

BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO

IN THE MATTER OF:

CASE 1651

TRANSCRIPT OF HEARING

MAY 6, 1959

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BEFORE THE
OIL CONSERVATION COMMISSION
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IN THE MATTER OF:

CASE 1651 Application of Continental Oil Company for :
an automatic custody transfer system and for: :
permission to commingle the production from : :
three separate leases. Applicant, in the : :
above-styled cause, seeks an order authoriz- :
ing it to install an automatic custody tran- :
sfer system and to commingle the production :
from the Hobbs Pool from three separate non- :
contiguous leases in Township 18 South, Range: :
38 East, Lea County, New Mexico. Applicant :
proposes to separately meter the production :
from each lease prior to commingling. :

BEFORE:

Elvis A. Utz, 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. UTZ: The next case on the docket will be Case
1651.

MR. PAYNE: Case 1651. Application of Continental
Oil Company for an automatic custody transfer system and for per-
mission to commingle the production from three separate leases.

MR. KELLAHIN: If the Commission please, Jason Kella-
hin of Kellahin & Fox, Santa Fe, New Mexico, appearing for the
applicant. We have one witness, Mr. Queen.

MR. UTZ: Just a moment. Are there any other appear-
ances in this case? If not, you may proceed.

(Witness sworn)

JOHN A. QUEEN,

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q Would you state your name, please?

A John A. Queen.

Q By whom are you employed and in what position, Mr. Queen?

A Continental Oil Company, division engineer, New Mexico division.

Q Are you a petroleum engineer, Mr. Queen?

A Yes, I am.

Q What education have you had in the field of petroleum engineering?

A I graduated from the University of Oklahoma; State University now; at that time Oklahoma A & M, with a Bachelor of Science degree in mechanical engineering with petroleum option.

Q And when was that?

A In 1949.

Q What have you done since then, Mr. Queen?

A I have completed a training program as presented by Continental Oil Company and worked through various phases of Continental operations, including reservoir engineering, field opera-

tion, mechanical engineering.

Q What employment have you had since your graduation in 1949?

A Continental Oil Company is the only employment I have had.

Q What positions have you held with Continental Oil Company?

A I have been division mechanical engineer, district engineer, and presently division engineer.

MR. KELLAHIN: Are the witness' qualifications acceptable?

MR. UTZ: They are.

Q Now, Mr. Queen, are you familiar with the application in Case 1651?

A I am.

Q Will you state briefly what is proposed in this application?

A Continental Oil Company is seeking authority to transport oil produced from the Hobbs Pool wells on the W. D. Grimes lease, consisting of the SE/4 of Section 28, 18 South, 38 East. This is shown in Exhibit 1 here. And the State A-33 lease consisting of the SW/4, the W/2 of the SE/4, and the SW/4 of the NE/4 of Section 33, 18 South, 38 East via pipe line. State A-33 is located here by pipe line to a centralized battery on State A-29 lease, consisting of the E/2 of the SW/4 and the NW/4 of the SE/4

of Section 29, 18 South, 38 East, and to commingle this oil with oil produced from Hobbs Pool wells on the State A-29 lease.

(Whereupon, Continental's Exhibits were marked for identification.)

Q Now, referring to what has been marked as Exhibit No. 1, would you state briefly what is shown on that Exhibit?

A Before I do that, should I pass out the Exhibits that we have?

Q Yes, if you would, please.

A These are in order as they will be referred to.

Q Now, referring to what has been marked as Exhibit No. 1, would you outline briefly what is shown on that Exhibit?

A Exhibit 1 is a plat portraying part of the townsite of Hobbs, which the City Limits are shown on the dotted line along this area here, extending on north, it is the main part of the Hobbs line, this area here, Continental leases are shaded in yellow. The three leases, there are only three under consideration for the automation battery and the lease automatic custody system. The wells that are under consideration are circled in red. And the proposed pipe line is shown outlined in red leading from each lease to the proposed site of the central, the automatic tank battery system.

