

CASE 2241: Application of POTASH
CO. OF AMER. for an extension of
the potash-oil area - Eddy Co.

-asa / No.

2241

Application, Transcript,
and Exhibits, Etc.

DOCKET: REGULAR HEARING - THURSDAY, APRIL 13, 1961

OIL CONSERVATION COMMISSION - 9 A.M. - HIGH SCHOOL CAFETERIA 1300 EAST
SCHARBAUER, HOBBS, NEW MEXICO

- ALLOWABLE: (1) Consideration of the oil allowable for May, 1961.
- (2) Consideration of the allowable production of gas for May, 1961, from nine prorated pools in Lea County, New Mexico, also consideration of the allowable production of gas from nine prorated pools in San Juan, Rio Arriba and Sandoval Counties, New Mexico, for May, 1961.

CASE 2241: Application of Potash Company of America for an extension of the potash-oil area. Applicant, in the above-styled cause, seeks an extension of the potash-oil area as set forth in Order R-111-A, and amendments thereto, to include the following-described acreage: Township 20 South, Range 29 East, NMPM, Eddy County, New Mexico

Section 13: SW/4 NW/4 and NW/4 SW/4
Section 14: SE/4 NE/4 and NE/4 SE/4

CASE 2242: Application of the Oil Conservation Commission on its own motion to consider certain changes in the definition section of its Rules and certain changes in the definitions in Rule 107, and to consider amending Rule 112 to provide, among other things, for administrative approval for multiple slim-hole completions.

CASE 2243: Application of Gulf Oil Corporation for an amendment of Rule 309 (a). Applicant, in the above-styled cause, seeks an amendment of Rule 309 (a) to permit the installation of lease automatic custody transfer equipment without the necessity of notice and hearing.

CASE 2244: Southeastern New Mexico nomenclature case calling for an order creating new pools and extending existing pools in Chaves, Eddy, Lea and Roosevelt Counties, New Mexico, and for an order defining the vertical limits of a certain Pool:

- (a) Create a new oil pool, the vertical limits to be the Abo formation. This pool is to be designated as the Allison-Abo Pool and described as:

TOWNSHIP 9 SOUTH, RANGE 30 EAST, NMPM
SECTION 11: NW/4

100-1041

POTASH COMPANY OF AMERICA

GENERAL SALES OFFICES 1625 EYE STREET N.W. WASHINGTON 6 D.C.
SOUTHERN SALES OFFICE 408 9 Candler Bldg. ATLANTA GA
MIDWESTERN SALES OFFICE FIRST NATIONAL BANK BLDG. PEORIA ILL



R. H. BLACKMAN, JR.
RESIDENT COUNSEL

REPLY TO:

EXECUTIVE OFFICES
MINES AND REFINERY
CARLSBAD - NEW MEXICO

March 13, 1961

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

Dear Mr. Porter:

I enclose original and two copies of an application for extension of the boundary lines of the potash area as described in Order No. R-111-A as amended. If possible we should like this application to be heard at the April meeting.

Sincerely,

R. H. Blackman, Jr.

RHB:h
Encl.

*Replied to all Potash Cos
11/10/61 3-30-61
K*

BEFORE THE
OIL CONSERVATION COMMISSION
HOBBS, NEW MEXICO
APRIL 13, 1961

IN THE MATTER OF

CASE 2241 Application of Potash Company of America
for an extension of the potash-oil area.
Applicant, in the above-styled cause,
seeks an extension of the potash-oil area
as set forth in Order R-111-A, and amend-
ments thereto, to include the following-
described acreage: Township 20 South,
Range 29 East, NMPM, Eddy County, New
Mexico.

BEFORE:

A. L. Porter

T R A N S C R I P T O F P R O C E E D I N G S

MR. PORTER: The meeting will come to order, please.

We will call next Case No. 2241.

MR. MORRIS: Application of Potash Company of America
for an extension of the potash-oil area in Eddy County.

MR. PORTER: I will ask for appearances.

MR. BLACKMAN: I am R. H. Blackman, Potash Company of
America, Carlsbad. We have one witness, Mr. J. B. Cummings.

J. B. CUMMINGS

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

DIRECT EXAMINATION

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ALBUQUERQUE, NEW MEXICO



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BY MR. BLACKMAN:

Q Will you please state your name.

A J. B. Cummings.

Q You are now employed by the Potash Company of America?

A Yes, I am.

Q And your educational background, Mr. Cummings?

A I am a Mining Engineer, a graduate of the South Dakota School of Mines with a B. S. Degree.

Q When did you receive that degree?

A In 1935.

Q Since 1935 by whom have you been employed?

