

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF DEFINING BOUNDARIES
OF POTENTIAL OIL PRODUCING AREAS IN
EDDT AND LEA COUNTIES, NEW MEXICO,
WITHIN WHICH POTASH MINERALS ARE BEING
PRODUCED OR POTENTIAL POTASH PRODUCING
LANDS ARE LOCATED.

CASE NO. 278
ORDER NO. R-111

ORDER OF THE COMMISSION

BY THE COMMISSION:

This **cause** came on for hearing before the **Oil** Conservation Commission of New Mexico, hereinafter referred to as the "**Commission**," on June 21, 1951, and for further hearing on July 10, 1951, and the Commission, a **quorum** being present, having considered the testimony adduced and the **exhibits** introduced in evidence and arguments presented and being fully advised in the premises,

FINDS. (1) That due notice having been given, according to law, and all interested parties having appeared, the Commission has Jurisdiction of this cause, and the **subject** matter **thereof**.

(2) **That** an area **defining** potential oil and gas reserves within which are proved and potential potash deposits, and the promulgation of rules and regulations for the orderly development of oil and gas **resources** in such an area known to be productive of potash **is** within the authority of the Commission for the protection of correlative rights, the promotion of conservation, and the prevention of **waste**.

IT IS THEREFORE ORDERED:

That this order shall be known as THE RULES AND REGULATIONS GOVERNING THE EXPLORATION AND PRODUCTION OF OIL AND GAS IN CERTAIN AREAS AND **SUB-AREAS** HEREIN DEFINED AND KNOWN TO CONTAIN PROVED AND SEMI-PROVED POTASH MINERALS IN THE AREA AND **SUB-AREAS** HEREINAFTER SET OUT.

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OBJECTIVE

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

11
THE POTASH-OIL AREAS

(1) These Rules and Regulations are applicable to oil and gas operations and to exploration for and production of oil and gas in proven or potential **Potash-Oil** areas herein defined as "Area A" and "Areas B."

(a) The **potash-oil** area represents the area in **various** parts of which potash **mining** operations are **now** in progress, or in **which** core tests indicate potential potash reserves are located and is described, as follows:

T. 19S. R. 29E
Sec. 11 - **SE/4**
Sec. 12 - S/2
Sec. 13 and 14 - all
Sec. 23 - N/2
Sec. 24 - N/2

T. 20S. R. 29E
Sec. 12 - NE/4 SE/4 and S/2 SE/4
Sec. 13 - NE/4 and S/2
Sec. 22 to 27, **inclusive**
Sec. 34 to 36, **inclusive**

T. 21S. R. 29E

Sec. 1 and 2, all
Sec 3 - E/2
Sec. 10 - E/2
Sec. 11 to **14**, inclusive
Sec. 15 - E/2
Sec. 23 - N/2
Sec. 24 and 25 - all
Sec. 35 - E/2
Sec. 36 - an

T. 22S. R. 29E

Sec. 1 and 2 - all
Sec. 3 - S/2
Sec. 9 - **E/2**
Sec. 10 to 16, inclusive
Sec. 17 - E/2
Sec. 20 - E/2
Sec. 21 to 28, inclusive
Sec. 33 to 36, inclusive

T. 23S. R. 29E

Sec. 1 to 3, inclusive
Sec. 4 - E/2
Sec. 9 - E/2
Sec. 10 to 15, inclusive
Sec. 22 to 27, inclusive
Sec. 34 to 36, inclusive

T. 18S. R. 30E

Sec. 12 - S/2
Sec. 13 and 14 - all
Sec. 15 - SE/4
Sec. 21 - SE/4
Sec. 22 to 24, inclusive
Sec. 25 - W/2
Sec. 26 to 28, inclusive
Sec. 29 - SE/4
Sec. 32 - SW/4 and E/2
Sec. 33 **and 34** - all
Sec. 35 - W/2

T. 19S. R. 30E

Sec. 2 to 5, inclusive
Sec. 6 - SE/4
Sec. 7 - NE/4 and S/2
Sec. 8 **to** 30, inclusive
Sec. 32 to 36, inclusive

T. 20S. R. 30E

Sec. 1 to 36, inclusive

T. 21S. R. 30E

Sec. 1 to 11, inclusive
Sec. 12 - S/2
Sec. 13 to **22**, inclusive
Sec. 23 - N/2
Sec. 24 - N/2
Sec. 27 to 34, inclusive
Sec. 35 - S/2

