

BEFORE THE  
OIL CONSERVATION COMMISSION  
SANTA FE, NEW MEXICO  
December 11, 1961

EXAMINER HEARING

-----  
IN THE MATTER OF: )

Application of Murphy H. Baxter for a )  
waterflood project in the Maljamar )  
(Grayburg-San Andres) Pool, Lea County, )  
New Mexico. Applicant, in the above- )  
styled cause, seeks permission to in- )  
stitute a waterflood project in the )  
Maljamar (Grayburg-San Andres) Pool in )  
Section 13, Township 17 South, Range 32 )  
East and Sections 17 and 18, Township 17 )  
South, Range 33 East, Lea County, New )  
Mexico, with the injection of water in- )  
itially to be through four wells located )  
in Section 18, Township 17 South, Range 33 )  
East; said project is to be governed by )  
Rule 701. )

Case 2457

-----  
BEFORE:

Elvis A. Utz, Examiner.

TRANSCRIPT OF HEARING

MR. UTZ: The hearing will come to order. Case 2457.

MR. MORRIS: Application of Murphy H. Baxter for a  
waterflood project in the Maljamar (Grayburg-San Andres) Pool,  
Lea County, New Mexico.

MR. BRATTON: Howard Bratton, Roswell, New Mexico,  
appearing on behalf of the applicant. We have one witness.

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

(Witness sworn.)

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PHILLIP G. DOLBOW

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

DIRECT EXAMINATION

BY MR. BRATTON:

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

A Phillip G. DolBow, 507 Midland National Bank Building, Midland, Texas. Employed as petroleum engineer by Murphy H. Baxter.

MR. UTZ: Would you spell your name, please?

A The last name is D-o-l-B-o-w.

Q Have you previously testified before this Commission?

A No, sir.

Q Will you state, very briefly, your educational and professional background?

A Yes, sir. I was graduated from the University of Illinois in 1951 with a B.S. Degree in mechanical engineering. In 1957 I graduated from the Oklahoma University with a Masters Degree in petroleum engineering. From March 1957, until February of 1961, I was employed by Ohio Petroleum Company at which time I joined Murphy H. Baxter.

(Whereupon, Applicant's Exhibit  
1 was marked for identification)

Q Are you familiar with the application in this hearing,

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and with the land in the project?

A Yes, I am.

Q Refer now to your Exhibit Number 1 and state what that is and what it shows.

A Exhibit Number 1 is an area plat originally submitted with the application letter. The exhibit shows, number one, the three leases requested to be designated the Murphy H. Baxter waterflood project. These three leases are outlined in red. Number two, the three leases are more particularly described as the State 17 lease, being in the North Half of Section 17, Township 17 South, Range 33 East; the State 18-B lease as being in the East Half of Section 18, Township 17 South, Range 33 East; and State 18-13 as being composed of the Southwest Quarter of Section 18, Township 17 South, Range 33 East, and the Southeast Quarter of Section 13, Township 17 South, Range 32 East. The proposed injection wells are circled in red on the State 18-B lease, as well as offset operator, proposed injection wells, those being the Great Western proposed pilot to the Northwest, and the Zapata proposed pilot to the Southwest. The plat also shows the wells and leases two miles on each side of the subject area.

Q Now, Mr. DolBow, with the changes requested by Great Western the two injection wells of theirs to the Southwest of their pattern would be eliminated and the one well in the Southeast of the Northwest of 18 would be added, which would

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make a perfect five-spot pattern with your flood, is that correct?

A Yes, sir, that is correct.

Q And carrying on down into the Zapata flood?

A Yes, sir.

Q Now, turning to your Exhibit Number 2, Mr. DolBow.

(Whereupon, Applicant's Exhibit  
2 was marked for identification.)

A Exhibit Number 2 is offered for the Examiner to show that the three leases in question have the common schools of the State of New Mexico as the beneficiary. It also shows that all offsetting leases or tracts also have the common schools as the beneficiary, with the exception of the Drilling and Exploration Company Federal lease in Section 24, Township 17 South, Range 32 East. This Exhibit was prepared by a bonded abstractor in the State of New Mexico at Santa Fe.