Q What is the primary factor which prompted Continental Oil Company to propose this centralized tank battery and automation process?

A Referring to what has been marked Exhibit 1, it may be seen that the W. D. Grimes lease is completely surrounded with housing, residential area. The W. D. Grimes battery is situated in this highly populated area. The State A-33 lease is surrounded on three sides by industrial buildings. It was felt that continuous operations would be costly and complicated due to the limited area available for operation. It was, therefore, decided to move the existing facility, the State A-29 lease.

Q Would it have been possible to remove these facilities without the commingling as proposed in this application?

A Yes, sir, it would have. However, complete lease automation and automatic custody transfer of liquids offers certain advantages and makes this desirable both from operational and economic standpoints.

Q Would you elaborate on that?

A By commingling the production and installing an LACT system and eliminating the expense of setting separate storage facilities for each lease. Also, we anticipate an increase in crude oil gravity as a result of reduced weathering time in stock tanks. At such time as the capacity of the wells drops below top allowable, this will also result in a slight increase in volume. By going to complete lease automation, incorporating automatic test programming and automatic production programming, we will be able to determine the most efficient producing cycle for each well, and produce each accordingly. We also anticipate that the proposed

automation will enable us to reduce the man-hours required to maintain these leases. I might add, that it is for these reasons that the State A-29 lease has also been included in the proposed system.

Q Now, referring to what has been marked as Exhibit No. 2, will you explain that for us, please?

A Exhibit No. 2 is a diagrammatic drawing of the proposed installation, which traces the flow of fluid from the well header to the pipe line purchaser. But before tracing the flow of fluids on this diagram, I would like to emphasize that the headers located here are on each respective lease, and not located on the State A-29 lease. These headers will be located at these respective points for each particular lease.

Q Now, you say these respective points. Referring to Exhibit No. 1, can you explain what points you are pointing to?

A On Exhibit 1 I was referring to the point on which the header as set forth in Exhibit 2 would be so located.

Q How is it shown on Exhibit No. 1?

A It is shown by two existing batteries. These headers will be located at the present existing batteries with a new header installed for complete automation, of course.

Q We understand, then, of course, that the headers will be located on the existing leases, and the remaining equipment, as seen on Exhibit No. 2, will be on the A-29 lease?

A That is correct.

Q Will you continue with your discussion, please?

A From this point, referring back to the headers again, the fluid will flow through 4 1/2" OD production line and through a 2" test line running to the centralized tank battery located on the State A-29 lease. Now, referring to Exhibit 2, production from each well on a lease will flow through an individual line through the header, where it will normally be directed to a 4 1/2" production line by a three-way three-position solenoid actuated diaphragm control valve. This lease production will then proceed to the individual lease separating and treating facilities, which would be located on State A-29 lease. As previously mentioned, gas from the separator for each lease will pass through a standard orifice meter for sales determination. Oil will flow from the separator into a heater treater and knock out any free water or emulsion that will go into that. This flow line into our separator is located here, and the sale of gas will come through here and be metered for sale determination. The oil will flow on into the heater treater; oil and water which will then be separated, and water will be discharged into the salt water system and the oil will flow out of the heater treater. Oil will be monitored for SW&W by a dump type meter. We have the BS&W monitor noted by a small round circle.

Q Will there be a monitor located on each flow line, or will it be monitored as a unit?

