

CASE 2955: Application of AMBASSADOR
OIL CORP. for approval of an existing
Langlie Mattix Waterflood Project.

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CASE No.
2955

Application,
TRANSCRIPTS,
SMALL Exhibits
ETC.

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

EXAMINER HEARING

IN THE MATTER OF:

Application of Ambassador Oil Corporation for
a unit agreement, Lea County, New Mexico.

Case No. 2954

Application of Ambassador Oil Corporation for
a waterflood project, Lea County, New Mexico.

Case No. 2955

BEFORE: Elvis A. Utz, Examiner.

TRANSCRIPT OF HEARING

December 4, 1963.

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MR. UTZ: 2954.

MR. DURRETT: Application of Ambassador Oil Corporation for a unit agreement, Lea County, New Mexico.

MR. JENNINGS: Mr. Examiner, I'm Jim Jennings, appearing for Ambassador Oil Corporation. This was filed as one application, shall we combine them, or how would you prefer that we handle it?

MR. UTZ: I think it would be in order to consolidate for the purposes of testimony. Will you have the same witness on both cases?

MR. JENNINGS: We have one witness.

MR. DURRETT: We'll write separate orders.

(Witness sworn.)

MR. JENNINGS: Mr. Examiner, we have several exhibits here, if you would mark this first one as Exhibit A, and we're fouled up because we have several Exhibits A, if you will make this 2954 Exhibit A.

(Whereupon, Applicant's Exhibit 2954-A was marked for identification.)

MR. BRATTON: Howard Bratton on behalf of Humble Oil and Refining Company.

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



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MR. JENNINGS: We have four more exhibits. They're 2955-A, which is a map showing wells within a two-mile radius from the proposed injection well, No. 2955-B, which is a stage development plan, 2955-C, which is a map showing the outlines of the unit boundary, and 2955-D, which is an injection well casing program.

(Whereupon, Applicant's Exhibits 2955-A, B, C & D were marked for identification.)

MR. JENNINGS: I have one other preliminary remark. We have heretofore furnished the Commission with a copy of the proposed unit agreement and unit operating agreement, and if you would like to have one of these submitted as an exhibit we can, we have additional copies, but we did attach one with our application.

MR. UTZ: I don't see why we can't mark one of these as an official exhibit.

MR. JENNINGS: I think that is in two sections. One is a unit agreement and one a unit operating agreement.

MR. NUTTER: These will be Case 2954 and do you want them marked as Exhibits B and C?

MR. JENNINGS: That will be fine.

MR. NUTTER: The unit agreement is B and the operating agreement, Exhibit C in 2954.



(Whereupon, Applicant's Exhibits 2954-B and C were marked for identification.)

E. A. RILEY

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

DIRECT EXAMINATION

BY MR. JENNINGS:

Q Would you state your name and occupation, please?

A E. A. Riley, Assistant Vice President in charge of Secondary Recovery with Ambassador Oil Corporation.

Q Mr. Riley, have you appeared before and testified before this Commission many times?

A Yes, I have.

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

MR. UTZ: Yes, sir, they are.

Q Mr. Riley, would you describe the formation to be covered by your proposed unit and the unit area covered?

A Yes. The productive zone proposed in this unitization application is the Langlie-Mattix zone and is defined as the lower 100 feet of the Seven Rivers and all of the Queen formation known locally as the Penrose sand throughout the unit area. The sand occurs in multiple stringers or lenses within a dense

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dolomitic limestone with an overall gross thickness of 369 feet in Sinclair Oil and Gas Company's A. L. Christmas No. 3.

Q What lands generally does this unit cover, and how many acres?

A The proposed unit comprising 3920 acres more or less is contained in all or portions of Sections 14, 20, 21, 22, 23, 26, 27, 28, 29, 32, 33 and 34, Township 22 South, Range 37 East of Lea County, New Mexico.

Total of three tracts containing 280 acres or approximately 7 percent are federal lands, eight tracts containing 680 acres or approximately 18 percent are state land and 32 tracts containing 2920 acres, or approximately 75 percent are patented fee lands.

Q I hand you what has been marked as Exhibit A of 2954 and ask you to identify that.

A Exhibit A is a map showing the unit boundaries indicated by the hashed lines surrounding the unit area and upon this map we have identified the three types of tracts, state, federal, fee by a color code. The state tracts being colored green, the federal tracts red and the fee tracts white.

Q Who is the unit operator?

A Ambassador Oil Corporation is the proposed unit operator.

Q Is the unit agreement in substantially the form that has been approved by the Commissioner of Public Lands of the State



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of New Mexico, the Director of the United States Geological Survey and this Commission?

A Yes, it is.

Q Has this unit been submitted to the Commissioner of Public Lands and the Director of the United States Geological Survey for tentative approval?

A Yes, it has.

Q Have you been notified of any action on behalf of either of these organizations?

A The Commissioner of Public Lands approved the unit as to form and content in this letter addressed to Ambassador, letter dated September 21, 1962, the Department of Interior approved the unit agreement and designated the area as one logical for unitization in their letter to Ambassador dated February 4, 1963.

Q Do you have copies of those letters?

A I have copies of these letters.

MR. JENNINGS: We would like to offer these letters and we have them in duplicate.

(Whereupon, Applicant's Exhibits Nos. D and E were marked for identification.)

MR. NUTTER: The letter from the United States Geological Survey is Exhibit B, the letter from the Commissioner of Public



Lands is Exhibit A.

Q (By Mr. Jennings) Mr. Riley, what percentage participation do you have of the working interest owners of this unit agreement?

A One hundred percent of the working interest owners in the unit area have approved the unit agreement with the exception of three tracts, Tracts 3, 4 and 38, which will not join the unit until after the unit effective date, and plan to petition the unit for subsequent joinder under a negotiation basis.

MR. UTZ: 3, 4 and 38?

A 3, 4 and 38. Approximately 55 percent of the royalty interest, I should modify that to say 55 percent of the tracts have been qualified by the signature of royalty interest, 20 percent have qualified their tracts verbally. Those tracts having percentages from six to eight percent of the 12½ percent common royalty already signed, and the remainder necessary to qualify the tracts by the terms of the document have verbally agreed to execute their ratification and forward them. 25 percent of the tracts are partially qualified and we anticipate their qualification within the next month.

Q Mr. Riley, in your opinion will the unit lead to a more efficient and orderly development and operation of the existing waterflood being carried on in the area?

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A Yes, it will.

Q Is it necessary to allow you to completely develop your waterflood project?

A Yes, it is.

Q Will the unit promote conservation of oil and gas and prevent waste?

A Yes, it should.

Q What is the proposed effective date of the unit?

A The proposed effective date of the unit will be upon the completion of three stages. Following tract qualification by the terms of the document, we will then submit copies of those ratifications, both working interest and royalty interest, to the State Land Commission for their certification, and also copies to the Department of Interior for their certification.

Following receipt of those certifications, the documents will have to be filed in the county of record and certificate of unitization filed with the County Clerk; at that time the unit will be effective.

In the documents the term within which the unit must be formed is stipulated as January 1, 1964. We are in the process of amending this with the working interest owners to extend this period to June 1, '64.



Q Within thirty days after the effective date of the unit will you file an executed copy or counterpart thereof of the unit agreement with the Commission?

A Yes, we will.

Q The unit agreement provides for subsequent joinder of other parties?

A Yes, it does.

MR. JENNINGS: If it please the Commission, that's all we have to offer on the unit. We can proceed, or if there's anything at this time that we should refer to on this. I don't know how you prefer to handle it.

MR. UTZ: Let's cross examine the witness, if there is any in regards to the unit, and then proceed to the project. Are there questions? Mr. Nutter.

CROSS EXAMINATION

BY MR. NUTTER:

Q You stated that the unitized zone was the Langlie-Mattix zone, defined as--

A Yes.

Q Then you went and defined it as that defined in the unit agreement?

A Yes.

Q As being the lower hundred feet of the Seven Rivers and



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the Queen?

A That's verbatim from the document.

Q You said you had 100 percent of the working interest except the three tracts?

A That is correct.

Q Have they stated in writing that this was the procedure that they would follow to come into the unit?

A They have notified us in writing, that is correct.

Q They do plan to join but on the subsequent joinder basis.

A Under the negotiation terms it will not be under the participation formula that is now in effect.

Q You also stated that 55 percent of the tracts have been approved insofar as the royalty interest was concerned, is that 55 percent of the acreage or of the tracts?

A Of the tracts by county.

Q Are you counting the state and federal tracts as being committed because you have tentative approval?

A Yes, I am.

Q Acreagewise what percent of the acreage has been committed?

A I don't have that, Mr. Nutter. I might, with a little bit of surveying here, be able to give you the number. Since



they qualify by tracts and not by acreage, I did not summarize that in that fashion. I could report later to you on that.

Q Would it be easier to run down the tracts that have or haven't?

A Yes, I certainly can. Those that I qualified as 55 percent qualified will be Tract 5-A, 5-B, 7, 9, 11, 13-L, 13-C, 13-D, 14, 15, 16, 19, 20, 21, 29, 30, 31, 34, 35, 36 and 37.

Q Those are the ones that have committed?

A That is correct.

MR. NUTTER: Thank you, that's all.

MR. UTZ: Any other questions? You may proceed to the waterflood project.

A We also have for submission, or offer to submit to the Commission the proposed plan of waterflood operations. It's a brief outline and engineering report that was submitted to the United States Geological Survey that might be of aid to them in studying this unit. It gives the engineering, geological data and such as that in a summary fashion.

MR. UTZ: I'm sure we would like to have it.

Q (By Mr. Jennings) Was this prepared by you, Mr. Riley?

A Yes, this was prepared by me.

MR. JENKINGS: We would like to offer Exhibit 2954-F, which is a proposed, it is designated proposed waterflood Langlie-

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Mattix L. Moore Sand Unit, Lea County, New Mexico.

MR. UTZ: Exhibit F to Case 2951 will be accepted in the record.

(Whereupon, Applicant's Exhibit 2954-F was marked, offered and admitted in evidence.)

REDIRECT EXAMINATION

BY MR. JENNINGS:

Q Mr. Riley, is part of the land embraced in the unit now in a waterflood project?

A Yes, it is.

Q I hand you here what has been marked as Exhibit 2955-A and ask you to identify that.

A Exhibit 2955-A is a map showing wells in a two-mile radius from the proposed injection wells with the current injections wells encircled in green and the proposed injection wells encircled in red. Also shown with red outline is the proposed unit boundary.

MR. UTZ: Two-mile radius with the exception to the south?

A To the south, that is correct.

Q Would you identify the injection wells in which the water is presently being injected by you?

A Would you want me to identify those by their current

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Q Now, what are the wells?

A I think it would be better to identify them by well number and location.

MR. TEL: Is that set out in your application?

MR. JENNINGS: Yes, sir. I would like to call the attention of the Examiner to one misstatement in the application, Well No. 21-7 is stated that the applicant is injecting water in that, and I believe that is not correct. That is being injected by Humble.

A The current injection wells consist of what is identified in the application as Well 36-1, which is in the Northwest of the Northeast of Section 34, and 37-1, which is in the Northwest of the Southeast of Section 34. Those wells are currently owned and operated by Ambassador Oil Corporation. The other well Mr. Jennings mentioned is what has been identified as Well 21-7 in the Southeast of the Northwest of Section 34, which is Humble's State "H" No. 7 well.

Q Is there any water being injected in any other wells in the immediate vicinity?

A Outside the unit limits, Skelly Oil Company is injecting water into their H. O. Simms Well No. 3 in the Southeast of the Southwest of Section 34, and H. O. Simms No. 9 in the Northwest of the Southwest of Section 34.

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Q Could you give the location of the wells and the description thereof which you plan to inject water?

A We propose to expand the present pilot operation to include injecting water into wells identified as 19-1, which is in the Northwest of the Southeast of Section 27; 19-2 in the Southeast of the Southeast, Section 27; 21-2, which is in the Southeast of the Southwest of Section 27; 21-3, which is in the Northwest of the Northwest of Section 34, and 35-2, which is in the Southeast of the Northeast, Section 33.

Q Mr. Riley, I hand you what has been marked as Exhibits 2955-B, C and D, and ask you to identify these, if you will. Tell what they are.

A Exhibit 2955-B is a map showing the stage development that is being proposed in this application, with Stage 1 being the wells just mentioned. The normal development would be on a conventional five-spot emanating in a northwesterly direction from the current injection pattern. These stages would be placed on injection when they met the Commission requirements as stipulated in Rule 701. The stages run from Stage 1 through Stage 6.

Exhibit 2955-C is a unit boundary map which is a small version of the larger map that we have previously presented. It shows the unit boundaries enclosed in the hashed line.

Exhibit 2955-D is a schematic showing the injection well



casing program with the surface casing intermediate string, second intermediate string in some wells, a third intermediate string in other wells, and a production string in all wells showing the amount of pipe, the size of pipe set, the amount of cement used in setting that particular string of pipe, and in two cases two liners in Wells 21-2 and 21-3 that were set attached to the main production string.

Q Mr. Riley, could you state briefly your plan of operation in connection with this unit, the waterflood?

A Well, following effective unit formation, we propose to convert the aforementioned five injection wells to water injection status and conduct the pilot in conjunction with the current pilot program until the response is indicated, and sufficient response is indicated in enough wells to meet the Commission's Rule 701, and the pilot will then be expanded in an orderly fashion therefrom with each succeeding row of wells qualifying for conversion.

Q What is the state of the production from the wells located within the unit?

A Most of the wells in the area of the current pilot are in the low stage of oil production at this time and are essentially in the late flood life stage.

Q Definitely stripper wells?



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A Definitely.

Q Has the pilot flood indicated the feasibility of water-flooding the Punrose sand?

A Yes, it has, to date there has been an approximate cumulative secondary recovery due to water injection of 160,000 barrels recovered from the acreage owned by Humble, Ambassador and Skelly.

Q Has the pilot flood indicated that flooding will result in an ultimate recovery of oil and prevent waste?

A Yes, it has.

Q What type of water do you plan to use?

A We're currently using water from the Santa Rosa formation which occurs at approximately 700 to 750 feet, and that is our first prime target for future water supply. If we're unable to get an adequate supply from that, we plan to try to secure water from the San Andres within the unit area or a reef water to the west of the unit area some five to six miles. However, we do feel that the Santa Rosa will be sufficiently productive to supply the water. This water is a slightly brackish water that has so far been very satisfactory for injection purposes.

Q Have you furnished the State Engineer of the State of New Mexico with data concerning the wells and the manner in which the water is to be injected?



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A Yes, we have.

Q How is the water to be injected?

A It will be injected through tubing under packer in each injection well by use of a triplex.

Q Generally what is the casing program on these wells, or do you know?

A Well, the casing program has been shown on a previous exhibit, 2955-D.

Q When were the wells drilled?

A These wells were drilled, the discovery well was drilled in 1936 and subsequent development history is carried in the exhibit previously submitted, which is 2954.

MR. JENNINGS: Mr. Examiner, has the State Engineer indicated that he has no objection to this?

MR. UTZ: The State Engineer has offered a letter, which I understand is favorable. Do you care to see the letter?

MR. JENNINGS: No.

MR. UTZ: "Enclosed copy of a letter from Ambassador Oil Corporation dated November 26, 1963 states that water injection will be through tubing and under packer in the five proposed injection wells. Therefore, this office offers no objection to the granting of this application."

MR. JENNINGS: I would like to have that marked and offered.



(Whereupon, Applicant's Exhibit 2955-B was marked for identification.)

MR. NUTTER: Was it your intent that this report would be in the unit case or the waterflood case?

A I think it should properly be in the unit case, Mr. Nutter.

MR. NUTTER: In the unit case. We identified that as F in 1954?

MR. JENNINGS: That's correct.

MR. NUTTER: I believe this will be F in the waterflood case.

MR. UTZ: The last one I have is D.

MR. NUTTER: This will be E, the letter from the State Engineer, 2955?

MR. JENNINGS: Yes.

Q (By Mr. Jennings) Mr. Riley, is this area adjacent to any areas which are now being flooded?

A Yes. Humble Oil and Refining has recently applied for, I'm not positive that it has been approved or is in operation, but should be shortly, for a unit adjoining it to the west. Also Skelly Oil Company has announced plans to cooperatively waterflood along the southern unit boundary line on the H. O. Simms lease. There are also other waterfloods operating further to the

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south and I think one of them is the Woolworth Unit, and possibly there are others.

MR. UEL: These later ones are considerably to the south, aren't they?

A Considerably to the south, that is correct.

Q Is the waterflood operation being carried on at this time in the South Half of Section 33 and Southwest Quarter of Section 34, Township 24 South, Range 37 East?

A Would you repeat the first part of that?

Q The South Half of Section 33.

A Response has been felt in the South Half of Section 33 from injection wells located to the east and South Half of Section 34. Presently waterflood operations are being conducted in all of Section 34.

Q Is there a waterflood operation also being conducted in the section immediately south there in Sections 3 and 4?

A No, they are not to my knowledge.

Q Has there ever been one, or do you know?

A None to my knowledge. I might point out at this point that the original application on the Ambassador acreage, as far as the waterflood, was entered under a different company. We have acquired the properties subsequent to that time. The original waterflood application was under the name of Gulf Coast Western.

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Q When was that?

A That was in 1956, I think.

Q Was that in Case No. 993?

A I think that's right.

Q Order R-772?

A No, I think there's an earlier application to that. I think it's Order R-179-A.

MR. UTZ: I believe that's correct. However, there were three applicants, Skelly, Gulf Coast and Humble.

A That's correct. According to my records that is correct.

Q Then this waterflood is in the extension of an existing flood heretofore authorized by the Commission?

A Yes, it is. Also I might should point out, Mr. Jennings, at this point, that the Order R-772 was an application by Humble Oil and Refining and Gulf Coast Western to expand the current pilot program to a portion of the area that we're now applying for. That expansion was never completed and the wells are described in Order R-772.

MR. UTZ: Those four wells in that particular order were never converted to injection wells?

A That is correct.

Q (By Mr. Jennings) These are some of the wells that you



now propose to convert?

A Three of the wells are, the exceptions, Gulf Coast F. Glier No. 3, it is not in the present application.

MR. UTZ: That's the well in the Northwest, Northeast of 33?

A Northwest of the Northeast of Section 33, correct.

Q Do you know, Mr. Riley, if this flood was established prior to the effective date of Rule 701-E?

A Yes, it was.

MR. JENNINGS: Could you supply that date?

MR. BRATTON: November 9, 1959.

MR. DURRETT: Mr. Bratton says it's November 9, 1959.

Q (By Mr. Jennings) Do you know what allowable was established for the wells immediately south of the present flood, or immediately south and adjoining this unit?

A In Order R-179-B, Skelly Oil Company received permission to produce from their H. O. Simms lease, I quote, "The allowable assigned to the above-described H. O. Simms lease in the Penrose-Skelly Pool, now known as the Langlie-Mattix Pool, may be produced from any well or wells on said lease, and any proportion, provided that no individual well shall be produced in excess of six times top unit allowable for the pool." That is the only exception that has been granted to this.

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MR. WIT: That area, however, is outside your unit area?

A It is immediately adjacent and part of the present pilot operation.

Q Is the present pilot operation within the boundaries of the unit?

A A portion of it. Yes, four of the six injection wells are within the unit area.

Q Do you feel that you can conduct your flood operations efficiently in accordance with the provisions of this existing order which you just mentioned which was the Skelly order?

A I think we can.

Q You have asked that you be granted a capacity allowable?

A Yes.

Q Is there a capacity allowable in any of the adjacent floods to your knowledge?

A No, there are not.

Q This is the only --

A This is the only exception to the allowable that I know of.

Q Do you have anything further that you wish to add, Mr. Riley?

A No, I believe that concludes my testimony.



Q Were the exhibits offered other than the unit agreements all prepared by you or under your direction?

A Yes, sir, they were.

MR. JENNINGS: We would like to offer Exhibits 2954-A through F and 2955-A through E at this time.

MR. UTZ: Without objection the Exhibits 2954 A through F and 2955-A through E will be introduced in the record of these cases.

MR. JENNINGS: We have nothing further.

MR. UTZ: Are there questions of the witness? Mr. Nutter.

RECROSS EXAMINATION

BY MR. NUTTER:

Q Mr. Riley, you gave us a casing program on the five wells which you are proposing to convert to injection under this application. Is that casing program typical of most of the wells in this unit area?

A To the best of my knowledge, yes.

Q You stated that injection in all of these five wells would be through tubing under a packer?

A That's correct.

Q Would that be your intent for the remainder of the injection wells in the unit?



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A There is a possibility, Mr. Hutton, that we will have to set liners through the pay zone and inject through perforations under packer through the tubing. This will have to be ascertained by actual operations.

Q Some of these wells actually do have liners?

A Some of them do.

Q And some of them are evidently going to be completed open hole for injection?

A Yes.

Q They have been producing open hole and they will be left that way?

A Yes.

Q Is it your intent to do anything with the annulus between the tubing and the casing there, fill it with any kind --

A We customarily load the annulus under such an operation with an inhibited fluid.

Q You wouldn't have any objection to the order of the Commission requiring a non-corrosive fluid in the annulus over the packer?

A I don't think we would, no.

Q You said that your secondary recovery in this area has yielded approximately 160,000 barrels, I believe?

A That is correct.



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Q When was water injection first commenced here?

A In 1956, to the best of my knowledge. I point out that we were not the operator at that time and it is my understanding that only five of the six wells were only actually initiated at that time with the sixth one being initiated some eight to nine months thereafter.

Q Looking up these orders a while back I came across orders that authorized some of these wells for water injection. I failed to find an order for one of them here.

A I think we found the same thing.

Q Would that be for the T. O. May No. 4 well?

A Yes.

Q You don't know under what authority it was ever put on injection?

A No, it was currently under injection when we acquired the properties.

Q Would you like an order to come out of this order to include that well?

A If there is none such we certainly would.

Q We couldn't find any just like you couldn't. Disregarding the Skelly flood to the south of Section 34, but including it in consideration here of this six-well pilot that we've got, we have two injection wells on Shelly Sims lease, the No. 6 and 9.



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PAGE 26

We have three Ambassador injection wells, the May 1 and 4, and the Marble State 1, we have one Marble well, the H. O. Could you give me the production history of the two wells that are included in those two five-spot patterns there, being the T. O. May No. 3, the H. O. Simms No. 6?

A The H. O. Simms 6 has been by far the outstanding well and has recovered in excess of 90,000 barrels of waterflood oil. The T. O. May 3, I'm referring to my memory now, has not responded I know nearly as well, but it has recovered somewhere in the range of 20,000 barrels of secondary oil. The best well on that side has been the T. O. May 5 which has recovered 40,000 barrels. It is still the best well in the area and producing somewhere in the area of 16 barrels a day.

Q At the present time?

A Yes.

Q Do you know what the peak rate of production for any of these wells was after the water injection was started?

A I don't recall that. I think it was inadvertently omitted from the exhibit, we indicated it was in that proposed plan of waterflood operation. We do have the curves. To the best of my knowledge somewhere in the range of 90 to 100 barrels a day on the H. O. Simms six.

Q Not only has it recovered more cumulative secondary



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recovery oil, but it also had the high daily rate of production.

A That is correct. I will point out, however, that the injection was quite intermittent through a great portion of the flood due to corrosive problems with water. Huddle is using a very corrosive water, and so is Chalky. They are not using the Santa Rosa water. They had considerable trouble along with Gulf Coast Western keeping it continuous, so possibly the 100 to 200 barrels a day peak rate is not a good criterion for a properly-conducted waterflood because we have been injecting in the injection wells since we acquired at the rate of three to four hundred barrels a day.

Q What is your anticipated rate of injection into the five wells that you are requesting?

A Probably 400 barrels a day.

Q Four Hundred. Would that be until you get fill-up or would that be your rate of injection throughout the rate of the flood?

A *philosophy*
No, our operational flood consists of injecting in rates just below breakdown pressure and so we can maintain maximum vertical sweep first. So we might exceed 400 barrels.

Q In other words, your philosophy calls for the three to four hundred during fill-up and afterwards?

A That is correct.



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Q Have you computed what the allowable for this area would be for this area in your unit if you were operating under a project allowable computed by Rule 701?

A No, I haven't. But I think we could readily see what it would be. I did point out that the plans are to stage develop and they themselves would dictate what allowable you would be operating under, would they not? Under our impression you have a certain number of well counts that you have to count in in an affected area, and because of this we have not calculated this. There will be 91 wells in the unit area, some undrilled locations being drilled during subsequent development, so there will be approximately 100 wells in the unit when the total development is consummated.

Q On total development?

A Right.

Q You haven't actually figured out what the project allowable would be? You would have nine injection wells on your unit with the approval of these additional five?

A Five and four is nine, right.

Q Mr. Riley, do you know if there are any 40-acre tracts in this area that have more than one well on them except the northeast?

A The T. C. May lease.



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Q The Northeast of Section 37 there?

A T. O. May is the only one to my knowledge. Some of the wells might be off normal location, but basically the rest of them are one well to 40.

Q You are acquainted with the provisions, the allowable provisions of Rule 701 of the Commission rules and regulations, aren't you, in the determination of project areas?

A I think so, yes.

Q I hand you Exhibit A in Case 2954 where I have outlined the project area, being the direct and diagonal offsets to the nine injection wells. Would I be correct in saying there are approximately 30 - 40-acre tracts in that project area?

A I think you would be. I think you counted them, I did not check your counting but I would accept it.

Q If 30 would be the correct figure, and there would be one tract with two wells on it, would the project allowable be approximately 1274 barrels?

A That's my understanding of the method used in 701, yes.

