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EXAMINER HEARING

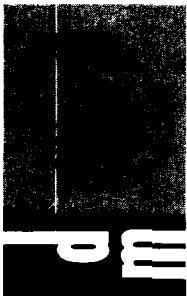
Application of Cities Service Oil
Company for a unit agreement, Lea
County, New Mexico.

Case No. 3461

Application of Cities Service Oil
Company for a waterflood project,
Lea County, New Mexico.

Case No. 3462

TRANSCRIPT OF HEARING



MR. UTZ: Case 3461.

MR. HATCH: Application of Cities Service Oil Company for a unit agreement, Lea County, New Mexico.

MR. KELLAHIN: If the Examiner please, Jason Kellahin, Kellahin and Fox, appearing for the applicant. We would propose that Case 3461 be consolidated with Case 3462 for purposes of testimony since they pertain to the waterflood on the same project.

MR. UTZ: Cases 3461 and 3462 will be consolidated. Separate orders will be written on both cases.

MR. KELLAHIN: We have one witness.

(Witness sworn.)

(Whereupon, Cities Service's Exhibits 1 through 9 were marked for identification.)

MR. UTZ: Are there other appearances? You may proceed.

E. F. MOTTER

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q Will you state your name, please?

A E. F. Motter.

Q By whom are you employed and in what position?

A Cities Service Oil Company, area engineer, Texas-New Mexico area.

Q Have you previously testified before the Oil Conservation Commission of New Mexico and made your qualifications a matter of record?

A Yes, numerous times.

MR. UTZ: He's qualified.

Q Mr. Motter, are you familiar with the application of Cities Service Oil Company in Cases 3461 and 3462?

A Yes, I am.

Q Briefly state what is proposed by Cities Service in these two cases.

A We propose under 3461 to unitize an area comprising approximately 1,080 acres in the Southeast Maljamar Unit. It will be called -- it's in the Maljamar Pool and propose to initiate waterflood on this unit.

Q Now, referring to what has been marked as Exhibit No. 1, would you identify that exhibit?

A Yes, this is a Unit Agreement. The unit is comprised of approximately 1,080 acres, of this amount 280 are Federal lands, 800 are State lands.

Q No fee lands?

A No fee lands. As of just a few minutes ago we have all working interest signed, all royalty interest signed;

there are three overriding royalty interests holding about three-tenths of one percent of the total of phase one participation that have not signed. One has promised to sign but has not returned the instrument and has no questions or obligations. The second party, who was recently contacted, has lost the instrument; he has been sent additional copies; he will sign.

The third interest is on a Phillips lease. Royalty payment has been suspended by Phillips since 1960 since they cannot find the party. Cities Service has been unable to find the party.

Q What percentage did you say this amounted to?

A Approximately three tenths of one percent of the total royalty payment under phase one.

Q Has the form of the Unit Agreement been submitted to the United States Geological Survey and the State Land Office?

A Yes, they have.

Q What is the unitized formation?

A Unitized formation is described on page three and it is described as "the stratigraphical interval underlying the unit area, extending from the top of the Grayburg formation down to and including a depth of 100 feet below the top of the San Andres formation." Basically this is known

as the Premier sand in this area.

Q Is that the same area that you propose to waterflood in the other case?

A Yes, that's correct.

Q Referring to what has been marked as Exhibit No. 2, would you identify that exhibit, please?

A Yes. This is a plat of the general area, showing all offset operators in a range of two miles. These plats were filed with the original application. I would like to point out that to the west is the Continental operated MCA Unit which is flooding basically the same formation, or will be flooding the same formation in this area. To the north is Pennzoil waterflood on their State, Phillips State lease. They already are under flood. Sunset International to the north has their Malgray Unit already under flood, and the Commission has just heard the Pennzoil application on the State lease immediately east of our proposed unit.

I might add that to the south this dips off into the Delaware Basin rather rapidly and the formation was water-bearing, Premier sand.

Q Is that the area to the south immediately adjacent to your unit was not included in the waterflood project?

A That is correct.

Q Referring to what has been marked as Exhibit 3,

would you identify that exhibit?

A Yes. Exhibit 3 is a somewhat enlarged plat of the proposed unit area and it shows two cross section traces from north to south. This also is the same basic plat we will show a little later, and it has certain symbols on there that indicate completion of other wells, Queen sand and Abo wells in the area. The wells identified were just a dot from the Premier sand wells.

Q Now, your cross section shown on that exhibit are identified as Exhibit 4 and Exhibit 5, is that correct?

A That's right.

Q Would you discuss those exhibits, please?

A Exhibit 4 is the north-south cross section A-A¹, and for the benefit of the Examiner I would like to point out that up at the top these wells are identified and the last well on the unit to the south is the Cities Service Ohio State A-5, and I think that this very predominantly shows the amount of relief that occurs from this well to the next producing wells to the south. That is the reason those particular wells were not included in the unit.

