

1. The Board of Engineers for the order
issuing Order X-952 to establish
administrative procedures for develop-
ment of Artesian Water Flood Project
No. 1 - 2440 - 1000000 - 1000000

Case No.

1185

Application, Transcript,
Small Exhibits, Etc.

OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO

Date 7-1-59

CASE NO. _____

HEARING DATE 6-24-59

My recommendations for an order in the above numbered case(s) are as follows:

1. Approve Grayridge applications to allow administrative approval of injection wells for the Artime Pilot flood #1.
2. Approve 15 non-std. locations as listed in section 3 of application.
3. Approve 5 wells for capacity allowable as listed in section 3 of application.

Thos. A. Duff

Staff Member

OIL CONSERVATION COMMISSION

P. O. BOX 871

SANTA FE, NEW MEXICO

July 17, 1959

Mr. Jack Campbell
Box 721
Roswell, New Mexico

Dear Mr. Campbell:

On behalf of your client, Graridge Corporation, we
enclose two copies of Order No. R-952-A and Order
No. R-966-E issued July 15, 1959, by the Oil Conserva-
tion Commission.

Very truly yours,

A. L. PORTER, Jr.
Secretary-Director

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Enclosures

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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. 1185
Order No. R-952-A

APPLICATION OF GRARIDGE CORPO-
RATION FOR AN ORDER AMENDING
ORDER NO. R-952 TO ESTABLISH
AN ADMINISTRATIVE PROCEDURE
WHEREBY ADDITIONAL WELLS IN
THE ARTESIA WATER FLOOD PROJECT
NO. 1, ARTESIA POOL, EDDY
COUNTY, NEW MEXICO, MAY BE CON-
VERTED TO WATER INJECTION, FOR
APPROVAL OF FIFTEEN UNORTHODOX
WELL LOCATIONS IN SAID PROJECT
AND FOR CAPACITY ALLOWABLES
FOR FIVE WELLS IN SAID PROJECT

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 8:00 o'clock a.m. on
June 24, 1959, 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 15th day of July, 1959, 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 by Order No. R-952, the Ibex Company was author-
ized to institute its Artesia Water Flood Project No. 1, Artesia
Pool, Eddy County, New Mexico.

(3) That Graridge Corporation, operator of said Water
Flood Project, seeks an amendment of said Order No. R-952 to
establish an administrative procedure whereby additional wells in
said Water Flood Project may be converted to water injection with-
out notice and hearing.

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Case No. 1185

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(4) That the applicant, Graridge Corporation, further seeks approval of fifteen (15) unorthodox well locations in said Water Flood Project.

(5) That the applicant further seeks capacity allowables for the following-described wells in said Water Flood Project:

Livers State Well No. 3, SW/4 SW/4 of
Section 4, Township 18 South, Range 28 East

Livers State Well No. 6, SW/4 SW/4 of
Section 4, Township 18 South, Range 28 East

Livers State Well No. 8, NW/4 SW/4 of
Section 4, Township 18 South, Range 28 East

Solt State Welch No. 1, NW/4 SW/4 of
Section 4, Township 18 South, Range 28 East

Cowell State Well No. 2, NE/4 SW/4 of
Section 4, Township 18 South, Range 28 East

all in Eddy County, New Mexico.

(6) That the evidence presented indicates that said Water Flood Project has caused an increase in the producing capacity of the above-described wells to the extent that they are now or soon will be capable of producing in excess of top unit allowable for the Artesia Pool.

(7) That the evidence presented further indicates that waste might occur if production from the above-described wells is restricted.

(8) That the subject application should be approved.

IT IS THEREFORE ORDERED:

(1) That Order No. R-952 be and the same is hereby amended to establish an administrative procedure whereby additional wells in the Ibox Company's Artesia Water Flood Project No. 1, Artesia Pool, Eddy County, New Mexico, may be converted to water injection without notice and hearing.

PROVIDED HOWEVER, That no well located in said Water Flood Project shall be eligible for administrative approval for conversion to water injection unless it is established to the satisfaction of the Secretary-Director of the Commission that the proposed water injection well has experienced a substantial response to the Water Flood Project or is directly offset by a producing well which has experienced such response; and that it is located on a water injection pattern which will result in a thorough and efficient sweep of oil by said water flood.

PROVIDED FURTHER, That to obtain administrative approval for the conversion of any well to water injection, applicant shall submit to the Commission in triplicate a request for such administrative approval, setting forth therein all the facts pertinent to the need for converting additional wells to water injection, and attaching thereto Commission Form C-116, showing production tests of the affected well or wells both before and after stimulation by water flood. Applicant shall also attach plats of the Water Flood Project area and immediate surrounding area, indicating thereon the owner of each lease and the location of all water injection wells and producing wells, and shall submit evidence that a copy of the application to convert additional wells to water injection has been sent to each operator offsetting the proposed injection well.

The Secretary-Director may, if in his opinion there is need for the conversion of additional wells to water injection, authorize said conversion without notice and hearing, provided no offset operator objects to said conversion to water injection within fifteen (15) days. The Secretary-Director may grant immediate approval of the conversion upon receipt of waivers of objection from all operators offsetting the proposed water injection well.

