No. 29-59

DOCKET: REGULAR HEARING AUGUST 13, 1959

Oil Conservation Commission 9 a.m., Mabry Hall, State Capitol, Santa Fe, New Mexico

Allowable: (1) Consideration of the oil allowable for September, 1959.

(2) Consideration of the allowable production of gas for September, 1959, from six prorated pools in Lea County, New Mexico, also consideration of the allowable production of gas from seven prorated pools in San Juan, Rio Arriba and Sandoval Counties, New Mexico.

CASE 1668: (Rehearing)
In the matter of the rehearing requested by Phillips Petroleum Company for reconsideration by the Commission of Case No. 1668 which was an application for an order promulgating temporary special rules and regulations for the Ranger Lake-Pennsylvanian Pool and certain adjacent acreage in Lea County, New Mexico, to provide for 80-acre proration units. The rehearing will be limited to a brief and argument on the legal propositions raised in the petition for rehearing and their application to the facts heretofore presented in said case.

NEW CASES

CASE 278: Application of Duval Sulphur and Potash Company for an extension of the Potash-Oil Area as set forth in Order R-111-A. Applicant, in the above-styled cause, seeks an order extending the Potash-Oil Area as defined in Order R-111-A, to incluse additional acreage in Townships 18, 22 and 23 South, Range 30 East, Eddy County, New Mexico.

CASE 278: Application of United States Borax & Chemical Corporation for an extension of the potash-oil area as defined in Order No. R-111-A. Applicant, in the above-styled cause, seeks an extension of the potash-oil area as defined in Order No. R-111-A to include additional acreage in Townships 21 and 22 South, Ranges 29 and 30 East, NMPM, Eddy County, New Mexico.

CASE 1735: Application of The Ohio Oil Company for an order promulgating special rules and regulations for the Bluitt-Pennsylvanian Pool in Roosevelt County, New Mexico. Applicant, in the above-styled cause, seeks an order promulgating special rules and regulations governing the drilling, spacing and production of wells in the Bluitt-Pennsylvanian Pool in Roosevelt County, New Mexico, including the establishment of 80-acre spacing for wells in said pool. Applicant further seeks an exception from the proposed spacing requirements for a well to be drilled in the NE/4 of Section 20, Township 8 South, Range 37 East.

CASE 1736: Application of Texas Crude Oil Company for 80-acre spacing for its State H N Well No. 1, producing from an undesignated Atoka pool and located 660 feet from the South line and 1982 feet from the West line of Section 16, Township 11 South, Range 33 East, Lea County, New Mexico.

CASE 1737: Southeastern New Mexico nomenclature case calling for an order creating and extending existing pools in Eddy and Lea Counties, New Mexico.

(a) Create a new oil pool for San Andres production, designated as the Eagle Creek-San Andres Pool, and described as:

TOWNSHIP 17 SOUTH, RANGE 25 EAST, NMPM
Section 14: SE/4

(b) Create a new oil pool for San Andres production, designated as the Jenkins-San Andres Pool, and described as:

TOWNSHIP 9 SOUTH, RANGE 35 EAST, NMPM
Section 30: SE/4

(c) Create a new oil pool for Yates production, designated as the Maljamar-Yates Pool, and described as:

TOWNSHIP 18 SOUTH, RANGE 32 EAST, NMPM
Section 5: NE/4

(d) Create a new oil pool for Paddock production, designated as the North Paddock Pool, and described as:

TOWNSHIP 21 SOUTH, RANGE 37 EAST, NMPM
Section 2: Lots 1-2-7-8

(e) Create a new oil pool for Tansill production, designated as the Parallel-Tansill Pool, and described as:

TOWNSHIP 20 SOUTH, RANGE 31 EAST, NMPM
Section 25: NW/4

(f) Extend the Crosby-Devonian Gas Pool to include therein:

TOWNSHIP 26 SOUTH, RANGE 37 EAST, NMPM
Section 4: NW/4

(g) Extend the Empire-Abo Pool to include therein:

TOWNSHIP 18 SOUTH, RANGE 27 EAST, NMPM
Section 3: NW/4

(h) Extend the West Henshaw-Grayburg Pool to include therein:

TOWNSHIP 16 SOUTH, RANGE 30 EAST, NMPM
Section 2: Lots 11-12-13-14

(i) Extend the High Lonesome Pool to include therein:

TOWNSHIP 16 SOUTH, RANGE 29 EAST, NMPM
Section 13: NE/4 & SW/4
Section 14: SE/4
Section 15: SE/4

(j) Extend the Justis Blinebry Pool to include therein:

TOWNSHIP 25 SOUTH, RANGE 37 EAST, NMPM

(l) Extend the Justis McKee Pool to include therein:

TOWNSHIP 25 SOUTH, RANGE 38 EAST, NMPM
Section 30: NW/4

(m) Extend the Langlie Mattix Pool to include therein:

TOWNSHIP 23 SOUTH, RANGE 37 EAST, NMPM
Section 22: SW/4

(n) Extend the East Millman-Queen-Grayburg Pool to include therein:

TOWNSHIP 19 SOUTH, RANGE 28 EAST, NMPM
Section 11: SE/4
Section 15: SE/4

(o) Extend the Pearl-Queen Pool to include therein:

TOWNSHIP 19 SOUTH, RANGE 35 EAST, NMPM
Section 34: NW/4

(p) Extend the North Red Lake Queen Pool to include therein:

TOWNSHIP 16 SOUTH, RANGE 28 EAST, NMPM
Section 34: NW/4

(q) Extend the Shugart Pool to include therein:

TOWNSHIP 18 SOUTH, RANGE 31 EAST, NMPM
Section 34: NW/4

(r) Extend the Sawyer-San Andres Pool to include:

TOWNSHIP 9 SOUTH, RANGE 38 EAST
Sections 20, 21, 28, and 29: All

Contract the South Sawyer-San Andres Pool to delete:

TOWNSHIP 9 SOUTH, RANGE 38 EAST
Section 28: SW/4 SW/4

CASE 1738: Northwestern New Mexico nomenclature case calling for an order extending existing pools in San Juan and Rio Arriba Counties, New Mexico.

(a) Extend the West Kutz-Fruitland Pool to include therein:

TOWNSHIP 29 NORTH, RANGE 12 WEST, NMPM
Section 18: SW/4

(b) Extend the Aztec-Pictured Cliffs Pool to include therein:

TOWNSHIP 28 NORTH, RANGE 10 WEST, NMPM
Section 13: SW/4
Section 24: N/2

(c) Extend the South Blanco-Pictured Cliffs Pool to include therein:

TOWNSHIP 24 NORTH, RANGE 2 WEST, NMPM
Section 28: N/2

TOWNSHIP 25 NORTH, RANGE 5 WEST, NMPM
Section 29: S/2

TOWNSHIP 27 NORTH, RANGE 6 WEST, NMPM
Section 2: N/2

(d) Extend the Tapacito-Pictured Cliffs Pool to include therein:

TOWNSHIP 25 NORTH, RANGE 3 WEST, NMPM
Section 15: SW/4

(e) Extend the Otero-Chacra Pool to include therein:

TOWNSHIP 25 NORTH, RANGE 5 WEST, NMPM
Section 29: E/2

(f) Extend the Bisti-Lower Gallup Oil Pool to include therein:

TOWNSHIP 24 NORTH, RANGE 9 WEST, NMPM
Section 6: S/2

TOWNSHIP 24 NORTH, RANGE 10 WEST, NMPM
Section 1: SE/4

(g) Extend the Escrito-Gallup Oil Pool to include therein:

TOWNSHIP 24 NORTH, RANGE 7 WEST, NMPM
Section 19: NE/4 NE/4
Section 20: N/2
Section 21: N/2 & SE/4

(h) Extend the Gallegos-Gallup Oil Pool to include therein:

TOWNSHIP 26 NORTH, RANGE 11 WEST, NMPM
Section 14: All
Section 15: All
Section 16: E/2
Section 22: N/2
Section 23: N/2 & SE/4
Section 26: NE/4

(i) Extend the Horseshoe-Gallup Oil Pool to include therein:

TOWNSHIP 30 NORTH, RANGE 16 WEST, NMPM
Section 5: W/2 & SE/4
Section 9: E/2 SE/4
Section 11: N/2 SE/4 & SE/4 SE/4
Section 13: W/2 NW/4 & NW/4 SW/4

TOWNSHIP 31 NORTH, RANGE 16 WEST, NMPM
Section 20: SW/4 SE/4
Section 34: NW/4 NW/4

TOWNSHIP 31 NORTH, RANGE 17 WEST, NMPM
Section 25: NE/4 NW/4 & N/2 SE/4

(j) Extend the Otero-Gallup Oil Pool to include therein:

TOWNSHIP 24 NORTH, RANGE 6 WEST, NMPM
Section 2: NE/4

TOWNSHIP 25 NORTH, RANGE 5 WEST, NMPM
Section 27: NW/4 & N/2 SW/4

TOWNSHIP 25 NORTH, RANGE 6 WEST, NMPM
Section 35: E/2
Section 36: All

CASE 1749:

In the matter concerning purchaser prorationing by Indiana Oil Purchasing Company in certain oil pools in Lea County, New Mexico, which prorationing is necessitated by refinery strikes.

pj/

OIL CONSERVATION COMMISSION
P. O. BOX 871
SANTA FE, NEW MEXICO

COPY

July 24, 1959

United States Borax
and Chemical Corporation
101 North Halagueno Street
Carlsbad, New Mexico

Gentlemen:

In processing your application for the extension of the potash-oil area as defined in Commission Order No. R-111-A, our records indicate that you have not filed the information as required in paragraphs 2 and 3 of Section IX of that order.

Please be reminded that this information is absolutely essential in the enforcement of the order and we will expect you to file the required information at once.

If your records indicate that you have complied with the abovementioned rules, please notify us immediately.

Very truly yours,

A. L. PORTER, Jr.
Secretary-Director

ALP/ir

Enclosure

STAGNER, SAGE AND WALKER
ATTORNEYS AT LAW
CARLSBAD, NEW MEXICO

JAMES W. STAGNER
RAY O. SAGE
JOHN B. WALKER

July 22, 1959

New Mexico Oil Conservation Commission
P. O. Box 871
Santa Fe, New Mexico

Dear Sir:

Herewith enclosed please find the Application of United States Borax & Chemical Corporation for the inclusion of certain acreage in the potash-oil area defined in Order No. R-111-A. It is desired that a hearing before the Commission be had on this application. Attached to the application is a list of names and addresses of persons known to United States Borax & Chemical Corporation whose interests might be affected by the granting of the Order.

The enclosure is in triplicate. If there is anything further we should do in connection with the application preliminary to hearing thereon, we would appreciate it if you would advise us.

Yours very truly,

STAGNER, SAGE AND WALKER

By: James W. Stagner
James W. Stagner

JWS/m
Encl.

cc: Mr. Paul Speer
Mr. Earl H. Miller

SHEA & GARDNER

1800 MASSACHUSETTS AVENUE, N.W.

WASHINGTON, D.C. 20036

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ROBERT T. BASSECHES
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JOHN D. ALDOCK
WILLIAM S. MOORE
JOHN TOWNSEND RICH
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R. JAMES WOOLSEY
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DAVID B. COOK
STEPHEN J. HADLEY

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L. KYM DAVIS*
D. BRUCE MYERS, JR.*
M. DAVID DOBBINS*

*NOT ADMITTED IN D.C.

July 29, 1998

Ms. May Morgan
New Mexico Oil Conservation Division
811 South First St.
Artesia, NM 88211

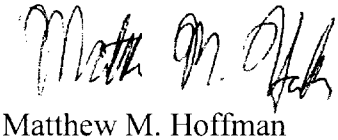
RE: Documents from case 278 file

Dear Ms. Morgan:

Enclosed are the documents that you sent me earlier this month from OCD case 278, relating to Orders R-111 and R-111-A. As we discussed at that time, I have made copies and am sending the originals back to you. I will let you know if I am interested in seeing anything else.

Thank you very much for your assistance. Please contact me at (202)-828-2165 if there are any problems.

Sincerely,



Matthew M. Hoffman

Enclosure

have included in the potash-oil area is as follows:

T. 21 S., R. 29 E., N.M.P.M.

Sec. 2,	W½ SW¼ and SE¼ SW¼	120 acres
Sec. 10,	E½ SE¼	40 acres
Sec. 11,	NW¼ and W½ SW¼	240 acres
Sec. 14,	NW¼ NW¼	40 acres
Sec. 15,	NE¼ NE¼	40 acres

T. 22 S., R. 30 E., N.M.P.M.

Sec. 4,	W½ W½	160 acres
Sec. 5,	S½ SE¼ and SE¼ SW¼	120 acres
Sec. 7,	NE¼ NE¼	40 acres
Sec. 8,	N½ and N½ SW¼	400 acres
Sec. 9,	W½ NW¼	80 acres
	Total acres:	1,280

4. There is attached hereto, marked Exhibit "A" and made a part of this application, a list showing the names of the persons and corporations who own existing oil and gas leases covering portions of the lands last above described as set opposite their names and the addresses of such persons or corporations, so far as the same are known to the applicant. Said list includes the names and addresses of all parties known to applicant who are interested in this application.

5. There is attached to this application and marked Exhibit "B" and made a part hereof, a plat showing the present boundaries of the potash-oil area which will be affected by this application. Said plat shows the Federal and State potassium and potash leases owned by applicant in said area, the location of core tests drilled on the lands above described, the location of present workings of the applicant on lands above described and the lands which applicant seeks to have included within the boundaries of the potash-oil area are designated upon said plat by appropriate legend.

6. A hearing upon this application is desired by the applicant before the Commission.

WHEREFORE APPLICANT PRAYS that the Commission set this matter for hearing before the Commission and that the Commission

give appropriate notice of such hearing as provided by its rules and regulations.

UNITED STATES BORAX & CHEMICAL CORPORATION

By Earl N. Jones
Resident Manager

STAGNER, SAGE AND WALKER

By [illegible]
Attorneys for Applicant
105½ South Canyon Street
Carlsbad, New Mexico

EXHIBIT "A"

LIST OF NAMES AND ADDRESSES OF PERSONS
AFFECTED BY APPLICATION

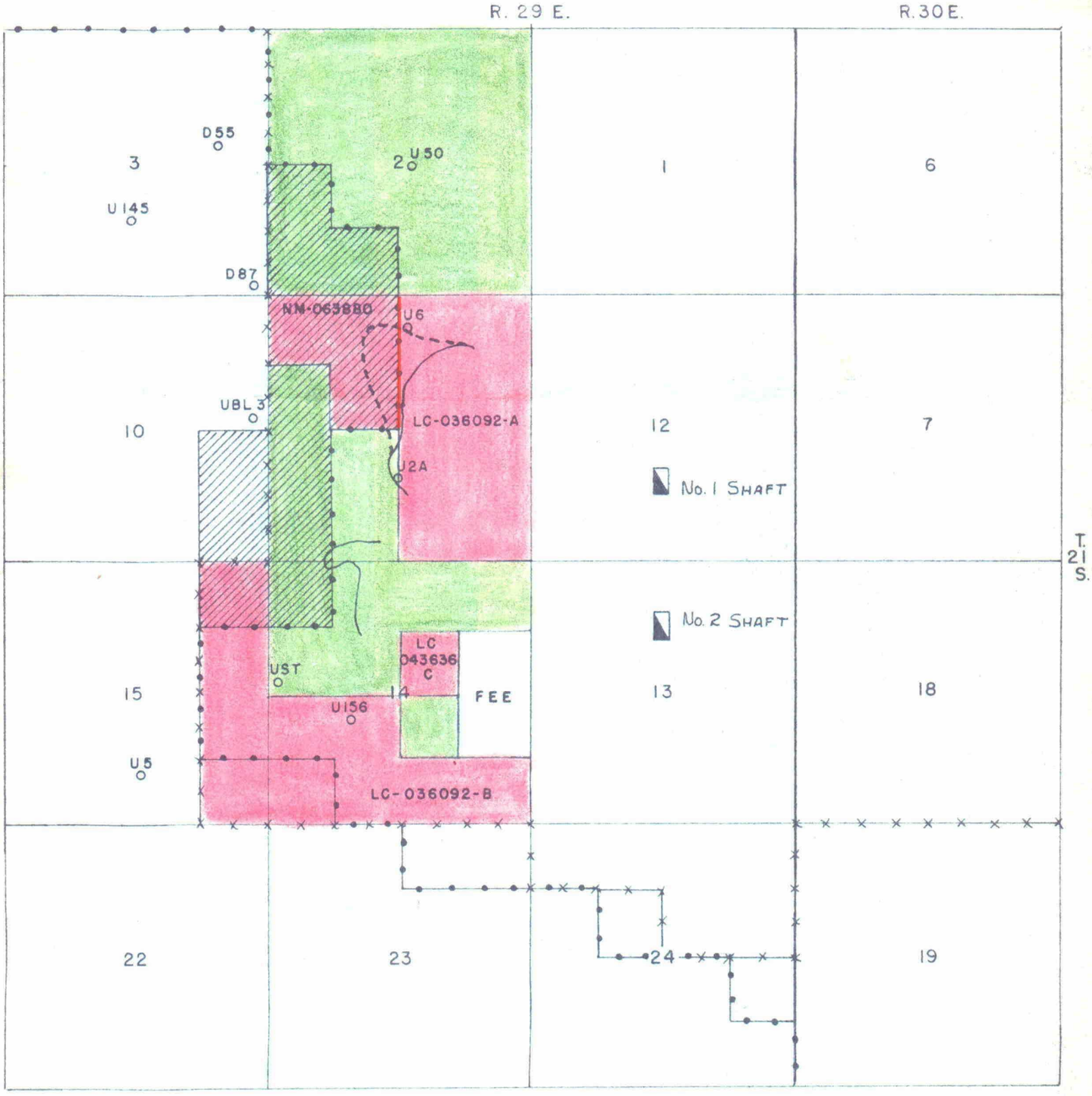
T-21-S, R-29-E

$S\frac{1}{2}$ & $NW\frac{1}{4}$ of $SW\frac{1}{4}$, Sec. 2	United States Borax & Chemical Corporation Carlsbad, New Mexico
$E\frac{1}{2}SE\frac{1}{4}$, Sec. 10	Mrs. Marian O. Harris 601 NW 38th Street Oklahoma City, Oklahoma
$E\frac{1}{2}NW\frac{1}{4}$, $NW\frac{1}{4}NW\frac{1}{4}$, Sec. 11	R. L. Burrow Roswell, New Mexico
$SW\frac{1}{4}NW\frac{1}{4}$, $W\frac{1}{2}SW\frac{1}{4}$, Sec. 11	United States Borax & Chemical Corporation Carlsbad, New Mexico
$NW\frac{1}{4}NW\frac{1}{4}$, Sec. 14	United States Borax & Chemical Corporation Carlsbad, New Mexico
$NE\frac{1}{4}NE\frac{1}{4}$, Sec. 15	Paul Blake Washington, D. C.

T-22-S, R-30-E

$W\frac{1}{2}W\frac{1}{2}$, Sec. 4 $S\frac{1}{2}SE\frac{1}{4}$, $SE\frac{1}{4}SW\frac{1}{4}$, Sec. 5 $NE\frac{1}{4}NE\frac{1}{4}$, Sec. 7 $N\frac{1}{2}$, $N\frac{1}{2}SW\frac{1}{4}$, Sec. 8 $W\frac{1}{2}NW\frac{1}{4}$, Sec. 9	Gulf Oil Corporation Petroleum Building Roswell, New Mexico

EXHIBIT "B"



PROPOSED EXTENSION TO POTASH - OIL AREA (R-111-A)

POTASH - OIL LINE (R-111-A)

U.S. POTASH LEASE LINE (U.S.B. & C.)

APPROX. PRESENT LIMIT OF OPEN MINE WORKINGS

PROPOSED MINE EXTENSION

M-651 STATE LEASE

FEDERAL LEASE

U87 CORE TEST


R. 30 E.
31
32
33
34
6
5
4
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7
9
10
18
17
16
15
T. 22 S.
U22
U26
U160
U24
U161
GO 3
GO 4
U97A
PROPOSED EXTENSION TO (R-111-A)
PRESENT (R-111-A) BOUNDRY
U.S. POTASH LEASE LINE (U.S.B. & C.)
M-651
STATE LEASE
APPROX. PRESENT LIMIT OF OPEN MINE
U26
CORE TEST

Case 278

PROPOSED

RULES AND REGULATIONS GOVERNING EXPLORATION FOR THE EXTRACTION OF OIL, GAS AND POTASH MINERALS ON NEW MEXICO STATE LANDS INCLUDED IN PROVEN OR POTENTIAL POTASH PRODUCTION AREAS.

The objective of these rules and regulations is to assure maximum conservation and economic recovery of oil, gas and potash minerals.

I. These regulations are applicable to the potash areas as herein defined as: "Area 'A'" and "Area 'B'".

Area "A" is hereby defined as follows:

19S-30E - Sections E 1/2 3, all 4, 5, E 1/2 and E 1/2 SW 1/4 6, all 7, 8, 9, 10, W 1/2 and W 1/2 E 1/2 11, W 1/2 and W 1/2 E 1/2 14, all 15 to 18 incl. SE 1/4 20, S 1/2 21, all 22, 23, all 25 to 29 incl. all 32 to 36 incl.

20S-29E - Sections E 1/2 SE 1/4 12,

20S-30E Sections - all sec. 1 to 27 incl., all 34, 35, 36

20S-31E Sections all 19, 20, 29, 30, 31, 32.

21S-29E Sections All 1, 2, E 1/2 10, all 11, 12, 13, 14 E 1/2 15, all 24, E 1/2 35, all 36.

21S-30E - Sections all 4 to 9 incl. all 16 to 19 incl., all 31

22S-29E - Sections all 1, 2, E 1/2 3, all 10 to 15 incl., all 22, 23, 26.

22S-30E - Sections all 6, 7, 18 19

Area "B" is hereby defined as follows:

18S-30E Sections S 1/2 12, all 13, 14, SE 1/4 15, SE 1/4 21, all 22, 23, 24, W 1/2 25, all 26, 27, 28, E 1/2 29, S 1/2 and NE 1/4 32, all 33, 34, W 1/2 35.

18S-31E Sections W 1/2 18.

19S-29E Sections SE 1/4 11, S 1/2 12, all 13, 14, N 1/2 23, N 1/2 24.

19S-30E Sections all 2, N 1/2 3, E 1/2 NE 1/4 and E 1/2 SE 1/4 11, all 12, 13, E 1/2 NE 1/4 and E 1/2 SE 1/4 14, all 24.

19S-31E Sections all 9, 10, W 1/2 11, W 1/2 14, all 15, 16, 17, all 19, 20, 21, 22, W 1/2 23, S 1/2 25, all 26 to 36 incl.

19S-32E Sections S 1/2 23, all 24 to 27 incl., S 1/2 of 28, S 1/2 31, S 1/2 32, all 33 to 36 incl.

19S-33E Sections all 19, 30, 31

20S-29E Sections NE 1/4 and S 1/2 13, all 22 to 27 incl., all 34, 35, 36.

20S-30E Sections all 28 to 33 incl.

20S-31E Sections all 1 to 18 incl., all 21 to 28 incl., all 33 to 36 incl.

20S-32E Sections all 1 to 36 incl.

20S-33E Sections all 5 to 9 incl., all 15 to 23 incl. all 25 to 36 incl.

20S-34E Sections all 31.

21S-29E Sections E 1/2 3, all 25.

21S-30E Sections all 1, 2, 3, all 10, 11, S 1/2 12, all 13, 14, 15, all 20, 21, 22, N 1/2 23, N 1/2 24, all 27 to 30 incl., 32 to 34 incl., S 1/2 35.

21S-31E Sections N 1/2 1, N 1/2 2, N 1/2 3, NE 1/4 and W 1/2 4, all 5, 6, 18.

21S-32E Sections all 1 to 17 incl., all 21 to 27 incl., all 35, 36.

21S-33E Sections all 4 to 9 incl., all 16 to 21 incl., all 28 to 33 incl.,.

22S-29E Sections E 1/2 9, all 16, E 1/2 17, E 1/2 20, all 21, all 25 to 28 incl., all 33 to 36 incl.

22S-30E Sections all 1 to 5 incl., all 8 to 17 incl., all 20 to 24 incl., W 1/2 25, all 26 to 35 incl., W 1/2 36.

22S-31E Sections all 4 to 9 incl., all 17, 18, N 1/2 19.

22S-33E Sections all 4, 5, 6.

23S-29E Sections all 1 to 3 incl., E 1/2 4, E 1/2 9, all 10 to 15 incl., all 22 to 27 incl., all 34 to 36 incl.,

23S-30E Sections S 1/2 1, all 2 to 36 incl.

23S-31E Sections all 7, S 1/2 8, SW 1/4 16, all 17 to 20 incl., W 1/2 21, all 28 to 33 incl.

24S-30E Sections N 1/2 1, N 1/2 2, N 1/2 3.

24S-31E Sections all 4, 5, 6.

Each of the above described areas may be contracted or expanded by the Oil Conservation Commission after due notice and hearing.

II. Exploration of Areas : - Area "A" - Drilling of oil and gas test wells shall not be permitted in Area "A" except upon leases outstanding as of the effective date of these regulations. Any oil or gas leases hereafter issued for lands within area "A" shall be subject to these regulations and no drilling shall be permitted thereon unless the expressed permission of the Oil Conservation Commission is first had and obtained after due notice and hearing.

All future drilling in area "A" shall be further subject to the Rules and Regulations pertaining to deep wells contained in paragraphs as hereinafter set forth. Where oil and gas wells are in production within this area no mine opening shall be driven to within less than 100' of such wells so that protection can be afforded.

Area B". Area B is herein defined as the area in which oil and gas test wells may be drilled in accordance with the Rules and Regulations as hereinafter set forth. Nothing herein shall be construed to prevent unitization agreements.

Upon the discovery of oil or gas the Oil Conservation Commission shall, after due notice and hearing promulgate field or pool rules for the affected areas.

III. Drilling, Casing and Cementing Program For Potash Areas "A" and "B":

1. For Shallow Zone Oil and Gas Exploratory Test Wells:

(a) Surface Casing String: The shallow zone shall be defined as less than 5000 feet from the surface of the ground. In order to prevent the intrusion of water, the surface casing string shall be set in the "Red Bed" section of the basal Russler formation immediately above the top of the salt section and shall be cemented back to the ground surface or to the bottom of the cellar.

The surface string may consist of new, second-hand or re-conditioned pipe. New pipe shall have received a mill test of not less than 600 pounds per square inch; second-hand and re-conditioned pipe shall be re-tested to 600 pounds per square inch before being run.

Cement shall be allowed to stand a minimum of twelve (12) hours under pressure and a total of twenty-four (24) hours before drilling the plug or initiating tests.

Tests of casing shall vary with drilling method. If rotary is used, the mud shall be displaced with water or with the proposed saturated water solution and a hydraulic pressure of six hundred (600) pounds per square inch shall be applied. If a drop of one hundred (100) pounds per square inch or more should occur within 30 minutes, corrective measures shall be applied. If cable tools are used, the mud shall be bailed from the hole and if the hole does not remain dry for a period of one hour, corrective measures shall be applied.

(b) Salt Protection String: A salt protection string shall be set at least one hundred (100) feet and not more than two hundred (200) feet below the base of the salt section. This string may consist of new, second-hand or re-conditioned pipe capable of meeting the manufacturer's test specifications.

The string may be cemented with a nominal cement volume for testing purposes only, and if commercially productive, the string must be recemented with not less than 150% of calculated vdume necessary to circulate cement to surface. The fluid used to mix with the cement shall be saturated with the salts common to the zones penetrated and with proper amounts of calcium chloride.

Cement shall be allowed to stand a minimum of twelve (12) hours under pressure and a total of twenty-four (24) hours before drilling the plug or initiating tests. If the cement fails to reach the top of the salt, the salt protection casing shall be perforated just above the top of the cement and additional cement jobs done until cement is brought to that point. One or more temperature

or gamma ray surveys supporting complete cementation shall be filed with the Oil Conservation Commission.

Test of casing shall vary with the drilling method. If rotary is used, the mud shall be displaced with water and a hydraulic pressure of 1000 pounds per square inch shall be applied. If a drop of 100 pounds per square inch or more should occur within 30 minutes, corrective measures shall be applied. If cable tools are used, the mud shall be bailed from the hole and if the hole does not remain dry for a period of one hour corrective measures shall be applied.

(c) Oil or Production String: This string may be set on top or through the pay zone and cemented with a volume adequate to protect the pay zone and the casing above such zone, provided however, if no salt protection casing shall have been run and commercial production obtained, that string shall be cemented to the surface as provided by above or as provided by for drilling wells to the deep zone.

2. For the purpose of these regulations the deep zones shall be defined as more or less 5000' from the surface of the ground. The fluid used to mix with the cement shall be saturated with the salts common to the zones penetrated and to which has been added proper amounts of calcium chloride (3% by weight).

