

CASE 4114: Application of GULF
FOR TWO UNORTHODOX OIL WELL LOC-
ATIONS & AMEND ORDER R-2729.

Case Number.

4/1/4

Application

Transcripts.

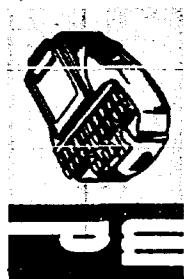
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SPECIALIZING IN: DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS

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BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
April 23, 1969

EXAMINER HEARING

IN THE MATTER OF:

Application of Gulf Oil
Corporation for two unorthodox
oil well locations and amendment
to Order No. R-2729, Lea County,
New Mexico.

Case No. 4114

BEFORE: Elvis A. Utz, Examiner.

TRANSCRIPT OF HEARING

MR. UTZ: Case No. 4114.

MR. HATCH: Application of Gulf Oil Corporation for two unorthodox oil well locations and amendment to Order No. R-2729, Lea County, New Mexico.

MR. CASTLER: I am Bill Castler from Roswell, New Mexico, appearing on behalf of Gulf Oil Corporation, and Mr. Don G. Bilbrey will be our only witness.

(Witness sworn)

MR. UTZ: Any other appearances? You may proceed.

DON G. BILBREY

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

DIRECT EXAMINATION

BY MR. CASTLER:

Q Please state your name and address.

A Don G. Bilbrey. And I live at 1201 West McGaffey, in Roswell, New Mexico.

Q By whom are you employed and in what capacity?

A By Gulf Oil Corporation and I am a senior petroleum engineer, and I've worked, for the last six years, in the Roswell district, in the Reservoir

Engineering Section.

Q Are you familiar with this case in Case No. 4114?

A Yes, I am.

Q Have you previously appeared before the Examiner Hearings of the New Mexico Oil Conservation Hearings and qualified as an expert petroleum engineer?

A Yes; several times.

MR. CASTLER: Are Mr. Bilbrey's qualifications acceptable?

MR. UTZ: Yes, they are.

MR. CASTLER: Mr. Bilbrey, will you please state the purpose of this hearing?

A Yes. As operator of the West Pearl Queen Unit, Gulf is requesting permission to drill and complete two infill producing wells at unorthodox locations inside the West Pearl Queen Unit Waterflood Unit. We are also asking for a minimum of Order No. R-2729, authorizing the waterflood project, to allow for administrative approval of such application in the future.

Q The administrative approval of the unorthodox locations?

A Right.

Q Where is the West Pearl Queen Unit located?

A It's located in the Southwest Part of Township 19 South, Range 35 East, in Lea County, New Mexico. And is outlined in yellow on Exhibit 1; the plat.

Q When were the Unit and the Waterflood project authorized?

A The Unit was authorized by the commission under Order No. R-2728, dated June 18, 1964. The Flood Project was authorized under Order No. R-2729, also dated June 18, 1964.

Q When was the Flood Project put into operation?

A The initial water injection was the early part of 1965, and since that time, nearly 14,000 barrels water have been injected into the Queen formation, at a depth of, approximately, 5,000 feet under the unit area. As a result, two-and-a-quarter million barrels of secondary oil have been recovered today.

MR. UTZ: How much?

THE WITNESS: Two-and-a-quarter million.

MR. CASTLER: Gulf is requesting permission

to drill two infill wells in the project area.

Q Are these the first such wells to be drilled in the West Pearl Queen Unit?

A No; these would be the second and third infill wells to be drilled, by Commission Order No. R-3572, dated November 19, 1968. Gulf was given permission to drill a producing well at an unorthodox location five feet from the north line, fifteen feet from the west line of Section 33 of 19 South, 35 East. And this is Well 163, which is shown on Exhibit Number 1 as a red triangle. It was drilled approximately midway between two infill wells; 125 and the 140, and two producing wells; the 126 and the 141.

Q When and how was Well 163 completed?

A The well was completed in December 30th, 1968, and Exhibit Number 2 is a copy of the gamma-ray sonic log through the completion interval. It was drilled through the three main producing zones being flooded to a total depth of 5,020 feet. After the casing was set, the prepays were perforated, acidized, and then fractured. And on initial potential test, the well flowed 240 barrels of oil, 216 barrels of water for twenty-four hours. On January 13th, pumping equipment was installed, and increasing the well's productive capacity

to 390 barrels of oil and 318 barrels of water per day.

Q Has the production held up on this well?

A On the last well test, which was taken April 21st, the 163 was charging forty barrels of oil and 373 barrels of water per day. Although, this represents a 150 barrels per day decrease in oil production from its maximum rate, it still has the highest rate of any well in the unit at this time. In the nearly four months since its completion, the 163 has produced right at 32,000 barrels of oil.

Q What affects has the completion of this infill well had on the two off-set producers?

A I would like to refer to Exhibit Number 3. This is well test data for Well Number 126 and 141, and the infill well, itself, of 163. There has apparently been no or little effect, it has been felt, on Well Number 126. The oil production has declined from a 170 barrels of oil per day, in December of '68, to 153 in April of '69. This is essentially, a continuation of its established decline, and total fluid production has actually increased, slightly, during this period, from 347 barrels of fluid per day to 373.

Q Is this true, also, of the off-setting well,

number 141?

A So far the affects of this well have been somewhat more difficult to determine. But in general, the well has been an outstanding performer, as shown by the curve. However, it does have a scale problem; calcium-sulphate scale, which is prevalent in Pearl Queen. Which in the past, has drastically affected the productive capacity as shown in the well test data. The 141 was given a scale treatment in November of 1968 and, as shown by the curve, the treatment was very successful, increasing oil production from 200 barrels of oil a day to 360 barrels of oil a day. This had dropped to 316 barrels a day, by the time 163 was completed. Since then, total fluid, most of which is oil, has continued to drop rather fast. This rather steep decline could be caused by the formation of, or reformation of the scale, as it has in the past, or it could be caused by the withdrawal of the 163. A scale treatment in March this year was not nearly so successful as the one in November. So, it is quite possible that a portion of the wells dropped in production from 316 barrels of oil per day, and early January, 280 barrels a day, and April -- as a direct

result of the interference from the 163.

