BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
NOVEMBER 30, 1960

IN THE MATTER OF:

CASE 2134 Application of Nearburg & Ingram for a dual completion, for permission to commingle the production from two separate pools, and for an automatic custody transfer system. Applicant, in the above-styled cause, seeks an order authorizing the dual completion of its Midhurst Well No. 1, located in the NW/4 NW/4 of Section 35, Township 12 South, Range 37 East, Lea County, New Mexico, in such a manner as to permit the production of oil from an undesignated Pennsylvanian Pool and the production of oil from the Southwest Gladiola-Devonian Pool through parallel strings of tubing. Applicant further seeks permission to commingle the production from said two common sources of supply from all wells on its Midhurst Lease consisting of the NW/4 of said Section 35 and for permission to install an automatic custody transfer system to handle said commingled production.

CASE 2135 Application of Nearburg & Ingram for an order creating a new oil pool and for the promulgation of temporary special rules and regulations therefor. Applicant, in the above-styled cause, seeks the creation of a new oil pool for Pennsylvanian production consisting of the NW/4 of Section 35, Township 12 South, Range 37 East, Lea County, New Mexico. Applicant further seeks the promulgation of temporary special rules and regulations governing said pool including a provision for 80-acre proration units.

BEFORE:

Daniel S. Nutter, Examiner.

TRANSCRIPT OF PROCEEDINGS

MR. NUTTER: The hearing will come to order. The next case will be 2134.

MR. MORRIS: Case 2134. Application of Nearburg & Ingram for a dual completion, for permission to commingle the production from two separate pools, and for an automatic custody transfer system.

MR. CAMPBELL: Mr. Examiner, I am Jack M. Campbell, Campbell & Russell, Roswell, New Mexico. I would like to move that Case No. 2134 and Case No. 2135 be consolidated for the purpose of the hearing and that we call Case 2135, if the motion be granted.

MR. NUTTER: They both relate to the same area, Mr. Campbell?

MR. CAMPBELL: They do.

MR. NUTTER: We also call Case 2135 at this time.

MR. MORRIS: Case 2135. Application of Nearburg & Ingram for an order creating a new oil pool and for the promulgation of temporary special rules and regulations therefor.

(Witness sworn)

TOM L. INGRAM,

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

DIRECT EXAMINATION

BY MR. CAMPBELL:

Q Will you state your name, please?

A Tom L. Ingram.

Q What is your business or position?

A Graduate geologist.

Q Have you previously testified before this Commission or its Commissioners in your professional capacity?

A I have.

MR. CAMPBELL: Are the witness' qualifications acceptable?

MR. NUTTER: Yes, sir.

Q (By Mr. Campbell) Are you acquainted with the application of Nearburg & Ingram in Cases 2134 and 2135 now before the Commission?

A I am.

Q Will you state what you are seeking with regard to those two cases, Mr. Ingram?

A We are seeking to establish a new oil pool from the Atoka Pennsylvanian, dually complete the Devonian and the Atoka to commingle the oil and to set an automatic custody battery.

(Whereupon, Applicant's Exhibit No. 1 was marked for identification.)

Q I hand you what has been identified as Exhibit No. 1 in these cases, and ask you to state what that is, please.

A Exhibit No. 1 is a subsurface structural contoured to the top of the Atoka sand which has been designated by the Commission as the Southwest Gladiola area, the Nearburg and No. 1 Midhurst located in the northwest quarter of the northwest quarter of

Section 35, 12 South, 37 East, and was drilled to the Devonian. In the process of drilling the well we encountered shows in the Atoka sand which were drill stem tested and then we drilled to the Devonian, ran pipe to the Devonian and, however, prior to completing in the Devonian, we ran production tests in the Atoka zone.

Q Mr. Ingram, with regard to Exhibit No. 1, what area are you now seeking to have included as a part of the Atoka-Pennsylvanian Pool here?

A We have requested that the northwest quarter of Section 35 be included.

Q You are acquainted, are you not,with the order of the Commission which defined and set up temporary rules for the Southwest Gladiola Pool, are you not?

