CASE 3368: Appli. of STANDARD OIL CO. OF TEXAS for a water-flood expansion, Lea County.

CASE NO.

3368

Application,
Transcripts,
Small Exhibits
ETC.

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. 3100
Order No. R-2777

APPLICATION OF LEONARD NICHOLS
FOR THE EXPANSION OF 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 September 30, 1964, at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this 14th day of October, 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, Leonard Nichols, seeks expansion of the waterflood project authorized by Order No. R-1538 which he operates in Sections 2, 3, 10, and 11, Township 17 South, Range 32 East, NMPM, Maljamar Pool, Lea County, New Mexico, by the addition of six water injection wells in Sections 4 and 9 of Township 17 South, Range 32 East, NMPM, Lea County, New Mexico.

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

(4) That approval of the subject application should result in the recovery of otherwise unrecoverable oil, thereby preventing waste.

IT IS THEREFORE ORDERED:

(1) That the applicant, Leonard Nichols, is hereby authorized to expand the Leonard Nichols Maljamar Waterflood Project, formerly the Boller-Nichols Roberts Waterflood Project authorized by Order No. R-1538 by converting to water injection the following-described wells in Township 17 South, Range 32 East, NMPM, Lea County, New Mexico:

WELL	UNIT	SECTION
Nichols-Taylor "B" No. 1	P	4
Nichols-Iles No. 13	J	4
Nichols-Iles No. 15	L	4
Nichols-Iles No. 16	N	4
Nichols-Iles No. 20	D	9
Nichols-Iles No. 21	B	9

(2) 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

S E A L

esr/

STANDARD OIL COMPANY OF TEXAS
MALJAMAR-GRAYBURG WATERFLOOD
WELLS TO BE ADDED TO PROJECT AREA

Lease	Well	Unit	Section	Requested Allowable
Atlantic-Federal	1	H	3	4
Atlantic-Federal	2	H	4	20
Atlantic-Federal	3	G	4	8
Iles Federal	18	H	15	10
Iles Federal	23	G	15	10
Iles Federal	34	A	15	15
Iles Federal	35	E	9	24
Iles Federal	36	B	15	Input
Iles Federal	37	F	9	24
Iles X Federal	5	P	9	8
Iles X Federal	8	N	10	Input
Iles X Federal	9	M	10	25
Sinclair-Taylor	1	F	4	Input
Sinclair-Taylor	2	E	4	19
Taylor et al	1	J	9	8
Taylor et al	2	I	9	42
Taylor et al	3	H	9	Input
Taylor et al	4	G	9	20
Taylor H	2	L	10	Input

BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
EXHIBIT NO. 5
CASE NO. 3365

KELLAHIN AND FOX
ATTORNEYS AT LAW
54½ EAST SAN FRANCISCO STREET
POST OFFICE BOX 1769
SANTA FE, NEW MEXICO 87501

JASON W. KELLAHIN
ROBERT E. FOX
FORREST S. SMITH

TELEPHONE 982-4315
AREA CODE 505

December 16, 1965

Case 3368

New Mexico Oil Conservation Commission
P. O. Box 2088
Santa Fe, New Mexico

Gentlemen:

Enclosed in triplicate is the application of Standard Oil Company of Texas, a Division of Chevron Oil Company for expansion of its water flood project in the Maljamar Pool.

It is requested that this application be set for hearing at the last examiner hearing in January.

A copy of the application has today been forwarded to the Office of the State Engineer.

Very truly yours,

KELLAHIN & FOX

Jason W. Kellahin

Jason W. Kellahin

jwk/mas
enclosures
cc: Standard Oil Company of Texas

DOCKET MAILED
Date 12-13-65
mc

cima CAPITAN incorporated
(N.S.L.)
312 BOOKER BUILDING
POST OFFICE DRAWER 1343
ARTESIA, NEW MEXICO
AREA CODE 505
TELEPHONE 748-1125

17 January 1966

Standard Oil Company of Texas
Box 1660
Midland, Texas

Re: N. M. Oil Conservation
Commission Case No. 3368,
Expansion of Leonard Nichols
Maljamar Project, Lea County,
New Mexico

Gentlemen:

I have noted that the subject case is on the docket for hearing on January 26, 1966. Since we have holdings in Section 3, T17S, R32E, and you are proposing to convert producers to injectors in this section and other sections, would you please send me a copy of the proposed expansion program showing the proposed injection wells and the zones into which water will be injected?

Very truly yours

Hal C. Porter

Cima Capitan, Incorporated
Hal C. Porter
Chief Engineer

HCP/wl

cc: N.M.O.C.C.

Case 3368
Heard 1-26-66
Rec. 1-27-66.

1. Grant Std & Dev. permission to use 5 injection wells & expand the project, the Maljamar Waterflood.
The 5 injection wells to be approved are listed on page 1 of their application.
2. These wells are to have the Casing tested to 3000 p.s.i.

KELLAHIN AND FOX
ATTORNEYS AT LAW
54½ EAST SAN FRANCISCO STREET
POST OFFICE BOX 1769
SANTA FE, NEW MEXICO 87501

JASON W. KELLAHIN
ROBERT E. FOX

TELEPHONE 982-4315
AREA CODE 505

December 16, 1955

Case 3358

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

Dear Frank:

I am enclosing copy of an application for expansion of the old Leonard Nichols water flood project in the Maljamar Pool, filed on behalf of Standard Oil Company of Texas.

We have asked that this application be set for hearing at the last examiner hearing of the commission in January. Prior to that time, I will furnish you with a copy of the exhibits to be used and other information pertaining to this water flood expansion.

Very truly yours,

KELLAHIN & FOX

Jason W. Kellahin

jwk/mas
enclosure
cc: Standard Oil Company of Texas
Oil Conservation Commission of New Mexico

STANDARD OIL COMPANY OF TEXAS

A DIVISION OF CHEVRON OIL COMPANY

P. O. BOX 1249 HOUSTON TEXAS 77001

December 14, 1965

Case 3368

United States Geological Survey
205 North Linam
Hobbs, New Mexico

Gentlemen:

Standard Oil Company of Texas, a Division of Chevron Oil Company, is applying to the New Mexico Oil Conservation Commission for authority to expand its waterflood in the Maljamar (Grayburg-San Andres) Pool, Sections 2, 3, 4, 8, 9, 10, 11, 14, and 15, Township 17 South, Range 32 East, Lea County, New Mexico. A copy of the application is attached together with a preliminary plat of the area.

We intend to convert to water injection the following five wells:

Well	Unit	Section
Standard-Sinclair Taylor No. 1	F	4
Standard-Taylor et al No. 3	H	9
Standard-Taylor H No. 2	L	10
Standard-Iles X Federal No. 8	N	10
Standard-Iles Federal No. 36	B	15

These conversions are necessary to optimize the waterflood and to protect royalty interests underlying this non-unitized project area.

Additionally, we can find no formal authority from the New Mexico Oil Conservation Commission for use of the following wells for water injection:

Well	Unit	Section
Standard-Iles Federal No. 32	L	3
Standard-Iles Federal No. 26	H	10
Standard-Iles Federal No. 28	J	10
Standard-Taylor E No. 3	N	11

Leonard Nichols, operator of these wells at the time of their conversion, filed Forms C-103 and/or 9-331 notifying the New Mexico Oil Conservation Commission and the United States Geological Survey of their conversion,

and these forms were approved. However, these four wells are included in the application for expansion so that the wells will be authorized by formal order.

We would appreciate your approval of the proposed expansion of the Standard Oil Company of Texas Maljamar Waterflood Project.

Yours very truly,

C. N. Segnar p.c.y

C. N. Segnar
Chief Engineer

JTC:ja

Attachments

cc: New Mexico Oil Conservation Commission
Santa Fe, New Mexico

DRAFT

JMD/esr

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

CF Subj. _____

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

CASE No. 3368

Order No. R-1035

APPLICATION OF STANDARD OIL COMPANY
OF TEXAS FOR A WATERFLOOD EXPANSION,
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 26, 1966, at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this ____ day of Feb., 1966, 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, Standard Oil Company of Texas, seeks permission to expand its Maljamar Waterflood Project, formerly the Leonard Nichols Maljamar Waterflood Project, in the Maljamar Pool by converting to water injection ~~into the formation~~ nine additional wells in Sections 3, 4, 9, 10, 11, and 15, Township 17 South, Range 32 East, NMPM, Lea County, New Mexico.

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

(3) That 4 of the subject wells have previously been approved as water injection wells by administrative orders.

(4) That the proposed expansion of the Maljamar Waterflood Project should result in the recovery of otherwise unrecoverable oil, thereby preventing waste.

(5) That the subject application should be approved and the expanded 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, Standard Oil Company of Texas, is hereby authorized to expand its Maljamar Waterflood Project, formerly the Leonard Nichols Maljamar Waterflood Project, in the Maljamar Pool by converting to water injection ~~into the formation~~ the following-described wells in Township 17 South, Range 32 East, NMPM, Lea County, New Mexico:

Well	Unit	Section
Standard-Sinclair Taylor No. 1	F	4
Standard-Taylor et al No. 3	H	9
Standard-Taylor H No. 2	L	10
Standard-Iles X Federal No. 8	N	10
Standard-Iles Federal No. 36	B	15

(2) That the ~~subject~~ expanded 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 expanded waterflood project ~~herein authorized~~ shall be submitted to the Commission in accordance with Rules 704 and 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.

