

CASE 4304: Appli. of CONTINENTAL
FOR UNORTHODOX OIL WELL LOCATION
AND AMENDMENT OF ORDER R-2403.

Case Number

4304

Application
Transcripts.

Small Exhibits

ETC.

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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
February 4, 1970

EXAMINER HEARING

IN THE MATTER OF:

Application of Continental Oil
Company for an unorthodox oil
well location and amendment of
Order No. R-2403, Lea County,
New Mexico.

Case No. 4304

BEFORE: Daniel S. Nutter, Examiner.

TRANSCRIPT OF HEARING

MR. NUTTER: We will call Case Number 4304.

MR. HATCH: Case 4304: Application of Continental Oil Company for an unorthodox oil well location and amendment of Order No. R-2403, Lea County, New Mexico.

MR. KELLAHIN: Jason Kellahin, Santa Fe, appearing for the applicant.

We have one witness to be sworn.

(Witness sworn.)

V. T. LYON

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q State your name, please.

A Victor T. Lyon, L-y-o-n.

Q All right. By whom are you employed and in what position, Mr. Lyon?

A I am employed by Continental Oil Company as conservation coordinator in the Hobbs division office located in Hobbs, New Mexico.

Q Have you testified before the Oil Conservation Commission as petroleum engineer and had your qualifications made a matter of record?

A Yes, I have.

MR. KELLAHIN: Are the witness' qualifications acceptable?

MR. NUTTER: Yes, they are.

Q (By Mr. Kellahin) Mr. Lyon, briefly what's proposed by the applicant in Case 4304?

A Case 4304 is the application of Continental Oil Company for approval to drill its MCA Unit Well No 251 as a producing well at an unorthodox location 1100 feet from the south line and 2600 feet from the west line of Section 21, Township 17 South, Range 32 East, Lea County, New Mexico; and for amendment of Order No. R-2403 to permit approval of unorthodox location by administrative procedure.

Q Now, referring to what has been marked as Exhibit Number One; would you identify that exhibit?

A Exhibit Number One is a location plat showing the central portion of the MCA Unit area. The participating area is shown by the dotted line. The well which is the

subject of this application Number 251 is shown in the red circle. Injection wells are shown with a triangular symbol; and those which are colored red are the original pilot water injection wells. This is Well Number 68 which is in the approximate center of the southwest quarter of Section 21.

Well Number 113 which is at the northwest corner of Section 28. Well Number 116 which is at the north quarter corner of Section 28 and Well Number 235 which is located approximately in the center of the northwest quarter of Section 28.

The well which is circled or which has the green triangle is Well Number 70 which is an injection well. Number 251 is located approximately in the center of the triangle formed by Wells Numbers 68, 70 and 116.

Q Now, how did you determine the particular location for Well 251, Mr. Lyon?

A Well, we wanted to locate it approximately in the center of the triangle I described, but we had some surface obstructions in there, namely our Maljamar office, the warehouse the gasoline plant and other facilities. So, it was necessary that we locate the well

at this particular location in order to avoid these surface obstructions.

Q Now, referring to what has been marked as Exhibit Number Two; would you identify that exhibit?

A Exhibit Number Two is a map of the entire MCA Unit and a row of sections surrounding it.

Again the participating area is shown with a dotted line, the MCA area, or unit area, is shown by the dash and dot or long dash, short dash line.

The -- I have not shown the location of the proposed well, which I probably should have. But you can see the triangle in the center of which we are attempting to locate it.

But this plat shows all of the injection wells in the MCA waterflood project.

You will note that the original pilot waterflood was spacing on a forty acre five spot pattern. The flood has been enlarged and expanded on the basis of an eighty acre five spot pattern. This fact leaves some rather non-standard areas in the center of this original five spot pattern. And we feel that the area in which we are proposing to drill Well Number 251 will not

be adequately swept unless this well is drilled.

We currently have under study an infill drilling program as is the case in most reservoirs there are some areas in the unit which are more prolific than others. And we are studying the possibility of adding additional producing wells in the more prolific areas.

So the drilling of this well will assist us in evaluating the feasibility and the economic desirability of infill drilling in the area.

Q Now, if it's indicated that infill drilling is profitable, will it be necessary to drill other wells at non-standard locations as in this case?

A Yes, it will.

Q Is that the reason you are asking for administrative procedure for approval of such locations?

A Yes, sir. You will note that most of the wells in the unit area are drilled in the center of the quarter quarter section and in order to drill wells in between it will be necessary to drill near the corners of the quarter quarter sections.

Q Now, since the area is unitized, would the

drilling of such wells violate correlative rights in any way?

A I don't see how they could.

Q Do you feel it necessary to notify offset operators?

A I shouldn't think so unless we crowd the line, and really under the statewide rule, we can drill within three hundred and thirty feet of our lease line. And I think this would give adequate protection. However, we would not object to locating or notifying people who own offset properties, say, within five hundred feet or so.

Now, I feel that this would give adequate protection to everybody's correlative rights.

Q Now, in your opinion, would the approval of this application prevent waste and protect correlative rights?

A Yes, sir. In my opinion it will.

Q Do you have any particular language you would like to propose in connection with the amendment to the present Maljamar order, Order R-2403?

A Well, I'm not certain that everybody reads

that language and interprets it the same way.

It would appear to me that the language in Paragraph Two of the "It is further ordered" section of Order No. R-2403, would give us authority to -- or would give us the right to receive approval of injection wells by administrative approval of the Secretary Director.

If this is not the Commission's interpretation, we would like to have this changed, too. It may be necessary somewhere in the development of this unit to locate injection wells, additional injection wells at unorthodox locations. But if the Commission does interpret this present rule authorizes administrative approval of injection wells, I believe that we could add one sentence immediately preceding the last two sentences of Paragraph Two in that "It is further ordered" section as follows:

"Additional producing wells may be drilled within the boundaries of the unit area in exception to Rule 104-C I upon administrative approval by the Secretary Director provided that offsetting operators within five hundred and ten feet of said well shall be

notified of such applications by certified mail."

Q Were Exhibits One and Two prepared by you or under your supervision?

A They were.

MR. KELLAHIN: At this time I would like to offer in evidence Exhibits One and Two.

MR. NUTTER: Continental's Exhibits One and Two will be admitted in evidence.

(Whereupon, Continental's Exhibits Numbers One and Two were admitted in evidence.)

MR. KELLAHIN: That completes our presentation, Mr. Nutter.

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

Do you have a copy of that little sentence there that you read?

THE WITNESS: Yes, sir.

MR. NUTTER: If there's no questions, the witness may be excused.

Do you have anything further, Mr. Kellahin?

MR. KELLAHIN: That's all.

MR. NUTTER: Does anyone have anything

further they wish to offer in Case Number 4304?

We will take the case under advisement.

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I N D E X


WITNESS	PAGE
V. T. LYON	
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STATE OF NEW MEXICO)
) ss
 COUNTY OF BERNALILLO)

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 true and correct record of the proceedings in
 the hearing held on the 10th day of 4/20/4
 before the New Mexico Oil Conservation Commission
 at the City of Albuquerque, New Mexico

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OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO

P. O. BOX 2088 - SANTA FE

87501

GOVERNOR
DAVID F. CARGO
CHAIRMAN

LAND COMMISSIONER
ALEX J. ARMIJO
MEMBER

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

February 10, 1970

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

Re: Case No. 4304
Order No. R-2403-A
Applicant:
Continental Oil Company

Dear Sir:

Enclosed herewith are two copies of the above-referenced Commission order recently entered in the subject case.