A There will be one on each flow line on each facility, each lease facility, and the system I am now describing to you will

held for each lease. It could be the description -- it could be described for each one of three leases. I might add here, we have the top on schematic drawing, we have the top facility as a State A-33 lease; the second one as a Grimes lease, and the next one as a test unit which we will describe later. And the bottom drawing is the State A-29 lease, and this description applies for each one of these leases. To repeat, the oil will be monitored for BS&W content and then passed on into the dump type meter. Oil from the meter will be commingled in 1,000 barrel surge tanks prior to sales. The monitor will check the fluid continuously to assure that the BS&W content is within the limits acceptable by the pipeline. At such time as the BS&W content rises above that acceptable by the pipeline, the fluid to the 1,000 barrel surge tank will be diverted by diaphragm control valves through a recirculating line back through the heater treater. This can be done with the small three-way valve immediately after the monitor. If the monitor picks up that oil above that required by the pipeline, this three-way valve will revert the oil, all of the oil through this pump, and recirculate it through the heater treater. This process will continue until such time as the monitor picks up clean oil. At such time as the fluid level in any vessel reaches a predetermined level, caused by the recirculation of bad oil, all circulation will be closed off at the remote header by that lease. At such time as the BS&W content drops within the required limits, the oil flow will be resumed and all wells will be opened to production.

Individual well tests will be obtained by diverting the flow of wells to be tested by the three-position valve to a 2" test line at the header. This fluid will then be routed through the test facilities. As noted on Exhibit No. 2, casinghead gas from the test separator will pass through an orifice with gas measurement being determined by an integrating gas meter and recorded on a strip chart recorder, and directed back to the gas sales line of the appropriate lease. Liquids from the separator will be carried over into a metering heater treater. Produced water will pass through a dump type metering chamber, with water production being recorded on the strip chart recorder. Oil will be measured in a dump type meter chamber within the treater, and from the meter oil will be directed back to the proper lease meter to be measured and recorded for production purposes. A sampler will obtain samples of oil produced for determining gravity and per cent BS&W contained in the oil for each particular well in the case.

Q Then, the wells from the various leases will be treated through a common meter?

A Yes, a single test unit will be used for all three leases.

Q In your opinion, will this result in any inequities, or result in oil being returned to the wrong lease for measurement?

A No, I know of no way in which inequities could occur. The three-way valves on the lease headers will be so arranged and synchronized that only one well will be flowing into the test

facilities during any given period. Likewise, the diaphragm control valves on the gas return line and oil return line which are normally closed will be so synchronized that the gas or oil from one lease cannot enter the metering facilities of another lease.

Q Have provisions been made to conduct monthly calibration tests of these dump meters as required by the Commission?

A Yes. It can be noticed that immediately downstream of the dump meters, there is a prover connection at this point for each lease facility. It is planned to set a tank to be used to calibrate the dump meters; once a month or whatever frequency is desired, each of the meters will be checked and calibrated.

Q Referring to the system that is shown on Exhibit No. 2, would you describe this for us, please?

A Are you referring to the LACT system?

Q Yes, the lease automatic custody transfer system.

A Oil from the various lease facilities, after being metered at their respective point will be commingled in a common line and collected in a 1,000 barrels or accumulation tank, whatever you call it. When oil reaches a predetermined level as accepted by the pipeline, ~~for Continental Oil Company,~~ the oil will pass through a strainer to remove any foreign matter which will foul the pipeline meter and will also flow through an air eliminator which will be located downstream here, to assure that a solid stream is flowing through the meter and also through the pipeline sales meter. The meter will be a positive

displacement meter with a counter and temperature compensator. It will be equipped with a meter failure detector and shut-off switch. The meter can be equipped with a ticket printer; however, this is not required by Shell Pipe Line. A continuous sample of the oil will be taken to check the oil gravity and BS&W content.

Q = In the proposed automation and centralization project, are there any safety devices to shut the lease down in case of malfunctions or flow stoppages?

A Yes. As it may be seen on Exhibit 2, all facilities are equipped with high level shut-in switches. As you will note here on the surge tank, there are some, as I previously mentioned on each of the heater treaters and the gas separator; each one of the leases, so all vessels have high level shut-in switches. If, for any reason, these vessels become full, a float actuated switch will shut-in all valves up stream of that particular vessel. In the event the accumulation tank becomes full, then all leases will be shut-in at the headers, which will, in turn, cause the wells to be shut in at the wellhead.