A I am.

Q In your opinion, and based upon the information you presently have available, are the possible limits of this Atoka-Pennsylvanian zone in this area generally coextensive with the limits of the Southwest Gladiola-Devonian Pool?

A Yes, I believe they will be in addition to the Nearburg and Midhurst No. 1 Moss 4 peak of the northeast dual offset to have drill stem tested the same zone and oil from it. The only other well that has possibly tested it would be the Maxbury No. 1 Rufus Craig. And in Section 27, the reason possibly is that the sand interval is extremely thin and the drill stem test they took covered a very large interval and it did recover water on it.

Q Your No. 1 Well that you have mentioned here is not now within the defined limits of the Southwest Gladiola Pool, is it?

A It is not, other than the fact it is within a mile of the well.

Q You did encounter commercial production in that Pool, did you not?

A We did.

(Whereupon, Applicant's Exhibit No 2 was marked for identification.)

Q Now, I'm going to hand you what has been identified as Exhibit No. 2 and ask you to state what that is.

A Exhibit No. 2 is a log on Nearburg No. 1 Midhurst.

Q Referring to Exhibit No. 2, will you point out to the Examiner the zones that are involved in this application?

A On the lower portion of the regular 2-inch scale in the log, at the 11,119 to 11,124 feet is indicated the perforations in the Atoka sand, on the basil portion of the log at 12,188 to 12,198 we have indicated the Devonian perforations.

Q So you have an interval between the two zones in excess of 1,000 feet?

A That's correct.

Q In your opinion, are these two zones completely segregated by impermeable area zones vertically?

A They are completely separated by the various formations and also with pipe and cement in the well bore.

Q Now, will you state to the Examiner briefly the completion history of the No. 1, which you are now seeking to dually complete?

A Upon drilling to a total depth, 5½-inch casing was set and cemented and then the Atoka sand was perforated at the 11,119 to 11,124. The perforations were washed with 500 barrels of mud acid and the well was placed on production tests. It flowed 358 barrels of oil in seventeen hours on various choke sizes ranging from 1664 to 2464.

Q In the Atoka zone?

A This is in the Atoka zone. The GOR averaged 4,000 to 1. The gravity of the oil was 52 degrees. We do not have bottom hole pressure tests other than that taken on the drill stem test and that pressure, the pressure at that time was 3565.

Q Now, you have stated, as I recall, that the GOR was 4,000 to 1, and the gravity of the oil was 52 in the Atoka zone. Will you give the comparable information with regard to the Devonian zone, please?

A In the Devonian the gravity was also 52 degrees. The GOR was 650 to 1.

Q Do you have any information regarding the flowing and shut-in pressures in the Atoka-Pennsylvanian from your testing?

A The pressures obtained on drill stem test in the Atoka formation are flowing pressure, initial flowing pressure was 2,080, the final flowing pressure was 25, but the initial shut-in -- the

final shut-in pressure, 3565, the significance of this being that we have excellent permeability in the sand.

Q From the information you have available as to the pressure differentiation, do you believe,and considering the relation of that to permeability, do you believe that a well in this Atoka-Pennsylvanian zone will efficiently drain 80 acres?

A I believe it will drain at least 80 acres.

Q Are you, in this application, asking for a temporary spacing which will run consecutively in time with the present order in the Southwest Gladiola Pool?

A Right, for 80-acre spacing along with the specified present order.

Q So you expect if the order is issued, it will have a terminal date which will be identical with the date on which you will have to come before the Commission again for any extension of the 80-acre spacing order in the Southwest Gladiola-Devonian Pool?

A That's correct.

Q Are you also asking that the spacing requirements and well location be the same in this particular pool as in the other Devonian?

A Yes.

Q With regard to the economics of drilling additional wells to this Atoka-Pennsylvanian zone, will you give the Examiner the information you have with regard to computation of reserves and possible payout on the Atoka-Pennsylvanian zone alone, in the event

you were unable to dually complete this well with the Devonian?

