

MR. UTZ: The record in Case 2020 will also become a part of the record in this case.

R. S. CHRISTIE

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q Would you state your name, please?

A R. S. Christie.

Q By whom are you employed and in what position?

A Petroleum engineer, Amerada Petroleum Corporation, Tulsa, Oklahoma.

Q Have you testified before the Oil Conservation Commission of New Mexico as a petroleum engineer?

A Yes, I have.

MR. KELLAHIN: Are the witness's qualifications acceptable?

MR. UTZ: Yes, they are.

Q (By Mr. Kellahin) Mr. Christie, are you familiar with the application in Case 2170 now being heard?

A Yes, sir.

Q Would you state what is proposed in this application?

A In Case No. 2020 we sought to dual complete our Wimberly No. 13 as a producer from the Langlie-Mattox gas pool and the Blinebry oil pool, and inject salt water into the San Andres. We found, after drilling the well, that we had a productive zone in



what we called in our application a non-designated zone, and we are here now to apply for permission to recomplete this well in this undesignated zone, together with the other two zones that have been approved.

Q Attached to the application was a plat marked Exhibit A. Would you state briefly what that shows?

A Exhibit A, attached to the application, has been revised to include some later wells. Exhibit A shows the development around the Wimberly lease. The Wimberly lease is outlined in red, with the subject well, the Wimberly No. 13 in the SW/4 of the SW/4 of Section 24, Township 25 South, Range 37 East. The legend at the bottom of the plat on the left-hand side indicates the various formations that the various wells are completed in, to the best of our knowledge, at least.

Q Does the exhibit also show the lease ownership?

A Yes, it does.

Q Likewise, attached to the application was a form of application for a triple completion, marked as Exhibit B; is that correct?

A Yes, that's correct.

Q Does that set forth the proposal involved in this application?

A Yes, sir.

Q Also attached to the application, marked as Exhibit C, was application for disposal of salt water. Does that correctly



reflect what you propose in this application?

A Yes, it does.

Q Now, Mr. Christie, have you made a diagrammatic sketch of the proposed dual completion?

A Yes, sir.

MR. KELLANIN: Could we have that marked as Exhibit D, please?

Q Referring to what has been marked as Exhibit D, would you discuss the information shown on the exhibit?

A Exhibit D shows the present completion of the subject well. The salt water injection zone was cased off and 3 1/2-inch casing was set at 4241, and then, in place of running the 3 1/2-inch producing string with 1 1/2 inside as we contemplated in the original application, we have now run two strings of 2 7/8-inch tubing, one set at 5318 feet and perforated for production from the undesignated zone, perforations being from 5017 feet to 5057 feet. The other string is completed in open hole, or is run into open hole from a depth of 5319 to 5450 feet, and is used for production from the Blinbry zone. The top of the cement is indicated, 1805 feet, so that all three strings have been cemented, and you will also note that the 3 1/2-inch salt water string is internally plastic-coated, and the other two strings externally plastic-coated.

Q How does that completion differ from the completion approved by Order R-1750?

A The difference is that now we have a single string for



each producing zone, whereas before we had a 1 1/2-inch string running inside 3 1/2-inch string with a packer set in, and this appears to us to be more adaptable to this kind of production operations.

Q In your opinion, is that a safer and more feasible type of completion than that that was originally approved by the Commission?

A I don't know that it is any safer, but it is much easier to run and complete this way, and we felt that the other one was safe enough, but if there is any difference this would probably be more, meet their approval moreso than the other.

Q In your opinion will the completion which you have made here insure against communication between the zones which are open in the well bore?

A Yes, I think so.

Q Do you have an electric log on the subject well?

A Yes, sir.

MR. KELLAHIN: May we have that marked as Exhibit E, please?

Q Referring to what has been marked as Exhibit E, would you state what information you have shown on that exhibit?

A Exhibit E is a sonic log of the subject well and included on the log are various tops, the different formations from the top of the Tansill down through the Blinbry zone. The principal ones we are concerned about, however, are the San Andres, in which we are injecting water, and the undesignated zone which lies between



the base of the Justis Gas and the top of the Blinebry and then, of course, the lower zone which is the Blinebry zone.

Q In your opinion, what is this undesignated zone, or do you have an opinion on it?

A Based on the definition of the Paddock gas zone, which is defined in Order No. R-1670, that is marked as approximately 4873 feet on this exhibit, so, from the base of the gas zone to what we choose to call the top of the Blinebry, or the top of Clear Fork at approximately 5130 feet, it is a zone that contains oil, and if we were asked for definition of that particular zone we'd prefer to call it the Lower Paddock, since it is below the gas, and it contains zones of porosity and permeability and saturation, oil saturation.

