

BEFORE THE
OIL CONSERVATION COMMISSION
DECEMBER 10, 1958

IN THE MATTER OF:

APPLICATION OF CAULKINS OIL COMPANY, CASE 1563

TRANSCRIPT OF HEARING

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BY MR. KELLAHIN:

Q State your name, please?

A Frank O. Gray.

Q By whom are you employed, Mr. Gray?

A Caulkins Oil Company.

Q In what position?

A Field Superintendent.

Q Where are you located?

A In Farmington, New Mexico.

Q Have you testified before the Oil Conservation Commission as an expert and had your qualifications accepted?

A Yes, sir.

MR. KELLAHIN: Are the witness' qualifications accepted?

MR. NUTTER: They are.

Q (By Mr. Kellahin) Mr. Gray, are you familiar with the application in Case 1563?

A Yes, sir.

Q Would you state briefly what is proposed in that application?

A To convert the Caulkins D-204, which presently produces through the Dakota sand to a dual Tocito and Dakota producer.

Q Now, referring to what has been marked as Exhibit 1, state what that shows?

A It shows all of the oil and gas wells in the immediate area of the proposed dual completion.

It shows all of the Tocito oil wells in the South Blanco-Tocito pool and also all of the Dakota producers.

Q Does that likewise reflect the lease ownership in the area involved?

A Yes, sir.

Q What other companies have any interest in that area?

A Pubco Petroleum Company owns the southwest of Section 17 and the southeast of Section 15 is owned by Brookhaven Oil Company and Dacresa Corporation. The plat shows the tract being owned by R. E. Mead. Mead's interest extends only through the Pictured Cliffs sand at approximately 3,000 feet, and Dacresa and Brookhaven own the lease rights.

Q Those are the rights which would be involved in this application, is that right?

A Yes.

Q Now, will you describe the well location as shown by that plat, the dual completion well involved here?

A The well is located 760 from the south line and 660 from the east line of Section 9, 26 North, 6 West. That is on Federal Lease Santa Fe 079035, that being in Rio Arriba County; and the working interest and royalty interest on this particular tract is the same as the leases included in the South Blanco-Tocito water flood project.

Q Referring to what has been marked as Exhibit Two, Mr. Gray, would you first describe the present casing program of the subject

well?

A The present casing program consists of 10 3/4 inch casing set at 458 feet, cemented from top to bottom, and 7 inch casing set at 7646 feet and cemented with 600 sacks of cement which, the top of which, according to temperature survey, was 4985.

Q With that type of completion and the cementing program involved here, is there any danger of communication behind the casing between the Dakota and the Tocito in case the application was approved?

A I don't believe there would be any sand. There is a 700 foot interval separating the two sands.

Q Referring to the schematic drawing --

A Excuse me, that is 500 feet.

Q Pardon?

A I wanted to correct that 700. There is 500 feet between the Tocito.

Q Referring to the schematic diagram of proposed Exhibit Two, proposed completion, describe what is to be done.

A Briefly, the diagram shows the arrangement that we would have after making this dual completion. Briefly, the conversion from single to dual completion would be accomplished by first pulling the tubing now in the hole perforating the Tocito sand and setting a Baker Model D Production Packer just below the Tocito perforations. The second step would be to run tubing to

test the Tocito sand and acidize and fracture if necessary. The third operation would be to run three strings of tubing simultaneously. These would consist of 2½ inch, inch and a quarter and inch and a quarter. The two smaller strings being clamped to the 2½ inch.

One string of inch and a quarter would be used for Dakota production; one string of inch and a quarter would be used for extracting production oil with a Byron Jackson lift pump, the 2½ to be produced on production string for the Tocito sand.

A cavity or seating device for the Byron Jackson hydraulic lift pump would be run on two and a half inch tubing and set approximately opposite or slightly below the Tocito casing perforations and a mud anchor would be run immediately below the cavity.