Q In the experience that Ambassador has had operating the flood that Great Western and Gulf Coast Western previously operated, and taking into consideration the previous performance of all of the wells in this area, can you foresee any operating difficulties resulting from operating a project under an allowable here of



1274 barrels? If so, why?

A I point out that the entire pilot area, with the exception of Humble's well, has been basically up until we acquired the property in the open hole. There's a very severe theiving zone above the pay zone some 50 to 60 feet that a great portion of the water was conducted across through this thief zone and resulted in premature water breakthrough, and in many cases nothing but water production in the offset wells. Consequently, we feel that only a portion of the water went into the formation main pay zone and waterlogged the formation.

We think that since then we have attempted some remedial measures to this, but we haven't been too successful, and because of this I don't think the past history is too indicative of the production response to any given injection rate.

Consequently, I couldn't very well answer your question, I don't think, unless I knew how the reservoir was going to perform under a properly conducted waterflood.

Q I noticed you ^{expected to} obtained five million barrels of secondary recovery in here.

A That's correct.

Q This is taking into account a more efficient flooding operation than has been obtained to date?

A Yes.

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Q As far as you know, is this area of the Langlie-Hatten substantially different than other portions of the Langlie-Hatten area for other flood operations that have been organized and under way?

A I am not familiar with the other areas, but I have heard quoted that the Penrose is a solid body in the area to the south, whereas in this area of the Langlie-Hatten the Penrose is basically three stringers in an overall gross section of 200 feet.

Q There has been a flood authorized to the north of this also. Do you know if that flood is in operation?

A I think that one has been terminated and was conducted in the Grayburg formation. It's some two and a half miles to the north.

Q It's not in operation at the present time?

A It's not in operation.

Q I see. Has there been any response to date from either this area with its four injection wells on the unit or the Skelly lease to the south where the response has been so vigorous as to be difficult to produce under the provisions of Rule 701 with a project allowable?

A The only example I could cite would be the H. O. Simms 6 which would be somewhat in excess considering that every other location is an injection well, so each producing well would then have an allowable of twice 42, or 84, would be in excess of this.



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Q That well made approximately 100 barrels at its maximum rate?

A Yes, as I recollect.

Q Do you know what Sholly's rate of injection was when they were able to inject?

A We have reasoned that the response in that well basically was the result of the proper injection into Humble's State "H" No. 7, which was a well that had the pipe set through. In that well they have averaged some 300 barrels a day to the best of my knowledge.

Q So you attributed most of the success of No. 6 to the casing program in the No. 7?

A Yes, we did.

Q Rather than to the water injected into the 8 and 9?

A I think that's correct.

Q Are 8 and 9 both open hole completions?

A Yes.

MR. NUTTER: I believe that's all. Thank you.

BY MR. UTZ:

Q On the three wells that you are now injecting water in, which is the T. O. May No. 1 and 4 and the Gulf State 1, what type of equipment do you have in those wells?

A Two of those have liners set in them uncemented. The



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other one we were experimenting along with Shell in an attempt to reduce cost and we attempted to pack the shot hole with pea gravel. That has proved unsatisfactory, however, since residue and precipitation residue out of the water leaks out on top of the pea gravel and shuts off water injection. So we know that this isn't the answer to proper well completion.

Q Do you have tubing installed in these wells?

A Yes, we do.

Q And packer?

A Yes.

Q What size tubing?

A Two inch EUE.

Q Is that the size tubing you propose to put in your other injection wells?

A Yes, it is.

Q What type of pumping equipment do you have now for the injection of water into these three wells?

A We currently are operating our station. Humble operates their station and Skelly operates theirs. Our station contains an Ajax 2P 200 series triplex pressure pump prime moved by DP-1 ~~as~~ ~~an~~ Ajax motor.

Q How much water is that pump capable of handling?

A Capable of producing at the current injection pressures



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of 1700 pounds, some 3,000 barrels a day.

Q Do you plan to install more equipment, more pumping equipment for these additional injection wells?

A Yes, it will be necessary.

Q At the present time you are injecting what, about three or four hundred barrels a day in the May No. 4?

A Yes, approximately that.

Q And the Humble State somewhat less?

A Yes.

Q Is there any particular reason why you haven't been injecting water in the T. O. May No. 1?

A That is the well that was, we attempted completion by packing the well bore with pea gravel and it has given us considerable trouble, and rather than make an expenditure that would be unrecovered, I proposed to leave it shut in until the unit was formed and then try recompletion work on the well.

Q If you were not granted capacity allowables would your present equipment handle the number of injection wells which you propose to inject into now?

A I didn't quite hear your question.

Q If the capacity allowables were not granted for this flood, based on the number of injection wells which you now propose, would it be necessary for you to purchase and install



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additional pump equipment?

A Yes, it would.

Q In other words, your 3,000 barrels a day wouldn't handle it?

A No, it would not, because we will be striving for reservoir fill-up in a considerable portion of the unit as yet depleted so that the immediate effects will be that we will inject at high rates anyway.

Q If you had to operate under WOI, then after fill-up you would cut back?

A Well, this has been a problem that has bothered us considerably, to say the least. We are not sure at this time which would create the least amount of damage, whether to cut back on the injection rates and suffer vertical sweep inefficiency or to go ahead and inject at capacity rates into the injection well and try to live with what allowable that we had on the wells and pump only that amount of oil, trusting that the oil would not migrate off the unit area.

Q In case of the latter, you would probably get faster response from your offset wells?

A Well response I think would be the same because we would be injecting at maximum rates up to response time under either case.



MR. HUTLER: Are there any other questions of the witness?

MR. HUTLER: Yes, sir.

BY MR. HUTTER:

Q Mr. Riley, on your Exhibit No. B in Case 2955, you show the six stages of expansion of the project?

A Yes.

Q And you testified that the expansion would be made in terms, or made in compliance with the terms of Rule 701 as far as expansion was concerned, I believe. Now, the application includes among things requested point No. 3, establishing rules for the expansion and operation of the flood within the area. Actually, do you want a provision in here to set up these stages of expansion or would you plan to expand it in accordance with 701, which would merely mean writing a letter and enclosing the casing program for the new wells and going through the usual administrative procedure to get the expansion? A hearing wouldn't be necessary but *would be* there ~~is~~ an administrative procedure set out in the order.

A Well, possibly our application was a little bit ambiguous in this. We had assumed that you would control the expansion by Rule 701 as you previously had. If we could get anything better than that --

Q Of course, we don't have the casing program for the additional wells.

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A We certainly feel that we should have to file casing programs and so on.

Q So just expansion under the terms of 701-E or F, or whatever it is, --

A E, I think it is.

Q -- would be adequate then?

A Yes.

MR. HUTTER: Thank you.

MR. UZZ: Mr. Bratton.

BY MR. BRATTON:

Q Mr. Riley, basically, as I understand you, you have never agreed with the Commission's findings in promulgating Rule 701 that reasonable curtailment of production in waterflood projects does not result in a loss of ultimate oil recovery?

A That is true.

Q And that is what this application is based on, is your continued viewpoint that that finding is wrong?

A No, our plea is based on the fact that the Commission has already seen fit to grant an exception to Rule 701 to any waterflood operating prior to November 9, 1959, that is a normal expansion therefrom.

Q So, that's what the capacity allowable is based on then?

A Yes. That is our plea at this time. As to philosophy,



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PAGE 38

I still have the same philosophy, yes.

Q They've never convinced you?

A I don't think they ever will. I have seen too many waterfloods operated to believe otherwise.

Q But the capacity allowable is requested that this is a, I believe I am quoting the rule rightly, that this is a legitimate expansion of a waterflood project previously authorized, is that correct?

A Yes.

Q Actually the waterflood project previously authorized was a double five-spot, right?

A Actually it was five wells of the double five-spot with the sixth well being somewhat in question according to the testimony. Basically it was a double five-spot.

Q Actually one well missing, three wells now in this unit area, two wells outside?

A That's correct.

Q So actually you are seeking a contraction of a previous authorized project and expansion and authorization for a well that has never been authorized?

A No, I don't think I would agree contraction. Expansion, yes. We are not requesting that these two wells of Skelly's be shut in, which I think would constitute contraction.



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Q Now, the Skelly wells are under R-179-B, right?

A They are all under that, basically under R-179-A, B being an amendment to 179.

Q Right, applicable to the Skelly well. What you are asking now on the basis of the one five-spot, that's in this unit area, to expand that to a flood covering some 3920 acres as a capacity flood, is that correct?

A Basically, yes.

Q Was any order ever issued authorizing capacity production in the one well that's now in the project area?

A It never was, but I think definitely would be if the response would have been sufficient to require it.

Q But the only order ever authorized granting the above normal allowable was as to the Skelly well?

A I think that is correct.

Q Actually you say they started with this flood around in '56, actually it was previous to that time, or your records don't go back to when it started?

A That is correct.

Q If the Humble records indicate it was around 1953, why --

A I would have to accept that, yes.

Q You don't need capacity in this project, do you, Mr. Riley, because of any equipment that you purchased prior to Rule



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701, is you?

A Yes. Our present plant equipment was acquired prior to November 2, 1959.

Q Well, I mean what difference would capacity and not capacity make on that?

A Well, it's your question first. I might ask you what you had in mind.

Q All I am asking --

A What I mean, I'm not basing my philosophy on the fact that you have to buy big equipment or smaller. I am basing my philosophy on which promotes conservation the best.

Q The efficiency?

A The sweep efficiency, yes.

Q There are some 20,000 acres in this Langlie-Mattix, aren't there?

A Yes, according to my knowledge. Yes.

Q And you don't know of any other flood in it that is authorized at capacity?

A None to my knowledge.

Q Regardless of what the allowable determination is made here, you'll be able to use your present equipment, plus you'll have to buy additional equipment under any circumstances?

A That's correct.



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Q There is no need for a capacity allowable as a buffer zone anywhere in this area, is there, Mr. Willey?

A I've never quite been able to figure out to my satisfaction how a buffer zone can be properly administered and not create some vertical sweep inefficiency.

Q So the buffer zone question is not involved here?

A I don't think it has been brought up, no.

MR. BRATTON: I think that's all.

MR. UTE: Any other questions?

MR. DURRETT: Yes, sir, I have a question.

MR. UTE: Mr. Durrett.

BY MR. DURRETT:

Q If I am correct, Order R-179-F authorized allowable not in excess of six times the top unit allowable for the pool, and it was further restricted by a mathematical formula multiplying the number of developed 40-acre proration units contained on the U. O. Simms lease, which was 15 times the top unit allowable for the pool. I said that backwards. Actually that 15 times the top unit allowable for the pool was the first restriction, but at any event, not to exceed six times the top unit allowable from the pool for each well. What is the possibility, if you are granted capacity allowables in this case, that you might exceed six times the top unit allowable for the pool from any one of your wells?



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A That is rather difficult to say, because of the fact that we will be stage by stage and we would have to make some suppositions as to how, I can conceive of how, due to length of the land across the unit for any given stage that you might be meeting the Commission's requirement to expand a portion of that before you would the other, so it's a little difficult to say.

Q Well, the point I'm making is that there is a possibility that you would exceed six times the top unit allowable for the pool from one given well?

A Oh, yes, definitely.

Q If you did that you would be, in effect, getting more allowable than was authorized under R-179-B, would you not?

A You are assuming that we were granted capacity?

Q Yes, assuming that you were granted capacity.

A Yes, that is true.

Q Then you would be, in effect, getting more than what the Commission has previously authorized for any well in this area, even under any exception?

A I think that's correct.

Q And this 179-B, I believe it was brought out on direct examination, was passed prior to Rule 701-E?

A I believe that's correct.

Q Do you feel that Rule 701-E might have indicated a



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Commission policy of restricting area further the allowable to be produced from one well in floods, all floods?

A Well, as I understand the Rule 701-B, I can't speak for the Commission's intent, but if you had a sufficient number of proration units that were allowed, times 42, as I understand the orders were written that this may be produced from any well or wells. So I don't think it limits it quite as severely as you might be thinking.

MR. HUTTER: Without any per well limitation?

A That's right.

MR. DURRETT: I think that's all I have. Thank you.

BY MR. UTZ:

Q Mr. Riley, we do have a nominal flood immediately to the west and adjacent to this unit, do we not?

A According to my records, it has been applied for. Mr. Bratton might could enlighten us further on --

MR. BRATTON: That's true.

A I think it is operational.

Q Capacity flood is granted for your application, ^{there} and sooner or later we'll have to face the proposition of having a capacity flood next to a 701 flood?

A That's some ways down the road according to the stage development.



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MR. UTE: Are there other questions?

MR. BRATTON: I don't have a question. I would like to state, I assume it's all right, Mr. Jennings, if the Commission takes administrative notice of the actual production record of the Simms Well No. 6. We could put on a witness and put in what they are. I believe they will reflect that the actual peak production of that well was less than 2400 barrels a month and that it only produced above 2,000 barrels a month for seven months.

A I don't have my data to look at, but I think my records reflect differently. As I stated, I was referring to memory, but would be subject to correction after looking at our data.

MR. UTE: That is the well located in the Northeast Quarter of the Southwest Quarter of Section 34, is it not?

A I think that's correct.

MR. UTE: I think the Commission records will reflect the production.

MR. JENNINGS: I don't think that is correct, I didn't get your description, Northeast, Southwest?

MR. UTE: Right.

MR. JENNINGS: That's correct.

MR. UTE: Are there any other questions?

MR. JENNINGS: Are you satisfied, Mr. Bratton, I mean with your offer?



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PAGE 17

MR. BRATTON: Now, the Court has called him in and
gives notice.

MR. UTZ: The witness says he heard.

(Witness says he heard.)

MR. UTZ: Are there any other witnesses in this unit?
Is that your only witness?

MR. JENNINGS: Yes, sir.

MR. DURRETT: If the Examiner please, I have a question.

MR. UTZ: You don't have any testimony, do you, Mr.
Bratton?

MR. BRATTON: No, sir.

MR. DURRETT: -- From Shelly Oil Company, stating
they have no objection in Case 2954 or 2955.

MR. UTZ: Do you have a statement to make, Mr. Bratton?

MR. BRATTON: Yes, sir. We have appeared before this
Commission many times objecting to exceptions to Rule 701 for
capacity allowables in areas in which Humble has no interest,
feeling that the moon should shine on everybody equally, we object
to the granting of capacity allowables in this proposed unit area
even though we are the fourth largest owner in the unit, and we
believe that the project should be governed by Rule 701 just as
any other project.

Looking at the legal history of the matter, of course, a



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project was authorized before Rule 701 that was a double five-spot project. Actually one well was first authorized, then additional wells were authorized and the thing went on for several years. I believe that the testimony indicates that at best this has been an experimental project. Now it is proposed, as I view it, in effect, to divide it and turn what has been one unsuccessful five-spot flood and convert that into a 3,920-acre capacity waterflood on the basis of the provision of Rule 701, which says that capacities should be granted to legitimate expansions of waterfloods previously authorized.

One, of course, capacity was never authorized for this flood before; two, I believe if the Commission will look at the reasons given in its rule in its Order 1525 promulgating Rule 701, that the two reasons it gave for continuation of capacity allowables in projects previously authorized and operational are just not applicable here. Those findings are findings 7, 8 in Order No. 1.

They talk, one, of the constant injection rates. Well, the project that has been authorized here, as has been testified, has fluctuated widely and apparently everything has happened to it. Two, operators of waterflood projects heretofore authorized have purchased and authorized for assignment mechanical equipment designed to produce wells at capacity. That's not applicable here. We don't feel that this comes either technically, and very



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definitely not within the spirit of Rule 701 as a legitimate expansion of a previously existing waterflood, and we do not feel that capacity should be authorized in this instance any more than in any instance since Rule 701 was promulgated.

MR. UTZ: Are there other statements? The case will be taken under advisement and the hearing adjourned.



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STATE OF NEW MEXICO)
COUNTY OF BERNALILLO) ss

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 15th day of December, 1963.

Ada Dearnley
Notary Public-Court Reporter

My commission expires:

June 19, 1967.

I do hereby certify that the foregoing is
a complete record of the proceedings in
the Examiner hearing of Case No. 2854-55
heard by me on Dec. 4, 1963.
Thurs. W., Examiner
New Mexico Oil Conservation Commission



DRAFT
JMD/esr

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

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

CASE No. 2955

Order No. R- 2633

APPLICATION OF AMBASSADOR OIL
CORPORATION FOR A WATERFLOOD
PROJECT, LEA COUNTY, NEW
MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on December 4, 1963, at Santa Fe, New Mexico, before Elvis A. Utz, Examiner duly appointed by the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission," in accordance with Rule 1214 of the Commission Rules and Regulations.

NOW, on this day of January, 1964, the Commission, a quorum being present, having considered the application, the evidence adduced, and the recommendations of the Examiner, Elvis A. Utz, 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 by order no. R-2617 the Commission approved the Lease*
(3) That the applicant, Ambassador Oil Corporation, is the *said unit* ~~unit~~ operator of ~~the Langley-Matrix Penrose Sand Unit~~ and seeks *pilot* authority to expand the existing waterflood project in Section 34, Township 22 South, Range 37 East, NMPM, Lea County, New Mexico, by converting to water injection five wells located in Sections 27, 33, and 34 of said Township.

(4) That the applicant also seeks the assignment of capacity allowables to producing wells in the proposed project.

Mattie Penrose Sand Unit Agreement

- (5) That although a special lease allowance was previously authorized for the offsetting water flood project ~~which affects the~~ ^{surface and} ~~uses~~ of the proposed Rangie Mattie Sand Unit Water Flood Project, ~~there~~ ^{no} special allowance has ever been ^{requested or} assigned to the pilot project in the subject unit area.
- (6) That the ^{producing} wells in the ^{waterflood} pilot area ^{previously approved} in the Rangie Mattie Sand Unit Area are declining in production and are now approaching depletion.
- (7) That although special capacity allowances have been assigned pursuant to the provisions of Finding No. 8 of Order No. R-1525 for certain projects authorized by the Commission prior to the amendment of Rule 701, the applicant in this case ~~failed to~~ ^{has not} established that the assignment of capacity allowances is necessary because of the ^{purchase and} ~~the~~ installation of facilities and mechanical equipment designed for producing wells in ^{the subject} ~~that~~ project at rates in excess of the project allowance which will be available under Rule 701-E of the Commission Rules and Regulations.

~~Langlie-Mattix Penrose Sand Unit to the south, no well within the Langlie-Mattix Penrose Sand Unit Area has previously been assigned a special allowable.~~

~~That the previously authorized waterflood projects~~ *all such capacity allowable wells*
are declining in production and
~~offsetting the Langlie-Mattix Penrose Sand Unit to the south~~
~~are now approaching depletion.~~

~~That the applicant has not established that the assignment of capacity allowables to producing wells in the proposed project area will prevent waste or protect correlative rights.~~

8. That in order to prevent waste and protect correlative rights, capacity allowables should not be assigned to producing wells in the proposed project area.

9. That the wells in the proposed *expanded* project area are in an advanced state of depletion and should properly be classified as "stripper" wells.

10. That a waterflood project in the proposed area should result in the recovery of otherwise unrecoverable oil, thereby preventing waste.

the existing 11. That the applicant should be authorized to *expand the* ~~institute~~ a waterflood project in the proposed area and that said *expansion* ~~project~~ should be governed by Rule 701 of the Commission Rules and Regulations. *That inasmuch as no record can be found for the authorization of applicant's T.O. May Well No 4, located in the SE/4 NE/4 of Section 34, Township 22 South, Range 37 East, as a water injection well, such*

12. *IT IS THEREFORE ORDERED: 37 East, as a water injection well, such authorization should be given at this time as the well is being utilized in this manner.*

(1) That the applicant, Ambassador Oil Corporation, is *expand its* hereby authorized to ~~institute~~ a waterflood project in the Langlie-Mattix Pool by the injection of water into the Queen formation through the following-described five wells located in Township 22 South, Range 37 East, NMPM, Lea County, New Mexico:

③

Section 34

Ambassador "H" Well No. 21-3, located in the NW/4 NW/4 ✓

②

Section 33

Ambassador Glier Well No. 35-2, located in the SE/4 NE/4 ✓

①

Section 27

Ambassador L. J. May Well No. 19-1, located
in the NW/4 SE/4

Ambassador L. J. May Well No. 19-2, located
in the SE/4 SE/4

Ambassador State "H" Well No. 21-2, located ✓
in the SE/4 SW/4

(3) That the ~~subject~~ ^{herein authorized} waterflood project shall be governed by the provisions of Rule 701 of the Commission Rules and Regulations, including the allowable provisions thereof, and including the provisions with respect to expansion of the waterflood project.

(4) That monthly progress reports of the waterflood project herein authorized shall be submitted to the Commission in accordance with Rules 704 and 1119 of the Commission Rules and Regulations.

(5) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year herein-
above designated.

(2) That the ~~applicant~~ ^{conversion to water injection} is hereby
of the Ambassador T. O. May Well 4, located
in the SE/4 NE/4 of Section 34, Township
22 South, Range 37 East, NMPM, is
hereby ~~authorized~~ approved.

AMBASSADOR OIL CORPORATION

AMBASSADOR BUILDING

1000 OIL -2 AM 8:45 3600 WINTERBURY P. O. Box 9336

FORT WORTH 7, TEXAS

C. HARRISON COOPER

PRESIDENT

CHIEF EXECUTIVE OFFICER

ENGINEER OFFICE

1000 OIL -2 AM 8:45

NOVEMBER 26, 1963

CABLE ADDRESS

FRANJO, FORT WORTH

MR. FRANK E. IRBY
CHIEF OF THE WATER RIGHTS DIV.
STATE ENGINEER OFFICE
SANTA FE, NEW MEXICO

DEAR MR. IRBY:

IN YOUR LETTER OF NOVEMBER 20, TO MR. JAMES T. JENNINGS
YOU REQUESTED CERTAIN INFORMATION RELATIVE TO OUR APPLICATION FOR THE
APPROVAL OF THE LANGLIE-MATTIX PENROSE SAND UNIT. WE WISH TO ANSWER
IT IN THE FOLLOWING MANNER:

1. THE LOCATION OF THE PRESENT SANTA ROSA SUPPLY WELL
IS 700' FNL AND 611 FEL SW/4 SE/4 SEC. 27, T-27-S,
R-27-E, LEA COUNTY, NEW MEXICO. THE SANTA ROSA
OCCURS IN THIS WELL FROM 717'-750'.
2. AN ANALYSIS OF THE WATER FROM THE WELL IDENTIFIED
AS OUR WSW 5 WAS SUPPLIED YOU IN OUR LETTER OF AUGUST
15, 1963. THIS WAS IN RESPONSE TO YOUR TELEGRAM OF
THAT DATE REQUESTING INFORMATION ON OUR WATER SUPPLY
FOR OUR FLOOD 36 LANGLIE-MATTIX.
3. WE ASSUME THAT YOU ARE REQUESTING INFORMATION ON THE
CASING STRINGER IN THE PROPOSED INJECTION WELLS. THIS
IS SUPPLIED IN THE ATTACHED SCHEDULE.
4. DATE OF COMPLETION OF EACH WELL IS:

WELL No.	DATE OF COMPLETION
19-1	6-25-38
19-2	8-18-38
21-2	3-28-38
21-3	6-10-38
35-2	3-22-40

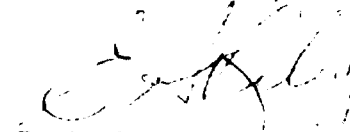
5. SINCE WE WERE NOT THE OPERATOR AT THE TIME THE WELLS
WERE ORIGINALLY COMPLETED WE ARE UNABLE TO STATE
WHETHER THE CASING WAS NEW OR USED, BUT WE CAN ASSUME
THAT IT WAS NEW PIPE.

PAGE #2

6. WATER INJECTION WILL BE THROUGH TUBING AND UNDER
PACKER IN THESE WELLS.

WE WILL BE PLEASED TO SUPPLY YOU ADDITIONAL INFORMATION ON
THE MATTER IF YOU SO DESIRE.

