



CASE No.  
3081

Application,  
TRANSCRIPTS,  
SMALL Exhibits  
ETC.

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

July 22, 1964

EXAMINER      HEARING

IN THE MATTER OF:

Application of Shell Oil Company for a  
waterflood project, Lea County, New Mex-  
ico. Applicant, in the above-styled  
cause, seeks authority to institute a  
waterflood project in the Langlie-Mattix  
Pool by the injection of water through  
four wells at unorthodox locations in Sec-  
tion 21, Township 24 South, Range 37 East,  
Lea County, New Mexico.

Case No. 3081

BEFORE:    DANIEL S. NUTTER, Examiner.

TRANSCRIPT OF HEARING

DEARNLEY-MEIER REPORTING SERVICE, Inc.

FARMINGTON, N. M.  
PHONE 325-1182

SANTA FE, N. M.  
PHONE 983-3971

ALBUQUERQUE, N. M.  
PHONE 243-6991



## NEW MEXICO OIL CONSERVATION COMMISSION

EXAMINER HEARINGSANTA FE, NEW MEXICOREGISTERHEARING DATE JULY 22, 1964TIME: 9 A.M.

NAME:	REPRESENTING:	LOCATION:
John F Russell	Union Oil Co. of Cal.	Roswell, N.M.
L.E. Thomas	Amerada	Hobbs -
Robert L. Spetsworth	Shell Oil Company	Roswell, N.M.
A.E. Snyder	Amerada	Midland, Tex.
John J. Lacey	Union Oil	Deming, N.M.
John A. Disch	El Paso Natural Gas	Cal, N.M.
R. S. Cooke	Union Oil Co. of Calif.	Midland, Tex.
Bob Krusty	Hinkle, Bondurant & Christy	Roswell, NM
J.P. Benton	British-American Oil Prod.	Midland, Texas
Richard J. Martin	Pet. Montgomery, Fleni F. Anderson	Santa Fe
CARL L. WHIGHAM	TEXACO	MIDLAND TEX.
Lay Crow	General American Oil Co.	Loco Hills New Mexico
M.A. McConnell	Texaco Pet. Co.	Odessa, Tex.
L.P. White	Roswell	Santa Fe
Jason Kellie	Kellie & Co.	Santa Fe
Ralph L. Gray	Wm A & R. Hudson	Artesia, N.M.
Richard L. Gray	Wm A & R. Hudson	Artesia, N.M.

NEW MEXICO OIL CONSERVATION COMMISSION

EXAMINER HEARING

SANTA FE, NEW MEXICO

REGISTER

HEARING DATE JULY 22, 1964 TIME: 9 A.M.

NAME:	REPRESENTING:	LOCATION:
<i>Marshall Smith</i> <i>Raymond Laws</i>	<i>R. W. Byrum</i> <i>Wilson Oil Co</i>	<i>Santa Fe</i> <i>Arthur D. W.</i>

MR. NUTTER: The hearing will come to order, please.  
The first case this morning will be 3081.

MR. DURRETT: Application of Shell Oil Company for a  
waterflood project, Lea County, New Mexico.

MR. MORRIS: If the Examiner please, I'm Richard Morris  
of Seth, Montgomery, Federici and Andrews, Santa Fe, New Mexico,  
appearing on behalf of the Applicant, Shell Oil Company. I will  
have one witness in this case, Mr. Bob Spottswood, and I ask that  
he be sworn as a witness at this time.

(Witness sworn.)

(Whereupon, Applicant's  
Exhibits 1 through 7  
were marked for identi-  
fication.)

ROBERT L. SPOTTSWOOD

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

DIRECT EXAMINATION

BY MR. MORRIS:

Q Mr. Spottswood, would you please state your name, by  
whom you are employed, in what position and where you are located?

A My name is Robert L. Spottswood and I'm employed by  
Shell Oil Company as the Division Reservoir Engineer in Roswell,  
New Mexico.

Q Have you previously testified before the New Mexico



Oil Conservation Commission or one of its Examiners?

A No, I have not.

Q Would you briefly outline your education and experience in the petroleum industry?

A I studied petroleum engineering at the University of Oklahoma and graduated in 1953 with a Bachelor of Science Degree. I went in the Army for a couple of years as an engineering officer in military pipeline operations. Since then I've had approximately nine and a half years' experience with Shell Oil Company as assistant field engineer in Wyoming and in Montana, as a reservoir engineer in Montana and Colorado, and I've recently finished a two-year research reservoir assignment in Houston with Shell Development Company. I'm a registered professional engineer in Texas.

Q Are you familiar with the application of Shell Oil Company in Case 3081?

A Yes, I am.

MR. MORRIS: Mr. Examiner, are Mr. Spottswood's qualifications acceptable?

MR. NUTTER: They are.

Q What is the purpose of Shell's application in this case?

A Our purpose, or Shell Oil Company's purpose seeks authority to institute a waterflood project on our J. F. Black



lease in Section 21, Township 24 South, Range 37 East, Langlie-Mattix field in Lea County, New Mexico.

Q If you would refer now to what has been marked as Exhibit No. 1 in this case, would you state what that is and what it shows?

A Exhibit No. 1 is a plat which shows Shell's 120-acre lease outlined in red in the Langlie-Mattix Pool. The location of our proposed injection wells are shown in green with those green circles there. The plat also shows other wells in the area and the formations they have produced from or are producing from, and lease ownership is also shown on this exhibit.

Q The exact location of your injection wells is set forth on another exhibit that we'll get to in a few minutes, is that correct?

A Yes, sir.

Q If you would refer now to what has been marked as Exhibit 2 in this case, state what it is and what that shows.

A Exhibit 2 is a large contour map. It's a structure map that's contoured on the top of the Queen which was prepared utilizing all available logs in the area, those that were available to us. Shell's Black lease is located on the west flank of a north-south trending regional high which extends several miles. The Langlie-Mattix oil accumulation associated with this





regional trend is limited updip by a gas-oil contact and downdip by a water and/or porosity deterioration.

The Gross Queen to Grayburg interval is approximately 260 feet based on sparse log and core data. The oil-productive interval in the vicinity of the Black lease, and this is outlined in red, is probably confined to the upper 150 feet of the Queen section. There is good correlation across this area which suggests reservoir continuity.

As has been seen on this contour map, there is a dip of approximately 120 feet across our lease from the north dipping down to the south. We are approximately the same structurally as the lease to the immediate east where a waterflood has been started in the Langlie-Mattix interval in April of this year, and you'll notice to the right there the George Buckles waterflood to the immediate east of us.

Also down to the south, the Amerada Woolworth unit, there's a pilot waterflood started in the Langlie-Mattix Pool. Off to the east of us in Section 23, mile and a half or so, is another waterflood that Shell is currently putting in the Langlie-Mattix Pool. The interval immediately above the Queen is tight and there's a water-bearing sand below. This lack of pay quality sandstone immediately above the Queen is confirmed by core analysis and log data on a water injection well recently drilled by Amerada in the

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section just to the south of our lease. If you'll notice, that's Well No. 38 there in Section 28. The bulk of the Queen productive interval consists of fine grain quartz sandstone relatively thin bedded, separated by an anhydritic dolomite ranging in thickness from a few feet to a maximum of 30 feet.

The primary production has been due to a solution gas drive mechanism with possibly some gas cap expansion. Original gravity of the crude was 39 degrees API, and the last reservoir pressure in our Black No. 1, and you'll notice the T. A. well there was 121 PSIG on June the 18th, 1964.

Q Would you briefly outline the development of your Black lease and the status of the production of that lease and the wells located thereon to the present time?

A Development of this lease was started during late 1936 with the drilling of Black No. 1. Wells 2 and 3 were drilled in 1937. Pipe was set just above the Queen and the wells were completed open hole. Black No. 1 was temporarily abandoned after declining to one barrel per day oil on March the 3rd, 1963.

Black No. 2 was abandoned in the Langlie-Mattix pay after the production had declined to less than one barrel of oil per day in April of 1948. The well was then sold to El Paso Natural Gas, who has been producing gas from the Jalmat of the Yates pay.

Shell Black No. 3 is currently producing three barrels of



oil per day. Cumulative oil from the lease is approximately 300,000 barrels. Needless to say, all of these wells are in the stripper stage or have been in the stripper stage in the Langlie-Mattix Pool.

Q Based upon the past production from these wells, the geology in this area, the current state of production, has your company made a study concerning the feasibility of secondary recovery in this area?

A Yes, we have made a study.

Q What has that study shown?

A We plan to install a waterflood on our lease which will consist of drilling the four injection wells shown on this Exhibit 2, the contour map, and also on Exhibit 1, the lease plat map, and continue the 20-acre pattern already established in the field to the east. The unorthodox location of these injectors are shown on Exhibit 3. I might refer to the table.

