

BEFORE THE
OIL CONSERVATION COMMISSION
EXAMINER HEARING
Santa Fe, New Mexico
June 24, 1959

IN THE MATTER OF: Case 1185

TRANSCRIPT OF HEARING

DEARNLEY - MEIER & ASSOCIATES
INCORPORATED
GENERAL LAW REPORTERS
ALBUQUERQUE, NEW MEXICO
3-6691 5-9546

DEARNLEY-MEIER REPORTING SERVICE, Inc.

PHONE CH 3-6691

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BEFORE THE
CIL CONSERVATION COMMISSION
EXAMINER HEARING
Santa Fe, New Mexico
June 24, 1959

IN THE MATTER OF: :

Application of Graridge Corporation for an order amending Order No. R-952. Applicant, in the above-styled cause, seeks an order amending Order No. R-952 to establish administrative procedures for development of its Artesia Water Flood Project No. 1, Artesia Pool, Eddy County, New Mexico, and for approval of unorthodox locations for fifteen wells in said project, and for capacity allowables for five wells in said project. : Case 1185

BEFORE:

Elvis A. Utz, Examiner

TRANSCRIPT OF HEARING

MR. UTZ: The hearing will come to order, please.

The next case on the docket will be 1185.

MR. PAYNE: Application of Graridge Corporation for an order amending Order No. R-952.

MR. CAMPBELL: Jack M. Campbell, Campbell and Russell, Roswell, New Mexico, appearing on behalf of the Applicant. We have one witness.

MR. PAYNE: Let the record show that this is the same witness who testified in the previous case and was sworn at that time.

(Applicant's Exhibits Nos. 1 & 2 marked for identification.)



B. G. HARRISON

called as a witness, having been first duly sworn on oath,
testified as follows:

DIRECT EXAMINATION

BY MR. CAMPBELL:

Q State your name, please.

A B. G. Harrison.

Q Where do you live, Mr. Harrison?

A Breckenridge, Texas.

Q By whom are you employed and in what capacity?

A Graridge Corporation as manager of Secondary Recovery.

Q Have you testified previously before this Commission
or one of its Examiners?

A Yes, I have.

MR. CAMPBELL: Are the witness's qualifications
acceptable?

MR. UTZ: They are.

Q (By Mr. Campbell) Are you acquainted with the
application of Graridge Corporation in Case 1185 relating to the
Artesia Pilot Flood No. 1?

A Yes, I am.

Q I refer you to what has been identified as Applicant's
Exhibit No. 1 in this case and ask you to state what it is.

A This is a plat of a portion of the Artesia Field;
the properties presently operated by Graridge Corporation are

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outlined in blue pencil. The pilot flood itself, which was originally approved by the Commission, consisted of six injection wells, these being Lever State No. 4, 7, and 10; Cowell State Nos. 1 and 10, and Humble State Eddy No. 4. At the present time, due to lack of water in this particular area, we are only injecting to four of these injection wells, these being the one shown by solid red line between injection wells, and the injection wells being circled with a complete semi-circle rather than a dashed semi-circle or dashed circle, pardon me. The water situation has been very critical in this area. We have drilled a number of water wells and they have been very poor. We do have a water source available, however, at a considerable distance from this project which we plan water in to flood this project within the next sixty to ninety days and feel like that we will be able to expand this project at that time should the Commission see fit to let us do so.

Q Mr. Harrison, in this application are you making the same request of the Commission that you did in the application in the prior case relating to Artesia Pilot Flood Nos. 2 and 3, insofar as setting up administrative procedures is concerned?

A Yes, sir. We have set out what we consider to be an overall program for all of Graridge's properties in this immediate area. We do indicate some wells outside of the Graridge owned properties; these are indicated as possible injection wells only to illustrate how cooperative flooding can be used in this area.



Q You have also requested in this application approval of a number of unorthodox well locations. How have you identified those on Exhibit 1?

A The requested unorthodox locations have been underlined in purple on the plat. All of these, I believe, are old wells which have been plugged and would require only a re-entry.

Q Those are wells which were drilled prior to the establishment of standard spacing drilling location patterns by the Oil Conservation?

A Yes, that is true.

All of the new well locations which are indicated by a black circle or a black circle with a concentric dashed circle indicate new well locations that would be used to develop this entire project. All of these have been put on 330 feet locations from the respective 40-acre unit lines to develop this flood on 20-acre five-spot or ten-acre spacing.

Q Now, Mr. Harrison, you do not by this application seek any present authority for water injection wells, do you?

A No, sir, we do not.

Q When you do desire it, you will then proceed under any administrative procedure that the Commission may set up in connection with this application, is that correct?

A Yes, sir.

Q I do notice, however, that you do seek capacity allowables for five wells. Would you identify the five wells and



state to the Examiner the reason for requesting capacity allowables at this time?