Q Can you say that the conclusion of well number 163 has added appreciably to the oil recovery in this particular area?

A I personally believe it has, in spite of its personal effects on this Well Number 141. Based on individual well tests taken in early April, the three wells; the 126, the 141, and the 163 were capable of producing a combined total of 150 to 200 barrels of oil per day, in excess of the total oil, which we estimate that wells 126 and 141, alone, would have been capable of producing, if the 163 had not been drilled. Exactly how much of this 32,000 barrels of oil already produced from the 163 would have been left unrecovered in the reservoir, if the well had not been drilled -- it's impossible to say. It's too early to make that determination.

Q Well, due to the success of the first infill well, Gulf now wants to drill more? Is that correct?

A Yes. The results of 163 have been exceptionally good, however, complete evaluation of the effects on the off-set well have been clouded somewhat by these scale treatments on the 141, which we mentioned previously.

We would now like to step out to other parts of the project area and establish, hopefully, that similar results can be obtained elsewhere by infill drilling, and to give us two more observation areas for better evaluation and more complete evaluation of the infill program.

Q Where will these two wells be located? You might refer to Exhibit Number 1 there.

A Looking at Exhibit 1, again, Well Number 164 will be located 1325 feet from the north line and 2635 feet from the west line of Section 32. And Well 165 will be 1420 from the south line and 1320 from the west line of Section 29, both being in Township 19 South, Range 35 East. These two locations are spotted on Exhibit 1 as red circles.

Q Why were these particular locations chosen?

A The site of the 164 was chosen because of the similarity to the site of 163. It's in an area of better than average primary recovery and an area that has had a very good flood response. It is close to wells with very good production rates, and the reservoir sands are relatively thick in this area. Water input and fluid production are essentially in balance, and insuring a high reservoir pressure at the infill

location. It is my understanding, that no reconditioning work has been performed recently on these two off-set producers to the proposed location, nor any schedule. This would allow for valid interpretation of any effects of withdrawals Well 164 might have on these two wells.

Q And how about Well 165?

A The location of this well was chosen for somewhat different reasons, while this is an area, also, of better than average primary recovery, with a fairly thick pay section, also, flood response has been only fair, at best. The ratio of fluid withdrawals to fluid injection is below average in this area. And in addition, the productivity capacity of the two off-setting producers apparently average about fifty barrels a day per well -- considerably less than those off-setting the 163 and our proposed 164. By obtaining a good infill completion in a so-called lesser response area, and an area approaching completion, such as this one, we hope to satisfy ourselves that significant oil reserves are being added by infill drilling in the West Pearl Queen Unit; enough, at least, to economically justify completion of the program.

Q How were your proposed Wells 163 and 164

be completed if this application is approved?

A 164 and 165 --

Q Pardon me.

A They would be completed similar to the 163, which is a pretty standard completion for the West Pearl Queen Unit. We'll drill through the sandstone stringers being flooded, set casing, perforate, acidized, and then frac treated.

Q All right. Do you intend to take course?

A No.

Q Has Gulf received approval from its partners in the West Pearl Queen Unit to drill these two wells?

A Yes; both AFE's have already been approved by the working interest owners.

Q If these infill wells are successful, what then, do you foresee for the future?

A Well, if these two wells are anywhere nearly as successful as the 163, and the number 163, itself, continues to hold up, I imagine there will be a demand by working interest owners for a stepped-up infill drilling program in the West Pearl Queen Unit. There are a number of prospective infill locations inside the unit boundary,

and I would think that Gulf and his partner would want to start drilling the better ones as quickly and as fast as possible, once it is clearly established that enough additional oil is being recovered to economically justify the infill wells.

Q To facilitate any expanded drilling program, or infill drilling program, it would be advantageous if future infill wells, at unorthodox locations, in the West Pearl Queen Unit, could be approved administratively rather than through Hearings before the Commission; would it not?

A It would, and in that regard, we are requesting that Order No. R-2729, authorizing the West Pearl Queen Unit waterflood project, be amended to allow for such approval.

Q If the order were amended to provide for administrative approval of future infill wells, then what provisions would Gulf like to see incorporated in such a rule?

A We would like to see the following points incorporated: First, wells to be drilled at unorthodox locations, could be either injection wells or producing wells; which ever might be necessary to complete an

efficient flood pattern. Second, wells would be drilled no closer than 990 feet to the outer boundary of the unit. Third, infill wells would be located no closer than five feet to any quarter quarter section or subdivision boundary. Fourth, application for an injection well, at an unorthodox location, would be filed in accordance with rule 701-B of the commission rules and regulations with a copy of that application to be sent to all off-set operators. Now, these applications would not amount to expansion of the water flood projects, and since the entire unit has experienced a substantial response, the showing of well responses, as required by rule 701-E5, should not be necessary before administrative approval could be obtained for conversion of additional wells to water injection at either orthodox or unorthodox locations.

Q Would you like to add anything in support of this application?

A Yes. In a hearing for Well 163, which was held in November of 1968, under Case Number 3927, our testimony dealt rather extensively with why we thought the Pearl Queen Reservoir, as a result of water flooding, lent itself to an economic infill drilling program.

