

BEFORE THE OIL CONSERVATION COMMISSION  
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING  
CALLED BY THE OIL CONSERVATION  
COMMISSION OF THE STATE OF NEW  
MEXICO FOR THE PURPOSE OF  
CONSIDERING:

CASE NO. 1368  
Order No. R-1110-A

APPLICATION OF AMBASSADOR OIL  
CORPORATION FOR AN ORDER AMENDING  
PARAGRAPH 2 OF ORDER NO. R-1110.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on March 19, 1958, at Santa Fe, New Mexico, before Daniel S. Nutter, Examiner duly appointed by the New Mexico Oil Conservation Commission, hereinafter referred to as the "Commission," in accordance with Rule 1214 of the Commission Rules and Regulations.

NOW, on this 3<sup>rd</sup> day of April, 1958, the Commission, a quorum being present, having considered the application, the evidence adduced and the recommendations of the Examiner, Daniel S. Nutter, and being fully advised in the premises,

FINDS:

(1) That due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.

(2) That Order No. R-1110 authorized the applicant, Ambassador Oil Corporation, to institute a pilot water flood project in the Square Lake Pool to inject water into the Lower Grayburg and the Upper San Andres formations through six converted oil wells located in Sections 29, 30, and 32 of Township 16 South, Range 31 East, NMPM, Eddy County, New Mexico.

(3) That the applicant has encountered certain mechanical difficulties and therefore proposes to substitute the Vickers-Federal Well No. 2, located in the NE/4 NE/4 of Section 30, and the Vickers-Federal Well No. 3, located in the SW/4 NE/4 of Section 30 as water injection wells in lieu of the Carper-Wheatley Well No. 1, located in the SW/4 SE/4 of Section 29, and the Texas Trading State Well No. 3, located in the NE/4 NW/4 of Section 32, all in Township 16 South, Range 31 East, Eddy County, New Mexico.

(4) That the above-described Carper-Wheatley Well No. 1 and the Texas Trading State Well No. 3 will be returned to producing status.

(5) That the proposed substitution will not cause waste nor impair correlative rights.

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Case No. 1368

Order No. R-1110-A

IT IS THEREFORE ORDERED:

1. That Order No. R-1110 be and the same is hereby amended in the following respects only:

The Carper-Wheatley Well No. 1, located in the SW/4 SE/4 of Section 29, and The Texas Trading State Well No. 3, located in the NE/4 NW/4 of Section 32, both being in Township 16 South, Range 31 East, NMPM, Eddy County, New Mexico, be and the same are hereby deleted from paragraph 2 of said order and the Vickers-Federal Well No. 2, located in the NE/4 NE/4 of Section 30, and the Vickers-Federal Well No. 3, located in the SW/4 NE/4 of Section 30, both being in Township 16 South, Range 31 East, NMPM, Eddy County, New Mexico, be and the same are hereby substituted therefor.

2. In all other respects, Order No. R-1110 is to remain in full force and effect.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

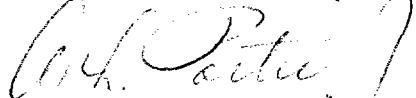
STATE OF NEW MEXICO  
OIL CONSERVATION COMMISSION



EDWIN L. MECHEM, Chairman



MURRAY E. MORGAN, Member



A. L. PORTER, Jr., Member & Secretary



**BEFORE THE OIL CONSERVATION COMMISSION  
OF THE STATE OF NEW MEXICO**

IN THE MATTER OF THE HEARING  
CALLED BY THE OIL CONSERVATION  
COMMISSION OF THE STATE OF NEW  
MEXICO FOR THE PURPOSE OF  
CONSIDERING:

CASE NO. 1368  
Order No. R-1110

APPLICATION OF AMBASSADOR OIL  
CORPORATION FOR AN ORDER  
AUTHORIZING A PILOT WATER FLOOD  
PROJECT IN THE SQUARE LAKE POOL,  
EDDY COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on January 7, 1958, at Santa Fe, New Mexico, before Daniel S. Nutter, Examiner duly appointed by the New Mexico Oil Conservation Commission, hereinafter referred to as the "Commission," in accordance with Rule 1214 of the Commission Rules and Regulations.

NOW, on this 15<sup>th</sup> day of January, 1958, the Commission, a quorum being present, having considered the application, the evidence adduced, and the recommendations of the Examiner Daniel S. Nutter, and being fully advised in the premises,

FINDS:

(1) That due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, Ambassador Oil Corporation, proposes to institute a pilot water flood project in the Square Lake Pool to inject water into the Lower Grayburg and the Upper San Andres formations through six converted oil wells located in Sections 29, 30, and 32, of Township 16 South, Range 31 East, NMPM, Eddy County, New Mexico.

(3) That the proposed pilot water injection project will not adversely affect the interests of any other operators in the Square Lake Pool.

(4) That the proposed project will promote conservation and tend to prevent waste through the production of oil which might not otherwise be recovered.

(5) That the progress of the project should be periodically reported to the Commission.

