

BEFORE THE  
NEW MEXICO OIL CONSERVATION COMMISSION  
Santa Fe, New Mexico  
August 20, 1958

IN THE MATTER OF,

CASE NO. 1497

TRANSCRIPT OF PROCEEDINGS

DEARNLEY - MEIER & ASSOCIATES  
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the applicant. We have one witness, Mr. Vick.

(Witness sworn in).

ROBERT H. VICK

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

DIRECT EXAMINATION

BY MR. CAMPBELL

Q Will you state your name, please?

A Robert H. Vick.

Q Where do you live, Mr. Vick?

A In Fort Worth, Texas.

Q By whom are you employed?

A By Ambassador Oil Corporation.

Q In what capacity?

A As Chief Engineer.

Q Have you previously testified before this commission and its Examiner in your capacity as Chief Engineer for Ambassador Oil Corporation?

A Yes sir, one time.

MR. CAMPBELL: Are the witnesses' qualification acceptable?

MR. UTZ: Yes, they are.

Q (By Mr. Campbell) Mr. Vick, are you acquainted with the water flood project in Lea and Chavez Counties, New Mexico, and known as North Caprock Queen Unit Number Two?

A Yes sir, I am.

Q Is Ambassador Oil Corporation the operator of that project?

A Yes, sir.

Q Has the area in accomplishing that project been unitized?

A Yes sir, it was unitized effective June 1 from 1800 acres --

Q June 1, 1958?

A '58, yes sir.

Q Is the oil being produced from the unit now being allocated in accordance with the terms of the unit agreement and unit operating agreement?

A Yes sir, it is.

Q All of the royalty is being allocated under agreement with toyalty owners?

A Yes sir, to the same unit agreement and unit operating agreement.

Q Mr. Vick, I hand you what has been identified as Applicant's Exhibit Number One in this case and ask you to state what it is, please.

A Proposed Exhibit Number One, is a plat of the unit area, Caprock Queen Unit Number Two, with the bordering operations, the Granidge Unit Number One to the East and the various operators to the South of the unit boundary.

Q Now, referring to that exhibit, will you state what the present status is with regard to injection wells and produced wells.

please?

A As noted in the legend at the lower left corner, we indicate the present producing wells, the present injection wells, the proposed injection wells and also the individual oil flow lines to the test headers and thr truck lines to the proposed LACT system and the central battery location for the LACT proposed installation.

Q Now, Mr. Vick, are all of the injection wells that are being used under authority granted by the Oil Conservation Commission?

A Yes sir, they are.

Q In orders not in effect?

A Yes, sir.

Q Now, will you state to the Examiner briefly what it is you desire to obtain by way of an order in this case?

A An order permitting us to commingle or to produce into a common battery system all of the oil produced within the unit boundary and to install a lease automatic custody transfer system for automatic metering of the produced oil to the pipeline.

Q Now, Mr. Vick, I hand you what has been identified as Applicant's Exhibit Number Two and ask you to state what that is, please.

A This is a schematic diagram of the proposed LACT system and together with an operational sequence explanation sheet attached to the upper right hand corner.

Q With regard to that operational sequence sheet to which

you refer to, that is a letter, is it not, from the National Tank Company to Ambassador Oil Corporation dated August 15, 1958?

A Yes, sir.

Q And does that set out in sequence the plan of construction and operation of this system?

A Yes sir, it does.

Q Was that letter sent to you by the National Tank Company at your request?

A Yes, sir.

Q And is it the original from the files of Ambassador Oil Corporation?

A That is correct, yes sir.

Q Was the diagrammatic sketch attached to the letter, which is also part of Exhibit Number Two, prepared by the National Tank Company?

A Yes, sir.

Q Did you consent with them in the preparation and planning of this particular installation?

A Yes sir, we did.

Q Now, using the diagrammatic sketch and the letter when necessary, will you explain briefly to the Examiner what the plan is with regard to the measuring of the automatic custody transfer of this oil?

A All right, sir. First, I might refer back to Exhibit Number One as far as the projected individual well tests centers

that we have projected in the plat. As you notice, there are four of them and with the six wells coming into each test center, this will allow us a weekly test on each producing well within the unit and from there the oil will be pumped back to the trunk line and proceed to the LACT installation where it will be metered through that LACT system.