At that time, we told the Commission that the volumetric sweep efficiency, under the eighty-acre five-spot pattern, is less than ideal and that a large amount of secondary oil would possibly be left in the reservoir when the project is abandoned, unless some of the project area is infill. The completion and observation of 163 has not changed our opinion on this. We still believe these infill wells will add to the ultimate recovery of the Pearl Queen Reservoir. I would like to emphasize, however, that the infill wells, at the closest spacing, which we are requesting -- in other words, Pearl Queen, are beneficial only because of the artificial repressuring of the reservoir through water injection. We are in no way questioning the forty acre spacing for the primary development, since we believe the forty-acre spacing has been adequate for drainage and recovery of the primary reserves. And we don't want to imply, either, that every eighty-acre five-spot water flood project should be infill. Each project should stand on its own merit after detailed engineering and geological studies have been made.

Q Do you believe this application to be in the interest of conservation and in the prevention of waste?

A Yes, I certainly do.

Q Would its approval, in your opinion, impair correlative rights at large?

A No.

Q Were Exhibits 1, 2, and 3, that you identified and testified to, prepared by you or at your direction and under your supervision?

A Yes, they were.

MR. CASTLER: I would like to move that Exhibits 1, 2, and 3 be admitted in evidence.

MR. UTZ: Without objection, Exhibits, 1, 2, and 3 will be entered into the record in this case.

MR. CASTLER: This concludes the direct testimony.

CROSS EXAMINATION

BY MR. UTZ:

Q I gather from your testimony, Mr. Bilbrey, you are not giving a blanket endorsement to allow spacing in this case; in this case, it works pretty good, doesn't it?

A It has so far; especially as far as rate goes. We still don't have enough evidence, or we haven't produced the wells -- or this particular well --

to establish exactly how much oil we are going to get because of this -- additional oil, I'm talking about.

Q What kind of bottom hole pressure do you think you have on this?

A The original bottom hole pressure in the reservoir was 1776 pounds. I wouldn't be surprised -- if the reservoir, is not 3,000 pounds, now. We were able to flow 450 barrels of fluid, there, for a couple of weeks after we drilled this well -- half of it, water.

Q What kind of a pay section do you have?

A Well, let's see. Where we planned to drill the 164 -- where we drilled the 163, between the three sand sections that we perforated, we had around thirty feet pay; net pay. The 164; will probably have something less than that -- in the neighborhood of twenty-five feet. And in the 165, a little less than that -- maybe twenty feet.

Q This is pretty clean sand?

A Yes; it's very good -- porosity around seventeen or eighteen per cent -- very good, clean section.

Q Now, your proposed locations are here on both

of these wells; five feet from the inner boundary. Does it make any particular difference, if it's five feet or ten feet?

A It certainly would not. We got five feet on the 163, and that's why we used it here. Ten feet wouldn't make that much difference. The reason why we are proposing 990 from the boundary -- our normal location, without putting wells right on the boundary line, itself, would be 1320. But we've had some problems with roads, highlines, fences, et cetera, out there, and we would like to give ourselves a little leeway for spacing these wells when the time comes.

Q From the outer boundary, you mean the outer boundary from --

A The outer boundary of the unit; right.

Q This is a forty acre space pool; isn't it?

A Yes. Now, we could live with 330 from the boundary, and 650 between wells, and such, without any doubt. We didn't want to cause any consternation with our off-set operator on the east Pearl Queen. Anything any closer than that, would have to be with Shell's approval, and we can handle that by an additional hearing, possible, without any trouble --

once we got together with Shell, if they decided -- or if we decided first that the infill program was justified.

MR. UTZ: Any other questions of the witness?

You may be excused. The case will be taken under advisement.

I N D E X

<u>WITNESS</u>	<u>PAGE</u>
Don G. Bilbrey	
Direct examination by Mr. Castler	2
Cross examination by Mr. Utz	15

EXHIBITMARKEDOFFERED AND
ADMITTED

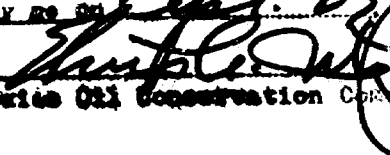
Applicant's
Exhibits 1, 2
and 3

15

STATE OF NEW MEXICO)
COUNTY OF BERNALILLO) ss

I, CA FENLEY, Court Reporter 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.


CA FENLEY - COURT REPORTER

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 23, 1969 heard by me on  Examiner
New Mexico Oil Conservation Commission

OIL CONSERVATION COMMISSION

P. O. BOX 2088

SANTA FE, NEW MEXICO 87501

May 20, 1969

Mr. Bill Kastler
Gulf Oil Corporation
Post Office Box 1938
Roswell, New Mexico 88201

Dear Sir:

Reference is made to Commission Order No. R-2729-A, recently entered in Case No. 4114, approving the drilling of two additional producing wells in the West Pearl Unit Waterflood Project at unorthodox locations.

Our calculations indicate that when these two wells have been placed on production, this unit will have 63 40-acre tracts in the waterflood project area plus three extra wells for a total maximum allowable which the project will be eligible to receive under the provisions of Rule 701-E-3 of 2688 barrels per day when the Southeast New Mexico normal unit allowable is 42 barrels per day or less.

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/ir

cc: Oil Conservation Commission
Hobbs, New Mexico



OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO

P. O. BOX 2088 - SANTA FE

87501

May 5, 1969

GOVERNOR
DAVID F. CARGO
CHAIRMAN

LAND COMMISSIONER
ALEX J. ARMijo
MEMBER

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

Mr. Bill Kastler
Gulf Oil Corporation
Post Office Box 1938
Roswell, New Mexico
88201

Re: Case No. 4114
Order No. R-2729-A
Applicant:
Gulf Oil Corporation

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

Copy of order also sent to:

Hobbs OCC X
Artesia OCC
Aztec OCC
State Engineer X

Other

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. 4114
Order No. R-2729-A

APPLICATION OF GULF OIL CORPORATION
FOR TWO UNORTHODOX OIL WELL LOCATIONS
AND AMENDMENT TO ORDER NO. R-2729,
LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on April 23, 1969,
at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this 5th day of May, 1969, 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, Gulf Oil Corporation, is the opera-
tor of the West Pearl Queen Unit Waterflood Project, West Pearl
Queen Unit Area, Pearl-Queen Pool, Lea County, New Mexico,
approved by Commission Order No. R-2729.

