BEFORE THE
OIL CONSERVATION COMMISSION
Mabry Hall
Santa Fe, New Mexico
January 28, 1960

EXAMINER HEARING

IN THE MATTER OF:

Application of E. P. Campbell for an exception to Rule 107 (e) of the Commission Rules and Regulations. Applicant, in the above-styled cause, seeks an exception to Rule 107 (e) in order to recomplete his No. 1 Cleveland Well, located in NW/4 NE/4 of Section 33, Township 18 South, Range 26 East, Eddy County, New Mexico, as a "slim-hole" completion in the Pennsylvanian formation at a depth greater than 5000 feet.

BEFORE:

Mr. Elvis A. Utz

TRANSCRIPT OF HEARING

MR.UTZ: Case No. 1886.

MR. FLINT: Case No. 1886, application of E. P. Campbell for an exception to Rule 107 (e) of the Commission Rules and Regulations.

MR. SOLSBERY: My name is A. D. Solsbery of Roswell, New Mexico. Also here with me is Mr. Don Brown of the firm of Brown and Brainard as attorneys for the applicant. We have one witness and two Exhibits.

(2 Exhibits marked for identification.)

GUY A. SWARTZ

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

MR. UTZ: Are there any other appearances in this case? You may proceed.

DIRECT EXAMINATION

BY MR. SOLSBERY:

Q Will you please state your name and address and occupation, please?

A My name is Guy A. Swartz. My residence is in Roswell. And my occupation is consulting geologist.

Q Have you ever appeared before the commission before, Mr. Swartz?

A Yes, sir, I have several times in the past.

MR. SOLSBERY: Will the commission accept Mr. Swartz's qualifications?

MR. UTZ: Yes, sir. His qualifications are accepted.

Q (By Mr. Solsbery) Now, Mr. Swartz, are you the geologist for Mr. E. P. Campbell in charge of drilling and completing his well down in Southeastern New Mexico?

A Yes, sir, I am in charge of all Mr. Campbell's operations, all of his drilling and completion operations in Southeastern New Mexico and portions of West Texas.

Q In your capacity as field representative for Mr. E. P. Campbell, you have filed an application No. 1886, to complete your No. 1 Cleveland Well at a depth of 9400 feet, this well being located in the Northwest quarter of the Northeast quarter of

Section 33, Township 18 South, Range 26 East, by setting two and 7/8inch tubing and as your final oil string, which completion would be an exception to Rule 107 (e); that application was filed by you, Mr. Swartz?

A That's correct. That is concerned with paragraph one and two under Rule 107 (e).

Q Now, exception to the Rule 107 (e) provides that you can have a slim hole completion if the well is to be completed at a depth of less than 5000 feet, however, this well is to be completed at a depth of approximately 9400 feet.

A That's correct.

Q Now, I refer you to Exhibit No. 1, Mr. Swartz, relative to the location of this well. Did you prepare that Exhibit?

A Yes, sir, I did.

Q Exhibit No. 1 is merely an ownership and lease plat of the area immediately around the wildcat subject well, which is located 198 from the East lines and 616 from the North lines of Section 33, 18 South, 26 East. Is this well located well within one mile of the boundaries of the Atoka Penn gas field?

A No, sir. This well is outside of the one mile -- It is being projected to the horizon which will be more than one mile outside of any existing pool.

Q This is considered a wildcat well?

A Yes, sir.

Q Now, will you give the commission the background and history of this well from its commencement down to pay?

MR. UTZ: Is this well already drilled and completed?

A No, sir. The well is presently being drilled at approximately 7800 feet. The well was originally drilled to a depth of 6107 feet and was plugged and abandoned on 9-15-59. A 12½" hole was drilled to a depth of 1100 feet, and 8-5/8", twenty-four pound casing set and circulated with 500 sacks of cement.

MR. UTZ: That was circulated?

A Yes, sir. The hole was drilled with a 7-7/8" bit to a total depth of 6107, whereupon, 5½" - 14 pound casing was set and cemented with a total of 1250 sacks of cement in two stages. And this cementing process was also circulated. After several unsuccessful completions, an attempt in the Wolfcamp and Abo formations, the well was finally plugged and abandoned on 9-15-59. The application was filed to re-enter to a depth of approximately 9500 foot in the lower Pennsylvania formation. That application was filed on December 23, 1959, in which a 4" [illegible]hydril liner was proposed to case the hole section below 6107 feet. Upon later consideration, it was felt that there would be less risk involved in the running of the casing, and also in obtaining an adequate cement sheet behind the casing, and a smaller size of oil string was used. And for that reason, the application was filed to the commission on December 29th.

MR. UTZ: What was the original size you proposed for this step?

A The original size oil string was proposed to be a 4" hydril. . The well is presently drilling at approximately 7800 feet with a 4 3/4" hole size. Additional reasons for running the smaller sized oil string is that approximately 60 to 70 percent of the section drilled between 6107 and 9400 feet is primarily shale of such a type that it would be possible for the shale section to fall in while the casing was being run. With a 4" hydril casing, there would also be insufficient clearance for utilization of centralizers to properly centralize the casing within the well bore.