A As I have previously stated, we have no core data, only the log data. So by making volumetric calculations from the log, we have a net pay thickness of 6 feet, average porosity of 18 percent, water saturation is 48 percent.

MR. NUTTER: What, 6 feet of pay, 18 percent porosity?

A 48 percent water saturation.

MR. NUTTER: 48 percent water saturation?

A Yes, sir. On the basis of this data, it would appear we will have approximately 125 barrels per acre foot or 750 barrels per acre. This would give you reserves in the order of 30,000 barrels for 40 acres, or 60,000 barrels for 80 acres.

Q What do you estimate the cost of drilling a well would be, drilling and completing a well in the Atoka-Pennsylvanian zone?

A Well, we feel a well, solely for this one particular formation, it would cost approximately two hundred thousand dollars.

Q So then on the basis even of 80-acre spacing this presents a matter of a very questionable investment, is that correct?

A That's correct.

Q If you were called upon to drill wells on the basis of 40-acre spacing, do you believe it would be economically feasible to recommend to your company they drill a well to develop this particular zone?

A I do not.

MR. CAMPBELL: That's all the questions I have of this

witness.

MR. NUTTER: Any questions of the witness?

CROSS-EXAMINATION

BY MR. PAYNE:

Q Mr. Ingram, I believe you testified that you are seeking substantially the same type order as entered in the Southwest Gladiola-Devonian case?

A Yes.

Q I presume you also meant flexible well location pattern so that you can dual these wells?

A Yes, sir, I would want it to go right along with that one.

Q And inasmuch as you have testified the two reservoirs are relatively coextensive at levels you dual the wells, in the area that you drill to dually complete them in both?

A Assuming they are quite productive in both zones.

Q What disposition is being made of the well from the Southwest Gladiola?

A It is going to Service Pipeline Company.

Q It doesn't have to be trucked, then?

A No.

Q Between now and the time the case is heard again for permanent rules, do you propose to gather core data and take interference tests? Do you feel they will be of some benefit?

A Interference tests?

Q One well to the other as additional development in this area takes place?

A We have made no plans to actually shut the well in from the standpoint of running interference tests. The only well, as I say, that is in now is the Nearburg Midhurst, and I assume the Moss Well as soon as it has shown production will probably be quite completed in the similar manner.

Q That's what I'm getting at. The time is going to be excellent to gather additional information on this particular Atoka Pool, inasmuch as the Southwest Gladiola is to be heard again in July, this coming July?

A Right.

Q Do you feel you will have much more additional information as to the drainage in this Pool at that time?

A Well, I feel by the July hearing there will be at least two to four more wells in the area.

MR. NUTTER: In the Atoka?

A Well, in the Southwest Gladiola area, which, to reach the Devonian, they have to go through this formation, they should have that data available.

MR. PAYNE: Thank you.

BY MR. NUTTER:

Q Well, some of the wells in here are Devonian, some of them are Wolfcamp, and some of them Atoka, then one Atoka so far?

A Right, yes, sir.

Q Are any of the wells which are completed in the Wolfcamp and Devonian dually completed?

A No, sir, there are no duals in the area.

Q No duals here yet?

A No.

Q Mr. Ingram, you gave us the bottom hole on drill stem test in the Atoka as 3565?

A We didn't give a bottom hole pressure test to the Devonian. Bottom hole pressure on the Devonian, 4640.

Q You also stated it would cost two hundred thousand dollars to drill to the Atoka for a completed flowing well?

A That's right.

Q What is the estimated cost of the dual completion, if you've got a well to the Devonian, say?

A Approximately two hundred and seventy-five thousand dollars.

Q I meant for the dual completion itself. If you had a well in the Devonian, if you wanted to dual it?

A Additional would be approximately thirty thousand dollars.

Q Stated that Moss had taken a drill stem test to the Atoka, on the No. 4 Well?

A Yes, sir.

Q Do you know if it is their intention to complete that well in the Atoka or not?

A It's my understanding he plans to.

Q What is the status on your lease in the southeast quarter of the northwest quarter of Section 35?