A The wells for which we request capacity allowable are Lever State 3, 6 and 8; Cowell State No. 2; and I believe it is Welch Solt State No. 1. I had a note on the map that this particular 40-acre lease is identified as the Welch State, which is an error. It should be the Solt State Welch.

MR. UTZ: It should be what?

Q (By Mr. Campbell) State that again.

A Should be the Solt State Welch.

MR. UTZ: Spell Solt, will you?

A S-o-l-t. This is a 40-acre lease, being the Northwest Quarter of the Southwest Quarter of Section 4.

Q I notice that you are asking for capacity allowable again on wells which do not appear to have responded as yet to any substantial degree. Would you state the basis for making this request?

A The wells which have responded to the flood are Lever State No. 8, No. 3, Solt State Welch No. 1; these have all responded to the flood. Lever State No. 6 as you will note is producing no oil at this particular time; however is in a position of producing some 12 barrels of water. We feel like that this was an old well and that possibly it has had some water stand over the formation and that we are displacing this water with pressure from the flood. With such response as is indicated in

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Lever State No. 3 with a one-way drive from Well No. 4, we expect that we should have had an increase in Well No. 6 due to the two-way drive which offsets it and feel like that some remedial work may be necessary here, possibly we have a water block in this well. Cowell State No. 2 would have been a center producer in the other five-spot program which was approved by the Commission. It is also offset by two-way drive and we expect response here within the next sixty to ninety days, as soon as we are able to increase our water injection rates.

MR. CAMPBELL: I might state to the Examiner that, as the Commission is aware, the problem of obtaining authority for capacity allowables sometimes presents itself rather suddenly, and the Applicant here is undertaking to suggest a possibility to the Commission as a method of avoiding the issuance of frequent emergency orders and the necessity for having a hearing within the fifteen-day period. The Applicant does not desire to obtain capacity allowable authority unnecessarily, but trying to arrive at some method of meeting the problem of emergency orders that has arisen from time to time. Of course, we'll abide by any policy that the Commission desires. If they prefer that emergency orders be issued, of course, we will proceed on that basis; but at this hearing we have requested, and at the prior hearing we have requested capacity for wells that have not shown to date a substantial kick as a result of the water injection, but have attempted to indicate definite possibilities of increase by



comparison with other wells and the amount of water injected in the area.

Q (By Mr. Campbell) I refer you, Mr. Harrison, to what has been identified as Applicant's Exhibit No. 2, and ask you to state what that is, please.

A These are the performance curves from Artesia Pilot Flood No. 1, which indicates the oil production, the water injection, the cumulative water injection and injection pressures. You will note that in January of 1959 we began getting some response. Up until that time our oil production had been declining in the area. We got a response in January, and it has continued to increase to the present time, of some 920 barrels per month. The water injection is in the order of 260 to 300 barrels per day there, this being all of the water that is available in the area from several water wells that have been drilled; only two of these wells have been capable of making enough water to inject into the flood and do any amount of good. One of the wells originally produced at the rate of -- one of the water supply wells produced at the rate of 3,000 barrels a day when it was initially completed but it declined very rapidly until it is now producing on the order of 200 to 250 barrels per day.

Q Were Exhibits 1 and 2 prepared by you or under your supervision?

A Yes, sir, they were.

MR. CAMPBELL: I would like to offer Exhibits 1 and

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2 in evidence.

MR. UTZ: Without objection they will be admitted.

MR. CAMPBELL: That's all the questions I have at this time.

MR. UTZ: Does anyone have any questions of the witnesses?

MR. PAYNE: Yes, sir.

CROSS EXAMINATION

BY MR. PAYNE:

Q Mr. Harrison, as I understand it you are not asking for approval for any of these wells for water injection at this time, is that correct?

A Yes, sir, that is correct.

Q Now most of them are old wells, however?

A Yes, all of the wells that would be injection wells in the very near future would be old wells that would be re-entered.

Q Now if this application is granted, would you have any objection to a provision in the procedure for administrative approval whereby you set out the status of the casing in each one of these wells, how old it is, whether it has been pressure tested recently, and so forth?

A No, we would have no objection to giving to the best of our knowledge the condition of the casing. As far as the condition, its pressure testing, only the age of the casing is all we would be able to give, the amount of cement that was used to cement it. All of these wells have been completed with surface

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casing and no oil string.

Q Now referring back to the previous case for a moment, I neglected to ask you, you asked authority there for conversion of six wells to water injection, the Ressler's State Well No. 14 being the only one of those wells that's not new. Could you tell me what you know about the casing in this particular well?

A I'm not able to answer specifically on the casing that is in this well, only to say that it is probably like other wells in the area in that it has had some surface pipe set, some six to eight hundred feet probably, with no oil string.

Q Do you know the completion date of that well?

A No, sir, I do not.

MR. PAYNE: That's all, thank you.

