BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
March 23, 1960

EXAMINER HEARING

IN THE MATTER OF:

Application of Caulkins Oil Company for a gas-oil dual completion, an unorthodox oil well location and an exception to the casing requirements of Order R-1191. Applicant, in the above-styled cause, seeks an order authorizing the dual completion of its D-140 Well, located 990 feet from the North and East lines of Section 11, Township 26 North, Range 6 West, Rio Arriba County, New Mexico, in such a manner as to permit the production of gas from the South Blanco-Dakota Pool and the production of oil from the Tocito formation adjacent to the South Blanco-Tocito Oil Pool through parallel strings of tubing. Applicant also seeks an exception to the casing requirements of Order No. R-1191. Applicant further seeks approval of an unorthodox oil well location for said D-140 well.) Case 1924

BEFORE:

Mr. Elvis A. Utz, Examiner

TRANSCRIPT OF HEARING

MR. UTZ: We will take up next Case No. 1924.

MR. PAYNE: Case 1924: Application of Caulkins Oil Company for a gas-oil dual completion, an unorthodox oil well location and an exception to the casing requirements of Order R-1191.

MR. KELLAHIN: If the Examiner please, Jason Kellahin, I would like the record to show the same appearances as in the preceding case.

MR. PAYNE: Let the record also show that the witness has previously been sworn.

MR. UTZ: The record will so show. Any other appearances in this case?

FRANK GRAY

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q Would you state your name, please?

A Frank Gray.

Q Are you the same Mr. Gray who testified in the preceding case and was sworn?

A Yes, sir.

Q Are you familiar with the application in Case 1924?

A Yes, sir.

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

A We propose to dually complete the Breech D-140 Well in the Dakota and Tocito sands.

Q Would you describe briefly the location and history of this well?

A Well, the Caulkins Oil Company Breech D-140 is located 990 feet from the North and East lines of Section 11, 26,North, 6 West, Rio Arriba County, New Mexico, on Federal Lease No.NM 03553.

The Caulkins Oil Company is also the operator of all property directly offsetting this well.

This well was drilled with rotary drilling equipment using mud for circulating fluid to a depth of 7700 feet in the Dakota formation, in February, 1960. Tocito sand was encountered at 6815, and a drill stem test from 6751 to 6950 showed approximately 20,000 cubic feet of gas per day. We are reasonably sure that this small show of gas came from the Tocito sand. The top of the Graneros sand was found at 7285, the top of the Dakota at 7410.

5½ inch casing was cemented at 7700 feet in three stages. 350 sacks were used through the shoe of the casing, and by 100 percent calculation should have filled up 1510 feet. This would be 170 percent of the calculated volume necessary to cover the Tocito sand at 6815. Other cement used was 350 sacks through a DV Cementer at 5560 and 190 sacks through a DV Cementer at 3200.

(Whereupon, Applicant's Exhibits Nos. 1, 2, and 3 marked for identification.)

Q Is the information as to the well location and the ownership shown on Exhibit No. 1?

A Yes, sir.

Q Have you prepared a diagramatic sketch showing the proposed dual completion?

A Yes, sir, I have.

Q Was that marked as Exhibit No. 2?

A Yes, sir.

Q Would you describe that?

A The diagramatic sketch shows the arrangement of the equipment as it would be left in the well after the dual completion operation is finished. To accomplish this we would perforate, sand frac and flow gas production from the Dakota sand until it's free of frac sand; set a permanent type production packer containing an expendable packer plug to approximately 7250 to temporarily plug off the Dakota zone; perforate, sand frac and test the Tocito sand. The production from this zone would be swabbed or flowed long enough to completely free it of frac sand.

We would then kill the well with oil and run 1-1/4 inch upset tubing to the packer at 7250 and push the expendable bridge plug out and latch the tubing into the packer, spacing the tubing so it would be in slight tension when landed. This string of tubing would include a parallel string latching device, which would be spaced to stop it around 6800 feet.

