

Case No.

5276

Application, Transcripts,

Small Exhibits, Etc.

DEPARTMENT OF THE INTERIOR

Office of the Secretary

EDDY AND LEA COUNTIES, N. MEX.

Oil, Gas, and Potash Leasing and Development Within Potash Area

For the purpose of revising the rules for concurrent operations in prospecting for and development and production of oil and gas and potash deposits owned by the United States within the Potash Area and for the purpose of revising the designated Potash Area to which the revised provisions are to be applicable, it is ordered as follows:

I. The order of the Secretary of the Interior dated February 6, 1939 (4 F.R. 1012), withholding certain lands in New Mexico from application or lease under the oil and gas provisions of the Mineral Leasing Act of February 25, 1920 (41 Stat. 437), as amended, which order was revoked by order of the Secretary of the Interior dated October 16, 1951 (16 F.R. 10669), shall continue to be revoked. The lands described in said order dated February 6, 1939 (except the E½SE¼, sec. 24, and the E½E½, W½SE¼, S½SW¼, sec. 25, T. 20 S., R. 29 E., N.M.M., which were withdrawn from all forms of entry by Public Land Order No. 569, 14 F.R. 1066), which are opened for oil and gas leasing by said order dated October 16, 1951, shall continue to be open for oil and gas leasing. This order shall not affect the current status of land with respect to its being withdrawn from, or open for, entry or leasing.

II. Subject to the provisions of I above, the provisions of the order of the Secretary of the Interior dated October 16, 1951 (16 F.R. 10669), and the Potash Area designated therein are revised to be as specified herein.

III. 1. Oil and gas leases. Each successful applicant for a non-competitive oil and gas lease, and any party awarded a competitive lease, for lands included in the designated Potash Area will be required, as a condition to the issuance of such lease, to execute a stipulation agreeing that:

(a) No wells will be drilled for oil or gas except upon approval of the Regional Oil and Gas Supervisor of the Geological Survey, it being understood that drilling will be permitted only in the event that it is satisfactorily established that such drilling will not interfere with the mining and recovery of potash deposits, or the interest of the United States would best be subserved thereby.

(b) No wells will be drilled for oil or gas at a location which, in the opinion of the Regional Oil and Gas Supervisor of the Geological Survey, would result in undue waste of potash deposits or constitute a hazard to or unduly interfere with mining operations being conducted for the extraction of potash deposits.

(c) When it is determined by the Regional Oil and Gas Supervisor of the Geological Survey that utilization is

Saturday, May 15, 1965

necessary for orderly oil and gas development and proper protection of potash deposits, no well shall be drilled for oil or gas except pursuant to a unit plan approved by the Director of the Geological Survey.

(d) The drilling or the abandonment of any well on said lease shall be done in accordance with applicable oil and gas operating regulations including such requirements as the Regional Oil and Gas Supervisor of the Geological Survey may prescribe as necessary to prevent the infiltration of oil, gas, or water into formations containing potash deposits or into mines or workings being utilized in the extraction of such deposits.

The Regional Oil and Gas Supervisor of the Geological Survey in any action taken under item 1 (a), (b), (c), and (d) shall take into consideration recommendations of the Regional Mining Supervisor of the Geological Survey and applicable conservation rules and regulations of the Oil Conservation Commission of the State of New Mexico.

2. Oil and gas leases. As a condition to the granting of any renewal or extension of any existing lease embracing lands included in the designated Potash Area, the lessee will be required to execute a stipulation identical to that specified in item 1 (a), (b), (c), and (d) hereof.

3. Potash leases. All potash permits and leases hereafter issued or existing potash leases hereafter renewed for Federal lands within the designated Potash Area, shall be subject to a requirement either to be included in the lease or permit or imposed as a stipulation, to the effect that no mining or exploratory operations will be conducted that, in the opinion of the Regional Mining Supervisor of the Geological Survey, would constitute a hazard to oil or gas production, or that would unreasonably interfere with the orderly development and production under any oil or gas lease issued for the same land.

4. Maps and surveys. (a) Well records and survey plats that an oil and gas lessee must file pursuant to applicable operating regulations (30 CFR Part 221), shall be available for inspection at the office of the Regional Oil and Gas Supervisor by any party holding a potash permit or lease on the land on which the well is situated insofar as such records are pertinent to the mining and protection of potash deposits.

(b) Maps of mine workings and surface installations and records of core analyses that a potash lessee must file pursuant to applicable operating regulations (30 CFR Part 231), shall be available for inspection at the office of the Regional Mining Supervisor to any party holding an oil and gas lease on the same land insofar as such maps or records are pertinent to the development and protection of oil and gas deposits.

5. Unit plans. Any unit plan hereafter approved or prescribed that includes oil and gas leases covered by this notice shall include a provision embodying in substance the requirements set forth in items 1 (a), (b), and (d), and 4(a), hereof.

6. Definition. The word "potash" as used herein shall be deemed to embrace

assium and associated minerals as specified in the act of February 7, 1927 (44 Stat. 1057).

IV. The lease of any existing lease in the designated Potash Area may make such land subject to the rules and regulations of Part III above by filing an election to do so, in duplicate, with the Land Office, Bureau of Land Management, Santa Fe, N. Mex. Except to the extent herein modified, the general regulations contained in 43 CFR Part 3120, and the specific regulations in Part 3120 (governing the leasing and development of oil and gas deposits) and Part 3140 (governing the leasing and development of potash deposits), shall be applicable to the lands covered hereby.

V. The designated Potash Area is described as follows:

NEW MEXICO PRINCIPAL MERIDIAN

- T. 19 S., R. 29 E.  
Secs. 1 and 2;  
Secs. 11 to 14 inclusive;  
Secs. 23 to 26 inclusive;  
Secs. 35 and 36.
- T. 20 S., R. 29 E.  
Secs. 1 and 2;  
Secs. 11 to 15 inclusive;  
Secs. 22 to 27 inclusive;  
Secs. 34 to 36 inclusive.
- T. 21 S., R. 29 E.  
Secs. 1 to 5 inclusive;  
Secs. 10 to 16 inclusive;  
Secs. 22 to 27 inclusive;  
Secs. 34 to 36 inclusive.
- T. 22 S., R. 29 E.  
Secs. 1 to 5 inclusive;  
Secs. 8 to 17 inclusive;  
Secs. 20 to 29 inclusive;  
Secs. 32 to 36 inclusive.
- T. 19 S., R. 30 E.  
Secs. 1 to 5 inclusive;  
Secs. 8 to 15 inclusive;  
Secs. 22 to 27 inclusive;  
Secs. 34 to 36 inclusive.
- T. 18 S., R. 30 E.  
Secs. 8 to 17 inclusive;  
Secs. 20 to 29 inclusive;  
Secs. 32 to 36 inclusive.
- T. 19 S., R. 30 E.  
Secs. 1 to 5 inclusive;  
Secs. 8 to 15 inclusive;  
Secs. 22 to 27 inclusive;  
Secs. 34 to 36 inclusive.
- T. 20 S., R. 30 E.  
Secs. 1 to 5 inclusive;  
Secs. 8 to 15 inclusive;  
Secs. 22 to 27 inclusive;  
Secs. 34 to 36 inclusive.
- T. 21 S., R. 30 E.  
Secs. 1 to 5 inclusive;  
Secs. 8 to 15 inclusive;  
Secs. 22 to 27 inclusive;  
Secs. 34 to 36 inclusive.
- T. 22 S., R. 30 E.  
Secs. 1 to 5 inclusive;  
Secs. 8 to 15 inclusive;  
Secs. 22 to 27 inclusive;  
Secs. 34 to 36 inclusive.
- T. 19 S., R. 31 E.  
Secs. 1 to 5 inclusive;  
Secs. 8 to 15 inclusive;  
Secs. 22 to 27 inclusive;  
Secs. 34 to 36 inclusive.
- T. 20 S., R. 31 E.  
Secs. 1 to 5 inclusive;  
Secs. 8 to 15 inclusive;  
Secs. 22 to 27 inclusive;  
Secs. 34 to 36 inclusive.
- T. 21 S., R. 31 E.  
Secs. 1 to 5 inclusive;  
Secs. 8 to 15 inclusive;  
Secs. 22 to 27 inclusive;  
Secs. 34 to 36 inclusive.
- T. 22 S., R. 31 E.  
Secs. 1 to 5 inclusive;  
Secs. 8 to 15 inclusive;  
Secs. 22 to 27 inclusive;  
Secs. 34 to 36 inclusive.
- T. 19 S., R. 32 E.  
Secs. 1 to 5 inclusive;  
Secs. 8 to 15 inclusive;  
Secs. 22 to 27 inclusive;  
Secs. 34 to 36 inclusive.
- T. 20 S., R. 32 E.  
Secs. 1 to 5 inclusive;  
Secs. 8 to 15 inclusive;  
Secs. 22 to 27 inclusive;  
Secs. 34 to 36 inclusive.
- T. 21 S., R. 32 E.  
Secs. 1 to 5 inclusive;  
Secs. 8 to 15 inclusive;  
Secs. 22 to 27 inclusive;  
Secs. 34 to 36 inclusive.
- T. 22 S., R. 32 E.  
Secs. 1 to 5 inclusive;  
Secs. 8 to 15 inclusive;  
Secs. 22 to 27 inclusive;  
Secs. 34 to 36 inclusive.
- T. 19 S., R. 33 E.  
Secs. 1 to 5 inclusive;  
Secs. 8 to 15 inclusive;  
Secs. 22 to 27 inclusive;  
Secs. 34 to 36 inclusive.
- T. 20 S., R. 33 E.  
Secs. 1 to 5 inclusive;  
Secs. 8 to 15 inclusive;  
Secs. 22 to 27 inclusive;  
Secs. 34 to 36 inclusive.
- T. 21 S., R. 33 E.  
Secs. 1 to 5 inclusive;  
Secs. 8 to 15 inclusive;  
Secs. 22 to 27 inclusive;  
Secs. 34 to 36 inclusive.
- T. 22 S., R. 33 E.  
Secs. 1 to 5 inclusive;  
Secs. 8 to 15 inclusive;  
Secs. 22 to 27 inclusive;  
Secs. 34 to 36 inclusive.
- T. 19 S., R. 34 E.  
Secs. 1 to 5 inclusive;  
Secs. 8 to 15 inclusive;  
Secs. 22 to 27 inclusive;  
Secs. 34 to 36 inclusive.
- T. 20 S., R. 34 E.  
Secs. 1 to 5 inclusive;  
Secs. 8 to 15 inclusive;  
Secs. 22 to 27 inclusive;  
Secs. 34 to 36 inclusive.
- T. 21 S., R. 34 E.  
Secs. 1 to 5 inclusive;  
Secs. 8 to 15 inclusive;  
Secs. 22 to 27 inclusive;  
Secs. 34 to 36 inclusive.
- T. 22 S., R. 34 E.  
Secs. 1 to 5 inclusive;  
Secs. 8 to 15 inclusive;  
Secs. 22 to 27 inclusive;  
Secs. 34 to 36 inclusive.

The area described, including public and nonpublic lands, aggregates 420,212.38 acres, more or less.

VI. This order shall be effective on the date of publication in the Federal Register.

Dated: May 11, 1965.

STEWART L. UDALL,  
Secretary of the Interior.

[F.R. Doc. 65-5140; 1-1, May 15, 1965; 8:45 am.]

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Case No. 5076 Exhibit No. 3  
by Judge  
7/17/71



# United States Department of the Interior

GEOLOGICAL SURVEY  
12201 SUNRISE VALLEY DRIVE  
RESTON, VIRGINIA 22092

FEB 15 1974

## Memorandum

To: Secretary of the Interior  
Through: Assistant Secretary - Energy & Minerals  
Action: *MR Doyle*  
From: Director, Geological Survey  
Subject: Drilling of oil and gas tests in the Secretary's Potash Area,  
New Mexico

FEB 20 1974

As you will recall, several recent controversies as to whether to permit the drilling of certain oil and gas tests in the Secretary's Potash Area precipitated a review of Departmental policy with respect to operations in this multiple use area.

The Conservation Division has now completed its study of the situation. Items such as (1) the stated position of the potash and oil and gas industries; (2) past approval actions; (3) the need to maintain a harmonious relationship with the State of New Mexico; (4) the Nation's requirements for additional energy sources; and, (5) the conservation of our most important domestic potash supply have been considered. Based on this study, the Chief, Conservation Division believes that action is required if we are to avoid similar conflicts in the future, and the Division has made certain recommendations as set forth in the enclosed memorandum.

BEFORE THE  
OIL CONSERVATION COMMISSION  
Santa Fe, New Mexico

Case No. 5276 Exhibit No. 4  
Submitted by Hodges Jr  
Hearing Date 7/17/74

If you concur in these recommendations, please indicate in the space provided, and the Conservation Division will prepare the necessary implementation papers.

*W. A. Rorhugh*

Acting Director

Determination is hereby made that adoption of the recommendations contained in Chief, Conservation Division's memorandum of February 14, 1974, would be in the public interest and authority to proceed as recommended is hereby granted.

Date MAR 1 1974

*John C. Whitaker*  
Acting Secretary of the Interior

Enclosure





# United States Department of the Interior

GEOLOGICAL SURVEY  
12201 SUNRISE VALLEY DRIVE  
RESTON, VIRGINIA 22092

FEB 14 1974

## Memorandum

To: *Noting* Director, Geological Survey *uon 2/15/74*  
From: Chief, Conservation Division  
Subject: Drilling of oil and gas tests in the Secretary's Potash Area, southeastern New Mexico

By order of October 16, 1951, the Secretary of the Interior delineated an area embracing 298,345 acres in southeastern New Mexico as a designated potash area. This order revoked the Secretary's Order of February 6, 1939, thereby eliminating the ban on oil and gas leasing which had been in effect on 42,235 acres of these same lands. Since that time, there have been periodic differences of opinion between the potash mining companies and the oil industry as to whether a particular oil and gas well should be drilled in the Area. Secretarial Order of May 11, 1965, expanded the Secretary's Potash Area to include 420,212 acres and eased some of the restrictions previously imposed on oil and gas drilling in the Area. The discovery and development of extensive and very valuable langbeinite potash deposits, and the currently escalating price of oil and gas which has given impetus to exploratory activity in the Area by the oil and gas industry have resulted in a situation where conflicts of interest between the two industries are inevitable. In each of the several recent controversies, neither side has seemed willing to compromise, and each new confrontation appears to magnify the differences of opinion.

As to Federal lands in the Secretary's Potash Area, the Area Oil and Gas Supervisor, in consultation with the Area Mining Supervisor, is charged with the responsibility of deciding which proposed oil and gas tests may be drilled. These have never been easy decisions, but with today's energy shortage and the need to protect our most important source of domestic potash, these decisions have become more difficult.

Accordingly, a complete policy review was initiated in April of 1973. As a part of this study, Assistant Secretary Wakefield and other Departmental representatives met with delegations from the New Mexico Oil and Gas Association and the seven potash operating companies in

Washington, D.C., on May 8 and August 7, 1973, respectively. The Area Oil and Gas Supervisor and the Area Mining Supervisor reviewed the position documents presented by both industries and submitted a joint report dated August 24, a copy of which is enclosed. The Conservation Manager, Central Region, supplied his comments and recommendations in a memorandum of September 6, a copy of which is also enclosed.

