BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO

IN THE MATTER OF:

CASE 1760

TRANSCRIPT OF HEARING

SEPTEMBER 30, 1959

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IN THE MATTER OF:

CASE 1760 Application of The Atlantic Refining Company for an automatic custody transfer system and for permission to produce more than 16 wells into a common tank battery. Applicant, in the above-styled cause, seeks an order authorizing it to install an automatic custody transfer system to handle the production from all Horse-shoe-Gallup oil wells on its Navajo "B" Lease comprising certain acreage in Township 31 North: Range 16 West, San Juan County, New Mexico.

BEFORE:

Daniel S. Nutter, Examiner.

T R A N S C R I P T O F P R O C E E D I N G S

MR. NUTTER: We will take next Case 1760.

MR. PAYNE: Case 1760. Application of The Atlantic Refining Company for an automatic custody transfer system and for permission to produce more than 16 wells into a common tank battery.

MR. BRATTON: Howard Bratton, Hervey, Dow & Hinkle, Roswell, New Mexico, appearing on behalf of the applicant. We have one witness, Mr. T. O. Davis, and ask that he be sworn.

(Witness sworn)

T. O. DAVIS,

called as a witness, having been first 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 T. O. Davis, The Atlantic Refining Company, Regional Petroleum Engineer.

Q Does your jurisdiction cover San Juan County, New Mexico and the area embraced in Case 1760?

A Yes, it does.

Q Are you familiar with the application in Case 1760?

A Yes.

Q And have you previously qualified as an expert witness before this Commission?

A Yes, I have.

MR. BRATTON: Are the witness' qualifications acceptable?

MR. NUTTER: Yes, sir.

Q Mr. Davis, do you have a map showing the location of the lease where you propose to install central storage facilities?

A Yes. I refer to Exhibit A, which is a map showing the location of Atlantic's Navajo "B" Lease in the Horseshoe-Gallup Field. This Lease is shown in red, and it consists of Sections 17, 18, 19 and 20, and those portions of 16 and 21 which

lie within the Navajo Indian Reservation. This Lease is located in Township 31 North, Range 16 West, San Juan County, New Mexico.

Q How many working interests and royalty owners are there in the Lease?

A There is one working interest, The Atlantic Refining Company. There is one royalty owner, the Navajo Indian Tribe.

Q The Lease contains 2680 acres, approximately?

A That's correct.

Q How many wells are completed on the Lease and in what formation?

A Sixteen wells are completed on the Lease. They are in the Gallup formation.

Q Do you propose to produce all of these wells into one central storage facility?

A Yes.

Q And how many wells do you anticipate will be drilled on the Lease, Mr. Davis?

A We think probably no more than eighteen will be drilled on this Lease. That's just a guess. It could be a few more, or we could stop with the present sixteen, but I think eighteen will be about the maximum.

(Thereupon, Atlantic's Exhibit No. A was marked for identification.)

Q Referring to Exhibit A, does it show the facility you plan to install in connection with the central tank battery?

A It shows the location of the test station and the central storage facility, and it is shown in Section 19 as a circle in the southern part -- south part of the Section.

Q And you'll bring flow lines into this test station?

A Yes. It is our plan to bring flow lines from all the wells into this test station, and the test station will serve two purposes. It will allow us to make periodic tests on the well, and it will allow us to separate gas from all the produced fluids, and then the fluids will go to the central storage facility.

Q Will one test station be sufficient for the number of wells you anticipate, Mr. Davis?

A Yes, we think one test station will be adequate with eighteen wells. We can easily test each well once a month and still have twelve days for retest.

(Thereupon, Atlantic's Exhibit B was marked for identification.)

Q Referring to Exhibit B, Mr. Davis, is that a diagram of the test station?

A Yes.

Q Will you explain what it shows?

A Exhibit B is a schematic diagram of the proposed test station in operation. The flow lines from the wells enter a well manifold, and there is a test leg and a production leg leaving this manifold. The well being tested is routed through the test leg into a test separator or test treater. Gas is sep-

arated and is measured, liquids are measured with liquid meters, and the oil goes on to the central battery. All of the wells except the one being tested are routed through the production leg, and they pass through a production separator or treater. Gas is removed, and the oil goes on to the central storage facility.

Q What kind of a meter do you propose to use, Mr.Davis?

A We propose to use a dump type meter for testing.

Q Will you explain how that meter works?

(Thereupon, Atlantic's Exhibit C was marked for identification.)

A I refer now to Exhibit C, which is a diagram of a dump type meter. This is a meter that is installed on the fluid outlet of a separator or treater, and it replaces the dump valve of that vessel. In operation, fluids leaving the separator or the treater, it passes into the dump meter, and this meter merely counts the dumps, and each dump is calibrated to a unit volume of liquid.

Q How often are the meters calibrated?

A We would recommend monthly calibrations.