REDIRECT EXAMINATION

BY MR. CAMPBELL:

Q Have you discussed that situation just referred to on the Ressler's State No. 14 with Mr. Irby of the State Engineers Office?

A Yes, Mr. Irby and I have discussed this briefly.

Q Do you intend, insofar as the use of these old wells as injection wells in the future is concerned, to advise the office of the State Engineer and cooperate with them in seeing that the wells are used in such a manner that it will not endanger any fresh water sources?

A Yes, Mr. Campbell, we will endeavor in every way



possible to protect the water in the area. It is a very scarce item and we realize that it is very necessary to maintain in good condition the water that is available.

Q It's also to your advantage, is it not, to see that the water you inject goes into the oil producing formation?

A Yes, sir, that is true. We have no desire to lose efficiency through casing leaks or something of that nature.

MR. CAMPBELL: I might say, Mr. Examiner, that the Applicant is going to try to work out with the State Engineer a method of determining the nature, the condition of these old wells and before using them for water injection to put them in such condition that it will not endanger any fresh water sources in the area.

RECROSS EXAMINATION

BY MR. UTZ:

Q What is the status of the Solt Welch State No. 4 Well?

A I beg your pardon?

Q What is the status of the Solt Welch State No. 4 Well?

A Solt State Welch No. 4 --

Q I'll give you the section if I can find it.

A The sections are in the upper right-hand corner.

Q Section 4. It's in the Northwest of the Southwest. It's one of your wells that you want a non-standard location for.

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A This well at the present time is plugged. We do not know at this time whether we will re-enter this well to make a producer of it or whether we will just re-enter it to plug it. We have an indication of an increase in the Solt State Welch No. 1 and we feel like that with a pattern that's indicated there, that we could efficiently flood this area possibly without the completion of Well No. 4. However, we would desire if we decide on this method to re-enter this well and plug it.

Q How about the Lever State No. 2, Southwest Southwest of 4?

A This well is a plugged well and will remain as such unless re-entered for the purpose of more definitely plugging the well.

MR. UTZ: Any other questions of the witness? If not, the witness may be excused.

(Witness excused.)

MR. UTZ: Any other statements to be made in this case? If there are none, the case will be taken under advisement.



C E R T I F I C A T E

STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

I, ADA DEARNLEY, Notary Public in and for the County of Bernalillo, State of New Mexico, do hereby certify that the foregoing and attached Transcript of Hearing was reported by me in Stenotype, and that the same was reduced to typewritten transcript under my personal supervision and contains a true and correct record of said proceedings, to the best of my knowledge, skill, and ability.

DATED this 1st day of July, 1959, in the City of Albuquerque, County of Bernalillo, State of New Mexico.

NOTARY PUBLIC

My Commission Expires:

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 1185, heard by me on June 24, 1959.

[Signature], Examiner
New Mexico Oil Conservation Commission

DEARNLEY-MEIER REPORTING SERVICE, Inc.

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ALBUQUERQUE, NEW MEXICO



STATE OF NEW MEXICO)
COUNTY OF BERNALILLO)

I, Ada Searnsley, Notary Public
in and for the County of Bernalillo, State of New Mexico, do
hereby certify that the foregoing and attached Transcript of
Proceedings before the New Mexico Oil Conservation Commission
was reported by me in Stenotype and reduced to typewritten
transcript by me, and that the same is a true and correct
record to the best of my knowledge, skill and ability.

WITNESS my Hand and Seal this, the 5th day
of July, 1959, in the City of Albuquerque, County
of Bernalillo, State of New Mexico.

Ada Searnsley
NOTARY PUBLIC

My Commission Expires:

June 19, 1963.

DOCKET: EXAMINER HEARING JUNE 24, 1959

OIL CONSERVATION COMMISSION - 1120 CERRILLOS ROAD, HIGHWAY DEPARTMENT
AUDITORIUM, 8 a.m., SANTA FE, NEW MEXICO

The following cases will be heard before Elvis A. Utz, Examiner, or A. L. Porter, Jr., Secretary-Director.

CONTINUED CASE

CASE 1666: Application of Sunray Mid-Continent Oil Company for approval of a unit agreement. Applicant, in the above-styled cause, seeks an order approving its Central Bisti-Lower Gallup Sand Unit embracing approximately 7389 acres of federal, state, and allotted Indian lands in the Bisti-Lower Gallup Oil Pool, San Juan County, New Mexico.

NEW CASES

CASE 1692: Application of Continental Oil Company for the establishment of a non-standard gas proration unit in the Tubb Gas Pool. Applicant, in the above-styled cause, seeks the establishment of a 160-acre non-standard gas proration unit in the Tubb Gas Pool consisting of lot 15, the N/2 SE/4 and the SE/4 SE/4 of Section 3, Township 21 South, Range 37 East, Lea County, New Mexico, said unit to be dedicated to applicant's Hawk B-3 Well No. 2-T, located 1650 feet from the South and East lines of said Section 3.

