

WEX-233  
Due Apr 14

# Gulf Oil Corporation

ROSWELL PRODUCTION DISTRICT

W. B. Hopkins  
DISTRICT MANAGER  
M. I. Taylor  
DISTRICT PRODUCTION  
MANAGER  
F. O. Mortlock  
DISTRICT EXPLORATION  
MANAGER  
H. A. Rankin  
DISTRICT SERVICES MANAGER

P. O. Drawer 1938  
Roswell, New Mexico 88201

March 28, 1966

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Oil Conservation Commission  
State of New Mexico  
Post Office Box 2088  
Santa Fe, New Mexico 87501

Re: Application of Gulf Oil Corporation to Expand West Pearl Queen  
Unit Waterflood Project, Lea County, New Mexico

Gentlemen:

Gulf Oil Corporation requests administrative approval to expand the West Pearl Queen Unit Waterflood Project to include Well No. 158 as an injection well.

In support of this application the attached exhibits (plat, schematic diagram, well log and C-116's) and following facts are submitted:

- (1) The West Pearl Queen Unit Waterflood Project was approved by the Oil Conservation Commission under Order No. R-2729 dated June 18, 1964.
- (2) The project was expanded under Order No. R-2886 dated March 25, 1965, to include the NW/4 of Section 28, T-19-S, R-35-E.
- (3) Water injection was initiated March 12, 1965, and all authorized injection wells were in operation by May 12, 1965.
- (4) Well No. 157, located in NE/4 SE/4 Section 31, T-19-S, R-35-E, and Well No. 151, located in SW/4 NW/4 Section 32, T-19-S, R-35-E, have experienced substantial responses to water injection. These wells are west and north direct offsets to Well No. 158. As shown on the attached C-116's, Well No. 157 (formerly Cactus' Aztec State No. 9) was capable of producing 14 BO + 7 BW on test dated 3-18-64. This well made 22 BO + 12 BW on test 2-10-66. Well No. 151 (formerly Gulf's Lea State "AQ" No. 8) tested 4 BO + 7 BW on 3-23-64, increasing to 13 BO + 10 BW on test 2-21-66.
- (5) Well No. 158 is currently operated as a low capacity Seven Rivers gas well in the East Pearl Seven Rivers gas pool.
- (6) Due to the waterflood responses in the west and north offsets to No. 158 and the low productive capacity of the Seven Rivers gas zone, Gulf, as Unit Operator, proposes to abandon the gas zone, then recomplete and equip No. 158 as a water injection well.
- (7) Well No. 158 will complete the existing 5-spot pattern in the project and allow more efficient sweep of oil by the waterflood in the southern part of the flood area.



March 28, 1966

- (8) Gulf proposes to inject approximately 300 BWPD of fresh water (Ogallala) into the open hole interval 4711 to 5030 feet in the Queen formation. Source of the water will be the water supply system jointly owned by the East and West Pearl Queen Units and operated by Shell Oil Company. This system transports water from shallow wells in Section 3, T-19-S, R-36-E, and supplies injection water to the two Pearl Queen Waterflood Projects.
- (9) Inclusion of Well No. 158 as part of the waterflood project will increase the maximum allowable for the project to 2520 BOPD under provisions of Rule 701. This is based on 42 BOPD for each of 60 wells in the project.
- (10) Copies of this application, complete with all attachments, have been sent to the State Engineer Office, Santa Fe, and to the two offset operators, Cactus Drilling Company and Phillips Petroleum Company.

Gulf believes that expansion of the West Pearl Queen Unit Waterflood Project as outlined in this application will promote conservation of oil and gas and prevent waste through more efficient waterflood operations.

Yours very truly,

GULF OIL CORPORATION



M. I. Taylor

Attachments

DGB:sz

cc: Cactus Drilling Company  
Post Office Box 1826  
Hobbs, New Mexico 88240

Phillips Petroleum Company  
Bartlesville, Oklahoma 74004

State Engineer Office  
Post Office Box 1079  
Santa Fe, New Mexico 87501

New Mexico Oil Conservation Commission  
Post Office Box 1980  
Hobbs, New Mexico 88240

NEW MEXICO OIL CONSERVATION COMMISSION

GAS-OIL RATIO REPORT

HOBBS OFFICE O. C. C.