Next below the anchor would be run a Baker parallel flow tube, a one and a quarter inch Dakota production string sealed in it, and another one and a quarter inch tubing tail pipe to extend to approximately 7400 feet. The parallel flow tubing would be seated in the Model D Production Packer to lift the Tocito and Dakota Production, and altered mechanically to confine the Dakota production to one and a quarter inch tubing.

A three string tubing head would be installed on the head to separate production of Tocito and Dakota at the surface.

Q What type of piping do you propose to use on the Tocito and Dakota production?

A That would be a Baker Model D Production Packer.

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Q Have you had experience with the type of pump that is proposed to be installed here?

A Yes, we've used them for the last three years in pumping production through some of the wells in the South Blanco-Tocito water flood project.

Q On account of that type of pump, it necessitates three strings of tubing, is that right?

A That is right, one string of inch and a quarter tubing is required to pipe oil to the Byron Jackson pump.

Q Do you feel it will be necessary to pump the Tocito formation?

A Yes, I'm sure it will eventually due to the water flooding that is being carried on.

Q In your opinion, is it necessary that the Tocito formation be produced at this point in the pool?

A The economics of the situation certainly favor the production of the oil from this zone at this time, and also it should be operated as a part of the South Blanco-Tocito water flood project.

Q Will a completion of this type enable you to keep better track of the operations of the water flood project?

A I believe it will. It will enable us to know when oil is moved by water injection to this particular spot if it has not been moved that high.

Q Is it practical in your opinion to make a conventional

single well completion in the Tocito at this point?

A From an economic standpoint, it would not. I do not think it would be practical to do it. It would cost approximately \$100,000 to drill a Tocito well, The conversion can be made for about \$45,000.

Q Now, with the type of completion which you propose here would it be possible for you to make such tests as are necessary and required by the Commission of the separate zones?

A Yes, sir. There is no test required at the present time that could not be made on both zones.

Q Will it be possible to make the necessary test determination if there is packer leakage between the two zones?

A Yes, sir, that is possible.

Q And such tests will be made in the operation of the well, is that right?

A We are required by the State of New Mexico to make annual testing on it.

Q With this type of completion, is there any danger of communication between the separate zones?

A There is always a chance that a packer will leak; however, the job, as far as we are concerned, will not be complete until we have a separation. Once having it, there is little chance that a leak would develop, because there is no -- it would not be necessary to move the tubing or alter the down hole equipment in any way whether the hole flowed or was pumped.

Q Now, you say you are going to produce the Dakota through an inch and a quarter tubing, is that right?

A Yes, sir.

Q What would the effect of friction loss on that tubing be on this sized production, Mr. Gray?

A Well, the figures on production of one million feet, which is a little more than the well makes, indicate a friction loss of about 200 pounds.

Q Would there be any friction loss -- would the friction loss be less as the production declines?

A Yes, it would.

Q So, actually, later production than the million cubic feet the friction loss will be lower than the figures you gave?

A It will decrease as the well declines in productivity.

Q Will it be possible to produce the Dakota formation to depletion with that type of completion?

A I think it would be as effective as any other type completion.

Q As far as the Tocito is concerned with the type of completion your are proposing, would it be possible to complete that to depletion?

A Yes.

Q What is Exhibit 3?

A That is an electric log of the well with the formation topped and perforation and the proposed perforations indicated

thereon.

Q Can you place the location of the bridge plug and other installations in the well?

A Well, the effective bridge plug, as far as the Tocito is concerned, is set at 7490, and the Tocito zone at this time is perforated from 7210 to 7280, from 7340 to 7366, and from 7386 to 7440.

Q Now, have the other owners whom you've indicated as being Pubco, Brookhaven and Dacresa been notified of this application?

A Yes.

Q Referring to Exhibits Four and Five, state what they are?

A Exhibit Four is a letter from Pubco Petroleum Company signed by Frank D. Gorham, Vice President. They advise us they have no objection to converting this well into a dual producer. Exhibit Five is a letter from Brookhaven Oil Company and Dacresa Corporation, signed by Thomas B. Scott, President, in which they also state they have no objection to the dual completion.

Q In your opinion, is the proposal which you have submitted in the interest of conservation of oil and gas?

