

Q157 3584: Application of NORIL
OIL CORP. for a waterflood expan-
sion and amendment of A-1244.

Casa No.

3654

Application, Transcript,
Small Exhibits, Etc.

State of New Mexico
Oil Conservation Commission



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

September 12, 1967

Re: Case No. 3654
Order No. R-3318
Applicant:
Mobil Oil Corporation

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.

A. L. PORTER, Jr.
Secretary-Director

Other _____

OIL CONSERVATION COMMISSION

P. O. BOX 2088

SANTA FE, NEW MEXICO 87501

March 6, 1968

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

Dear Sir:

Reference is made to Commission Order No. R-3318, entered in Case No. 3654, approving your Vacuum State "G" Waterflood Project and your Vacuum State "J" Waterflood Project, and the expansion of your Bridges-State Waterflood Project.

Additional injection is to be through the ten newly authorized water injection wells, each of which shall be equipped with a string of cement-lined tubing set in a packer, all packers to be located within 100 feet of the casing shoe with the casing-tubing annulus loaded with a corrosion-inhibited fluid.

As to allowable, our calculations indicate that when all of the authorized injection wells have been placed on active injection, the maximum allowable which the State Bridges Project will be eligible to receive under the provisions of Rule 701-E-3 is 2744 barrels per day when the Southeast New Mexico normal unit allowable is 42 barrels per day or less. The maximum which the State "G" Project will be eligible to receive is 126 barrels per day, while that of the State "J" Project is 168 barrels per day.

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

OIL CONSERVATION COMMISSION

P. O. BOX 2088

SANTA FE, NEW MEXICO 87501

-2-

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

March 6, 1968

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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/ir

cc: Oil Conservation Commission
Post Office Box 1980
Hobbs, New Mexico

Mr. D. E. Gray
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. 3654
Order No. R-3318

APPLICATION OF MOBIL OIL CORPORATION
FOR A WATERFLOOD EXPANSION AND FOR AN
AMENDMENT OF ORDER NO. R-1244, LEA
COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on September 6, 1967, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 12th day of September, 1967, 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, Mobil Oil Corporation, seeks permission to expand its Bridges-State Waterflood Project authorized by Order No. R-1244 dated September 17, 1958, by the conversion to water injection of its Bridges-State Wells Nos. 63 and 73 in Units K and G of Section 13; Wells Nos. 3 and 6 in Units O and E of Section 23; Well No. 47 in Unit K of Section 24; Well No. 5 in Unit C of Section 26, and Well No. 52 in Unit A of Section 27; its State G Well No. 3 in Unit G of Section 24 and State J Wells Nos. 1 and 4 in Units I and A of Section 22, all in Township 17 South, Range 34 East, NMPM, Vacuum Pool, 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.

-2-

CASE No. 3654
Order No. R-3318

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

(5) That the proposed expansion of the Bridges-State Waterflood Project should be approved.

(6) That the applicant further seeks the amendment of Order No. R-1244, dated September 17, 1958, to provide that future operation, expansion, and assignment of allowables of said project would be subject to the provisions of Rule 701 E of the Commission Rules and Regulations.

(7) That the provisions for operation, expansion, and assignment of allowables contained in Order No. R-1244 were written prior to the promulgation of Rule 701 E of the Commission Rules and Regulations, said Rule 701 E governing the operation, expansion, and assignment of allowables of waterflood projects, and are more restrictive than those contained in Rule 701 E.

(8) That in order to provide more efficient and economical means of operation, expansion, and assignment of allowables in the subject waterflood project, said operation, expansion, and assignment of allowables should henceforth be governed by Rule 701 E of the Commission Rules and Regulations.

IT IS THEREFORE ORDERED:

(1) That the applicant, Mobil Oil Corporation, is hereby authorized to expand its Bridges-State Waterflood Project in the Vacuum Pool by the conversion to water injection the following-described wells in Township 17 South, Range 34 East, NMPM, Lea County, New Mexico:

<u>Lease Name</u>	<u>Well No.</u>	<u>Unit Letter Designation</u>	<u>Section</u>
Bridges-State	63	K	13
Bridges-State	73	G	13
Bridges-State	3	O	23
Bridges-State	6	E	23
Bridges-State	47	K	24
Bridges-State	5	C	26
Bridges-State	52	A	27
State G	3	G	24
State J	1	I	22
State J	4	A	22

-3-

CASE NO. 3654
Order No. R-3318

(2) That Commission Order No. R-1244, governing the operation, expansion, and assignment of allowables to Mobil's Bridges-State Waterflood Project, Vacuum Pool, Lea County, New Mexico, is hereby amended to provide that henceforth the operation, expansion, and assignment of allowables of said Bridges-State Waterflood Project shall be governed by the provisions of Rule 701 E of the Commission Rules and Regulations.

(3) That monthly progress reports of the Bridges-State 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.

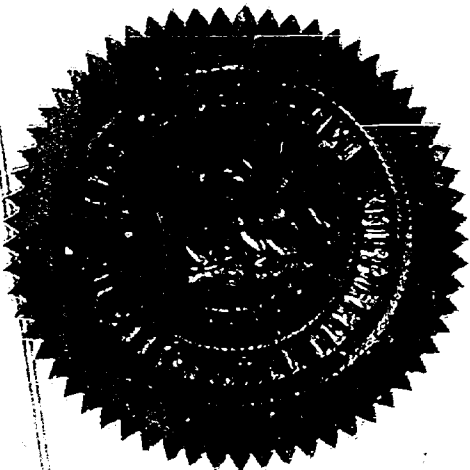
DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION


DAVID F. CARGO, Chairman


GUYTON B. HAYS, Member


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



esr/

Mobil Oil Corporation

P.O. BOX 633
MIDLAND, TEXAS 79701

August 9, 1967

Case 3657

Mr. A. L. Porter, Jr., Secretary-Director
New Mexico Oil Conservation Commission
P. O. Box 871
Santa Fe, New Mexico

*Set for hearing
also amend R-1244
to provide operation and expansion
of project under
Rule 701.E*

ADMINISTRATION APPROVAL FOR
WATERFLOOD EXPANSION
VACUUM (GRAYBURG-SAN ANDRES)
FIELD, LEA COUNTY, NEW MEXICO

Aug 17 PM 1 56

Dear Sir: Under the provisions of Order No. R-1244 and Rule 701.E, Mobil Oil Corporation respectfully requests your administrative approval to expand our waterflood operation in the Vacuum (Grayburg-San Andres) Pool, Lea County, New Mexico.

It is proposed that the following listed wells will be converted from producing wells to water injection wells in the Grayburg-San Andres Sand at an approximate depth of 4,700 feet below surface:

Lease Name	Well No.	Unit Letter Designation	Section
Bridges-State	63	K	13
"	73	G	13
"	3	O	23
"	6	E	23
"	47	K	24
"	5	C	26
"	52	A	27
"	3	G	24
State G	1	I	22
State J	4	A	22

All above wells are in Township 17 South, Range 34 East, NMPM.

It is requested that of the above wells Bridges-State Well Nos. 6, 47, 63, 73 and State J Well No. 4 be granted administrative approval for conversion to water injection wells pursuant to Commission's Rule 701.E.5 because the well itself or offsetting wells have experienced response to water injection. It is proposed that the Bridges-State Well Nos. 3, 5, 52 and State J Well No. 1 and State G Well No. 3 be permitted to be converted to water injection wells to complete the flood pattern and cooperative lease line injection with Texaco, Sinclair (proposed N. Vacuum San Andres Unit), Amerada, Shell and Continental.

DOCKET MAILED

Date 8-23-67

Mobil holds the water right to 1200 acre-feet per annum from the Ogallala zone. Three water supply wells were drilled having a total capacity of approximately 22,000 BPD. The produced water is being re-injected into the Grayburg-San Andres formation and we will do the same in the expansion area. Average injection rate for the proposed injection wells is estimated to be 500 BPD per well.

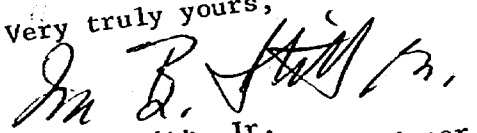
Conversion work on the proposed injection wells will consist essentially of the removal of existing production equipment and tubing with subsequent installation of cement-lined tubing and packers. Adequate tests of all casing strings will be made to insure that all surface waters and other formations will not be exposed to injection water in the event of tubing or packer leaks.

For your consideration of our request, we are attaching the following exhibits:

- (1) Exhibit "A", a plat showing the existing waterflood area and the location of the proposed injection wells.
- (2) Exhibit "B", Commission's Form C-116, executed by applicant, indicates changes in production before and after stimulation by waterflood.
- (3) Exhibit "C", Diagrammatic sketches of the proposed injection wells which illustrate the present wellbore conditions, name and depth of the formation for water injection and the planned setup of subsurface equipment for water injection.
- (4) Exhibit "D", Graphic history of Vacuum Pilot Flood Project.

A copy of this letter is being submitted to each operator offsetting the proposed injection wells.

Very truly yours,


I. B. Stitt, Jr.
Division Operations Engineer

GCWang/bje
Attachments

cc: Oil Conservation Commission - Hobbs
Oil and Gas Engineering Committee - Hobbs
State Engineer - Santa Fe
Texaco, Inc. - Midland
Amerada Petroleum Corporation - Midland
Sinclair Oil & Gas Company - Midland
Continental Oil Company - Hobbs
Shell Oil Company - Midland
Phillips Petroleum Co. - Odessa

NEW MEXICO OIL CONSERVATION COMMISSION
GAS-OIL RATIO TESTS

Exhibit "B"

Operator		Pool		County		Lea								
Mobil Oil Corporation		Vacuum (Grayburg-San Andres) Pool		Lea		Special <input checked="" type="checkbox"/>								
Address		P. O. Box 633, Midland, Texas, 79701		TYPE OF TEST - (X)		Completion <input type="checkbox"/>								
LEASE NAME	WELL NO.	LOCATION			DATE OF TEST	CHOKE SIZE	TBG. PRESS.	DAILY ALLOW-ABLE	LENGTH OF TEST HOURS	PROD. DURING TEST			GAS - OIL RATIO CU.FT./BBL	
		U	S	T						R	WATER BBLs.	GRAV. OIL		OIL BBLs.
Bridges-State	69	F	13	17S	34E	Jan. '67		15		24	3	37.6	3	-
	"	"	"	"	"	June '67		18		24	2	36.0	12	-
		(West offset of #73)												
	63	K	13	17S	34E	Apr. '66		15		24	14	35.7	9	8
State J	"	"	"	"	"	June '67		18		24	24	37.6	23	-
		(East offset of #6)												
	10	F	23	17S	34E	Dec. '65		-		24	7	-	4	13
	"	"	"	"	"	June '67		-		24	67	37.4	13	12
State J	20	E	24	17S	34E	Dec. '66		15		24	0	35.6	3	20
	"	"	"	"	"	Feb. '67		15		24	0	35.6	14	92
		(N-W Diagonal offset of #47)												
	4	A	22	17S	34E	Apr. '63		-		24	0	-	1	5
	"	"	"	"	"	Oct. '65		10		24	0	34.4	16	80
														5000
														5000

I hereby certify that the above information is true and complete to the best of my knowledge and belief.

No well will be assigned an allowable greater than the amount of oil produced on the official test.

During gas-oil ratio test, each well shall be produced at a rate not exceeding the top unit allowable for the pool in which well is located by more than 25 percent. Operator is encouraged to take advantage of this 25 percent tolerance in order that well can be assigned increased allowables when authorized by the Commission.

Gas volumes must be reported in MCF measured at a pressure base of 15.025 psia and a temperature of 60° F. Specific gravity base will be 0.60.

Report casing pressure in lieu of tubing pressure for any well producing through casing. Mail original and one copy of this report to the district office of the New Mexico Oil Conservation Commission in accordance with Rule 301 and appropriate pool rules.

Joe B. Smith
(Signature)

Division Operations Engineer

(Title)

8-15-67

(Date)

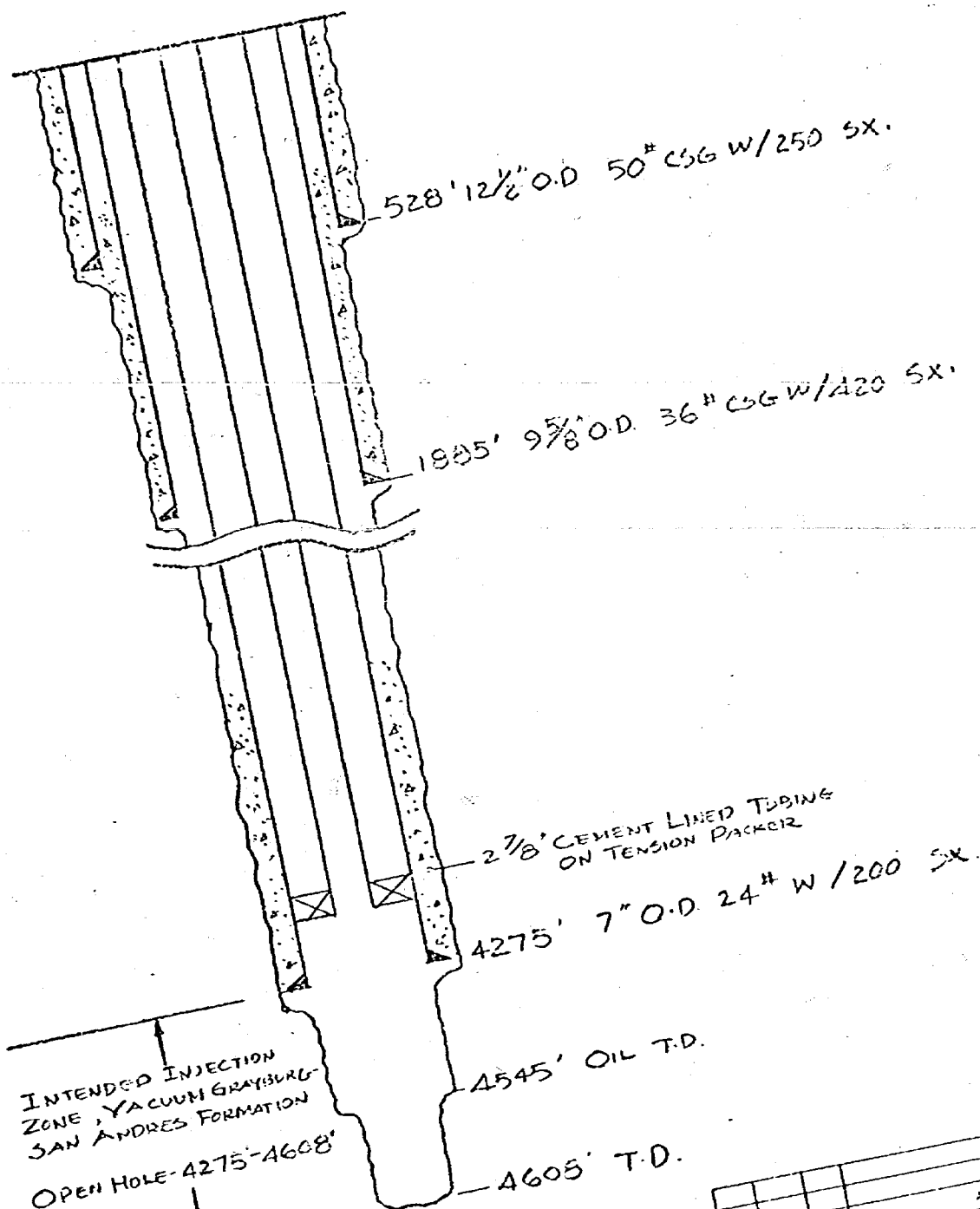
Over 2654

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ON DEMAND.