Very truly yours,

A. L. PORTER, Jr.
Secretary-Director

ALP/ir

Copy of order also sent to:

Hobbs OCC x

Artesia OCC

Aztec OCC

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. 4304
Order No. R-2403-A**

**APPLICATION OF CONTINENTAL OIL COMPANY
FOR AN UNORTHODOX OIL WELL LOCATION AND
AMENDMENT OF ORDER NO. R-2403, LEA COUNTY,
NEW MEXICO.**

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on February 4, 1970, at Santa Fe, New Mexico, before Examiner Daniel S. Mutter.

NOW, on this 9th day of February, 1970, 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, Continental Oil Company, as operator of the MCA Unit approved by Commission Order No. R-2403, seeks authority to drill its MCA Unit Well No. 251, a producing oil well, at an unorthodox location 1100 feet from the South line and 2600 feet from the West line of Section 21, Township 17 South, Range 32 East, NMPM, Maljamar Grayburg-San Andres Pool, Lea County, New Mexico, as an infill well in said MCA Unit project area.

(3) That the proposed unorthodox location is necessary to provide an efficient oil producing pattern.

(4) That the applicant also seeks the amendment of said Order No. R-2403 to provide for the establishment of an administrative procedure whereby the Secretary-Director of the Commission

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CASE No. 4304
Order No. R-2403-A

may authorize additional producing wells and injection wells at unorthodox locations within said MCA Unit Area as may be necessary to complete an efficient production and injection pattern.

(4) That approval of the aforesaid amendment will afford the applicant the opportunity to produce its just and equitable share of the oil in the Maljamar Grayburg-San Andres Pool, and will otherwise prevent waste and protect correlative rights, provided said producing wells and injection wells are drilled no closer than 330 feet to the outer boundary of said MCA Unit nor closer than 10 feet to any quarter-quarter section or subdivision inner boundary.

IT IS THEREFORE ORDERED:

That the applicant, Continental Oil Company, is hereby authorized to drill its MCA Unit Well No. 251, a producing oil well, at an unorthodox location 1100 feet from the South line and 2600 feet from the West line of Section 21, Township 17 South, Range 32 East, NMPM, Maljamar Grayburg-San Andres Pool, Lea County, New Mexico, as an infill well in its MCA Unit Area approved by Commission Order No. R-2403.

IT IS FURTHER ORDERED:

(1) That Order (2) of "IT IS FURTHER ORDERED" of Order No. R-2403, as amended by Order No. R-3375, is hereby further amended by the addition of a second paragraph as follows:

"The Secretary-Director of the Commission is hereby also authorized to approve such additional producing wells and injection wells at unorthodox locations within the boundaries of the Maljamar Cooperative Agreement Unit Area as may be necessary to complete an efficient production and injection pattern; provided said wells are drilled no closer than 330 feet to the outer boundary of said MCA Unit nor closer than 10 feet to any quarter-quarter section or subdivision inner boundary, and provided further, 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 operators owning acreage offsetting the quarter-quarter section upon which the well is to be located, if any there be, and no such operator has objected within 20 days. The Secretary-Director may grant immediate approval of the

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CASE No. 4304

Order No. R-2403-A

application upon receipt of written waivers of objection from all such offset operators."

(2) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

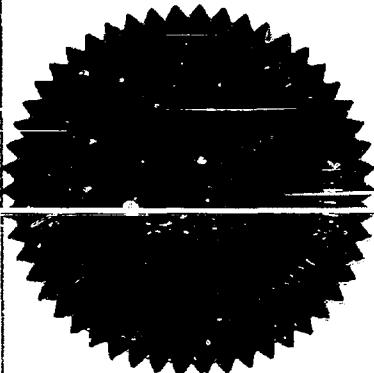
DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION


DAVID F. SARGO, Chairman


ALEX J. ARREJO, Member


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



esr/

Docket No. 4-70

DOCKET: EXAMINER HEARING - WEDNESDAY - FEBRUARY 4, 1970

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 4302: Application of El Paso Natural Gas Company for suspension and amendment of certain provisions of Rules 14(A), 15(A), and 15(B), of the General Rules and Regulations for the prorated gas pools of Northwestern New Mexico. Applicant, in the above-styled cause, seeks suspension for a period of one year from February 1, 1970, of those provisions of Rules 14(A), 15(A), and 15(B) of the General Rules and Regulations for the prorated gas pools of Northwestern New Mexico promulgated by Order No. R-1670, as amended, that provide for the cancellation of unproduced allowable and the shutting-in of over-produced wells.

CASE 4303: Application of El Paso Natural Gas Company for a waterflood project, Lea County, New Mexico. Applicant, in the above-described cause, seeks authority to institute a waterflood project in the Rhodes (Yates-Seven Rivers) Pool by the injection of water into the Yates-Seven Rivers formation through its Moberly "C" Wells Nos. 6, 9, and 10, located respectively, in Units K and M of Section 21 and Unit I of Section 20, Township 26 South, Range 37 East, Lea County, New Mexico. Applicant further seeks a procedure whereby said project may be expanded administratively without a showing of well response.

CASE 2925: (Reopened)

In the matter of Case 2925 being reopened pursuant to the provisions of Order No. R-2598, which order established 640-acre spacing units for the South Hope-Strawn Gas Pool, now designated the South Hope-Pennsylvanian Gas Pool, Eddy County, New Mexico, for a period of one year after first pipeline connection in the pool. All interested persons may appear and show cause why said pool should not be developed on 160-acre spacing units.

CASE 4263: (Continued from the December 17, 1969 Examiner Hearing)

Application of Wynn & Brooks for an unorthodox gas well location, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of its Federal "E" Well No. 3, to be located 590 feet from the South line and 1590 feet from the West line of Section 13, Township 27 North, Range 8 West, Blanco-Mesaverde and Basin-Dakota Pools, San Juan County, New Mexico.

CASE 4264: (Continued from the December 17, 1969 Examiner Hearing)

Application of Wynn & Brooks for an unorthodox gas well location, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of its Federal "J" Well No. 1, to be located 2390 feet from the South line and 2410 feet from the East line of Section 11, Township 27 North, Range 8 West, Blanco-Mesaverde and Basin-Dakota Pools, San Juan County, New Mexico.

CASE 4297: (Continued from the January 21, 1970 Examiner Hearing)

Application of Anadarko Production Company for lease commingling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to commingle Langlie-Mattix production from the Langlie-Mattix Penrose Sand Unit Tracts 2, 16 and 28, comprising, respectively, the W/2 NW/4 of Section 23, the SW/4 SW/4 of Section 23, and the S/2 NW/4 and SW/4 of Section 28, Township 22 South, Range 37 East, Lea County, New Mexico, with Langlie-Mattix production from other tracts in said unit, allocating the production to each of said Tracts 2, 16 and 28 on the basis of monthly well tests.

CASE 4304: Application of Continental Oil Company for an unorthodox oil well location and amendment of Order No. R-2403, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to drill its MCA Unit Well No. 251 as a producing oil well at an unorthodox location 1100 feet from the South line and 2600 feet from the West line of Section 21, Township 17 South, Range 32 East, as an infill well in the MCA Unit Project Area, Maljamar Grayburg-San Andres Pool, Lea County, New Mexico. Applicant further seeks the amendment of Order No. R-2403 to permit the adoption of a procedure whereby additional producing wells and injection wells at unorthodox locations in said project may be approved administratively.