Docket No. 4-66

DOCKET: EXAMINER HEARING - WEDNESDAY - JANUARY 26, 1966

9 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 2720: (Reopened and continued from the January 5, 1966 Examiner Hearing)

In the matter of Case No. 2720 being reopened pursuant to the provisions of Order No. R-2397-B which continued the original order for an additional year, establishing special rules governing the production of oil and gas wells in the Double-X Delaware Pool, Lea County, New Mexico, including classification of wells as gas wells when the gas-liquid hydrocarbon ratio exceeds 30,000 to one.

CASE 3365: Application of Humble Oil & Refining Company for a unit agreement, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval of the North Cedar Hills Unit Area comprising approximately 8,500 acres of Federal, State and Fee lands in Township 20 South, Range 28 East, and Township 21 South, Range 27 East, Eddy County, New Mexico.

CASE 3366: Application of Coastal States Gas Producing Company for a pilot pressure maintenance project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a pilot pressure maintenance project by the injection of water into the San Andres formation through three wells in Sections 15, 21 and 33, Township 9 South, Range 33 East, Flying "M" San Andres Pool, Lea County, New Mexico; applicant further seeks rules governing said project including a provision for administrative approval for the conversion of additional wells to water injection.

CASE 3367: Application of Penroc Oil Corporation for a non-standard oil proration unit and an unorthodox location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of a non-standard oil proration unit comprising the NE/4 SW/4, N/2 SE/4, and SW/4 SE/4 of Section 7, Township 19 South, Range 32 East, Lusk-Strawn Pool, Lea County, New Mexico, said unit to be dedicated to a well to be drilled at an unorthodox location for said pool 660 feet from the South line and 1650 feet from the East line of said Section 7.

CASE 3368: Application of Standard Oil Company of Texas for a waterflood expansion, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to expand its Maljamar Waterflood Project, formerly the Leonard Nichols Maljamar Waterflood Project, by the conversion to water injection of nine wells located in Sections 3, 4, 9, 10, 11 and 15, Township 17 South, Range 32 East, Lea County, New Mexico.

CASE 3369: Application of Texaco Inc. for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water in the Devonian formation through perforations from 10,604 to 10,780 feet in its State "BO" Well No. 4 located in Unit M, Section 13, Township 11 South, Range 32 East, Moore-Devonian Pool, Lea County, New Mexico.

CASE 3370: Application of Shell Oil Company for an exception to Rule 8 of Order No. R-2065 and to Rule 301, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an exception to Rule 8 of Order No. R-2065 and to Rule 301 of the Commission rules and regulations to permit discontinuance of individual gas-oil ratio tests in its Carson Bisti-Lower Gallup Pressure Maintenance Project, Bisti-Lower Gallup Oil Pool, San Juan County, New Mexico. Applicant proposes to report gas production and ratios on a unit-wide basis rather than individual well GOR data.

CASE 3371: Application of Midwest Oil Corporation for an unorthodox oil well location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to drill its Harris State Well No. 1 at an unorthodox location 660 feet from the South line and 1980 feet from the West line of Section 29, Township 13 South, Range 34 East, Nonombre-Pennsylvanian Field, Lea County, New Mexico.

CASE 3372: In the matter of the hearing called by the Oil Conservation Commission on its own motion to consider the amendment to Rule 104 F of the Commission rules and regulations to provide administrative procedure for the approval of an unorthodox location necessitated by recompletion of a well previously drilled to another horizon.

CASE 3373: In the matter of the hearing called by the Oil Conservation Commission on its own motion to consider amendment of Rule 301 to provide executive authority for the Secretary-Director to exempt, for good cause, certain pools from the annual gas-oil ratio test requirements; further, the Secretary-Director could, where necessary, order annual oil production tests in lieu of gas-oil ratio tests.

CASE 3374: In the matter of the hearing called by the Oil Conservation Commission on its own motion to amend Rule 302 of the Commission rules and regulations to eliminate the requirement for calibration of bottom-hole pressure test bombs prior and subsequent to each pressure test.

GOVERNOR
JACK M. CAMPBELL
CHAIRMAN

State of New Mexico
Oil Conservation Commission

LAND COMMISSIONER
GUYTON B. HAYS
MEMBER

P. O. BOX 2088
SANTA FE

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

February 9, 1966

Re: Case No. 3368
Order No. R-3035
Applicant:
STANDARD OIL COMPANY OF TEXAS

Mr. Jason Kellahin
Kellahin & Fox
Attorneys at Law
Post Office Box 1769
Santa Fe, New Mexico

Dear Sir:

Enclosed herewith is a copy of the above-referenced Commission order recently entered in the subject case. Letter pertaining to conditions of approval and maximum allowable to follow.

Very truly yours,

A. L. PORTER, Jr.
Secretary-Director

ALP/ir

Carbon copy of order also sent to:

Hobbs OCC x
Artesia OCC
Aztec OCC

Other

GOVERNOR
JACK M. CAMPBELL
CHAIRMAN

State of New Mexico
Oil Conservation Commission

LAND COMMISSIONER
GUYTON B. HAYS
MEMBER

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

P. O. BOX 2088
SANTA FE

March 1, 1966

Mr. James E. Sperling
Modrall, Seymour, Sperling, Roehl & Harris
Attorneys at Law
Post Office Box 466
Albuquerque, New Mexico

Re: Case No. 3378
Order No. R-3045
Applicant:
Socony Mobil Oil Company

Dear Sir:

Enclosed herewith is a copy of the above-referenced Commission order recently entered in the subject case. Letter pertaining to conditions of approval and maximum allowable to follow.

Very truly yours,

A. L. PORTER, Jr.
Secretary-Director

ALP/ir

Carbon copy of order also sent to:

Hobbs OCC x
Artesia OCC x
Aztec OCC

Other Mr. Booker Kelly
Mr. Frank Irby

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
January 26, 1966

EXAMINER HEARING

IN THE MATTER OF:

Application of Standard Oil Company of Texas for a waterflood expansion, Lea County, New Mexico.

Case No. 3368

BEFORE:

Elvis A. Utz, Gas Engineer

TRANSCRIPT OF HEARING

MR. UTZ: Call Case 3368.

MR. KELLAHIN: If the Examiner, please, Jason Kellahin, of Kellahin and Fox. We have one witness I would like to have sworn.

(Witness sworn.)

(Whereupon, Applicant's Exhibits 1-5 marked for identification.)

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

MR. HAL PORTER: Mr. Examiner, I might want to say a few words at the end.

MR. KELLAHIN: If the Examiner please, this is an application to expand the waterflood project which was originally started by the Boler Nichols group, and Leonard Nichols Maljamar waterflood project, which was approved by the Commission Order R-1358, entered in Case 1730, and R-2777, entered in Case 3100.

Basically, the expansion will be substantially the same as the waterflood project heretofore approved by the Commission. There were, however, some wells being utilized for water injection at the time the present applicant acquired these properties, of which they find no record for approval of that purpose, and the approval of these wells for this injection is included in this compilation.

J O H N C. C A M E R O N, called as a witness, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q Would you state your name, please?

A John T. Cameron.

Q By whom are you employed?

A Standard Oil Company of Texas as Proration Engineer.

Q Have you ever testified before the Commission and made your qualifications a matter of record?

A Yes, I have.

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

MR. UTZ: Yes, sir, they are.

Q (By Mr. Kellahin) Mr. Cameron, you heard my statement of the purpose of this present case. Is that a correct statement as what is proposed by the Standard Oil Company of Texas?

A Yes, sir, we want to expand the waterflood by the addition of five injection wells and also to obtain formal authority to inject water in four wells already being used for that purpose.

MR. UTZ: Would you state at this time which of the four wells have already been used?

MR. KELLAHIN: I think it would be easier if he pointed those out on the plats.

Q (By Mr. Kellahin) Referring to what has been marked as Exhibit 1, Mr. Cameron, would you state what that shows?

A Exhibit 1 is a plat of a portion of the Maljamar Grayburg San Andres Field showing in particular the area of the Standard of Texas Maljamar Grayburg waterflood. Outlined in gray on Exhibit 1 is the proposed unit area. I want to point out that this is not a unitized area as yet. The unit has not been finalized. This is proposed and has been agreed to by the U.S.G.S.

Unitization is underway at this time but as of now it's still a co-operative waterflood.

Q The blue circles represent the water injection wells?

A That's correct.

Q And the red triangles are proposed wells?

A Correct.

Q The four existing wells which are presently utilized for injection?

A That's correct.

Q State which wells?

A Indicated on the existing symbols, that is the red triangles and the circles, in Section 3, Iles Federal Number 32; in Section 10, the Iles Federal Number 26 and 28; and in Section 11, the Taylor "E" Number 3 are water injection

wells not formally authorized.

Q These were being utilized when Standard acquired the property?

A That's right.

Q Did you find any record that the Oil Conservation Commission was notified of the conversion of these wells?

A They have been notified. The wells are listed and the completion forms, C-103, were filed and approved by the Commission.

Q But at this time you're asking for formal approval of these wells as injection wells?

A Yes.

Q Who originally operated this unit?

A The original waterflood was started by Boler Nichols.

Q And when did Standard acquire them?

A March of 1965.

