

MR. UTZ: Case 4390 and Case 4391.

MR. HATCH: Case 4390, Application of Murphy H. Baxter for a unit agreement, Lea County, New Mexico. Case 4391, Application of Murphy H. Baxter for a waterflood project, Lea County, New Mexico.

MR. HINKLE: Clarence Hinkle, Hinkle, Bondurant, Cox & Eaton, Roswell, New Mexico, entering an appearance on behalf of Murphy H. Baxter. I would like to move that Cases 4390 and 4391 be consolidated for purposes of taking testimony.

MR. UTZ: Cases 4390 and 4391 will be consolidated for purposes of testimony and separate orders will be written.

MR. HINKLE: We have one witness.

WILLIAM U. SUMNER

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

DIRECT EXAMINATION

BY MR. HINKLE:

Q State your name, your residence and by whom you are employed.

A I am William U. Sumner, Midland, Texas, employed by Murphy H. Baxter as petroleum engineer.

Q Have you previously testified before the Commission?

A No, I haven't.

Q You are a graduate petroleum engineer?

A I was graduated from Texas Technological College with a B.S. Degree in petroleum engineering in 1953.

Q Have you followed your profession as petroleum engineer since graduation?

A Yes, I have worked with Seaboard Oil Company and Texaco from 1955 to 1959 as a petroleum engineer and with Murphy H. Baxter from 1959 to the present.

Q And has your experience been in New Mexico or West Texas or where?

A Yes, I have made a study of the proposed North E-K Queen unit area, examined logs, production records and so forth for this hearing.

Q Are the qualifications of the witness acceptable?

MR. UTZ: Yes, they are.

Q (By Mr. Hinkle) Are you familiar with the application of Murphy H. Baxter in both Cases 4390 and 4391?

A Yes. The Application in Case 4390 is for approval of North E-K Queen unit agreement comprising 978 acres of State land in Township 17 South, Range 33 East, and Township 18 South, Ranges 33 and 34 East, E-K Yates-Seven Rivers-Queen Pool, Lea County, New Mexico. The Application in Case 4391 is for approval of a waterflood project co-extensive with the proposed unit area. Application also seeks a procedure

whereby the project may be expanded administratively without showing a well response.

Q Have you prepared or has there been prepared under your direction certain exhibits for introduction in this case?

A Yes, I have.

(Whereupon Exhibits 1 through 11 were marked for identification.)

Q Refer to Exhibit 1 and explain what it shows.

A Exhibit 1 is a general plat of the area showing location of the proposed unit area together with wells which have been drilled in the unit area and surrounding area, including the E-K Queen Unit which is operated by Mobil Oil Company.

The wells circled in red indicate wells that have been completed as a producer in the Queen Formation. This plat also shows ownership of the oil and gas leases in the area and the lands in Section 6, 7 in Township 18 - 34 and Section 1 in 18 - 33 in Section 36 and 17 -- 33, which are located within the proposed unit area, are lands of the State of New Mexico under oil and gas lease.

Q In other words, all the lands of the proposed units are State lands?

A Yes, sir, they are. Now this map is in error as to two tracts. The present owner of the Shalorides, which includes the Queen Formation of the northeast quarter

of southwest quarter, Section 6, Township 18, Range 34 is Bilco Supply Company not J. J. Travis as shown on the map.

Q That error was found after the plat was prepared?

A Yes, this has never been changed and also there is two -- the northwest quarter and the southeast quarter of the southeast quarter of Section 6 of the same township and range is presently unleased.

Q Now refer to Exhibit Number 2 and explain that to the Commission.

A Exhibit 2 is a plat of the area showing the proposed unit boundary of the North E-K Queen Unit.

Q And the location of all the wells within the unit area?

A Yes, sir. It does show the location of all the wells that have been drilled in the unit area.

Q Any further comment with respect to Exhibit Number 2?

A No, sir.

Q Refer to Exhibit Number 3 and explain that.

A Exhibit 3 is a plat of the area showing a line of cross section through the unit area.

Q That is for the purpose of an index to the next exhibit?

A Yes, that's correct.

Q Refer to Exhibit 4 and explain that.

A Exhibit 4 is a cross section from northwest to southeast through the unit area. This cross section indicates a continuous producing formation throughout the proposed unit area. It also shows the steep dip of the Queen sand in this area.

Q All the wells shown can be readily correlated as far as the producing formation is concerned?

A Very easily correlated. The sand goes very well through that area.

Q Refer to Exhibit 5 and explain that.

A Exhibit 5 is a sub-surface structure map contoured on top of the Queen sand. This map shows the limits of permeability of the Queen sand in the proposed unit area. It also shows a separation of the North E-K Queen Unit from the E-K Queen unit which is operated by Mobil..

Q Are there any dry holes between the two units?

A Yes, there are two dry holes between these two units.

Q What are they?

A One of them is presently the Murphy H. Baxter State C-L Number 8 located in Section 7 and the other one is a Sunray Well, State 3-G located in the same section.

Q Well, that's the northeast of southwest of 7?

A Yes.

Q Now refer to Exhibit Number 6 and explain this.

A Exhibit 6 shows the four proposed injection wells.

Q Shown in red triangles?

A Yes, sir, they are marked with a red triangle.

These wells are namely the Murphy H. Baxter State "N" Number 2 located 1,650 feet from the north line and 2,310 feet from the west line of Section 7, the Murphy H. Baxter State "M" Number 3 located 853 feet from the west line and 480 feet from the north line of Section 7, the Murphy H. Baxter State C-L Number 6 located 330 feet from the north line and 660 feet from the east line of Section 7 and the Murphy H. Baxter State C-L Number 7 located 990 feet from the south line and 660 feet from the west line of Section 7 all in Township 18 South, Range 34 East.