A I have been employed in the mining industry by several companies. First, three years after graduation, by a number of small gold mines as a mining engineer, geologist, mining superintendent, and on one occasion general manager. During the past 20 years I have been employed in the exploration branch of mining engineering having spent some 5 years with the Bureau of Mines, U. S. Bureau of Mines as a mining exploration engineer. Since 1946 I have been with the Potash Company of America during which time I have served in the capacity of exploration engineer, chief geologist, development superintendent and resident manager.

MR. BLACKMAN: If the Commission please, we offer Mr. Cummings qualifications as a mining engineer.

MR. PORTER: The Commission accepts his qualifications.



DIRECT EXAMINATION

Q Mr. Cummins, the application of the Potash Company of America alleges that it is the owner of U. S. Government potash leases and prospect permits in the southwest quarter of the northwest quarter and the northwest quarter of the southwest quarter in Section 13; and the southeast quarter of the northeast quarter and northeast quarter of the southeast quarter in Section 14, all in township 20 south, range 29 east, Eddy county, New Mexico; is that true?

A That is true.

MR. BLACKMAN: We would like to have applicant's Exhibit No. 1 marked for identification.

(Thereupon, Applicant's Exhibit No. 1 was marked for identification).

Q (By Mr. Blackman) Identify that exhibit, please.

A This exhibit shows - - number 1 in the area outlined here in red is the original existing R-111-A boundaries. The yellow line here identifies an extension to that boundary listed as R-111-E. Outlined in blue is this area which shows the location of drill holes core test, 1 in which we are principally interested and which will determine the acceptance of commercial potash. It is identified at this particular point as 175.

Q That point is that the west center line of Section 13?

A That is correct. That is near the southwest quarter

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of the northwest quarter of Section 13, slightly on the east, and slightly north, approximately 100 feet and 100 feet north.

Q Mr. Cummings, would you identify the curved line which is drawn in light purple?

A This line represents the cut off which is considered to be commercial potash.

Q Mr. Cummings, would you explain why that line is shown as a dotted line in two instances?

A In the first instance it is shown as a dotted line in as much as there is not sufficient information available to indicate that it does not extend beyond this point in this direction nor is there sufficient information to indicate that the mine extends further in this direction.

Q Is there sufficient information available to indicate that it goes that far?

A Yes, there is.

Q Will you explain the basis on which that line is established?

A By interpolation between drill holes, straight line interpolation based upon proportioning the distance between drill holes on the basis of ratio of grade and acceptance of the four intersections at the drill hole.

Q Was this exhibit prepared by you or under your supervision?

A Under my supervision.

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MR. BLACKMAN: I'll offer applicant's Exhibit 1 in evidence.

MR. PORTER: Without objection, the exhibit will be admitted.

Q (By Mr. Blackman) Mr. Cummings, I refer you to a document which has been marked applicant's Exhibit 2 and ask if you will identify that document.

A Yes, I recognize that document as the detailed analysis of the core that was taken from the previously mentioned drill hole number 175.

MR. BLACKMAN: May I ask the pleasure of the Commission whether you prefer to have this document read into the record or is it sufficient to simply offer it in evidence?

MR. PORTER: I believe it would be well to read it into the record.

Q (By Mr. Blackman) Read the entire document.

"POTASH COMPANY OF AMERICA

Core Test No. 175

Feb. 21, 1961

<u>From</u>	<u>To</u>	<u>Int.</u>	<u>Sample Number</u>	<u>% K₂O</u>
510' 9 "	-511' 6 1/2"	9 1/2"	701	-
511' 6 1/2"	-511' 11 1/2"	5 "	702	0.98
511' 11 1/2"	-512' 6 "	6 1/2"	703	1.31
512' 6 "	-513' 3 "	9 "	704	1.64

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<u>From</u>	<u>To</u>	<u>Int.</u>	<u>Sample Number</u>	<u>% K₂O</u>
513' 3 " -	513' 9 "	6 "	705	35.62
513' 9 " -	514' 4 1/2" -	7 1/2 "	706	19.77
514' 4 1/2" -	514' 10 "	5 1/2 "	707	33.43
514' 10 " -	515' 0 1/2" -	2 1/2 "	708	44.66
515' 0 1/2 " -	515' 2 1/2" -	2 "	709	5.15
515' 2 1/2 " -	515' 8 1/2" -	6 "	710	-

511' 6 1/2" - 515' 6 1/2" - 48" at 16% K₂O

Floyd W. Mosley
Asst. Chief Chemist

Q Mr. Cummings, were these samples taken by you or under your supervision?

A Under my supervision.

Q Has this analysis been certified to the U. S. Geological Survey as you have testified?

A Yes, it has.

Q You have mentioned a commercial cut off point of 4 feet 14 K₂O. Will you tell the Commission the origin of that cut off point?

A That is the cut off point of commercial ore and is established by the U. S. Geological Survey.

Q Is it true also that that cut off point heretofore has been used by this Commission in establishing the ore cut off



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line for the purpose of defining the area limits of R-111-A as amended?