(2) That unorthodox well locations be and the same are hereby approved for the following-described wells located in said Water Flood Project:

Solt State Welch Well No. 2, located 2397 feet from the South line and 256 feet from the West line of Section 4

Solt State Welch Well No. 3, located 2370 feet from the South line and 1050 feet from the West line of Section 4

Solt State Welch Well No. 4, located 1532 feet from the South line and 1019 feet from the West line of Section 4

Solt State Welch Well No. 5, located 1578 feet from the South line and 269 feet from the West line of Section 4

Daughterity State Solt Well No. 2, located 2394 feet from the North line and 1054 feet from the West line of Section 4

Livers State Well No. 9, located 257 feet from the South line and 1581 feet from the East line of Section 4

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Case No. 1185
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Lever State Well No. 14, located 170 feet from the South line and 193 feet from the West line of Section 4

Humble State Stout Well No. 2, located 1579 feet from the South line and 1061 feet from the East line of Section 4

Solt State Well No. 2, located 2404 feet from the North line and 1554 feet from the West line of Section 4

Solt State Well No. 3, located 1506 feet from the North line and 1696 feet from the East line of Section 4

Solt State Well No. 3-A, located 1101 feet from the North line and 257 feet from the East line of Section 5

Solt State Well No. 10, located 1071 feet from the South line and 235 feet from the East line of Section 5

Solt State Well No. 11, located 164 feet from the South line and 138 feet from the East line of Section 5

Solt State Well No. 13, located 1048 feet from the South line and 1030 feet from the East line of Section 5

Humble State Well No. 3, located 1131 feet from the North line and 1523 feet from the West line of Section 4

all in Township 18 South, Range 28 East, Artesia Pool, Eddy County, New Mexico.

(3) That the following-described wells be granted an allowable equal to their capacity to produce:

Lever State Well No. 3, SW/4 SW/4 of Section 4, Township 18 South, Range 28 East

Lever State Well No. 6, SW/4 SW/4 of Section 4, Township 18 South, Range 28 East

Lever State Well No. 8, NW/4 SW/4 of Section 4, Township 18 South, Range 28 East

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Solt State Welch No. 1, NW/4 SW/4 of
Section 4, Township 18 South, Range 28 East

Cowell State Well No. 2, NE/4 SW/4 of
Section 4, Township 18 South, Range 28 East

all in Eddy County, New Mexico.

(4) That the Commission hereby retains jurisdiction of
this cause to amend all or any part of this order and further to
enter any order or orders deemed necessary.

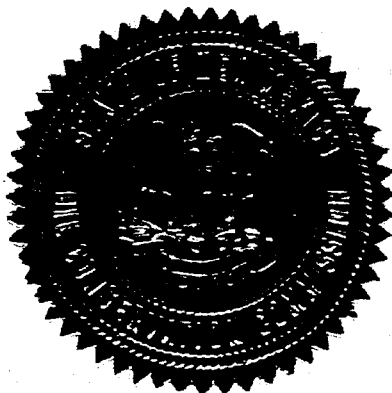
DONE at Santa Fe, New Mexico, on the day and year herein-
above designated.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

John Burroughs
JOHN BURROUGHS, Chairman

Murray E. Morgan
MURRAY E. MORGAN, Member

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



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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 3-6591

ALBUQUERQUE, NEW MEXICO

BEFORE THE
OIL 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.



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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 witness?

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

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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.

Edward A. McPhee Examiner
 New Mexico Oil Conservation Commission

DEARNLEY-MEIER REPORTING SERVICE, Inc.

PHONE CH 3-6691

ALBUQUERQUE, NEW MEXICO



STATE OF NEW MEXICO)
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 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 Dearnley
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 C/

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-4, located in the SE/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 Blinbry, 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.

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE APPLICATION OF)
GRARIDGE CORPORATION FOR AN ORDER)
AMENDING ORDER NO. R-952 ESTABLISHING)
ADMINISTRATIVE PROCEDURES FOR DEVELOP-)
MENT; APPROVING CERTAIN UNORTHODOX) CASE NO. 1185
WELL LOCATIONS; AND AUTHORIZING)
CAPACITY ALLOWABLES FOR 5 WELLS IN ITS)
ARTESIA PILOT FLOOD NO. 1, ARTESIA POOL,)
EDDY COUNTY, NEW MEXICO.)

APPLICATION

Comes now Applicant, Graridge Corporation, by its attorneys
Campbell & Russell and states:

1. It is the operator of Artesia Pilot Flood No. 1 authorized
by the Commission in its Order No. R-952 dated February 14,
1957.
2. The Pilot Flood has established that it is in the interest
of conservation through greater ultimate recovery of oil
that the project be continued.