Here you see the proposed location, the proposed injection well number, the location, the distance from the section line, the casing detail, estimated total depth and the estimated vertical limits of the Langlie-Mattix pay. Looking back now to Exhibit No. 2, after drilling the four injection wells we are negotiating with El Paso right now to purchase back Black No. 2, and if we're unable to do that we possibly will drill a producer near Black



oil per day. Cumulative oil from the lease is approximately 300,000 barrels. Needless to say, all of these wells are in the stripper stage or have been in the stripper stage in the Langlie-Mattix Pool.

Q Based upon the past production from these wells, the geology in this area, the current state of production, has your company made a study concerning the feasibility of secondary recovery in this area?

A Yes, we have made a study.

Q What has that study shown?

A We plan to install a waterflood on our lease which will consist of drilling the four injection wells shown on this Exhibit 2, the contour map, and also on Exhibit 1, the lease plat map, and continue the 20-acre pattern already established in the field to the east. The unorthodox location of these injectors are shown on Exhibit 3. I might refer to the table.

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ALBUQUERQUE, N. M.  
PHONE 243-6691

No. 2.

Q Mr. Spottswood, your proposal then will represent an extension of the pattern that is in effect on the Buckle's waterflood immediately to the east of your properties?

A That's right. I'd like now to refer, continuing the development of our proposed waterflood, to the exhibits marked 4, 5, 6 and 7. I'll talk from Exhibit No. 4. All of these are diagrammatic sketches of proposed water injection wells, but talking from Exhibit No. 4, we are planning, as you can see here, to set surface pipe 7-5/8" at approximately 250 feet and circulate cement there. We're estimating 250 sacks. Then we propose, or are planning, to drill on down through the Langlie-Mattix pay and nicking the top of the Grayburg, setting 4-1/2" casing on this particular well.

We're estimating approximately 3740 feet and we'll cement these, all of them, with approximately 150 sacks of cement which should bring the top up above the Jalmat gas pay to approximately 2500 feet. As you can see on the bottom there we have put the approximate perforated interval, 3470 to 3730. This will be adjusted when we run logs to, of course, get water into the interval that we think the oil is located, most of the oil is located.

The tubing string is 2" and we will set it on a retrievable-type packer, fill the annulus with inhibited water, and we'll have



internally plastic-coated 2" tubing. As you can see, we are planning to set the tubing and the retrievable packer down into the top of the Langlie-Mattix pay.

Q Are each of your other injection wells to be completed in substantially similar manner?

A Yes, they all will be.

Q As shown on Exhibits 5, 6 and 7?

A Right.

Q What are your plans for developing a source of water to inject into these four injection wells for use in the water-flood project?

A We plan to drill a Santa Rosa water source well which will be located in the West Half of the Southeast Quarter of Section 21. If for some reason the Santa Rosa is poor in this particular well, we'll drop on down to the Rustler to get our water supply.

Q What do you estimate your requirements will be for the water that you develop from whatever source on a per day basis and total?

A We estimate each injection well will take approximately 300 to 350 barrels of water per day for a total daily injection rate of some 1400 barrels. Total make-up water will be approximately one million barrels. We have noticed in this general area



that two water sources have been developed, the Rustler formation by Buckles Company to the east in Section 22 on their flood operation there, and further to the east in Section 23 where we are currently completing a well in the Rustler on our other flood in this area.

We understand that Amerada to the south of us in Section 27 has a Santa Rosa water source well that has been producing for over a year. We have discussed water source problem and the water source development in this area with the State Engineer's Office and are planning to furnish them with an analysis of the water, the original fluid level, completion gauges and other information on our water source well on our Black lease.

Q Has other information pertinent to this application been furnished to and discussed with the State Engineer's Office?

A Yes, it has. We're expecting to see response in our producers within nine months or so and expect peak oil production should be reached in less than two years and our estimated flood life now is approximately ten years.

Q What conclusions can you draw from this, Mr. Spottswood, concerning the effectiveness of your proposed secondary recovery project and its effect upon conservation of oil and gas in New Mexico?

A We believe this proposed project is in the interest of



conservation and should result in recovery of otherwise unrecoverable oil, thereby preventing waste and we believe that the project can be accomplished without violating correlative rights.

Q Were Exhibits 1 through 7 prepared by you or at your direction and under your supervision?

A Yes, they were.

MR. MORRIS: We offer Shell's Exhibits 1 through 7 in this case.

MR. NUTTER: Shell's Exhibits 1 through 7 will be admitted in evidence.

(Whereupon, Applicant's Exhibits 1 through 7 were offered and admitted in evidence.)

MR. MORRIS: That's all I have of Mr. Spottswood at this time.

MR. NUTTER: Does anyone have any questions of Mr. Spottswood?

CROSS EXAMINATION

BY MR. NUTTER:

Q This pattern that you have selected here is a continuation of the Buckles pattern, is that correct?

A Yes, it is.

Q Have you discussed this flood with Texaco, who owns the lease to the north and west of your proposed injection wells?





A Yes. We have discussed it with Texaco.

Q Have you discussed it with Continental and Skelly to the west?

A No, we haven't.

Q Do you know if any of these three companies is planning any flooding activity on their own leases?

A Right now I don't know that they are.

Q The location of your wells is such that it would affect their wells, however, isn't it?

A Yes, sir. Of course, we are putting energy in our particular flood and we're hoping to reach most of that energy in performance from our wells, as you can see, with open sides all around we are going to supply energy to those people.

Q So that you expect that the effect you would have on their wells would be a beneficial effect rather than a detriment?

A Very definitely.

Q You say that the No. 2 is presently owned by El Paso?

A Yes, sir.

Q But that you are going to attempt to buy it back from them, and if that is unsuccessful you would drill other wells in that 40-acre tract?

A That's right.

Q The lease to date has produced some 300,000 barrels of



oil. Have you an estimate as to the recovery you will obtain from the secondary efforts?

A We are using an approximate one to one ratio here, 300,000 barrels of secondary oil.

Q These times that you were expecting, the nine months, two years and ten months, that's from the date injection commences?

A Yes, sir, right.

Q When do you think that this will actually go on injection?

A I think it would be within a couple of months at the latest. We have our management approval and so we're waiting on the Commission, and so we're anxious to get started ourself.

Q Mr. Buckles is actually injecting water into this well?

A Yes, sir, he started in April and is injecting water.

Q Have you, incidentally, started injection over in the Plains Unit yet?

A No, sir. The Plains Unit is the one --

Q In Section 23.

A No, sir, we haven't tested our water source well yet, so this week we'll have a pump gauge test on it. We'll be ready to start injecting, I would say, by the first of September there.

Q You used existing wells there and didn't have to drill any?



A That's right.

MR. NUTTER: Any further questions of Mr. Spottswood?  
He may be excused.

(Witness excused.)

MR. NUTTER: Do you have anything further, Mr. Morris?

MR. MORRIS: No, sir, I don't.

MR. NUTTER: Does anyone have anything they wish to  
offer in Case 3081? We'll take the case under advisement.

STATE OF NEW MEXICO )  
COUNTY OF BERNALILLO ) ss

I, ADA DEARNLEY, Notary Public in and for the County of  
Bernalillo, State of New Mexico, do hereby certify that the fore-  
going and attached Transcript of Hearing before the New Mexico Oil  
Conservation Commission was reported by me; and that the same is  
a true and correct record of the said proceedings, to the best  
of my knowledge, skill and ability.

Witness my Hand and Seal this 27th day of July, 1964.

*Ada Dearnley*  
NOTARY PUBLIC

My Commission Expires:

June 19, 1967.

I do hereby certify that the foregoing is  
a complete record of the proceedings in  
the Executive hearing of Case No. 3081  
heard by me on July 22, 1964.