Q Now, in addition to the approval of the four wells, you're asking for the approval of five additional injection wells?

A Yes, that's correct.

Q Now, referring to what has been marked as Exhibit Number 2, would you state what that is?

A Exhibit 2 is a packet of 9 logs, the logs of all 9 of the injection wells. They are simply gamma ray neutron or

gamma ray logs and I don't think they require any discussion.

Q There is no information marked on these logs except the logs themselves?

A No.

Q Referring to Exhibit 3, identify them and discuss them?

A Exhibit 3 are the diagrammatic sketches of the 9 water injection wells. The first four of these wells are existing water injection wells for which authority is sought. The last five are producing wells which we intend to invert to injection in the manner shown on the diagrammatic sketches.

Q Now, on the exhibits, it shows calculated and logged on top of the cement in each instance, and the footage entered thereon. Can you state in reference to each exhibit whether it is a calculated top on the logged top?

A The first four sketches shown were drilled by Leonard Nichols and they were not logged. The last five were drilled by Standard. The other was acquired from Santiago. Two of those wells were logged and the cement is at log top. Two were calculated and one of them cement was circulated to the surface.

MR. IRBY: Mr. Kellahin, would you take them well by well?

Q (By Mr. Kellahin) Would you identify each well

and state whether it is a log and calculated top, and which was circulated?

A Iles Federal 30 Number 2 is an existing well; Iles Federal 26 is an existing well, it's calculated top of the cement. Iles Federal 27, existing water; 28, the top of the cement is calculated in that well; Taylor "E" Number 3 is an existing water injection well, top of the cement is calculated in that well. The Sinclair Taylor Number 1 is a producing well which we intend to convert, and the top of the cement is calculated in that well. The Taylor Ethel Number 3 is a producing well we intended to convert. The top of the cement is calculated in that well. The Taylor "H" Number 2 is a producing well we intended to convert, and the cement in that well was circulated to the surface. The Iles "X" Federal Number 8 is a well we intended to convert and the top of the cement there was logged temperature survey.

MR. IRBY: That was 8?

A Yes, sir. The Iles Federal Number 36, the well was logged by temperature survey.

Q (By Mr. Kellahin) Was the cement circulated in each instance on the surface string?

A Yes, that's correct.

Q With the exception of the Taylor "H" Number 2 well, there would be an open area behind the pipe uncemented in all

the other wells?

A That's correct.

Q Would you state what was behind the pipe?

A Yes, sir. Those are generally red beds anhydrite, primarily anhydrite. There is a salt section from about 1700 to 1800 feet.

Q Is there any producing zones behind the pipe?

A No.

Q Any fresh water zones behind the pipe?

A No, there's not.

MR. IRBY: Is there any water behind it?

A There may very well be salt water. Naturally any porosity behind the pipe would be filled with salt water if it's not all fresh water, and our geologist tells us there is no fresh water behind the pipes.

Q (By Mr. Kellahin) Will the casing be tested before this injection?

A Yes.

Q At what pressure?

A I have not really heard the engineers say, but I'm sure it would be an adequate pressure which would be in excess of what we intended to use for injection.

Q What would you use for injection?

A Presently from 675 pounds to 2675 pounds.

Q Would you clarify that statement, please?

A Yes, sir. As you'll notice on these sketches, they're all equipped with tubing and a packer with perforation below and above. Water is being injected below the anulus and down the tubing, but this arrangement is necessary simply for control of the injection rates, because of the differences in permeability. The formation above the packer is more permeable and required less pressure to get a proper injection rate than the formation below the packer. The formation above the packer takes water on the order of 675 PSI. The formation takes water more on the order of 200 up to 2,000 PSI.

Q What is your source of water?

A We have three sources of water. If you would like, we'll get into that on the next exhibit.

Q Referring to Exhibit 4, would you discuss what's shown on that exhibit, please?

A Exhibit 4 is a data sheet of the project showing the formation type and the number of wells in the unit area. As you will note there are 64 producing wells and 16 injection wells within the unit area. It also shows the three different sources of injection water. The first two sources are now being used. The third source we intend to use in the near future. The first two are fresh water, part of which is

produced from our own fresh water well in Section 1, and the other source of fresh water is purchased from Double Eagle Corporation of New Mexico. The third source is produced salt water which we intend to begin injecting in the near future.

Q How will it be injected? Will it go down the annulus or through the tubing?

A We'll use it only through tubing and only in wells in which tubing is the only method of injection.

Q What type of tubing?

A Standard 2" tubing, not plastic coated.

Q Will you determine whether corrosion is occurring in this tubing, and if so, install plastic coated tubing?

A Naturally, if water is corrosive it will be detected by pressure increases on the annulus and naturally we will have to replace the tubing and take action to keep this from occurring, and this would probably be plastic coated tubing then.

Q Exhibit 4 shows an analysis of the salt water?

A Yes, it does.

Q Does that indicate that the water is corrosive?

A The analysis doesn't, itself, to me indicate that it is particularly corrosive. There is only a trace of hydrogen sulfide on it. We do have Bradford Laboratories to analyze this for us, and they have selected a corrosion

prohibitive for us to use, so they consider it slightly corrosive.

Q Is this type of completion a type approved by the Commission heretofore?

A Yes, it has been. This type completion is being used in this particular project and it has been used in other projects.

Q Referring to what has been marked as Exhibit 5, would you identify that exhibit, please?

A Exhibit 5 is a tabulation of wells which we asked to be added to the project area as defined by Statewide Rule 701. This definition, of course, is for injection wells indirect and diagonal offset to injection wells.

At this time, 30 of our 60 producing wells are included in what the Commission calls a project area. With this application these additional wells should be added to the project area. We've also listed the allowable which we request and this is an allowable presently carried for these wells on a proration schedule.

Q There will be no change in the amount of oil produced?

A No, just from outside the project area for the inside.

Q Were the U.S.G.S. notified of this?

A Yes.

Q Did you receive a letter of approval?

A Yes. The U.S.G.S., on January the 3rd, wrote that they--that the project as we proposed is satisfactory to the U.S.G.S.

MR. KELLAHIN: Do you want a copy of that letter in the record?

MR. UTZ: Oh, I think it would be in order, yes.

MR. KELLAHIN: All right.

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

Q (By Mr. Kellahin) Were Exhibits 1 through 5 prepared by you; and Exhibit 6 is a copy of a letter from the United States Geological Survey which is in your files?

A Yes.

MR. KELLAHIN: At this time I offer Exhibit 1 through 6, inclusive.

(Whereupon, Applicant's Exhibits 1 through 6 were offered in evidence.)

MR. UTZ: Without objection the exhibits will be entered.

(Whereupon, Applicant's Exhibits 1 through 6 were admitted in evidence.)

Q (By Mr. Kellahin) Do you have anything to add to your testimony, Mr. Cameron?

A I don't think so.

MR. KELLAHIN: That's all I have.

CROSS-EXAMINATION

BY MR. UTZ:

Q Mr. Cameron, the wells listed on your application for this case are all the wells that you're requesting approval on at this time, is that correct?

A That's correct, yes, sir.

Q And I presume that the well names and locations are also correct?

A Yes, sir, those are correct.

MR. UTZ: Any questions of the witness?

MR. IRBY: Yes, sir.

CROSS-EXAMINATION

BY MR. IRBY:

Q You said that in this space where there's no cement in the annulus back of the production string that you had red beds, salt and anhydrite?

A Yes, sir.

Q And the salt section is 1800 to 2300?

A That's correct, yes, sir. Those figures are approximate, of course, it varies.

Q Now, what's the top of the anhydrite?

A Well, the entire interval between the base of the surface casing and top of the cement, say, from 300 to 3,000

feet is alternating beds of anhydrite.

Q Does this mean that all surface strings are set into the anhydrite?

A I can't answer that, Mr. Irby, I don't know. I understood that that was about 300 feet, was the top of the red beds. I don't know which would, of course, alternate with anhydrite to--

Q Do you know the porosity of the formation at a point where the surface casing is landed?

A No, sir, I do not.

Q What's in this annulus that isn't cemented, mud?

A Drilling mud, yes, sir.

Q Do you have the information or could you obtain the information and supply it to me as to what kind of a formation this surface casing is landed in?

A I certainly could supply it to you.

Q I think if we're set into a good tight anhydrite we don't have too much to worry about, but if we have porosity of any significance there we do have something to worry about.

A I see.

Q And that's what I want the answer to.

A Yes, sir.

Q Now, to go to your Exhibit Number 4, the last sentence in your Source 3, what does the word "scavenged" mean?

A That means that oxygen will be scavenged. However, the analysis shows no oxygen in the salt water, however, the laboratories felt that if oxygen became a problem for corrosion, it would be scavenged, the water will be inhibited.

Q The fresh water you're using from Source 1 and 2, it has a small amount of oxygen, I believe, is that right?

A Yes.

Q And you don't intend to take that out?

A No, sir.

Q Will there be any inhibitor in the so-called fresh water you're using?

A No, sir, we don't find that fresh water corrosive.

Q Other than possible pressure changing, do you have any way of determining what's happening; will you have any way of determining what's happening to your tubing with respect to corrosion?

A I would think other than the pressure changing, no. Possibly a change in rate might give some indication, but--

Q You don't plan to use coupons or anything like that?

A No, sir.