(3) That the applicant now seeks authority to drill two
producing oil wells as infill wells in its West Pearl Queen Unit
Waterflood Project at unorthodox locations in Township 19 South,
Range 35 East, NMPM, Pearl-Queen Pool, Lea County, New Mexico,
said wells to be located as follows:

West Pearl Queen Unit Well No. 164 to be located
in Unit F 1325 feet from the North line and 2635
feet from the West line of Section 32;

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CASE No. 4114

Order No. R-2729-A

West Pearl Queen Unit Well No. 165 to be located in Unit K 1420 feet from the South line and 1325 feet from the West line of Section 29.

(4) That the proposed unorthodox locations are necessary to complete an efficient oil producing pattern.

(5) That the applicant further seeks the amendment of said Order No. R-2729 to provide for the establishment of an administrative procedure whereby the Secretary-Director of the Commission may authorize additional injection wells and producing wells at orthodox and unorthodox infill locations as may be necessary to complete an efficient injection and producing pattern without the necessity of showing well response.

(6) That approval of the aforesaid amendment will afford the applicant the opportunity to produce its just and equitable share of the oil in the Pearl-Queen Pool, and will otherwise prevent waste and protect correlative rights, provided said producing wells and injection wells are drilled no closer than 990 feet to the outer boundary of said West Pearl Queen Unit nor closer than 5 feet to any quarter-quarter section or subdivision inner boundary.

(7) That the West Pearl Queen Unit Waterflood Project should be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations; provided, however, that the showing of well response as required by Rule 701 E-5 shall not be necessary before obtaining administrative approval for the conversion of additional wells to water injection.

IT IS THEREFORE ORDERED:

(1) That the applicant, Gulf Oil Corporation, is hereby authorized to drill the following producing oil wells as infill wells in its West Pearl Queen Unit Waterflood Project, West Pearl Queen Unit Area, Pearl-Queen Pool, at unorthodox locations in Township 19 South, Range 35 East, NMPM, Lea County, New Mexico.

West Pearl Queen Unit Well No. 164 to be located in Unit F 1325 feet from the North line and 2635 feet from the West line of Section 32;

West Pearl Queen Unit Well No. 165 to be located in Unit K 1420 feet from the South line and 1325 feet from the West line of Section 29.

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CASE No. 4114

Order No. R-2729-A

(2) That Order (2) of Commission Order No. R-2729 is hereby amended to read in its entirety as follows:

"(2) That the West Pearl Queen Unit Waterflood Project shall be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations;

PROVIDED HOWEVER, that the Secretary-Director of the Commission may approve such additional injection and producing wells at orthodox and unorthodox infill locations as may be necessary to complete an efficient injection and producing pattern, provided said wells are drilled no closer than 990 feet to the outer boundary of said West Pearl Queen Unit nor closer than 5 feet to any quarter-quarter section or subdivision inner boundary, and provided that the application therefor has been filed in accordance with Rule 701 B of the Commission Rules and Regulations. The showing of well response as required by Rule 701 E-5 shall not be necessary before obtaining administrative approval for the conversion of additional wells to water injection."

(3) 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


ALEX J. ARMILLO, Member


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


esr/

ROUGH DRAFT FOR WATERFLOOD LETTERS

Mr. Bill Kastler
Gulf Oil Corporation
Post Office Box 1938
Roswell, New Mexico 88201

Dear Sir:

Reference is made to Commission Order No. R-2729-A entered in Case No. 1114, approving the ^{recently producing} drilling of two additional wells in the waterflood project. ^{West Pearl Unit waterflood Project at unorthodox locations.}

As to allowable, our calculations indicate that when all of the authorized injection wells have been placed on active injection, the maximum allowable which this project will be eligible to receive under the provisions of Rule 701-E-3 is ^{these two wells} barrels per day when the Southeast New Mexico normal unit allowable is 42 barrels per day or less.

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

cc: OCC: Hobbs ☒
Artesia ☐
Aztec ☐

USGS

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

our calculations indicate that when these two wells have been placed on production, this unit will have 63 40-acre tracts in the water flood project area plus three extra wells for a total maximum allowable which the project will be eligible to receive under the provisions of Rule 701-E-3 of 2688 barrels per day when the Southeast New Mexico normal unit allowable is 42 barrels per day or less.

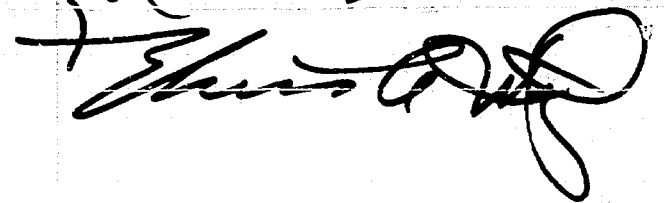
Case 4114
Heard 4-23-69
Rec. 4-25-69

Grant Gulf's request for
2 NSL's for their W. Pearl
Queen - Waterflood unit Oil
wells as follows:

W. Pearl Queen unit #164, 1325/N,
2635/W - Sec. 32, 19S-35E.

W. Pearl Queen unit #165, 1410/S,
1325/W, Sec. 29 - 19S-35E.

Grant Admin approval for
future NSL's, identification etc
Producers, which are located
not closer than 990' from
the unit boundary or closer than
5' from any inner subdivi-
sion boundary. (40 Ac).