CO 222715-221

D.F. ELEVATION 4025'



NO.	DATE	BY	ALTERATION
			PROPOSED INJECTION WELL
			BRIDGES- STATE WELL NO. 3
			EXHIBIT C
Mobil Oil Corporation			OWG. NO.
			A
DRAWN		SCALE	
CHECKED		DATE	

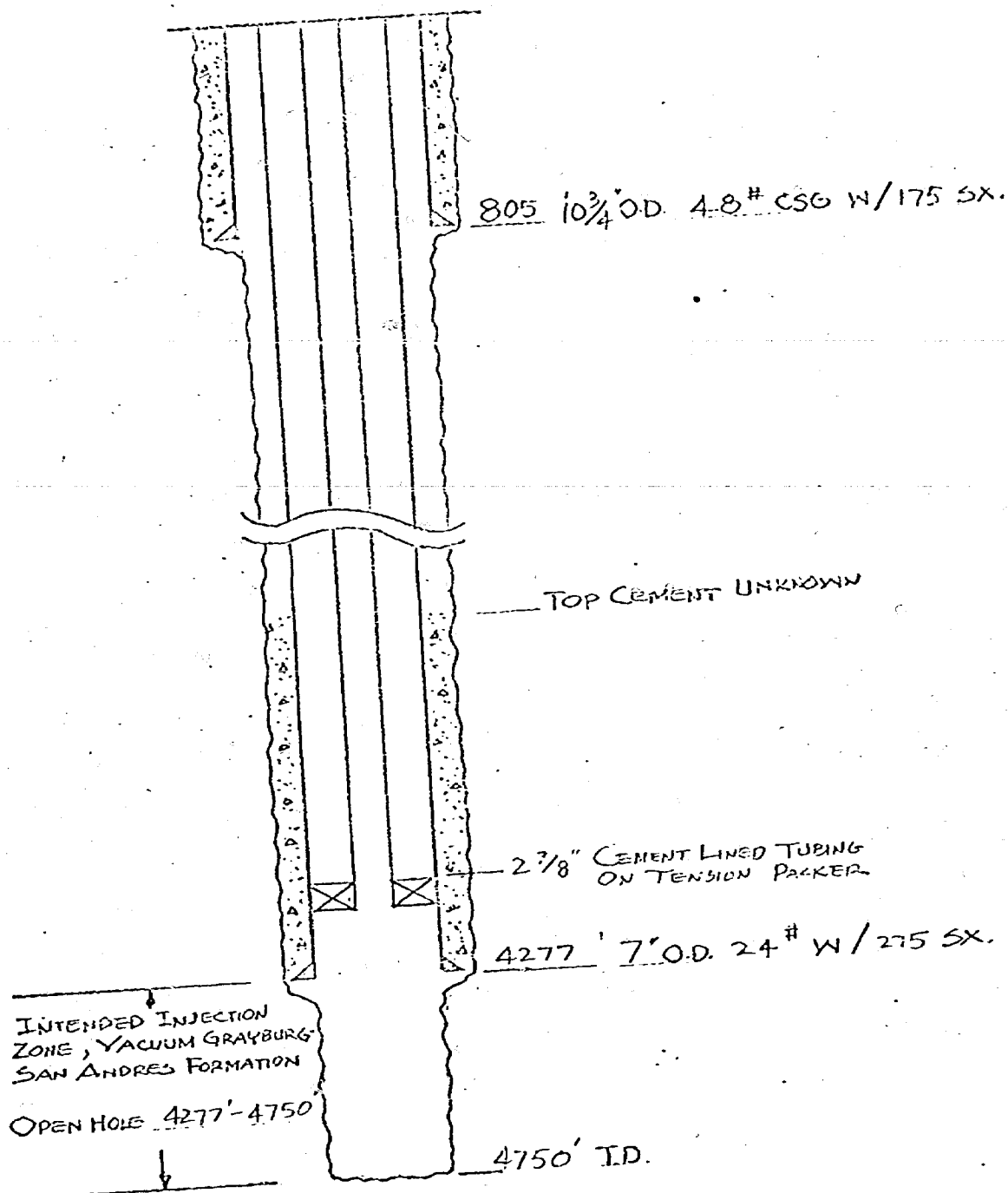
Case 3654

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60722715-60

D.F. ELEVATION 4239



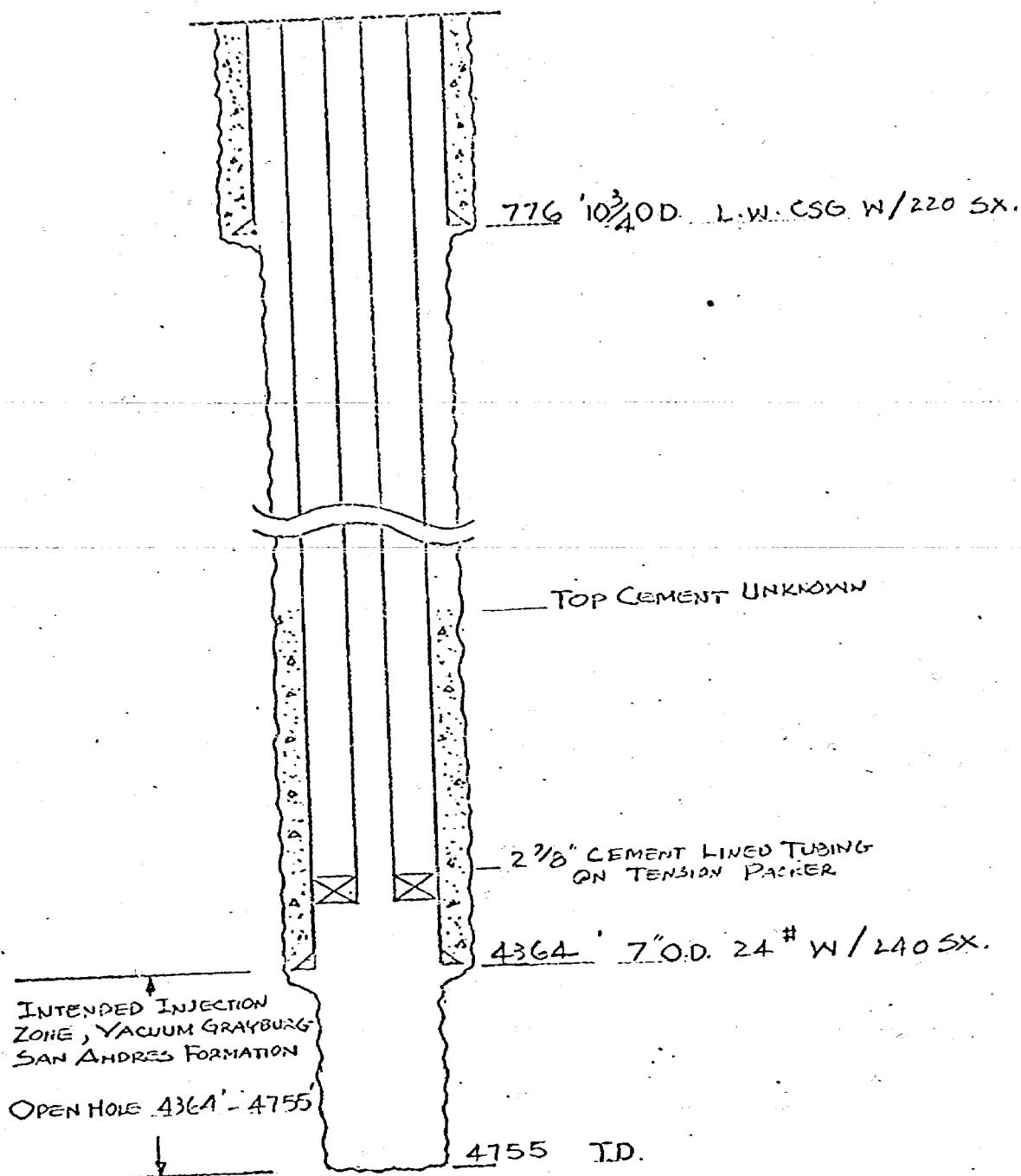
NO.		DATE		BY	ALTERATION
PROPOSED INJECTION WELL BRIDGE-STATE WELL NO 5 EXHIBIT C					
Mobil Oil Corporation					
DRAWN		SCALE		DWG. NO.	
CHECKED		DATE		A	

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CO7227(5-55)

D.F. ELEVATION 4010



NO.		DATE		BY		ALTERATION	
PROPOSED INJECTION WELL BRIDGES-STATE WELL NO. 6 EXHIBIT C							
Mobil Oil Corporation							
DRAWN		SCALE		DATE		DWG. NO.	
CHECKED						A	

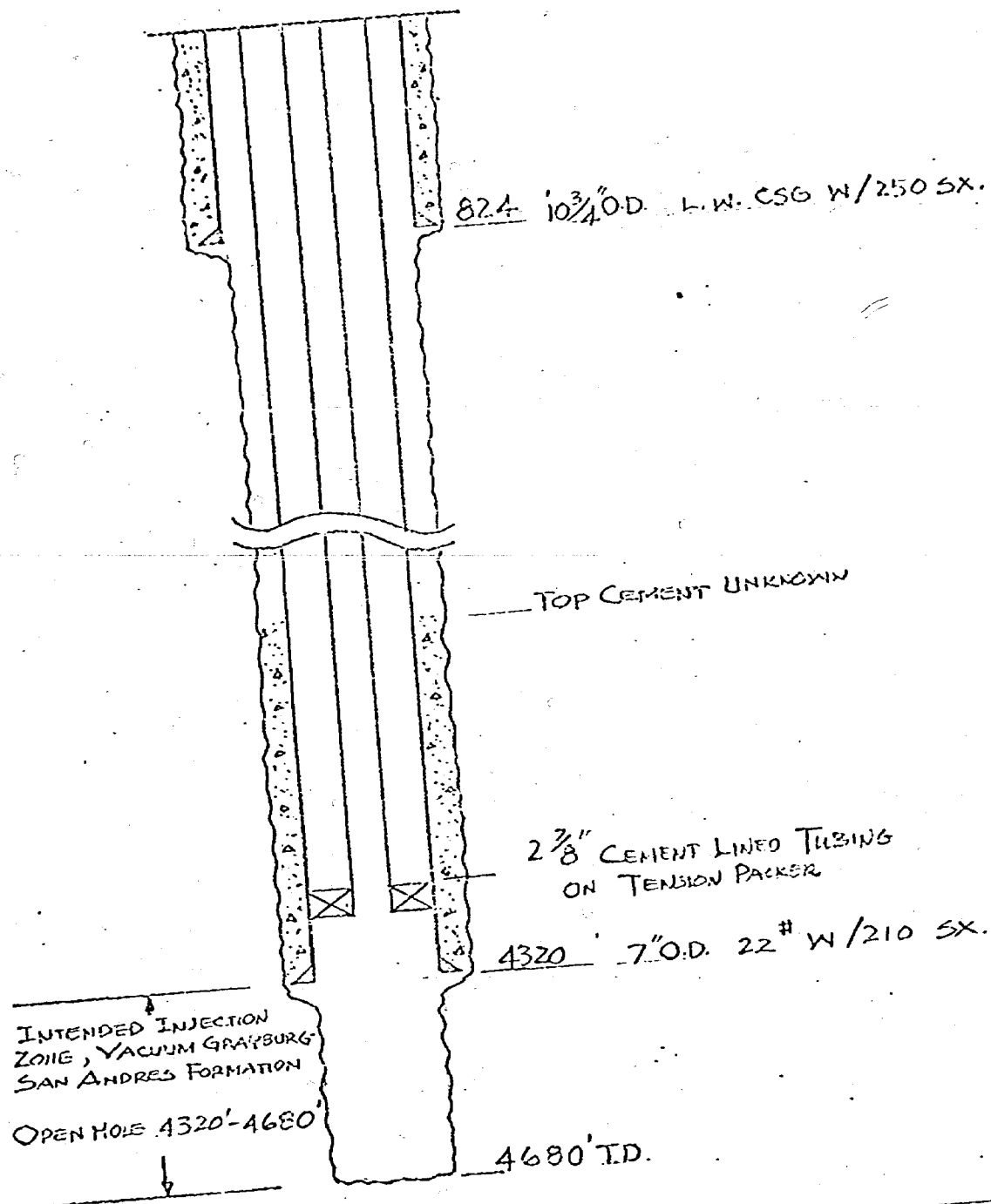
Case 3654

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C072227(1-5-53)

D.F. ELEVATION 4018



NO.	DATE	BY	ALTERATION
PROPOSED INJECTION WELL			
BRIDGES-STATE Well No. 47			
EXHIBIT C			
Mobil Oil Corporation			
DRAWN	SCALE	DWG. NO.	
CHECKED	DATE	A	