It will come first to our treating facilities, which on the diagram you will notice the first unit is a free water knock-out. It will come from there.

Q Just a moment. On this free water knock-out, what will you do with the water that is removed from the oil at that point where it goes into the system?

A Well, this whole LACT system is located immediately adjacent to the present water injection plant and the water dump from this present water knock-out, the water produced, water from the unit, will be taken back into the injection system to be used in conjunction with the over-all water flooding operations.

From there, the oil and oil emulsion will proceed to the heater treater and the remainder of the water will be knocked out and pushed to the same place that the pre-water was put back into the injection system.

The oil will then progress to the settling tank which is indicated there as the 150 barrel cone bottom settling tank and through which a monitor is installed that will automatically gauge it or record the BS and W and any time that the BS and W content

exceeds the allowed pipeline figure of two tenths per cent or whatever the pipeline establishes, the oil will be recirculated back through the treating system until it does become merchantable oil and then proceed on through the system and into one 500 barrel, the first 500 barrel tank there shown on the series of tanks, and from there the oil will be taken off through the pipeline pump and through an automatic sampler which records a continuous sampling. There is a periodic sampling of the oil from there through the strainer and gasoline plate and into the positive displacement meters. We have two shown here which actually record all that goes through there but this is taken from one meter, but to be used as one to check against the other and then through a back pressure valve which will maintain a constant pressure on the meter insuring a further degree of accuracy and on through the pipeline system.

As you notice right below it, our back-pressure valve, we indicated there this 10 barrel API meter prover which is set in there to periodically check the accuracy of the PD meters.

These will be on a set type S-12 meter. They are identical with the type that is being installed in the Craridge installation, LACT installation unit, the one in the same field.

Q Is there any marked difference between the system you proposed and that which Craridge has been authorized in the other unit?

A ~~It is the same system identically except the size of the~~

treating equipment.

Our free water knock-out and our treater are a little different in size and also the settling tank. They had a six hundred barrel settling tank and we have a 1250 barrel settling tank which the pipeline requested.

Q Mr. Vick, with regard to this system, and from the point of view of the information available to the Commission, how do you intend to advise the Commission as to the production from each of the wells that are at the terminus of this system here? Will that be by periodic check, and if so, what nature do you plan?

A Our testing centers as they are set up will provide us with, as I said a minute ago, a weekly test with each well in the unit and from that well report, our oil and water production on our form C-120 just as we have in the past, will be forwarded to the Commission and insuring an accurate check on the progress and monthly operations on the overall unit.

Q Mr. Vick, if you are permitted to install this measuring system and transfer system into the pipeline, do you consider that it will result in a considerable saving to the operation of the project in an economic sense?

A Yes sir, our calculations indicate that this type of a system compared to a conventional storage battery regular tank system will save us somewhere in the neighborhood of forty-five thousand dollars of eventual cost.

Q Do you believe that that additional economic factor could result in a lower economic limit to the operation of this water flood project and in that way result in a greater ultimate recovery of oil than if the system were not installed?

A Yes sir, I do. I believe it would. All of the aspects allow the operator to continue operations a little bit longer time thereby recovering a little bit more oil than you normally would otherwise.

One of the aspects of a system such as this is a decreased, slightly decreased amount of personnel required of overall operations, some 20 per-cent decrease in operating personnel required for general operations.

Q And in addition to what you have already mentioned, are there any other factors of automatic control here with regard to the system fouling up in its operation, over these tanks or anything of that sort that can be utilized in that event, if the system ceases to operate?

A The series of tanks, 500 barrel tanks, that are shown on the diagram up here, actually during normal operations, the oil will be pulled from the first 500 barrel tank through the pipeline pump and through the metering system.

Should the merchantable oil or produced oil have too high a BS and W content for too long and the fluid level built up in the settling tank to approximately two feet, it would come over to these three or four additional 500 barrel tanks shown in the series

and then when merchantible oil becomes available, it would come through the same system and these overflow tanks and could then in turn be pulled back through the treating system and treated out and operations proceed as on a normal basis.

If something should go wrong with the overall automatic setup, the pipeline system is tied in, as you see, with normal pipeline connections on all of the overflow tanks with normal operations with the pipeline and could be conducted without the automatic custody transfer system.