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Examiner Hearing
February 4, 1970

Docket No. 4-70

CASE 4301: (Continued from the January 21, 1970 Examiner Hearing)
In the matter of the hearing called by the Oil Conservation Commission on its own motion to permit Robert T. Smith and all other interested persons to appear and show cause why the following Robert T. Smith wells located in Section 32, Township 20 North, Range 9 West, McKinley County, New Mexico, should not be plugged and abandoned with a Commission-approved plugging program:

State Well No. 1 located 487 feet from the North line and 990 feet from the East line;

State "A" Well No. 1 located 400 feet from the North line and 990 feet from the East line;

State Well No. 3 located 330 feet from the North line and 330 feet from the West line;

State Well No. 6 located 220 feet from the North line and 1485 feet from the East line;

State Well No. 6-Y located approximately 5 feet West of the above-described Well No. 6;

State Well No. 8 located 1155 feet from the North line and 2475 feet from the East line.

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. 4204
Order No. R-3824

APPLICATION OF MOBIL OIL CORPORATION
FOR A WATERFLOOD PROJECT AND UNORTHODOX
INJECTION WELL LOCATIONS, LEA
COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on August 27, 1969,
at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this 4th day of September, 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, Mobil Oil Corporation, seeks permis-
sion to institute a waterflood project in the Humphrey Queen Unit
Area, Langlie-Mattix Pool, by the injection of water into the
Queen sand formation through 11 injection wells at orthodox and
unorthodox locations in Sections 3 and 4, Township 25 South,
Range 37 East, NMPM, Lea County, New Mexico.

(3) That the applicant further seeks the establishment of
an administrative procedure whereby the Secretary-Director of
the Commission may authorize additional injection wells at
orthodox and unorthodox locations within said waterflood project
area as may be necessary to complete an efficient injection
pattern without the necessity of showing well response.

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

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

(6) That the subject application should be approved and the project should be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations; 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, and provided further, that said injection wells are drilled no closer than 330 feet to the outer boundary of the Humphrey Queen Unit nor closer than 10 feet to any quarter-quarter section or subdivision inner boundary.

IT IS THEREFORE ORDERED:

(1) That the applicant, Mobil Oil Corporation, is hereby authorized to institute a waterflood project in the Humphrey Queen Unit Area, Langlie-Mattix Pool, by the injection of water into the Queen sand formation through the following-described wells at orthodox and unorthodox locations in Township 25 South, Range 37 East, NMPM, Lea County, New Mexico:

Unit Well		Unit	Section
No.	Previous Well Name and Number		
2	Mobil-Liberty Well No. 1	D	3
4	Mobil-Humphrey "A" Well No. 1	B	3
6	Mobil-Fristoe Well No. 6	A	3
9	Mobil-Humphrey "A" Well No. 4	F	3
15	Mobil-Liberty Well No. 5	L	3
17	Mobil-Humphrey "A" Well No. 5	J	3
19	Mobil-Fristoe Well No. 7	I	3
23	Mobil-Humphrey "A" Well No. 9	O	3
20	To be drilled - 100' FSL & 5' FWL		3
7	Mobil-Smith Well No. 2	H	4
13	To be drilled - 2522' FSL & 1220' FEL		4

(2) That the subject waterflood project is hereby designated the Mobil Langlie Mattix Humphrey Waterflood Project and 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 wells at orthodox and unorthodox locations within said waterflood project area as may be necessary to complete an efficient injection pattern; provided said wells are drilled no closer than 330 feet to the outer boundary of the Humphrey Queen Unit nor closer than 10 feet to any quarter-quarter section or subdivision inner boundary, and provided further, 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 monthly progress reports of the waterflood project herein authorized shall be submitted to the Commission in accordance with Rules 704 and 1120 of the Commission Rules and Regulations.

(4) That that portion of Order No. R-3426, dated June 5, 1968, which approved certain of the above wells as water injection wells is hereby superseded.

(5) 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

S E A L

ALEX J. ARMIJO, Member

esr/

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

by adding the following language in Paragraph (2) of the "FURTHER ORDERED" section of Order No. R-2403 immediately preceding the last two sentences of that paragraph: "Additional producing wells may be drilled within the boundaries of the Unit Area in exception to Rule 104 C 1 upon administrative approval by the Secretary Director provided that offsetting operators within 510' of said well shall be notified of such applications by certified mail."

(Attorney offers exhibits into record and makes closing statement)



CONTINENTAL OIL COMPANY

P. O. Box 460

HOBBS, NEW MEXICO 88240

PRODUCTION DEPARTMENT

HOBBS DIVISION

L. P. THOMPSON

Division Manager

G. C. JAMIESON

Assistant Division Manager

January 13, 1970

1001 NORTH TURNER
TELEPHONE 393-4141

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

Attention of Mr. A. L. Porter, Jr.,
Secretary-Director

Gentlemen:

Subject: Application for Hearing on Unorthodox Locations
MCA Unit No. 251

Forwarded herewith in triplicate is our application for authority to drill MCA Unit No. 251 at an unorthodox location and for amendment of Order R-2403 to provide for administrative approval of other unorthodox locations within the unit area. Please set this matter for hearing on your February 4, 1970 examiner docket.

Yours very truly,

VTL-JS

Enc.

RLA JWK JJB

DOCKET MAILED

Date 1-23-70

BEFORE THE OIL CONSERVATION COMMISSION
OF THE
STATE OF NEW MEXICO

IN THE MATTER OF THE APPLICATION OF
CONTINENTAL OIL COMPANY FOR AUTHORITY
TO DRILL THE MCA UNIT WELL NO. 251 AT
AN UNORTHODOX LOCATION 1100 FEET FROM
THE SOUTH LINE AND 2600 FEET FROM THE
WEST LINE OF SECTION 21, TOWNSHIP 17
SOUTH, RANGE 32 EAST, AND FOR AMENDMENT
OF ORDER NO. R-2403 TO PROVIDE FOR
ADMINISTRATIVE APPROVAL OF SUCH UNORTHODOX
LOCATIONS.

Case 4304

A P P L I C A T I O N

Comes now, Continental Oil Company and respectfully requests authority to drill its MCA Unit Well No. 251 as a producing well at an unorthodox location 1100 feet from the South Line and 2600 feet from the West Line of Section 21, T-17S, R-32E, Lea County, New Mexico, in the Maljamar Grayburg-San Andres Pool and for amendment of Order No. R-2403 to provide for administrative approval of unorthodox locations, and in support thereof would show:

1. Applicant is the operator of the MCA Unit covering the Grayburg San Andres formation within the Maljamar Pool on lands contained in Township 17 South, Range 32 East, and Township 17 South, Range 33 East, Lea County, New Mexico.
2. Order No. R-2403 approved the MCA Unit Agreement and authorized a waterflood project within the unit area.
3. A waterflood project was begun by installing a pilot water flood with a well density less than 40 acres per well.
4. Said waterflood project has been expanded to cover the entire unit area on an 80-acre five-spot pattern.
5. Applicant is currently evaluating the feasibility and advisability of developing certain portions of the unit area on a greater well density.
6. The proposed MCA Unit Well No. 251 will assist in said evaluation.

