Yes, sir.

MR. LOSEE: Are the witness's qualifications acceptable, Mr. Examiner?

MR. UTZ: Yes, sir.

MR. LOSEE: Mr. Appledorn, are you familiar with the present waterflood of International on its McCallister lease and with the proposed plans for expansion?

A Yes.

Q Will you please refer to and explain Exhibit 1.

A Exhibit 1 is the map of the proposed High Lonesome Penrose unit, and shown on the map are the one injection well now in the unit area, the proposed pattern for expansion and the existing injection wells on the adjoining leases.

Q Is it not true that the Commission on March 27, 1963 in its Order Number 2458 in Case Number 2776 approved the conversion of this McCallister Well Number 4 to injection well?

A Yes.

Q And since shortly after that approval you have been injecting water into that well?

A Yes, the well was converted in October 1963.

Q Will you give a brief description of the existing waterflood operation in the area.

A If you would please refer to Exhibit 1, the waterflood operation on General Western's lease, which is to the west of the proposed unit, was first secondary recovery operation in the High Lonesome Penrose pool. It was installed in 1957 as a capacity-type flood after hearing before the Oil Conservation Commission. A total of eight wells have been drilled as inject-

ion wells and that gives a modified dual line drive--actually it's a line of five spots down the center of their leases, extending east and west along the High Lonesome pay development. One of these was Lease Line Well Number 11W on the line between International's McCallister lease and General Western's Davis lease. In 1963 about the same time International converted its Number 4 well, General American converted its Brewster Number 27 offsetting the Number 4 well. International and General American have a cooperative injection agreement providing for a peripheral pattern around the leases. They were converted, the Number 4 and Number 27, to injection in the first phase of the work. General American since converted their Number 21 to injection in the northwestern corner of our Brewer lease and expanded on a peripheral pattern to the east.

Q Have these floods responded to injection?

A All have to some degree. The General American wells have responded well, showing marked production increases--they have had up to 200 barrels a day. General Western's response has been less spectacular but the lease has produced some oil. International Well Number 1 responded to injection in December 1963 and some response has also been shown by our Well Number 2 in the southwest quarter of the northeast quarter. This increase is apparent in Exhibit 2, which is the performance curve for the High Lonesome Penrose unit. The expansion or

the increase is noted in December and January of 1963 and 1964. Our injection rate has been limited in Well Number 4, averaging about 100 barrels of water per day and we expect a greater response when we close the pattern.

Q Are the wells on your McCallister lease that have not responded to injection in their advanced or stripper state of depletion?

A Yes. The wells vary from one-half barrel a day to six barrels a day at the present time.

Q Six is the maximum daily production from any well, then?

A Yes, at this time.

Q Will you please refer to what has been marked Exhibit 3, and explain it.

A Exhibit 3 is the structure map on top of the Penrose. It shows contours on a 25-foot contour interval. The structure is homoclinal--it has a southeast at about 75 feet per mile.

Q Please refer to what has been marked Exhibit 4 and explain it.

A That is an isopach map of the net pay in the Penrose. It indicates a marked east-west trend of the pay and the stratigraphic nature of the pay zone. It is a rather narrow, elongated development. With the well spacing we have we feel that a peripheral pattern is desirable because of this type of

pay development.

Q Please refer to Exhibits 5a and 5b, which are logs of two of the injection wells, and explain what those logs reflect, if you will.

A These exhibits, 5a and 5b, are logs of our proposed injection wells Number 3 and 6. We have no log on the Number 5--the pay and completion in Number 5 is similar in all respects to those in the Number 3 and 6. If you will note, casing is set directly above the top of the Penrose, and the injection will be into open hole below the casing into permeable and porous zones in the top of the Penrose sand. This sand is at the base of the Queen formation.

Q In your opinion is channeling possible in the open hole above and below the Penrose?

A I don't believe so. The exposed zones above the pay are tight and no loss of water to thief zones is expected. The wells do not penetrate the entire Penrose section, and the Penrose is also underlain by dense Grayburg dolomite, so water loss, we believe, would be restricted...we have experienced no difficulty in fifteen months of injection.

Q Are there fresh water zones in this area?

A Yes. The fresh water is more brackish than fresh. It is found at intervals of 280 to 320 feet.