Q Well, I'm not going to do a lot of worrying about your tubing. The thing I would be worried about is that casing, and possibly the information I just asked you for will

give me the answer to that. This cement that was circulated on the surface strings, this was determined by observation in each case?

A Yes, sir, that's correct.

Q The cementing of the production string, was the cement at the point of the shoe, was the cement used on the production string at the point of the shoe, neat cement?

A I can't answer that, Mr. Irby. I can get you the answer but I did not drill these wells myself. I could get the information for you.

Q Would you please do that?

A Yes, sir.

Q Thank you.

. RECROSS-EXAMINATION

BY MR. UTZ:

Q Mr. Cameron, in view of the fact that your injection pressures are, first, let me ask, is this 2,000 to 2600 a surface pressure?

A Yes.

Q So you have a hydrostatic head on top of that?

A That's correct.

Q Is this 2,000 to 2600 pounds pressure on the casing below the packer? What will you think that the casing should be tested at due to this 2,000, 2600 pound pressure?

A I would think 2600 pounds would be adequate. You would have the same hydrostatic pressure on your test as you do on your injection, and you would have less friction loss--you wouldn't have any friction loss on your test.

Q 2600 pounds without any safety factor?

A Yes.

Q It is unusual to test above the actual pressure?

A Yes, I feel sure the test would be done at the working pressure of the casing. This is 4 1/2 or 5" casing. I expect it is J55. It would be tested at the working limitation of the casing.

Q If you can test it at 2600, you could test it at 3,000, couldn't you?

A I feel sure you could.

MR. UTZ: Any other questions.

CROSS-EXAMINATION

BY MR. NUTTER:

Q Now, Mr. Cameron, I want to clarify this. Three sources of water, and two is fresh, and your third is the produced salt water. Now, all of your produced salt water will be injected through tubing in the lower zone?

A That's correct.

Q And fresh water, only, will be injected down the casing?

A That's correct.

Q Now, corrosion tests will be run on the salt water that's going down the tubing, and then in response to the question from Mr. Kellahin, did you answer yes or no? When corrosion is indicated would you plastic coat that tubing?

A If corrosion is indicated and we can't correct it by an inhibitor we will.

Q Do you intend to run coupons in that tubing to correct the corrosion?

A No, sir. We'll have periodic tests by Bradford Laboratories and we'll also maintain a check of the annulus pressure to determine whether the tubing actually leaks.

Q If you're getting any abrasion on the annulus because of the wide differentiation of the two zones--

A We'll not be injecting anything down the annulus; these will be single completed wells.

Q All of your wells are dual completion?

A Not all of them.

Q But all nine that you're talking about today, is?

A Yes. You will note we intend to inject 200 into Iles Federal Number 2. This well is a single completion. There is no perforation above the packer.

Q All these dual completions will have fresh water going down the annulus as well as the tubing, both?

A That's correct.

Q Now, with reference to your exhibit that you list the wells you want included in the project area, are these wells that would come into the project area by virtue of the new injection wells being added to the project?

A Not completely. Five of these wells should already be in the project area and for some reason they're not included.

Q Possibly they're on separate leases from other wells in the project area, and the thing is not unitized as yet, is it?

A That's correct. I wouldn't think that would effect it, they should still be in the project area.

Q Normally, the project area is determined on the lease basis when there is a unitization or agreement in effect?

A If that is the reason, of course the Commission will determine that.

Q Some of these wells will have a project area on their own lease until such time as it's unitized?

A Yes, sir.

MR. NUTTER: I believe that's all.

MR. UTZ: Any other questions?

MR. IRBY: Yes, sir.

RECROSS-EXAMINATION

BY MR. IRBY:

Q Mr. Cameron, I believe when you were talking about injection pressures you were speaking of the present pressures--

A That's correct.

Q --of injection?

A Yes.

Q Now, are these to remain the same pressures in these other wells that are put on; is your pressure going to exceed what you're using now?

A Naturally we don't know what pressures are going to be required in these wells to be converted. We'll use whatever is required to get the water in the ground.

Just from our experience, we would think they would be on the order of the same pressures we're now experiencing.

MR. NUTTER: These pressures are in wells that have already reached fill-up, and this is waterflood pressure, isn't it?

A Yes.

Q (By Mr. Irby) Then you don't anticipate anything in excess of your 2600?

A That's right. I would not anticipate anything higher than that.

Q Now, these wells to be added to the project area, are these to be producers or injectors, or both?

A Both. If you'll note in the last column, the

"Requested Allowable", there are 5 input wells. These are the 5 wells we're asking authority for today.

MR. IRBY: I have no other questions of the witness. I would recommend to the Examiner and the Commission that the casing tests be a minimum of 3000 PSI in excess of injection pressures or anticipated injection pressures.

MR. UTZ: You wouldn't quibble over 3,000 pounds?

MR. IRBY: No.

MR. UTZ: Any other questions? The witness may be excused. Any other statements in this case?

MR. CHRISTY: Mr. Examiner, as an offset operator we have no objection. I would like to say I handled most of Leonard Nichols' correspondence and I believe those wells were approved by administrative order.

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

I N D E X

E X H I B I T S

NUMBER	MARKED FOR IDENTIFICATION	OFFERED	ADMITTED
Applt's 1	2	12	12
Applt's 2	2	12	12
Applt's 3	2	12	12
Applt's 4	2	12	12
Applt's 5	2	12	12
Applt's 6	12	12	12

STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

I, BOBBY J. DAVIS, Notary Public in and for the County of Bernalillo, State of New Mexico, do hereby certify that the foregoing 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 23rd day of February, 1966.

Bobby J. Davis
NOTARY PUBLIC

My Commission Expires:

March 13, 1969

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 3365, heard by me on Jan. 26, 1966.

....., Examiner
New Mexico Oil Conservation Commission

MAIN OFFICE OCC

FEB 18 AM 10 31

STATE OF NEW MEXICO

STATE ENGINEER OFFICE

SANTA FE

S. E. REYNOLDS
STATE ENGINEER

February 17, 1966

ADDRESS CORRESPONDENCE TO:
STATE CAPITOL
SANTA FE, NEW MEXICO 87501

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

Attn. Mr. E. A. Utz

Case 3368

Gentlemen:

Reference is made to the application of Standard Oil Company of Texas which was the subject of Oil Conservation Commission Case No. 3368 on January 26, 1966, and to Standard's letter dated February 4, 1966, a copy of which I have just received.

In view of the new evidence that four of the five wells had new casing installed in the last nine months and were tested to 3500 psi at that time, it would appear appropriate for me to withdraw my objection on these wells. The Sinclair Taylor No. 1 being the fifth well, is the exception.

In my opinion, no corrosive fluids should be injected through casing which has no cement behind it.

Yours truly,

S. E. Reynolds
State Engineer

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

FEI/ma
cc-Standard Oil Co.
F. H. Hennighausen

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. 3368
Order No. R-3035

APPLICATION OF STANDARD OIL COMPANY
OF TEXAS FOR A WATERFLOOD EXPANSION,
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 26, 1966, at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this 9th day of February, 1966, 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, Standard Oil Company of Texas, seeks permission to expand its Maljamar Waterflood Project, formerly the Leonard Nichols Maljamar Waterflood Project, in the Maljamar Pool by converting to water injection nine additional wells in Sections 3, 4, 9, 10, 11, and 15, Township 17 South, Range 32 East, NMPM, Lea County, New Mexico.

(3) That four of the subject wells have previously been approved as water injection wells by administrative orders.

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

(5) That the proposed expansion of the Maljamar Waterflood Project should result in the recovery of otherwise unrecoverable oil, thereby preventing waste.

(6) That the subject application should be approved and the expanded 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, Standard Oil Company of Texas, is hereby authorized to expand its Maljamar Waterflood Project, formerly the Leonard Nichols Maljamar Waterflood Project, in the Maljamar Pool by converting to water injection the following-described wells in Township 17 South, Range 32 East, NMPM, Lea County, New Mexico:

Well	Unit	Section
Standard-Sinclair Taylor No. 1	F	4
Standard-Taylor et al No. 3	H	9
Standard-Taylor H No. 2	L	10
Standard-Iles X Federal No. 8	N	10
Standard-Iles Federal No. 36	B	15

(2) That the expanded 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 expanded waterflood project shall be submitted to the Commission in accordance with Rules 704 and 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.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

JACK M. CAMPBELL, Chairman

GUYTON B. HAYS, Member

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

esr/

OIL CONSERVATION COMMISSION
P. O. BOX 2088
SANTA FE, NEW MEXICO

March 11, 1966

Mr. Jason Kellahin
Kellahin & Fox
Attorneys at Law
Post Office Box 1769
Santa Fe, New Mexico

Dear Mr. Kellahin:

Reference is made to Commission Order No. R-3035, recently entered in Case No. 3368, approving the expansion of the Standard of Texas Maljamar Waterflood Project.

It is our understanding that the five newly authorized water injection wells will each be dually completed, and that water injection into the upper zone will be down the casing-tubing annulus and into the lower zone through tubing. Further, that fresh water only shall be injected through the annulus and fresh water or salt water down the tubing. Further, that in those cases where salt water is being injected, coupon tests to detect corrosion shall be conducted, and appropriate steps taken to combat said corrosion if it becomes apparent. Prior to placing the Sinclair Taylor Well No. 1 on injection, the casing and cement in said well shall be subjected to and satisfactory results obtained from a 3000 psi pressure test. Please notify the Hobbs District Office of the Commission of the date and hour said test is to be commenced.