WHEREFORE: Applicant requests the Commission, after hearing
before an examiner to issue its order amending Order No. R-952 in
the following respects:

1. Approve the over-all project as will be presented by
Applicant.
2. Establish appropriate administrative procedures for the
conversion of wells to water injection wells.
3. Approve the following unorthodox well locations in
Township 18 South, Range 28 East, Eddy County, New Mexico:

<u>Lease</u>	<u>Well No.</u>	<u>Location</u>
Solt State Welch	2	2397' FSL & 256' FWL of Sec.4
" " "	3	2370' FSL & 1050' FWL of Sec.4
" " "	4	1532' FSL & 1019' FWL of Sec.4
" " "	5	1578' FSL & 269' FWL of Sec.4
Daughterity State Solt	2	2394' FNL & 1054' FWL of Sec.4
Levers State	9	257' FSL & 1581' FEL of Sec.4
" "	14	170' FSL & 195' FWL of Sec.4
Humble State Stout	2	1579' FSL & 1061' FEL of Sec.4

<u>Lease</u>	<u>Well No.</u>	<u>Location</u>
Solt State	2	2404' FNL & 1554' FWL of Sec.4
" "	3	1506' FNL & 1696' FEL of Sec.4
" "	3-A	1101' FNL & 259' FEL of Sec.5
" "	10	1071' FSL & 235' FEL of Sec.5
" "	11	164' FSL & 138' FEL of Sec.5
" "	13	1048' FSL & 1030' FEL of Sec.5
Humble State	3	1131' FNL & 1523' FWL of Sec.4

4. Approve capacity allowables for the following wells:

<u>Lease</u>	<u>Well No.</u>	<u>Location</u>
Levers State	3	SW/4, SW/4 Sec.4 18S 28E
" "	6	SW/4, SW/4 Sec.4 18S 28E
" "	8	NW/4, SW/4 Sec.4 18S 28E
Solt State Welch	1	NW/4, SW/4 Sec.4 18S 28E
Cowell State	2	NE/4, SW/4 Sec.4 18S 28E

DATED: May 20, 1959

Respectfully Submitted

Graridge Corporation

By:

Jack M. Campbell
 For Campbell & Russell
 Its Attorney's
 Box 721
 Roswell, New Mexico

CASE 1185: Application of Ibex Company
for exception to Rule 701 for three pilot
water flooded projects, Artesia Pool.

Case No.

1185

Application, Transcript,
Small Exhibits, Etc.

BRICKENRIDGE OFFICE
TELEPHONE 674
P. O. BOX 722

GRAHAM OFFICE
TELEPHONE 1492
P. O. BOX 1110

THE IBEX COMPANY

MANUFACTURERS OF NATURAL GASOLINE AND L. P. G. PRODUCTS
PRODUCERS OF OIL AND GAS

IBEX BUILDING

BRICKENRIDGE, TEXAS

November 2, 1956

Oil Conservation Commission
Capitol Building
Santa Fe, New Mexico

Attention: Mr. A. L. Porter

Gentlemen:

The Ibex Company requests a hearing be scheduled to obtain Commission approval to install three (3) pilot water floods in the Premier Sand formation in the Artesia Field of Eddy County, New Mexico. The three (3) separate pilot floods are proposed for the following locations:

- No. 1 - in Section 4, Township 18 South, Range 28 East
- No. 2 - in Section 28, Township 18 South, Range 28 East
- No. 3 - in Section 32, Township 18 South, Range 28 East

Following is the complete information requested according to Rule 701 of the Conservation Commission Rules and Regulations:

I. Field plat, showing all wells in the area and the relative locations of the three (3) separate proposed pilot waterfloods, is attached.

II. Production of the subject area is obtained from the "Premier Sand" of the lower Grayburg formation.

III. Proposed water injection will be through the indicated wells, shown on the attached plats, into the Premier Sand section of the Grayburg.

IV. A copy of the Radioactivity Log of a well in the vicinity of the proposed pilot floods is attached.

V. All proposed intake wells will be re-entered, cleaned out and $\frac{1}{2}$ " casing set and cemented on the immediate top of the Premier Sand. All other zones will be cased or plugged off so as to isolate the water injection to the Premier Sand.

2 - Oil Conservation Commission

November 2, 1956

VI. Fresh water is to be used for injection purposes. The water is to be produced from presently completed water wells in the respective areas. All subject water wells are completed in a sand and gravel interval at 340' to 375' depth. None of the three (3) respective areas from which fresh water shall be produced are included in any presently established water basin. The Ibex Company has made formal application for water prospecting rights covering all the subject areas.

VII. The operator of the proposed projects will be The Ibex Company, Box 752, Breckenridge, Texas, Attention: Mr. Robert H. Vick.

Anything that you may do to schedule the earliest possible date for the requested hearing will be greatly appreciated.

Sincerely yours,

THE IBEX COMPANY

Robert H. Vick

Robert H. Vick
Waterflood Engineer

rhv/jbm
attachments (2)

cc: The Ibex Company, Box 1110, Graham, Texas
Harold Kersey, Booker Building, Artesia, New Mexico
E. E. Nearburg, Box 5613, Roswell, New Mexico
Vilas P. Sheldon, Carper Building, Artesia, New Mexico
Van S. Welch, Booker Building, Artesia, New Mexico

DOCKET: REGULAR HEARING DECEMBER 13, 1956

Oil Conservation Commission 9 a.m., Mabry Hall, State Capitol, Santa Fe, NM

- ALLOWABLE: (1) Consideration of the oil allowable for January, 1957.
- (2) Consideration of the allowable production of gas from designated pools in Lea County, New Mexico, for January, 1957, consideration of the gas allowable for January, 1957, for the prorated pools of San Juan and Rio Arriba Counties, New Mexico, and also presentation of purchasers' nominations for the 6-month period beginning February 1, 1957, for the prorated pools of San Juan and Rio Arriba Counties.