The results of this study indicated that action should be taken to assure that the decisions of our Supervisors reflect Departmental policy, are made as fairly as possible, result in proper conservation of both of these important mineral resources, and do not unduly impede the development of either resource. It was concluded (1) that certain facets of Departmental policy affecting operations in the Secretary's Potash Area should be reaffirmed; (2) that more clear-cut procedures to assist the two Supervisors in their decision-making processes should be adopted; and (3) that guidelines to implement the new procedures should be developed. Based on these conclusions, certain proposed recommendations were submitted for your consideration by our memorandum of December 7, 1973, and, upon your concurrence, those recommendations were forwarded by memorandum of December 10 to the Office of the Assistant Secretary - Energy and Minerals for further consideration. Subsequently, copies of the December 7 memorandum were furnished to representatives of the New Mexico oil and gas and potash industries for their review. On January 31, Deputy Assistant Secretary Ring and other Departmental personnel conducted a meeting in Albuquerque, New Mexico, to discuss the proposed new procedures. Approximately 50 people attended the meeting, of which 35 were representatives of the two industries. A copy of the attendance list is enclosed. The discussions at that meeting were very productive. They not only disclosed the need for revision of some segments of the proposed procedures but also seemed to promote a spirit of cooperation between the two industries. As a result of this further review, we now recommend that:

Part 1. The Department reaffirm its position that the Secretarial Order of May, 1965, adequately protects the rights of the oil and gas and potash industries. However, the Area Mining Supervisor is to initiate action to bring about the expansion of Secretary's Potash Area to include those known potash deposits in T. 22 S., R. 31 E., T. 23 S., Rs. 29 and 31 E., and T. 24 S., Rs. 30 and 31 E., N.M.P.M., presently outside the designated Area.

Part 2. Each potash lessee will be required by April 15, 1974, to file with the Mining Supervisor a map or maps on which has been delineated the following information with respect to the Federal potash leases which it then holds:

a. The areas where active mining operations are now in progress on one or more ore zones.

b. The areas where mining operations have been completed on one or more ore zones.

c. The presently unmined areas which are considered to contain a minable reserve in one or more ore zones, i.e., those areas (enclaves) where potash ore is known to exist in sufficient thickness and quality to be minable under present day technology and economics.

d. The areas within these enclaves which are believed to be barren of commercial ore.

These maps are to be updated effective January 1, 1975, and thereafter on an annual basis. The Area Geologist, in consultation with the Mining Supervisor, will prepare the data required in subparts c. and d. above for unleased Federal lands in the Secretary's Potash Area.

The potash lessee will be responsible for submitting sufficient data to justify any area which is proposed as a minable reserve. The Area Geologist, in consultation with the Mining Supervisor, will review the information furnished in this regard and make any revision in the boundary of a proposed minable reserve (potash enclave) which is considered to be consistent with the data available at the time of each such analysis. All maps which are developed pursuant to this Part will be updated between the required revision dates whenever new information becomes available.

The Area Geologist and the Area Mining Supervisor will complete the analysis of the initial data supplied by the potash lessees and commit their total findings to a map or maps of suitable scale by June 1, 1974. These maps will be revised as necessary to reflect the latest available information. Copies of such map(s) will be available to all interested parties through map reproduction companies located in Roswell, New Mexico.

Part 3. After April 15, 1974, it will be Departmental policy to deny approval of most applications for permits to drill oil and gas tests from surface locations within the potash enclaves established in accordance with Part 2 hereof. Two exceptions to this policy will be permitted under the following conditions:

a. Drilling of vertical or directional holes will be allowed to take place from barren areas within the potash enclaves when the Mining Supervisor determines that such operations will not adversely affect active or planned mining operations in the immediate vicinity of the proposed drillsite.

b. Drilling of vertical or directional holes will be permitted to take place from a drilling island located within a potash enclave when: (1) there are no barren areas within the enclave or drilling is not permitted on the established barren area(s) within the enclave because of interference with mining operations; and, (2) the objective oil and gas formation beneath the lease cannot be reached by a well which is vertically or directionally drilled from any permitted location within the barren area(s); or, (3) in the opinion of the Oil and Gas Supervisor, the target formation beneath a remote interior lease cannot be reached by a well directionally drilled from a surface location outside the potash enclave. Under these circumstances, the Mining Supervisor will, in consultation with the Oil and Gas Supervisor, establish an island within the potash enclave from which the drilling of that well and subsequent wells will be permitted. The Mining Supervisor in establishing any such island will, consistent with the data supplied by the Oil and Gas Supervisor regarding present directional drilling capabilities, select a site which will minimize the loss of potash ore. No island will be established within one mile of any area where approved mining operations will be conducted within three years. To assist the Mining Supervisor in this regard, he may require potash mining operators to furnish a three-year mining plan.

Part 4. In order to protect the equities between oil and gas lessees while at the same time reducing the number of oil and gas wells which operators propose to drill in the Potash Area, the Oil and Gas Supervisor will make greater use of his prerogative to require unitization. Unitization will be mandatory in those cases where completion of the proposed well as a producer would result in the drainage of oil and gas from beneath other Federal lands within a potash enclave. In other words, unitization will be a prerequisite to the approval of any well which is (1) located adjacent to an enclave (within a quarter of a mile if an oil test or one-half mile if a gas test) and which is to be drilled vertically to the prospective formation; (2) to be directionally drilled from an adjacent surface location to bottom in a formation beneath an enclave; or (3) to be vertically or directionally drilled from a barren area or island within an enclave.

Part 5. The Department reaffirm its intent to cooperate with the New Mexico Oil Conservation Commission (NM OCC) in the implementation of that agency's rules and regulations. In that regard, the potash lessees shall continue to have the right to protest to the NM OCC the drilling of a proposed oil and gas test on Federal lands provided that the location of said well is within the State of New Mexico's "Oil-Potash Area" as that Area is delineated by NM OCC Order No. 111, as amended.

Part 6. The Department reassert its prerogative to make the final decision of whether to approve the drilling of any proposed well on Federal oil and gas leases within the Secretary's Potash Area.

Part 7. Applications for permits to drill vertical tests for oil and gas at locations that are in the Secretary's Potash Area but outside the State of New Mexico's Oil-Potash Area and which do not directly offset an enclave (within a quarter mile if an oil test or within one-half mile if a gas test) will be routinely approved by the Oil and Gas Supervisor after review by the Mining Supervisor.

Part 8. Future controversies as to whether to permit the drilling of an oil and gas test in the Secretary's Potash Area which cannot be resolved in the field are to be referred to the Chief, Conservation Division, with a recommendation from the Regional Conservation Manager.

If these recommendations meet with your approval, we suggest that this memorandum be sent to the Assistant Secretary - Energy & Minerals for review and the subsequent authorization of the Secretary of the Interior to proceed as recommended.

  
Chief, Conservation Division

Enclosures

**CARLSBAD BASIN TONNAGE AND GRADE  
1973**

	January	February	March	April	May	June	July	August	September	October	November	December	Total
AMAX Chemical Corporation	210,334 16.92	170,522 16.45	190,105 16.47	182,231 16.14	181,595 16.79	184,940 17.29	65,147 17.71	196,795 17.58	187,103 17.42	200,672 17.18	199,365 16.78	172,268 16.49	2,141,193 16.90
Potash Company of America	235,218 21.08	232,800 20.44	249,990 20.15	245,190 20.25	250,000 19.72	252,409 19.71	255,508 19.82	265,290 19.11	271,870 18.78	270,480 19.35	270,310 19.08	272,850 18.66	3,071,915 19.64
* International Minerals & Chemical	350,319 9.82	301,453 9.18	*355,661 9.54	336,352 10.03	351,367 9.55	359,224 9.78	361,647 8.86	361,505 7.94	369,820 8.36	385,801 8.54	379,227 8.68	388,788 8.54	4,301,164 9.05
* Duval Corporation	123,388 18.20	102,578 17.70	*115,317 17.20	125,217 15.90	124,817 17.30	99,316 17.00	116,023 17.30	125,508 18.90	127,182 17.90	126,038 17.25	115,950 16.40	127,549 16.39	1,428,883 17.29
National Potash Company	161,051 19.98	137,489 20.09	165,050 18.87	155,467 18.83	172,983 18.97	47,992 18.54	173,066 18.52	173,183 16.60	150,278 18.91	150,626 20.93	159,994 22.51	170,044 21.81	1,817,125 19.77
Karr-McGee Corporation	189,413 14.80	225,107 15.05	217,445 16.68	261,690 16.01	244,345 15.77	255,005 15.69	237,997 14.74	256,598 14.90	245,679 15.22	242,983 15.00	260,112 14.99	248,758 16.11	2,885,132 15.42
Telsdyne Potash Company	139,408 14.62	129,510 15.12	125,660 15.34	128,027 14.67	138,000 13.99	** 4 '93 13.88	-0-	-0-	-0-	-0-	-0-	-0-	704,485 14.68

\* IMC - Reflects one grade of sylvinitic only.  
 \* Duval - Tonnage and grade on sylvinitic only.  
 \*\* Telsdyne - Suspended operations June 13, 1973.

**BEFORE THE  
OIL CONSERVATION COMMISSION  
Santa Fe, New Mexico**

Case No. 5276 Exhibit No. 18

Submitted by \_\_\_\_\_

Clearing Date 7/13/74

**CARLSBAD BASIN TONNAGE AND GRADE**  
**1974**

	<u>January</u>	<u>February</u>	<u>March</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>August</u>	<u>September</u>	<u>October</u>	<u>November</u>	<u>December</u>	<u>Total</u>
<b>AMAX Chemical Corporation</b>	204,756 19.12	193,465 17.72	213,705 17.57	208,360 15.33	215,397 16.50	65,175 16.95							
<b>Potash Company of America</b>	281,548 18.25	248,186 19.60	258,539 19.90	245,148 19.97	254,078 18.57	251,557 18.63							
<b>International Minerals &amp; Chemical</b>	380,289 7.80	352,889 7.96	374,493 7.71	386,812 8.49	421,721 8.81	376,382 8.08							
<b>Deval Corporation</b>	124,688 16.50	116,983 16.70	125,944 16.40	119,201 15.60	122,363 14.24	118,465 15.05							
<b>National Potash Company</b>	163,100 20.09	145,601 19.53	163,254 20.18	146,889 19.61	168,578 20.92	48,852 22.18							
<b>Kennecott</b>	246,212 15.46	276,350 16.40	229,626 15.42	259,368 16.02	239,199 16.16	220,620 15.60							

\* IWC - Reflects ore grade of sylvinitic only.  
Deval - Tonnage and grade on sylvinitic only.

Statement to be made before the New Mexico Oil & Gas Conservation Commission July 31, 1974 by D. M. Van Sickle.

Re: Map Showing Distribution of Potash Deposits in the Carlsbad Area, New Mexico. May 1974.

This map was prepared under my supervision on orders from Chief Conservation Division, U.S.G.S. The Director, U.S.G.S. and the Secretary of the Dept. of the Interior concurred with this order (copy attached). The map, as directed in the memorandum, was made available to the public June 3, 1974. Areas shown as Measured (Minable) potash reserves, and Indicated (Minable) potash reserves were determined from core hole and log data on file with U.S.G.S. in Carlsbad, N. M. in conjunction with reserve maps submitted by potash lessees, using the following guidelines:

Minable - Potash ore of minimum quality and thickness greater than 4' of 10% K<sub>2</sub>O/Sylvite or 4' of 4% K<sub>2</sub>O/Langbeinite or equivalent combinations of the two:

1. Measured (Minable) Reserves (Potash Enclave).

- a. Measured ore will be delineated by data points no more than 1½ miles apart if geologic inference shows these projections to be reasonable.
- b. Measured ore will not be delineated by less than 3 data points that meet all other distance and thickness and grade criteria.
- c. Measured ore will not be projected further than ½ mile from a data point which meets thickness and quality standards where no projection or geologic inference data exists.

2. Indicated Reserves

That area where spacing of data points does not meet measured Ore Criteria; yet data points show mineralization higher than minimum thickness and quality.



The minimum quality and thickness criteria corresponds to the U.S.G.S. Classification standards in use for several years, which identifies those U.S. lands that must be leased competitively.

Although this map is a composite of all ore zones, these criteria were confined to each individual ore zone i.e. three data points no more than  $1\frac{1}{2}$  miles apart with potash of greater quality and thickness in separate ore zones did not qualify as measured.

Separate overlays were prepared for each of the major ore zones, combined overlays were prepared for the other ore zones.

**Definitions:**

**Measured**--Reserves or resources for which tonnage is computed from dimensions revealed in outcrops, trenches, workings and drill holes and for which the grade is computed from the results of detailed sampling. The sites for inspection, sampling, and measurement are spaced so closely and the geologic character is so well defined that size, shape, and mineral content are well established. The computed tonnage and grade are judged to be accurate within limits which are stated, and no such limit is judged to be different from the computed tonnage or grade by more than 20 percent.

**Indicated**--Reserves or resources for which tonnage and grade are computed partly from specific measurements, samples, or production data and partly from projection for a reasonable distance on geologic evidence. The sites available for inspection, measurement, and sampling are too widely or otherwise inappropriately spaced to permit the mineral bodies to be outlined completely or the grade established throughout.

## NEW MEXICO OIL CONSERVATION COMMISSION

## COMMISSION HEARING

SANTA FE, NEW MEXICOHearing Date JULY 31, 1974TIME: 9 A.M.

NAME	REPRESENTING	LOCATION
DM Van Sickle	USGS	Roswell
Peter Aguilar	USGS	Roswell
James H. Russell	Amat Chemical Corp.	Santa Fe
S. K. Desai.	Amax Chemical Corp.	CARLEBAD.
JIM GILLHAM	USGS	ROSWELL
Carl Traywick	USGS	ROSWELL
Don E. Lutz	Don Lutz Interests	Denver
W. H. Lutz	W. H. Lutz Interests	Denver
Elvira	Elvira	Alh.
Jon T. Edmonson	SKelly Oil Co.	Midland, Tex
H. D. Koppert	El Paso Natural Gas	El Paso
BC Lippert	Phillips Petroleum Co.	Oklahoma, Tex
Jason Wallach	Kellco & Fox	Santa Fe
GE Klockner	Shelby Oil Co.	Tulsa, Okla
Paul Carter	Humble, Bendheim et al	Albwell
Norm H. Carter	Texaco Inc.	Midland
Don L. Carter	Don L. Carter Interests	Midland

## NEW MEXICO OIL CONSERVATION COMMISSION

COMMISSION HEARINGSANTA FE, NEW MEXICOHearing Date JULY 31, 194TIME: 9 A.M.

NAME	REPRESENTING	LOCATION
Ben Donegan	Leland A. Hodges, Trustee	Albuquerque
Dave Rice	Potter Co. of Am.	Carlsbad
J. B. Summings	v v v v	✓
Don J. Allen	New Mexico Oil & Gas Assn.	Santa Fe



BEFORE THE  
NEW MEXICO OIL CONSERVATION COMMISSION  
Santa Fe, New Mexico  
July 31, 1974

COMMISSION HEARING

-----  
IN THE MATTER OF: )  
 )  
 )

Application of Leland A. Hodges, Trustee, for ) CASE  
the extension of the Potash-Oil Area, Eddy ) 5276  
County, New Mexico. ) (Cont.)  
 )  
 )  
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BEFORE: A. L. Porter, Secretary-Director

I. R. Trujillo, Chairman

Alex J. Armijo, Member

TRANSCRIPT OF HEARING

A P P E A R A N C E S

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For William A. & Edward R. Hudson, Skelly Oil Co., Phillips Petroleum Co., Belco Petroleum Corp., Sun Oil Co.:	Jason W. Kellahin, Esq. KELLAHIN & FOX 500 Don Gaspar Santa Fe, New Mexico

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For Leland Hodges, Trustee,  
and Potash Company of  
America:

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GEORGE WARNOCK

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Applicant's Exhibits 1 - 4	100	100
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Skelly's Exhibit 2	106	106
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MR. PORTER: The Hearing will come to order, please. The Commission will consider Case 5276.

MR. CARR: Case 5276 application of Leland A. Hodges, Trustee, for the extension of the Potash-Oil Area, Eddy County, New Mexico. This Case is continued from July 17, 1974 Commission Hearing.

MR. PORTER: Although this is a continued case, I think we will call for appearances again.

MR. KELLAHIN: If the Commission please, I would like to enter an additional appearance on behalf of William A. and Edward R. Hudson.

MR. PORTER: All right. Mr. Kellahin, who else are you representing this morning?

MR. KELLAHIN: If the Commission please, I am also representing Skelly Oil Company, Phillips Petroleum Company, Belco Petroleum Corporation and Sun Oil Company.

MR. PORTER: Thank you. Mr. Kendrick?

MR. KENDRICK: El Paso Natural Gas Company represented by H. L. Kendrick.

MR. EATON: Paul Eaton for Exxon Corporation.

MR. PORTER: Mr. Blackman.