Q Now, who is the purchaser of the oil from these three leases?

A Shell Pipe Line.

Q Have they approved this system?

A Yes. I have a letter from Shell Pipe Line, marked Exhibit 3, stating that they will accept the proposed LACT unit when it is installed, if it is installed as proposed, and with the

stipulations as set forth in their letter, which Continental agrees to.

Q Now, referring to the leases to be included in the proposed centralization, are the royalty owners common for the three leases?

A No, sir, they are not. For two of the leases, the State A-29 and the State A-33 lease, these two leases here, the State is the royalty owner. For the other lease, the W. D. Grimes, the W. D. Grimes Estate is the royalty owner.

Q Now, have the various royalty owners authorized the proposed commingling of fluids?

A No, sir. I have here a letter from the Commissioner of Public Lands, marked Exhibit 4, authorizing the proposed commingling. From the two State leases, Letters had been written to all other royalty owners asking for approval. However, to date, they have not all yet been received. We have received as of yesterday twenty-seven of the thirty-seven royalty owners --

Q Thirty-seven royalty owners on the Grimes lease?

A Yes, sir.

Q Now, in regard to the proposed flow lines or pipe lines to the remote battery, has any consideration been given to the problem of paraffin deposition and corrosion of the lines?

A Yes, sir. We have investigated this possibility and to control corrosion and paraffin deposition, we plan to internally coat all lines with plastic to minimize these two problems.

Q In your opinion, will that be adequate to prevent corrosion or paraffin accumulation?

A All flowing wells will be equipped with high -- would you rephrase that question again?

Q I asked you, in connection with this paraffin, in your opinion, would the coating on the pipe on the inside be adequate to protect the pipes?

A It is the best that we have today, and it is my opinion that it will protect it for a long period of time.

Q Are any safety shutdown features provided in the well-head in the event of line failure or plugged lines?

A Yes. All flowing wells will be equipped with high-low pressure shut-off switches. There is only one pumping well in this route. If, for any reason, the pressure on the lines rises above or drops below the predetermined operating pressures, the flowing well or wells will be shut-in automatically. The one pumping well previously mentioned will only have a high-pressure shut-off switch.

Q Now, do you have anything else to add, Mr. Queen?

A No, I do not.

Q In your opinion, will this system adequately protect the various interest owners and account for the oil and gas produced by individual leases?

A It will.

Q Were Exhibits Nos. 1 and 2 prepared by you or under

your direction and supervision?

A They were.

Q And Exhibits 3 and 4, are they letters, the originals of which are in the files of Continental Oil Company?

A That is correct.

Q Would you be willing to produce the original letters if requested by the Commission?

A I would.

MR. KELLAHIN: At this time we would like to offer in evidence Exhibits 1 through 4 inclusive.

MR. UTZ: Without objection, they will be admitted.

(Whereupon, Continental's Exhibits 1 through 4 were admitted in evidence).

MR. KELLAHIN: That's all the questions I have, Mr.

Utz..

CROSS EXAMINATION

BY MR. UTZ:

Q Mr. Queen, which is the pumping well?

A W. D. Grimes No. 3.

Q In regard to the safety shut-offs, is my understanding correct that in the event any of your vessels reach a high level point all valves ahead of those vessels will be closed in?

A That is correct.

Q Where are those valves located?

A The valves -- for instance, in this, on the surge

tank we have a high level valve here. This would, in turn, shut this valve back in at this point here, which would, in turn, fill this up here, which would, in turn, shut the valve back at the header.

Q In other words, these valves that you have just pointed to, which are just ahead of your storage tank, will be shut in by your high level switch?

A Yes.

Q The increase of pressure ahead of that line will close the well in at the wellhead?

A That is correct. These shown on the lower left are three-way control valves, and these are all electric actuated valves -- I should say electric or pressure actuated valves.