Q Will this interval be protected in your injection

wells?

A Yes, in all injection wells surface casing is set below the lowest fresh water sand that has been encountered, and it is cemented.

Q And the cement extends through the fresh water zone?

A Yes.

Q What type of injection well equipment do you propose to use.

A If you will refer to Exhibits 6A, B and C, we have a diagram of the type of equipment we propose. In wells Number 3 and 5 we propose to inject down the casing. The casing in this case is new; it is $4\frac{1}{2}$ -inch OD-- $5\frac{1}{2}$ -inch OD in the Number 3 well. We expect no difficulty. In the Number 6, however, it has a used casing and a 6-inch OD casing was set, and we propose to inject down the tubing below a packer.

Q Please refer to what has been marked Exhibit 7, and explain what it portrays.

A Exhibit 7 is a description of the casing and cement, the completion date and the total depth of the proposed injection wells.

Q On Wells 3 and 5 that you propose to inject down the casing, will you test the wells before converting them?

A Yes, we propose to test the casing at 2,000 PSI before we convert.

Q On these two wells will you conduct any further tests?

A In the event that we get an indication that our seal has failed, or the casing has failed, we will test the casing at any time.

Q What water sources do you intend to use?

A We are at this time using brackish water furnished by a commercial water company.

Q Are you going to go on using that water?

A Yes, we will continue to use this.

Q Will produced water be re-injected?

A At such time as the volume produced becomes sufficient to support a split system, we will begin to inject produced water. At this time we have analyses indicating we will have some difficulty in commingling our water sources with produced water. We will continue to study, and if we can we will use a single system with produced and fresh water.

Q Earlier you pointed out the flood of General Western. Are they operating to capacity allowable?

A Yes, they are operating under the capacity production rule.

Q Are any of their wells at this time exceeding the allowable specified by Rule 70B?

A No producing well under the present allowable.

Q At this time do you feel that International requires a buffer zone treatment.

A No. We are requesting approval under 701e. Our total allowable under that rule will be 308 BPD, which we feel under present conditions will be sufficient. We should like, however, to reserve the right to request a re-hearing before this Commission if changes occur that would make a buffer zone allowable necessary in order to protect correlative rights.

Q What has been the cumulative production of this project area?

A The project area has a cumulative production of 198,000 barrels.

Q As of what date?

A One-one-sixty-five.

Q What ratio do you estimate will be recovered by secondary operation?

A Estimating a 1-1 ratio, based on the history of similar Queen floods in the area, those floods operate up to 1.2, I believe, primary to secondary ratio.

Q Will this waterflood project prevent waste and protect correlative rights?

A Yes. In our opinion we will recover a considerable amount of oil which would otherwise not be recovered under primary operation.

Q How long do you estimate it will require International to complete this project?

A We are looking at a life in this flood of five years to six years, at this time.

MR. LOSEE: No further questions.

MR. UTZ: What date did you say you put McCallister Number 4 under injection?

A October 1963.

Q You got some response in December 1963?

A Yes.

Q How much water did you inject?

A At that time, about 100 to 110 barrels a day, and a total injection of probably 10,000 barrels.

Q Referring to your exhibits 6A, B and C, are all of these wells cased with the casing set at the top of the Penrose?

A Number 5 is cased to total depth and it is perforated --it is selectively perforated.

Q How old is the casing in these wells?

A The Number 5 and 6 were completed in 1956, March and June respectively. The McCallister Number 3 was completed in October 1959.

Q Was it new casing?

A Yes, in the Numbers 3 and 5. The Number 6 was sec-

ond-hand casing.

Q Have you tested these casings or wells as yet?

A Not yet. We will test at the time we convert to injection.

Q Do you intend to test the casing on the Number 6 well?

A We hadn't intended to, because we intended to run tubing with a tension packer and set the tension packer just above 6.

Q What type of tubing do you intend to use?

A 2-3/8 OD external upset casing, EUE 4.7 JT 55 tubing, sir.

Q And this will be uncoated tubing?

A Because of the condition of the water we have to treat for both corrosion and bacteria, and it will be treated to inhibit corrosion.

Q That's the next question I was going to ask--about the brackish water. Are you're going to treat it?

A Yes, we're making provisions now.

Q Where are you obtaining the brackish water?