Q Mr. Cummings, I will ask you if in your opinion the projection line which you have placed on applicant's Exhibit 1 is, in your opinion, a conservative estimate of the boundary limits of the potash ore in this location.

A Based on mining experience over a long period of years I would say it is very conservative.

MR. BLACKMAN: I will offer in evidence applicant's Exhibit No. 2.

MR. PORTER: Do you have other exhibits?

MR. BLACKMAN: No.

MR. PORTER: Without objection applicant's Exhibit No. 2 will be admitted in the record.

MR. BLACKMAN: That constitutes the case of the proponents on direct examination.

MR. PORTER: Anyone have any questions of Mr. Cummings?
QUESTIONS BY MR. MORRIS:

Q Mr. Cummings, you didn't testify at this hearing as to the cores obtained in wells No. 163 and 173, but from your general recollection could you tell me whether the formation of potash as encountered in this test, that is number 175, correlates favorably in percentage of potash with the other two test wells?

A Yes, it does.

Q At the same depth?



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A Horizon.

Q So, it might be possible that you have fairly even distribution in this area that might continue further, is that correct?

A That is correct.

MR. MORRIS: That's all I have; thank you.

QUESTIONS BY MR. PAYNE:

Q Mr. Cummings, I note that three of the 40 acre tracts which you propose as extensions do not appear to be commercially productive in their entirety, is that correct?

A As nearly as we can tell by this conservative interpolation, there is a portion outside of the east side and to the north that would not be commercial.

Q Are you proposing that these three 40 acre tracts be taken in their entirety because of subsidence?

A Yes, because of subsidence and because of the fact that we have - - there is also a possibility of continuation beyond our interpolated line.

Q Are there any oil and gas wells in this area at present?

A To my knowledge there are none in that immediate area.

MR. PAYNE: Thank you.

MR. PORTER: Does anyone have a question of the witness?
The witness may be excused.



(Witness excused)

MR. BLACKMAN: I would like to state only that the evidence concerning the potash cores which have been taken in the surrounding area has already been presented to the Commission in this case and previous hearings.

MR. PORTER: Is there anyone else to present testimony in this case? Are there any statements?

MR. FULTON: My name is R. S. Fulton, Mining Supervisor, U. S. Geological Survey. In my opinion, the picture presented by Mr. Cummings is a reasonable estimate of the extended ore. Also in my opinion I think the acreage sought by them is also a reasonable request.

MR. PORTER: Does anyone else have anything to say in this case? If not, the Commission will take the case under advisement.

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PHONE CM 3-6691

ALBUQUERQUE, NEW MEXICO



STATE OF NEW MEXICO)
) ss
 COUNTY OF BERNALILLO)

I, Thomas F. Horne, Court Reporter, in and for the County of Bernalillo, State of New Mexico, do hereby certify that the foregoing and attached Transcript of Proceedings before the New Mexico Oil Conservation Commission was reported by me in machine shorthand and reduced to typewritten transcript under my personal supervision, and that the same is a true and correct record to the best of my knowledge, skill and ability.

WITNESS my Hand and Seal this, the 4th day of May 1961, in the City of Albuquerque, County of Bernalillo, State of New Mexico.


 Court Reporter

My Commission Expires:

DEARNLEY-MEIER REPORTING SERVICE, Inc.

PHONE CH 3-6691

ALBUQUERQUE, NEW MEXICO



POTASH COMPANY OF AMERICA

Core Test No. 175

Feb. 21, 1961

<u>From</u>	<u>To</u>	<u>Int.</u>	<u>Sample Number</u>	<u>% K₂O</u>
510' 9 " - 511' 6 1/2"		9 1/2"	701	-
511' 6 1/2" - 511' 11 1/2"		5 "	702	0.98
511' 11 1/2" - 512' 6 "		6 1/2"	703	1.31
512' 6 " - 513' 3 "		9 "	704	9.64
513' 3 " - 513' 9 "		6 "	705	35.62
513' 9 " - 514' 4 1/2"		7 1/2"	706	19.77
514' 4 1/2" - 514' 10 "		5 1/2"	707	33.43
514' 10 " - 515' 0 1/2"		2 1/2"	708	44.66
515' 0 1/2" - 515' 2 1/2"		2 "	709	5.15
515' 2 1/2" - 515' 8 1/2"		6 "	710	-

511' 6 1/2" - 515' 6 1/2" = 48" at 16% K₂O

Lynd W. Newley
Asst. Chief Chemist

BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
EXHIBIT NO. 2
FILE

GOVERNOR
EDWIN L. MECHEM
CHAIRMAN

State of New Mexico
Oil Conservation Commission

LAND COMMISSIONER
E. S. JOHNNY WALKER
MEMBER



P. O. BOX 971
SANTA FE

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

April 24, 1961

The Potash Company of America
P. O. Box 31
Carlsbad, New Mexico

Attn: Mr. Lincoln

Re: Case No. 2241
Order No. R-111-F
Applicant:
Potash Company of America

Dear Sir:

Enclosed herewith are ^{one copy} ~~two copies~~ of the above-referenced
Commission order recently entered in the subject case.