IT IS THEREFORE ORDERED:

(1) That the application of Ambassador Oil Corporation for permission to institute a pilot water flood project in the

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Case No. 1368

Order No. R-1110

Lower Grayburg and the Upper San Andres formations in the Square Lake Pool, Eddy County, New Mexico, for the purpose of secondary recovery be and the same is hereby approved.

(2) That the following wells be and the same are hereby authorized as water injection wells for the above-described project:

Ambassador-Carper Bruning Well No. 1		SW/4 NW/4 Section 29
Ambassador-Texas Trading Grier Well No. 1	-	SW/4 SW/4 Section 29
Ambassador-Texas Trading Grier Well No. 4	-	NE/4 SW/4 Section 29
Ambassador-Carper Wheatley Well No. 1	-	SW/4 SE/4 Section 29
Ambassador-Fidel Grier Well No. 2	-	NE/4 SE/4 Section 30
Ambassador-Texas Trading State Well No. 3	-	NE/4 NW/4 Section 32

all in Township 16 South, Range 31 East, NMPM, Eddy County, New Mexico.

(3) That monthly progress reports on the water flood project herein authorized shall be submitted to the Commission in accordance with Rule 704 and Rule 1119 of the Commission Rules and Regulations.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

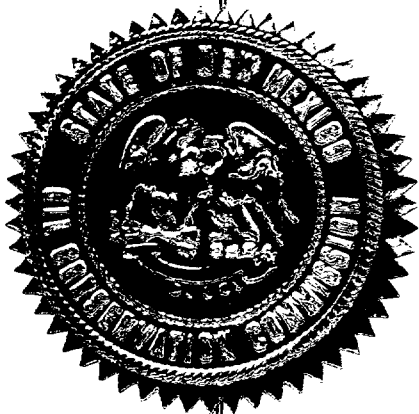
STATE OF NEW MEXICO  
OIL CONSERVATION COMMISSION

*E. L. Mechem*  
EDWIN L. MECHEM, Chairman

*Murray E. Morgan*  
MURRAY E. MORGAN, Member

*A. L. Porter, Jr.*  
A. L. PORTER, Jr., Member & Secretary

ir/



BEFORE THE  
OIL CONSERVATION COMMISSION  
STATE OF NEW MEXICO  
Santa Fe, New Mexico

March 19, 1958

TRANSCRIPT OF HEARING

Case 1368

DEARNLEY - MEIER & ASSOCIATES  
INCORPORATED  
GENERAL LAW REPORTERS  
ALBUQUERQUE - SANTE FE  
3-6691 2-2211

BEFORE THE  
OIL CONSERVATION COMMISSION  
STATE OF NEW MEXICO  
Santa Fe, New Mexico

March 19, 1958

-----  
IN THE MATTER OF:

Application of Ambassador Oil Corporation for an  
order amending Order No. R-1110. Applicant, in  
the above-styled cause, seeks an order amending  
Order No. R-1110 to substitute the Vickers-Etz  
Well No. 2, NE/4 NE/4 Section 30, and the  
Vickers-Etz Well No. 3, SW/4 NE/4 Section 30,  
as water injection wells in lieu of the Carper  
Wheatley Well No. 1, SW/4 SE/4 Section 29, and  
Texas Trading State Well No. 3, NE/4 NW/4  
Section 32, all in Township 16 South, Range 31  
East, Eddy County, New Mexico.

Case No.  
1368

-----  
BEFORE: Mr. Daniel S. Nutter, Examiner

TRANSCRIPT OF HEARING

MR. NUTTER: The hearing will come to order, please. The  
first case on the docket this morning will be Case 1368.

MR. COOLEY: Application of Ambassador Oil Corporation for  
an order amending Order No. R-1110.

Those who are appearing for Ambassador are not present, we'll  
pass the case.

C E R T I F I C A T E[illegible]

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 24<sup>th</sup> day of March, 1958.

Ada Dearnley  
Notary Public-Court Reporter

My commission expires:

June 19, 1959.

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 1368 heard by me on 3-19, 1958.

*[Signature]*, Examiner  
New Mexico Oil Conservation Commission

BEFORE THE  
OIL CONSERVATION COMMISSION  
STATE OF NEW MEXICO  
Santa Fe, New Mexico

March 19, 1958

TRANSCRIPT OF HEARING

Case 1368

DEARNLEY - MEIER & ASSOCIATES  
INCORPORATED  
GENERAL LAW REPORTERS  
ALBUQUERQUE - SANTE FE  
3-6691 2-2211



## NEW MEXICO OIL CONSERVATION COMMISSION

Mabry Hall

Santa Fe, NEW MEXICO

REGISTER

HEARING DATE \_\_\_\_\_ Examiner March 19, 1958 TIME: 9:00 a.m.

