BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
May 11, 1960

EXAMINER HEARING

IN THE MATTER OF:

Application of Sinclair Oil & Gas Company for approval of an automatic custody transfer system. Applicant, in the above-styled cause, seeks an order authorizing the installation of an automatic custody transfer system to handle the production from the Empire-Abo Pool from all wells presently completed or hereafter drilled on its M. Yates "B" Lease, consisting of the S/2, NE/4, S/2 NW/4, and NE/4 NW/4 of Section 33, Township 17 South, Range 28 East, Eddy County, New Mexico.

Case 1959

BEFORE: Daniel S. Nutter, Examiner.

TRANSCRIPT OF HEARING

MR. PAYNE: "Application of Sinclair Oil & Gas Company for approval of an automatic custody transfer system."

MR. WHITE: Charles White of Gilbert, White and Gilbert, Santa Fe, New Mexico, appearing on behalf of the Applicant, Sinclair. We have one witness, Mr. Anderson.

(Witness sworn)

(Whereupon Sinclair's Exhibits Nos. 1 through 3 were marked for identification.)

R. M. ANDERSON

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

DIRECT EXAMINATION

BY MR. WHITE:

Q Will you state your full name, please?

A R. M. Anderson.

Q In what capacity are you employed by Sinclair Oil Company?

A I'm Senior Engineer at Sinclair's Midland Division Office.

Q Have you previously testified before this Commission?

A I have.

Q Have your qualifications been accepted?

A They have.

Q Is Sinclair the operator of its M. Yates (ARC) Lease?

A Yes, they are.

Q Will you refer to Exhibit No. 1 and explain that?

A Exhibit No. 1 is an area map showing the ownership and wells in the vicinity of the M. Yates "B" (ARC) Lease, which is the subject of this hearing. You will note that 600 acres in Section 3 is colored red, which is the Sinclair Lease. This Lease has two names, we have a vertical subdivision, the shallow zone, which is the Grayburg is called the Martin-Yates (ARC) Lease, and that contains six Artesia pool producers, and I have colored them in

green, circled them in green on Exhibit 1, and I have colored in green the tank battery that services the Artesia Pool wells.

The Empire-Abo Pool wells, which are the subject of this hearing, are circled in red, and the tank battery servicing them is colored red on this exhibit.

We have three wells, presently completed wells, 1-B, 2-B, 3-B and we have three or four additional wells drilling on this lease at this time. We will ultimately have 15 wells, we believe, on this lease in the Empire-Abo Pool that will produce into the tank battery that is colored in red on the exhibit. I've also shown the location of the pumper's house. It is due south, directly south of the tank battery that is the subject of this hearing.

Q Now, will you refer to Exhibit No. 2 and explain that schematic sketch?

A Exhibit No. 2 is a schematic sketch of the tank battery installation, and it shows the wells coming into a header and from the header going to a regular separator and also to a test separator. The test separator will be equipped with a metering free water knock out and, in order to permit the individual testing of the wells.

The main stream will flow through the regular separator and initially will flow into a 500 barrel surge tank. We anticipate that the lease will produce water in the near future, and when it

does, we will install a heater treater as shown on this diagramatic sketch. The production will then go into a 500 barrel surge tank and will equalize when that tank is full, will equalize into a second 500 barrel surge tank from which we will withdraw the production through the LACT unit.

We have installed a lease automatic shutin switch. If the fluid level in the second surge tank ever reaches the level up near the top of that tank, the lease will be shut in automatically at the header.

Q Mr. Anderson, will you refer to Exhibit No. 3 and explain the LACT unit?

A Exhibit No. 3 is a detail of the LACT unit. This unit Sinclair designed and fabricated and is made up in our shops in Tulsa. It is a result of considerable experimentation and testing. It is a skid mounted unit which is shipped out completely assembled.

Before I explain the component parts of the unit, I would like to say how the unit operates, roughly. The unit is accuated by an electric clock, a timer switch, the same type of clock that is used on pumping units, timing pumping units and the type of equipment that has been proved in the field with many many years of experience. The clock has as many as ninety-six pins on it and the switcher would pull as many of those pins at whatever intervals he saw fit to start up this unit. For instance, if he wanted the unit to start up every three hours, he would pull eight pins, or

if it were necessary for it to start up every six hours he would pull four pins. When the timer clock comes to a pin, the directing valve, which is in a closed position, is then turned to the re-circulating position and the transfer pump, which is Item 14, starts up and for fifteen minutes circulates the oil from the surge tank through the components of this unit which is your BS and D monitor, your temperature, your pressure gauge, your sampler, which is inoperative during the recirculation circle and the temperature bulb which accuates your meters and the flow is not going through the meters at this time. It is circulating through all the component parts and back to the surge tank.