As to allowable and in view of the fact that the subject area is being unitized, 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 2646 barrels per day.

OIL CONSERVATION COMMISSION
P. O. BOX 2088
SANTA FE, NEW MEXICO

March 11, 1966

Mr. Jason Kellahin
Kellahin & Fox
Attorneys at Law

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,

A. L. PORTER, Jr.
Secretary-Director

ALP/DSN/esr

cc: Mr. Frank Irby
State Engineer Office
Capitol Building
Santa Fe, New Mexico

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

STANDARD OIL COMPANY OF TEXAS
A DIVISION OF CHEVRON OIL COMPANY
P. O. BOX 1249 HOUSTON TEXAS 77001

February 4, 1966

NMOCC Case No. 3368
Maljamar Waterflood Expansion

New Mexico Oil Conservation Commission
P. O. Box 2088
Santa Fe, New Mexico 87501
Attention: Mr. Elvis A. Utz

Office of the State Engineer
Capitol Building
Santa Fe, New Mexico
Attention: Mr. Frank Irby

Gentlemen:

In response to questions asked by Mr. Irby at the January 26 hearing on the captioned case, attached are (1) a description of the geology behind the production casing and (2) details of the cement jobs performed on all casing strings in the five wells for which injection authority is sought.

It was my impression at the hearing that an order authorizing this expansion might contain restrictions, including the provision that the casing be tested prior to annular injection. The figure 3000 psi was mentioned as a test pressure. I have learned after discussions with our field engineers that this procedure would cause considerable inconvenience because the type of packer we intend to use in these wells (Halliburton R-3 Packer, in Tension) is not designed for differential pressures of this magnitude from above the packer. This hardship seems unnecessary when it is considered that casing in four of the five wells was installed new within the last nine months and was tested just prior to fracture treatment at pressures in excess of 3500 psi (see attached cementing details). Casing in the fifth well, the Sinclair Taylor No. 1 (drilled by Santiago Oil and Gas Company) was tested to 2000 psi on completion on May 1, 1960, and was almost surely tested to a higher pressure during fracture treatment on May 2, 1960.

It should be noted that neither the order originally authorizing this project (R-1538) nor the orders authorizing its expansion (R-2777, WFX-150, and WFX-172) contained any provision requiring the operator to conduct casing tests prior to injection. Since the injection program proposed by Leonard Nichols and operated by him for several years before Standard

acquired the property was identical to that proposed in these five wells, it would seem less than fair to attach more stringent requirements to any order sought by Standard of Texas. We would have no objection whatever to a provision similar to that in Administrative Order WFX No. 150 prohibiting the injection of salt water down the annulus.

Therefore, Standard requests the Commission to issue an order authorizing the expansion without restrictions as to casing test. As an alternative, it is urged that Standard be required to test to 3000 psi only the casing in the Sinclair-Taylor No. 1 well, the other four wells having so recently been tested to 3500 psi or more.

Yours very truly,

John T. Cameron
for C. N. Segnar
Chief Engineer

JTC:ja

Attachments

cc: Mr. Jason W. Kellahin

MALJAMAR (GRAYBURG-SAN ANDRES)

Typical Section Between Surface Casing (Approximately 300 Feet) and Grayburg (Approximately 3700 Feet):

300' to 950'	Typical Evaporite Red Beds (i.e., sandy red shales, shaly red sands, dolomite stringers, occasional anhydrite beds)
950' to 1100'	Massive anhydrite
1100' to 2400'	Salt with thin red shale and anhydrite streaks
2400' to 3700'	Anhydrite with thin red shale and occasional dolomite streaks

Nature of Formation in which Surface Casing is Landed:

Surface casing is landed in four of the five wells in the red bed section. This formation seems to be a very good casing seat, although logs are not completely diagnostic at this shallow depth. Holes have all been to gauge through the interval (no more than one inch of washout in any well) and there is no indication of any significant porosity zones in the interval. Surface casing in the fifth well (Taylor H No. 2) is landed at 1023' in the anhydrite section which, of course, is a perfect casing point.

CEMENTING DETAILS
MALJAMAR (GRAYBURG-SAN ANDRES)

Sinclair Taylor No. 1

8-5/8" @ 307' with 250 sacks Class A cement with 2% Cacl. Circulated to surface. Tested to 1500 psi.

5-1/2" @ 4193' with 300 sacks Class A cement with 1% Pozmix and 2% gel. Calculated top cement 3003'. Tested to 2000 psi 5-1-60.

Taylor et al No. 3

8-5/8" @ 305' with 200 sacks Class A cement with 2% CaCl. Circulated 80 sacks to surface. Tested to 1000 psi 7-7-65.

4-1/2" @ 4200' with 450 sacks 50-50 Incor Pozmix with 4% gel, 2% CaCl, 18% Salt, followed by 100 sacks Incor neat cement (Class C). Tested to 1500 psi 7-16-65. Tested above packer prior to frac treatment on 7-19-65 to 4000 psi.

Taylor H No. 2

8-5/8" @ 1023' with 500 sacks 50-50 Incor Pozmix with 4% gel. Circulated 200 sacks to surface. Tested to 700 psi 4-16-65.

4-1/2" @ 4237' with 1350 sacks 50-50 Incor Pozmix with 2% gel and 1% D-30 (turbulence inducer, in first 560 sacks only). Circulated 160 sacks to surface. Tested to 1500 psi 5-1-65. Tested prior to frac treatment on 5-5-65 to 3500 psi.

Iles X Federal No. 8

8-5/8" @ 304' with 200 sacks Class A with 2% CaCl. Circulated to surface. Tested to 1000 psi 6-6-65.

4-1/2" @ 4184' with 450 sacks 50-50 Incor Pozmix with 4% gel, 0.1% D-45 (fraction reducer), 2% CaCl, saturated salt slurry followed by 100 sacks Incor neat cement. Tested to 1000 psi 6-15-65. Tested prior to frac treatment on 6-18-65 to 4500 psi.

Iles Federal No. 36

8-5/8" @ 309' with 200 sacks Class A 2% CaCl. Circulated 80 sacks to surface. Tested to 1.000 psi 5-26-65.

4-1/2" @ 4200' with 650 sacks 50-50 Incor-Pozmix with 2% gel, 18% salt and 0.75% CFR-2 (friction reducer). Tested to 700 psi 6-4-65. Tested prior to frac treatment on 6-9-65 to 4400 psi.

Case

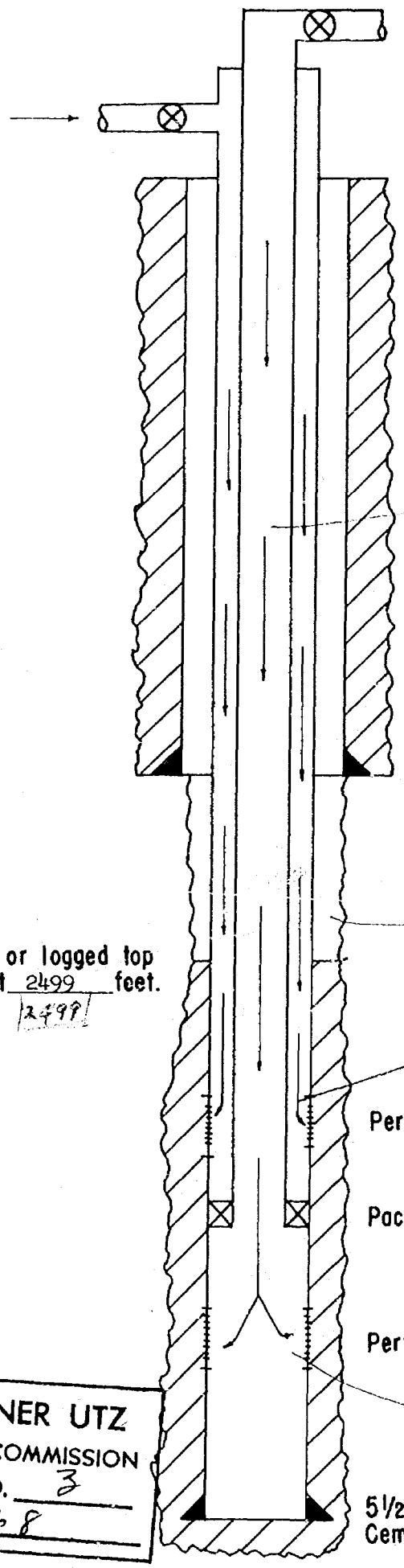
Earnest McCants
Standard Oil Co of Texas
Dayton, Texas

915 HI 3462)

Baran Craft Houston

PROPOSED WATER INJECTION WELL

WELL NAME AND NUMBER Iles Federal No. 32



Cement circulated at the surface for 8 5/8" casing.

Tubing Size 2-3/8"

Calculated or logged top of cement at 2499 feet.

8 5/8" Casing set at 373 Feet.
Cemented with 225 sacks of cement.