T. 22S. R. 30E

Sec. 1 to 24, inclusive
Sec. 25 - W/2
Sec. 26 to 36, inclusive
Sec. 36 - W/2

T. 23S. R. 30E
Sec. 1 - S/2
Sec. 2 to 36, inclusive

T. 24S. R. 30E
Sec. 1 - N/2
Sec. 2 - N/2
Sec. 3 - N/2

T. 18S. R. 31E
Sec. 18 - W/2

T. 19S. R. 31E
Sec. 9 and 10 - all
Sec. 11 - W/2
Sec. 14 - W/2
Sec. 15 to 17, inclusive
Sec. 19 to 22, inclusive
Sec. 23 - W/2
Sec. 25 - S/2
Sec. 26 to 36, inclusive

T. 20S. R. 31E
Sec. 1 to 36, inclusive

T. 21S. R. 31E
Sec. 1 - N/2
Sec. 2 - N/2
Sec. 4 - W/2
Sec. 5 and 6 - all
Sec. 18 - S/2
Sec. 19 - N/2

T. 22S. R. 31E
Sec. 4 to 9, inclusive
Sec. 17 and 18 - all
Sec. 19 - N/2

T. 23S. R. 31E
Sec. 7 - all
Sec. 8 - S/2
Sec. 16 - SW/4
Sec. 17 to 20, inclusive
Sec. 21 - W/2
Sec. 28 to 33, inclusive

T. 24S. R. 31E
Sec. 4 to 6, inclusive

T. 19S. R. 32E
Sec. 23, S/2
Sec. 24 to 27, inclusive
Sec. 28 - S/2
Sec. 31 - S/2
Sec. 32 - S/2
Sec. 33 to 36, inclusive

T. 20S. R. 32E
Sec. 1 to 36, inclusive

T. 21S. R. 32E
Sec. 1 to 17, inclusive
Sec. 21 to 27, inclusive
Sec. 35 and 36 - all

T. 19S. R. 33E
Sec. 19 - all
Sec. 30 and 31 - all

T. 20S-R. 33E
Sec. 5 to 9, inclusive
Sec. 15 to 23, inclusive
Sec. 25 to 36, inclusive

T. 21S. E. 33E
Sec. 4 to 9, inclusive
Sec. 16 to 21, inclusive
Sec. 28 to 33, inclusive

T. 22S. R. 33E
Sec. 4 to 6, inclusive

T. 20S. R. 34E
Sec. 31 - all

(b) Area "A" represents the area in various parts of which potash mining operations are now in progress and is **described**, as follows:

T. 19S. R. 30E
Sec. 9 - **SE/4 NW/4**, E/2 SW/4, S/2 NE/4, SE/4
Sec. 10 - SW/4 **NW/4**, W/2 SW/4
Sec. 15 - NW/4 NW/4
Sec. 16 - N/2 NE/4, NE/4 NW/4
Sec. 26 - S/2 NW/4, SW/4 **NE/4**, W/2 **SE/4**, SW/4
Sec. 27 - S/2 NE/4, SE/4 NW/4, NE/4 SW/4, S/2 SW/4, SE/4
Sec. 28 - SE/4 SE/4
Sec. 33 - SE/4 NW/4, NE/4 NE/4, **S/2 NE/4**, E/2 SW/4, SE/4
Sec. 34 - an
Sec. 35 - NW/4, W/2 NE/4, NW/4 SE/4, N/2 **SW/4**, SW/4 SW/4

T. 20S. R. 30E
Sec. 2 - **W/2** NW/4, NW/4 SW/4
Sec. 3 - N/2, SW/4, N/2 SE/4, SW/4 SE/4
Sec. 4 - E/2, SW/4, E/2 NW/4, SW/4 NW/4
Sec. 5 - **SE/4** NE/4, E/2 SE/4, SW/4 SE/4, SE/4 SW/4
Sec. 7 - **SE/4 SE/4**
Sec. 8 - E/2, E/2 NW/4, E/2 SW/4, SW/4 SW/4
Sec. 9 - N/2, SW/4, N/2 SE/4, SW/4 SE/4
Sec. 10 - **NW/4**, **W/2NE/4**, NW/4 SE/4, N/2 SW/4
Sec. 16 - N/2 NW/4, NW/4 NE/4
Sec. 17 - W/2, N/2 NE/4, SW/4 NE/4, **W/2** SE/4
Sec. 18 - E/2 NE/4, E/2 SE/4
Sec. 19 - NE/4 NE/4
Sec. 20 - N/2 NW/4, NW/4 NE/4
Sec. 25 - SW/4 SW/4
Sec. 26 - SE/4 SW/4, S/2 SE/4
Sec. 35 - E/2 **NW-4**, NE/4, N/2 SE/4, NE/4 SW/4
Sec. 36 - W/2 NW/4, NW/4 SW/4