Q How will the production from these wells be regulated?

A At the present time, these are excellent wells. In the letter from Shell Pipe Line Company, they requested -- one of the things they requested was a daily control valve for lease allowable production, and also a monthly lease allowable shut-down timer, and these will be installed.

Q Where will these be installed?

A They will be in a control house.

Q In the control house?

A And they will be connected with the dump meters to control the amount of fluid being produced.

Q And when the lease produces a hundred and twenty-five

percent, or maximum one hundred twenty-five, it will be shut-in?

A These leases will be operated within the Rules and Regulations of the New Mexico Oil Conservation Commission.

Q They will be shut-in on individual well basis?

A They will be shut-in on individual well basis. We will have complete control of each individual well on each one of these leases. This is complete automation. The wells will, of course, also be regulated by our pumper as to our orifice size and characteristics to also stay within the State regulations.

Q I still don't quite understand just how you control these wells. Why don't you run through that again as to the amount of oil that they will produce each day?

A Let me read this one thing, it would be the best to start off with. In Exhibit No. 3, the Shell Pipe Line in their Item No. 2 states: a timer or counter to provide for controlling "limiting" the daily production. This could be a timer with twenty-four hour reset to limit changing pipes to a preset pump time per day. This is merely a system of which they do not distinguish between pumping and flowing wells, but is a system that at which time the wells produce a predetermined amount or the lease produces a predetermined amount, certain wells will be shut down. This is a matter of operation, and I am sure that what would happen if we reached, say, 75 percent of our allowable, certain wells would be shut down and other wells would be allowed to flow; we would not produce our allowable and shut down the wells.

This is an operating problem whereby if some wells were shut, they would have to be swabbed to return to flow; these can be preset to shut down any individual wells at any given time, according to the test, how much they are producing at any given time, and this is the program I was speaking of. These wells can be set in the control house to flow any number of hours per day, to produce their allowable. At such time the accumulation of the lease, the total number of wells on the lease produce their allowable, then the control switch will shut down the entire lease system. It would be our contention, however, that we would try to regulate these wells so as to produce them at their allowable rate continuously.

Q Your time system is a lease timing system, or is it an individual well timing system?

A The timing system that they are talking about is a lease timing system. However, we have individual well control to determine how much each well will produce in a given time.

Q And is that regulated by choke?

A Also we can preset the length of time that well will be on production.

Q Then, it is an individual well timer?

A It is an individual well timer, but the preset -- the allowable preset is on a lease basis.

Q All right.

MR. UTZ: Are there any other questions?

QUESTIONS BY MR. PAYNE:

Q Referring to this Exhibit No. 3, which is the letter from Shell Pipe Line Corporation, have you, or do you propose to make all the changes that they recommended?

A Yes, sir, we do.

Q Are these all incorporated on Exhibit 2 now?

A Yes, sir, they are.

Q Now, referring to Exhibit No. 4, the letter of approval from the Commissioner of Public Lands, I notice that they ask whether you have the proper easement for the pipe lines. Do you have these?

A Not to date. We are in the process of obtaining those just the same as the royalty owners were in that process of getting theirs.

Q Now, if I understand you correctly, you testified that you have both high level pressure shut-off switches and low level, is that right?

A That's right, on the flowing wells.

Q You do not intend to produce more than fourteen wells into the centralized tank battery, do you?

A To my knowledge, it will be less than sixteen. I have not counted them, but I believe it is fourteen wells, if I recall.

MR. PAYNE: Thank you. I believe that's all.

MR. UTZ: Any other questions of the witness? If not, the witness may be excused.

(Witness excused)

MR. UTZ: Any other questions? If not, we will take the 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 11th day of May,
1959, in the City of Albuquerque, County of Bernalillo, State of
New Mexico.

Joseph A. Longella
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. 1651,
heard by me on March 16, 1957.
Donald W. [Signature], Examiner
New Mexico Oil Conservation Commission