

1968: Ambassador Oil Corp. application
order granting approval of applicant's
lot water flood project in Square Lake
01, Eddy Co.

Case No.

1368

Application, Transcript,
Small Exhibits, Etc.

OIL CONSERVATION COMMISSION
P. O. BOX 871
SANTA FE, NEW MEXICO

April 8, 1958

Mr. John Russell
Campbell & Russell
P.O. Box 721
Roswell, New Mexico

Dear Mr. Russell:

On behalf of your client, Ambassador Oil Corporation, we enclose two copies of Order R-1110-A issued April 3, 1958, by the Oil Conservation Commission in Case 1368, which was heard on March 19th at Santa Fe.

Very truly yours,

A. L. Porter, Jr.
Secretary - Director

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Encls.

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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.

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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 24th 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.

Attorney 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 - SANTA 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:
W. E. Elliott	Brady Corp.	Buckner, Tex.
O. H. Reaugh	✓	✓
B. M. Anderson	Sinclair Oil & Gas Co.	Midland, Tex.
H. N. Burton	Dindair	-
M. B. Wilson	Great Western Oil Co.	Midland, Texas
L. C. White	Warren - Bradshaw	Santa Fe, N.M.
R. W. Arrenfield	Warren Bradshaw Expl. Co.	Sulsa Okla.
Frank E. Ivy	State Engineer	Santa Fe
Jason Kellahin	Kellahin + Fox	Santa Fe
W. V. Foster	Gulf Oil Corp.	Roswell
H. J. Savage	" "	"
J. H. Foster	" "	"
C. E. Mace	" "	"
Don Walker	" "	St. Martha, Tex.
VICTOR T. LYON	Continental Oil Co.	Edrick, N.M.
GLENN G. NEILL	NEVILLE G. PENROSE, JR.	Edrick, N.M.
A. B. Lyman	Ambassador Oil Corp.	Artesia, N.M.
Nancy Royal	N.M. State Engineer	Santa Fe

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.)

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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?

No, sir.

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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 Fidal 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. COOLLEY: 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 28th 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

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,) Case 1368
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.)
-----)

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 11th day of February, 1958, in the City of Albuquerque, County of Bernalillo, State of New Mexico.

Ada Dearnley
 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.

W. H. H. H., 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 ~~set~~ 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.

Jan Miller
Staff Member

BEFORE THE OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO

IN THE MATTER OF THE APPLICATION OF)
AMBASSADOR OIL CORPORATION FOR AN)
ORDER GRANTING APPROVAL OF APPLICANT'S)
PROPOSED PILOT WATER FLOOD PROJECT IN)
THE SQUARE LAKE POOL, EDDY COUNTY, NEW)
MEXICO.)

No. 1368

APPLICATION

Comes now Applicant, Ambassador Oil Corporation, by its attorneys, and pursuant to Rule 701 of the Rules and Regulations of the Commission, states:

1. Applicant is the owner of certain operating rights in Sections 29, 30 and 32 of Township 16 South, Range 31 East, Eddy County, New Mexico, within the limits of the Square Lake Pool as defined by the Commission.

2. Applicant desires to initiate a pilot water flood program to inject water into presently existing wells situated as follows:

- a. SW $\frac{1}{4}$ NW $\frac{1}{4}$ Section 29
- b. NE $\frac{1}{4}$ SW $\frac{1}{4}$ Section 29
- c. SW $\frac{1}{4}$ SE $\frac{1}{4}$ Section 29
- d. NE $\frac{1}{4}$ NW $\frac{1}{4}$ Section 32
- e. SW $\frac{1}{4}$ SW $\frac{1}{4}$ Section 29
- f. NE $\frac{1}{4}$ SE $\frac{1}{4}$ Section 30

Applicant attaches hereto a plat, marked Exhibit "1", showing the location of each such intake well and the location of all oil and gas wells and the names of the lessees within one-half mile of the said wells.

3. The said wells are producing from the Grayburg-San Andres formation and the name, description and the depth of the formations affected is indicated on Exhibit "2" attached to this application.

4. Information relating to the intake wells, including the casing program, is included in the well record summary attached and marked Exhibit "2".

5. Water to be injected is to be obtained from a water well situated in the approximate center of the SW $\frac{1}{4}$ of Section 29 and the amount to be injected will be determined by experimentation in an effort to inject one barrel of water for each acre foot within the producing formation.

6. The operator of the project will be Ambassador Oil Corporation, Artesia, New Mexico.

WHEREFORE, Applicant requests that this matter be set down for a hearing before an Examiner and that notice be published as provided by law, and that after hearing, the Commission issue its order approving the above described pilot water flood project.

Respectfully submitted,

AMBASSADOR OIL CORPORATION

By: Jack M. Campbell
Campbell & Russell
Attorneys for Applicant
P. O. Box 721
Roswell, New Mexico

2003

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WELL RECORD SUMMARY OF PROPOSED WATER INJECTION WELLS
SQUARE LAKE FIELD, EDDY COUNTY, NEW MEXICO