Q Are you familiar with the proposed formal unit agreement, copies which have been filed in these cases?

A Yes, I am.

Q Is the proposed unit agreement substantially in the same form as unit agreements which have heretofore been approved by the Oil Conservation Commission and the Commissioner of Public Lands?

A Yes, they are.

Q What formations are unitized under this proposed unit agreement?

A The formation is the Queen Formation as shown in

the unit agreement under Section 1-I and it is defined as Queen sand formation underlying the unit, which occurs between the log's dip measured from the Kelly Bushing of 4,121 feet and 4,210 feet and the City Service Oil Cochran "B" State Number 2 well located in the southeast quarter-northeast quarter, Section 1, Township 18 South, Range 33 East, Lea County.

Q Is Murphy H. Baxter designated as unit operator in this agreement?

A Yes, he is.

Q Does the unit agreement contain a participating formula?

A Yes, it does.

Q Has this been agreed to by all or most all the working interest owners in the proposed unit area?

A All the working interest owners in the proposed unit area have been contacted and the majority have agreed to this participation formula in the agreement.

Q What is the participating formula?

A The participating formula shown under Section 10 of the unit agreement consists of 90% of the cumulative oil production from the tract prior to November 1, 1968 divided by the cumulative oil production from the unit area prior to 11-1-68 plus 5% surface acres in the tract divided by the total surface acres in the unit area plus 5% of the

number of useable Queen wells on the tract divided by the total number of useable Queen wells in the unit area.

Q Now refer to Exhibit 7 and 8 and explain those?
You may refer to both of these exhibits at the same time and explain what they show.

A Exhibits 7 and 8 are schematic diagrams of the water injection wells, of the four water injection wells, and they show all the casing strains, including the diameter setting depths, quantities and tops of cement, perforated intervals, tubing strains, including the diameters and setting depth and location of packer.

Q Do you plan to use plastic coated tubing?

A Yes, we do.

Q Now have you filed electric logs of these proposed injections with the application?

A Yes, the electric logs have been filed with the application.

Q What quantities of water do you anticipate will be injected into the four initial injection wells?

A It is anticipated a maximum of 500 or total of 2,000 barrels per day per unit.

Q What is the source of water you plan to inject into these wells?

The source of the water would be produced water from the Mobil Oil Company E-K Queen Unit to the south of the

proposed unit area. A water analysis --

Q Have you had an analysis made of the water?

A Yes, and it is shown as Exhibit 9.

Q Refer to Exhibit 9 and explain that.

A This is an analysis that was run on the produced water taken from the Mobil storage tank located on their E-K Queen Unit.

Q Do you anticipate you will have sufficient quantities of water from this source to go ahead with the unit?

A Yes. Mobil also has a fresh water line in there and they have agreed that as long as that line is available they will furnish us produced water and should they run out of produced water they will supplement it with fresh water.

Q Referring back to Exhibit Number 6, which shows the injection wells, why were these particular wells selected as injection wells?

A Due to the steep dip and the configuration of the wells, this will be a line drive from the down-dip wells of the water pushing and forcing the oil in a northerly direction. These wells will be the only wells needed during the initial injection period. However, as the wells water out to the north it may be desirable or necessary to convert these wells to water injection.

Q So is that one of the reasons why you want the

order of approval to provide for administrative procedure for approval of additional injection wells?

A Yes, sir, and also for the fact that there appears to be a small gas cap present in the north end of the proposed unit. This gas cap is proposed to inject water into this cap to prevent oil from migrating into the area at some time in the future.

Q Now you are seeking a project allowable in accordance with Rule 701 of the Commission?

A Yes, we are.

Q Now refer to Exhibit Number 10 and explain that.

A Exhibit 10 is a graph of the production from the proposed unit area. It shows a cumulative oil production for the unit to 6,170 of 506,000 barrels and a present producing rate of about 600 barrels per month for the current ten producing wells.

Q Now refer to Exhibit Number 11 and explain it to the Commission.

A Exhibit 11 is a graph of the waterflood performance of the E-K Queen Unit which is operated by Mobil.

Q That's the unit immediately to the south?

A Yes, and this is in the Queen Formation, also the same sand.

Q Does this formation have the same characteristics

essentially as the proposed unit?

A Yes, as far as we can determine based on waterflood performance and it is anticipated that E-K Queen Unit will recover one and a quarter times primary of additional oil due to waterflooding. Based on this recovery factor it is anticipated that the proposed unit will recover 669,000 barrels of oil by waterflooding.

Q Now in your opinion, if the unit agreement and waterflood project are approved, would it be in the interest of conservation and prevention of waste?

A Yes.

Q And also tend to protect correlative rights?

A Yes, sir, I do.

MR. HINKLE: We would like to offer in evidence Exhibits 1 through 11.

MR. UTZ: Without objection, Exhibits 1 through 11 will be entered into the record of this case.

CROSS EXAMINATION

BY MR. UTZ:

Q Mr. Sumner, where did you say the Mobil unit was?

A It is to the south of the proposed unit area.

Q Is this the area that is marked in dashed lines to the south of your area?

A Yes, sir, that's correct.

Q And they have more water being produced than they need, don't they?

A Yes, sir. Their current water production is quite high, about 125,000 barrels a month. Proposed maximum will be 2,000 barrels. They will also supplement their water. They have a fresh water line into that particular lfood from some other area.

Q Now the locations shown on your Exhibit Number 7 and 8 are correct locations, is that correct?

A Yes, sir, as far as I know they are.

Q Would you use a guage at the surface or leave it open?

A We will probably put a gauge at the surface, yes, sir.

MR. UTZ: Any further questions of the witness?
You may be excused. Statements in the case?

Cases will be taken under advisement.

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