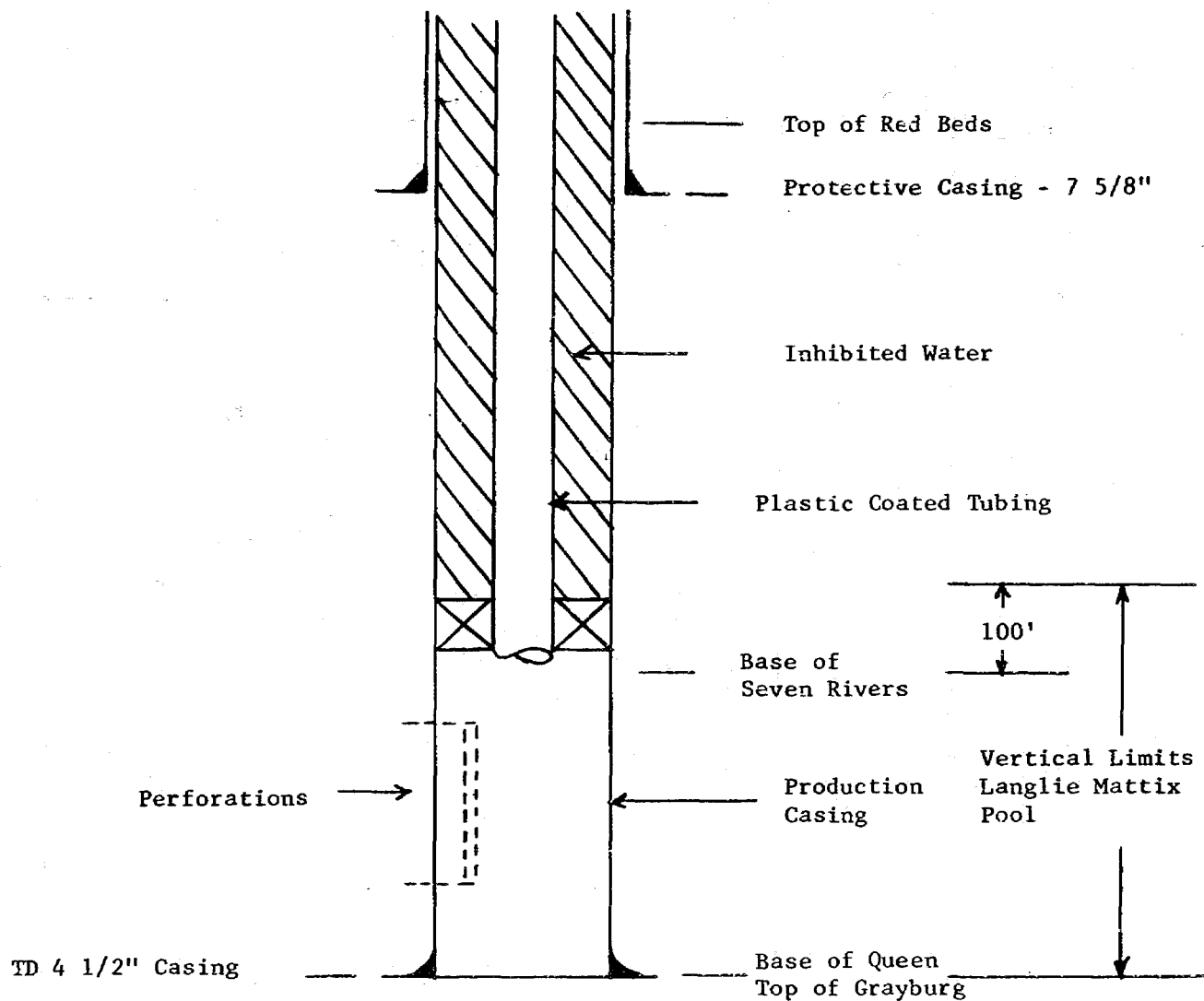
*Samuel A. Dearnley* Examiner  
New Mexico Oil Conservation Commission



Case 3081

SHELL OIL COMPANY  
PROPOSED WATERFLOOD  
LANGLIE MATTIX FIELD  
LEA COUNTY, NEW MEXICO

Diagrammatic Sketch of  
Proposed Injection Well





**SHELL OIL COMPANY**

P. O. Box 1858  
Roswell, New Mexico

November 10, 1964

Subject: Waterflood - Black Lease  
Langlie Mattix Field  
Les County, New Mexico

New Mexico Oil Conservation Commission  
P. O. Box 1980  
Hobbs, New Mexico

Attention Mr. J. D. Ramey

Gentlemen:

Attached are several plats of our Black lease waterflood as covered by Commission Order No. R-2747. Injection of water on this project began on November 2, 1964, into Black WIW No. 7 and Black WIW No. 6. Water injection will be started on the two remaining injection wells as they are completed.

We will be happy to furnish any additional information concerning this waterflood that you may require.

