

BEFORE THE  
OIL CONSERVATION COMMISSION  
Santa Fe, New Mexico  
February 8, 1961

EXAMINER HEARING

PHONE CH 3-6691

DEARNLEY-MEIER REPORTING SERVICE, Inc.

ALBUQUERQUE, NEW MEXICO

IN THE MATTER OF:

Application of Honolulu Oil Corporation for a pressure maintenance project. Applicant, in the above-styled cause, seeks an order authorizing it to install a pressure maintenance project in the Horseshoe-Gallup Pool by the injection of water into the Gallup formation through its Navajo Well No. 4, located in the SE/4 SE/4 of Section 5, Township 31 North, Range 17 West, San Juan County, New Mexico. Applicant further seeks the adoption of special rules governing the operation of said project.

) Case  
) 2176

BEFORE:

Daniel S. Nutter, Examiner

TRANSCRIPT OF HEARING

MR. NUTTER: Call Case 2176.

MR. MORRIS: Application of Honolulu Oil Corporation for a pressure maintenance project.

MR. BRATTON: Howard Bratton, Roswell, New Mexico, appearing on behalf of the applicant, Honolulu Oil Corporation. We have one witness. I ask he be sworn.

(Witness sworn.)

GEORGE R. HOY

called as a witness, having been previously duly sworn, testified as follows:



DIRECT EXAMINATION

BY MR. BRATTON:

Q Will you state your name, by whom you are employed, and in what capacity?

A George R. Hoy, employed by Honolulu Oil Corporation, Division Drilling and Proration Engineer at Midland, Texas.

Q Does your area include the area involved in the subject application?

A Yes, sir, it does.

Q Have you previously testified before this Commission as an expert witness?

A Yes, sir.

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

MR. NUTTER: Yes, sir. Please proceed.

Q Will you state to the Commission the nature of the application and what you are requesting?

A This application by Honolulu Oil Corporation is for permission to inject water in the portion of the Gallup formation underlying the Honolulu Navajo Lease in the Horseshoe-Gallup Oil Pool. This lease consists of the NW/4 SE/4 of Section 5, NW/4 of the SE/4 of Section 6, all of Section 7 and 8, in Township 31 North, Range 17 West, San Juan County, New Mexico. The only production on the Honolulu Lease at present is from the SE/4 of Section 5.

Q Will you refer to the map that has been marked Applicant's Exhibit No. 1 and explain what it shows, Mr. Hoy?

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A Applicant's Exhibit No. 1 shows the portion of the Horse-shoe-Gallup Oil Field surrounding the Honolulu leases for a distance of two miles. The Honolulu lease is outlined in red, well locations of Honolulu wells and other operators' wells are also shown.

Q Mr. Hoy, the area covered by this application adjoins a project previously approved for Humble Oil and Refining in Case 2024 before this Commission, is that correct?

A Yes, sir, that is correct.

MR. BRATTON: Mr. Examiner, we have here the file of Case 2024. We will ask that the record in that case, including the exhibits, be adopted in this case by reference as I believe it will eliminate a great deal of duplication. This is actually just an extension of the project previously before the Commission, and actually the evidence in that case covered this area as well as the adjoining Humble area.

MR. NUTTER: This will save going through a lot a technical details?

THE WITNESS: All the geological and reservoir data is already covered in that file in some detail.

MR. NUTTER: The record in Case 2024 will be incorporated, by reference, in Case 2176.

Q (By Mr. Bratton) Referring to Honolulu's well itself, that we are discussing here, the injection well, will you describe it, Mr. Hoy, and the completion and what you propose?

A Yes, sir. Our proposed injection well is Honolulu's Navajo



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No. 4 located 660 feet from the south and east lines of Section 5. This will be Honolulu's Exhibit No. 2, radioactive log of the well. Well No. 4 was spudded February 24, 1959; 8-5/8 surface casing at 28 feet cemented to the surface through the annulus with 10 sacks of cement. Well then drilled to T.D. of 1,242 feet with a rotary rig using air as a circulating medium. After running the radioactive log from surface to T.D. a string of 4 1/2-inch casing 1,234 feet and cemented from top to bottom with 180 sacks of cement. After cement had set the well was perforated with two jet shots per foot from 1,095 to 1,128 feet. The well was then fracked with 200 gallons mud acid, 15,860 gallons crude oil, 40,000 pounds of sand; after cleaning out the 2-inch tubing was set at 1,116 feet and the well put on the pump. Initial potential test was 47 barrels of oil with no water. This was a 24-hour test, ending March 23, 1959. The initial gas-oil ratio was 546 cubic feet per barrel.

July 1, 1960 to January 1, 1961, production from this well averaged 8.5 barrels of oil per day; accumulated production from this well to January 1, 1961, 14,141 barrels of oil.

Q What is your proposed injection program, Mr. Hoy?

A Honolulu proposes to inject water into the Gallup sandstone formation through the perforated intervals, 1,095, 1,128 feet in the Well No. 4. The initial injection rate will be approximately 300 barrels of water per day to a reservoir fill-up which will be reached in approximately three years. Then the injection rate will drop to between 75 barrels and 200 barrels per day. During the



fill-up, injection is anticipated to be by gravity flow. Based on our present knowledge of the reservoir we do not think the pump pressure will be necessary to inject the water.

Q Where are you going to obtain the water for this program, Mr. Hoy?

A Water will be obtained from the Humble Oil and Refining Company. This water is presently being produced from the Morrison formation in the Honolulu-Humble Navajo No. 1-F located in the NW/4 of Section 10.

Q That is the same water supply that is being used for the rest of the project?

A Yes, sir, that is correct.