NEW CASES

CASE 1185:

Application of the Ibex Company for an order authorizing three pilot water flood projects in the Artesia Pool, Eddy County, New Mexico, in exception to Rule 701 of the New Mexico Oil Conservation Commission Rules and Regulations, and further approving the unorthodox location of a number of its old wells in said pool. Applicant, in the above-styled cause, seeks an order authorizing three separate pilot water flood projects in the Premier sand of the Grayburg formation of the Artesia Pool; said projects to be effected by means of water injection through approximately 16 existing wells in Sections 4, 21, 28, and 32, Township 18 South, Range 28 East, Eddy County, New Mexico. Applicant also seeks Commission approval of the unorthodox location of certain of the above referenced wells.

CASE 1186:

Application of El Paso Natural Gas Company for the forced pooling of the N/2 of Section 26, Township 31 North, Range 11 West, Blanco-Mesaverde Pool, San Juan County, New Mexico, or in the alternative, for a 280-acre non-standard drilling and proration unit in the Blanco-Mesaverde Pool. Applicant, in the above-styled cause, seeks an order force pooling the N/2 of Section 26, Township 31 North, Range 11 West, San Juan County, New Mexico, or in the alternative, authorizing a 280-acre non-standard drilling and proration unit in the Blanco-Mesaverde Pool consisting of the NW/4, N/2 NE/4, SE/4 NE/4 of said Section 26.

CASE 1187:

Application of the New Mexico Oil Conservation Commission upon its own motion for an order changing the name and information required on Form C-128, as established by Rule 1127 of the Commission Rules and Regulations. Applicant, in the above-styled cause, seeks an order changing the name of Form C-128 to "Well Location and Proration Plat" and to change certain of the information required to be reported thereon.

CASE 1188:

Southeastern New Mexico nomenclature case calling for the creation of new pools and the extension of and deletion of certain areas from existing pools in Lea, Chaves, Eddy and Roosevelt Counties, New Mexico

- (a) Creation of a new oil pool for San Andres production, designated as the West Cave-San Andres, and described as:

Township 17 South, Range 28 East
Section 12: SE/4

- (b) Creation of a new oil pool for Pennsylvanian production, designated as the Four Lakes-Pennsylvanian Pool, and described as:

Township 12 South, Range 34 East
Section 1: NW/4
Section 2: NE/4

- (c) Creation of a new oil pool for Grayburg production, designated as the West Henshaw-Grayburg Pool, and described as:

Township 16 South, Range 30 East
Section 8: SW/4

- (d) Creation of a new oil pool for Pennsylvanian production, designated as the Leamex-Pennsylvanian Pool, and described as:

Township 17 South, Range 33 East
Section 23: SW/4

- (e) Creation of a new oil pool for Pennsylvanian production, designated as the Milnesand-Pennsylvanian Pool, and described as:

Township 8 South, Range 35 East
Section 18: SW/4

- (f) Creation of a new oil pool for Grayburg and San Andres production, designated as the West Square Lake-Grayburg-San Andres Pool, and described as:

Township 16 South, Range 29 East
Section 25: SE/4 SE/4
Section 36: NE/4

Township 16 South, Range 30 East
Section 30: SW/4

- (g) Creation of a new gas pool for Pennsylvanian production, designated as the Welch-Pennsylvanian Gas Pool and described as:

Township 26 South, Range 37 East
Section 21: NW/4

- (h) Delete from the Blinebry Oil Pool the following:

Township 21 South, Range 37 East
Section 4: Lot 8

- (i) Delete from the Blinebry Gas Pool the following:

Township 21 South, Range 37 East
Section 4: Lot 8

- (j) Extension of the Terry-Blinebry Pool to include:

Township 21 South, Range 37 East
Section 4: Lot 8

- (k) Extension of the Caprock-Queen Pool to include:

Township 14 South, Range 31 East
Section 35: W/2 NW/4

- (l) Extension of the Eumont Pool to include:

Township 18 South, Range 37 East
Section 33: N/2

Township 19 South, Range 37 East
Section 22: W/2 NW/4

Township 22 South, Range 37 East
Section 15: N/2 NW/4

- (m) Extension of the vertical limits of the Leo Pool to include the Queen formation, and extend the pool boundary to include:

Township 18 South, Range 30 East
Section 26: W/2 NW/4 and NW/4 SW/4
Section 27: E/2 NE/4 and NE/4 SE/4

- (n) Extension of the Loco Hills Pool to include:

Township 18 South, Range 29 East
Section 19: NE/4

- (o) Extension of the North Mason-Delaware Pool to include

Township 26 South, Range 31 East
Section 24: E/2

- (p) Extension of the vertical limits of the Palmillo Pool to include the Grayburg formation, with the present pool boundary of:

Township 18 South, Range 29 East
Section 39: S/2

- (q) Extension of the Red Hills-Yates Pool to include:

Township 19 South, Range 30 East

Section 28: SW/4

Section 29: S/2

CASE 1189:

Southeastern New Mexico nomenclature case calling for the abolishment of the Hardy Pool in Lea County, New Mexico, and the extension of the Eumont and Penrose-Skelly Oil Pools in Lea County, New Mexico.