Very truly yours,

A. L. Porter, Jr.
A. L. PORTER, Jr.
Secretary-Director

ir/

Carbon copy of order also sent to:

Hobbs OCC x
Artesia OCC =
Aztec OCC

OTHER Mr. James Knauff
U. S. G. S. - Artesia, N.M.

ROUGH
DRAFT
ALP/ir
April 21

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

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

CASE NO. 2241
Order No. R-111-F

APPLICATION OF PCTASH COMPANY OF
AMERICA FOR AN AMENDMENT OF ORDER
NO. R-111-A TO INCLUDE ADDITIONAL
ACREAGE IN THE POTASH-OIL AREA OF
EDDY COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m., on April 13, 1961, at Hobbs, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this _____ day of April, 1961, the Commission, a quorum being present, having considered the testimony and the exhibits received at said hearing, and being fully advised in the premises,

FINDS:

(1) That due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, Potash Company of America, seeks an amendment of Order No. R-111-A, to extend the ^Potash-^Oil ^Area as set forth in said order to include the following described-acreage covered by a ^{lease} and ^Potash ^Prospecting ^Permits held by ^{the} Federal government:

TOWNSHIP 20 SOUTH, RANGE 29 EAST, NMPM

Section 13: SW/4 NW/4, NW/4 SW/4

Section 14: SE/4 NE/4, NE/4 SE/4

in Eddy County, New Mexico.

(3) That the evidence presented indicates that the above-described acreage contains potash deposits in commercial quantities.

(4) That to promote the orderly development of the natural resources in the potash-oil area, Order No. R-111-A should be amended to include the above-described acreage in the ^Potash-^Oil ^Area.

IT IS THEREFORE ORDERED:

That Order R-111-A, as amended by Order No. R-111-B. R-111-C

R-111-D and R-111-E, be and the same is hereby amended to include the following-described acreage within the confines of the ~~potash-pil~~⁰ area in Eddy County, New Mexico:

TOWNSHIP 20 SOUTH, RANGE 29 EAST, NMPM

Section 13: SW/4 NW/4, NW/4 SW/4

Section 14: SE/4 NE/4, NE/4 SE/4

DONE at

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

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

CASE No. 2241
Order No. R-111-F

APPLICATION OF POTASH COMPANY OF
AMERICA FOR AN AMENDMENT OF ORDER
NO. R-111-A TO INCLUDE ADDITIONAL
ACREAGE IN THE POTASH-OIL AREA OF
EDDY COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m., on April 13, 1961, at Hobbs, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this 21st day of April, 1961, the Commission, a quorum being present, having considered the testimony and the exhibits received at said hearing, and being fully advised in the premises,

FINDINGS:

(1) That due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, Potash Company of America, seeks an amendment of Order No. R-111-A, to extend the Potash-Oil Area as set forth in said order to include the following-described acreage covered by a lease and Potash Prospecting Permits held by it from the Federal government:

TOWNSHIP 20 SOUTH, RANGE 25 EAST, NMDM
Section 13: SW/4 NW/4, NW/4 SW/4
Section 14: SE/4 NE/4, NE/4 SE/4

in Eddy County, New Mexico.

(3) That the evidence presented indicates that the above-described acreage contains potash deposits in commercial quantities.

(4) That to promote the orderly development of the natural resources in the potash-oil area, Order No. R-111-A should be amended to include the above-described acreage in the Potash-Oil Area.

-2-
CASE No. 2241
Order No. R-111-F

IT IS THEREFORE ORDERED:

That Order No. R-111-A, as amended by Order Nos. R-111-B, R-111-C, R-111-D and R-111-E, be and the same is hereby amended to include the following-described acreage within the confines of the Potash-Oil Area in Eddy County, New Mexico:

TOWNSHIP 20 SOUTH, RANGE 29 EAST, NMPM
Section 13: SW/4 NW/4, NW/4 SW/4
Section 14: SW/4 NW/4, NW/4 SW/4

DONE at Santa Fe, New Mexico, on the day and year herein-
above designated.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