A Yes, sir.

Q Would it result in the prevention of waste?

A I think there is a very good chance that it would.

Q What do you mean by that?

A I mean that by reason of injecting water oil may be

moved to this well and beyond it, and the ultimate recovery of the pool as a whole might be increased if we have an intent to produce this oil in it. The ultimate recovery of the pool as a whole would be affected by operating this well as an oil well just the same as if a new well had been drilled there.

Q Anything you wish to add to that, Mr. Gray?

A Nothing more, except to mention that the well is located on standard spacing pattern for the Tocito Pool, and to repeat that the royalty and working interest is the same as the leases included in the South Blanco-Tocito water flood project, and also that although this well produced only gas on a drill stem test made at the time it was drilled, it might now or in the future produce oil due to water injection. Other wells in the project have changed in that manner. The mechanical preparations to pump the well are proposed as part of the initial dual completion operation, because I feel it is almost certain that sooner or later water that is injected in the injection well will reach that location.

Q You stated on drill stem test it showed gas production there, Mr. Gray; is there a danger of loss of oil by moving oil into an area which had not been oil saturated?

A We cored the Tocito Well. The core analysis indicates it was originally oil saturated.

Q In your opinion would there be any loss of oil as a result of moving oil into a dry sand?

A No, sir.

MR. KELLAHIN: That's all I have.

MR. NUTTER: Any questions from Mr. Gray?

CROSS EXAMINATION BY MR. NUTTER:

Q Mr. Gray, I don't know if the exhibit that -- the schematic diagram you've tacked on the board is the same as that attached to the application or not. It seems when you read the area of perforations in the Dakota they didn't correspond with the perforations indicated on the exhibit here. Perhaps that one is different.

A The way I read them, the first perforation, the top perforations were 7210 to 7280, and that is shown here as Graneros. I'm referring to Graneros and Dakota as one sand. That's the way it has been operated. The second set of perforations was 7340 to 7376. The next set of the perforations 7386 to 7440. Now, that was the way I read them, and on the diagram you have it shows 7340, which was the top of the first set and 7440, which was the bottom of the lower set.

Q Oh, I see. The well has not been perforated in the Tocito, has it?

A No, sir.

Q What will the perforations in the Tocito be, Mr. Gray?

A From 6732 to 4046.

Q Is the production from both of these zones what you might call sweet production?

A Yes, sir.

Q You don't anticipate any particular corrosion problem then?

A There's been more or less a complete absence of corrosion in either the Dakota or Tocio and in our wells.

Q Mr. Gray, I think you mentioned you thought since this well would be affected by the water flood, what are the water injection wells for that area?

A T-134, T-157, T-85, T-87, and just recently T-109.

Q Since you mentioned that this D-204 would probably feel the effect of the water injection program, you thought that it should be treated as one of the water project area wells?

A It should be taken into the project.

Q You are aware that the project area as defined by the Commission does not contain the south half south half of Section 9?

A I believe there are provisions in the order that provide for enlargement in case we drill larger wells or re-complete one, which would be the same as drilling a new one.

Q Is that an administrative procedure for expansion of the project?

A I believe it is. Now, I'm not certain of the order, but I believe that is in there.

MR. NUTTER: Any other questions of Mr. Gray? Mr. Kellahin.

REDIRECT EXAMINATION

BY MR. KELLAHIN:

Q Mr. Gray, were Exhibits 1 through 3 prepared by you or under your supervision?

A They were prepared under my direction.

Q Exhibits 4 and 5, are they copies of the letters in your files?

A Yes, they are.

Q Would you be willing to make the originals available to the Commission if they requested them?

A Yes, I will.

MR. KELLAHIN: We move for the admission of Caulkins' Exhibits 1 through 5.

MR. NUTTER: Any objection to Caulkins' Exhibits 1 through 5? If not, they will be admitted.

MR. KELLAHIN: That's all we have.

MR. NUTTER: If there is nothing further to be offered in Case 1563, we will take the case under advisement and take Case 1564.