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Docket No. 12-69

DOCKET: EXAMINER HEARING - WEDNESDAY - APRIL 23, 1969

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 4079: (Continued from the March 26, 1969, Examiner Hearing)
Application of Robert B. Holt for the creation of a new pool, assignment of a discovery allowable, and the promulgation of special pool rules, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the creation of a new Middle Pennsylvanian oil pool for his Aztec State Well No. 2 located in Unit A of Section 26, Township 13 South, Range 32 East, Lea County, New Mexico, and for the assignment of an oil discovery allowable in the amount of approximately 48,715 barrels to said well. Applicant further seeks the promulgation of special pool rules for said pool, including a provision for 160-acre proration units and the assignment of 80-acre allowables.
- CASE 4106: Application of Southland Royalty Company for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Permo-Pennsylvanian formation in the perforated interval from approximately 9485 feet to 9713 feet in its Guye Well No. 4 located in Unit F of Section 12, Township 11 South, Range 33 East, Inbe Permo-Pennsylvanian Pool, Lea County, New Mexico.
- CASE 4107: Application of Coastal States Gas Producing Company for special pool rules, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the promulgation of special pool rules for the West Sawyer-San Andres Pool, Lea County, New Mexico, including a provision for 80-acre spacing and proration units.
- CASE 4108: Application of Humble Oil & Refining Company for the rededication of acreage, Lea County, New Mexico. Applicant, in the above-styled cause, seeks to recomplete its New Mexico "V" State Well No. 5, a non-commercial Wantz-Abo oil producer, to a Tubb gas producer and to consolidate the 40 acres presently dedicated to said well with the 120 acres presently dedicated to its New Mexico "V" State Well No. 11, a Tubb gas producer, to form a standard 160-acre proration unit comprising the SW/4 of Section 10, Township 21 South, Range 37 East, Tubb Gas Pool, Lea County, New Mexico. Applicant further seeks authority to produce the allowable assigned to said unit from either of said wells in any proportion.
- CASE 4109: Application of Humble Oil & Refining Company for a unit agreement, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of the South Lea Unit Area comprising 8,324.16 acres, more or less, of State, Federal, and Fee lands in Township 26 South, Range 36 East, Lea County, New Mexico.

CASE 4110: Application of Atlantic-Richfield Company for a waterflood project and unorthodox injection well location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a pilot waterflood project by the injection of water into the Queen formation through one well to be drilled at an unorthodox location 100 feet from the North and West lines of Section 23, Township 18 South, Range 31 East, Shugart Pool, Eddy County, New Mexico.

CASE 4111: Application of Tenneco Oil Company for a dual completion and salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dually complete its Morton Federal Well No. 1, located in Unit A of Section 12, Township 9 South, Range 35 East, Lea County, New Mexico, in such a manner as to permit the production of oil from the Vada-Pennsylvanian Pool and the disposal of produced salt water through the intermediate casing-production casing annulus into the San Andres, Abo and possibly other formations in the open-hole interval from approximately 4050 feet to 8120 feet.

CASE 4112: Application of P-M Drilling Company for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Delaware formation in the perforated interval from approximately 5062 feet to 5100 feet in its James Federal Well No. 1 located in Unit A of Section 35, Township 23 South, Range 32 East, Triste Draw-Delaware Pool, Lea County, New Mexico.

CASE 4113: Application of Texas Pacific Oil Company for an unorthodox oil well location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks to substitute its State "D" A/c-1 Well No. 1 located in Unit A of Section 2, Township 12 South, Range 33 East, in lieu of its State "C" A/c-1 Well No. 1 located in Unit B of said Section 2 as the producing well for the proration unit comprising the N/2 NE/4 of said Section 2, Bagley-Siluro-Devonian Pool, Lea County, New Mexico.

CASE 4114: Application of Gulf Oil Corporation for two unorthodox oil well locations and amendment to Order No. R-2729, Lea County, New Mexico. Applicant in the above-styled cause, seeks authority to drill two producing oil wells at unorthodox locations in Township 19 South, Range 35 East, as infill wells in the West Pearl Queen Unit Waterflood Project, Pearl Queen Pool, Lea County, New Mexico, said wells to be located as follows:

West Pearl Queen Unit Well No. 164 to be located 1325 feet from the North line and 2635 feet from the West line of Section 32;

West Pearl Queen Unit Waterflood Well No. 165 to be located 1420 feet from the South line and 1325 feet from the West line of Section 29;

(Case 4114 continued)

Applicant also seeks the amendment of Order No. R-2729, which order authorized the aforesaid waterflood project, to establish a procedure whereby additional injection wells and producing wells at unorthodox infill locations, as may be necessary to complete an efficient injection and producing pattern, may be approved administratively.

CASE 4115: Application of Southern Union Production Company for compulsory pooling, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Dakota formation underlying the W/2 of Section 16, Township 29 North, Range 9 West, Basin-Dakota Pool, San Juan County, New Mexico. Said acreage to be dedicated to a well to be drilled at a standard location in the W/2 of said Section 16. Also to be considered will be the costs of drilling said well, a charge for the risk involved, a provision for the allocation of actual operating costs, and the establishment of charges for supervision of said well.

CASE 4116: Application of Tesoro Petroleum Corporation for the amendment of Order No. R-2797 and for the extension of the South Hospah-Upper Sand Pool, McKinley County, New Mexico. Applicant, in the above-styled cause, seeks the amendment of Order No. R-2797, which order approved the Hospah Unit Agreement, to delete from said unit agreement 233.87 acres in the Southeast portion of Section 1, Township 17 North, Range 9 West, McKinley County, New Mexico. Applicant also seeks the extension of the South Hospah-Upper Sand Pool to include a portion of the Southeast quarter of said Section 1.

CASE 4117: Application of Eastern Petroleum Company for special pool rules, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks the promulgation of special rules for the Rattlesnake-Dakota Pool, San Juan County, New Mexico, permitting the drilling of wells on 2½-acre spacing provided that no well be located nearer than 50 feet to the outer boundary of the quarter-quarter section and no nearer than 165 feet to another well producing from the same pool, and provided further, that a 40-acre proration unit would be subject to a 40-acre allowable regardless of the number of wells on the unit.