Q Let's go to your log number three, Exhibit Number 3.

(Whereupon, Applicant's Exhibit  
3 was marked for identification.)

A Exhibit 3 shows the detailed log of a gamma ray neutron log run in Murphy H. Baxter, State Number 18-B No. 2 well. It is offered to show several things. It shows at the topmost markings there show the plus two hundred foot elevation above sea level upon which a later exhibit was based. It also shows the Grayburg marker upon which the structure map was based. It also shows the top of the San Andres for-

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mation along with the seven major producing zones, circled and numbered one through seven. We feel that the Grayburg formation is in the Guadalupe series of the Permian geologic system; second, that the San Andres formation is in between the Guadalupe and Leonard series in the Lea County area, all of which again is in the Permian geologic system.

Q This is the same area and zone being flooded in the Waterflood Associates flood to the Northwest?

A That's correct.

Q And in the three floods being presented here today?

A Yes, sir, to the best of my knowledge.

Q Turn then to your Exhibit Number 4, if you would please.

(Whereupon, Applicant's Exhibit  
4 was marked for identification.)

A Exhibit 4 is offered as a structure map. This map was drawn on the Grayburg marker which we previously pointed out in regard to Exhibit Number 3. The Murphy H. Baxter water flood project is outlined in red as well as are the four proposed injection wells along with the proposed injection wells of our offset operators. The six injection wells currently being used by Waterflood Associates are also shown. The map further indexes four cross-sections which appear on Exhibit 5.

Q Now, refer to your exhibit Number 5 which is the large



exhibit on the wall.

(Whereupon, Applicant's Exhibit 5 was marked for identification.)

A This exhibit, termed a fence diagram, is offered for the Examiner to show the correlation of the seven major pay zones in the pilot area. Number two, it shows that the zones can be traced across lease lines of the various proposed pilots of our offset operators.

Q It starts from the top with your cross-section AA' and runs down to the bottom with your corss-section DD' as reflected on the previous exhibit, is that correct?

A That's correct.

Q It does show correlation and continuity throughout the three leases?

A To the best of our ability. Also shown for the benefit of the Examiner are four red arrows which are above those proposed injection wells.

Q Go to your Exhibit Number 6, then, your well completion data sheet.

(Whereupon, Applicant's Exhibit 6 was marked for identification.)

A Exhibit Number 6 shows the pertinent information of all 24 wells in the project area, the first eight columns we feel are self-explanatory, but furnish the necessary information. The last four columns show the 30-day top allowable for each well. The next column shows the present allowable, the next

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column shows the September, 1961 production, and the last column shows November, 1961 production which is the latest information we have. I might add that the next to the last column represents the numbers that appeared in Volumn 11 of the Southeast New Mexico Monthly Statistical Report.

Q It also shows all your casing and perforation data?

A Yes, sir.

Q This will be flooded through the perforations?

A Yes, sir.

Q Is there anything else you care to point out in connection with this exhibit, Mr. DolBow?

A Yes, sir. This exhibit shows that all wells are far below their top unit allowable. It also shows that they are well below their former capacity to make top unit allowable, and we feel that these wells are in the advanced stage of depletion.

Q That is substantiated by your next exhibit, is it not, Mr. DolBow, Number 7, which is production performance curves on the three different leases?

A Yes, sir, that's correct.

Q Refer to those three sheets then, and explain what they indicate.

(Whereupon, Applicant's Exhibit 7 marked for identification.)