A Capros Water Company. It's an alluvial water from the East Red Lake area of Eddy County. It's approximately three miles south and about six miles west of the High Lonesome.

Q In the event your casing on the Number 3 and Number 5 doesn't stand the test, what are your intentions at that time?

A To run tubing with a tension packer.

Q Did you state that all surface casing was circulated?

A No, these holes were drilled with cable tools and the--it was cemented with 50 sacks--Number 3 and Number 5 with 75 sacks of cement, with varying returns.

Q What is behind the casing, if anything, above the cement returns or cement tops shown on Exhibits 6A, B and C?

A Mostly sand and shale, with some limestone strata.

Q Is there any fresh water?

A No, none that we know of, above the tops of the cement. There were no fresh water zones indicated at the time the wells were drilled.

Q They were all drilled with cable tools?

A Yes.

MR. UTZ: Are there other questions of the witness?

MR. IRBY: Frank Irby, State Engineer's Office. Mr. Appledorn, what is going to be your injection pressure?

A We are anticipating injection pressure of 1200 to 1250 pounds. At this time we are limiting our pressure in the Number 4.

Q If this injection pressure approaches your 2,000 pound test do you intend to run a new test to determine that the

casing will withstand the new pressure?

A Yes, if our injection pressure ever did rise that high. However, the nature of the Penrose in this area practically limits us to a maximum of 1500 pounds injection pressure. We chose the 2,000 figure because it's well above any anticipated injection pressure in the future.

Q You have said that your water is being treated or will be treated. Is this water that is being injected into Number 4 treated now?

A We are making provisions now to install treating. The corrosion rate has not been severe up to the present. It's a long-term thing, though, and we are installing within-- within the next three weeks we will have corrosion and bacteria inhibition installed.

Q What kind of test do you plan to determine the effectiveness of the water treatment?

A We have coupons, standard corrosion treatment, and also visual inspection of the equipment.

Q The surface equipment?

A Yes.

Q Now, you spoke of the compatibility of the commercial water which is being furnished you, and the produced water which you will be producing eventually. I assume you are possibly producing some water now?

A At the present time our produced water rate is running from 11 to 12 barrels a day.

Q Is this being re-injected?

A No, it isn't enough to support an injection system. In fact, we're putting it to the pit.

Q Will your treatment of the water have to be changed when you start re-injecting produced water?

A Well, if we go separate systems, they would have to have separate treating systems, because the purchased water has oxygen, and that has to be taken into consideration. The produced water will not have any oxygen--we will have to use a different program if we mix the water. That will take special tests, and we will go to the corrosion inhibition program that is called for.

Q When this occurs will you see that the State Engineer and the Oil Commission are both notified?

A Yes, sir.

Q How did you determine the tops of the cement on these various strings of casing in the three wells?

A That is calculated, based on experience in the area. We have a temperature survey on one well also--the Number 5 well.

Q A temperature on it? Is that on both strings?

A No, only on the one string.

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Q Which string?

A On the producing string.

Q I think we have most of the information on this casing program, but there's one thing which I don't know whether to say confuses me or amuses me. You referred to the casing as new. Surely you meant when installed--you wouldn't call 1956 casings new today?

A No--certainly not.

MR. UTZ: Are there any other questions?

MR. LOSEE: I have one question. Were Exhibits 1 through 7 prepared by you or under your supervision?

A Yes.

MR. LOSEE: We offer Exhibits 1 through 7 in evidence.

MR. UTZ: Exhibits 1 through 7 will be entered into the records of this case. Are there any other statements in this case? ... The case will be taken under advisement.

* * *

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STATE OF NEW MEXICO)
COUNTY OF BERNALILLO) ss

I, ELIZABETH K. HALE, Notary Public and Court Reporter, do hereby certify that the foregoing and attached transcript of hearing in Case Number 3194 was reported by me in shorthand and that the same is a true and correct record of the said proceedings to the best of my knowledge, skill and ability.

Witness my hand and seal of office this 8th day of January, 1965.

Elizabeth K. Hale
Notary Public

My commission expires

May 23, 1968.

I do hereby certify that the foregoing is a complete record of the proceedings in the above hearing of Case No. 3194, heard by me on 1-27-65.
Elizabeth K. Hale
Mexico Oil Conservation Commission