(a) Oil or Production String: This string may be set on top or through the pay zone and cemented with a volume adequate to protect the pay zone and the casing above such zone, provided however, if no salt protection casing shall have been run and commercial production obtained, that string shall be cemented to the surface as provided by above or as provided by for drilling wells to the deep zone.

(b) Surface Casing String: In order to prevent the intrusion of water, the surface casing string shall be set in the "Red Bed" beneath the surface of the ground section of the basal Russier formation immediately above the top of the salt section and shall be cemented back to the ground surface or to the bottom of the cellar.

The surface string may consist of new, second-hand or re-conditioned pipe. New pipe shall have received a mill test of not less than 600 pounds per square inch; second-hand and re-conditioned pipe shall be re-tested to 600 pounds per square inch before being run.

Sufficient cement shall be used to fill the annular space back of the pipe from the casing point to the surface of the ground or to the bottom of the cellar. Cement shall be allowed to stand a minimum of twelve (12) hours under pressure and a total of twenty-four (24) hours before drilling the plug or initiating tests.

This casing string shall be tested with a hydraulic pressure of six hundred (600) pounds per square inch. If a drop of one hundred (100) pounds per square inch or more should occur within 30 minutes, corrective measures shall be applied.

(c) Salt Protection String: A salt protection string shall be set at least one hundred (100) feet and not more than two hundred (200) feet below the base of the salt section. This string may consist of new, second-hand or re-conditioned pipe. New pipe shall have received a mill test of not less than 1000 pounds per square inch; second-hand and re-conditioned pipe shall be re-tested to 1000 pounds per square inch before being run.

Centralizers shall be used on at least every 150 feet of casing below surface casing.

Sufficient cement shall be used to fill the annular space back of the pipe from the casing point to the surface of the ground or to the bottom of the cellar. The fluid used to mix with the cement shall be saturated with the salts common to the zones penetrated and to which has been added proper amounts of calcium chloride (3% by weight). Cement shall be allowed to stand a minimum of twelve (12) hours under pressure and a total of twenty-four (24) hours before drilling the plug or initiating tests. If the cement fails to reach the surface, the top of the cement shall be located by a temperature or gamma ray survey, and additional cement jobs done until cement is brought to the surface.

This casing string shall be tested with a hydraulic pressure of 1000 pounds per square inch. If a drop of 100 pounds per square inch or more should occur within 30 minutes, corrective measures shall be applied.

(d) When a drilling protection string is used the casing shall be cemented with a sufficient volume of cement to amply protect the casing and all shallow pay zones above the casing shoe, and in every instance the string shall be cemented from a point one thousand (1000) feet below the salt string back to the surface.

Cement shall be allowed to stand a minimum of twelve (12) hours under pressure and a total of twenty-four hours before drilling the plugs or initiating tests. Casing shall be tested with a hydraulic pressure of 1000 pounds per square inch. If a drop of one hundred (100) pounds per square inch or more should occur within 30 minutes corrective measures shall be applied.

(e) Oil or Production String: This string shall be set on top or through the pay zone and cemented with a volume adequate to protect the pay zone and the casing above such zone, provided however, if no intermediate drilling casing shall have been run and commercial production obtained, that string shall be cemented to the surface or as provided by (c-1) above. Cement shall be allowed to stand a minimum of twelve (12) hours under pressure and a total of twenty-four (24) hours before drilling the plug or initiating tests. Hydraulic pressure tests shall be applied to this string as above.

(f) Drilling Fluid for Salt Section: This fluid shall consist of water to which has been added sufficient salts of a character common to the zone penetrated to completely saturate the mixture. Other admixtures may be added to the system by the operator in overcoming any specific problem. This requirement is specifically inserted in order to prevent enlarged drill holes.

IV. Drilling Fluid for Salt Section: This fluid shall consist of water to which has been added sufficient salts of a character common to the zone penetrated to completely saturate the mixture and 3% calcium chloride by weight of cement. Other admixtures may be added to the system by the operator in overcoming any specific problem. This requirement is specifically inserted in order to prevent enlarged drill holes.

V. Plugging and Abandonment of Wells: All oil and gas wells which are abandoned shall be plugged in accordance with the following procedure.

1. (a) Upon completion of production from wells which were drilled prior to the date upon which these regulations became effective, such wells shall be plugged in a manner that will provide a solid plug through the salt section and prevent liquids or gases from entering the hole above or below the salt section.

(b) Upon completion of production from wells drilled in accordance with these regulations, the wells shall be plugged by filling the casing cemented through the salt with cement.

(c) If a well is dry or if the oil operator cannot complete a well and must abandon the hole, such well shall be plugged as provided in (1-a) above.

VI. Locations For Test Wells: Before drilling for oil and gas on lands within the Areas "A" or "B", a map or plat showing the location of the proposed well shall be prepared by the well operator and copies shall be sent to the Oil Conservation Commission and the potash lessee involved. If no objections to the location of the proposed well are made by the potash lessee within ten days, a drilling permit may be issued and the work may proceed. If, however, the location of the proposed well is objected to by the potash lessee on the grounds that the location of the well is not in accordance with the foregoing regulations, the potash lessee may file a written objection with the Oil Conservation Commission.

VII. Inspection of Drilling and Mining Operation: A representative of the potash lessee may be present during drilling, cementing, casing and plugging of all oil and gas wells on his leases to observe conformance with these regulations.

A representative of the oil and gas lessee may inspect mine workings on his leases to observe conformance with these regulations.

VIII. Each oil and gas lessee shall furnish annually (on January 1st) to the Oil Conservation Commission and to the potash lessees involved, certified directional surveys from the surface to a point below the lowest potash-bearing horizon for each oil and gas well drilled during the year. Each potash lessee shall furnish annually, (on January 1st) to the Oil Conservation Commission and to the Oil and Gas lessee involved, a certified plat of the location of open mine workings underlying outstanding oil and gas leases.

IX. Applicability of Statewide Rules and Regulations: All general statewide rules and regulations governing the development operation and production of oil and gas in the state of New Mexico not inconsistent or in conflict herewith are herewith applicable to the areas described herein.

SUGGESTED REVISED ORDER NO. R-111

I.

OBJECTIVE

The objective of these Rules and Regulations is to prevent waste, protect correlative rights, assure maximum conservation of the oil, gas and potash resources of New Mexico and permit the economic recovery of oil, gas and potash minerals in the area hereinafter defined.

II.

THE POTASH - OIL AREA

(1) The Potash - Oil Area, as outlined in Exhibit A attached hereto and made a part hereof, represents the area in various parts of which potash mining operations are now in progress, or in which core tests indicate commercial potash reserves.

(2) The Potash - Oil Area, as outlined herein, may be revised by the Commission after due notice and hearing.

III.

DRILLING IN THE POTASH AREA

(1) All drilling of oil and gas wells in the POTASH AREA shall be subject to these rules and regulations.

(2) No wells will be drilled for oil or gas at a location, which in the opinion of the Commission or its duly authorized representative, would result in undue waste of potash deposits or constitute a hazard to or interfere unduly with potash deposits.

No mining operations will be conducted in the POTASH AREA that would, in the opinion of the Commission or its duly authorized representative, constitute a hazard to oil or gas production, or that would unreasonably interfere with the orderly development and production from any oil or gas pool.

(3) Upon discovery of oil or gas in the POTASH AREA, the Oil Conservation Commission shall promulgate pool rules for the affected area after due notice and hearing.

IV.

DRILLING AND CASING PROGRAM

(1) For the purpose of the regulations and the drilling of oil and gas exploratory test wells, shallow and deep zones are defined, as follows:

(a) The shallow zone shall include all formations above the base of the Delaware sand or above a depth of 5,000 feet, whichever is the lesser.

(b) The deep zone shall include all formations below the base of the Delaware sand or below a depth of 5,000 feet, whichever is the lesser.

(2) Surface Casing String:

(a) A surface casing string of new or used oil field casing in good condition shall be set in the "Red Bed" section of the basal Rustler formation immediately above the salt section, or in the anhydrite at the top of the salt section, as determined necessary by the regulatory representative approving the drilling operations and shall be cemented with not less than one hundred and fifty percent (150) percent of calculated volume necessary to circulate cement to the ground surface.

(b) Cement shall be allowed to stand a minimum of twelve (12) hours under pressure and a total of twenty-four (24) hours before drilling the plug or initiating tests.

(c) Casing and water-shut-off tests shall be made both before and after drilling the plug and below the casing seat as follows:

(i) If rotary tools are used, the mud shall be displaced with water and a hydraulic pressure of six hundred (600) pounds per square inch shall be applied. If a drop of one hundred (100) pounds per square inch or more should occur within thirty (30) minutes, corrective measures shall be applied.

(ii) If cable tools are used, the mud shall be bailed from the hole, and if the hole does not remain dry for a period of one hour, corrective measures shall be applied.

(d) The above requirements for the surface casing string shall be applicable to both the shallow and deep zones.

(3) Salt Protection String:

(a) A salt protection string of new or used oil field casing in good condition shall be set not less than one hundred (100) feet nor more than six hundred (600) feet below the base of the salt section; provided that such string shall not be set below the top of the highest known oil or gas zone.

(b) The salt protection string shall be cemented, as follows:

(i) For wells drilled to the shallow zone, the string may be cemented with a nominal volume of cement for testing purposes only. If the exploratory test well is completed as a productive well, the string shall be re-cemented with sufficient cement to fill the annular space back of the pipe from the top of the first cementing to the surface or to the bottom of the cellar, or may be cut and pulled if the production string is cemented to the surface as provided in sub-section IV (5), (a), (i) below.

(ii) For wells drilled to the deep zone, the string must be cemented with sufficient cement to fill the annular space back of the pipe from the casing seat to the surface or to the bottom of the cellar. However, where the base of the Delaware sand is definable the casing rules in (IV) (3b) (i) shall apply even if the depth of the bottom of the Delaware Sand is greater than 5000'.

(c) If the cement fails to reach the surface or the bottom of the cellar, where required, the top of the cement shall be located by a temperature or gamma ray survey and additional cementing shall be done until the cement is brought to the point required.

(d) The fluid used to mix with the cement shall be saturated with the salts common to the zones penetrated and with suitable proportions but not less than 1% of calcium chloride by weight of cement.

(e) Cement shall be allowed to stand a minimum of twelve (12) hours under pressure and a total of twenty-four (24) hours before drilling the plug or initiating tests.

(f) Casing tests shall be made both before and after drilling the plug and below the casing seat, as follows:

(i) If rotary tools are used, the mud shall be displaced with water and a hydraulic pressure of one thousand (1000) pounds per square inch shall be applied. If a drop of one hundred (100) pounds per square inch or more should occur within thirty (30) minutes, corrective measures shall be applied.

(ii) If cable tools are used, the mud shall be bailed from the hole and if the hole does not remain dry for a period of one hour, corrective measures shall be applied.

(g) The Commission, or its duly authorized representative, may require the use of centralizers on the salt protection string when in their judgment the use of such centralizers would offer further protection to the salt section.

(h) The above requirements for the salt protection string shall be applicable to both the shallow and deep zones except for sub-section IV (3), (b), (i) and (ii) above.

(4) Intermediate String:

(a) In the drilling of oil and gas exploratory test wells to the deep zone, the operator shall have the option of running an intermediate string of pipe,

unless the Commission requires an intermediate string.

(b) Cementing procedures and casing tests for the intermediate string shall be the same as provided under sub-sections IV (3), (c), (e) and (f) for the salt protection string.

(5) Production String:

(a) A production string shall be set on top or through the oil or gas pay zone and shall be cemented as follows:

(i) For wells drilled to the shallow zone the production string shall be cemented to the surface if the salt protection string was cemented only with a nominal volume for testing purposes, in which case the salt protection string can be cut and pulled before the production string is cemented; provided, that if the salt protection string was cemented to the surface, the production string shall be cemented with a volume adequate to protect the pay zone and the casing above such zone.

(ii) For wells drilled to the deep zone, the production string shall be cemented with a volume adequate to protect the pay zone and the casing above such zone; provided, that if no intermediate string shall have been run and cemented to the surface, the production string shall be cemented to the surface.

(b) Cementing procedures and casing tests for the production string shall be the same as provided under sub-section IV (3), (c), (e) and (f) for the salt

protection string, however if high pressure oil or gas production is discovered in any area the Commission shall promulgate the necessary rules to prevent the charging of the salt section.

V.

DRILLING FLUID FOR SALT SECTION

The fluid used while drilling the salt section shall consist of water, to which has been added sufficient salts of a character common to the zone penetrated to completely saturate the mixture. Other admixtures may be added to the fluid by the operator in overcoming any specific problem. This requirement is specifically intended to prevent enlarged drill holes.

VI.

PLUGGING AND ABANDONMENT OF WELLS

(a) All wells heretofore and hereafter drilled within the Potash Area shall be plugged in a manner and in accordance with field rules established by the Commission that will provide a solid cement plug through the salt section and any water bearing horizon and prevent liquids or gases from entering the hole above or below the salt section.

(b) The fluid used to mix the cement shall be saturated with the salts common to the salt section penetrated and with suitable proportions but not more than three (3) percent of calcium chloride by weight of cement being considered the desired mixture whenever possible

VII.

LOCATION FOR WELLS

Before commencing drilling operations for oil or gas on any lands within the POTASH AREA, the well operator shall prepare a map or plat showing the

location of the proposed well, said map or plat to accompany each copy of the Notice of Intention to Drill. In addition to the number of copies required by the Commission, the well operator shall send one copy by registered mail to all potash operators holding potash leases within a radius of one mile of the proposed well, as reflected by the plats submitted under paragraph IX (b).

The well operator shall furnish proof of the fact that said potash operators were notified by registered mail of his intent by attaching return receipts to the copies of the Notice of Intention to Drill and plats furnished the Commission.

The Commission, or its authorized representative, may approve such Notice of Intention to Drill if no objection to the location of the proposed well is made by a potash operator within ten days after receipt. If the location of the proposed well is objected to by the potash operator, the matter shall be referred to the Secretary-Director of the Commission for arbitration. If a satisfactory settlement cannot be reached, the Secretary - Director of the Commission shall refer the matter to a hearing before the Commission after due notice and a decision either approving or denying the operator's plans to drill shall be entered by the Commission.

VIII.

INSPECTION OF DRILLING AND MINING OPERATIONS

A representative of the potash operator may be present during drilling, cementing, casing, and plugging of all oil or gas wells within 1320 feet of his lease to observe conformance with these regulations. Likewise, a representative of the oil and gas lessee may inspect mine workings on his lease to observe conformance with these regulations.

IX.

FILING OF WELL SURVEYS, MINE SURVEYS AND POTASH DEVELOPMENT PLANS

(a) Directional Surveys:

The Commission may require an operator to file a certified directional survey from the surface to a point below the lowest known potash

bearing horizon on all wells drilled within the POTASH AREA. These surveys may be required where, in the Commission's judgment, the exact location of the wellbore must be determined in order to aid mining operations.

(b) Mine Surveys:

On or before January 31st of each year, each potash operator shall furnish two copies of a plat of a survey of the location of his leaseholdings and all of his open mine workings, which plat shall be available for public inspection.

(c) Potash Development Plan

Within 30 days after the adoption of this order and thereafter, on or before January 31st of each year, each potash operator shall furnish two copies of a five-year projection of development plans in the form of a plat, which plat shall be for the confidential use of the Commission and for inspection by any affected oil or gas operator. The projection shall cover not less than 3 nor more than a 5 year development program.

X.

APPLICABILITY OF STATEWIDE RULES AND REGULATIONS

All general statewide rules and regulations of the Oil Conservation Commission governing the development, operation, and production of oil and gas in the State of New Mexico not inconsistent or in conflict herewith, are hereby adopted and made applicable to the areas described herein.

CASING AND CEMENTING PROGRAMS FOR OIL AND GAS TEST WELLS IN THE "DEFINED AREAS" IN EDDY COUNTY, NEW MEXICO

CASE NO. 278
EXHIBIT A

1. Surface Casing String

In order to protect the fresh water supply, the surface casing string shall be set in the "Red Bed" section of the basal Russler formation immediately above the top of the salt section and shall be cemented back to the ground surface or to the bottom of the cellar.

The surface string may consist of new, second-hand or re-conditioned pipe. New pipe shall have received a mill test of not less than 600 pounds per square inch; second-hand and re-conditioned pipe shall be re-tested to 600 pounds per square inch before being run.

Sufficient cement shall be used to fill the annular space back of the pipe from the casing point to the surface of the ground or to the bottom of the cellar. Cement shall be allowed to stand a minimum of twelve (12) hours under pressure and a total of twenty-four (24) hours before drilling the plug or initiating tests.

Tests of casing shall vary with drilling method. If rotary is used, the mud shall be displaced with water or with the proposed saturated water solution and a hydraulic pressure of six hundred (600) pounds per square inch shall be applied. If a drop of one hundred (100) pounds per square inch or more should occur within 30 minutes, corrective measures shall be applied. If cable tools are used, the mud shall be bailed from the hole and if the hole does not remain dry for a period of one hour, corrective measures shall be applied.

2. Salt Protection String

The salt protection string shall be set at least one hundred (100) feet and not more than two hundred (200) feet below the base of the salt section. This string may consist of new, second-hand or re-conditioned pipe. New pipe shall have received a mill test of not less than 1000 pounds per square inch; second-hand and re-conditioned pipe shall be re-tested to 1000 pounds per square inch before being run.

Centralizers shall be used on at least every third joint below surface casing.

Sufficient cement shall be used to fill the annular space back of the pipe from the casing point to the surface of the ground or to the bottom of the cellar. (The water used to mix with the cement shall be saturated with the salts common to the zones penetrated.) Cement shall be allowed to stand a minimum of twelve (12) hours under pressure and a total of twenty-four (24) hours before drilling the plug or initiating tests. If the cement fails to reach the surface, the salt protection casing shall be perforated just above the top of the cement and additional cement jobs done until cement is brought to the surface. One or more temperature or gamma ray surveys supporting complete cementation shall be filed with the Oil Conservation Commission.

CASE NO. 278
EXHIBIT A

Tests of casing shall vary with the drilling method. If rotary is used, the mud shall be displaced with water and a hydraulic pressure of 1000 pounds per square inch shall be applied. If a drop of 100 pounds per square inch or more should occur within 30 minutes, corrective measures shall be applied. If cable tools are used the mud shall be bailed from the hole and if the hole does not remain dry for a period of one hour, corrective measures shall be applied.

3. Intermediate String

This string may be a drilling protection string for deep drilling objectives or may be an oil string for testing medium depth zones.

a. If a drilling protection string, the casing shall be cemented with a sufficient volume of cement amply to protect this casing and all shallow pay zones above the casing shoe, and in every instance this string shall be cemented from a point one thousand (1000) feet below the salt string back to the surface. One or more temperature or gamma ray surveys supporting complete cementation shall be filed with the Oil Conservation Commission.

b. If an oil string in testing medium depth zones, the casing may be cemented with a nominal cement volume for testing purposes only, and if commercially productive, the string must be re-cemented by circulating cement from the top of the original cement job to the surface. One or more temperature or gamma ray surveys supporting complete cementation shall be filed with the Oil Conservation Commission.

4. Oil or Production String (Deep Wells)

This string shall be set on top or through the pay zone and cemented with a volume adequate to protect the pay zone and the casing above such zone, provided however, if no intermediate drilling casing shall have been run and commercial production obtained, that string shall be cemented to the surface or as provided by 3-a above.

5. Drilling Fluid for Salt Section

This fluid shall consist of water to which has been added sufficient salts of a character common to the zone penetrated to completely saturate the mixture. Other admixtures may be added to the system by the operator in overcoming any specific problem. This requirement is specifically inserted in order to prevent enlarged drill holes.

CASING AND CEMENTING PROGRAM FOR SHALLOW OIL AND GAS TEST WELLS IN KNOWN POTASH AREAS

CASE NO. 278
EXHIBIT B

The following is a suggested casing program for wells above 5,000 feet and is, of necessity, only general rules for the whole designated potash area, whether designated as Area A, Area B or otherwise. Geological sections change so rapidly in this large, scattered area that individual portions of the area will present individual problems. It is therefore suggested as follows:

A. That the Oil Conservation Commission retain authority to vary this general casing and cementing program to meet a specific condition, without an open hearing before the Commission.

B. That the casing and cementing program herein suggested apply only to the areas embraced in proven commercial deposits of potash, the remainder of the designated potash area to be drilled in accordance with standard, existing practices.

C. The suggested casing and cementing program is as follows:

1. Surface Casing String

In order to protect the fresh water supply, if present, the surface casing string shall be set through the fresh water bearing horizons and cemented with a volume adequate to protect the fresh water and keep it from entering the salt formation.

The surface string may consist of new, second-hand or re-conditioned pipe capable of meeting the manufacturers test specifications.

Cement shall be allowed to stand a minimum of twelve (12) hours under pressure and a total of twenty-four (24) hours before drilling the plug or initiating tests.

Tests of casing shall vary with drilling method. If rotary is used, the mud shall be displaced with water or with the proposed saturated water solution and a hydraulic pressure of six hundred (600) pounds per square inch shall be applied. If a drop of one hundred (100) pounds per square inch or more should occur within 30 minutes, corrective measures shall be applied. If cable tools are used, the mud shall be bailed from the hole and if the hole does not remain dry for a period of one hour, corrective measures shall be applied.

2. Salt Protection String

The salt protection string may be set at lease one hundred (100) feet and not more than two hundred (200) feet below the base of the salt section. This string

may consist of new, second-hand or re-conditioned pipe capable of meeting the manufacturers test specifications.

The string may be cemented with a nominal cement volume for testing purposes only, and if commercially productive, the string must be re-cemented with not less than 150% of calculated volume necessary to circulate cement to surface.

Cement shall be allowed to stand a minimum of twelve (12) hours under pressure and a total of twenty-four (24) hours before drilling the plug or initiating tests. If the cement fails to reach the top of the salt, the salt protection casing shall be perforated just above the top of the cement and additional cement jobs done until cement is brought to that point. One or more temperature or gamma ray surveys supporting complete cementation shall be filed with the Oil Conservation Commission.

Test of casing shall vary with the drilling method. If rotary is used, the mud shall be displaced with water and a hydraulic pressure of 1000 pounds per square inch shall be applied. If a drop of 100 pounds per square inch or more should occur within 30 minutes, corrective measures shall be applied. If cable tools are used, the mud shall be bailed from the hole and if the hole does not remain dry for a period of one hour corrective measures shall be applied.

3. Oil or Production String

This string may be set on top or through the pay zone and cemented with a volume adequate to protect the pay zone and the casing above such zone, provided however, if no salt protection casing shall have been run and commercial production obtained, that string shall be cemented to the surface as provided by 2 above or as provided by 3a in Deep Well program.

D. The undersigned operators, of Eddy County, New Mexico, approve the above and foregoing proposals and recommend its adoption by the Commission.

Respectfully submitted,

American Republics Corp. by William B. Macey; Boyd-Plemons Drilling Company by Tom Boyd; Buffalo Oil Company by Ralph L. Gray; Guy Stevenson; J. Grady Wright; E. N. Brock; G. Kelley Stout; (Illegible) Paton Bros. by H. R. Paton; R. D. Collier; J. W. Berry; Ross Sears; Joe Nunn; J. E. Bedingfield; Burnham Oil Company by E. Jeffers; Malco Refineries, Inc. by Donald E. Anderson; Bassatt & Birney by Martin Yates III; Dixon & Yates by Martin Yates III; S. P. Yates; Yates Brothers by S. P. Yates; Resler Oil Company by S. P. Yates; J. R. Lund for Robert E. McKee.

CASING AND CEMENTING PROGRAM FOR SHALLOW OIL AND GAS TEST WELLS IN PROSPECTIVE POTASH AREAS

CASE No. 278
EXHIBIT C

The following program is a suggestive program for the cementing of pipe and the protecting of the prospective potash horizon from water, oil and gas contamination. This program shall pertain to oil and gas test or wells drilled for the purpose of securing oil and gas, down to a depth of 6000 feet. There should be rules set up for particular areas, naturally based on the amount of surface water and the amount of potash in the salt section, which will be penetrated during the drilling of the proposed oil test. The geological features on the oil structures will call for different programs from time to time. Especially in the districts where potash is present. The commercial potash districts according to geological features and subsurface information that has been secured from old oil test that have been drilled in the past. Also addition information has been secured from districts from recent wells drilled in the various districts. There has also been a considerable amount of coring done by the various companies. All of this information should supply sufficient knowledge to derive at a pipe program satisfactory for all concerned. It is therefore suggested as follows:

1. That the Oil and Gas Conservation Commission retain authorization to issue a pipe program according to the area and district. A program that is sufficient to protect the potash strates at the present and future.

2. A suggestive pipe program for the general area should be as follows:

A. Surface Casing

The surface casing should be set at the top of the salt section. The size should be determined by the operator. The number one suggestion is that the pipe be mudded to the surface by pumping mud around the shoe and behind the pipe to the surface. Allow pipe to set eight hours. Then bale hole dry and test for at least two hours. If water is completely shut off, then the operator shall continue his drilling until he has reached the anhydrite formation. Then the operator should run either number one used pipe or new pipe through the potash and salt section. The operator should then be allowed to pull the surface pipe from the hole. The operator should then be permitted to cement the pipe from the bottom of the salt section to the surface, by circulating cement behind the pipe to the surface, or in such quantities recommended by the cementing concerns and the Oil Conservation Commission. The operator should then be allowed to drill his well and set his production string as he sees fit. He should be allowed to set the size of casing and at a depth he recommends, so long as he uses number one used pipe or new pipe. The amount of cement run behind the production string should be sufficient to come up at least 500 feet above the shoe. This will be adequate cement to protect the oil and gas zones and the formations behind the production string.

(Con't. Case No. 278
Exhibit C)

B. The next pipe program is recommended as follows:

The surface pipe should be set through the surface water, and cemented by circulating cement behind the pipe to the surface, or else there should be sufficient amount of cement pumped in and around the pipe to come to the surface, under ordinarly conditions. The cement should be allowed to set under pressure not less than 48 hours before drilling same and testing for water. The operator must test for water at least 2 hours. In case there is no water present, he shall then be allowed to carry on drilling operations until he reaches the casing point necessary to set the production string. At this time the potash and salt is protected from all water hazards. The only hazards existing at this time is the possibility of contaminating the potash with oil and gas. Therefore, the operator should run nothing but A-1 used pipe or new pipe, tonging each joint up as tight as possible to prevent leakage. He shall then be allowed, to pump heavy acquagel mud behind the pipe sufficient to reach and come above the salt and potash section. Then the operator should pump enough cement behind the pipe to come up at least 500 feet behind it, which would be sufficient to seal off any possible chances of oil and gas working its way up behind it. The production string shall be allowed to be set threw or above the oil producing sections as the operator may see fit. The reason for this is that the different known producing zones are treated differently.

Most of the wells are drilled through-out Eddy County by the cable tool method. Which has the advantages of being able to identify the formations immediately upon topping them and the exact thickness. We are also able to detect immediately the different changes in the formations that takes place. We are also able to test our water zones as to the amount of water and the thickness of the zones. Therefore it is necessary to have a different type of pipe program for this type of drilling than for rotary drilling. The above recommendation are based on cable tool drilling.

These recommendations or suggestions are based on past experience and present drilling operations being carried on in one or more districts. The oil and gas producers of New Mexico are fortunate enough to have the Oil and Gas Conservation Commission to assist us in our problems. They have accumulated information sufficient to guide them in any section of Eddy County, New Mexico. They are known to work and cooperate with the United States Geological Department at all times.

The undersigned operator or operators of Eddy County, New Mexico approve wholeheartedly the above and foregoing proposals and do hereby recommend these adoptions by the State Land Commission as well as the United States Land Commission.

Respectfully submitted,

/s/ Jones & Watkins Oil Company, Artesia, New Mexico, by Stanley L. Jones, Inc.

/s/ Miller & Miller, Artesia, New Mexico, by Stanley L. Jones,

/s/ Stanley L. Jones, Inc.

Telegram -
Bartlesville, Oklahoma
June 21, 1951 - - - - - -

CASE NO. 278
EXHIBIT D

R. R. SPURRIER, SECY.
NEW MEXICO OIL CONSERVATION COMMISSION - SANTA FE, NEW MEXICO

RE CASE 278 FOR AN ORDER ESTABLISHING A CASING PROGRAM WITHIN THE SO CALLED POTASH AREA OF EDDY AND LEA COUNTIES. PHILLIPS PETROLEUM COMPANY HAS STUDIED PROPOSALS OF VARIOUS OPERATORS WHICH WOULD REQUIRE TEMPERATURE SURVEYS WHERE SALT STRING IS CEMENTED TO SURFACE. IN OUR OPINION CIRCULATION SHOULD BE SUFFICIENT EVIDENCE AND WE OBJECT TO THE REQUIREMENT OF TEMPERATURE SURVEYS BECAUSE SUCH SURVEYS WILL NOT REVEAL ADDITIONAL INFORMATION. ALSO IN OUR OPINION, ON SHALLOW WELLS, IF NO INTERMEDIATE STRING IS RUN THE OIL STRING SHOULD BE REQUIRED TO BE CEMENTED SOLID TO THE SURFACE TO AVOID POSSIBLE LEAKS AND IN THIS CASE WE ALSO OBJECT TO REQUIREMENT OF GAMMA RAY OR TEMPERATURE LOGS FOR SAME REASON THAT THEY SHOW NO MORE THAN IS INDICATED BY OBTAINING CIRCULATION OF CEMENT.