Q Now, have you furnished the State Engineer all of the information required as to water source and injection program, casing program?

A Yes, sir. That is on file with the State Engineer's Office, having been furnished by Humble Oil and Refining Company in the previous hearing.

Q You have been in contact with the State Engineer in connection with this application?

A Yes, sir, we have.

Q What is your estimate of recovery, again, Mr. Hoy?

A The estimated recovery, based on studies made by Honolulu engineers, under the project area, is 100,000 barrels of recoverable oil, or approximately 20% of the oil in place on the primary. The



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engineering studies also indicate that an additional recovery of approximately 22% would make a total of 42% of the recoverable oil in place which may be anticipated from the proposed pressure maintenance and secondary recovery, for an additional 110,000 barrels, approximately.

Q Referring to your Exhibit No. 1, the project area which you propose is outlined in red on that exhibit?

A Yes, sir, that is correct.

Q What rules are you requesting?

A Honolulu is requesting that the same rules that have been applied to the Humble application, known as Horseshoe-Gallup Pressure Maintenance Project No. 2, Case No. 2024, Order 1,745, be also applied to the application made by Honolulu, excepting, of course, the project area.

Q In connection with this application, Mr. Hoy, as Exhibit No. 2 you have a log of your proposed injection well, is that correct?

A Yes, sir, we do have, and on the section there are marked the present perforated intervals.

Q You have otherwise furnished all the information required by the Commission regulations in connection with your application in this matter?

A Yes, we have.

Q Were Exhibits No. 1 and 2 prepared by you or under your supervision?



Q Then, when they have received a response, neither well will be allowed to produce an excess of two times top unit allowable; you are aware of that?

A Yes, sir.

Q Do you know if the Humble No. 2 Well, and the No. 6 Well in Section 5 have received responses yet?

A No, sir, I do not know about that.

Q Actually, I suppose when you get a response what you propose to do is transfer the allowable from the No. 4 Well in more or less equal parts to the 2 and 3 wells?

A That is our present proposal, yes, sir.

Q Depending, of course, on which one receives a response first?

A Yes.

MR. BRATTON: I believe Case No. 2024 shows the pattern of the flood.

Q (By Mr. Payne) Actually, your pattern here ties right in with the Humble pattern?

A Yes, it does.

BY MR. NUTTER:

Q I believe you stated that the No. 4 Well, the proposed injection well, has produced some 14,000 barrels to date?

A Yes, sir, it has.

Q What do you expect its ultimate recovery would be if it weren't converted to water injection?



A An estimated, between 20 and 22,000 barrels over the life of the well. However, that would be drawing it down below its economical limit.

Q Do you anticipate drilling any more wells on this lease?

A Not until we see what the response is from the proposed pressure maintenance.

Q The 100,000 barrels that you expected from the project area on primary recovery, or 20%, is that oil that underlies these three 40-acre tracts?

A No, sir. That is based on isopach studies of the entire lease.

Q This could include some additional locations?

A Yes, sir, it could.

Q You expect the three wells, plus any additional pay you may have on the isopach, will yield a total of 110,000 on secondary in addition to the 100,000 on primary, or 42% of the initial oil in place?

A Yes, sir.

BY MR. PAYNE:

Q What are the depths of these wells?

A The depth is between 1100 and 1200 feet, the producing interval. Most of our wells were drilled to a depth of below 1200 or 1250 in order to get casing set through the possible producing zones.

Q In Section 5, the No. 2 and No. 6 wells of Humble, your



rights are below 1665 feet?

A That is correct. I will explain that a little further. The block of four sections, 5, 6, 7 and 8, was entirely purchased by Honolulu from the Navajo tribe of Indians at a lease sale, and then later, after the initial drilling in the Horseshoe-Gallup started, it seemed to be progressing northwestward, and Honolulu farmed out or assigned to R. M. Bayless the sections shown that are now owned by Humble, quarter sections. Humble purchased their acreage from R. M. Bayless. We retained the rights below 1650.

Q Do you know if Humble has expanded their pressure maintenance project to include the three wells in the NE/4 of Section 5?

A No, sir. I cannot testify to that.

Q Are you going to inject in the same benches of the Gallup as Humble is in their project?

A Yes, sir.

MR. NUTTER: Any further questions of Mr. Hoy? You may be excused.

MR. BRATTON: I might state that Humble has expanded the pressure maintenance of the NE of 5, and also that Humble concurs in the application of Honolulu and requests the application be granted.

MR. NUTTER: Do you have anything further, Mr. Bratton?

MR. BRATTON: No, sir.

MR. NUTTER: Does anyone have anything they wish to offer

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in Case 2176? Take the case under advisement.

STATE OF NEW MEXICO )  
                                  ) ss  
COUNTY OF BERNALILLO )

I, JUNE PAIGE, Court Reporter, do hereby certify that the foregoing and attached transcript of proceedings before the New Mexico Oil Conservation Commission at Santa Fe, New Mexico, is a true and correct record to the best of my knowledge, skill and ability.

IN WITNESS WHEREOF I have affixed my hand and notarial seal this 13th day of February, 1961.

*June Paige*  
\_\_\_\_\_  
Notary Public - Court Reporter

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 2176, heard by me on 2/8, 1961.

*[Signature]*  
\_\_\_\_\_, Examiner  
New Mexico Oil Conservation Commission

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E X H I B I T S

<u>NUMBER</u>	<u>EXHIBIT</u>	<u>IDENTIFIED</u>	<u>OFFERED</u>	<u>ADMITTED</u>
Ex.#1	Map	2	7	7
Ex.#2	Radioactive Log	4	7	7

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