A It was drilled in 1954 by the Lawton Oil Corporation No. 1. It was drilled to the Devonian and was established as a dry hole. We plan to reenter this hole and attempt to make both the Devonian and the Atoka completion.

Q How do the logs look in the Atoka itself?

A They are rather comparable to what they are here, slightly lower.

Q Do you know of any other wells that had a show in the Atoka in this area besides yours and the Moss No. 4?

A The Arthur Maxbury Well upon which the previous hearing was based is structurally the high well.

Q What is the location of that well, please?

A It is in the northeast of the southwest.

Q Of 27?

A Right, yes, sir. No tests have been taken on it. The only three wells that had tests in them are Midhurst, the Moss No. 4, Peck and the current Maxbury Well. Skelly did take tests in their No. 2 Foster in the northeast quarter of the southeast quarter of Section 27. However, it appeared from the logs that they did not include the sand they set the packer right at the base of the sand. One reason, possibly, that the sand has not been tested previously, it is angular, quite coarse, quite quartz sand, which

drills extremely hard, and the shales, both above and below, drill quite softer than this does,and cores of the high gravity and the hard nature of the sand, that you get no visible staining in your samples on it.

Q So all data you gave us, the 6 foot, 18 percent porosity, the 48 percent water saturation, are all estimates, is that correct? None of these are actual measurements?

A They are taken from --

Q Calculated?

A Off the log, yes, sir.

MR. NUTTER: Mr. Campbell, will someone else test on the mechanical installation here?

MR. CAMPBELL: Yes, sir.

BY MR. PAYNE:

Q Mr. Ingram, in the Southwest Gladiola case, if you recall, there might be a fault between the Maxbury and the Moss Well in the Devonian, andthe Skelly Well between them was drilling at that time. Do you have any information as to what that Skelly Well did?

A Skelly Well was completed as a drill hole. It was lower structurally than either the Moss or the Maxbury Wells.

Q That's the reason you bend your contours, to take care of that low well?

A That's the reason, it's the reason the Devonian is relatively the same, I mean with slightly steeper dip, as the structure

we have shown here.

MR. PAYNE: Thank you.

REDIRECT EXAMINATION

BY MR. CAMPBELL:

Q Mr. Ingram, with regard to the Moss Well No. 4 which is northeast of your well, have you discussed this application with the Moss people?

A I have, and Mr. Little called at noon to state he would be unable to be here when -- Mr. Little is with H. S. Moss, and he was running a drill stem test on this well, then he would be unable to -- however, he would like to enter Moss in favor of the proposal we have made.

Q So that Moss, the Moss people favor all of the requests that you are making here, is that correct?

A They do.

MR. CAMPBELL: That's all the questions I have of this witness.

MR. NUTTER: Any other questions of Mr. Ingram?

RECROSS-EXAMINATION

BY MR. PAYNE:

Q Do you think the Moss Well is completed in the same pool as the Maxbury Well?

A In the --

MR. NUTTER: Devonian.

A Devonian. Until we get a little more information, I

think it is extremely difficult to say. I recall at the last hearing we had all of the maps with 98 faults or 48 faults and what not.

MR. NUTTER: Now, the default goes around the pool?

A This is an extremely simplified verson. However, one I can logically say will fit the Atoka picture as we have it now.

MR. NUTTER: These contours --

A On top of the Atoka sand.

MR. NUTTER: This is Atoka and doesn't reflect the structure in the Devonian necessarily, or do you think the Devonian --

A I feel -- in other words, this reflects the Devonian structure that we have.

MR. NUTTER: I see. Which was, the available information would indicate that the Moss Well and the Maxbury Well would be the same pool?

A Right.

Q And the Skelly merely lower on the same structure?

A Yes.

MR. NUTTER: Any further questions of Mr. Ingram? You may be excused.

(Witness excused)

MR. CAMPBELL: Mr. Gray.

RALPH L. GRAY,

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

DIRECT EXAMINATION

BY MR. CAMPBELL:

Q Will you state your name, please?

A Ralph L. Gray.

Q Where do you live, Mr. Gray?

A Artesia.

Q What is your position and business association?