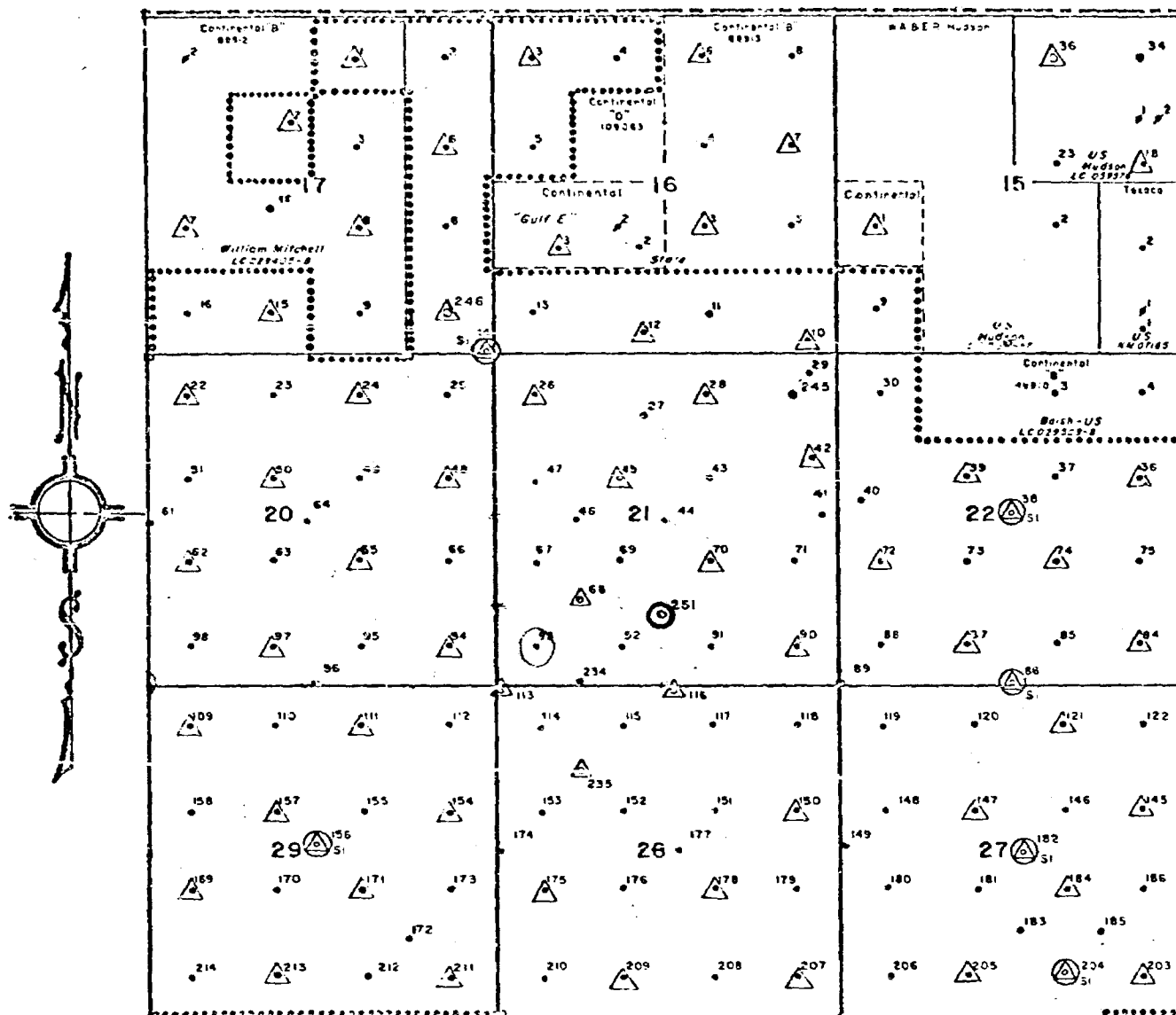
7. In the event wells are drilled on a greater density, such additional wells will be required at unorthodox locations.
8. The granting of this application will prevent waste and protect correlative rights.

WHEREFOR, Applicant respectfully prays that this matter be set for hearing before the Commission's duly appointed examiner and upon hearing, an order be entered authorizing the unorthodox location of MCA Unit Well No. 251 and amending Order No. R-2403 as described above.

Respectfully submitted,
CONTINENTAL OIL COMPANY


G. C. Jamieson
Assistant Division Manager

VTL-JS



○ SUBJECT WELL

CONTINENTAL OIL COMPANY
 PRODUCTION DEPARTMENT
 HOBBS DIVISION
 MALJAMAR POOL AREA
 Lea County, New Mexico

Gas Injection Well
 Water Injection Well
 MCA UNIT Boundary
 Participating Area

Scale: 1" = 1/4 mile
 0 1000 2000

PFL

Case 4304

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:

CASE No. 4304

Order No. R-

APPLICATION OF CONTINENTAL OIL COMPANY
FOR AN UNORTHODOX OIL WELL LOCATION AND
AMENDMENT OF ORDER NO. R-2403, LEA COUNTY,
NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on February 4, 1970,
at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this day of February, 1970, 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, Continental Oil Company, as opera-
tor of the MCA Unit approved by Commission Order No. R-2403,
seeks authority to drill its MCA Unit Well No. 251, a producing
oil well, at an unorthodox location 1100 feet from the South line
and 2600 feet from the West line of Section 21, Township 17 South,
Range 32 East, NMPM, Maljamar Grayburg-San Andres Pool, Lea County,
New Mexico, as an infill well in said MCA Unit project area.

(3) That the proposed unorthodox location is necessary to
provide an efficient oil producing pattern.

(4) That the applicant also seeks the amendment of said Order
No. R-2403 to provide for the establishment of an administrative

procedure whereby the Secretary-Director of the Commission may authorize additional producing wells and injection wells at unorthodox locations within said MCA Unit Area as may be necessary to complete an efficient production and injection pattern.

(4) That approval of the aforesaid amendment will afford the applicant the opportunity to produce its just and equitable share of the oil in the Maljamar Grayburg-San Andres Pool, and will otherwise prevent waste and protect correlative rights, and injection wells provided said producing wells/are drilled no closer than 330 feet to the outer boundary of said MCA Unit nor closer than 10 feet to any quarter-quarter section or subdivision inner boundary.

IT IS THEREFORE ORDERED:

That the applicant, Continental Oil Company, is hereby authorized to drill its MCA Unit Well No. 251, a producing oil well, at an unorthodox location 1100 feet from the South line and 2600 feet from the West line of Section 21, Township 17 South, Range 32 East, NMPM, Maljamar Grayburg-San Andres Pool, Lea County, New Mexico, as an infill well in its MCA Unit Area approved by Commission Order No. R-2403.

IT IS FURTHER ORDERED:

(1) That Order (2) of "IT IS FURTHER ORDERED" of Order No. R-2403, as amended by Order No. R-3375, is hereby further amended *by the addition of a second paragraph, as follows:*
~~to authorize the Secretary-Director of the Commission to also~~ *is hereby*
~~authorized to~~
approve such additional producing wells and injection wells at *Maljamar Cooperative Agreement*
unorthodox locations within the boundaries of the ~~MCA~~ Unit Area
as may be necessary to complete an efficient production and injection pattern; provided said wells are drilled no closer than 330 feet to the outer boundary of said MCA Unit nor closer

than 10 feet to any quarter-quarter section or subdivision inner boundary, and provided further, 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 ~~affected~~ operators, if any there be, and no such operator has objected within 10 days.

(2) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

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

owning acreage offsetting the quarter-quarter section upon which the well is to be located

The Secretary/Director may grant immediate approval of the application upon receipt of written waivers of objection from all such offset operators.

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. 2718
Order No. R-2403

APPLICATION OF CONTINENTAL OIL COMPANY,
AS OPERATOR, FOR APPROVAL OF A SUPPLE-
MENTAL COOPERATIVE AGREEMENT UNITIZING
CERTAIN LEASES, A PLAN OF OPERATION FOR
CONTINUED GAS AND WATER INJECTION, MODI-
FICATION OF ALLOCATION METHOD FOR TRANS-
FER OF ALLOWABLES, CERTAIN ADMINISTRATIVE
PROCEDURES, AND PERMISSION TO PRODUCE MORE
THAN 16 WELLS INTO A SINGLE TANK BATTERY,
MALJAMAR COOPERATIVE AGREEMENT AREA,
MALJAMAR POOL, LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on December 6, 1962, at Santa Fe, New Mexico, before Daniel S. Nutter, Examiner duly appointed by the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission," in accordance with Rule 1214 of the Commission Rules and Regulations.