A Exhibit 7 is offered in three parts numbered 7-A,



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7-B, and 7-C. The source of the data presented on these curves is again from Volume II of the Southeast New Mexico Monthly Statistical Report, compiled by the New Mexico Oil Conservation Commission. The curves show the production performance on the three Murphy H. Baxter leases. Exhibit 7-A shows the production performance of the State 17 lease, this curve shows that development began in late 1957, that production reached a maximum some four to six months later but never really reached maximum allowable. Decline after reaching maximum allowable was at the rate of approximately 45 percent per year down to around 2400 barrels of oil per month for the lease. Thereafter, the rate of decline has been close to 30 percent. It was estimated that there are 13 months of production remaining, and that approximately 92 percent of ultimate primary oil has been produced.

Exhibit 7-B shows the same thing for the State 18-B lease. Here again development began in mid-1958, maximum capacity was reached one year later and the lease immediately began to decline at the rate of 41 percent thereafter until approximately 4,000 barrels of oil per month for the lease was being produced. At the present time, the decline is approximately 40 percent. The curve shows that there are approximately 22 months of production remaining and that the lease will be in a stripper stage in one or two months.

Q This is the lease on which you propose to start the





pilot program?

A Yes, sir. We further anticipate that approximately 85 percent of the ultimate primary has been produced to this date. Exhibit 7-C is offered to show the same production performance data on the State 18-13 lease. Development began in late 1958, the maximum capacity and allowable rates were reached six to eight months later. Decline in production rate actually started the latter part of April of 1961. The decline has been anticipated to be 55 percent. Exhibit Number 8 will be offered to substantiate this; however, the decline in bottom hole pressure during the last year has approximated 56 percent which we feel is very close to the anticipated drop in production rate on this lease.

Q To compare that with the relative declines in bottom hole pressure and production on the other leases, you did get a correlation where you can anticipate your 55 percent decline on this lease, is that correct?

A Yes, sir. In referring back to Exhibit 7-B, which is the curve for the State 18-B lease, we have determined that the decline in pressure has been approximately 43 percent the last two or three years, and that this is very close to the actual lease oil production rate decline of 40 or 41 percent.

Q So that on your 18-13 lease, it now is the best producer of the three leases, is that correct?

A Yes, sir.

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Q Also all your indications are that your rate of decline is going to be more severe on it?

A Everything that we have seems to indicate that this lease will decline at a much faster rate than the other two leases.

Q It came in later in the life of the field, did it not?

A That is correct.

Q Approximately what percent of your primary on your 18-13 do you think you have produced?

A We feel that approximately 83 percent has been produced on the 18-13.

Q Go to your Exhibit Number 8. Now, Mr. DolBow.

(Whereupon, Applicant's Exhibit 8 was marked for identification.)

A Exhibit Number 8 is offered to the Examiner in four parts. They are numbered 8-A, 8-B, 8-C, and 8-D, and they refer to the daily well production tests on wells number one, two, four, and seven respectively on the State 18-13 lease. These are offered to show that the average of these four wells, as well as the other four wells on the lease, is between 50 and 60 percent with an actual calculated average decline of 56 percent. 55 percent was used to establish the decline on this lease as a result of these tests and this other information.

Q So, Mr. DolBow, as far as your 18-B lease where you are going to start your pilot, you actually will be well below



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ten barrels a day average on it by the time you start your pilot, will you not?

A Yes, sir, we anticipate it will take at least two months to get water in the ground on the State 18-B lease if approved by the Commission, and at that time the lease production will be at the stripper stage.

Q By the time you get response you would certainly be well below ten barrels a day?

A That's correct.

Q And the same is true of the other two leases in the proposed project, by the time you expand into them and get any response you will be well below ten barrels a day and dropping rapidly?

A Yes, sir.

Q Turn to your Exhibit 9, then.

(Whereupon, Applicant's Exhibit 9 was marked for identification.)

A Exhibit Number 9 is a copy of the table attached to the original application, copy was also sent to Mr. Irby, Chief of the Water Rights Division. We believe it is self explanatory.

Q You sent a water analysis to Mr. Irby?

A Yes, sir, we did.

Q Have you received a letter from Mr. Irby indicating that he has no objection to the application?



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A Yes, sir, we received a letter from Mr. Irby stating that he had no objection to our application.