2-1/16th OD upset tubing with Hydril type CS joints would be run to 6800 feet and latched into the latching device at 6800 feet. This string would also be left in slight tension when landed, and would include the mud anchor, perforations, seating nipple and so forth, so a pump can be run on sucker rods to pump the Tocito production if and when it should be necessary. And well head equipment, separators, tanks, and flow lines, and other equipment necessary to produce each zone and measure the

production from each separately would be installed.

Q Would all of the production, you say would be separately metered or measured to each zone?

A Yes, actually the Tocito production of oil and gas both would have to be saved and sold to comply with the existing Commission requirements, and if we are fortunate enough to get the commercial production from the Tocito, it would be piped to what we call a central plant, and its casinghead gas would be saved and compressed and sold to El Paso Natural Gas Company.

Q That is through your presently existing connections?

A Yes.

Q Will this type of dual completion in your opinion achieve effective separation of the two producing horizons?

A Yes, sir.

Q Will it enable you to make such tests and workovers as may be necessary?

A Yes, sir, I believe -- well, I'm certain that we can make all the tests that are required at this time by the Commission for covering or regulating Tocito operations.

Q Now the application asks for an exception to the casing rules of the special pool rules for the Tocito formation. Would you discuss the reasons for that exception?

A The Field rules for the South Blanco-Tocito Pool require 450 feet of surface casing, and that was done to protect a good source of water, shallow water in the vicinity of Section 4.

This particular well has 250 feet or 252 feet, I believe it is, of surface casing cemented from top to bottom, which is about 200 feet less than required for Tocito wells, but it is sufficient to comply with all of the rules covering drilling of Dakota wells.

There have been a number of Dakota wells drilled in the area that used 250 feet or less surface casing. All of the Tocito wells, however, that have been drilled close to Section 4 have used the 400 feet of pipe.

Q Is this surface water source which you described found in the area of this particular well?

A The area, this particular area,we haven't tested it. There is a water well in the shallow sands, I think it's bottomed at 250 feet, about a mile southwest of this well. It was a very poor water well, it actually, it's not -- we didn't get enough water from the well to make it worth while to pump it. It was drilled for drilling purposes, but it never did produce enough water that we felt it was worth while to pump it.

Q In your opinion is the present casing program on this well adequate to protect any fresh water zones?

A Yes, sir, I think it is.

Q Is the dual completion, as proposed by Caulkins, in the interest of conservation and the prevention of waste?

A Yes, sir. The show of gas that we had would hardly be enough to justify the drilling of a Tocito well. However, we do think we have justification for spending whatever is necessary to

test it in this particular hole.

Q Would correlative rights be affected in any way by approval of this application?

A No, sir, I don't believe they would. As pointed out before, Caulkins is the operator of all the acreage directly offsetting the well.

Q Do you have a log of the subject well?

A Yes, sir.

Q Is that marked as Exhibit No. 3?

A Yes, sir.

Q Were Exhibits 1, 2, and 3 prepared by you or under your direction and supervision?

A Yes, sir.

MR. KELLAHIN: I would like to offer in evidence Exhibits 1, 2, and 3.

MR. UTZ: Without objection, Exhibits 1, 2, and 3 will be entered into the record.

MR. KELLAHIN: That's all the questions I have.

A Excuse me, there's one other point that we haven't covered. The Tocito spacing requires that the wells be drilled in the Northwest or Southeast of each Quarter-Section, and this well, of course, is located in the Northeast of the Quarter-Section. It's unorthodox, as far as a Tocito well is concerned, to that extent, but as mentioned before, Caulkins is the operator of all the property immediately around it.

Q Would it be economical in your opinion to drill a well in the unorthodox well for Tocito production?

A Not unless we have had more encouragement than we have had thus far.

MR. KELLAHIN: That's all the questions I have.

CROSS EXAMINATION

BY MR. UTZ:

Q I believe you said that the top of your cement would be 6200 over your Dakota and Tocito.

A Well, it would be --

Q 1500 --

A -- 1500 feet from 7700 would be 5500.

Q What did you say it would be?

A It would be 7700 minus 1500 would be 6200, excuse me.

