

MR. UTZ: Case 3856.

MR. HATCH: Case 3856. Application of Skelly Oil Company for a waterflood project, Rio Arriba County, New Mexico.

MR. JACOBS: Appearing on behalf of the Applicant, Skelly Oil Company, Ronald J. Jacobs, Tulsa, Oklahoma, and the Commission's file should also reflect that Mr. L. C. White has entered an appearance as local Counsel for us in this matter. We have one witness we would like to have sworn.

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

(Witness sworn.)

(Whereupon, Applicant's Exhibits Numbers 1 through 5 were marked for identification.)

A. H. HURLEY

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

DIRECT EXAMINATION

BY MR. JACOBS:

Q Will you please state your name, by whom you are employed and in what capacity?

A My name is A. H. Hurley. I'm employed by Skelly Oil Company as District Engineer, Denver, Colorado.

Q As District Engineer in Denver, Colorado, do you have under your supervision the area in Rio Arriba County, known as

the Otero-Gallup Pool?

A I do.

Q Are you familiar with Skelly Oil Company's operations in producing properties in that area?

A Yes, sir.

Q Are you familiar with the application in this case?

A Yes, sir, I am.

Q Have you heretofore testified before this Commission as a Petroleum Engineer, and on such occasions, have your qualifications been accepted?

A Yes, sir, I have and they have.

Q I direct your attention now to what has been marked for identification as Exhibit Number 1. Would you relate to the Examiner what this exhibit shows?

A Exhibit 1 is a map of the area including the surrounding Skelly's Jicarilla B Lease. Included in the legend are all wells currently completed in the area and coded as to their completion horizon.

Q Now, the Jicarilla B Lease is described as what geographical area?

A The Jicarilla B Lease includes Sections 31 and 32 of 25 North, 6 West, and 5 and 6, 24 North, 6 West.

UNIDENTIFIED SPEAKER: 5 West.

THE WITNESS: 5 West. I'm sorry.

Q Both those descriptions should have been 5 West?

A 5 West, yes, sir.

Q Now, you propose to inject by utilizing initially two wells, is that correct?

A Correct.

Q What wells are those?

A Shown on the map in red triangles, we propose to inject into the Gallup Formation in Wells 5 and 6 in Section 32.

Q And you've indicated by appropriate symbols the producing formations from which all the wells in the general area are completed or are producing from?

A Correct.

Q What is the nature of production from the Gallup Formation of the wells in the immediate vicinity on the Jicarilla B Lease and other leases in this area?

A The Gallup wells are currently producing an average of five barrels of oil per day. Cumulative production has averaged approximately 28,900 barrels of oil per well.

Q Are the wells reaching a point where they are approaching their economic limit?

A They are.

Q In order to recover oil which would not otherwise be recovered, do you feel it's necessary to commence an injection project to see if the Gallup Formation is floodable and additional

oil can be recovered?

A That's correct. This project is more or less experimental, pilot-type project. The Gallup is a fractured reservoir and meaningful engineering estimates of recoveries cannot be made. It is in the primary state of depletion and we propose to test the results of water injection by this procedure.

Q In fact, in northwest New Mexico, the Gallup Formation sometimes can be successfully flooded and sometimes cannot, is that correct?

A That's correct.

Q And the only real way to find out is to try it?

A That's correct.

Q I direct your attention now to what has been marked for identification as Exhibit Number 2. Would you relate to the Examiner what this exhibit is.

A Exhibit 2 is an electrical log of our Jicarilla B Well Number 5 proposed for water injection with the current perforations and the perforations proposed for injection indicated thereon.

Q I direct your attention now to what has been marked for identification as Exhibit Number 3. Would you relate to the Examiner what this exhibit shows?

A Exhibit Number 3 is the same as Exhibit Number 2 for our proposed injection well, Jicarilla B Number 6.

Q That's a log of the --

A It's an injection -- electric log of the section indicating the proposed perforations in the Gallup Formation for injection.

Q I direct your attention now to what has been marked for identification as Exhibit Number 4. Would you relate to the Examiner what this exhibit shows?