- (a) Abolish the Hardy Pool in Lea County, New Mexico.

- (b) Extend the Eumont Pool boundary to include:

Township 20 South, Range 37 East

Section 25: NW/4 and S/2

Section 36: E/2

Township 20 South, Range 38 East

Section 31: All

- (c) Extension of the Penrose-Skelly Pool to include:

Township 21 South, Range 37 East

Section 4: W/2

Section 8: NE/4

Section 9: W/2

Section 16: NW/4

CASE 1190:

Northwestern New Mexico nomenclature case calling for the extension of existing pools in San Juan and Rio Arriba Counties, New Mexico.

- (a) Extension of the Ballard-Pictured Cliffs Pool to include:

Township 25 North, Range 8 West

Section 24: NE/4

Township 27 North, Range 8 West

Section 32: S/2

- (b) Extension of the South Blanco-Pictured Cliffs Pool in San Juan and Rio Arriba Counties, New Mexico, to include:

Township 26 North, Range 6 West

Section 25: SE/4

Section 36: NE/4

Township 27 North, Range 9 West

Section 23: W/2

- (c) Extension of the Blanco-Mesaverde Pool to include:

Township 27 North, Range 3 West
Sections 7, 8 & 9: All (fractional)
Sections 16, 17, & 18: All

Township 27 North, Range 4 West
Section 13: All

- (d) Extension of the Bisti-Lower Gallup Oil Pool to include:

Township 25 North, Range 12 West
Section 4: SW/4 SW/4

CONTINUED CASES

CASE 1053:

Application of the Oil Conservation Commission upon its own motion, at the request of the State Engineer, for an order prescribing rules and regulations to govern the disposal of salt water in areas of Lea County, New Mexico. The Commission desires to formulate rules and procedures which will result in the efficient disposal of salt water and which will eliminate the practice of surface disposal of large volumes of oil field brines in order to prevent the contamination of the fresh-water bearing horizons in Lea County, New Mexico.

CASE 1102:

REHEARING Application of the Ohio Oil Company for rehearing in Case 1102, Order R-892 which established pool rules for the Dean Permo-Pennsylvanian and Dean-Devonian Pools, Lea County, New Mexico. Applicant, in the above-styled cause, seeks reconsideration by the Commission of the spacing and allowable provisions for the Dean Permo-Pennsylvanian Pool with particular attention to the allowable for existing wells on 40-acre tracts. Applicant contends that such wells should retain the normal 40-acre allowable rather than one-half of the normal 80-acre allowable as established by Order R-892.

ir/

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

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

CASE NO. 1185
Order No. R-952

APPLICATION OF THE IBERX COMPANY
FOR AN ORDER AUTHORIZING THREE
WATER FLOOD PROJECTS FOR PURPOSES
OF SECONDARY RECOVERY IN THE PREMIER
SAND OF THE GRAYBURG FORMATION OF THE
ARTESIA POOL, EDDY COUNTY, NEW MEXICO,
AND FURTHER AUTHORIZING THE UNORTHODOX
LOCATION OF A NUMBER OF THE APPLICANT'S
WELLS IN THE SAID ARTESIA POOL.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on
December 13, 1956 at Santa Fe, New Mexico, before the Oil Conserva-
tion Commission of New Mexico, hereinafter referred to as the
"Commission."

NOW, on this 14th day of February, 1957, the Commission,
a quorum being present, having considered the application and the
evidence adduced, and being fully advised in the premises,

FINDS:

1. That due notice having been given as required by law,
the Commission has jurisdiction of this case and the subject matter
thereof.
2. That the application for two of the above-captioned
water floods should be dismissed without prejudice due to the fact
that they involve the uppermost member of the Grayburg formation
rather than the Premier Sand as indicated in the application and
legal advertisement for this case.
3. That the applicant, The Iberx Company, proposes to
institute a pilot water flood operation on certain of its leases
in the Artesia Pool, Section 4, Township 18 South, Range 28 East,
NMPM, Eddy County, New Mexico; said pilot flood to be limited to the
Premier Sand of the Grayburg formation underlying the aforementioned
leases.
4. That the applicant proposes to accomplish the said
flooding operation by means of water injection through its Levers
State Wells Numbers 4, 7, and 10, its Cowell State Wells Numbers
1 and 10 and its Humble State Eddy Well Number 1.

5. That the proposed program for secondary recovery will promote conservation and tend to prevent waste through the production of oil which might not otherwise be recovered.