Q Yes, sir. The base of the Tocito perforations is 6830?

A Approximately that, yes.

Q Then at 6200 feet, you'll only have 530 feet of cement above the base of the Tocito perforations, is that correct?

A Yes, sir.

Q I believe Order 1191 says that you shall have 1,000 feet above the base of the shoe

This lacks about 1100 feet of cement being enough to comply with 1191?

A Yes, and I had overlooked that requirement on Tocito

wells. I might point out that in the cementing operation, centralizers and scratchers were run through the Tocito zone with the idea of getting a good cement job so we could explore it, if it ever became necessary.

Q This well is already completed?

A Yes, sir. It was completed, it was drilled and completed as a Dakota well, and rather, in conducting the operation to test the Tocito, we would certainly see to it that we knew we had a good cement job before we ever tried to frac it.

Q Let's see, where was your next squeeze job?

A There's a cementer at 5560.

Q 5560.

A I believe that's it. Yes, 5560, and another at 3200. A temperature survey was run after the second stage of cement was put away. It showed the top of the cement at 4,090.

Q From 5560 to 4,090?

A Yes, sir.

Q How about the next stage?

A No, sir, there was no temperature survey made.

Q How many sacks did you say were put in?

A 190 sacks, that's 50 percent Posmex, 50 percent cement with two percent Aquagel and 12 pounds of Glelsanita. That gives you a .148 cubic feet a sack of cement, a sack of cement would fill up approximately four feet.

Q You have around 760 feet of cement, then?

A Yes, sir.

Q It should bring it to about 2500?

A Yes, sir.

Q Is the Pictured Cliff zone in between 2500 and 3200?

A Yes, sir.

Q So you would have the Pictured Cliff protected?

A Yes, sir.

Q And you would have open hole between 2500 and 252 feet?

A Yes, sir.

Q What zones would be in between the 3200 to 4090 foot interval?

A Only the Chocra that has produced gas in the area, and it would be completely isolated, there wouldn't even be a chance for the gas to move from the Cliff House or Pictured Cliff into it. The cement comes above the Cliff House and is cemented below the Pictured Cliff, so it would be completely isolated.

Q So the Mesaverde would be in between the 4,090 and 5560 interval?

A Yes, sir.

Q Do you have any Gallup in this area?

A There are no Gallup wells that I know of anywhere close to that, not within five or, five or six miles.

Q Does your log show any Gallup development?

A It's very skimpy. It shows, well, it's just about non-existent.

Q What is this reflection up around 6650?

A That would be the Gallup zone, but the only half-way reliable information we have on it is from Schlumber-J log interpretation, and we did run a sonic log on it, so that we have an idea of the porosity values, and it just calculates out that it's, the potential there is practically zero.

Q Actually that interval would be pretty well separated from the Mesaverde and the Tocito?

A We have the base of the cement on the second stage well below the base of the Point Lookout, and then we have the Tocito covered up and that should isolate the Gallup in good fashion.

Q You don't believe that there is any water between the 2252 and 452 feet that could be damaged?

A I don't believe there are, but as I mentioned before, we have no water wells in that area; and of course wouldn't know, but I do know that this one water well is in between this well we're talking about and the good water wells, is a poor well, and so I doubt that there's any water of any particular value in that area. It also would be affected no more by this well than by some of the other wells that have been drilled, some of the Dakota wells that have been drilled in the area.

The 244 Well is approximately the same distance from this water well that I'm referring to as the D-140, and it also has 2250 feet of surface casing in it. That's strictly a Dakota well and there's no question about the surface casing requirements

in it.

Q How deep is the Ogalalla in this area?

A About twenty-three to twenty-five hundred.

Q And it isn't Artesian?

A No, sir. On the mesa it is not, the fluid levels we operate a well. That produces from sands immediately above it that, for water injection for this Tocito waterflood, and the static level is about, oh, 275 feet.

MR. UTZ: Any other questions of the witness?

MR. PAYNE: Yes.

BY MR. PAYNE:

Q Mr. Gray, if you drilled an additional Tocito well in the Northeast Quarter of Section 11, where would you locate it?