LEASE	DESCRIPTION	WELL NO.	ELEVATION	CASING		SACKS USED	PRODUCTIVE HORIZONS							
				SIZE	WT.		DEPTH	CEMENT	TOP	BOTTOM	TOP	BOTTOM	TOP	BOTTOM
A.O.C.	Fidel Grier	NE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec 30 T16S R31E	2	3855.6	5 $\frac{1}{2}$	14#	3055	100	3135	3151	3184	3198	3203	3206
A.O.C.	Carrier Browning	SW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec 29 T16S R31E	1	3899.2	5 $\frac{1}{2}$	14#	3120	100	3180	3200	3222	3248	3358	3374
A.O.C.	Tex.Tr.Grier	SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec 29 T16S R31E	1	3888.0	5 $\frac{1}{2}$	15#	3162	100	3218	3228	3314	3386	3386	3404
A.O.C.	Tex.Tr.Grier	NE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec 29 T16S R31E	4	3924.3	5 $\frac{1}{2}$	14#	3239	100	3250	3258	3260	3262	3300	3340
A.O.C.	Tex.Tr.State	NE $\frac{1}{4}$ NW $\frac{1}{4}$ Sec 32 T16S R31E	3	3923.9	5 $\frac{1}{2}$		3255	100	3270	3285	3450	3467		
A.O.C.	Carper Wheatley	SW $\frac{1}{4}$ SE $\frac{1}{4}$ Sec 29 T16S R31E	1	3944.0	5 $\frac{1}{2}$	17#	3156	100	3295	3310	3350	3385	3497	3522

8

<u>TOP</u>	<u>BOTTOM</u>	<u>TOP</u>	<u>BOTTOM</u>	<u>TOTAL</u> <u>DEPTH</u>
3265	3270	3313	3329	3352
3380	3402			3404
				3458
3436	3452			3474
				3470
				3522

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 3rd 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, NMPN, 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.

-2-

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 28, 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.

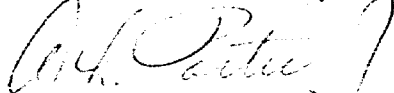
STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION



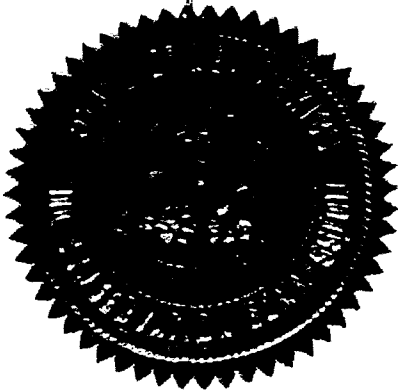
EDWIN L. MECHEM, Chairman



MURRAY E. MORGAN, Member



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



1r/

OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO

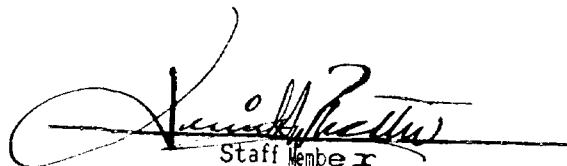
Date March 20, 1958

CASE 1368

Q Am
Hearing Date 3/19/58 Santa Fe: DSN

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

Enter an order approving the substitution as water injection wells, the Vickers-Federal No. 2, NE/4 NE/4 Section 30, and the Vickers-Federal No. 3, SW/4 NE/4 Section 30, in lieu of the Carper Wheatley Well No. 1, SW/4 SE/4 Section 29, and the Texas Trading State Well No. 3, NE/4 NW/4 Section 32, all in Township 16 South, Range 31 East, Eddy County, New Mexico. The originally planned injection wells in this pilot water flood project will be returned to producing status. The designation of the Vickers No. 2 and 3 wells will not cause any damage to any offsetting operators correlative rights.


Staff Member

NEW MEXICO
OIL CONSERVATION COMMISSION
P. O. Box 871
Santa Fe, New Mexico

Date February 18, 1958

Campbell & Russell
P.O. Box 721
Roswell, New Mexico

ATTENTION: Jack M. Campbell

Gentlemen:

Your application ~~for~~ on behalf of Ambassador Oil Corporation for the
amendment of Order R-1110

dated February 17, 1958 has been received, and has been tentatively
scheduled for hearing before an examiner on
March 18, 1958

A copy of the docket will be forwarded to you as soon as the matter is
advertised.

Very truly yours,


A. L. PORTER, Jr.,
Secretary-Director

ga

LAW OFFICES OF
CAMPBELL & RUSSELL

J. P. WHITE BUILDING
ROSWELL, NEW MEXICO

17 February 1958

JACK M. CAMPBELL
JOHN F. RUSSELL

TELEPHONES
MAIN 2-4641
MAIN 2-4642

New Mexico Oil Conservation Commission
Box 871
Santa Fe, New Mexico

Gentlemen:

We enclose herewith original and three copies of Application of Ambassador Oil Corporation for an order amending its authority for pilot water flood project in the Square Lake Pool, Eddy County, New Mexico, by substituting two water injection wells for injection wells now authorized.

Very truly yours,

CAMPBELL & RUSSELL

Jack M. Campbell
Jack M. Campbell

JMC:bb
Enclosures
cc: B. J. Kellenberger
cc: Wayne Capron

*Docketed
3-6-58*

BEFORE THE OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO

IN THE MATTER OF THE APPLICATION OF)
AMBASSADOR OIL CORPORATION FOR AN)
ORDER AMENDING ITS AUTHORITY FOR)
PILOT WATER FLOOD PROJECT IN THE)
SQUARE LAKE POOL, EDDY COUNTY, NEW) No. 1368
MEXICO, BY SUBSTITUTING TWO WATER)
INJECTION WELLS FOR INJECTION WELLS)
NOW AUTHORIZED.)

APPLICATION

Comes now Applicant, Ambassador Oil Corporation, by its attorneys, and states:

1. By Order No. R-1110 of the Commission, Applicant was authorized 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 as follows:

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

2. One of the aforesaid water injection wells, being the Ambassador-Carper Wheatley Well No. 1, situated in the SW $\frac{1}{4}$ SE $\frac{1}{4}$ of Section 29, is offset by two wells which have been, prior to this time, plugged and abandoned. Applicant intended to use these wells as possible producing wells affected by water injection in the Ambassador-Carper Wheatley Well No. 1. In attempting to clean out the Carper Thomas Grier Well No. 2 situated in the SE $\frac{1}{4}$ SE $\frac{1}{4}$ Section 29, Applicant encountered serious mechanical difficulty and has reason to anticipate that similar difficulties may be encountered in the wells situated in the NW $\frac{1}{4}$ SE $\frac{1}{4}$ Section 29.