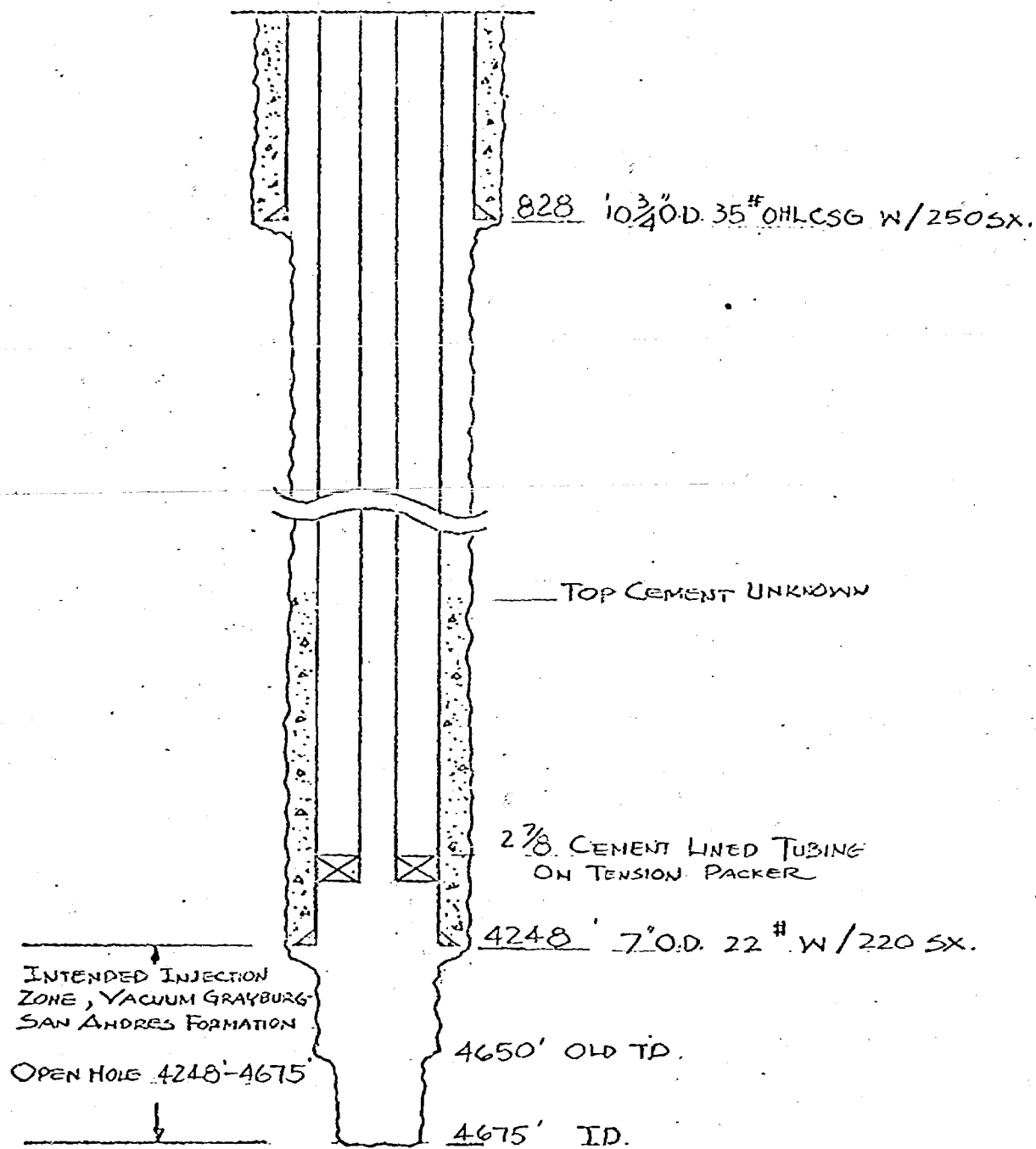
Case 3654

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C0722715-65

D.F. ELEVATION 4045



NO.	DATE	BY	ALTERATION
PROPOSED INJECTION WELL BRIDGES-STATE WELL NO. 52 EXHIBIT C			
Mobil Oil Corporation			
DRAWN	SCALE		DWG. NO.
CHECKED	DATE		A

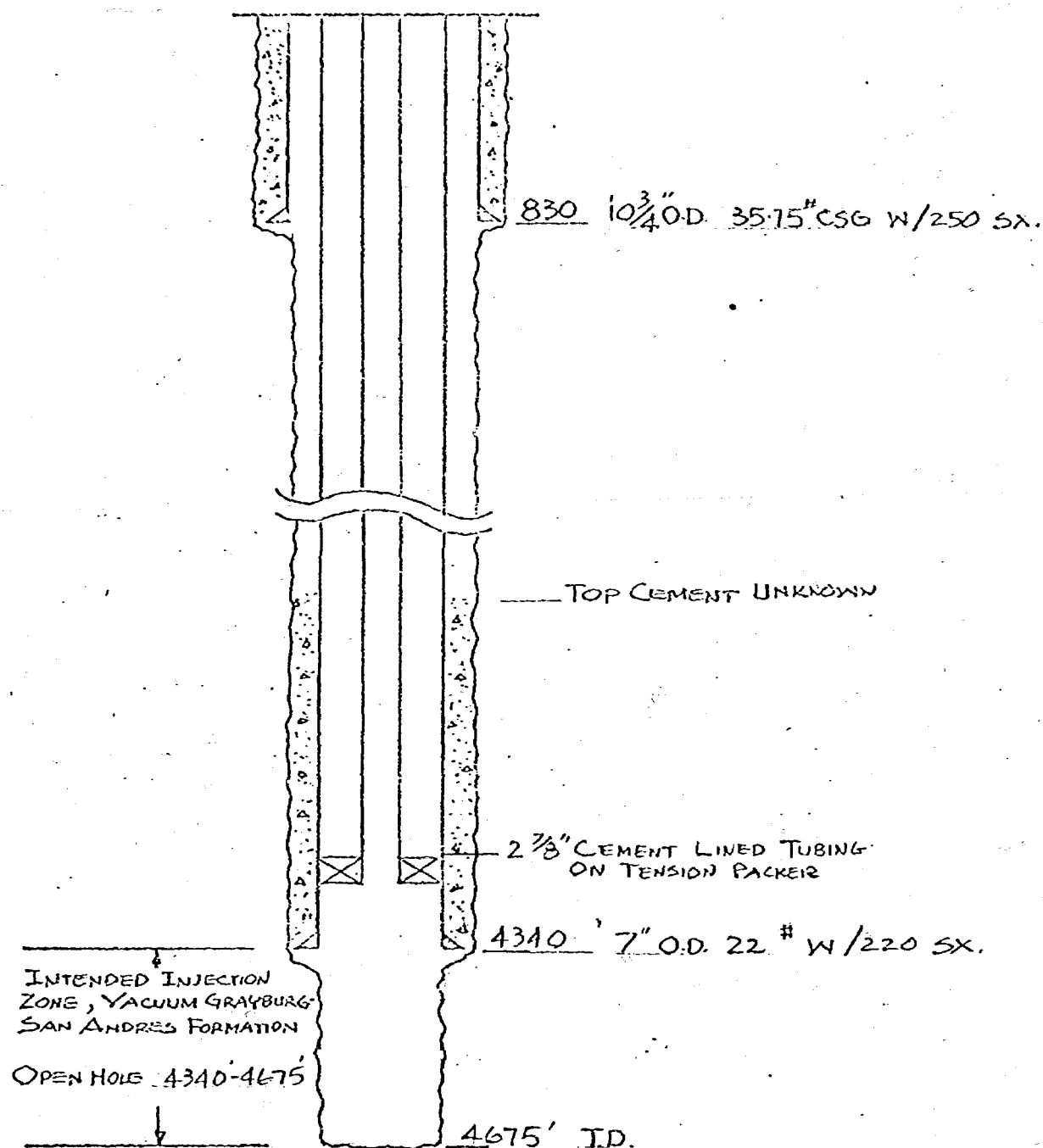
Case 3654

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607227(15-55)

D.F. ELEVATION 4020'



NO.	DATE	BY	ALTERATION
PROPOSED INJECTION WELL BRIDGES- STATE WELL NO. 63 EXHIBIT C			
Mobil Oil Corporation			
DRAWN	CHECKED	SCALE	DWG. NO.
		DATE	A

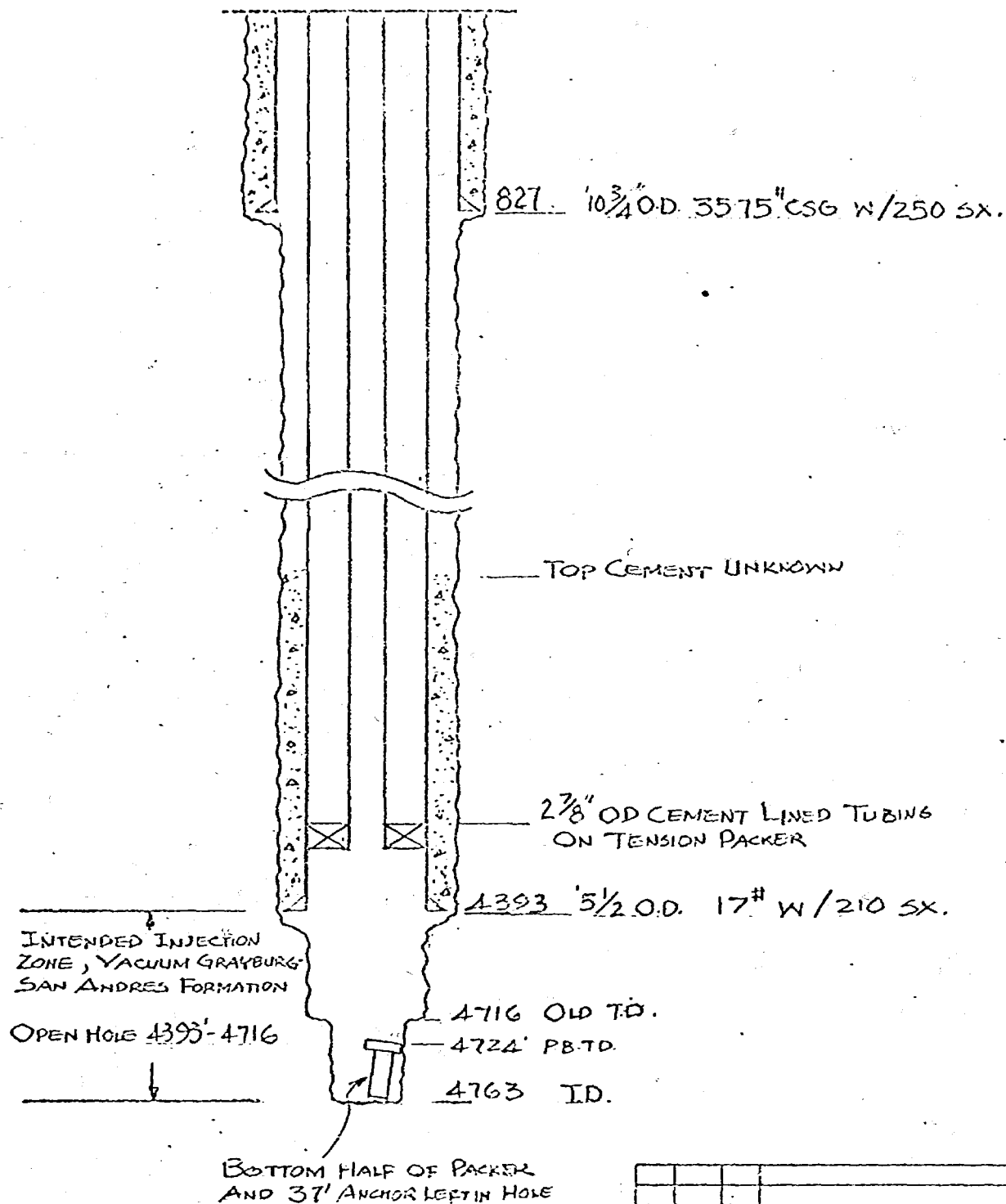
Core 3654

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C07227(5-65)

D.F. ELEVATION 4029



NO.	DATE	BY	ALTERATION
PROPOSED INJECTION WELL BRIDGE STATE - WELL NO. 73 EXHIBIT C			
Mobil Oil Corporation			
DRAWN	SCALE	DWG. NO.	
CHECKED	DATE	A	

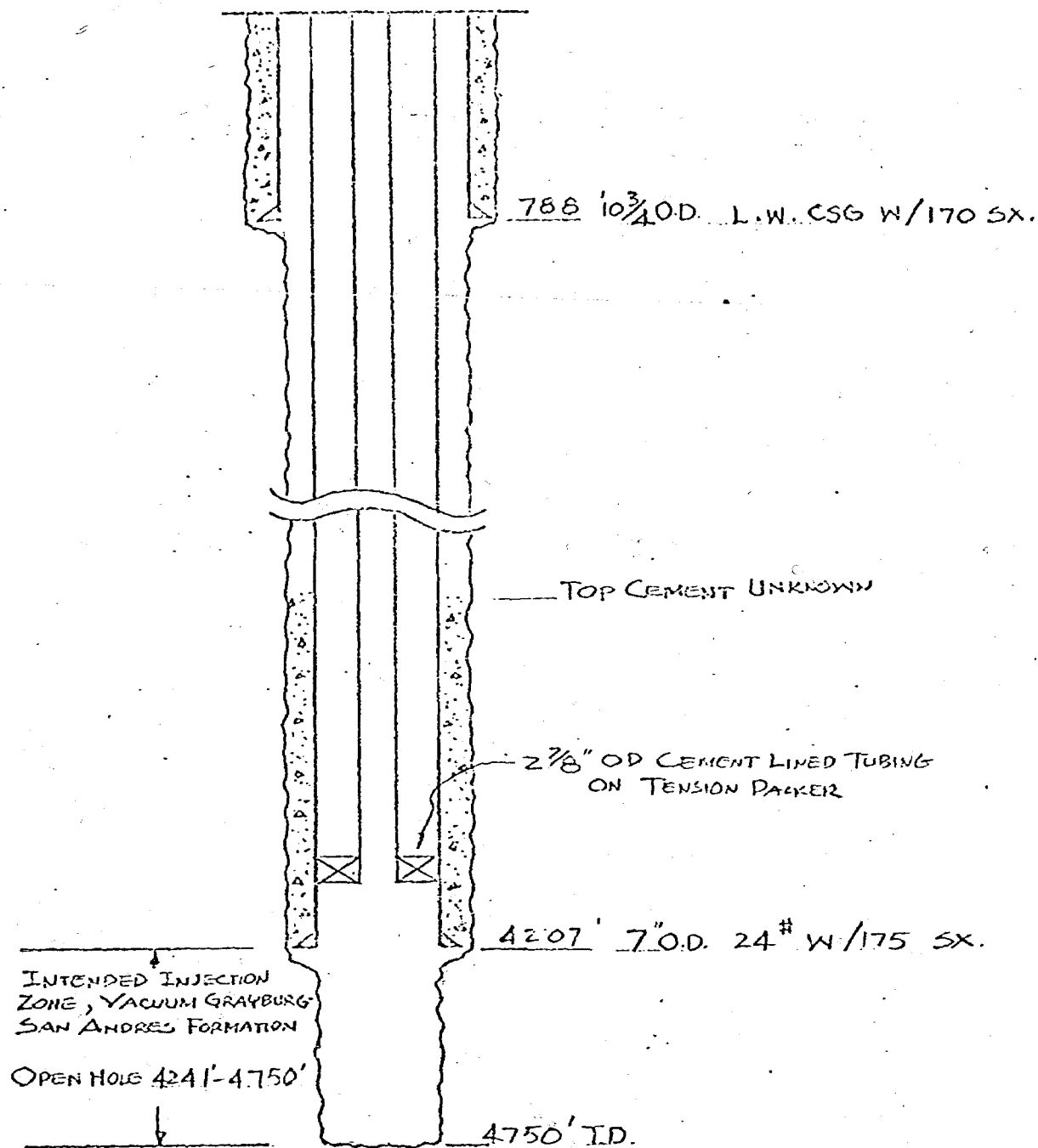
3654

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C072273-003

D.F. ELEVATION 4044'



NO.	DATE	BY	ALTERATION
PROPOSED INJECTION WELL STATE "J" WELL NO. 1 EXHIBIT C			
Mobil Oil Corporation			
DRAWN	CHECKED	SCALE	DWG. NO.
		DATE	A