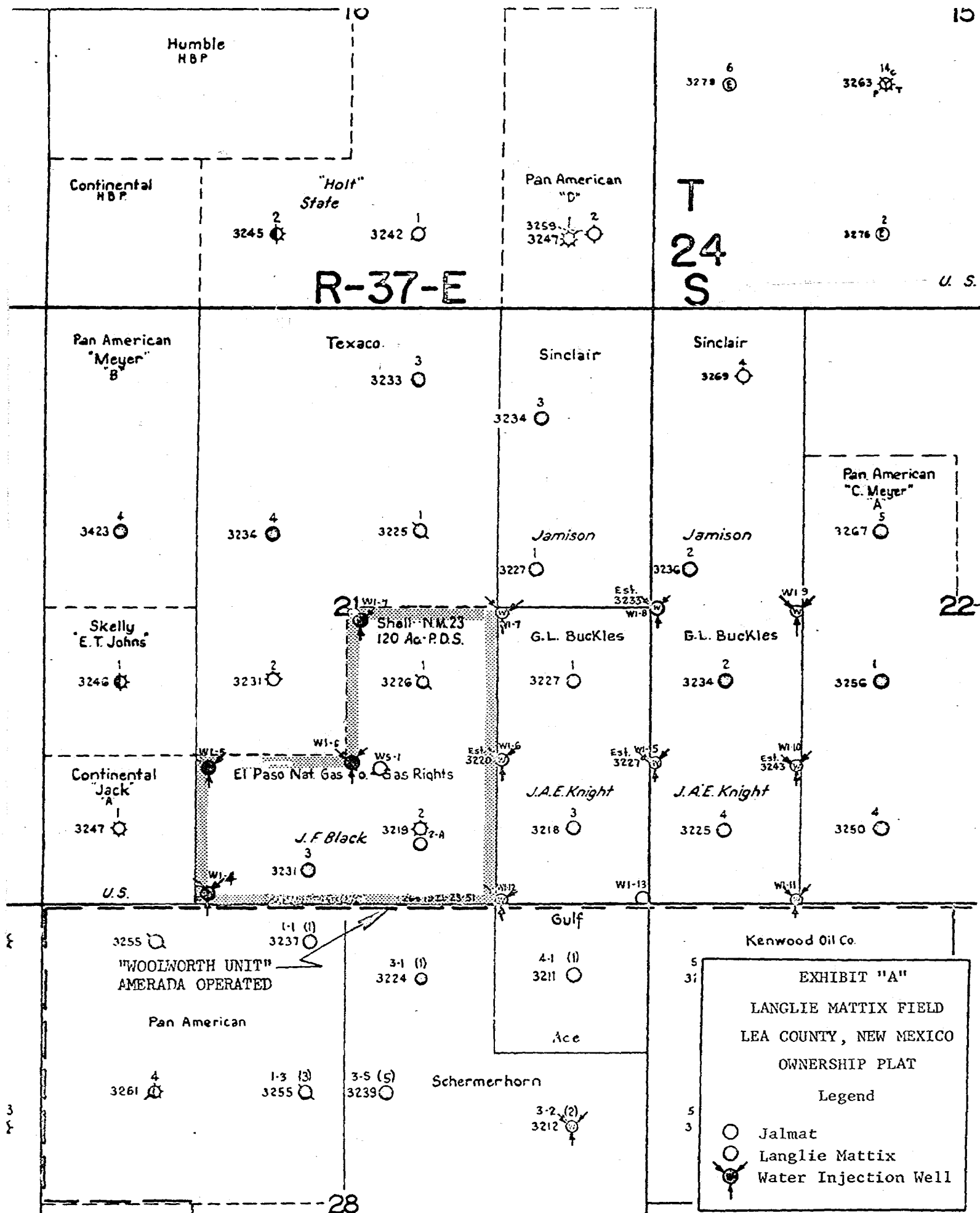
Yours very truly,

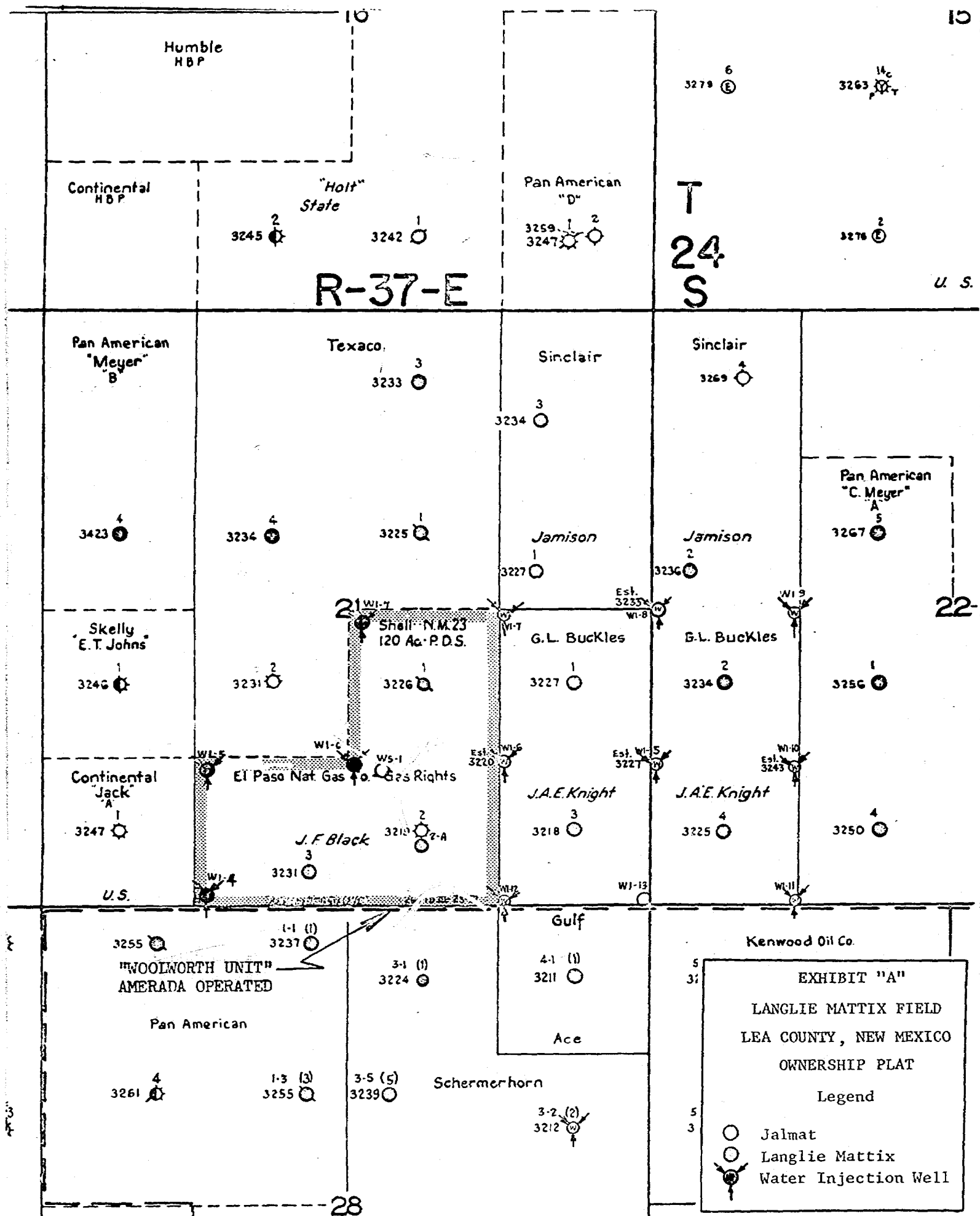
Original Signed By  
I. H. DWYER

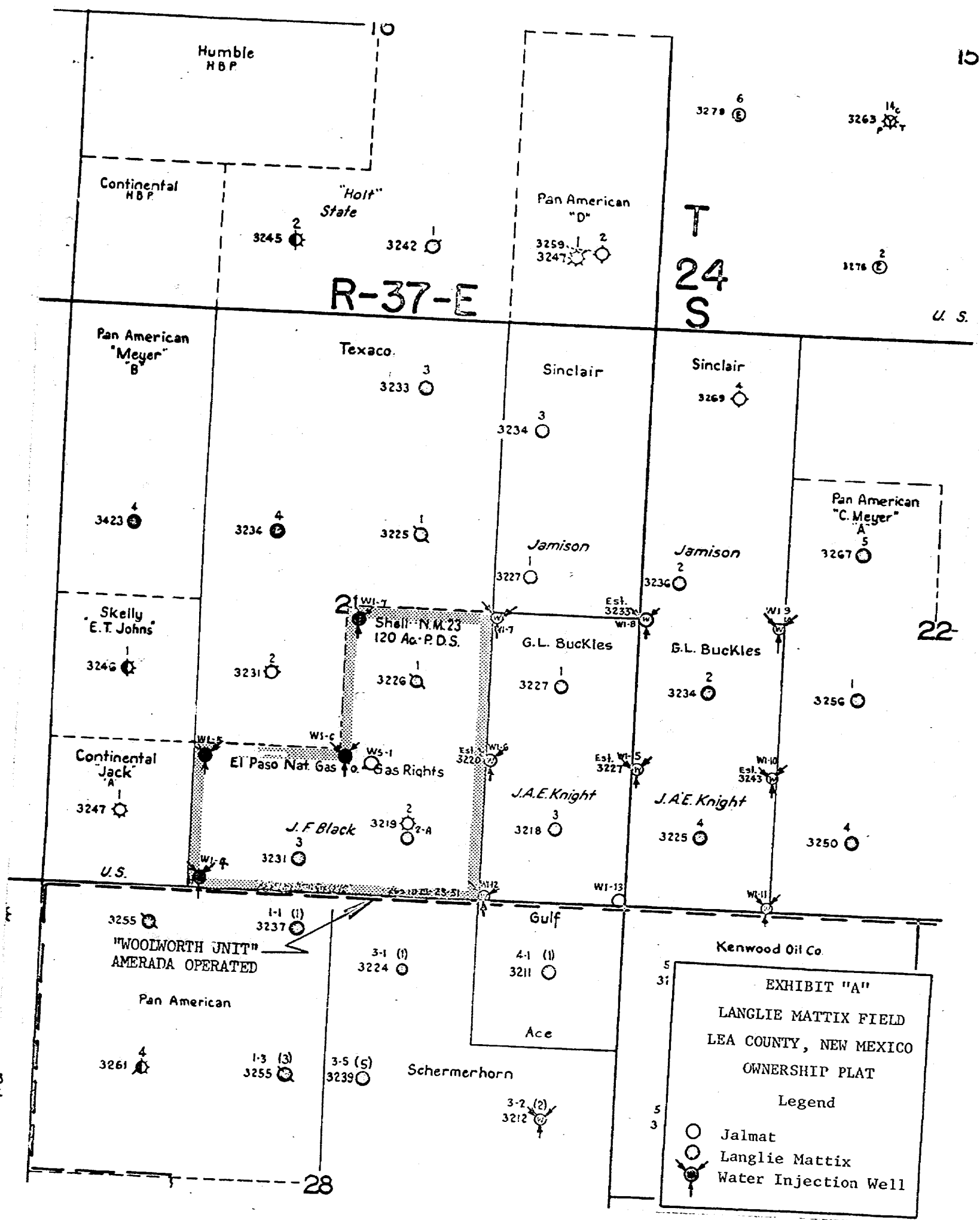
T. H. Dwyer  
Division Production Manager

**Attachments**

cc: ✓ N.M.O.C.C.  
P. O. Box 2088  
Santa Fe, New Mexico w/attachments









DRAFT

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:

*[Signature]*  
CASE No. 3081

Order No. R-2741

APPLICATION OF SHELL OIL COMPANY  
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  
July 22, 1964, at Santa Fe, New Mexico, before Examiner  
Daniel S. Nutter.

NOW, on this        day of July, 1964, the Commission,  
a quorum being present, having considered the testimony, the record,  
and the recommendations of the Examiner, 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, Shell Oil Company,  
seeks permission to institute a waterflood project in the         
Langlie-Mattix ~~in the~~ Pool by the injection of water into the  
Queen ~~Unit Area~~ formation through four injection wells ~~in~~  
at unorthodox locations in  
Section 21, Township 24 ~~NORTH~~, Range         
37 ~~West~~, NMPM, Lea County, New Mexico.  
East

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

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

(5) That the subject application should be approved and the project should be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations.

IT IS THEREFORE ORDERED:

(1) That the applicant, Shell Oil Company,  
is hereby authorized to institute a waterflood project in the  
Langlie-Mattix ~~in the~~ Unit Area  
Queen Pool by the injection of water into the  
formation through the following-described wells  
at unorthodox locations in Section 21,  
/ ~~the~~ Township 24 ~~North~~ South, Range 37 ~~West~~ East,  
NMPM, Lea County, New Mexico:

WIW No. 4 20 feet from the South line and  
1340 feet from the West line ✓  
WIW No. 5 1300 feet from the South line and  
1340 feet from the West line ✓  
WIW No. 6 1340 feet from the South line and  
2660 feet from the West line ✓  
WIW No. 7 2620 feet from the South line and  
2660 feet from the West line ✓

(2) That the subject waterflood project shall be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations.

(3) That monthly progress reports of the waterflood project herein authorized shall be submitted to the Commission in accordance with Rules 704 and <sup>1119</sup>~~1120~~ of the Commission Rules and Regulations.

(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.