The purpose of that is to bring this system up to temperature to flush out any air or gas that might have accumulated in the lines during the shutdown period rather than produce them through the meters, it flushes them out if there has been a paraffin accumulation on the BS and W probe, it washes that off and at the end of fifteen minutes the directive valve, which is No. 8, will open to the deliver position and direct the production from the surge tank to the pipeline, provided the BS and W probe has not observed bad oil.

We are installing two meters in series side by side, one of them equipped with a ticket printer. The purpose of that is that in the event the temperature bulb on your meter would cease to function, ordinarily your meter would continue to register, although

incorrectly, or if any other mechanical failure happened in your meter and that failure would then be detected at the next time the system would be calibrated and there would be some question as to how far you should make this correction in order to determine the amount of oil that has passed. So, we feel in our Tulsa lab that we should, for a unit of this capacity, we should put two meters in and then in the event that we ever observe a difference in reading between the two meters, we immediately will recalibrate the system, determine which meter is right and sell oil on the basis of that meter, and, of course, repair the faulty meter.

The proving tank is not a Sinclair item, it is furnished and installed and calibrated by Service Pipeline Company who purchases crude on this lease. They will do all of the calibration that is necessary on this installation with a Sinclair observer assisting as possible. They will handle the calibrating at the intervals requested by the Commission and at the intervals more often if they see fit.

Q Will you explain how your beacon light functions?

A Yes, the beacon light, which is Item 2, which probably will be mounted on top of a light pole or the surge tank, and it is a rotating type beacon and any time that the directioning valve, Valve 8 is in the recirculate position, the beacon light is on.

Q That would be because of bad oil?

A Yes.

Q Or while circulating for the fifteen minute interval?

A Yes, when the system starts up and goes through the fifteen minute recirculating period. The pumper is on the lease if he knows it is supposed to start on at nine o'clock. He can look over there and see if the beacon light is not on he knows that he has not had a power failure and it is ready to deliver oil to the pipeline.

Q Would your pumper be on the lease as much in the future as he has in the past?

A Yes, he will, and the shallower zone, we are not considering automation for that zone. It is a sour crude and does not lend itself to commingling with the sweet crude. We do not anticipate putting this custody transfer unit in with regard to the shallow wells and so the pumper who lives on the lease will continue to be on the lease. He will continue to operate the lease wells in the same manner that he is now. He will turn them on and turn them off and adjust the rates and test the wells periodically just like he is doing now, and the only difference in the operation other than instead of selling the oil through conventional gauging will be the fact that he will shut his well in at the header instead of shutting them in at the well head.

Before I go too much further on that I would like to go back and finish explaining Exhibit 3. I would just like to go through the flow diagram on this and mention exactly what components

we have rather hurriedly. Item 5 are two pressure control Murphy switches and they are set, one of them is set for approximately three feet in surge tank at such a time that the fluid level in the surge tank is drawn down to about three feet, the first Murphy switch will shut down the LACT unit. That is our shut off and the timer switch is our starting device.

The other Murphy switch, which is installed side by side, is set for two feet and a half and in the event the first switch wouldn't operate, why we have a second switch that will do the same job at a six inch lower level in the surge tank.

The next item is 14, which is our pump. That pump operates both for recirculating and for delivery of oil to the pipeline. It operates for both features and Item 13 is a strainer, and Item 4 is our B.S. and W. monitor which is connected to the directing valve and to the beacon and turns the beacon on and turns the directing valve to a recirculating position when it senses bad oil.

Item 11 is a thermometer and Item 10 is a pressure gauge. Item 3 is a sampler which only takes a sampler when the directing valve is in the delivery position delivering oil through the meters. It does not sample when the valve is in the recirculating position. TB is the temperature bulb for the meters and it is mounted upstream of the directing valve so that during a recirculating period it is affected by the temperature of the crude.

Item 8 is the directing valve which is normally in a shut

position. It is a three position valve.

Q What if your electricity were to fail?

A If the electricity fails we have spring loaded solnoid operated switches on the header and wells on the lease are automatically shut in by a power failure.

Item 12 are the two meters. Item 9 is the back pressure regulator and Items T and L are connections for a master meter which we are not using. The pipeline company advises that they do not use master meters, they use prover tanks which they furnish.

Item PT is their prover tank which they installed alongside of our unit. Item 6 is a high pressure stock switch; in the event the pipeline pressure would get too high, the high pressure stop switch will shut down the LACT unit until the pressure is reduced for any reason.

Q Mr. Anderson, what type of flow lines do you have installed?