A I am a petroleum engineering consultant.

Q Have you previously testified before this Examiner or this Commission in your capacity as petroleum engineer?

A Yes, I have.

MR. CAMPBELL: Are the witness' qualifications acceptable?

MR. NUTTER: Yes, sir.

Q (By Mr. Campbell) Have you been employed by Nearburg & Ingram in the consulting capacity for the purpose of supervising the installation of a dual completion in their No. 1 Midhurst Well?

A Yes, sir.

(Whereupon, Applicant's Exhibit No. 3 was marked for identification.)

Q I hand you what has been identified as Applicant's Exhibit No. 3, and ask you to state what that is, please.

A Exhibit No. 3 is a diagram showing the mechanical aspects of this proposed dual completion installation. As the diagram shows, there will be two blower strings of 2 1/16-inch tubing,

there will be a Baker Model "D" production packer, which will be set between the Devonian and the Pennsylvanian-Atoka sand. The long string of tubing will then be set down into the top of the permanent type packer. Then above the Pennsylvanian-Atoka sand will be a Baker Model "K" retrievable type dual packer, and the short string of tubing will be set in with the top of this packer. Then other equipment will be Garret circulating nipple at the bottom of the short string to facilitate changing fluids in the annulus, if desirable, and then there will be seating nipples in the bottom of each tubing string. That, in essence, is the completion.

Q To your knowledge, is this type of dual completion with the twin tubing one that is in use in New Mexico at this time?

A Yes, it's one that is similar to other installations in the State.

Q Do you believe this type installation can be used without any danger of communication between the two producing zones?

A Yes, sir, I do.

Q Do you believe that it can be completed without any risk of waste of oil from either of the two zones?

A Yes, sir.

(Whereupon, Applicant's Exhibit No. 4 was marked for identification)

Q Attached to the application in this case, Mr. Gray, I believe there is a diagrammatic sketch of the Christmas Tree assembly. Are you acquainted with that?

A Yes, I have seen that.

Q Referring to that Exhibit, is that proper representation of the installation that you intend to make if this application is granted?

A Yes. That shows the type of wellhead equipment Christmas Tree installation that is proposed. This is normal installation for dual completions.

MR. CAMPBELL: That's all the questions I have of this witness, Mr. Examiner.

MR. NUTTER: Any questions of Mr. Gray?

CROSS-EXAMINATION

BY MR. PAYNE:

Q Mr. Campbell, did this witness propose to testify on LACT?

MR. CAMPBELL: No, sir. We have another witness to testify on the LACT.

Q (By Mr. Payne) It is possible to efficiently lift post zones, if necessary?

A That's right.

Q And the top of the cement on the long string is 8500 feet, is that correct?

A That's correct.

MR. NUTTER: Any further questions of Mr. Gray? You may be excused.

(Witness excused)

MR. CAMPBELL: Mr. Williams.

GEORGE W. WILLIAMS,

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

DIRECT EXAMINATION

BY MR. CAMPBELL:

Q Will you state your name, please?

A George Williams.

Q Where do you live, Mr. Williams?

A Midland, Texas.

Q By whom are you employed?

A Mid-Continent Supply Company.

Q What capacity?

A Divisional sales engineer.

Q As divisional sales engineer, have you had occasion to consult with Nearburg & Ingram with regard to possible installation of LACT unit in connection with their lease on which the Midhurs No. 1 is now situated?

A That's correct.

Q And have you had thereby prepared, your company prepared sketches of the installation that you contemplate using in the event such a unit is approved by this application?

A We have.

(Whereupon, Applicant's Exhibit No. 4 was marked for identification.)

Q I refer you to what has been identified as Exhibit No. 4 and ask you to state what that is, please.

A This is a proposed LACT system for the Midhurst Lease.

Q Will you, then, point out to the Examiner how the system would operate with regard to the production from this dually completed well?