T. 21S. R. 29E
Sec. 1 - SE/4, S/2 NE/4, SE/4 NW/4, NE/4 SW/4, S/2 SW/4
Sec. 2 - SE/4 SE/4
Sec. 11 - NE/4 NE/4, S/2 NE/4, SE/4 **NW/4**, E/2 SW/4, SE/4
Sec. 12 - an
Sec. 13 - N/2, SE/4, N/2 SW/4, SE/4 SW/4
Sec. 14 - E/2 NW/4, NE/4, **NE/4** SW/4, N/2 SE/4
Sec. 24 - NE/4 NW/4, N/2 **NE/4**
Sec. 25 - SE/4 SW/4, S/2 SE/4
Sec. 36 - E/2 NW/4, E/2 SW/4, E/2

T. 22S. R. 29E
Sec. 1 - E/2 **NW/4**, SW/4 NW/4, SW/4, **E/2**
Sec. 2 - SE/4 NE/4, E/2 SE/4
Sec. 11 - E/2 NE/4, NE/4 SE/4
Sec. 12 - N/2, N/2 SW/4, N/2 **SE/4**

T. 21S. R. 30E
Sec. 6 - SW/4 NW/4, W/2 SW/4
Sec. 7 - NW/4 NW/4, S/2 NW/4, SW/4 NE/4, SW/4, W/2 SE/4
Sec. 18 - NW/4, W/2 NE/4, **N/2** SW/4, SW/4 SW/4, NW/4 SE/4
Sec. 19 - NW/4 NW/4

T. 21S, R. 30E

Sec. 29 - SW/4 SW/4
Sec. 30 - S/2 SW/4, S/2 SE/4
Sec. 31 - all
Sec. 32 - W/2 NW/4, W/2 SW/4

T. 22S, R. 30E

Sec. 5 - W/2 NW/4, NW/4 SW/4
Sec. 6 - N/2, SW/4, N/2 SE/4, SW/4 SE/4
Sec. 7 - N/2 NW/4, SW/4 NW/4, NW/4 NE/4, NW/4 SW/4

(c) Area "B" is defined as that area in which core tests indicate potential potash reserves and includes the entire **potash-oil** area as described under "The Potash - Oil Areas" SEC. (1) (a), of this order, except and excluding lands defined and described as area "A" in "The Potash - Oil Areas, " SEC. (1) (b) of this order.

(2) Area "A" and "B" as hereinabove defined may be contracted or expanded by the Commission from time to time as circumstances or conditions may warrant, after due notice and hearing.

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EXPLORATION OF AREAS

(1) Area "A"

- (a) Drilling of oil and gas exploratory test wens 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 1, 320 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.
- (c) An future drilling of oil and gas exploratory test wens 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 wens so that protection of both wens and mine can be afforded.
- (e) Proposals to unitize with respect to land within Area "A", as herein defined and described, will be considered on their merits.

(2) Area "B"

- (a) Oil and gas exploratory test wens 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", or both.

1V

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 an 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 an 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, 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 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, 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 (3) percent 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 **measures shall** be applied.

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

(h) **The** above requirements for the salt protection string shan 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 wens to the deep zone, an intermediate string shan be set at sufficient depth to **case-off** an formations in the **shallow** zone and shall be cemented with **sufficient** cement to fin the annular space **badk** of the pipe from the casing seat to the surface or to the bottom of the cenar.

(b) **Cementing** procedures and casing tests for the intermediate string shan be the same as provided under **sub-sections IV** (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 shanow zone the production string shan 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 wens **drilled** to the deep zone, the production string shan be cemented with a volume adequate to **protect** the pay zone and the casing above such zone, provided, that if no intermediate string shan 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 drining the **salt** section shan **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 **spedific** problem. This requirement is **specifically in-**tended to prevent enlarged **drill** holes.

VI

PLUGGING AND ABANDONMENT OF WELLS

An wells **heretofor** and hereafter drined within Areas "A" and "B" **shall** be plugged in a manner that win 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 by registered mail to the potash lessee involved, if any. Upon proper showing of such notice and 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 **fore-**going regulations, the Potash lessee may file a written objection within ten days 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, cement-**ing, casing, and plugging of an 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

An 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**.

XI

ADOPTION

The foregoing Rules and Regulations are hereby adopted by the Oil Conservation **Commission** and adopted, ratified and confirmed by the Commissioner of **Public** Lands of the State of New Mexico this 9th day of November, 1951.

DONE at Santa Fe, New Mexico, this 9th day of November, 1951.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

/s/ EDWIN L. **MECHEM**, Chairman

/s/ GUI **SHEPARD**, Member

/s/ R. R. SPURRIER, Secretary

/s/ Guy Shepard
Commissioner of **Public** Lands