NOW, on this 31st day of December, 1962, the Commission, a quorum being present, having considered the application, the evidence adduced, and the recommendations of the Examiner, Daniel S. Nutter, 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, by Order No. 485, the Commission approved the Maljamar Cooperative Repressuring Agreement, said agreement having been entered into on August 5, 1941, by the parties signatory thereto, for pressure maintenance in the Grayburg-San Andres formations under the Maljamar Cooperative Repressuring Agreement area in the Maljamar Pool, Lea County, New Mexico, unitizing gas in the area, making provisions for gas injection wells, and the expansion thereof by administrative approval. The order further provided that the proration units within the committed area

should not exceed the production of 44 barrels of oil daily; provided for expansion of the committed area by administrative approval; provided for the management of said project by the Operators Committee; and included other provisions for the conduct of the repressuring program.

(3) That, by Order No. 595, the Commission amended Order No. 485 and provided a method of allocation to the committed area and the reallocation to the respective proration units on a basis which included an acreage allowable up to 15 barrels per day, a maximum marginal well allowable of 20 barrels per day, and a void space allowable determined by reservoir conditions as reflected by each well's bottomhole pressure and gas-oil ratio.

(4) That numerous other orders have been entered approving additional injection wells for expansion of the repressuring program and for non-standard locations for both injection and producing wells. The order number or date of administrative approval providing for the present injection wells or non-standard locations is set out in the attached Exhibit "A".

(5) That, by Order No. R-841, the Commission approved the injection of water into the Pearl "B" Well No. 26, located 2615 feet from the South line and 25 feet from the West line of Section 30, Township 17 South, Range 33 East, NMPM, Lea County, New Mexico. By Order No. R-1075 the Commission authorized the expansion of Order No. R-841 to include the drilling and conversion of certain other wells to water injection wells, said wells also being listed on Exhibit "A" attached. The order further provided for administrative approval for expansion of the water injection program.

(6) That by adoption of Supplement No. 4 to the Maljamar Cooperative Repressuring Agreement, the applicant, Continental Oil Company, was elected Chairman of the Operators Committee and the name was changed to the Maljamar Cooperative Agreement.

(7) That the owners in the Maljamar Cooperative Agreement area have adopted Supplement No. 5 to the Maljamar Cooperative Agreement with Continental Oil Company as Operator of the Participating Area. The effect of Supplement No. 5 is to unitize all liquid hydrocarbons in the Grayburg-San Andres formations underlying the Participating Area, and to adopt a Plan of Operations for the expansion of the pressure maintenance program by gas and water injection.

(8) That the pressure maintenance program heretofore carried out has been successful and that approval of Supplement No. 5 and the Plan of Operation contemplated thereunder, and a revision of the allocation method for transferring allowables should increase the efficiency and ultimate recovery of the pressure maintenance program.

(9) That said repressuring project was instituted during the early primary life of the Maljamar Pool; that the Maljamar Pool, without the benefit of fluid injection, would be in or approaching a "stripper" state of depletion, and that any secondary recovery project instituted at the present time would in all probability be classified by the Commission as a water-flood project subject to Commission Rule 701-E governing water-flood projects.

(10) That to afford continuity of operations under the existing pressure maintenance rules, the present void space formula for the project should remain in effect, with the added privilege of allowable transfer for injection tracts, for wells shut-in for engineering reasons, and for wells incapable of making their computed share of the void space allowable. Provided however, that the maximum allowable assigned to any 40-acre proration unit should be limited to the Southeast New Mexico Waterflood Allowable Factor currently in effect or as modified by future orders of the Commission.

(11) That, by application in this case, Continental Oil Company, as Chairman for the Maljamar Cooperative Agreement area and operator of the Participating Area, seeks the consolidation of prior orders, modification of the allocation method for transfer of allowables, an administrative procedure for expansion or revision of the fluid injection program and expansion of the Participating Area within the Maljamar Cooperative Agreement boundaries; further, applicant seeks an exception to the provisions of Rule 309-A of the Commission Rules and Regulations to permit production of more than sixteen proration units into a single tank battery.

(12) That the proposed program will promote conservation and will tend to prevent waste through the production of oil which might not otherwise be recovered.

IT IS THEREFORE ORDERED:

(1) That the Maljamar Cooperative Repressuring Agreement and its supplements, including Supplement 4 which changed the name to Maljamar Cooperative Agreement and appointed Continental Oil Company as Chairman of the Operators Committee, are hereby continued in effect.

(2) That Supplement No. 5, being a Supplemental and Amendatory Agreement to the Maljamar Cooperative Agreement, and the initial Plan of Operations pursuant thereto, are hereby approved.

(3) That all oil produced from the Grayburg-San Andres formations underlying the Participating Area, as hereinafter

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CASE No. 2718
Order No. R-2403

defined, is fully unitized as provided in said Supplement No. 5, and all gas produced and utilized as provided in said Supplements No. 4 and No. 5 is fully unitized as provided therein.

(4) That the Cooperative Area, heretofore approved by this Commission for pressure maintenance of the Grayburg-San Andres formations and hereinafter called MCA Unit Area, consists of the following lands:

TOWNSHIP 17 SOUTH, RANGE 32 EAST, NMPM
LEA COUNTY, NEW MEXICO

Sections 14 to 23, inclusive
Sections 25 to 35, inclusive

TOWNSHIP 17 SOUTH, RANGE 33 EAST, NMPM
LEA COUNTY, NEW MEXICO

Section 30: W/2

containing 13,786.66 acres, more or less.

That the following-described lands lying within such Cooperative Area are hereby designated and recognized as constituting the Participating Area for the Grayburg-San Andres formations:

TOWNSHIP 17 SOUTH, RANGE 32 EAST, NMPM
LEA COUNTY, NEW MEXICO

Section 15: SW/4 SW/4
Section 16: S/2 S/2, W/2 NW/4, and
NE/4 NW/4
Section 17: E/2 E/2 and NW/4 NE/4,
SE/4 NW/4, and S/2 SW/4
Section 18: SW/4 SW/4
Section 19: All
Section 20: All
Section 21: All
Section 22: NW/4 NW/4, S/2 NW/4, S/2 NE/4,
and S/2
Section 23: W/2, S/2 NE/4, and SE/4
Section 25: N/2, N/2 SW/4, N/2 SE/4 and
SE/4 SE/4
Section 26: N/2, SW/4, and NW/4 SE/4
Section 27: All
Section 28: All
Section 29: All
Section 30: All
Section 31: NE/4 NW/4
Section 33: N/2
Section 34: W/2 NW/4, NE/4 NW/4, and
NW/4 NE/4

TOWNSHIP 17 SOUTH, RANGE 33 EAST, NMPM
LEA COUNTY, NEW MEXICO
Section 30: NW/4 and N/2 SW/4

containing 8,055.16 acres, more or less.