3. The information required by Commission Memorandum No. 5-53 has heretofore been furnished to the Office of the State Engineer at the time of the hearing upon the original application.

WHEREFORE, Applicant prays that Order No. R-1110 be amended by deleting therefrom in paragraph (2) of said Order, the following wells:

Ambassador-Carper Wheatley Well No. 1 - SW $\frac{1}{4}$ SE $\frac{1}{4}$ Section 29
Ambassador-Texas Trading State Well No. 3 - NE $\frac{1}{4}$ NW $\frac{1}{4}$ Section 32.

and adding in lieu of these two wells as authorized water injection wells for the project:

Ambassador-Vickers Etz Well No. 2 - NE $\frac{1}{4}$ NE $\frac{1}{4}$ Section 30
Ambassador-Vickers Etz Well No. 3 - SW $\frac{1}{4}$ NE $\frac{1}{4}$ Section 30

all in Township 16 South, Range 31 East, N.M.P.M., Eddy County, New Mexico.

APPLICANT FURTHER REQUESTS that, in all other respects, Order No. R-1110 remain in full force and effect.

APPLICANT FURTHER REQUESTS the Commission to publish Notice of Hearing upon this application before an Examiner, or before the Commission, whichever hearing can be had at the earliest date.

Done at Roswell, New Mexico this 17th day of February, 1958.

CAMPBELL & RUSSELL

By Jack M. Campbell
Attorneys for Applicant

DOCKET: EXAMINER HEARING MARCH 19, 1958

Oil Conservation Commission 9 a. m. Mabry Hall, State Capitol, Santa Fe, N. M.

The following cases will be heard before Daniel S. Nutter, Examiner:

CASE 1368:

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 1395:

Application of Graridge Corporation for approval of a unit agreement. Applicant, in the above-styled cause, seeks an order approving its North Caprock-Queen Unit for purposes of secondary recovery in the Caprock-Queen Pool in Lea and Chaves Counties, New Mexico. Said unit comprises 2,887 acres, more or less, of State of New Mexico and patented lands located in Township 12 South, Range 31 East, Chaves County, New Mexico, and Township 12 South, Range 32 East, and Township 13 South, Range 32 East, Lea County, New Mexico.

CASE 1396:

Application of Continental Oil Company for a dual completion. Applicant, in the above-styled cause seeks an order authorizing the dual completion of its Hawk B-3 Well No. 4 located 1980 feet from the North line and 660 feet from the East line of Section 3, Township 21 South, Range 37 East, Lea County, New Mexico, in such a manner as to permit the production of oil from the Terry-Blinebry Oil Pool and gas from the Tubb Gas Pool through parallel strings of tubing.

CASE 1397:

Application of Warren-Bradshaw Exploration Company for an exception to Rule 309 of the Commission Rules and Regulations. Applicant, in the above-styled cause, seeks an order authorizing the production of more than eight wells into a common tank battery and authorizing the commingling of production from two basic State of New Mexico leases, comprising the W/2 NW/4, W/2 SW/4, and SE/4 SW/4 of Section 21, and the NE/4 of Section 29, respectively, Township 17 South, Range 33 East, Lea County, New Mexico.

CASE 1398:

Application of Sinclair Oil & Gas Company for a non-standard gas proration unit. Applicant, in the above-styled cause, seeks an order establishing a 160-acre non-standard gas proration unit in the Tubb Gas Pool comprising the W/2 SW/4, SE/4 SW/4, and SW/4 SE/4 of Section 26, Township 21 South, Range 37 East, Lea County, New Mexico, said unit to be dedicated to the applicant's J. R. Cone "A" Well No. 1 located 660 feet from the South and West lines of said Section 26.

CASE 1399:

Application of Sinclair Oil & Gas Company for a non-standard gas proration unit. Applicant, in the above-styled cause, seeks an order establishing a 60-acre non-standard gas proration unit in the Blinebry Gas Pool comprising the W/2 SW/4, SE/4 SW/4, and SW/4 SE/4 of Section 26, Township 21 South, Range 37 East, Lea County, New Mexico, said unit to be dedicated to the applicant's J. R. Cone "A" Well No. 2 located 1980 feet from the South line and 660 feet from the West line of said Section 26.

CASE 1400:

Application of Gulf Oil Corporation for a dual completion. Applicant, in the above-styled cause, seeks an order authorizing the dual completion of its Naomi Keenum Well No. 2 located 660 feet from the South line and 1980 feet from the East line of Section 14, Township 21 South, Range 37 East, Lea County, New Mexico, in such a manner as to permit the production of oil from the Terry-Blinebry Oil Pool and to permit the production of gas from the Tubb Gas Pool through parallel strings of tubing.

CASE 1401:

Application of Gulf Oil Corporation for a dual completion. Applicant, in the above-styled cause, seeks an order authorizing the dual completion of its T. R. Andrews Well No. 3 located 1980 feet from the South and East lines of Section 32, Township 22 South, Range 38 East, Lea County, New Mexico, in such a manner as to permit the production of oil from an undesignated Paddock oil pool through tubing and to permit the production of gas from the Tubb Gas Pool through tubing up to the Paddock oil zone and thence through a crossover assembly into the casing-tubing annulus to the surface.

