

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
April 7, 1965

EXAMINER HEARING

IN THE MATTER OF:

APPLICATION OF VILAS P. SHELDON FOR A UNIT
AGREEMENT, EDDY COUNTY, NEW MEXICO

Case No. 3231

APPLICATION OF VILAS P. SHELDON FOR A
WATERFLOOD PROJECT, EDDY COUNTY, NEW MEXICO

Case No. 3232

BEFORE:

ELVIS A. UTZ

TRANSCRIPT OF HEARING

MR. UTZ: Case Number 3231.

MR. DURRETT: Application of Vilas P. Sheldon for a unit agreement, Eddy County, New Mexico.

MR. WATSON: If the Examiner please, we'd like to consolidate Applications 3231 and 3232, and consider the testimony and the exhibits in each case as in the consolidated case.

MR. UTZ: Cases Number 3231 and 3232 will be consolidated insofar as testimony is concerned. Separate orders will be written on each case.

MR. WATSON: Neil B. Watson of Watson & Watson, Artesia, New Mexico, attorneys representing the applicant. We have Mr. V. P. Sheldon, the applicant, as a witness.

* * *

V I L A S P. S H E L D O N, the witness, having been duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. WATSON:

Q State your name and occupation, please, sir.

A Vilas P. Sheldon, independent geologist.

Q You are the applicant in these two cases, are you not?

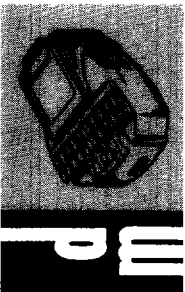
A Yes, sir, I am.

Q Have you appeared before the Commission previously?

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A I have.

Q Have your qualifications been accepted here as of heretofore?

A Yes, sir.

Q In connection with the applications for a unit agreement and for a secondary recovery program by waterflood, I hand you Applicant's Exhibits 1 and 1A and ask you to state what they are, please, sir.

A They are photographic copies of a generally circularized map, up to date, showing the development, the lease ownership and the surrounding area. Exhibit 1, I believe, is legible and can be read. The Exhibit 1A was thrown in to show the structural contours on top of the Red sand.

Q The area of the proposed unit is outlined in red?

A Yes, sir.

Q And the plats involved show the boundaries of the unit--all of the wells in the unit?

A Yes.

Q Does it also show the location of all wells within a radius of two miles?

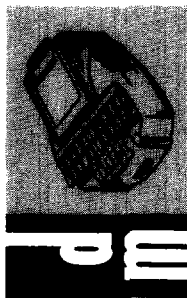
A Yes.

Q Do Plats 1 and 1A show the names of the lessees and give the location of the wells within a radius of two miles?

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A It does, yes.

Q I hand you Applicant's Exhibit 2 and ask you to state what this is, please, and what it shows.

A Exhibit 2 is a map of the unit area and the direct offsetting owners and the direct offsetting wells on a different scale from Exhibit 1, putting in detail the relationship of this unit and the direct offsetting wells. It also has the six proposed input wells marked.

Q The injection wells are identified how?

A By a purple circle around the well spot.

Q Mr. Sheldon, I hand you Exhibit 3 and ask you to state what that is, please.

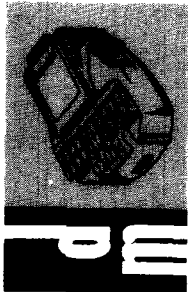
A Exhibit 3 is a photostatic copy of the unit agreement for the Old Loco unit area.

Q I hand you Exhibit 4 and ask you to explain what that shows.

A Exhibit 4 is a copy of the unit operating agreement for the Old Loco area, together with the various exhibits.

Q As to the unit agreement as identified here, and the unit operating agreement, have copies been presented to a representative of the Commissioner of Public Lands of the State of New Mexico?

A Yes, and the unit agreement has been approved as to form and content.



Q I hand you Exhibit 5, Mr. Sheldon, and ask you to state what that is, please.

A Exhibit 5 is a plat on a large scale, showing the sixteen wells involved, the layout of the injection wells, with notations as to possible future wells that we might possibly want to drill in the future, depending on how the flood works.

Q I hand you Exhibit 6 and ask you to state what that is and what that shows, and from where the information was obtained.