NAME:	REPRESENTING:	LOCATION:
<i>R. E. Elbert</i>	<i>Pringle Corp.</i>	<i>Buckhorn, Tex.</i>
<i>O. H. Kean</i>	✓	✓
<i>B. M. Anderson</i>	<i>Sinclair Oil &amp; Gas Co</i>	<i>Midland, Tex.</i>
<i>H. N. Burton</i>	<i>Sinclair</i>	—
<i>M. B. Wilson</i>	<i>Great Western Oil Co.</i>	<i>Midland, Tex.</i>
<i>L. C. White</i>	<i>Warren - Bradshaw</i>	<i>Santa Fe, N.M.</i>
<i>R. W. Greenfield</i>	<i>Warren Bradshaw Expl &amp; Prod Co</i>	<i>Sulsa Oil Co</i>
<i>Frank E. Hoby</i>	<i>State Engineer</i>	<i>Santa Fe</i>
<i>Jason Kellahan</i>	<i>Kellahan + Fox</i>	<i>Santa Fe</i>
<i>W. V. Foster</i>	<i>Gulf Oil Corp</i>	<i>Roswell</i>
<i>H. J. Savage</i>	" "	"
<i>J. W. Hester</i>	" "	"
<i>C. E. Hance</i>	" "	"
<i>Don Hester</i>	" "	<i>H. Hester, Texas</i>
<i>VICTOR T. LYON</i>	<i>CONTINENTAL OIL CO</i>	<i>EUNICE, N.M.</i>
<i>GLENN G. NEILL</i>	<i>NEVILLE G. PENROSE, INC.</i>	<i>EUNICE, N.M.</i>
<i>A. B. Lapsen</i>	<i>Ambassador Oil Corp.</i>	<i>Artesia, N.M.</i>
<i>Nancy Royal</i>	<i>N.M. State Engineer</i>	<i>Santa Fe</i>

BEFORE THE  
OIL CONSERVATION COMMISSION  
STATE OF NEW MEXICO  
Santa Fe, New Mexico

March 19, 1958

-----:  
IN THE MATTER OF: :

Application of Ambassador Oil Corporation for an :  
order amending Order No. R-1110. Applicant, in :  
the above-styled cause, seeks an order amending :  
Order No. R-1110 to substitute the Vickers - Etz :  
Well No. 2, NE/4 NE/4 Section 30, and the Vickers : Case No.  
- Etz Well No. 3, SW/4 NE/4 Section 30, as water : 1368  
injection wells in lieu of the Carper Wheatley :  
Well No. 1, SW/4 SE/4 Section 29, and Texas Trad- :  
ing State Well No.3, NE/4 NW/4 Section 32, all in :  
Township 16 South, Range 31 East, Eddy County, :  
New Mexico. :

-----:  
BEFORE: Mr. Daniel S. Nutter, Examiner

TRANSCRIPT OF HEARING

MR. NUTTER: The hearing will come to order, please. The  
next case this morning will be Case 1368.

MR. PAYNE: Application of Ambassador Oil Corporation for  
an order amending Order No. R-1110.

MR. RUSSELL: I am John F. Russell, Campbell and Russell,  
Roswell, New Mexico, representing Ambassador Oil Corporation, and  
I have one witness, Mr. Wayne Capron.

Mr. Examiner, as you know, this application is to change the  
location of two injection wells since Order No. R-1110 which proved  
the pilot flood project stated the location of the injection wells,  
this hearing is necessary.

(Witness sworn.)

WAYNE CAPRON

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

DIRECT EXAMINATION

By MR. RUSSELL:

Q Will you please state your name?

A Wayne Capron.

Q Where do you live?

A Artesia, New Mexico.

Q By whom are you employed?

A Ambassador Oil Corporation.

Q In what capacity?

A Petroleum engineer and project supervisor.

Q Were you previously qualified before the Commission in Case No. 1368?

A Yes, sir.

MR. RUSSELL: Are the witness's qualifications acceptable?

MR. NUTTER: They are.

Q Mr. Capron, did you testify at the initial hearing held on January 7, 1958?

A Yes, sir.

Q Did you prepare Exhibit No. 1 which was introduced into evidence at that time?

A Yes, sir.

Q Did you prepare Exhibit No. 1 for this hearing?

A Yes, sir.

(Marked Ambassador's Exhibit  
No. 1, for identification.)

Q Mr. Capron, I will ask you to refer to Exhibit No. 1,

Subfile No. B and explain what that is.

A The Subfile No. B is the engineering data on the Square Lake Pool in Eddy County, New Mexico.

Q This is the same information which was included in Exhibit 1 at the original hearing?

A Yes, sir, the identical information.

Q There has been no change in the engineering data?

A No, sir.

Q Will you refer to Subfile C and tell what that is?

A C is a continuation of the engineering data.

Q And is the same as the original hearing?

A The same.

Q Turn to Subfile D and explain what that is.

A This is a summary of well record data showing the casing, the cementing program used, the productive horizon and the total depth of these wells.

Q This is the same information which was in Subfile D in the original hearing with the addition of the two proposed injection wells, is that correct?

A That is correct. And in addition to the two injection wells, two producers that will be included within this new pilot area.

Q Included within the pattern of the proposed area?

A Yes, sir.

Q Will you turn to Subfile E and explain what that is?

A This is a map of the pilot area, the wells that are circled in green is the proposed pilot flood. The two wells circled in yellow were in the original pilot flood area.

Q They are the two which you are proposing to delete?

A Yes, sir.

Q Now, why do you wish to delete those two wells?