CASE 1402:

Application of Neville G. Penrose, Inc. for an exception to the No-Flare Order No. R-553 for an oil well in the Tubb Gas Pool. Applicant, in the above-styled cause, seeks an order granting an exception to No-Flare Order No. R-553 for its McCallister Well No. 1, located 660 feet from the North line and 660 feet from the West line of Section 7, Township 22 South, Range 38 East, Tubb Gas Pool, Lea County, New Mexico.

OIL CONSERVATION COMMISSION
P. O. BOX 871
SANTA FE, NEW MEXICO

January 16, 1958

Mr. Jack Campbell
Campbell & Russell
P.O. Box 721
Roswell, New Mexico

Dear Mr. Campbell:

On behalf of your client, Ambassador Oil Corporation, we enclose two copies of Order R-1110 issued January 15, 1958, by the Oil Conservation Commission in Case 1368, which was heard on January 7th at Santa Fe.

Very truly yours,

A. L. Porter, Jr.
Secretary - Director

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Encls.

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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. Mutter, 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 15th 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. Mutter, 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

-2-

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, NMPN, 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/

DOCKET: EXAMINER HEARING JANUARY 7, 1958

Oil Conservation Commission 9 a.m. Mabry Hall, State Capitol, Santa Fe, NM

The following cases will be heard before Daniel S. Nutter, Examiner:

- CASE 1356: Application of Cities Service Oil Company for permission to institute a pilot water flood project in Township 14 South, Range 31 East, Caprock-Queen Pool, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks permission to institute a pilot water flood project in the Caprock-Queen Pool, Chaves County, New Mexico, by injecting water into the Queen formation through the following intake wells:
- Government "B" No. 5, NW/4 NE/4 Section 10;
Government "B" No. 6, SE/4 SE/4 Section 3;
Government "B" No. 10, NE/4 SE/4 Section 3;
Government "B" No. 14, SE/4 SW/4 Section 3.
- all in Township 14 South, Range 31 East.
- CASE 1357: Application of Standard Oil Company of Texas for an order authorizing the production into a common tank battery of all oil produced from five leases in the Atoka Pool, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order authorizing the production into a common tank battery of all oil produced from the Atoka Pool from the following described leases: SW/4 SE/4, NW/4 NW/4, NW/4 SE/4, SE/4 NW/4, and SW/4 NE/4 of Section 12, Township 18 South, Range 26 East, Eddy County, New Mexico.
- CASE 1358: Application of Magnolia Petroleum Company for an order cancelling Order R-984, and granting authority to commingle the liquid hydrocarbons produced from the Pictured Cliffs and Mesaverde formations into central tank batteries located on certain leases in the Blanco Mesaverde Gas Pool, Tapacito-Pictured Cliffs Gas Pool and certain undesignated Pictured Cliffs and Mesaverde gas pools in Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks an order cancelling Order No. R-984, and granting authority to commingle the liquid hydrocarbon production from the Pictured Cliffs and Mesaverde formations into central tank batteries located on certain of the applicant's leases in Township 26 North, Range 2 West; Township 26 North, Range 3 West; Township 27 North, Range 2 West, and Township 27 North, Range 3 West, in Rio Arriba County, New Mexico.
- CASE 1359: Application of El Paso Natural Gas Company for an order extending the time allowed for making annual deliverability and shut-in pressure tests, and requesting allowables for 237 gas wells in certain prorated, non-prorated, and undesignated gas pools in San Juan and Rio Arriba Counties, New Mexico. Applicant, in the above-styled cause, seeks an

CASE 1359 continued

order extending the time allowed for making annual deliverability and shut-in pressure tests, and requesting allowables for 237 gas wells in the Blanco Mesaverde, Fulcher Kutz-Pictured Cliffs, West Kutz-Pictured Cliffs, Aztec-Pictured Cliffs, South Blanco-Pictured Cliffs, Ballard-Pictured Cliffs, Otero, Canyon Largo, East Companero Dakota, Tapacito, West Kutz-Fruitland, North Los Pinos-Fruitland, and South Los Pinos-Fruitland Gas Pools and in undesignated Fruitland, Pictured Cliffs, and La Ventana gas pools in San Juan and Rio Arriba Counties, New Mexico.

CASE 1360:

Application of Gulf Oil Corporation for an order suspending the cancellation of underage accrued to eight gas wells in the Eumont, Jalmat, Tubb, and Blinebry Gas Pools, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order suspending the cancellation on January 1, 1958, of the underage accrued to the following gas wells in the Eumont, Jalmat, Tubb, and Blinebry Gas Pools:

Eumont Pool

Bell-Ramsay St. "C" No. 1, NW/4 SE/4 Section 34,
Township 20 South, Range 37 East

Jalmat Pool

Arnott-Ramsay "E" No. 2, SW/4 SE/4 Section 16,
Township 25 South, Range 37 East

Arnott-Ramsay "E" No. 5, SW/4 NW/4 Section 16,
Township 25 South, Range 37 East

J. R. Holt "A" No. 2, SE/4 SW/4 Section 16,
Township 24 South, Range 37 East

Tubb Pool

Hugh No. 7, NE/4 NW/4 Section 14, Township 22
South, Range 37 East

Harry Leonard "E" No. 4, NE/4 NE/4 Section 16,
Township 21 South, Range 37 East

Blinebry Pool

J. N. Carson "A" No. 4, SW/4 SE/4 Section 28,
Township 21 South, Range 37 East

H. Leonard "E" No. 4, NE/4 NE/4 Section 16,
Township 21 South, Range 37 East

all in Lea County, New Mexico.