Q What degree of accuracy is necessary for these meters, Mr. Davis, in your opinion?

A In our opinion, we think that plus or minus 2 percent is adequate for test purposes. Our allowable per well in this field ranges from 50 to 55 barrels a day, and 2 percent error is only one barrel, which to us, is not a significant error, so we

think plus or minus 2 percent should be adequate.

Q You have this type of meter in the lease immediately adjacent, don't you?

A Yes, we do.

(Thereupon, Atlantic's Exhibit D was marked for identification.)

Q Will you refer to Exhibit D and show what it shows in connection with the accuracy of those meters?

A Exhibit D is a tabulation of meter errors from three of these dump type meters installed on our Navajo Lease, which is just south of the Lease in question, and they are tabulated over a five month period from February through June of 1959. It can be seen on this tabulation that the largest error that was found is seventeen-tenths of 1 percent; the smallest error was zero. So, actually, we found by experience that these dump meters are much more accurate than we need for testing.

Q And you recommend that these meters be calibrated monthly, the ones you are proposing?

A Yes.

Q And you have found that the test stations on your Lease immediately to the south have worked satisfactorily in all regards?

A They have been very satisfactory. We've had very little maintenance and operation has been good.

Q Will you explain briefly why you desire the central

storage facility?

A We would like to install these test stations with a central storage facility for several reasons. One, our operating expenses are lower because less pumper labor is required to test with a test station than by manual gauging of tanks. Also, our capital expenditures are lower with test stations, maintenance is less, and last, but probably the most important thing, we found that testing is actually easier for a pumper, and we believe we got more tests with a test station and better tests than we do with a conventional testing into a storage tank.

Q You've also requested, Mr. Davis, an LACT unit?

A Yes.

Q Where do you plan to install it?

A We propose to install this at the central storage facility in Section 19.

Q Does it have any effect on your central storage facilities or the test station?

A It will have no effect on the test stations. It affects only the way in which oil is run to the pipeline.

Q Sir, do you have a diagram of the proposed LACT unit?

(Thereupon, Atlantic's Exhibit E was marked for identification.)

A Exhibit E is a schematic diagram showing the general layout of the LACT unit in connection with the storage tanks. We presently have two one thousand barrel tanks on this Lease. We

would propose to use one of these as a surge tank, and the other as a wet oil tank. You'll notice an equalizing line between these tanks. In the event there is a LACT unit malfunction, oil will equalize into the empty one through the wet oil tank. In operation, the clean oil from a test station enters the surge tank and passes through the pipeline through the LACT unit. The red line on this drawing indicates wet oil which the BS&W probe has detected. The wet oil goes back to the one thousand wet oil tank. Now, also on this diagram there is a by-pass line along the LACT unit for manual runs to the pipeline in the event of LACT unit malfunction.

(Thereupon, Atlantic's Exhibit F was marked for identification.)

Now, if you will refer to Exhibit F, F is a drawing showing the details of the LACT unit in the surge tank. We have two probes which we have labeled F-1 and F-2. When the fluid level reaches the top probe, F-1 delivers oil to the pipeline; when it reaches the lower probe, delivers stock. In the event there is a malfunction of this unit and the liquid passes up over probe F-1, it will equalize into the empty tank, and we have about 1.3 days of storage in this empty tank, which is adequate for the pumper to determine the malfunction, and no oil would be spilled or wasted.

Q How often would your pumper check this station?

A We have eight-hour pumping on this lease, so the

longest period of unattended time would be sixteen hours. I won't go into the details of the LACT unit proper in the interest of saving time. I will say it is a positive displacement meter type installation. It is very similar to the one approved for our Navajo Lease, and the meter is c temperature compensated which will catch samples for BS&W gravity determination. We have a calibration loop. We recommend monthly calibration. We have BS&W probe for detecting bad oil.

Q Do the wells on this Lease operate electrically, Mr. Davis?

A Yes, all the wells are pumping wells, they are operated electrically.

Q So if you had a power failure on the Lease or the unit, what would happen?

A If we had a power failure, the wells would shut down, also the LACT unit would shut down. And then if the power came back on, everything would start up where it left off.

Q Have you requested U.S.G.S.'s approval of this installation, Mr. Davis?

A Yes, we have. And I refer now to Exhibit G, which is a letter from John A. Anderson of the U.S.G.S. approving the LACT unit and the test station installation.

(Thereupon, Atlantic's Exhibit G was marked for identification.)

Q Have you requested approval of the unit from the

pipeline company?

A Yes, sir. And Exhibit H is a letter from Linden A. Fleming of El Paso Natural Gas Products Company, agreeing with the installation of LACT.

(Thereupon, Atlantic's Exhibit H was marked for identification.)

Q Why do you propose to install this LACT equipment? What will be accomplished, Mr. Davis?