A In order to inject water into the Carper Wheatley Well it would have been necessary to consolidate that 40 acre tract with either the 40 acre tract due east or due north of it. Both of these wells had been plugged, the casing shut off at the time they were plugged. We attempted to re-enter Well No. 2 in the southeast quarter of the southeast quarter of Section 29 and encountered mechanical difficulties which was running our cost up considerably, from the old well records it was probably indicated that we would encounter the same difficulty in entering Well No. 1.

Q That Well No. 1 had also been previously plugged and abandoned, had it not?

A Yes.

Q Will you give the location and designation of the two injection wells which you propose to add to your pattern?

A Well No. 2-A, Vickers Federal, do you want --

Q (Interrupting) Give the legal subdivision.

A It is in the northeast quarter of the northeast quarter of Section 30, Township 16 South, Range 31 East. Well No. 3 Vickers Federal, that would be 3-G in the southwest quarter of the northeast quarter, Section 30.

Township 16 South, Range 31 East.

Q Are there any producing wells in the proposed pattern which were not included in your original pattern?

A Yes, Well No. 1 Vickers Federal, in the southeast quarter of the northeast quarter of Section 30, Township 16 South, Range 31 East, and Well No. 7, Vickers Federal, which is in the center of the northeast quarter of Section 30, Township 16 South, Range 31 East.

Q Do you know the present capacity of these two wells?

A The March proration schedule carries Well No. 1, Vickers Federal, at one barrel per day and Vickers 7 the production is combined with No. 3 Vickers Federal, that is five barrels per day.

Q Can the injection wells in your proposed pattern be served by your present water well?

A Yes, sir.

MR. RUSSELL: Does the Examiner have any questions?

MR. NUTTER: Are there any questions of the witness?

MR. COOLEY: Yes.

MR. NUTTER: Mr. Cooley.

CROSS EXAMINATION

By MR. COOLEY:

Q Will the expansion of your pilot water flood project to the northwest to include the Vickers Federal Wells No. 2 and 3 adversely affect the interest of any parties not participating in this pilot project?

A No, sir.

Q What is the offset ownership of say the northeast quarter of Section 30, does the Applicant in this case own the offset acreage?

A No, sir. The offset acreage to the northeast quarter of Section 30, we have been and are actively negotiating for this acreage.

Q What about the two wells in the north half of Section 29? They are not owned by the Applicant? A No, sir.

Q Do you think, especially the Brewer No. 1 Well, do you think that well will be affected by the injection of water by the two nearest injection wells? A It should be.

Q Will that affect be adverse or favorable?

A It would be favorable.

Q It would have the effect of driving the oil off the Vickers Federal Lease and the Carper Brewer Lease on to the Brewer Lease, would it not? A That is correct.

Q This would also be true with regard to the offsets directly to the west of the Vickers Federal Well No. 3-H, J Lowe I believe it is.

A Those wells are all plugged and abandoned.

Q There is no production to the west?

A No, sir.

Q How about the acreage in the southeast quarter of Section 30, is that owned or operated by the Applicant in this case?

A The lease marked AOC Fidel Federal is owned by the Applicants, the Western Oil Fields Lease, we are negotiating with with them at this time to acquire that acreage.

Q Are the offset operators aware of the application in this case?

A Yes, sir.

Q Were they notified by the Applicant?

A Yes.

Q You have received no objections from any of them?

A No, sir.

Q The application and hence the advertisement in this case referred to these wells as the Vickers-Etz Wells, is that the correct designation, or is it just Vickers Federal?

A That was formerly the Vickers-Etz, and that name has been changed to Vickers Federal and so carried in the proration schedule.

Q The correct designation at the present time is Vickers Federal rather than Vickers-Etz?

A Yes, sir.

MR. COOLEY: That's all the questions I have.

MR. NUTTER: Any further questions of the witness?

By MR. NUTTER:

Q Mr. Capron, I think you stated, but I didn't catch the productivity of the Vickers Federal Wells No. 2 and 3.

A No. 2 is carried as one barrel per day and 3 is carried along with No. 7, the two wells together as five barrels per day. That's in the March proration schedule.



Q What are your present plans for the Carper Wheatley No. 1 in Section 29 and the Texas Trading State No. 2 in Section 32?

A Put these wells back to producing.

Q They will revert to producing wells?

A Yes.

Q Rather than injection wells? A Yes.

MR. NUTTER: Any further questions of the witness? If not, he may be excused. Does anyone have anything further in this case?

(Witness excused.)

MR. COOLEY: Would you like to make a formal offer of your exhibits?

MR. RUSSELL: I would like to offer into evidence Applicant's Exhibit No. 1.

MR. NUTTER: Is there any objection to Exhibit No. 1? If not, it will be received. If no further statements we will take it under advisement and take next Case 1398 and 1399.

C E R T I F I C A T E

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 28<sup>th</sup> day of March, 1958.

  
Notary Public-Court Reporter

My commission expires:

June 19, 1959.

I do hereby certify that the foregoing is  
a complete record of the proceedings in  
the Examiner hearing of Case No. 1368  
heard by me on 3-19, 1958.

