

PHONE CH 3-6691

ALBUQUERQUE, NEW MEXICO

EXAMINER HEARING

IN THE MATTER OF:

Application of Humble Oil & Refining Company for permission to commingle the production from several separate leases and for an automatic custody transfer system. Applicant, in the above-styled cause, seeks permission to commingle the Horseshoe-Gallup Pool production from all wells presently completed or hereafter drilled on the Navajo "F" lease, comprising all of Sections 3, 4, 9, and 10, the Navajo "G" lease, comprising all of Sections 1, 2, 11 and 12, and the Navajo "M" lease, comprising the NE/4 of Section 5, all in Township 31 North, Range 17 West, San Juan County, New Mexico. Applicant further seeks permission to install an automatic custody transfer system to handle said commingled production.

Case
2178

BEFORE:

Daniel S. Nutter, Examiner

TRANSCRIPT OF HEARING

MR. NUTTER: Hearing will come to order, please. Next case will be Case No. 2178.

MR. MORRIS: Application of Humble Oil & Refining Company for permission to commingle the production from several separate leases and for an automatic custody transfer system.

MR. BRATTON: Howard Bratton, appearing on behalf of the applicant. We have one witness, and I ask that he be sworn.

(Witness sworn.)



LEE PERRY

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 I am Lee Perry. I work for Humble Oil and Refining Company in the Hobbs District as a Senior Engineer.

Q Are you familiar with the application in Case 2178 and the area involved therein?

A Yes, sir.

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

A I have.

Q Mr. Perry, will you state the purpose of this application, referring first to Exhibit No. 1, state the purpose of the application with reference to that exhibit?

A Order R-1406 in May of 1959 granted Humble permission to commingle production from our Navajo Tribe "F" and "G" leases in the Horseshoe-Gallup, and to produce more than 16 wells into the central battery on the Navajo "F" lease. These leases, "F" and "G" leases are the four section leases shown on Exhibit 1. The "G" lease is Sections 1, 2, 11 and 12, Township 31 North, Range 17 West. The "F" lease is sections 3, 4 and 9 and 10, same township. We have since



purchased adjoining productive land which we call the Navajo "M" Lease. We now wish to amend Order 1406 to allow us to commingle production from the "M" Lease with the Navajo "F" and "G". We also wish permission to use custody transfer for production to the central battery of the "G" and, if necessary, we would want permission to produce more than 16 wells, including the "M" Lease, into the central battery.

Q Referring to Exhibit No. 1, your previous leases covered by R-1406 are outlined in yellow there?

A Yes, and with the cross-hatching around them.

Q Then, so far as commingling, you just want to add the 160 acres in the NE/4 of Section 5?

A That's right.

Q Now, describe what else is shown on the Exhibit No. 1.

A This is the same plat that was used for the water flood hearing, I believe, or a similar plat, and the injection wells are shown in red on this plat, and would answer some previous questions of this morning's testimony. The pump station is shown in green there, at water well No. 1 in the NW/4 of Section 10, and the central tank battery where we are now commingling production from the "F" and "G" Leases is shown right below the pump station.

Q With reference to the commingling application, is there any reason why the Navajo "M" production should not be commingled with that from the other two Navajo leases?

A No, sir. Production is from the same pool, Horseshoe-



Gallup; ownership of these leases and royalty is common, the Indians, and the leases are all contiguous. The U.S.G.S. has approved our proposal by a letter dated January 30, 1960, from Mr. John Anderson.

Q What are the advantages of commingling?

A Since this is a waterflood operation the pumper is going to have to stay at the pump station a good deal of the time, and the central tank battery, as you see, is adjacent to that pump station. The roads in this area are pretty hard to get over a good part of the year, and this would be a time saving for the pumper and for our maintenance crews. In addition, automatic custody transfer could not be justified or we can't justify it for the little "M" lease which we are asking to be added to the commingling area. However, for the commingled production it would save considerable and automatic custody transfer would save considerable in tankage and in labor, and probably some in weathering loss.

Q What are the producing characteristics of the wells on the Navajo "M" Lease?

A Wells 2, 4 and 6 are the producing wells. They are pumping wells, producing from about 1150 feet. The December production averaged nine barrels of oil per day per well with no water. At peak waterflood production they will make an estimated 300 barrels of oil per day.