E. L. McChen

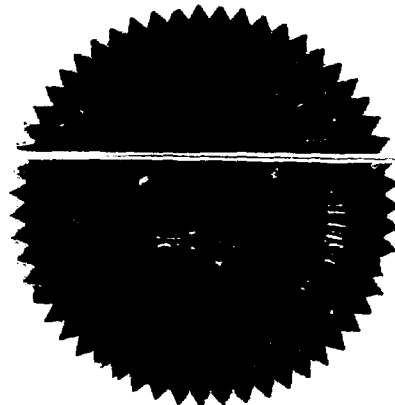
EDWIN L. MCCHEN, Chairman

E. S. Walker

E. S. WALKER, Member

A. L. Porter, Jr.

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



ESK/

**P
C
A**

POTASH COMPANY OF AMERICA

MINE AND REFINERY: P. O. BOX 31 • CARLSBAD, NEW MEXICO • YU 5-2111

R. H. BLACKMAN
RESIDENT COUNSEL

November 7, 1961

Miss Ida Rodriguez
Oil Conservation Commission
Santa Fe, New Mexico

Dear Ida:

Thank you very much for sending me a copy of your extra transcript of the record in Case No. 2241 which was heard in Hobbs April 13, 1961. This particular transcript is unusual in that within its covers it contains two copies of the transcript of the testimony.

Your courtesy in making this transcript available to me for examination prior to my November 15th hearing has saved me a trip to Santa Fe and is greatly appreciated.

With kind personal wishes,

Cordially,

R. H. Blackman

RHB/b
Enc.



MEMBER: AMERICAN POTASH INSTITUTE

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

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

CASE NO. 278
Order No. R-111-A

THE APPLICATION OF THE OIL
CONSERVATION COMMISSION UPON
ITS OWN MOTION FOR AN ORDER
REVISING ORDER R-111 ISSUED IN
CASE 278, PERTAINING TO THE
POTASH-OIL AREAS OF EDDY AND
LEA COUNTIES, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a. m. on July 14, 1955, August 17, 1955 and September 15, 1955, at Santa Fe, New Mexico, before the Oil Conservation Commission, hereinafter referred to as the "Commission".

NOW, on this 13th day of October, 1955, the Commission, a quorum being present, having considered the records and testimony adduced, and being fully advised in the premises;

FINDS:

(1) That due notice of the time and place of hearing and the purpose thereof having been given as required by law, the Commission has jurisdiction of this case and the subject matter thereof.

(2) That the delineation of an area including and containing potential oil and gas reserves, within which are commercial potash deposits, and the promulgation of rules and regulations for the orderly development of oil and gas resources in such 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 of Oil and Gas in Certain Areas Herein Defined, which are Known to contain Potash Reserves.

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 part 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 Strings

(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), (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 Mountain Group is definable the casing rules in (IV) (3b) (i) shall apply even if the depth of the bottom of the Delaware Mountain Group is greater than 5,000 feet. For the purpose of identification, the base of the Delaware Mountain Group is hereby identified as the equivalent of the base of such formation as found at a depth of 7485 feet in the Richardson and Bass No. 1

Rodke well in Section 27, Township 20 South, Range 31 East, NMPM, Lea County, New Mexico, immediately overlying the Bone Springs formation.

(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 Strings:

(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 Strings:

(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 an 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

(1) 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.

(2) 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 (2).

The well operator shall furnish proof of the fact that said potash operators were notified by registered mail of his intent by attaching return receipt 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 a radius of one mile of the well location 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

(1) 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 well-bore must be determined in order to aid mining operations.

(2) Mine Surveys:

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 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.

(3) Potash Development Plans:

Within 30 days after adoption of this order and thereafter on or before January 31st of each year, each potash operator shall furnish two copies of a 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.

EXHIBIT "A"

POTASH-OIL AREA

TOWNSHIP 18 SOUTH, RANGE 30 EAST

Section 13: SW/4
Section 14: S/2, NW/4, W/2 NE/4
Section 15: SE/4
Section 22: E/2, E/2 W/2
Section 23: All
Section 24: NW/4
Section 26: N/2
Section 27: N/2 NE/4

TOWNSHIP 19 SOUTH, RANGE 29 EAST

Section 11: SE/4
Section 12: S/2, S/2 NE/4
Section 13: N/2, N/2 S/2, S/2 SW/4
Section 14: E/2, E/2 W/2
Section 23: N/2 NE/4

TOWNSHIP 19 SOUTH, RANGE 30 EAST

Section 3: S/2
Section 4: S/2, NW/4, SW/4 NE/4
Section 5: E/2, E/2 W/2, SW/4 SW/4
Section 7: S/2, S/2 N/2, N/2 NE/4
Section 8: All
Section 9: All
Section 10: All
Section 11: SW/4, W/2 SE/4
Section 14: W/2, W/2 SE/4
Section 15: All
Section 16: All
Section 17: All
Section 18: E/2, NW/4
Section 19: NE/4
Section 20: N/2, SE/4 SE/4
Section 21: All
Section 22: All
Section 23: W/2
Section 26: W/2, SE/4
Section 27: All
Section 28: All
Section 29: E/2
Section 32: SE/4, NE/4 NE/4
Section 33: All
Section 34: All
Section 35: All
Section 36: SW/4, S/2 NW/4, S/2 SE/4