CASE 1361:

Application of The Texas Company for an order suspending the cancellation of underage accrued to two gas wells in the Eumont Gas Pool and Jalmat Gas Pool, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order suspending the cancellation on January 1, 1958, of the underage accrued to the following gas wells in the Eumont and Jalmat Gas Pools:

Texas Company Riddel Well No. 2, NE/4 NE/4
Section 12, Township 21 South, Range 36 East;

Texas Company State of New Mexico "B" (NCT-2)
Well No. 3, NW/4 NW/4 Section 16, Township 23
South, Range 36 East;

all in Lea County, New Mexico.

CASE 1362:

Application of Schermerhorn Oil Corporation for an order suspending the cancellation of underage accrued to one well in the Eumont Gas Pool, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order suspending the cancellation on January 1, 1958, of the underage accrued to the following named gas well in the Eumont Gas Pool:

Schermerhorn Oil Corporation Gulf-State
No. 1 Well, SE/4 SW/4 Section 31, Township
18 South, Range 37 East,

Lea County, New Mexico.

CASE 1363:

Application of J. C. Watson Drilling Company for an order authorizing the use of vacuum pumps on certain wells in the Roberts Pool in Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order authorizing the use of vacuum pumps on its Trimble No. 1 Well located in the NE/4 NE/4 Section 11, Township 17 South, Range 32 East, and its Trimble No. 2 Well located in the SE/4 NE/4 of said Section 11, in the Roberts Pool, Lea County, New Mexico.

CASE 1364:

Application of Cities Service Oil Company for an oil-oil dual completion in the Vacuum Pool and Vacuum-Seven Rivers Pool in Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order authorizing the dual completion of its State "K" No. 2 Well located 1980 feet from the North line and 660 feet from the East line of Section 27, Township 17 South, Range 35 East, Lea County, New Mexico, in such a manner as to permit the production of oil from the Vacuum Pool through one inch tubing and oil from the Vacuum-Seven Rivers Pool through two inch tubing.

- CASE 1365: Application of Cabot Carbon Company for an oil-oil dual completion in the King-Devonian Pool and King-Wolfcamp Pool in Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order authorizing the dual completion of its H. L. Lowe "B" Well No. 1, located 467 feet from the South line and 850 feet from the East line of Section 26, Township 13 South, Range 37 East, Lea County, New Mexico, in such a manner as to permit the production of oil from both the King-Devonian Pool and King-Wolfcamp Pool through parallel strings of $1\frac{1}{2}$ inch tubing.
- CASE 1366: Application of Signal Oil and Gas Company for an oil-gas dual completion in the Skaggs Pool and an undesignated Drinkard gas pool in Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order authorizing the dual completion of its Fred Turner No. 1 Well located 660 feet from the South line and 560 feet from the East line of Section 6, Township 20 South, Range 38 East, Lea County, New Mexico, in such a manner as to permit the production of oil from the Skaggs Pool and gas from an undesignated Drinkard gas pool through parallel strings of tubing.
- CASE 1367: Application of Felmont Oil Corporation for approval of its Etcheverry Unit Agreement in Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order approving its Etcheverry Unit Agreement embracing 1,920 acres, more or less, of State of New Mexico lands consisting of S/2 Section 32, S/2 Section 33, Township 14 South, Range 34 East, and all of Sections 4 and 5, Township 15 South, Range 34 East, Lea County, New Mexico.
- CASE 1368: Application of Ambassador Oil Corporation for an order granting approval of applicant's proposed pilot 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 into 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.

ir/

J. M. HERVEY 1874-1953

HIRAM M. DOW
CLARENCE E. HINKLE
W. E. BONDURANT, JR.
GEORGE H. HUNTER, JR.
HOWARD C. BRAYTON
S. B. CHRISTY, IV
LEWIS C. COX, JR.

PAUL W. EATON, JR.
ROBERT C. E. EDSOE

LAW OFFICES
HERVEY, DOW & HINKLE

HINKLE BUILDING

ROSWELL, NEW MEXICO

June 5, 1958

TELEPHONE MAIN 2-6510
POST OFFICE BOX 547

Oil Conservation Commission
Santa Fe, New Mexico

Gentlemen:

Enclosed herewith please find Transcript in Case No. 1368 dated
January 8, 1958, which we borrowed from you.

Thank you for loaning us this Transcript.

Respectfully,

HERVEY, DOW & HINKLE

By

[Signature]

SBC:mc
Encl.

KEWANEE OIL COMPANY

Post Office Box 1859

MIDLAND, TEXAS 79701

October 24, 1968

Re: Case Files
Square Lake Area
Eddy County, New Mexico

Mrs. Ida Rodriguez
Secretary to Director
Oil Conservation Commission
State of New Mexico
Santa Fe, New Mexico - 87501

Dear Mrs. Rodriguez:

Please find attached the following listed material which you so kindly loaned me for examination.

Case No. 1368 (Ambassador Oil Corporation)

- (1) Application.
- (2) Transcript of Hearing.
- (3) Transcript of Proceedings.
- (4) Exhibits for Hearing on January 7, 1958. ✓
- (5) Exhibits for Hearing on March 19, 1958.

Case No. 3195 (H&M Oil Company, Kincaid & Watson & N. E. Salsich, Jr.)

- (1) Application with attached Exhibits A, B, C, & D. ✓
- (2) Transcript of Hearing dated January 27, 1965.
- (3) Order of The Commission - Order No. R-2871.

Case No. 3148 (Newmont)

- (1) Application with attached Exhibits 1 & 2. ✓
- (2) Transcript of Hearing dated November 24, 1964.
- (3) Order of The Commission - Order No. R-2828.

Case No. 3147 (Newmont)

- (1) Application with attached Exhibits 1 through 5. ✓
- (2) Transcript of Hearing dated November 24, 1964.
- (3) Order of The Commission - Order No. R-2823.