6. That the progress of the secondary recovery program should be reported periodically to the Commission.

7. That the unorthodox location of the applicant's wells in the area affected by the proposed water flood program should be approved in order to facilitate the operation of the said project.

IT IS THEREFORE ORDERED:

1. That the application of the Ibox Company for two pilot water floods to be instituted in Sections 21, 28 and 32, Township 18 South, Range 28 East, NMPM, be and the same are hereby dismissed without prejudice.

2. That the application of the Ibox Company for permission to institute a pilot water flood in the Premier Sand of the Grayburg formation underlying Section 4, Township 18 South, Range 28 East, NMPM, Artesia Pool, Eddy County, New Mexico, be and the same is hereby granted.

3. That the following Ibox Company wells be and the same are hereby approved as unorthodox locations and water injection wells:

Livers State Well No. 4 - 1065 feet from South line and 1049 feet from the West line.

Livers State Well No. 7 - 247 feet from the South line and 1800 feet from the West line.

Livers State Well No. 10- 1061 feet from the South line and 2271 feet from the West line.

Cowell State Well No. 1 - 1572 feet from the South line and 1549 feet from the West line.

Cowell State Well No. 10- 2397 feet from the South line and 2082 feet from the West line.

Humble State Eddy Well

No. 4 - 1550 feet from the South line and 2088 feet from the East line,

all in Section 4, Township 18 South, Range 28 East, NMPM, Artesia Pool, Eddy County, New Mexico.

4. That monthly progress reports on the water flood project shall be submitted to the Commission in accordance with Rule 1119 of the Commission Rules and Regulations.

-3-
Case No. 1185
Order No. R-952

5. That the unorthodox locations of the following IbeX Company wells be and the same are hereby approved in addition to the injection wells listed in paragraph 2 above:

Lavers State Well No. 2 - 603 feet from the South line and 497 feet from the West line.

Lavers State Well No. 3 - 1074 feet from the South line and 265 feet from the West line.

Lavers State Well No. 6 - 223 feet from the South line and 838 feet from the West line.

Lavers State Well No. 8 - 1075 feet from the South line and 1567 feet from the West line.

Cowell State Well No. 2 - 1532 feet from the South line and 2083 feet from the West line.

Cowell State Well No. 11 - 2300 feet from the South line and 1520 feet from the West line.

Humble State Eddy Well #1 - 2315 feet from the South line, and 2280 feet from the East line.

Humble State Eddy Well #5 - 1540 feet from the South line, and 1563 feet from the East line.

Welch Solt State Well No. -
-1532 feet from the South line, and 1019 feet from the west line,

all in Section 4, Township 18 South, Range 28 East, NMPM, Artesia Pool, Eddy County, New Mexico.

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

E. L. Mechem
EDWIN L. MECHEM, Chairman

M. E. Morgan
MURRAY E. MORGAN, Member

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



ir/

OIL CONSERVATION COMMISSION
P. O. BOX 871
SANTA FE, NEW MEXICO

February 18, 1957

Mr. Robert H. Vick
~~The Texas Company~~
P.O. Box 751
Breckenridge, Texas

Dear Sir:

We enclose a copy of Order R-952 issued February 14th by the Oil Conservation Commission in Case 1185, which was heard December 13th.

Very truly yours,

A. L. Porter, Jr.
Secretary - Director

bp
Encl.

C
O
P
Y

BRACKENRIDGE OFFICE
TELEPHONE 674
P. O. BOX 752

GRAHAM OFFICE
TELEPHONE 1498
P. O. BOX 1110

THE IBEX COMPANY

MANUFACTURERS OF NATURAL GASOLINE AND L. P. G. PRODUCTS
PRODUCERS OF OIL AND GAS

IBEX BUILDING

BRACKENRIDGE, TEXAS

January 14, 1957

Re: Application by The Ibex Company
for Pilot Water Flood, Section 4,
T-18-S, R-28-E, Artesia Pool,
Eddy County, New Mexico

Oil Conservation Commission
Capitol Building
Santa Fe, New Mexico

Attention: Mr. Warren Mankin

Gentlemen:

The following are present well locations, which will be affected by the proposed pilot flood, and which are requested to be included under the application for unorthodox locations:

Ibex Levers State #2, 3, 4, 6, 7, 8 & 10. Units M, N, O,
Section 4, T-18-S, R-28-E. (Of these #2,
3, 6 & 8 will be producing wells and #4, 7
& 10 will be injection wells. At present
#2 & #4 are temporarily abandoned wells,
and #3, 4, 6, 7, 8 & 10 are producing.

Ibex Humble State Eddy #1, 4 & 5; Unit J, (4-18S-28E)
Of these #1 & 5 will be producing wells and
#4 will be an injection well. At present
#4 & #5 are temporarily abandoned and #1 is
producing.

Ibex Cowell State #1, 2, 10, 11; Unit K (4-18S-28E). Of
these #2 and #11 will be producing wells
and #1 and #10 will be injection wells. All
four are presently temporarily abandoned.

Ibex Welch Solt State #4; Unit L (4-18S-28E). This
well will be a producing well. It is
currently temporarily abandoned.