Examiner Hearing - July 22, 1964

- CASE 3087: Application of William A. and Edward R. Hudson for an unorthodox location, Eddy County, New Mexico. Applicants, in the above-styled cause, seek authority to drill their Puckett "A" Well No. 26 at an unorthodox location 1295 feet from the North and West lines of Section 24, Township 17 South, Range 31 East, Eddy County, New Mexico. Said well would be projected to the Paddock formation at approximately 5400 feet.
- CASE 3088: Application of Phillips Petroleum Company for a unit agreement, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of the Ranger Lake Unit Area comprising 2,680 acres, more or less, of State land in Township 12 South, Range 34 East, Lea County, New Mexico.
- CASE 3089: Application of Phillips Petroleum Company for a waterflood project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project in the Ranger Lake-Pennsylvanian Pool in its Ranger Lake Unit Area by the injection of water into the Pennsylvanian formation through nine wells in Sections 14, 23, 24, 25, 26, 27, 34 and 35, Township 12 South, Range 34 East, Lea County, New Mexico.
- CASE 3090: Application of Tenneco Oil Company for salt water disposal, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water in the Pictured Cliffs formation through its Callow Well No. 2 located in Unit B, Section 33, Township 29 North, Range 13 West, West Kutz-Pictured Cliffs Pool, San Juan County, New Mexico.
- CASE 3091: Application of The British-American Oil Producing Company for a dual completion and pool commingling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of the dual completion (conventional) of its North Wilson Deep Unit Well No. 1, located in Unit D of Section 31, Township 20 South, Range 36 East, Lea County, New Mexico, to produce oil from the Upper Bone Spring formation and the Lower Bone Spring formation through parallel strings of tubing. Applicant further seeks authority to commingle the production from said pools after separately metering the Lower Bone Spring production.
- CASE 3092: Application of The British-American Oil Producing Company for the creation of a new oil pool and special pool rules, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the creation of a new oil pool for Upper Bone Spring production for its North Wilson Deep Unit Well No. 1, located in Unit D of Section 31, Township 20 South, Range 36 East, Lea County, New Mexico, which well is perforated from 7888 to 7901 feet. Applicant further seeks the promulgation of special rules for said pool, including a provision for 80-acre proration units.
- CASE 3093: Application of The British-American Oil Producing Company for the creation of a new oil pool and special pool rules, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the creation of a new oil pool for Lower Bone Spring production for its North Wilson Deep Unit Well No. 1, located in Unit D of Section 31, Township 20 South, Range 36 East, Lea County, New Mexico, which well is perforated from 10,094 to 10,122 feet. Applicant further seeks the promulgation of special rules for said pool, including a provision for 80-acre proration units.

DOCKET: EXAMINER HEARING - WEDNESDAY - JULY 22, 1964

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

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

- CASE 3081: Application of Shell Oil Company for a waterflood project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project in the Langlie-Mattix Pool by the injection of water through four wells at unorthodox locations in Section 21, Township 24 South, Range 37 East, Lea County, New Mexico.
- CASE 3082: Application of Union Oil Company of California for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Devonian formation through perforations from 11,246 feet to 11,285 feet in its State-Gross Well No. 2 located in Unit L of Section 11, Township 12 South, Range 32 East, East Caprock Field, Lea County, New Mexico.
- CASE 3083: Application of General American Oil Company of Texas for a waterflood project, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project by the injection of water into the Premier Sand through twelve wells located in Sections 27, 28, 33 and 34, Township 17 South, Range 30 East, Eddy County, New Mexico. Certain of the aforesaid injection wells would be drilled at unorthodox locations.
- CASE 3084: Application of Fair Oil Company for a buffer zone extension and pool redelineation, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an amendment of Order No. R-2033 to extend the waterflood buffer zone authorized by said order to include the SE/4 NE/4 of Section 36, Township 17 South, Range 29 East, Eddy County, New Mexico. Applicant further seeks the extension of the Loco Hills Pool to include said quarter-quarter section, and the associated deletion of said acreage from the Grayburg-Jackson Pool.
- CASE 3085: Application of Humble Oil & Refining Company for two non-standard oil proration units, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of two non-standard 80-acre oil proration units in Section 7, Township 19 South, Range 35 East, Scharb Bone Springs Pool, Lea County, New Mexico. The first unit would comprise the NW/4 NE/4 and the NE/4 NW/4 of Section 7 and be dedicated to applicant's Alves Well No. 1 located in Unit B of said Section 7. The second unit would comprise the SW/4 NE/4 and the SE/4 NW/4 of Section 7 and be dedicated to applicant's Alves Well No. 2, which would be drilled in Unit G of said Section 7.
- CASE 3086: Application of Texaco Inc. for a waterflood project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project in the Rhodes Yates Oil Pool by the injection of water into the Yates and Seven Rivers formations through two wells in Section 26, Township 26 South, Range 37 East, Lea County, New Mexico.



Case 3081  
OFFICE CCC

STATE OF NEW MEXICO JUL 22 PM 1:18

STATE ENGINEER OFFICE

SANTA FE

S. E. REYNOLDS  
STATE ENGINEER

July 21, 1964

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

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

Dear Mr. Porter:

Reference is made to the application of Shell Oil Company which seeks permission of the Oil Conservation Commission to inject water into four injection wells in Sec. 21, T. 24 S., R. 37 E. The subject wells are:

Shell WIW No. 4  
Shell WIW No. 5  
Shell WIW No. 6  
Shell WIW No. 7

On July 1, 1964, I requested additional information from Richard S. Morris, attorney for Shell and he has furnished that information. The additional information is in the form of a diagrammatic sketch for each of the four above mentioned wells. Mr. Morris and the representative of Shell Oil Company assured me that this four sketches would be entered as exhibits at the hearing on July 22nd.

After reviewing the construction of the wells and the equipment to be used in them, it appears that no threat of contamination to any fresh waters which may exist in the area will occur, provided the plans are followed. Therefore, this office offers no objection to the granting of this application, provided the well construction and equipment used in the injection conform to the diagrammatic sketches submitted to me.

Yours truly,

FEI/ma  
cc-Shell Oil Co.  
Richard S. Morris  
F. H. Hennighausen

S. E. Reynolds  
State Engineer

By: *Frank E. Irby*  
Frank E. Irby, Chief  
Water Rights Division

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 2088  
SANTA FE  
87501

Mr. Richard S. Morris  
Seth, Montgomery, Federici & Andrews  
Attorneys at Law  
Post Office Box 2307  
Santa Fe, New Mexico

\_\_\_\_\_, 19\_\_\_\_

Gentlemen:

Enclosed herewith is Commission Order No. R- 2747, entered in Case No. 3081, approving the Shell Oil Company Langlie Matrix Black Water Flood Project.

*per -* As to allowable, our calculations indicate that  
~~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 182 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.