Case No. 2607 (Newmont)

- (1) Application.
- (2) Transcript of Hearing dated July 26, 1962. ✓
- (3) Order of The Commission - Order No. R-1110-D.

Case No. 2299 (Newmont)

- (1) Application.
- (2) Agreement for Cooperative Waterflood dated May 9, 1961. ✓
- (3) Agreement for Cooperative Waterflood dated May 23, 1961.
- (4) Transcript of Hearing dated June 7, 1961.

Your cooperation in this connection is sincerely appreciated.

Yours very truly,

Don Raden

Don Raden,
District Landman

DR/tj
Enc:

EXHIBITS FOR HEARING BEFORE

NEW MEXICO OIL CONSERVATION COMMISSION

EXAMINER'S HEARING

March 19, 1958

AMBASSADOR OIL CORPORATION

Before Examiner *Nutter*
Oil Conservation Commission
App Exhibit Case No. 1368

LIST OF EXHIBITS

1. Tabulation of Engineering Data.
2. Summary of well log data on proposed injection wells, as taken from New Mexico Oil Conservation Commission Well Records and/or United States Geological Survey Well Records.
3. Map of Square Lake Pool showing location of all input wells, location of all oil and gas wells, and names of leases in the general vicinity of the proposed project.

ENGINEERING DATA

Name of formations to be flooded:

Lower Grayburg and Upper San Andres of Permian System.

Average depth to top of zones to be flooded:

Approximately 3160 in pilot area.

Average depth to bottom of zones to be flooded:

Approximately 3400 in pilot area.

Structural Features:

Structure - Stratigraphic trap on an eastward plunging nose.

Gas Cap - None.

Water Drive - None, very little water produced with oil and from a few wells.

Characteristics of Reservoir Fluids:

Gravity of Oil - 34° to 37° API.

Oil undersaturated, high salt content.

Original solution GOR - 250 cu. ft. per bbl.

Original formation pressure - 950 p.s.i.

Primary Producing History:

Discovery date - 1941.

Major development of field - 1945.

Development spacing - Center of 40 acre units.

Type reservoir drive - Solution gas.

State of depletion - Stripper stage with wells, averaging 2 to 4 bbls/well/day.

Cumulative production of injection wells in proposed pilot flood area to January 1, 1957.

A.O.C. Carper Bruning #1K	56,807 bbls.
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A.O.C. Fidel Grier #2I	60,442 "
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A.O.C. Texas Trading Grier #4 K	48,091 "
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" " " #1 M	67,552 "
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" " " State #3 C	20,997 "
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A.O.C. Carper Wheatley #1 O	18,900 "
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Water Source and Treatment:

Source - The Queen Sand (known as the Red Sand) encountered at 2571 to approximately 2610 in test well just completed.

The water has been analyzed and found to be a heavy brine having the following characteristics:

Chlorides	197,000 parts per million		
Calcium	7,120 "	"	"
Magnesium	10,500 "	"	"
Sulfates	750 "	"	"
Iron	24 "	"	"
Carbon Dioxide	68 "	"	"
Total Hardness	61,200 "	"	"
pH	9.5		CaCO ₃

Treatment - The water will be injected in a closed system at the beginning of the project, passing through individual filters at each well. Cement lined pipe is to be used in the distribution system. As the pilot flood progresses, samples will be taken frequently and tested, to see if further treatment of the water is required.

Proposed Pilot Flood Spacing - 80 acre, five spot by conversion
at alternate wells in 40 acre units.

Injection Rates and Pressures:

Estimated injection rate - 500-800 BPD/well.

Estimated injection pressure - Gravity at inception.

WELL RECORD SUMMARY OF PROPOSED WATER INJECTION WELLS
SQUARE LAKE FIELD, EDDY COUNTY, NEW MEXICO

Lease	Well No.	Elev.	Size	Wt.	Depth	Sacks Cement Used	Productive Horizons	Total Depth
AOC - J. N. Pidel-Federal NE/4 SE/4 Sec. 30-T16S-R31E	2	3855.6	5 1/2	14#	3055	100	3135-3151', 3184-3198', 3203-3205', 3265-3270', 3313-3329'	3352
AOC - Carper Drilling Co. - M. S. Bruning-Federal SW/4 NW/4 Sec. 29-T16S-R31E	1	3899.2	5 1/2	14#	3120	100	3180-3200', 3222-3242', 3358-3374', 3380-3402	3400
AOC - Carper Drilling Co. - Federal "D" SE/4 NW/4, Sec. 29-T16S-R31E	1	3924.0						
AOC - Texas Trading Co. - Federal "A" SW/4 SW/4, Sec. 29-T16S-R31E	1	3888.0	5 1/2	15#	3162	100	3218-3228', 3314-3386', 3386-3404',	3450
AOC - Texas Trading Co. - Federal "A" NE/4 SW/4, Sec. 29-T16S-R31E	4	3924.3	5 1/2	14#	3239	100	3250-3258', 3260-3262', 3300-3340', 3436-3452	3470
AOC - Texas Trading Co., State of New Mexico "R", NE/4 NW/4 Sec. 32-T16S-R31E	3	3923.9	5 1/2		3255	100	3270-3285', 3450-3467'	3470
AOC - Carper Drilling Co. R. Wheatley-Federal, SW/4 SE/4 Sec. 29-T16S-R31E	1	3944.0	5 1/2	17#	3156	100	3295-3310', 3350-3385', 3497-3522'	3522
AOC - Vickers Petroleum Co., Federal NE/4 NE/4 Sec. 30-T16S-R31E	2	3864.5	5 1/2	14#	3057	100	3095-3100', 3153-3166', 3208-3211', 3264-3278', 3293-3303'	3316