CASE 1693: Application of Amerada Petroleum Corporation for three non-standard oil proration units. Applicant, in the above-styled cause, seeks an order establishing three 43.7 acre non-standard oil proration units for Mississippian production in the SE/4 of Section 11, Township 13 South, Range 38 East, Lea County, New Mexico. Applicant further seeks approval of one unorthodox oil well location.

CASE 1694: Application of Texas Crude Oil Company for an oil-oil dual completion. Applicant, in the above-styled cause, seeks an order authorizing it to dually complete its Big Eddy Unit 1-30 Well, located in the SE/4 SE/4 of Section 30, Township 20 South, Range 31 East, Eddy County, New Mexico, in such a manner as to produce oil from an undesignated Tansil pool and to produce oil from an undesignated Delaware pool through parallel strings of tubing.

CASE 1695: Application of Texaco, Inc. for a triple completion, for permission to commingle the production from three separate pools, and for the establishment of two non-standard gas proration units. Applicant, in the above-styled cause, seeks an order authorizing it to triple complete its A. H. Blinebry NCT-4 Well No. 1, located in the SE/4 SE/4 of Section 31, Township 22 South, Range 38 East, Lea County, New Mexico, in such a manner as to permit production from the Blinebry formation, production of gas from the Tubb Gas Pool, and production of oil from the Drinkard Pool through tubing, the annulus via cross-over, and tubing respectively. Applicant further seeks the establishment of a 160-acre non-standard gas proration unit in both the Tubb Gas Pool and Blinebry Gas Pool each consisting of the S/2 S/2 of said Section 31. Applicant further seeks permission to commingle the liquid production from the Blinebry, Tubb, and Drinkard formations underlying said acreage.

- CASE 1696: Application of Caulkins Oil Company for a triple completion. Applicant, in the above-styled cause, seeks an order authorizing it to triple complete its Breech "F" Well No. PMD-8, located in the NE/4 NE/4 of Section 34, Township 27 North, Range 5 West, Rio Arriba County, New Mexico, in such a manner as to produce gas from the South Blanco-Pictured Cliffs Pool, gas from the Mesaverde formation, and gas from the Dakota formation through parallel strings of tubing.
- CASE 1697: Application of Universal Oil Corporation for the creation of a new oil pool for Gallup production, and for an exception to Rules 104 and 107 for wells in said pool. Applicant, in the above-styled cause, seeks an order creating a new pool for Gallup production to be designated the Shiprock-Gallup Oil Pool and located in Sections 16 and 17, Township 29 North, Range 18 West, San Juan County, New Mexico. Applicant further seeks the promulgation of pool rules to permit wells in said pool to be located closer than 660 feet to the nearest producing well in exception to Rule 104, and to permit certain exceptions to the casing requirements of Rule 107 of the Commission Rules and Regulations.
- CASE 1698: Application of Shell Oil Company for an exception to Rule 502 I (a). Applicant, in the above-styled cause, seeks an order which would exempt all wells in the Carson Unit Area and all other Shell wells in Township 25 North, Ranges 11 and 12 West, Bisti-lower Gallup Oil Pool, San Juan County, New Mexico, from the daily tolerance provisions of Rule 502 I (a) of the Commission Rules and Regulations.
- CASE 1195: Application of Graridge Corporation for capacity allowables for certain wells in a water flood project. Applicant, in the above-styled cause, seeks an order authorizing capacity allowables for three wells in the project area of its water flood in the Caprock-Queen Pool in Lea and Chaves Counties, New Mexico.
- CASE 1196: Application of Graridge Corporation for an order amending Order No. R-966. Applicant, in the above-styled cause, seeks an order amending Order No. R-966 to establish administrative procedures for development of its Artesia Water Flood Projects No. 2 and 3, Artesia Pool, Eddy County, New Mexico, and for approval of unorthodox locations for 27 wells in said projects, for authority to convert six wells in said projects to water injection, and for capacity allowables for five wells in said projects.
- CASE 1185: Application of Graridge Corporation for an order amending Order No. R-952. Applicant, in the above-styled cause, seeks an order amending Order No. R-952 to establish administrative procedures for development of its Artesia Water Flood Project No. 1, Artesia Pool, Eddy County, New Mexico, and for approval of unorthodox locations for fifteen wells in said project, and for capacity allowables for five wells in said project.
- CASE 1699: Application of J. W. Brown for an order authorizing a pilot water flood project. Applicant, in the above-styled cause seeks an order authorizing it to institute a pilot water flood project in the Brown Pool, Chaves County, New Mexico, by the injection of water into the Queen formation through four wells located in the SE/4 NW/4 of Section 26, Township 10 South, Range 26 East, Chaves County, New Mexico.