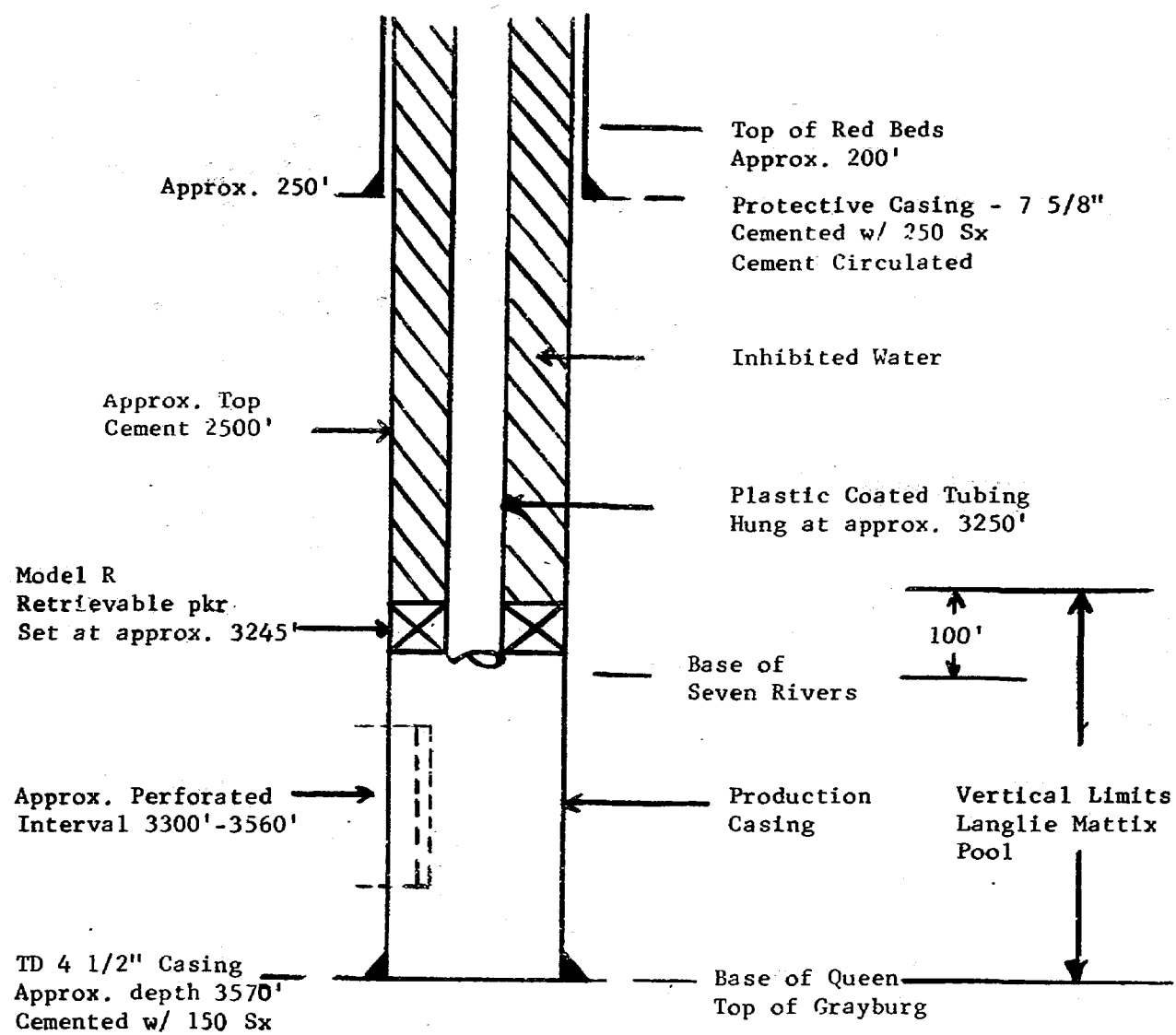
Very truly yours,

cc's to  
OCC - Hobbs  
Mr. Frank Irby

A. L. PORTER, Jr.  
Secretary-Director

SHELL OIL COMPANY  
PROPOSED WATERFLOOD  
LANGLIE MATTIX FIELD  
LEA COUNTY, NEW MEXICO

Diagrammatic Sketch of  
Proposed WIW No. 7

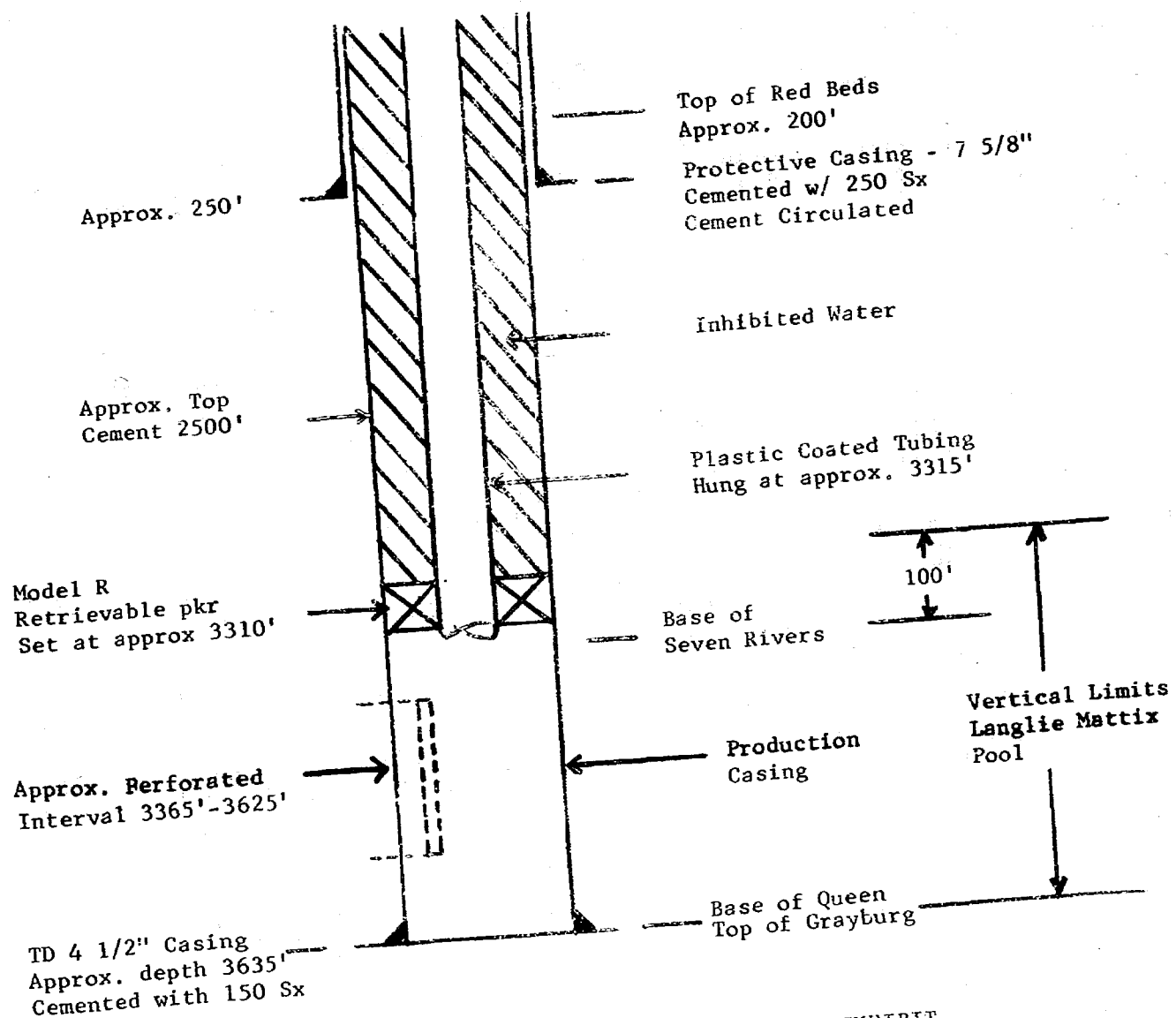


BEFORE EXAMINER NUTTER  
OIL CONSERVATION COMMISSION  
*Shell* EXHIBIT NO. 7  
CASE NO. 3081

WATERFLOOD HEARING EXHIBIT \_\_\_\_\_

SHELL OIL COMPANY  
 PROPOSED WATERFLOOD  
 LANGLEIE MATTIX FIELD  
 LEA COUNTY, NEW MEXICO

Diagrammatic Sketch of  
 Proposed WIW No. 6



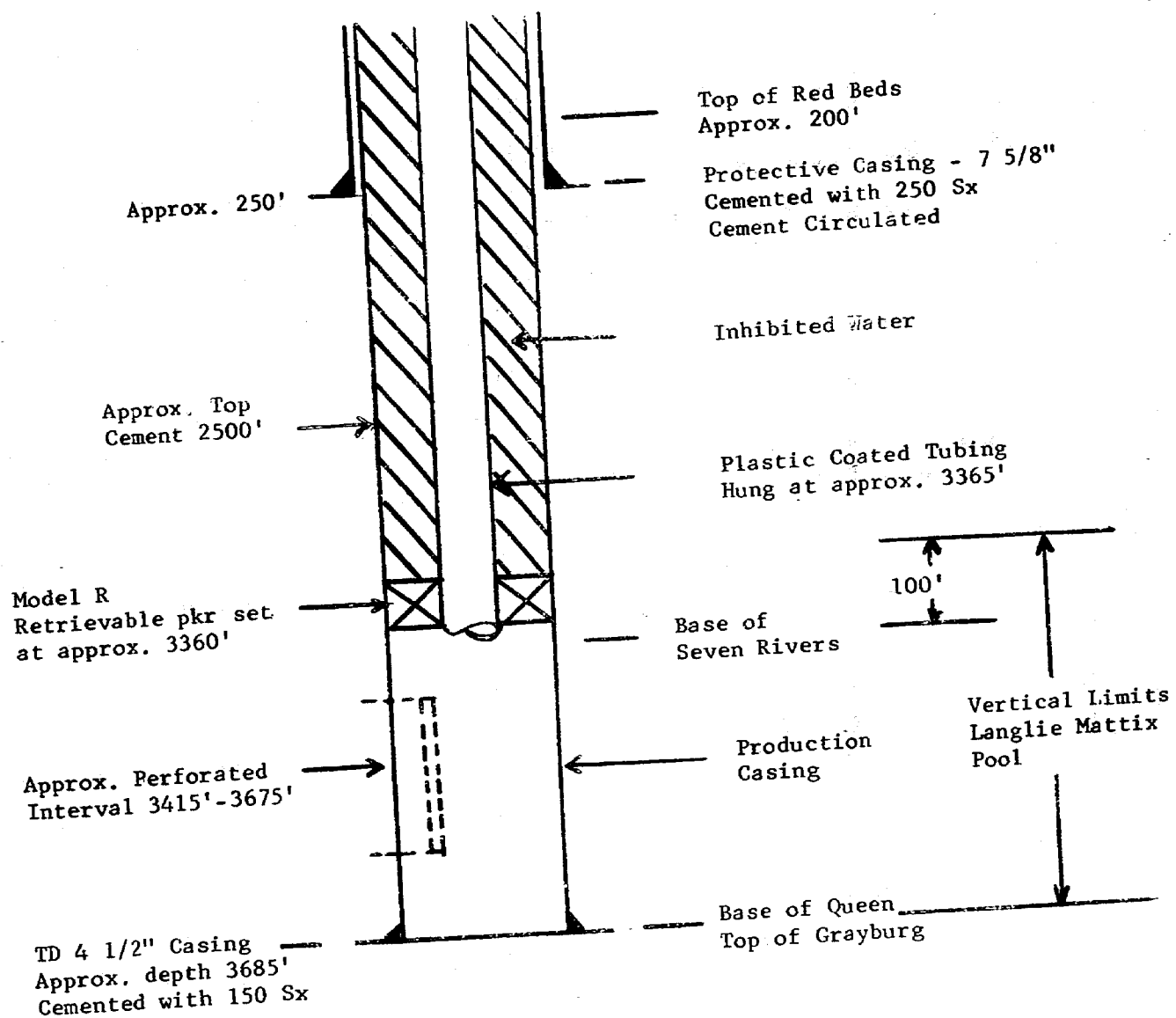
BEFORE EXAMINER NUTTER  
 OIL CONSERVATION COMMISSION  
Shell EXHIBIT NO. 6  
 CASE NO. 3081

