BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO

IN THE MATTER OF:

CASE NO. 1466

TRANSCRIPT OF HEARING

JUNE 11, 1958

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BEFORE THE
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CASE NO.1466 Application of Tidewater Oil Company for an exception to Rule 309 of the Commission Rules and Regulations. Applicant, in the above-styled cause, seeks an order authorizing the installation of automatic custody transfer equipment with positive displacement meters and automatic sampling equipment and other related facilities to receive, measure, and transfer custody of oil from the Justis-Ellenburger Pool produced from the wells located on its Coates "C" Lease, which comprises the E/2, SE/4 NW/4, and NE/4 SW/4 of Section 24, Township 25 South, Range 37 East, Lea 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: Next case on the docket will be Case 1466.

MR. PAYNE: Application of Tidewater Oil Company for an exception to Rule 309 of the Commission Rules and Regulations.

MR. SETH: We have one witness, Mr. Miller.

(Witness sworn)

R. N. MILLER,

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

DIRECT EXAMINATION

BY MR. SETH:

Q Will you state your name, please, Mr. Miller?

A R. N. Miller.

Q And by whom are you employed?

A Tidewater Oil Company.

Q And where are you employed?

A Hobbs, New Mexico.

Q In what capacity?

A Area petroleum engineer.

Q Your duties in that connection, do they involve the design and handling of automatic custody transfer installations?

A Yes, sir, they do.

Q Have you testified before the Commission on previous occasions?

A I have.

MR. SETH: May he testify as an expert?

MR. NUTTER: Yes, sir. Please proceed.

Q Will you state, please, to the Commission, the purpose of the application in general?

A The purpose of the application is to request exceptions to Rule 309 whereby Tidewater may produce more than eight wells into common tankage and by means of positive displacement meters automatically transfer this oil to the pipeline.

Q Have you prepared an exhibit showing the general locations that are to be covered by these facilities?

A Yes, sir.

Q I hand you what has been marked Exhibit No. 1, and ask you to state what that is, please?

A That shows the location of Tidewater Oil Company's A. B. Coates "C" lease.

Q And does the area outline in general the lease area in question?

A Yes, sir, it does. It consists of the E/2 and then the SE/4 of the NW/4 and then the NE/4 of the SW/4 of Section 24, Township 25, South, Range 37 East.

Q Now, this application relates to the Ellenburger Wells?

A Yes, sir, that's correct.

Q Will you state how many Ellenburger completions there are in this place?

A We have five at this time.

Q It was erroneously stated in the application that there were eight, is that correct?

A Yes, sir.

Q And how many undrilled locations are there?

A We have five.

Q And do you propose that the facilities be so arranged as to accommodate the undrilled locations?

A Yes, sir, the total ten wells.

Q Would you also indicate the general location of the facilities of the lease?

A They are approximately in the center of the NE/4 of Section 24.

Q And have you prepared an exhibit showing a diagram or flow sheet of the proposed facilities?

A Yes, sir.

Q I hand you Exhibit No. 2. Is this the flow sheet you refer to?

A Yes, sir.

Q Please state what it shows.

A It shows the general flow diagram of the proposed automatic custody transfer facility for the Justis-Ellenburger on the Coates "C" lease, which consists of production treater, a test treater, a volume meter for measuring test crude, a surge tank, an overflow tank, PD meter for transferring oil to the pipeline, a pipeline pump and an automatic sampler.

Q Would you trace the flow there, please, briefly?

A The normal flow would come in through the header from your wells and go out on the left hand header log through the production separator where the gas is separated from the oil, and thereby dumped into the surge tank, which is marked No. 5.

Q The header is marked No. 1?

A Yes, sir, and the production separator marked No. 2. If you desire to test a well, by -- manually, closing and opening two different valves, production from a well can be diverted through the right hand side of the header, through your test separator, where

the crude oil is dumped through a volume meter, measured and then dumped into the normal flow line into the surge tank.

Q This permits the individual testing of a well?

A Yes, sir, it does.

Q And will this accommodate as many as ten wells requested in the petition?