- CASE 1337: Application of Gulf Oil Corporation for an order amending Order No. R-1093-A. Applicant, in the above-styled cause, seeks an order amending Order No. R-1093-A to permit the commingling of Paddock production with the commingled Blinebry, Drinkard, and Langlie-Mattix production from its Learcy McBuffington lease consisting of the S/2 of Section 13, Township 25 South, Range 37 East, Justis Field, Lea County, New Mexico.
- CASE 1700: Application of Gulf Oil Corporation for permission to commingle the production from two separate leases: Applicant, in the above-styled cause, seeks an order authorizing it to commingle the production from the East Millman Queen-Grayburg Pool from two separate non-contiguous leases in Township 19 South, Range 28 East, Eddy County, New Mexico.
- CASE 1703: Application of Tidewater Oil Company to commingle the production from several separate oil pools from two separate leases. Applicant, in the above-styled cause, seeks an order authorizing it to commingle the intermediate grade crudes produced from its Coates "D" Lease comprising the SE/4 SW/4 of Section 24, Township 25 South, Range 37 East, Justis Field, Lea County, New Mexico, with the commingled production of all intermediate grade crudes produced from its Coates "C" Lease comprising the E/2, SE/4 NW/4, and the NE/4 SW/4 of said Section 24 and to pass such commingled production through its automatic custody transfer system.
- CASE 1704: Application of Cities Service Oil Company for capacity allowables for nine wells in a water flood project and for establishment of administrative procedure for expansion of said project. Applicant, in the above-styled cause, seeks an order authorizing capacity allowable for nine wells in the project area of its water flood project in the Caprock-Queen Pool, Chaves County, New Mexico. Said capacity allowables would be in exception to Order R-1128-A. Applicant further seeks establishment of an administrative procedure to expand said water flood project.
- CASE 1705: Application of Neville G. Penrose, Inc., for a capacity allowable for one well. Applicant, in the above-styled cause, seeks an order authorizing a capacity allowable for its Alston Well No. 2, located in the NW/4 NW/4 of Section 11, Township 14 South, Range 31 East, Caprock Queen Pool, Chaves County, New Mexico, due to a response from the adjoining Cities Service Oil Company water flood project. Said capacity allowable would be in exception to Order R-1128-A.

NEW MEXICO OIL CONSERVATION COMMISSION

Docket No. 23-59-a

In addition to the cases listed on Docket No. 23-59, the following cases will also be heard June 24, 1959, before Elvis A. Utz, Examiner, or A. L. Porter, Jr., Secretary-Director:

- CASE 1701: Application of Gulf Oil Corporation for an oil-oil dual completion. Applicant, in the above-styled cause, seeks an order authorizing the dual completion of its Learcy McBuffington Well No. 5, located in the NW/4 SE/4, Section 13, Township 25 South, Range 37 East, Lea County, New Mexico, in such a manner as to produce oil from an undesignated Paddock Pool and oil from the Justis-~~Ellenburger~~ Pool through parallel strings of tubing.
- CASE 1702: Application of Humble Oil & Refining Company for an oil-gas dual completion. Applicant, in the above-styled cause, seeks an order authorizing the dual completion of its South Four Lakes Unit Well No. 6, located in the SW/4 SE/4, Section 2, Township 12 South, Range 34 East, Lea County, New Mexico, in such a manner as to produce oil from a Four Lakes-Pennsylvanian Pool extension and gas from a Four Lakes-Devonian Gas Pool extension through parallel strings of tubing.
- CASE 1706: Application of Sunray Mid-Continent Oil Company for an order amending Order No. R-1414. Applicant, in the above-styled cause, seeks an order amending Order No. R-1414 to include the following additional acreage: NW/4 NW/4 of Section 6, Township 25 North, Range 12 West, and the SW/4 SW/4 of Section 31, Township 26 North, Range 12 West, San Juan County, New Mexico.

Place of hearing will be Highway Department Auditorium, 1120 Cerrillos Road, Santa Fe, New Mexico.

Time of hearing will be 8:00 o'clock a.m.

1/30/77

BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO

IN THE MATTER OF:

Case No. 1185

December 13, 1956.

DEARNLEY - MEIER & ASSOCIATES
INCORPORATED
GENERAL LAW REPORTERS
ALBUQUERQUE - SANTA FE
3-6691 2-2211

ROBERT H. VICK

a witness, of lawful age, having been first duly sworn on oath, testified as follows:

DIRECT EXAMINATION

By MR. COOLEY:

Q Would you state your full name for the record?

A My name is Robert H. Vick, and I am a petroleum engineer for the Ibex Company.

Q Have you been previously qualified as an expert witness before the Commission?

A Yes, I have.

MR. COOLEY: Are the witness's qualifications accepted?

MR. PORTER: The Commission would like for you to go ahead and qualify.

Q State your education.