A Exhibit 4 is a downhole schematic of our proposed injection well, completion of the Jicarilla B Number 5 Well, showing the casing strings, cement tops and tension packer.

Q Now, with relation to the cement, cementing program in this well, you have an estimate as to where the top of the cement occurs?

A Yes. That's shown on Exhibit 5. There are two tops. It states cemented top of the bottom state is at 5600 feet. Our proposed packer setting is 5910 feet. The top of the injection interval would be 5948 feet.

Q And you do anticipate injection through tubing set on this packer?

A Through the tubing, right; unlined.

Q How will you treat the annulus space between the tubing and the casing?

A It will be filled with an inhibited fluid and a

permanent pressure gauge installed at the surface to monitor the surface pressure in the annulus.

Q I direct your attention now to what has been marked for identification as Exhibit Number 5. Will you please relate to the Examiner what the exhibit shows?

A Exhibit Number 5 is a downhole schematic showing the proposed completion of our Jicarilla B Lease Number 6 injection well. It shows the cement top at 5822. Shows the packer setting at 6000 feet and the proposed perforations for injection into the Gallup Formation.

Q And there, also, you've indicated the cement tops and in each case, the packer will be set below the calculated or the top of the cement?

A That's correct.

Q You will likewise treat the annulus base in the similar manner?

A Annulus base will be filled with an inhibited fluid and a pressure gauge installed at the surface.

Q And in each case, you will use two and three-eighths inch tubing?

A Yes, sir.

Q Mr. Hurley, what is the source of the water that will be injected, initially, into these two wells?

A Our Jicarilla B Number 17 Well in Section 5, 24 North,

5 West, has been recompleted in the Ojo Alamo Formation.

MR. UTZ: Section what?

THE WITNESS: That's Number 17 in Section 5, 24 North, 5 West. It has been recompleted in the Ojo Alamo Formation, perforated from 2,010 feet to 2125 feet and will deliver sufficient Ojo Alamo water to inject approximately 750 barrels per day into each injection wells, 5 and 6.

Q You're talking about a total of 1500 barrels of water a day into the two wells?

A Yes, sir.

Q What is the nature of the water?

A It's fresh, potable water.

Q And considering that and the subsurface installation you propose on these two wells, in your opinion, is there any chance of damage to either any fresh-water-bearing sands in the area or any other producing sand or possible producing formation in the immediate vicinity?

A No chance for it.

Q You're asking the Commission to grant you permission to inject into wells 5 and 6 and also provide for administrative expansion of the project without the necessity of a separate hearing should you desire to expand to include additional wells in the immediate vicinity of this lease?

A Yes, sir.

Q This Jicarilla B Lease, is this lease under the jurisdiction of the Federal Government?

A Yes, it is.

Q Have you discussed this proposal with representatives of the Government and explained the project to them?

A We have, and we have received their formal approval for the project based on like approval of the New Mexico Oil and Gas Commission.

Q Were Exhibits 1 through 5 prepared by you or under your direction or supervision?

A They were.

MR. JACOBS: We offer Exhibits 1 through 5.

MR. UTZ: Without objection, Exhibits 1 through 5 will be entered into the record in this case.

(Whereupon, Applicant's Exhibits Numbers 1 through 5, inclusive, were admitted in evidence.)

MR. JACOBS: We have no further direct testimony, Mr. Utz.

CROSS EXAMINATION

BY MR. UTZ:

Q What kind of pressures do you anticipate you will need to inject this 1500 barrels?

A We're providing for 1250 psig. We don't, frankly, know exactly what it will take but we think that will be

sufficient.

Q It will take 1250 or close, whatever I understood you to say it would take?

A Yes, sir.

Q These wells were drilled when? I thought I saw it here somewhere.

A In '57. Late '57 and '58, generally, for all the Gallup wells. Number 5 was completed 12-4-'57. Number 6, 2-2-'58.

MR. UTZ: Are there any questions of the witness? You may be excused. Any statements in this case?

MR. JACOBS: Nothing further.

MR. UTZ: The case will be taken under advisement.

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