Perforations 3986-96

Packer set at 4020

Perforations 4104'-16'

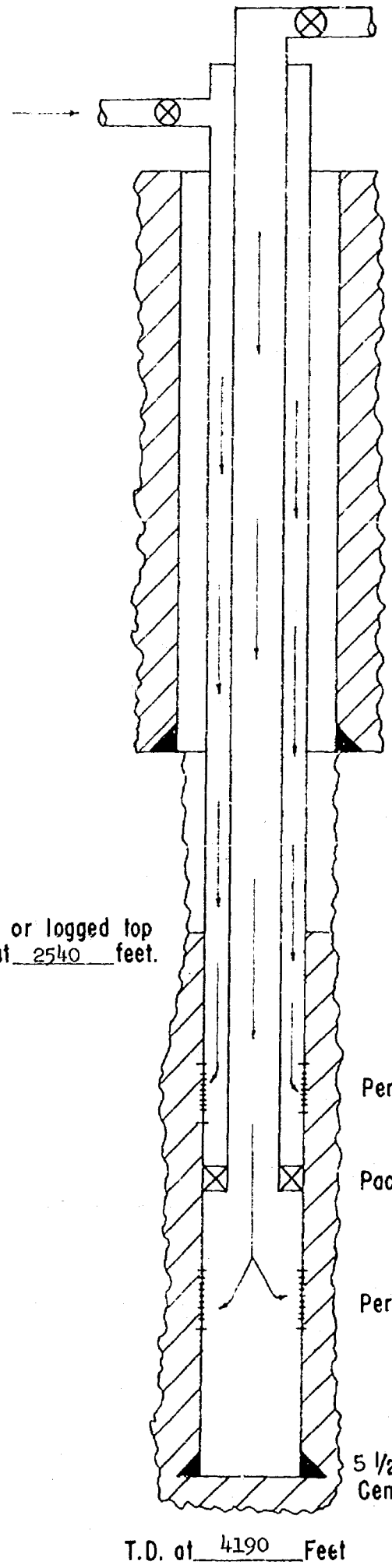
5 1/2" Casing set at 4149 Feet.
Cemented with 350 sacks of cement.

T.D. at 4149 Feet

BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
EXHIBIT NO. 3
CASE NO. 3368

PROPOSED WATER INJECTION WELL

WELL NAME AND NUMBER Iles Federal No. 26



Cement circulated at the surface for 8 5/8" casing.

Tubing Size 2-3/8"

8 5/8" Casing set at 337 Feet.
Cemented with 200 sacks of cement.

Calculated or logged top of cement at 2540 feet.

Perforations 3970'-82'

Packer set at 4054'

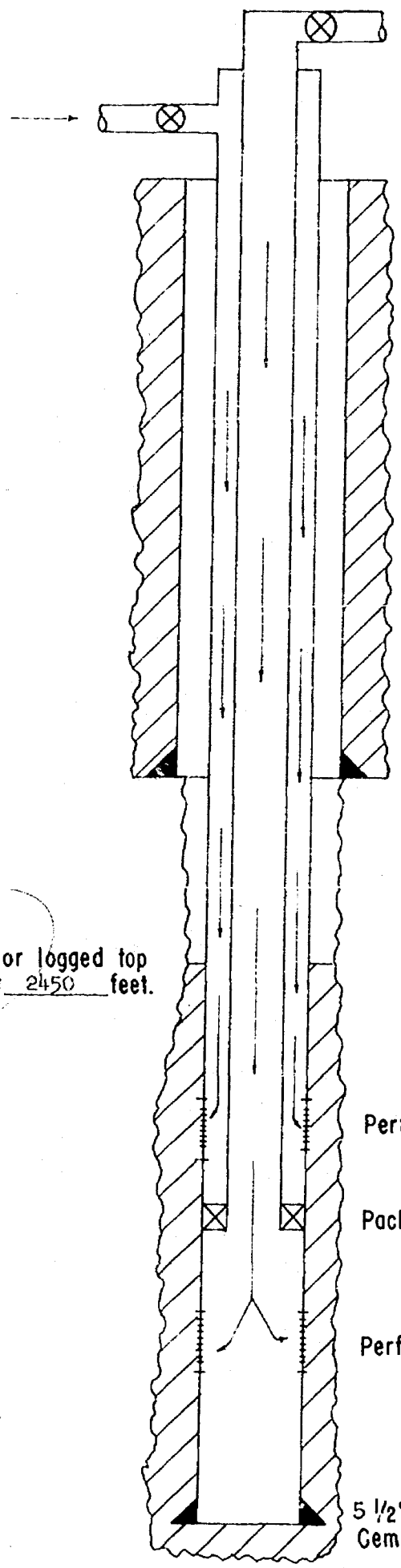
Perforations 4083'-87', 4093'-4105'

5 1/2" Casing set at 4190 Feet.
Cemented with 350 sacks of cement.

T.D. at 4190 Feet

PROPOSED WATER INJECTION WELL

WELL NAME AND NUMBER Iles Federal No. 28



Cement circulated at the surface for 8 5/8" casing.

Tubing Size 2-3/8"

8 5/8" Casing set at 293 Feet.
Cemented with 200 sacks of cement.

Calculated or logged top of cement at 2450 feet.

Perforations None

Packer set at 3880'

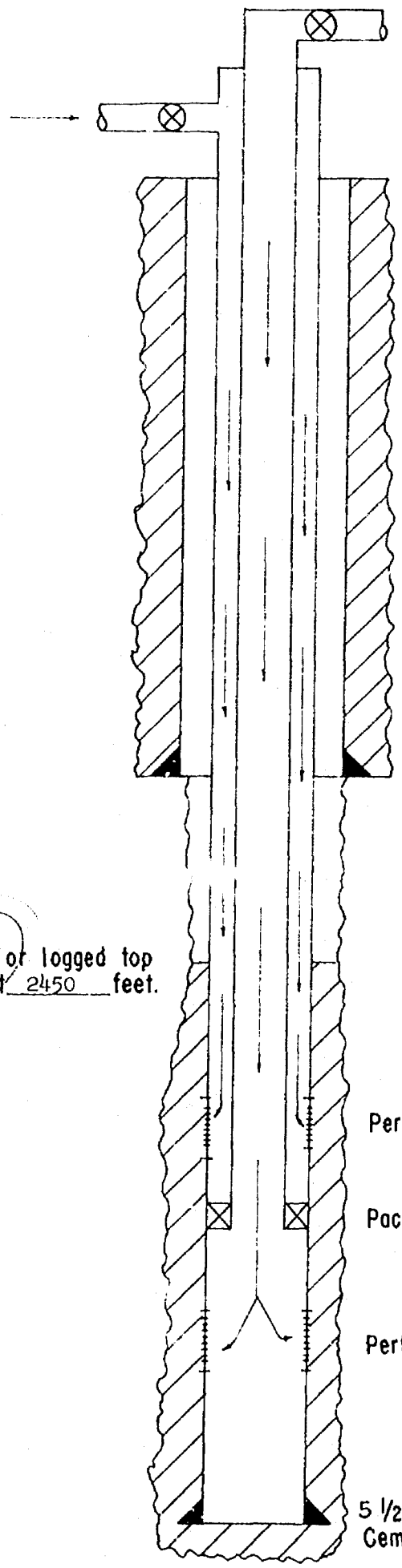
Perforations 3908'-20', 4036'-48'

5 1/2" Casing set at 4190 Feet.
Cemented with 350 sacks of cement.

T.D. at 4100 Feet

PROPOSED WATER INJECTION WELL

WELL NAME AND NUMBER A. C. Taylor E No. 3



Cement circulated at the surface for 8 5/8" casing.

Tubing Size 2-3/8" .

8 5/8" Casing set at 324 Feet.
Cemented with 200 sacks of cement.

Calculated or logged top of cement at 2450 feet.

Perforations 3934'-44'

Packer set at 4004'

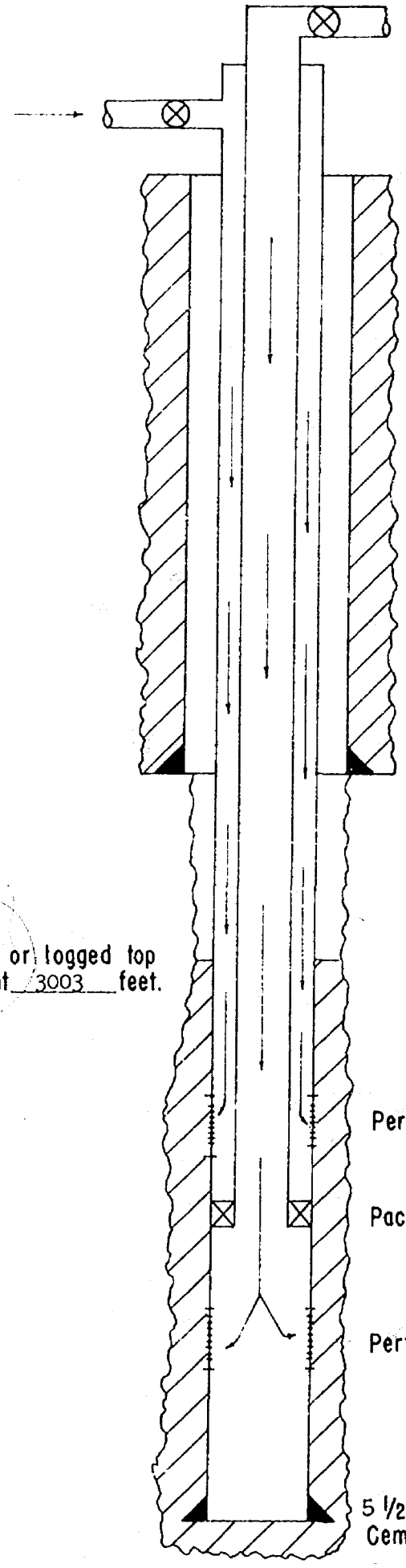
Perforations 4059'-69', 4071'-79'

5 1/2" Casing set at 4100 Feet.
Cemented with 350 sacks of cement.