That the Participating Area described above and the following-described lands lying outside of the Participating Area but within the Cooperative Area, are hereby designated and recognized as constituting the committed acreage to the Maljamar Cooperative Agreement:

TOWNSHIP 17 SOUTH, RANGE 32 EAST, NMPM
LEA COUNTY, NEW MEXICO
Section 14: SW/4 (156.25 acres of 160-acre tract), and E/2
Section 16: NE/4, N/2 SE/4, and SE/4 NW/4
Section 17: SW/4 NE/4, W/2 SE/4, N/2 NW/4, SW/4 NW/4, and N/2 SW/4
Section 18: E/2, E/2 W/2, and Lots 1, 2 and 3
Section 22: N/2 NE/4 and NE/4 NW/4
Section 23: N/2 NE/4
Section 25: SW/4 SE/4, and S/2 SW/4
Section 26: NE/4 SE/4, and S/2 SE/4
Section 31: E/2, SE/4 NW/4, E/2 SW/4, and Lots 1, 2, 3 and 4
Section 32: NE/4 and N/2 NW/4, below 5,000 feet only
Section 33: S/2
Section 34: N/2 SE/4 below 5,000 feet only, NE/4 NE/4, S/2 NE/4, and SE/4 NW/4
Section 35: W/2

TOWNSHIP 17 SOUTH, RANGE 33 EAST, NMPM
LEA COUNTY, NEW MEXICO
Section 30: Lot 4, and SE/4 SW/4

(5) That the fully Unitized Area shall be those lands designated above as the Participating Area of the MCA Unit for the Grayburg-San Andres formation.

(6) That the Participating Area may be enlarged as provided in said Supplement No. 5 and additional acreage committed to the MCA Unit; provided, however, that administrative approval for the expansion of the Participating Area or the committed acreage must be obtained from the Secretary-Director of the Commission; and provided, further, that any extension of the Cooperative Area, or of the Unitized Area beyond the boundaries of the Cooperative Area as described herein, shall be made only after notice and hearing.

(7) That the MCA Unit operator shall file with the Commission an executed original or executed counterpart of the Supplement No. 5 within thirty (30) days after the effective date thereof. In the event of subsequent joinder by any party or expansion of the Participating Area, the unit operator shall file with the Commission within thirty (30) days thereafter counterparts of the unit agreement reflecting the subscription of those interests having subsequently joined or ratified.

IT IS FURTHER ORDERED:

(1) That the applicant, Continental Oil Company, as operator, is hereby authorized to continue the gas and water injection project authorized by Orders 485, 595, and R-841, and to continue and expand the water injection project as further authorized by Order No. R-1075 and as proposed by the Plan of Operations submitted with Supplement No. 5.

*amended
R 3375*

(2) That the MCA Unit approved gas and water injection wells shall be those wells listed in Exhibit "A" attached hereto. Additional wells may be drilled for gas or water injection, gas injection wells may be converted to water injection, water injection wells may be converted to gas injection wells, and producing wells may be converted to injection wells and injection wells to producing wells within the boundaries of the Maljamar Cooperative Agreement Area upon administrative approval of the Secretary-Director of the Commission without notice or hearing; provided, however, that all information required by Rule 701-B of the Commission Rules and Regulations shall be included in the application for administrative approval; and provided, further, that all offset operators to the well, if any there be, whose acreage is not included within the Participating Area, ~~and the State Engineer~~ shall also be notified by registered or certified mail of such request for administrative approval. The Secretary-Director may approve the application if no such offset operator ~~or the State Engineer~~ has objected within 20 days. The Secretary-Director may grant immediate approval of the application upon receipt of written waivers of objection from all such offset operators ~~and the State Engineer~~.

(3) That the allocation to the Participating Area and other committed leases within the MCA Unit Area and the reallocation to the respective proration units therein shall be made upon the following plan:

- (a) The unit operator shall submit to the Commission for approval the nomination in total barrels daily and schedule of reallocation to the respective proration units. Said nomination and schedule shall be submitted to the Commission and a duplicate shall be supplied to the Hobbs District Office of

the Commission not later than the twentieth day of each month preceding the next proration month.

- (b) Each proration unit shall be assigned an acreage allowable in whatsoever amount it is capable of producing up to but not exceeding fifteen (15) barrels daily, unless the unit operator nominates a lesser amount per proration unit.
- (c) Each proration unit capable of producing the acreage allowable but incapable of producing the acreage allowable plus the allowable assignable through the application of the void space formula hereinafter provided shall be assigned an allowable equal to that volume of oil shown on its production test.
- (d) All proration units capable of producing said acreage allowable plus the allowable allocated through the application of the void space formula shall be assigned a proportionate part of the total void space allowable so that each said proration unit will share in the void space allocation in inverse proportion to the amount of reservoir space voided as reflected by its production tests in strict accordance with the following formula:

Proration Unit Reciprocal
$$\frac{\text{Void Space Factor}}{\text{Summation of MCA Unit Reciprocal Void Space Factors}} \times \text{Void Space Allowable} = \text{Number of Barrels}$$

The reciprocal void space factors to be determined from the attached Exhibit "B", being a table of "BARRELS OF RESERVOIR SPACE VOIDED IN PRODUCING ONE BARREL OF STOCK TANK OIL, AND THE RECIPROCAL FACTOR THERETO, AT GIVEN GAS-OIL RATIOS AND RESERVOIR PRESSURES."

- (e) A proration unit upon which is located a newly completed or reconditioned well shall be assigned an allowable in accordance with its acreage and void space allowable from the first day of production of new oil.

- (f) The proration units within the MCA Unit Area shall have a top daily oil allowable equal to the Southeast New Mexico Waterflood Allowable Factor currently in effect or as modified by future orders of the Commission, subject to the acreage and void space allowable allocations. A proration unit must have either a producing well, an injection well or a shut-in well capable of production before it can receive an allowable assignment.
- (g) Bottomhole pressure surveys and gas-oil ratio tests shall be taken and filed with the Commission in accordance with the Commission Rules and Regulations every six (6) months or at such periods as the Commission in its discretion may prescribe from time to time. All bottomhole pressures shall be computed to a common datum of sea level.
- (h) In no event shall any well producing from horizons other than the Grayburg-San Andres formations be prorated under this plan of allocation.

(4) That the operator is hereby authorized to transfer the top unit allowable from any proration unit containing only an injection well, or a well shut-in for engineering reasons and approved by the Commission, to any well or wells assigned a top unit allowable under the void space formula and capable of making the transferred allowable or portion thereof. Where a well is incapable of producing its calculated void space allowable, the difference between its capability and that allowable assigned by the void space formula may likewise be transferred to any well or wells assigned a top unit allowable under the void space formula capable of making the transferred allowable or a portion thereof. Provided however, that no allowable shall be transferred across the boundary of the Participating Area or across the boundary of any lease outside the Participating Area without notice and hearing.

(5) That an exception is hereby granted to the provisions of Rule 309-A of the Commission Rules and Regulations to permit the production of more than sixteen wells into a single tank battery. Operator shall notify the Commission of the location of any central tank battery at the time of its installation.

(6) That no well in the MCA Unit Area that is within the Participating Area and is closer than 1000 feet to the boundary thereof or that is outside the Participating Area and is closer than 1000 feet to the Participating Area or to another lease shall produce in excess of two times the top unit allowable for the MCA Unit Area. The Secretary-Director may, upon application

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CASE No. 2718
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filed in due form, approve production in excess of two times the top unit allowable if all offset operators have been notified of the application and no objection has been received within ten days. The Secretary-Director may grant immediate approval of such application upon receipt of written waivers of objection from all such offset operators.

(7) That all previous orders pertaining to the MCA Unit are hereby superseded insofar as they are inconsistent with this order.