Q Mr. Vick, do you see any way in which a system of this type could possibly result in any waste of oil?

A No sir, I do not.

Q Inasmuch as you have here involved a united area with a single zone or formation producing, do you see any way in which correlative rights could be abused by this system?

A No, I see none whatsoever.

Q Do you believe that the system will provide you and the Commission with adequate and efficient information concerning the production from each of the wells in the unit for the purposes of regulations and for your purposes of administration of the project?

A Yes, sir.

Q Has this matter been discussed with the pipeline company now purchasing your oil?

A Yes sir, this identical diagram and a list of equipment

and so on and so forth has been presented to the Service Pipeline Company who are presently taking the oil and has been approved by them.

Q I hand you what has been identified as Applicant's Exhibit Number Three, Mr. Vick, and ask you to state, if you will, what that is?

A This is an answer to a letter of inquiry sent to the Service Pipeline wherein we presented this schematic diagram with a sequence operational data sheet and our general proposal, and the letter in return is an approval of that overall proposal.

Q Is it your opinion from your contact with the Pipeline Company that a system such as this will actually aid in the easier and more uniform flow of oil through the pipeline system?

A Yes sir, it is our impression that they are very desirous of approving such measures as this and more in the future.

It decreases the personnel requirements and as you say, eases the congested time period through the pipeline system allowing them to maintain better schedules and actually handle more oil if necessary through the present system.

MR. CAMPBELL: I would like to offer Applicant's Exhibits One, Two and Three in evidence.

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

MR. CAMPBELL: That is all I have at this time, Mr. Examiner.

MR. UTZ: Are there any questions of the witness?

CROSS EXAMINATION

BY MR. STAMETS:

Q Will corrosion be a problem in the flow lines?

A We are preparing for it. All of our system will be cement lined.

Q And what safeguards are being made against pipeline breaks?

A Well, actually most of it, with the exception of about 14,000 feet, all of the system proposed will be new pipeline and will be cement lined and graded at sufficient pressure that we don't anticipate any trouble from that standpoint.

Q There probably will be somebody in the lease everyday, won't there?

A Yes, sir.

Q And how will the water production be measured?

A Through these individual testing centers that we explained there as far as approximately one test a week per producing well. We haven't established or decided exactly on how our testing procedure will be or our equipment, whether it will be conventional test tanks or whether it will be a metering type oil and water separation system or just what it will be, but we will be able to obtain a definite figure on the oil and water produced.

MR. STAMETS: That will be all.

MR. UTZ: Mr. Fischer?

CROSS EXAMINATION

BY MR. FISCHER:

Q You say that each of these tanks starting with this first tank, that these three tanks are 500 barrel tanks?

A Yes, sir.

Q And your equalized line coming up out of the settling tank by-passes the first tank?

A Yes, sir.

Q And Service, do they require that your oil be heated in the winter time or do they require that Ambassador install your own heaters for that?

A Yes sir, they just require certain conditions for the crude, BS and water contents and certain things, That's all up to us to maintain that or something under that.

Q As you know, there is salt being produced with that crude in the Caprock Queen. How will that be taken care of? What I am getting at is, do you think it will foul up these meters here?

A We have gone over that in detail. Actually, that is a parafin problem, Mr. Fischer, and the pipeline has been satisfied and they are the important ones as far as the continued operation of the meter. We have an approver there that will be a plastic lined 10 barrel tank where the meters will be checked periodically and they have stated that probably during initial operation of the installation, that they will probably run several checks during the

first week and then decrease the number as the operations indicate there.

Q I believe most of the salt usually comes out at the separator, anyhow, doesn't it? Do you find that to be true up there?

A Actually, in our conventional storage systems we have never been bothered by too much salt. It is down in the producing well where we have had the trouble with the salt.

Q One other thing. Do you know the capacity of this treater?

A It is approximately 8,000 barrels a day, depending on our emulsion cut content.

Q But you will probably get most of the water out at the free water knock-out and there won't be too much water from there on?

A Along those lines, we intend to set several chemical pumps if necessary at the wellhead and along the flow lines and most of our water will be out since it is a water flood operation. That's fairly normal.

Q What is the route of the water out of the knock-out? Does it go through a treating system?