YOURS VERY TRULY,



E. A. RILEY
ASSISTANT VICE-PRESIDENT
MANAGER OF OIL FIELD RECOVERY CO.

EAR/HB

CC: MR. JAMES T. JENNINGS
ATTORNEY AT LAW
1012 SECURITY NATIONAL BANK BLDG.
ROSWELL, NEW MEXICO

Note: There will be no EXAMINER HEARING in
the Second Half of December

DOCKET NO. 35-63

DOCKET: EXAMINER HEARING - WEDNESDAY - DECEMBER 4, 1963

9:00 A.M. - OIL CONSERVATION COMMISSION CONFERENCE ROOM,
STATE LAND OFFICE BUILDING - SANTA FE, NEW MEXICO

The following cases will be heard before Elvis A. Utz, Examiner, or Daniel S. Nutter, Alternate Examiner:

- CASE 2945: Application of Shell Oil Company for the creation of a Devonian Gas Pool and for special pool rules, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the creation of a new Devonian gas pool for its Harris-Federal Well No. 1 located in Section 27, Township 23 South, Range 34 East, Lea County, New Mexico, said pool to comprise all of Sections 27, 28, 33 and 34, Township 23 South, Range 34 East, and all of Sections 3 and 4, Township 24 South, Range 34 East. Applicant further seeks the establishment of special pool rules, including a provision for 640-acre spacing units and for fixed well locations.
- CASE 2946: Application of Shell Oil Company for a dual completion, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of the dual completion (conventional) of its State V Well No. 5 located in Unit I of Section 27, Township 17 South, Range 35 East, Lea County, New Mexico, to produce oil from the Vacuum-Yates and Vacuum-Paddock Pools through parallel strings of tubing.
- CASE 2947: Application of Charles B. Read for an unorthodox location, Roosevelt County, New Mexico. Applicant, in the above-styled cause, seeks approval of the unorthodox location of his Bates Well No. 1 located 660 feet from the North line and 330 feet from the East line of Section 21, Township 8 South, Range 36 East, South Prairie-Pennsylvanian Pool, Roosevelt County, New Mexico.
- CASE 2948: Application of the Atlantic Refining Company for a pressure maintenance project, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks the approval of a cooperative pressure maintenance project for the injection of water into the Gallup (Tocito) formation, Many Rocks-Gallup Oil Pool, San Juan County, New Mexico, by the injection of water through 13 wells located in Sections 6, 7, 8, 17 and 18, Township 31 North, Range 16 West. Applicant further seeks the designation of a project area comprising approximately 1,480 acres in the aforesaid five sections and the adoption of appropriate project rules therefor.
- CASE 2949: Application of Phillips Petroleum Company for an exception to Rule 309-A, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to produce up to a maximum of 24 proration units into its Santa Fe Battery No. 14, Santa Fe Lease, Vacuum Abo Reef Pool, Lea County, New Mexico.
- CASE 2950: Application of Amerada Petroleum Corporation for the creation of a new gas pool and for the contraction of the vertical limits of an existing pool. Applicant, in the above-styled cause, seeks the creation of a Morrow-Pennsylvanian Gas Pool, Lea County, New Mexico. Said pool was discovered by applicant's S. E. Anderson "A" Well No. 1 located in Unit P of Section 19, Township 9 South, Range 35 East, and would comprise the SE/4 of Section 19, SW/4 of Section 20, NW/4 of Section 29 and the NE/4



SKELLY OIL COMPANY

P. O. Box 1650

TULSA 2, OKLAHOMA

PRODUCTION DEPARTMENT

C. L. BLACKSHER, VICE PRESIDENT

W. P. WHITMORE, MGR. PRODUCTION

W. D. CARSON, MGR. TECHNICAL SERVICES

ROBERT G. HILTZ, MGR. JOINT OPERATIONS

GEORGE W. SELINGER, MGR. CONSERVATION

December 2, 1963

VIA AIR MAIL

Oil Conservation Commission (3)
P. O. Box 871
Santa Fe, New Mexico

Gentlemen:

On Wednesday, December 4, 1963, the Oil Conservation Commission will hear the application of Atlantic Refining Company, in Case No. 2948, for a pressure maintenance project in San Juan County, New Mexico. As interested party, we concur in the request of the applicant and urge the Commission's approval.

In Case No. 2954, Ambassador Oil Corporation is seeking approval of a unit agreement in Lea County, New Mexico, of the Langlie Mattix-Penrose Sand Unit. As interested party we urge the Commission's approval of the subject agreement.

In Case No. 2955, the Commission will hear the application of Ambassador Oil Corporation for a waterflood project in Lea County, New Mexico, including extension of existing project and conversion of additional wells for injection of water. Applicant further seeks a provision for capacity allowable for wells in said project. As interested operator in this field we concur in the request of Ambassador and urges the Commission grant the relief sought.

Yours very truly,

George W. Selinger

GWS:br

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

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

CASE NO. 354
ORDER NO. R-179

THE APPLICATION OF GULF COAST
WESTERN OIL COMPANY (SUCCESSORS
TO C. E. WILLINGHAM) FOR AN ORDER
GRANTING PERMISSION TO PRODUCE ITS
T. O. MAY, WELL NO. 5, NE/4 NE/4
SECTION 34, TOWNSHIP 22 SOUTH, RANGE
37 EAST, NMPM, LEA COUNTY, NEW MEXICO,
IN THE PENROSE-SKELLY POOL.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9:00 o'clock a.m. on April 15, 1952, May 20, 1952, June 19, 1952, and July 15, 1952, at Santa Fe, New Mexico, before the Oil Conservation Commission, hereinafter referred to as the "Commission".

NOW, on this 1st day of August, 1952, the Commission, a quorum being present, having considered the records and the testimony adduced and being fully advised in the premises,

FINDS:

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

(2) That the original applicant, C. E. Willingham, has assigned his T. O. May lease, NE/4 Section 34, Township 22 South, Range 37 East, NMPM, Lea County, New Mexico, to Gulf Coast Western Oil Company.

(3) That by virtue of Commission Order No. R-103, the Commission granted permission to drill an unorthodox well to be located 1310 feet from the North and East lines of Section 34, Township 22 South, Range 37 East, NMPM, Lea County, New Mexico, to be known as the T. O. May, well No. 5.

(4) That the proposed well was to be drilled as a test well to determine the feasibility of water flooding the producing horizon in the Penrose-Skelly Pool.

-2-

Case No. 354

Order No. R-179

(5) That the applicant now desires to produce the well pending the outcome of negotiations between himself and offset operators for a joint water flooding project in the area.

(6) That offset operators, namely Skelly Oil Company, and Humble Oil and Refining Company have no objection to the granting of a temporary three month allowable to the well.

IT IS THEREFORE ORDERED:

That the applicant herein, Gulf Coast Western Oil Company, be, and it hereby is authorized to produce its T. O. May well No. 5, NENE Section 34, Township 22 South, Range 37 East, NMPM, Lea County, New Mexico, for a period of 3 months effective August 1, 1952.

Provided further, that the allowable assigned the well shall not exceed the normal unit allowable as set by the Commission for the Penrose-Skelly Pool.

Provided further, that at the regular monthly hearing of the Commission on October 15th, 1952, this case shall again be heard and a determination made as to the future allowable to be assigned this well.

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

EDWIN L. MECHEM, Chairman

GUY SHEPARD, Member

R. R. SPURRIER, Secretary

S E A L

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. 354
ORDER NO. R-179-A

THE APPLICATION OF SKELLY OIL
COMPANY, GULF COAST WESTERN OIL
COMPANY AND HUMBLE OIL AND
REFINING COMPANY FOR AN ORDER
GRANTING APPROVAL OF A SECONDARY
RECOVERY PROGRAM BY WATER FLOOD-
ING THROUGH THE INJECTION OF WATER
INTO FIVE INPUT WELLS TO BE LOCATED
IN SECTION 34, TOWNSHIP 22 SOUTH,
RANGE 37 EAST, NMPM, LEA COUNTY,
NEW MEXICO, IN THE FERROSE-SKELLY
POOL.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a. m. on December 16, 1952,
before the Oil Conservation Commission, hereinafter referred to as the "Commission".

NOW, on this 15th day of January, 1953, the Commission, a quorum being
present, having considered the records and the testimony adduced and being fully ad-
vised in the premises,

FINDS: (1) That due notice having been given as required by law, the
Commission has jurisdiction of this cause and the persons and the subject matter there-
of.

(2) That by virtue of Order R-103, the Commission granted permis-
sion to drill an unorthodox well to be located 1310 feet from the North and East lines
of Section 34, Township 22 South, Range 37 East, NMPM, Lea County, New Mexico, to be
known as the T. O. May, Well No. 5.

(3) That by virtue of Order No. R-179 the Commission granted per-
mission to produce the T. O. May, Well No. 5, pending the outcome of negotiations
among the operators in the area for a joint water flooding project.

(4) That negotiations have now been completed among the interested
parties in the area for a joint water flooding project, and that it would be in the
interest of conservation if permission were granted by the Commission to revert to a
secondary recovery program by water flooding.

(5) That a secondary recovery program by water injection is of an
experimental nature in this particular pool, and periodic reports should be submitted
to the Commission by the Petitioner disclosing its acts and doings in the matter.

IT IS THEREFORE ORDERED:

(1) That the application of Skelly Oil Company, Gulf Coast Western Oil Company and Humble Oil and Refining Company for permission to institute a secondary recovery program on leases in Section 34, Township 22 South, Range 37 East, NMPM, Lea County, New Mexico by injecting water into five injection wells be, and the same hereby is approved.

(2) That permission is hereby granted to inject water into the following wells, said water to enter the Queen sand producing horizon of the Penrose-Skelly Pool.

Township 22 South, Range 37 East, NMPM

Gulf Coast Western Oil Company, T. O. May, No. 1, NW/4 NE/4 Section 34.

Gulf Coast Western Oil Company, Humble State, No. 1, NW/4 SE/4 Section 34.

Skelly Oil Company, H. O. Sims, No. 8, SE/4 SW/4, Section 34.

Skelly Oil Company, H. O. Sims, No. 9, NW/4 SW/4, Section 34.

Humble Oil and Refining Company, State H, No. 5, SE/4 NW/4, Section 34.

PROVIDED, HOWEVER, that in the event that the Humble Oil and Refining Company, State H, Well No. 5, does not prove feasible for use as a water injection well, Humble Oil and Refining Company is hereby granted permission to drill for water injection purposes another well in the SE/4 NW/4 Section 34.

(3) That the operators shall submit monthly reports to the Commission showing the monthly oil production and water production, and amount of water injected into the reservoir through each injection well bore.

IT IS FURTHER ORDERED: That Gulf Coast Western Oil Company be and it hereby is authorized to produce its T. O. May, Well No. 5, NE NE, Section 34, Township 22 South, Range 37 East, NMPM, Lea County, New Mexico, in lieu of the production lost by the conversion of the T. O. May, Well No. 1 to a water injection well.

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

/s/ Edwin L. Mechem, Chairman

/s/ E. S. Walker, Member

/s/ R. R. Spurrier, Secretary

S E A L

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

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

CASE NO. 354
Order No. R-179-B

APPLICATION OF SKELLY OIL COMPANY
TO AMEND ORDER NO. R-179-A TO ESTABLISH
LEASE ALLOWABLES FOR ITS H. O. SIMS
PILOT WATER FLOOD PROJECT IN THE PENROSE-
SKELLY POOL, IN LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on July 2, 1958, at Santa Fe, New Mexico, before Daniel S. Nutter, Examiner duly appointed by the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission," in accordance with Rule 1214 of the Commission Rules and Regulations.

NOW, on this 3rd day of July, 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, Skelly Oil Company, is the owner and operator of the H. O. Sims Lease in the Penrose-Skelly Pool consisting of the following described acreage:

TOWNSHIP 22 SOUTH, RANGE 37 EAST, NMPM

Section 33: SE/4

Section 34: SW/4

TOWNSHIP 23 SOUTH, RANGE 37 EAST, NMPM

Section 3: N/2 NW/4 and SW/4 NW/4

Section 4: NE/4

all in Lea County, New Mexico.

(3) That the applicant was authorized by Commission Order No. R-179-A to institute a pilot water flood project in the Penrose-Skelly Pool on the above-described H. O. Sims Lease.

(4) That the above-referenced pilot water flood project has caused an increase in the producing capacity of certain wells on the said H. O. Sims Lease to the extent that they are now capable of producing in excess of the top unit allowable for the Penrose-Skelly Pool.

(5) That the applicant proposes that the H. O. Sims Lease be assigned a lease allowable to be determined by multiplying the number of developed 40-acre proration units (15) contained in said lease times the top unit allowable for the Penrose-Skelly Pool, said allowable to be produced from any well or wells on the lease in any proportion; provided however, that no individual well would be produced in excess of six (6) times the top unit allowable for the Penrose-Skelly Pool.

(6) That approval of the subject application will not violate the correlative rights of any other operator in the Penrose-Skelly Pool.

(7) That the preponderance of the evidence presented in this case indicates that waste would occur if the subject application were denied.

(8) That the subject application should be approved.

IT IS THEREFORE ORDERED:

(1) That the Skelly Oil Company, H. O. Sims lease, described below, be assigned a lease allowable in the Penrose-Skelly Pool to be determined by multiplying the number of developed 40-acre proration units contained in said lease (15) times the top unit allowable for the pool:

TOWNSHIP 22 SOUTH, RANGE 37 EAST, NMPM

Section 33: SE/4

Section 34: SW/4

TOWNSHIP 23 SOUTH, RANGE 37 EAST, NMPM

Section 3: N/2 NW/4 and SW/4 NW/4

Section 4: NE/4

all in Lea County, New Mexico.

(2) That the allowable assigned to the above-described H. O. Sims Lease in the Penrose-Skelly Pool may be produced from any well or wells on said lease in any proportion; provided however, that no individual well shall be produced in excess of six (6) times the top unit allowable for the Pool.

-3-

CASE NO. 354

Order No. R-179-B

(3) That the effective date of this order shall be 7 o'clock a.m., Mountain Standard Time, July 3, 1958.

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 and Secretary

S E A L

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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. 993
Order No. R-772

THE APPLICATION OF HUMBLE OIL
AND REFINING COMPANY AND GULF
COAST WESTERN OIL COMPANY FOR
AN ORDER GRANTING AN EXPANSION
TO AN EXISTING WATER FLOOD PROJECT
THROUGH THE CONVERSION OF FOUR
ADDITIONAL WELLS TO INJECTION WELLS
IN SECTIONS 27, 33, & 34, TOWNSHIP
22 SOUTH, RANGE 37 EAST, NMPM,
PENROSE-SKELLY POOL, LEA COUNTY,
NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on January 19, 1956 at Santa Fe, New Mexico, before the Oil Conservation Commission of the State of New Mexico hereinafter referred to as the "Commission".

NOW, on this 29th day of March 1956, the Commission, a quorum being present, having considered the evidence adduced and being fully advised in the premises,

FINDS:

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

(2) That the Commission, through its Orders 179 and 179-A created and expanded a water flood project in the Penrose-Skelly Pool.

(3) That applicant's desire to convert the following oil wells to water injection wells:

Humble Oil & Refining Co's. State "H" No. 2 Well
Located on SE/4 SW/4 Section 27,
Gulf Coast Western Oil Co's. F. S. Glier No. 3
Located on NW/4 NE/4 Section 33,
Gulf Coast Western Oil Co's. F. S. Glier No. 2 Well
Located SE/4 NE/4 Section 33,
Humble Oil & Refining Co's. State "H" No. 3 Well
Located on NW/4 NW/4 Section 34;

All in Township 22 South, Range 37 East, Penrose-Skelly Pool,
Lea County, New Mexico.

-2-
Order No. R-772

(4) That it is in the best interest of conservation to permit the conversion of the above named wells to water injection wells.

(5) That no objections have been entered to the proposed expansion of the water flood project.

IT IS THEREFORE ORDERED:

1. That the application of Humble Oil & Refining Company and Gulf Coast Western Oil Company for permission to expand the existing water flood project by the conversion of 4 additional wells to water injection wells in the Penrose-Skelly Oil Pool, Sections 27, 33 & 34, Township 22 South, Range 37 East, Lea County, New Mexico, be and the same is hereby approved.

2. That permission is hereby granted to inject water into the following wells, said water to enter the Queen Sand producing horizon of the Penrose Skelly Pool:

TOWNSHIP 22 SOUTH, RANGE 37 EAST, NMPM

Humble Oil & Rfg. Co's. State "H" ✓
No. 2 Well, SE/4 SW/4 Section 27,

Gulf Coast Western Oil Co's. F.S. Glier
No. 3 Well, NW/4 NE/4 Section 33,

Gulf Coast Western Oil Co's. F.S. Glier ✓
No. 2 Well, SE/4 NE/4 Section 33,

Humble Oil & Rfg. Co's. State "H" No. 3 ✓
Well, NW/4 NW/4 Section 34.

3. That applicant's shall submit to Commission's Hobbs, New Mexico office Form C-120 monthly in compliance with Rule 1119 of the Commission's Statewide Rules and Regulations.

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

JOHN F. SIMMS, Chairman

E. S. WALKER, Member

W. B. MACEY, Member and Secretary

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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. 1163
Order No. R-930

APPLICATION OF THE OIL CONSERVATION
COMMISSION OF NEW MEXICO ON ITS OWN
MOTION FOR AN ORDER AMENDING RULE
701 OF THE COMMISSION RULES AND
REGULATIONS.

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1644
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ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on October 17, 1956, at Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this 28th day of December, 1956, the Commission, a quorum being present, having considered the application and the evidence adduced and being fully advised in the premises,

FINDS:

(1) That due notice of the time and place of hearing and the purpose thereof having been given as required by law, the Commission has jurisdiction of this case and the subject matter thereof.

(2) That Commission Rule 701 should be amended to provide for administrative approval of water disposal wells when the disposal formation is not productive of oil or gas in the area surrounding said well.

(3) That when the proposed disposal formation is productive of oil and/or gas in the area surrounding the proposed disposal well, the application should be the subject of a formal hearing.

IT IS THEREFORE ORDERED:

That Rule 701 of the New Mexico Oil Conservation Commission Rules and Regulations be and the same is hereby amended as follows:

RULE 701. PERMIT FOR INJECTION OF GAS, AIR, OR WATER.

Case No. 1163, Order No. R-930

(a) No change.

(b) No change.

(c) The Secretary-Director of the Oil Conservation Commission shall have authority to grant an exception to the requirements of Rule 701 (a) above for water disposal wells only without notice and hearing when the waters to be disposed of are mineralized to such a degree as to be unfit for domestic, stock, irrigation, and/or other general use, and when said waters are to be disposed of into a formation of greater than Triassic age (Lea County only) which is non-productive of oil and/or gas within a radius of two miles from the proposed injection well, providing that any water occurring naturally within said disposal formation is mineralized to such a degree as to be unfit for domestic, stock, irrigation, and/or other general use.

To obtain such administrative approval, operator shall submit in triplicate to the Commission at Santa Fe Commission form entitled, "Application to Dispose of Salt Water by Injection Into a Porous Formation Not Productive of Oil or Gas," together with evidence that a copy of said application was sent to the State Engineer Office, Box 1079, Santa Fe, as well as to all offset operators and the surface owner of the land upon which the well is located.

If no objection is received within 15 days from the date of receipt of the application, and the Secretary-Director is satisfied that all of the requirements above have been complied with and that the well is to be cased and cemented in such a manner that there will be no danger to oil, gas, or fresh water reservoirs, an administrative order approving the disposal well may be issued. In the event that the application is not granted administratively, it shall be set for public hearing.

The Commission may dispense with the 15-day waiting period if waivers of objection are received from all offset operators and the surface owner, and no objection is made by the State Engineer Office.

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

JOHN F. SIMMS, Chairman

E. S. WALKER, Member

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

S E A L

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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. 1294
Order No. R-1053

APPLICATION OF AMBASSADOR OIL
CORPORATION, GRARIDGE CORPORATION,
AND GULF OIL CORPORATION FOR AN
ORDER AUTHORIZING A PILOT WATER
FLOOD PROJECT IN THE CAPROCK-QUEEN
POOL IN LEA AND CHAVES COUNTIES,
NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on August 15, 1957, at Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this 16th day of September, 1957, the Commission, a quorum being present, having considered the application, and the evidence adduced 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 case and the subject matter thereof.

(2) That the applicants propose to institute a pilot water flood project in the Caprock-Queen Pool to inject water into the Queen formation through six wells located in Sections 1 and 12 of Township 13 South, Range 31 East, Chaves County, New Mexico.

(3) That the portion of the original application in the subject case which requested authority to produce at capacity the wells located within and offsetting the pilot water flood area was deleted from the application by motion of the attorney for the applicants at the time the case was heard.

(4) That the proposed program will not adversely affect the interests of any other operators in the Caprock-Queen Pool.

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

-2-

Case No. 1294
Order No. R-1053

(6) That periodic reports should be submitted to the Commission by the operator of the project disclosing the progress of the secondary recovery program.

IT IS THEREFORE ORDERED:

(1) That the application of Ambassador Oil Corporation, Graridge Corporation, and Gulf Oil Corporation for permission to institute a pilot water flood project in the Queen formation of the Caprock-Queen Pool in Lea and Chaves Counties, 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:

			<u>S. T. R.</u>
Ambassador Oil Corporation	State "E" 1	SESW	1-13-31
" " "	State "H" 2	SESE	1-13-31
" " "	State "J" 2	NWNE	12-13-31
" " "	State "M" 1	SESW	12-13-31
Graridge Corporation	Maxwell St.	NWSE	1-13-31
	"A" 1		
Gulf Oil Corporation	Chaves St.	NWNW	12-13-31
	"A" 2		

all in Chaves 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

EDWIN L. MECHEM, Chairman

MURRAY E. MORGAN, Member

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

S E A L

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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. 1324
Order No. R-1073-B

APPLICATION OF GRARIDGE CORPORATION
FOR AN ORDER AMENDING ORDER NO. R-1073-A
TO AUTHORIZE CAPACITY ALLOWABLES FOR A
CERTAIN WELL IN THE CAPROCK-QUEEN POOL
LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on March 6, 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."

NOW, on this 6th., day of March, 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, Graridge Corporation, was authorized by Order No. R-1073-A dated November 13, 1957, to produce certain wells in a water flood project in the Caprock-Queen Pool at capacity, one of which is the Malco State "A" Well No. 2, located 1650 feet from the North line and 1650 feet from the East line of Section 31, Township 12 South, Range 32 East, NMPM, Lea County, New Mexico.
- (3) That the applicant recently re-entered the said Malco State "A" Well No. 2 and found that the casing in said well has collapsed making it impossible to produce the well.
- (4) That the applicant has drilled a substitute well in the same quarter-quarter section, being the Malco State "A" Well No. 9, located 2310 feet from the North line and 1650 feet from the East line of said Section 31.
- (5) That the said Malco State "A" Well No. 9 is located in the pilot area of the water flood project authorized by Order No. R-972, dated April 5, 1957.

-2-

Case No. 1324
Order No. R-1073-B

(6) That the said pilot water flood project has caused the said Malco State "A" Well No. 9 to be capable of producing in excess of the top unit allowable for the Caprock-Queen Pool.

(7) That the applicant, by this application, seeks permission to produce the said Malco State "A" Well No. 9 at capacity on the grounds that the production from said well cannot be curtailed without causing a reduction in the ultimate recovery of oil.

(8) That the preponderance of the evidence presented in this case indicates that waste will occur if the production from the said Malco State "A" Well No. 9 were curtailed.

(9) That the said Malco State "A" Well No. 9 should be permitted to produce at capacity.

IT IS THEREFORE ORDERED:

(1) That the Graridge Corporation Malco State "A" Well No. 2, located in the SW/4 NE/4 of Section 31, Township 12 South, Range 32 East, NMPH, Lea County, New Mexico, be and the same is hereby deleted from the list of wells authorized to be granted allowables equal to their capacity to produce as set forth in paragraph (1) of Order No. R-1073-A, dated November 13, 1957.

(2) That Order No. R-1073-A, dated November 13, 1957, be and the same is hereby amended to include the Graridge Corporation Malco State "A" Well No. 9, located in the SW/4 NE/4 of said Section 31, in the list of wells authorized by paragraph (1) of said order to be assigned allowables equal to their capacity to produce.

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

S E A L

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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. 1324
Order No. R-1073-A

APPLICATION OF GRARIDGE CORPORATION
FOR AN ORDER AUTHORIZING CAPACITY
PRODUCTION FOR ITS PILOT WATER FLOOD
PROJECTS IN THE CAPROCK-QUEEN POOL,
LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on October 17, 1957, and again at 9 o'clock a.m. on October 28, 1957, at Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this 13th day of November, 1957, the Commission, a quorum being present, having considered the application and the evidence adduced 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, Graridge Corporation, was authorized by Order No. R-972, dated April 5, 1957, to institute a pilot water flood project in Section 31, Township 12 South, Range 32 East and Sections 5 and 6 of Township 13 South, Range 32 East, NMPM, in the Caprock-Queen Pool, Lea County, New Mexico.

(3) That the said pilot water flood project has caused an increase in the producing capacity of certain of the wells in said pilot area to the extent that they are now capable of producing in excess of the top unit allowable for the Caprock-Queen Pool.

(4) That permission is sought to produce the hereinafter described wells in the said pilot water flood project at capacity, on the grounds that the production from a water flood project cannot be curtailed without causing a reduction in the ultimate recovery of oil:

-2-
Case No. 1324
Order No. R-1073-A

		<u>S. T. R.</u>
Graridge	Caprock St. Well #5 NE/4 SE/4	6-13S-32E
Great Western	State "R" Well #2 NE/4 NW/4	5-13S-32E
Great Western	State "R" Well #3 SW/4 NW/4	5-13S-32E
Great Western	State "Q" Well #1 SW/4 SW/4	32-12S-32E
Graridge	Livermore St. "G" Well #4 SW/4 SE/4	31-12S-32E
Graridge	Livermore St. "G" Well #6 NE/4 SE/4	31-12S-32E
Graridge	Malco St. "A" Well #2 SW/4 NE/4	31-12S-32E
Graridge	Malco St. "A" Well #4 SW/4 SW/4	31-12S-32E
Graridge	Malco St. "A" Well #6 NE/4 SW/4	31-12S-32E
Graridge	Manry St. "A" Well #1 SW/4 NE/4	6-13S-32E
Gulf	Lea St. "A" Well #3 NE/4 NW/4	6-13S-32E
Gulf	Lea St. "B" Well #1 NE/4 NE/4	6-13S-32E

(5) That the preponderance of the evidence presented in this case indicates that waste would occur if the production from the above-described wells were restricted.

(6) That the said wells should be permitted to produce at capacity.

IT IS THEREFORE ORDERED:

(1) That the following described wells be granted an allowable equal to their capacity to produce, to-wit:

		<u>S. T. R.</u>
Graridge	Caprock St. Well #5 NE/4 SE/4	6-13S-32E
Great Western	State "R" Well #2 NE/4 NW/4	5-13S-32E
Great Western	State "R" Well #3 SW/4 NW/4	5-13S-32E
Great Western	State "Q" Well #1 SW/4 SW/4	32-12S-32E
Graridge	Livermore St. "G" Well #4 SW/4 SE/4	31-12S-32E
Graridge	Livermore St. "G" Well #6 NE/4 SE/4	31-12S-32E
Graridge	Malco St. "A" Well #2 SW/4 NE/4	31-12S-32E
Graridge	Malco St. "A" Well #4 SW/4 SW/4	31-12S-32E
Graridge	Malco St. "A" Well #6 NE/4 SW/4	31-12S-32E
Graridge	Manry St. "A" Well #1 SW/4 NE/4	6-13S-32E
Gulf	Lea St. "A" Well #3 NE/4 NW/4	6-13S-32E
Gulf	Lea St. "B" Well #1 NE/4 NE/4	6-13S-32E

all in the Caprock-Queen Pool, Lea County, New Mexico.