Q Referring to your Exhibit No. 2, Mr. Perry, would you explain with reference to how you propose to account for the production from the separate leases?



A If you will look at the upper part of Exhibit 2, upper left-hand part, a metering separator is provided for each of the three leases, and is shown in red. The manifold would be built so that all wells could be tested, with two metering separators provided for this purpose, shown in blue. From the test separators production could be routed to either tank so that we can check calibrate those test separators periodically. This hook-up would allow the pumper to have two test separators with which to test, get the monthly well tests on the 16 wells on the "F" Lease. The 16 wells would constitute something of a problem if he had to test them through one test separator.

Q Going on to the automatic custody transfer part of your application, Mr. Perry, would you explain the advantages of that and what your proposal is?

A The estimated peak production from the three leases is about 2500 barrels of oil per day, which would require a minimum of eight 1,000-barrel tanks for conventional operation. We now have three 1,000-barrel tanks in the central battery, and would salvage one of these when automatic custody transfer is started. With good experience we feel one 1,000-barrel tank would be adequate. The savings in labor and weathering loss we mentioned before. The equipment that we intend to use is shown in schematic form there in the lower right-hand part of Exhibit 2. We would use a conventional skid-mounted automatic custody transfer unit similar to several units already installed in the Farmington area. We recently had a



hearing on the Navajo "L," Cha Cha-Gallup, and Order R-1835 approved a very similar unit.

At the bottom right, if you will follow through there, I will go through our unit. At the left-hand end of the ACT is a high-low pressure-operated liquid level controller which starts and stops the charging pump (2), and opens and closes the combination valve (10), at preset high and low levels in the surge tank. This same operation could be accomplished by float switches on the tanks or other means. With the charging pump running, oil would proceed through the usual equipment on the skid from the charging pump to the pipeline connection on the right if the oil is good. Should the BS & W monitor detect bad oil, diverting valve (5) would open, returning the bad oil to the tank for manual treatment. Later on, when the water shows up in these wells, we will probably install a treater and it will all be routed through the treater.

An equalizer line between the tanks and emergency high-level shut-in switch (14) are provided, and when the tanks are filled the switch would close the shut-in valves (13) over on the upstream of the separators, shutting in all production to prevent waste in the event of equipment malfunction or bad oil.

Q Is this system practically identical to any others of Humble's or of other operators in New Mexico?

A It is, yes, sir. We have one in the Empire-Abo Field that is practically identical to this, and we have the one I mentioned previously in the Cha Cha-Gallup Field.

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Q In your opinion is this system reliable and safe?

A Yes, sir. We will provide a corrosion-resistant meter with fail-safe device. The automatic valves involved are all normally closed so in the event of power failure or other malfunction the automatic custody transfer unit as well as the lease would be shut in. Flow lines will be tested to insure wellhead pressures could be contained.

Q Has this system been approved by the pipeline company?

A Yes, sir.

Q Mr. Perry, go through once again your storage, and why you feel that you don't need storage above what you have proposed here.

A The storage we have here would probably be -- well, say, for instance, if we cut it down to one 1,000-barrel tank, we would have eight hours storage, but with the waterflood operation we will have a pumper on that lease every day, so that we couldn't have over maybe eight hours shut in time in the event of malfunction of equipment or bad oil going back to the surge tank. The shut-in valves would prevent overflow of the tanks in any event. It would not have waste in that form.

Q You would test your flow lines to be sure they could take the pressures involved?

A That's right.

Q Is there anything else you care to explain in connection with the proposed installation?



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A I believe not.

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

A They were. We might add, we have a letter from the U.S.G S. I believe I already said that we have a letter approving this proposal.

MR. BRATTON: We would offer Applicant's Exhibits Nos. 1 and 2.

MR. NUTTER: Humble's Exhibits 1 and 2 will be entered in evidence.

MR. BRATTON: We have nothing further.

MR. NUTTER: Any questions of Mr. Perry?

BY MR. PAYNE:

Q Mr. Perry, I notice on your schematic you have a little arrow saying "to flare." Can you tell me how much gas is being flared from this pool?

MR. BRATTON: If the Commission please, we will furnish that information.

THE WITNESS: I will be glad to get it for you. However, I would hate to guess at it.

Q (By Mr. Payne) Inasmuch as you have already instituted your pressure maintenance project I presume the amount of gas being produced is becoming less and less rather than greater and greater?