A The complete unit would. The testing of the ten wells wouldn't, no, but the production side of the automatic equipment would handle production from ten wells, yes, sir, from these.

Q Now, what are Items 7 and 8 on Exhibit No. 2?

A Item 7 is the Skid-Mounted A. O. Smith PD meter unit by which the oil is automatically transferred to the pipeline. Item No. 8 is the pipeline pump.

Q Have you prepared a diagram of the Skid-Mounted Unit, Item 7 there?

A Yes, sir.

Q I hand you what has been marked Exhibit No. 3. Is that a diagram of this unit?

A Yes, sir, it is.

Q Would you please describe this Exhibit; follow the flow of oil through that and describe the facilities?

A It is the Skid-Mounted automatic custody transfer unit flow, beginning from right to left, Item A is a manually operated three inch plug. Item B is a strainer to remove any foreign particles which might be in the oil. Item C is a deaerator to remove any entrain

gas which might be in the crude. Item D is A. O. Smith positive displacement meter with a temperature compensator to correct the volume to 60 degrees Fahrenheit, and a set stop counter to prevent the running of oil above the lease allowable. Item E is an automatic valve, and Item F is a master meter spool, and Item A, again, is a manually operated three inch plug valve.

Q Would you give us a little more detail on No. D and how it controls the lease production?

A As production flows into the surge tank, Item 5, it is allowed to fill until such time as it reaches a high level switch.

Q You are referring to Exhibit 2, is that right?

A Back to Exhibit 2, yes, sir. At that time, an electrical signal is sent through the meter, through Item E, the Hy-trol valve on to the pipeline pump. If there is allowable left to be running on the set stop counters, the contacts are closed. The solenoid is operated on Item E along the head-in tank, in the surge tank, Item 5 on Exhibit 2, to open, and the pipeline pump is started. The pipeline pump has a greater capacity than the lease; consequently, the level of the oil in the surge tank, Item 5 on Exhibit 2, will be drawn down to allow level shut-off. The pipeline pump will be stopped, the solenoid will be opened in Item E, Exhibit 3, and allow the separator pressure to close the valve. Now, if you have run your monthly allowable and oil fills to the high level switch in the surge tank, contacts are opened, and the electric impulse cannot be passed on to the valve in the pipeline pump, thereby there

will be no transfer of oil to the pipeline.

Q Now, referring to Exhibit 3 and your Item F there, what are your plans for installation of a master meter?

A That is a master meter spool for the installation of a master meter which we ask approval for. We are using the term "meter factor" for Item D, the regular meter.

Q Do you contemplate the installation of a master meter at that point?

A Yes, sir, we do. We will check the normal operating meter with the master meter at periodic intervals to determine the meter factor.

Q Now, as far as the sampler is concerned, it is not indicated on Exhibit 3. Would you describe how that is handled?

A The sampler is on the down stream side of the pipeline pump as shown in Exhibit 2. It is a sampler that was designed by Texas-New Mexico Pipeline Company. It consists of a General Electric AT 8 timer, a high pressure volume tank, and a small homogenizing pump. While the pipeline pump is running, there will be small amounts of crude oil, approximately a thimbleful, taken every five seconds and it is transferred into this container under the normal line pressure and allowed to remain there until such time as the gravity and the BS and W content is determined. You manually operate the homogenizing pump which mixes or homogenizes the sample. It is then drawn off on the graph, and the BS and W content are determined.

Q As far as individual well testing is concerned -- would you

refer again to Exhibit 2 -- that is done through --

A Yes, sir.

Q -- the test separator, is that correct?

A Yes, sir.

Q What type of oil is produced from the Ellenburger at this location?

A It is a sweet crude with a gravity of approximately 45 degrees corrected.

Q Is there a substantial amount of water produced?

A There is no water at this time produced with it.

Q How about gas with the oil?

A The average gas-oil ratio for those five wells would be in the neighborhood of about 1300 to 1.

Q And are the wells flowing at this time?

A Yes, sir. All wells are flowing in the Justis-Ellenburger.

Q Now, is this system essentially -- well, let me ask you about the personnel to supervise this installation. What do you plan on that?