A We have serveral reasons for proposing this. One, we think the accuracy of measurement will be as great, possibly greater, than manual gauging. Two, we have a savings in pumper labor by eliminating gauging of tanks and filling out daily pipeline runs. Three, we will have a gravity increase which is equivalent to a volume increase, and this, of course, benefits both the royalty owner, the operator, and it is also a conservation measure.

Q Were Exhibits A through F prepared by you or under your supervision?

A Yes, they were.

Q Is there anything further you would care to offer in this case, Mr. Davis?

A No.

MR. BRATTON: We offer in evidence Atlantic's Exhibits A through G and H inclusive.

MR. NUTTER: Without objection, Atlantic's Exhibits

A through H will be entered. However, Mr. Davis, I would appreciate it if you could furnish the Commission permanent copies of G and H. These have a tendency to fade with time.

(Whereupon, Atlantic's Exhibits A through H were received in evidence.)

MR. BRATTON: We have nothing further.

MR. NUTTER: Does anyone have any further questions of Mr. Davis?

CROSS EXAMINATION

BY MR. PAYNE:

Q Mr. Davis, is there any substantial difference between these installations and the one that was approved for your Navajo Unit Lease?

A It was our Navajo Lease. There is no substantial difference. There are some minor differences. On this LACT unit, we propose to use one meter.On the Navajo installation, we used two, and one was a spare. We feel that we can still use the spare meter on our Navajo Lease for this one, so we have eliminated one meter. Also in the surge tank,on the Navajo Lease we had a third probe at the top of the surge tank, which would automatically shut-in about half the wells. On this installation we don't think that is necessary, because the oil can equalize over into an empty tank which is adequate, an adequate safety provision.

MR. PAYNE: Thank you.

QUESTIONS BY MR. NUTTER:

Q Mr. Davis, as I understand it, oil that is rejected by the BS&W probe goes into the wet oil storage, is that correct?

A Yes, sir.

Q On Exhibit E, the tank that is labeled "1000 wet oil tank," is that the tank that this rejected oil flows into?

A Yes, sir.

Q Well, now, supposing you had a considerable quantity of oil that had been rejected, and it was in storage in the one thousand barrel wet oil tank, and supposing that your surge tank was rather full, and supposing that the LACT system rejected all the oil, now what would happen, rejected production?

A If --

Q If this should happen during the sixteen hour interval that the pumper wasn't on the lease?

A If we started getting wet oil during the sixteen hours that the pumper wasn't on the lease, it would go to this wet oil tank. However, we have adequate storage there to hold that oil until the pumper makes his rounds and returns to the lease. And if he found that the storage facilities were approaching the full mark, he could manually shut-in the wells, the sixteen wells.

Q What is the capacity of one of these tanks above level F-2?

A Above level F-2 it's about four feet. It's about

50 percent, it is about 500 barrels above -- above F-2.

Q On Exhibit F --

A F-2 is about four feet from the bottom of the tank.

Q The tank will never be emptied below F-2, will it?

A No, sir.

Q So you'll always have that much storage as not available?

A That's right. F-2, the capacity there is 250 barrels.

Q So you have 750 barrels available above that?

A Yes, sir.

Q Are these all top allowable wells on this lease, Mr. Davis?

A Most of them are. A few of them have fallen off the last month or so. The allowable on the lease is about 800 barrels.

Q Eight hundred barrels a day?

A Yes, sir.

Q Is the gas meter on the meter, on the testing loop of your test station a direct treating meter, or is that one you use charts with?

A It is an orifice meter that we use charts for. We are considering converting that to a direct reading meter.

Q And the meter that is used on the LACT system is a positive displacement meter, --

A Yes, sir.

Q -- but a dump type on the test station?

A Right.

MR. NUTTER: Any further questions of Mr. Davis?

QUESTIONS BY MR. PAYNE:

Q Mr. Davis, what are the maximum number of wells that you propose to transfer the custody of oil through this LACT system?

A It would be all the wells that are completed on this Navajo Lease.

Q That could be sixty-four wells, right?

A Yes, sir. It is very unlikely, but it could be.

Q You don't have storage capacity to handle that type of production, do you?

A No, sir. If we have more productive acreage than we anticipate at present, we would add additional wet oil storage to this central battery.

Q In the same proportion as this storage is for eighteen wells?

A Probably.

MR. PAYNE: That's all. Thank you.

MR. NUTTER: No further questions of Mr. Davis, he may be excused.

(Witness excused)

MR. NUTTER: Does anyone have anything further they wish to offer in Case 1760? We will take that case under advisement.

STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

I, J. A. Trujillo, 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 12th day of October, 1959, in the City of Albuquerque, County of Bernalillo, State of New Mexico.

Joseph A. Trujillo
NOTARY PUBLIC

My Commission Expires:

October 5, 1960

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 1760, heard by me on 9-30, 1959.

, Examiner
New Mexico Oil Conservation Commission