A Well, the production from the Pennsylvanian and Devonian would come into headers and then the Pennsylvanian production would go through a treater and the Devonian production will go through a treater. We propose to meter the Pennsylvanian production with a PD type meter basin engineering type 8 5 T. The Devonian oil then, and the Pennsylvanian oil would commingle and go to the shipping tank, and you will notice the shipping tank has three switches in it, the four-foot level is the stopping switch, the twelve-foot level isthe starting switch for the LACT unti itself. In the event of bad oil, a BS&W Montrey probe which will divert the bad oil into the bad oil tank by means of a clay valve which is on top of the tank. Both of these clay valves are energized one of them opened on the shipping tank, the other one closed on the bad oil tank. If the monitor detects bad oil, then it will close the shipping oil valve and open the bad oil tank. We have a bad oil switch in the bad oil tank which would automatically start up a surge pump and recirculate bad oil back to the Devonian treater. For safety purposes, we have a high safety shut-in switch which will be operated automatically. And in the event of malfunc-

tion, it will shut in the two safety shut-in valves back at the header. Of course, the LACT unit itself has the normal safety features incorporated in it, such as allowable shut-in in the meter itself and the detector switch in the meter which, in case you weren't getting any oil from the shipping tank, it would shut down the LACT pump.

Q Are you acquainted with the personal supervision that is intended with regard to this lease availability of personnel to check the operation of the equipment?

A Yes, sir.

Q What is the situation on that?

A There would be a pumper by each day, of course, or at least once a day to check this particular equipment.

Q In view of what you call safety equipment that is available here, do you believe there is any danger of the waste of oil as a result of the operation of this system in the event some malfunction develops?

A No, it would simply shut the wells in.

Q To your knowledge, are there other installations of this type or identical with this in operation in New Mexico which have been approved by the O.C.C.?

A There are a number of these which have been approved by the Commission.

Q Do you know offhand any of them?

A Pan American has several in operation, Abo Field. I be-

lieve Great Western has some of them on Caprock. Hondo Oil & Gas in the Abo Field.

(Whereupon, Applicant's Exhibit No. 5 was marked for identification.)

Q I hand you what is identified as Applicant's Exhibit 5, and ask you to state what that is.

A This is the LACT unit itself which includes a transfer pump, the strainer, air eliminator, a type T-6 meter with allowable shut-in, a sampler, back pressure injuection valve, and also prover connection for prover tank.

Q That is essentially what's to be installed on the LACT unit on this particular installation?

A That is essentially what is going to be installed. That doesn't show the panel. There is a panel for controls.

Q In your opinion, can this system be installed and operated in connection with the production of oil from these two zones without waste?

A Yes, sir, it would probably save light in -- it's a tightly closed system. Any system that is closed will be an advantage conservationwise, it will not lost light.

Q You heard Mr. Ingram testify the gravity of the oil from each of these two are the same, 52, did you not?

A Yes.

Q The oil under this system from those two zones, if approved by the Commission, will be commingled, will it not?

A Yes, sir.

Q Of course, being the gravity that will not affect the value of the oil, will it?

A No, it would not.

Q Has this installation been discussed with the pipeline purchaser or the purchasing company who is, which is running this oil?

A Yes, sir, I discussed it with Service Pipeline at Lubbock andthe New Mexico office.

(Whereupon, Applicant's Exhibit No. 6 was marked for identification.)

Q I hand you what has been identified as Exhibit No. 6, and ask if that is a letter directed to Mr. Ingram in connection with the discussion of the installation from the Service Pipeline Company?

A Yes, this is the letter.

Q This letter does approve the installation, does it not?
A Yes, sir.
Q I notice they have made reference to the necessity for installation of the back pressure ahead of the prover tank connection.

A That's shown on the diagram there, the schemmatic, the back pressure valve is placed in back of the prover connections.

MR. CAMPBELL: I have no further questions of this witness.

MR. NUTTER: Any questions of the witness?

CROSS-EXAMINATION

BY MR. PAYNE:

Q Mr. Williams, if I understand your diagram right, you don't promise to separately meter the production from the Devonian?

A That's correct. We would just simply meter the Pennsylvanian and deduct that from the total from the LACT meter, and that would be the Devonian production.