CASE 4118: Application of Dugan Production Corporation for downhole commingling, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks authority to commingle gas production from undesignated Fruitland and Pictured Cliffs gas pools in the well-bore of its Federal "I" Well No. 4, located in the NE/4 NW/4 of Section 1, Township 29 North, Range 14 West, San Juan County, New Mexico.

CASE 4096: (Continued from the April 5, 1969, Examiner Hearing)

Application of Kersey & Company for a waterflood project, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority

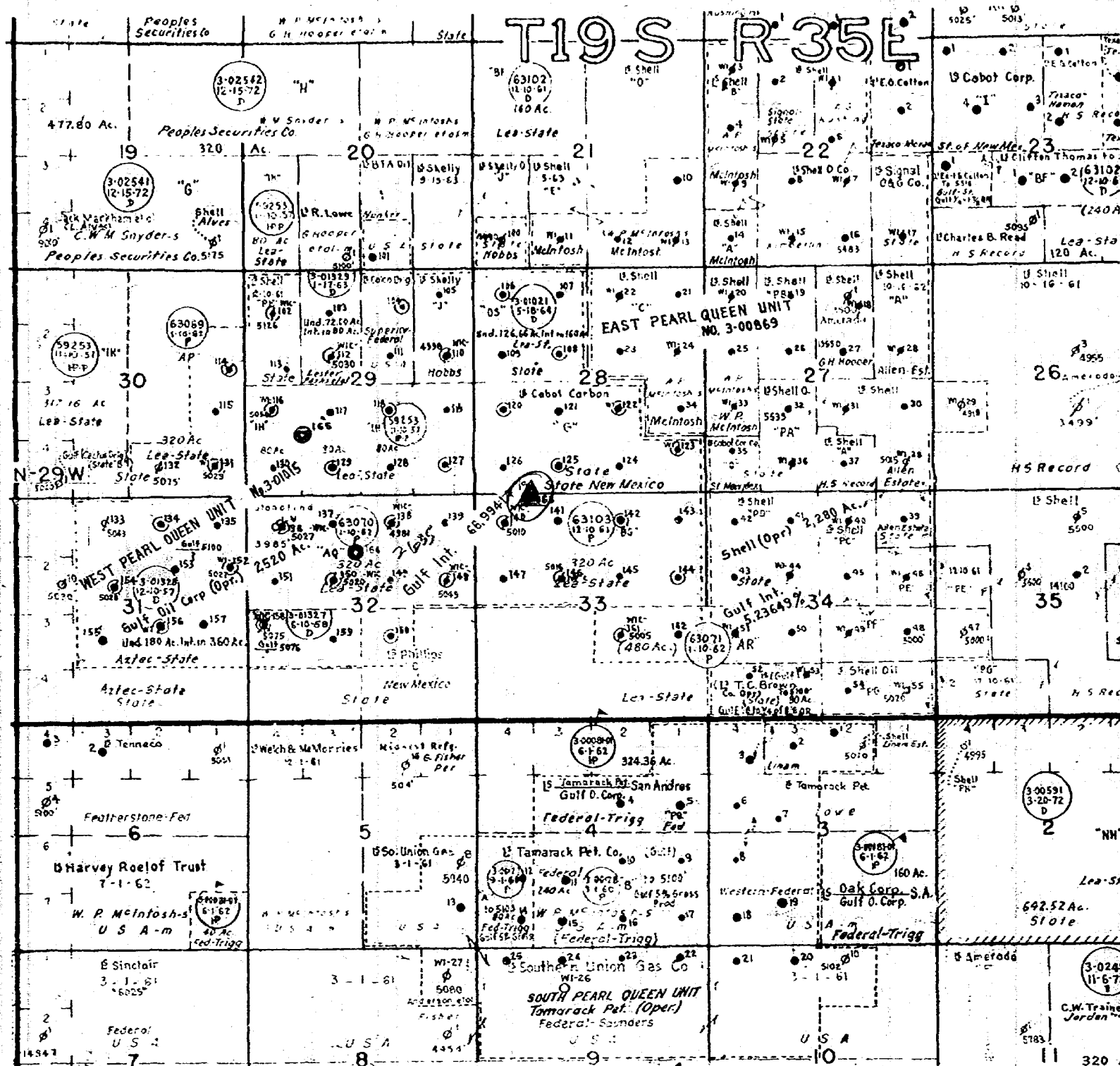
-4- Examiner Hearing - April 23, 1969

Docket No. 12-69

to institute a waterflood project by the injection of water into the Seven Rivers formation through four wells located in Units C, D, and F of Section 25, Township 17 South, Range 28 East, Aid (Yates-Seven Rivers) Pool, Eddy County, New Mexico.

CASE 4078: (Continued from the April 9, 1969, Examiner Hearing)

Application of J. Gregory Merrion for downhole commingling, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks authority to commingle production from the Devils Fork-Gallup Pool and an undesignated Mesaverde oil pool in the well-bore of his NCRA State Well No. 3 located in Unit L of Section 16, Township 24 North, Range 6 West, Rio Arriba County, New Mexico.



WEST PEARL QUEEN UNIT
Lea County, New Mexico

- LEGEND -

- Unit Boundary
- ⊙ Water Injection Well
- ▲ Infill Well No. 163
- ⊙ Proposed Infill Producing Well

Gulf Oil Corporation

CASE NO. 4114
EXHIBIT NO. 1
April 23, 1968

BEFORE EXAMINER, UTZ
OIL CONSERVATION COMMISSION
PPS EXHIBIT NO. 1
CASE NO. 4114

SCHLUMBERGER

SONIC LOG - GAMMA R

COUNTY LEA
FIELD or LOCATION PEARL QUEEN
WELL WEST PEARL QUEEN
UNIT #163
COMPANY GULF OIL CO-U.S.