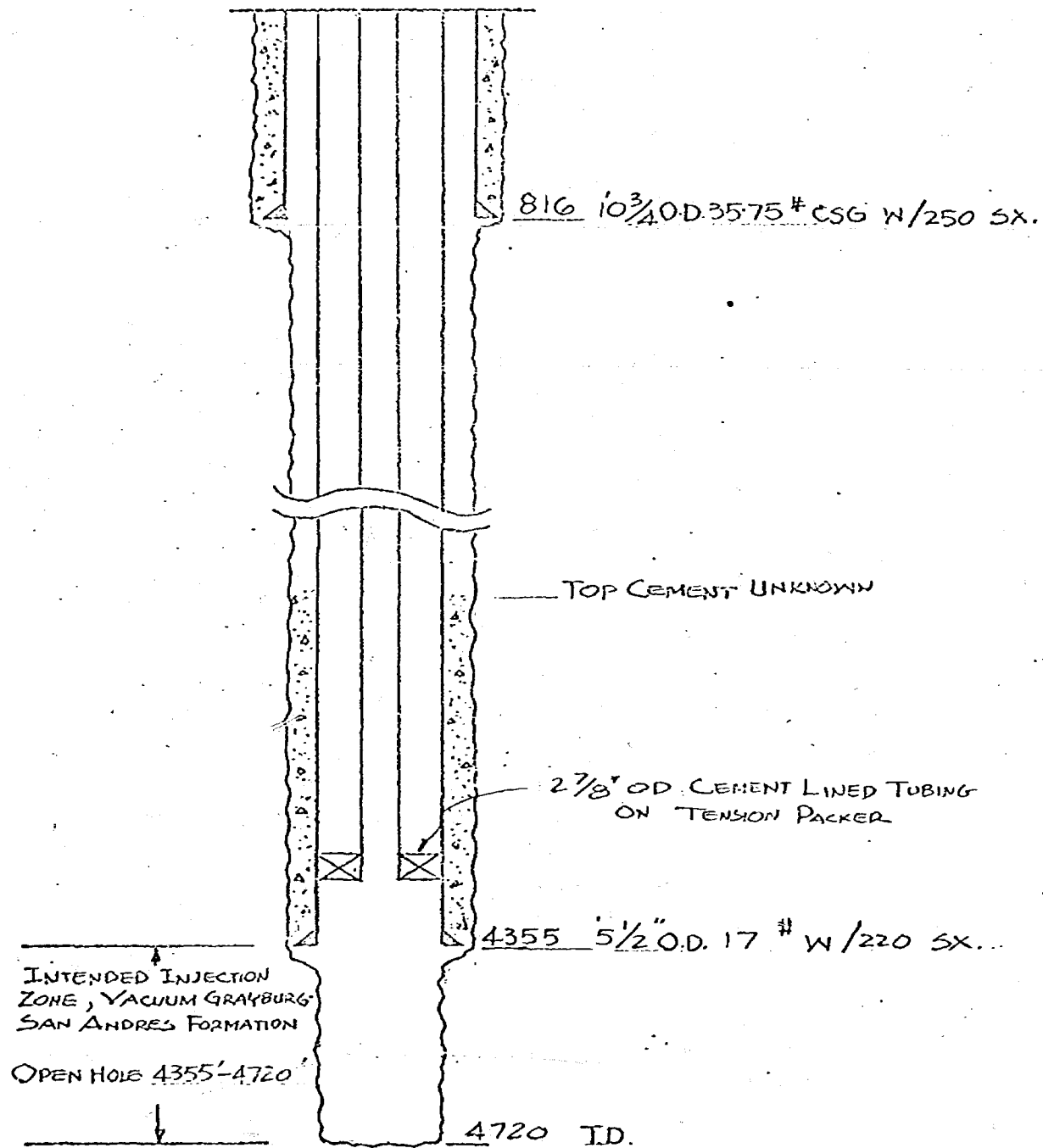
Case 3657

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ON DEMAND.

60722715-001

D.F. ELEVATION 4051'



NO.	DATE	BY	ALTERATION
PROPOSED INJECTION WELL STATE "J" WELL NO. 4 EXHIBIT C			
Mobil Oil Corporation			
DRAWN	SCALE		D.I.G. NO.
CHECKED	DATE		

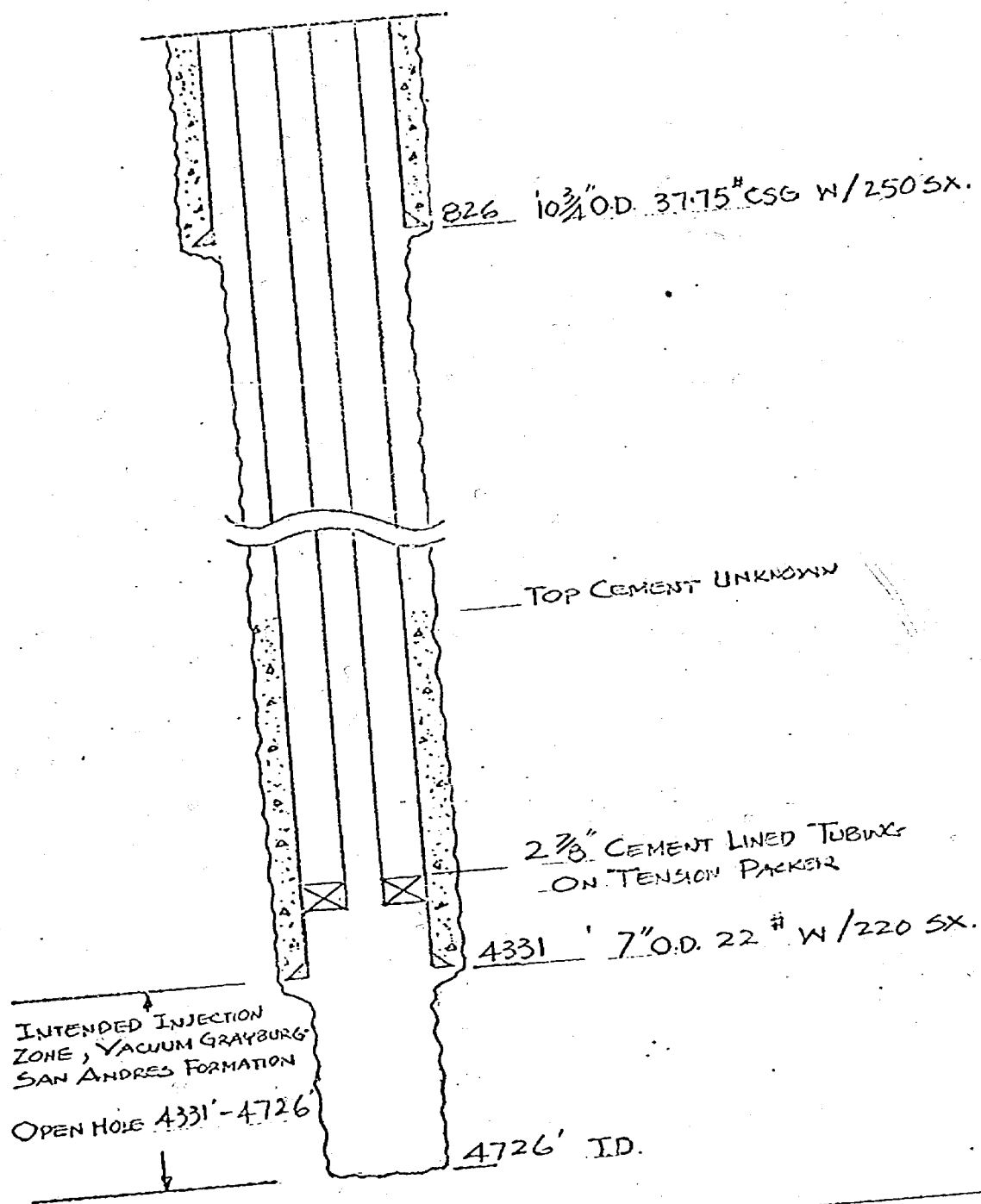
Case 3654

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C07227(15-16)

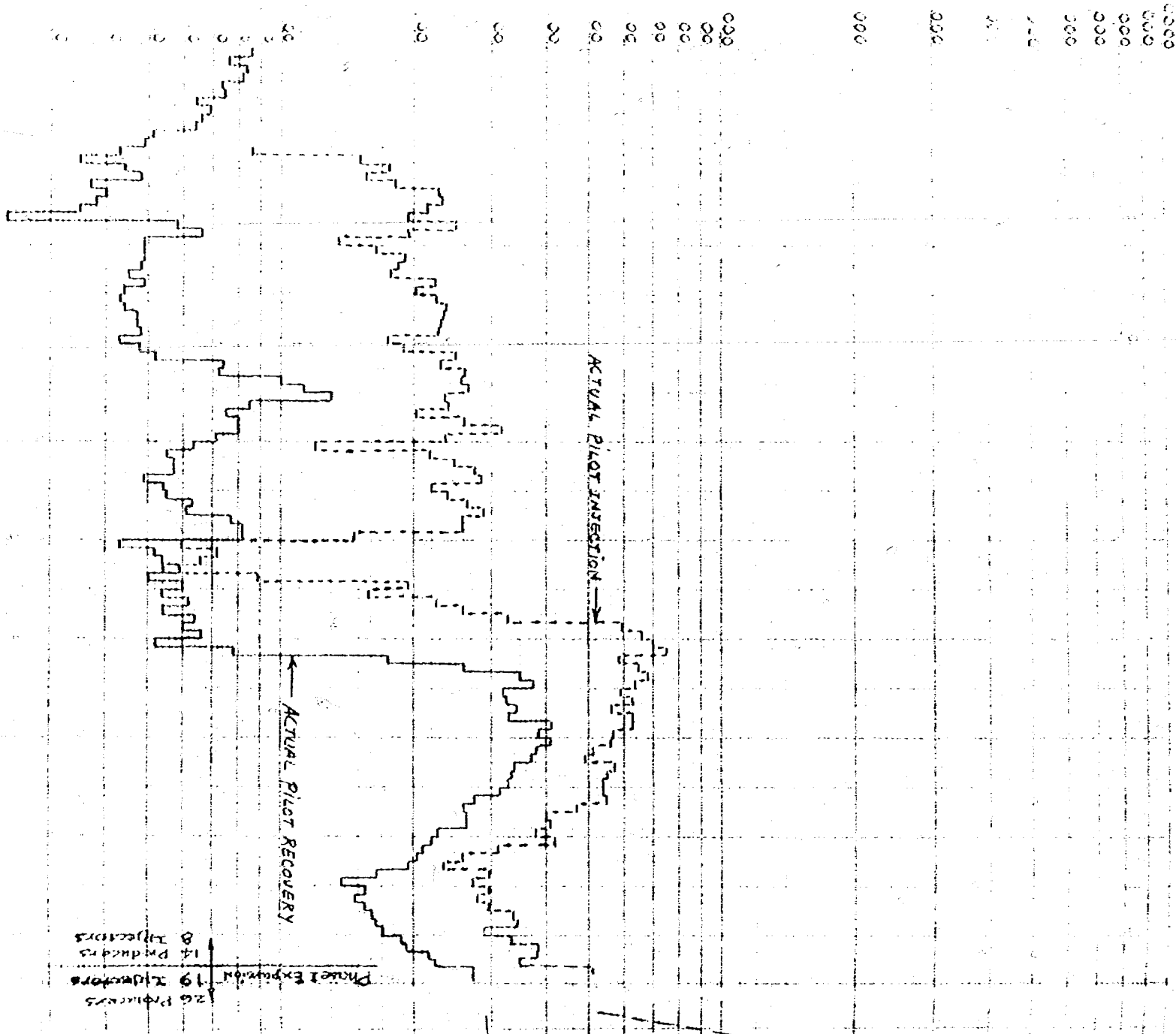
D.F. ELEVATION 4026



NO.			DATE			BY			ALTERATION		
PROPOSED INJECTION WELL											
STATE G WELL NO. 3											
EXHIBIT C											
Mobil Oil Corporation											
DRAWN						Dwg. NO.					
CHECKED						A					
SCALE						DATE					

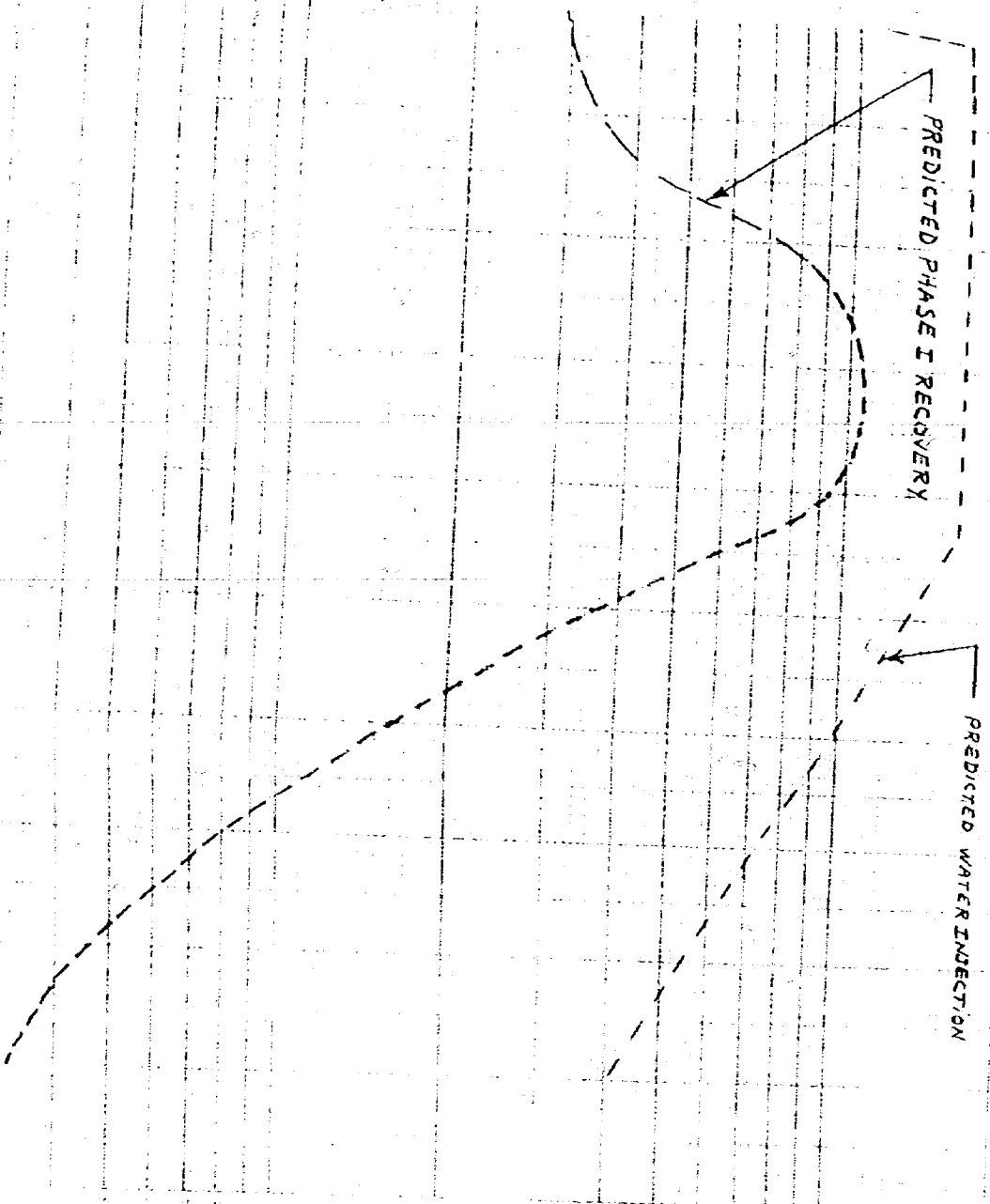
Case 3654

OIL PRODUCTION, BARRELS PER DAY
 WATER INJECTION, BARRELS PER DAY X 0.10



Case 3654

58 59 60 61 62 63 64 65 66 1967



MOBIL OIL CORPORATION
 STATE BRIDGES LEASE
 PILOT WATERFLOOD PLUS PHASE I EXPANSION
 VACTEE (GRAYBURG-SAN ANDRES) FIELD
 LEA COUNTY, NEW MEXICO
 EXHIBIT "D"

68 69 70 71 72 73 74 75 76 77

Mobil Oil Corporation

P.O. BOX 633
MIDLAND, TEXAS 79701

August 9, 1967

OFFSET OPERATORS
(See Addressee List Attached)

Case 3654
WATERFLOOD EXPANSION
VACUUM (GRAYBURG-SAN ANDRES)
LEA COUNTY, NEW MEXICO

Gentlemen:

Mobil Oil Corporation has filed with the New Mexico Conservation Commission an application for approval of the proposed waterflood expansion on our Bridges-State, State G and J leases, Vacuum (Grayburg-San Andres) Pool, Lea County, New Mexico.