, Examiner  
New Mexico Oil Conservation Commission

EXAMINER HEARING  
OIL CONSERVATION COMMISSION  
Santa Fe, New Mexico  
January 8, 1958

IN THE MATTER OF: Case No. 1368

TRANSCRIPT OF PROCEEDINGS

DEARNLEY - MEIER & ASSOCIATES  
INCORPORATED  
GENERAL LAW REPORTERS  
ALBUQUERQUE, NEW MEXICO  
3-6691 5-9546

EXAMINER HEARING  
OIL CONSERVATION COMMISSION  
Santa Fe, New Mexico  
January 8, 1958

----- )  
IN THE MATTER OF: )

Application of Ambassador Oil Corporation for )  
an order granting approval of applicant's pro- )  
posed water flood project in the Square Lake )  
Pool in Eddy County, New Mexico. Applicant, )  
in the above-styled cause, seeks approval of )  
its proposed pilot water flood project for )  
the purpose of secondary recovery in which )  
water will be injected in the Grayburg and San )  
Andres formations through six injection wells )  
located in the SW/4 NW/4, SW/4 SW/4, NE/4 SW/4, )  
and SW/4 SE/4 of Section 29, and NE/4 SE/4 of )  
Section 30, and the NE/4 NW/4 of Section 32, )  
Township 16 South, Range 31 East, Square Lake )  
Pool, Eddy County, New Mexico. )

) Case 1368

----- )  
BEFORE: Daniel S. Nutter, Examiner

TRANSCRIPT OF PROCEEDINGS

MR. NUTTER: We will take up next Case 1368.

MR. COOLEY: Case No. 1368: Application of Ambassador  
Oil Corporation for an order granting approval of applicant's pro-  
posed pilot water flood project in the Square Lake Pool in Eddy  
County, New Mexico.

MR. CAMPBELL: Jack M. Campbell of Campbell and Russell,  
Roswell, New Mexico, representing Ambassador Oil Corporation.

(Applicant's Exhibits 1-A, 1-B, 1-C,  
1-D, 1-E, and 1-F marked for identi-  
fication.)

W. C. CAPRON

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

DIRECT EXAMINATION

By MR. CAMPBELL:

Q Will you state your name, please?

A W. C. Capron.

Q By whom are you employed and in what capacity, please?

A Ambassador Oil Corporation, as Engineer and Supervisor in Water Flood Operations.

Q Will you give the Examiner a brief resume of your educational and professional background, please?

A Graduated from the University of Kansas with a B.S. in Petroleum Engineering in 1949. Worked in water flood operations in Eastern Kansas through 1954 and 1955 was in Northeast Oklahoma.

Q By whom were you employed at that time?

A With the Brunnard Oil Corporation and Maracaibo Oil Exploration Corporation. In 1955 I was Chief Engineer of development and operations of water for Climax Molybdenum Company in Northeast Oklahoma, and in 1956 and 1957 I was in Texas with Ambassador Oil Corporation in my present capacity in water flood operations, moving to New Mexico in September of this year.

Q So that since the time you were graduated your work has been essentially in the field of water flood operations?

A Yes.

Q Have you had occasion to work on the possible pilot water flood project in the Square Lake Pool?

A Yes.

MR. CAMPBELL: Are the witness's qualifications acceptable?

MR. NUTTER: Mr. Capron is qualified as an expert witness.

Q Are you acquainted with the application of Ambassador Oil Corporation in this case?

A Yes, sir.

Q I will hand you what has been identified as Applicant's Exhibit No. 1 in Case No. 1368 and ask you to refer in that to what has been marked page "F", which is the plat of the area involved in the application; and referring to that, I will ask you to state what it is and explain to the Examiner what it shows.

A These wells circled with green are proposed injection wells for this pilot water flood. Of course, the producing wells in the center of these wells circled with green will be considered our producing wells within the pilot. The wells directly offsetting these, of course, will be affected by the injection, but not as much as the center wells No. 2 and 3.

The red triangle encompassing the well there is the well we drilled to the red sand for water supply for this pilot injection.

Q Now, referring to what has been shown as page "B" of your Exhibit No. 1, I want to ask you a few questions about the history of this area and the present situation in it. Will you first state generally what the structural features are of the Square Lake Oil

Pool?

A Well, this Square Lake Field, the original development is one of stratigraphic trap and plunging nose, plunging, dipping to the southeast. The pay zones are the lower San Andres or lower Grayburg and upper San Andres of the Permian System. There are several sand formations here, consisting mainly of lenses interbedded with shale. This field, in this area at least, was originally developed to the lower Grayburg formations and then along, I think approximately 1947 or '48, the wells were deepened to the upper San Andres pay. These zones have been, the people I have talked to referred to them by number, and in this case would be equivalent to approximately zones, I believe 5, 6, 7, and 8.

Q Those zones to your knowledge have been produced as an entire common reservoir since the time that they were developed, have they not?

A Yes, sir.

Q What formations will actually be affected by the proposed water flood program?

A It will be the same formations that have been produced which will be the zones 5, 6, 7, and 8, or the lower Grayburg and upper San Andres; and they are sometimes referred to, the three of them, the Metex, the Primer, and the Lovington, I believe.