TOWNSHIP 19 SOUTH, RANGE 31 EAST
Section 36: SE/4

TOWNSHIP 19 SOUTH, RANGE 32 EAST
Section 31: W/2 SW/4
Section 33: SE/4, E/2 SW/4
Section 34: S/2
Section 35: S/2
Section 36: SW/4, SE/4 SE/4

TOWNSHIP 19 SOUTH, RANGE 33 EAST
Section 22: SE/4 SE/4
Section 23: SW/4
Section 25: SW/4
Section 26: All
Section 27: E/2
Section 31: S/2
Section 32: SW/4
Section 34: NE/4 NE/4
Section 35: All
Section 36: S/2, NW/4 W/2 NE/4

TOWNSHIP 19 SOUTH, RANGE 34 EAST
Section 31: SW/4, SW/4

TOWNSHIP 20 SOUTH, RANGE 29 EAST
Section 13: SW/4 SW/4
Section 14: SE/4 SE/4
Section 22: SE/4, S/2 NE/4
Section 23: S/2, NE/4
Section 24: W/2, W/2 SE/4
Section 25: N/2, N/2 S/2
Section 26: All
Section 27: E/2
Section 34: NE/4, N/2 SE/4
Section 35: NW/4

TOWNSHIP 20 SOUTH, RANGE 30 EAST
Section 1: All
Section 2: All
Section 3: All
Section 4: All
Section 5: S/2, NE/4
Section 6: S/2, S/2 NE/4
Section 7: NW/4, E/2
Section 8: All
Section 9: All
Section 10: All
Section 11: All
Section 12: All
Section 13: All
Section 14: All
Section 15: All
Section 16: All
Section 17: All
Section 18: E/2
Section 19: E/2

EXHIBIT "A" (Continued)

TOWNSHIP 20 SOUTH, RANGE 30 EAST (continued)

Section 20: All
Section 21: All
Section 22: All
Section 23: All
Section 24: All
Section 25: All
Section 26: All
Section 27: All
Section 28: All
Section 29: All
Section 30: All
Section 31: E/2
Section 32: All
Section 33: All
Section 34: All
Section 35: All
Section 36: All

TOWNSHIP 20 SOUTH, RANGE 31 EAST

Section 1: E/2, E/2 W/2
Section 6: SW/4, S/2 NW/4, W/2 SE/4
Section 7: W/2, SE/4, W/2 NE/4
Section 8: S/2, S/2 N/2
Section 9: SW/4, S/2 NW/4
Section 11: SE/4, E/2 SW/4
Section 12: All
Section 13: All
Section 14: E/2, SW/4, E/2 NW/4
Section 16: W/2
Section 17: All
Section 18: All
Section 19: All
Section 20: All
Section 21: NW/4, S/2
Section 22: S/2, S/2 NE/4
Section 23: All
Section 24: All
Section 25: All
Section 26: All
Section 27: All
Section 28: All
Section 29: All
Section 30: All
Section 31: All
Section 32: All
Section 33: All
Section 34: All
Section 35: All
Section 36: All

TOWNSHIP 20 SOUTH, RANGE 32 EAST

Section 1: All
Section 2: All
Section 3: All
Section 4: E/2, SW/4, E/2 NW/4

EXHIBIT "A" (continued)

TOWNSHIP 20 SOUTH, RANGE 32 EAST, (continued)

Section 5: S/2 SE/4
Section 6: W/2, SW/4 SE/4
Section 7: All
Section 8: All
Section 9: All
Section 10: All
Section 11: All
Section 12: All
Section 13: All
Section 14: All
Section 15: All
Section 16: All
Section 17: All
Section 18: All
Section 19: All
Section 20: All
Section 21: All
Section 22: All
Section 23: All
Section 24: All
Section 25: All
Section 26: All
Section 27: All
Section 28: All
Section 29: All
Section 30: All
Section 31: All
Section 32: All
Section 33: All
Section 34: All
Section 35: All
Section 36: All

TOWNSHIP 20 SOUTH, RANGE 33 EAST

Section 1: All
Section 2: E/2, E/2 W/2
Section 5: W/2
Section 6: All
Section 7: All
Section 8: W/2, SW/4 NE/4, SE/4
Section 9: S/2 S/2, NW/4 SW/4
Section 10: S/2
Section 11: E/2, E/2 NW/4, SW/4
Section 12: All
Section 13: All
Section 14: All
Section 15: All
Section 16: All
Section 17: All
Section 18: All
Section 19: All
Section 20: All
Section 21: W/2 SW/4, NW/4, N/2 NE/4

EXHIBIT "A" (Continued)

TOWNSHIP 20 SOUTH, RANGE 33 EAST, (Continued)