(8) 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 herein-above designated.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

JACK M. CAMPBELL, Chairman

E. S. WALKER, Member

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

S E A L

esr/

NMOCC ORDERS AND ADMINISTRATIVE APPROVALS AFFECTING
MCA UNIT INJECTION WELLS AND NON-STANDARD LOCATIONS

ORDER NO. R-2403
EXHIBIT "A"
Page 1

<u>WELL NAME IN ORIGINAL ORDER:</u>	<u>PRESENT WELL NAME</u>	<u>LOCATION</u>	<u>ORDER AUTHORIZING NSL</u>	<u>ORDER AUTHORIZING INJECTION</u>
<u>Maljamar Oil & Gas Company</u> <u>Balsh A-8</u>	<u>Continental Oil Company</u> <u>Balsh A No. 8</u>	1980' FNL, 660' FWL, Sec. 21, T17S, R32E	-	485
<u>Barney Cockburn</u> <u>Miller A-6</u>	<u>Miller A No. 6</u>	1980' FNL, 660' FWL, Sec. 26, T17S, R32E	-	485
<u>Buffalo Oil Company</u> <u>Wm. Mitchell B No. IP 4</u>	<u>Wm. Mitchell B No. 33</u>	2610' FSL, 2640' FEL, Sec. 19, T17S, R32E	Administrative Approval 4-6-45	Administrative Approval 4-6-45
<u>Wm. Mitchell B No. IP 5</u>	<u>Wm. Mitchell B No. 42</u>	2615' FSL, 2610' FWL, Sec. 20, T17S, R32E	Administrative Approval 4-6-45	Administrative Approval 4-6-45
<u>Wm. Mitchell B-IP No. 12</u>	<u>Wm. Mitchell B No. 44</u>	25' FSEL, Sec. 19, T17S, R32E	Administrative Approval 4-6-45	Administrative Approval 4-6-45
<u>Wm. Mitchell B No. 17</u>	<u>Wm. Mitchell B No. 17</u>	660' FSEL, Sec. 17, T17S, R32E	-	Administrative Approval 4-25-57
<u>Wm. Mitchell E-IP No. 18</u>	<u>Wm. Mitchell B No. 45</u>	2615' FSL, 25' FWL, Sec. 20, T17S, R32E	Administrative Approval 4-6-45	Administrative Approval 4-6-45
<u>Wm. Mitchell B-IP No. 36</u>	<u>Wm. Mitchell B No. 36</u>	25' FSL, 2590' FWL, Sec. 20, T17S, R32E	Administrative Approval 4-6-45	Administrative Approval 4-6-45
<u>Balsh B No. IP 10</u>	<u>Balsh B No. 16</u>	25' FSL, 50' FWL, Sec. 22, T17S, R32E	Administrative Approval 4-6-45	Administrative Approval 4-6-45
<u>Balsh A No. IP 19</u>	<u>Balsh A No. 28</u>	2530' FNL, 215' FEL, Sec. 21, T17S, R32E	Administrative Approval 11-27-51	Administrative Approval 11-27-51
<u>Balsh B No. IP 20</u>	<u>Balsh B No. 17</u>	2555' FNL, 2615' FWL, Sec. 22, T17S, R32E	Administrative Approval 4-6-45	Administrative Approval 4-6-45
<u>Balsh A No. IP 26</u>	<u>Balsh A No. 26</u>	2615' FNL, Sec. 21, T17S, R32E	Administrative Approval 4-6-45	Administrative Approval 4-6-45
<u>Balsh B No. IP 27</u>	<u>Balsh B No. 18</u>	25' FSL, 2610' FWL, Sec. 22, T17S, R32E	Administrative Approval 4-6-45	Administrative Approval 4-6-45

WELL NAME IN ORIGINAL ORDER	PRESENT WELL NAME	LOCATION	ORDER AUTHORIZING NSL	REMARKS
<u>PRODUCING WELLS - NSL</u>				
<u>Kewanee Oil Company</u> <u>Pearl 21 B</u>	<u>Continental Oil Company</u> <u>Pearl B No. 21</u>	2665' FNL, 1295' FWL, Sec. 25, T17S, R32E 2615' FSL, 1345' FWL, Sec. 25, T17S, R32E 1295' FSL, 2615' FWL, Sec. 27, T17S, R32E 2600' FNL, 25' FWL, Sec. 27, T17S, R32E 1345' FSEL, Sec. 27, T17S, R32E	763 763 735 Administrative Approval 4-6-45 R-484	Administrative Approval 4-3-57 for recompletion in Meljamar Pool Administrative Approval 4-3-57 for recompletion in Meljamar Pool
Pearl 23 B	Pearl B No. 23			
Balsh B 32	Queen B No. 32			
Balsh B 34	Queen B No. 34			
Balsh B 37	Queen B No. 37			
Pearsall A No. 14	Pearsall A No. 14	1345' FNL, 2615' FWL, Sec. 33, T17S, R32E	R-484	
<u>Buffalo Oil Company</u> <u>Balsh A 20</u>	Balsh A No. 20	2615' FNL, 1295' FWL, Sec. 21, T17S, R32E 1395' FSL, 1347' FWL, Sec. 21, T17S, R32E 250' FSEL, Sec. 21, T17S, R32E 250' FSEL, Sec. 16, T17S, R32E	793 821 Discovery Well Old Well	Drilled 7-16-26 Drilled 1927
Balsh A 21	Balsh A No. 21			
Balsh A No. 1	Balsh A No. 1			
State A No. 1	State A No. 1			
<u>Carpenter Drilling Company</u> <u>Simon #9-N</u>	<u>Carpenter Drilling Company</u> <u>Simon N No. 9</u>	1345' FWL, 1295' FSL, Sec. 29, T17S, R32E	823	
<u>Sears</u> <u>Miller No. 5</u>	<u>Sears</u> <u>Miller A No. 5</u>	1295' FSL, 1370' FWL, Sec. 26, T17S, R32E	761	

BARRELS OF RESERVOIR SPACE VOIDED IN PRODUCING ONE BARREL OF STOCK TANK-OIL, AND
THE RECIPROCAL FACTOR THEREOF, AT GIVEN GAS OIL RATIOS AND RESERVOIR PRESSURES