Q Turn then to your Exhibit Number 10, Mr. DolBow.

(Whereupon, Applicant's Exhibit 10 was marked for identification)

A Exhibit Number 10 is offered as a re-draft of the schematic drawing originally attached to our application to Mr. Irby, Chief of the Water Rights Division. The Exhibit shows that tubing and packer will be used to inject the water and that we feel no contamination of any fresh waters will occur. Otherwise, we believe it is self-explanatory.

Q Refer to your Exhibit Number 11, then.

(Whereupon, Applicant's Exhibit 11 was marked for identification)

A Exhibit Number 11 is the copy of logs submitted with the original application numbered 11-A, 11-B, 11-C, and 11-D. These logs are of the proposed injection wells and they show, among other things, the Grayburg marker in red, the top of the San Andres is marked, and also all of the perforations are shown.

Q Those logs are attached in the envelope in the back of the folio, is that correct?

A No, sir. The Exhibit Number 5 is attached in the back folder and two copies of Exhibit 11 were forwarded with the original application.

Q Referring to your proposal, Mr. DolBow, you propose to



start injection in the four wells on the 18-B lease circled in red?

A Yes, sir, that's correct.

Q And this will cooperate with the Great Western and the Zapata floods?

A Yes. We are apparently making a line agreement with our offset operators so we will have a balanced flood which will protect everybody. These may even now be in the signing stage. The injection wells are as shown on Exhibit Number 1 or 4, are in proration units H, P, J, B for the Number 2, Number 4, Number 6, and Number 8 wells respectively. This pattern we feel conforms with the pattern approved by the Oil Conservation Commission Order Number R-1358, Case Number 1803, of November 27, 1959.

Q That's the Waterfloods Associates flood?

A Yes, sir.

Q What are your proposed injection rates and what do you anticipate at those rates?

A During fill-up, the rate should range from 250 to 500 barrels of water per day per well. It is anticipated that an average injection rate will approximate 400 barrels of water per day per well. After fill-up an injection rate of 150 to 300 barrels of water per day per well is anticipated.

Q How soon do you anticipate response, Mr. DolBow?

A In approximately 11 or 12 months, more probably 12

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months is anticipated.

Q So that it would be the end of '62, or the first part of '63 before you would anticipate response?

A That's correct.

Q What recovery do you anticipate?

A For the whole project area, which includes 24 wells, we reasonably expect 850,000 barrels of waterflood oil.

Q What rules are you requesting in this application, Mr. DolBow?

A We are, of course, expecting and will comply with all the provisions of Rule 701 for the expansion, development, and operation of the waterflood project, in addition to all other Commission applicable rules and regulations.

Q I think one thing we didn't state, Mr. DolBow, you are obtaining your water from the same source as Great Western, is that correct?

A That's correct. We are currently making arrangements with the Yucca Water Company to obtain fresh water for injection.

Q Is there anything else you care to state in connection with your application or with any of your exhibits?

A Yes, sir. We feel that the pilot proposed by ourselves Great Western, and Zapata Petroleum Company, will effectively flood this area of the field and enhance conservation of oil and gas.

Q Were Exhibits 1 through 11 prepared by you or under



your supervision?

A Yes, sir.

MR. BRATTON: We would offer into evidence Exhibits 1 through 11 inclusive. We have no further direct examination.

(Whereupon, Applicant's Exhibits 1 through 11 offered in evidence)

MR. UTZ: Without objection the Exhibits 1 through 11 inclusive, including 7-A, 7-B, and 7-C, 8-A, 8-B, 8-C, and 8-D, and 11-A, 11-B, 11-C, and 11-D are entered into the record.

# CROSS EXAMINATION

BY MR. UTZ:

Q Do I understand that this area is unitized?

A No, sir, it is not.

Q You are the operator and lessee of all these leases?

A Yes, sir.

Q And each lease will be operated on its own?