Section 22: N/2 N/2
Section 23: N/2 N/2, SE/4 NE/4
Section 24: N/2, N/2 SE/4, SE/4 SE/4
Section 29: W/2, NE/4, N/2 SE/4, SW/4 SE/4
Section 30: All
Section 31: N/2, W/2 SW/4

TOWNSHIP 20 SOUTH, RANGE 34 EAST

Section 6: W/2, W/2 SE/4
Section 7: All
Section 8: SW/4
Section 16: SW/4, SW/4 NW/4, SW/4 SE/4
Section 17: All
Section 18: All
Section 19: All
Section 20: All
Section 21: All
Section 22: SW/4
Section 27: W/2
Section 28: All
Section 29: N/2, SE/4, NE/4 SW/4
Section 30: NE/4 NW/4, N/2 NE/4, SE/4 NE/4
Section 32: N/2 NE/4, SE/4 NE/4
Section 33: N/2, SE/4, N/2 SW/4, SE/4 SW/4
Section 34: W/2

TOWNSHIP 21 SOUTH, RANGE 29 EAST

Section 1: All
Section 2: Lots 1 - 16, incls., SE/4, NE/4 SW/4
Section 3: Lots 1 - 9, incl.
Section 4: Lots 1 - 8, incl., Lots 10 and 11
Section 11: E/2, E/2 SW/4
Section 12: All
Section 13: All
Section 14: E/2, E/2 W/2, SW/4 NW/4, NW/4 SW/4
Section 15: SE/4 NE/4, NE/4 SE/4
Section 23: N/2 NE/4
Section 24: NE/4, NE/4 SE/4, N/2 NW/4, SE/4 NW/4
Section 35: S/2 NE/4, SE/4, E/2 SW/4
Section 36: S/2 SW/4, SE/4, S/2 NE/4, NE/4 NE/4

TOWNSHIP 21 SOUTH, RANGE 30 EAST

Section 1: All
Section 2: All
Section 3: All
Section 4: All
Section 5: All
Section 6: All
Section 7: All
Section 8: All
Section 9: N/2, SW/4
Section 10: N/2, SE/4, N/2 SW/4, SE/4 SW/4
Section 11: All
Section 12: All
Section 13: All

EXHIBIT "A" (continued)

TOWNSHIP 21 SOUTH, RANGE 30 EAST (continued)

Section 14: All
Section 15: NE/4, NE/4 NW/4, N/2 SE/4, SE/4 SE/4
Section 16: NW/4 NW/4
Section 17: All
Section 18: All
Section 19: All
Section 20: NW/4, N/2 NE/4
Section 22: E/2 E/2
Section 23: All
Section 24: All
Section 25: N/2, SE/4, N/2 SW/4, SE/4 SW/4
Section 26: N/2, N/2 S/2
Section 27: NE/4, N/2 SE/4, SE/4 SE/4
Section 29: NW/4, N/2 SW/4
Section 30: E/2, E/2 W/2
Section 31: All
Section 32: S/2, NW/4, NW/4 NE/4, S/2 NE/4
Section 36: E/2

TOWNSHIP 21 SOUTH, RANGE 31 EAST

Section 1: All
Section 2: All
Section 3: All
Section 4: All
Section 5: All
Section 6: All
Section 7: All
Section 8: All
Section 9: All
Section 10: W/2
Section 12: N/2, SE/4, N/2 SW/4, SE/4 SW/4
Section 13: N/2 NE/4
Section 15: W/2
Section 16: E/2, NW/4, E/2 SW/4
Section 18: NW/4, W/2 NE/4, NE/4 NE/4, W/2 SW/4
NE/4 SW/4
Section 21: E/2, NE/4 NW/4
Section 22: W/2
Section 27: W/2, SW/4 NE/4, W/2 SE/4
Section 28: E/2
Section 30: SW/4, W/2 NW/4, SE/4 NW/4
Section 31: W/2
Section 33: NE/4 NE/4
Section 34: NW/4, NW/4 NE/4

TOWNSHIP 21 SOUTH, RANGE 32 EAST

Section 6: Lots 1 - 7 incls., Lots 10 - 15, inclus., SW/4
Section 7: W/2
Section 22: E/2
Section 23: All
Section 24: All

EXHIBIT "A" (continued)

TOWNSHIP 21 SOUTH, RANGE 33 EAST

Section 3: Lots 1, 2, 3
Section 17: S/2 S/2
Section 18: SE/4 SE/4
Section 19: All
Section 20: All
Section 21: W/2, SE/4, S/2 NE/4
Section 22: S/2, S/2 N/2
Section 23: S/2, S/2 N/2, NE/4 NE/4
Section 24: All
Section 25: NW/4, N/2 NE/4, SW/4 NE/4, N/2 SW/4
Section 26: W/2, NE/4, N/2 SE/4, SW/4 SE/4
Section 27: All
Section 28: All
Section 29: N/2, SE/4, NE/4 SW/4
Section 30: N/2 NE/4, SE/4 NE/4
Section 33: N/2 N/2
Section 34: N/2 N/2