If there is any further question, please advise.

Yours truly,

Robert H. Vick

ROBERT H. VICK

rh: jlm

OK 1/1/57
WWM

OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO

Date 1-7-57

CASE 1185

Hearing Date 12-13-57

My recommendations for an order in the above numbered cases are as follows:

Enter an order approving the Ibbex Company's proposed pilot water flood project. Order should also approve the ~~unorthodox~~ ^{unorthodox} locations of the following wells:

Water Injection Wells:

The Ibbex Company's

Lever State No. 4 - 1065' FSL & 1049' FWL Sec 4, T18S, R28E

" " No. 7 - 247' FSL & 1600' FWL " " "

" " No. 10 - 1061' FSL & 2271' FWL " " "

~~Cowell~~ State No. 1 - 1572' FSL & 1549' FWL " " "

" " No. 10 - 2397' FSL & 2082' FWL " " "

Humble State ~~Co.~~ No. 4 - 1550' FSL & 2088' FWL " " "

Producing Wells

The Ibbex Company's

Lever State No. 8 - 1075' FSL & 1567' FWL Sec 4, T18S, R28E

Cowell State No. 2 - 1532' FSL & 2088' FWL Sec 4, T18S, R28E

Suggest using a combination of the order in Case 1072 and Order No. R-146 as a guide, also incorporating approval of the above 8 unorthodox locations. (might also look at Order No R-137 and R-137-A)

Staff Member

Require monthly injection reports as required under Rules 1119 and 704

CLASS OF SERVICE
This is a fast message
unless its deferred character
is indicated by the
proper symbol.

WESTERN UNION TELEGRAM

W. P. MARSHALL, PRESIDENT

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

SYMBOLS

DL=Day Letter
NL=Night Letter
LT=International
Letter Telegram

1201

LA221 DB341 V

1956 NOV 7 PM 3:52

(05)

D BXA021 PD=BRECKENRIDGE TEX 7 402PMC=

OIL CONSERVATION COMMISSION=

1956 NOV 7 PM 3 33

107 CAPITOL BLDG SANTAFE NMEX=

ATTN WARREN MANKIN; CONCERNING IBEX COMPANY

APPLICATION FOR HEARING ON (THREE) ARTESIA FIELD WATER

FLOOD PILOTS, LOCATION OF PILOT #2 CORRECTED TO ALSO

INCLUDE PORTION OF SOUTH EAST QUARTER OF SOUTH WEST

QUARTER SECTION 21 EIGHTEEN-S 28-E ALSO WISH TO SECURE

RULING ON PRESENT UNORTHODOX LOCATION IN PILOT AREAS

AT SAME HEARING. DETAIL LETTER FOLLOWING=

THE IBEX CO ROBT H VICK=

21 EIGHTEEN-S 28-E

THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

BRECKENRIDGE OFFICE
TELEPHONE 874
P. O. BOX 782

DRAHAM OFFICE
TELEPHONE 1492
P. O. BOX 1110

THE IBEX COMPANY

MANUFACTURERS OF NATURAL GASOLINE AND L. P. G. PRODUCTS
PRODUCERS OF OIL AND GAS

IBEX BUILDING

BRECKENRIDGE, TEXAS

November 8, 1956

Oil Conservation Commission
107 Capitol Building
Santa Fe, New Mexico

Attention: Mr. Warren Mankin

Gentlemen:

Following is the detailed information to the "Telegram", sent today, concerning The Ibex Company's application for a formal hearing to secure approval to install three (3) pilot waterfloods in the Artesia Field, Eddy County, New Mexico.

We wish to ammend the information stated in our original application as follows: First, the "Pilot Flood #2" would be as shown on the plat attached thereto. Correct description for location of same would include the SE/4 of SW/4 of Section 21, as well as the upper portion of Section 28, 18-S, 28-E, Eddy County, as shown.

Second, we would like to secure a ruling on unorthodox well locations in the immediate area of the three (3) pilots. We are currently conducting a re-survey of all the present well locations. This will be available at the scheduled hearing. At that time we can definitely specify the wells that will need special spacing ruling. Most of the wells were drilled at an early date before present spacing and unit rulings were enacted. The average spacing we have projected for the proposed pilot floods would be from 10-acre to 15-acre 5-spot patterns. This small spacing would allow faster and more controlled evaluation of the pilot floods. Any expansion of the "pilot floods" might be placed on a much larger pattern, depending upon the above results.

If possible, we would like to secure from the Commission hearing, November 28, 1956, some type of flexible ruling concerning the above point that would enable future expansions and spacing allowances by letter form to the Commission instead of scheduled hearings.

We would also like to discuss the future allowable situation of the proposed waterflood projects. With the thought in mind of establishing some ruling in regard to production, that would allow the most efficient operation of the projects.

*Proposed Floodwater Spacing
Sec 20-18-28*

2 - Oil Conservation Commission

We will present all of the material you requested at the scheduled hearing in Hobbs, New Mexico.