OPERATORS SUGGESTION THAT CENTERALIZERS BE PLACED ON EVERY THIRD JOINT OF SALT STRING SHOULD BE AMENDED TO PROVIDE LENGTH OF SUCH JOINTS OR CENTRALIZERS SHOULD BE SPACED CERTAIN DISTANCE APART. OTHERWISE PHILLIPS PETROLEUM COMPANY CONCURS WITH PROPOSALS OF OTHER OPERATORS AS SET FORTH IN RECENT MEMORANDUM OF NEW MEXICO OIL AND GAS ENGINEERING COMMITTEE.

C. P. DIMIT

PHILLIPS PETROLEUM COMPANY

CASING AND CEMENTING PROGRAMS FOR OIL AND GAS TEST WELLS IN THE "DEFINED AREAS" IN EDDY COUNTY, NEW MEXICO

CASE NO. 278
EXHIBIT A

1. Surface Casing String

In order to protect the fresh water supply, the surface casing string shall be set in the "Red Bed" section of the basal Russler formation immediately above the top of the salt section and shall be cemented back to the ground surface or to the bottom of the cellar.

The surface string may consist of new, second-hand or re-conditioned pipe. New pipe shall have received a mill test of not less than 600 pounds per square inch; second-hand and re-conditioned pipe shall be re-tested to 600 pounds per square inch before being run.

Sufficient cement shall be used to fill the annular space back of the pipe from the casing point to the surface of the ground or to the bottom of the cellar. Cement shall be allowed to stand a minimum of twelve (12) hours under pressure and a total of twenty-four (24) hours before drilling the plug or initiating tests.

Tests of casing shall vary with drilling method. If rotary is used, the mud shall be displaced with water or with the proposed saturated water solution and a hydraulic pressure of six hundred (600) pounds per square inch shall be applied. If a drop of one hundred (100) pounds per square inch or more should occur within 30 minutes, corrective measures shall be applied. If cable tools are used, the mud shall be bailed from the hole and if the hole does not remain dry for a period of one hour, corrective measures shall be applied.

2. Salt Protection String

The salt protection string shall be set at least one hundred (100) feet and not more than two hundred (200) feet below the base of the salt section. This string may consist of new, second-hand or re-conditioned pipe. New pipe shall have received a mill test of not less than 1000 pounds per square inch; second-hand and re-conditioned pipe shall be re-tested to 1000 pounds per square inch before being run.

Centralizers shall be used on at least every third joint below surface casing.

Sufficient cement shall be used to fill the annular space back of the pipe from the casing point to the surface of the ground or to the bottom of the cellar. (The water used to mix with the cement shall be saturated with the salts common to the zones penetrated.) Cement shall be allowed to stand a minimum of twelve (12) hours under pressure and a total of twenty-four (24) hours before drilling the plug or initiating tests. If the cement fails to reach the surface, the salt protection casing shall be perforated just above the top of the cement and additional cement jobs done until cement is brought to the surface. One or more temperature or gamma ray surveys supporting complete cementation shall be filed with the Oil Conservation Commission.

CASE NO. 278
EXHIBIT A

Tests of casing shall vary with the drilling method. If rotary is used, the mud shall be displaced with water and a hydraulic pressure of 1000 pounds per square inch shall be applied. If a drop of 100 pounds per square inch or more should occur within 30 minutes, corrective measures shall be applied. If cable tools are used the mud shall be bailed from the hole and if the hole does not remain dry for a period of one hour, corrective measures shall be applied.

3. Intermediate String

This string may be a drilling protection string for deep drilling objectives or may be an oil string for testing medium depth zones.

a. If a drilling protection string, the casing shall be cemented with a sufficient volume of cement amply to protect this casing and all shallow pay zones above the casing shoe, and in every instance this string shall be cemented from a point one thousand (1000) feet below the salt string back to the surface. One or more temperature or gamma ray surveys supporting complete cementation shall be filed with the Oil Conservation Commission.

b. If an oil string in testing medium depth zones, the casing may be cemented with a nominal cement volume for testing purposes only, and if commercially productive, the string must be re-cemented by circulating cement from the top of the original cement job to the surface. One or more temperature or gamma ray surveys supporting complete cementation shall be filed with the Oil Conservation Commission.

4. Oil or Production String (Deep Wells)

This string shall be set on top or through the pay zone and cemented with a volume adequate to protect the pay zone and the casing above such zone, provided however, if no intermediate drilling casing shall have been run and commercial production obtained, that string shall be cemented to the surface or as provided by 3-a above.

5. Drilling Fluid for Salt Section

This fluid shall consist of water to which has been added sufficient salts of a character common to the zone penetrated to completely saturate the mixture. Other admixtures may be added to the system by the operator in overcoming any specific problem. This requirement is specifically inserted in order to prevent enlarged drill holes.

CASING AND CEMENTING PROGRAM FOR SHALLOW OIL AND GAS TEST WELLS IN KNOWN POTASH AREAS

CASE NO. 278
EXHIBIT B

The following is a suggested casing program for wells above 5,000 feet and is, of necessity, only general rules for the whole designated potash area, whether designated as Area A, Area B or otherwise. Geological sections change so rapidly in this large, scattered area that individual portions of the area will present individual problems. It is therefore suggested as follows:

A. That the Oil Conservation Commission retain authority to vary this general casing and cementing program to meet a specific condition, without an open hearing before the Commission.

B. That the casing and cementing program herein suggested apply only to the areas embraced in proven commercial deposits of potash, the remainder of the designated potash area to be drilled in accordance with standard, existing practices.

C. The suggested casing and cementing program is as follows:

1. Surface Casing String

In order to protect the fresh water supply, if present, the surface casing string shall be set through the fresh water bearing horizons and cemented with a volume adequate to protect the fresh water and keep it from entering the salt formation.

The surface string may consist of new, second-hand or re-conditioned pipe capable of meeting the manufacturers test specifications.

Cement shall be allowed to stand a minimum of twelve (12) hours under pressure and a total of twenty-four (24) hours before drilling the plug or initiating tests.

Tests of casing shall vary with drilling method. If rotary is used, the mud shall be displaced with water or with the proposed saturated water solution and a hydraulic pressure of six hundred (600) pounds per square inch shall be applied. If a drop of one hundred (100) pounds per square inch or more should occur within 30 minutes, corrective measures shall be applied. If cable tools are used, the mud shall be bailed from the hole and if the hole does not remain dry for a period of one hour, corrective measures shall be applied.

2. Salt Protection String

The salt protection string may be set at lease one hundred (100) feet and not more than two hundred (200) feet below the base of the salt section. This string

may consist of new, second-hand or re-conditioned pipe capable of meeting the manufacturers test specifications.

The string may be cemented with a nominal cement volume for testing purposes only, and if commercially productive, the string must be re-cemented with not less than 150% of calculated volume necessary to circulate cement to surface.

Cement shall be allowed to stand a minimum of twelve (12) hours under pressure and a total of twenty-four (24) hours before drilling the plug or initiating tests. If the cement fails to reach the top of the salt, the salt protection casing shall be perforated just above the top of the cement and additional cement jobs done until cement is brought to that point. One or more temperature or gamma ray surveys supporting complete cementation shall be filed with the Oil Conservation Commission.

Test of casing shall vary with the drilling method. If rotary is used, the mud shall be displaced with water and a hydraulic pressure of 1000 pounds per square inch shall be applied. If a drop of 100 pounds per square inch or more should occur within 30 minutes, corrective measures shall be applied. If cable tools are used, the mud shall be bailed from the hole and if the hole does not remain dry for a period of one hour corrective measures shall be applied.

3. Oil or Production String

This string may be set on top or through the pay zone and cemented with a volume adequate to protect the pay zone and the casing above such zone, provided however, if no salt protection casing shall have been run and commercial production obtained, that string shall be cemented to the surface as provided by 2 above or as provided by 3a in Deep Well program.

D. The undersigned operators, of Eddy County, New Mexico, approve the above and foregoing proposals and recommend its adoption by the Commission.

Respectfully submitted,

American Republics Corp. by William B. Macey; Boyd-Plemons Drilling Company by Tom Boyd; Buffalo Oil Company by Ralph L. Gray; Guy Stevenson; J. Grady Wright; E. N. Brock; G. Kelley Stout; (Illegible;) Paton Bros. by H. R. Paton; R. D. Collier; J. W. Berry; Ross Sears; Joe Nunn; J. E. Bedingfield; Burnham Oil Company by E. Jeffers; Malco Refineries, Inc. by Donald E. Anderson; Bassatt & Birney by Martin Yates III; Dixon & Yates by Martin Yates III; S. P. Yates; Yates Brothers by S. P. Yates; Resler Oil Company by S. P. Yates; J. R. Lund for Robert E. McKee.

CASING AND CEMENTING PROGRAM FOR SHALLOW OIL AND GAS TEST WELLS IN PROSPECTIVE POTASH AREAS

CASE No. 278
EXHIBIT C

The following program is a suggestive program for the cementing of pipe and the protecting of the prospective potash horizon from water, oil and gas contamination. This program shall pertain to oil and gas test or wells drilled for the purpose of securing oil and gas, down to a depth of 6000 feet. There should be rules set up for particular areas, naturally based on the amount of surface water and the amount of potash in the salt section, which will be penetrated during the drilling of the proposed oil test. The geological features on the oil structures will call for different programs from time to time. Especially in the districts where potash is present. The commercial potash districts according to geological features and subsurface information that has been secured from old oil test that have been drilled in the past. Also addition information has been secured from districts from recent wells drilled in the various districts. There has also been a considerable amount of coring done by the various companies. All of this information should supply sufficient knowledge to derive at a pipe program satisfactory for all concerned. It is therefore suggested as follows:

1. That the Oil and Gas Conservation Commission retain authorization to issue a pipe program according to the area and district. A program that is sufficient to protect the potash strates at the present and future.

2. A suggestive pipe program for the general area should be as follows:

A. Surface Casing

The surface casing should be set at the top of the salt section. The size should be determined by the operator. The number one suggestion is that the pipe be mudded to the surface by pumping mud around the shoe and behind the pipe to the surface. Allow pipe to set eight hours. Then bale hole dry and test for at least two hours. If water is completely shut off, then the operator shall continue his drilling until he has reached the anhydrite formation. Then the operator should run either number one used pipe or new pipe through the potash and salt section. The operator should then be allowed to pull the surface pipe from the hole. The operator should then be permitted to cement the pipe from the bottom of the salt section to the surface, by circulating cement behind the pipe to the surface, or in such quantities recommended by the cementing concerns and the Oil Conservation Commission. The operator should then be allowed to drill his well and set his production string as he sees fit. He should be allowed to set the size of casing and at a depth he recommends, so long as he uses number one used pipe or new pipe. The amount of cement run behind the production string should be sufficient to come up at least 500 feet above the shoe. This will be adequate cement to protect the oil and gas zones and the formations behind the production string.

(Con't. Case No. 278
Exhibit C)

B. The next pipe program is recommended as follows:

The surface pipe should be set through the surface water, and cemented by circulating cement behind the pipe to the surface, or else there should be sufficient amount of cement pumped in and around the pipe to come to the surface, under ordinarly conditions. The cement should be allowed to set under pressure not less than 48 hours before drilling same and testing for water. The operator must test for water at least 2 hours. In case there is no water present, he shall then be allowed to carry on drilling operations until he reaches the casing point necessary to set the production string. At this time the potash and salt is protected from all water hazards. The only hazards existing at this time is the possibility of contaminating the potash with oil and gas. Therefore, the operator should run nothing but A-1 used pipe or new pipe, tonging each joint up as tight as possible to prevent leakage. He shall then be allowed, to pump heavy acquagel mud behind the pipe sufficient to reach and come above the salt and potash section. Then the operator should pump enough cement behind the pipe to come up at least 500 feet behind it, which would be sufficient to seal off any possible chances of oil and gas working its way up behind it. The production string shall be allowed to be set threw or above the oil producing sections as the operator may see fit. The reason for this is that the different known producing zones are treated differently.

Most of the wells are drilled through-out Eddy County by the cable tool method. Which has the advantages of being able to identify the formations immediately upon topping them and the exact thickness. We are also able to detect immediately the different changes in the formations that takes place. We are also able to test our water zones as to the amount of water and the thickness of the zones. Therefore it is necessary to have a different type of pipe program for this type of drilling than for rotary drilling. The above recommendation are based on cable tool drilling.

These recommendations or suggestions are based on past experience and present drilling operations being carried on in one or more districts. The oil and gas producers of New Mexico are fortunate enough to have the Oil and Gas Conservation Commission to assist us in our problems. They have accumulated information sufficient to guide them in any section of Eddy County, New Mexico. They are known to work and cooperate with the United States Geological Department at all times.

The undersigned operator or operators of Eddy County, New Mexico approve wholeheartedly the above and foregoing proposals and do hereby recommend these adoptions by the State Land Commission as well as the United States Land Commission.

Respectfully submitted,

/s/ Jones & Watkins Oil Company, Artesia, New Mexico, by Stanley L. Jones, Inc.

/s/ Miller & Miller, Artesia, New Mexico, by Stanley L. Jones,

/s/ Stanley L. Jones, Inc.

Telegram -
Bartlesville, Oklahoma
June 21, 1951 - - - - - -

CASE NO. 278
EXHIBIT D

R. R. SPURRIER, SECY.
NEW MEXICO OIL CONSERVATION COMMISSION - SANTA FE, NEW MEXICO

RE CASE 278 FOR AN ORDER ESTABLISHING A CASING PROGRAM WITHIN THE SO CALLED POTASH AREA OF EDDY AND LEA COUNTIES. PHILLIPS PETROLEUM COMPANY HAS STUDIED PROPOSALS OF VARIOUS OPERATORS WHICH WOULD REQUIRE TEMPERATURE SURVEYS WHERE SALT STRING IS CEMENTED TO SURFACE. IN OUR OPINION CIRCULATION SHOULD BE SUFFICIENT EVIDENCE AND WE OBJECT TO THE REQUIREMENT OF TEMPERATURE SURVEYS BECAUSE SUCH SURVEYS WILL NOT REVEAL ADDITIONAL INFORMATION. ALSO IN OUR OPINION, ON SHALLOW WELLS, IF NO INTERMEDIATE STRING IS RUN THE OIL STRING SHOULD BE REQUIRED TO BE CEMENTED SOLID TO THE SURFACE TO AVOID POSSIBLE LEAKS AND IN THIS CASE WE ALSO OBJECT TO REQUIREMENT OF GAMMA RAY OR TEMPERATURE LOGS FOR SAME REASON THAT THEY SHOW NO MORE THAN IS INDICATED BY OBTAINING CIRCULATION OF CEMENT.

OPERATORS SUGGESTION THAT CENTERALIZERS BE PLACED ON EVERY THIRD JOINT OF SALT STRING SHOULD BE AMENDED TO PROVIDE LENGTH OF SUCH JOINTS OR CENTRALIZERS SHOULD BE SPACED CERTAIN DISTANCE APART. OTHERWISE PHILLIPS PETROLEUM COMPANY CONCURS WITH PROPOSALS OF OTHER OPERATORS AS SET FORTH IN RECENT MEMORANDUM OF NEW MEXICO OIL AND GAS ENGINEERING COMMITTEE.

C. P. DIMIT

PHILLIPS PETROLEUM COMPANY

CASING AND CEMENTING PROGRAMS FOR OIL AND GAS TEST WELLS IN THE "DEFINED AREAS" IN EDDY COUNTY, NEW MEXICO

CASE NO. 278
EXHIBIT A

1. Surface Casing String

In order to protect the fresh water supply, the surface casing string shall be set in the "Red Bed" section of the basal Russler formation immediately above the top of the salt section and shall be cemented back to the ground surface or to the bottom of the cellar.

The surface string may consist of new, second-hand or re-conditioned pipe. New pipe shall have received a mill test of not less than 600 pounds per square inch; second-hand and re-conditioned pipe shall be re-tested to 600 pounds per square inch before being run.

Sufficient cement shall be used to fill the annular space back of the pipe from the casing point to the surface of the ground or to the bottom of the cellar. Cement shall be allowed to stand a minimum of twelve (12) hours under pressure and a total of twenty-four (24) hours before drilling the plug or initiating tests.

Tests of casing shall vary with drilling method. If rotary is used, the mud shall be displaced with water or with the proposed saturated water solution and a hydraulic pressure of six hundred (600) pounds per square inch shall be applied. If a drop of one hundred (100) pounds per square inch or more should occur within 30 minutes, corrective measures shall be applied. If cable tools are used, the mud shall be bailed from the hole and if the hole does not remain dry for a period of one hour, corrective measures shall be applied.

2. Salt Protection String

The salt protection string shall be set at least one hundred (100) feet and not more than two hundred (200) feet below the base of the salt section. This string may consist of new, second-hand or re-conditioned pipe. New pipe shall have received a mill test of not less than 1000 pounds per square inch; second-hand and re-conditioned pipe shall be re-tested to 1000 pounds per square inch before being run.

Centralizers shall be used on at least every third joint below surface casing.

Sufficient cement shall be used to fill the annular space back of the pipe from the casing point to the surface of the ground or to the bottom of the cellar. (The water used to mix with the cement shall be saturated with the salts common to the zones penetrated.) Cement shall be allowed to stand a minimum of twelve (12) hours under pressure and a total of twenty-four (24) hours before drilling the plug or initiating tests. If the cement fails to reach the surface, the salt protection casing shall be perforated just above the top of the cement and additional cement jobs done until cement is brought to the surface. One or more temperature or gamma ray surveys supporting complete cementation shall be filed with the Oil Conservation Commission.

CASE NO. 278
EXHIBIT A

Tests of casing shall vary with the drilling method. If rotary is used, the mud shall be displaced with water and a hydraulic pressure of 1000 pounds per square inch shall be applied. If a drop of 100 pounds per square inch or more should occur within 30 minutes, corrective measures shall be applied. If cable tools are used the mud shall be bailed from the hole and if the hole does not remain dry for a period of one hour, corrective measures shall be applied.

3. Intermediate String

This string may be a drilling protection string for deep drilling objectives or may be an oil string for testing medium depth zones.

a. If a drilling protection string, the casing shall be cemented with a sufficient volume of cement amply to protect this casing and all shallow pay zones above the casing shoe, and in every instance this string shall be cemented from a point one thousand (1000) feet below the salt string back to the surface. One or more temperature or gamma ray surveys supporting complete cementation shall be filed with the Oil Conservation Commission.

b. If an oil string in testing medium depth zones, the casing may be cemented with a nominal cement volume for testing purposes only, and if commercially productive, the string must be re-cemented by circulating cement from the top of the original cement job to the surface. One or more temperature or gamma ray surveys supporting complete cementation shall be filed with the Oil Conservation Commission.

4. Oil or Production String (Deep Wells)

This string shall be set on top or through the pay zone and cemented with a volume adequate to protect the pay zone and the casing above such zone, provided however, if no intermediate drilling casing shall have been run and commercial production obtained, that string shall be cemented to the surface or as provided by 3-a above.

5. Drilling Fluid for Salt Section

This fluid shall consist of water to which has been added sufficient salts of a character common to the zone penetrated to completely saturate the mixture. Other admixtures may be added to the system by the operator in overcoming any specific problem. This requirement is specifically inserted in order to prevent enlarged drill holes.

CASING AND CEMENTING PROGRAM FOR SHALLOW OIL AND GAS TEST WELLS IN KNOWN POTASH AREAS

CASE NO. 278
EXHIBIT B

The following is a suggested casing program for wells above 5,000 feet and is, of necessity, only general rules for the whole designated potash area, whether designated as Area A, Area B or otherwise. Geological sections change so rapidly in this large, scattered area that individual portions of the area will present individual problems. It is therefore suggested as follows:

A. That the Oil Conservation Commission retain authority to vary this general casing and cementing program to meet a specific condition, without an open hearing before the Commission.

B. That the casing and cementing program herein suggested apply only to the areas embraced in proven commercial deposits of potash, the remainder of the designated potash area to be drilled in accordance with standard, existing practices.

C. The suggested casing and cementing program is as follows:

1. Surface Casing String

In order to protect the fresh water supply, if present, the surface casing string shall be set through the fresh water bearing horizons and cemented with a volume adequate to protect the fresh water and keep it from entering the salt formation.

The surface string may consist of new, second-hand or re-conditioned pipe capable of meeting the manufacturers test specifications.

Cement shall be allowed to stand a minimum of twelve (12) hours under pressure and a total of twenty-four (24) hours before drilling the plug or initiating tests.

Tests of casing shall vary with drilling method. If rotary is used, the mud shall be displaced with water or with the proposed saturated water solution and a hydraulic pressure of six hundred (600) pounds per square inch shall be applied. If a drop of one hundred (100) pounds per square inch or more should occur within 30 minutes, corrective measures shall be applied. If cable tools are used, the mud shall be bailed from the hole and if the hole does not remain dry for a period of one hour, corrective measures shall be applied.

2. Salt Protection String

The salt protection string may be set at lease one hundred (100) feet and not more than two hundred (200) feet below the base of the salt section. This string

may consist of new, second-hand or re-conditioned pipe capable of meeting the manufacturer's test specifications.

The string may be cemented with a nominal cement volume for testing purposes only, and if commercially productive, the string must be re-cemented with not less than 150% of calculated volume necessary to circulate cement to surface.

Cement shall be allowed to stand a minimum of twelve (12) hours under pressure and a total of twenty-four (24) hours before drilling the plug or initiating tests. If the cement fails to reach the top of the salt, the salt protection casing shall be perforated just above the top of the cement and additional cement jobs done until cement is brought to that point. One or more temperature or gamma ray surveys supporting complete cementation shall be filed with the Oil Conservation Commission.

Test of casing shall vary with the drilling method. If rotary is used, the mud shall be displaced with water and a hydraulic pressure of 1000 pounds per square inch shall be applied. If a drop of 100 pounds per square inch or more should occur within 30 minutes, corrective measures shall be applied. If cable tools are used, the mud shall be bailed from the hole and if the hole does not remain dry for a period of one hour corrective measures shall be applied.

3. Oil or Production String

This string may be set on top or through the pay zone and cemented with a volume adequate to protect the pay zone and the casing above such zone, provided however, if no salt protection casing shall have been run and commercial production obtained, that string shall be cemented to the surface as provided by 2 above or as provided by 3a in Deep Well program.

D. The undersigned operators, of Eddy County, New Mexico, approve the above and foregoing proposals and recommend its adoption by the Commission.

Respectfully submitted,

American Republics Corp. by William B. Macey; Boyd-Plemons Drilling Company by Tom Boyd; Buffalo Oil Company by Ralph L. Gray; Guy Stevenson; J. Grady Wright; E. N. Brock; G. Kelley Stout; (Illegible) Paton Bros. by H. R. Paton; R. D. Collier; J. W. Berry; Ross Sears; Joe Nunn; J. E. Bedingfield; Burnham Oil Company by E. Jeffers; Malco Refineries, Inc. by Donald E. Anderson; Bassatt & Birney by Martin Yates III; Dixon & Yates by Martin Yates III; S. P. Yates; Yates Brothers by S. P. Yates; Resler Oil Company by S. P. Yates; J. R. Lund for Robert E. McKee.

CASING AND CEMENTING PROGRAM FOR SHALLOW OIL AND GAS TEST WELLS IN PROSPECTIVE POTASH AREAS

CASE No. 278
EXHIBIT C

The following program is a suggestive program for the cementing of pipe and the protecting of the prospective potash horizon from water, oil and gas contamination. This program shall pertain to oil and gas test or wells drilled for the purpose of securing oil and gas, down to a depth of 6000 feet. There should be rules set up for particular areas, naturally based on the amount of surface water and the amount of potash in the salt section, which will be penetrated during the drilling of the proposed oil test. The geological features on the oil structures will call for different programs from time to time. Especially in the districts where potash is present. The commercial potash districts according to geological features and subsurface information that has been secured from old oil test that have been drilled in the past. Also addition information has been secured from districts from recent wells drilled in the various districts. There has also been a considerable amount of coring done by the various companies. All of this information should supply sufficient knowledge to derive at a pipe program satisfactory for all concerned. It is therefore suggested as follows:

1. That the Oil and Gas Conservation Commission retain authorization to issue a pipe program according to the area and district. A program that is sufficient to protect the potash strates at the present and future.

2. A suggestive pipe program for the general area should be as follows:

A. Surface Casing

The surface casing should be set at the top of the salt section. The size should be determined by the operator. The number one suggestion is that the pipe be mudded to the surface by pumping mud around the shoe and behind the pipe to the surface. Allow pipe to set eight hours. Then bale hole dry and test for at least two hours. If water is completely shut off, then the operator shall continue his drilling until he has reached the anhydrite formation. Then the operator should run either number one used pipe or new pipe through the potash and salt section. The operator should then be allowed to pull the surface pipe from the hole. The operator should then be permitted to cement the pipe from the bottom of the salt section to the surface, by circulating cement behind the pipe to the surface, or in such quantities recommended by the cementing concerns and the Oil Conservation Commission. The operator should then be allowed to drill his well and set his production string as he sees fit. He should be allowed to set the size of casing and at a depth he recommends, so long as he uses number one used pipe or new pipe. The amount of cement run behind the production string should be sufficient to come up at least 500 feet above the shoe. This will be adequate cement to protect the oil and gas zones and the formations behind the production string.

(Con't. Case No. 278
Exhibit C)

B. .The next pipe program is recommended as follows:

The surface pipe should be set through the surface water, and cemented by circulating cement behind the pipe to the surface, or else there should be sufficient amount of cement pumped in and around the pipe to come to the surface, under ordinarly conditions. The cement should be allowed to set under pressure not less than 48 hours before drilling same and testing for water. The operator must test for water at least 2 hours. In case there is no water present, he shall then be allowed to carry on drilling operations until he reaches the casing point necessary to set the production string. At this time the potash and salt is protected from all water hazards. The only hazards existing at this time is the possibility of contaminating the potash with oil and gas. Therefore, the operator should run nothing but A-1 used pipe or new pipe, tonging each joint up as tight as possible to prevent leakage. He shall then be allowed, to pump heavy acquagel mud behind the pipe sufficient to reach and come above the salt and potash section. Then the operator should pump enough cement behind the pipe to come up at least 500 feet behind it, which would be sufficient to seal off any possible chances of oil and gas working its way up behind it. The production string shall be allowed to be set threw or above the oil producing sections as the operator may see fit. The reason for this is that the different known producing zones are treated differently.

Most of the wells are drilled through-out Eddy County by the cable tool method. Which has the advantages of being able to identify the formations immediately upon topping them and the exact thickness. We are also able to detect immediately the different changes in the formations that takes place. We are also able to test our water zones as to the amount of water and the thickness of the zones. Therefore it is necessary to have a different type of pipe program for this type of drilling than for rotary drilling. The above recommendation are based on cable tool drilling.

These recommendations or suggestions are based on past experience and present drilling operations being carried on in one or more districts. The oil and gas producers of New Mexico are fortunate enough to have the Oil and Gas Conservation Commission to assist us in our problems. They have accumulated information sufficient to guide them in any section of Eddy County, New Mexico. They are known to work and cooperate with the United States Geological Department at all times.

The undersigned operator or operators of Eddy County, New Mexico approve wholeheartedly the above and foregoing proposals and do hereby recommend these adoptions by the State Land Commission as well as the United States Land Commission.

Respectfully submitted,

/s/ Jones & Watkins Oil Company, Artesia, New Mexico, by Stanley L. Jones, Inc.

/s/ Miller & Miller, Artesia, New Mexico, by Stanley L. Jones,

/s/ Stanley L. Jones, Inc.

Telegram -
Bartlesville, Oklahoma
June 21, 1951 - - - - - -

CASE NO. 278
EXHIBIT D

R. R. SPURRIER, SECY.
NEW MEXICO OIL CONSERVATION COMMISSION - SANTA FE, NEW MEXICO

RE CASE 278 FOR AN ORDER ESTABLISHING A CASING PROGRAM WITHIN THE SO CALLED POTASH AREA OF EDDY AND LEA COUNTIES. PHILLIPS PETROLEUM COMPANY HAS STUDIED PROPOSALS OF VARIOUS OPERATORS WHICH WOULD REQUIRE TEMPERATURE SURVEYS WHERE SALT STRING IS CEMENTED TO SURFACE. IN OUR OPINION CIRCULATION SHOULD BE SUFFICIENT EVIDENCE AND WE OBJECT TO THE REQUIREMENT OF TEMPERATURE SURVEYS BECAUSE SUCH SURVEYS WILL NOT REVEAL ADDITIONAL INFORMATION. ALSO IN OUR OPINION, ON SHALLOW WELLS, IF NO INTERMEDIATE STRING IS RUN THE OIL STRING SHOULD BE REQUIRED TO BE CEMENTED SOLID TO THE SURFACE TO AVOID POSSIBLE LEAKS AND IN THIS CASE WE ALSO OBJECT TO REQUIREMENT OF GAMMA RAY OR TEMPERATURE LOGS FOR SAME REASON THAT THEY SHOW NO MORE THAN IS INDICATED BY OBTAINING CIRCULATION OF CEMENT.