A We have one pumper that looks after this lease as well as others, and it is estimated he will be on this lease, or on adjacent leases approximately 75 percent of the normal working day.

Q Is this essentially different from an ordinary lease tankage arrangement as far as supervision is concerned?

A No, sir, it is not.

Q Are the flow lines of any unusual character or length?

A We will have on the south end, referring back to Exhibit 1,

which would be drilled in units O and P; that will be approximately half a mile long. However, we are increasing the size of those flow lines to three inch, and we do not anticipate any difficulty encountered there.

Q Now, will you -- your meter calibration and use of the master meter, is that in accordance with API?

A Yes, sir, it is in accordance with API.

Q Are these individual items of equipment, are they in common use at the present time?

A They are in use now as automatic custody transfer to the pipeline. Yes, sir, there are several in use.

Q Are there check valves provided in the system to prevent any reversal of flow?

A Yes, sir. There are the normal amount of check valves as there would be in conventional facilities.

Q If this application were approved, will it result in savings of money to Tidewater?

A Yes, sir. In the Ellenburger zone alone,we estimate we will save approximately $20,000 by utilizing automatic custody transfer.

Q Will it result in conservation of --

A Yes, sir. Field tests indicate that there will be approximately five-tenths of one percent increased recovery by a capture of light end usually lost by weathering.

Q This is a closed system and you will be able to prevent evaporation of the volatiles?

A It is not a closed system that is due to the time that the crude stays in the surge tank as against the length of time it stays in conventional facilities.

Q And you expect that you will save a considerable amount of oil ultimately in this by the use of these facilities?

A Yes, sir.

Q Do you have an overall estimate in the amount?

A Approximately 22,000 barrels from preliminary reserve estimates.

Q Now, do you have any comments on the accuracy of the metering of this facility?

A There is an installation operating similar to this on the north offset, on the Learcy McBuffington Lease, the PD meter over the five months' period exhibited a drift of .188 percent after five months and 40,000 barrels. Now, as to the accuracy of the PD meter itself, it would be as accurate as the method used for determination of the meter factor applied to that particular meter which we believe in any event is greater than manual tankage.

Q That is, the two methods normally used for determination of a meter factor is either a master meter or prover type?

MR. NUTTER: The accuracy is greater than manually gauged tanks?

A Yes, sir.

Q (By Mr. Seth) Will this facility, if approved, be adaptable to production from other zones? What productive zones are there on this lease?

this lease?

A There are six at this time. And we have designed this with the hopes of later expansion and providing for complete lease automation.

Q Have you already made preliminary designs for that?

A Preliminary designs, yes, sir.

Q Does the transporter of this crude have any objection to the metering.-- A No, sir.

Q -- through this system?

A We contacted the Texas-New Mexico Pipeline Company. They are the carrier in this area, and they are in agreement with the positive displacement meters for the measuring of crude oil.

Q Did they so indicate in a letter to you?

A Yes, sir, they did.

Q I hand you Exhibit No. 4. Is that a letter from Texas-New Mexico Pipeline Company indicating that they have no objection to receiving crude on this basis?

A Yes, sir.

Q Are there any other comments you would like to make, Mr. Miller, concerning this proposal?

A No, sir, I don't know of any.

MR. SETH: We would like, Mr. Nutter, to offer Exhibits 1 through 4.

MR. NUTTER: Is there objection to the introduction of Tidewater's Exhibits 1 through 4? If not, they will be admitted.

MR. SETH: That's all the direct we have.

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

CROSS EXAMINATION

BY MR. NUTTER:

Q Mr. Miller, in your testing loop, I note that you have a meter for measuring the oil. Is there also a meter present for measuring the gas that comes out of separator No. 3 there?

A Yes, sir, there will be. Right at the present time we will measure the gas-oil ratio as normally, that is, into the pits. Eventually we will put an orifice flange in this tank and the gas-oil ratio will be determined.

Q Is there a meter to determine the water?

A No, sir. There is no wells producing water there.

Q Would facilities be installed to measure the amount of water if and when the wells start producing water?

A Yes, sir, at that time, if it becomes necessary that we install monitors and other equipment.

Q Tidewater would do that? A Yes, sir.