Order No. R-2403
Exhibit "B"
Page 1

	Gas Oil Ratios														
	400	500	600	700	800	900	1000	1200	1400	1600	1800	2000	2200	2400	2600
1300	1.11 .900	1.27 .787	1.43 .699	1.59 .630	1.75 .571	1.91 .524	2.07 .483	2.39 .418	2.70 .370	3.02 .331	3.34 .299	3.66 .273	3.98 .251	4.30 .233	4.61 .217
1250	1.10 .909	1.27 .787	1.44 .694	1.61 .621	1.77 .565	1.94 .515	2.11 .474	2.44 .410	2.78 .360	3.11 .322	3.45 .290	3.78 .265	4.12 .243	4.45 .225	4.78 .209
1200	1.10 .909	1.28 .781	1.45 .690	1.63 .613	1.80 .556	1.98 .505	2.15 .465	2.51 .398	2.86 .350	3.21 .312	3.56 .281	3.91 .256	4.26 .235	4.62 .216	4.97 .201
1150	1.09 .917	1.28 .781	1.46 .685	1.65 .606	1.83 .546	2.02 .495	2.20 .455	2.57 .389	2.94 .340	3.31 .302	3.68 .272	4.05 .247	4.42 .226	4.79 .209	5.16 .194
1100	1.08 .926	1.28 .781	1.47 .680	1.67 .599	1.86 .538	2.06 .485	2.25 .444	2.65 .377	3.04 .329	3.43 .292	3.82 .262	4.21 .238	4.60 .217	5.00 .200	5.39 .186
1050	1.07 .935	1.28 .781	1.48 .676	1.69 .592	1.90 .526	2.11 .474	2.31 .433	2.73 .366	3.14 .318	3.55 .282	3.97 .252	4.38 .228	4.80 .208	5.21 .192	5.63 .178
1000	1.06 .943	1.28 .781	1.50 .667	1.72 .581	1.94 .515	2.16 .463	2.37 .427	2.81 .356	3.25 .308	3.69 .271	4.13 .242	4.57 .219	5.00 .200	5.44 .184	5.88 .170
950	1.07 .934	1.31 .763	1.54 .649	1.78 .562	2.01 .498	2.24 .446	2.47 .405	2.94 .340	3.41 .293	3.87 .254	4.34 .230	4.81 .208	5.27 .190	5.74 .174	6.21 .161
900	1.09 .917	1.34 .746	1.59 .630	1.84 .543	2.09 .478	2.34 .427	2.58 .388	3.08 .325	3.58 .279	4.08 .245	4.58 .218	5.08 .197	5.57 .180	6.07 .165	6.57 .152
850	1.11 .900	1.38 .725	1.64 .610	1.91 .524	2.18 .459	2.45 .408	2.71 .369	3.24 .309	3.78 .265	4.31 .232	4.84 .207	5.38 .186	5.91 .169	6.44 .155	6.98 .143
800	1.13 .885	1.42 .704	1.71 .585	2.00 .500	2.28 .439	2.57 .389	2.85 .351	3.42 .292	4.00 .250	4.57 .219	5.14 .195	5.71 .175	6.29 .159	6.86 .146	7.43 .135
750	1.16 .862	1.47 .680	1.78 .562	2.09 .478	2.40 .417	2.71 .369	3.01 .332	3.63 .275	4.25 .235	4.86 .206	5.48 .182	6.10 .164	6.71 .149	7.33 .136	7.94 .126
700	1.20 .833	1.54 .649	1.87 .535	2.21 .452	2.54 .394	2.87 .348	3.20 .313	3.87 .258	4.54 .220	5.21 .192	5.88 .170	6.54 .153	7.21 .139	7.88 .127	8.55 .117
650	1.25 .800	1.61 .621	1.97 .508	2.34 .427	2.70 .370	3.07 .326	3.43 .292	4.15 .241	4.88 .205	5.61 .178	6.34 .158	7.06 .142	7.79 .128	8.52 .117	9.25 .108
600	1.30 .769	1.70 .588	2.10 .476	2.50 .400	2.89 .346	3.29 .304	3.68 .272	4.48 .223	5.27 .190	6.06 .165	6.86 .146	7.65 .131	8.45 .118	9.24 .108	10.03 .100
550	1.37 .730	1.81 .552	2.25 .444	2.69 .372	3.12 .321	3.56 .281	3.99 .251	4.87 .205	5.74 .174	6.62 .151	7.49 .134	8.36 .120	9.24 .108	10.11 .099	10.98 .091
500	1.46 .685	1.95 .513	2.43 .412	2.92 .342	3.40 .294	3.89 .257	4.37 .226	5.33 .188	6.30 .159	7.27 .138	8.24 .121	9.21 .109	10.18 .098	11.15 .090	12.11 .083
450	1.58 .633	2.12 .472	2.66 .376	3.21 .312	3.75 .267	4.29 .233	4.83 .207	5.92 .169	7.00 .143	8.09 .124	9.18 .109	10.26 .097	11.35 .088	12.43 .080	13.52 .074
400	1.73 .578	2.34 .427	2.95 .339	3.57 .280	4.18 .239	4.80 .208	5.41 .185	6.64 .151	7.87 .127	9.10 .110	10.33 .097	11.55 .087	12.78 .078	14.01 .071	15.24 .066

BARRELS OF RESERVOIR SPACE VOIDED IN PRODUCING ONE BARREL OF STOCK TANK-OIL, AND
THE RECIPROCAL FACTOR THEREOF, AT GIVEN GAS OIL RATIOS AND RESERVOIR PRESSURES

	Gas Oil Ratios											
	2800	3000	3200	3400	3600	3800	4000	4200	4400	4600	4800	5000
1300	4.93 .203	5.25 .190	5.57 .180	5.89 .170	6.21 .161	6.53 .153	6.84 .146	7.16 .140	7.48 .134	7.80 .128	8.12 .123	8.44 .118
1250	5.12 .195	5.45 .183	5.79 .173	6.12 .163	6.46 .155	6.79 .147	7.13 .140	7.46 .134	7.80 .128	8.13 .123	8.46 .118	8.80 .114
1200	5.32 .188	5.67 .176	6.02 .166	6.38 .157	6.73 .149	7.08 .141	7.43 .135	7.78 .129	8.14 .123	8.49 .118	8.84 .113	9.19 .109
1150	5.53 .181	5.90 .169	6.27 .159	6.64 .151	7.01 .143	7.38 .136	7.75 .129	8.12 .123	8.49 .118	8.86 .113	9.23 .108	9.60 .104
1100	5.70 .173	6.17 .162	6.56 .152	6.95 .144	7.34 .136	7.74 .129	8.13 .123	8.52 .117	8.91 .112	9.30 .108	9.69 .103	10.08 .099
1050	6.04 .166	6.45 .155	6.87 .146	7.28 .137	7.70 .130	8.11 .123	8.52 .117	8.94 .112	9.35 .107	9.77 .102	10.18 .098	10.59 .094
1000	6.32 .158	6.76 .148	7.20 .139	7.63 .131	8.07 .124	8.51 .118	8.95 .112	9.39 .106	9.83 .102	10.26 .097	10.70 .093	11.14 .090
950	6.67 .150	7.14 .140	7.61 .131	8.07 .124	8.54 .117	9.01 .111	9.47 .106	9.94 .101	10.41 .096	10.87 .092	11.34 .088	11.81 .085
900	7.07 .141	7.57 .132	8.07 .124	8.56 .117	9.06 .110	9.56 .105	10.06 .099	10.56 .095	11.06 .090	11.55 .087	12.05 .083	12.55 .080
850	7.51 .133	8.05 .124	8.58 .117	9.11 .110	9.65 .104	10.18 .098	10.71 .093	11.25 .088	11.78 .085	12.31 .081	12.85 .078	13.38 .075
800	8.00 .125	8.58 .117	9.15 .109	9.72 .103	10.29 .097	10.86 .092	11.44 .087	12.01 .083	12.58 .079	13.15 .076	13.73 .073	14.30 .070
750	8.56 .117	9.18 .109	9.79 .102	10.41 .096	11.03 .091	11.64 .086	12.26 .082	12.87 .078	13.49 .074	14.11 .071	14.72 .068	15.34 .065
700	9.22 .108	9.88 .101	10.55 .095	11.22 .089	11.89 .084	12.56 .080	13.22 .076	13.89 .072	14.56 .069	15.23 .066	15.90 .063	16.56 .060
650	9.97 .100	10.70 .093	11.43 .087	12.16 .082	12.88 .078	13.61 .073	14.34 .070	15.07 .066	15.79 .063	16.52 .061	17.25 .058	17.97 .056
600	10.83 .092	11.62 .086	12.41 .081	13.21 .076	14.00 .071	14.80 .068	15.59 .064	16.38 .061	17.18 .058	17.97 .056	18.76 .053	19.56 .051
550	11.86 .084	12.73 .079	13.61 .073	14.48 .069	15.35 .065	16.23 .062	17.10 .058	17.97 .056	18.85 .053	19.72 .051	20.60 .049	21.47 .047
500	13.08 .076	14.05 .071	15.02 .067	15.99 .063	16.96 .059	17.92 .056	18.89 .053	19.86 .050	20.83 .048	21.80 .046	22.77 .044	23.73 .042
450	14.60 .068	15.69 .064	16.77 .059	17.86 .056	18.95 .053	20.03 .050	21.12 .047	22.20 .045	23.29 .043	24.37 .041	25.46 .039	26.55 .038
400	16.47 .061	17.70 .056	18.93 .053	20.15 .050	21.38 .047	22.61 .044	23.84 .042	25.07 .040	26.30 .038	27.53 .036	28.76 .035	29.98 .033