A Exhibit 6 is a data sheet--engineer data sheet showing by wells the production as of a current date; the rate of production as of January, 1965 and notations as to the present producing zones. The data was secured from the records compiled by the New Mexico Engineering Committee.

Q What are the present producing zones you propose to waterflood?

A We will go to Zones 5 and 6, which are two basal sands of the Grayburg formation, Middle Permian age, sometimes known as Metex and Premier.

Q When were these wells drilled that are in the area?

A Various dates. I believe for the first one it possibly dates back to 1945.

Q I hand you Exhibit 7 and ask--

A Most of the wells were drilled in 1958. I am

looking at the completion dates. The first well was 1940; the last 1962. Most of them were in 1958.

Q Referring to Applicant's Exhibit 7, please state what that is, sir.

A That is another engineering data sheet entitled "Parameters," showing by tract number the production, the estimated primary reserve, the total primary--and by that phrase I mean to say it's the total expected primary production that would be achieved up to an economic limit of one-half barrel per well per day, as determined by extrapolation of production data on semi log paper.

Q Does this show the basis of determining the percentage of interest of the various owners in that unit?

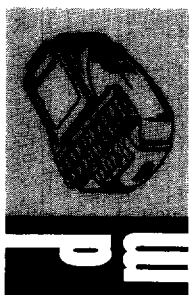
A That is the basis of the tract participation figures. The formula used was 100% total expected primary production.

Q Are there any wells in this area now that is proposed to be waterflooded, that are still economic wells from the standpoint of production and cost of production?

A Yes. If you want a yes-or-no answer, yes.

Q What is the situation with regard to most of the wells?

A Average production, I believe I figured, was 2.4



barrels per well per day at the present time. It isn't on an operator's overhead; it's questionable whether it is economic. There are two or three wells still making enough oil to be interesting, and there's probably several wells which are just being operated because someone forgot to shut them down.

Q I hand you Exhibit 8 and ask you to state what that is.

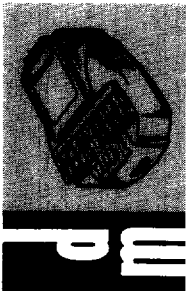
A Exhibit 8 is a photostat of the gamma neutron log on Miller & Smith Texas Gulf Well Number 1, showing thereon Zones 5 and 6 and also showing the unitized formations as tied in with the unit agreement. In other words, this shows what the unit agreement unitizes.

Q From your study of the area, is this more or less typical of the other wells in the area?

A Yes. The unit comprises just one section of 720 acres. As shown by the gamma neutron logs the wells are very similar. There is some variation in depth, but not much.

Q I hand you Exhibit 9 and ask you to state if you prepared this, and ask you to state what this represents.

A Exhibit 9 is another set of engineering data, mostly concerning the size of the well bore, the size of the oil string, the number of sacks with which the oil strings were cemented, total depth of the well and calculated cement top. It was compiled from the records in the Oil Conservation



Commission office in Santa Fe.

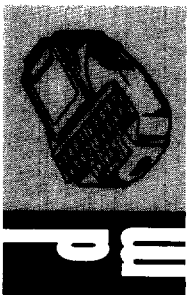
Q This shows the casing in the wells?

A Yes, it shows the depth casing was set in each well, size of casing, number of sacks it was cemented with, and theoretical fill-up, and also the condition of the casing when it was put in the well--not now.

Q I hand you Applicant's Exhibit 10 and ask you to state if you prepared that, and what it is, please.

A I prepared Exhibit 10. It is a schematic drawing showing the situation that will pertain to the injection wells, as to where casing is set in relation to the producing zones, also the relationship that the salt section has to the surface pipe. I might say that the pipes in all cases, with the exception of the old 1940 well, which well will have to be re-worked, and we will re-work it before we inject, out of necessity--the other wells are cased to total depth and cemented with adequate cement to theoretically fill out to above the zones in question. The surface pipe is set at approximately 300 feet, which puts it in the top of the salt section, and was cemented with enough cement to fill to the surface. I was the geologist on most of those wells at the time they were drilled, and we did cement to the surface, and our casing point was the top of the salt. It came at about 300 feet.

Q I hand you Applicant's Exhibits 11 and 12 and 13,



and ask you to state what those are, Mr. Sheldon.

A They are radioactive gamma neutron logs.

Q On what wells?

