

MR. PAYNE: Incidentally, Hudson and Hudson is not a corporation, Mr. Hudson, is it?

MR. HUDSON: It is not.

RALPH L. GRAY

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

DIRECT EXAMINATION

BY MR. HUDSON:

Q State your name, where you live, and your profession.

A Ralph L. Gray, Artesia, New Mexico; petroleum engineer.

Q Have you appeared before this Commission in the past?

A Yes, I have.

MR. HUDSON: Will you all accept his qualifications?

MR. UTZ: Yes, sir.

Q (By Mr. Hudson) In what capacity do you serve at Hudson?

A I am a consulting petroleum engineer and supervise drilling and producing operations.

Q What experience have you had in the Maljamar field?

A I have had approximately one year's experience in drilling and producing operations in a large part of the Maljamar field.

Q Have you prepared a map of this area showing ownership and wells within the area concerned?

A Yes, I have.

MR. HUDSON: We would like to offer this as Exhibit 1.



(Applicant's Exhibit 1 marked for identification.)

Q Would you explain this map, stating what the Hudsons propose to do?

A This is a map showing the Hudson and Hudson Puckett "A" and Puckett "B" leases and the present wells thereon, and also the offsetting leases and wells. This map also shows the proposed 5-spot locations which are indicated by the red circles on this map. Also, the map indicates the boundaries of the 40-acre production units on which these wells would be located.

Q Did you prepare this map yourself?

A Yes, I did.

Q How far will the proposed wells be drilled from the closest lease line?

A These 5-spots will be drilled within 100 feet of the corners of the regular 40-acre tracts, and the closest distance from any of these wells to a lease line will be approximately 1220 feet.

Q Who owns the north and south offsetting?

A Hudson and Hudson.

Q Who owns the east and west offsetting?

A Skelly Oil Company owns the west offsetting acreage, and Continental Oil Company owns the east offsetting acreage.

Q Have Skelly and Continental been notified of this proceeding?



A Yes, they have.

Q I believe you have two letters.

MR. PAYNE: Yes, we have letters from Skelly.

MR. HUDSON: May we have them marked and made a part of the record, sir?

MR. PAYNE: All right, sir.

Q (By Mr. Hudson) Will you state exactly why it is desirable to drill these 5-spots?

A Two reasons; first, we have evidence that the present spacing may not be adequately draining the property, and the drilling of 5-spot locations will permit a more efficient drainage of the oil in place. Secondly, a report has been prepared on waterflooding this property, and it has been determined that a 5-spot spacing program would be more efficient for waterflooding program, so the drilling of these 5-spots will fit into a waterflood program.

Q Would you state how these 5-spots will be used?

A At the present time these wells will be completed as producing wells. They will be produced with the other wells on the lease, and later, at such time as a waterflood project is installed, they may be converted for input purposes.

Q At what rate is it planned to produce these 5-spot locations?

A These wells will be produced in such a manner that the production from any 40-acre proration unit will not exceed the State's top allowable.

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Q Have you prepared a typical well log of the wells in this area?

A Yes, I have.

Q May we offer this as our Exhibit No. 4. Will you explain this?

A Exhibit 4 is a typical log showing the zones that are encountered in this field, and the method in which these wells will be completed. The diagram is marked "water input well" but it also is typical of the completion of a producing well. They are identical. You will note that production is being obtained from the Grayberg and San Andres formations, and that there are possibly five zones which will contribute to production. These are numbered from five through nine on this diagram. Also, the diagram shows that the casing will be set close to bottom, and will be perforated opposite the producing zones.

Q Will you explain how these wells will be completed?

A They will be completed by perforating the casing and fracturing each zone separately.

Q Do you feel that the drilling of these 5-spot locations will be in the interest of conservation and prevention of waste?

A Yes. We feel that drilling of these 5-spots will result in a more efficient recovery of the oil in place, and in so doing, it will prevent waste.

MR. HUDSON: I would like to offer these Exhibits 1



through 4, and ask that they may be a part of the record.

MR. UTZ: Without objection, Exhibits 1 through 4 will be accepted into the record.

MR. HUDSON: I have no further questions.

CROSS EXAMINATION

BY MR. PAYNE:

Q Each of these wells is going to be drilled within a hundred feet of the corner; is that correct?

A That's right. We requested some flexibility because in certain areas there are surface facilities that will interfere in some cases with a location, so with that flexibility they could be drilled within 100 feet of the corner there on all of those.

Q You are willing to not drill closer than five feet of the corner, so that we can be absolutely sure of which proration units the wells are located on?

A I might state, the closest to a corner we had in mind was 25 feet.

Q And you are aware that the two wells together will be able to produce only a 40-acre allowable?

A That's right; yes, sir.

MR. PAYNE: Thank you.

BY MR. UTZ:

Q Mr. Gray, I don't know whether you said or not; what is your cementing program on this 4-1/2 inch you intend to set through?



A Usually enough cement is used to come up to about the base of the salt, which in this area would be 3000 feet.

Q Do you intend to use these, is there a possibility of using these wells as water injection wells later on?

A That is a possibility; yes, sir.

Q Will this be new pipe?

A Yes.

Q And how about the surface casings?

A Our program followed in the shallow strings calls for the setting of string, usually 8-5/8 inch, at approximately 550 feet, and that is usually cemented with about 200 sacks of cement.

Q It is not circulated?

A No, it isn't.

Q Could it be?

A Yes, it is possible to circulate enough to come to the surface.

Q Is this in the clear water basin, do you know?

MR. HUDSON: Are you familiar with the surface waters in the area? Are there any surface waters?

A There are no surface waters in this area.

MR. HUDSON: I mean, shallow or subsurface?

A There are some brackish waters in the Santa Rosa formation, a small amount; that is why the 8-5/8 casing is set down to that depth.

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MR. HUDSON: There is no fresh water?

A No fresh shallow water.

Q (By Mr. Utz) What did you say, 200 sacks?

A Usually 200; from 100 to 200 depending on size pipe and size hole.

Q 8-5/8; how high will the cement come on the 200 sacks?

A We don't run temperature surveys to see just where the cement comes to. I don't really know just exactly how far that would come, offhand. You see, the purpose of the 8-5/8 casing is to shut off the small amount of brackish water that is encountered in the Santa Rosa formation at about 500 feet. These are cable-tool holes, by the way, and there is no water zone above that. So really, the only requirement is to have enough cement to adequately shut off the Santa Rosa water at about 500 feet.

Q What type of water would you use for injection in the event you made injection wells out of these wells?

A Well, of course, that is getting into a waterflood program, and we have made some preliminary studies, but we are actually not to the point where we have actually worked the complete program out. I will say, however, that there are a number of water facilities available for use, and mostly fresh water from the Cap. There are companies that are in the business of selling that water for waterflooding, and that water could be used for this project in the event that it should be started.

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MR. HUDSON: Does Hudson and Hudson have any water leases available in the water basin that could be used in the event this other water wasn't available?

A Yes; Hudson and Hudson do have water leases on the Cap Rock, and have been granted appropriation for water in the event that would be used.

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

Any other statements in this case? Case will be taken under advisement.

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