A It should be.

BY MR. PORTER:



Q Is there a gasoline plant in the Horseshoe-Gallup Field now?

A If there is the line hasn't gotten to us, Mr. Porter.

Q I believe that someone has installed one.

A It seems to me I remember it. I am sorry, but the gas problem, I am not on top of it.

Q If gas were produced in appreciable amounts it probably could be sold?

A We certainly will do that as quickly as we can, as soon as the connection can be provided. We don't particularly care to waste that gas. It brings in good money.

BY MR. NUTTER:

Q Mr. Perry, the normal flow of oil from the separators is into the tank that is labelled "1,000 barrel tank", is that right?

A 1,000-barrel surge tank.

Q Normal flow is into the surge tank?

A Yes, sir.

Q The other tank is a storage tank?

A As long as we have that second tank here the valve on the header between the two tanks (right above the "B" in bad oil) would be shut, closed in, where the bad oil would come back from the diverting valve, back into the left-hand 1,000 barrel tank. We would use that as a storage tank for any bad oil we might get and for testing other things.

Q You mentioned that there was a possibility you could



operate this thing with one 1,000-barrel tank. Is it your intention to have two, however?

A No. I think probably when we put in a treater -- and we are forced to put in a treater because we are starting to produce water-- I think the second 1,000-barrel tank could be taken out and we could operate nicely without it. When I was talking of having something like eight, ten hours, storage, that was what I was referring to. With the two 1,000-barrel tanks there we have almost a full day's storage.

Q If you had to install a treater and take out one of the tanks, that would constitute quite a different mechanical hook-up than you have here?

A I believe not, sir. You would come off the diverting valve, No. 5, go directly to the treater, which would probably be installed up here between our test separators in that header, say between our test separators and the tanks. We would put in a treater there, and we would divert back to our line into the treater. In other words, it would go back, the bad oil would go back and go into the line upstream of the treater. If I may I will draw on this and pass it up there. That might clarify that, sir. I believe that is a common system where you have -- so far, actually, I haven't run into a case where we have a treater and an automatic custody transfer, but that would be my idea of the common system just coming off the diverting valve into the line upstream of your treater, treat before it goes back to the surge tank, treat or re-

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treat. You might have to put some frills on that if you had real bad oil to recirculate it, possibly.

Q But, at the present time the bad oil from the diverting valve (5) just comes back into the storage tank to be manually treated?

A Yes, sir.

Q You mentioned that in the event that the 1,000-barrel storage tank should become full, I presume this high level lease shut-in switch marked Item No 13 on that tank closes in the lease shut-in valves?

A Yes, sir.

Q These are pumping wells, are they not?

A Yes, sir.

Q When you have a pressure build-up in the line, what happens then?

A We would put a little mercury switch, pressure switch, at the wells which would shut down the pumping unit.

Q So your pumping unit will be shut down?

A They would be shut down some way or other, or just close off the electrical power to all pumping units.

Q You don't have high level and low level switches in the surge tank; instead, you use a high-low level switch?

A Yes. That was to me, until the previous hearing on the Cha Cha-Gallup a new thing. What it does is to save the cost of installing flanges in the tank and saves us the cost of one switch.

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It is about a \$250 savings over the two float switches.

Q Is the high-low pressure switch as reliable as the high-low level float switches?

A We feel it is. We are watching it very carefully, the one on the Navajo "L". We are really looking at it there, and I believe it will be. It has quite a few advantages. The float switches have their own problems in that you can get a build-up on those floats, paraffin build-up on the floats and they can give you considerable trouble themselves. There are several different designs of them, but all of them have a few troubles, and we feel like it is possible this will be even better.

Q What kind of a P.D. meter is used in this automatic custody transfer unit?

A We have, in the past, used Smith units, but I would hate to tie it down to that. I would hate to tie it down to brand.

Q Will it be a Smith or equivalent?

A Yes, sir.

MR. NUTTER: Are there any further questions of Mr. Perry? He may be excused. Do you have anything further, Mr. Bratton?

MR. BRATTON: No, sir.

MR. NUTTER: Does anyone have anything they wish to offer in Case 2178? We will take the case under advisement.

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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 15th day of February, 1961.

Jane 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. 2178 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	Plat	2	8	8
Ex.#2	Diagram	5	8	8

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