Lease		Well No.	Elev.	Size	Wt.	Depth	Sacks Cement Used	Productive Horizons	Total Depth
AOC - Vickers Petroleum Co., Federal - SW 1/4 NE 1/4 Sec. 30- T16S-R31E		3	3830.0	5 1/2	14#	3020	100	3075-3080', 3120-3145'	3150
AOC - Vickers Petroleum Co., Federal - Center NE 1/4, Sec. 30-T16S-R31E		7	3843.2	5 1/2	15 1/2#	3075	100	3085-3089', 3095-3099', 3128-3136'	3207
AOC - Vickers Petroleum Co., Federal, SE 1/4 NE 1/4 Sec. 30- T16S-R31E		1	3856.2	5 1/2	14#	3100	100	3105-3130', 3132-3190', 3290-3311'	3320

[illegible]

LC 060544 CARPER		LC 060544 CARPER	
21 LC 063064 LC 060544 LC 063064 CARPER		22	
016803 U.S.		U.S.	
063105 KENNEDY 060548	063105 LC 056302		
28 LC 056302 THOMAS SUPPES - KENNEDY		27 THOMAS 063105 OF FEATHERSTONE 060476 U.S.	
063368 AOC 5546 AOC - TEXAS TR. BATTERY	060548 SUPPES - KENNEDY	063368 AOC 5546 AOC - TEXAS TR. BATTERY	LC 056302 SUPPES - KENNEDY
JOHNSON	AOC - TEXAS TR.	AOC - TEXAS TR.	AOC - CARPER AOC 5634
SUPPES - KENNEDY	063368 AOC 5546	SUPPES - KENNEDY	AOC - CARPER AOC 5540

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- PROPOSED INPUT WELLS
- ▲ WATER SUPPLY WELLS
- ABANDONED WELLS

AMBASSADOR OIL CORPORATION
PROPOSED WATER-FLOOD PROJECT N° 28
EDDY COUNTY, NEW MEXICO

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EXHIBITS FOR HEARING BEFORE
NEW MEXICO OIL CONSERVATION COMMISSION
EXAMINER HEARING
January 7, 1958

Docket No. 38-57
Case 1368

AMBASSADOR OIL CORPORATION

PILOT WATER FLOOD
SQUARE LAKE POOL

Eddy County New Mexico

BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
App
CASE 1368

LIST OF EXHIBITS

1. Map showing location of all input wells, location of all oil and gas wells, and names of leases in the general vicinity of the proposed project.
 2. Tabulation of Engineering data.
 3. Summary of well log data on proposed injection wells, as taken from New Mexico Oil Conservation Commission Well Records and/or United States Geological Survey Well Records.
- C

ENGINEERING DATA

Name of formations to be flooded:

Lower Grayburg and upper San Andres of Permian System.

Average depth to top of zones to be flooded:

Approximately 3160 in pilot area.

Average depth to bottom of zones to be flooded:

Approximately 3400 in pilot area.

Structural Features:

Structure - Stratigraphic Trap on an eastward plunging nose.

Gas Cap - None

Water Drive - None, very little water produced with oil and from a few wells.

Characteristics of Reservoir Fluids:

Gravity of Oil - 34° to 37° API.

Oil undersaturated, high salt content.

Original solution GOR - 250 cu. ft. per bbl.

Original formation pressure - 950 p.s.i.

Primary Producing History:

Discovery date - 1941

Major Development of Field - 1945

Development Spacing - Center of 40 acre units.

Type reservoir drive - Solution gas.

State of depletion - Stripper stage with wells, averaging 2 to 4 bbls/well/day.

Cumulative production of injection wells in proposed pilot flood area to January 1, 1957.

A.O.C. Carper Bluning #1 E	56,807 bbls.
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A.O.C. Fidel Grier #2 I	50,442 "
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A.O.C. Texas Trading Grier #4 K	48,091 "
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" " " #1 M	57,852 "
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" " " State #3 C	20,997 "
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A.O.C. Carper Wheatley #1 O	18,900 "
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Water Source and Treatment:

Source - The Queen Sand (known as the Red Sand) encountered at 2571 to approximately 2610 in test well just completed.

The water has been analyzed and found to be a heavy brine having the following characteristics:

Chlorides	197,000 parts per million	
Calcium	7,120 "	" "
Magnesium	10,500 "	" "
Sulfates	750 "	" "
Iron	24 "	" "
Carbon Dioxide	68 "	" "
Total Hardness	61,200 "	" " CaCO ₃
pH	6.5	

Treatment - The water will be injected in a closed system at the beginning of the project, passing through individual filters at each well. Cement lined pipe is to be used in the distribution system. As the pilot flood progresses, samples will be taken frequently and tested, to see if further treatment of the water is required.

Proposed Pilot Flood Spacing - 80 acre, five spot by conversion
at alternate wells in 40 acre units.