WATERFLOOD HEARING EXHIBIT



SHELL OIL COMPANY  
PROPOSED WATERFLOOD  
LANGLIE MATTIX FIELD  
LEA COUNTY, NEW MEXICO

Diagrammatic Sketch of  
Proposed WIW No. 5

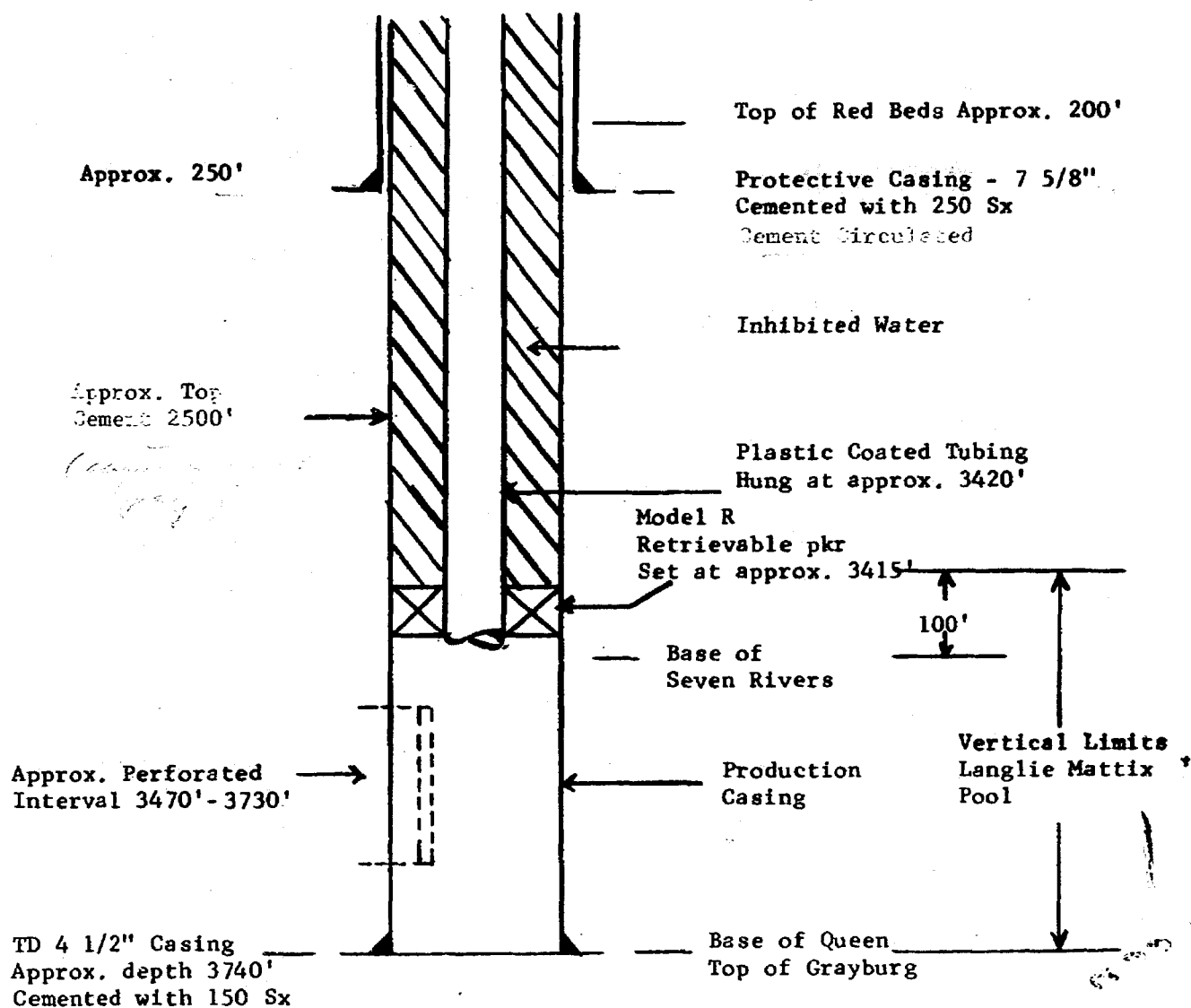


BEFORE EXAMINER NUTTER  
OIL CONSERVATION COMMISSION  
*Shell* EXHIBIT NO. 5  
CASE NO. 3081

WATERFLOOD HEARING EXHIBIT \_\_\_\_\_

SHELL OIL COMPANY  
 PROPOSED WATERFLOOD  
 LANGLEIE MATTIX FIELD  
 LEA COUNTY, NEW MEXICO

Diagrammatic Sketch of  
 Proposed WIW No. 4



BEFORE EXAMINER NUTTER

OIL CONSERVATION COMMISSION

Shell EXHIBIT NO. 4

CASE NO. 3081

WATERFLOOD HEARING EXHIBIT

SHELL OIL COMPANY  
PROPOSED WATERFLOOD IN THE LANGLEIE MATTIX FIELD  
INJECTION WELL DETAIL

Proposed Injection Well	Location Unit-S-T-R	Distance Feet	Size In.	Casing Detail (1)		Est. Cmt. Top (2)	Est. T.D.	Est. Vertical Limit Langlie Mattix		Bottom (Base of the Queen
				Approx. Depth Feet	Cmt. Sx.			Top (100' Above Seven Rivers Base)	Bottom	
Shell WIW No. 4	N-21-24-37	20 FSL	7 5/8	250	250	Surface (3)	3740	<i>Pkn</i> 3415	3370	3740 <i>3470-3730</i>
		1340 FWL	4 1/2	3740	150	2500				
Shell WIW No. 5	N-21-24-37	1300 FSL	7 5/8	250	250	Surface (3)	3685	3360	3315	3685 <i>3415-3675</i>
		1340 FWL	4 1/2	3685	150	2500				
Shell WIW No. 6	O-21-24-37	1300 FSL	7 5/8	250	250	Surface (3)	3635	3310	3265	3635 <i>3365-3625</i>
		2660 FWL	4 1/2	3635	150	2500				
Shell WIW No. 7 <i>will inject.</i>	J-21-24-37	2620 FSL	7 5/8	250	250	Surface (3)	3570	3245	3200	3570 <i>3300-3560</i>
		2660 FWL	4 1/2	3570	150	2500				

- 300-350 BIV / 2000*
- (1) The Top of the Red Beds in this area is approximately 200 feet.
  - (2) The Top of the Yates in this area is approximately 2570 feet.
  - (3) Cement circulated.

BEFORE EXAMINER NUTTER  
OIL CONSERVATION COMMISSION  
*Shell* EXHIBIT NO. 3  
CASE NO. 3081

WATERFLOOD HEARING EXHIBIT

1964 JUN 10 PM 1 18

## BEFORE THE NEW MEXICO OIL CONSERVATION COMMISSION

APPLICATION OF SHELL OIL COMPANY }  
FOR APPROVAL OF A WATERFLOOD }  
PROJECT, LANGLIE MATTIX POOL, }  
LEA COUNTY, NEW MEXICO. }

Case No.