(2) That this order shall become effective at 7 o'clock a.m., Mountain Standard Time, on December 1, 1957.

(3) That the Commission hereby retains jurisdiction in this cause to amend or revoke all or any part of this order, and further, to enter any additional order or orders deemed necessary.

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

S E A L
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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 NEW MEXICO FOR
THE PURPOSE OF CONSIDERING:

CASE NO. 1787
Order No. R-1525

APPLICATION OF THE OIL CONSERVATION
COMMISSION ON ITS OWN MOTION TO
CONSIDER THE PROMULGATION OF STATEWIDE
RULES GOVERNING THE OPERATION OF WATER
FLOOD PROJECTS INCLUDING THE ASSIGNMENT
OF PROJECT ALLOWABLES.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on October 14, 1959, at Roswell, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this 9th., day of November, 1959, the Commission, a quorum being present, having considered the application and the evidence adduced, 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 Oil Conservation Commission called this case on its own motion to evaluate, in view of some two years' experience, the effect of unrestricted water flood production (capacity allowables) on the market for primary oil production in New Mexico as well as on primary exploration and development. Further, the Commission deemed it necessary to reconsider, in the light of additional engineering data, the question whether curtailed rates of production in water flood projects cause the physical waste of oil.

(3) That the evidence presented in this case, including the records in Case Nos. 1324 and 1294, which records were incorporated by reference into the record of this case, preponderates in favor of the engineering viewpoint that reasonable curtailment of production in water flood projects does not result in a loss of ultimate oil recovery.

(4) The evidence presented in this case establishes to the satisfaction of the Commission that unrestricted production in water flood projects has had a significant and adverse impact on the market available for primary oil produced in New Mexico, and to continue the practice of unrestricted water flood production will aggravate the market problem to a critical degree.

(5) That unrestricted water flood production has contributed to decreased normal unit allowables for Southeast New Mexico which in turn have been a factor in the decline of primary exploration and development.

(6) That the secondary recovery of oil by means of water flooding the producing formation is desirable as a conservation measure and should be encouraged by a statewide rule establishing allowables for such projects which are in excess of normal unit allowables but less than capacity allowables.

(7) That the evidence presented indicates that a relatively constant project injection rate is beneficial from the standpoint of economics and operational efficiency and convenience, and thus the maximum allowable for any particular water flood project should, insofar as possible and practicable, remain constant. Therefore, area allowable factors based upon past allowable histories in each of the marketing areas in New Mexico should be utilized rather than the current monthly normal unit allowables in calculating the water flood project allowable.

(8) That operators of water flood projects heretofore authorized by the Commission have purchased and installed facilities and mechanical equipment designed for producing wells in such projects at rates equal to their capacity to produce. For this reason, as well as for the reason set forth in Finding No. 7, all water flood projects authorized by the Commission prior to the date of this order should be exempted from the water flood allowable provisions of Rule 701 as set forth in this order.

(9) That the establishment of buffer zones between water flood projects may be necessary when offsetting water flood projects have varying allowable provisions. Rule 701 should, therefore, include a provision for the assignment of special allowables to wells in such buffer zones where it is established at a hearing that correlative rights cannot adequately be protected otherwise.

IT IS THEREFORE ORDERED:

(1) That Rule 701 of the Commission Rules and Regulations be and the same is hereby revised to read in its entirety as herein-after set forth; provided however, that the allowable provisions contained in revised Rule 701 shall not apply to water flood projects heretofore authorized by the Commission or to legitimate expansions thereof.

RULE 701. INJECTION OF FLUIDS INTO RESERVOIRS

A. Permit for Injection Required

The injection of gas, liquefied petroleum gas, air, water, or any other medium into any reservoir for the purpose of maintaining reservoir pressure or for the purpose of secondary recovery or the injection of water into any formation for the purpose of water disposal shall be permitted only by order of the Commission after notice and hearing, unless otherwise provided herein.

B. Method of Making Application

Application for hearing to obtain authority for the injection of gas, liquefied petroleum gas, air, water, or any other medium into any formation for any reason shall include the following:

1. A plat showing the location of the proposed injection well or wells and the location of all other wells within a radius of two miles from said proposed injection well or wells, and the formation from which said wells are producing or have produced. The plat shall also indicate the lessees, if any there be, within said two-mile radius.
2. The log of the proposed injection well or wells if same is available.
3. A description of the proposed injection well or wells' casing program.
4. Other pertinent information including the name and depth of the zone or formation into which injection will be made, the kind of fluid to be injected, the anticipated amounts to be injected, and the source of said injection fluid.

C. Salt Water Disposal Wells

The Secretary-Director of the Oil Conservation Commission shall have authority to grant an exception to the requirements of Rule 701(A) for water disposal wells only, without notice and hearing, when the waters to be disposed of are mineralized to such a degree as to be unfit for domestic, stock, irrigation, and/or other general use, and when said waters are to be disposed of into a formation of greater than Triassic age (Lea County only) which is non-productive of oil and/or gas within a radius of two miles from the proposed injection well, providing that any water occurring naturally within said disposal formation is mineralized to such a degree as to be unfit for domestic, stock, irrigation, and/or other general use.

To obtain such administrative approval, operator shall submit in triplicate to the Commission at Santa Fe, Commission form entitled, "Application to Dispose of Salt Water by Injection Into a Porous Formation Not Productive of Oil or Gas," together with evidence that a copy of said application was sent to the State Engineer Office, Box 1079, Santa Fe, as well as to all offset operators and the surface owner of the land upon which the well is located.

If no objection is received within 15 days from the date of receipt of the application, and the Secretary-Director is satisfied that all of the above requirements have been complied with, and that the well is to be cased and cemented in such a manner that there will be no danger to oil, gas, or fresh water reservoirs, an administrative order approving the disposal well may be issued. In the event that the application is not granted administratively, it shall be set for public hearing, if the operator so requests.

The Commission may dispense with the 15-day waiting period if waivers of objection are received from all offset operators and the surface owner, and no objection is made by the State Engineer Office.

D. Pressure Maintenance Projects

1. Pressure maintenance projects are defined as those projects in which fluids are injected into the producing horizon in an effort to build up and/or maintain the reservoir pressure in an area which has not reached the advanced or "stripper" state of depletion.

2. The project area and the allowable formula for any pressure maintenance project shall be fixed by the Commission on an individual basis after notice and hearing.

E. Water Flood Projects

1. Water flood projects are defined as those projects in which water is injected into a producing horizon in sufficient quantities and under sufficient pressure to stimulate the production of oil from other wells in the area, and shall be limited to those areas in which the wells have reached an advanced state of depletion and are regarded as what is commonly referred to as "stripper" wells.

2. The project area of a water flood project shall comprise the proration units upon which injection wells are located plus all proration units which directly or diagonally offset the injection tracts and have producing wells completed on them in the same formation; provided

however, that additional proration units not directly nor diagonally offsetting an injection tract may be included in the project area if, after notice and hearing, it has been established that such additional units have wells completed thereon which have experienced a substantial response to water injection.

3. The maximum allowable assigned to any water flood project area shall be determined by multiplying the number of proration units in the project area times the basic Area Allowable Factor (as determined in subparagraph 4 below) times the appropriate proportional (depth) factor for the pool as set forth in Rule 505 (b). The allowable assigned to any water flood project area in which there are proration units containing more than one well shall be increased by an amount of oil equal to 0.333 times the basic Area Allowable Factor times the proportional (depth) factor for the pool for each such additional well on the proration unit; provided however, that the additional allowable for any such proration unit shall not exceed the basic Area Allowable Factor times the proportional (depth) factor for the pool.

The project area allowable may be produced from any well or wells in the project area in any proportion.

The production from a water flood project area shall be identified as such on the monthly Commission Form C-115.

Nothing herein contained shall be construed as prohibiting the assignment of special allowables to wells in buffer zones after notice and hearing. Special allowables may also be assigned in the limited instances where it is established at a hearing that it is imperative for the protection of correlative rights to do so.

4. The basic 40-acre Area Allowable Factor for the counties of Lea, Eddy, Chaves, and Roosevelt shall be 42. The basic 40-acre Area Allowable Factor for the counties of San Juan, Rio Arriba, Sandoval, and McKinley shall be 52.

5. Water flood projects shall be expanded and additional wells placed on injection only upon authority from the Commission after notice and hearing or by administrative procedure in accordance with the following:

In order for a well in a water flood project to be eligible for administrative approval for conversion to water injection, it must be established to the

-6-

Case No. 1787

Order No. R-1525

satisfaction of the Secretary-Director of the Commission that the proposed water injection well has experienced a substantial response to water injection or is directly offset by a producing well which has experienced such response, and that the proposed injection well is located on a water injection pattern which will result in a thorough and efficient sweep of oil by the water flood.

To obtain administrative approval for the conversion of any well to water injection, applicant shall submit to the Commission in triplicate a request for such administrative approval, setting forth therein all the facts pertinent to the need for conversion of additional wells to water injection, and attaching thereto Commission Form C-116, showing production tests of the affected well or wells both before and after stimulation by water flood. Applicant shall also attach plats of the water flood project area and immediate surrounding area, indicating thereon the owner of each lease and the location of all water injection wells and producing wells, and shall submit evidence that a copy of the application to convert additional wells to water injection has been sent to each operator offsetting the proposed injection well and to the State Engineer.

The Secretary-Director may, if in his opinion there is need for conversion of additional wells to water injection, authorize such conversion without notice and hearing, provided that no offset operator nor the State Engineer objects to the proposed conversion within fifteen (15) days. The Secretary-Director may grant immediate approval of the proposed conversion upon receipt of waivers of objection from all operators offsetting the proposed injection well and from the State Engineer.

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

JOHN BURROUGHS, Chairman

MURRAY E. MORGAN, Member

S E A L

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

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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 NEW MEXICO FOR
THE PURPOSE OF CONSIDERING:

CASE No. 1898
Order No. R-1644

APPLICATION OF THE OIL CONSERVATION
COMMISSION ON ITS OWN MOTION TO
CONSIDER A REVISION OF RULE 701 TO
REQUIRE CERTAIN WELL TESTS AND TO
CONSIDER REVISION OF COMMISSION
FORM C-120.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on February 17, 1960, at Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this 4th day of April, 1960, the Commission, a quorum being present, having considered the testimony presented and the exhibits received at said hearing, 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 evidence presented establishes that in order to effectively prorate waterflood projects, monthly tests should be conducted on all wells outside a prorated waterflood project area as defined in this Rule which are producing into common facilities with wells inside a prorated waterflood project area.

(3) That Rule 701 of the Commission Rules and Regulations should be revised by the inclusion of the following provision between the third and fourth paragraphs of Section E (3) of said Rule 701:

Each and every well outside a prorated waterflood project area which is producing into common facilities with wells inside a prorated waterflood project area shall be tested once each month and the results of such tests shall be included on the monthly Commission Form C-120 filed for said project.

-2-

CASE No. 1898
Order No. R-1644

(4) That Commission Form C-120 should be revised so that the result of said well tests can be furnished thereon.

(5) That for good cause shown, the Secretary-Director should have the authority to grant exceptions to said testing requirements.

IT IS THEREFORE ORDERED:

(1) That Rule 701 of the Commission Rules and Regulations, be and the same is hereby revised to include the following provisions between the third and fourth paragraphs of Section E (3) of said Rule 701:

Each and every well outside a prorated water-flood project area which is producing into common facilities with wells inside a prorated waterflood project area shall be tested once each month and the results of such tests shall be included on the monthly Commission Form C-120 filed for said project.

The Secretary-Director is empowered to grant exceptions to this provision without notice and hearing when an application therefor is filed in due form, and the facts presented justify such exception.

(2) That Commission Form C-120, be and the same is hereby revised as shown in Appendix "A", attached hereto and made a part hereof.

(3) That the effective date of this order is May 1, 1960.

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

JOHN BURROUGHS, Chairman

MURRAY E. MORGAN, Member

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

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BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

CASE No. 2809
Order No. R-2490

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
COMMISSION ON ITS OWN MOTION TO
CONSIDER A REVISION OF RULE 701-B
701-C, AND 701-E OF THE COMMISSION
RULES AND REGULATIONS.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on May 15, 1963, at Roswell, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this 28th day of May, 1963, the Commission, a quorum being present, having considered the testimony presented and the exhibits received at said hearing, 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 there is need for certain changes in Rule 701 of the Commission Rules and Regulations as the same relates to the method of filing applications and the data which should accompany said applications for hearings and for administrative approval by the Secretary-Director of the Commission for the approval of wells to be used for pressure maintenance or secondary recovery fluid injection, or for salt water disposal.

(3) That approval of the proposed rule changes will enable the Oil Conservation Commission to more efficiently administer the laws of the State of New Mexico as they relate to conservation of oil and gas.

IT IS THEREFORE ORDERED:

(1) That Rule 701-B of the Commission Rules and Regulations be and the same is hereby amended to read in its entirety as follows:

B. Method of Making Application

Application for original authority for the injection of gas, liquefied petroleum gas, air, water, or any other medium into any formation for any reason, including salt water disposal, or for the expansion of any such injection project by the completion or conversion of additional well(s) shall include the following:

1. A plat showing the location of the proposed injection well(s) and the location of all other wells within a radius of two miles from said proposed injection well(s) and the formation from which said wells are producing or have produced. The plat shall also indicate the lessees, if any there be, within said two-mile radius.
2. The log of the proposed injection well(s) if same is available.
3. A diagrammatic sketch of the proposed injection well(s) showing all casing strings, including diameters and setting depths, quantities used and tops of cement, perforated or open hole intervals, tubing strings, including diameters and setting depths, and the type and location of packers, if any.
4. Other pertinent information including the name and depth of the zone or formation into which injection will be made, the kind of fluid to be injected, the anticipated volumes to be injected, and the source of said injection fluid.
5. Evidence that a copy of the application, complete with all attachments, has been sent to the State Engineer Office, Box 1079, Santa Fe.

(2) That Rule 701-C of the Commission Rules and Regulations be and the same is hereby amended to read in its entirety as follows:

C. Salt Water Disposal Wells

The Secretary-Director of the Oil Conservation Commission shall have authority to grant an exception to the requirements of Rule 701-A for water disposal wells only, without notice and hearing, when the waters to be disposed of are mineralized to such a degree as to be unfit for domestic, stock, irrigation, or other general use, and when said waters are to be disposed of into a formation older than Triassic (Lea County only) which is non-productive of oil or gas within a radius of two miles from the proposed injection well, providing that any water occurring naturally within said disposal formation is mineralized to such a

degree as to be unfit for domestic, stock, irrigation, and/or other general use.

To obtain such administrative approval, operator shall submit in triplicate Commission form entitled, "Application to Dispose of Salt Water by Injection Into a Porous Formation Not Productive of Oil or Gas," said application to be filed in accordance with Rule 701-B above. Copies of the application shall also be sent to all offset operators and to the surface owner of the land upon which the well is located.

If no objection is received within 15 days from the date of receipt of the application, and the Secretary-Director is satisfied that all of the above requirements have been complied with, and that the well is to be cased and cemented in such a manner that there will be no danger to oil, gas, or fresh water reservoirs, an administrative order approving the disposal may be issued. In the event that the application is not granted administratively, it shall be set for public hearing, if the operator so requests.

The Commission may dispense with the 15-day waiting period if waivers of objection are received from all offset operators, the surface owner, and the State Engineer.

(3) That Section 5 of Rule 701-E, Water Flood Projects, be and the same is hereby amended to read in its entirety as follows:

5. Water flood projects shall be expanded and additional wells placed on injection only upon authority from the Commission after notice and hearing or by administrative procedure in accordance with the following:

In order for a well in a water flood project to be eligible for administrative approval for conversion to water injection, it must be established to the satisfaction of the Secretary-Director of the Commission that the proposed water injection well has experienced a substantial response to water injection or is directly offset by a producing well which has experienced such response, and that the proposed injection well is located on a water injection pattern which will result in a thorough and efficient sweep of oil by the water flood.

To obtain such administrative approval, operator shall submit in triplicate an application in accordance with Rule 701-B above. The application shall also state the order number which originally authorized the water flood project, and shall set forth all the facts pertinent to the need for conversion of additional wells to water injection. It shall also be accompanied by Commission

-4-

CASE No. 2809

Order No. R-2490

Form C-116, showing production tests of the affected well(s) both before and after stimulation by water flood. A copy of the application shall also be sent to each operator offsetting the proposed injection well.

The Secretary-Director may, if in his opinion there is need for conversion of the additional wells to water injection, authorize such conversion without notice and hearing, provided that no offset operator or the State Engineer objects to the proposed conversion within fifteen (15) days. The Secretary-Director may grant immediate approval of the proposed conversion upon receipt of waivers of objection from all operators offsetting the proposed injection well and from the State Engineer.

(4) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

JACK M. CAMPBELL, Chairman

E. S. WALKER, Member

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

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Note: There will be no EXAMINER HEARING in
the Second Half of December

DOCKET NO. 35-63

DOCKET: EXAMINER HEARING - WEDNESDAY - DECEMBER 4, 1963

9:00 A.M. - OIL CONSERVATION COMMISSION CONFERENCE ROOM,
STATE LAND OFFICE BUILDING - SANTA FE, NEW MEXICO

The following cases will be heard before Elvis A. Utz, Examiner, or Daniel S. Nutter, Alternate Examiner:

CASE 2945: Application of Shell Oil Company for the creation of a Devonian Gas Pool and for special pool rules, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the creation of a new Devonian gas pool for its Harris-Federal Well No. 1 located in Section 27, Township 23 South, Range 34 East, Lea County, New Mexico, said pool to comprise all of Sections 27, 28, 33 and 34, Township 23 South, Range 34 East, and all of Sections 3 and 4, Township 24 South, Range 34 East. Applicant further seeks the establishment of special pool rules, including a provision for 640-acre spacing units and for fixed well locations.

CASE 2946: Application of Shell Oil Company for a dual completion, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of the dual completion (conventional) of its State V Well No. 5 located in Unit I of Section 27, Township 17 South, Range 35 East, Lea County, New Mexico, to produce oil from the Vacuum-Yates and Vacuum-Paddock Pools through parallel strings of tubing.

CASE 2947: Application of Charles B. Read for an unorthodox location, Roosevelt County, New Mexico. Applicant, in the above-styled cause, seeks approval of the unorthodox location of his Bates Well No. 1 located 660 feet from the North line and 330 feet from the East line of Section 21, Township 8 South, Range 36 East, South Prairie-Pennsylvanian Pool, Roosevelt County, New Mexico.

CASE 2948: Application of the Atlantic Refining Company for a pressure maintenance project, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks the approval of a cooperative pressure maintenance project for the injection of water into the Gallup (Tocito) formation, Many Rocks-Gallup Oil Pool, San Juan County, New Mexico, by the injection of water through 13 wells located in Sections 6, 7, 8, 17 and 18, Township 31 North, Range 16 West. Applicant further seeks the designation of a project area comprising approximately 1,480 acres in the aforesaid five sections and the adoption of appropriate project rules therefor.

CASE 2949: Application of Phillips Petroleum Company for an exception to Rule 309-A, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to produce up to a maximum of 24 proration units into its Santa Fe Battery No. 14, Santa Fe Lease, Vacuum Abo Reef Pool, Lea County, New Mexico.

CASE 2950: Application of Amerada Petroleum Corporation for the creation of a new gas pool and for the contraction of the vertical limits of an existing pool. Applicant, in the above-styled cause, seeks the creation of a Morrow-Pennsylvanian Gas Pool, Lea County, New Mexico. Said pool was discovered by applicant's S. E. Anderson "A" Well No. 1 located in Unit P of Section 19, Township 9 South, Range 35 East, and would comprise the SE/4 of Section 19, SW/4 of Section 20, NW/4 of Section 29 and the NE/4

CASE 2950 continued from page 1

of Section 30 in the aforesaid township. Applicant further seeks the contraction of the vertical limits of the South Bough-Pennsylvanian Pool to include the Bough "C" zone of the Pennsylvanian formation only.

CASE 2951:

Application of Sunray DX Oil Company for a unit agreement, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval of the Hope Unit Area comprising 3822.96 acres, more or less, of State land in Township 18 South, Range 23 East, Eddy County, New Mexico.

CASE 2952:

Application of Sunray DX Oil Company for a unit agreement, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval of the South Hope Unit Area comprising 3778.27 acres, more or less, of State land in Township 18 South, Ranges 21 and 23 East, and Township 19 South, Range 23 East, Eddy County, New Mexico.

CASE 2953:

Application of Curtis R. Inman for a unit agreement, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval of the Walt Canyon Unit Area comprising 11,100.63 acres, more or less, of State, Federal and fee lands in Townships 21 and 22 South, Range 24 East, and Township 22 South, Range 25 East, Eddy County, New Mexico.

CASE 2954:

Application of Ambassador Oil Corporation for a unit agreement, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of the Langlie Mattix-Penrose Sand Unit Area comprising 3,920 acres, more or less, of State, Federal and Fee lands in Township 22 South, Range 37 East, Lea County, New Mexico.

CASE 2955:

Application of Ambassador Oil Corporation for a waterflood project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the expansion of the existing Langlie Mattix Waterflood Project in Section 34, Township 22 South, Range 37 East, Lea County, New Mexico, by the conversion to water injection of 5 wells located in Sections 27, 33 and 34 of said township. Applicant further seeks the establishment of special rules governing further expansion and operation of the waterflood project in the Langlie Mattix-Penrose Sand Unit Area, including a provision for capacity allowables for wells in said project.

ORDER OF THE COMMISSIONER OF LANDS AND MINES
IN THE CITY OF NEW MEXICO

IN THE MATTER OF THE ESTATE
OF THE OIL COMPANY, INC.
DIVISION OF NEW MEXICO FOR
THE PURPOSE OF CONSIDERING

Case No. 7554
Order No. 1-2017

APPLICATION OF INDEPENDENT OIL
CORPORATION FOR APPROVAL OF THE
LANDS-STATE PERSONS AND UNIT
AGREEMENT, LAND COUNTY, NEW MEXICO.

ORDER OF THE COMMISSIONER

OF THE COMMISSION:

This cause came on for hearing at 10 o'clock a.m. on
December 4, 1933, at Santa Fe, New Mexico, before the Hon.
Commissioner duly appointed by the Oil Conservation Commission of New
Mexico, hereinafter referred to as the "Commission," in accordance
with Rule 1214 of the Commission Rules and Regulations.

That on this _____ day of December, 1933, the Commission,
a quorum being present, having considered the application, the
evidence submitted, and the recommendations of the Engineer,
Dive No. 100, and being fully advised in the premises,

ORDER:

(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, Independent Oil Corporation, seeks
approval of the Lands-State Persons and Unit Agreement covering
3,920 acres, more or less, of State, Federal and New Mexico
in Township 22 South, Range 17 East, N.M.P., Los Alamos, New Mexico.

(3) That approval of the proposed Lands-State Persons
and Unit Agreement will in principle tend to promote the conserva-
tion of oil and gas and the prevention of waste.

IT IS THEREFORE ORDERED:

(1) That the Lands-State Persons and Unit Agreement is
hereby approved.

(2) That the plan under which the unit shall be operated
shall be approved in the form of a unit agreement for the

-2-
Order No. 2954
Order No. 4-2617

development and operation of the Langlie-Mattix Penrose Sand Unit Area, and such plan shall be known as the Langlie-Mattix Penrose Sand Unit Agreement Plan.

(3) That the Langlie-Mattix Penrose Sand Unit Agreement Plan is hereby approved in principle as a proper conservation measure; provided, however, that notwithstanding any of the provisions contained in said unit agreement, this approval shall not be considered as waiving or relinquishing, in any manner, any right, duty, or obligation which is now, or may hereafter be, vested in the Oil Conservation Commission of New Mexico by law relative to the supervision and control of operations for the exploration and development of any lands committed to the Langlie-Mattix Penrose Sand Unit, or relative to the production of oil or gas therefrom.

(4) (a) That the unit area shall be:

NEW MEXICO PRINCIPAL MERIDIAN

LSA COUNTY, NEW MEXICO

TOWNSHIP 22 NORTH, RANGE 21 WEST

Section 14: NW/4 SW/4
Section 20: SW/4 SE/4
Section 21: All
Section 22: All
Section 23: N/2 NW/4, SW/4 SE/4
Section 26: N/2 N/2
Section 27: All
Section 28: All
Section 29: S/2 NW/4, NE/4 SE/4
Section 30: S/2 NE/4
Section 31: N/2
Section 34: N/2, SE/4

containing 5,920 acres, more or less.

(b) That the unit area may be enlarged or contracted as provided in said plan; provided, however, that administrative approval for expansion or contraction of the unit area must also be obtained from the Secretary-Director of the Commission.

(c) That the unit operator shall file with the Commission an executed original or executed counterpart of the Langlie-Mattix Penrose Sand Unit Agreement within 30 days after the effective date thereof. In the event of subsequent joinder by any party or expansion or contraction of the unit area, the unit operator shall file with the Commission within 30 days thereafter counterparts of the unit agreement reflecting the subscription of those interests having joined or ratified.