As shown on the attached map, Mobil plans to convert ten wells to water injection. You will notice that all these wells except State J Well No. 4 are located along the lease lines, and, will require cooperative injection from offset operators. Operating agreements are now either being negotiated or in the execution stage. Status of these wells will not be changed until agreement has been agreed upon.

If you desire additional information regarding Mobil's application, please let us know.

Very truly yours,

I. B. Stitt, Jr.
I. B. Stitt, Jr.
Division Operations Engineer

GCWang/bje
Attachment

cc: New Mexico Oil Conservation Commission ✓

ADDRESSEE LIST

Amerada Petroleum Corporation
P. O. Box 312
Midland, Texas

Continental Oil Company
P. O. Box 460
Hobbs, New Mexico

Phillips Petroleum Company
Phillips Building
Odessa, Texas

Shell Oil Company
P. O. Box 1509
Midland, Texas

Sinclair Oil & Gas Company
P. O. Box 1470
Midland, Texas

Texaco, Inc.
P. O. Box 3109
Midland, Texas

dearnley-meier reporting service, inc.

SPECIALIZING IN: DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS

1120 SIMMS BLDG. • P. O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO



BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
September 6, 1967

IN THE MATTER OF:)

Application of Mobil Oil Corporation)
for a waterflood expansion and for)
an amendment of Order No. R-1244,)
Lea County, New Mexico)

Case No. 3654

BEFORE: Daniel S. Nutter, Examiner

TRANSCRIPT OF HEARING

MR. NUTTER: The next case will be Case No. 3654.

MR. HATCH: Application of Mobil Oil Corporation
for a waterflood expansion and for an amendment of Order No.
R-1244, Lea County, New Mexico.

MR. SPERLING: Jim Sperling, of Modrall, Seymour,
Sperling, Roehl & Harris, appearing for the Applicant. We
have one witness.

(Witness sworn.)

(Applicant's Exhibits 1 through
4 marked for identification.)

MR. SPERLING: If the Examiner please, as a
preliminary statement to the presentation of this case, I
might say for the record that this particular project,
waterflood project which is the subject of this hearing, was
established pursuant to Commission Order entered September 17,
1958 which predated the adoption of statewide Rule 701
governing waterflood pressure maintenance projects. The
Order as originally written, had written into it certain
restrictive provisions relating to the expansion of the
project. Inasmuch as the Rule under which the project was
established predated the adoption of the statewide Rule which,
of course, provides for administrative approval of expansion,
it was necessary, as the Examiner very well knows and

helpfully assisted in the problem, it was necessary to have a hearing on the expansion which, of course, is the subject of a portion of the application before the Examiner. In addition, the application requests the amendment of the existing Order, Special Order, which relates to this project to include insofar as expansion is concerned, the existing provisions of 701-E.

With that explanation of why we're here with reference to the explanation, and with that statement of what the application is supposed to be about, I will ask you, Mr. Hart to please state your name, place of residence, by whom you are employed and in what capacity.

F R A N K H A R T, called as a witness, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. SPERLING:

A Frank Hart. I'm employed by Mobil Oil Corporation, Midland, Texas --

MR. NUTTER: Is that H-a-r-t?

A H-a-r-t, yes, sir. Proration Department, and I have the title of Senior Production Engineer.

Q (By Mr. Sperling) Have you testified on previous occasions before the Commission?

A I have.

Q Your qualifications, then, are a matter of record?

A That is correct.

Q Mr. Hart, are you familiar with the application in this case and the relief sought by the application?

A Yes, sir, I am.

Q I will refer you first to what has been marked as Applicant's Exhibit No. 1 and ask you to state what that exhibit reflects.

A It's a plat showing the location of producing wells which Mobil proposes to convert to injection wells. The plat also shows the location of all other wells within a radius of two miles from the injection wells. It indicates the lessees within the said two mile radius.

Q It shows not only the proposed injection wells which are referable to the requested expansion but also the existing injection wells?

A Yes, sir. The proposed wells are in red and the injection wells are circles with an arrow through them. The boundary outline of Bridges-State Unit is outlined in yellow.

Q Now, the application identifies, does it not, the particular location, by unit, of the injection wells which are,

or the proposed injection wells, which are the subject of this application? In other words, the wells are identified by unit and section and so forth in the application?

A Yes.

Q In addition to being indicated on the plat?

A Yes, sir.

Q Now, please refer to Exhibit 2 and explain it.

A These are diagramatic sketches of the proposed injection wells which are the subject of this hearing, which we will be converting to injection wells.

Q Now, these exhibits which are referred to here and which have been marked for identification were actually attached, were they not, to the application as filed?

A Yes, sir, they were, with some corrections.

Q Would you point out those corrections, please?
First with reference to Exhibit 2.

A Exhibit 2 we were, it was pointed out to us by the engineer that we did not have a cement top and we had not run logs for that purpose so we calculated the cement top and I added that to the information, and also sent a copy to the state engineer. I also added approximate location at which we will set our packer.

Q Now, on what basis were these cement tops

calculated?

A On the basis of one sack of cement equalling 1.32 cubic feet and subtracting the displacement of pipe and then cutting the amount by fifty percent as a safety factor. Some cases the height of this cement will be greater than what it is; in my opinion, they will never be less.

Q Now, to your knowledge, are there logs existing with reference to these proposed injection wells?

A No, to my knowledge. I was unable to find the logs on these wells.

Q The entire content of Exhibit 2 is the diagrammatic sketches of the various injection wells and the proposed method of conversion of those existing producing wells to injection wells, is that correct?

A Yes, sir, that is correct.

Q Is there any other significant information shown with reference to Exhibit 2?

A No, sir, I don't believe so. The intended injection zone is listed on there and it shows that it is in open hole but we have cement behind the pipe above the open hole to protect the underlying sands.

Q Would you now refer to Exhibit 3, please, and explain that exhibit?

A Exhibit 3 is the oil production water injection into the Bridges-State pilot waterflood, and is also plotted or predicted recoveries after this expansion on through 1976. On the back of the chart is also production data showing wells off set, and in the near vicinity to the proposed injection wells, indicating that there have been increases in production due to waterflood stimulation, thereby following the orders of waterflood expansion for this field. We are receiving indications that our waterflood is effecting these wells and it is not time to convert certain wells to injection wells.

Q Are you presently injecting into the Vacuum-Grayburg- San Andres formation?

A Yes, sir. And referring back to Exhibit 1 in the wells which are indicated by circles with an arrow through existing Mobil injection wells that are injecting into that formation.

Q What interval do you expect to inject in, so far as the proposed injection wells are concerned?

A Into the same interval. This is just an expansion on the outside edge of the flood.

Q Is that approximately a depth range between 4241 and 4755?

A Yes, sir.

Q And that information is contained on Exhibit 4, is that not correct?

A That is correct.

Q Exhibit 4 also contains a statement as to the source of the water for the proposed injection wells and a statement concerning the injection rate. Is that information approximately or identical with the present source of water being employed as well as the injection rates, or is that an increased rate of injection?

A That is the same rate.

Q Exhibit 4 contains a statement that the source of the water will be from the Ogallala formation, within which Mobil holds water rights to 1200 acre feet. Is that water supply sufficient to meet the demands of the increased or the proposed increased injection wells?

A To the best of my knowledge, it is, yes, sir.

Q As I understand the application with reference to the proposed expansion, it is simply an explanation of the flood area in order to continue the performance which you have already experienced under the presently authorized project?

A That is correct. We had a pilot waterflood project to start and this is a gradually expanding, as wells reached indication of stimulation of the flood and this is

the expansion of the same uniform pattern as earlier established.

Q What disposition is being made of produced water?

A I do not know. I am sure most Mobil operations, it is injected back into the formation as injection water, but I couldn't say for certain.

Q Do you have anything to add with reference to the expansion of the project?

A No, sir, I don't.

Q With reference to the portion of the application which seeks amendment of the existing Rule, my understanding is, that Mobil's position is that they are requesting the adoption of the statewide rule, as encompassed in Commission Rule 701, to be applicable to this particular project in lieu of the presently existing expansion requirements that are found in the Order establishing the project?

A That is correct.

Q In other words, that future expansion, if indicated, would be on the basis of the presently existing statewide Rules?

A We propose to amend Order No. R-1244 and, in lieu thereof, adopt statewide Rules for expansion procedure and authorization for injection wells in the future.

Q Were Exhibits 1 through 4 prepared by you or under your supervision?

A Yes, sir, they were.

MR. SPERLING: I'll offer Exhibits 1 through 4 at this time, Mr. Examiner.

MR. NUTTER: Mobil's Exhibits 1 through 4 will be admitted in evidence.

(Whereupon, Applicant's Exhibits 1 through 4 admitted in evidence.)

MR. SPERLING: That's all I have on direct.

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

CROSS EXAMINATION

BY MR. NUTTER:

Q Mr. Hart on this Exhibit No. 3 --

A Yes, sir.

Q -- of the production decline curves --

A Yes, sir.

Q -- what area specifically is included here? Now, you say this shows the production on the pilot waterflood plus Phase One Expansion. Now --

A This Phase One Expansion is a Mobil term that the man making up this chart used. It is just, the Phase One, we're supposed to have some wells, injection wells done by a certain date and he estimated how much oil we would recover

by then.

Q Well, now, taking this pilot recovery line --

A Yes, sir.

Q Look here at 1963, and we said that evidently the pilot area was producing at an average rate of approximately 60 barrels per day, right?

A Yes, sir.

Q And then we had a substantial increase in 1964 and it got up to around 300 to 400 barrels per day?

A Yes, sir.

Q Now, just what area is he including there?

A That is just the pilot flood project.

Q The initial six wells?

A Yes, sir, I believe so. Now, I couldn't say for sure. I can let you know that information, but I am sure that's all he took on that.

Q Have any of these wells had substantial response? I notice on the one exhibit that is attached to the back we have some wells that have come up from three to twelve, nine to twenty-three, three to fourteen and one to sixteen, but have any of these wells responded to the magnitude of one hundred or more barrels per day?

A No, sir, not to my knowledge. It is a small

flood project.

Q As I recall, the first response to it which would have been even before, well, it would have been along about 1960, the first response was merely a level off of the decline?

A Yes.

Q And that was a couple of years after the water injection started?

A Yes, sir.

Q But you don't know exactly how many wells he did include in preparing this?

A No, sir, I don't. I discussed this with him and I didn't find out that information. I talked to him about it.

Q This proposed expansion of yours, particularly in Section 23, is going to leave this Amerada State-A lease completely surrounded by your injection program?

A Yes.

Q Do you know if any line agreement is being negotiated with Amerada whereby their lease would be put on water injection?

A No, sir, I don't know on that. I know they are not in our unit there, and I assume that they did not want to be.

Q And you don't know whether they have any plans to

complete the pattern by putting their No. 3 on injection?

A No, sir, I don't.

Q Well, they stand in a position to benefit even if they don't, I imagine.

A Yes, they will.

Q I guess it's all state lands, however, isn't it?

A They have three injector wells, well four, actually, and five on a corner, five injection wells around them.

MR. SPERLING: I believe all of Section 23 is state.

MR. NUTTER: It's all state land in here, evidently.

MR. SPERLING: Yes.

MR. NUTTER: This oil is wandering all over the place looking for a home, it looks like.

Q (By Mr. Nutter) With regard to your exhibits here, are your injection wells completions --

A Yes, sir.

Q -- what do you propose to do here with this casing-tubing annulus?

A Inhibited fluid will be put in the annulus. To my knowledge, that's what will be done. I don't know what kind.

Q I see.

A Corrosion inhibitor in a liquid.

Q In all cases this packer is set less than one hundred feet above the casing shoe?

A Yes, sir.

Q Will this piece of junk in the last page of that exhibit at the bottom of the hole hinder the injection of the water into the formation?

A What did you say in reference to that?

Q The piece of junk lying at the bottom of the hole, is that going to hinder the injection program any way?

A Now, sir, we will just leave that in there, that's the bottom half of a packer.

Q Has that been in there a long time?

A I couldn't say. I'm sure we tried to fish for it and had difficulty getting it out, so we just decided to leave it in there.

MR. NUTTER: Are there any further questions of this witness? He may be excused.

(Witness excused.)

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

Sperling?

MR. SPERLING: No, sir.

MR. NUTTER: Does anyone else have anything else

they wish to offer in Case 3654?

MR. HATCH: I have a telegram from Shell waiving objection to the proposed expansion and waiving objection to the proposed amendment.

MR. NUTTER: Thank you, Mr. Hatch. Is there anything further in this case? We will take the case under advisement and the hearing is adjourned.

STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

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

WITNESS my hand and seal this 30th day of October, 1967.

Ada Dearnley
ADA DEARNLEY

MY COMMISSION EXPIRES:

JUNE 19, 1971.

I do hereby certify that the foregoing is a true and correct record of the proceedings in the hearing of Case No. 3654, held by me on 9/6, 1967.

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

DOCKET NO. 26-67

DOCKET: SPECIAL HEARING - WEDNESDAY - AUGUST 30, 1967

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

CASE 3644: In the matter of the hearing called by the Oil Conservation Commission upon its own motion to consider the revision of Paragraph (1) of Order No. R-3221, to provide that the effective date for the prohibition of surface disposal of produced water from the North Bagley-Upper Pennsylvanian, North Bagley-Middle Pennsylvanian, North Bagley-Lower Pennsylvanian, North Bagley-Wolfcamp, and Northeast Bagley-Wolfcamp Pools, Lea County, New Mexico, or within one mile thereof, be changed from November 1, 1967, to some earlier date.

NOTE: A COPY OF THIS DOCKET WAS MAILED TO ALL PRODUCERS IN THE ABOVE-MENTIONED POOLS ON AUGUST 11, 1967.