A B. S. degree in Petroleum Engineering from the University of Oklahoma in 1950. Upon graduation I was employed by the Sunray Oil Corporation as a petroleum engineer, and for a period of approximately five years. Of that five years, the first two years was spent in general production and engineering, drilling engineering work. The remaining three years were spent in reservoir work and water flooding and secondary recovery work. After leaving Sunray, I joined the Ibex Company as a petroleum engineer and have worked for the past year and a half with this company in the capacity of a water flooding engineer.

MR. PORTER: The witness's qualifications are accepted.

A With the Commission's approval, then, I would like to

present the data on the proposed application of the Ibex Company to install a pilot water flood in the pools of the Artesia Field in Eddy County, New Mexico.

To begin with, because of certain discrepancies in the initial information submitted on the application to the Commission covering the proposed pilot flood No. 2 and No. 3, it became necessary to correct same and reschedule hearings pertaining to them for a later date; so this following information will therefore cover only proposed pilot flood No. 1 in the application.

The Ibex Company now requests permission to install and conduct a water flood operation on several of its leases in Section 4, Township 18 South, Range 28 East, Eddy County, New Mexico. The proposed pilot flood is to consist of six injection wells formed to simulated five-spot pattern of approximately twenty-eight acres each. This would consist of the conversion of two water injection wells of the following present producing or temporarily abandoned oil wells. The Ibex Company Lever State No. 4, No. 7, No. 10; the Ibex Company Caldwell State No. 1 and No. 10; the Ibex Co. Humble State Eddy No. 4. The respective locations of the above are shown on the plat of the area which I would like to offer at this time as Exhibit No. 1.

(Ibex Company's Exhibit No. 1 marked for identification).

MR. PORTER: Is there objection to the admittance of the exhibit? It will be admitted.

A The oil production from the sub-area is obtained from the Premier sand section of the Grayburg formation. We would like at this time to submit Exhibits No. 2 and 3, which are contour maps

and net sand isopac maps respectively of the sub-areas.

(Exhibits No. 2 and 3 marked
for identification).

MR. PORTER: These are Exhibits 2 and 3?

A Yes, sir.

MR. PORTER: Without objection they will be admitted.

A I would like to also submit as Exhibit No. 4 a data sheet for the sub-area covering all the pertinent reservoir information, and well data and lease information and such that we have on the area.

(Exhibit No. 4 marked for
identification).

MR. PORTER: Is this all of the exhibits that you plan to enter?

A Yes, sir.

MR. PORTER: Without objection Exhibit No. 4 will be admitted.

A This data sheet as Exhibit No. 4 shows all the information on the sub reservoir, all the obtainable information on the sub reservoir, and also material related to the proposed method of water flooding and the expected results from same. Now the proposed water supply from the injection will be fresh water produced from a local Red Sands Section at approximately three hundred to four hundred feet in depth. The water supply wells are presently completed and indicated on Exhibit No. 1. The sub-area is not included at the present time in any outlined water basin and water prospecting rights are being cleared through the office of the Commissioner of Public Lands at the present time. Water injection

into the proposed injection wells will be definitely confined to the Premier sand section of the Grayburg formation. All injection wells will be recompleted with four and a half inch casing submitted to the top of the Premier sand. Since the properties were all developed at a very early date, the majority of the present well locations are on a ten-acre or twenty-acre spacing pattern, with individual locations all being approximately 250 feet from proration unit boundaries. The operator requests permission to utilize these unorthodox locations in the proposed pilot areas either as injection wells or as producing wells. Evaluation of the future performance of the pilot flood might indicate that any expansion of the pilot could be carried out on a larger spacing; however, to obtain faster results and maintain better control of the flooding operations and keep the economics more in line with the risk involved, the twenty-acre pattern is requested for the pilot operations. In the interest of conservation of the form of recovering oil reserves which otherwise would not be recoverable, the operator requests that the operator be granted permission to carry on the request as proposed.

That is all our data on the proposed project, and if there are any questions --

MR. PORTER: I have one question. You indicated that these wells were located approximately 250 feet from a proration unit line?

A Yes, sir.

Q Do you know when the wells were drilled?

A Most of the wells were completed from 1925 to 1935, I

imagine in that period. We have had a survey completed on the properties, but when they transferred the original plat down to a smaller section that we could submit as an exhibit, it was not very legible, so at a later date we could with your permission submit a completed survey plat of the area. This would indicate all the respective distances, but the survey indicated that approximately every well was included in the -- was not more than 250 feet from the unit boundary lines.

MR. PORTER: Were some closer than 250?

A Some were between 200 - 250. The majority were around 250.

MR. PORTER: I think such a survey would be useful to us.

A All right.

Q Are all of the six wells which you enumerated to be involved in the pilot flood unorthodox locations?

A Yes, sir.

Q This application includes not only authorization of the approval of the pilot flood, but also authorization of the unorthodox locations, does it not?

A Yes, sir, in order to be able to enter and set a four and a half inch casing and set as injection wells.

Q If this pilot flood, the results of the pilot flood warrant a capacity flood, would fresh water be used in a capacity flood as well?