OPERATORS SUGGESTION THAT CENTERALIZERS BE PLACED ON EVERY THIRD JOINT OF SALT STRING SHOULD BE AMENDED TO PROVIDE LENGTH OF SUCH JOINTS OR CENTRALIZERS SHOULD BE SPACED CERTAIN DISTANCE APART. OTHERWISE PHILLIPS PETROLEUM COMPANY CONCURS WITH PROPOSALS OF OTHER OPERATORS AS SET FORTH IN RECENT MEMORANDUM OF NEW MEXICO OIL AND GAS ENGINEERING COMMITTEE.

C. P. DIMIT

PHILLIPS PETROLEUM COMPANY

CASING AND CEMENTING PROGRAMS FOR

OIL AND GAS TEST WELLS IN THE "DEFINED AREAS" IN EDDY COUNTY, NEW MEXICO

1. Surface Casing String

In order to protect the fresh water supply, the surface casing string shall be set in the "Red Bed" section of the basal Russler formation immediately above the top of the salt section and shall be cemented back to the ground surface or to the bottom of the cellar.

The surface string may consist of new, second-hand or re-conditioned pipe. New pipe shall have received a mill test of not less than 600 pounds per square inch; second-hand and re-conditioned pipe shall be re-tested to 600 pounds per square inch before being run.

Sufficient cement shall be used to fill the annular space back of the pipe from the casing point to the surface of the ground or to the bottom of the cellar. Cement shall be allowed to stand a minimum of twelve (12) hours under pressure and a total of twenty-four (24) hours before drilling the plug or initiating tests.

Tests of casing shall vary with drilling method. If rotary is used, the mud shall be displaced with water or with the proposed saturated water solution and a hydraulic pressure of six hundred (600) pounds per square inch shall be applied. If a drop of one hundred (100) pounds per square inch or more should occur within 30 minutes, corrective measures shall be applied. If cable tools are used, the mud shall be bailed from the hole and if the hole does not remain dry for a period of one hour, corrective measures shall be applied.

2. Salt Protection String

The salt protection string shall be set at least one hundred (100) feet and not more than two hundred (200) feet below the base of the salt section. This string may consist of new, second-hand or re-conditioned pipe. New pipe shall have received a mill test of not less than 1000 pounds per square inch; second-hand and re-conditioned pipe shall be re-tested to 1000 pounds per square inch before being run.

Centralizers shall be used on at least every third joint below surface casing.

Sufficient cement shall be used to fill the annular space back of the pipe from the casing point to the surface of the ground or to the bottom of the cellar. (The water used to mix with the cement shall be saturated with the salts common to the zones penetrated.) Cement shall be allowed to stand a minimum of twelve (12) hours under pressure and a total of twenty-four (24) hours before drilling the plug or initiating tests. If the cement fails to reach the surface, the salt protection casing shall be perforated just above the top of the cement and additional cement jobs done until cement is brought to the surface. One or more temperature or gamma ray surveys supporting complete cementation shall be filed with the Oil Conservation Commission.

Tests of casing shall vary with the drilling method. If rotary is used, the mud shall be displaced with water and a hydraulic pressure of 1000 pounds per square inch shall be applied. If a drop of 100 pounds per square inch or more should occur within 30 minutes, corrective measures shall be applied. If cable tools are used the mud shall be bailed from the hole and if the hole does not remain dry for a period of one hour, corrective measures shall be applied.

3. Intermediate String

This string may be a drilling protection string for deep drilling objectives or may be an oil string for testing medium depth zones.

a. If a drilling protection string, the casing shall be cemented with a sufficient volume of cement amply to protect this casing and all shallow pay zones above the casing shoe, and in every instance this string shall be cemented from a point one thousand (1000) feet below the salt string back to the surface. One or more temperature or gamma ray surveys supporting complete cementation shall be filed with the Oil Conservation Commission.

b. If an oil string in testing medium depth zones, the casing may be cemented with a nominal cement volume for testing purposes only, and if commercially productive, the string must be re-cemented by circulating cement from the top of the original cement job to the surface. One or more temperature or gamma ray surveys supporting complete cementation shall be filed with the Oil Conservation Commission.

4. Oil or Production String (Deep Wells)

This string shall be set on top or through the pay zone and cemented with a volume adequate to protect the pay zone and the casing above such zone, provided however, if no intermediate drilling casing shall have been run and commercial production obtained, that string shall be cemented to the surface or as provided by 3-a above.

5. Drilling Fluid for Salt Section

This fluid shall consist of water to which has been added sufficient salts of a character common to the zone penetrated to completely saturate the mixture. Other admixtures may be added to the system by the operator in overcoming any specific problem. This requirement is specifically inserted in order to prevent enlarged drill holes.

CASING AND CEMENTING
PROGRAMS FOR OIL AND GAS TEST WELLS IN THE "DEFINED AREAS" IN EDDY COUNTY, NEW MEXICO

CASE NO. 278
EXHIBIT A

1. Surface Casing String

In order to protect the fresh water supply, the surface casing string shall be set in the "Red Bed" section of the basal Russler formation immediately above the top of the salt section and shall be cemented back to the ground surface or to the bottom of the cellar.

The surface string may consist of new, second-hand or re-conditioned pipe. New pipe shall have received a mill test of not less than 600 pounds per square inch; second-hand and re-conditioned pipe shall be re-tested to 600 pounds per square inch before being run.

Sufficient cement shall be used to fill the annular space back of the pipe from the casing point to the surface of the ground or to the bottom of the cellar. Cement shall be allowed to stand a minimum of twelve (12) hours under pressure and a total of twenty-four (24) hours before drilling the plug or initiating tests.

Tests of casing shall vary with drilling method. If rotary is used, the mud shall be displaced with water or with the proposed saturated water solution and a hydraulic pressure of six hundred (600) pounds per square inch shall be applied. If a drop of one hundred (100) pounds per square inch or more should occur within 30 minutes, corrective measures shall be applied. If cable tools are used, the mud shall be bailed from the hole and if the hole does not remain dry for a period of one hour, corrective measures shall be applied.

2. Salt Protection String

The salt protection string shall be set at least one hundred (100) feet and not more than two hundred (200) feet below the base of the salt section. This string may consist of new, second-hand or re-conditioned pipe. New pipe shall have received a mill test of not less than 1000 pounds per square inch; second-hand and re-conditioned pipe shall be re-tested to 1000 pounds per square inch before being run.

Centralizers shall be used on at least every third joint below surface casing.

Sufficient cement shall be used to fill the annular space back of the pipe from the casing point to the surface of the ground or to the bottom of the cellar. (The water used to mix with the cement shall be saturated with the salts common to the zones penetrated.) Cement shall be allowed to stand a minimum of twelve (12) hours under pressure and a total of twenty-four (24) hours before drilling the plug or initiating tests. If the cement fails to reach the surface, the salt protection casing shall be perforated just above the top of the cement and additional cement jobs done until cement is brought to the surface. One or more temperature or gamma ray surveys supporting complete cementation shall be filed with the Oil Conservation Commission.

CASE NO. 278
EXHIBIT A

Tests of casing shall vary with the drilling method. If rotary is used, the mud shall be displaced with water and a hydraulic pressure of 1000 pounds per square inch shall be applied. If a drop of 100 pounds per square inch or more should occur within 30 minutes, corrective measures shall be applied. If cable tools are used the mud shall be bailed from the hole and if the hole does not remain dry for a period of one hour, corrective measures shall be applied.

3. Intermediate String

This string may be a drilling protection string for deep drilling objectives or may be an oil string for testing medium depth zones.

a. If a drilling protection string, the casing shall be cemented with a sufficient volume of cement amply to protect this casing and all shallow pay zones above the casing shoe, and in every instance the string shall be cemented from a point one thousand (1000) feet below the salt string back to the surface. One or more temperature or gamma ray surveys supporting complete cementation shall be filed with the Oil Conservation Commission.

b. If an oil string in testing medium depth zones, the casing may be cemented with a nominal cement volume for testing purposes only, and if commercially productive, the string must be re-cemented by circulating cement from the top of the original cement job to the surface. One or more temperature or gamma ray surveys supporting complete cementation shall be filed with the Oil Conservation Commission.

4. Oil or Production String (Deep Wells)

This string shall be set on top or through the pay zone and cemented with a volume adequate to protect the pay zone and the casing above such zone, provided however, if no intermediate drilling casing shall have been run and commercial production obtained, that string shall be cemented to the surface or as provided by 3-a above.

5. Drilling Fluid for Salt Section

This fluid shall consist of water to which has been added sufficient salts of a character common to the zone penetrated to completely saturate the mixture. Other admixtures may be added to the system by the operator in overcoming any specific problem. This requirement is specifically inserted in order to prevent enlarged drill holes.

CASING AND CEMENTING PROGRAM FOR SHALLOW OIL AND GAS TEST WELLS IN KNOWN POTASH AREAS

CASE NO. 278
EXHIBIT B

The following is a suggested casing program for wells above 5,000 feet and is, of necessity, only general rules for the whole designated potash area, whether designated as Area A, Area B or otherwise. Geological sections change so rapidly in this large, scattered area that individual portions of the area will present individual problems. It is therefore suggested as follows:

A. That the Oil Conservation Commission retain authority to vary this general casing and cementing program to meet a specific condition, without an open hearing before the Commission.

B. That the casing and cementing program herein suggested apply only to the areas embraced in proven commercial deposits of potash, the remainder of the designated potash area to be drilled in accordance with standard, existing practices.

C. The suggested casing and cementing program is as follows:

1. Surface Casing String

In order to protect the fresh water supply, if present, the surface casing string shall be set through the fresh water bearing horizons and cemented with a volume adequate to protect the fresh water and keep it from entering the salt formation.

The surface string may consist of new, second-hand or re-conditioned pipe capable of meeting the manufacturers test specifications.

Cement shall be allowed to stand a minimum of twelve (12) hours under pressure and a total of twenty-four (24) hours before drilling the plug or initiating tests.

Tests of casing shall vary with drilling method. If rotary is used, the mud shall be displaced with water or with the proposed saturated water solution and a hydraulic pressure of six hundred (600) pounds per square inch shall be applied. If a drop of one hundred (100) pounds per square inch or more should occur within 30 minutes, corrective measures shall be applied. If cable tools are used, the mud shall be bailed from the hole and if the hole does not remain dry for a period of one hour, corrective measures shall be applied.

2. Salt Protection String

The salt protection string may be set at lease one hundred (100) feet and not more than two hundred (200) feet below the base of the salt section. This string

may consist of new, second-hand or re-conditioned pipe capable of meeting the manufacturer's test specifications.

The string may be cemented with a nominal cement volume for testing purposes only, and if commercially productive, the string must be re-cemented with not less than 150% of calculated volume necessary to circulate cement to surface.

Cement shall be allowed to stand a minimum of twelve (12) hours under pressure and a total of twenty-four (24) hours before drilling the plug or initiating tests. If the cement fails to reach the top of the salt, the salt protection casing shall be perforated just above the top of the cement and additional cement jobs done until cement is brought to that point. One or more temperature or gamma ray surveys supporting complete cementation shall be filed with the Oil Conservation Commission.

Test of casing shall vary with the drilling method. If rotary is used, the mud shall be displaced with water and a hydraulic pressure of 1000 pounds per square inch shall be applied. If a drop of 100 pounds per square inch or more should occur within 30 minutes, corrective measures shall be applied. If cable tools are used, the mud shall be bailed from the hole and if the hole does not remain dry for a period of one hour corrective measures shall be applied.

3. Oil or Production String

This string may be set on top or through the pay zone and cemented with a volume adequate to protect the pay zone and the casing above such zone, provided however, if no salt protection casing shall have been run and commercial production obtained, that string shall be cemented to the surface as provided by 2 above or as provided by 3a in Deep Well program.

D. The undersigned operators, of Eddy County, New Mexico, approve the above and foregoing proposals and recommend its adoption by the Commission.

Respectfully submitted,

American Republics Corp. by William B. Macey; Boyd-Plemons Drilling Company by Tom Boyd; Buffalo Oil Company by Ralph L. Gray; Guy Stevenson; J. Grady Wright; E. N. Brock; G. Kelley Stout; (Illegible;) Paton Bros. by H. R. Paton; R. D. Collier; J. W. Berry; Ross Sears; Joe Nunn; J. E. Bedingfield; Burnham Oil Company by E. Jeffers; Malco Refineries, Inc. by Donald E. Anderson; Bassatt & Birney by Martin Yates III; Dixon & Yates by Martin Yates III; S. P. Yates; Yates Brothers by S. P. Yates; Resler Oil Company by S. P. Yates; J. R. Lund for Robert E. McKee.

CASING AND CEMENTING PROGRAM FOR SHALLOW OIL AND GAS TEST WELLS IN PROSPECTIVE POTASH AREAS

CASE No. 278
EXHIBIT C

The following program is a suggestive program for the cementing of pipe and the protecting of the prospective potash horizon from water, oil and gas contamination. This program shall pertain to oil and gas test or wells drilled for the purpose of securing oil and gas, down to a depth of 6000 feet. There should be rules set up for particular areas, naturally based on the amount of surface water and the amount of potash in the salt section, which will be penetrated during the drilling of the proposed oil test. The geological features on the oil structures will call for different programs from time to time. Especially in the districts where potash is present. The commercial potash districts according to geological features and subsurface information that has been secured from old oil test that have been drilled in the past. Also addition information has been secured from districts from recent wells drilled in the various districts. There has also been a considerable amount of coring done by the various companies. All of this information should supply sufficient knowledge to derive at a pipe program satisfactory for all concerned. It is therefore suggested as follows:

1. That the Oil and Gas Conservation Commission retain authorization to issue a pipe program according to the area and district. A program that is sufficient to protect the potash strates at the present and future.

2. A suggestive pipe program for the general area should be as follows:

A. Surface Casing

The surface casing should be set at the top of the salt section. The size should be determined by the operator. The number one suggestion is that the pipe be mudded to the surface by pumping mud around the shoe and behind the pipe to the surface. Allow pipe to set eight hours. Then bale hole dry and test for at least two hours. If water is completely shut off, then the operator shall continue his drilling until he has reached the anhydrite formation. Then the operator should run either number one used pipe or new pipe through the potash and salt section. The operator should then be allowed to pull the surface pipe from the hole. The operator should then be permitted to cement the pipe from the bottom of the salt section to the surface, by circulating cement behind the pipe to the surface, or in such quantities recommended by the cementing concerns and the Oil Conservation Commission. The operator should then be allowed to drill his well and set his production string as he sees fit. He should be allowed to set the size of casing and at a depth he recommends, so long as he uses number one used pipe or new pipe. The amount of cement run behind the production string should be sufficient to come up at least 500 feet above the shoe. This will be adequate cement to protect the oil and gas zones and the formations behind the production string.

(Con't. Case No. 278
Exhibit C)

B. The next pipe program is recommended as follows:

The surface pipe should be set through the surface water, and cemented by circulating cement behind the pipe to the surface, or else there should be sufficient amount of cement pumped in and around the pipe to come to the surface, under ordinarly conditions. The cement should be allowed to set under pressure not less than 48 hours before drilling same and testing for water. The operator must test for water at least 2 hours. In case there is no water present, he shall then be allowed to carry on drilling operations until he reaches the casing point necessary to set the production string. At this time the potash and salt is protected from all water hazards. The only hazards existing at this time is the possibility of contaminating the potash with oil and gas. Therefore, the operator should run nothing but A-1 used pipe or new pipe, tonging each joint up as tight as possible to prevent leakage. He shall then be allowed, to pump heavy acquagel mud behind the pipe sufficient to reach and come above the salt and potash section. Then the operator should pump enough cement behind the pipe to come up at least 500 feet behind it, which would be sufficient to seal off any possible chances of oil and gas working its way up behind it. The production string shall be allowed to be set threw or above the oil producing sections as the operator may see fit. The reason for this is that the different known producing zones are treated differently.

Most of the wells are drilled through-out Eddy County by the cable tool method. Which has the advantages of being able to identify the formations immediately upon topping them and the exact thickness. We are also able to detect immediately the different changes in the formations that takes place. We are also able to test our water zones as to the amount of water and the thickness of the zones. Therefore it is necessary to have a different type of pipe program for this type of drilling than for rotary drilling. The above recommendation are based on cable tool drilling.

These recommendations or suggestions are based on past experience and present drilling operations being carried on in one or more districts. The oil and gas producers of New Mexico are fortunate enough to have the Oil and Gas Conservation Commission to assist us in our problems. They have accumulated information sufficient to guide them in any section of Eddy County, New Mexico. They are known to work and cooperate with the United States Geological Department at all times.

The undersigned operator or operators of Eddy County, New Mexico approve wholeheartedly the above and foregoing proposals and do hereby recommend these adoptions by the State Land Commission as well as the United States Land Commission.

Respectfully submitted,

/s/ Jones & Watkins Oil Company, Artesia, New Mexico, by Stanley L. Jones, Inc.

/s/ Miller & Miller, Artesia, New Mexico, by Stanley L. Jones,

/s/ Stanley L. Jones, Inc.

Telegram -
Bartlesville, Oklahoma
June 21, 1951 - - - - - -

CASE NO. 278
EXHIBIT D

R. R. SPURRIER, SECY.
NEW MEXICO OIL CONSERVATION COMMISSION - SANTA FE, NEW MEXICO

RE CASE 278 FOR AN ORDER ESTABLISHING A CASING PROGRAM WITHIN THE SO CALLED POTASH AREA OF EDDY AND LEA COUNTIES. PHILLIPS PETROLEUM COMPANY HAS STUDIED PROPOSALS OF VARIOUS OPERATORS WHICH WOULD REQUIRE TEMPERATURE SURVEYS WHERE SALT STRING IS CEMENTED TO SURFACE. IN OUR OPINION CIRCULATION SHOULD BE SUFFICIENT EVIDENCE AND WE OBJECT TO THE REQUIREMENT OF TEMPERATURE SURVEYS BECAUSE SUCH SURVEYS WILL NOT REVEAL ADDITIONAL INFORMATION. ALSO IN OUR OPINION, ON SHALLOW WELLS, IF NO INTERMEDIATE STRING IS RUN THE OIL STRING SHOULD BE REQUIRED TO BE CEMENTED SOLID TO THE SURFACE TO AVOID POSSIBLE LEAKS AND IN THIS CASE WE ALSO OBJECT TO REQUIREMENT OF GAMMA RAY OR TEMPERATURE LOGS FOR SAME REASON THAT THEY SHOW NO MORE THAN IS INDICATED BY OBTAINING CIRCULATION OF CEMENT.

OPERATORS SUGGESTION THAT CENTERALIZERS BE PLACED ON EVERY THIRD JOINT OF SALT STRING SHOULD BE AMENDED TO PROVIDE LENGTH OF SUCH JOINTS OR CENTRALIZERS SHOULD BE SPACED CERTAIN DISTANCE APART. OTHERWISE PHILLIPS PETROLEUM COMPANY CONCURS WITH PROPOSALS OF OTHER OPERATORS AS SET FORTH IN RECENT MEMORANDUM OF NEW MEXICO OIL AND GAS ENGINEERING COMMITTEE.

C. P. DIMIT

PHILLIPS PETROLEUM COMPANY

CASING AND CEMENTING PROGRAMS FOR OIL AND GAS TEST WELLS IN THE "DEFINED AREAS" IN EDDY COUNTY, NEW MEXICO

CASE NO. 278
EXHIBIT A

1. Surface Casing String

In order to protect the fresh water supply, the surface casing string shall be set in the "Red Bed" section of the basal Russler formation immediately above the top of the salt section and shall be cemented back to the ground surface or to the bottom of the cellar.

The surface string may consist of new, second-hand or re-conditioned pipe. New pipe shall have received a mill test of not less than 600 pounds per square inch; second-hand and re-conditioned pipe shall be re-tested to 600 pounds per square inch before being run.

Sufficient cement shall be used to fill the annular space back of the pipe from the casing point to the surface of the ground or to the bottom of the cellar. Cement shall be allowed to stand a minimum of twelve (12) hours under pressure and a total of twenty-four (24) hours before drilling the plug or initiating tests.

Tests of casing shall vary with drilling method. If rotary is used, the mud shall be displaced with water or with the proposed saturated water solution and a hydraulic pressure of six hundred (600) pounds per square inch shall be applied. If a drop of one hundred (100) pounds per square inch or more should occur within 30 minutes, corrective measures shall be applied. If cable tools are used, the mud shall be bailed from the hole and if the hole does not remain dry for a period of one hour, corrective measures shall be applied.

2. Salt Protection String

The salt protection string shall be set at least one hundred (100) feet and not more than two hundred (200) feet below the base of the salt section. This string may consist of new, second-hand or re-conditioned pipe. New pipe shall have received a mill test of not less than 1000 pounds per square inch; second-hand and re-conditioned pipe shall be re-tested to 1000 pounds per square inch before being run.

Centralizers shall be used on at least every third joint below surface casing.

Sufficient cement shall be used to fill the annular space back of the pipe from the casing point to the surface of the ground or to the bottom of the cellar. (The water used to mix with the cement shall be saturated with the salts common to the zones penetrated.) Cement shall be allowed to stand a minimum of twelve (12) hours under pressure and a total of twenty-four (24) hours before drilling the plug or initiating tests. If the cement fails to reach the surface, the salt protection casing shall be perforated just above the top of the cement and additional cement jobs done until cement is brought to the surface. One or more temperature or gamma ray surveys supporting complete cementation shall be filed with the Oil Conservation Commission.

CASE NO. 278
EXHIBIT A

Tests of casing shall vary with the drilling method. If rotary is used, the mud shall be displaced with water and a hydraulic pressure of 1000 pounds per square inch shall be applied. If a drop of 100 pounds per square inch or more should occur within 30 minutes, corrective measures shall be applied. If cable tools are used the mud shall be bailed from the hole and if the hole does not remain dry for a period of one hour, corrective measures shall be applied.

3. Intermediate String

This string may be a drilling protection string for deep drilling objectives or may be an oil string for testing medium depth zones.

a. If a drilling protection string, the casing shall be cemented with a sufficient volume of cement amply to protect this casing and all shallow pay zones above the casing shoe, and in every instance this string shall be cemented from a point one thousand (1000) feet below the salt string back to the surface. One or more temperature or gamma ray surveys supporting complete cementation shall be filed with the Oil Conservation Commission.

b. If an oil string in testing medium depth zones, the casing may be cemented with a nominal cement volume for testing purposes only, and if commercially productive, the string must be re-cemented by circulating cement from the top of the original cement job to the surface. One or more temperature or gamma ray surveys supporting complete cementation shall be filed with the Oil Conservation Commission.

4. Oil or Production String (Deep Wells)

This string shall be set on top or through the pay zone and cemented with a volume adequate to protect the pay zone and the casing above such zone, provided however, if no intermediate drilling casing shall have been run and commercial production obtained, that string shall be cemented to the surface or as provided by 3-a above.

5. Drilling Fluid for Salt Section

This fluid shall consist of water to which has been added sufficient salts of a character common to the zone penetrated to completely saturate the mixture. Other admixtures may be added to the system by the operator in overcoming any specific problem. This requirement is specifically inserted in order to prevent enlarged drill holes.

CASING AND CEMENTING PROGRAM FOR SHALLOW OIL AND GAS TEST WELLS IN KNOWN POTASH AREAS

CASE NO. 278
EXHIBIT B

The following is a suggested casing program for wells above 5,000 feet and is, of necessity, only general rules for the whole designated potash area, whether designated as Area A, Area B or otherwise. Geological sections change so rapidly in this large, scattered area that individual portions of the area will present individual problems. It is therefore suggested as follows:

A. That the Oil Conservation Commission retain authority to vary this general casing and cementing program to meet a specific condition, without an open hearing before the Commission.

B. That the casing and cementing program herein suggested apply only to the areas embraced in proven commercial deposits of potash, the remainder of the designated potash area to be drilled in accordance with standard, existing practices.

C. The suggested casing and cementing program is as follows:

1. Surface Casing String

In order to protect the fresh water supply, if present, the surface casing string shall be set through the fresh water bearing horizons and cemented with a volume adequate to protect the fresh water and keep it from entering the salt formation.

The surface string may consist of new, second-hand or re-conditioned pipe capable of meeting the manufacturers test specifications.

Cement shall be allowed to stand a minimum of twelve (12) hours under pressure and a total of twenty-four (24) hours before drilling the plug or initiating tests.

Tests of casing shall vary with drilling method. If rotary is used, the mud shall be displaced with water or with the proposed saturated water solution and a hydraulic pressure of six hundred (600) pounds per square inch shall be applied. If a drop of one hundred (100) pounds per square inch or more should occur within 30 minutes, corrective measures shall be applied. If cable tools are used, the mud shall be bailed from the hole and if the hole does not remain dry for a period of one hour, corrective measures shall be applied.

2. Salt Protection String

The salt protection string may be set at lease one hundred (100) feet and not more than two hundred (200) feet below the base of the salt section. This string

may consist of new, second-hand or re-conditioned pipe capable of meeting the manufacturer's test specifications.

The string may be cemented with a nominal cement volume for testing purposes only, and if commercially productive, the string must be re-cemented with not less than 150% of calculated volume necessary to circulate cement to surface.

Cement shall be allowed to stand a minimum of twelve (12) hours under pressure and a total of twenty-four (24) hours before drilling the plug or initiating tests. If the cement fails to reach the top of the salt, the salt protection casing shall be perforated just above the top of the cement and additional cement jobs done until cement is brought to that point. One or more temperature or gamma ray surveys supporting complete cementation shall be filed with the Oil Conservation Commission.

Test of casing shall vary with the drilling method. If rotary is used, the mud shall be displaced with water and a hydraulic pressure of 1000 pounds per square inch shall be applied. If a drop of 100 pounds per square inch or more should occur within 30 minutes, corrective measures shall be applied. If cable tools are used, the mud shall be bailed from the hole and if the hole does not remain dry for a period of one hour corrective measures shall be applied.

3. Oil or Production String

This string may be set on top or through the pay zone and cemented with a volume adequate to protect the pay zone and the casing above such zone, provided however, if no salt protection casing shall have been run and commercial production obtained, that string shall be cemented to the surface as provided by 2 above or as provided by 3a in Deep Well program.

D. The undersigned operators, of Eddy County, New Mexico, approve the above and foregoing proposals and recommend its adoption by the Commission.

Respectfully submitted,

American Republics Corp. by William B. Macey; Boyd-Plemons Drilling Company by Tom Boyd; Buffalo Oil Company by Ralph L. Gray; Guy Stevenson; J. Grady Wright; E. N. Brock; G. Kelley Stout; (Illegible;) Paton Bros. by H. R. Paton; R. D. Collier; J. W. Berry; Ross Sears; Joe Nunn; J. E. Bedingfield; Burnham Oil Company by E. Jeffers; Malco Refineries, Inc. by Donald E. Anderson; Bassatt & Birney by Martin Yates III; Dixon & Yates by Martin Yates III; S. P. Yates; Yates Brothers by S. P. Yates; Resler Oil Company by S. P. Yates; J. R. Lund for Robert E. McKee.

CASING AND CEMENTING PROGRAM FOR SHALLOW OIL AND GAS TEST WELLS IN PROSPECTIVE POTASH AREAS

CASE No. 278
EXHIBIT C

The following program is a suggestive program for the cementing of pipe and the protecting of the prospective potash horizon from water, oil and gas contamination. This program shall pertain to oil and gas test or wells drilled for the purpose of securing oil and gas, down to a depth of 6000 feet. There should be rules set up for particular areas, naturally based on the amount of surface water and the amount of potash in the salt section, which will be penetrated during the drilling of the proposed oil test. The geological features on the oil structures will call for different programs from time to time. Especially in the districts where potash is present. The commercial potash districts according to geological features and subsurface information that has been secured from old oil test that have been drilled in the past. Also addition information has been secured from districts from recent wells drilled in the various districts. There has also been a considerable amount of coring done by the various companies. All of this information should supply sufficient knowledge to derive at a pipe program satisfactory for all concerned. It is therefore suggested as follows:

1. That the Oil and Gas Conservation Commission retain authorization to issue a pipe program according to the area and district. A program that is sufficient to protect the potash strates at the present and future.