We have the different porosity zones in the Grayburg zone on this particular map; however, our zone of prime interest is the Premier sand shown as Zone 6.

Q Does the cross section show that the zone is

continuous throughout the area you propose to flood?

A Yes, it does. Cross section B-B1, which is Exhibit No. 5, is one row of wells immediately to the west, and basically the same information applies. I would like to point out again for the Examiner's information, that the Cities Service Cochran A-3 is the southernmost well on the unit and the other three wells shown there merely are to indicate the amount of relief in the Premier sand, or even the Grayburg sand, so far as that's concerned.

Q There again, the cross section does show that the formation is continuous?

A That's correct.

Q And in your opinion is it susceptible of a successful waterflood project?

A Yes, we feel it is, not only from investigation of our wells, but observance of the other, what we consider successful floods in the area.

Q Including those that are directly offsetting this project?

A Right.

Q Now, referring to what has been marked as Exhibit No. 6, would you identify that exhibit?

A Yes. This is a complete production performance history of all wells in the unitized area. I would like to

point out that although this curve looks rather flat, this is caused by the additional development of wells through the years even up to and through the latter part of '64, one well was recompleted in here which added a considerable amount of production. The average production, however, is six barrels per well per day as of the current time. This area has accumulated to July 1st of this year 2,219,923 barrels of oil.

Q Does the production curve show that the area is at an advanced stage of depletion?

A Yes, I would say so.

Q And it is ready for a secondary recovery project?

A Yes.

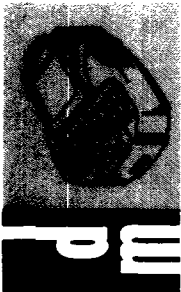
Q What was the producing mechanism originally in this field?

A Probably solution gas. There's evidence to the south of a water drive, but those particular wells are not in our unit area.

Q Referring to what has been marked as Exhibit No. 7, would you identify that?

A Yes, this is our proposed injection pattern. This is a somewhat enlarged map of the original cross section trace map. We have the legend down below which shows the Grayburg-San Andres Queen wells and Abo wells.

Now on our legend are the color symbols. For a matter



of record, the wells in red are the wells which we propose to put on injection upon approval of the Commission. We're seeking, of course, permission to do all of those at this time. The wells which are circled in green are the ones which we have electric logs available on which will be given as a later exhibit.

Again, this shows the waterfloods around the area. The wells circled with a solid circle are the wells currently on injection. You might note that in the northwest of the Cities Service proposed unit is a proposed well to be drilled and that will be done sometime in the future when we can get cooperation with Continental to the west. They feel they will be ready to inject water there sometime this coming year.

Q Does the exhibit show that you have a complete injection pattern proposed for immediate installation?

A Yes, it does, and this is a five-spot pattern which is a continuation of a pattern already established in the area by the other offsetting units.

Q But actually you will need Commission approval for the injection of water in the well you propose to drill, is that correct?

A That's correct.

Q Do you ask that the Commission create an administrative procedure whereby you can add additional injection wells,

although they have not had a response?

A Yes. We would desire this when we are able to cooperate with offset units, we would like to obtain, of course, administrative approval to put only three more wells on injection. This will complete the pattern of the entire unit.

Q Could you identify those wells?

A Yes, one well I have already spoken of will be the Cities Service Ohio "A" No. 5 to be drilled, and that is in the Northwest of the Northeast of Section 30. The other well is the Phillips U. S. Minerals No. 1, which is in the Northwest of the Southeast of Section 30; and the other well is the Cities Service Ohio State No. 5, which is in the Southeast of the Northeast of Section 32. These are all in Township 17 South, Range 33 East.

MR. UTZ: Is that the well with the green circle around it?

A Yes, that indicates it has a log on it.

Q (By Mr. Kellahin) Now, Mr. Motter, would you refer to Exhibits marked as 8-A through 8-K inclusive?

A This is a series of schematic diagrams on all wells which we propose for injection at this time. These wells show the casing that has been set, the number of sacks of cement used, the tops of the cement, and our proposal

of the tubing and packers to be used. We propose, of course, to use corrosion resistance lining in the tubing as well as similar material on the packers. The annulus will be noted as normal with probably treated fresh water. Injection into this flood is proposed in a volume of approximately 300 barrels a day, perhaps a little more.

Q In each case the injection will be through a coated tube under a packer?

A Yes.

Q And the annulus will be filled with an inert fluid?

A Well water, treated water.

Q Referring to what has been marked as 9-A through 9-E, would you identify those?

A Yes. These are logs, or I should say these are available logs from injection wells; I believe that there are five that we are currently asking for approval, and the one Ohio State No. 5. Each well has been marked with a red line the interval of the Premier sand that we propose to flood.

Q What's the source of water for this proposed flood, Mr. Motter?