DOCKET NO. 27-67

DOCKET: EXAMINER HEARING - WEDNESDAY - SEPTEMBER 6, 1967

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 3431 (Reopened and continued from the August 9, 1967 Examiner Hearing)

In the matter of Case 3431 being reopened pursuant to the provisions of Order No. R-3100 to permit Sinclair Oil & Gas Company to show cause why its W. H. Turner Well No. 1 located in Unit L of Section 29, Township 21 South, Range 37 East, Lea County, New Mexico, a dual completion in the Drinkard and Blinebry Oil Pools, should not be completed in accordance with the provisions of Rule 112-A of the Commission Rules and Regulations.

CASE 3645: Application of Skelly Oil Company for special pool rules, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the promulgation of special pool rules for the Lazy "J" Pennsylvanian Pool, including a provision for 80-acre spacing units for that area east of a line drawn through the centers of Sections 26 and 35, and south of a line drawn along the south line of Sections 33, 34, and 35, all in Township 13 South, Range 33 East, Lea County, New Mexico.

Page -2-

Docket No. 27-67

September 6, 1967 Examiner Hearing

- CASE 3646: 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 by the injection of water into the Delaware Sand through 12 wells in the Cotton Draw Unit Participating Area and through 3 wells on off-setting leases in Sections 10, and 28, Township 25 South, Range 32 East, Paduca-Delaware Pool, Lea County, New Mexico.
- CASE 3647: Application of Tenneco Oil Company for two waterflood projects, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute two waterflood projects by the injection of water into the Delaware Sand through two wells on its State Monsanto Lease, in Section 16, and through one well on its J. D. Sena, Jr. Lease, in Section 28, both in Township 25 South, Range 32 East, Paduca-Delaware Pool, Lea County, New Mexico.
- CASE 3648: Application of Tenneco Oil Company for a dual completion, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks approval of the dual completion (conventional) of its Jicarilla "A" Well No. 8 located in Unit H of Section 17, Township 26 North, Range 5 West, Rio Arriba County, New Mexico, in such a manner as to permit the production of Tapacito-Gallup oil and Basin-Dakota gas through tubing, and the casing-tubing annulus, respectively, by means of a cross-over assembly.
- CASE 3649: Application of Texas Pacific Oil Company for a dual completion, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the dual completion (conventional) of its Ella Drinkard Well No. 2 located in Unit E of Section 25, Township 22 South, Range 37 East, Lea County, New Mexico, in such a manner as to produce oil from an undesignated Ellenburger pool and from another undesignated pool, either pre-Ellenburger or Granite Wash, through parallel strings of tubing.
- CASE 3650: Application of Albert Gackle for down-hole commingling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to commingle production from the Jalmat and South Eunice Pools in the well-bore of his Esmond "B" Well No. 3 located in Unit H of Section 33, Township 22 South, Range 36 East, Lea County, New Mexico, with the assignment of a single allowable to said commingled production.

Page -3--
Docket No. 27-67
September 6, 1967 Examiner Hearing

CASE 3635 (Corrected Notice):

Case 3635, Application of Cities Service Oil Company for an Exception to Order No. R-3221, Chaves County, New Mexico, was heard by the Commission on August 16, 1967. This notice is being given and the case will be re-opened to correct the location of one of the surface pits which were the subject of the hearing. The correct location of said pit is Unit E of Section 2, Township 14 South, Range 31 East, Chaves County, New Mexico, rather than Unit L of Section 2 as previously advertised.

CASE 3651: Application of Olen F. Featherstone for the creation of a new pool and special pool rules, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the creation of a new Permo-Pennsylvanian pool for his Mobil-State Well No. 1 located in Unit E of Section 32, Township 14 South, Range 35 East, Lea County, New Mexico, and for the promulgation of special rules therefor including a provision for 80-acre proration units.

CASE 3652: Application of Depco, Inc. for a unit agreement, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval of its Artesia Unit Area comprising 2400 acres, more or less, of State lands in Townships 17 and 18 South, Range 28 East, Eddy County, New Mexico.

CASE 3653: Application of Depco, Inc. for a waterflood project, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project in its Artesia Unit Area by the injection of water into the Grayburg formation through 15 wells, Artesia Pool, Eddy County, New Mexico.

CASE 3654: Application of Mobil Oil Corporation for a waterflood expansion and for an amendment of Order No. R-1244, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to expand its Bridges-State Waterflood Project by the conversion to water injection of its Bridges-State Wells Nos. 63 and 73 in Units K and G of Section 13; Wells Nos. 3 and 6 in Units O and E of Section 23; Well No. 47 in Unit K of Section 24; Well No. 5 in Unit C of Section 26, and Well No. 52 in Unit A of Section 27; its State G Well No. 3 in Unit G of Section 24 and State J Wells Nos. 1 and 4 in Units I and A of Section 22, all in Township 17 South, Range 34 East, Vacuum Pool, Lea County, New Mexico.

Applicant further seeks the amendment of Order No. R-1244 to provide that future operation and expansion of said project would be subject to the provisions of Rule 701-E of the Commission Rules and Regulations.

ir/

August 25, 1967

Modrall, Seymour, Sperling, Roehl & Harris
Attorneys at Law
Albuquerque, N. M.

Attn. Mr. J. E. Sperling

Gentlemen:

A copy of your application to the Oil Conservation Commission on behalf of Mobil Oil Corp., which seeks authority to expand their State Bridges Lease in the Vacuum Field is gratefully acknowledged.

In examining the exhibits attached to the application, it is noted that no cement tops are given for any of the casing strings in any of the wells.

Yours truly,

FBI/ma
cc Oil Conservation Comm.

S. E. Reynolds
State Engineer

By:

Frank E. Irby
Chief
Water Rights Div.

'67 AUG 28 AM 8 06

J. R. MODRALL
JAMES E. SPERLING
JOSEPH E. ROEHL
GEORGE T. HARRIS, JR.
DANIEL A. SISK
LELAND S. SEDBERRY, JR.
ALLEN C. DEWEY, JR.
FRANK H. ALLEN, JR.
JAMES P. SAUNDERS, JR.

JAMES A. PARKER
HENRY G. COORS
JOHN R. COONEY
KENNETH L. HARRIGAN
PETER J. ADANG
DALE W. EK

LAW OFFICES OF
MODRALL, SEYMOUR, SPERLING, ROEHL & HARRIS

SIMMS BUILDING
P. O. BOX 466
ALBUQUERQUE, NEW MEXICO 87103

JOHN F. SIMMS (1885-1954)
AUGUSTUS T. SEYMOUR
(1907-1965)

TELEPHONE 243-4511
AREA CODE 505

August 23, 1967

25 AUG 25 1967

Case 3654

Oil Conservation Commission
P. O. Box 2088
Santa Fe, New Mexico
ATTN: Mr. Dan Nutter

RE: In the Matter of the Application
of Mobil Oil Corporation for
Authority to expand the waterflood
project.

Dear Mr. Nutter:

Enclosed please find original and two copies of Application
made by Mobil Oil Corporation in regard to the above matter.

It is my understanding that you are holding an open spot
on the September 6, 1967 Docket for this Application.

Very truly yours,

James E. Sperling
(ng)
JAMES E. SPERLING

JES: ng
Encls: a/s
cc: Mobil Oil Corp
State Eng. Office

DOCKET MAILED
Date 8/25/67

67 AUG 25 AM 8 13

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE APPLICATION
OF MOBIL OIL CORPORATION FOR
AUTHORITY TO EXPAND THE WATER-
FLOOD PROJECT ON ITS STATE BRIDGES
LEASE IN THE VACUUM (GRAYBURG SAN
ANDRES) FIELD-LEA COUNTY, NEW MEXICO
BY THE CONVERSION OF CERTAIN PRO-
DUCING WELLS TO WATER INJECTION
WELLS AND FOR AMENDMENT OF
COMMISSION ORDER NO. R-1244 TO
PROVIDE THAT OPERATION AND FURTHER
EXPANSION SHALL BE SUBJECT TO
COMMISSION RULE 701-E

CASE NO. 3654

A P P L I C A T I O N

1. Mobil Oil Corporation hereby requests authority to expand waterflood project on its State Bridges Lease in the Vacuum (Grayburg-San Andres) Pool, Lea County, New Mexico, by the conversion of certain presently producing wells, as herein-after designated and identified, to water injection wells in the Grayburg-San Andres Sand at an approximate depth of 4700 feet below the surface.

<u>Lease Name</u>	<u>Well No.</u>	<u>Unit Letter Designation</u>	<u>Section</u>
Bridges-State	63	K	13
"	73	G	13
"	3	O	23
"	6	E	23
"	47	K	24
"	5	C	26
"	52	A	27
State G	3	G	24
State J	1	I	22
"	4	A	22

All above wells are in Township 17 South, Range 34 East, NMPM.

2. Attached hereto and made a part hereof is a plat showing the location of the wells proposed to be converted to

injection wells as well as the location of present injection wells and producing wells within the waterflood project area.

3. The subject waterflood project was established under the authority of Commission Order No. R-1244, issued September 17, 1958, which preceeded the adoption by the Commission of Rule 701, relating to secondary recovery and injection of fluids into reservoirs.

4. The above wells or off-setting wells have experienced response to water injection and that the conversion of the Bridges-State well No. 3, 2, 52 and State J Well No. 1 and State G Well No. 3 is necessary to complete the flood pattern and cooperative lease line injection agreement with Texaco, Sinclair (proposed North Vacuum San Andres Unit), Amerada, Shell and Continental.

5. Applicant holds the water rights to 1200 acre-feet per annum from the Ogallala zone, and that three water supply wells have been drilled having a total capacity of approximately 22,000 barrels per day. The water which is being presently produced in connection with the operation of the project is being re-injected into the Grayburg-San Andres formation and produced water within the proposed expansion area will likewise be re-injected. Average injection rates for their proposed injection wells is estimated to be 500 barrels per day per well.

6. Conversion work on the proposed injection wells will consist of the removal of existing production equipment and tubing and replacement with cement-lined tubing and packers. Adequate tests of all casing strings will be made to insure that all surface waters and other formations will not be exposed to injection water in the event of tubing or packer leaks. Attached hereto are Diagrammatic sketches of the proposed injection wells which show the present wellbore conditions, the name and depth of the formation

for water injection and the planned equipment installation of subsurface equipment for water injection. Also attached as exhibits hereto are Commission's Form C-116, indicating changes in production before and after stimulation by waterflood and a graph showing the history of the flood project.

7. A copy of this Application has been sent to the office of the State Engineer of New Mexico, and each off-setting operator has been notified of the proposed conversion of the wells described in this Application to injection wells. Said operators have also been furnished with all information contained in and attached to this Application.

8. It is requested that Commission Order No. R-1244, which authorized the establishment of the subject waterflood project be amended to provide that the operation of the subject project shall be in accordance with the requirements of Commission State-wide Rule 701 E-3.

9. The granting of this Application will result in the prevention of waste and will protect correlative rights in the project area.


WHEREFORE, Applicant requests that this matter be set for hearing before an examiner and that thereafter the Commission issue its order approving the conversion of the wells to injection wells as hereinabove set forth and amending Commission Order No. 1244 as requested.

Respectfully submitted,

MOBIL OIL CORPORATION

By Modrall, Seymour, Sperling, Roehl
& Harris

By


JAMES E. SPERLING, Its Attorney,
P. O. Box 466, 1200 Simms Building
Albuquerque, New Mexico

Attch:
cc: Mobil
State Engineer

CLASS OF SERVICE

This is a fast message unless its deferred character is indicated by the proper symbol.

WESTERN UNION

TELEGRAM

W. P. MARSHALL
CHAIRMAN OF THE BOARD

R. W. MCFALL
PRESIDENT

STANDARD
DL=Day Letter
NL=Night Letter
LT=International Letter Telegram

The filing time shown in the date line on domestic telegrams is LOCAL TIME at point of origin. Time of receipt is LOCAL TIME at point of destination.

ABOLISHING SECTION 8 WITH THE EFFECT THAT THE
PROCEDURE FOR CONVERTING WELLS TO WATER INJECTION
SERVICE WILL BE CONTROLLED BY RULE 701-E OF THE COMMISSION
RULES AND REGULATIONS=

J E R SELLER DIVN PROD MGR SHELL OIL COMPANY
(WESTERN DIVN) MIDLAND TEXAS==

=6 1967 3654 R-1244 8 701-E=

WU1201 (R2-65)

THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

CLASS OF SERVICE

This is a fast message unless its deferred character is indicated by the proper symbol.

WESTERN UNION

TELEGRAM

W. P. MARSHALL
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SYMBOLS

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LA103 NSB531

1967 SEP 5 PM 4:05

NS MDA106 PD=WUX MIDLAND TEX 8 330P CDT=:

=NEW MEXICO OIL CONSERVATION COMMISSION=
STATE LAND OFFICE BLDG SANTA FE NMEX=

1967 SEP 6 AM 8 42

SUBJECT - EXAMINER HEARING - SEPT 6, 1967 CASE 3654
AS AN OFFSET OPERATOR, SHELL OIL COMPANY WAIVES
OBJECTION TO THE PROPOSED EXPANSION OF MOBIL OIL
CORPORATION'S BRIDGES - STATE WATER - FLOOD PROJECT IN
THE VACUUM (GRAYBURG SAN ANDRES) FIELD, LEA COUNTY,
NEW MEXICO ALSO, SHELL OIL COMPANY WAIVES OBJECTION TO
THE PROPOSED AMENDMENT OF ORDER NO. R-1244 BY

WU1201 (R2-65)

THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

Handwritten signature
Mobil Oil Corporation

P.O. BOX 633
MIDLAND, TEXAS 79701

September 7, 1967

State Engineer
State Capitol
Santa Fe, New Mexico 87501

Attention: Mr. Frank E. Irby

MOBIL OIL CORPORATION
WATERFLOOD EXPANSION
VACUUM (GRAYBURG-SAN ANDRES) FIELD
LEA COUNTY, NEW MEXICO

Gentlemen:

Reference is made to your letter of August 31, 1967 regarding the subject waterflood expansion. You are correct in assuming that the mention of Well No. 2 is an error. This should have read Well No. 5.

Please accept our apologies for this error.