Case No. 2994
Order No. R-2617

(6) That this order shall become effective upon the approval of said unit agreement by the Commissioner of Public Lands for the State of New Mexico and the Director of the United States Geological Survey, and shall terminate ~~1999~~ ~~1990~~ upon the termination of said unit agreement. The last unit operator shall notify the Commission immediately in writing of such termination.

(7) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

JOSE M. CAMPBELL, Chairman

E. C. HAIGER, Member

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

S X A L

232/

Case 2455

Heard - 12-4-63

Rec. 12-12-63.

1. Grant Ambassador a waterflood for their Langli-Mattix Permian Sand unit.

2. The unit shall operate under Rule 701.

3. The ^{injection} wells in the unit to be approved are:

Ambassador	- T.O. May #36-1	- Humble St. #36-1	- NWNW - 34-22S, 37E.
"	- T.O. May #36-4	- SENE	" " "
"	- Humble St. #37-1	- NWSE	" " "
"	- St. "H"	# 21-7 - SENW	" " "
"	- St. "H"	# 21-3 - NWNW	" " "
"	- Glier	# 35-2 - SENE	33-22-37
"	- I.J. May	# 18-1 - NWSE	27-22-37
"	- " "	19-2 - SESE	" " "
"	- St. "H"	21-2 - SE SW	" " "

4. Since they requested capacity allowable here are some suggested findings:

(a) The lease allowables granted under R-179B ^{H.O.} are for the Semmes Lease is outside this unit & therefore not applicable.

(b) No ~~equipment~~ equipment has been purchased or installed which is specifically designed for the injection of volumes of water necessary for capacity allowables.

(c) That the flood authorized in
Orders. R-179 + 179A have already
peaked out and are in the stage of
depletion therefore the continuation
of a capacity flood is a ~~mute~~
question in ~~is~~ are waste attributable
to cutting back on a capacity flood
is concerned.

Thos. A. H.

Re: Case 2955

Ambassador Water Flood

Pete -

We were asked to take administrative notice of the actual production record of the Skelly H.O. Sims Well No. 6, located in Quarter K of Section 34, Township 22 South Range 27 East, Langley-Mallory Pool, Lea County, New Mexico. This well is one of the two inside wells in the double five-spot pilot project. It has by far the best record of any well in the area insofar as secondary recovery is concerned.

Following is a tabulation of production from the well during 1958 and 1959, the period of time which bridges its maximum rate of production due to waterflood response. Also shown each month is the Rule 701 allowance which would be earned by two wells (an injection well and a producer) ~~and~~ which indicates that prorationing would not have affected this well during its peak rate of production.

84
31
84
252
2604

	1958		1959	
Mo.	2-Well Allowable	Prod	2-Well Allowable	Pand
J	2604	580	2604	2205
F	2352	543	2352	2000
M	2604	608	2604	2302
A	2520	596	2520	2201
M	2604	970	2604	1742
J	2520	1214	2520	1729 1742
J	2604	1721	2604	1778
A	2604	1267	2604	1729
S	2520	1797	2520	1298
O	2604	2393	2604	1136
N	2520	2226	2520	1090
D	2604	2237	2604	978

Drum

GOVERNOR
EDWIN L. MECHEM
CHAIRMAN

State of New Mexico
Oil Conservation Commission

LAND COMMISSIONER
E. S. JOHNNY WALKER
MEMBER



STATE GEOLOGIST
A. L. PORTER, JR.
SECRETARY - DIRECTOR

P. O. BOX 871
SANTA FE

Mr. James T. Jennings
Attorney at Law
P. O. Box 1180
Roswell, New Mexico

January, 1964

Gentlemen:

Enclosed herewith is Commission Order No. R-2633, entered in Case No. 2955, approving the Rocky Mountain Water Flood Project.

According to our calculations, when all of the authorized injection wells have been placed on active injection, the maximum allowable which this project will be eligible to receive under the provisions of Rule 701-E-3 is 1274 barrels per day.

Please report any error in this calculated maximum allowable immediately, both to the Santa Fe office of the Commission and the appropriate District proration office.

In order that the allowable assigned to the project may be kept current, and in order that the operator may fully benefit from the allowable provisions of Rule 701, it behooves him to promptly notify both of the aforementioned Commission offices by letter of any change in the status of wells in the project area, i.e., when active injection commences, when additional injection or producing wells are drilled, when additional wells are acquired through purchase or unitization, when wells have received a response to water injection, etc.

Your cooperation in keeping the Commission so informed as to the status of the project and the wells therein will be appreciated.

Very truly yours,

cc: Howard Bratton
Frank Irby
OCC - Hobbs

A. L. PORTER, Jr.
Secretary-Director

DRAFT

JMD/esr

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

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

CASE No. 2955

Order No. R-2633

APPLICATION OF AMBASSADOR OIL
CORPORATION FOR A WATERFLOOD
PROJECT, LEA COUNTY, NEW
MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on December 4, 1963, at Santa Fe, New Mexico, before Elvis A. Utz, Examiner duly appointed by the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission," in accordance with Rule 1214 of the Commission Rules and Regulations.

NOW, on this day of January, 1964, the Commission, a quorum being present, having considered the application, the evidence adduced, and the recommendations of the Examiner, Elvis A. Utz, 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 by Order No. R-2617, the Commission approved the Langlie-Mattix Penrose Sand Unit Agreement.

(3) That the applicant, Ambassador Oil Corporation, is the operator of said unit and seeks authority to expand the existing pilot waterflood project in Section 34, Township 22 South, Range 37 East, NMPM, Lea County, New Mexico, by converting to water injection five wells located in Sections 27, 33, and 34 of said Township.

(4) That the applicant also seeks the assignment of capacity allowables to producing wells in the proposed project.

(5) That although a special lease allowable was previously authorized for the offsetting waterflood project south and west of the proposed Langlie-Mattix Sand Unit Waterflood Project, no special allowable has ever been requested or assigned to the pilot project in the subject unit area.

(6) That the producing wells in the pilot waterflood area previously approved in the Langlie-Mattix Sand Unit Area are declining in production and are now approaching depletion.

(7) That although special capacity allowables have been assigned pursuant to the provisions of Finding No. 8 of Order No. R-1525 for certain projects authorized by the Commission prior to the amendment of Rule 701, the applicant in this case has not established that the assignment of capacity allowables is necessary because of the purchase and installation of facilities and mechanical equipment designed for producing wells in the subject project at rates in excess of the project allowable which will be available under Rule 701-E of the Commission Rules and Regulations.

(8) That in order to prevent waste and protect correlative rights, capacity allowables should not be assigned to producing wells in the proposed project area.

(9) That the wells in the proposed expanded project area are in an advanced state of depletion and should properly be classified as "stripper" wells.

(10) That a waterflood project in the proposed area should result in the recovery of otherwise unrecoverable oil, thereby preventing waste.

(11) That the applicant should be authorized to expand the existing waterflood project in the proposed area and that said expansion should be governed by Rule 701 of the Commission Rules and Regulations.

(12) That inasmuch as no record can be found for the authorization of applicant's T. O. May Well No. 4, located in the SE/4 NE/4 of Section 34, Township 22 South, Range 37 East, as a water

injection well, such authorization should be given at this time as the well is being utilized in this manner.

IT IS THEREFORE ORDERED:

(1) That the applicant, Ambassador Oil Corporation, is hereby authorized to expand its waterflood project in the Langlie-Mattix Pool by the injection of water into the Queen formation through the following-described five wells located in Township 22 South, Range 37 East, NMPM, Lea County, New Mexico:

Section 27

Ambassador L. J. May Well No. 19-1, located
in the NW/4 SE/4

Ambassador L. J. May Well No. 19-2, located
in the SE/4 SE/4

Ambassador State "H" Well No. 21-2, located
in the SE/4 SW/4

Section 33

Ambassador Glier Well No. 35-2, located in
the SE/4 NE/4

Section 34

Ambassador "H" Well No. 21-3, located in
the NW/4 NW/4

(2) That the conversion to water injection of the Ambassador T. O. May Well No. 4, located in the SE/4 NE/4 of Section 34, Township 22 South, Range 37 East, NMPM, is hereby approved.

(3) That the waterflood project herein authorized shall be governed by the provisions of Rule 701 of the Commission Rules and Regulations, including the allowable provisions thereof, and including the provisions with respect to expansion of the waterflood project.

(4) That monthly progress reports of the waterflood project herein authorized shall be submitted to the Commission in accordance with Rules 704 and 1119 of the Commission Rules and Regulations.

(5) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

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

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

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

CASE No. 2955
Order No. R-2633

APPLICATION OF AMBASSADOR OIL
CORPORATION FOR A WATERFLOOD
PROJECT, LEA COUNTY, NEW
MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on December 4, 1963, at Santa Fe, New Mexico, before Elvis A. Utz, Examiner duly appointed by the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission," in accordance with Rule 1214 of the Commission Rules and Regulations.

NOW, on this 16th day of January, 1964, the Commission, a quorum being present, having considered the application, the evidence adduced, and the recommendations of the Examiner, Elvis A. Utz, 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 by Order No. R-2617, the Commission approved the Langlie-Mattix Penrose Sand Unit Agreement.

(3) That the applicant, Ambassador Oil Corporation, is the operator of said unit and seeks authority to expand the existing pilot waterflood project in Section 34, Township 22 South, Range 37 East, NMPM, Lea County, New Mexico, by converting to water injection five wells located in Sections 27, 33, and 34 of said Township.

(4) That the applicant also seeks the assignment of capacity allowables to producing wells in the proposed project.

(5) That although a special lease allowable was previously authorized for the offsetting waterflood project south and west of the proposed Langlie-Mattix Sand Unit Waterflood Project, no special allowable has ever been requested or assigned to the pilot project in the subject unit area.

-2-

CASE No. 2955
Order No. R-2633

(6) That the producing wells in the pilot waterflood area previously approved in the Langlie-Mattix Sand Unit Area are declining in production and are now approaching depletion.

(7) That although special capacity allowables have been assigned pursuant to the provisions of Finding No. 8 of Order No. R-1525 for certain projects authorized by the Commission prior to the amendment of Rule 701, the applicant in this case has not established that the assignment of capacity allowables is necessary because of the purchase and installation of facilities and mechanical equipment designed for producing wells in the subject project at rates in excess of the project allowable which will be available under Rule 701-E of the Commission Rules and Regulations.

(8) That in order to prevent waste and protect correlative rights, capacity allowables should not be assigned to producing wells in the proposed project area.

(9) That the wells in the proposed expanded project area are in an advanced state of depletion and should properly be classified as "stripper" wells.

(10) That a waterflood project in the proposed area should result in the recovery of otherwise unrecoverable oil, thereby preventing waste.

(11) That the applicant should be authorized to expand the existing waterflood project in the proposed area and that said expansion should be governed by Rule 701 of the Commission Rules and Regulations.

(12) That inasmuch as no record can be found for the authorization of applicant's T. O. May Well No. 4, located in the SE/4 NE/4 of Section 34, Township 22 South, Range 37 East, as a water injection well, such authorization should be given at this time as the well is being utilized in this manner.

IT IS THEREFORE ORDERED:

(1) That the applicant, Ambassador Oil Corporation, is hereby authorized to expand its waterflood project in the Langlie-Mattix Pool by the injection of water into the Queen formation through the following-described five wells located in Township 22 South, Range 37 East, NMPM, Lea County, New Mexico:

Section 27

Ambassador L. J. May Well No. 19-1, located
in the NW/4 SE/4

-3-

CASE No. 2955
Order No. R-2633

Ambassador L. J. May Well No. 19-2, located
in the SE/4 SE/4

Ambassador State "H" Well No. 21-2, located
in the SE/4 SW/4

Section 33

Ambassador Clier Well No. 35-2, located in
the SE/4 NE/4

Section 34

Ambassador "H" Well No. 21-3, located in
the NW/4 NW/4

(2) That the conversion to water injection of the Ambassador T. O. May Well No. 4, located in the SE/4 NE/4 of Section 34, Township 22 South, Range 37 East, NMPM, is hereby approved.

(3) That the waterflood project herein authorized shall be governed by the provisions of Rule 701 of the Commission Rules and Regulations, including the allowable provisions thereof, and including the provisions with respect to expansion of the waterflood project.

(4) That monthly progress reports of the waterflood project herein authorized shall be submitted to the Commission in accordance with Rules 704 and 1119 of the Commission Rules and Regulations.

(5) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

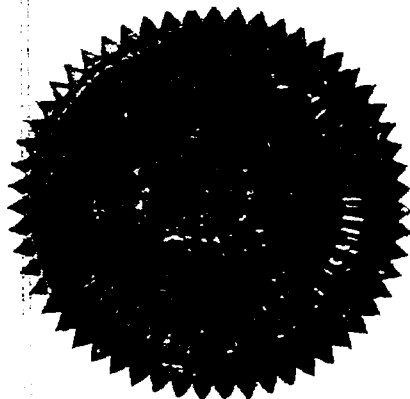
DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

Jack M. Campbell
JACK M. CAMPBELL, Chairman

E. S. Walker
E. S. WALKER, Member

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



esr/

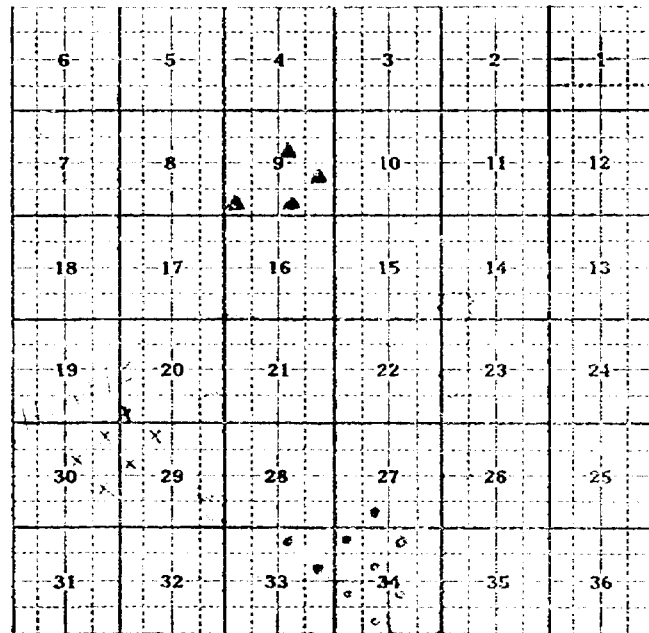
FEDERAL ABSTRACT CO.

Name

Address

Ph.

Remarks:



T R State
or County

F. A. Co. form No. 105 - 1M

IN THE MATTER OF THE APPLICATION
OF AMBASSADOR OIL CORPORATION FOR
THE APPROVAL OF THE LANGLIE-MATTIX
PENROSE SAND UNIT AND FOR AN ORDER
AUTHORIZING AN EXPANSION OF THE
PRESENT WATERFLOOD PROJECT IN THE
LANGLIE-MATTIX POOL, LEA COUNTY,
NEW MEXICO.

INDEXED IN 5 11

203/55

APPLICATION

Comes now the applicant, Ambassador Oil Corporation,
whose address is P. O. Box 9338, Fort Worth, Texas, and files
herewith a copy of its proposed Unit Agreement for the develop-
ment and operation of the Langlie-Mattix Penrose Sand Unit in Lea
County, New Mexico, and hereby makes application for the approval
of the Unit as provided by law and for an expansion of the Water-
flood Project in the proposed Unit Area of the injection of water
into the Penrose Sand (Queen) zone through five additional injec-
tion wells located thereon, and in support thereof states:

1. That the Unit Area covers the following described
land in Lea County, New Mexico, to-wit:

Township 22 South, Range 37 East, N.M.P.M.

Section 14: SW $\frac{1}{4}$ SW $\frac{1}{4}$
Section 20: SE $\frac{1}{4}$ SE $\frac{1}{4}$
Section 21: All
Section 22: All
Section 23: W $\frac{1}{2}$ NW $\frac{1}{4}$, SW $\frac{1}{4}$ SW $\frac{1}{4}$
Section 26: W $\frac{1}{2}$ W $\frac{1}{2}$
Section 27: All
Section 28: All
Section 29: E $\frac{1}{2}$ NE $\frac{1}{4}$, NE $\frac{1}{4}$ SE $\frac{1}{4}$
Section 32: E $\frac{1}{2}$ NE $\frac{1}{4}$
Section 33: N $\frac{1}{2}$
Section 34: N $\frac{1}{2}$, SE $\frac{1}{4}$

containing 3,920 acres, more or less.

2. That the lands embraced in the Unit consist of
State, Federal and patented lands.

INDEXED

11-20-62
61

3. That the applicant, Ambassador Oil Corporation, is designated as Unit Operator in the Unit Agreement, and as such is given the authority under the terms thereof to carry on operations for the discovery, development and production of unitized substances.

4. That the Unit Agreement is substantially in the form as Unit Agreements heretofore approved by the Commissioner of Public Lands of the State of New Mexico, the Director of the United States Geological Survey and the New Mexico Oil Conservation Commission. The Unit Agreement has been submitted to the Commissioner of Public Lands and the Director of the United States Geological Survey and tentatively approved by said parties, and that application has been made to said parties for approval of said Unit Agreement.

5. That approximately 99.5% of the working interest owners have heretofore executed the Unit Agreement, and the Unit Agreement provides that any party owning rights in the unitized substances who does not commit such rights to the Unit Agreement before the effective date thereof may thereafter become a party by subscribing to such Unit Agreement or by ratifying the same in accordance with the terms of the Agreement.

6. That the Unit will lead to a more efficient and orderly development and operation of the existing waterflood being carried on by the applicant in the area and it is necessary to allow applicant to completely develop the waterflood project, and the Unit will promote the conservation of oil and gas and prevent waste.

7. That within thirty days after the effective date of the Langlie-Mattix Penrose Sand Unit Agreement, the applicant will file with Commission an executed or original counterpart of the Agreement, and in the event of a subsequent joinder of any party or expansion or contraction of the Unit Agreement, as provided by the terms of the Agreement, the Unit Operator will file with the Commission within thirty days thereafter counterparts of the Unit Agreement reflecting the subscription of those interests having joined or ratified.

8. That part of the land embraced in the Unit is now in a waterflood project heretofore authorized by orders of this Commission, Nos. R-179-A, R-179-B, R-772, etc., and that the applicant is now injecting water in the following wells located within the Unit Area:

<u>WELL NO.</u>	<u>DESCRIPTION</u>
36-1✓	NW $\frac{1}{4}$ NE $\frac{1}{4}$ Section 34, T-22-S, R-37-E
36-4✓	SE $\frac{1}{4}$ NE $\frac{1}{4}$ Section 34, T-22-S, R-37-E
37-1✓	NW $\frac{1}{4}$ SE $\frac{1}{4}$ Section 34, T-22-S, R-37-E
21-7✓	SE $\frac{1}{4}$ NW $\frac{1}{4}$ Section 34, T-22-S, R-37-E

In addition thereto, that water is presently being injected in wells offsetting the Unit, which wells are located in the NW $\frac{1}{4}$ SW $\frac{1}{4}$ and SE $\frac{1}{4}$ SW $\frac{1}{4}$ of Section 34, Township 22 South, Range 37 East. That the applicant proposes to inject water into the following wells which will be injection wells:

<u>WELL NO.</u>	<u>DESCRIPTION</u>
19-1✓	NW $\frac{1}{4}$ SE $\frac{1}{4}$ Section 27, T-22-S, R-37-E
19-2✓	SE $\frac{1}{4}$ SE $\frac{1}{4}$ Section 27, T-22-S, R-37-E
21-2✓	SE $\frac{1}{4}$ SW $\frac{1}{4}$ Section 27, T-22-S, R-37-E
21-3✓	NW $\frac{1}{4}$ NW $\frac{1}{4}$ Section 34, T-22-S, R-37-E
35-2✓	SE $\frac{1}{4}$ NE $\frac{1}{4}$ Section 33, T-22-S, R-37-E

9. That all of the wells in the Unit Area which are included in the waterflood project have reached an advanced stage of depletion and are stripper wells.

10. That the pilot flood heretofore authorized by orders of this Commission has established the feasibility of waterflooding the Penrose Sand (Queen) zone of the Langlie-Mattix Pool, and has further established that such flooding will result in the increased ultimate recovery of oil and will, therefore, prevent waste.

11. That the area adjacent to the present flood was pursuant to the orders of the Commission exempt from the allowable provisions of Rule 701-E, and this application involves an expansion of existing waterflood project and should be exempt from the allowable provisions of Rule 701-E and should be granted a capacity allowable.

12. That in support of said application and in accordance with the provisions of Rule 701, the applicant submits herewith the following exhibits:

(a) Exhibit A, a plat showing the location of the proposed injection wells and the location of all other wells within a radius of two miles from the proposed injection wells, indicating lessees within said two mile radius.

(b) Exhibit B showing the Stage Development Plan.

(c) Exhibit C, Unit Boundary Map.

(d) Exhibit D, Injection Well Casing Program.

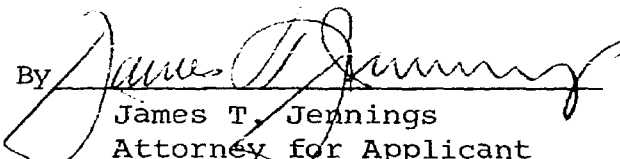
(e) Exhibit E, New Mexico Oil & Gas Commission Waterflood Application Data.

WHEREFORE, applicant requests that the Commission set this matter down for hearing before an examiner at an early date, publish the notices required by law and, after hearing, to issue its order:

1. Approving the Langlie-Mattix Penrose Sand Unit Agreement.
2. Expanding the limits of the existing waterflood project in the Langlie-Mattix Pool to include the lands embraced in the Unit Agreement.
3. Establishing rules for the expansion and operation of the flood within said area.
4. Providing for capacity allowable for the area in a like manner as such allowables are permitted in the waterflood projects in this pool.