COMPANY GULF OIL COMPANY - U.S.
WELL WEST PEARL QUEEN UNIT #163
FIELD PEARL QUEEN
COUNTY LEA
STATE NEW MEX
LOCATION 5' ENL-6-13151-FWL
Sec. 33 Twp. 19-S Rge. 35-E
Other Services:

CASE NO. 4114
EXHIBIT NO. 2

Date 12-24-68
Well No. 001
Depth-Driller 5020
Depth-Logger 5017
3in. Log Interval 5015
Top Log Interval 0
Casing-Driller 8.5/8 @ 285
Casing-Logger 381
Bit Size 7-7/8
Type Fluid in Hole BRINE
Dens. Visc. 9.7 37
pH Fluid Loss 8.2 ml
Source of Sample PIT
R_m @ Meas. Temp. 049 @ 79 °F
R_{mt} @ Meas. Temp. 042 @ 79 °F
R_{mc} @ Meas. Temp. @ °F
Source: R_{mt} R_{mc} M
R_m @ BHT 039 @ 107 °F
R_{mt} @ BHT 4 HOURS
R_{mc} @ BHT @ °F
Time Since Circ. 4 HOURS
Max. Rec. Temp. 107 °F
Equip. Location 3701-HOBBS
Recorded By RATLIFF
Witnessed By MUSSETT

FOLD HERE

The well name, location and borehole reference data were fu

REMARKS

Changes in Mud Type or Additional Samples						Scale Changes				
Date	Sample No.					Type Log	Depth	Scale Up Hole	Scale Down Hole	
Depth—Driller										
Type Fluid in Hole										
Dens.	Visc.									
ph	Fluid Loss		ml							
Source of Sample						Equipment Data				
R _m @ Meas. Temp.	@	°F	@	°F		Run No.	Tool Type	Pad Type	Tool Pos.	Other
R _{mt} @ Meas. Temp.	@	°F	@	°F						
R _{mc} @ Meas. Temp.	@	°F	@	°F						
Source: R _{mt} R _{mc}										
R _m @ BHT	@	°F	@	°F						
R _{mt} @ BHT	@	°F	@	°F						
R _{mc} @ BHT	@	°F	@	°F						
C.D.: YES S.O.: VOD + CME-H										
Equip. Used: CART. No.						105				
PANEL No.						142				
SONDE No.						??				

CALIBRATION:	BACKGND.	SOURCE	GALV. INCR.	SENS. TAP	SENS. TAP	TIME	RECORDING
	CPS	CPS	DIVISIONS	(FOR CAL.)	(RECORD)	CONST.	SPEED (FT./MIN.)
GAMMA RAY	36	460	82.51	800	400	1	40/70

Velocity (feet per second) = $\frac{1,000,000}{\text{Interval Transit Time (microseconds per foot)}}$

GAMMA RAY
API UNITS

DEPTHS

INTERVAL TRANSIT TIME
MICROSECONDS PER FOOT

		T 3 R, 2 R _s	
0	100	100	70
100	200	160	130
			40
			100

WPQU No. 163

ZONE I

ZONE II A

ZONE III A

GAMMA RAY - SONIC LOG
THROUGH WATER FLOOD INTERVAL
QUEEN FORMATION

4800

4900

Caliper

GR

F. R. (GR)

Gulf Oil Company - U.S.

EXPLORATION AND PRODUCTION DEPARTMENT
ROSWELL DISTRICT

T. W. Kidd
DISTRICT MANAGER
M. I. Taylor
DISTRICT PRODUCTION
MANAGER
P. E. Wyche
DISTRICT EXPLORATION
MANAGER
H. A. Rankin
DISTRICT SERVICES MANAGER

April 2, 1969

P.O. Drawer 1938
Roswell, New Mexico 88201

103 Apr 3 1969

Case 4114

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

Attention: Mr. A. L. Porter, Jr.

Re: Application of Gulf Oil Corporation for Approval to
Drill Two Infill Producing Wells at Unorthodox
Locations in the West Pearl Queen Unit, Lea County,
New Mexico, and Request for Amendment of Order
No. R-2729 to Allow for Administrative Approval of
Such Applications in the Future

Gentlemen:

Gulf Oil Corporation, as Operator of the West Pearl Queen Unit, respectfully requests an Examiner Hearing to consider its application for approval to drill two infill producing wells in the West Pearl Queen Unit, Lea County, New Mexico. It is proposed to drill the West Pearl Queen Unit Well No. 164 at an unorthodox location 1325 feet from the north line and 2635 feet from the west line of Section 32, and the West Pearl Queen Unit Well No. 165 at an unorthodox location 1420 feet from the south line and 1325 feet from the west line of Section 29, both in Township 19 South, Range 35 East, Lea County, New Mexico, as shown on the attached plat.

Applicant also requests that Order No. R-2729, authorizing the West Pearl Queen Unit Waterflood Project, be amended to provide for administrative approval of any future applications for infill wells, either input or producing, at unorthodox locations in the West Pearl Queen Unit for the purpose of increasing efficiency of the Waterflood Project.

In support of this application, the following facts are submitted:

- (1) The West Pearl Queen Unit Waterflood Project was approved by Order No. R-2729 in Case No. 3066, on June 18, 1964.
- (2) The West Pearl Queen Unit was approved by Order No. R-2728 in Case No. 3065, also on June 18, 1964.
- (3) The West Pearl Queen Unit was formed to increase the ultimate recovery of oil from the Pearl Queen Pool underlying the Unit.