Q What are the approximate depths, the tops and bottoms of these zones that will be affected?

A In this pilot area, the approximate top is about 3,160 feet.

The bottom is approximately 3400 feet. That is covering approximately 300 or 240 feet of open hole. In this amount of 240 feet, we estimate possibly 20 feet of water flood pay. We do not have a core to determine exactly what that net footage is, but we estimate 20 feet out of this 240-some feet.

Q If this pilot flood is authorized, do you intend to attempt to obtain some additional information in that regard?

A Yes, sir. We very definitely do.

Q How would you obtain that information?

A If you will notice on the plat, the well on the, that would be the northwest of the southeast quarter, has been abandoned.

MR. COOLEY: Of what section?

A Section 29, excuse me, and that well will have to be re-drilled and we will very probably core that well for further information when that well is drilled. However, we might in those cases try first to open up these old holes and either complete as a well, if possible, or to assure that they are properly plugged before water flood proposition. In the event we would have to plug the well, we will re-drill on there, in which case we would core for the information we desire.

Q Would you give the Examiner a brief summary of what the primary producing history of this reservoir has been, based on what information is available?

A Before I do, Mr. Campbell, I might add that in cleaning out these wells for injection, we will run the Lane well gamma ray-



neutron and caliper zone in an attempt to determine the tops of the possible pay formation for that, in addition to this coring. Your question is regarding the primary?

Q Primary producing history.

A The discovery well was drilled in 1941, and the majority of development took place in 1945. The reservoir is a solution gas type reservoir, at least in this area, and we do not know of any expanding gas cap or natural water drives. There is in a few wells, there has been a little water produced with the oil; however it is not assured that it is from the formation or what part of it. The reservoir is now at a stripper stage, and in many cases it will be almost beyond its economic limit.

Q What is the average production from the reservoir in this area at this time?

A Approximately two to four barrels per well per day.

Q Does page "B" of your Exhibit No. 1 show the cumulative production from the injection wells in the pilot area?

A Yes, sir, this; the wells are listed, the wells intended for injection wells. This cumulative production as shown on page "B" was taken from the New Mexico Engineering Committee report, and that is as of January 1st, 1957. The wells to the northwest, you'll note, have had the greatest primary production, and the two proposed southeast injection wells, southeast injection wells have had the lowest recovery primary-wise.

Q I will refer you now to what has been shown as page "D" of

Exhibit No. 1 and ask you to state whether that contains all of the information that you have been able to compile with reference to the proposed water injection wells in this pilot flood area?

A Yes, sir. This information was taken from the logs filed with the New Mexico Oil and Gas Conservation Commission, and with the United States Geological Survey.

Q It also includes the information shown on the well records, other well record data which was filed with the Oil Conservation Commission?

A Yes, sir.

Q At the time these wells were drilled?

A Yes, sir. This is a summary of the available information.

Q Does this constitute all of the information you have been able to locate with reference to these wells in this area, up to this time?

A Yes, sir.

Q Will you state for the Examiner what the proposed source of water is for the pilot project if it is approved?

A The well shown on the plat circled with the red triangle is drilled as a test well to the Queen Sand, known locally as the Red Sand.

Q What are the approximate depths?

A In this well, the top of the sand was at 2571, and the bottom approximately 2610. The old drilling records showed that there was water in this formation; however, there was no record of

the water ever being tested as to the amount that the formation would make. This well was drilled to determine that and to try and find a source for this water flood. After testing this well, we could produce approximately eight to nine hundred barrels a day. We set up pipe and fractured the well and could now produce approximately twenty-three to twenty-five hundred barrels per day. After making this test, the water was analyzed and you will not on page "B" the main significant factors of this analysis, showing very high chlorides, and so forth. It's a very strong brine water.

The proposed plan at this time is to treat; the treatment would consist of a closed system with filters located at each injection well, and further test the water as this well is produced and to see if further treatment will be necessary.

Q Do you intend to use what type of pipe for your distribution system?

A Cement-lined pipe throughout.

Q Do you contemplate drilling additional water wells or opening up old holes at that zone for the obtaining of additional water from this particular zone, in the event this project is approved?

A Yes, sir.

Q What type of water flood pattern is contemplated here in this pilot area?

A This is commonly known as a five-spot pattern, with the alternate producing wells on 40-acre units converted to injection wells.

Q What do you presently hope, at least, may be a proposed injection rate insofar as the water is concerned?

A Of course, there is no experience or anything to determine exactly what this would be, but we hope to achieve five to eight hundred barrels per day per well, or greater.

Q Does that depend upon a number of factors that can be developed only by experimentation?

A Yes, sir.

Q What are some of those factors?

A The characteristics of your zones taking the water, such as permeability and so forth, and the completion of the wells; in other words, the well properly completed and cleaned out and so forth will achieve your greater injection rate.

Q The maximum injection rate is also, I presume, affected as you indicated by the possible effect of the water upon the permeable zones within the reservoir?

A Yes, sir.

Q You have stated this was open hole flooding. Is it possible that as you develop experimentally the pilot project, you will have to do additional work in connection with some of the wells?