Respectfully submitted,

AMBASSADOR OIL CORPORATION

By 
James T. Jennings
Attorney for Applicant
P. O. Box 1180
Roswell, New Mexico

R 37 E

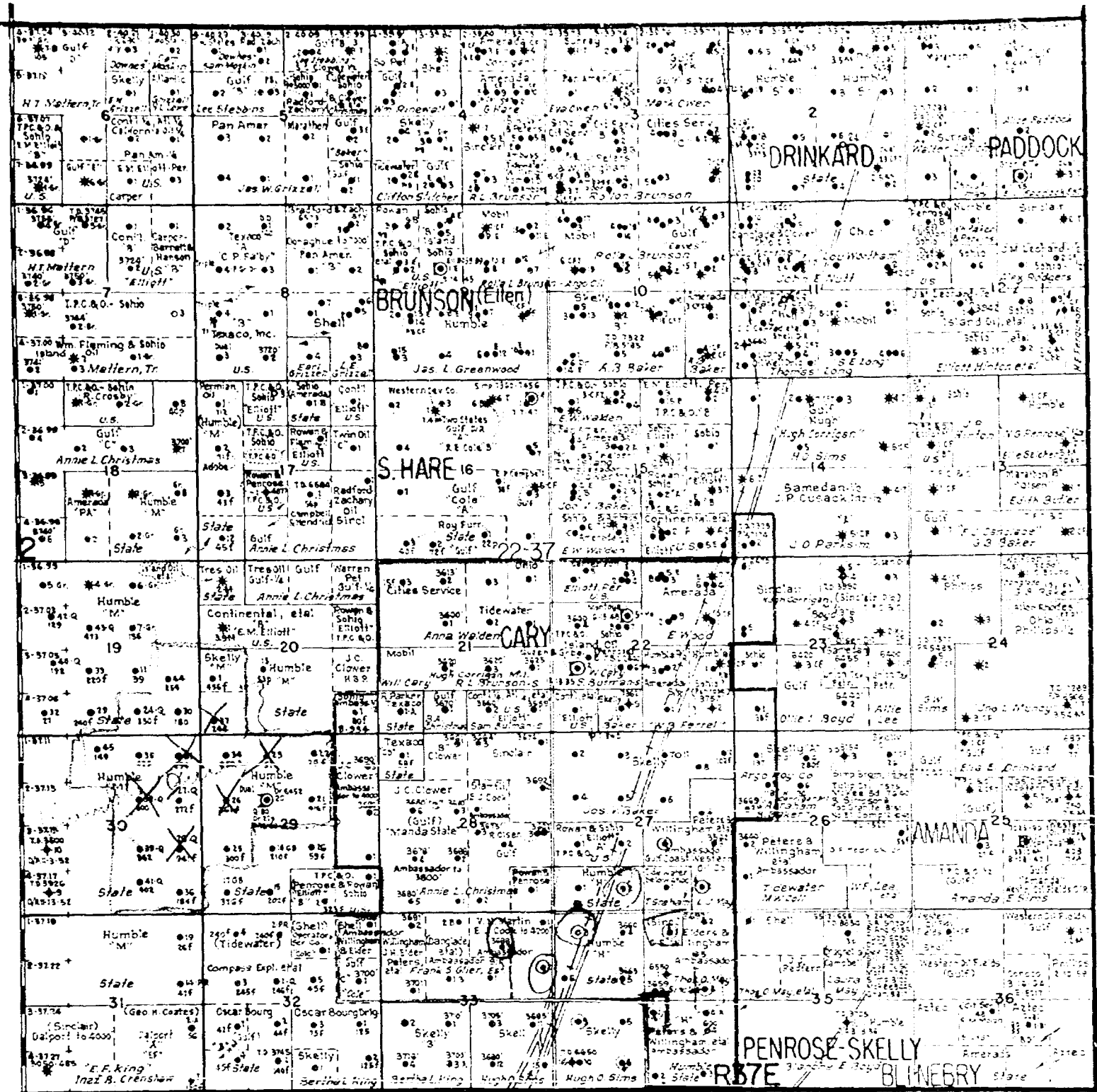


EXHIBIT "A"
MAP SHOWING WELLS IN TWO MILE RADIUS
FROM PROPOSED INJECTION WELLS

○ PRESENT INJECTION WELLS
● PROPOSED INJECTION WELLS

[illegible]

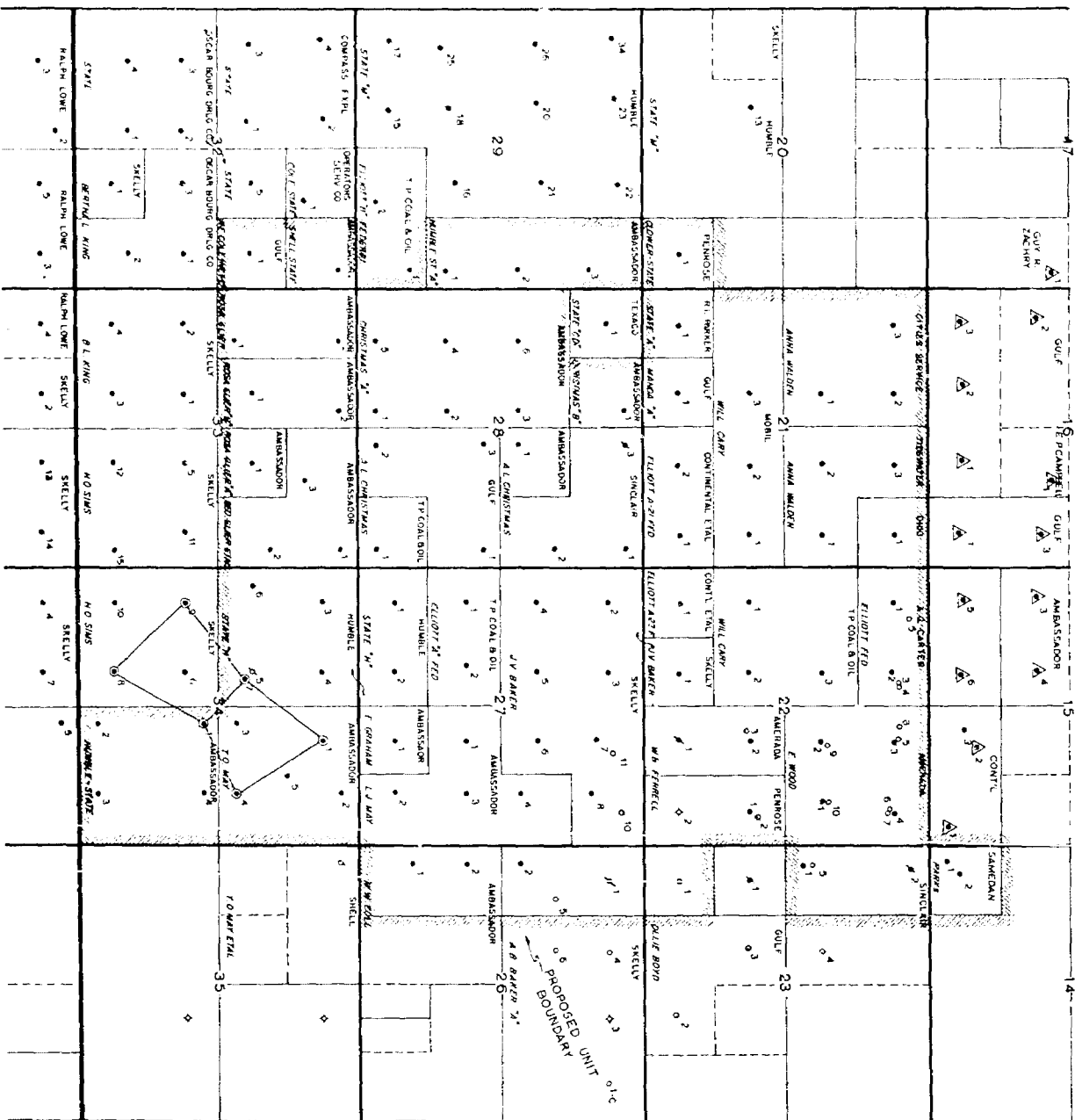
AMBASSADOR OIL CORPORATION
LANGFIE MATTHEW UNIT AREA

FL 000 NO. 36

• PENROSE PROD.
• PENROSE INC
• GRAYBURG PRODU
• PROPOSED INC

2/9/55

R 37 E



R 37 E

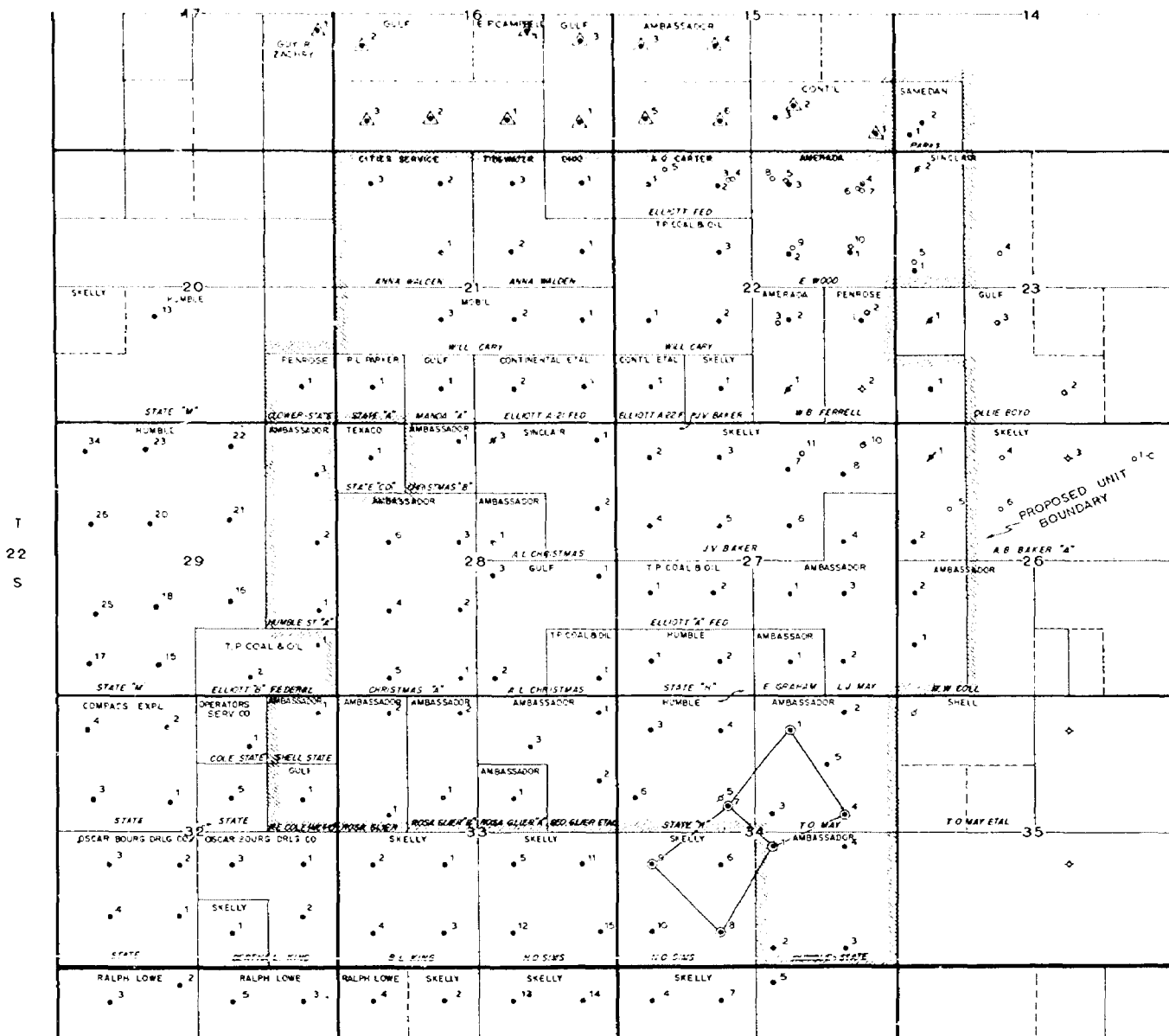


EXHIBIT "C"
UNIT BOUNDARY MAP

AMBASSADOR OIL CORPORATION
LANGIE MATTIX UNIT AREA
LEA CO. NEW MEXICO

• PENROSE PROD
⊙ PENROSE INJ
△ GRAYBURG PROD

FLOOD NO. 36

1002 7 955

19-1	19-2	21-2	21-3	35-2
115' - 15 1/2"	125' - 15 1/2"			120' - 15 1/2"
100 SKS. CEMENT	75 SKS. CEMENT			100 SKS. CEMENT
390' - 3"	450' - 13"			450' - 13"
800' - 10"	800' - 10'	410' - 10 3/4"	426' - 10 3/4"	750' - 10"
150 SKS. CEMENT	100 SKS. CEMENT	125 SKS. CEMENT	125 SKS. CEMENT	
1145' - 8 5/8"	1164' - 8 5/8"			1150' - 8 5/8"
150 SKS. CEMENT	150 SKS. CEMENT			
3360' - 7"	3364' - 7"	3404' - 7"	3409' - 7"	3450' - 7"
150 SKS. CEMENT	OPEN HOLE	410 SKS. CEMENT	410 SKS. CEMENT	150 SKS. CEMENT
3360' - 3610'	3364' - 3610'	5 1/2" LINER	5 1/2" LINER	OPEN HOLE
		3376' - 3660'	3387' - 3664'	3450' - 3702'

EXHIBIT "D"
INJECTION WELL CASING PROGRAM

0126 2955

EXHIBIT "E"

NEW MEXICO OIL AND GAS COMMISSION
WATERFLOOD APPLICATION DATA

June 1935

FIELD LANGLIE-MATTIX COUNTY LEA
OPERATOR AMBASSADOR OIL CORPORATION
LEASES LANGLIE-MATTIX PENROSE SAND UNIT
RESERVOIR PENROSE SAND (QUEEN) DISCOVERY DATE SEPTEMBER, 1935

I. RESERVOIR AND FLUID CHARACTERISTICS

A. INFORMATION ON ENTIRE RESERVOIR

1. NAME OF FORMATION PENROSE SAND
2. ESTIMATED PRODUCTIVE AREA OF ENTIRE RESERVOIR 20,000 ACRES
3. COMPOSITION (SAND, LIMESTONE, DOLOMITE, ETC.) SAND
4. TYPE OF STRUCTURE STRATIGRAPHIC TRAP
(INCLUDE CROSS-SECTION AND STRUCTURAL MAPS)
5. TYPE DRIVE DURING PRIMARY PRODUCTION SOLUTION GAS
6. ORIGINAL RESERVOIR PRESSURE 1500 PSI
7. WAS GAS CAP PRESENT ORIGINALLY No AT PRESENT? No

B. INFORMATION ON PROPOSED PROJECT AREA

(INCLUDE PLAT OF LEASE (S) TO BE FLOODED, SHOWING PRODUCING WELLS, PROPOSED INJECTION WELLS, AND OFFSET WELLS.)

1. NUMBER OF PRODUCTIVE ACRES IN LEASE (S) TO BE FLOODED, 3,920
2. AVERAGE DEPTH TO TOP OF PAY (FEET) 3,400
3. AVERAGE EFFECTIVE PAY THICKNESS (FEET) 25
4. AVERAGE POROSITY (%) 13
5. AVERAGE HORIZONTAL PERMEABILITY (MDS.) 5 RANGE 1-20
6. CONNATE WATER CONTENT (% OF PORE SPACE) 40
7. GRAVITY OF OIL (API) 37 VISCOSITY NO AVAILABLE

II. PRIMARY PRODUCTION HISTORY

1. DATE FIRST WELL COMPLETED ON LEASE (S) JANUARY, 1936
2. OIL, GAS, WATER PRODUCTION BY MONTHS SINCE DISCOVERY, (GRAPHICALLY AS WELL AS IN TABULAR FORM.)
3. STATE OF DEPLETION OF PROJECT AREA STRIPPER
4. NUMBER OF PRODUCING WELLS ON EACH LEASE IN PROJECT AREA 78
5. AVERAGE DAILY OIL PRODUCTION PER WELL AT PRESENT TIME 4 BARRELS
6. CUMULATIVE OIL PRODUCTION TO DATE FROM LEASE (S) 6,363,944

III. RESULTS EXPECTED

1. ESTIMATED ORIGINAL OIL IN PLACE (BBLs.) 49,000,000
2. ESTIMATE OIL SATURATION AT PRESENT TIME (% OF PORE SPACE) 43
3. ESTIMATED RESIDUAL OIL SATURATION AT ABANDONMENT 31%
4. ESTIMATE ULTIMATE ADDITIONAL OIL THAT WILL BE RECOVERED AS A DIRECT RESULT OF INJECTION (BBLs.) 5,000,000

IV. INJECTION

1. SOURCE OF INJECTED WATER (FORMATION, DEPTHS) SANTA ROSA @ 600'
2. FRESH OR SALT WATER BRACKISH (NOT POTABLE)
3. FLOOD PATTERN AND SPACING 80 ACRE 5 SPOT
4. INITIAL INJECTION PRESSURE TO BE USED (PSI) 1550
5. ESTIMATE INITIAL PER WELL RATE OF INJECTION (BBLs.) 300
6. SEE EXHIBIT "D" FOR INJECTION WELL CASING AND CEMENTING PROGRAM.

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

January 16, 1964

Mr. James T. Jennings
Attorney at Law
Post Office Box 1180
Roswell, New Mexico

Dear Sir:

Enclosed herewith is Commission Order No. R-2633, entered in Case No. 2955, approving the Ambassador Langlie Mattix Penrose Sand Unit Waterflood Project.

According to our calculations, when all of the authorized injection wells have been placed on active injection, the maximum allowable which this project will be eligible to receive under the provisions of Rule 701-E-3 is 1274 barrels per day.

Please report any error in this calculated maximum allowable immediately, both to the Santa Fe office of the Commission and the appropriate district proration office.

In order that the allowable assigned to the project may be kept current, and in order that the operator may fully benefit from the allowable provisions of Rule 701, it behooves him to promptly notify both of the aforementioned Commission offices by letter of any change in the status of wells in the project area, i.e., when active injection commences, when additional injection or producing wells are drilled, when additional wells are acquired through purchase or unitization, when wells have received a response to water injection, etc.

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

Page -2-

Mr. James T. Jennings
Attorney at Law
Post Office Box 1180
Roswell, New Mexico

C
O
P
Y
Your cooperation in keeping the Commission so informed as to the status of the project and the wells therein will be appreciated.

Very truly yours,

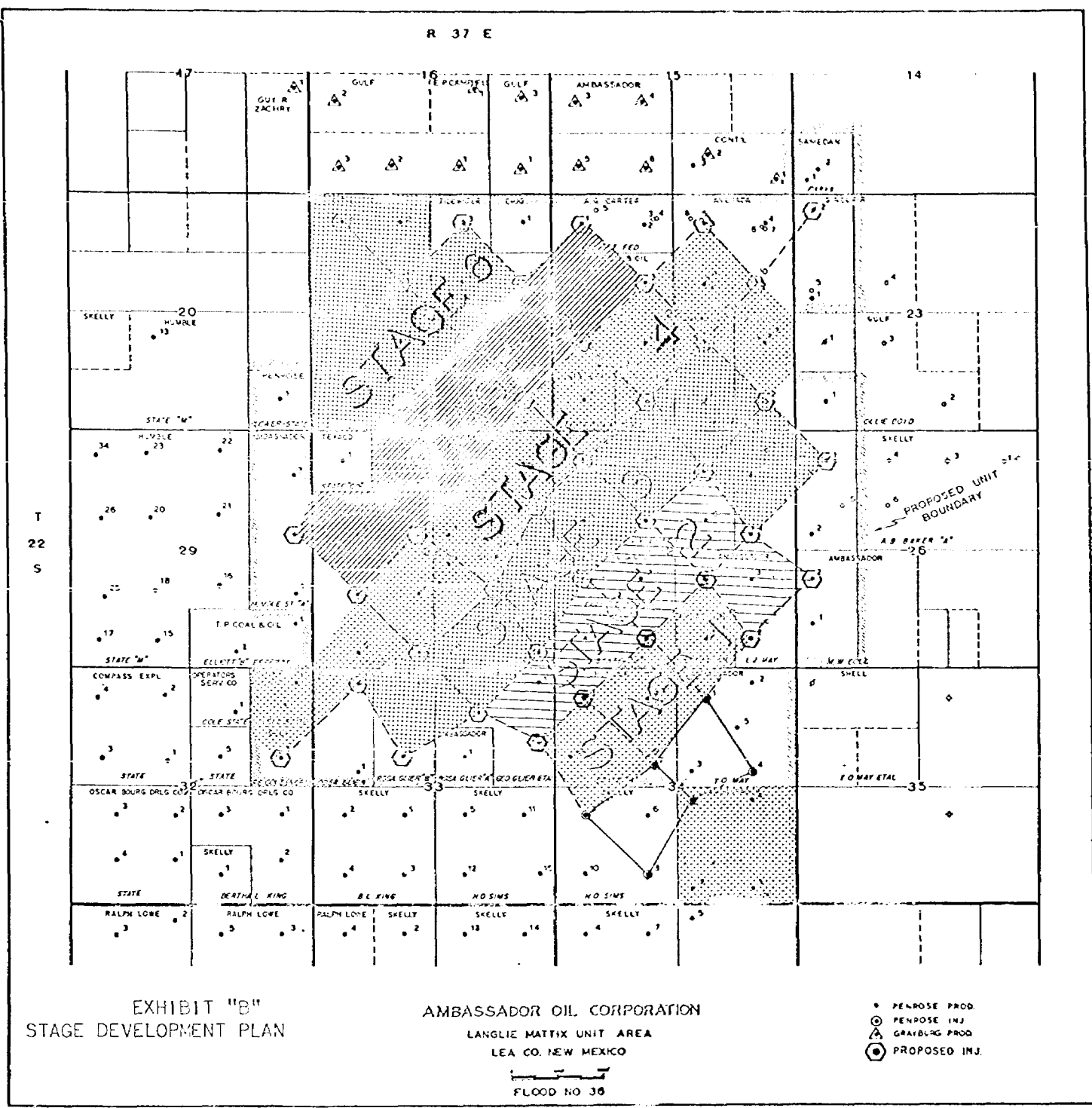
A. L. PORTER, Jr.
Secretary-Director

ALP/lr

Attachment

cc: Mr. Howard Bratton
Mr. Frank Irby
Oil Conservation Commission - Hobbs, New Mexico

BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
EXHIBIT NO. 2755
CASE NO. 12



R 37 E



EXHIBIT "C"
UNIT BOUNDARY MAP

AMBASSADOR OIL CORPORATION
LANGLEY MATTHEW UNIT AREA
LEA CO. NEW MEXICO

• PENROSE PROD
① PENROSE INJ
△ GRAYBURG PROD

FLOOD NO. 36

BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
EXHIBIT NO. 2955
CASE NO. 2955

35-2

EXHIBIT "D"
INJECTION WELL CASING PROGRAM

Agrostis hyemalis

BEFORE EXAMINER UTZ
OF CONSERVATION COMMISSION
EXHIBIT NO. 10
CASE NO. 2985



STATE OF NEW MEXICO
STATE ENGINEER OFFICE
SANTA FE

S. E. REYNOLDS
STATE ENGINEER

December 4, 1963

ADDRESS CORRESPONDENCE TO:
STATE CAPITOL
SANTA FE, N. M.

BEFORE EXAMINER UTZ	
OIL CONSERVATION COMMISSION	
App	EXHIBIT NO. E
CASE NO.	2955

Mr. A. L. Porter, Jr.
Secretary-Director
Oil Conservation Commission
Santa Fe, New Mexico

RE: Case No. 2955
Ambassador Oil Corp.

Dear Mr. Porter:

The enclosed copy of letter from the Ambassador Oil Corporation dated November 26, 1963 states that water injection will be through tubes and under packer in the five proposed injection wells. Therefore, this office offers no objection to the granting of their application.

Very truly yours,

S. E. Reynolds
State Engineer

By: *D. E. Gray*
D. E. Gray, Engineer
Water Rights Division

DEG:cl

cc: Fred H. Hennighausen
Ambassador Oil Corp.
James T. Jennings

AMBASSADOR OIL CORPORATION

AMBASSADOR BUILDING

3109 WINTHROP P. O. Box 9338

FORT WORTH 7, TEXAS

F. KIRK JOHNSON
CHAIRMAN AND
CHIEF EXECUTIVE OFFICER

C. HARRISON COOPER
PRESIDENT

CABLE ADDRESS
FRANJO, FORT WORTH

BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION

EXHIBIT NO. 1

CASE NO. 2254

RE: PROPOSED WATERFLOOD
LANGLIE-MATTIX PENROSE SAND UNIT
LEA COUNTY, NEW MEXICO

DEAR SIR:

PURSUANT TO PLANS OUTLINED HEREIN, THE ATTACHED REPORT ENTITLED "PROPOSED PLAN OF WATERFLOOD OPERATION", AMBASSADOR OIL CORPORATION HEREBY APPLIES FOR DESIGNATION OF CERTAIN TRACTS OF LAND IN TOWNSHIP 22-S, R-37-E, LEA COUNTY, NEW MEXICO, MORE SPECIFICALLY DESCRIBED IN THE UNIT AGREEMENT HERewith ENCLOSED, FOR PRELIMINARY APPROVAL AS AN AREA LOGICALLY SUBJECT TO DEVELOPMENT AND OPERATION UNDER A UNIT AGREEMENT TO BE KNOWN AS THE LANGLIE-MATTIX UNIT PENROSE SAND UNIT.

THE EXHIBITS HEREINAFTER REFERRED TO ARE A PART OF THE ABOVE-MENTIONED REPORT.

EXHIBIT A IS A MAP CONTAINED IN THE UNIT AGREEMENT, IDENTIFYING EACH TRACT BY NUMBER.

EXHIBIT B, ALSO CONTAINED IN THE UNIT AGREEMENT, IS A SCHEDULE SHOWING TRACT NUMBERS, DESCRIPTION, ACREAGE, LEASE SERIAL NUMBER, KIND OF OWNERSHIP AND TRACT PARTICIPATION PERCENTAGE FOR ALL TRACTS IN THE PROPOSED UNIT, TO THE EXTENT SHOWN BY THE APPLICANT.

EXHIBIT C IS A MAP SHOWING THE PRESENT PILOT FLOOD AREA, THE TENTATIVE STAGED DEVELOPMENT PLAN AND PROPOSED WATER INJECTION WELL PATTERN.

EXHIBIT D IS A WELL STATUS REPORT BY LEASES.

THE PRODUCTIVE ZONE PROPOSED IN THIS UNITIZATION APPLICATION IS THE LANGLIE-MATTIX ZONE AND IS DEFINED AS THE LOWER 100 FEET OF THE SEVEN RIVERS AND ALL OF THE QUEEN FORMATION THROUGHOUT THE UNIT AREA. THIS ZONE IS LOCALLY NAMED THE PENROSE SAND. THE SAND OCCURS IN MULTIPLE STRINGERS, OR LENSES WITHIN A DENSE DOLOMITIC LIMESTONE WITH AN OVERALL GROSS THICKNESS OF 369 FEET IN SINCLAIR OIL & GAS COMPANY'S CHRISTMAS No. 3; COPY OF LOG IS INCLUDED (EXHIBIT J) IN THE ATTACHED REPORT.

THE PROPOSED UNIT, EMBRACING 3,880 ACRES MORE OR LESS IS CONTAINED IN ALL OR PORTIONS OF SECTIONS 14, 20, 21, 22, 23, 26, 27, 28, 29, 32, 33, AND 34 TOWNSHIP 22-S, RANGE 37-E OF LEA COUNTY, NEW MEXICO. A TOTAL OF THREE (3) TRACTS CONTAINING 280 ACRES OR 7.21 PERCENT ARE FEDERAL LANDS, SEVEN (7) TRACTS CONTAINING 680 ACRES OR 17.53 PERCENT ARE STATE LANDS AND TWENTY-SEVEN (27) TRACTS CONTAINING 2,920 ACRES OR 75.26 PERCENT ARE FEE LANDS.

IT WILL BE NOTED THAT ALL WELLS SHOWN ON THE EXHIBITS ARE NOT CONTAINED WITHIN THE PROPOSED UNIT BOUNDARIES. THE OWNERS OF THE CONTIGUOUS ACREAGE TO THE WEST AND SOUTHWEST, HUMBLE OIL & REFINING'S STATE "M" LEASE, W/2, W/2 NE/4 AND NW/4 SE/4 OF SEC. 29; COMPASS EXPLORATION'S STATE LEASE, NW/4 OF SEC. 32; OPERATORS SERVICE COMPANY'S COLE STATE LEASE, NW/4 NE/4 OF SEC. 32; TEXAS PACIFIC COAL AND OIL COMPANY'S ELLIOTT "B" FEDERAL LEASE, S/2 SE/4 OF SEC. 29, AND OSCAR BOURG DRILLING COMPANY'S STATE LEASE, SW/4 OF SEC. 32 AND KING LEASE, E/2 SE/4 AND NW/4 SE/4 OF SEC. 32 HAVE DECLINED TO PARTICIPATE IN THE UNIT DUE TO THE WELLS CONTAINED IN THE AREAS DESCRIBED ABOVE BEING RECENTLY DRILLED AND PRIMARY PRODUCTION STILL RELATIVELY HIGH. SKELLY OIL COMPANY WHO HAS ACREAGE ALONG THE SOUTHERN BOUNDARY DECLINED TO PLACE THEIR KING LEASE SW/4 OF SEC. 33, SIMS LEASE, SE/4 OF SEC. 33 AND SIMS LEASE SW/4 OF SEC. 34 WITHIN THE UNIT DUE TO THE PLANNING OF A WATERFLOOD OF THEIR OWN IN THESE AREAS BASED ON INFORMATION GAINED FROM THE COOPERATIVE FLOOD IN WHICH THEY ARE PARTICIPATING WITH AMBASSADOR AND HUMBLE. THE WELLS ON ADJACENT ACREAGE TO THE NORTH AND EAST ARE PRODUCING FROM A DIFFERENT RESERVOIR THAN THE SUBJECT UNIT; NAMELY THE GRAYBURG (PENROSE-SKELLY) TO THE NORTH AND THE TUBBS TO THE EAST. ADJACENT OPERATORS TO THE PROPOSED UNIT WHO HAVE WELLS COMPLETED IN THE PENROSE AND HAVE DECLINED TO ENTER, HAVE STATED THAT THEY WILL COOPERATE ALONG LEASE LINES THUS AFFORDING EQUITY TO ALL CONCERNED.