T.D. at 4100 Feet

PROPOSED WATER INJECTION WELL

WELL NAME AND NUMBER Sinclair Taylor No. 1



Cement circulated at the surface for 8 5/8" casing.

Tubing Size 2-3/8"

8 5/8" Casing set at 307 Feet.
Cemented with 250 sacks of cement.

Calculated or logged top of cement at 3003 feet.

Perforations 3919-22', 3968-70', 3992-94'

Packer set at 4000'

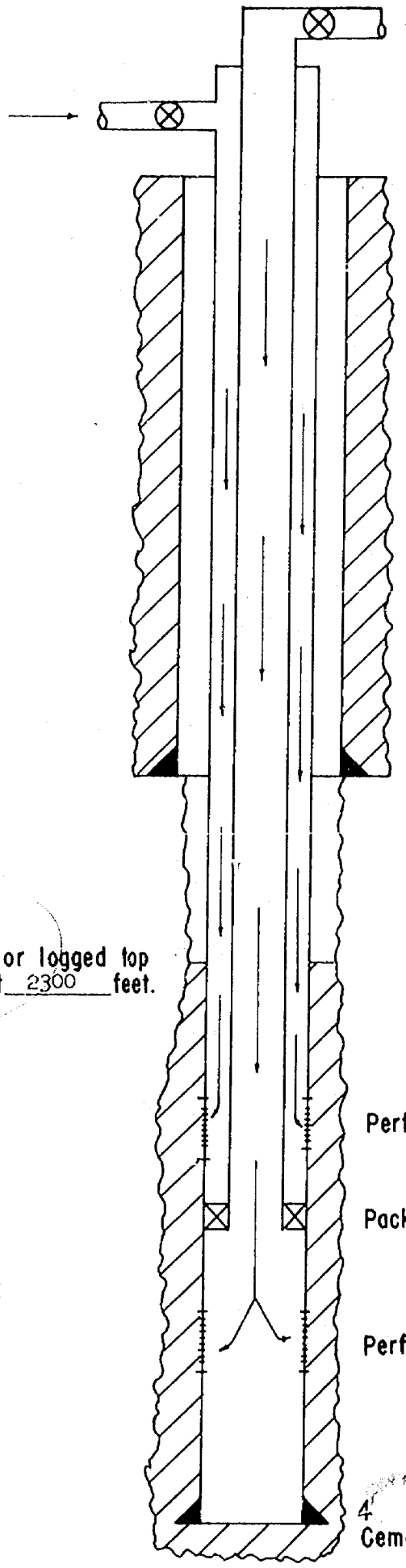
Perforations 4007-10', 4031-33', 4096-97', 4169-70'

5 1/2" Casing set at 4193 Feet.
Cemented with 300 sacks of cement.

T.D. at 4195 Feet

PROPOSED WATER INJECTION WELL

WELL NAME AND NUMBER Taylor et al No. 3



Cement circulated at the surface for 8 5/8" casing.

Tubing Size 2-3/8"

8 5/8" Casing set at 305 Feet.
Cemented with 200 sacks of cement.

Calculated or logged top of cement at 2300 feet.

Perforations 3842, 46, 69, 72, 77, 79, 91, 93, 95, 3902, 04, 06, 08, 23, 33, 35, 57

Packer set at 3965'

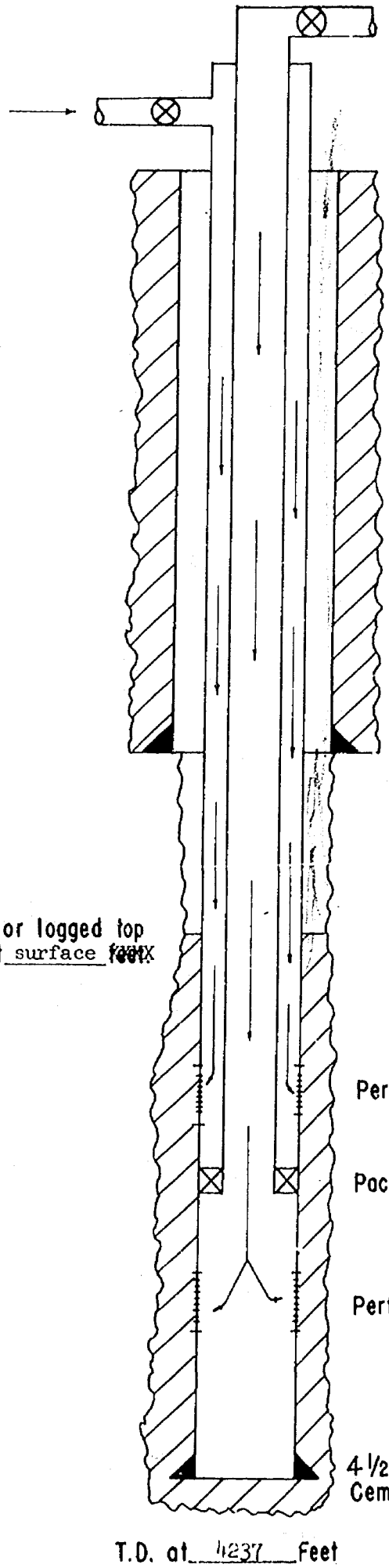
Perforations 3972, 74, 80, 82, 92, 95, 98, 4000, 4126, 28, 30, 34, 37, 39

4 Casing set at 4200 Feet.
Cemented with 550 sacks of cement.

T.D. at 4200 Feet

PROPOSED WATER INJECTION WELL

WELL NAME AND NUMBER Taylor H No. 2



Cement circulated at the surface for 8 5/8" casing.

Tubing Size 2-3/8"

8 5/8" Casing set at 1022 Feet.
Cemented with 500 sacks of cement.

Calculated or logged top of cement at surface ~~feet~~

Perforations 3835, 37, 39, 41, 72, 74, 76, 88, 91, 93, 3955, 57

Packer set at 3960'

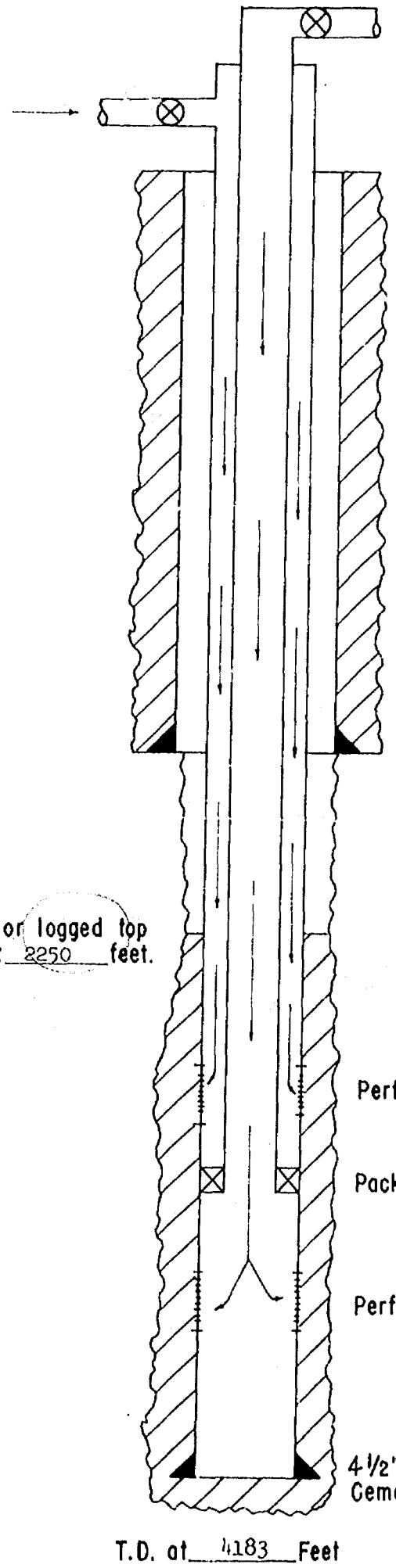
Perforations 3863, 65, 71, 73, 4004, 06, 08

4 1/2" Casing set at 4237 Feet.
Cemented with 1350 sacks of cement.

T.D. at 4237 Feet

PROPOSED WATER INJECTION WELL

WELL NAME AND NUMBER Iles X Federal No. 8



Cement circulated at the surface for 8 5/8" casing.

Tubing Size 2-3/8"

8 5/8" Casing set at 305 Feet.
Cemented with 200 sacks of cement.

~~Calculated~~ or logged top of cement at 2250 feet.