MR. BLACKMAN: R. H. Blackman appearing for Hodges, Trustee, and Potash Company of America, a division

of Ideal Basic Industries Incorporated.

MR. CARR: Anyone else?

MR. PORTER: The Case was continued from two weeks ago. The application as read is: A request for the extension of the Oil-Potash Area as described in Commission Order R-111-A, as amended. I believe at the last Hearing we pretty well laid the ground rules that the evidence must go toward the proving that commercial potash exists or does not exist in the area under consideration. The Commission wants to hear all of the evidence that is relevant to the Case and proposition. We do want to stress that we would like to have the evidence presented as expeditiously as possible without repetition, and on cross examination, please confine your cross examination to matters that have been testified to by the witness. I think if we observe those rules we will save some time, and also have a better record of the proceedings.

At this time the Commission will recognize Mr. Blackman, counsel for the applicant.

MR. BLACKMAN: Mr. Donegan, will you resume the stand, please?

MR. DONEGAN: Yes, sir.

(Whereupon, a discussion was held off the record.)

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MR. PORTER: Let the record show that Mr. Donegan was previously sworn during the proceedings two weeks ago.

BEN DONEGAN

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

DIRECT EXAMINATION

BY MR. BLACKMAN:

Q Now, Mr. Donegan, I have just distributed to the parties and to the Commission a package of exhibits which begins with Exhibit Number 6 which was identified in the last session. I will point to it on the wall; is this Exhibit Number 6?

A Yes, sir.

Q Would you please identify that and state what it is?

A Exhibit Number 6 is a cross section of potash-core test logs and oil-test logs from the area immediately southeast of the Hodges lease area, the Leonard State Well located in Section 32. This cross section shows the potash ore zones in the area of the Hodges leases and the truncation of those ore zones along the west side.

Q Next, Mr. Donegan, will you kindly identify on the wall, the Commissioner's Exhibit Number 11, and state what

that is, just identify it, please?

A Exhibit Number 11 is a map showing the potash resources in the Hodges area in the 10th ore zone.

Q Next on the wall you have a document marked for identification as Exhibit Number 12 in this Case; would you identify that, please?

A Exhibit 12 is a map similar to Exhibit 11 showing the potash resources in the 4th ore zone.

Q And, next, a document which has been distributed to all parties and has been marked as Exhibit 13. Would you please identify that?

A Exhibit Number 13 shows the potash resources in the 3rd ore zone.

Q And, next please, Exhibit Number 14 in the same series?

A Exhibit Number 14 shows the 2nd ore zone.

Q Then Exhibit Number 15 in the same series?

A Exhibit Number 15 shows the 1st ore zone.

Q And, Exhibit Number 16?

A Exhibit Number 16 is a composite of the potash resources in the five ore zones that we have on these previous four exhibits.

Q Mr. Donegan, if I understand you, all of these maps

with the exception of Exhibit Number 6, are the same print and on which same print you have identified the different ore zones, is that correct?

A Yes, sir.

Q This is all of the area in the area which we seek here to be included in R-111-A, is that correct?

A Yes, sir.

Q Now, Mr. Donegan, you have previously testified that you have made an extended study of the potash deposits in this ore zone, and would you kindly at this time please, tell the Commission the study that you have made in as much detail as you can and the results that you have attained and how you have identified those on each of the maps?

A Exhibits 11 through 15 show on each map the core tests by a small circle, the potash core tests. Beside each circle, where the potash data is available, the first numbers indicate the potash ore zones. If we look at, for example, potash test Number 832 in about the center of the map in Section 2, we will see the 10th ore zone indicated by "10"; to the right of that is the thickness, 5.8 feet, this is just an example. The percent of K<sub>2</sub>O as langbeinite, and the percent of K<sub>2</sub>O is sylvite. In addition, other abbreviations on the map are shown in the legend. For instance,

the abbreviations for leonite, kainite, and glaserite, and in those holes where the sulphates were not individually identified, sulphate. Slightly mineralized holes or ore zones are indicated by "SM", and holes that are not mineralized are indicated by "NM". Holes that do not have information on all of the five ore zones indicated on the map, either have certain of the ore zones truncated, for instance, this line indicates the truncation of the 10th ore zone, so no data west of there is shown for the 10th ore zone, or in some cases where we only have information on one or more ore zones because the zones were not analyzed, the cores were scrambled, or various other reasons that cause the information not to be available, no information is shown on the map.

The west solid line is the truncation of the 1st ore zone, and is shown on the cross section. The truncation of the 2nd, 3rd and 4th ore zones are between the truncation of the 10th and 1st. Since the 4th, the 3rd, and 2nd are immediately above the 1st, the truncation of those ore zones is close to the west margin, rather than near the truncation of the 10th ore zone.

The basis for the color scheme on each of the five maps is shown in the legend, two areas called high-grade-

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times-thickness areas in red, and in yellow, intermediate-grade-times-thickness areas. Now the criteria for indicating these particular boundaries are arbitrary. We used a number of different bits of data. In particular, for purposes of making a map, in other words, a presentation gives a better idea of the shape of these potash resource areas and the nature of the grades and thickness without having to go through each individual hole. We picked these arbitrary boundaries, and the arbitrary boundaries in general are based on an intermediate high boundary at a point of 60 percent  $K_2O$  percent feet  $K_2O$  as sylvite, or 32 percent feet  $K_2O$  as langbeinite, or combinations of the two equivalents in proportion. This is not true in every case, because there are certain areas where there are other considerations that have to be taken into account that I will point out.

Now, the yellow area represents  $K_2O$  equivalents of sylvite between 16 percent feet and the 60 percent feet line, or in the case of langbeinite -- I made an error there I would like to correct -- I said 16 for sylvite, the sylvite cut-off is 40 and the langbeinite cut-off is 16.

It is important at this point to emphasize and to remember in any considerations of these maps that when we say 16  $K_2O$  percent feet or 40, that's a cut-off. We are

actually talking about an area higher than that intermediate, between, that's cut-off and 60 percent.

The areas in red are something greater than 60, or in the case of langbeinite, 32. Another consideration in making these maps, and this is arbitrary, it is an important thing, or I should say it is an area of influence decision was used, and in making a decision about areas influenced or individual holes, our projection from holes since we are dealing with highly erratic ores, we have made, in this case, a determination that an ore hole or a hole of any grade over the minimum cut-off can be safely be assumed by geological inference to represent a half mile-radius circle around that particular hole. That doesn't always work because in an area like this where we have three non-mineralized holes less than a half-mile away, we have a cut-off less than a half-mile from that particular hole.

I will run through these maps quickly, just in general. The 10th ore zone that you can see is developed up to the truncation in four areas.

Q Mr. Donegan, may I interrupt you here just one minute? Note also this appears to me, the northeast boundary of your ore zones has been cut off at the R-111-A boundary so that you have not bothered to color in either red or



yellow north and east of that R-111 A boundary just for convenience.

A Yes, sir, Mr. Blackman, and also we have stopped on some of the maps at the edges of our land where we think that potash resources continue south of the area, or south-east of the area that we have asked for extension of Rule 111-A as amended.

These four red areas represent four areas of high-grade-times-thickness potash resources in the 10th ore zone, and I think to speed things up I'll use the term GT for grade times thickness instead of going through K<sub>2</sub>O percent feet, and this is the 4th ore zone.

Q Now, referring to Exhibit 12 as the 4th ore zone.

A The 3rd ore zone map shows a situation that applies to the other maps that shows it maybe a little more specifically by geological inference and projection. It is so important to understand what is in the area where holes are not as densely located as, say, in this north area. This 3rd ore zone is a sylvinite ore with minor langbeinite. The A-4 hole has 5.7 feet of 20.8 sylvite, or something over 100 percent K<sub>2</sub>O. The nearest hole to the south had 4.3 feet of 13.7 K<sub>2</sub>O sylvite, and 5.3 feet as langbeinite.

Now, if you will observe on that map, the only areas of

3rd ore zone development is in this north south trend, similar to the trend we showed on our earlier maps of the major ore bodies of the Carlsbad Potash District. With no hole in between, or even if there were holes there, I believe the information we have indicates that they would be similar holes to these two.

MR. PORTER: Mr. Donegan, may I interrupt at this point?

MR. DONEGAN: Yes, sir.

MR. PORTER: There is a gentleman in the back of the room who says it is urgent to see you.

(Whereupon, a discussion was held off the record.)

A (Continuing) I was pointing out that by geological projection this area in here between these two areas of sylvite or sylvinite.

(Whereupon, a discussion was held off the record.)

A (Continuing) The 2nd ore zone is shown in yellow without any areas that we have encountered yet of the high grade high GT's. As you will note there is a big area here that probably some are to the 3rd ore zone, probably contained. — Some are 2nd ore zone potash resources.

Q Now, referring to Exhibit Number 14.

A Yes, sir. Exhibit Number 15 shows the area of the 1st-ore-zone development. Exhibit Number 16 is a composite map showing the data of these five ore zones, plus geological projections and inferences similar to what I was describing in this case to connect areas like this area in here, three good holes in the 4th ore zone, in the vicinity of the Skelly well. We infer that high GT potash in the 4th ore zone is present and that is shown on this map, and in any individual area we show how we arrived at that particular projection.

Q Now, Mr. Donegan, would you explain Exhibit 6 and how it bears out or affects the conclusions you have reached?

A Exhibit 6 is a cross section from Leonard No. 1 State Well located in the northwest of Section 32 at this point, through the Skelly Well Forty-Niner, Unit Number 1 located at this point, through Potash Core Test Shell No. 17 at this point, and on to Atlantic Richfield Potash Core Test Number 4 at this point, and on into the truncated area of A-14 at this point. As you will note on the cross section, the potash ore zones occur mainly between the USGS No. 126 bed, polyhalite mainly, and then the Vacatrieste sandstone. There are a few other ore zones in this area, but the five

that we show on these five exhibits are the principal ones in this area.

MR. BLACKMAN: If the Commission please, I think Mr. Donegan has explained all of his maps and showed where he thinks these ore boundaries exist, and I would submit him at this time for cross examination.

(Whereupon, a discussion was held off the record.)

DIRECT EXAMINATION (Continued)

BY MR. BLACKMAN:

Q Mr. Donegan, I'll hand you a document marked for identification as Exhibit Number 9. I see that it bears Exhibit Number 9 on all copies, but it has not been stamped.

A It is stamped inside, Mr. Blackman, the first page inside.

Q Would you please identify that document?

A Exhibit Number 9 is a gamma compensated neutron formation density log of the Skelly Oil Company Number 1 Forty Niner Ridge Unit Well.

Q Will you please examine that exhibit, Mr. Donegan, and tell us what it shows?

A Exhibit Number 9, I think shows what our real problem is in the Hodges area. The Skelly Forty-Niner Ridge

Ridge Unit Well was drilled on State of New Mexico lands, not in the area of Rule 111 A. Although there is a potash core test, or actually two potash core tests in the section, both of which encountered potash resources in several ore zones, this well was drilled without our having a right of hearing under Rule 111-A. The well was drilled and encountered, as I would like to show you on the log, several potash ore zones. Unfortunately, this particular log was run inside of casing. Gamma ray logs which are used to determine percent  $K_2O$ , and I might point out that in our log in drilling we ran gamma ray logs in practically all of our holes, open holes, and we found that in open holes using the Schlumberger charts that we could determine the grade with reasonable accuracy before the chemical analysis, and it gives us a quick check on what sort of  $K_2O$  we have. After the analysis we learn the breakdown of the different  $K_2O$  minerals. All we can tell from a gamma ray log is that it is  $K_2O$  in some form.

When you run a log inside of casing, in the case of the Skelly Well, inside of thick cement, a 17½-inch hole, you attenuate the gamma ray curve so that you only see minimum values, and the minimum values that we see in this hole, without considering corrections for the casing and cement,

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and the large diameter hole, would tell us that these three zones indicated in red, and on that log are about 6 percent  $K_2O$  or more, and the probable corrections are in the range -- an accurate correction would probably be in the range of 12 or 13 percent. Now, to arrive at that 12 or 13 percent, and I would like to point out the method that we used that Charlie Hicks used also when he studied the oil tests in the Permian-potash area, the langbeinite area east of us, and in a hearing I read the -- had an opportunity to see that Charlie Hicks was doing the same thing there that we are here, to try to guess at the  $K_2O$  in an inadequate log.

The polyhalite beds, the known marker beds, and there is a bunch of them in there in this area, typically are mixed polyhalite, halite and anhydrite. Pure polyhalite would be 18.9 percent  $K_2O$ . From experience in the area, in the multiple polyhalite zones present in this hole, and I would like to give you some examples then you can compare what you might think  $K_2O$  would come up in these three ore zones. Under the 10th ore zone you see a thin polyhalite bed. Typically the mixed polyhalite beds in this area would run 12 or 13 percent  $K_2O$ . We have analyzed, we have an analysis of polyhalite in a number of holes in here and if you look at that 10th ore zone, I mean that polyhalite under

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the 10th ore zone, you will see that they are about the same. The zone I am talking about is about 935 feet for the 10th, and 950 feet for the polyhalite. Now, we have some other thin polyhalite, each one of those gamma ray kicks, or most of them are polyhalite. The lithologies in this area, except for a few siltstones, very few, to give you an example at 800 feet is the Vacatrieste siltstone. Now that gamma ray kick there is a slightly porous siltstone, but there are very few of those kinds of beds that are porous. There is practically no porosity in these lower beds so that most of the gamma ray deflections there are due to polyhalite. And, look at the polyhalite at 1100 feet to get an idea of one of the richer polyhalite beds in the area, that is approximately the 123 bed. Then below look at typical polyhalite beds at 1240, 1295, and 1425. I think you can see from looking at those beds that we are safe to say that we have in these three ore zones  $K_2O$  considerably above 6 percent, but even at 6 percent these zones would come under what we call intermediate GT, depending on the thickness. It would certainly be in this classification, and probably when we correct them we are dealing with high-grade potash resources.

Now, I understand that Skelly is -- well, Skelly has announced a location and they may be drilling now, three-

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quarters of a mile south of this hole, and I would like to show you where that hole comes out, it is on United State's land or Federal lands, and unfortunately Skelly was able to get permission to drill before the USGS completed their potash study of this area for purposes of the enclave map.

The well that I'm talking about is shown on Exhibit Number 16 as Skelly with a "2" and a double circle. The Number 1 well three-quarters of a mile north is also shown on the map. You will note that by our interpretation that the Skelly well will be drilled in a high GT area of the 10th ore zone potash. The holes immediately south and immediately north had high GT potash in the 4th ore zone. The 8th ore zone shown on the log is not well developed in the area, and would not be an important consideration about the Skelly location. I should say as we get more holes we find that there seems always to be more potash than we thought there was, and if we drill that area out I wouldn't be surprised if we have an 8th ore zone resource area there also.

Q Mr. Donegan, in your references you explained in the testimony in the previous hearing that you are using the U. S. Geological Survey designation for ore zones, the



first being on the bottom, and running the survey upward. Would you tell us, please, the approximate depth of the potash bearing zone on these exhibits beginning at the west side, approximately how deep is the 10th ore zone, for instance, as shown on Exhibit Number 11?

A Mr. Blackman, the shallowest occurrences of potash in the Hodges area are near the 3rd ore zone truncation in this area where the 3rd ore zone sylvinite occurs at a depth just slightly below 300 feet, between 3 and 4 hundred feet. That would be the shallowest occurrence, except, however, much shallower it is as it approaches truncation. The 10th through the 1st ore zone in the central area here are approximately 450 to 700 feet deep, and these are mainly deeper -- I mean, mainly shallower than the producing areas to the north. The farther east, in the extreme southeast corner, the ore zones that we have been discussing are at their maximum depth of approximately 16 to 17 hundred feet.

Q Very well.

(Whereupon, a discussion was held off the record.)

MR. BLACKMAN: Thank you, Mr. Donegan.

CROSS EXAMINATION

BY MR. PORTER:

Q One question, Mr. Donegan, in connection with that last question you answered. Is there any mining in the Carlsbad area now at a depth of 16 to 17 hundred feet?