MAY 6 4 01 PM '64

OPERATOR Gulf Oil Corporation POOL Pearl Queen  
 ADDRESS Hobbs, N.M. MONTH OF March & April, 1964, 19\_\_\_\_  
 SCHEDULED TEST 30% COMPLETION TEST \_\_\_\_\_ SPECIAL TEST \_\_\_\_\_ (Check One)  
 (See Instructions on Reverse Side)

Lease	Well No.	Date of Test	Producing Method	Choke Size	Test Hours	Daily Allowable Bbls.	Production			Top Unit
							Water Bbls.	Oil Bbls.	Gas MCF	
Lea State "AP"	1	4-14	Pump	2" WO	24	6	3	9	12.0	1,300
	2	4-15	"	"	"	14	8	14	24.0	1,734
	3	4-16	"	"	"	7	4	7	4.0	571
Lea St. "AQ"	1	3-12	"	"	"	5	3	3	5.0	1,667
	2	3-19	"	"	"	12	0	12	27.0	2,250
	3	4-6	"	"	"	15	0	8	2.0	257
	4	4-2	"	"	"	2	1	2	27.0	13,500
	5	3-31	"	"	"	16	2	16	14.0	875
	6	4-9	"	"	"	10	4	6	2.0	333
	7	3-24	"	"	"	6	3	5	6.0	1,200
	8	3-23	"	"	"	3	7	4	6.0	1,500
Lea St. "AR"	3	4-21	"	"	"	5	3	8	1.0	125
	4	4-23	"	"	"	5	18	5	1.0	200
Lea State BF	1	4-8	"	"	"	25	16	26	44.0	1,692
	2	4-6	"	"	"	15	7	17	25.0	1,471
	3	4-1	"	"	"	32	12	20	34.0	1,700
Lea St. "BG"	1	3-31	"	"	"	23	3	17	47.0	2,765
	2	3-30	"	"	"	16	2	12	28.0	2,333
	3	4-2	"	"	"	21	5	19	51.0	2,684

WPQU No. 151 →

Charts on file in this office. 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 degrees F. Specific gravity base will be 0.60.

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.

(I certify that the information given is true and complete to the best of my knowledge.)

Date 5-5-64

Gulf Oil Corporation  
Original Signature:

J. W. Davis

By \_\_\_\_\_

may

NEW MEXICO OIL CONSERVATION COMMISSION

HOBB'S OFFICE O. C. C.

GAS-OIL RATIO REPORT <sup>May 10 40 AM '64</sup> Sheet 1 of 2 Sheets

OPERATOR Cactus Drilling Company POOL Pearl Queen  
 ADDRESS P.O. Box 1826, Hobbs, N. Mexico MONTH OF March and April, 19 64  
 SCHEDULED TEST  COMPLETION TEST \_\_\_\_\_ SPECIAL TEST \_\_\_\_\_ (Check One)  
 (See Instructions on Reverse Side)

Lease	Well No.	Date of Test	Producing Method	Choke Size	Test Hours	Daily Allowable Bbls.	Production During Test			GOR Cu. Ft Per Bbl.
							Water Bbls.	Oil Bbls.	Gas MCF	
Aztec State	1	3/2	Pump		24	26	1	24	23.3	942:1
Aztec State	2	3/6	Pump		24	30	5	29	38.0	1310:1
Aztec State	4	3/9	Pump		24	30	3	28	23.3	832:1
Aztec State	5	3/13	Pump		24	26	3	23	27.1	1178:1
Aztec State	6	3/11	Pump		24	30	5	45	33.7	948:1
Aztec State	7	3/20	Pump		24	30	2	26	23.1	890:1
Aztec State	8	3/15	Pump		24	30	8	40	40.1	1002:1
Aztec State	9	3/18	Pump		24	15	7	14	7.8	560:1
<i>WPQU NO. 157</i> Featherstone Fed	2	3/27	Pump		24	39	4	38	18.6	488:1
Featherstone Fed	3	3/23	Pump		24	38	5	36	16.8	465:1
Gulf State A	1	4/3	Pump		24	14	3	10	13.1	1310:1
Gulf State A	2	4/1	Pump		24	19	1	16	21.4	1335:1
Gulf State A	3	3/29	Pump		24	15	2	12	22.3	1860:1
Gulf State A	4	4/21	Pump		24	18	3	15	24.2	1610:1

(Continued)

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 degrees F. Specific gravity base will be 0.60.

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.

(I certify that the information given is true and complete to the best of my knowledge.)

Date April 30, 1964

CACTUS DRILLING COMPANY

By Geo. W. Baker

Vice President

Title



STATE OF NEW MEXICO

STATE ENGINEER OFFICE

SANTA FE

S. E. REYNOLDS  
STATE ENGINEER

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

April 7, 1966

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

Dear Mr. Porter:

Reference is made to the application of Gulf Oil Corporation dated March 28, 1966 which seeks approval to expand the West Pearl Queen Unit Waterflood Project in Lea County by converting well No. 158 in the NW $\frac{1}{4}$ SW $\frac{1}{4}$  Sec. 32, T. 19 S., R. 35 E., to an injection well.