Perforations 3819, 51, 53, 58, 75, 81, 83'

Packer set at 3900'

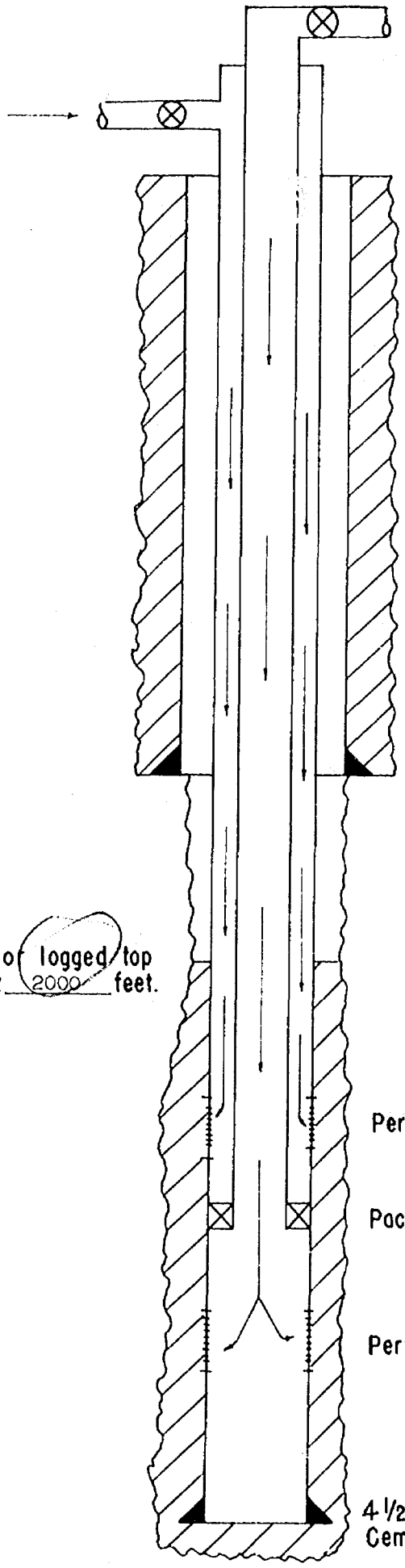
Perforations 3905, 07, 09, 73, 77, 81, 83, 4117, 19, 25, 27'

4 1/2" Casing set at 4183 Feet.
Cemented with 550 sacks of cement.

T.D. at 4183 Feet

PROPOSED WATER INJECTION WELL

WELL NAME AND NUMBER Iles Federal No. 36



Cement circulated at the surface for 8 5/8" casing.

Tubing Size 2-3/8"

8 5/8" Casing set at 309 Feet.
Cemented with 200 sacks of cement.

~~Calculated~~ of logged top of cement at 2000 feet.

Perforations 3809, 11, 13, 41, 43, 45, 47, 51, 53'

Packer set at 3870'

Perforations 3875, 77, 79, 3903, 05, 49, 51, 87, 89, 91, 93, 4133, 35'

4 1/2" Casing set at 4200 Feet.
Cemented with 650 sacks of cement.

T.D. at 4200 Feet

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
P. O. Box 1157
Hobbs, New Mexico 88240

January 3, 1966

Standard Oil Company of Texas
P. O. Box 1249
Houston, Texas 77001

Attention: Mr. C. N. Segnar

Your letter of December 14 requests approval to expand the co-operative waterflood of the Grayburg formation, Maljamar Pool, approved by our letters of December 17, 1963, and December 9, 1964. The project area includes all or portions of sec. 3, 4, 9, 10, and 15, T. 17 S., R. 32 E., Lea County, New Mexico. Federal leases involved are Las Cruces 059576 and 064150 and New Mexico 09015 and 0315712.

The plan you propose for expansion of the Maljamar Waterflood Project is satisfactory to this office.

Appropriate notices to convert existing wells to water injection should be submitted for approval prior to commencing the work.

Sincerely yours,

Arthur R. Brown
Arthur R. Brown
District Engineer

2 COPIES JRG 1/11/66

RECEIVED
JAN 6 - 1966
HOUSTON

BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
EXHIBIT NO. 6
CASE NO. 3268

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

APPLICATION OF STANDARD OIL COMPANY OF TEXAS, A DIVISION OF CHEVRON OIL COMPANY, FOR AUTHORITY TO EXPAND THE STANDARD OIL COMPANY OF TEXAS MALJAMAR WATERFLOOD PROJECT (FORMERLY THE LEONARD NICHOLS MALJAMAR WATERFLOOD PROJECT) IN THE MALJAMAR POOL, LEA COUNTY, NEW MEXICO

CASE NO. 3365

APPLICATION

Standard Oil Company of Texas, a Division of Chevron Oil Company, hereby applies to the Oil Conservation Commission of the State of New Mexico for an order authorizing expansion of the waterflood authorized by Orders Nos. R-1538 and R-2777.

In support of this application, the applicant would show the Commission:

1. That the applicant is now the operator of a waterflood project, formerly the Leonard Nichols Maljamar Waterflood Project and still earlier the Boller-Nichols Roberts Waterflood Project, in Sections 3, 4, 9, 10, and 11, Township 17 South, Range 32 East, NMPM, Lea County, New Mexico, such project being authorized in part by Orders Nos. R-1538 and R-2777.

2. That the cause of conservation can best be served by the conversion to water injection of the following described wells in Township 17 South, Range 32 East, NMPM, Lea County, New Mexico:

Well	Unit	Section
Standard-Iles Federal No. 32	L	3
Standard-Iles Federal No. 26	H	10
Standard-Iles Federal No. 28	J	10
Standard-Taylor E. No. 3	N	11
Standard-Sinclair Taylor No. 1	F	4
Standard-Taylor et al No. 3	H	9
Standard-Taylor H No. 2	L	10
Standard-Iles X Federal No. 8	N	10
Standard-Iles Federal No. 36	B	15

3. That approval of the subject application should result in the recovery of otherwise unrecoverable oil, thereby preventing waste.

The following parties are believed interested in this application:

Cima Capitan, Inc., Booker Building, Artesia, New Mexico
Continental Oil Co., P. O. Box 431, Midland, Texas 79701
Great Western Drilling Co., P. O. Box 1659, Midland, Texas
Hudson, W. A. & E. R., 1510 First National Bldg., Fort Worth, Texas
Phillips Petroleum Company, P. O. Box 2130, Hobbs, New Mexico 88240
Texaco, Inc., 300 Wall Avenue, Midland, Texas
Water-Flood Associates, Inc., 2211 Continental National Bank Bldg., Fort Worth, Texas 76102

The applicant requests that this application be set for hearing during January 1966 and that after notice and hearing as provided by law the Commission enter its order authorizing the desired waterflood expansion.

Respectfully submitted,

STANDARD OIL COMPANY OF TEXAS
A DIVISION OF CHEVRON OIL COMPANY

By John T. Cameron
John T. Cameron

DATA SHEET
STANDARD OIL COMPANY OF TEXAS
MALJAMAR-GRAYBURG WATERFLOOD PROJECT

Formation	Grayburg
Composition	Dolomitic Sand
Average Depth	4050'
Type Structure	Anticline

Unit Area

	No. of Producing Wells	No. of Injection Wells	Undeveloped 40-Acre Units	Total 40-Acre Units
Standard of Texas	60	16	8	81
Cima Capitan	3	-	1	4
Phillips	1	-	-	1
	64	16	9	86

Area: 3441 Acres

Injection Data

Source No. 1: Fresh Water supplied by company-operated water supply well (located NE NE SE Section 1, Township 17 South, Range 32 East) producing from Tertiary Sands at approximately 270 feet. Furnishes water to Section 10 plant for injection on Sections 2, 3, 10, and 11.

Source No. 2: Fresh water purchased from Double-Eagle Corporation of New Mexico. Furnishes water to Section 4 plant for injection on Sections 4, 9, and 15.

Source No. 3: A part of the produced water will be injected in the near future. We intend to inject about 200 barrels per day of produced water into Iles Federal No. 2 (Unit B, Section 10) primarily for disposal purposes. The produced salt water will be filtered, scavenged, and inhibited.

Water Analyses:

	Source 1	Source 2	Source 3
pH	7.1	7.3	7.4
CO_2	17	16	12
O_2	7.5	9.5	0
H_2S	0	0	Trace
SiO_2	0.2	0.3	30
HCO_3	180	190	310
Cl	26	26	45,000
$CaCO_3$	190	180	15,000
Ca	47	48	3,080
Mg	17	14	1,750
SO_4	25	20	3,600
Fe	0.08	0.06	0.9
Solids	300	300	83,500

Present Injection Rate	4530 BWPD
Anticipated Injection Rate After Expansion	5940 BWPD
Present Injection Pressure	650 - 2675 psig
Cumulative Water Injected (12/1/65)	2,971,568 Barrels

BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
EXHIBIT NO. 4
CASE NO. 3368

DATA SHEET
STANDARD OIL COMPANY OF TEXAS
MALJAMAR-GRAYBURG WATERFLOOD PROJECT

Formation	Grayburg
Composition	Dolomitic Sand
Average Depth	4050'
Type Structure	Anticline

Unit Area

	No. of Producing Wells	No. of Injection Wells	Undeveloped 40-Acre Units	Total 40-Acre Units
Standard of Texas	60	16	8	81
Cima Capitan	3	-	1	4
Phillips	1	-	-	1
	64	16	9	86

Area: 3441 Acres

Injection Data

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