Q (By Mr. Solsbery) A possibility you would experience some difficulty with the shale section by using a hydril liner?

A There would be more possibility of encountering trouble with a larger size oil string than there would be, of course, with a 2 7/8" tubing. There are also several water zones which may be encountered above and below the protected pay horizon, which if not properly sealed by cement between the oil string and the outside of the hole, would lead to communication and possibly abandonment prematurely of the anticipated gas zone.

Q Now, what you are saying there, Mr. Swartz, is that you feel you cannot get an adequate cement job by using the 4" hydril liner due to the lack of clearance between the hydril liner and the hole?

A That's correct.

Q Do you feel that you can get a better cement job by using the 2 7/8" tubing as your final oil string?

A Yes, sir.

Q Now, are you doing this for economic reasons, Mr. Swartz?

A No, sir. At the present time, Mr. Campbell has in stock more than enough 4" hydril casing to adequately complete this well with that method. The proposed method was primarily for adequate protection of the pay horizons from any possible water zone above or below the pay.

Q Mr. Swartz, I refer you to applicant's Exhibit No. 2. Did you prepare this Exhibit?

A Yes, sir.

Q What is that Exhibit, Mr. Swartz?

A Exhibit No. 2 is a schematic diagram showing the proposed casing program and the existing casing now in the well.

Q Do you feel that this method of completion is mechanically sound?

A Yes, sir.

Q In your own opinion, is this type of completion in the best interest of conservation?

A Yes, sir, it is.

Q If the commission sees fit to grant this application, in your opinion, will it impair correlative lights?

A No, sir.

MR. BROWN: May I ask just one or two additional questions?

MR. UTZ: Yes.

EXAMINATION BY MR. BROWN

Q Mr. Swartz, I don't know whether I understood you clearly or not. Did you give us the date when this well was first spudded in?

A No, sir.

Q Well, the only point I am driving at is that is it what you would call a comparatively old well or new well?

A No, sir. The well was spudded in approximately one and a half years ago.

Q Then, under your Exhibit No. 2, you show that you have surface casing set to 1100 feet, I believe, 24 pound casing, 8 5/8".

A That's correct.

Q Now, under your proposed plan of operation, would that surface casing be in any way disturbed?

A No, sir.

Q And as to your knowledge, what condition is the surface casing presently in?

A The surface casing and the 5½" casing which will now act as an intermediate string, were both circulated with the cement behind the casing, and except for the preparations which exist between the 6056 feet, these casings should be undisturbed from

their original condition.

Q Now, what is the inside diameter of this 5½" casing, intermediate string, the inside diameter?

A The inside diameter of the 5½" casing is 5.012".

Q How much clearance will you have if you go ahead and set this hydril liner bottom string -- how much inside clearance will you have between the 5½" - 14 pound casing, which presently is set in the hole as an intermediate string, and the ultimate 4" hydril liner?

A We would have 1" clearance, or you would be 1/2" diametric clearance within the 5½" casing; however, within the 4 3/4" hole, which is presently being drilled, there would only be 3/8" diameter clearance.

Q Now, from your experience in your particular profession, is it mechanically possible to drill the lower hole, or the lower bore hole in such a manner that the proposed 4" hydril would remain clear and free of the walls of the hole at all points on down to the bottom, or would it touch at various places?

A Inasmuch as the clearance between a 4" hydril and a 4 3/4" hole size would be so small, so as not to allow the utilization of any centralizers, the larger or the 4" hydril casing, would probably be in contact with the hole, from a total depth to well within the casing.

Q Now, what about your effect of that particular problem as to the proposed cementing of this 4" hydril?

A If the casing is in contact with the outside of the hole, the cement sheet around this 4" hydril liner would be so thin that insufficient strength would be available to adequately shut off any water zones above or below the projected pay horizon.

Q Are you familiar with any regulations or recommendations which either the New Mexico State Engineer's Office or this commission has heretofore prescribed as to the distance between the outside of an uncased hole and the proposed string of casing which is to be put in.

A The State Engineer's Office, I believe, recommends a clearance of at least 2" in diameter, greater than the string of casing being run.

Q And under this proposed 4" hydril, will you be able to achieve that recommendation?

A No, sir.

Q What about your 2 7/8" tubing which you propose to set. Would that substantially comply with that?

A Yes, sir.

Q Now, have you told us what production you ultimately hope to encounter at 9500 feet?

A The present status of the well is that well is being drilled at approximately 7800 feet to a protected pay horizon near or estimated to be near 9300 feet. This particular pay horizon is producing, or has been tested, and is shut in in wells

approximately one mile distant to this subject well. This particular pay horizon is the pay designated in the Atoka Pennsylvania Pool.

Q And do you hope to encounter oil or gas?

A It's anticipated that gas production will be encountered.

Q And from your experience, knowledge, and information in your profession, in your opinion, would this 2 7/8" tubing, when properly set, cemented and placed in operation, adequately and properly produce from the zone which you hope to encounter as a gas well?

A The diameter -- the inside diameter of the 2 7/8" casing is such that an adequate flow should be allowed for any anticipated allowable for this zone.