A We're, when this unit is installed, at present we are manually producing these wells and have conventional flow lines. When this unit is put into operation we will install tubing, two inch tubing, plastic lined two inch tubing and we intend to pressure test this tubing at one and a half times the maximum tubing pressure that we have observed of the wells in this field, which would be at about 1500 pounds.

Q In view of this high pressure line, and in view of the

further fact that you have a pumper on the lease at all times, in your opinion is it necessary to have an automatic shutin valve at the well head?

A No, it is not. Another reason why I feel that way is we have installed chokes at the well head, which, in the event of an unlikely failure with this high pressure flow line, the flow from the well would be curtailed by the choke at the well head, Choke at the well head being just a little bit larger than the producing choke at the header. Therefore, we would maintain for paraffin reasons the high pressure in the flow lines during the flowing of the wells.

I do not believe in this installation that it would be necessary, I can not recommend to my people to put automatic shutin valves on the well head. They are very expensive, they are, of course, subject to mechanical failure, if they sit out there and are inoperative for a long period of time. There is that feature of them, and because of the high pressure tubing which there will be some J-55 and H-40 tubing installed possibly, I don't know which grades, if it's H-40 it will be in the neighborhood of some 5,000 pounds and if J-55 it will be 7500 pounds bursting pressure tubing which will give us more than an enough safety factor in my opinion to permit shutting in of the wells at the header without danger of breaking the flow line or causing waste through a flow line failure.

Q Then you seriously urge the Commission to not require you to have a shutin valve under this installation?

A I certainly do. I don't see where it is any more necessary in this particular installation than in a normal installation that is delivering oil to the pipeline through conventional gauging methods. The lease will be attended to sufficient extent that the pumper will at all times be aware what's going on with his wells.

Q Mr. Anderson, were these exhibits prepared by you and under your direction?

A Yes, they were.

MR. WHITE: At this time we offer Exhibits 1 through 3.

MR. NUTTER: Sinclair's Exhibits 1 through 3 will be entered.

MR. WHITE: That concludes our direct examination.

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

CROSS EXAMINATION

BY MR. PAYNE:

Q Mr. Anderson, as I understand it, you have a lease shutin switch which will shut the wells in at the header?

A Yes, sir.

Q So in view of that, additional storage capacity is not necessary, is that right?

A No, sir.

Q And you do propose to use high pressure corrosion-resistant flow lines?

A Yes, sir.

Q Which will withstand the pressure of 1500 pounds?

A We will test them at 1500 pounds in event we do not have to put the automatic flow line valve in. In lieu of that we will test the lines after they are installed on the ground for one and a half times the highest pressure we expect the flow lines to have.

Q These are all flowing wells, aren't they?

A Yes, sir.

MR. PAYNE: Thank you.

BY MR. NUTTER:

Q The first surge tank would remain full at all times?

A That is the requirement of the Service Pipeline Company. They felt that would provide additional settling of the crude before it's finally delivered through the LACT unit, so it would remain full at all times.

Q Now, the fluid level in the second tank is governed by the timing cycle only, is that correct?

A That is correct.

Q With the safety feature of the two Murphy low pressure switches at the two and a half foot and three foot levels?

A Those are the shut down switches that shut the LACT

unit down.

Q In the event the timing cycle took too much out of the tank and it got to the too full level, it would be shut in then?

A No, the LACT unit, once it starts, will deliver oil until the Murphy switches shut it off; until it pulls the oil level down to about three feet it will continue to take oil.

Q The timing cycle never shuts the flow of oil off then?

A No.

Q It merely starts it? A It only starts it.

Q When you are in recirculating position that means that the oil is being drawn from the second surge tank through the first part of the LACT and circulated back through the heater treater if there is one, and if not, simply back into the first surge tank, is that correct?

A Yes.

MR. NUTTER: Any further questions of Mr. Anderson? He may be excused.

(Witness excused.)

MR. NUTTER: Did you have anything further, Mr. White?

MR. WHITE: That's all.

MR. NUTTER: Does anyone have anything further for Case 1959? We will take the case under advisement and take Case 1960.

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: SS
COUNTY OF BERNALILLO)

I, ADA DEARNLEY, Court Reporter, do hereby certify that the foregoing and attached transcript of proceedings before the New Mexico Oil Conservation Commission at Santa Fe, New Mexico, is a true and correct record to the best of my knowledge, skill and ability.

IN WITNESS WHEREOF I have affixed my hand and notarial seal this 20th day of May, 1960.

Ada Dearnley
Notary Public-Court Reporter

My commission expires:

June 19, 1963.

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 1959, heard by me on 5/11, 1960.

, Examiner
New Mexico Oil Conservation Commission