2. A suggestive pipe program for the general area should be as follows:

A. Surface Casing

The surface casing should be set at the top of the salt section. The size should be determined by the operator. The number one suggestion is that the pipe be mudded to the surface by pumping mud around the shoe and behind the pipe to the surface. Allow pipe to set eight hours. Then bale hole dry and test for at least two hours. If water is completely shut off, then the operator shall continue his drilling until he has reached the anhydrite formation. Then the operator should run either number one used pipe or new pipe through the potash and salt section. The operator should then be allowed to pull the surface pipe from the hole. The operator should then be permitted to cement the pipe from the bottom of the salt section to the surface, by circulating cement behind the pipe to the surface, or in such quantities recommended by the cementing concerns and the Oil Conservation Commission. The operator should then be allowed to drill his well and set his production string as he sees fit. He should be allowed to set the size of casing and at a depth he recommends, so long as he uses number one used pipe or new pipe. The amount of cement run behind the production string should be sufficient to come up at least 500 feet above the shoe. This will be adequate cement to protect the oil and gas zones and the formations behind the production string.

(Con't. Case No. 278
Exhibit C)

B. The next pipe program is recommended as follows:

The surface pipe should be set through the surface water, and cemented by circulating cement behind the pipe to the surface, or else there should be sufficient amount of cement pumped in and around the pipe to come to the surface, under ordinarly conditions. The cement should be allowed to set under pressure not less than 48 hours before drilling same and testing for water. The operator must test for water at least 2 hours. In case there is no water present, he shall then be allowed to carry on drilling operations until he reaches the casing point necessary to set the production string. At this time the potash and salt is protected from all water hazards. The only hazards existing at this time is the possibility of contaminating the potash with oil and gas. Therefore, the operator should run nothing but A-1 used pipe or new pipe, tonging each joint up as tight as possible to prevent leakage. He shall then be allowed, to pump heavy acquagel mud behind the pipe sufficient to reach and come above the salt and potash section. Then the operator should pump enough cement behind the pipe to come up at least 500 feet behind it, which would be sufficient to seal off any possible chances of oil and gas working its way up behind it. The production string shall be allowed to be set threw or above the oil producing sections as the operator may see fit. The reason for this is that the different known producing zones are treated differently.

Most of the wells are drilled through-out Eddy County by the cable tool method. Which has the advantages of being able to identify the formations immediately upon topping them and the exact thickness. We are also able to detect immediately the different changes in the formations that takes place. We are also able to test our water zones as to the amount of water and the thickness of the zones. Therefore it is necessary to have a different type of pipe program for this type of drilling than for rotary drilling. The above recommendation are based on cable tool drilling.

These recommendations or suggestions are based on past experience and present drilling operations being carried on in one or more districts. The oil and gas producers of New Mexico are fortunate enough to have the Oil and Gas Conservation Commission to assist us in our problems. They have accumulated information sufficient to guide them in any section of Eddy County, New Mexico. They are known to work and cooperate with the United States Geological Department at all times.

The undersigned operator or operators of Eddy County, New Mexico approve wholeheartedly the above and foregoing proposals and do hereby recommend these adoptions by the State Land Commission as well as the United States Land Commission.

Respectfully submitted,

/s/ Jones & Watkins Oil Company, Artesia, New Mexico, by Stanley L. Jones, Inc.

/s/ Miller & Miller, Artesia, New Mexico, by Stanley L. Jones,

/s/ Stanley L. Jones, Inc.

Telegram -
Bartlesville, Oklahoma
June 21, 1951 - - - - - -

CASE NO. 278
EXHIBIT D

R. R. SPURRIER, SECY.
NEW MEXICO OIL CONSERVATION COMMISSION - SANTA FE, NEW MEXICO

RE CASE 278 FOR AN ORDER ESTABLISHING A CASING PROGRAM WITHIN THE SO CALLED POTASH AREA OF EDDY AND LEA COUNTIES. PHILLIPS PETROLEUM COMPANY HAS STUDIED PROPOSALS OF VARIOUS OPERATORS WHICH WOULD REQUIRE TEMPERATURE SURVEYS WHERE SALT STRING IS CEMENTED TO SURFACE. IN OUR OPINION CIRCULATION SHOULD BE SUFFICIENT EVIDENCE AND WE OBJECT TO THE REQUIREMENT OF TEMPERATURE SURVEYS BECAUSE SUCH SURVEYS WILL NOT REVEAL ADDITIONAL INFORMATION. ALSO IN OUR OPINION, ON SHALLOW WELLS, IF NO INTERMEDIATE STRING IS RUN THE OIL STRING SHOULD BE REQUIRED TO BE CEMENTED SOLID TO THE SURFACE TO AVOID POSSIBLE LEAKS AND IN THIS CASE WE ALSO OBJECT TO REQUIREMENT OF GAMMA RAY OR TEMPERATURE LOGS FOR SAME REASON THAT THEY SHOW NO MORE THAN IS INDICATED BY OBTAINING CIRCULATION OF CEMENT.

OPERATORS SUGGESTION THAT CENTERALIZERS BE PLACED ON EVERY THIRD JOINT OF SALT STRING SHOULD BE AMENDED TO PROVIDE LENGTH OF SUCH JOINTS OR CENTRALIZERS SHOULD BE SPACED CERTAIN DISTANCE APART. OTHERWISE PHILLIPS PETROLEUM COMPANY CONCURS WITH PROPOSALS OF OTHER OPERATORS AS SET FORTH IN RECENT MEMORANDUM OF NEW MEXICO OIL AND GAS ENGINEERING COMMITTEE.

C. P. DIMIT

PHILLIPS PETROLEUM COMPANY

CASING AND CEMENTING PROGRAMS FOR OIL AND GAS TEST WELLS IN THE "DEFINED AREAS" IN EDDY COUNTY, NEW MEXICO

CASE NO. 278
EXHIBIT A

1. Surface Casing String

In order to protect the fresh water supply, the surface casing string shall be set in the "Red Bed" section of the basal Russler formation immediately above the top of the salt section and shall be cemented back to the ground surface or to the bottom of the cellar.

The surface string may consist of new, second-hand or re-conditioned pipe. New pipe shall have received a mill test of not less than 600 pounds per square inch; second-hand and re-conditioned pipe shall be re-tested to 600 pounds per square inch before being run.

Sufficient cement shall be used to fill the annular space back of the pipe from the casing point to the surface of the ground or to the bottom of the cellar. Cement shall be allowed to stand a minimum of twelve (12) hours under pressure and a total of twenty-four (24) hours before drilling the plug or initiating tests.

Tests of casing shall vary with drilling method. If rotary is used, the mud shall be displaced with water or with the proposed saturated water solution and a hydraulic pressure of six hundred (600) pounds per square inch shall be applied. If a drop of one hundred (100) pounds per square inch or more should occur within 30 minutes, corrective measures shall be applied. If cable tools are used, the mud shall be bailed from the hole and if the hole does not remain dry for a period of one hour, corrective measures shall be applied.

2. Salt Protection String

The salt protection string shall be set at least one hundred (100) feet and not more than two hundred (200) feet below the base of the salt section. This string may consist of new, second-hand or re-conditioned pipe. New pipe shall have received a mill test of not less than 1000 pounds per square inch; second-hand and re-conditioned pipe shall be re-tested to 1000 pounds per square inch before being run.

Centralizers shall be used on at least every third joint below surface casing.

Sufficient cement shall be used to fill the annular space back of the pipe from the casing point to the surface of the ground or to the bottom of the cellar. (The water used to mix with the cement shall be saturated with the salts common to the zones penetrated.) Cement shall be allowed to stand a minimum of twelve (12) hours under pressure and a total of twenty-four (24) hours before drilling the plug or initiating tests. If the cement fails to reach the surface, the salt protection casing shall be perforated just above the top of the cement and additional cement jobs done until cement is brought to the surface. One or more temperature or gamma ray surveys supporting complete cementation shall be filed with the Oil Conservation Commission.

CASE NO. 278
EXHIBIT A

Tests of casing shall vary with the drilling method. If rotary is used, the mud shall be displaced with water and a hydraulic pressure of 1000 pounds per square inch shall be applied. If a drop of 100 pounds per square inch or more should occur within 30 minutes, corrective measures shall be applied. If cable tools are used the mud shall be bailed from the hole and if the hole does not remain dry for a period of one hour, corrective measures shall be applied.

3. Intermediate String

This string may be a drilling protection string for deep drilling objectives or may be an oil string for testing medium depth zones.

a. If a drilling protection string, the casing shall be cemented with a sufficient volume of cement amply to protect this casing and all shallow pay zones above the casing shoe, and in every instance this string shall be cemented from a point one thousand (1000) feet below the salt string back to the surface. One or more temperature or gamma ray surveys supporting complete cementation shall be filed with the Oil Conservation Commission.

b. If an oil string in testing medium depth zones, the casing may be cemented with a nominal cement volume for testing purposes only, and if commercially productive, the string must be re-cemented by circulating cement from the top of the original cement job to the surface. One or more temperature or gamma ray surveys supporting complete cementation shall be filed with the Oil Conservation Commission.

4. Oil or Production String (Deep Wells)

This string shall be set on top or through the pay zone and cemented with a volume adequate to protect the pay zone and the casing above such zone, provided however, if no intermediate drilling casing shall have been run and commercial production obtained, that string shall be cemented to the surface or as provided by 3-a above.

5. Drilling Fluid for Salt Section

This fluid shall consist of water to which has been added sufficient salts of a character common to the zone penetrated to completely saturate the mixture. Other admixtures may be added to the system by the operator in overcoming any specific problem. This requirement is specifically inserted in order to prevent enlarged drill holes.

CASING AND CEMENTING PROGRAM FOR SHALLOW OIL AND GAS TEST WELLS IN KNOWN POTASH AREAS

CASE NO. 278
EXHIBIT B

The following is a suggested casing program for wells above 5,000 feet and is, of necessity, only general rules for the whole designated potash area, whether designated as Area A, Area B or otherwise. Geological sections change so rapidly in this large, scattered area that individual portions of the area will present individual problems. It is therefore suggested as follows:

A. That the Oil Conservation Commission retain authority to vary this general casing and cementing program to meet a specific condition, without an open hearing before the Commission.

B. That the casing and cementing program herein suggested apply only to the areas embraced in proven commercial deposits of potash, the remainder of the designated potash area to be drilled in accordance with standard, existing practices.

C. The suggested casing and cementing program is as follows:

1. Surface Casing String

In order to protect the fresh water supply, if present, the surface casing string shall be set through the fresh water bearing horizons and cemented with a volume adequate to protect the fresh water and keep it from entering the salt formation.

The surface string may consist of new, second-hand or re-conditioned pipe capable of meeting the manufacturers test specifications.

Cement shall be allowed to stand a minimum of twelve (12) hours under pressure and a total of twenty-four (24) hours before drilling the plug or initiating tests.

Tests of casing shall vary with drilling method. If rotary is used, the mud shall be displaced with water or with the proposed saturated water solution and a hydraulic pressure of six hundred (600) pounds per square inch shall be applied. If a drop of one hundred (100) pounds per square inch or more should occur within 30 minutes, corrective measures shall be applied. If cable tools are used, the mud shall be bailed from the hole and if the hole does not remain dry for a period of one hour, corrective measures shall be applied.

2. Salt Protection String

The salt protection string may be set at lease one hundred (100) feet and not more than two hundred (200) feet below the base of the salt section. This string

may consist of new, second-hand or re-conditioned pipe capable of meeting the manufacturers test specifications.

The string may be cemented with a nominal cement volume for testing purposes only, and if commercially productive, the string must be re-cemented with not less than 150% of calculated volume necessary to circulate cement to surface.

Cement shall be allowed to stand a minimum of twelve (12) hours under pressure and a total of twenty-four (24) hours before drilling the plug or initiating tests. If the cement fails to reach the top of the salt, the salt protection casing shall be perforated just above the top of the cement and additional cement jobs done until cement is brought to that point. One or more temperature or gamma ray surveys supporting complete cementation shall be filed with the Oil Conservation Commission.

Test of casing shall vary with the drilling method. If rotary is used, the mud shall be displaced with water and a hydraulic pressure of 1000 pounds per square inch shall be applied. If a drop of 100 pounds per square inch or more should occur within 30 minutes, corrective measures shall be applied. If cable tools are used, the mud shall be bailed from the hole and if the hole does not remain dry for a period of one hour corrective measures shall be applied.

3. Oil or Production String

This string may be set on top or through the pay zone and cemented with a volume adequate to protect the pay zone and the casing above such zone, provided however, if no salt protection casing shall have been run and commercial production obtained, that string shall be cemented to the surface as provided by 2 above or as provided by 3a in Deep Well program.

D. The undersigned operators, of Eddy County, New Mexico, approve the above and foregoing proposals and recommend its adoption by the Commission.

Respectfully submitted,

American Republics Corp. by William B. Macey; Boyd-Plemons Drilling Company by Tom Boyd; Buffalo Oil Company by Ralph L. Gray; Guy Stevenson; J. Grady Wright; E. N. Brock; G. Kelley Stout; (Illegible) Paton Bros. by H. R. Paton; R. D. Collier; J. W. Berry; Ross Sears; Joe Nunn; J. E. Bedingfield; Burnham Oil Company by E. Jeffers; Malco Refineries, Inc. by Donald E. Anderson; Bassatt & Birney by Martin Yates III; Dixon & Yates by Martin Yates III; S. P. Yates; Yates Brothers by S. P. Yates; Resler Oil Company by S. P. Yates; J. R. Lund for Robert E. McKee.

CASING AND CEMENTING PROGRAM FOR SHALLOW OIL AND GAS TEST WELLS IN PROSPECTIVE POTASH AREAS

CASE No. 278
EXHIBIT C

The following program is a suggestive program for the cementing of pipe and the protecting of the prospective potash horizon from water, oil and gas contamination. This program shall pertain to oil and gas test or wells drilled for the purpose of securing oil and gas, down to a depth of 6000 feet. There should be rules set up for particular areas, naturally based on the amount of surface water and the amount of potash in the salt section, which will be penetrated during the drilling of the proposed oil test. The geological features on the oil structures will call for different programs from time to time. Especially in the districts where potash is present. The commercial potash districts according to geological features and subsurface information that has been secured from old oil test that have been drilled in the past. Also addition information has been secured from districts from recent wells drilled in the various districts. There has also been a considerable amount of coring done by the various companies. All of this information should supply sufficient knowledge to derive at a pipe program satisfactory for all concerned. It is therefore suggested as follows:

1. That the Oil and Gas Conservation Commission retain authorization to issue a pipe program according to the area and district. A program that is sufficient to protect the potash strates at the present and future.

2. A suggestive pipe program for the general area should be as follows:

A. Surface Casing

The surface casing should be set at the top of the salt section. The size should be determined by the operator. The number one suggestion is that the pipe be mudded to the surface by pumping mud around the shoe and behind the pipe to the surface. Allow pipe to set eight hours. Then bale hole dry and test for at least two hours. If water is completely shut off, then the operator shall continue his drilling until he has reached the anhydrite formation. Then the operator should run either number one used pipe or new pipe through the potash and salt section. The operator should then be allowed to pull the surface pipe from the hole. The operator should then be permitted to cement the pipe from the bottom of the salt section to the surface, by circulating cement behind the pipe to the surface, or in such quantities recommended by the cementing concerns and the Oil Conservation Commission. The operator should then be allowed to drill his well and set his production string as he sees fit. He should be allowed to set the size of casing and at a depth he recommends, so long as he uses number one used pipe or new pipe. The amount of cement run behind the production string should be sufficient to come up at least 500 feet above the shoe. This will be adequate cement to protect the oil and gas zones and the formations behind the production string.

(Con't. Case No. 278
Exhibit C)

B. The next pipe program is recommended as follows:

The surface pipe should be set through the surface water, and cemented by circulating cement behind the pipe to the surface, or else there should be sufficient amount of cement pumped in and around the pipe to come to the surface, under ordinarly conditions. The cement should be allowed to set under pressure not less than 48 hours before drilling same and testing for water. The operator must test for water at least 2 hours. In case there is no water present, he shall then be allowed to carry on drilling operations until he reaches the casing point necessary to set the production string. At this time the potash and salt is protected from all water hazards. The only hazards existing at this time is the possibility of contaminating the potash with oil and gas. Therefore, the operator should run nothing but A-1 used pipe or new pipe, tonging each joint up as tight as possible to prevent leakage. He shall then be allowed, to pump heavy acquagel mud behind the pipe sufficient to reach and come above the salt and potash section. Then the operator should pump enough cement behind the pipe to come up at least 500 feet behind it, which would be sufficient to seal off any possible chances of oil and gas working its way up behind it. The production string shall be allowed to be set threw or above the oil producing sections as the operator may see fit. The reason for this is that the different known producing zones are treated differently.

Most of the wells are drilled through-out Eddy County by the cable tool method. Which has the advantages of being able to identify the formations immediately upon topping them and the exact thickness. We are also able to detect immediately the different changes in the formations that takes place. We are also able to test our water zones as to the amount of water and the thickness of the zones. Therefore it is necessary to have a different type of pipe program for this type of drilling than for rotary drilling. The above recommendation are based on cable tool drilling.

These recommendations or suggestions are based on past experience and present drilling operations being carried on in one or more districts. The oil and gas producers of New Mexico are fortunate enough to have the Oil and Gas Conservation Commission to assist us in our problems. They have accumulated information sufficient to guide them in any section of Eddy County, New Mexico. They are known to work and cooperate with the United States Geological Department at all times.

The undersigned operator or operators of Eddy County, New Mexico approve wholeheartedly the above and foregoing proposals and do hereby recommend these adoptions by the State Land Commission as well as the United States Land Commission.

Respectfully submitted,

/s/ Jones & Watkins Oil Company, Artesia, New Mexico, by Stanley L. Jones, Inc.

/s/ Miller & Miller, Artesia, New Mexico, by Stanley L. Jones,

/s/ Stanley L. Jones, Inc.

Telegram -
Bartlesville, Oklahoma
June 21, 1951 - - - - - -

CASE NO. 278
EXHIBIT D

R. R. SPURRIER, SECY.
NEW MEXICO OIL CONSERVATION COMMISSION - SANTA FE, NEW MEXICO

RE CASE 278 FOR AN ORDER ESTABLISHING A CASING PROGRAM WITHIN THE SO CALLED POTASH AREA OF EDDY AND LEA COUNTIES. PHILLIPS PETROLEUM COMPANY HAS STUDIED PROPOSALS OF VARIOUS OPERATORS WHICH WOULD REQUIRE TEMPERATURE SURVEYS WHERE SALT STRING IS CEMENTED TO SURFACE. IN OUR OPINION CIRCULATION SHOULD BE SUFFICIENT EVIDENCE AND WE OBJECT TO THE REQUIREMENT OF TEMPERATURE SURVEYS BECAUSE SUCH SURVEYS WILL NOT REVEAL ADDITIONAL INFORMATION. ALSO IN OUR OPINION, ON SHALLOW WELLS, IF NO INTERMEDIATE STRING IS RUN THE OIL STRING SHOULD BE REQUIRED TO BE CEMENTED SOLID TO THE SURFACE TO AVOID POSSIBLE LEAKS AND IN THIS CASE WE ALSO OBJECT TO REQUIREMENT OF GAMMA RAY OR TEMPERATURE LOGS FOR SAME REASON THAT THEY SHOW NO MORE THAN IS INDICATED BY OBTAINING CIRCULATION OF CEMENT.

OPERATORS SUGGESTION THAT CENTERALIZERS BE PLACED ON EVERY THIRD JOINT OF SALT STRING SHOULD BE AMENDED TO PROVIDE LENGTH OF SUCH JOINTS OR CENTRALIZERS SHOULD BE SPACED CERTAIN DISTANCE APART. OTHERWISE PHILLIPS PETROLEUM COMPANY CONCURS WITH PROPOSALS OF OTHER OPERATORS AS SET FORTH IN RECENT MEMORANDUM OF NEW MEXICO OIL AND GAS ENGINEERING COMMITTEE.

C. P. DIMIT

PHILLIPS PETROLEUM COMPANY

CASING AND CEMENTING PROGRAMS FOR OIL AND GAS TEST WELLS IN THE "DEFINED AREAS" IN EDDY COUNTY, NEW MEXICO

CASE NO. 278
EXHIBIT A

1. Surface Casing String

In order to protect the fresh water supply, the surface casing string shall be set in the "Red Bed" section of the basal Russler formation immediately above the top of the salt section and shall be cemented back to the ground surface or to the bottom of the cellar.

The surface string may consist of new, second-hand or re-conditioned pipe. New pipe shall have received a mill test of not less than 600 pounds per square inch; second-hand and re-conditioned pipe shall be re-tested to 600 pounds per square inch before being run.

Sufficient cement shall be used to fill the annular space back of the pipe from the casing point to the surface of the ground or to the bottom of the cellar. Cement shall be allowed to stand a minimum of twelve (12) hours under pressure and a total of twenty-four (24) hours before drilling the plug or initiating tests.

Tests of casing shall vary with drilling method. If rotary is used, the mud shall be displaced with water or with the proposed saturated water solution and a hydraulic pressure of six hundred (600) pounds per square inch shall be applied. If a drop of one hundred (100) pounds per square inch or more should occur within 30 minutes, corrective measures shall be applied. If cable tools are used, the mud shall be bailed from the hole and if the hole does not remain dry for a period of one hour, corrective measures shall be applied.

2. Salt Protection String

The salt protection string shall be set at least one hundred (100) feet and not more than two hundred (200) feet below the base of the salt section. This string may consist of new, second-hand or re-conditioned pipe. New pipe shall have received a mill test of not less than 1000 pounds per square inch; second-hand and re-conditioned pipe shall be re-tested to 1000 pounds per square inch before being run.

Centralizers shall be used on at least every third joint below surface casing.

Sufficient cement shall be used to fill the annular space back of the pipe from the casing point to the surface of the ground or to the bottom of the cellar. (The water used to mix with the cement shall be saturated with the salts common to the zones penetrated.) Cement shall be allowed to stand a minimum of twelve (12) hours under pressure and a total of twenty-four (24) hours before drilling the plug or initiating tests. If the cement fails to reach the surface, the salt protection casing shall be perforated just above the top of the cement and additional cement jobs done until cement is brought to the surface. One or more temperature or gamma ray surveys supporting complete cementation shall be filed with the Oil Conservation Commission.

CASE NO. 278
EXHIBIT A

Tests of casing shall vary with the drilling method. If rotary is used, the mud shall be displaced with water and a hydraulic pressure of 1000 pounds per square inch shall be applied. If a drop of 100 pounds per square inch or more should occur within 30 minutes, corrective measures shall be applied. If cable tools are used the mud shall be bailed from the hole and if the hole does not remain dry for a period of one hour, corrective measures shall be applied.

3. Intermediate String

This string may be a drilling protection string for deep drilling objectives or may be an oil string for testing medium depth zones.

a. If a drilling protection string, the casing shall be cemented with a sufficient volume of cement amply to protect this casing and all shallow pay zones above the casing shoe, and in every instance the string shall be cemented from a point one thousand (1000) feet below the salt string back to the surface. One or more temperature or gamma ray surveys supporting complete cementation shall be filed with the Oil Conservation Commission.

b. If an oil string in testing medium depth zones, the casing may be cemented with a nominal cement volume for testing purposes only, and if commercially productive, the string must be re-cemented by circulating cement from the top of the original cement job to the surface. One or more temperature or gamma ray surveys supporting complete cementation shall be filed with the Oil Conservation Commission.

4. Oil or Production String (Deep Wells)

This string shall be set on top or through the pay zone and cemented with a volume adequate to protect the pay zone and the casing above such zone, provided however, if no intermediate drilling casing shall have been run and commercial production obtained, that string shall be cemented to the surface or as provided by 3-a above.

5. Drilling Fluid for Salt Section

This fluid shall consist of water to which has been added sufficient salts of a character common to the zone penetrated to completely saturate the mixture. Other admixtures may be added to the system by the operator in overcoming any specific problem. This requirement is specifically inserted in order to prevent enlarged drill holes.

CASING AND CEMENTING PROGRAM FOR SHALLOW OIL AND GAS TEST WELLS IN KNOWN POTASH AREAS

CASE NO. 278
EXHIBIT B

The following is a suggested casing program for wells above 5,000 feet and is, of necessity, only general rules for the whole designated potash area, whether designated as Area A, Area B or otherwise. Geological sections change so rapidly in this large, scattered area that individual portions of the area will present individual problems. It is therefore suggested as follows:

A. That the Oil Conservation Commission retain authority to vary this general casing and cementing program to meet a specific condition, without an open hearing before the Commission.

B. That the casing and cementing program herein suggested apply only to the areas embraced in proven commercial deposits of potash, the remainder of the designated potash area to be drilled in accordance with standard, existing practices.

C. The suggested casing and cementing program is as follows:

1. Surface Casing String

In order to protect the fresh water supply, if present, the surface casing string shall be set through the fresh water bearing horizons and cemented with a volume adequate to protect the fresh water and keep it from entering the salt formation.

The surface string may consist of new, second-hand or re-conditioned pipe capable of meeting the manufacturers test specifications.

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may consist of new, second-hand or re-conditioned pipe capable of meeting the manufacturer's test specifications.

The string may be cemented with a nominal cement volume for testing purposes only, and if commercially productive, the string must be re-cemented with not less than 150% of calculated volume necessary to circulate cement to surface.

Cement shall be allowed to stand a minimum of twelve (12) hours under pressure and a total of twenty-four (24) hours before drilling the plug or initiating tests. If the cement fails to reach the top of the salt, the salt protection casing shall be perforated just above the top of the cement and additional cement jobs done until cement is brought to that point. One or more temperature or gamma ray surveys supporting complete cementation shall be filed with the Oil Conservation Commission.

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3. Oil or Production String

This string may be set on top or through the pay zone and cemented with a volume adequate to protect the pay zone and the casing above such zone, provided however, if no salt protection casing shall have been run and commercial production obtained, that string shall be cemented to the surface as provided by 2 above or as provided by 3a in Deep Well program.

D. The undersigned operators, of Eddy County, New Mexico, approve the above and foregoing proposals and recommend its adoption by the Commission.

Respectfully submitted,

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CASING AND CEMENTING PROGRAM FOR SHALLOW OIL AND GAS TEST WELLS IN PROSPECTIVE POTASH AREAS

CASE No. 278
EXHIBIT C

The following program is a suggestive program for the cementing of pipe and the protecting of the prospective potash horizon from water, oil and gas contamination. This program shall pertain to oil and gas test or wells drilled for the purpose of securing oil and gas, down to a depth of 6000 feet. There should be rules set up for particular areas, naturally based on the amount of surface water and the amount of potash in the salt section, which will be penetrated during the drilling of the proposed oil test. The geological features on the oil structures will call for different programs from time to time. Especially in the districts where potash is present. The commercial potash districts according to geological features and subsurface information that has been secured from old oil test that have been drilled in the past. Also addition information has been secured from districts from recent wells drilled in the various districts. There has also been a considerable amount of coring done by the various companies. All of this information should supply sufficient knowledge to derive at a pipe program satisfactory for all concerned. It is therefore suggested as follows:

1. That the Oil and Gas Conservation Commission retain authorization to issue a pipe program according to the area and district. A program that is sufficient to protect the potash strates at the present and future.

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A. Surface Casing

The surface casing should be set at the top of the salt section. The size should be determined by the operator. The number one suggestion is that the pipe be mudded to the surface by pumping mud around the shoe and behind the pipe to the surface. Allow pipe to set eight hours. Then bale hole dry and test for at least two hours. If water is completely shut off, then the operator shall continue his drilling until he has reached the anhydrite formation. Then the operator should run either number one used pipe or new pipe through the potash and salt section. The operator should then be allowed to pull the surface pipe from the hole. The operator should then be permitted to cement the pipe from the bottom of the salt section to the surface, by circulating cement behind the pipe to the surface, or in such quantities recommended by the cementing concerns and the Oil Conservation Commission. The operator should then be allowed to drill his well and set his production string as he sees fit. He should be allowed to set the size of casing and at a depth he recommends, so long as he uses number one used pipe or new pipe. The amount of cement run behind the production string should be sufficient to come up at least 500 feet above the shoe. This will be adequate cement to protect the oil and gas zones and the formations behind the production string.

(Con't. Case No. 278
Exhibit C)

B. The next pipe program is recommended as follows:

The surface pipe should be set through the surface water, and cemented by circulating cement behind the pipe to the surface, or else there should be sufficient amount of cement pumped in and around the pipe to come to the surface, under ordinarly conditions. The cement should be allowed to set under pressure not less than 48 hours before drilling same and testing for water. The operator must test for water at least 2 hours. In case there is no water present, he shall then be allowed to carry on drilling operations until he reaches the casing point necessary to set the production string. At this time the potash and salt is protected from all water hazards. The only hazards existing at this time is the possibility of contaminating the potash with oil and gas. Therefore, the operator should run nothing but A-1 used pipe or new pipe, tonging each joint up as tight as possible to prevent leakage. He shall then be allowed, to pump heavy acquagel mud behind the pipe sufficient to reach and come above the salt and potash section. Then the operator should pump enough cement behind the pipe to come up at least 500 feet behind it, which would be sufficient to seal off any possible chances of oil and gas working its way up behind it. The production string shall be allowed to be set threw or above the oil producing sections as the operator may see fit. The reason for this is that the different known producing zones are treated differently.