3081A P P L I C A T I O N

Comes now Shell Oil Company, by its attorneys, and requests approval by the New Mexico Oil Conservation Commission of a waterflood project in the Langlie Mattix Pool, Lea County, New Mexico, and in support of its application states:

1. Shell Oil Company is the owner and operator of the J. F. Black lease comprising the  $W\frac{1}{2}SE\frac{1}{4}$  and the  $SE\frac{1}{4}SW\frac{1}{4}$  of Section 21, T. 24 S., R. 37 E., N.M.P.M., Lea County, New Mexico.

2. The subject lease is presently developed by three wells in the Langlie Mattix Pool, as shown on the plat attached to and made a part of this application. Said wells are in an advanced stage of depletion and are properly designated "stripper" wells; Well No. 1 is temporarily abandoned, having declined to one barrel of oil per day on March 30, 1963; Well No. 2 is abandoned, having declined to less than one barrel of oil per day in April, 1948; Well No. 3 is presently producing at the rate of three barrels of oil per day.

3. As can be seen from the plat accompanying this application, the 160-acre lease adjoining the subject lease to the east is currently being waterflooded by the George L. Buckles Company on a 20-acre spacing pattern in the Langlie Mattix Pool, which project was commenced in April, 1964.

4. Shell Oil Company proposes to develop its Black lease on a continuation of the pattern established by the George L.

DOCKET MAILED

Date

7/8/64  
*de*

Buckles Company by the injection of water into four injection wells shown on the plat attached hereto and to be located as follows:

Shell WIW No. 4	20 feet from the south line 1340 feet from the west line
Shell WIW No. 5	1300 feet from the south line 1340 feet from the west line
Shell WIW No. 6	1300 feet from the south line 2660 feet from the west line
Shell WIW No. 7	2620 feet from the south line 2660 feet from the west line

all in Section 21, T. 24 S., R. 37 E., Lea County, New Mexico. Additional data concerning the proposed injection wells is shown on the attachment to this application entitled "Injection Well Detail."

5. Attached to this application and made a part hereof is a diagrametic sketch of a typical injection well. As shown on this sketch, injection will be through tubing and below a packer. Injection in this manner will confine injected water to the Langlie Mattix Pool and will protect fresh water and other producing formations in the area.

6. Shell Oil Company proposes to drill a well in the  $W\frac{1}{2}SE\frac{1}{4}$  of Section 21, T. 24 S., R. 37 E., Lea County, New Mexico, to obtain water from the Santa Rosa formation for use in this waterflood project. It is estimated that 1400 barrels of water per day will be withdrawn from this source for injection into the four wells above described; total requirements for the project will be approximately one million barrels of water.

7. Approval of the subject application will permit Shell Oil Company to recover oil otherwise unrecoverable and will thereby prevent waste. Correlative rights will not be

impaired by the granting of this application.

WHEREFORE, Shell Oil Company requests that this application be set for hearing before the Commission or one of its examiners, and that the Commission enter its order approving the proposed waterflood project.

SETH, MONTGOMERY, FEDERICI & ANDREWS

By

Richard J. Morris  
P. O. Box 2307  
Santa Fe, New Mexico  
Attorneys for Shell Oil Company

CERTIFICATE OF MAILING

The undersigned, being one of the attorneys for the applicant, hereby certifies that on this 29th day of June, 1964, a copy of this application, with exhibits attached thereto, has been mailed to Mr. Frank Irby, Chief, Water Rights Division, Office of the State Engineer, Capitol Building, Santa Fe, New Mexico, in accordance with Rule 701 of the Rules and Regulations of the New Mexico Oil Conservation Commission.

Richard J. Morris

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

July 29, 1964

C  
Mr. Richard S. Morris  
Seth, Montgomery, Federici & Andrews  
Attorneys at Law  
Post Office Box 2307  
Santa Fe, New Mexico

O  
Dear Sir:

Enclosed herewith is Commission Order No. R-2747, entered in Case No. 3081, approving the Shell Oil Company Langlie-Mattix Black Waterflood Project.

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Injection is to be through the four authorized injection wells which shall be equipped with 4½ inch casing set at the base of the Queen formation and cemented back above the Jalmat pay. Said wells are also to be equipped with packers set below the top of the Langlie-Mattix Pool and with plastic-coated tubing.

V  
As to allowable, our calculations indicate that 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 182 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

OIL CONSERVATION COMMISSION

P. O. BOX 871

SANTA FE, NEW MEXICO

-2-

Mr. Richard S. Morris  
Seth, Montgomery, Federici & Andrews  
Post Office Box 2307  
Santa Fe, New Mexico

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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,

A. L. PORTER, Jr.  
Secretary-Director

Enclosure

ALP/DSM/ir

cc: Oil Conservation Commission  
Hobbs, New Mexico

Mr. Frank Irby  
State Engineer Office  
Santa Fe, New Mexico



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. 3081  
Order No. R-2747

APPLICATION OF SHELL OIL COMPANY  
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 July 22, 1964, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 29th day of July, 1964, the Commission, a quorum being present, having considered the testimony, the record, and the recommendations of the Examiner, 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, Shell Oil Company, seeks permission to institute a waterflood project in the Langlie-Mattix Pool by the injection of water into the Queen formation through four injection wells at unorthodox locations in Section 21, Township 24 South, Range 37 East, NMPM, Lea County, New Mexico.

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

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

-2-

CASE No. 3081  
Order No. R-2747

(5) That the subject application should be approved and the project should be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations.

IT IS THEREFORE ORDERED:

(1) That the applicant, Shell Oil Company, is 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 wells at unorthodox locations in Section 21, Township 24 South, Range 37 East, NMPM, Lea County, New Mexico:

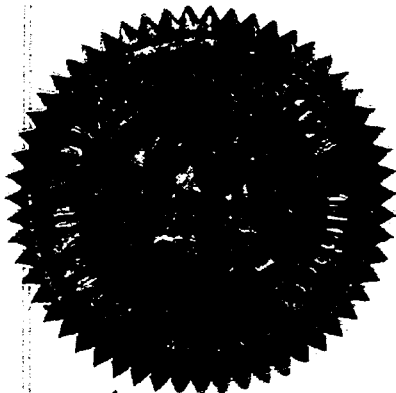
WIW No. 4	20 feet from the South line and 1340 feet from the West line;
WIW No. 5	1300 feet from the South line and 1340 feet from the West line;
WIW No. 6	1300 feet from the South line and 2660 feet from the West line;
WIW No. 7	2620 feet from the South line and 2660 feet from the West line.

(2) That the subject waterflood project shall be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations.

(3) 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.

(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.



asr/

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

MAIN OFFICE OCC

1964 JUL 6 AM 7:43

July 1, 1964

*Case File 3081*

Mr. Richard S. Morris  
Attorney at Law  
350 E. Palace Avenue  
Santa Fe, New Mexico

Dear Mr. Morris:

Reference is made to the application of Shell Oil Company which seeks permission of the Oil Conservation Commission to inject water into four injection wells in Sec. 21, T. 24 S., R. 37 E., a copy of which I received June 30, 1964. The subject wells are:

Shell WIW No. 4  
Shell WIW No. 5  
Shell WIW No. 6  
Shell WIW No. 7

The attachment titled "Injection Well Detail" indicates that in each well 7 5/8 inch casing was set at 250' with 250 sacks of cement and that the top of the cement is at 2500'. I am unable to understand this and would appreciate clarification of it.

The attachment labeled "Diagrammatic Sketch of Proposed Injection well" fails to show the following items required by Oil Conservation Commission Rule 701-B-3: quantities used and tops of cement; perforation interval; setting depth of tubing; type and location of packers.

Unless clarification and completion of the information submitted is forthcoming, it will be my duty to object to the granting of the application.

I would like a statement from Shell Oil Company that an analyses of the water to be used for injection, which is to be

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obtained from the Santa Rosa formation, will be forwarded to me  
as early as possible after the completion of the water well.

Yours truly,

S. E. Reynolds  
State Engineer

By:

Frank E. Irby  
Chief  
Water Rights Division

FEI/ma  
cc-Oil Conservation Commission  
Mr. T. H. Dwyer

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O  
P  
Y

Case 3-81

September 16, 1964

Shell Oil Company  
P. O. Box 1858  
Roswell, New Mexico

Attention: Mr. T. H. Dwyer

Administrative Order NSL-334

Gentlemen:

Reference is made to your application for approval of an unorthodox location for your WIW Well No. 4 to be utilized as a water injection well under the provisions of Order No. R-2747 to be located 5 feet from the South line and 1340 feet from the West line of Section 21, Township 24 South, Range 37 East, NMPM, Langlie-Mattix Pool, Lea County, New Mexico.

By authority granted me under the provisions of Rule 104 F of the Commission Rules and Regulations, you are hereby granted an exception for the above-described unorthodox well location.

Very truly yours,

A. L. PORTER, Jr.  
Secretary-Director

ALP/JMD/esr

cc: Oil Conservation Commission - Hobbs  
Oil & Gas Engineering Committee - Hobbs