A Well, the deepest mine is the Kermac Mine, or the two mines in that Kermac area, and they approach that depth, or are approximately that depth, but I don't remember the exact depth, it is comparable though.

Q I see.

A And I think in answering your question, I should further state that the drilling that is taking place now, and the contemplated new developments in the area by companies like Noranda, Noranda has announced exercise of an option on the property they have been drilling on for sometime. It involves a tremendous expenditure because they are deep for the drilling part; they apparently are headed for a deep mine. The Day Mines Company has announced plans to develop the Permian-potash ore body which is even deeper and already in Rule-111-A. That was this area, and they are having a rig problem. It seems that they have already done quite a bit of drilling. All of the available potash rigs that we know of in that area are tied up and I

understand, I heard today that Mines may start drilling, may have a rig soon.

MR. PORTER: Thank you.

Mr. Kellahin do you have some questions?

MR. KELLAHIN: Yes, sir, I do.

CROSS EXAMINATION

BY MR. KELLAHIN:

Q Mr. Donegan, I wanted to get a few things straight on these exhibits, if I may. This, as I understand, is a composite of all of the other exhibits to show what you say is a criterion.

A Well, it is a composite of what is shown on those, plus projections using geologic information and trends that are not shown on these. For instance this map does not show the 3rd ore zone connection between those as it most likely does. This map takes that into account.

Q You have no information that would connect those zones, do you?

A We have good geologic reasoning that anticipates that they connect.

Q Well, do you have any solid evidence that they do connect, like cores?

A There are no core holes located between those two

areas.

Q Now, on your Exhibit Number 16 within the area that is supposed to be included, the area there that is uncolored, does that mean that you do not have sufficient information to put them in your projection of the potash area?

A Only on that particular map because of the 25-mile long trend of ore bodies to the north. I would anticipate that area not colored probably has potash resources, but I did not include it; we were not able to project between ore holes as we have done in the other ore areas.

Q So, at this time, based on the information you presently have, you cannot say there is or is not potash there, is that correct?

A I cannot say positively that it is not there, but I could say there is a good chance that it is there.

Q But, you have no information to show that it is?

A No, and on that map I didn't show it; it is probably there. I think you might look at the red areas as probable when you get away from where we actually have core tests, and I would like to explain that further.

The ore zones in this area are so complicated, can change so fast, that it is very important that you do not

try to consider, or make company decisions on any one hole. A blank hole in the middle of the ore body doesn't knock you out. We know there are blank areas, weak areas in the mineralized area. We have to use an average of a number of holes. This is one of the dangers in langbeinite of trying to use engineering methods, say, of a certain circle or certain areas of influence and between two holes, say, the average grade is the average between the grade in one hole and the grade in the other or GT of one and GT of the other; it just doesn't work out that way. You may have two holes, and you may have a barren hole between, or you may have a hole of much higher grade than you would predict trying to use areas of influence.

Q In other words, your ore bodies are somewhat erratic, is that correct? Did you testify to that?

A Yes, sir, and when I say erratic, I say erratic to the extent that when you mine out the whole area you mine out an ore body. In mining that helps you take several kinds of areas out.

Q Mr. Donegan, let's keep in mind what we are trying to show here today is the presence of commercial deposits of potash. To say you are going to mine it, that's pretty far down the road. What I'm asking you is: Can you, for example,

take a high-grade ore body, how far can you project it for purposes of showing commercial deposits of potash?

A I don't understand your question.

Q Well, for example, you have got an area right here, you have got one core hole there, is that correct?

A Yes, sir.

Q I understood **your** testimony was to the effect that from that basis you would project a half-a-mile?

A Actually I was trying to be conservative there; I would project it a mile.

Q You have projected it more than a mile, haven't you?

A I said a radius of a half-a-mile, and I would project the radius of a mile. This is a conservative --

Q (Interrupting) Is that what this is, a mile?

A A mile in diameter.

Q And, you have got another core hole here?

A Two now with Skelly's well.

Q But you have projected -- how far apart are those? For the purposes of this Exhibit you have projected clear across that area?

A Right. As I pointed out, the last map shows the benefits of geological trends and projections not limited to

what is in a hole. Actually the only information we have, and the only information that IMC has, and the only information Duval has where they are mining is the actual ore they are mining, plus a two-inch area where that drill hole is. Everything else between those is speculation, until you actually mine it.

Q Mr. Donegan, if you are going to mine it, you don't go on one core hole per section, do you; don't you use 6 or 8?

A No, sir, we would use one hole to cause us to think there is commercial ore there, and to follow it out and find the boundary, and that's what we are doing. We have an area here of extensive development of several ore zones, and we are in the process of hunting for the boundary. We have not found the boundary in this area. We haven't found the boundary of this area, and we don't know if it covers a much larger area, but we anticipate that it does from geological projections.

Q You have no information on any of your zones in this area, right in here, do you?

A Well, there is a hole there that you passed over, hole D-10 does have rich langbeinite in that area.

Q You didn't include it in your --

A (Interrupting) 10th ore zone, no that is in the 4th ore zone.

Q The 4th ore zone, what exhibit is that on?

A That's this exhibit. This is the hole we were talking about.

Q That hole right there?

A Yes, sir.

Q You don't have anything down in here, nor down in here on any of those zones?

A Not in the 4th ore zone.

Q Not in any of the other zones?

A Well, in this hole we have mineralization in the 10th.

Q Do you show it on there?

A Yes, sir, this hole here.

Q One point in your answer to my question you made reference to commercial ore, why do you characterize that as commercial ore?

A I didn't make a reference to commercial ore, but I think you did.

Q I thought you used the term also.

A I think commercial is a -- well, as a matter of fact, when we had our order from Mr. Porter at the last



Hearing, the last meeting we had, I thought I would see what some of the specialists call commercial ore, and I looked up a lot of definitions, and I found out it is kind of like these ore bodies, each expert has a little different idea about what is commercial, and I think the reason for that is commercial changes from moment to moment. It is my guess that what is being developed was not commercial just a short time ago, and if the FPC continues to have to cause the prices to be low, the gas that is being sought to be drilled in this area may not be commercial at a near date in the future, but if we use the term "commercial", the price of a product today. I think an important consideration, in my opinion, as far as commercial is taken into account, not only what is taking place today, but what we predict for the future. In other words, when you block out an ore body and sink a shaft, you are basing it on the price today, but you have to look into the future. If you thought the price was going down in a short time in the future, you wouldn't be projected into the future, so that is why I think these areas which are near the cut-off are important to consider because these probably are commercial ores, depending on what you have come up with for commercial of the very near future, and are commercial now in several instances. Let me

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give some examples of: If you are mining an area of ideal grade, and we all hope to be mining the best grades and making the best profits, and we encounter areas like this, we will certainly take that, and I'm talking about down to the cut-off. When we mix those with very high grades, we may be making commercial ore out of the two. If we have a mill that requires a certain intermediate grade, we may need ores like these to mix to make that other ore feasible for the mill or for maximum recovery. I would like to elaborate: This thing about commercial involves a lot of other things. It is a real problem and worries me that we are going to be too restrictive about what we say is commercial, because as we all know, Federal and State regulations can make an ore body not commercial. Our royalties, unlike oil royalties, can be changed by the USGS and the BLM, and if they changed those up, they could make a mine that is commercial today not commercial tomorrow. Inflation, of course, may make an ore body that is commercial today not commercial in the future. I think a good example of the extreme in what is commercial is the oil interpretation that a commercial well is one that pays the cost of the electricity to run the pump.

Q Mr. Donegan, I think there are those who do not

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agree with you there and I want you to bear in mind that we are dealing with New Mexico Statutes, it is not my terminology which says this Commission shall protect commercial deposits of potash. Now, have you in your study made any analysis whether or not this area or any portion of it contains commercial deposits of potash?

A Yes, sir, I have. We have, and when I say we I'm talking about the Hodges group and the whole trust, we have had a number of market studies made, we have worked with a lot of specialists and we have used our own information and our own analysis of the situation and the operations of the other companies, the information that is available, and we have made the decision that we have a commercial deposit, and that we probably have commercial deposits under a substantial part of this area. We have also worked with PCA, Potash Company of America, for over a year and they have made detailed studies, three months in market studies, international studies, months of studies of feasibility and metallurgy of our cores, and PCA apparently has made the same determination we have, that we have a commercial potash area.

Q Is that detailed information available here?

A Well, which part of it, or all of it?

Q Any of it you are referring to, either yours or

PCA's.

A Well, mine is available because I have been involved in this in every phase, almost every phase, and I am probably as well acquainted with it as anybody in the whole Trust, and I joined in the decision to continue to develop this property because we considered it commercial.

Q You considered it commercial, but you don't have the figures here to show this?

A No, sir, because we haven't found any boundaries to this thing yet; we don't know how big this is going to be when we finally get through drilling in there.

Q Let's get back then to your cut-off point, you say 16 feet of 40 percent ore, and for what you call intermediate grade ore, and 32 feet of 60 foot percent; 32 as langbeinite, and 60 percent as sylvite for the hydrogens, is that correct?

A 60, yes.

Q Now, what is the economic basis for this cut-off?

A That's an arbitrary cut-off for the convenience of this meeting to show the picture of these ore bodies. We could have used 50 or we could have used 70.

Q Then it has no economic basis?

A It goes to the extent that it is considerably

higher grade than what we have used as the minimum cut off.

Q All right, is your minimum cut off, does this have an economic basis?

A Yes, sir, in my opinion, the cut-off point today, not necessarily the cut off in the future; we may be looking at lower grades than that; the cut-off today that we would anticipate blocking out for future production after we have mined out the high-grade areas.

Q Are you aware that Kerr McGee in a recent case testified that 63 percent was the cut-off point for sylvite?

A Kerr McGee has a deeper mine, they also have an insol problem that we don't have here, and, of course, you are talking about sylvite. Most of our area is langbeinite, and I think when we consider sylvite, we have to consider it in two cases. One, our 3rd ore zone is our rich sylvinitic ores, and they are extremely shallow, shallowest in the entire district and have low insols. The other sylvite ores are sylvinitic ores that were considered here, are mainly mixed langbeinites and sylvite.

Q In connection with your calculations did you take into consideration the price of potash?

A Yes, sir, we tried to watch potash -- we went through the potash depression at the same time the gas companies

went through it when they weren't drilling in this area because the price of gas was low, and we see the price of potash accelerating now.

Q For the purpose of this hearing, what price did you use?

A Well, the price is changing and I wouldn't be able to quote any particular price today; I would just say it is higher than it was when we started our drilling in the area.

Q Mr. Donegan, how can you calculate a cut-off point if you don't have any price to take into consideration?

A Well, I think, number one, we can use grades that are being mined to the north by IMC, and thicknesses.

Q What are those grades?

A In the recent hearings, Mr. Childers, I don't remember what particular hearing, talked about 4 feet of 6 percent. That was at the time when langbeinite was, and I'm talking about langbeinite, was selling for considerably less than it is today.

Q That was in an existing mine, was it not?

A Yes, sir, and we're talking about the same thing here. We are talking about low grade ores that will be mined after we get the high grade ore, or low grade that will

be mined as we go from high-grade to high-grade. I say low-grade, we don't know what that cut-off is going to be, I just mean by low-grade, lower grade than the higher GT areas.

Q In arriving at a cut-off point, Mr. Donegan, where you have no mine, don't you have to take into consideration the cost of sinking your shaft and mining this ore?

A Yes, sir, and we do that in the high-grade areas. In other words, in this area that we are drilling here, the cost of amortizing a mine is the minimum tonnage. We have to develop a minimum tonnage to amortize the mine and give a decent profit. All of the ores in there, whether they are higher grade or lower grade -- I shouldn't say all other ores -- but, the lower grade ores in that area I believe will be part of the profits out of that mine. They are not necessarily the ones that cause us to sink the shaft and get those immediate higher grades.

Q What figures did you use in that connection, at arriving at your cut-off point?

A For most of these maps it is 32 percent feet K<sub>2</sub>O.

Q Mr. Donegan, my question is: What figure did you use to amortize the cost of your mine?

A Well, the price of a mine is changing so fast that

whatever figure we were using to figure it certainly would be substantially more, and I can't give you a figure, but it was a figure that looked like we could make some good profits.

Q You can't give me a figure on the cost of the mine, and you can't give me a figure on the cost of the ores?

A NO, sir, and I hope, Mr. Kellahin, that you will remember that I am an exploration geologist. I don't like to talk vague about these things, but these are things that we have other people, I hope, that are here that will be able to give a satisfactory answer for you. In other words, my main job in this was to discover the reserves and develop them and with a general knowledge of our cut-off and grades that we are looking for, to present on these maps, not necessarily the exact cut-offs of ore that we are going to mine, but a general picture to show the patterns and the location of the potash resources in this area.

MR. KELLAHIN: Would you have another witness who could testify on this, Mr. Blackman?

MR. BLACKMAN: Yes, Mr. Kellahin.

BY MR. KELLAHIN:

Q Mr. Donegan, it has been called to my attention,

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that your Exhibit 16 on the board here differs from the Exhibit 16 which was handed to us in that there is no colored area through the center of the exhibit furnished to us.

A That is a mistake. Mr. Kellahin, I apologize for that error, we gave you a different map. The map that you have there now is Exhibit 16.

Q Well, frankly, we prefer this one.

Mr. Donegan, would you tell us just what you found in some of these grades cores if you have the information available, I would like to go through this particular area?

A Yes, sir. If you look at the other map, each hole has all of the data for all of the ore zones. The particular map you are looking at does not show the specific hole data.

Q It is shown on the other four or five?

A Yes, sir.

MR. PORTER: I think, Mr. Kellahin, this was the thing we were trying to avoid at the last hearing when we asked him to prepare exhibits howing this, and they have done that.

MR. KELLAHIN: If we have the information that is all I want.

BY MR. KELLAHIN:

Q Mr, Donegan, on your Exhibit 16 there appears to be a contour running up through Section 28 and running up past the Skelly well, there is a contour, what is the significance of that?

A You mean the pencil line under the red?

Q Yes.

A Those pencil lines are compilations of all of the lines on the other five maps made under the red to give you an idea so that you could look at this composite map and know where every line that we are looking at up here, or however, relates to this map.

Q Now, on these various zones you have shown on the five exhibits, and your composite on Number 16, how do you classify these zones; are those zones proven commercial ore, or do you want to avoid that question?

A No, sir, they are not proven commercial ore, they are areas of probable commercial ore.

Q Would you call them a geological inference?

A Not in every instance. For instance, we have a number of holes in the middle of the area that have high GT's, but in between the holes with high GT's we are talking about geological projections or inferences.

Q What is your definition of probable ore?

A I did not use that in an engineering sense, or the USGS classification; I'm using that word "probable" as the likely nature of these ore bodies, or the likely occurrences based on the data that we have available, our experience in the area, and comparison of similar areas that have been drilled out more extensively to the north.

Q In making your projections from these core holes, you are talking about the probable ore rather than the proven ore?

A Not in every case, we have areas of close-space drilling. I wouldn't say there are proven reserves of a certain tonnage because as I pointed out before these things are complicated enough that you don't actually know that until you are mining. You don't know what grade, you speculate even with engineering methods of close-space drilling, you are still speculating what the grade is. You hope that you approach it, and if it is a simple blanket-like body you may approach it very closely; if it is a complicated body, you can miss it some.

Q Is this a complicated or simple body here?

A We would anticipate complicated.

Q So it is very difficult to project any ore reserves

in this area, is that correct?

A I would say that it is no more difficult than the projections that were used by Duval, and I would like to tell you about those and the IMC drilling. Duval drilled about four holes per section in the area that they are mining.

Q Is that in the area we are talking about?

A Immediately adjacent to it, and it is the same ore zone that we are talking about immediately to the south. They found ores in some instances were higher than they anticipated and in other areas lower than anticipated, but the overall picture, like I'm trying to show here, turned out to be -- in other words, the individual holes didn't have any influence like they thought they did, but the average of all that data proved out to what they expected.

Q That was an average of all the holes?

A Right, and that is a generalization, it may not apply to every acre of potash.

Q Now, does all of your red area have four holes per section?

A No, sir, and I should point out that a lot of Duval doesn't either; some areas that are right next to the shaft has zero up to less than four.