Q Was that particular zone involved in a nomenclature case at the last hearing?

A Yes, it was.

Q Do you know what occurred in that case?

A The case was dismissed for further study.

Q That involved the zone which is the subject of your testimony here?

A It involves both that zone and probably the Blinebry, because there is apparently a difference of opinion as to where the top of the Blinebry is. The top of the Blinebry we have shown on this exhibit is the correlation point that we believe the Commission geologists in the Hobbs Office picked for the top of the Blinebry, and we have been using that as a top of the producing zone, or top



of the Blinebry.

Q Has that top ever been defined by any order of the Commission, to your knowledge?

A It has never been defined, the vertical limits, that I know of.

Q It is just a matter of field practice that you picked the top?

A Yes, sir.

Q In your opinion is there separation from what you have denominated the Lower Paddock, and the Blinebry?

A Yes, we feel there is. We have some substantiating evidence that indicates they are separated. In the undesignated zone, or the Paddock, the gravity of the oil is higher.

Q Do you have those figures?

A Yes. On a test upon completion the well produced 324 barrels with a gravity of 42.1 API; gas-oil ratio, 11,000 cubic feet. That was taken on December 21, or, at least, the test was started on the 21st. The gravity of the Blinebry zone was 37.8 with a gas-oil ratio of 457. In addition to the variation of the gravities, there is some difference in the bottomhole pressure. The static bottomhole pressure of the Paddock, or undesignated zone, is approximately 2343 pounds at minus 2300 feet, and the pressure of the Blinebry zone, maximum pressure recorded was 2211 at the same datum. Now, if we can correct the Paddock to the interval from where the production is coming from, there is not very much

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difference in the bottomhole pressure, approximately 22 pounds, the Paddock being the higher zone, has a higher pressure than the Blinebry zone which is some 300 feet lower.

Q Is there any difference stratigraphically in the formations involved?

A Yes, there is. Generally, we pick the top of the Blinebry, here, the top of Clear Fork, where we get a clean break in the dolomite. The dolomite is clean and practically one hundred percent, whereas, above that we have a sandy dolomite and sand streak, so from the formation standpoint the material, the formation is different.

Q Were Exhibits A through E, inclusive, prepared by you or under your supervision?

A Yes, sir.

MR. KELLAHIN: At this time I would like to offer in evidence Exhibits A through E.

MR. UTZ: Without objection Exhibits A through E will be entered into the record.

Q (By Mr. Kellahin) Do you have anything further to add, Mr. Christie?

A No, except that we believe that we are justified in asking for this dual for these two reservoirs and receive allowable on the undesignated zone or the Lower Paddock, as we would like to have it called. The well has been completed now since about the 10th of December.



Q Is there any change in your proposal as to the disposal of salt water from your previous case?

A No, there isn't. It is the same completion that we have proposed in our original application.

MR. KELLAMIN: That is all the questions I have, Mr. Utz.

BY MR. UTZ:

Q Mr. Christie, how thick is the plastic coating on this tubing that you are using?

A I don't know. I can't answer that question.

Q It is threaded tubing?

A Yes.

Q What is the possibility of scratching or damaging the plastic coating in running the tubing?

A I think it would be rather remote.

Q You don't believe that by damaging the tubing you could possibly cause considerable corrosion in your salt water string?

A No, I doubt it.

Q As an additional precaution, that is why you are using external plastic coating on your other two strings?

A Well, I don't think we would need it for that because they are all encased in cement. I don't think one could get from the injection string to the other anyway.

Q What kind of centralizers have you used?

A I believe we followed the order that was set out in Case

2020 where we were required to run a turbilizer, and I don't know



the particular make, but I am sure we followed that plan.

Q From the top of the cement at 1805 to the surface casing at 855 it is open hole, is that right?

A Yes, that is correct.

Q Are there potable waters or oil zones in that area?

A No. The surface pipe is low enough to protect all fresh waters, and, to the best of my knowledge, there is no water sand or oil sands, gas sands, between 855 and 1805.

Q What is the nearest well to this area to be completed in the San Andres?

A I would assume it would be in the Monument, although I am not positive.

Q It would be a considerable distance away?

A Yes, sir.

MR. KELLAHIN: If I am not mistaken that was the effect of the testimony in Case 2020, Mr. Utz.

Q (By Mr. Utz) What did you say the Blinebry gravity was, or did you give it?

A 37.8.