Q Do you feel that there is a substantial danger that you may not be able to complete the well or might even lose the well itself if you attempt to set the 4" hydril through this shale section which you have just described to the commission?

A There is considerably more risk encountered with the larger size casing.

MR. BROWN: I believe that is all.

MR. SOLSBERY: We will offer our Exhibits 1 and 2 into the record at this time.

MR. UTZ: Without objection, they will be received.

MR. SOLSBERY: Did you have something else, Mr. Swartz?

A No.

MR. SOLSBERY: Well, that concludes the direct.

EXAMINATION BY MR. UTZ

Q Mr. Swartz, was this well plugged and abandoned as a Wolfcamp dry hole?

A Yes, sir.

Q It was actually cemented and plugged?

A Yes, sir.

Q And you had to drill out the cement in order to accomplish your recompletion here?

A That's correct.

Q How about workovers and 2 7/8" tubing at this depth? Do you have tools with which you can properly work the well over?

A Yes, sir, to a more limited degree than with the larger size casing.

Q But you can do your perforations and so forth?

A Yes, sir.

The proposed pay zone will be drilled and tested upon penetration, and the 2 7/8" tubing will be run with a Halliburton float collar - float shoe on the bottom at a depth of approximately 100 feet below the pay zone. It is anticipated to place a seating nipple within the string of tubing approximately one or two joints above the anticipated pay zone. This seating nipple will have an inside diameter of $2\frac{1}{4}$" through which the well can be logged or perforated.

Q How far up into the 5½ do you propose to bring the cement?

A Since there are perforations in the 5½" casing, as high as 4800 feet, which may have a small amount of sulphur water, it is anticipated to bring the cement to approximately 4500 feet to adequately seal any perforations now open.

Q And what this boils down to is trying to save about 6100 feet of hole?

A Yes, sir.

MR. UTZ: Are there any other questions of this witness?

EXAMINATION BY MR. FLINT

Q Mr. Swartz, is it your understanding that Rule 107 (e) is an exception to the general requirements as to casing wells drilled in the State of New Mexico? In other words, this slim hole completion which is permitted by the rule is in itself an exception to the normal hole size requirements?

A It is an exception to the rules previous to the issuance of this order, yes; however, it is my understanding that a well may be completed as a slim hole completion with tubing, and at a depth of 5000 feet or less.

Q And under your proposal, you would request to go another 4000?

A 500 feet.

Q Below what is prescribed by Rule 107 (e).

A Yes.

Q So, this is a fairly substantial exception to what is provided by Rule 107 (e)?

A Yes, sir. However, it is -- it was not applied for with the intention of lowering our costs of the well. The application was made to more insure the productivity of the well when completed.

Q You have stated that this proposal is not based upon an economic benefit which would result from this being granted?

A That's correct.

Q Would there in fact be a difference in the cost of completing it as you propose it?

A Yes, sir, there would be a difference in the cost. The cost would be less with the tubing completion.

Q In round figures, can you tell us approximately what the cost of completion to this depth would be, assuming that you didn't have this well to work through?

MR. UTZ: What size casing?

MR. FLINT: Assuming a standard -- the standard requirement for a hole of this depth.

A The difference in cost would be that of the 4" hydril liner, which Mr. Campbell does have in stock, and has been retrieved from another well.

Q Is the risk that you contemplate, assuming that you are using the 4" hydril, is the risk primarily that of not sealing off the water?

A Yes.

Q In the horizons?

A Yes. I would estimate the difference in cost to be probably less than $5,000.00.

Q Then the risk would not be so much in getting the completion with 4" hydril, but rather, it would be the risk of production after the completion was made?

A Yes, sir. The application was made primarily in the interest of conservation.

Q Then, you stated that you expect this would be a gas well upon completion at approximately 9300 feet?

A Yes, sir.

MR. FLINT: That is all.

EXAMINATION BY MR. UTZ

Q Mr. Swartz, your lack of economic consideration is between the 2 7/8" and 4" hydriller, is it not? In other words, you had 4" hydril in stock, and your only reason for wanting to run the 2 7/8" is because of your completion problem?

A That's correct.

Q There was an economic consideration in trying to save 6100 feet of hole, was there not?

A That's correct.

Q Otherwise, if you hadn't wanted to save that, you could drill a new well?

A That's true.

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

Are there any other statements to be made in this case? If not, the case will be taken under advisement.

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REPORTER'S CERTIFICATE

I, Thomas T. Tomko, Court Reporter, DO HEREBY CERTIFY that on Thursday, January 28, 1960, before the Oil Conservation Commission, Mabry Hall, Santa Fe, New Mexico, the above entitled case came on to be heard before Mr. Elvis A. Utz.

I, FURTHER CERTIFY that I recorded in stenotype this proceedings of the above entitled case and the foregoing 14 pages of typewritten transcript is a true and correct transcript of my said stenotype notes, to the best of my ability.

Dated at Albuquerque, New Mexico this 28th day of January, A.D., 1960.

Thomas T. Tomko
Court Reporter

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 1886, heard by me on January 27, 1960.

....., Examiner
New Mexico Oil Conservation Commission