Injection Rates and Pressures:

Estimated injection rate - 500-800 BPD/WELL

Estimated injection pressure - GRAVITY AT INCEPTION

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WELL RECORD SUMMARY OF PROPOSED WATER INJECTION WELLS
SQUARE LAKE FIELD, EDDY COUNTY, NEW MEXICO

LEASE	DESCRIPTION	WELL NUMBER	ELEVATION	CASING SIZE	WEIGHT	DEPTH	SACKS CEMENT USED
A.O.C. Fidel-Grier	NE1SE1 Sec 30 T16S R31E	2 ✓	3855.6	5 1/2	14 1/2	3055	100
A.O.C. Carpenter	Bruning SW1NE1 Sec 29 T16S R31E	1 ✓	3809.2	5 1/2	14 1/2	3120	100
A.O.C. Texas Trading-Grier	SW1SE1 Sec 29 T16S R31E	1 ✓	3862.0	5 1/2	15 1/2	3152	100
A.O.C. Texas Trading-Grier	NE1SW1 Sec 29 T16S R31E	4 ✓	3924.3	5 1/2	14 1/2	3239	100
A.O.C. Texas Trading-State	NE1NW1 Sec 32 T16S R31E	3 ✓	3923.9	5 1/2		3255	100
A.O.C. Carpenter	Wheatley SW1SE1 Sec 29 T16S R31E	1	3944.0	5 1/2	17 1/2	3150	100

(Continued)

WELL	PRODUCTIVE HORIZONS										TOTAL DEPTH
	TOP	BOTTOM	TOP	BOTTOM	TOP	BOTTOM	TOP	BOTTOM	TOP	BOTTOM	
2	3135	3151	3164	3198	3203	3206	3265	3270	3313	3329	3352
1	3180	3200	3222	3248	3358	3374	3380	3402			3454
1	3218	3228	3314	3386	3386	3404					3456
4	3250	3258	3260	3262	3300	3340	3436	3452			3474
3	3270	3285	3450	3467							3470
1	3295	3310	3350	3365	3497	3522					3522

R-31E

VICKERS PET CO. LC 029431			
19 CARPER		HIGHTOWER LC 06392	20 LC 060544 CORPER
LC 060927 WESTERN OIL U.S.	LC 029431 A.O.C. - VICKERS 5610 FEDERAL	BREWER LC 029437	CARPER
H. J. LOE 07781	LC 029431 A.O.C. - VICKERS 5610 AOC 5610 FEDERAL	LC 029437 BREWER	J.N. FIDEL LC 060971
30 WESTERN OIL Flds LC 068064 U.S.		LC 060543 A.O.C. - CARPER AOC 5697 BRUNING	LC 060544 A.O.C. - CARPER AOC 5705 EVARTS
A.O.C. - FIDEL LC 060971 AOC 5645 Grier FEDERAL		A.O.C. - TEXAS TRAD. AOC 5547 WSW Grier FEDERAL	29 016803 AOC 5717 A.O.C. - CARPER A.O.C. - CARPER AOC 5698 WHEATLEY U.S.
WESTERN OIL Flds LC 068064		A.O.C. - TEXAS TRAD. B-2721-2 AOC 5545 "R"	SO PET EXP B-2721-2
T.C.O. 060927 VAN WELCH	31 016803 A.O.C. - CARPER 55	32 SOUTHERN PET. EXP B-2721-2 HBP	E-7638 DEWATER

R-31E

VICKER LC 029431			
19		20	
CARPER	HIGHTOWER LC 063927	LC 060544	LC 068064
		CORPER	
LC 060927	LC 029431 A.O.C. - VICKERS 5610	BREWER LC 029437	CARPER
WESTERN OIL U.S.	FEDERAL	U.S.	
	LC 029431 A.O.C. - VICKERS 5610 AOC 5610 FEDERAL	LC 029437 BREWER	J.N. FIDEL LC 060971
H.J. LOE 07781		LC 060543 A.O.C. - CARPER AOC 5697 BRUNING	LC 060544 A.O.C. - CARPER AOC 5705 EVARTS
	30		29
WESTERN OIL FLOS	A.O.C. - FIDEL LC 068064 LC 060971 AOC 5645 Grier FEDERAL	A.O.C. - TEXAS TRAD. AOC 5547 WSW #1 Grier FEDERAL	016803 AOC 5717 A.O.C. - CARPER A.O.C. - CARPER AOC 5698 WHEATLEY
			061203 A.O.C. - CARPER AOC 5705 016803 AOC 5717 A.O.C. - CARPER
WESTERN OIL FLOS LC 068064		A.O.C. - TEXAS TRAD. B-2721-2 AOC 5545 "R"	SO PET EXP. B-2721-2
LC 060970 VAN WELCH	016803 A.O.C. - CARPER 5	SOUTHERN PET. EXP. B-2721-2 HBP	E-7638 WATER
LC 065885			

LC 060544 CARPER		LC 060544 CARPER	
21 LC 068064 LC 060544 CARPER		22	
016803 U.S.		U.S.	
063105 4	KENNEDY 060548	063105 3	LC 056302
28 LC 056302 4 SUPPES - KENNEDY		LC 056302 THOMAS 063105 2 SUPPES - KENNEDY	27 O.F. FEATHERSTONE 2 2 060476 1 U.S.
063368 AOC 5546 A.O.C - TEXAS TR. BATTERY JOHNSON	060548 SUPPES - KENNEDY	063368 AOC 5546 A.O.C - TEXAS TR. BATTERY JOHNSON	LC 056302 4 SUPPES - KENNEDY
33 LC 056302 SUPPES - KENNEDY		LC 056302 A.O.C - TEXAS TR. AOC 5546 063368 BATTERY	063561 4 A.O.C - CARPER AOC 5694 3
34 AOC - CARPER AOC 5546		34 SUPPES - KENNEDY AOC 5546	
U.S.		U.S.	

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- PROPOSED INFILTRATION WELLS
- WATER SUPPLY WELLS
- ABANDONED WELLS

AMBASSADOR OIL CORPORATION
PROPOSED WATER-FLOOD PROJECT N° 28
EDDY COUNTY, NEW MEXICO

0 12 12 12

Case 11-122: Hearing upon motion of CCC, at
request of Atlantic Refining Co., to amend
the Rules & Regulations.



No. 2-152C