WITHIN THE UNIT BOUNDARIES THERE ARE THREE UNDEVELOPED FORTY (40) ACRE TRACTS, CITIES SERVICE PETROLEUM COMPANY'S ANNA WALDEN LEASE, SW/4 NW/4 OF SEC. 21, TEXAS PACIFIC COAL AND OIL COMPANY'S WILL CARY LEASE, SW/4 NW/4 OF SEC. 22, AND SOCONY MOBIL OIL COMPANY'S WILL CARY LEASE NW/4 SW/4 OF SEC. 21. THESE TRACTS ALTHOUGH UNDEVELOPED, HAVE BEEN EITHER PARTIALLY OR TOTALLY DRAINED BY OTHER TRACT WELLS DURING THE PRIMARY PHASE. THESE TRACTS CAN BE ECONOMICALLY DEVELOPED WHEN THE INJECTION PATTERN IS EXPANDED AND THUS INSURE AND INCREASE MAXIMUM OIL RECOVERY FROM THESE AND ADJACENT TRACTS.

PRESENTLY THERE ARE NINETY (90) WELLS IN THE PROSPECTIVE UNIT AREA, SEVENTY-FIVE (75) OF WHICH ARE ACTIVELY PRODUCING FROM THE PENROSE SAND. OF THE FIFTEEN (15) INACTIVE PRODUCERS, FOUR (4) ARE ON INJECTION STATUS, EIGHT (8) ARE SHUT-IN, AND THREE (3) ARE TEMPORARILY ABANDONED. PRODUCTION FROM THE ACTIVE WELLS WAS 6,788 BARRELS FOR THE MONTH OF MAY, 1962. THE AVERAGE DAILY OIL PRODUCTION PER WELL WAS 2.9 BARRELS (EXCLUDING THE INACTIVE WELLS) AND RANGES FROM 0.2 BOPD TO 23.0 BOPD. THE LARGE RANGE IS DUE TO THE COOPERATIVE PILOT FLOOD RESPONSE AS DISCUSSED IN THE FOLLOWING PARAGRAPH. ATTACHED IS EXHIBIT "D" GIVING A WELL STATUS REPORT BY LEASE, AND TABLES 3 AND 4 GIVING TABULATION OF PRODUCTION BY LEASE AND WELL.

DUE TO THE COOPERATIVE PILOT FLOOD BEING IN OPERATION LONG ENOUGH (INITIATED AUGUST 27, 1953) TO ALLOW WELL RESPONSE, THE ABOVE DAILY AVERAGE PER WELL IS, OF COURSE, SOMEWHAT HIGHER THAN NORMAL. EXCLUDING THE LEASES ON

21 6-200
6-200

WHICH RESPONSE HAS BEEN INDICATED THE AVERAGE PER WELL IS 2.4 BOPD FOR THE MONTH OF MAY, 1962 AND RANGES FROM 0.2 TO 8.3 BOPD. THOSE LEASES SHOWING FLOOD RESPONSE ARE HUMBLE OIL & REFINING COMPANY'S STATE "VH" AND AMBASSADOR OIL CORPORATION'S T.O. MAY AND HUMBLE STATE LEASES. SKELLY OIL COMPANY'S H. O. SIMS LEASE WHICH IS NOT WITHIN THE PROSPECTIVE UNIT AREA BUT IS INCLUDED IN THE COOPERATIVE PILOT HAS ALSO SHOWN AN INCREASE IN PRODUCTION DUE TO THE PILOT. THEREFORE, IT CAN BE SEEN THAT THE ECONOMIC LIMIT OF 3 BOPD PER WELL HAS BEEN REACHED ON AN AVERAGE. ALSO, IT IS NOTED THAT MORE THAN (81,757 BARRELS) THE PREDICTED REMAINING PRIMARY RESERVES AS OF JULY 1, 1961 (59,848 BARRELS) HAS BEEN PRODUCED FROM JULY 1, 1961 THROUGH JUNE 1, 1962. THIS APPROXIMATE 21,000 BARRELS OVER THE PREDICTION IS DUE TO THE PILOT RESPONSE AND ALSO INCLUDES SOME OIL PRODUCED BELOW THE ECONOMIC LIMIT.

THE SELECTED INJECTION PATTERN ADEQUATELY PROTECTS THE CORRELATIVE RIGHTS OF THE VARIED INTERESTS INVOLVED (U.S. GOVERNMENT, STATE AND INDIVIDUAL ROYALTIES, AND THE WORKING INTEREST); ALSO IT WILL RESULT IN THE MOST EFFICIENT DISPLACEMENT OF THE REMAINING RECOVERABLE OIL IN PLACE.

THE UNIT AGREEMENT AND UNIT OPERATING AGREEMENT (COPIES ATTACHED) HAVE BEEN PATTERNED AFTER AGREEMENTS PREVIOUSLY APPROVED BY YOUR OFFICE.

IT IS AMBASSADOR OIL CORPORATION'S INTENTION AS UNIT OPERATOR AND WORKING INTEREST OWNER, TO CONDUCT THE FLOOD IN A WORKMANLIKE MANNER, ENGAGING ALL STEPS NECESSARY TO RESTRICT INJECTED WATER TO THE PENROSE SAND. SUFFICIENT FACILITIES WILL BE CONSTRUCTED AND MAINTAINED TO GATHER, TREAT AND DISTRIBUTE INJECTION WATER. THOROUGH RECORDS OF PROJECT PERFORMANCE WILL BE MAINTAINED IN THE UNIT FIELD OFFICE (ADDRESS BELOW) AND WILL BE AVAILABLE FOR YOUR INSPECTION AT ALL TIMES:

AMBASSADOR OIL CORPORATION
EUNICE, NEW MEXICO

IN CONCLUSION WE HEREIN REQUEST YOUR APPROVAL OF THE AREA DESIGNATED FOR THE SUBJECT UNITIZED WATERFLOOD, THE PARTICIPATION FORMULA, AND THE UNIT AGREEMENT AND UNIT OPERATING AGREEMENT. WE WOULD SINCERELY APPRECIATE YOUR CONSIDERING THIS MATTER AT YOUR EARLIEST CONVENIENCE.

YOURS VERY TRULY,

E. A. RILEY
ASSISTANT VICE-PRESIDENT
MANAGER OF SECONDARY RECOVERY DIV.

PROPOSED PLAN OF WATERFLOOD OPERATIONS

FOR

LANGLIE-MATTIX PENROSE SAND UNIT

LEA COUNTY, NEW MEXICO

SUBMITTED BY: AMBASSADOR OIL CORPORATION

TABLE OF CONTENTS

- I. HISTORY
- II. GEOLOGY
- III. ROCK AND FLUID CHARACTERISTICS
- IV. PRIMARY RECOVERY AND PREDICTED SECONDARY RECOVERY
- V. UNIT PARTICIPATION FORMULA
- VI. UNIT AREA DESIGNATION
- VII. UNDEVELOPED TRACTS
- VIII. WATER SOURCE
- IX. WATER STATION AND INJECTION EQUIPMENT
- X. PRODUCTION EQUIPMENT

TABLES

1. WELL COMPLETION DATA
2. SUMMARY OF CORE ANALYSES DATA
3. TABULATION OF PRODUCTION BY LEASE, 7/61 THRU 6/62
4. TABULATION OF PRODUCTION BY WELL FOR MAY, 1962

ATTACHMENTS

- | | |
|------------------|---|
| <u>EXHIBIT A</u> | PLAT OF UNIT AREA WITH EACH LEASE IDENTIFIED BY TRACT NUMBER. |
| <u>EXHIBIT B</u> | UNIT AREA DESCRIPTION SCHEDULE, PART OF UNIT AGREEMENT |
| <u>EXHIBIT C</u> | PLAT INDICATING PROPOSED EXPANSION FROM PILOT WATERFLOOD |
| <u>EXHIBIT D</u> | WELL STATUS REPORT BY LEASE |
| <u>EXHIBIT E</u> | TABULATION OF UNITIZATION INFORMATION - FORMULA PARAMETER DATA |
| <u>EXHIBIT F</u> | LEASE DECLINE CURVES |
| <u>EXHIBIT G</u> | UNIT AGREEMENT |
| <u>EXHIBIT H</u> | UNIT OPERATING AGREEMENT |
| <u>EXHIBIT I</u> | GAMMA RAY NEUTRON LOG - AMBASSADOR OIL CORPORATION'S T. O. MAY No.5 |
| <u>EXHIBIT J</u> | INDUCTION LOG, MICRO LOG, AND GAMMA RAY NEUTRON LOG - SINCLAIR OIL & GAS COMPANY'S CHRISTMAS No.3 |
| <u>EXHIBIT K</u> | EARLOUGHER ENGINEERING'S CORE ANALYSIS REPORT ON AMBASSADOR'S T. O. MAY No. 5 |
| <u>EXHIBIT L</u> | MINUTES OF OPERATOR AND ENGINEERING COMMITTEE MEETINGS |

I. HISTORY

THE PROPOSED UNIT AREA WITHIN THE LANGLEIE-MATTIX FIELD CONTAINS SOME WELLS PRODUCING FROM THE DRINKARD ZONE AT APPROXIMATELY 6500 FEET; HOWEVER ONLY THOSE WELLS PRODUCING FROM THE QUEEN ZONE AND THE LOWER 100 FEET OF THE SEVEN RIVERS, ARE CONSIDERED IN THE PLAN. THIS PORTION OF THE FIELD WAS ORIGINALLY INCLUDED IN THE PENROSE-SKELLY FIELD BUT IS NOW CARRIED AS THE LANGLEIE-MATTIX FIELD IN THE NEW MEXICO OIL CONSERVATION COMMITTEE RECORDS.

THE LANGLEIE-MATTIX FIELD DISCOVERY WELL, ANDERSON PRICHARD'S NO. 1 LANGLEIE (N. SEC. 19, 25-S 37-E) WAS COMPLETED DURING SEPTEMBER 1, 1935.

NORMAL COMPLETION PRACTICE DURING EARLY FIELD DEVELOPMENT WAS TO SET THE PRODUCTION STRING IN THE UPPER SECTION OF WHAT WAS TERMED THE LANGLEIE-MATTIX ZONE. COMPLETION WAS THEN MADE IN THE OPEN HOLE WITH THE USE OF A NITROGLYCERIN SHOT RANGING FROM 100 TO 600 QUARTS; ACID WAS ALSO EMPLOYED FOLLOWING CLEANOUT OPERATIONS. A SMALL NUMBER OF WELLS WERE EITHER EQUIPPED WITH LINERS OR THE OIL STRING SET THROUGH AND PERFORATED. FOLLOWING THE INTRODUCTION OF HYDRAULIC FRACTURING TO THE OIL INDUSTRY, A NUMBER OF WELLS WERE RE-STIMULATED WITH VARYING SUCCESS.

A COMPILATION OF WELL COMPLETION DATA IS PRESENTED IN TABLE I.

A COOPERATIVE PILOT FLOOD, INDICATED ON EXHIBIT "C", WAS INITIATED AUGUST 27, 1953, AND TO DATE HAS RESPONDED ON HUMBLE OIL & REFINING COMPANY'S HUMBLE STATE "H" LEASE AND AMBASSADOR OIL CORPORATION'S T. O. MAY AND HUMBLE STATE LEASES; SKELLY OIL COMPANY'S H. O. SIMS LEASE WHICH IS NOT WITHIN THE PROSPECTIVE UNIT AREA BUT IS INCLUDED IN THE COOPERATIVE PILOT HAS ALSO SHOWN AN INCREASE IN PRODUCTION DUE TO PILOT FLOOD RESPONSE. SINCE INITIATION OF THIS PILOT FLOOD (LOCATION EXHIBIT A) AMBASSADOR, HUMBLE AND SKELLY HAVE INJECTED A CUMULATIVE VOLUME OF 1,983,322 BW (INTO 3 WELLS), 478,327 BW (INTO 1 WELL) AND 1,618,711 BW (INTO 2 WELLS) RESPECTIVELY, FOR A GRAND CUMULATIVE TOTAL OF 4,080,360 BW INTO THE SIX WELL PILOT AREA. THE ATTACHED LEASE PRODUCTION CURVES (EXHIBIT F) REVEAL THE RELATIVE RESPONSE AND SUCCESS OF THE PILOT FLOOD ON AMBASSADOR'S T. O. MAY AND HUMBLE STATE LEASES AND HUMBLE'S STATE "A" LEASE. SKELLY HAS SHOWN THAT OF THE 76,179 BARRELS RECOVERED ON THEIR H.O. SIMS LEASE, THAT 58,6450 BARRELS IS CONSIDERED SECONDARY OIL. IN ALL, IT IS FELT THAT THE RELATIVE SUCCESS OF THIS PILOT FLOOD SUBSTANTIATES EXPANSION THROUGH UNITIZATION.

II. GEOLOGY

THE LANGLEIE-MATTIX FIELD HAS AT LEAST THREE PRODUCTIVE ZONES, THE YATES, SEVEN RIVERS, AND QUEEN; HOWEVER ONLY WELLS WHICH PRODUCE FROM THE LOWER 100 FEET OF THE SEVEN RIVERS AND THE LATTER HORIZON ARE BEING CONSIDERED IN THE PROSPECTIVE UNIT. MORE SPECIFICALLY, THESE WELLS PRODUCE FROM THE LOCALLY NAMED PENROSE SAND OF THE GUADALUPE SERIES OF THE PERMIAN SYSTEM.

THE RESERVOIR IS A STRATIGRAPHIC TRAP, CONSISTING OF MULTIPLE SAND STRINGERS, OR LENSES IN A DENSE DOLOMITIC LIMESTONE WHICH WERE DEPOSITED ALONG THE WESTERN EDGE OF THE CENTRAL BASIN PLATFORM DURING A PERIOD OF MILD GEOLOGIC DISTURBANCE. PRODUCTION IS CONTROLLED BY POROSITY OR PERMEABILITY DEVELOPMENT. THE FIELD TRENDS NORTH-SOUTH, AND DIPS GENTLY TO THE SOUTH AT 25 - 60 FT. PER MILE. IN THE UNIT AREA SOME MILD LOCALIZED DIPPING TO THE WEST OCCURS WITH THE DEVELOPMENT OF A "SHALLOW TROUGH" ALONG THE BOUNDARY OF THE UNIT ON THAT SIDE. ACROSS THE MAJOR PORTION OF THE UNIT THE PAY ZONE IS VERY FLAT.

TOTAL GROSS PAY THICKNESS IS 369 FEET. NET PAY IS ALMOST IMPOSSIBLE TO DETERMINE SINCE THE INDIVIDUAL SAND BODIES DO NOT DISCERNIBLY OCCUR OVER A WIDE AREA; HOWEVER, FOR THE PURPOSE OF ANALYSIS IT HAS BEEN ESTIMATED AT 25 FEET. IT IS NOT KNOWN WHETHER DISCONTINUITY EXISTS OR IF IT WILL BE DETRIMENTAL TO WATERFLOOD OPERATIONS; HOWEVER, PERFORMANCE OF THE PILOT FLOOD TENDS TO INDICATE THAT FLOODING WILL BE FEASIBLE.

AVERAGE DRILLING DEPTH TO TOP OF PAY IS APPROXIMATELY 3,300 FEET.

III. ROCK AND FLUID CHARACTERISTICS

A CORE ANALYSIS TAKEN AT AMBASSADOR OIL CORPORATION'S T. O. MAY No. 5 ANALYZED BY EARLOUGHER ENGINEERING, INDICATES ROCK PROPERTIES AS LISTED IN THE FOLLOWING SUMMARY:

GROSS SECTION... CORED	143.0 FEET
NET OIL SAND	33.8 FEET
PERMEABILITY	4.3 MILLIDARCYS (WEIGHTED AVERAGES)
POROSITY	13.3 PERCENT
OIL SATURATION	18.0 PERCENT (AVERAGE)
CONNATE WATER SATURATION	40.0 PERCENT
FORMATION VOLUME FACTOR	1.2
ORIGINAL GAS IN SOLUTION	751.0 SCF/B
INITIAL BHP	1457.0 PSI

THE CORED SECTION WAS PREDOMINATELY DENSE SANDY DOLOMITE WITH THE 33.8 NET FEET OF OIL SAND OCCURRING IN FOUR SEPARATE ZONES AS FOLLOWS:

3577.8 to 3595.0	16.5 NET FEET
3630.8 to 3643.9	10.3 NET FEET
3659.7 to 3633.9	4.1 NET FEET
3676.9 to 3679.8	2.9 NET FEET

LABORATORY WATERFLOODING TESTS INDICATED THE PERMEABILITY TO FRESH WATER WAS ERRATIC AND GENERALLY FOLLOWED THE PERMEABILITY PROFILE.

FOR ADDITIONAL CORE ANALYSIS DATA REFER TO TABLE 2 AND EXHIBIT K.

ANALYSIS OF THE FLUID CHARACTERISTICS INDICATE A SWEET CRUDE WITH A PARAFFIN BASE AND AN AVERAGE GRAVITY OF 37° API. THE GAS IN THE SOUTH PORTION OF THE FIELD IS SOUR WHEREAS IN THE NORTH PORTION OF THE FIELD THE GAS IS SWEET.

IV. PRIMARY RECOVERY AND PREDICTED SECONDARY RECOVERY

TOTAL CUMULATIVE PRIMARY OIL PRODUCTION WITHIN THE PROSPECTIVE UNIT AREA AS OF JULY 1, 1961 WAS 6,297,178 BARRELS WHICH EXCLUDES PRODUCTION DETERMINED TO BE DUE TO PILOT FLOOD OPERATIONS (CUMULATIVE OF 6,314,207 BARRELS INCLUDING ALL PRODUCTION). THIS DIFFERENCE OF 17,029 BARRELS WAS TAKEN FROM AMBASSADOR'S T. O. MAY LEASE AS INDICATED ON ITS DECLINE CURVE CONTAINED IN EXHIBIT F. ALL OPERATORS AGREED THIS VOLUME SHOULD BE DEDUCTED FROM THE CUMULATIVE SINCE IT WAS EVIDENT THAT IT WAS DUE TO PILOT FLOOD RESPONSE. SECONDARY RECOVERY BY WATERFLOOD HAS BEEN PREDICTED AT 5,000,000 BARRELS OR 80% OF THE ACCUMULATED PRIMARY RECOVERY.

DECLINE CURVES FOR EACH OF THE LEASES TO BE INCLUDED IN THE UNIT ARE ATTACHED (EXHIBIT F).

THERE ARE NINETY (90) WELLS IN THE UNIT AREA, SEVENTY-FIVE (75) OF WHICH ARE CURRENTLY PRODUCING FROM THE PENROSE SAND. THE AVERAGE DAILY PRODUCTION PER WELL IS 2.4 BARRELS AFTER EXCLUDING THE INACTIVE WELLS AND THOSE WELLS BEING AFFECTED BY THE PILOT FLOOD.

V. UNIT PARTICIPATION FORMULA

ATTACHED IS A "TABULATION OF UNITIZATION INFORMATION" (EXHIBIT "E") GIVING PERTINENT DATA REGARDING A TENTATIVE PARTICIPATION FORMULA. THE PARTICIPATION FORMULA IS BASED ON THE PARAMETER OF 100% ULTIMATE PRIMARY RECOVERY.

THE REASONING BEHIND THE OPERATORS ARRIVING AT THIS FORMULA IS BASED ON A NUMBER OF FACTORS WHICH MAKE IT EQUITABLE TO ALL CONCERNED. PRIMARY PRODUCTION IS CONSIDERED ONE OF THE MOST REVEALING FACTORS IN PREDICTING RESERVOIR CAPACITY AND RESERVES IN PLACE WHEN, OF COURSE DEVELOPMENT IS PROPERLY WEIGHED. IN THIS CASE THE MAJORITY OF THE WELLS WERE COMPLETED ABOUT THE SAME TIME AS CAN BE SEEN ON TABLE 1, AND HAVE BEEN PRODUCING FOR A CONSIDERABLE LENGTH OF TIME. THEY ARE PRESENTLY PRODUCING AN AVERAGE OF 2.4 BOPD WHICH IS JUST BELOW THE ECONOMIC LIMIT OF 3 BOPD. ON MANY OF THE OLDER PROJECTS, OF WHICH THIS IS ONE, THE ONLY FACTUAL DATA AVAILABLE IS PRODUCTION, WHICH IS PUBLIC INFORMATION AND REQUIRES NO INTERPRETATION.

THE OPERATORS COMMITTEE CHARGED THE ENGINEERING COMMITTEE TO CONTRIVE A PARTICIPATION FORMULA WHICH WOULD INCLUDE VOLUMETRIC PARAMETERS. A STUDY OF ALL AVAILABLE INFORMATION REVEALED THAT THERE WAS A LACK OF LOGS, CORE ANALYSIS, ETC. MAKING IMPOSSIBLE THE CONSTRUCTION OF A RELIABLE ISOPACH OR PAY ZONE QUALITY MAP. SINCE IT WAS EVIDENT FROM THE INFORMATION AVAILABLE, THAT THE PROSPECTIVE ZONE WAS STRINGERED, THE POSSIBILITY OF A VOLUMETRIC PARAMETER WAS RULED OUT. THE USE OF WELLS AS A PARAMETER WAS ALSO CONSIDERED; HOWEVER DUE TO A FEW UNDRILLED TRACTS; ALSO SOME IRREGULAR WELL SPACING, THIS FACTOR WAS NOT CONSIDERED FURTHER.

VI. UNIT AREA DESIGNATION

THE ATTACHED PLAT, EXHIBIT "A", DEPICTS THE UNIT LIMITS DECIDED UPON BY THE OPERATORS IN THE AREA. THE PROSPECTIVE UNIT IS CONTAINED PARTIALLY AND IN WHOLE IN SECTIONS 14, 20, 21, 22, 23, 26, 27, 28, 29, 32, 33, AND 34. R-37-E, T-22S OF LEA COUNTY, NEW MEXICO. ORIGINALLY AN ATTEMPT WAS MADE TO INCLUDE LEASES OPERATED BY HUMBLE OIL AND REFINING COMPANY TO THE WEST, COMPASS EXPLORATION, OPERATORS SERVICE COMPANY, TEXAS PACIFIC COAL AND OIL COMPANY, AND OSCAR BOURG DRILLING COMPANY TO THE SOUTHWEST AND SKELLY OIL COMPANY TO THE SOUTH; HOWEVER HUMBLE, OPERATORS SERVICE COMPANY, TEXAS PACIFIC COAL & OIL COMPANY, AND OSCAR BOURG DRILLING COMPANY DECLINED TO PARTICIPATE DUE TO THEIR WELLS BEING RECENTLY COMPLETED AND PRIMARY PRODUCTION RELATIVELY HIGH; WHEREAS SKELLY DECLINED ON THE BASIS OF A WATERFLOOD OF THEIR

OWN WHICH THEY ARE CONTEMPLATING DUE TO THE INDICATED SUCCESS OF THE COOPERATIVE PILOT FLOOD ON THEIR ACREAGE. WELLS ON ADJACENT ACREAGE TO THE NORTH AND EAST ARE PRODUCING FROM A DIFFERENT RESERVOIR THAN THE PROSPECTIVE UNIT. OPERATORS WITH CONTIGUOUS PRODUCING PROPERTIES AND WELLS COMPLETED IN THE PENROSE HAVE STATED THAT THEY WILL COOPERATE ALONG LEASE LINES THUS AFFORDING AN EQUITABLE SITUATION.

VII. UNDEVELOPED TRACTS

THE UNDEVELOPED TRACTS HAVE BEEN DISCUSSED AND DETERMINED TO BE PARTIALLY OR TOTALLY DRAINED THUS DISALLOWING AN INEQUITY IN THE PROPOSED PARTICIPATION FORMULA. THESE TRACTS CAN BE ECONOMICALLY DEVELOPED WHEN THE INJECTION PATTERN IS EXPANDED AND THUS INSURE AND INCREASE MAXIMUM OIL RECOVERY FROM THESE AND ADJACENT TRACTS.

VIII. WATER SOURCE

THE SUPPLY WATER FOR THE EXISTING PILOT FLOOD IS SUPPLIED FROM FOUR SHALLOW FRESH WATER WELLS COMPLETED AT 200 FEET AND ONE WELL COMPLETED IN THE SANTA ROSA FORMATION WHICH OCCURS AT APPROXIMATELY 800 FEET. THE PRESENT TOTAL CAPACITY OF THE SHALLOW WELLS IS 500 BWPD WHILE THE CAPACITY OF THE SANTA ROSA SUPPLY WELL IS 1400 BWPD. EACH SANTA ROSA SUPPLY WELL MUST HAVE A CAPACITY OF APPROXIMATELY 2500 B/D TO ALLOW PROPOSED INJECTION RATES; CONSEQUENTLY IT IS PLANNED TO STIMULATE THE WELL WITH THE HYDRAULIC FRACTURE PROCESS.