TOWNSHIP 21 SOUTH, RANGE 34 EAST

Section 19: W/2

TOWNSHIP 22 SOUTH, RANGE 29 EAST

Section 1: All
Section 2: E/2, E/2 NW/4, SW/4
Section 3: S/2 SE/4, NE/4 SE/4
Section 10: E/2, E/2 W/2, SW/4 SW/4
Section 11: All
Section 12: All
Section 13: All
Section 14: All
Section 15: All
Section 16: SE/4, SE/4 NE/4, SE/4 SW/4
Section 20: E/2 E/2
Section 21: All
Section 22: All
Section 23: All
Section 24: All
Section 25: All
Section 26: All
Section 27: All
Section 28: NE/4, N/2 NW/4, SE/4 NW/4, SE/4
Section 33: NE/4 NE/4
Section 34: NW/4, W/2 E/2, N/2 SW/4, SE/4 SW/4
Section 35: E/2, SW/4, SE/4 NW/4
Section 36: All

TOWNSHIP 22 SOUTH, RANGE 30 EAST

Section 1: E/2
Section 5: N/2, N/2 S/2, SW/4 SW/4
Section 6: All
Section 7: W/2, W/2 E/2, SE/4 SE/4
Section 8: S/2 SW/4
Section 12: NE/4 NE/4
Section 13: NW/4, N/2 SW/4, SW/4 SW/4
Section 14: SE/4, S/2 NE/4, E/2 SW/4, SW/4 SW/4
Section 17: NW/4
Section 18: All
Section 19: All

EXHIBIT "A" (continued)

TOWNSHIP 22 SOUTH, RANGE 30 EAST (continued)

Section 20: All
Section 21: S/2, SW/4 NW/4
Section 22: S/2, S/2 N/2, NE/4 NE/4
Section 23: W/2, W/2 NE/4, NE/4 NE/4
Section 26: W/2 W/2
Section 27: All
Section 28: All
Section 29: All
Section 30: All
Section 31: All
Section 32: All
Section 33: All
Section 34: All
Section 35: W/2

TOWNSHIP 22 SOUTH, RANGE 31 EAST

Section 6: W/2, W/2 NE/4, NW/4 SE/4
Section 7: N/2 NW/4

TOWNSHIP 23 SOUTH, RANGE 29 EAST

Section 1: All
Section 2: E/2, NW/4, NE/4 SW/4
Section 11: NE/4 NE/4
Section 12: N/2 N/2

TOWNSHIP 23 SOUTH, RANGE 30 EAST

Section 2: NW/4
Section 3: All
Section 4: All
Section 5: All
Section 6: All
Section 7: NE/4, N/2 NW/4, SE/4 NW/4
Section 8: N/2 N/2, S/2 NE/4
Section 9: N/2, NE/4 SW/4, N/2 SE/4
Section 10: N/2, SW/4

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

JOHN F. SIMMS, Chairman

E. S. WALKER, Member

W. B. MACEY, Member & Secretary

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BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

THE APPLICATION OF POTASH COMPANY
OF AMERICA FOR AN ORDER AMENDING
ORDER NO. R-111-A ISSUED IN CASE
NO. 278, PERTAINING TO THE POTASH-
OIL AREAS OF EDDY AND LEA COUNTIES,
NEW MEXICO

CASE NO. 278
Order No. R-111-A

APPLICATION

Comes now Potash Company of America, a Colorado corporation,
authorized to do business in the State of New Mexico and states:

A. That Potash Company of America is the owner of United
States Potash Lease No. L.C. 050063'F', and United States Potash
Prospecting Permits N.M. 121810 and N.M. 050249, which lease
and permits cover, among other property, the following described
lands in Township 20 South, Range 29 East, N.M.P.M., in Eddy
County, New Mexico:

Section 13, SW $\frac{1}{4}$ NW $\frac{1}{4}$
Section 13, NW $\frac{1}{4}$ SW $\frac{1}{4}$
Section 14, SE $\frac{1}{4}$ NE $\frac{1}{4}$
Section 14, NE $\frac{1}{4}$ SE $\frac{1}{4}$

B. That Potash Company of America has conducted exploratory
drilling on the property described above and has discovered the
existence of commercial potash deposits underlying substantial
portions of the property described above.

WHEREFORE, Potash Company of America requests that Exhibit A
to Order No. R-111-A in Case No. 278 be amended to include the property
described above, and

FURTHER requests that a hearing be held upon due notice at the
convenience of the Commission for the purpose of considering this
application.

March 13, 1961

Respectfully submitted,

POTASH COMPANY OF AMERICA

By *W. H. St. John*
Resident Counsel