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The undersigned operator or operators of Eddy County, New Mexico approve wholeheartedly the above and foregoing proposals and do hereby recommend these adoptions by the State Land Commission as well as the United States Land Commission.

Respectfully submitted,

/s/ Jones & Watkins Oil Company, Artesia, New Mexico, by Stanley L. Jones, Inc.

/s/ Miller & Miller, Artesia, New Mexico, by Stanley L. Jones,

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Bartlesville, Oklahoma
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CASE NO. 278
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R. R. SPURRIER, SECY.
NEW MEXICO OIL CONSERVATION COMMISSION - SANTA FE, NEW MEXICO

RE CASE 278 FOR AN ORDER ESTABLISHING A CASING PROGRAM WITHIN THE SO CALLED POTASH AREA OF EDDY AND LEA COUNTIES. PHILLIPS PETROLEUM COMPANY HAS STUDIED PROPOSALS OF VARIOUS OPERATORS WHICH WOULD REQUIRE TEMPERATURE SURVEYS WHERE SALT STRING IS CEMENTED TO SURFACE. IN OUR OPINION CIRCULATION SHOULD BE SUFFICIENT EVIDENCE AND WE OBJECT TO THE REQUIREMENT OF TEMPERATURE SURVEYS BECAUSE SUCH SURVEYS WILL NOT REVEAL ADDITIONAL INFORMATION. ALSO IN OUR OPINION, ON SHALLOW WELLS, IF NO INTERMEDIATE STRING IS RUN THE OIL STRING SHOULD BE REQUIRED TO BE CEMENTED SOLID TO THE SURFACE TO AVOID POSSIBLE LEAKS AND IN THIS CASE WE ALSO OBJECT TO REQUIREMENT OF GAMMA RAY OR TEMPERATURE LOGS FOR SAME REASON THAT THEY SHOW NO MORE THAN IS INDICATED BY OBTAINING CIRCULATION OF CEMENT.

OPERATORS SUGGESTION THAT CENTERALIZERS BE PLACED ON EVERY THIRD JOINT OF SALT STRING SHOULD BE AMENDED TO PROVIDE LENGTH OF SUCH JOINTS OR CENTRALIZERS SHOULD BE SPACED CERTAIN DISTANCE APART. OTHERWISE PHILLIPS PETROLEUM COMPANY CONCURS WITH PROPOSALS OF OTHER OPERATORS AS SET FORTH IN RECENT MEMORANDUM OF NEW MEXICO OIL AND GAS ENGINEERING COMMITTEE.

C. P. DIMIT

PHILLIPS PETROLEUM COMPANY

CASING AND CEMENTING PROGRAMS FOR OIL AND GAS TEST WELLS IN THE "DEFINED AREAS" IN EDDY COUNTY, NEW MEXICO

CASE NO. 278
EXHIBIT A

1. Surface Casing String

In order to protect the fresh water supply, the surface casing string shall be set in the "Red Bed" section of the basal Russler formation immediately above the top of the salt section and shall be cemented back to the ground surface or to the bottom of the cellar.

The surface string may consist of new, second-hand or re-conditioned pipe. New pipe shall have received a mill test of not less than 600 pounds per square inch; second-hand and re-conditioned pipe shall be re-tested to 600 pounds per square inch before being run.

Sufficient cement shall be used to fill the annular space back of the pipe from the casing point to the surface of the ground or to the bottom of the cellar. Cement shall be allowed to stand a minimum of twelve (12) hours under pressure and a total of twenty-four (24) hours before drilling the plug or initiating tests.

Tests of casing shall vary with drilling method. If rotary is used, the mud shall be displaced with water or with the proposed saturated water solution and a hydraulic pressure of six hundred (600) pounds per square inch shall be applied. If a drop of one hundred (100) pounds per square inch or more should occur within 30 minutes, corrective measures shall be applied. If cable tools are used, the mud shall be bailed from the hole and if the hole does not remain dry for a period of one hour, corrective measures shall be applied.

2. Salt Protection String

The salt protection string shall be set at least one hundred (100) feet and not more than two hundred (200) feet below the base of the salt section. This string may consist of new, second-hand or re-conditioned pipe. New pipe shall have received a mill test of not less than 1000 pounds per square inch; second-hand and re-conditioned pipe shall be re-tested to 1000 pounds per square inch before being run.

Centralizers shall be used on at least every third joint below surface casing.

Sufficient cement shall be used to fill the annular space back of the pipe from the casing point to the surface of the ground or to the bottom of the cellar. (The water used to mix with the cement shall be saturated with the salts common to the zones penetrated.) Cement shall be allowed to stand a minimum of twelve (12) hours under pressure and a total of twenty-four (24) hours before drilling the plug or initiating tests. If the cement fails to reach the surface, the salt protection casing shall be perforated just above the top of the cement and additional cement jobs done until cement is brought to the surface. One or more temperature or gamma ray surveys supporting complete cementation shall be filed with the Oil Conservation Commission.

CASE NO. 278
EXHIBIT A

Tests of casing shall vary with the drilling method. If rotary is used, the mud shall be displaced with water and a hydraulic pressure of 1000 pounds per square inch shall be applied. If a drop of 100 pounds per square inch or more should occur within 30 minutes, corrective measures shall be applied. If cable tools are used the mud shall be bailed from the hole and if the hole does not remain dry for a period of one hour, corrective measures shall be applied.

3. Intermediate String

This string may be a drilling protection string for deep drilling objectives or may be an oil string for testing medium depth zones.

a. If a drilling protection string, the casing shall be cemented with a sufficient volume of cement amply to protect this casing and all shallow pay zones above the casing shoe, and in every instance this string shall be cemented from a point one thousand (1000) feet below the salt string back to the surface. One or more temperature or gamma ray surveys supporting complete cementation shall be filed with the Oil Conservation Commission.

b. If an oil string in testing medium depth zones, the casing may be cemented with a nominal cement volume for testing purposes only, and if commercially productive, the string must be re-cemented by circulating cement from the top of the original cement job to the surface. One or more temperature or gamma ray surveys supporting complete cementation shall be filed with the Oil Conservation Commission.

4. Oil or Production String (Deep Wells)

This string shall be set on top or through the pay zone and cemented with a volume adequate to protect the pay zone and the casing above such zone, provided however, if no intermediate drilling casing shall have been run and commercial production obtained, that string shall be cemented to the surface or as provided by 3-a above.

5. Drilling Fluid for Salt Section

This fluid shall consist of water to which has been added sufficient salts of a character common to the zone penetrated to completely saturate the mixture. Other admixtures may be added to the system by the operator in overcoming any specific problem. This requirement is specifically inserted in order to prevent enlarged drill holes.

CASING AND CEMENTING PROGRAM FOR SHALLOW OIL AND GAS TEST WELLS IN KNOWN POTASH AREAS

CASE NO. 278
EXHIBIT B

The following is a suggested casing program for wells above 5,000 feet and is, of necessity, only general rules for the whole designated potash area, whether designated as Area A, Area B or otherwise. Geological sections change so rapidly in this large, scattered area that individual portions of the area will present individual problems. It is therefore suggested as follows:

A. That the Oil Conservation Commission retain authority to vary this general casing and cementing program to meet a specific condition, without an open hearing before the Commission.

B. That the casing and cementing program herein suggested apply only to the areas embraced in proven commercial deposits of potash, the remainder of the designated potash area to be drilled in accordance with standard, existing practices.

C. The suggested casing and cementing program is as follows:

1. Surface Casing String

In order to protect the fresh water supply, if present, the surface casing string shall be set through the fresh water bearing horizons and cemented with a volume adequate to protect the fresh water and keep it from entering the salt formation.

The surface string may consist of new, second-hand or re-conditioned pipe capable of meeting the manufacturers test specifications.

Cement shall be allowed to stand a minimum of twelve (12) hours under pressure and a total of twenty-four (24) hours before drilling the plug or initiating tests.

Tests of casing shall vary with drilling method. If rotary is used, the mud shall be displaced with water or with the proposed saturated water solution and a hydraulic pressure of six hundred (600) pounds per square inch shall be applied. If a drop of one hundred (100) pounds per square inch or more should occur within 30 minutes, corrective measures shall be applied. If cable tools are used, the mud shall be bailed from the hole and if the hole does not remain dry for a period of one hour, corrective measures shall be applied.

2. Salt Protection String

The salt protection string may be set at lease one hundred (100) feet and not more than two hundred (200) feet below the base of the salt section. This string

may consist of new, second-hand or re-conditioned pipe capable of meeting the manufacturer's test specifications.

The string may be cemented with a nominal cement volume for testing purposes only, and if commercially productive, the string must be re-cemented with not less than 150% of calculated volume necessary to circulate cement to surface.

Cement shall be allowed to stand a minimum of twelve (12) hours under pressure and a total of twenty-four (24) hours before drilling the plug or initiating tests. If the cement fails to reach the top of the salt, the salt protection casing shall be perforated just above the top of the cement and additional cement jobs done until cement is brought to that point. One or more temperature or gamma ray surveys supporting complete cementation shall be filed with the Oil Conservation Commission.

Test of casing shall vary with the drilling method. If rotary is used, the mud shall be displaced with water and a hydraulic pressure of 1000 pounds per square inch shall be applied. If a drop of 100 pounds per square inch or more should occur within 30 minutes, corrective measures shall be applied. If cable tools are used, the mud shall be bailed from the hole and if the hole does not remain dry for a period of one hour corrective measures shall be applied.

3. Oil or Production String

This string may be set on top or through the pay zone and cemented with a volume adequate to protect the pay zone and the casing above such zone, provided however, if no salt protection casing shall have been run and commercial production obtained, that string shall be cemented to the surface as provided by 2 above or as provided by 3a in Deep Well program.

D. The undersigned operators, of Eddy County, New Mexico, approve the above and foregoing proposals and recommend its adoption by the Commission.

Respectfully submitted,

American Republics Corp. by William B. Macey; Boyd-Plemons Drilling Company by Tom Boyd; Buffalo Oil Company by Ralph L. Gray; Guy Stevenson; J. Grady Wright; E. N. Brock; G. Kelley Stout; (Illegible) Paton Bros. by H. R. Paton; R. D. Collier; J. W. Berry; Ross Sears; Joe Nunn; J. E. Bedingfield; Burnham Oil Company by E. Jeffers; Malco Refineries, Inc. by Donald E. Anderson; Bassatt & Birney by Martin Yates III; Dixon & Yates by Martin Yates III; S. P. Yates; Yates Brothers by S. P. Yates; Resler Oil Company by S. P. Yates; J. R. Lund for Robert E. McKee.

CASING AND CEMENTING PROGRAM FOR SHALLOW OIL AND GAS TEST WELLS IN PROSPECTIVE POTASH AREAS

CASE No. 278
EXHIBIT C

The following program is a suggestive program for the cementing of pipe and the protecting of the prospective potash horizon from water, oil and gas contamination. This program shall pertain to oil and gas test or wells drilled for the purpose of securing oil and gas, down to a depth of 6000 feet. There should be rules set up for particular areas, naturally based on the amount of surface water and the amount of potash in the salt section, which will be penetrated during the drilling of the proposed oil test. The geological features on the oil structures will call for different programs from time to time. Especially in the districts where potash is present. The commercial potash districts according to geological features and subsurface information that has been secured from old oil test that have been drilled in the past. Also addition information has been secured from districts from recent wells drilled in the various districts. There has also been a considerable amount of coring done by the various companies. All of this information should supply sufficient knowledge to derive at a pipe program satisfactory for all concerned. It is therefore suggested as follows:

1. That the Oil and Gas Conservation Commission retain authorization to issue a pipe program according to the area and district. A program that is sufficient to protect the potash strates at the present and future.

2. A suggestive pipe program for the general area should be as follows:

A. Surface Casing

The surface casing should be set at the top of the salt section. The size should be determined by the operator. The number one suggestion is that the pipe be mudded to the surface by pumping mud around the shoe and behind the pipe to the surface. Allow pipe to set eight hours. Then bale hole dry and test for at least two hours. If water is completely shut off, then the operator shall continue his drilling until he has reached the anhydrite formation. Then the operator should run either number one used pipe or new pipe through the potash and salt section. The operator should then be allowed to pull the surface pipe from the hole. The operator should then be permitted to cement the pipe from the bottom of the salt section to the surface, by circulating cement behind the pipe to the surface, or in such quantities recommended by the cementing concerns and the Oil Conservation Commission. The operator should then be allowed to drill his well and set his production string as he sees fit. He should be allowed to set the size of casing and at a depth he recommends, so long as he uses number one used pipe or new pipe. The amount of cement run behind the production string should be sufficient to come up at least 500 feet above the shoe. This will be adequate cement to protect the oil and gas zones and the formations behind the production string.

(Con't. Case No. 278
Exhibit C)

B. The next pipe program is recommended as follows:

The surface pipe should be set through the surface water, and cemented by circulating cement behind the pipe to the surface, or else there should be sufficient amount of cement pumped in and around the pipe to come to the surface, under ordinarly conditions. The cement should be allowed to set under pressure not less than 48 hours before drilling same and testing for water. The operator must test for water at least 2 hours. In case there is no water present, he shall then be allowed to carry on drilling operations until he reaches the casing point necessary to set the production string. At this time the potash and salt is protected from all water hazards. The only hazards existing at this time is the possibility of contaminating the potash with oil and gas. Therefore, the operator should run nothing but A-1 used pipe or new pipe, tonging each joint up as tight as possible to prevent leakage. He shall then be allowed, to pump heavy acquagel mud behind the pipe sufficient to reach and come above the salt and potash section. Then the operator should pump enough cement behind the pipe to come up at least 500 feet behind it, which would be sufficient to seal off any possible chances of oil and gas working its way up behind it. The production string shall be allowed to be set threw or above the oil producing sections as the operator may see fit. The reason for this is that the different known producing zones are treated differently.

Most of the wells are drilled through-out Eddy County by the cable tool method. Which has the advantages of being able to identify the formations immediately upon topping them and the exact thickness. We are also able to detect immediately the different changes in the formations that takes place. We are also able to test our water zones as to the amount of water and the thickness of the zones. Therefore it is necessary to have a different type of pipe program for this type of drilling than for rotary drilling. The above recommendation are based on cable tool drilling.

These recommendations or suggestions are based on past experience and present drilling operations being carried on in one or more districts. The oil and gas producers of New Mexico are fortunate enough to have the Oil and Gas Conservation Commission to assist us in our problems. They have accumulated information sufficient to guide them in any section of Eddy County, New Mexico. They are known to work and cooperate with the United States Geological Department at all times.

The undersigned operator or operators of Eddy County, New Mexico approve wholeheartedly the above and foregoing proposals and do hereby recommend these adoptions by the State Land Commission as well as the United States Land Commission.

Respectfully submitted,

/s/ Jones & Watkins Oil Company, Artesia, New Mexico, by Stanley L. Jones, Inc.

/s/ Miller & Miller, Artesia, New Mexico, by Stanley L. Jones,

/s/ Stanley L. Jones, Inc.

Telegram -
Bartlesville, Oklahoma
June 21, 1951 - - - - - -

CASE NO. 278
EXHIBIT D

R. R. SPURRIER, SECY.
NEW MEXICO OIL CONSERVATION COMMISSION - SANTA FE, NEW MEXICO

RE CASE 278 FOR AN ORDER ESTABLISHING A CASING PROGRAM WITHIN THE SO CALLED POTASH AREA OF EDDY AND LEA COUNTIES. PHILLIPS PETROLEUM COMPANY HAS STUDIED PROPOSALS OF VARIOUS OPERATORS WHICH WOULD REQUIRE TEMPERATURE SURVEYS WHERE SALT STRING IS CEMENTED TO SURFACE. IN OUR OPINION CIRCULATION SHOULD BE SUFFICIENT EVIDENCE AND WE OBJECT TO THE REQUIREMENT OF TEMPERATURE SURVEYS BECAUSE SUCH SURVEYS WILL NOT REVEAL ADDITIONAL INFORMATION. ALSO IN OUR OPINION, ON SHALLOW WELLS, IF NO INTERMEDIATE STRING IS RUN THE OIL STRING SHOULD BE REQUIRED TO BE CEMENTED SOLID TO THE SURFACE TO AVOID POSSIBLE LEAKS AND IN THIS CASE WE ALSO OBJECT TO REQUIREMENT OF GAMMA RAY OR TEMPERATURE LOGS FOR SAME REASON THAT THEY SHOW NO MORE THAN IS INDICATED BY OBTAINING CIRCULATION OF CEMENT.

OPERATORS SUGGESTION THAT CENTERALIZERS BE PLACED ON EVERY THIRD JOINT OF SALT STRING SHOULD BE AMENDED TO PROVIDE LENGTH OF SUCH JOINTS OR CENTRALIZERS SHOULD BE SPACED CERTAIN DISTANCE APART. OTHERWISE PHILLIPS PETROLEUM COMPANY CONCURS WITH PROPOSALS OF OTHER OPERATORS AS SET FORTH IN RECENT MEMORANDUM OF NEW MEXICO OIL AND GAS ENGINEERING COMMITTEE.

C. P. DIMIT

PHILLIPS PETROLEUM COMPANY

CASING AND CEMENTING PROGRAMS FOR OIL AND GAS TEST WELLS IN THE "DEFINED AREAS" IN EDDY COUNTY, NEW MEXICO

CASE NO. 278
EXHIBIT A

1. Surface Casing String

In order to protect the fresh water supply, the surface casing string shall be set in the "Red Bed" section of the basal Russler formation immediately above the top of the salt section and shall be cemented back to the ground surface or to the bottom of the cellar.

The surface string may consist of new, second-hand or re-conditioned pipe. New pipe shall have received a mill test of not less than 600 pounds per square inch; second-hand and re-conditioned pipe shall be re-tested to 600 pounds per square inch before being run.

Sufficient cement shall be used to fill the annular space back of the pipe from the casing point to the surface of the ground or to the bottom of the cellar. Cement shall be allowed to stand a minimum of twelve (12) hours under pressure and a total of twenty-four (24) hours before drilling the plug or initiating tests.

Tests of casing shall vary with drilling method. If rotary is used, the mud shall be displaced with water or with the proposed saturated water solution and a hydraulic pressure of six hundred (600) pounds per square inch shall be applied. If a drop of one hundred (100) pounds per square inch or more should occur within 30 minutes, corrective measures shall be applied. If cable tools are used, the mud shall be bailed from the hole and if the hole does not remain dry for a period of one hour, corrective measures shall be applied.

2. Salt Protection String

The salt protection string shall be set at least one hundred (100) feet and not more than two hundred (200) feet below the base of the salt section. This string may consist of new, second-hand or re-conditioned pipe. New pipe shall have received a mill test of not less than 1000 pounds per square inch; second-hand and re-conditioned pipe shall be re-tested to 1000 pounds per square inch before being run.

Centralizers shall be used on at least every third joint below surface casing.

Sufficient cement shall be used to fill the annular space back of the pipe from the casing point to the surface of the ground or to the bottom of the cellar. (The water used to mix with the cement shall be saturated with the salts common to the zones penetrated.) Cement shall be allowed to stand a minimum of twelve (12) hours under pressure and a total of twenty-four (24) hours before drilling the plug or initiating tests. If the cement fails to reach the surface, the salt protection casing shall be perforated just above the top of the cement and additional cement jobs done until cement is brought to the surface. One or more temperature or gamma ray surveys supporting complete cementation shall be filed with the Oil Conservation Commission.

CASE NO. 278
EXHIBIT A

Tests of casing shall vary with the drilling method. If rotary is used, the mud shall be displaced with water and a hydraulic pressure of 1000 pounds per square inch shall be applied. If a drop of 100 pounds per square inch or more should occur within 30 minutes, corrective measures shall be applied. If cable tools are used the mud shall be bailed from the hole and if the hole does not remain dry for a period of one hour, corrective measures shall be applied.

3. Intermediate String

This string may be a drilling protection string for deep drilling objectives or may be an oil string for testing medium depth zones.

a. If a drilling protection string, the casing shall be cemented with a sufficient volume of cement amply to protect this casing and all shallow pay zones above the casing shoe, and in every instance this string shall be cemented from a point one thousand (1000) feet below the salt string back to the surface. One or more temperature or gamma ray surveys supporting complete cementation shall be filed with the Oil Conservation Commission.

b. If an oil string in testing medium depth zones, the casing may be cemented with a nominal cement volume for testing purposes only, and if commercially productive, the string must be re-cemented by circulating cement from the top of the original cement job to the surface. One or more temperature or gamma ray surveys supporting complete cementation shall be filed with the Oil Conservation Commission.

4. Oil or Production String (Deep Wells)

This string shall be set on top or through the pay zone and cemented with a volume adequate to protect the pay zone and the casing above such zone, provided however, if no intermediate drilling casing shall have been run and commercial production obtained, that string shall be cemented to the surface or as provided by 3-a above.

5. Drilling Fluid for Salt Section

This fluid shall consist of water to which has been added sufficient salts of a character common to the zone penetrated to completely saturate the mixture. Other admixtures may be added to the system by the operator in overcoming any specific problem. This requirement is specifically inserted in order to prevent enlarged drill holes.

CASING AND CEMENTING PROGRAM FOR SHALLOW OIL AND GAS TEST WELLS IN KNOWN POTASH AREAS

CASE NO. 278
EXHIBIT B

The following is a suggested casing program for wells above 5,000 feet and is, of necessity, only general rules for the whole designated potash area, whether designated as Area A, Area B or otherwise. Geological sections change so rapidly in this large, scattered area that individual portions of the area will present individual problems. It is therefore suggested as follows:

A. That the Oil Conservation Commission retain authority to vary this general casing and cementing program to meet a specific condition, without an open hearing before the Commission.

B. That the casing and cementing program herein suggested apply only to the areas embraced in proven commercial deposits of potash, the remainder of the designated potash area to be drilled in accordance with standard, existing practices.

C. The suggested casing and cementing program is as follows:

1. Surface Casing String

In order to protect the fresh water supply, if present, the surface casing string shall be set through the fresh water bearing horizons and cemented with a volume adequate to protect the fresh water and keep it from entering the salt formation.

The surface string may consist of new, second-hand or re-conditioned pipe capable of meeting the manufacturers test specifications.

Cement shall be allowed to stand a minimum of twelve (12) hours under pressure and a total of twenty-four (24) hours before drilling the plug or initiating tests.

Tests of casing shall vary with drilling method. If rotary is used, the mud shall be displaced with water or with the proposed saturated water solution and a hydraulic pressure of six hundred (600) pounds per square inch shall be applied. If a drop of one hundred (100) pounds per square inch or more should occur within 30 minutes, corrective measures shall be applied. If cable tools are used, the mud shall be bailed from the hole and if the hole does not remain dry for a period of one hour, corrective measures shall be applied.

2. Salt Protection String

The salt protection string may be set at lease one hundred (100) feet and not more than two hundred (200) feet below the base of the salt section. This string

may consist of new, second-hand or re-conditioned pipe capable of meeting the manufacturer's test specifications.

The string may be cemented with a nominal cement volume for testing purposes only, and if commercially productive, the string must be re-cemented with not less than 150% of calculated volume necessary to circulate cement to surface.

Cement shall be allowed to stand a minimum of twelve (12) hours under pressure and a total of twenty-four (24) hours before drilling the plug or initiating tests. If the cement fails to reach the top of the salt, the salt protection casing shall be perforated just above the top of the cement and additional cement jobs done until cement is brought to that point. One or more temperature or gamma ray surveys supporting complete cementation shall be filed with the Oil Conservation Commission.

Test of casing shall vary with the drilling method. If rotary is used, the mud shall be displaced with water and a hydraulic pressure of 1000 pounds per square inch shall be applied. If a drop of 100 pounds per square inch or more should occur within 30 minutes, corrective measures shall be applied. If cable tools are used, the mud shall be bailed from the hole and if the hole does not remain dry for a period of one hour corrective measures shall be applied.

3. Oil or Production String

This string may be set on top or through the pay zone and cemented with a volume adequate to protect the pay zone and the casing above such zone, provided however, if no salt protection casing shall have been run and commercial production obtained, that string shall be cemented to the surface as provided by 2 above or as provided by 3a in Deep Well program.

D. The undersigned operators, of Eddy County, New Mexico, approve the above and foregoing proposals and recommend its adoption by the Commission.

Respectfully submitted,

American Republics Corp. by William B. Macey; Boyd-Plemons Drilling Company by Tom Boyd; Buffalo Oil Company by Ralph L. Gray; Guy Stevenson; J. Grady Wright; E. N. Brock; G. Kelley Stout; (Illegible) Paton Bros. by H. R. Paton; R. D. Collier; J. W. Berry; Ross Sears; Joe Nunn; J. E. Bedingfield; Burnham Oil Company by E. Jeffers; Malco Refineries, Inc. by Donald E. Anderson; Bassatt & Birney by Martin Yates III; Dixon & Yates by Martin Yates III; S. P. Yates; Yates Brothers by S. P. Yates; Resler Oil Company by S. P. Yates; J. R. Lund for Robert E. McKee.

CASING AND CEMENTING PROGRAM FOR SHALLOW OIL AND GAS TEST WELLS IN PROSPECTIVE POTASH AREAS

CASE No. 278
EXHIBIT C

The following program is a suggestive program for the cementing of pipe and the protecting of the prospective potash horizon from water, oil and gas contamination. This program shall pertain to oil and gas test or wells drilled for the purpose of securing oil and gas, down to a depth of 6000 feet. There should be rules set up for particular areas, naturally based on the amount of surface water and the amount of potash in the salt section, which will be penetrated during the drilling of the proposed oil test. The geological features on the oil structures will call for different programs from time to time. Especially in the districts where potash is present. The commercial potash districts according to geological features and subsurface information that has been secured from old oil test that have been drilled in the past. Also addition information has been secured from districts from recent wells drilled in the various districts. There has also been a considerable amount of coring done by the various companies. All of this information should supply sufficient knowledge to derive at a pipe program satisfactory for all concerned. It is therefore suggested as follows:

1. That the Oil and Gas Conservation Commission retain authorization to issue a pipe program according to the area and district. A program that is sufficient to protect the potash strates at the present and future.

2. A suggestive pipe program for the general area should be as follows:

A. Surface Casing

The surface casing should be set at the top of the salt section. The size should be determined by the operator. The number one suggestion is that the pipe be mudded to the surface by pumping mud around the shoe and behind the pipe to the surface. Allow pipe to set eight hours. Then bale hole dry and test for at least two hours. If water is completely shut off, then the operator shall continue his drilling until he has reached the anhydrite formation. Then the operator should run either number one used pipe or new pipe through the potash and salt section. The operator should then be allowed to pull the surface pipe from the hole. The operator should then be permitted to cement the pipe from the bottom of the salt section to the surface, by circulating cement behind the pipe to the surface, or in such quantities recommended by the cementing concerns and the Oil Conservation Commission. The operator should then be allowed to drill his well and set his production string as he sees fit. He should be allowed to set the size of casing and at a depth he recommends, so long as he uses number one used pipe or new pipe. The amount of cement run behind the production string should be sufficient to come up at least 500 feet above the shoe. This will be adequate cement to protect the oil and gas zones and the formations behind the production string.

(Con't. Case No. 278
Exhibit C)

B. The next pipe program is recommended as follows:

The surface pipe should be set through the surface water, and cemented by circulating cement behind the pipe to the surface, or else there should be sufficient amount of cement pumped in and around the pipe to come to the surface, under ordinarly conditions. The cement should be allowed to set under pressure not less than 48 hours before drilling same and testing for water. The operator must test for water at least 2 hours. In case there is no water present, he shall then be allowed to carry on drilling operations until he reaches the casing point necessary to set the production string. At this time the potash and salt is protected from all water hazards. The only hazards existing at this time is the possibility of contaminating the potash with oil and gas. Therefore, the operator should run nothing but A-1 used pipe or new pipe, tonging each joint up as tight as possible to prevent leakage. He shall then be allowed, to pump heavy acquagel mud behind the pipe sufficient to reach and come above the salt and potash section. Then the operator should pump enough cement behind the pipe to come up at least 500 feet behind it, which would be sufficient to seal off any possible chances of oil and gas working its way up behind it. The production string shall be allowed to be set threw or above the oil producing sections as the operator may see fit. The reason for this is that the different known producing zones are treated differently.

Most of the wells are drilled through-out Eddy County by the cable tool method. Which has the advantages of being able to identify the formations immediately upon topping them and the exact thickness. We are also able to detect immediately the different changes in the formations that takes place. We are also able to test our water zones as to the amount of water and the thickness of the zones. Therefore it is necessary to have a different type of pipe program for this type of drilling than for rotary drilling. The above recommendation are based on cable tool drilling.