A We have one possible source that we are following up on deeper salt water production in an abandoned well that was a dry hole, which we might be able to use in the expansion program, and if at all possible, we'll certainly use it; but it is the only

salt water supply available in the area that we know of, and we didn't learn of that until we had our plans set up to use the fresh water supply that is available on the properties.

Q On Exhibit 1, would you please indicate what you feel are the outer limits, possible limits to be affected by this pilot flood, to the extent and to what sections?

A Well, they extend -- we haven't drawn into the effective area -- but this is a low producer here and we intend to open all the surrounding producers.

Q That is all in Section 4?

A Yes, sir, everything will be in Section 4.

Q Will the area outside of Section 4 be affected?

A Possibly some here; however --

Q (Interrupting) That is Section --

A (Interrupting) There are no producing wells. That is in the northwest northwest of Section 9. There are no present producers in the area there. These have all been plugged. As you can see on Exhibit No. 2 and 3, the extent of the reservoir definitely pinches out right at the base, right at the bottom line of Section 4, which we feel is going to rule out any possible effect or expansion to the south.

Q Does Ibex own all the prospective affected area?

A All with the exception of the two forty-acre tracts to the south there. There is a listing on Exhibit No. 4. We have a listing of our leases described in the overall area.

MR. COOLEY: That is all I have.

MR. PORTER: Mr. Nutter.

CROSS EXAMINATION

By MR. NUTTER:

Q Mr. Vick, your proposed source of supply of water is a fresh water sand, is that not correct?

A Yes, sir.

Q Have you tested that water with the formation's water that you are going to be injecting?

A Yes.

Q Is it amenable?

A It is very compatible, yes, sir. As we state there on Exhibit 4, the only treatment that we propose for the water is filtering with a pressure filter and then closing it up before we inject it into the system.

Q You mentioned a moment ago that you had your eye on another source of water, too. Would that water be compatible with the formation waters after treatment?

A We don't have a supply of that or sample to check. We plan to work that out while the pilot flood is in operation and being evaluated, but the source which is to the -- one of the lower Sections, it was an old Gulf well that was drilled as a dry hole and they obtained salt water from approximately 3,000 feet, and we definitely plan to look into the matter farther as a possible source for our water supply on any expansion of the project.

Q You feel that water could probably be treated so it could be used?

A Yes, we believe so.

Q What type of a system?

A It will be a semi-closed system. The casings are all open, the casing heads are all open on the present injection wells. We'll take the water and filter it and then into our storage tanks and with an oil seal on the top of the storage tank, and in reality it will be an open system.

Q What would be your initial rate of injection after the pilot flood is in operation?

A We didn't have any core analysis data to make calculations from, but the area is very similar to the Red Lake Field to the north, approximately two miles to the north, in which we have a pilot flood operation, and it's the same sand, producing sand, and the overall characteristics are very similar. We used those as our basis and we estimate that the initial injection rates will be approximately 250 to 300 barrels per well per day.

Q You propose six wells in the pilot program?

A Yes, sir.

Q Do you feel that the Premier sand in this area is an isolated sand such as you have up in the Red Lake area?

A Yes, we fully believe the amount of development, outside development around the area has thoroughly outlined the productive limits of the reservoir.

Q You own all of the leases in the reservoir?

A No, sir.

Q Do you feel that the influence of your water injection will be carried beyond the limits of the leases that you own?

A No, sir, we do not.

MR. NUTTER: I believe that is all.

By MR. MANKIN:

Q Mr. Vick, this particular flood which you are speaking of in this No. 1; it is your pilot flood No. 1?

A Yes.

Q It is directly into the Premier zone, which is the lower portion of the Grayburg?

A Yes, sir.

Q The very lowest sand?

A Yes.

Q The other two floods, what portion of Grayburg is that to go into?

A It is what is normally called the first Grayburg pay. I think there are three distinct sand sections in the Grayburg formation which produce in different areas there, and the other two pilots, No. 2 and 3, are producing from the first Grayburg or the uppermost member.

Q Your proposed injection to begin with in this particular flood No. 1 is to be approximately 1500 barrels per day?

A Yes, sir.

Q How long do you anticipate the pilot flood will take before you are able to determine the results?

A Well, on the proposed pattern, we feel that with those injection rates in approximately three to four months we will begin to get some type of indication and can evaluate the overall pilot in a matter of eight months to a year's operation.

Q Would you be agreeable in this pilot flood to going to the

deeper salt water source, rather than the fresh water source?

A We would if it proves available; however, it is going to take some additional checking and some correspondence with the lease owners where this source was indicated, and we might not possibly be able to obtain any type of water rights from them along that basis, but we definitely intend to look into the matter.

Q As far as you know, there would be at least 1500 barrels per day available from this deep source?

A We don't know. It was only on the old driller's log when they indicated a show of water in this formation.

Q How many producing wells surrounding this proposed flood are presently producing? How many oil wells are presently producing?