A We plan to purchase water from the Continental MCA Unit, this is Ogallala water, and I believe our contract calls for approximately not over 5,000 barrels a day. I believe this water comes from six or eight miles to the east

of the MCA Unit. They do have excess volumes, which we hope to be able to obtain or do plan to obtain.

Q As I understand, you previously testified you propose to inject approximately 300 barrels per day per well?

A That is correct. It may go to 350 at times.

Q How long do you expect it will be before you get a response?

A Approximately six months.

Q Will this project be governed by the provisions of Rule 701, and particularly 701-E?

A Yes.

Q Were Exhibits 1 through 9, including 9-A through 9-E, inclusive, prepared by you or under your supervision?

A Well, yes, with the exception of 9, these are all logs which were not prepared under my supervision, but all the others were.

MR. KELLAHIN: At this time I would like to offer in evidence Exhibits 1 through 9-E.

MR. UTZ: Without objection, those exhibits will be entered into the record of this case.

(Whereupon, Cities Service's Exhibits 1 through 9 were offered and admitted in evidence.)

MR. KELLAHIN: That's all I have on direct examination.

CROSS EXAMINATION

BY MR. UTZ:

Q Did you present these schematics to the State Engineer's office?

A Yes, sir, they were delivered to Mr. Kellahin and I assume he delivered them to Mr. Irby.

MR. KELLAHIN: They were delivered to Mr. Irby, yes, sir.

MR. UTZ: I don't have any letters.

MR. HATCH: There's a letter in one of these.

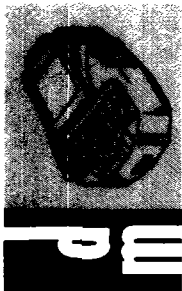
MR. UTZ: Did you receive anything from him?

MR. KELLAHIN: I never received anything from him, no, sir.

Q (By Mr. Utz) He says he talked to Mr. Kellahin and that Cities Service Ohio State No. 5 in the Southeast of the Northeast of Section 32, that's the one you referred to, and the Phillips U. S. Minerals No. 1 in the Northwest of the Southeast, Section 30, it's another one you referred to as a future well, the Cities Service Ohio Jones proposed in the Northwest, Northeast of Section 30, that would be what you referred to as the Jones No. 5, right?

A Right.

Q Are to be handled by administrative action later. There's no objection to the granting of the application



provided that the three above-mentioned wells are not considered as a part of this application. I note on your schematics, Mr. Motter, that, for example, the Cochran State A-3 --

A Yes.

Q -- the top of the cement is 1100 feet; is there anything above 1100 feet in the way of cement, anything to shut off water?

A Mr. Utz, probably mud was in there. These wells were drilled with cable tools. These are some that we acquired in the Carper purchase approximately a year ago, and I would assume there's probably nothing but the annulus is laid even with mud from that point up.

I would like to point out that if you are in a concern of fresh water, that this is below the Caprock and there is very little water in the area. There's a few wells, but barely enough for household consumption.

Q And that same answer would be true for the other wells which do not have cement circulated to the surface?

A Yes, that is correct.

Q Do we have anywhere a complete and accurate list of the location of all your injection wells?

A I believe they were in the application.

MR. KELLAHIN: No.



MR. UTZ: I believe there was one of these cases that didn't have, and I believe this is it.

MR. KELLAHIN: I didn't have them.

A I will be happy to give you the location for the record.

Q (By Mr. Utz) Why don't you make us a list of the locations, that is the record is clear enough as far as the plat is concerned, but we would like the footage locations of all your wells. If you'll just give us a copy of that it will save us going to the well files.

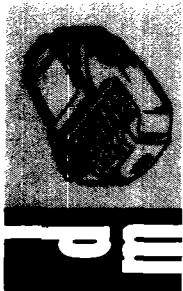
A Fine. I'll be glad to furnish that.

MR. UTZ: Any other questions, statements? The witness will be excused.

(Witness excused.)

MR. UTZ: The case is taken under advisement.





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I N D E X

<u>WITNESS</u>		<u>PAGE</u>
E. F. MOTTER		
Direct Examination by Mr. Kellahin		2
Cross Examination by Mr. Utz		13
<u>EXHIBIT</u>	<u>MARKED</u>	<u>OFFERED AND ADMITTED</u>
Cities Service's 1 through 9	2	12

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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 before the New Mexico Oil Conservation Commission was reported by me; and that the same is a true and correct record of the said proceedings, to the best of my knowledge, skill and ability.

Witness my Hand and Seal this 12th day of October, 1966.

Ada Dearnley
NOTARY PUBLIC

My Commission Expires:
June 19, 1967.

I do hereby certify that the foregoing is
a true and correct copy of the original
as the same appears in the files of the
New Mexico Oil Conservation Commission
3461-62
106
Sept. 28
Thurston
New Mexico Oil Conservation Commission