Yours very truly,

Handwritten signature of Ira B. Stitt

Ira B. Stitt
Division Operations Engineer

ADB/nab

cc: Oil Conservation Commission-Hobbs
Oil and Gas Engineering Committee-Hobbs
Sinclair Oil & Gas Company-Midland
Texaco, Inc.-Midland
Amerada Petroleum Corporation-Midland
Continental Oil Company-Hobbs
Shell Oil Company-Midland
Phillips Petroleum Company-Odessa
Oil Conservation Commission-Santa Fe

MAIN OFFICE

SEP 11 AM 8 11

DIAGRAMMATIC SKETCHES

OF

PROPOSED INJECTION WELLS

BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
Appl EXHIBIT NO. 2
CASE NO. 3654

EXHIBIT NO. 2

CASE NO. 3654

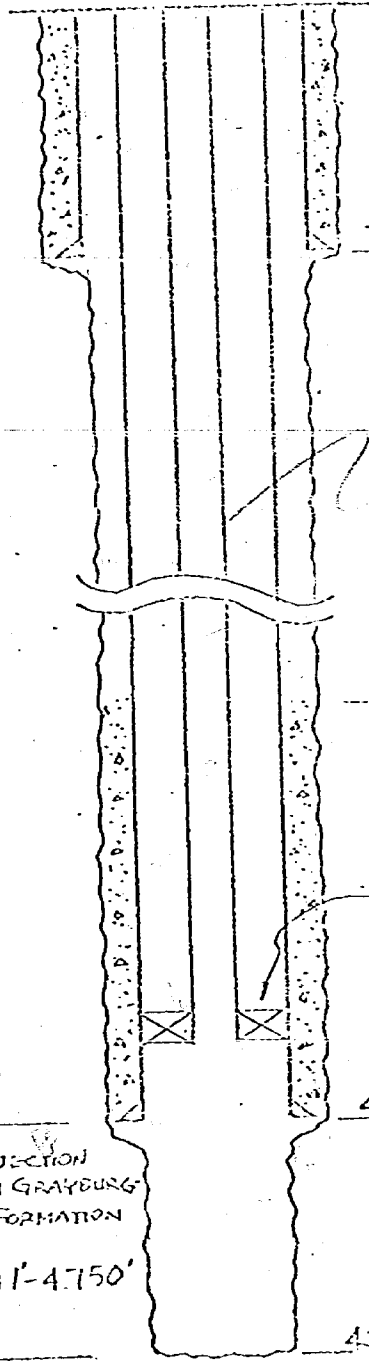
*100% = 100%
using 50% of
factor*

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ON DEMAND.

6032710-00

D.F. ELEVATION 4044'



788 10³/₄ O.D. L.W. CSG W/170 SX.

*Cement Circulated
Loc. w/
unilateral
fracture*

Calculated

TOP CEMENT ~~LEVEL~~ @ Approx. 2700'

2⁷/₈" O.D. CEMENT LINED TUBING
ON TENSION PACKER
@ Approx 4150'

4207' 7" O.D. 24" W/175 SX.

INTENDED INJECTION
ZONE, YACUMI GRAYBURG
SAN ANDRES FORMATION

OPEN HOLE 4241'-4750'

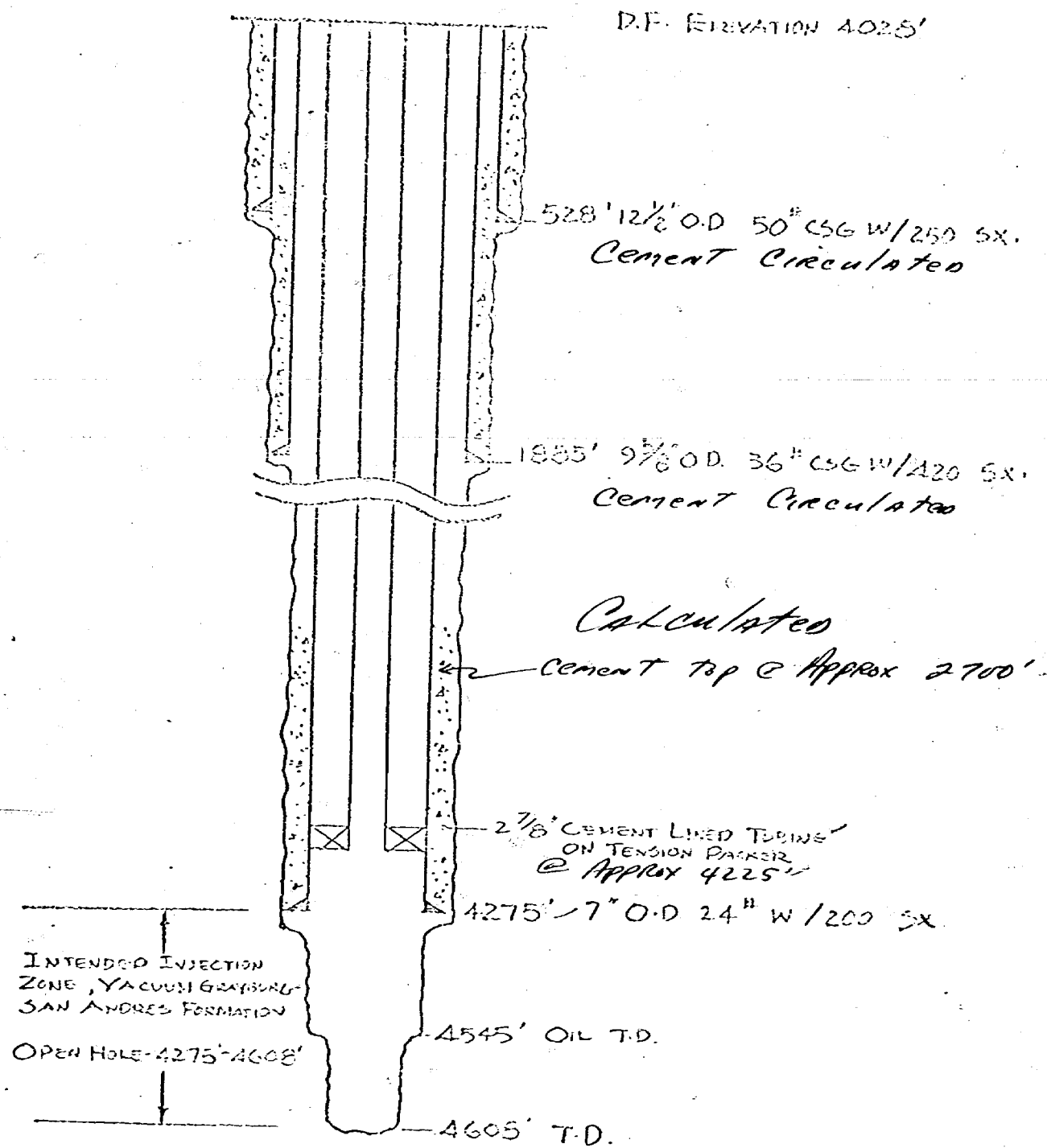
4750' I.D.

NO.	DATE	BY	ALTERATION
PROPOSED INJECTION WELL STATE "J" WELL NO. 1 EXHIBIT C			
Mobil Oil Corporation			
DRAWN	SCALE	DATE	DRG. NO.
CHECKED	DATE		

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COMPLETION



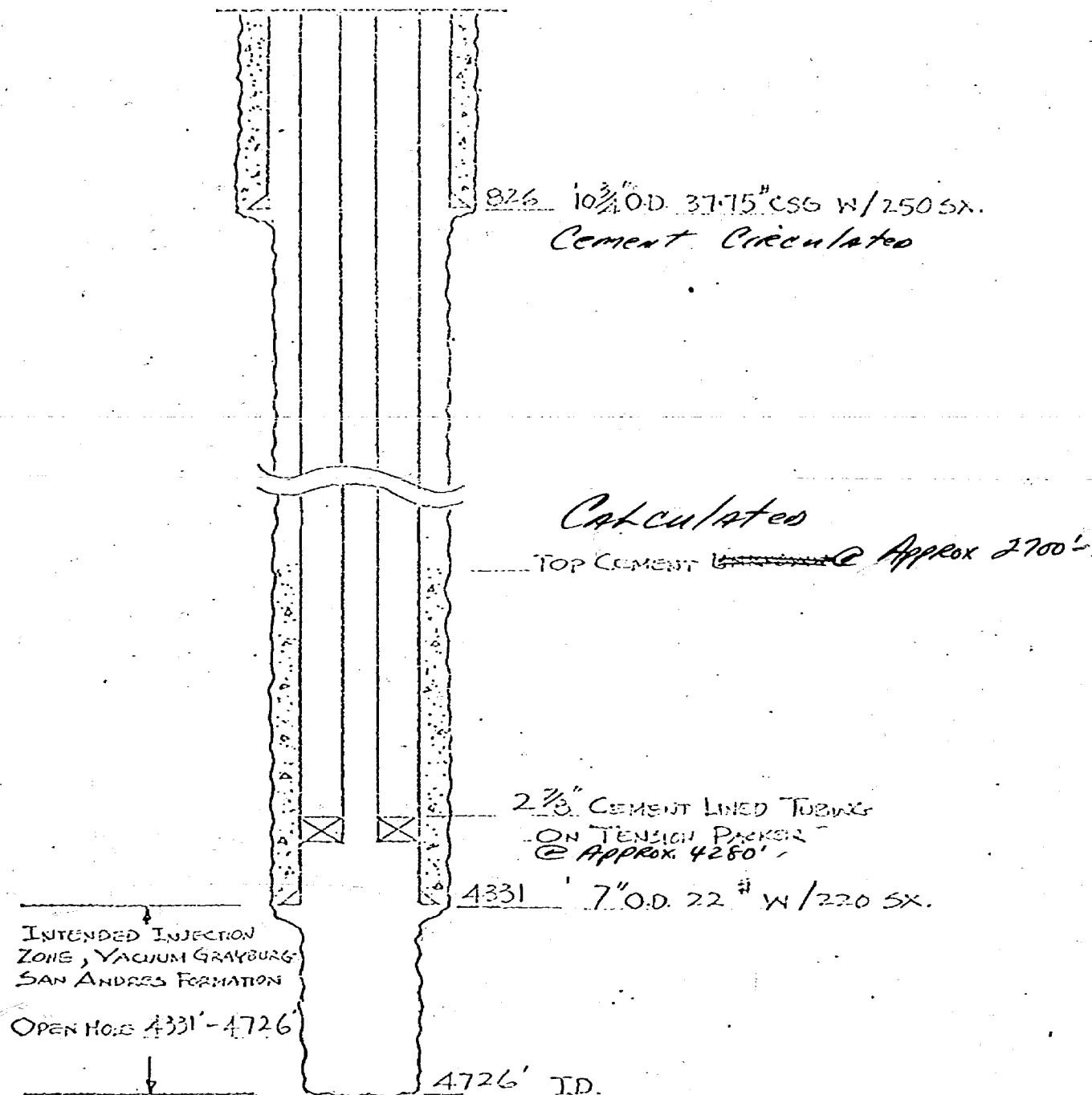
NO.	DATE BY	ALTERATION
PROPOSED INJECTION WELL BRIDGES- STATE WELL NO. 3 EXHIBIT C		
Mobil Oil Corporation		
DRAWN	SCALE	DWG. NO.
CHECKED		A

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60722715-01

D.F. ELEVATION 4026'



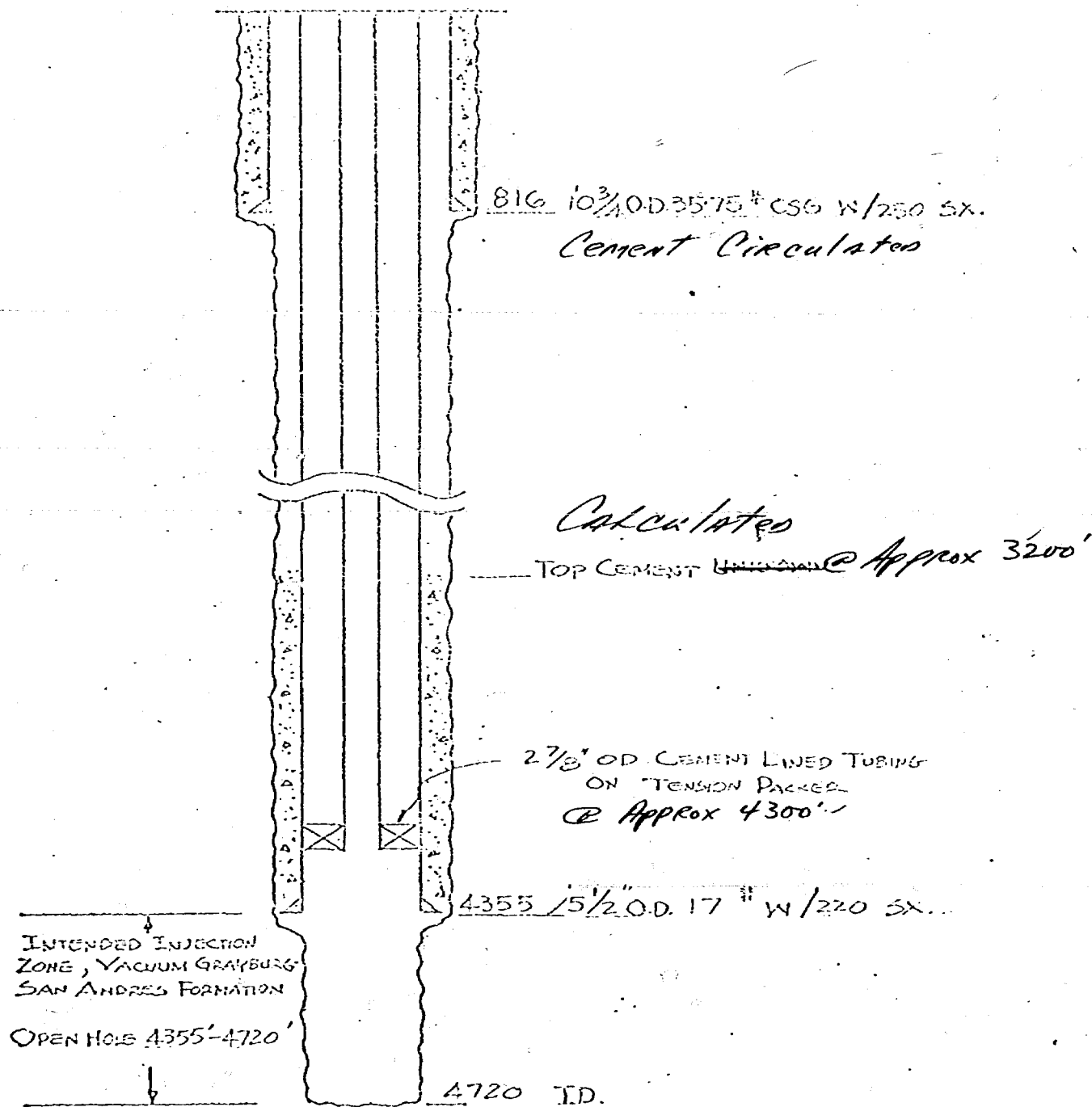
NO.	DATE	BY	ALTERATION
PROPOSED INJECTION WELL			
STATE G WELD 3			
EXHIBIT C			
Mobil Oil Corporation			
DRAWN	SCALE	D.W.S. NO.	
CHECKED	DATE	A	

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C6732715-001

D.F. ELEVATION 4051'



NO.	DATE	BY	ALTERATION
PROPOSED INJECTION WELL STATE "J" Well No 4 EXHIBIT C.			
Mobil Oil Corporation			
DRAWN		DWG. NO.	
CHECKED		SCALE	

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CG72210-00

D.F. ELEVATION 4039...

805 10³/₄" O.D. 4.8" CSO W/175 SX.
Cement circulated

Calculated

TOP CEMENT ~~IS~~ @ *Approx 2200'*

2⁷/₈" CEMENT LINED TUBING
ON TENSION PACKER
@ *Approx. 4225'*

4277' 7" O.D. 24" W/275 SX.

INTENDED INJECTION
ZONE, YACUIM GRAYBURG
SAN ANDRES FORMATION

OPEN HOLE 4277'-4750'

4750' T.D.