A Sixteen.

Q Are not most of these oil wells unorthodox locations, in addition to the six proposed injection wells?

A Yes, sir.

Q Do you have available the exact locations of the twenty-two wells concerned here?

A Yes, sir.

Q Could that be made available to the Commission?

A Yes, I have the original of the re-surveyed plat. As I said a while ago, we had it reproduced but it is not very legible in the form they put it in, and we will submit that.

Q They could be submitted so that could be a portion of the order authorizing the unorthodox location?

A Yes.

Q Of both the oil and the injection wells?

A Yes, sir.

Q Do you anticipate that your production will be more from the unit wells than what the allowable would be for the top unit allowable?

A That remains to be evaluated, Mr. Mankin. We have no present way. As I said, we intend to drill one new producer on the outside of the pilot area, which we will apply for later, and this new producer will be cored and the cores completely analyzed and at that point we will be able to present more information along that line; but we have no definite way of estimating the most efficient production from the pilot that will result from the water injection.

MR. MANKIN: That is all.

MR. PORTER: Mr. Cooley.

MR. COOLEY: Can you make this plat which you have just referred to made an exhibit in this case?

A This one here?

MR. PORTER: May we have the original until such time as it can be produced? Apparently that reproduction is not legible.

A Yes.

MR. COOLEY: It would be impossible to authorize the new locations without knowing where they are. That will be Exhibit No. 5?

A Yes, sir.

(Exhibit No. 5 marked for identification).

MR. COOLEY: Let the record show that Exhibit 5 is a plat of the affected wells in this case.

MR. PORTER: Is there objection to the admission of the exhibit? It will be admitted. Anyone else have a question?

MR. COOLEY: Mr. Vick, were all these exhibits prepared by you or under your supervision?

A Yes, sir.

MR. PORTER: Mr. Irby.

By MR. IRBY:

Q I am sorry, I wasn't here when the gentleman took the stand. I am interested in his knowledge of this aquifer from which he is taking the fresh water. Do you know the thickness in the major portion of this aquifer and the extent of it?

A It shows from the old driller's logs, which are all the information we have, and the new wells, the two wells that we have drilled in the area indicate approximately ten to fifteen feet of Red Sand from which the fresh water is coming, approximately. It ranges over Section 4 from approximately 290 feet on one side of the Section to 375 to 400 feet on the other side.

Q The saturated thickness, then, is approximately ten feet?

A Yes.

Q Throughout the area?

A Yes, sir.

Q And the extent of it, as far as you know, is approximately one square mile?

A It extends to other portions outside of Section 4, but while we were working up our information we worked it up on Section 4, and the complete body extends over the whole Section, the entire Section, so we felt that it did have an adequate supply to carry

on a pilot flood operation.

Q Approximately what is the yield from these wells that you propose to take the water from?

A We have tested four of the wells in the area for 500, in excess of 500 barrels per day with a pumping unit, and our equipment was rather limited, so we were sure of 500 barrels, but there would be more than that. We didn't take any drawdown tests on the water wells. We pumped the wells with the maximum equipment we had there, and they didn't pump down, which was individual units is what we have.

Q You say they didn't pump down. You mean your pump continued to deliver the same amount of water?

A Yes, sir.

Q You must mean that because you didn't measure your drawdown?

A That is right.

Q Naturally you didn't compute the specific capacity of each?

A No.

Q I didn't understand you clearly before. One of the other gentlemen asked a question about your intent to use this salt water after your pilot flood. Did you say it is your intent to use that if it is feasible?

A If the source is adequate and we can make arrangements for it, we will certainly on the expansion.

Q And abandon the use of the fresh water?

A Yes, sir.

MR. PORTER: Anyone else have a question?

MR. MANKIN: I have one more question. Where was the

location of this Gulf well that you might get a source of about 3,000 feet for?

A It was down in, it's in the area around pilot flood No. 2 and No. 3, which would be in Section 20 of ~~118~~, ~~128~~.

MR. MANKIN: Section 20. All right, thank you.

MR. PORTER: Anyone else have a question? Anybody have any statements in the case? The witness may be excused.

(Witness excused).

MR. PORTER: We will take the case under advisement.

C E R T I F I C A T E

STATE OF NEW MEXICO)
 : ss
COUNTY OF BERNALILLO)

I, ADA DEARNLEY, Notary Public in and for the County of Bernalillo, State of New Mexico, do hereby certify that the foregoing and attached Transcript of Proceedings before the New Mexico Oil Conservation Commission was reported by me in stenotype and reduced to typewritten transcript under my personal supervision, and that the same is a true and correct record to the best of my knowledge, skill and ability.

WITNESS my Hand and Seal this 19th day of December, 1956, in the City of Albuquerque, County of Bernalillo, State of New Mexico.

Ada Dearnley

Notary Public

My commission expires:
June 19, 1959.