A The Collier Kerr-McGee Number 1 and Number 3 and the Miller and Smith-Brown Number 1, all of which wells are proposed as water injection wells.

Q Do you have any other logs, Mr. Sheldon?

A I don't have any other logs with me today. The logs are available, with the exception of the one old 1940 well--there are gamma neutron logs available. I'm sorry I don't have all of them here today.

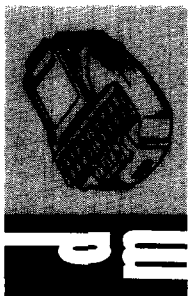
Q Where do you propose to obtain the water for your waterflooding program?

A Well, we have not been able to find an adequate source of local water, so it is our plan and firm intention of buying water from Caprock Water Company. It so happens-- it isn't pertinent, perhaps, but it so happens that their line goes across this area, and they have already left a connection for future use.

Q Do you have a contract with Caprock?

A We have an unexecuted contract--in other words, they have tendered us one which is acceptable but it hasn't been signed yet.

Q What amount of water do you anticipate using in



this project?

A We are thinking in terms of 2,000 barrels per day, at first, to get the initial load up, and I suppose it will continue to be about that rate. At first we will have to buy all of the water, and as time goes on we will be re-cycling produced water--we will re-cycle all produced water.

Q What other plans do you have as to the method by which you would undertake this waterflood project? In what area would you start your operations?

A We are asking for approval of six input wells, and our pattern has been laid out--we propose to actually start with the three northwest wells; the well in the northwest northwest; and northwest southwest, and the southwest north-east. And then as soon as we work out line agreements with our people to the south and east, we will go ahead with the three line wells.

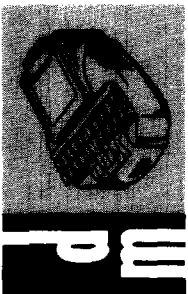
Q Do you anticipate any necessity for any line agreements other than to the south and east?

A No. We think that line agreements to the south and east will be adequate--adding to the north and west certain things; line agreements are necessary on account of the permeability situation. It does not seem that anyone has been able to complete a well to that direction--it has been tried.

Q Have you furnished the representatives of the

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State Engineer's Office with copies of your letter application to the Commission, and with your exhibits that were attached thereto?

A Yes.

Q Do you have any further statement to make with respect to either the application for approval of the Old Loco unit or the application for the proposed secondary recovery program by waterflood?

A No, I don't believe I have anything more to offer at this time.

MR. WATSON: Do you have any questions, sir?

MR. UTZ: Do you want to offer your exhibits at this time?

MR. WATSON: Yes--I offer Exhibits 1 through 13, I believe it is. We had an Exhibit 14, but he didn't offer it.

MR. UTZ: Exhibits 1 through 13 will be entered into the record of this case.

CROSS-EXAMINATION

MR. UTZ: Mr. Sheldon, Exhibit 10 is a schematic injection well completion. Was this the plan you intend to use on all the injection wells?

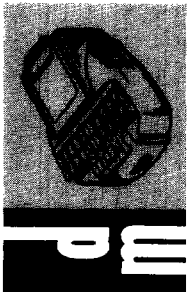
A Yes, sir.

Q And water injection will be through tubing run

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through a packer?

A Yes, sir, except that as we flood both Zones 5 and 6 we will be pumping water down the annulus also.

Q Which zone will be in the annulus? Is that the Metex zone?

A Yes, the Metex is Zone 5. It will be that or a dual string situation, and on one well, the Collier Leonard, I'm sure it will take a dual string, and that one happens to have seven-inch in it, which we can do, because I don't think that casing is adequate. I'm going somewhat on a hunch, but I suspect it will be a dual string.

Q Is it your intent to test the casing before injecting into the wells?

A Yes, we will so stipulate--certainly.

Q And the injection water will be classified as fresh water?

A It will at first--yes, it will.

Q And it might become a little more saline?

A I'm sure the return water will be brine.

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

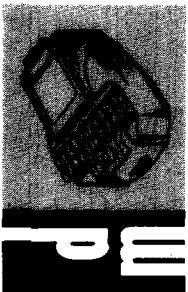
MR. IRBY: Frank Irby, State Engineer's Office.

Mr. Sheldon, you said this water at the start would be fresh, and I presume this is coming from Caprock's well field over

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in Lea County, rather than Red Lake?