Q At the same datum you have 2211 for the Blinebry and 2340 for the undesignated zone?

A 2343, yes, sir.

Q And the Blinebry zone, what was the GOR on it?

A 457.

Q And 11,000 on the undesignated zone?



A Yes, sir.

BY MR. PAYNE:

Q Do you have as much separation between the disposal zone and the uppermost producing zone now as you had when the Langlie-Mattix was proposed as the other producing zone?

A I don't know that I follow your question.

Q Is the production from this undesignated zone lower or higher than that of the Langlie-Mattix?

A It is lower.

Q This undesignated is?

A Yes.

Q Actually, you have more separation now as far as distance, from your injection interval to the first producing?

A Actually the Langlie-Mattix would be above the perforations in the San Andres.

Q So now the injection is above both of the producing horizons whereas before it was in the middle?

A That's right. I might add, we know we have a good cement job here; in testing it we had a vacuum on our salt water disposal well and we took a flow test on our undesignated zone. The pressure on the Blinbry continued to build up slightly after we shut it in while we were taking the flow test on the Paddock, and it had declined during the test from about 2350 -- well, 2343 -- down to, when it was first opened up, down to 14, approximately 1500 pounds. Then it gradually built back up to 16, about 1640 or 50 when the

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well was shut in, so there was no decline at all in the Blinebry while the undesignated zone was on production. After about four days the undesignated zone continued to build up and reached a maximum of about 2300 pounds, not quite as high as it was in the initial test.

BY MR. UTZ:

Q Did the Langlie-Mattix zone prove to be barren?

A That I don't know.

MR. UTZ: Any other questions of the witness? Witness may be excused. Any other statements in this case?

MR. BRATTON: Howard Bratton, appearing on behalf of Atlantic Refining Company. Atlantic Refining Company owns the N/2 of the SE/4 of Section 23, which is a diagonal offset to the well in question. Atlantic has only one concern in the case. That is with respect to the so-called undesignated zone. At the outset I would like to state, we have no objection to Amerada being given allowable for this undesignated zone on a temporary basis. We do observe there is a question as to where the top of the Blinebry is, and there is a disagreement among the operators in the pool. It is my understanding that there has been called a meeting of the operators in the pool to see if they can agree on vertical limits and, in conjunction with the Commission, establish vertical limits that are satisfactory to the Commission and to all of the operators.

It is for that reason, that the matter is under consideration, and there is an attempt to work it out, that we do ask that any

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allowable to be granted in this case for the undesignated zone be on a temporary basis pending the attempt to work this out amicably among all the parties and the Commission. Otherwise, of course, it will come on for hearing before the Commission.

MR. UTZ: Where did you say your interests were, in Section 23?

MR. BRATTON: It would be the N/2 of the N/2 of the SE/4.

MR. PAYNE: Mr. Bratton, I assume that Atlantic Refining feels there is possibly Blinebry production, is that right?

MR. BRATTON: Yes, sir.

MR. PAYNE: Then the assignment of a temporary allowable, what depth factor should you use? Are you going to use the Blinebry pool or are you going to use this as a discovery well in the Paddock?

MR. BRATTON: We just bring the Commission's attention to the matter. There is a disagreement as to where the top of the Blinebry is. We have no quarrel with what allowable might be set on a temporary basis. We don't want to interfere with that.

MR. CHRISTIE: Since we think it is possibly a Lower Paddock we would be satisfied to call it, whatever depth that is.

MR. UTZ: The ownership on that map, could it be in error, Mr. Christie?

MR. CHRISTIE: It could well be, Mr. Utz.

MR. UTZ: I believe you show El Paso as the owner of the N/2 of the SE corner of 23.

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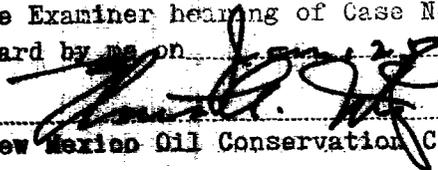
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E X H I B I T S

<u>Number</u>	<u>Exhibit</u>	<u>Identified</u>	<u>Offered</u>	<u>Admitted</u>
Ex.#1	Plat	3	8	8
Ex.#2	Application for triple comp.	3	8	8
Ex.#3	Application, salt water disp.	3	8	8
Ex.#4	Diagrammatic sketch	4	8	8
Ex.#5	Electric log	5	8	8

I do hereby certify that the foregoing is
a complete record of the proceedings in
the Examiner hearing of Case No. 2170,
heard by me on June 28, 1961.


_____, Examiner
New Mexico Oil Conservation Commission

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