A It will go through a filtering system.

Q That's already there?

A We will install it there. We have individual line filters now on our injection wells and as soon as we get samples of the produced water coming back to determine whether or not line

filters will take care of it or whether we will have to put in regular filtering equipment.

MR. STAMETS: Thank you.

MR. UTZ: Any other questions?

MR. PAYNE: No.

CROSS EXAMINATION

BY MR. UTZ:

Q Mr. Vick, what will be your line pressure in the gathering system or trunk system on this?

A Its been sized to maintain somewhere between zero and a maximum of fifty pounds. We don't anticipate any over that, we might end up slightly inches of that with paraffin build-up if that problem continues, but we will be treating and so on if that does build up, so we don't feel that pressure will be any problem on the gathering system.

Q Do you feel that your lines are heavy enough to withstand any pressure you might have at the wellhead in the event of complete line pluggage?

A Yes, they are actually in the range of 1200 to 1500 pounds working pressure.

Q I take it that you are of the opinion that an automatic shut-off at the wellhead would not be necessary in case of line breakage?

A We are contemplating on several of the big wells of installing a pressure type cut-off to be actually actuated from a

system here if these overflow tanks should fill up, that several of the large wells would be shut down by pressure control.

Q Due to an increased pressure?

A Yes. Well, there will be actually a pressure switch mounted in it so that if the pressure exceeds, say 50 pounds, the well would be automatically shut in.

Q My question was directed to lower pressures in case of line breakage. That will not seal in case of line breakage, would it?

A No, sir.

Q Is it your intention to install any such --

A We hadn't contemplated on it, Mr. Utz. The well will have operational personnel in the field at all times and we don't feel that our breakage problem will be any trouble.

Q Will these lines be buried or in the surface?

A It will be on the surface except for road crossing and congested areas.

Q How long do you anticipate that it will take to install this system?

A Well, from approval and deliveries of equipment and such, National Tank has given us a figure of five to six weeks.

Q That's their shipping date or are they going to install the system, too?

A They will supervise the installation. We will actually furnish the labor and so on and so forth.

Q Mr. Vick, are you familiar with the system as outlined and approved, as requested by Craridge and approved by the Commission, which was used in the Caprock Unit Number One, Craridge Caprock Unit Number One?

A Yes sir, I am.

Q Does this system differ in any manner from that?

A Nothing except the size of the treating equipment, Mr. Utz, and the settling tank is some 600 barrels larger.

Q This system is larger or theirs?

A This system is larger.

Q Is the treater larger?

A I am not sure whether it is the same size treater or whether it is slightly larger.

Q Other than that, you know for a fact that this system is the same as the one that is installed?

A Yes, sir. The metering and overall diagram.

MR. UTZ: Are there any other questions of the witness?

MR. CAMPBELL: May I ask two or three questions to clear up some points that were brought up?

MR. UTZ: Yes.

REDIRECT EXAMINATION

BY MR. CAMPBELL:

Q Mr. Vick, Mr. Examiner asked you a question as to when you contemplate that that this system will be completed. You said approximately six weeks after the approval or did you say that it

would be installed after that?

A That five to six weeks should be operational date, Mr. Campbell.

Q Now, the other question that I had, the question was asked you with regard to the possibility of breakage insofar as the main line system is concerned. I believe you said that was to be installed in the proximity of the present water injection system, did you not?

A Yes, sir.

Q And would it not customarily be the case that you would have personnel within that general area most of the time during the operation of this project?

A Yes, sir.

Q Handling the water injection features?

A Yes, sir.

Q With regard to the periodic tests for water from the individual wells, is it not quite essential to the operator of a water flood project that he maintain those contacts and have current information on water production from individual wells in order to properly operate the system?

A Yes sir, it is very important.

Q So it would be conducive to your best interests to maintain careful contact and close supervision and measuring systems for individual wells in this particular type of project, would it not?

A Yes, sir.

MR. CAMPBELL: That is all.

MR. UTZ: Any other questions of the witness?

(No response).

MR. UTZ: If not, the witness may be excused. Are there any other statements to be made in this case? Is that all, Mr. Campbell?

MR. CAMPBELL: Yes, sir.

MR. UTZ: The case will be taken under advisement.

The hearing is adjourned.

(Witness excused).