Sincerely yours,

Robert H. Vick
ROBERT H. VICK

rhv/jbm

cc: The Ibex Company
Box 1110
Graham, Texas

Mr. Harold Kersey
Booker Building
Artesia, New Mexico

Mr. Vilas P. Sheldon
Carper Building
Artesia, New Mexico

Mr. Van S. Welch
Booker Building
Artesia, New Mexico

11/30/57
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 engineer-
ing 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 16 South, Range 20 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

6

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 T18, R28E.

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.

WATERFLOOD DATA FOR HEARING BEFORE
COMMISSION

OPERATOR The Ihex Company

DATE December 1, 1956

LEASE OR LEASES See Attached List

FIELD Portion of Artesia Field

COUNTY Eddy Co., N.M.

RESERVOIR "Premier Sand" of Grayburg Formation

Date of completion of first well in reservoir 1924

List other operators injecting into this reservoir in this field Red Lake Unit
(2 miles North) has been injecting water into the same sand, but different reservoir,
for 16 months.

(Include plat of field showing lease or leases to be flooded, present producing wells, proposed injection wells, well locations on offset leases, etc.)

I. Reservoir and fluid characteristics

A. Information on entire reservoir

1. Name of reservoir "Premier Sand" of Grayburg Formation
2. Estimated productive area of entire reservoir 1500 acres
3. Composition (sand, limestone, dolomite, etc.) sand
4. Structure stratigraphic trap
structure and isopach maps included
(Include structural and cross-section maps)
5. Type drive during primary production solution gas
6. Original reservoir pressure unknown
7. Was gas cap present originally? unknown At present? no

B. Information on proposed project area

(Eventual total: Approx. 600 ac)

1. Number of productive acres in lease or leases to be flooded 35 ac in pilot.
2. Average depth to top of pay (feet) 1950' (or 1600'± sub sea)
3. Estimated average effective thickness (feet) 15' (from isopach map)
4. Estimated average porosity (%) 14%
5. Average horizontal permeability (mds.) 50 Range 0-150
6. Connate water content (% of pore space) 45
7. Gravity of oil (API) 35°
8. Viscosity of oil (centipoises) Est at 10 cp.

II. Primary production history and present status

1. Date first well completed on lease or leases 1925
2. Oil, gas, water production history by months since date of discovery to present time. (Suggest data be presented graphically as well as in tabular form.) *See below.
3. Stage of depletion of project area stripper
4. Number of producing wells on each lease in project area total of 16
5. Average daily oil production per well at present time 1 to 5 bbl/day
6. Cumulative oil production to date from lease or leases to be flooded
Approximately 930,000 bbls total from the area.
7. Estimated oil saturation at present time (% of pore space) 34%
8. If project area has had gas repressuring, give details and results, such as cumulative gas injected, number of injection wells, by-passing or high gas-oil ratio experience, production increases.

No artificial stimulation except some sand fracturing of late.

*
No individual well or lease production histories are available, since some wells and leases outside the area were included in some of the operators' production reports.

- III. Injection (Presently completed water wells indicated on plat.)
1. Source of injected water (formations, depths) Red Sand formation @ 300'-400'
 2. Fresh or salt water fresh
 3. Open or closed system semi-closed
 4. Treatment of injected water filtering and chemical treatment as needed
 5. Pattern and spacing simulated five-spot, approximately 15 acres each.
 6. Initial injection pressure to be used (psi) as needed--est. at 500 to 800 psi
 7. Estimated initial per well rate of injection (bbbls.) 300 BWPD
 8. Will oil wells be converted into injection wells or will injection wells be drilled? (If to be converted, give well numbers.) Yes. (See attached plat)

9. Will additional oil wells be drilled? Yes Location 330' FWL

& 330' FWL of SW/4 of SE/4 Section 4, T-18S, R-28E.

IV. Results expected

1. Estimated residual oil saturation at abandonment (% of pore space) 20%
2. Estimated ultimate additional oil that will be recovered as a direct result of injection (bbbls.) 820,000
3. Estimated original oil in place (bbbls.) 4,000,000.

V. Recommendations and reasons therefor: Installation of secondary recovery measures is the only present means available to recover approximately 800,000 bbls of oil that would otherwise be wasted in the form of non-recoverable reserves.

PILOT FLOOD #1

List of all leases in this area operated by The Ibex Company:

1. Ibex Cowell State: Unit K of Section 4.
2. Ibex Solt State: Units B, F, G of Section 4 and
Units A, B, L, O & P of Section 5.
3. Ibex Daugherty State: Unit D of Section 4.
4. Ibex Daugherty State Solt: Unit E of Section 4.
5. Ibex Levers State: Unit B of Section 8, Units M, N, & O of
Section 4, and Unit I of Section 5.
6. Ibex C. J. Williams State: Unit L of Section 17 and Unit H
of Section 5.
7. Ibex Humble State Stout: Unit I of Section 4.
8. Ibex Humble State: Unit C of Section 4.
9. Ibex Humble State Eddy: Unit J of Section 4.
10. Ibex Welch Solt State: Unit L of Section 4.

All of the above leases are in T-18-S, R-28-E. Relative positions are indicated on the submitted plat.