Q How far do you project; you say you have proven

ore right where the core is, two inches, how far out do you project proven ore?

A I used all the available information to arrive at what I think is the best answer; we don't just arbitrarily take those at a half mile. We consider trends, the presence of other holes, but we feel like from geological inference and experience in the area with closer spaced drilling that it is safe to anticipate the influence of an area of a half-a mile to a mile. Also that we are not saying that entire area is of the same grade as that particular hole; we are saying that hole is proving an area of that size of probable potash of similar grade.

Q A core hole in between could disprove, could it not?

A No, sir.

Q It couldn't?

A No, sir. To give you an example, look at this hole right here, a barren hole, Number 28, if you remember I talked to you about salt horses a couple of weeks ago. We know that when we are drilling in the middle of the best development of potash in that area we are going to have zero holes because they are characteristic of this area to the north. There are bodies of almost barren potash up to 500

feet in diameter, up to 500 feet in diameter.

Q Your probable designation is not an economic designation is it, as such proven ore?

A Well, again that's a term that depends on what your definition is. I would say the Potash Company of American has determined that it is economic.

Q That is based on testimony that will be offered here?

A Well, I don't know about that, but I know PCA has made a contract with us that requires such a substantial investment that they would have to consider that we have an economic situation and we are not just speculating on the ground without high potentials.

Q Mr. Donegan, could you define specifically the area where you feel these commercial deposits of potash exist as opposed to your overall interpretation?

MR. BLACKMAN: Mr. Chairman, I think that Mr. Kellahin has gone quite far afield in this exploration of commercial. I very carefully didn't ask Mr. Donegan any questions about commercial potash when I was asking him on direct examination. I have a witness who understands this situation who will be able to do it. I don't mind him doing it, if it is all right with the Commission.

MR. KELLAHIN: If the Commission please, I think we will come back to the reasons of the New Mexico Statutes and the Rules and Regulations of this Commission and the Order entered by the Commission at the previous hearing. We are talking about commercial deposits of potash, and clear up to the present I have been trying to help this Witness to arrive at some conclusion that there is commercial deposits of potash which he has consistently refused to do. If there are commercial deposits of potash in any area here we would like to know it.

MR. PORTER: What is your question, Mr. Kellahin?

MR. KELLAHIN: I asked him with reference to Exhibit 16 to point out on there where, in his opinion, there are actually commercial deposits of potash as opposed to his projections of probable ore bodies to which he has been testifying.

MR. PORTER: Mr. Kellahin, we feel that this question should be deferred to the next witness. We feel this witness told where he feels there are potash -- the existence of potash is known to be, and the Commission will expect the applicant to show where this commercial potash, in their opinion, is located, and I believe they intend to do that with the next witness.

MR. KELLAHIN: That's all the questions I have of this witness.

MR. PORTER: Does anyone else have a question of Mr. Donegan? You may be excused.

(Whereupon, a short recess was taken.)

MR. PORTER: The Hearing will come to order please. Mr. Blackman, would you call your next witness?

MR. BLACKMAN: If the Commission please, I have been informed by the U. S. Geological Survey that their Mr. Van Sickle will identify the potash enclave map that was prepared by them. He is not my witness, he is not appearing on behalf of either party, except on behalf of the Geological Survey, and I think that since we are talking about the location of the ore zones and things of this kind. This is the same map which is identified as Exhibit 6 on the previous hearing. This is just prints of it; we had smaller prints made for convenience. But the Geological Survey, Mr. Van Sickle can come forward just to make it easier for the record I will ask you to identify the map and make a statement about it, unless you would prefer to do it.

MR. PORTER: You have another witness?

MR. BLACKMAN: I have another witness on the basis of the commercial side of this thing.



MR. PORTER: Yes, sir.

MR. BLACKMAN: He will be a witness on both of those maps, and I thought I would prefer to have both of them in.

MR. PORTER: You feel it's in order now that the USGS witness be called at this time?

MR. BLACKMAN: I think it would be more in order to do it that way.

MR. PORTER: Yes, sir.

(Whereupon, a discussion was held off the record.)

MR. PORTER: Is there any objection to Mr. Van Sickle being sworn at this time and appearing in this case?

MR. KELLAHIN: We have no objections.

MR. PORTER: Don, would you take the stand at the end of the table, please, and be sworn?

(Whereupon, the witness was sworn.)

MR. PORTER: Mr. Van Sickle, you have a map in your hand, would you like to post that on the wall and tell us what it is?

(Whereupon, a discussion was held off the record.)

MR. PORTER: The Exhibit has been posted, now

Mr. Blackman, why don't you go ahead and question the witness?

MR. BLACKMAN: All right.

D. M. VAN SICKLE

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

DIRECT EXAMINATION

BY MR. BLACKMAN:

Q Would you state your full name, please?

A Donald Van Sickle.

Q Your occupation?

A Area Geologist, Conservation Division, Southern Rocky Mountain Area, U. S. Geological Survey.

Q How long have you been Area Geologist?

A Seven years.

MR. BLACKMAN: I don't present Mr. Van Sickle as an expert witness, but I think it would be in order that he be accepted as such.

MR. PORTER: The Commission recognizes Mr. Van Sickle as a qualified geologist.

BY MR. BLACKMAN:

Q Mr. Van Sickle, has the Geological Survey under your jurisdiction prepared a map which is now posted on the

on the board behind Mr. Porter?

A Yes.

Q Is that map identified as USGS Exhibit Number 1 in this Case?

A Yes, it is.

Q Do you have a statement that you care to make concerning that map, Mr. Van Sickle, the auspices under which it was made?

A Yes, I do.

Q The basis under which it was made and anything else you might care to add?

A The title of the map is, "Map Showing Distributions of Potash Deposits in the Carlsbad Area, New Mexico", dated May, 1974. This map was prepared under my supervision on orders from the Chief Conservation Division, U. S. Geological Survey. The Director of the U. S. Geological Survey and the Secretary of the Department of Interior concurred with this order. The map, as directed in the memorandum was made available to the public June 3, 1974. Areas shown as measured for emphasis "Mineable Potash Reserves" and indicated emphasis "Mineable Potash Reserves" were determined from core hole and log data on file with the U. S. Geological Survey in Carlsbad, New Mexico, in conjunction with reserve

maps submitted by potash lessees, using the following guidelines: Mineable potash ore, minimum quality and thickness greater than 4 feet at 10 percent  $K_2O$  as sylvite, or 4 feet of 4 percent  $K_2O$  as langbeinite or equivalent combinations of the two. The criteria used for measured reserves: (a) Measured ore will be delineated by data points no more than one-half mile apart if geologic inference shows these projections to be reasonable. (b) Measured ore will not be delineated by less than three data points that meet all other distance and thickness and grade criteria. (c) Measured ore will not be projected farther than one-half mile from a data point which meets thickness and quality standards where no projection or geologic inference data exists. Indicated reserves: That area where spacing of data points does not meet measured ore criteria yet data points show mineralization higher than minimum thickness and quality. The minimum quality and thickness criteria corresponds to the U. S. Geological Survey classification standard in use for several years which identifies those U. S. lands that must be leased competitively.

Although this map is a composite of all ore zones, these criteria were confined to each individual ore zone, that is three data points no more than one-half mile apart

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with potash of greater quality and thickness in separate ore zones did not qualify as measured. Separate overlays were prepared for each of the major ore zones; combined overlays were prepared for the other ore zones.

The Geological Survey definitions that are currently being used for measured reserves or resources for which tonnage is computed from dimensions revealed in outcrops, trenches, workings, and drill holes, and for which the grade is computed from the results of detailed sampling. The sites for inspection, sampling and measurement are spaced so closely that the geologic character is so well defined that size, shape, and mineral content are well established. The computed tonnage and grade are judged to be accurate within limits which are stated, and no such limit is judged to be different from the computed tonnage or grade by more than 20 percent.

Indicated reserves or resources for which tonnage and grade are computed partially from specific measurements, samples, ore production data, and partially from projection for a reasonable distance on geologic evidence. The sites available for inspection, measurement and sampling are too widely or otherwise inappropriately spaced to permit the mineral bodies to be outlined completely or the grade

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established throughout.

(Whereupon, a discussion was held off  
the record.)

BY MR. BLACKMAN:

Q If the Commission pleases, Mr. Van Sickle, I hand you a document which has been marked for convenience, Exhibit Number 4, and ask you if this is the Interior Department order under which you prepared this map? I submitted that and identified it the last time.

A Yes, sir.

MR. KELLAHIN: If the Commission please, maybe I misunderstood Mr. Van Sickle, but I thought he was proposing to give just the criteria, is that correct, Mr. Van Sickle; the basis for your map rather than this order?

MR. VAN SICKLE: That is what I just read.

MR. KELLAHIN: Yes, sir. Do you have copies of it?

MR. VAN SICKLE: Oh, yes.

MR. KELLAHIN: I thought that was what you were proposing to offer and we would like to have that if we could.

MR. PORTER: Do you have some extra copies?

MR. VAN SICKLE: I have three extra copies.

MR. PORTER: Give those to Mr. Kellahin.

(Whereupon, a discussion was held off the record.)

MR. PORTER: Mr. Kellahin, do you have some questions, I believe Mr. Blackman has made the witness available now?

MR. KELLAHIN: Yes, I do.

CROSS EXAMINATION

BY MR. KELLAHIN:

Q Mr. Van Sickle, on your Exhibit which is the same as PCA's Exhibit Number 5 offered in this Hearing or Hodges' Exhibit Number 5, in the area that is proposed to be included in the potash area which is down in the lower left-hand portion, you have an area marked as no data, is that correct?

A Yes.

Q Now, when you prepared this map did you have available hole Number 824, Section 31?

A I'm sure we did.

Q Would that hole show "ore" or "no ore"?

A I'm not sure; I don't have our individual ore zone maps here, and this map, as I said, was prepared under my supervision, and I reviewed it, but I didn't prepare the hole map.

Q Now, the holes are shown on Mr. Donegan's Exhibit, so they were available, were they not?

A Yes.

Q How about hole Number S-23 in Section 32?

A I'm sure that was available. Of 23, 30?

Q 32.

(Whereupon, a discussion was held off the record.)

BY MR. KELLAHIN:

Q In 23, 30, yes, sir.

A I believe that those core holes didn't meet our criteria for "measured" or "indicated," therefore, we show it as unmapped or no data.

Q Well, actually they show "no ore", do they not, or "barren", or do you know?

A I don't have our core-hole records here.

Q But if the cores were available, they would probably show no data?

A Well, this map just depicts the "measured" and "indicated".

Q Well, then there was no "measured" or "indicated" in those holes, is that what you are saying?

A Apparently not.



Q Would the same be true of hole S-20, Section 30, as in 23, 30?

A In Section 30?

Q Yes, sir, in 23, 30? Immediately north of the other holes that we are talking about.

A Are these holes located on -- they should be on this map here, right?

Q Yes, sir, they are.

A I would say that would be the case.

Q And the same is true of S-22 in Section 25 in the 29th there, which would be adjacent to that?

A Yes.

Q Your map does not show the KPA boundary, does it?

A No.

Q Are you aware of it?

A The none potash?

Q Yes, sir, the known-potash area?

A Yes.

Q You didn't see fit to include it on this one?

A No, because this map will change the known-potash area boundary.

Q Have you changed the known-potash area map as yet?

A In effect, this is the known-potash area boundary

now.

Q This is it?

A Yes.

Q It follows around through the white area where it says, "no data"?

A Yes, this map will essentially become, or delineate between those U. S. lands which must be leased competitively.

Q Now, as I understand your testimony was that you have, under your directions, you had to have data points no more than a mile-and-a-half apart?

A Right.

Q Is that throughout the area you have included in showing mineable or, or indicated mineable ore?

A For mineable the data points had to be at least three data points no more than one-half mile apart showing more than the minimum in the same ore zone.

Q What is the basis for your mile-and-a-half projection; is that an arbitrary standard you have established?

A Yes, this we discussed with the mining supervisor and we determined that in this potash area that we could delineate these areas using this criteria.

Q Delineate it with what degree of certainty?

A Well, for the degree of certainty for which we

prepared the map.

Q Well, we will come to that in a moment. You made another statement about projecting no more than a half-a-mile where there is no other criteria available?

A That is correct.

Q How many of those do you have within the area you show here?

A Well, it is just how many wells, core holes, data points.

Q You projected only a half-a-mile?

A That's all primarily around the outside edge.

Q You projected, in other words, a circle in a diameter of one mile, is this what it would amount to?

A Correct.

Q Now, you made reference to the Chief of the Conservation Division, Wayland's direction for the preparation of this map. I would like to call your attention to Part 2, Paragraph C on Page 3 where you are directed to delineate on this map the presently unmined areas which are considered to contain mineable reserves of one or more ore zones, i.e., those areas enclaves where potash is known to exist in sufficient thickness and quality to be mineable under present day technology and economics. Did you do that?

A We considered that we have done it, yes.

Q What present-day-technology considerations did you have?

A Well, those were the mining supervisor's input into this map; I prepared it in conjunction with the mining supervisor.

Q Is he present, and will he testify?

A No, he is not present.

Q What economics did you consider?

A There, again, that's in the mining supervisor's area of expertise.

Q And, you can't testify as to the economics of mining this area?

A No.

Q Now, the order further directs that the potash lessee will be responsible for submitting sufficient data to justify any area which is proposed as a mineable reserve; the area geologist in consultation with the mining supervisor will review the information furnished in this regard and make any division in the boundary, and so forth. Did you do that?

A Yes.

Q Did the potash companies, in your opinion, furnish

sufficient data?

A Yes.

Q Did all the companies furnish the data requested?

A Yes, they did.

MR. KELLAHIN: Thank you, Mr. Van Sickle.

MR. PORTER: Any further questions? Mr. Nutter?

CROSS EXAMINATION

BY MR. NUTTER:

Q Mr. Van Sickle, I have heard discussions in this Hearing and other hearings on the potash area about salt horses; I would like to ask you a couple of questions about salt horses.

Now, if you have a salt horse, is that salt horse used or let's say first of all that we are in an area where there is indicated or proven reserves of ore in several different zones. Now, if you have a salt horse, will that salt horse extend through more than one zone, or is it confined to one zone?

A I think it generally is in all zones.

Q It would come up and penetrate through the --

A (Interrupting) No, it doesn't penetrate. A salt horse is an area of no potash mineralization. In other words, you are in ore, then all of a sudden there is no ore,

but the clay beds continue right on through the non-mineralized, non-potash mineralized halite.

Q If you have mineralization in an off-setting well, or hole, in the 1st ore zone and mineralization in the 10th ore zone, and then you suddenly run into the salt horse in the 1st zone, is it likely that salt horse will be present in the 10th zone also?

A Well, I don't think I would want to answer that with any good certainty because as Mr. Donegan explained, the ore zones are quite -- they are not all coextensive, and so it is just difficult to say that this would happen in all cases.

Q Now, when you were making your study, I think you said that the criteria was 4 feet of 10 percent sylvite or 4 feet of 4 percent langbeinite, or a combination of the equivalents; would this be safe to say you are in an area of langbeinite only, you have this langbeinite, this 4 feet of 4 percent scattered through 4 zones, and you just had one foot in each of these various zones, it would come up to the 4 percent, would you consider that mineable then?

A No.

Q There would have to be 4 feet of 4 percent in one bed?

A That's right. It can be 3 feet of 16 percent  $K_2O$  as langbeinite, and we would then divide and bring the 3 feet up to 4 feet, and lower the percentage, but it would still be equivalent to.

Q But you couldn't have one foot of 4 percent in one bed, and one foot of 4 percent in another bed, and so on in order to arrive at 4 feet of 4 percent?

A No, sir.

MR. NUTTER: I just wanted to make sure that I understood that. That's all.

MR. PORTER: Anyone else have a question?

Does anyone want to formally offer USGS Exhibit Number 1 into the record?

MR. BLACKMAN: I would offer USGS Exhibit Number 1 into the record, and at the same time offer PCA's Exhibit Number 5.

MR. PORTER: All right, Mr. Kellahin?