Q Doesn't that charge all the shrinkage that might occur, if any, to one zone only?

A I don't believe so. I think we have plenty of time in the shipping oil tank to allow that that.

Q How are you going to attribute the shrinkage back to each zone if you only meter one side 50 percent to each?

A I feel they're both the same gravity, probably be the same amount of shrinkage.

Q Do you think there is any shrinkage in the LACT system of this type, or do you consider it negligible?

A Negligible, yes, sir, negligible amount.

Q Do you feel that in a case where an operator only going to use one meter you should use a non-reset type meter and take his allowable as reflected by the meter reading since there isn't going to be any shrinkage, or it's going to be negligible?

A I didn't understand that question.

Q Well, now, usually what you do, say your allowable is

100 barrels, you deliver that one hundred barrels to the tank where you sell it, isn't that right?

A Yes, sir.

Q Now, assuming there were shrinkage, 105 percent might have gone through the meter and be reflected by the meter, might there not?

A That's possible.

Q So that if there is no shrinkage, the meter reading should be actual oil that's sold and should, therefore, reflect the allowable. In other words, you have 100 barrels, you run 100 barrels through the meter?

A Right.

Q And I don't suppose you can speak for the operator in this case, but would such an installation seem reasonable to you?

A Well, it can be easily installed, we are just trying to conserve some money, around five hundred dollars additional cost for that type of meter.

Q What would two meters cost?

A I'd say five hundred each.

Q Five hundred each?

A Yes, sir.

MR. PAYNE: Thank you.

BY MR. NUTTER:

Q Mr. Williams, you mentioned the names of a number of installations similar to this in operation in the State of New

Mexico. First, may I ask you if this Atoka formation is capable of making top allowable in the Atoka Pool?

A Yes. You asked if it will?

Q Yes, sir, if the Atoka completion is capable of making top allowable for the Pool?

A I believe that's right.

MR. NUTTER: Will the Devonian make top allowable, Mr. Williams?

A Yes, sir.

Q You stated you were acquainted with several similar installations in the State of New Mexico. Are you acquainted with the single installation anywhere in the State of New Mexico where top allowable wells are permitted to commingle with only one meter installed?

A I was referring to the system, LACT system itself.

Q The LACT unit itself, as depicted in the Exhibit?

A The way we are bringing it into the two probes with the probe and the riser, the monitor probe using the bad oil and the shipping tank.

MR. CAMPBELL: Mr. Examiner, I might say on that. Of course, the operator, I am sure, will install whatever measuring equipment the Commission advises. Due to the minimum amount of shrinkage, that is, the fact this type of system simply on the position that it might be satisfactory to the Commission to calculate the production from the Devonian in this fashion. Any metering

Q The high level?

A The 12-foot high level switch.

Q What I'm thinking of, in the event that a malfunction of the equipment should occur, just prior to turning on just when the oil gets up to the 12-foot level, then you have a malfunction and the wells are still producing all right, you've got three foot of available space from the 12-foot high level switch to the high safety switch in equivalence --

A Right.

Q -- would be approximately 100 barrels?

A Yes, sir.

Q And then overflow?

A Actually, you wouldn't have an overflow because your well would shut-in there because the high level switch is below the equalizer line.

Q Good oil would never overflow there into the bad oil tank?

A That's right.

Q In the event of malfunction, 100 barrels of available storage capacity prior to the time the high safety shut-in switch is adequate at this time?

A That's right.

Q Which switches in the header?

A Yes, sir.

Q These are high pressure valves?

A Yes, sir.

Q What accommodation is made for this high pressure on these flow lines while these wells are shut-in?

A These lines will be buried, and there will be pipe for the return of these wells.

Q What is the strength on this type of pipe?

A Sir?

Q What is the test pressure on these flow lines?

A It will show the pipe will carry approximately 4000 pounds per square inch.

Q What are the shut-in pressures on these wells?

MR. WILLIAMS: Do you have that information, Mr. Ingram?

MR. INGRAM: The shut-in pressure on the Devonian is around 900 -- excuse me -- 700 pounds, and on the Pennsylvanian it was 1800 pounds. Surface pressure per specification.