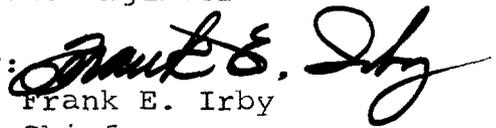
I have reviewed the application and the diagrammatic sketch of the subject well and find no serious deficiencies.

This office offers no objection to the granting of the application provided the perforations of the 7 inch casing above the packer setting are successfully pressure-tested and will not allow commingling of any fluids or gases penetrated by the well, and further provided that the packer on the end of the 2 3/8 inch internally plastic coated tubing is set well below the perforations in the 7 inch casing and well below the top of the cement in the annulus behind the 7 inch casing.

FEI/ma  
cc-Gulf Oil Corp.  
F. H. Hennighausen

Yours truly,

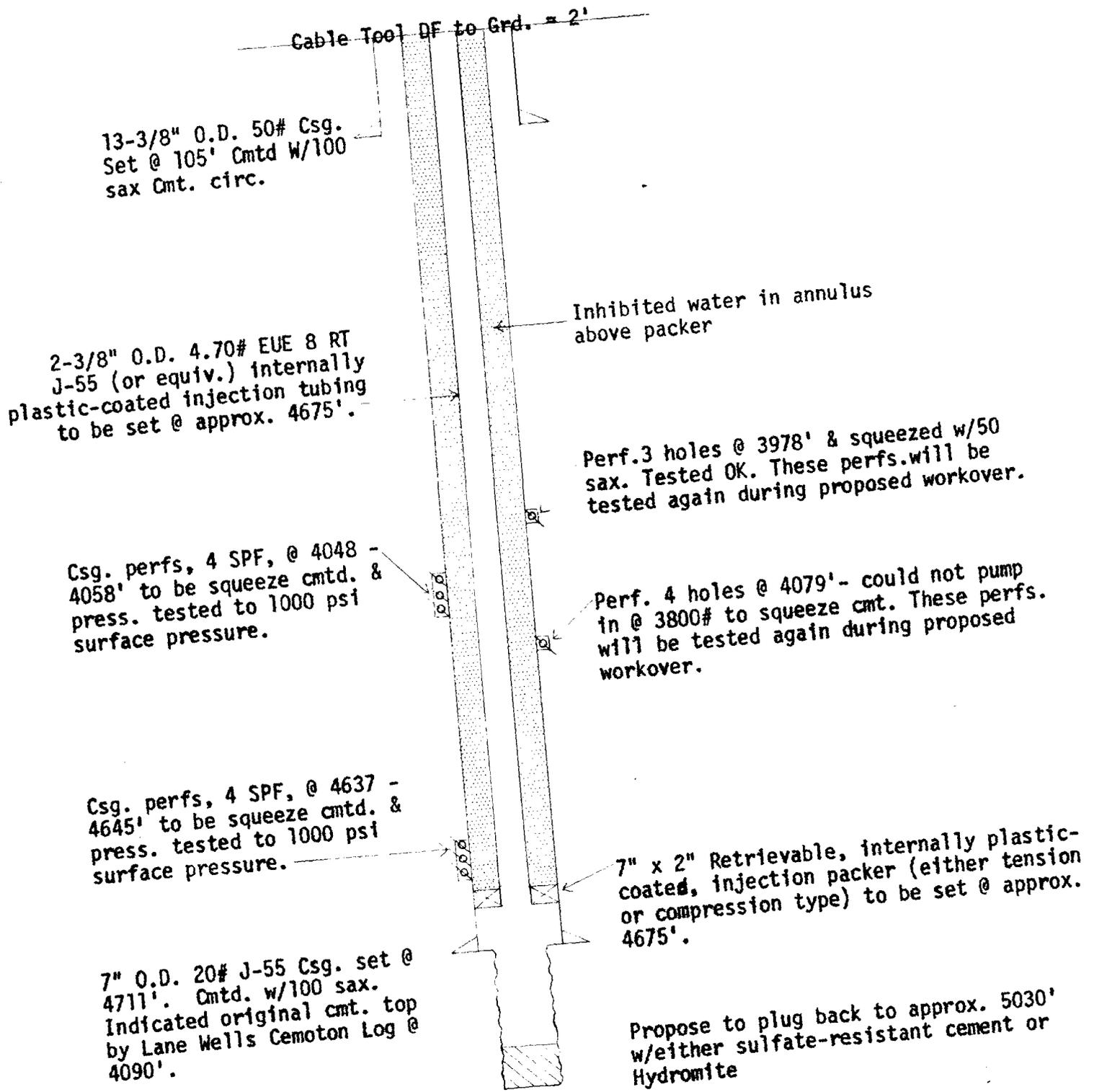
S. E. Reynolds  
State Engineer

By:   
Frank E. Irby  
Chief  
Water Rights Div.