MR. KELLAHIN: If the Commission please, we would object to the introduction of the Exhibit for the reason that it purports to show measured, but mineable potash reserves in one or more ore zones or indicated mineable potash reserves in one or more ore zones, and it purports to have been prepared in accordance with the directions

contained in Exhibit Number 4, Mr. Williams letter, where to show where potash ore is known to exist in sufficient thickness and quality to be mineable under present day technology and economics, and the witness supporting this Exhibit has testified that he is unable to testify either as to the technology used or the economics used. There has been no sufficient foundation made for the Exhibit, and we would object to its introduction.

MR. BLACKMAN: If the Commission pleases, it seems to me that this Exhibit having been prepared under some circumstances with which the Commission is familiar, that is that there is a substantial conflict between the Oil and Gas Association and the so-called potash group which ended up in hearings in Washington and Albuquerque and eventually this order was entered. Now, we are in a real peculiar position here in New Mexico, something that I can't really identify exactly as the problem of jurisdiction of the Oil Conservation over Federal lands, and it seems to me under these circumstances when the Geological Survey, as was testified to, has requested information from all of the potash companies, and, of course, as you well know, they already had all of the basic information already because all of the core holes are always filed with the Geological

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Survey, but they have delineated an area here which Mr. Van Sickle testified to as to what it is supposed to be and that then it is entitled to be accepted into evidence as their opinion, and you can give it what weight you wish to. It does seem to me that it should be accepted into evidence, and based on the fact that they have more information than all the potash companies put together, I think it would have substantial weight.

MR. KELLAHIN: If the Commission please, I quite agree they have more information than anybody else, and that is what we are trying to get. The witness testified that the criteria used on this map I understand is by Mr. Fulton and not by himself. We could defer admission of the exhibit until they produce Mr. Fulton for a cross examination as to exactly what criteria was used, but we are still back to the same question we started with; we're talking about commercial deposits of potash, and there is no evidence here to show commercial deposits of potash. Certainly to offer this exhibit as some indication that part of this area is commercial denies us the right of cross examination, and we object to it.

MR. PORTER: The Commission will sustain the objection and deny admission of UGGS Exhibit Number 1 and

excuse the Witness.

Call your next witness, Mr. Blackman.

MR. BLACKMAN: If the Commission please, I would like to make a request here, and it is a bit unusual. In the preparation of all of these exhibits Mr. Donegan was operating with his assistants and people in Albuquerque; they were operating down in Carlsbad and it wasn't possible for Mr. Rice to be the next witness and testify from these, he didn't see them at all except for the first time here this morning. I would like to request, even if it is a little bit early, if we could break for lunch now. I think it would save time. We could come back in a few minutes to put together the testimony, and I think it would go a lot faster.

MR. PORTER: Do you think you can be back by one o'clock, Mr. Blackman?

MR. BLACKMAN: Oh, yes, easily.

MR. PORTER: The Commission will recess the Hearing until one P.M.

(Whereupon, a recess was taken for  
lunch.)

(Afternoon Session)

MR. PORTER: The Hearing will come to order please.  
Mr. Blackman, do you have another witness to come forward?

MR. BLACKMAN: Yes, sir. Mr. Rice will you take  
the stand, please?

(Whereupon, the witness was sworn.)

DAVID RICE

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

DIRECT EXAMINATION

Q Would you please state your name for the record,  
your full name?

A David Rice.

Q Mr. Rice, what is your occupation?

A By profession I am a mining engineer; I'm Vice  
President of Potash Company of America.

Q Mr. Rice, would you please give us an outline of  
your education and experience?

A I hold a degree in mining engineering from the  
University of California, Berkeley, Class of 1940; gold  
mining for Dumont Mining in California, Beauette Mining  
in the Philippine Islands; Consolidated Copper Mines in  
Nevada; Western Gold Mines in Arizona, Potash Company of

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America since 1950.

Q Since 1950 what positions have you held with Potash Company of America?

A I joined the Potash Company of American as a mine engineer, subsequently, into various mining supervision jobs as face boss, mine foreman, mine superintendent, operations manager, and Vice President of the Company since November of 1973.

Q How long have you been operations Manager, Mr. Rice?

A Since December, 1960.

Q In the course of your duties as operations manager, and since then as Vice President, you would have participated in marketing conferences and decisions on a regular basis?

A Yes, I have.

MR. BLACKMAN: Will the Commission accept Mr. Rice's qualifications as an expert in this area?

MR. PORTER: Yes, sir.

BY MR. BLACKMAN:

Q Mr. Rice, are you familiar with the current prices at which potash is being sold?

A Yes, I am.

Q Would you testify for the record as to what those

prices are, and how they compare with prices, say a year ago?

A Now, you are talking about --

Q (Interrupting) Let's talk about muriate.

A Muriate of potash?

Q Yes.

A Well, I should, Mr. Blackman, go back to perhaps 1969, 1970 which was a terribly depressed period in our industry, and potash was selling in this country, as well as in Canada at lows ranging from \$10 to \$12.50 a ton. Since then, beginning about two years ago, the situation has reversed. Potash is in an extremely low supply both in Canada and in the United States. Potash prices have answered the supply and demand and prices, fortunately, have increased where instead of selling for \$12.50 a short ton, it gradually moved up into the \$27 to \$39 range, depending on the type of potash sold. This is for the muriate of potash.

Q In several grades, and what was the highest grade price of the muriate of potash according to current price lists?

A On the agricultural grade, the soluble muriate of potash, the white crystalline material, which sells on the price list close to \$35 a ton.

Q How about the granular grades?

A Granular grades have also moved up. Of course, the standard continues to be the lowest price, and that is selling for around \$25 a short tone with the course and granular perhaps in the \$27 to \$28 range.

Q The average prices at which muriate of potash would be sold then would depend upon the weighted average of the several products making up the muriate grades?

A Of the three major grades, yes.

Q Are you familiar, Mr. Rice, with the market for sulphate of potash?

A Sulphate of potash has been in even shorter supply. As you know, there are only two world producers of sulphate of potash, the Sulpha-Mag and the High-K, Duval and International Minerals.

Q You are now referring to sulphate of potash magnesia?

A Correct.

Q Which we have called here variously SPM, and IK, and Supha-Mag, and as we have referred to it here, langbeinite.

A Langbeinite, that is correct. It has a certain number of trade names and generic names. That material which is solely produced in the Carlsbad area, and the entire world

at the present time by two producers, Duval and International Minerals, and I think they have been out of inventory for a long time. As a result the market price of these materials has climbed astronomically in the last few years from perhaps in the \$17 range and now selling \$27 to \$29; I believe the standard grade sells for \$27 and the granular at \$29.

Q I think the record will show that Mr. Elders, an employee of Duval who do make and sell this product: he testified two weeks ago that the current price was \$27 for standard and \$29 for the granular grade.

Do you have an opinion as to whether substantial additional quantities of langbeinite could be sold at the current spot price?

A I have no question in my mind, knowing the general shortage throughout the world for the potassium sulphate in various forms.

Q Would you explain, if you can, why it is that the demand for sulphate potash materials has accelerated faster than it has for muriate?

A First, the supply is very limited, and limited to the two Carlsbad producers mentioned. To date there have been no discoveries of langbeinite in Canada or any major

deposits anywhere in the world, so the supply is limited to the capacity of Duval and International Minerals to produce. The need for potassium sulphate is only to increase as the soil becomes saturated with chlorides which are somewhat detrimental to certain crops. The traditional crops, of course, are tobacco, potatoes, and a number of crops that cannot tolerate a high level of chloride, so these crops continue to expand and require a greater amount of potassium sulphate. In addition, many farmers lean towards using potassium sulphate rather than potassium chloride since all plants need potassium, but not all plants need chloride, and in time the soil becomes saturated with chloride and they switch to the langbeinite-type materials. In addition, the magnesium and the sulphur play an important role in the fertilization of the plant, both the magnesium and the sulphur are important plant nutrients. So the demand for these things keep on increasing with the quantity that is being produced at the present time rather fixed.

Q Do you know of any other deposits of langbeinite in the northern, or western hemisphere?

A I know of no deposits other than in the Carlsbad area, Mr. Blackman.

Q This is not a potash that is being worked or



exploited, but one which is known geologically to exist, is that correct?

A That is correct.

Q Mr. Rice, are you generally familiar with the grades and thicknesses of ore which are currently being mined in the Carlsbad basin?

A Yes, Mr. Blackman.

Q By several companies?

A Right, I do.

Q Are you generally familiar with the processes which are in use by the several companies to beneficiate the ores that they have?

A Mr. Blackman, as you know, a lot of this information is proprietary and held pretty tightly by most companies as their private process, but on a general basis I think all of the producers have a general idea of what the other fellow is doing. Yes, I have a general knowledge.

Q Well, let me put it a little more specifically. Let us say that you know, for instance, that Amak Chemical Corporation uses the flotation process?

A That is correct.

Q And you know that they use a mean as a reagent for the purpose of separating the potash from the salt?

A That is a fact.

Q And, you know that they use other reagents for the purpose of blinding the clay in order to keep from wasting the mean on the clay?

A That is correct.

Q Now, what specific information -- you said generally you know -- specifically do you know how much of each reagent and possibly the exact kind or combination of reagents those companies are using?

A I have some knowledge of the reagents that they use. I don't really know specifically about how much of each reagent.

Q I think the patents generally describe it as a usable amount?

A That is correct.

Q Whatever that means. Mr. Rice, I will hand you a document which has been marked for convenience as PCA's Exhibit 18, and ask you if you will describe this document?

A You have handed me two sheets of tabulations, Carlsbad Basin Tonnage, and Grade for the Years 1973 and 1974, listing the then producers of potash in Carlsbad outlining their ore tonnage hoisted and the ore grade of that tonnage by months.

Q Now, would you explain how this report came into being; is this report made on a regular monthly basis?

A This is made on a regular monthly basis.

Q And how is it made?

A Currently Amax Chemical has volunteered to tabulate the information for us and at the end of the month each company calls to the Chief Clerk at Amax and we provide the information, the tonnage, and the ore grade hoisted, and this has been done for quite a few years.

Q You note on there, Mr. Rice, that in the case of International Minerals and Chemicals and Duval Corporation they report only the tonnage of sylvinite?

A That is correct.

Q They do not report their tonnage and grade of langbeinite?

A That is correct.

Q And, the other companies on the list do not mine or process langbeinite, so the report covers their sylvinite only, also?

A That is correct.

Q So that the note on the report here, "That IMC and Duval only report sylvinite" really applies to everybody, it applies only to sylvinite?

A That is correct. That was at the request of the other companies, Mr. Blackman, that did not produce langbeinite. At that time we were only interested in sylvinite and both IMC and Duval averaged out the langbeinite and the sylvinite and came up with one single value which meant nothing to the rest of us, and so at the request of one company we asked them to only report the sylvinite grade.

Q Mr. Rice, is this report part of the ordinary business record of the Potash Company of America?

A Yes, it is.

Q Mr. Rice, you heard the testimony given today by Mr. Donegan, and also by Mr. Van Sickle regarding the geology of the area that is in question in this Hearing and is sought to be brought within the boundaries of our 111-A; will you please comment on the viability of the mineralized zone in the area as they have described it, and refer as you wish to any of the exhibits that you find on the wall; make what general comments that you can with respect to the geology as it is within your experience and the commercial nature of the deposits as it is within your experience?

A Mr. Blackman, do you want to explain your understanding of viability?

Q Well, make it probable then, commercial and leave

out the word "viable".

MR. KELLAHIN: If the Commission please, unless the witness is testifying to studies and information that he has made of his own or based on information that has been supplied him when he came in here today, on the commercial-ability of this ore then we object to his testimony on it. I don't think the witness is qualified.

MR. BLACKMAN: Well, Mr. Porter, the Commission, the best evidence that can be obtained with respect to what constitutes a commercial body of ore is by somebody who is at the present time in charge of mining a commercial body of ore and who is familiar with the general operations in the Carlsbad district. This is the type of testimony which the Commission should have on which to base its decision as to what constitutes a commercial deposit of ore. Now, Mr. Rice concurred in the testimony as to grades and thicknesses of ore within the area that we are talking about, and I am now asking him, based upon his experience which is many and varied in the potash business and in the marketing end of it and in the mining end of it where he has had the job of meeting payrolls, to comment upon what he considers to be reasonable cut-off grades as to the potash deposits in the district, and with specific reference to this part.

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I'm not asking him to comment about, or to testify as to what grades and thicknesses are profitable to International or some other company; I'm asking him for his opinion with respect to this particular property. I don't know where I would get anybody with any better information on which to go it.

MR. PORTER: Objection overruled, Mr. Kellahin.

MR. RICE: Would you like to repeat that question, Mr. Blackman, I lost it in this discussion?

BY MR. BLACKMAN:

Q Will you please comment on the non-commercial nature of the ore bodies that have been delineated on the maps here by Mr. Donegan and Mr. Van Sickle? First of all background, and as you are going into it tell us all the details.

A Well, I'll tell you what I know about this project and I have been at the inception, and where we finally went to our Board of Directors and requested permission to go ahead. If I may digress, Potash Company of America has been in the potash business since 1930 which gives us about 44 years experience in the mining, processing and marketing of potash. We don't say we are any bigger or any smarter than anybody else; each company has its own techniques, both

in mining and in processes, but we have been desirous of entering into the langbeinite business for many years, and we have watched the development of the various lands that became available in Carlsbad; and we have watched the world-growing shortage for the langbeinite material, and we have worked very closely with our sales department as to the marketability of langbeinite and in what tonnages could they sell initially and finally as the operation grew. So the desire to enter the langbeinite business is not the whim of the moment, it was the result of considerable research both in marketing and in mining and processing.

When the Hodges Trust area became available or became known to us that perhaps it could be obtained, we again redoubled our research in this matter. Our sales department assured us that they were most anxious to enter into the business just as rapidly as they could; that our customers were wanting to know why PCA was so large in the muriate business, but was not in the langbeinite. We explained to them that the only known-langbeinite reserves to date in the world were in the Carlsbad area, and we were investigating and when we found a block of land big enough to sustain a mining operation we would enter it. And, so after many months of negotiations between our legal department and the

Hodges people we entered into an agreement to explore the possibility of developing a langbeinite operation on the Hodges ground.

The question has come up time and time again as to the viability or the commercialability of the operation. PCA has not been known to be easy with the dollar, we are investing a considerable sum currently in a drilling operation to delineate the ore body as completely as we can; we are following the known geological and mining procedures with our drilling program. We have found some very encouraging results from the seven holes that we have now drilled in addition to the 75 that have already been on the property; some drilled by the Hodges people and others drilled by other people. We are awaiting the results from our seventh hole, still in the laboratory, and we are now drilling our eighth hole, and it our intention to continue drilling the entire property until our information of the outlines of the ore body is as complete as it is humanly possible. The indications of the holes that are on the property, and also those that we have drilled so far, is that we do have a commercial langbeinite ore body. We believe a good part of that is commercial, we have gone to our Directors and they have authorized us to spend that monies are necessary once

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we have finished our drilling program, to sink two shafts which would be necessary to develop the operation: to build a railroad to that location to transport that ore to our existing plant which would have to be enlarged and modified to treat the langbeinite ore. Therefore, I feel that with the authority given us by our directors we are well on the way to developing a third langbeinite operation in the United States.

The holes which we have drilled, which are on the maps, show langbeinite of excellent quality. Some holes are marginal; one of the few we have drilled, but we have enough indication now to encourage us to proceed with a drilling campaign as actively as possible. We would employ more drill rigs, if we could get them. We have hired Pennsylvania Drilling who has done most of the potash drilling in the basin, and we have urged them to bring another rig in, but those of you in the petroleum business realize the scarcity of rigs. We are very impatient to get ahead if this development and we are doing it as rapidly as possible in the belief that we have a viable langbeinite operation, and we hope to be the third producer of langbeinite in the entire world as soon as we can get our business going and as orderly a fashion as we can.

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Is there anything else you need, Mr. Blackman?

Q Would the drilling of indiscriminate oil and gas holes throughout this area interfere with that orderly development, Mr. Rice?