A Well, I believe it would be located in the -- it would be desirable, at least, to locate it in the Southeast -- excuse me, the Southwest.

Q Southwest of the Northeast?

A Yes, sir.

Q In order to get a more uniform drainage pattern in this area?

A Well, we would be moving back to the oil field.

Q So structurally and from a drainage pattern, it would be better?

A Yes, even though it would be --

Q Even though it would be unorthodox?

A It would be unorthodox, yes, sir.

Q As I understand your testimony, Mr. Gray, the Tocito rules protect whatever fresh water might be available, but the Dakota rules do not, is that right?

A Yes, sir.

Q Are there any Dakota wells in the Section 4 where you said the good fresh water is available, and if so, what was the cementing program on them?

A I can tell you if a well was drilled there, it was cemented with, I mean it was drilled with 450 feet of surface casing. There is no Dakota well at this time in Section 4. There is one in Section 5, and it was cased with 400 feet of pipe, surface casing.

Q Even though the Dakota rules didn't require that, it was felt that would more adequately protect the fresh water?

A It was approved for the Tocito, and dry in the Tocito, but deepened to the Dakota, but we do have the 400.

Q Do you think the Dakota rules ought to be revised that in the area of Section 4, that the surface casing should have to be set at 450 feet?

A I don't know that it would be necessary. The people who are, or rather the interest in protection of water, I think, would be limited to one operator, the Caulkins Oil Company, and we do have a good fresh water supply there and we certainly intend to keep it. Now the wells that would be drilled in the areas

surrounding the Caulkins block would be far enough away from it that I don't think it would make any difference.

Q You think the aquifer actually only extends to the acreage owned by Caulkins and perhaps some adjoining acres?

A The water is spotty, you just don't know where you might run into it, but as far as our supply is concerned, I think it would not be affected by what the operators do on the adjoining acreage. What we do, I mean if we drill a well that would affect it, we would certainly take steps to protect it.

Q Would you have any way of knowing if the water was being adequately protected in time to take remedial action?

A Yes, I think we would, because the only way it would be affected would be for one of the wells to develop a leak, and we are going to know that very quickly, if it happens.

Q Mr. Gray, do you know of any wells producing from the Gallup that have zero potential, as a matter of fact, that shows zero permeability on the logs?

A No, I know of a number of them that have been tried where they had a little more than zero permeability that were very disappointing.

Q You don't know of any in the Bisti-Lower Gallup, for instance, that are producing wells and show zero permeability?

A No, I don't, and I may have given you the wrong idea. The permeability, we know nothing about in the Gallup section in this well, but the porosities we do have an indication of that

from the sonic log, and we have an indication of the water saturation in the Gallup sand from the electrolog and the sonic log. I might mention, too, that those are certainly not conclusive, but in this particular well, the Gallup is isolated with cement.

Q Now the unorthodox location for this Tocito well won't affect anybody at the present time, since you own all the offsetting acreage?

A Yes, sir.

Q It could affect them in the future, could it not, since when you get one unorthodox location you have to keep drilling on unorthodox locations, and it could affect them when you reach the point that the offset operator wouldn't know where to drill his Tocito well?

A Well, I think if the Tocito sand proves to be productive and warrants drilling more wells, we can correct the spacing irregularities.

Q In such a way that everybody will be protected?

A Yes, sir.

MR. PAYNE: That's all. Thank you.

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

(Witness excused.)

MR. UTZ: Any other statements in this case? The case will be taken under advisement.

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STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

I, ADA DEARNLEY, Notary Public in and for the County of Bernalillo, State of New Mexico, do hereby certify that the foregoing and attached Transcript of Hearing was reported by me in Stenotype, and that the same was reduced to typewritten transcript under my personal supervision and contains a true and correct record of said proceedings to the best of my knowledge, skill and ability.

DATED this 29th day of March, 1960, in the City of Albuquerque, County of Bernalillo, State of New Mexico.

Ada Dearnley
NOTARY PUBLIC

My Commission Expires:

June 19, 1963.