A I believe it's coming from Red Lake.--Yes, it is, Mr. Irby.

Q Then this isn't considered fresh water--Red Lake?

A Perhaps I should stand corrected. I don't know. I feel you are quite right--it's probably quite jippy.

Q Now, all these wells are intended as dual injectors --each of the six?

A Yes, sir, by the schematic method if possible; and if we have casing leaks and so on we will take care of it by--

Q Additional tubing?

A Additional tubing.

Q And packer?

A And packer.

Q I think I note a slight discrepancy between the names applied to the injection wells in the application and those on your Exhibit 9. Maybe it's my lack of understanding.

A No, it isn't. The March 15th application lists the Kincaid & Watson in the northwest northeast, and we have substituted--what have we substituted?

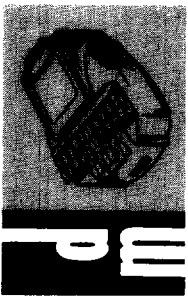
Q Do you need this exhibit?

A This one ought to show it. The northwest northeast has been substituted for the--I mean the northwest northwest has been substituted for the northwest northeast.

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You are certainly right, Mr. Irby.

MR. WATSON: May we amend the application to show that we substituted that well in the northwest northwest, 32-17-29, for--what was the description of that well?

MR. SHELDON: It's Kerr-McGee Number 3.

MR. WATSON: --Kerr-McGee Number 3 in place of the Kincaid Watson Durham State Number 1; and the location will be the northwest quarter of the northwest quarter of Section 32, 17-29. We would like to amend the application accordingly, sir.

MR. UTZ: Then the proper well is the northwest northwest?

MR. SHELDON: Yes.

MR. UTZ: Which exhibit are these wells listed on?

MR. IRBY: It's Number 9.

MR. WATSON: They are shown also on Exhibit 2, as circled.

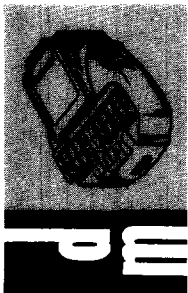
MR. UTZ: Does Exhibit 2 show the proper locations?

MR. SHELDON: Yes, Exhibit 2 shows the proper locations.

MR. UTZ: Does Exhibit 9 differ from that?

MR. WATSON: No, sir, Exhibit 9 shows all the wells, and shows the injection wells.

MR. UTZ: Well, Exhibits 2 and 9 do show the



proper locations?

MR. WATSON: Yes. May I examine Exhibit 5 for just a moment? That also shows the right locations.

MR. UTZ: You are requesting at this time, five injection well approvals?

MR. SHELDON: Six.

MR. UTZ: All right, sir. Does that get it straightened out, Mr. Irby?

MR. IRBY: Yes, that straightens it out. The only discrepancy is between the last well listed on the application and those as shown on Exhibits 1 and 9. So I think that's all clear. Mr. Sheldon, what is the anticipated life of this flood?

A Four years, Mr. Irby.

Q What is the individual well injection expected?

A Approximately 450 barrels per day.

Q And what is the anticipated injection pressure?

A Based on waterfloods in neighboring areas, we don't think it will go higher than 1500 pounds.

Q And I presume the casing test you referred to a few moments ago will exceed the 1500 PSI?

A Yes, it will.

MR. IRBY: That's all the questions I have. Thank you.

MR. UTZ: Are there other questions of the witness?

... Is there anything further in this case?

MR. WATSON: No, sir.

MR. UTZ: The witness may be excused. Are there any statements to be made in this case?

MR. IRBY: Mr. Examiner, may I have the privilege of making a copy of Exhibit 9?

MR. UTZ: You can make copies of all of them if you want to, Mr. Irby. The case will be taken under advisement. We will recess until one-thirty.

* * *

STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

I, ELIZABETH K. HALE, Notary Public and Court Reporter, do hereby certify that proceedings in the foregoing case were taken and transcribed by me, and that the foregoing is a true and correct transcript of proceedings to the best of my knowledge, skill and ability.

IN WITNESS WHEREOF, my hand and seal of office this 10th day of April, 1965.

Elizabeth K. Hale

Notary Public

My commission expires

May 23, 1968.

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 3271432 heard by me on 1965.

Elizabeth K. Hale, Examiner
New Mexico Oil Conservation Commission

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