A The answer, of course, is a very definite "yes." We have had to live with a number of oil and gas wells in our existing potash operation which pre-dated the potash mine, and they continue to present a continuous hazard; we leave valuable potash around it to protect the mine from any possible incursion of gas, oil, or water. I will recall to you, Mr. Blackman, that not very long ago we gave up 10 thousand acres of potash leases in Lea County that we have held for many a year, and have made a number of economic studies, and just a very short while ago decided because of the great number of wells existing in that property from our standards was no longer economical, and we surrendered those leases.

Q Do you have any figure on the amount or the value of the potash which was lost out there in second mining because of the presence of those oil wells?

MR. KELLAMIN: If the Commission please, I don't think it has any bearing on the question. We don't know how many wells there are to a section in that particular

area; we don't know any of the other facts. I don't think it has any bearing on this question.

MR. BLACKMAN: It is extremely important and very relevant to this case. The question as to what happens here when oil wells are drilled, I intend to ask Mr. Rice about the potash loss to second mining and the details of that, perhaps in reverse order as to what happens when an oil well is drilled, a substantial amount of potash is lost. Whether the Oil Conservation Commission -- let's put it this way: The Oil Conservation Commission has the obligation here of making a decision. We have two people who are on opposite sides of the fence, and it seems to me that you need all the information that you can possibly get with respect to that.

Now, here is an actual incidence in which a very large amount of money has been lost to the State of New Mexico by reason of the fact that the oil wells have been drilled through potash deposits, causing us to abandon the potash deposits. It seems to me that the details of that are pertinent.

MR. PORTER: Mr. Blackman, are you asking the question as to the value of the potash that has been lost as a result of the surrendering of the Lea County leases?

MR. BLACKMAN: It is not exactly that way, it is pretty close to that.

MR. PORTER: As I understand it you surrendered the leases.

MR. BLACKMAN: We didn't surrender the leases, no. Somebody else has the leases now, but we decided to pass them up, because we didn't think they were worth carrying anymore.

MR. PORTER: And that was because of the presence of oil and gas development on them?

MR. BLACKMAN: Yes. Well, I would rather ask Mr. Rice that question. In my opinion it is "yes", but --

MR. PORTER: (Interrupting) I thought you had.

MR. KELLAHIN: If the Commission please, my objection is simply this: We are talking about potash leases that have been turned to somebody else; they haven't been abandoned apparently, so the State hasn't lost anything yet. The question is predicated on his evaluation of ore reserves underlying an area remote from this, over in Lea County which hasn't been developed by the potash company, so we open up a whole new area, can we get the expert, Mr. Donegan, back on the witness stand to testify to the value of this ore too. We have no basis for this question, and

we think it is objectionable.

MR. PORTER: Objection sustained.

BY MR. BLACKMAN:

Q Mr. Rice, are you familiar with other -- you said you were familiar with other operations in the area, the potash area, are you familiar with the new operations in the potash area; what is going on down there with respect to new developments, besides this Potash Company of America development?

A As I mentioned earlier, Mr. Blackman, there has been a tremendous turnabout in the affairs of the potash industry in Carlsbad, where in a few years various experts predicted the demise of the Carlsbad-potash industry in face of Canadian competition because of their higher-grade ores, thicker deposits. The potash business in Carlsbad is in a remarkably good health, rather than dropping dead in the face of Canadian competition. The old existing operations are indeed very healthy, making a little money, and in addition to the operations of two companies, have announced entry into the Carlsbad area. Announced just 30 days ago in the Carlsbad papers and in technical journals, Mississippi Chemical has announced a possible investment of 50 million dollars into the rehabilitation,

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the construction of a new refinery, a plant, and they have purchased lock, stock, and barrel the Telocoyne Potash which was the old U. S. Borax, which was the old U. S. Potash. Mississippi Chemical is one of the large farm co-ops that we have in this country; they operate in the southeastern states with their headquarters in Yazoo, Mississippi. They are interested in the potash business as they, themselves, are users and very good customers of the Potash Company of America of up to 4 hundred thousand tons of potash a year. They have been having problems in meeting their demands and needs from their regular suppliers, including our company, and in order to insure a steady source of supply of one of their basic materials they will spend in the area of 50 million dollars, so they have announced, they are right now, in just a bear 30 days since acquiring the property, beginning the rehabilitation of the mine, and they have employed various consultants and experts to assist them in their venture.

A second announcement, which was only last week, in the Carlsbad current Argus, our local paper, Noranda of Canada, one of the great mining companies of the world, Canada's largest mining company, who also mines potash in the Province of Saskatchewan, Canada, has announced that they

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have exercised their option to take up the leases in Lea County just east of National Potash, and towards Kerr-McGee. How much they will spend, and whether they will go into operation, I don't know, but they have exercised their option, they have bought up the leases from the present owners for an unknown sum of cash.

I should go back to Mississippi Chemical, in addition to the 50 million dollars that they have announced as a plant investment, it is our educated guess, although they have not announced, that they paid in the area of 20 to 22 million dollars for the old U. S. Potash properties.

I believe those are two companies that have announced entry into the potash business in addition to the six of us that are now operating.

Q Do you have any information about the operations of Day Mines or Permian Potash?

A Day Mines, I'm sorry it slipped my memory, to digress a little bit, Carlsbad, we had many, many, many dire predictions a few years ago as to the continued health of the community, not only of the industry, now we are concerned about the lack of housing, with the oil and gas, Becker Industries have moved in, Mississippi Chemical, Noranda, and Day Mines have announced.

KULLAHIN: If the Commission please, this is all very interesting, but I don't think it has anything to do with whether there are commercial deposits of potash underlying the areas proposed to be brought into R-111-A. The Day Mines, I don't know where they are, certainly Teledone and now Mississippi is a way north of here; it has nothing to do with what we are talking about, and I think in the interest of time we should stick to the subject.

MR. BLACKMAN: Gentlemen, I think that the general situation with respect to the potash industry is certainly pertinent. If we are going to have to go on the basis of what is brought forth in this Commission we should have a general picture.

MR. PORTER: Mr. Blackman?

MR. BLACKMAN: I would like to make an additional statement, if you please. I believe that the question of what is commercial, at any particular time --

MR. PORTER: (Interrupting) Mr. Blackman, I believe we are working in the dark.

(Whereupon, a discussion was held off the record.)

MR. PORTER: Go ahead.

MR. BLACKMAN: I think the question of whether



a particular ore deposit is commercial or not depends upon principally three things: economics, politics, and technology. I'm here to attempt to show something of the economic situation. I can show you something through this witness, again, about a political situation which has an effect on the potash industry, and Mr. Rice is familiar with the technology, and I believe this is what the basic question is, so I think that the economics of an area or something of this kind are quite important to the consideration. You just can't decide that "X" feet of "Y" percent is commercial. I don't think you can draw a positive line of that kind. You are in an area, you can say that something below this is probably not commercial at this time, and something above this certainly is; then you have a gray area.

MR. PORTER: The Commission will sustain Mr. Kellahin's objection. We recognize that changing conditions have stimulated interest in the area, but we have to get back to the question. This decision is going to have to be made on evidence concerning the particular area in question here as to whether or not additional acreage is to be included in R-111-A, so the objection is sustained.

BY MR. BLACKMAN:

Q I will then be able to, since I need to put in other evidence, what other people are able to do, since whether something is commercial or not depends upon the available techniques -- what people can do -- not necessarily what we're doing; what other people can do is important. For instance, I'll ask Mr. Rice to refer to PCA Exhibit Number 18, and if he will note thereon and verify for me the fact that the highest ore grade noted in that period of time which is 18 months, is 10.03 percent, and the lowest is 7.71 percent. Would you verify that for me, Mr. Rice, from that Exhibit?

A Will you repeat that again, Mr. Blackman?

Q I asked you to refer to Exhibit 18 with respect to tonnage and grades mined by International Minerals during the 18-month period, and verify that the highest was 10.03, and the lowest was 7.71?

A That is correct.

Q Those, Mr. Rice, are average grades represented by that report, is that correct?

A That is correct.

Q Now referring to Mr. Donegan's testimony with respect to the exhibits on the board, particularly

Exhibit 16, the perimeter lines surrounding the colored areas on that map are cut-off lines, are they not, and not average grade lines?

A That is correct.

Q The proposed operation of PCA in this area you testified was principally valuable for its langbeinite deposit, are there also valuable deposits of sylvinite ore in that area?

A Yes, Mr. Blackman, we are very much interested in the sylvinite horizons, especially in the 10th ore zone that shows considerable thicknesses of sylvinite, some running in the area of 10 percent  $K_2O$ .

Q Mr. Rice, based on your study of this area, and the evidence Mr. Donegan and Mr. Van Sickle have put in this morning, do you consider that the cut-off points that were used by Mr. Donegan in the preparation of Exhibit Number 16 are reasonable?

A Very reasonable.

Q Are you familiar in general terms with the political situation in Saskatchewan, and in Ottawa as it affects the potash industry and as it might affect the potash industry in New Mexico?

A Yes, I am, Mr. Blackman, only in general terms

in what is available to the public media.

Q Will you just explain a little bit about what you know is going on there as of now?

A I'll try to keep it as briefly as possible, Mr. Blackman. A basis for considerable interest in the Carlsbad potash industry by Noranda and others, including companies operating in Carlsbad and in Canada is due to the very uncertain political situation now existing in the Saskatchewan Province as exhibited by the Saskatchewan Provincial Government.

MR. PORTER: Mr. Blackman, I don't believe the Commission would consider this testimony pertinent to a determination concerning this particular area.

MR. BLACKMAN: You are making a ruling to that effect?

MR. PORTER: Yes, sir.

MR. BLACKMAN: Then I will offer, as an offer of proof, if the Commission please, that the political situation in Canada is extremely important with respect to the potash situation in New Mexico, and in particular to this area as to what constitutes a commercial body of potash. The Federal government in Canada, and I propose to prove this by this witness, and hereby offer him as taking the

position that the Province of Saskatchewan does not have the authority to tax both potash and oil, as a matter of fact, on an income tax basis. The Saskatchewan government, on the other hand, has taken the position that they do, and they have also taken the position that both potash companies and oil companies up there are entitled only to a reasonable rate of return on their investment, and, therefore, the government will tax them the difference between what constitutes a reasonable rate of return and what they sell it for. The Federal government has taken the position that that tax which Saskatchewan has proposed will not be allowed as a deduction. Therefore, the potash companies in Canada will -- they are threatened with a tax of substantially more than 100 percent of the profits. The oil companies have published something that they estimated would be in the neighborhood of 130 percent of their profit. Now the obvious result of something of this kind is an increase of value to potash in New Mexico. The political situation is extremely important and I intend to argue in my closing that we should have, in the United States, control of our potash sources. We should control our fertilizer sources to the extent possible, and, therefore, the Commission should take into consideration the political situation in addition to the economics and that.

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Now, that is the extent of my offer with respect to that particular thing.

BY MR. BLACKMAN:

Q Mr. Rice, do you know the approximate value of the total potash production up to approximately the present time, since the beginning of time in New Mexico?

A In the area of one and one-half billion dollars.

Q Do you have an estimate of what you feel we might expect as an -- I don't know if you do or not, but if you don't just say, "no" -- estimate of what the gross sales value on the present prices might be on potash contained in Exhibit 16, that might be mined within, let's say a period of 20 years?

A The figures we have worked up for a 20-year operation at the rate of production that we had estimated would bring in a gross return in the area of about 30 million dollars.

MR. PORTER: I would like to ask Mr. Rice a question. I think I missed the question. Now, you were testifying as to the expected value of potash in this particular area?

MR. RICE: Yes, sir.

MR. PORTER: Thirty million dollars?

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MR. RICE: Thirty million dollars for a 20-year life.

MR. BLACKMAN: That's all I have.

MR. PORTER: Any questions of the witness? Mr. Kellahin?

CROSS EXAMINATION

BY MR. KELLAHIN:

Q Mr. Rice, at the beginning of your testimony you testified as to some prices for muriate of potash and granular grades, and sulphate of potash, those are all refined products, are they not?

A Yes, that is correct.

Q It has nothing to do with what it cost to get them there?

A That is correct.

Q Are those spot prices, or contract prices, or what are they?

A Those are list prices, sir, as published in our list price.

Q Are those prices which your company sells potash for?

A Very close to that, sir.

Q How close?

A Oh, I would say if the list price for a product was in the area of \$28, perhaps \$25 would not be a bad figure.

Q You would be selling it at \$25?

A Yes, sir.

Q Is that a spot sale?

A We sell very little potash on spot sales, we have to anticipate production over a year basis and some over long periods of time. So, if a customer calls up and says, "I need a carload of potash right away," and he is not a contract customer the chances are that he would not get a spot purchase; we do not have that kind of inventory on hand.

Q Your product then is sold on a long-term contract?

A On an annual contract, sir.

Q What are the prices on those contracts?

A That is proprietary information, I'm sorry Mr. Kellahin.

Q You are testifying as to the value of the potash, Mr. Rice, you are not willing to give us the information of what you are selling it for?

A No, sir, I'm not. I look in this room and I see some competitors here, and this information is of general



knowledge, sir, and the information that I have, I must apologize, had to remain proprietary.

MR. KELLAHIN: If the Commission please, I move that Mr. Rice's testimony as to the price of potash, and his testimony as to the value of the potash in this area be stricken from the record.

MR. BLACKMAN: Mr. Chairman, I think Mr. Rice answered the question when he said that if the price list showed \$28, the \$25 would be in the park as to the amount of realization that you could get.

MR. KELLAHIN: If the Commission pleases, he testified that is not what he is selling it for, though.

MR. BLACKMAN: He testified that was what he was getting.

MR. RICE: I said that if the price list stated \$27, \$25 would not be far from the figure that we sold it. Now, the selling of potash, as you well know, is a very complicated business. The quantity that you buy, the length of the contract, and so it varies from customer to customer depending upon the quantity that he purchases, or the time that he purchases it, so I cannot give you any one figure as a price for any single quality.

MR. KELLAHIN: Can you give us an average figure?

MR. RICE: I would say the \$25 is not far.

MR. KELLAHIN: Not far, is it the average?

MR. RICE: It could well be, sir.

MR. PORTER: Incidentally, Mr. Kellahin, the Commission will deny your motion to strike the testimony.

BY MR. KELLAHIN:

Q Then the best price you could give us is \$25?

A I would say that would be in the ball park, sir.

Q That is not necessarily what you are selling it for?

A Not necessarily so, it is a good average figure.

Q Now, you testified that the gross revenues in this area, in your estimation, will amount to 30 million dollars; what do you base that on?

A The existing core-hole information that we have, the rate of production that we might perhaps be contemplating, and again that would depend on market conditions and the existing price of potash, of langbeinite. Now, what it will be 10 years from now, five years, two years, or even next year, I have no knowledge, sir.

Q How much potash is there in this area?

A We are looking for about -- in the area of about 15 million ton initially.

Q What grade of potash?

A The best possible.

Q What I'm asking in connection with your 30-million-dollar figure, what grade did you use in making this estimate?

A I would say that about a 6 percent would be in the ball park. We would mine some lower than that, and we would certainly hope to mine some higher than that.

Q The amount of potash and grade are based solely on the core information which appears on these various exhibits that you have?

A That is all we have, sir.

Q That's all you have?

A Yes, sir.

Q You are still coring?

A We are still coring as rapidly as we can.

Q Now, you testified that your Board has authorized the sinking of two shafts, is that correct?

A If the drilling justifies the expenditure.

Q And, you don't know yet whether it will or not?

A No, sir, I don't.

Q Have you exercised your option on this property yet?

A We are exercising the option in steps.

Q A piece at a time?

A Yes, sir.

Q Have you exercised it on any portion of this property as yet?

A We are in the first part of our contract which is to drill 15 holes, and we are required to drill 15 holes, and if those warrant further capital expenditure we will proceed.

MR. PORTER: Fifteen holes in the area on Exhibit 16?

MR. RICE: That is correct, sir.

BY MR. KELLAHIN:

Q And if the 15 holes don't show proven reserves you won't exercise your option?

A No, sir.

Q Then it is your testimony, as of today?

A That is correct.

Q You don't know whether you have got commercial potash here or not?