A Yes, sir, it is possible we will have to set liners and/or packers, or cement them in. That, of course, we will have to determine as we go along, what the best completion is for each one. In many cases these wells have been handled differently in the primary stage, with their shooting and so forth. To assure proper completion

each one will have to be handled accordingly.

Q Was the information contained in Exhibit 1 and the data reflected in the exhibit obtained by you or under your supervision, and prepared by you?

A Yes, sir.

MR. CAMPBELL: I would like to offer in evidence Applicant's Exhibit No. 1.

MR. NUTTER: Without objection, the exhibit will be received in evidence.

Q Mr. Capron, do you believe that if this application is granted, that oil may be recovered from this area which cannot otherwise be recovered by primary methods?

A Yes, sir.

MR. CAMPBELL: I believe that's all.

MR. NUTTER: Are there any questions of Mr. Capron?

CROSS EXAMINATION

By MR. COOLEY:

Q I note on page "C" of Exhibit 1 it is there stated that the proposed pilot flood spacing is 80 acres?

A Yes, sir.

Q Is this just another way of stating 40-acre five-spot, or are you actually seeking 80-acre spacing?

A No, it is another way of stating 40-acre five-spot.

Q Now these proposed injection wells are presently producing some oil?

MR. CAMPBELL: Some of them are.

A Some of them are, some aren't. They are temporarily abandoned. This No. 3 on the State lease, State "R".

MR. CAMPBELL: Where is it located?

A The northwest quarter of Section 32. The proposed injection well was temporarily abandoned sometime prior to our acquiring this lease. I think it was 1951, but I'm not certain of that.

Q What about the other five?

A This Carper-Wheatley well has been pumping. It is temporarily abandoned now. The Texas Trading in the southwest quarter of Section 29, both 1 and 4 have been pumping. The Carper well in the southwest of the northwest quarter of Section 29 has been pumping. The Fidel well in the northeast of the southeast of Section 30 has been temporarily abandoned for some time prior to our acquisition.

Q You aren't at this time seeking any allowable relief for shutting in or converting these wells?

A No, sir.

Q Can you convert this estimated 500 to 800 barrels per day per well, I believe you said, wasn't it --

A Yes.

Q -- to barrels per acre foot of pay, roughly? Would it exceed one barrel?

A It would be less than one barrel, considerably less. However, we are going to go back and get our Lane well logs to

determine the net feet of pay.

Q I understand that is somewhat nebulous right now. You believe the proposed injection is less than one barrel per acre foot?

A Yes, if you assume that we had 20 net feet and 80-acre five-spot. One barrel per day per acre foot would be 16 barrels per day per acre well, so you can see that is considerably less.

Q Do you feel that the effects of water injection into any of the six proposed injection wells will be felt beyond the lease lines of Ambassador Oil Corporation?

A Yes, sir. At this time we have been and are presently negotiating for those leases, however.

Q Would you mind naming what leases you feel will be affected?

A The Brewer lease in the north half of the northeast quarter.

Q Of Section 29?

A Section 29. The Western Oil Field property in Section 30, the west half of the southeast quarter of Section 30, and the northeast quarter of Section 32.

Q The owners of all of the tracts you have just described are aware of this application, are they not?

A Yes.

Q Have they signified either assent or dissent to this application?

A No, they have -- as I have said previously, we are negotiating with all of them at this time.

MR. CAMPBELL: You have already obtained several agreements with regard to the development of this area from owners within the pilot flood?

A Yes.

MR. CAMPBELL: Within the immediate pilot flood area, and you are negotiating and contemplating agreements within the near future within the entire area that would be affected?

A Yes, sir.

MR. CAMPBELL: What would be the effect on them if there was an effect, would it not be a beneficial effect?

A It would be strictly beneficial. It would be an increase in production.

Q Do you feel that there is any other acreage, other than that that has been mentioned, that would be affected by the injection of water in the six proposed wells?

A No, sir, it is very doubtful.

Q You do not feel that the Western Oil Field properties in 31, in the southeast quarter, will be affected?

A It is possible, but very unlikely. Their well on the corner No. 5 is plugged and it is doubtful, if the effects of these offsetting injection wells will probably go to the Fidel and the Texas Trading State will receive the greatest effect.

Q Approximately what distance is it from your nearest injection well to the Western Oil Field's Federal lease in 31, wells 7 and 11?



A The nearest injection well?

Q That would be in the southwest quarter of 29.

A It's in excess, slightly in excess of a half a mile.

MR. COOLEY: I believe that's all the questions I have.

Thank you.

MR. NUTTER: Any further questions?

By MR. NUTTER:

Q Mr. Capron, do I understand correctly that you are injecting into the Grayburg formation but that there are four zones there that you will be injecting into, the numbered zones 5, 6, 7, and 8?

A They have been determined that, Mr. Nutter, yes, sir.

Q And these four zones encompass a total of some 200-some feet?

A We might say they're encountered within that 250 feet, roughly.

Q You expect to encounter only 20 feet of net pay?

A That is our estimate at this time.

Q For water flooding?

A Yes.

Q You wouldn't make an attempt to selective inject that water into those zones at this time?

A No, sir, not at this time.