A DIVISION OF GULF OIL CORPORATION

DOCKET MARKED

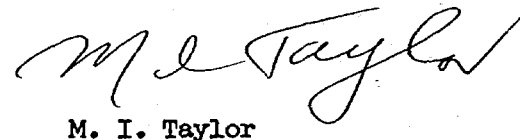
4-10-69

April 2, 1969

- (4) The West Pearl Queen Unit Well No. 163, an infill producing well at an unorthodox location 5 feet from the north line and 1315 feet from the west line of Section 33, T19S, R35E, Lea County, New Mexico, was approved by Order No. R-3572 in Case No. 3927, on November 12, 1968.
- (5) The West Pearl Queen Unit Well No. 163 was completed December 30, 1968. On potential test it flowed 240 BOPD and 216 BWPD, and as a result of a 24-hour pumping test March 8, 1969, the well produced 278 BO and 386 BW.
- (6) Applicant will show that the drilling of Wells No. 164 and 165 at locations approximately midway between two producing wells and two injection wells will result in the recovery of oil which will not be produced by existing wells.
- (7) The West Pearl Queen Unit Waterflood Project daily allowable for April, 1969, is 3968 BOPD and the current production is approximately 1800 BOPD.
- (8) The Waterflood Project allowable will be in accordance with Statewide Rule 701 E-3.
- (9) This application is in the interest of conservation and prevention of waste.

Respectfully submitted,

GULF OIL CORPORATION


M. I. TaylorAttachment
DGB:erscc: New Mexico Oil Conservation Commission
Post Office Box 1980
Hobbs, New Mexico 88240All Working Interest Owners
West Pearl Queen Unit

Gulf Oil Corporation

DRAFT

GMH/esr

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

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

APPLICATION OF GULF OIL CORPORATION
FOR TWO UNORTHODOX OIL WELL LOCATIONS
AND AMENDMENT TO ORDER NO. R-2729,
LEA COUNTY, NEW MEXICO.

CASE No. 4114

Order No. R-2729-A

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on April 23, 1969,
at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this April day of April, 1969, 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, Gulf Oil Corporation, is the oper-
ator of the West Pearl Queen Unit Waterflood Project, West Pearl
Queen Unit Area, Pearl-Queen Pool, Lea County, New Mexico,
approved by Commission Order No. R-2729, ~~and I am hereby ordered to R-~~

(3) That the applicant now seeks authority to drill two
producing oil wells as infill wells in its West Pearl Queen Unit
Waterflood Project at unorthodox locations in Township 19 South,
Range 35 East, NMPM, Pearl-Queen Pool, Lea County, New Mexico,
said wells to be located as follows:

West Pearl Queen Unit Well No. 164 to be located in Unit F
1325 feet from the North line and 2635 feet from
the West line of Section 32;

in Unit K

West Pearl Queen Unit ~~Waterflood~~ Well No. 165
to be located 1420 feet from the South line and
1325 feet from the West line of Section 29.

(4) That the proposed unorthodox locations are necessary
to complete an efficient oil producing pattern.

(5) That the applicant further seeks the amendment of said
Order No. R-2729 to provide for the establishment of an adminis-
trative procedure whereby the Secretary-Director of the Commission
may authorize ~~expansion of said West Pearl Queen Unit Waterflood~~
~~Project to include~~ additional ~~lands and~~ injection wells and
producing wells at orthodox and unorthodox infill locations as
may be necessary to complete an efficient injection and producing
pattern without the necessity of showing well response.

(6) That approval of the aforesaid amendment will afford
the applicant the opportunity to produce its just and equitable
share of the oil in the Pearl-Queen Pool, and will otherwise
prevent waste and protect correlative rights, provided said
producing wells and injection wells are drilled no closer than
~~330~~⁹⁹⁰ feet to the outer boundary of said West Pearl Queen Unit
nor closer than ~~10~~⁵ feet to any quarter-quarter section or sub-
division inner boundary.

(7) That the West Pearl Queen Unit Waterflood Project
should be governed by the provisions of Rules 701, 702, and 703
of the Commission Rules and Regulations; provided, however, that
the showing of well response as required by Rule 701 E-5 shall
not be necessary before obtaining administrative approval for
the conversion of additional wells to water injection.

IT IS THEREFORE ORDERED:

(1) That the applicant, Gulf Oil Corporation, is hereby
authorized to drill the following producing oil wells as infill
wells in its West Pearl Queen Unit Waterflood Project, West Pearl

Queen Unit Area, Pearl Queen Pool, at unorthodox locations in Township 19 South, Range 35 East, NMPM, Lea County, New Mexico:

West Pearl Queen Unit Well No. 164 to be located in Unit F
1325 feet from the North line and 2635 feet from
the West line of Section 32;

in Unit K
West Pearl Queen Unit ~~Waterflood~~ Well No. 165
to be located 1420 feet from the South line
and 1325 feet from the West line of Section 29.

(2) That Order (2) of Commission Order No. R-2729 is hereby amended to read in its entirety as follows:

"(2) That the West Pearl Queen Unit Waterflood Project shall be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations;

PROVIDED HOWEVER, that the Secretary-Director of the Commission may approve ~~expansion of the West Pearl Queen Unit Waterflood Project to include~~ such additional ~~lands and~~ injection and producing wells at orthodox and unorthodox ^{infill} locations as may be necessary to complete an efficient injection and producing pattern, provided said wells are drilled no closer than ⁹⁹⁰ ~~330~~ feet to the outer boundary of said West Pearl Queen Unit nor closer than ~~10~~ ⁵ feet to any quarter-quarter section or subdivision inner boundary, and provided that the application therefor has been filed in accordance with Rule 701 B of the Commission Rules and Regulations, and ~~provided further, that a copy of the application has been sent to all offset operators, if any there be, and no such operator has objected within 15 days.~~ The showing of well response as required by Rule 701 E-5 shall not be necessary before obtaining administrative approval for the conversion of additional wells to water injection."

(3) 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.