MR. WILLIAMS: Well, both these safety pounds have body of 3000 pounds working pressure. They are normally closed valves and will require pressure to open them, so any malfunction in there we lose our pressure, and they will automatically shut-in, and, of course, if the high safety valve there rises, why, it will send a signal down and relieve the pressure.

Q Is there any known corrosion problem in the Devonian or Atoka in this area?

A Not to my knowledge.

Q And you don't anticipate, then, you will need any kind of corrosive resistance equipment in this automatic custody trans-

fer unit?

A That's right.

Q Mr. Ingram, have you encountered corrosion difficulty with regard to the oil from these wells?

MR. INGRAM: We have not.

Q Do you know of anyone producing Devonian who has encountered any corrosion problem?

A No, sir, not in this pool.

BY MR. PAYNE:

Q Have you had any parrafin problems?

MR. INGRAM: No, sir.

MR. NUTTER: Any further questions of the witness?

MR. CAMPBELL: I would like to offer Exhibits 1 through 6.

MR. NUTTER: Nearburg & Ingram's Exhibits 1 through 6 will be entered into evidence.

(Whereupon, Applicant's Exhibits 1 through 6 were received in evidence.)

MR. NUTTER: Do you have anything further?

MR. CAMPBELL: No, I don't believe I do. I'm sure the Examiner understands what we are trying to do here is to have an opportunity to produce this well as a dually completed well and obtain what information we can to present to the Commission in July. I also believe --

MR. INGRAM: I would like to make one remark in regard to

the metering situation. In other words, it's -- I feel it's not a question of just installing one more;if we install more meters we will have to install at least two. My reason on that being we have one on our Pennsylvanian flow line, and then it would also, for this to be accurate, also be necessary to put one on the bad oil line. Any oil that went around our system, the difference between this meter and the one we have would be the amount of oil that is produced by the Pennsylvanian. In other words, if any bad oil is produced by it from the Pennsylvanian or the Devonian, we have it set up to go back through the Devonian treater on it.

MR. NUTTER: Is either one of these wells making water?

A Well, on the drill stem test that we took, we made a slight amount of water. On the limited production test that we ran on the Pennsylvanian we did not make any water. However, we feel that if one of two zones are going to make water, it would probably be the Pennsylvanian zone so that the Devonian meter would have the less amount of work. So, therefore, we ran the bad oil back through it.

MR. NUTTER: Have you actually had to install treaters?

A We have not. As of now, we just have had a separator on the Devonian side.

Q So far separation is handling the production without treating?

A It is, yes, sir.

Q Now, in circulating the system back to the bad oil line,

will that be a manual or an automatic circulator?

A Automatic.

MR. WILLIAMS: The bad oil switch starts that pump.

MR. NUTTER: Starts the bad oil pump and that is activated by the monitor?

MR. WILLIAMS: That's correct.

MR. CAMPBELL: I think, Mr. Examiner, there is another owner of property in the area present that desires to make a statement, enter a proposal in the case.

MR. NUTTER: Do you have anything further, Mr. Campbell?

MR. CAMPBELL: No.

MR. NUTTER: Does anyone have any statement in Case 2134 or 2135?

MR. HARTLEY: I would like to enter an appearance for some mineral owners who are also interested in the drilling of this area.

MR. NUTTER: Would you state your name?

A Earl Hartley, appearing for myself and for Brady Lowe, and Lowe Land Company. And wish to make a further statement. We concur in the request and request that you consider the evidence presented as part of our evidence in the case.

MR. NUTTER: We sure will. Does anyone have anything further for this case? We will take the case under advisement, and the hearing is adjourned.

STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

I, LLEWELYN NELSON, Court Reporter, 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 machine shorthand and reduced to typewritten transcript, 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 16 day of Dec., 1961, in the City of Albuquerque, County of Bernalillo, State of New Mexico.

Llewelyn Nelson
NOTARY PUBLIC

My Commission expires:

June 14, 1964

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 2134 + 2135, heard by me on 11/30, 1960.

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