Q Are there any other water flood projects, pilot or otherwise, in operation in the Square Lake Pool?

A No, sir, I'm certain there isn't. I don't know the definite limits of the Square Lake to the south. I don't believe there are.

Q You expect that the injection wells may take water at the rate of 500 to 800 barrels a day?

A We anticipate that, yes, sir.

Q Do you have enough water available to meet those needs, if the wells will take that much?

A No, sir. We will have to drill or open an old hole to obtain enough which produces as this one Red Sand well will give us enough for the pilot.

Q What would be the additional source of water?

A It would have to be another well to the same.

Q To the same formation, the Queen formation, or the Red Sand?

A We tested everything above that and encountered no water until we got to the Red Sand.

Q You described that water as a strong brine. Do you feel it has any use as far as domestic or agricultural purposes is concerned?

A No, sir.

Q Are there any other productive formations in this area, either above or below these four zones in the Grayburg?

A No, sir, there is nothing above, and I know of nothing below. I don't know of any wells being drilled below this.

Q There is no possibility of damage to any other formation?

A No, sir.

Q Subsequent development of the pilot project would be on the same pattern, that is, conversion of old oil wells on 40-acre

locations?

A Yes, sir, providing, of course, this all proves successful and the most advantageous way to approach it.

Q Has the pool been developed on 40-acre spacing?

A Yes.

Q Rather uniformly throughout?

A Yes, sir. There are a few exceptions, but very few.

Q Now, you stated that you didn't think any offset operators' correlative rights would be damaged?

A No, sir.

Q Do you think that waste will occur as a result of this water flood?

A No, sir.

Q You think waste will be avoided by the approval of it?

A Waste will be avoided and additional oil recovered by this process, yes, sir.

Q In response to some questions by Mr. Cooley, you stated that some of those wells are currently pumping but would be converted to injection wells. What is the total productive capacity of the particular wells at the present time?

MR. CAMPBELL: I believe, Mr. Examiner, that will be reflected -- no, it will not. The cumulative production is shown and I might for the record refer the Examiner to the Eddy County December proration schedule, which indicates that the production from the wells which are presently on the schedule and producing

daily, the allowable, I'll say, amounts to 22 barrels a day.

MR. NUTTER: For these six injection wells?

MR. CAMPBELL: For the wells that are producing, and one of the six is presently plugged and abandoned, or temporarily abandoned.

MR. NUTTER: You are talking about the allowable, the production may not be that?

MR. CAMPBELL: That is correct.

A Two of those were temporarily abandoned, 2 Fidel and 3 State.

MR. CAMPBELL: The 2 Fidel shows on the December allowable.

A It hasn't produced any oil since December of 1956.

MR. CAMPBELL: It appears on the schedule.

A The actual production, I would say, is between 7 and 8 barrels a day.

MR. NUTTER: From the total production from the six wells proposed for injection?

A Yes.

MR. NUTTER: What's the highest productive capacity in any well in this immediate neighborhood, Mr. Capron?

A The wells we are operating and after just cleaning one out, is making between 6 and 7 barrels a day, and that is gradually declining.

MR. NUTTER: That's one of the better wells in the area?

A Yes, sir. Quite often after pulling these wells, you get two barrels a day.

MR. NUTTER: Any further questions of Mr. Capron? If

no further questions, he may be excused. Oh, Mr. Irby.

MR. IRBY: Would Ambassador furnish the State Engineer copies of Sheets "B" and "C" of Exhibit No. 1?

MR. CAMPBELL: Not only that, we'll give you all of Exhibit 1. I will give you my copy.

MR. IRBY: Thank you.

MR. NUTTER: Mr. Capron may be excused.

(Witness excused.)

Is there anything further in Case No. 1368? If not, we will take the case under advisement, and the hearing is adjourned.

(Hearing adjourned.)

\* \* \* \* \*

C E R T I F I C A T E

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 Proceedings before the New Mexico Oil Conservation Commission was reported by me in stenotype and reduced to typewritten transcript under my personal supervision, and that the same is a true and correct record to the best of my knowledge, skill and ability.

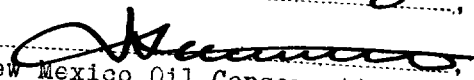
WITNESS my Hand and Seal this 11<sup>th</sup> day of February, 1958, in the City of Albuquerque, County of Bernalillo, State of New Mexico.

  
 NOTARY PUBLIC

My commission expires:

June 19, 1959.

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 1368 heard by me on 1-8, 1958.

  
 Examiner  
 New Mexico Oil Conservation Commission

OIL CONSERVATION COMMISSION  
SANTA FE, NEW MEXICO

Date 1-9-58

CASE 1368

Hearing Date 1-7-58  
9 am SF DSN

My recommendations for an order in the above numbered cases are as follows:

Enter order approving the establishment of a pilot water-flood project in the Square Lake Pool, and authorizing the injection of water into the ~~at~~ proposed wells.

No violation of currelative rights ~~will~~ is likely to occur as a result of said flood. Further, no waste will likely result and the project, if successful, will undoubtedly result in the recovery of oil which otherwise may not be recovered.

San Fetter  
Staff Member