Q Now, I note that the -- both the test oil and the production oil go directly into surge tank No. 5?

A Yes, sir.

Q Is there any monitoring system between the production and the tanks? A No, sir.

Q Are the wells producing pipeline quality oil at the present time?

A Yes, sir. We talked that over with Texas-New Mexico, and they informed us that they did not require monitoring of crude oil until such time as the samplers indicated that they would need it.

Q So, at the present time, the sampler which is down stream from the PD meter in the system determines what little BS and W there is in there?

A Yes, sir, and all tank runs will be corrected.

Q And the pipeline goes by the oil on the basis of the production that is sampled by that sampler.--

A Yes, sir.

Q -- without any further treating?

A The pipeline company is a common carrier.

Q I mean the purchaser.

A Yes, sir, they do.

Q Is there a gas line going off of separator No. 2.--

A Yes, sir.

Q -- to a gas line -- gas purchasing facility?

A Yes, sir.

Q And there is a meter on that gas.--

A Yes, sir.

Q Now, would you give me an approximation of the location of this facility on Exhibit No. 1, please?

A Yes, sir. It is essentially in the center of the NE/4 of Section 24.

Q As I have indicated it on Exhibit No. 1, would that be

approximately the location -- A Yes, sir.

Q -- by the red cross there? A Yes, sir.

MR. NUTTER: Are there any further questions of Mr. Miller?

Q (By Mr. Nutter) Oh, Mr. Miller, you stated that you would save some $20,000 by the installation of the LACT system, is that correct?

A Yes, sir, for the Ellenburger alone.

Q Now, does this include operating costs over the years, or is that installation cost today?

A That is installation and capital required for equipment.

Q That's the present outlay of capital?

A Yes, sir.

Q Is there a possibility that some savings will result in labor as the lease is operated down through the years?

A It is possible that it would because a lease of this size with the -- from the indications that we have now, the number of wells might require two pumpers had they to gauge tanks every morning to make out their tankage reports and what not.

Q You stated that you would save some 22,000 barrels of oil, too, didn't you? A Yes, sir. We did.

Q What will this savings be the result of?

A Result of decreased weathering time in tanking prior to transfer to pipeline.

Q So the volume of oil produced will be increased by two barrels by not losing the light end.

MR. SETH: There will be some clerical savings, too, would there not?

A Yes, sir. There will be approximately sixty-six tickets on that, as compared to one ticket on the automatic custody transfer. I would like to make one comment, Mr. Nutter, concerning the determination of water from our test facilities. In the event that this is not expanded for some reason or another into complete automation, then we would install probably a sampler in there to take manual shakeups to determine the water rather than go to the expense of putting another meter. We have hopes that we will go to complete lease automation.

Q Mr. Miller, turning to Exhibit No. 3, I notice you have the proposed Master Meter spool installation there to permit the insertion of a Master Meter. This meter would be in place only while calibrating meter No. D, is that correct?

A Thereis a little error in this drawing, Mr. Nutter. Looking from a top view, there would be a bypass in the line, this would be your normal LACT, there would be a bypass where your Master Meter would be located, here and here, so that you can route around it. Now, we would leave that in the line at all times because a PD meter, if it is kept full of oil, will remain in better condition than one setting up dry.

Q I see. So there would be, instead of a straight line going from E to A, there is a loop?

A Yes, sir.

Q There is a master loop with a Master Meter left in position at all times?

A Yes, sir.

Q But oil would flow through that meter only during the time that you were calibrating meter No. D?

A Yes, sir. Therefore, it should hold a constant meter factor for a longer period of time.

Q How would the meter factor on the Master Meter be determined?

A From prover tanks or mass volume. Mass volume determinations.

MR. NUTTER: Thank you. Any further questions of Mr. Miller? If not, he may be excused.

(Witness excused)

MR. NUTTER: Does anyone have anything further they wish to offer in Case 1466? 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, 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/or 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, the 11th day of July, 1958, in the City of Albuquerque, County of Bernalillo, State of New Mexico.

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. 1466 heard by me on 6-11, 1958.

....., Examiner
New Mexico Oil Conservation Commission