These recommendations or suggestions are based on past experience and present drilling operations being carried on in one or more districts. The oil and gas producers of New Mexico are fortunate enough to have the Oil and Gas Conservation Commission to assist us in our problems. They have accumulated information sufficient to guide them in any section of Eddy County, New Mexico. They are known to work and cooperate with the United States Geological Department at all times.

The undersigned operator or operators of Eddy County, New Mexico approve wholeheartedly the above and foregoing proposals and do hereby recommend these adoptions by the State Land Commission as well as the United States Land Commission.

Respectfully submitted,

/s/ Jones & Watkins Oil Company, Artesia, New Mexico, by Stanley L. Jones, Inc.

/s/ Miller & Miller, Artesia, New Mexico, by Stanley L. Jones,

/s/ Stanley L. Jones, Inc.

Telegram -
Bartlesville, Oklahoma
June 21, 1951 - - - - - -

CASE NO. 278
EXHIBIT D

R. R. SPURRIER, SECY.
NEW MEXICO OIL CONSERVATION COMMISSION - SANTA FE, NEW MEXICO

RE CASE 278 FOR AN ORDER ESTABLISHING A CASING PROGRAM WITHIN THE SO CALLED POTASH AREA OF EDDY AND LEA COUNTIES. PHILLIPS PETROLEUM COMPANY HAS STUDIED PROPOSALS OF VARIOUS OPERATORS WHICH WOULD REQUIRE TEMPERATURE SURVEYS WHERE SALT STRING IS CEMENTED TO SURFACE. IN OUR OPINION CIRCULATION SHOULD BE SUFFICIENT EVIDENCE AND WE OBJECT TO THE REQUIREMENT OF TEMPERATURE SURVEYS BECAUSE SUCH SURVEYS WILL NOT REVEAL ADDITIONAL INFORMATION. ALSO IN OUR OPINION, ON SHALLOW WELLS, IF NO INTERMEDIATE STRING IS RUN THE OIL STRING SHOULD BE REQUIRED TO BE CEMENTED SOLID TO THE SURFACE TO AVOID POSSIBLE LEAKS AND IN THIS CASE WE ALSO OBJECT TO REQUIREMENT OF GAMMA RAY OR TEMPERATURE LOGS FOR SAME REASON THAT THEY SHOW NO MORE THAN IS INDICATED BY OBTAINING CIRCULATION OF CEMENT.

OPERATORS SUGGESTION THAT CENTERALIZERS BE PLACED ON EVERY THIRD JOINT OF SALT STRING SHOULD BE AMENDED TO PROVIDE LENGTH OF SUCH JOINTS OR CENTRALIZERS SHOULD BE SPACED CERTAIN DISTANCE APART. OTHERWISE PHILLIPS PETROLEUM COMPANY CONCURS WITH PROPOSALS OF OTHER OPERATORS AS SET FORTH IN RECENT MEMORANDUM OF NEW MEXICO OIL AND GAS ENGINEERING COMMITTEE.

C. P. DIMIT

PHILLIPS PETROLEUM COMPANY

CASING AND CEMENTING PROGRAMS FOR OIL AND GAS TEST WELLS IN THE "DEFINED AREAS" IN EDDY COUNTY, NEW MEXICO

CASE NO. 278
EXHIBIT A

1. Surface Casing String

In order to protect the fresh water supply, the surface casing string shall be set in the "Red Bed" section of the basal Russler formation immediately above the top of the salt section and shall be cemented back to the ground surface or to the bottom of the cellar.

The surface string may consist of new, second-hand or re-conditioned pipe. New pipe shall have received a mill test of not less than 600 pounds per square inch; second-hand and re-conditioned pipe shall be re-tested to 600 pounds per square inch before being run.

Sufficient cement shall be used to fill the annular space back of the pipe from the casing point to the surface of the ground or to the bottom of the cellar. Cement shall be allowed to stand a minimum of twelve (12) hours under pressure and a total of twenty-four (24) hours before drilling the plug or initiating tests.

Tests of casing shall vary with drilling method. If rotary is used, the mud shall be displaced with water or with the proposed saturated water solution and a hydraulic pressure of six hundred (600) pounds per square inch shall be applied. If a drop of one hundred (100) pounds per square inch or more should occur within 30 minutes, corrective measures shall be applied. If cable tools are used, the mud shall be bailed from the hole and if the hole does not remain dry for a period of one hour, corrective measures shall be applied.

2. Salt Protection String

The salt protection string shall be set at least one hundred (100) feet and not more than two hundred (200) feet below the base of the salt section. This string may consist of new, second-hand or re-conditioned pipe. New pipe shall have received a mill test of not less than 1000 pounds per square inch; second-hand and re-conditioned pipe shall be re-tested to 1000 pounds per square inch before being run.

Centralizers shall be used on at least every third joint below surface casing.

Sufficient cement shall be used to fill the annular space back of the pipe from the casing point to the surface of the ground or to the bottom of the cellar. (The water used to mix with the cement shall be saturated with the salts common to the zones penetrated.) Cement shall be allowed to stand a minimum of twelve (12) hours under pressure and a total of twenty-four (24) hours before drilling the plug or initiating tests. If the cement fails to reach the surface, the salt protection casing shall be perforated just above the top of the cement and additional cement jobs done until cement is brought to the surface. One or more temperature or gamma ray surveys supporting complete cementation shall be filed with the Oil Conservation Commission.

CASE NO. 278
EXHIBIT A

Tests of casing shall vary with the drilling method. If rotary is used, the mud shall be displaced with water and a hydraulic pressure of 1000 pounds per square inch shall be applied. If a drop of 100 pounds per square inch or more should occur within 30 minutes, corrective measures shall be applied. If cable tools are used the mud shall be bailed from the hole and if the hole does not remain dry for a period of one hour, corrective measures shall be applied.

3. Intermediate String

This string may be a drilling protection string for deep drilling objectives or may be an oil string for testing medium depth zones.

a. If a drilling protection string, the casing shall be cemented with a sufficient volume of cement amply to protect this casing and all shallow pay zones above the casing shoe, and in every instance the string shall be cemented from a point one thousand (1000) feet below the salt string back to the surface. One or more temperature or gamma ray surveys supporting complete cementation shall be filed with the Oil Conservation Commission.

b. If an oil string in testing medium depth zones, the casing may be cemented with a nominal cement volume for testing purposes only, and if commercially productive, the string must be re-cemented by circulating cement from the top of the original cement job to the surface. One or more temperature or gamma ray surveys supporting complete cementation shall be filed with the Oil Conservation Commission.

4. Oil or Production String (Deep Wells)

This string shall be set on top or through the pay zone and cemented with a volume adequate to protect the pay zone and the casing above such zone, provided however, if no intermediate drilling casing shall have been run and commercial production obtained, that string shall be cemented to the surface or as provided by 3-a above.

5. Drilling Fluid for Salt Section

This fluid shall consist of water to which has been added sufficient salts of a character common to the zone penetrated to completely saturate the mixture. Other admixtures may be added to the system by the operator in overcoming any specific problem. This requirement is specifically inserted in order to prevent enlarged drill holes.

CASING AND CEMENTING PROGRAM FOR SHALLOW OIL AND GAS TEST WELLS IN KNOWN POTASH AREAS

CASE NO. 278
EXHIBIT B

The following is a suggested casing program for wells above 5,000 feet and is, of necessity, only general rules for the whole designated potash area, whether designated as Area A, Area B or otherwise. Geological sections change so rapidly in this large, scattered area that individual portions of the area will present individual problems. It is therefore suggested as follows:

A. That the Oil Conservation Commission retain authority to vary this general casing and cementing program to meet a specific condition, without an open hearing before the Commission.

B. That the casing and cementing program herein suggested apply only to the areas embraced in proven commercial deposits of potash, the remainder of the designated potash area to be drilled in accordance with standard, existing practices.

C. The suggested casing and cementing program is as follows:

1. Surface Casing String

In order to protect the fresh water supply, if present, the surface casing string shall be set through the fresh water bearing horizons and cemented with a volume adequate to protect the fresh water and keep it from entering the salt formation.

The surface string may consist of new, second-hand or re-conditioned pipe capable of meeting the manufacturers test specifications.

Cement shall be allowed to stand a minimum of twelve (12) hours under pressure and a total of twenty-four (24) hours before drilling the plug or initiating tests.

Tests of casing shall vary with drilling method. If rotary is used, the mud shall be displaced with water or with the proposed saturated water solution and a hydraulic pressure of six hundred (600) pounds per square inch shall be applied. If a drop of one hundred (100) pounds per square inch or more should occur within 30 minutes, corrective measures shall be applied. If cable tools are used, the mud shall be bailed from the hole and if the hole does not remain dry for a period of one hour, corrective measures shall be applied.

2. Salt Protection String

The salt protection string may be set at lease one hundred (100) feet and not more than two hundred (200) feet below the base of the salt section. This string

may consist of new, second-hand or re-conditioned pipe capable of meeting the manufacturer's test specifications.

The string may be cemented with a nominal cement volume for testing purposes only, and if commercially productive, the string must be re-cemented with not less than 150% of calculated volume necessary to circulate cement to surface.

Cement shall be allowed to stand a minimum of twelve (12) hours under pressure and a total of twenty-four (24) hours before drilling the plug or initiating tests. If the cement fails to reach the top of the salt, the salt protection casing shall be perforated just above the top of the cement and additional cement jobs done until cement is brought to that point. One or more temperature or gamma ray surveys supporting complete cementation shall be filed with the Oil Conservation Commission.

Test of casing shall vary with the drilling method. If rotary is used, the mud shall be displaced with water and a hydraulic pressure of 1000 pounds per square inch shall be applied. If a drop of 100 pounds per square inch or more should occur within 30 minutes, corrective measures shall be applied. If cable tools are used, the mud shall be bailed from the hole and if the hole does not remain dry for a period of one hour corrective measures shall be applied.

3. Oil or Production String

This string may be set on top or through the pay zone and cemented with a volume adequate to protect the pay zone and the casing above such zone, provided however, if no salt protection casing shall have been run and commercial production obtained, that string shall be cemented to the surface as provided by 2 above or as provided by 3a in Deep Well program.

D. The undersigned operators, of Eddy County, New Mexico, approve the above and foregoing proposals and recommend its adoption by the Commission.

Respectfully submitted,

American Republics Corp. by William B. Macey; Boyd-Plemons Drilling Company by Tom Boyd; Buffalo Oil Company by Ralph L. Gray; Guy Stevenson; J. Grady Wright; E. N. Brock; G. Kelley Stout; (Illegible) Paton Bros. by H. R. Paton; R. D. Collier; J. W. Berry; Ross Sears; Joe Nunn; J. E. Bedingfield; Burnham Oil Company by E. Jeffers; Malco Refineries, Inc. by Donald E. Anderson; Bassatt & Birney by Martin Yates III; Dixon & Yates by Martin Yates III; S. P. Yates; Yates Brothers by S. P. Yates; Resler Oil Company by S. P. Yates; J. R. Lund for Robert E. McKee.

CASING AND CEMENTING PROGRAM FOR SHALLOW OIL AND GAS TEST WELLS IN PROSPECTIVE POTASH AREAS

CASE No. 278
EXHIBIT C

The following program is a suggestive program for the cementing of pipe and the protecting of the prospective potash horizon from water, oil and gas contamination. This program shall pertain to oil and gas test or wells drilled for the purpose of securing oil and gas, down to a depth of 6000 feet. There should be rules set up for particular areas, naturally based on the amount of surface water and the amount of potash in the salt section, which will be penetrated during the drilling of the proposed oil test. The geological features on the oil structures will call for different programs from time to time. Especially in the districts where potash is present. The commercial potash districts according to geological features and subsurface information that has been secured from old oil test that have been drilled in the past. Also addition information has been secured from districts from recent wells drilled in the various districts. There has also been a considerable amount of coring done by the various companies. All of this information should supply sufficient knowledge to derive at a pipe program satisfactory for all concerned. It is therefore suggested as follows:

1. That the Oil and Gas Conservation Commission retain authorization to issue a pipe program according to the area and district. A program that is sufficient to protect the potash strates at the present and future.

2. A suggestive pipe program for the general area should be as follows:

A. Surface Casing

The surface casing should be set at the top of the salt section. The size should be determined by the operator. The number one suggestion is that the pipe be mudded to the surface by pumping mud around the shoe and behind the pipe to the surface. Allow pipe to set eight hours. Then bale hole dry and test for at least two hours. If water is completely shut off, then the operator shall continue his drilling until he has reached the anhydrite formation. Then the operator should run either number one used pipe or new pipe through the potash and salt section. The operator should then be allowed to pull the surface pipe from the hole. The operator should then be permitted to cement the pipe from the bottom of the salt section to the surface, by circulating cement behind the pipe to the surface, or in such quantities recommended by the cementing concerns and the Oil Conservation Commission. The operator should then be allowed to drill his well and set his production string as he sees fit. He should be allowed to set the size of casing and at a depth he recommends, so long as he uses number one used pipe or new pipe. The amount of cement run behind the production string should be sufficient to come up at least 500 feet above the shoe. This will be adequate cement to protect the oil and gas zones and the formations behind the production string.

(Con't. Case No. 278
Exhibit C)

B. The next pipe program is recommended as follows:

The surface pipe should be set through the surface water, and cemented by circulating cement behind the pipe to the surface, or else there should be sufficient amount of cement pumped in and around the pipe to come to the surface, under ordinarly conditions. The cement should be allowed to set under pressure not less than 48 hours before drilling same and testing for water. The operator must test for water at least 2 hours. In case there is no water present, he shall then be allowed to carry on drilling operations until he reaches the casing point necessary to set the production string. At this time the potash and salt is protected from all water hazards. The only hazards existing at this time is the possibility of contaminating the potash with oil and gas. Therefore, the operator should run nothing but A-1 used pipe or new pipe, tonging each joint up as tight as possible to prevent leakage. He shall then be allowed, to pump heavy acquagel mud behind the pipe sufficient to reach and come above the salt and potash section. Then the operator should pump enough cement behind the pipe to come up at least 500 feet behind it, which would be sufficient to seal off any possible chances of oil and gas working its way up behind it. The production string shall be allowed to be set threw or above the oil producing sections as the operator may see fit. The reason for this is that the different known producing zones are treated differently.

Most of the wells are drilled through-out Eddy County by the cable tool method. Which has the advantages of being able to identify the formations immediately upon topping them and the exact thickness. We are also able to detect immediately the different changes in the formations that takes place. We are also able to test our water zones as to the amount of water and the thickness of the zones. Therefore it is necessary to have a different type of pipe program for this type of drilling than for rotary drilling. The above recommendation are based on cable tool drilling.

These recommendations or suggestions are based on past experience and present drilling operations being carried on in one or more districts. The oil and gas producers of New Mexico are fortunate enough to have the Oil and Gas Conservation Commission to assist us in our problems. They have accumulated information sufficient to guide them in any section of Eddy County, New Mexico. They are known to work and cooperate with the United States Geological Department at all times.

The undersigned operator or operators of Eddy County, New Mexico approve wholeheartedly the above and foregoing proposals and do hereby recommend these adoptions by the State Land Commission as well as the United States Land Commission.

Respectfully submitted,

/s/ Jones & Watkins Oil Company, Artesia, New Mexico, by Stanley L. Jones, Inc.

/s/ Miller & Miller, Artesia, New Mexico, by Stanley L. Jones,

/s/ Stanley L. Jones, Inc.

Telegram -
Bartlesville, Oklahoma
June 21, 1951 - - - - - -

CASE NO. 278
EXHIBIT D

R. R. SPURRIER, SECY.
NEW MEXICO OIL CONSERVATION COMMISSION - SANTA FE, NEW MEXICO

RE CASE 278 FOR AN ORDER ESTABLISHING A CASING PROGRAM WITHIN THE SO CALLED POTASH AREA OF EDDY AND LEA COUNTIES. PHILLIPS PETROLEUM COMPANY HAS STUDIED PROPOSALS OF VARIOUS OPERATORS WHICH WOULD REQUIRE TEMPERATURE SURVEYS WHERE SALT STRING IS CEMENTED TO SURFACE. IN OUR OPINION CIRCULATION SHOULD BE SUFFICIENT EVIDENCE AND WE OBJECT TO THE REQUIREMENT OF TEMPERATURE SURVEYS BECAUSE SUCH SURVEYS WILL NOT REVEAL ADDITIONAL INFORMATION. ALSO IN OUR OPINION, ON SHALLOW WELLS, IF NO INTERMEDIATE STRING IS RUN THE OIL STRING SHOULD BE REQUIRED TO BE CEMENTED SOLID TO THE SURFACE TO AVOID POSSIBLE LEAKS AND IN THIS CASE WE ALSO OBJECT TO REQUIREMENT OF GAMMA RAY OR TEMPERATURE LOGS FOR SAME REASON THAT THEY SHOW NO MORE THAN IS INDICATED BY OBTAINING CIRCULATION OF CEMENT.

OPERATORS SUGGESTION THAT CENTERALIZERS BE PLACED ON EVERY THIRD JOINT OF SALT STRING SHOULD BE AMENDED TO PROVIDE LENGTH OF SUCH JOINTS OR CENTRALIZERS SHOULD BE SPACED CERTAIN DISTANCE APART. OTHERWISE PHILLIPS PETROLEUM COMPANY CONCURS WITH PROPOSALS OF OTHER OPERATORS AS SET FORTH IN RECENT MEMORANDUM OF NEW MEXICO OIL AND GAS ENGINEERING COMMITTEE.

C. P. DIMIT

PHILLIPS PETROLEUM COMPANY

CASING AND CEMENTING
PROGRAMS FOR OIL AND GAS TEST WELLS IN THE "DEFINED AREAS" IN EDDY COUNTY, NEW MEXICO

CASE NO. 278
EXHIBIT A

1. Surface Casing String

In order to protect the fresh water supply, the surface casing string shall be set in the "Red Bed" section of the basal Russler formation immediately above the top of the salt section and shall be cemented back to the ground surface or to the bottom of the cellar.

The surface string may consist of new, second-hand or re-conditioned pipe. New pipe shall have received a mill test of not less than 600 pounds per square inch; second-hand and re-conditioned pipe shall be re-tested to 600 pounds per square inch before being run.

Sufficient cement shall be used to fill the annular space back of the pipe from the casing point to the surface of the ground or to the bottom of the cellar. Cement shall be allowed to stand a minimum of twelve (12) hours under pressure and a total of twenty-four (24) hours before drilling the plug or initiating tests.

Tests of casing shall vary with drilling method. If rotary is used, the mud shall be displaced with water or with the proposed saturated water solution and a hydraulic pressure of six hundred (600) pounds per square inch shall be applied. If a drop of one hundred (100) pounds per square inch or more should occur within 30 minutes, corrective measures shall be applied. If cable tools are used, the mud shall be bailed from the hole and if the hole does not remain dry for a period of one hour, corrective measures shall be applied.

2. Salt Protection String

The salt protection string shall be set at least one hundred (100) feet and not more than two hundred (200) feet below the base of the salt section. This string may consist of new, second-hand or re-conditioned pipe. New pipe shall have received a mill test of not less than 1000 pounds per square inch; second-hand and re-conditioned pipe shall be re-tested to 1000 pounds per square inch before being run.

Centralizers shall be used on at least every third joint below surface casing.

Sufficient cement shall be used to fill the annular space back of the pipe from the casing point to the surface of the ground or to the bottom of the cellar. (The water used to mix with the cement shall be saturated with the salts common to the zones penetrated.) Cement shall be allowed to stand a minimum of twelve (12) hours under pressure and a total of twenty-four (24) hours before drilling the plug or initiating tests. If the cement fails to reach the surface, the salt protection casing shall be perforated just above the top of the cement and additional cement jobs done until cement is brought to the surface. One or more temperature or gamma ray surveys supporting complete cementation shall be filed with the Oil Conservation Commission.

CASE NO. 278
EXHIBIT A

Tests of casing shall vary with the drilling method. If rotary is used, the mud shall be displaced with water and a hydraulic pressure of 1000 pounds per square inch shall be applied. If a drop of 100 pounds per square inch or more should occur within 30 minutes, corrective measures shall be applied. If cable tools are used the mud shall be bailed from the hole and if the hole does not remain dry for a period of one hour, corrective measures shall be applied.

3. Intermediate String

This string may be a drilling protection string for deep drilling objectives or may be an oil string for testing medium depth zones.

a. If a drilling protection string, the casing shall be cemented with a sufficient volume of cement amply to protect this casing and all shallow pay zones above the casing shoe, and in every instance this string shall be cemented from a point one thousand (1000) feet below the salt string back to the surface. One or more temperature or gamma ray surveys supporting complete cementation shall be filed with the Oil Conservation Commission.

b. If an oil string in testing medium depth zones, the casing may be cemented with a nominal cement volume for testing purposes only, and if commercially productive, the string must be re-cemented by circulating cement from the top of the original cement job to the surface. One or more temperature or gamma ray surveys supporting complete cementation shall be filed with the Oil Conservation Commission.

4. Oil or Production String (Deep Wells)

This string shall be set on top or through the pay zone and cemented with a volume adequate to protect the pay zone and the casing above such zone, provided however, if no intermediate drilling casing shall have been run and commercial production obtained, that string shall be cemented to the surface or as provided by 3-a above.

5. Drilling Fluid for Salt Section

This fluid shall consist of water to which has been added sufficient salts of a character common to the zone penetrated to completely saturate the mixture. Other admixtures may be added to the system by the operator in overcoming any specific problem. This requirement is specifically inserted in order to prevent enlarged drill holes.

CASING AND CEMENTING PROGRAM FOR SHALLOW OIL AND GAS TEST WELLS IN KNOWN POTASH AREAS

CASE NO. 278
EXHIBIT B

The following is a suggested casing program for wells above 5,000 feet and is, of necessity, only general rules for the whole designated potash area, whether designated as Area A, Area B or otherwise. Geological sections change so rapidly in this large, scattered area that individual portions of the area will present individual problems. It is therefore suggested as follows:

A. That the Oil Conservation Commission retain authority to vary this general casing and cementing program to meet a specific condition, without an open hearing before the Commission.

B. That the casing and cementing program herein suggested apply only to the areas embraced in proven commercial deposits of potash, the remainder of the designated potash area to be drilled in accordance with standard, existing practices.

C. The suggested casing and cementing program is as follows:

1. Surface Casing String

In order to protect the fresh water supply, if present, the surface casing string shall be set through the fresh water bearing horizons and cemented with a volume adequate to protect the fresh water and keep it from entering the salt formation.

The surface string may consist of new, second-hand or re-conditioned pipe capable of meeting the manufacturers test specifications.

Cement shall be allowed to stand a minimum of twelve (12) hours under pressure and a total of twenty-four (24) hours before drilling the plug or initiating tests.

Tests of casing shall vary with drilling method. If rotary is used, the mud shall be displaced with water or with the proposed saturated water solution and a hydraulic pressure of six hundred (600) pounds per square inch shall be applied. If a drop of one hundred (100) pounds per square inch or more should occur within 30 minutes, corrective measures shall be applied. If cable tools are used, the mud shall be bailed from the hole and if the hole does not remain dry for a period of one hour, corrective measures shall be applied.

2. Salt Protection String

The salt protection string may be set at lease one hundred (100) feet and not more than two hundred (200) feet below the base of the salt section. This string

may consist of new, second-hand or re-conditioned pipe capable of meeting the manufacturer's test specifications.

The string may be cemented with a nominal cement volume for testing purposes only, and if commercially productive, the string must be re-cemented with not less than 150% of calculated volume necessary to circulate cement to surface.

Cement shall be allowed to stand a minimum of twelve (12) hours under pressure and a total of twenty-four (24) hours before drilling the plug or initiating tests. If the cement fails to reach the top of the salt, the salt protection casing shall be perforated just above the top of the cement and additional cement jobs done until cement is brought to that point. One or more temperature or gamma ray surveys supporting complete cementation shall be filed with the Oil Conservation Commission.

Test of casing shall vary with the drilling method. If rotary is used, the mud shall be displaced with water and a hydraulic pressure of 1000 pounds per square inch shall be applied. If a drop of 100 pounds per square inch or more should occur within 30 minutes, corrective measures shall be applied. If cable tools are used, the mud shall be bailed from the hole and if the hole does not remain dry for a period of one hour corrective measures shall be applied.

3. Oil or Production String

This string may be set on top or through the pay zone and cemented with a volume adequate to protect the pay zone and the casing above such zone, provided however, if no salt protection casing shall have been run and commercial production obtained, that string shall be cemented to the surface as provided by 2 above or as provided by 3a in Deep Well program.

D. The undersigned operators, of Eddy County, New Mexico, approve the above and foregoing proposals and recommend its adoption by the Commission.

Respectfully submitted,

American Republics Corp. by William B. Macey; Boyd-Plemons Drilling Company by Tom Boyd; Buffalo Oil Company by Ralph L. Gray; Guy Stevenson; J. Grady Wright; E. N. Brock; G. Kelley Stout; (Illegible) Paton Bros. by H. R. Paton; R. D. Collier; J. W. Berry; Ross Sears; Joe Nunn; J. E. Bedingfield; Burnham Oil Company by E. Jeffers; Malco Refineries, Inc. by Donald E. Anderson; Bassatt & Birney by Martin Yates III; Dixon & Yates by Martin Yates III; S. P. Yates; Yates Brothers by S. P. Yates; Resler Oil Company by S. P. Yates; J. R. Lund for Robert E. McKee.

CASING AND CEMENTING PROGRAM FOR SHALLOW OIL AND GAS TEST WELLS IN PROSPECTIVE POTASH AREAS

CASE No. 278
EXHIBIT C

The following program is a suggestive program for the cementing of pipe and the protecting of the prospective potash horizon from water, oil and gas contamination. This program shall pertain to oil and gas test or wells drilled for the purpose of securing oil and gas, down to a depth of 6000 feet. There should be rules set up for particular areas, naturally based on the amount of surface water and the amount of potash in the salt section, which will be penetrated during the drilling of the proposed oil test. The geological features on the oil structures will call for different programs from time to time. Especially in the districts where potash is present. The commercial potash districts according to geological features and subsurface information that has been secured from old oil test that have been drilled in the past. Also addition information has been secured from districts from recent wells drilled in the various districts. There has also been a considerable amount of coring done by the various companies. All of this information should supply sufficient knowledge to derive at a pipe program satisfactory for all concerned. It is therefore suggested as follows:

1. That the Oil and Gas Conservation Commission retain authorization to issue a pipe program according to the area and district. A program that is sufficient to protect the potash strates at the present and future.

2. A suggestive pipe program for the general area should be as follows:

A. Surface Casing

The surface casing should be set at the top of the salt section. The size should be determined by the operator. The number one suggestion is that the pipe be mudded to the surface by pumping mud around the shoe and behind the pipe to the surface. Allow pipe to set eight hours. Then bale hole dry and test for at least two hours. If water is completely shut off, then the operator shall continue his drilling until he has reached the anhydrite formation. Then the operator should run either number one used pipe or new pipe through the potash and salt section. The operator should then be allowed to pull the surface pipe from the hole. The operator should then be permitted to cement the pipe from the bottom of the salt section to the surface, by circulating cement behind the pipe to the surface, or in such quantities recommended by the cementing concerns and the Oil Conservation Commission. The operator should then be allowed to drill his well and set his production string as he sees fit. He should be allowed to set the size of casing and at a depth he recommends, so long as he uses number one used pipe or new pipe. The amount of cement run behind the production string should be sufficient to come up at least 500 feet above the shoe. This will be adequate cement to protect the oil and gas zones and the formations behind the production string.

(Con't. Case No. 278
Exhibit C)

B. The next pipe program is recommended as follows:

The surface pipe should be set through the surface water, and cemented by circulating cement behind the pipe to the surface, or else there should be sufficient amount of cement pumped in and around the pipe to come to the surface, under ordinarly conditions. The cement should be allowed to set under pressure not less than 48 hours before drilling same and testing for water. The operator must test for water at least 2 hours. In case there is no water present, he shall then be allowed to carry on drilling operations until he reaches the casing point necessary to set the production string. At this time the potash and salt is protected from all water hazards. The only hazards existing at this time is the possibility of contaminating the potash with oil and gas. Therefore, the operator should run nothing but A-1 used pipe or new pipe, tonging each joint up as tight as possible to prevent leakage. He shall then be allowed, to pump heavy acquagel mud behind the pipe sufficient to reach and come above the salt and potash section. Then the operator should pump enough cement behind the pipe to come up at least 500 feet behind it, which would be sufficient to seal off any possible chances of oil and gas working its way up behind it. The production string shall be allowed to be set threw or above the oil producing sections as the operator may see fit. The reason for this is that the different known producing zones are treated differently.