LARGE FORMAT  
EXHIBIT HAS  
BEEN REMOVED  
AND IS LOCATED  
IN THE NEXT FILE

SCHEMATIC DIAGRAM  
 PROPOSED CONVERSION TO INJECTION STATUS  
 WEST PEARL QUEEN UNIT NO. 158  
 NW/4 SW/4 SECTION 32-19S-35E  
 LEA COUNTY, NEW MEXICO

GRD. ELEV. = 3720'



13-3/8" O.D. 50# Csg.  
 Set @ 105' Cmtd W/100  
 sax Cmt. circ.

2-3/8" O.D. 4.70# EUE 8 RT  
 J-55 (or equiv.) internally  
 plastic-coated injection tubing  
 to be set @ approx. 4675'.

Csg. perfs, 4 SPF, @ 4048 -  
 4058' to be squeeze cmtd. &  
 press. tested to 1000 psi  
 surface pressure.

Csg. perfs, 4 SPF, @ 4637 -  
 4645' to be squeeze cmtd. &  
 press. tested to 1000 psi  
 surface pressure.

7" O.D. 20# J-55 Csg. set @  
 4711'. Cmtd. w/100 sax.  
 Indicated original cmt. top  
 by Lane Wells Cemoton Log @  
 4090'.

Inhibited water in annulus  
 above packer

Perf. 3 holes @ 3978' & squeezed w/50  
 sax. Tested OK. These perfs. will be  
 tested again during proposed workover.

Perf. 4 holes @ 4079' - could not pump  
 in @ 3800# to squeeze cmt. These perfs.  
 will be tested again during proposed  
 workover.

7" x 2" Retrievable, internally plastic-  
 coated, injection packer (either tension  
 or compression type) to be set @ approx.  
 4675'.

Propose to plug back to approx. 5030'  
 w/either sulfate-resistant cement or  
 Hydromite

T.D. (Driller) = 5077'

T.D. (Logged) = 5077'

Open hole size approx. 6-1/4"

WEST PEARL QUEEN UNIT  
WELL NO. 158



Radioactivity  
Log

COMPANY: CACTUS DRILLING COMPANY

WELL: PHILLIPS STATE #02 NO. 2

FIELD: PEARL QUEEN

LOCATION: 2310' FSL & 330' FSL OF SEC. 32  
T-19-S, R-35-E

COUNTY: LRA STATE: N. MEX.

LOG ZERO: CABLE TOOL FLOOR ELEV. 3722  
DRLG. ZERO: CABLE TOOL FLOOR ELEV. 3722  
PERM. DATUM: GROUND LEVEL ELEV. 3720

PE OF LOG	GAMMA RAY	N/NEUTRON
N NO.	ONE-IN	ONE-IN
DATE	6-23-59	6-23-59
TOTAL DEPTH (DRILLER) - IN.	5077	5077
EFFECTIVE DEPTH (DRILLER)	5077	5077
DEPTH OF LOGGED INTERVAL	SURFACE	SURFACE
DEPTH OF LOGGED INTERVAL	5064	5076
PE OF FLUID IN HOLE	WATER	WATER
WELL LEVEL		5000
MINIMUM RECORDED TEMP		5104.3
FORCE STRENGTH & TYPE		13.5
FORCE SPACING - IN.		
RECTOR CLASS	SCINT.	SCINT.
RECTOR TYPE	DMC1	DMC1
LENGTH OF MEAS. DEVICE - IN.	4	4
LENGTH OF INSTRUMENT - IN.	3 5/8	3 5/8
TIME CONSTANT - SECONDS	2.0-0.9	2.0-0.9
LOGGING SPEED FT./MIN.	30-60	30-60
STATISTICAL VARIATION - IN.	RECORDED	RECORDED
ACTIVITY REFERENCE	CS33	DM64
RECORDED BY	DICKMORTH	DICKMORTH
FINISHED BY	BAKER & DAVIS	

WELL RECORD

IN	BIT SIZE	CASING	WT.-LB.	FROM WELL RECORD	FROM LOG
IN	3 3/8			SURFACE TO 105	SURFACE TO 105
IN	7	20		SURFACE TO 4710	SURFACE TO 4702.5
IN	6 1/2			4710 TO 5077	4702.5 TO 5077

REMARKS OR OTHER DATA

Reproduced By  
West Texas Electrical Log Service

Dallas 2, Texas

REFERENCE A8945B

9 COMPLETION RECORD

SPUD DATE \_\_\_\_\_

COMP DATE \_\_\_\_\_

DST RECORD \_\_\_\_\_

CASING RECORD \_\_\_\_\_

PERFORATING RECORD \_\_\_\_\_

ACID. FRAC SHOT \_\_\_\_\_