A That's correct. I might add here that two of the leases have common working interest and that at a later date we may request to combine or consolidate tank batteries in regard to those two leases.

Q Which leases are those?

A State 18-B and State 18-13.

Q I believe your exhibits showed that the average production was something less than ten barrels per day for each producing well?

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A I might answer that by saying that the State 17 lease is well below ten barrels a day, this is shown on Exhibit 7-A; and that the 18-B lease will reach the stripper stage in approximately one or two months.

MR. BRATTON: It's about 11 barrels a day now, is that correct?

A That's correct.

MR. BRATTON: Your State 18-13 is above the stripper stage, but with the severe decline, before you get to it it will be well below it, will it not?

A Yes, sir, that's correct.

Q (By Mr. Utz) I note that your 18-13 Number 5, September was only twenty barrels below normal unit; however, it dropped to 750 in November, do you anticipate that rate of decline?

A That rate of decline appears to be correct. By referring to Exhibit 7-C which shows the plots of the lease production, you might note that during October the lease dropped to 5500 barrels per month and in November the lease dropped to 4100 barrels of oil per month.

Q These four injection wells that you have testified to here are the same wells that you had in your application?

A Yes, sir.

MR. UTZ: The witness may be excused.

(Witness excused)

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MR. UTZ: Any other statements in this case? The case will be taken under advisement.

\*\*\*

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 was reported by me in Stenotype and that the same was reduced to typewritten transcript under my personal supervision and contains a true and correct record of said proceedings, to the best of my knowledge, skill and ability.

DATED this 11th day of December, 1961, in the City of Albuquerque, County of Bernalillo, State of New Mexico.

*Ada Dearnley*  
NOTARY PUBLIC

My Commission Expires:

June 19, 1963.

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 2452, heard by me on *Dec 11, 1961*.  
*Ernest A. J. [Signature]* Examiner  
New Mexico Oil Conservation Commission

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BEFORE THE  
OIL CONSERVATION COMMISSION  
Santa Fe, New Mexico  
December 11, 1961

EXAMINER HEARING

IN THE MATTER OF:

Application of Murphy H. Baxter for a  
waterflood project in the Maljamar  
(Grayburg-San Andres) Pool, Lea County,  
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Section 13, Township 17 South, Range 32  
East and Sections 17 and 18, Township 17  
South, Range 33 East, Lea County, New  
Mexico, with the injection of water  
initially to be through four wells located  
in Section 18, Township 17 South, Range 33  
East; said project is to be governed by  
Rule 701.

CASE NO.  
2457

BEFORE: Elvis A. Utz, Examiner

TRANSCRIPT OF HEARING

MR. UTZ: The next case will be 2457.

MR. WHITFIELD: Case 2457. Application of Murphy H.  
Baxter for a waterflood project in the Maljamar (Grayburg-San  
Andres) Pool, Lea County, New Mexico.

MR. MORRIS: Mr. Examiner, the Applicant and also  
Southwest Production Company have requested that this case be  
continued until tomorrow morning at 10:00 o'clock.

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MR. UTZ: What is the reason they can't get here at 9:00 o'clock?

MR. MORRIS: No reason was given. That was the request.

MR. UTZ: All right. We'll continue it until 9:00 in the morning.

\* \* \* \*

STATE OF NEW MEXICO )  
 ) ss.  
COUNTY OF BERNALILLO)

I, ADA DEARNLEY, Court Reporter, do hereby certify that the foregoing and attached transcript of proceedings before the New Mexico Oil Conservation Commission, at Santa Fe, New Mexico, is a true and correct record to the best of my knowledge, skill, and ability.

IN WITNESS WHEREOF, I have affixed my hand and notarial seal this 11th day of December, 1961.

*Ada Dearnley*  
COURT REPORTER-NOTARY PUBLIC

My Commission expires:  
June 19, 1963

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 2457, heard by me on Dec. 11, 1961.  
*Thos. G. V. J.*, Examiner  
New Mexico Oil Conservation Commission