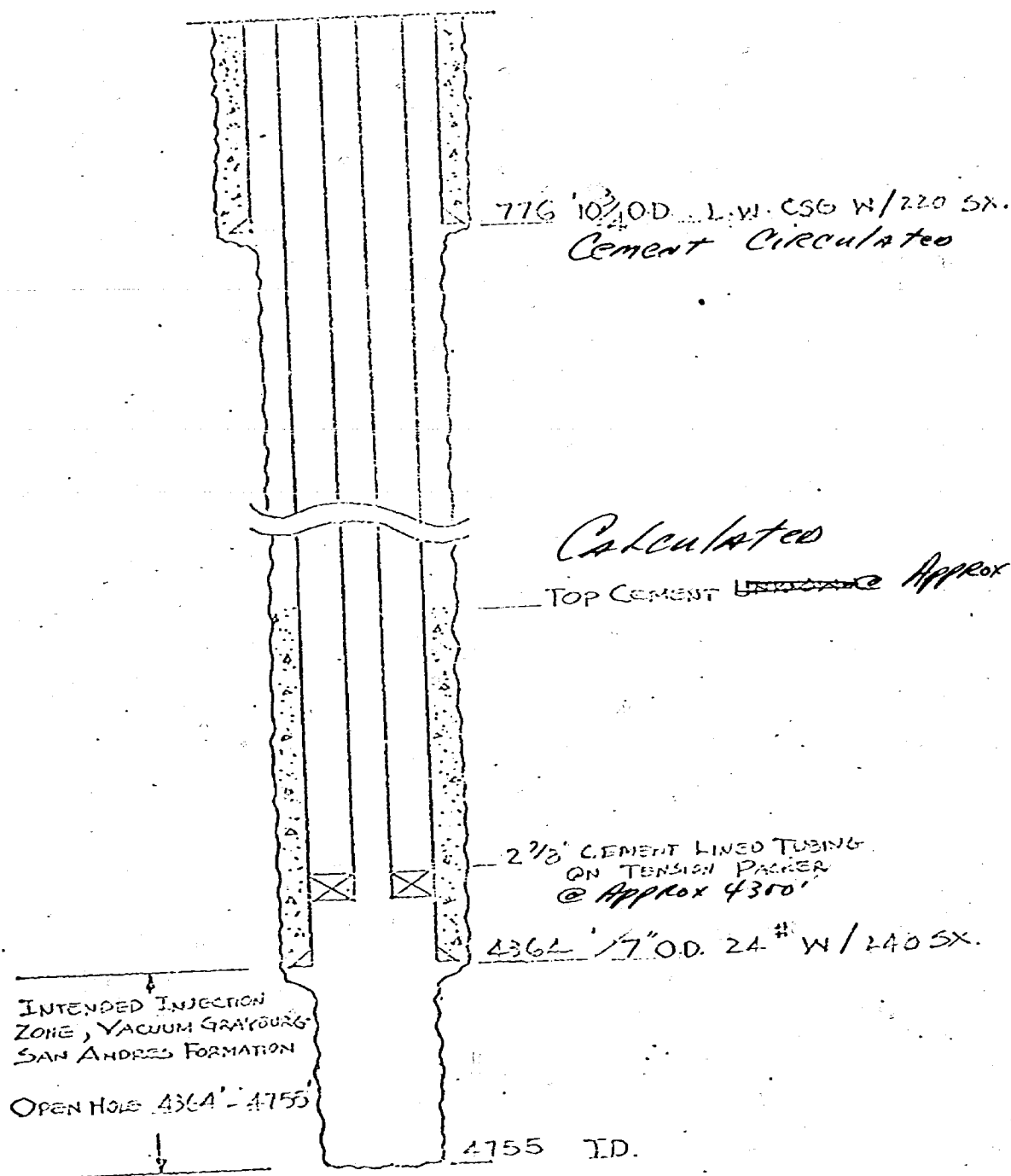
NO.	DATE	BY	ALTERATION
PROPOSED INJECTION WELL BRIDGE-STONE WELL NO 5 EXHIBIT C			
Mobil Oil Corporation			
DRAMA	SCALE		ORIG. NO.
CHECKED	DATE		

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6.6722715-553

D.F. ELEVATION 4040'



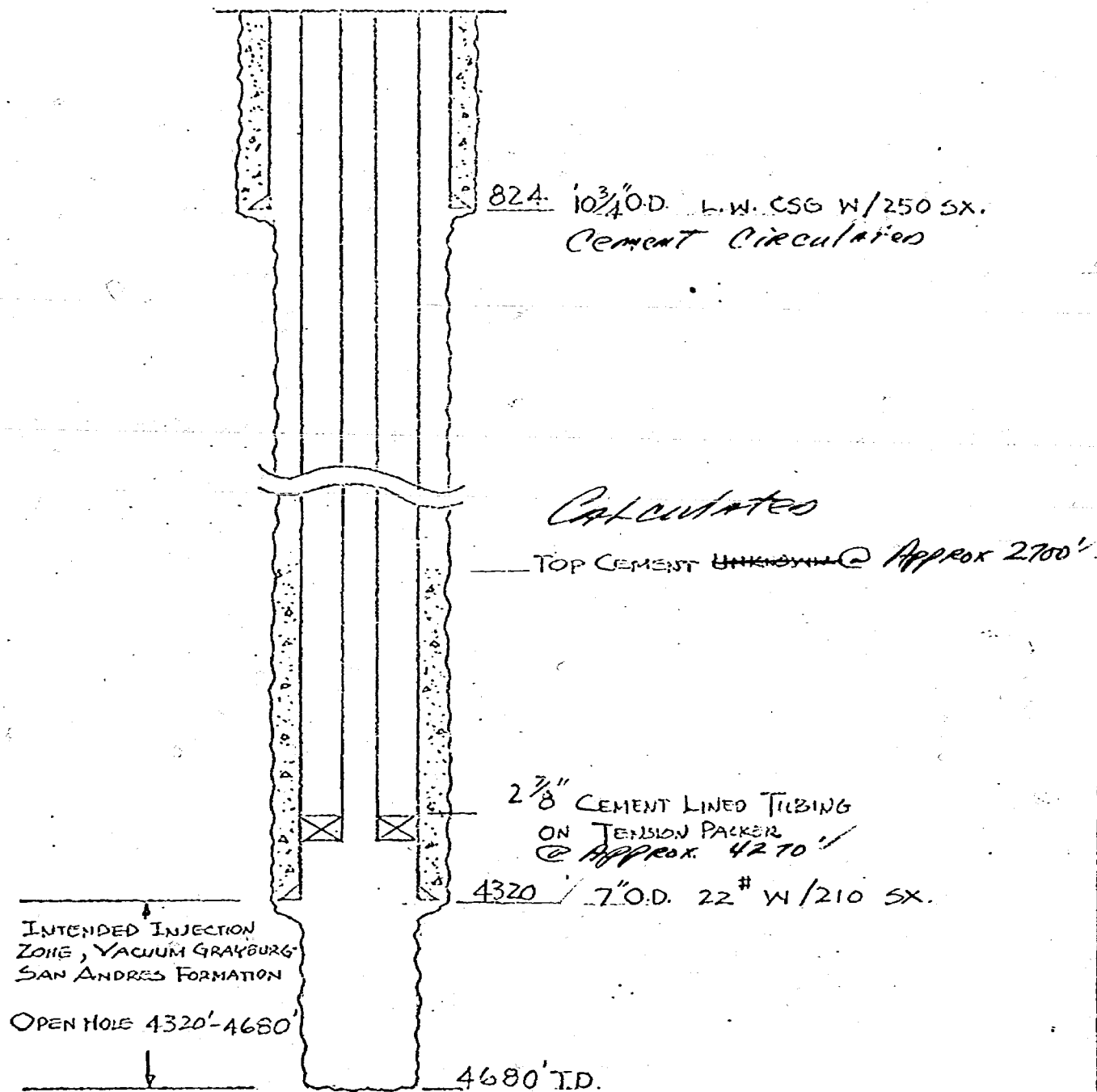
NO.	DATE	BY	ALTERATION
PROPOSED INJECTION WELL BRIDGES STATE WELL NO 6 ENIGIT C.			
MOBIL OIL CORPORATION			
DRAWN	CHECKED	SCALE	DWG. NO.
		DATE	A

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C.07227(1)-653

D.F. ELEVATION 4018'

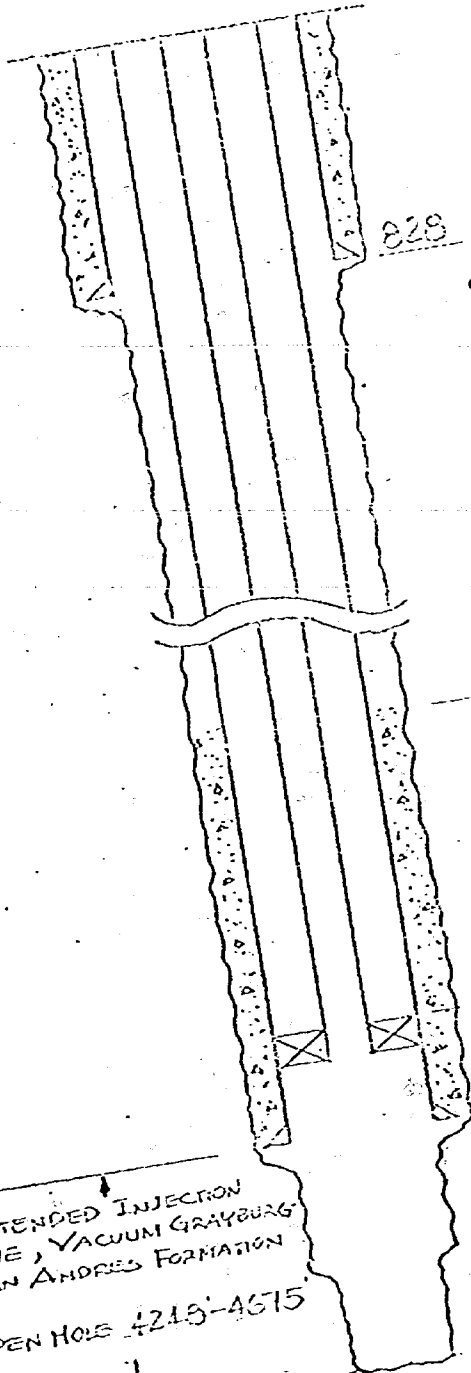


NO.	DATE	BY	ALTERATION
PROPOSED INJECTION WELL BRIDGES- STATE Well No. 47 EXHIBIT C			
Mobil Oil Corporation			
DRAWN	SCALE		DWG. NO.
CHECKED	DATE		A

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607211-001

D.F. ELEVATION 4045



828 10 3/4" O.D. 35# OHL CSG W/250 SX.
Cement Circulated

Calculated

TOP CEMENT @ Approx 2600'

2 7/8" CEMENT LINED TUBING
ON TENSION PACKER
@ Approx 4200'

4248 7" O.D. 22# W/220 SX.

INTENDED INJECTION
ZONE, VACUUM GRAYBURG
SAN ANTONIO FORMATION

OPEN HOLE 4215'-4675'

4650' OLD TD.

4675' I.D.

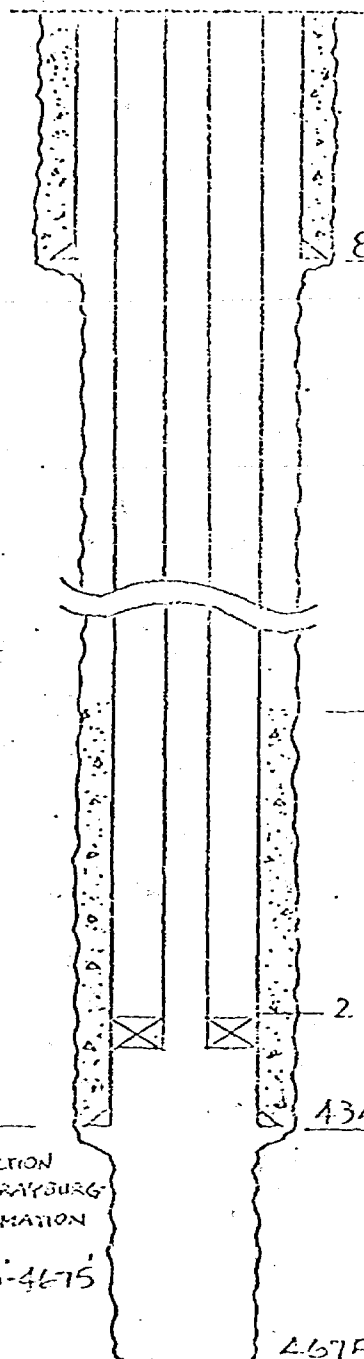
NO. DATE BY		ALTERATION	
PROPOSED INJECTION WELL BRIDGES-SAN Well No. 52 EXHIBIT C			
Mobil Oil Corporation			
DRAWN	SCALE	D.W.G. NO.	
CHECKED			

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6072715-551

D.F. ELEVATION 4020'



830 10 3/4" O.D. 35.75" CSG W/250 SX.

Cement circulated

Calculated

TOP CEMENT ~~INTERFAC~~ @ *Approx 2600'*

2 7/8" CEMENT LINED TUBING
ON TENSION PACKER
@ *Approx 4290'*

4340' 7" O.D. 22" W/220 SX.

INTENDED INJECTION
ZONE, VACUUM GRAYBURG
SAN ANDRES FORMATION

OPEN HOLES 4340-4675

4675' T.D.

NO.	DATE	BY	ALTERATION
PROPOSED INJECTION WELL BRIDGES STATE WELL NO 63 EXIST C			
MOBIL OIL CORPORATION			
DRAWN	CHECKED	SCALE	DWG. NO.
			A

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C67727(5-55)

D.F. ELEVATION 4029

827' 10 3/4" O.D. 35.75" CSG W/250 SX.
Cement Circulated

Calculated

TOP CEMENT ~~LINE~~ @ Approx 3300'

2 7/8" O.D. CEMENT LINED TUBING
ON TENSION PACKER
@ Approx 4345'

1393' 5 1/2" O.D. 17" W/210 SX.

INTENDED INJECTION
ZONE, YACUM GRAYBURG
SAN ANDRES FORMATION

OPEN HOLE 1393'-4716'

4716 Old TD.
4721' P.B.T.D.
4763' I.D.

BOTTOM HALF OF PACKER
AND 31' ANCHOR LIFTING HOLE

NO.	DATE	BY	ALTERATION
PROPOSED INJECTION WELL			
BUTLER STATE WELL NO 73			
E.W. B. C.			
Mobil Oil Corporation			
CHECKED	SCALE	DATE	DWG. NO.
			2

WATERFLOOD EXPANSION DATA

Injection will be into the

Vacuum Grayburg-San Andres Formation
at a depth range between 4241' - 4755'

Water from the Ogallala Formation will be injected at a rate of
approximately 500 BPD per well

Mobil holds water rights to 1200 acre-feet
per annum from the Ogallala Formation

BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
Apple EXHIBIT NO. 4
CASE NO. 3654

EXHIBIT NO. 4
CASE NO. 3654