Most of the wells are drilled through-out Eddy County by the cable tool method. Which has the advantages of being able to identify the formations immediately upon topping them and the exact thickness. We are also able to detect immediately the different changes in the formations that takes place. We are also able to test our water zones as to the amount of water and the thickness of the zones. Therefore it is necessary to have a different type of pipe program for this type of drilling than for rotary drilling. The above recommendation are based on cable tool drilling.

These recommendations or suggestions are based on past experience and present drilling operations being carried on in one or more districts. The oil and gas producers of New Mexico are fortunate enough to have the Oil and Gas Conservation Commission to assist us in our problems. They have accumulated information sufficient to guide them in any section of Eddy County, New Mexico. They are known to work and cooperate with the United States Geological Department at all times.

The undersigned operator or operators of Eddy County, New Mexico approve wholeheartedly the above and foregoing proposals and do hereby recommend these adoptions by the State Land Commission as well as the United States Land Commission.

Respectfully submitted,

/s/ Jones & Watkins Oil Company, Artesia, New Mexico, by Stanley L. Jones, Inc.

/s/ Miller & Miller, Artesia, New Mexico, by Stanley L. Jones,

/s/ Stanley L. Jones, Inc.

Telegram -
Bartlesville, Oklahoma
June 21, 1951 - - - - - -

CASE NO. 278
EXHIBIT D

R. R. SPURRIER, SECY.
NEW MEXICO OIL CONSERVATION COMMISSION - SANTA FE, NEW MEXICO

RE CASE 278 FOR AN ORDER ESTABLISHING A CASING PROGRAM WITHIN THE SO CALLED POTASH AREA OF EDDY AND LEA COUNTIES. PHILLIPS PETROLEUM COMPANY HAS STUDIED PROPOSALS OF VARIOUS OPERATORS WHICH WOULD REQUIRE TEMPERATURE SURVEYS WHERE SALT STRING IS CEMENTED TO SURFACE. IN OUR OPINION CIRCULATION SHOULD BE SUFFICIENT EVIDENCE AND WE OBJECT TO THE REQUIREMENT OF TEMPERATURE SURVEYS BECAUSE SUCH SURVEYS WILL NOT REVEAL ADDITIONAL INFORMATION. ALSO IN OUR OPINION, ON SHALLOW WELLS, IF NO INTERMEDIATE STRING IS RUN THE OIL STRING SHOULD BE REQUIRED TO BE CEMENTED SOLID TO THE SURFACE TO AVOID POSSIBLE LEAKS AND IN THIS CASE WE ALSO OBJECT TO REQUIREMENT OF GAMMA RAY OR TEMPERATURE LOGS FOR SAME REASON THAT THEY SHOW NO MORE THAN IS INDICATED BY OBTAINING CIRCULATION OF CEMENT.

OPERATORS SUGGESTION THAT CENTERALIZERS BE PLACED ON EVERY THIRD JOINT OF SALT STRING SHOULD BE AMENDED TO PROVIDE LENGTH OF SUCH JOINTS OR CENTRALIZERS SHOULD BE SPACED CERTAIN DISTANCE APART. OTHERWISE PHILLIPS PETROLEUM COMPANY CONCURS WITH PROPOSALS OF OTHER OPERATORS AS SET FORTH IN RECENT MEMORANDUM OF NEW MEXICO OIL AND GAS ENGINEERING COMMITTEE.

C. P. DIMIT

PHILLIPS PETROLEUM COMPANY

I. DRILLING AND CASING PROGRAM:

(1) For the purpose of the regulations and the drilling of oil and gas exploratory test wells, shallow and deep zones are defined as follows:

(a) The shallow zone shall include all formations above the base of the Delaware sand or above a depth of 5000 feet, whichever is the lesser.

(b) The deep zone shall include all formations below the base of the Delaware sand or below a depth of 5000 feet, whichever is the lesser.

(2) Surface Casing String:

(a) A surface casing string of new, second-hand or reconditioned pipe shall be set in the "Red Bed" section of the basal Rustler formation immediately above the salt section, or in the anhydrite at the top of the salt section, as determined necessary by the regulatory representative approving the drilling operations, and shall be cemented with not less than one hundred and fifty percent (150%) of calculated volume necessary to circulate cement to the ground surface.

(b) Cement shall be allowed to stand a minimum of twelve (12) hours under pressure and a total of twenty-four (24) hours before drilling the plug or initiating tests.

(c) Casing and water shut-off tests shall be made both before and after drilling the plug and below the casing seat, as follows:

(i) If rotary tools are used, the mud shall be displaced with water and a hydraulic pressure of six hundred (600) pounds per square inch shall be applied. If a drop of one hundred (100) pounds per square inch or more should occur within thirty (30) minutes, corrective measure shall be applied.

(ii) If cable tools are used, the mud shall be bailed from the hole and if the hole does not remain dry for a period of one hour, corrective measures shall be applied.

(d) The above requirements for the surface casing string shall be applicable to both the shallow and deep zones.

(3) Salt Protection String:

(a) A salt protection string of new, second-hand or reconditioned pipe shall be set not less than one hundred (100) feet nor more than two hundred (200) feet below the base of the salt section.

(b) The salt protection string shall be cemented as follows:

(i) For wells drilled to the shallow zone, the string may be cemented with a nominal volume of cement for testing purposes only. If the exploratory test well is completed as a productive well, the string must be recemented with sufficient cement to fill the annular space back of the pipe from the top of the first cementing to the surface or to the bottom of the cellar, or (*)

(ii) For wells drilled to the deep zone, the string must be cemented with sufficient cement to fill the annular space back of the pipe from the casing seat to the surface or to the bottom of the cellar.

(c) If the cement fails to reach the surface or the bottom of the cellar, where required, the top of the cement shall be located by a temperature or gamma ray survey and additional cementing shall be done until the cement is brought to the point required.

(d) The fluid used to mix with the cement shall be saturated with the salts common to the zones penetrated and with three percent (3%) of calcium Chloride by weight of cement.

(e) Centralizers shall be spaced on at least every one hundred fifty (150) feet of the salt protection string below the surface casing string.

(*) may be cut and pulled if the production string is cemented to the surface as provided in sub-section (5), (a), (i).

(f) Cement shall be allowed to stand a minimum of twelve (12) hours under pressure and a total of twenty-four (24) hours before drilling the plug or initiating tests.

(g) Casing tests shall be made both before and after drilling the plug and below the casing seat, as follows:

(i) If rotary tools are used, the mud shall be displaced with water and a hydraulic pressure of one thousand (1000) pounds per square inch shall be applied. If a drop of one hundred (100) pounds per square inch or more should occur within thirty (30) minutes, corrective measures shall be applied.

(ii) If cable tools are used, the mud shall be bailed from the hole and if the hole does not remain dry for a period of one hour, corrective measures shall be applied.

(h) The above requirements for the salt protection string shall be applicable to both the shallow and deep zones except for sub-section (3) (b) (i) and (ii) above.

(4) Intermediate String:

(a) In the drilling of oil and gas exploratory test wells to the deep zone an intermediate string shall be set at sufficient depth to case-off all formations in the shallow zone and shall be cemented with sufficient cement to fill the annular space back of the pipe from the casing seat to the surface or to the bottom of the cellar.

(b) Cementing procedures and casing tests for the intermediate string shall be the same as provided under sub-sections (3), (c), (f), and (g) for the salt protection string.

(5) Production String:

(a) A production string shall be set on top or through the oil or gas pay zone and shall be cemented as follows:

(i) For wells drilled to the shallow zone the production string shall be cemented to the suface if the salt protection string was cemented only with a nominal volume for testing purposes, in which case the salt protection string can be cut and pulled before the production string is cemented; provided, that

If the salt protection string was cemented to the surface, the production string may be cemented with a volume adequate to protect the pay zone and the casing above such zone.

(ii) For wells drilled to the deep zone the production string shall be cemented with a volume adequate to protect the pay zone and the casing above such zone; provided that if no intermediate string shall have been run and cemented to the surface, the production string shall be cemented to the surface.

(b) Cementing procedures and casing tests for the production string shall be the same as provided under sub-sections (3), (c), (f), and (g) for the salt protection string.

II. DRILLING FLUID FOR SALT SECTION:

The fluid used while drilling the salt section shall consist of water to which has been added sufficient salts of a character common to the zone penetrated to completely saturate the mixture. Other admixtures may be added to the fluid by the operator in overcoming any specific problem. This requirement is specifically to prevent enlarged drill holes.

III. PLUGGING AND ABANDONMENT OF WELLS:

All wells heretofore and hereafter drilled within the potash area shall be plugged in a manner that will provide a solid cement plug through the salt section and prevent liquids or gases from entering the hole above or below the salt section.

I. DRILLING AND CASING PROGRAM:

(1) For the purpose of the regulations and the drilling of oil and gas exploratory test wells, shallow and deep zones are defined as follows:

(a) The shallow zone shall include all formations above the base of the Delaware sand or above a depth of 5000 feet, whichever is the lesser.

(b) The deep zone shall include all formations below the base of the Delaware sand or below a depth of 5000 feet, whichever is the lesser.

(2) Surface Casing String:

(a) A surface casing string of new, second-hand or reconditioned pipe shall be set in the "Red Bed" section of the basal Rustler formation immediately above the salt section, or in the anhydrite at the top of the salt section, as determined necessary by the regulatory representative approving the drilling operations, and shall be cemented with not less than one hundred and fifty percent (150%) of calculated volume necessary to circulate cement to the ground surface.

(b) Cement shall be allowed to stand a minimum of twelve (12) hours under pressure and a total of twenty-four (24) hours before drilling the plug or initiating tests.

(c) Casing and water shut-off tests shall be made both before and after drilling the plug and below the casing seat, as follows:

(i) If rotary tools are used, the mud shall be displaced with water and a hydraulic pressure of six hundred (600) pounds per square inch shall be applied. If a drop of one hundred (100) pounds per square inch or more should occur within thirty (30) minutes, corrective measure shall be applied.

(ii) If cable tools are used, the mud shall be bailed from the hole and if the hole does not remain dry for a period of one hour, corrective measures shall be applied.

(d) The above requirements for the surface casing string shall be applicable to both the shallow and deep zones.

(3) Salt Protection String:

(a) A salt protection string of new, second-hand or reconditioned pipe shall be set not less than one hundred (100) feet nor more than two hundred (200) feet below the base of the salt section.

(b) The salt protection string shall be cemented as follows:

(i) For wells drilled to the shallow zone, the string may be cemented with a nominal volume of cement for testing purposes only. If the exploratory test well is completed as a productive well, the string must be recemented with sufficient cement to fill the annular space back of the pipe from the top of the first cementing to the surface or to the bottom of the cellar, or (*)

(ii) For wells drilled to the deep zone, the string must be cemented with sufficient cement to fill the annular space back of the pipe from the casing seat to the surface or to the bottom of the cellar.

(c) If the cement fails to reach the surface or the bottom of the cellar, where required, the top of the cement shall be located by a temperature or gamma ray survey and additional cementing shall be done until the cement is brought to the point required.

(d) The fluid used to mix with the cement shall be saturated with the salts common to the zones penetrated and with three percent (3%) of calcium Chloride by weight of cement.

(e) Centralizers shall be spaced on at least every one hundred fifty (150) feet of the salt protection string below the surface casing string.

(*) may be cut and pulled if the production string is cemented to the surface as provided in sub-section (5), (a), (i).

(f) Cement shall be allowed to stand a minimum of twelve (12) hours under pressure and a total of twenty-four (24) hours before drilling the plug or initiating tests.

(g) Casing tests shall be made both before and after drilling the plug and below the casing seat, as follows:

(i) If rotary tools are used, the mud shall be displaced with water and a hydraulic pressure of one thousand (1000) pounds per square inch shall be applied. If a drop of one hundred (100) pounds per square inch or more should occur within thirty (30) minutes, corrective measures shall be applied.

(ii) If cable tools are used, the mud shall be bailed from the hole and if the hole does not remain dry for a period of one hour, corrective measures shall be applied.

(h) The above requirements for the salt protection string shall be applicable to both the shallow and deep zones except for sub-section (3) (b) (i) and (ii) above.

(4) Intermediate String:

(a) In the drilling of oil and gas exploratory test wells to the deep zone an intermediate string shall be set at sufficient depth to case-off all formations in the shallow zone and shall be cemented with sufficient cement to fill the annular space back of the pipe from the casing seat to the surface or to the bottom of the cellar.

(b) Cementing procedures and casing tests for the intermediate string shall be the same as provided under sub-sections (3), (c), (f), and (g) for the salt protection string.

(5) Production String:

(a) A production string shall be set on top or through the oil or gas pay zone and shall be cemented as follows:

(i) For wells drilled to the shallow zone the production string shall be cemented to the suface if the salt protection string was cemented only with a nominal volume for testing purposes, in which case the salt protection string can be cut and pulled before the production string is cemented; provided, that

If the salt protection string was cemented to the surface, the production string may be cemented with a volume adequate to protect the pay zone and the casing above such zone.

(ii) For wells drilled to the deep zone the production string shall be cemented with a volume adequate to protect the pay zone and the casing above such zone; provided that if no intermediate string shall have been run and cemented to the surface, the production string shall be cemented to the surface.

(b) Cementing procedures and casing tests for the production string shall be the same as provided under sub-sections (3), (c), (f), and (g) for the salt protection string.

II. DRILLING FLUID FOR SALT SECTION:

The fluid used while drilling the salt section shall consist of water to which has been added sufficient salts of a character common to the zone penetrated to completely saturate the mixture. Other admixtures may be added to the fluid by the operator in overcoming any specific problem. This requirement is specifically to prevent enlarged drill holes.

III. PLUGGING AND ABANDONMENT OF WELLS:

All wells heretofore and hereafter drilled within the potash area shall be plugged in a manner that will provide a solid cement plug through the salt section and prevent liquids or gases from entering the hole above or below the salt section.

PROPOSED RULES AND REGULATIONS FOR ISSUANCE BY THE NEW MEXICO OIL CONSERVATION COMMISSION.

RULES AND REGULATIONS GOVERNING EXPLORATION FOR THE EXTRACTION OF OIL, GAS AND POTASH MINERALS ON NEW MEXICO STATE LANDS AND PRIVATELY OWNED LANDS IN PROVEN AND POTENTIAL POTASH PRODUCTION AREAS, IN EDDY AND LEA COUNTIES, NEW MEXICO.

I OBJECTIVE:

The objective of these rules and regulations is to assure maximum conservation and economic recovery of oil, gas and potash minerals.

II POTASH AREAS:

(1) These rules and regulations are applicable to the proven and potential potash areas herein defined as Area "A" and Area "B", as follows:

(a) Area "A":

T. 19 S., R. 30 E.,	Sec.	3, S½
	Secs.	4 and 5, all
	Sec.	6, SE¼
	Sec.	7, NE¼, S½
	Secs.	8, 9, and 10, all
	Sec.	11, W½
	Sec.	14, W½
	Secs.	15 to 18 incl., all
	Sec.	20, SE¼
	Sec.	21, S½
	Secs.	22 and 23, all
	Secs.	25 to 29 incl., all
	Secs.	32 to 36 incl., all
T. 20 S., R. 30 E.,	Secs.	1 to 27 incl., all
	Secs.	34, 35 and 36, all
T. 20 S., R. 31 E.,	Secs.	17 to 20 incl., all
	Secs.	29 to 32 incl., all
T. 21 S., R. 29 E.,	Secs.	1 and 2, all
	Sec.	10, E½
	Secs.	11 to 14 incl., all
	Sec.	15, E½
	Sec.	24, all
	Sec.	35, E½
	Sec.	36, all

Draft - August 15, 1951
2 copies forwarded to Mr. Spurrier
C/O Mayflower Hotel
Washington, D. C.

T. 21 S., R. 30 E., Secs. 4 to 9 incl., all
Secs. 16 to 19 incl., all
Sec. 31, all

T. 22 S., R. 29 E., Secs. 1 and 2, all
Sec. 3, S½
Secs. 10 to 15 incl., all
Secs. 22, 23 and 24, all

T. 22 S., R. 30 E., Secs. 6 and 7, all
Secs. 18 and 19, all

(b) Area "B"

T. 18 S., R. 30 E., Sec. 12, S½
Secs. 13 and 14, all
Sec. 15, SE¼
Sec. 21, SE¼
Secs. 22, 23 and 24, all
Sec. 25, W½
Secs. 26, 27 and 28, all
Sec. 29, SE¼
Sec. 32, NE¼, S½
Secs. 33 and 34, all
Sec. 35, W½

T. 18 S., R. 21 E., Sec. 18, W½

T. 19 S., R. 29 E., Sec. 11, SE¼
Sec. 12, S½
Secs. 13 and 14, all
Sec. 23, N½
Sec. 24, N½

T. 19 S., R. 30 E., Sec. 2, all
Sec. 3, N½
Sec. 11, E½
Secs. 12 and 13, all
Sec. 14, E½
Sec. 19, all
Sec. 20, N½, SW¼
Sec. 21, N½
Sec. 24, all
Secs. 29 and 30, all

Area "B" (Cont.)

T. 19 S., R. 31 E.,	Secs. 9 and 10, all
	Sec. 11, W½
	Sec. 14, W½
	Secs. 15, 16 and 17, all
	Secs. 19 to 22 incl., all
	Sec. 23, W½
	Sec. 25, S½
	Secs. 26 to 36 incl., all
T. 19 S., R. 32 E.,	Sec. 23, S½
	Secs. 24 to 27 incl., all
	Sec. 28, S½
	Sec. 31, S½
	Sec. 32, S½
	Secs. 33 to 36 incl., all
T. 19 S., R. 33 E.,	Secs. 19, 30 and 31, all
T. 20 S., R. 29 E.,	Sec. 12, NE¼SE¼, S½SE¼
	Sec. 13, NE¼, S½
	Secs. 22 to 27 incl., all
	Secs. 34, 35 and 36, all
T. 20 S., R. 30 E.,	Secs. 28 to 33 incl., all
T. 20 S., R. 31 E.,	Secs. 1 to 16 incl., all
	Secs. 21 to 28 incl., all
	Secs. 33 to 36 incl., all
T. 20 S., R. 32 E.,	Secs. 1 to 36 incl., all
T. 20 S., R. 33 E.,	Secs. 5 to 9 incl., all
	Secs. 16 to 23 incl., all
	Secs. 25 to 36 incl., all
T. 20 S., R. 34 E.,	Sec. 31, all
T. 21 S., R. 29 E.,	Sec. 3, E½
	Sec. 23, N½
	Sec. 25, all
T. 21 S., R. 30 E.,	Secs. 1, 2 and 3, all
	Secs. 10 and 11, all
	Sec. 12, S½
	Secs. 13, 14 and 15, all
	Secs. 20, 21 and 22, all
	Sec. 23, N½
	Sec. 24, N½
	Secs. 27 to 30 incl., all
	Secs. 32 to 34 incl., all
	Sec. 35, S½

Area "B" (Cont.)

T. 21 S., R. 31 E.,	Sec.	1, N½
	Sec.	2, N½
	Sec.	4, W½
	Secs.	5 and 6, all
	Sec.	18, S½
	Sec.	19, N½
T. 21 S., R. 32 E.,	Secs.	1 to 17 incl., all
	Secs.	21 to 27 incl., all
	Secs.	35 and 36, all
T. 21 S., R. 33 E.,	Secs.	4 to 9 incl., all
	Secs.	16 to 21 incl., all
	Secs.	28 to 33 incl., all
T. 22 S., R. 29 E.,	Sec.	9, E½
	Sec.	16, all
	Sec.	17, E½
	Sec.	20, E½
	Sec.	21, all
	Secs.	25 to 28 incl., all
	Secs.	33 to 36 incl., all
T. 22 S., R. 30 E.,	Secs.	1 to 5 incl., all
	Secs.	8 to 17 incl., all
	Secs.	20 to 24 incl., all
	Sec.	25, W½
	Secs.	26 to 35 incl., all
	Sec.	36, W½
T. 22 S., R. 31 E.,	Secs.	4 to 9 incl., all
	Secs.	17 and 18, all
	Sec.	19, N½
T. 22 S., R. 33 E.,	Secs.	4, 5 and 6, all
T. 23 S., R. 29 E.,	Secs.	1, 2 and 3, all
	Sec.	4, E½
	Sec.	9, E½
	Secs.	10 to 15 incl., all
	Secs.	22 to 27 incl., all
	Secs.	34 to 36 incl., all
T. 23 S., R. 30 E.,	Sec.	1, S½
	Secs.	2 to 36 incl., all

Area "B" (Cont.)

T. 23 S., R. 31 E.,	Sec.	7, all
	Sec.	8, S½
	Sec.	16, SW¼
	Secs.	17 to 20 incl., all
	Sec.	21, W½
	Secs.	28 to 33 incl., all
T. 24 S., R. 30 E.,	Sec.	1, N½
	Sec.	2, N½
	Sec.	3, N½
T. 24 S., R. 31 E.,	Secs.	4, 5 and 6, all

(2) Areas "A" or "B" may be contracted or expanded from time to time as conditions may warrant by the Oil Conservation Commission after due notice and hearing.

III EXPLORATION OF AREAS:

(1) Area "A"

(a) Drilling of oil and gas exploratory test wells shall not be permitted in Area "A" except upon leases outstanding as of the effective date of these regulations, provided, that oil and gas exploratory test wells shall not be drilled through any open potash mines or within 500 feet thereof unless agreed to in writing by the potash lessee involved.

(b) Any oil or gas leases hereafter issued for lands within Area "A" shall be subject to these regulations and no drilling shall be permitted thereon unless the expressed permission of the Oil Conservation Commission is first had and obtained after due notice and hearing.

(c) All future drilling of oil and gas exploratory test wells in Area "A" shall be further subject to these rules and regulations.

(d) Where oil and gas wells are in production in Area "A", no potash mine opening shall be driven to within less than 100 feet of such wells so that protection of both can be afforded.

(2) Area "B"

(a) Oil and gas exploratory test wells may be drilled in Area "B" in accordance with these rules and regulations.

(3) Upon the discovery hereafter of oil and gas in Areas "A" or "B", the Oil Conservation Commission shall promulgate field or pool rules for the affected area after due notice and hearing.

(4) Nothing herein shall be construed to prevent unitization agreements involving lands in Areas "A" or "B".

IV DRILLING AND CASING PROGRAM:

(1) For the purpose of the regulations and the drilling of oil and gas exploratory test wells, shallow and deep zones are defined as follows:

(a) The shallow zone shall include all formations above the base of the Delaware sand or above a depth of 5000 feet, whichever is the lesser.

(b) The deep zone shall include all formations below the base of the Delaware sand or below a depth of 5000 feet, whichever is the lesser.

(2) Surface Casing String:

(a) A surface casing string of new, second-hand or reconditioned pipe shall be set in the "Red Bed" section of the basal Rustler formation immediately above the salt section, or in the anhydrite at the top of the salt section, as determined necessary by the regulatory representative approving the drilling operations, and shall be cemented with not less than one hundred and fifty percent (150%) of calculated volume necessary to circulate cement to the ground surface.

(b) Cement shall be allowed to stand a minimum of twelve (12) hours under pressure and a total of twenty-four (24) hours before drilling the plug or initiating tests.

(c) Casing and water shut-off tests shall be made both before and after drilling the plug and below the casing seat, as follows:

(i) If rotary tools are used, the mud shall be displaced with water and a hydraulic pressure of six hundred (600) pounds per square inch shall be applied. If a drop of one hundred (100) pounds per square inch or more should occur within thirty (30) minutes, corrective measure shall be applied.

(ii) If cable tools are used, the mud shall be bailed from the hole and if the hole does not remain dry for a period of one hour, corrective measures shall be applied.

(d) The above requirements for the surface casing string shall be applicable to both the shallow and deep zones.

(3) Salt Protection String:

(a) A salt protection string of new, second-hand or reconditioned pipe shall be set not less than one hundred (100) feet nor more than two hundred (200) feet below the base of the salt section.

(b) The salt protection string shall be cemented as follows:

(i) For wells drilled to the shallow zone, the string may be cemented with a nominal volume of cement for testing purposes only. If the exploratory test well is completed as a productive well, the string shall be recemented with sufficient cement to fill the annular space back of the pipe from the top of the first cementing to the surface or to the bottom of the cellar, or may be cut and pulled if the production string is cemented to the surface as provided in sub-section IV (5), (a), (i) below.

(ii) For wells drilled to the deep zone, the string must be cemented with sufficient cement to fill the annular space back of the pipe from the casing seat to the surface or to the bottom of the cellar.

(c) If the cement fails to reach the surface or the bottom of the cellar, where required, the top of the cement shall be located by a temperature or gamma ray survey and additional cementing shall be done until the cement is brought to the point required.

(d) The fluid used to mix with the cement shall be saturated with the salts common to the zones penetrated and with three percent (3%) of calcium Chloride by weight of cement.

(e) Centralizers shall be spaced on at least every one hundred fifty (150) feet of the salt protection string below the surface casing string.

(f) Cement shall be allowed to stand a minimum of twelve (12) hours under pressure and a total of twenty-four (24) hours before drilling the plug or initiating tests.

(g) Casing tests shall be made both before and after drilling the plug and below the casing seat, as follows:

(i) If rotary tools are used, the mud shall be displaced with water and a hydraulic pressure of one thousand (1000) pounds per square inch shall be applied. If a drop of one hundred (100) pounds per square inch or more should occur within thirty (30) minutes, corrective measure shall be applied.

(ii) If cable tools are used, the mud shall be bailed from the hole and if the hole does not remain dry for a period of one hour, corrective measures shall be applied.

(h) The above requirements for the salt protection string shall be applicable to both the shallow and deep zones except for sub-section IV (3), (b), (i) and (ii) above.

(4) Intermediate String:

(a) In the drilling of oil and gas exploratory test wells to the deep zone an intermediate string shall be set at sufficient depth to case-off all formations in the shallow zone and shall be cemented with sufficient cement to fill the annular space back of the pipe from the casing seat to the surface or to the bottom of the cellar.

(b) Cementing procedures and casing tests for the intermediate string shall be the same as provided under sub-sections IV (3) (e), (f), and (g) for the salt protection string.

(5) Production String:

(a) A production string shall be set on top or

through the oil or gas pay zone and shall be cemented as follows:

(i) For wells drilled to the shallow zone the production string shall be cemented to the surface if the salt protection string was cemented only with a nominal volume for testing purposes, in which case the salt protection string can be cut and pulled before the production string is cemented; provided, that if the salt protection string was cemented to the surface, the production string shall be cemented with a volume adequate to protect the pay zone and the casing above such zone.

(ii) For wells drilled to the deep zone the production string shall be cemented with a volume adequate to protect the pay zone and the casing above such zone; provided that if no intermediate string shall have been run and cemented to the surface, the production string shall be cemented to the surface.

(b) Cementing procedures and casing tests for the production string shall be the same as provided under sub-sections IV (3) (c), (f), and (g) for the salt protection string.

V DRILLING FLUID FOR SALT SECTION

The fluid used while drilling the salt section shall consist of water to which has been added sufficient salts of a character common to the zone penetrated to completely saturate the mixture. Other admixtures may be added to the fluid by the operator in overcoming any specific problem. This requirement is specifically to prevent enlarged drill holes.

VI PLUGGING AND ABANDONMENT OF WELLS:

All wells heretofor and hereafter drilled within Areas "A" and "B" shall be plugged in a manner that will provide a solid cement plug through the salt section and prevent liquids or gases from entering the hole above or below the salt section.

VII LOCATIONS FOR TEST WELLS:

Before drilling for oil or gas on lands in Areas "A" or "B", a map or plat showing the location of the proposed well shall be prepared by the well operator and copy sent to the potash lessee involved, if any. If no objection to the location of the proposed well is made by the potash lessee within ten days, a drilling permit may be issued and the work may proceed. If, however, the location of the proposed well is objected to by the potash lessee on the grounds that the location of the well is not in accordance with the foregoing regulations, the potash lessee may file a written objection for consideration and decision by the Oil Conservation Commission.

VIII INSPECTION OF DRILLING AND MINING OPERATIONS:

A representative of the potash lessee may be present during drilling, cementing, casing and plugging of all oil or gas wells on his lease to observe conformance with these regulations. Likewise, a representative of the oil and gas lessee may inspect mine workings on his lease to observe conformance with these regulations.

IX FILING OF WELL AND MINE SURVEYS:

Each oil and gas lessee shall furnish not later than January 31st of each year to the Oil Conservation Commission and to the potash lessees involved, certified directional surveys from the surface to a point below the lowest known potash-bearing horizon for each oil or gas well drilled in Area "A" during the preceding calendar year. Each potash lessee shall furnish not later than January 31st of each year to the Oil Conservation Commission and to each oil and gas lessee involved, certified plat of survey of the location of open mine workings underlying outstanding oil and gas leases.

X APPLICABILITY OF STATEWIDE RULES AND REGULATIONS:

All general statewide rules and regulations of the Oil Conservation Commission governing the development, operation and production of oil and gas in the State of New Mexico not inconsistent or in conflict herewith, are hereby adopted and made applicable to the areas described herein.