IX. WATER STATIONS AND INJECTION EQUIPMENT

DEVELOPMENT OF THE INJECTION SYSTEM AND WATER STATIONS WILL BE GOVERNED BY TWO FACTORS: (1) FIELD PERFORMANCE AND (2) NEW MEXICO OIL CONSERVATION COMMISSION RULES. THIS UNIT WILL OPERATE IN COMPLIANCE WITH THE ORIGINAL RULE NO. 701 WHICH IN EFFECT, ALLOWS RESPONDING WELLS TO PRODUCE AT CAPACITY AND FURTHER STATES THAT DEVELOPMENT MAY PROGRESS FROM THE PILOT AREA AS WELLS RESPOND TO THE WATERFLOODING OPERATION. THIS WILL RESULT IN A STAGE DEVELOPMENT PROGRAM AS PROPOSED IN EXHIBIT "C".

AN ADDITIONAL PRESSURE PUMP AND GAS ENGINE WILL BE INSTALLED IN THE PRESENT WATER STATION AS DICTATED BY WATERFLOOD RESPONSE. THE TWO PROPOSED WATER STATIONS WILL EACH CONSIST OF TWO VERTICAL TRIPLEX PRESSURE PUMPS, TWO GAS ENGINES COMPLETELY EQUIPPED FOR AUTOMATION AND SAFETY CONTROLS, ONE CENTRAL FILTER AND ACCESSORIES. THE CAPACITY OF EACH WATER STATION WILL BE 6,000 B/D AT 2500 PSI MAXIMUM WORKING PRESSURE.

THE INJECTION SYSTEM WILL UTILIZE THE FOLLOWING PIPE SIZES: 4", 3", 2½", AND 2". THE SYSTEM WILL BE CEMENT-LINED, WELDED, BURIED, AND SO DESIGNED THAT THE SUMMATION OF FRICTION LOSS WILL NOT EXCEED 100 PSI ON ANY LINE SEGMENT FROM THE ORIGINATING POINT TO THE END DELIVERY POINT.

X. PRODUCTION EQUIPMENT AND OIL WATER GATHERING SYSTEM

PUMPING EQUIPMENT, SURFACE AND SUBSURFACE, WILL BE ENLARGED ON INDIVIDUAL WELLS AS DICTATED BY FLOOD PERFORMANCE. DEPENDING UPON PRODUCING RATE, THE PUMPING UNIT REQUIREMENTS WILL BE SATISFIED BY A 160,000 IN-LB. OR A 228,000 IN-LB. RATED BEAM UNIT. BY THE SAME REQUIREMENTS THE PRIME MOVER WILL BE AN $8\frac{1}{2}$ " x 16" OR A $9\frac{1}{2}$ " x 12" GAS ENGINE OR EQUIVALENT. ENLARGED SUBSURFACE EQUIPMENT WILL CONSIST OF A $2\frac{1}{4}$ " TUBING PUMP, $2\frac{1}{2}$ " TUBING, AND A COMBINATION STRING OF $7/8$ " AND $3/4$ " SUCKER RODS. THIS EQUIPMENT HAS A CAPACITY OF 500-600 BPD.

THE PRODUCED OIL AND WATER GATHERING LINES FROM INDIVIDUAL WELLS WILL CONVERGE TO A HEADER AND THUS ON TO A CENTRAL TANK BATTERY THROUGH TRUNK LINE SYSTEMS. THE CENTRAL TANK BATTERIES WILL BE UTILIZED UNTIL IT BECOMES ECONOMICALLY FEASIBLE TO INSTALL A LACT UNIT.

SEMI-AUTOMATIC WELL TESTING UNITS WILL BE PLACED IN OPERATION AT THE CENTRALIZED TANK BATTERY LOCATIONS TO FACILITATE INDIVIDUAL WELL TESTING. THE FLUID FROM THE INDIVIDUAL WELLS WILL BE METERED TO A STATELLITE COLLECTION POINT AND THE WELL TO BE TESTED WILL BE TURNED MANUALLY INTO A TEST LINE. THE FLUID WILL FLOW TO THE TEST UNIT, METERED, AND DIRECTED INTO THE RESPECTIVE STORAGE TANKS.

EXHIBIT "D"
WELL STATUS BY LEASE

OPERATOR, LEASE AND NUMBER OF WELLS		ACTIVE PRODUCERS	INACTIVE	PRODUCING FROM	PROD. 7/1/61 TO 11/1/61	P (PUMPING) F (FLOWING)
<u>AMBASSADOR OIL CORP.</u>						
ANNIE CHRISTMAS	1	1	-	PENROSE SAND	67	P
ANNIE CHRISTMAS "A"	6	5	1 (SHUT IN)	PENROSE SAND	1,321	F
B. A. CHRISTMAS "B"	1	1	-	PENROSE SAND	96	F
M. W. COLL	2	2	-	PENROSE SAND	568	P
GEORGE GLIER, ET AL	3	2	1 (SHUT IN)	PENROSE SAND	406	P
ROSA GLIER	2	1	1 (SHUT IN)	PENROSE SAND	345	P
ROSA GLIER "A"	1	1	-	PENROSE SAND	42	F
ROSA GLIER "B"	2	1	1 (SHUT IN)	PENROSE SAND	49	F
ELIZA GRAHAM	1	1	-	PENROSE SAND	472	P
HUMBLE STATE	4	3	1 (INJECTION)	PENROSE SAND	1,553	P
HUMBLE STATE "A"	3	3	-	PENROSE SAND	1,395	F
L.J. MAY	4	4	-	PENROSE SAND	1,601	P
T. O MAY	5	3	2 (INJECTION)	PENROSE SAND	4,168	P
SHELL STATE	1	1	-	PENROSE SAND	208	P
COMPANY TOTALS	36	29	7		12,291	
<u>AMERADA PETROLEUM CORP.</u>						
W. B. FERRELL	1	-	1 (TEMP. ABND.)	PENROSE SAND	0	-
E. WOOD	4	4	-	PENROSE SAND	2,376	P
COMPANY TOTALS	5	4	1		2,376	
<u>CARTER FOUNDATION PROD. CO.</u>						
ELLIOTT FEDERAL	2	2	-	PENROSE SAND	891	F
<u>CITIES SERVICE</u>						
ANNA WALDEN	3	3	-	PENROSE SAND	829	F
<u>CONTINENTAL OIL CO.</u>						
ELLIOTT "A" NOS. 21 & 22 FEDERAL	3	3	-	PENROSE SAND	541	P
<u>GULF OIL CORP.</u>						
A. L. CHRISTMAS	3	3	-	PENROSE SAND	698	P
R. E. COLE (NCT-C)						
STATE	1	1	-	PENROSE SAND	476	P
MANDA "A"	1	-	1 (TEMP. ABND)	PENROSE SAND	0	-
OLLIE BOYD	1	1	-	PENROSE SAND	885	P
COMPANY TOTALS	6	5	1		2,059	

EXHIBIT "D"
WELL STATUS BY LEASE

OPERATOR, LEASE AND NUMBER OF WELLS	ACTIVE PRODUCERS	INACTIVE	PRODUCING FROM	PROD. 7/1/61 TO 11/1/61	P (PUMPING) F (FLOWING)
<u>HUMBLE OIL & REFINING Co.</u> STATE "H"	6	4	1 (SHUT IN) 1 (INJECTION) PENROSE SAND	1,808	P
<u>MOBIL OIL Co.</u> WILL CARY	3	3	- PENROSE SAND	2,260	P
<u>OHIO OIL Co.</u> ANNA WALDEN	1	1	- PENROSE SAND	216	P
<u>R. L. PARKER</u> STATE "A"	1	1	- PENROSE SAND	407	P
<u>N. G. PENROSE</u> J. C. CLOWER STATE	1	1	- PENROSE SAND	1,368	F
W. B. FERRELL	1	1	- PENROSE SAND	383	P
COMPANY TOTALS	2	2	-	1,751	
<u>SKELLY OIL Co.</u> A. B. BAKER "A"	1	1	- PENROSE SAND	333	P
J. V. VAKER	8	8	- PENROSE SAND	2,103	P
COMPANY TOTALS	9	9	-	2,436	
<u>SINCLAIR OIL & GAS Co.</u> OLLIE BOYD	1	1	- PENROSE SAND	807	P
A. L. CHRISTMAS	2	-	2 (SHUT IN) PENROSE SAND	0	-
COMPANY TOTALS	3	1	2	807	
<u>T.P. COAL & OIL Co.</u> A. L. CHRISTMAS	1	1	- PENROSE SAND	656	P
ELLIOTT "A" 27 FEDERAL	2	2	- PENROSE SAND	343	I-F, I-P
WILL CARY	3	3	- PENROSE SAND	797	F
COMPANY TOTALS	6	6	-	1,796	
<u>TIDEWATER OIL Co.</u> ANNA WALDEN	3	1	1 (SHUT IN) PENROSE SAND 1 (TEMP. ABND.) PENROSE SAND	144	P
<u>SAMEOAN OIL CORPORATION</u> PARKS	1	1	- PENROSE SAND	489	F
GRAND TOTALS	90	175	15 4 (INJ.) 8 (SHUT-IN) 3 (TEMP. ABND.)	31,101	

TABLE 1
LANGLIE-MATTIX UNIT - LEA COUNTY, NEW MEXICO
WELL COMPLETION DATA
PENROSE SAND

COMPANY & LEASE NAME	WELL NO.	ELEV.	COMPLETION DATE	T.D.	PRODUCTION SIZE	STRING DEPTH	CEMENT	PENROSE SAND	CURRENT STATUS	STIMULANT LATION	LINER INTERVAL
AMBAADOR OIL CORP.											
M.W. COLL	1	3315	10-6-38	3685	7"	3356	150	sxs.	ACTIVE -P	SHOT	
M.W. COLL	2	3322	11-15-40	3645	7"	3349		3550-3660	ACTIVE -P	SHOT	
ELIZA GRAHAM	1	3326	4-30-38	3651	7"	3355	150	3545-3688	ACTIVE -P	SHOT	
LAURA MAY	1	3329	6-25-38	3639	6"	3360	150	3540-3603	ACTIVE -P	SHOT	
LAURA MAY	2	3322	8-18-38	3651	7	3347	150	3537-3624	ACTIVE -P	SHOT	
LAURA MAY	3	3324	12-20-38	3642	7	3347	150	3535-3621	ACTIVE -P	SHOT	
LAURA MAY	4	3326	4-30-38	3651	7	3355	150	3540-3642	ACTIVE -P	SHOT	
A. CHRISTMAS	1	3348	3-25-41	3688	7	3390		3520-3537	ACTIVE -P	SHOT	
A. CHRISTMAS	1	3347	5-29-39	3690	7	3412	150	T/PAY 3537	ACTIVE -P	SHOT	
A. CHRISTMAS	2	3347	7-27-39	3688	7	3422	200	3524-3610	ACTIVE -F	SHOT	
A. CHRISTMAS	3	3348	9-30-39	3680	7	3419	200	3505-3545	ACTIVE -F	SHOT	
A. CHRISTMAS	4	3341	11-30-39	3678	7	3416	150	3538-3661	ACTIVE -F	NONE	
A. CHRISTMAS	5	3347	5-15-40	3680	7	3415		3572-3613	ACTIVE -F	SHOT	
A. CHRISTMAS	6	3352	5-26-40	3680	7	3454		T/PAY 3545	ACTIVE -F	SHOT	
A. CHRISTMAS	1	3354	3-25-25	3681	5/8	3415	150	T/PAY 3520	S.I.	SHOT	
HUMBLE STATE	1	3354	3-12-40	3680	7	3397	250	3516-3560	ACTIVE -F	SHOT	
HUMBLE STATE	2	3356	7-25-40	3681	7	3424		3535-3678	ACTIVE -F	SHOT	
HUMBLE STATE	3	3357	3-29-41	3690	7	3423		T/PAY 3557	ACTIVE -F	SHOT	
SHELL STATE	1	3355	1-5-42	3648	7	3391	150	3605-3680	ACTIVE -F	SHOT	
GEO. GLIER, ET AL	1	3338	4-9-38	3679	7	3385	250	3545-3652	ACTIVE -P	SHOT	
GEO. GLIER, ET AL	2	3340	3-22-40	3702	7	3403	250	3550-3655	ACTIVE -P	SHOT	
GEO. GLIER, ET AL	3	3350	5-3-40	3688	7	3395	200	3565-3654	S.I.	SHOT	
ROSA GLIER	1	3351	2-12-40	3701	7	3407	250	3598-3678	ACTIVE -P	SHOT	
ROSA GLIER	2	3352	7-12-41	3681	7	3411		3550-3650	S.I.	SHOT	
ROSA GLIER "A"	1	3340	4-9-38	3680	7	3376	150	3545-3665	ACTIVE -P	SHOT	
ROSA GLIER "B"	1	3346	2-22-39	3691	7	3408	150	3528-3565	ACTIVE -F	SHOT-ACID	
ROSA GLIER "B"	2	3347	10-9-39	3680	7	3432	150	3545-3648	ACTIVE -F	SHOT	
HUMBLE STATE *	1	3324	11-11-39	3709	7	3348	150	3530-3657	S.I.	SHOT	
HUMBLE STATE	2	3309	12-23-39	3640	7	3350	125	3555-3630	INJECTION	SHOT	
HUMBLE STATE	3	3306	3-24-40	3654	7	3343	100	3485-3640	ACTIVE -P	SHOT	
HUMBLE STATE	4	3311	5-8-40	3680	6 1/4	3354		3575-3648	ACTIVE -P	SHOT	
								3615-3670	ACTIVE -P	SHOT	

5 1/2" / 3662-3300 Loose
SLOTTED

4 1/2" / 3287-3709 w/25 sxs.

PAGE #2 - Table 1

COMPANY & LEASE NAME	WELL No.	ELEV.	COMPLETION DATE	T.D.	PRODUCTION SIZE	STRING DEPTH	CEMENT	PENROSE SAND	CURRENT STATUS	STIMULATION	LINER INTERVAL
<u>AMBASSADOR OIL CORP.</u>											
T. O. MAY	1	3320	7-11-38	3700	7	3364	150 sxs.	3555-3592	INJECTION	SHOT	5 1/2" / 3250-3565
T. O. MAY	2		12-14-38	3692	7	3350	150	3558-3582	ACTIVE -P	SHOT	
T. O. MAY	3	3330	9-9-39	3655	5 1/2	3342	125	3570-3650	ACTIVE -P	SHOT	
T. O. MAY	4	3319	2-12-40	3683	7	3348	275	3550-3573	INJECTION	SHOT	
T. O. MAY	5	3325	3-7-52	3688	5 1/2	3578	90	3578-3668	ACTIVE -P	SHOT-ACID	5 1/2" / 3275-3693 cmtd.
<u>AMERADA</u>											
W. B. FERRELL	1		7-29-36	3705	7	3359	125	3359-3705	P P & A	SHOT-ACID	
W. B. FERRELL	2		6-26-38	3685	7	3375	250	3375-3685	T.A.	SHOT-ACID-FRAC	
E. WOOD	1		2-16-37	3685	6 5/8	3380	250	3380-3685	ACTIVE -P	SHOT-ACID-FRAC	
E. WOOD	2		8-17-37	3692	7	3383	250	3383-3692	ACTIVE -P	SHOT-ACID	
E. WOOD	3		2-13-38	3688	7	3383	250	3383-3688	ACTIVE -P	ACID-FRAC	
E. WOOD	4		5-26-38	3686	7	3388	250	3388-3685	ACTIVE -P	ACID-FRAC	
<u>CARTER FOUND. PROD. CO.</u>											
ELLIOTT FEDERAL	1	3372	1-1-37	3712	7	3400	250	3540-3712	ACTIVE -F	SHOT-FRAC	
ELLIOTT FEDERAL (1)	2	3373	2-9-37	3622	7	3382	200	3540-3600	ACTIVE -F	SHOT	
<u>CITIES SERVICE</u>											
ANNA WALDEN	1		12-24-36	3600	6 5/8	3383	100	3478-3600	ACTIVE -F	SHOT-FRAC	
ANNA WALDEN	2		6-25-37	3613	7	3381	150	3460-3610	ACTIVE -F	SHOT-FRAC	
ANNA WALDEN	3		4-6-57	3630	5 1/2	3630	300	3550-3612	ACTIVE -F	PERF.-FRAC	
<u>CONTINENTAL OIL</u>											
ELLIOTT A-21	1		10-16-36	3648	7	3377	200	3377-3648	ACTIVE -P	SHOT	
ELLIOTT A-21	2		5-26-37	3660	7	3363	1350	3363-3660	ACTIVE -P	SHOT	
ELLIOTT A-22	1		6-16-36	3592	7	3313	150	3313-3592	ACTIVE -P	SHOT	
<u>GULF OIL</u>											
OLLIE BOYD	1		5-24-37	6446	7	3280	160	3280-3681	ACTIVE -P		5 1/2" / 3108-6446 cmtd. 425 sxs.
<u>R. R. COLE (NCT-C)</u>											
MANDA "A"	1		3-29-40	3700	6	3400	350	3400-3700	ACTIVE -P	FRAC	
A. L. CHRISTMAS	1		9-16-37	3670	7	3377	125	3377-3670	T.A.	SHOT-ACID	
A. L. CHRISTMAS	1		1-29-37	3682	7	3405	125	3405-3682	ACTIVE -P	SHOT	
A. L. CHRISTMAS	2		10-13-39	3690	7	3414	250	3414-3690	ACTIVE -P	SHOT	
A. L. CHRISTMAS	3		12-30-39	3675	7	3405	250	3405-3675	ACTIVE -P	SHOT	

COMPANY & LEASE NAME	WELL NO.	ELEV.	COMPLETION DATE	T.D.	SIZE	DEPTH	CEMENT	PENROSE SD.	CURRENT STATUS	STIMULATION	LINER INTERVAL
<u>HUMBLE OIL</u>											
STATE "H"	1		1-4-38	3670	7	3397	410	3362-3670	ACTIVE-P	SHOT-FRAC	5 1/2" / 3362-3670 PERF.
STATE "H"	2		3-28-38	3660	7	3404	410	3404-3660	ACTIVE-P	SHOT	5 1/2" / 3376-3660 PERF.
STATE "H"	3		6-10-38	3664	7	3409	410	3409-3664	ACTIVE-P	SHOT	5 1/2" / 3387-3664 SLOTT.
STATE "H"	4		11-19-38	3660	7	3395	410	3395-3660	S.I.	SHOT	5 1/2" / 3381-3660 PERF.
STATE "H"	5		10-26-39	3665	7	3410	410	3410-3665	P.P. & A	SHOT	
STATE "H"	6		11-19-39	3665	7	3429	410	3429-3665	ACTIVE-P	SHOT	
STATE "H"	7		12-15-53	3693	4 1/2	3580	90	3580-3693	INJECTION	FRAC	5 1/2" / 3421-3665 SLOTT.
<u>MOBIL</u>											
WILL CARY	1		6-25-36	3636	7	3350		3350-3636	ACTIVE-P	SHOT-ACID-FRAC	
WILL CARY	2		3-17-37	3620	7	3350	200	3350-3620	ACTIVE-P	SHOT-FRAC	
WILL CARY	3		7-4-37	3620	7	3350		3350-3620	ACTIVE-P	SHOT-ACID-FRAC	
<u>OHIO</u>											
ANNA WALDEN (2)	1		10-7-36	3818	6 5/8	3370	500	3370-3818	ACTIVE-P	SHOT	
<u>R. L. PARKER</u>											
STATE "A"	1		10-10-38	3665	7	3381	150	3510-3610	ACTIVE-P	SHOT-FRAC	
<u>SOHIO PETR. CO.</u>											
J. C. CLOWER STATE	1		12-13-59	3746	5 1/2	3746	200	3508-3589	ACTIVE-F	PERF.-FRAC	
W. B. FARRELL	1		9-29-38	3684	7	3379	175	3379-3636	ACTIVE-P	SHOT FRAC	
<u>SINCLAIR</u>											
Ollie Boyd	1		5-13-36	3700	7	3245	50	3245-3653	ACTIVE-P	SHOT FRAC	
Ollie Boyd	2		1-24-37	6460	7	3455	100	3455-3700	P.P. & A	SHOT	5 1/2" / SURFACE TO T.D.
A. L. CHRISTMAS	1		4-25-36	3674	7	3350	50	3350-3674	S.I.	SHOT-FRAC	
A. L. CHRISTMAS	2		8-22-37	4073	7	3350	200	3350-3692	S.I.	SHOT	
A. L. CHRISTMAS	3		3-8-38	6797	7	3133	250	3133-3664	P.P. & A	SHOT	5 1/2" / 2992-6797 CMD.
<u>SKELLY</u>											
A. B. BAKER "A"	1		9-16-37	6487	7	3370	400	3370-3705	P.P. & A	ACID-FRAC	5" / 6417 CMD.
A. B. BAKER "A"	2		6-139	3665	5	3665		3400-3669	ACTIVE-P	FRAC	

COMPANY & LEASE NAME	WELL NO.	ELEV.	COMPLETION DATE	T.D.	PRODUCTION SIZE	STRING DEPTH	CEMENT	PENROSE SAND	CURRENT STATUS	STIMULANT LATION	LINER INTERVAL
SKELLY OIL CO.											
J. V. BAKER	1		9-24-38	3695	7	3360	200	3621-3694	ACTIVE-P	SHOT	
J. V. BAKER	2		7-22-36	3714	8 5/8	1139	150	3504-3596	ACTIVE-P	SHOT-PERF.	5"/3679
J. V. BAKER	3		2-5-37	3600	7	3426	200	3426-3600	ACTIVE-P	SHOT-FRAC	
J. V. BAKER (32)	4		5-7-37	3679	7	3385	200	3525-3600	ACTIVE-P	SHOT-PERF.	5"/3610
J. V. BAKER	5		9-28-37	3620	7	3399	200	3524-3620	ACTIVE-P	SHOT	
J. V. BAKER	6		10-1-38	3650	7	3403	100	3403-3660	ACTIVE-P	SHOT-FRAC	
J. V. BAKER	7		30-30-39	3655	7	3410	200	3522-3655	ACTIVE-P	SHOT	
J. V. BAKER	8		6-15-39	3705	7	3449	75	3544-3695	ACTIVE-P	SHOT	5 1/2"/3396-3655 PERF. 5"/3420-3705
TIDEWATER											
ANNA WALDEN	1		7-16-36	3620	6 5/8	3403	150	3490-3599	T.A.	SHOT	
ANNA WALDEN (47)	2		3-26-37	3610	6 5/8	3400	100	3518-3610	ACTIVE-P	SHOT	
ANNA WALDEN	3		7-14-37	3615	7	3376	100	3530-3615	S.I.	SHOT	
T.P. COAL & OIL											
A. L. CHRISTMAS	1		8-1-38	3690	6 5/8	3393	150	3393-3690	ACTIVE-P	FRAC	4 1/2"/3364-3689
ELLIOTT "A"-27	1		8-27-37	3665	7	3367	150	3378-3665	ACTIVE-F	SHOT	
ELLIOTT "A"-27	2		6-25-38	3665	7	3375	150	3386-3665	ACTIVE-P		
SAMEAN OIL CORPORATION											
PARKS	1		7-7-36	3620	7	3254	150	3502-3623	ACTIVE-F	SHOT	5"/3202-3454

- (1) 3 STRINGS OF TOLLS IN HOLE
- (2) FISH IN HOLE (BIT, DRILL COLLARS, ETC.)
- (3) FISH IN HOLE (SET OF CABLE TOOLS)
- (4) FISH IN HOLE (SAND PUMP)
- (*) INJECTION WELL IN PILOT AREA

AMBASSADOR OIL CORPORATION
LEASE: T. O. MAY WELL No. 5

TABLE 2
EARLOUGHER ENGINEERING
SUMMARY OF CORE ANALYSES DATA

FORMATION	DEPTH FEET		NET FEET OF SAND	AVG. POR.	AVG. CORE SATURATION		CORE OIL CONTENT		PERMEABILITY		FLOOD POTEN- TIAL SATURA- TION	RESIDUAL OIL CONTENT	OIL REC. BBL./ACRE			
	FROM	TO			OIL	WATER	AVG. B/A FT.	TOTAL B/AC.	AVG. MD.	CAPACITY FT. X MD.						
PENROSE (QUEEN)	3577.8	3579.5	1.7	12.5	16	57	153	260	0	0	17	83	165	280	0	100
PENROSE (QUEEN)	3579.5	3586.5	7.0	15.1	17	53	194	1360	7.0	49	16	84	188	1320	40	220
PENROSE (QUEEN)	3587.2	3595.0	7.8	10.4	18	57	146	1140	0.5	3.9	18	81	146	1140	0	100
PENROSE (QUEEN)	3630.8	3643.9	10.3	13.2	21	48	211	2170	1.7	17.0	20	76	205	2110	60	430
PENROSE (QUEEN)	3659.7	3663.9	4.1	17.8	14	49	195	800	17.0	71.0	14	73	195	800	0	60
PENROSE (QUEEN)	3676.9	3679.8	2.9	11.1	16	60	141	410	1.0	2.8	20	80	172	500	0	50
PENROSE (QUEEN)	3577.8	3679.8	33.8	13.	18	53	182	6140	4.3	144.0	18	79	182	6150	0	960