A We have in a considerable area in which our first 6 holes along with the information of the 75 pre-existing holes, so there is a considerable delineated area that we do know commercial langbeinite does exist.

Q Do you consider that proven commercial ore?

A Yes, sir.

Q How many cores to a section?

A Right now we are spot moving along; we've got 8, I think within a 4-section area, and as you know the way these things are done, I'm not an exploration geologist who will step out in the areas where most favorable holes are and eventually cover most of that area.

Q Well, if this is a commercial ore body, are you prepared today to go ahead and sink a shaft and build your railroad?

A Absolutely.

Q But you haven't elected to do it yet?

A We haven't finished our drilling program, sir. If we knew exactly where the ore body was, and the exact quantities and position then we would be foolish to drill 40 or 50 more holes.

Q Well, let's talk about the 52 sections that are proposed to be included in this area. You don't know whether that overlays commercial deposits of potash throughout the entire area or not, do you?

A I'm pretty sure it does not cover the entire area, but there are many promising enclosures that we must

drill further to fully delineate the ore body, sir.

Q On your Exhibit 18 you were asked as to the highest and lowest percentage of ore shipped by IMC, and you gave the figures 10.3 percent and 7.71 percent, what is that figure?

A That is the  $K_2O$  or the potash content of their sylvinite ore.

Q In other words, a ton of ore would contain that percentage of potash?

A That is correct.

Q Now, in the mining operation itself, do you know what foot percent they were mining?

A No, the information I have does not provide the thickness of their ore body, but having visited their mine, I have not visited that area specifically, in general they are mining in a height of six to seven foot thickness.

Q But the foot percent would be a very determinative factor as to whether a deposit is commercial or not, would it not?

A Very definitely.

Q You don't have any figures?

A I don't have any for IMC, no, sir.

MR. KIDLEMAN: Thank you, Mr. Rice, that is all

I have.

MR. PORTER: Any further questions, Mr. Blackman?

MR. BLACKMAN: Let Mr. Nutter ask the questions.

CROSS EXAMINATION

BY MR. NUTTER:

Q Mr. Rice, when you mentioned that you felt like you had mined 50 million tons in 20 years, what percent depletion would you have in this area at that point, do you have any idea?

A We have no idea, or I don't have any idea, sir.

Q I see.

MR. NUTTER: Thank you, that's all I have.

MR. PORTER: Mr. Blackman, I believe you had some more questions.

MR. BLACKMAN: I wanted to clarify that same thing.

REDIRECT EXAMINATION

BY MR. BLACKMAN:

Q As I understood it, perhaps I understood it wrong, you were talking about two-hundred-thousand tons per year of product out of this area, were you not?

A I am talking about product, yes, sir.

Q And two-hundred-thousand tons per year over a period of 20 years would amount to 4 million tons, wouldn't it?

A Of product?

Q Of product.

A Yes, sir.

Q And, the four million tons of product would be multiplied by a price of product using Mr. Elder's figure of 27 to 29, taking an average of 28 you would have four million tons times \$28?

A That is correct.

Q It would be something over a hundred million dollars, rather than the 32 million dollars, as I believe you used?

A I used that figure erroneously, Mr. Blackman.

MR. PORTER: Any further questions? No further questions, the Witness may be excused. Do you have any more witnesses, Mr. Blackman?

MR. BLACKMAN: No, that's all I have, Mr. Porter, with the possible exception of something in rebuttal, but that's all.

MR. PORTER: Mr. Kellahin, are you ready to call your first witness?

MR. KELLAHIN: I would like to call Mr. Edmonson.

(Whereupon, the witness was sworn.)

(Whereupon, a short recess was taken.)



MR. PORTER: The Hearing will come to order, please. Mr. Edmonson can sworn as the first witness, I believe, but it develops that Mr. Blackman has not offered his exhibits, so at this time you may do so, Mr. Blackman.

MR. BLACKMAN: Mr. Chairman, at this point I would offer in evidence Exhibit 1 which is a lease map, put in two weeks ago; Exhibit 2 which is the R-111-A map, it shows the two secondary areas in the R-111-A map, Exhibit 3 which is the 1965 order of the Department of the Interior; Exhibit 4 which is the 1974 order of the Department of the Interior.

I might ask if Mr. Kellahin has any objection to those four exhibits.

MR. KELLAHIN: If the Commission please, I don't feel that either Exhibit 3 or 4 has any bearing on the Case before the Commission, and the Commission, of course, is already familiar with it, so we won't make an objection.

MR. PORTER: The Commission will admit Exhibits 1, 2, 3, and 4.

(Whereupon, Exhibits 1, 2, 3, and 4 were admitted into evidence.)

MR. BLACKMAN: Next I would offer Exhibit 5 which is the U. S. Geological Survey map. You have already ruled on that that you will not accept it, I will offer it again

so that you will again turn me down.

MR. PORTER: Yes, sir.

MR. BLACKMAN: I will offer at this time Exhibit 6 which is a cross section of a map on which several potash area holes which appears on the wall.

MR. PORTER: Yes, sir.

MR. BLACKMAN: Then I will offer again, Exhibit 7 which is a report on the 5th ore zone, and a map prepared by the U. S. Geological Survey which I introduced two weeks ago, offered two weeks ago, and was objected to; you ruled that it was not acceptable, and I don't have any hopes that you would change your ruling right at this minute. I will offer Exhibit 9 which was identified this morning as a gamma neutron log of the Skelly well. I have one which is Exhibit 8 which I will offer later as I have not identified it yet, but I will. Then I will offer Exhibits 11, 12, 13, 14, 15, and 16 which are the large maps appearing on the wall, prepared and identified by Mr. Donegan; and Exhibit 18 which is the Carlsbad basin tonnages and grades which was identified recently by Mr. Rice.

One exhibit, Exhibit Number 8 is a Permian Basin Potash deposit report which is another Geological Survey report prepared by Mr. Charles Jones, and I would anticipate you

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would make the same ruling on that as you did with the other since Mr. Jones is not here. I did hand it around, I'll simply offer it in evidence and you will rule against it, and that will complete the record at that point.

MR. KELLAHIN: Was there an Exhibit 10?

MR. BLACKMAN: There is not an Exhibit 10.

MR. PORTER: I don't recall a 10.

MR. ELACKMAN: No, I had an Exhibit 10 that I decided not to put in. Thank you.

MR. PORTER: All right, Mr. Kellahin, do you have objections to any of these exhibits?

MR. KELLAHIN: Yes, we renew our objection to 5 and 7, and we would object to the most recent one, 8.

MR. PORTER: Any objection to the other exhibits?

MR. KELLAHIN: No.

MR. PORTER: From anyone? All of the exhibits will be accepted, 5, 7 and 8 will be admitted.

(Whereupon, Exhibits 5, 7 and 8 were admitted into evidence.)

MR. PORTER: Mr. Kellahin, would you proceed with your witness?

MR. KELLAHIN: If the Commission please, we had prepared our testimony at the outset with Mr. Edmonson to

show the presence of a oil reservoir in the potash area which has been developed and is being developed by Skelly Oil Company. In view of the objections which I have made and the rulings that the Commission has made, perhaps you would prefer we confine our testimony to matters bearing on the presence of potash and nothing else, in which case we can modify our testimony at this point and confine it simply to potash.

MR. PORTER: I believe the Commission would direct you to place that limitation upon your testimony, Mr. Kellahin.

MR. KELLAHIN: Thank you.

JON T. EDMONSON

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q Would you state your name, please?

A My name is Jon T. Edmonson.

Q By whom are you employed and what position, Mr. Edmonson?

A I'm a technical specialist for Skelly Oil Company.

Q Where are you located?

A Midland, Texas.

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Q As a technical specialist what are your duties?

A My primary field of endeavor is geology, but I am utilized in other fields.

Q Have you ever testified before the Oil Conservation Commission or one of its examiners and made your qualifications as a geologist made a matter of record?

A I have.

Q In connection with the case presently before this Commission have you made a study of the area included within Order Number R-111-A?

A Yes, sir.

Q And all of the various extensions that have been made to that Order?

A Yes, sir.

Q Have you also made an investigation to determine the location of potash mines within that area?

A Yes, sir.

Q Now, referring to what has been marked as Skelly's Exhibit Number 2 which is the first exhibit to the right on the board, would you discuss that exhibit, please?

A Yes, sir. I'll read from a short paragraph here.  
(Reading) Exhibit Number 2 is a map depicting all of the enlargements of the original R-111-A boundary as shown by

Exhibit Number 2. Thousands of acres have been included in R-111-A by amendments B through H beginning in 1959, 15 years ago, and the vast majority of the acreage has not been mined at present. Some of it is even now around presently abandoned mines. (End of reading.)

Q How are those extensions shown on the exhibit?

A They are color coded, beginning in 1959 with B, down through H which I think is in around '70. They began in '59 here, which is purple; that was the B amendment. C was also in '59, shown here, also B, a little part of it is over here; D is the green; E is the brown; F, which was in '61, is an orange; G is here in '69; and H was in '70 here. The only two areas that have been adequately or even touched with a mine is this area here, that was D, the area in 1959, and an area up in this area here in 1960.

Q Now, your area C and H lies immediately north of the area proposed to be included in this Case, does it not?

A Yes, sir.

Q Has there been any mining there?

A No, sir.

Q Is there any anywhere near there?

A The closest mine is a Duval mine, say a mile to the north, a mile-and-a-half to the north of G.

Q Mr. Edmonson, was Exhibit Number 2 prepared by you or under your supervision?

A It was prepared under my supervision.

Q Is the information depicted on it derived from orders entered by the Oil Conservation Commission of New Mexico?

A Yes, sir, directly.

MR. KELLAHIN: At this time I would like to offer Exhibit Number 2.

MR. PORTER: Are there any objections to the admission of Exhibit Number 2?

MR. BLACKMAN: No objection.

MR. PORTER: We will admit it.

(Whereupon, Skelly's Exhibit Number 2 was admitted into evidence.

MR. KELLAHIN: That is all I have of this witness.

MR. PORTER: Any questions, Mr. Blackman?

MR. BLACKMAN: No questions.

MR. PORTER: The witness may be excused.

MR. KELLAHIN: I would like to call Mr. Barnock.  
(Whereupon, the witness was sworn.)

GEORGE WARNOCK

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q Would you state your name, please?

A George Warnock.

Q What business are you engaged in, Mr. Warnock?

A I am a consulting geologist.

Q Where are you located?

A Albuquerque.

Q In connection with your work as a consulting geologist have you made an investigation of the potash areas generally?

A Yes, sir.

Q Have you testified in a previous case involving the area included within R-111-A?

A Yes, sir.

Q Have you ever testified before this Commission and made your qualifications a matter of record?

A Yes, sir.

Q In connection with the Case before the Commission have you made a study of the Hooger lease area proposed to

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be included within R-111-A in this case?

A Yes, sir.

MR. KELLAHIN: Are the witness' qualifications acceptable?

MR. PORTER: Yes.

BY MR. KELLAHIN:

Q You have heard the testimony of the witnesses that has been offered by Mr. Hodges and the Potash Company of America; do you have any comments on their testimony or would you rather proceed to your exhibit first?

A Well, I think we will just proceed and we will see the differences as we go on.

Q Would you then refer to what has been marked as Skelly's Exhibit Number 3; define that exhibit and discuss the information shown on it? As you go along you might perhaps compare it to the information shown on the other exhibits.

A Fine. Exhibit Number 3 is an attempt at a polygonal-type blocking of existing commercial potash reserves in the Salt Lake area, the Leland Hodges Trust & a, a blocking of a probable area under the technical definition of the problem, and then to know, you might want to before I started, to take testimony from

Mr. Donegan principally about the erratic or complex nature of the sulphate-type potash deposits, and in general I concur one hundred percent with that. The much more difficult problem than the northern sylvite areas is even starting with the interpretation of the logs. I will briefly take Mr. Donegan's base map and this map and with a brief look at the basic hole information which appear to be in agreement, so we are starting off on the same base and the whole debate or the rest of the debate is going to revolve around how far should these things be projected, and what is commercial ore under the R-111 definition.

Just a quick explanation on the two maps: Exhibit Number 3 purports to show, as I would block them, a probable ore reserve, not proven. The criteria that we have projected probable ore, 15 hundred feet from a data point, and just for the Commission's benefit I would compare that with the similar map they saw in the Kerr-McGee case where we projected sylvite ore, proven ore 15 hundred feet, and probable ore for 2 thousand feet. Here we would project proven ore a thousand feet and probable ore 15 hundred feet, and this is simply a rationalization that the langbeinite-type mineralization tends to be more erratic principally.

The numbers of the ore zones, the hole numbers are on

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the map, generally to the upper right. The explanation should be relatively straightforward, the first number on all of these rows is the ore zone. Now another big difference with Mr. Donegan's presentation is that we tried to put it all on one map, all of the various zones from the 1st through the 10th that are mineralized in the area.

Any given hole, if you will take A-15 in the Section 5, for instance, it says the 3rd ore zone, 10th ore zone, 4th ore zone, moving left to right. As the explanation indicates, the first number is thickness, the 3.1 LA in this case is the percent  $K_2O$  as langbeinite; the 12.2 is the feet percent which is just the thickness times the percent  $K_2O$  as langbeinite; the 2.4 SY is the percent  $K_2O$  as sylvite; the 9.7 is the feet percent  $K_2O$  as sylvite; and the 16.2 E is the total feet percent equivalent measured in langbeinite, and particularly in the 4th ore zone, principally langbeinite.

Yes, the colors -- as I said, we made the attempt of putting these all on one piece of map. The purple represents intercepts in the 10th ore zone; the orange in the 4th ore zone; and the yellow in the 1st, 2nd, and 3rd ore zones.

I should point out in the case where we also concentrated on the 4th ore zone, this contour map when we get to it is also on the 4th ore zone. As a result we have first plotted the

4th ore zone, and in many cases there are stacks, as is common in the district. You have to go to the number to know whether in this case, for instance, the second ore zone is underneath the 4th ore zone so that you didn't have a confusion of colors. Some of these -- this one here -- 89, for example, has what I am going to later argue is a modest intercept in the 4th ore zone, has also a good intercept in the 3rd ore zone and has a fair intercept in the 2nd ore zone. We could only color it one color so we chose to use the color pattern of the 4th ore zone, but the point that this isn't yellow doesn't mean there isn't a 2nd ore zone underneath it. The same thing in the case of purple for the 10th.

Q The fact that this 2nd ore zone is present is shown in the figures?

A That is correct.

We have put on here, the Secretary's oil-potash area which we are all familiar with. The heavy, solid dash, the R-111-A as a limited area, the slanted dash and the USGS KPA area, which I think are all on Mr. Donegan's map with the exception of the KPA area which is important to us because it very clearly elites certain areas in here.

Q What is KPA?

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A Known potash area as defined by Mr. Van Sickle, 16 feet percent, langbeinite 40 percent, 3 percent sylvinite.

Q What does KPA mean, though?

A Known potash area.

Q What is the significance of it?

A That the USGS has determined that the foot percent cut-off which I just quoted, Mr. Van Sickle quote, exists inside of it and doesn't outside of it.

Q Does that have anything to do with the leasing operations?

A Yes, right. The known potash area, I have been told, was, is -- I heard testimony this morning that changes that -- was principally promulgated to make a decision on what lands, Federal lands, would have to go to competitive leasing and what lands could be administratively awarded to an applicant without bids. This question came up, as a matter of fact, at the debate last year on what the feet percent, economic feet percent cut-off in any part of the district should be. In several discussions and I can quote them, two which I can quote, representing what the USGS told me, that the KPA was not promulgated to show current commercial outlines, but just that area that contains enough potash where the government felt that the administrative

matter should go to bid rather than be awarded without bid. Now, Mr. Van Sickle testified this morning that by inference, that is the Secretary's new ruling which he read, says it must be currently commercial under today's technology and economics; and Mr. Van Sickle, I think, testified that the map which wasn't allowed is going to be the new KPA, and they are going to use the 16 feet percent as langbeinite and 40 foot percent cut-off as sylvinite. While I thought that was straightened out, we are now back onto that debate: What should the cut-off be in the known potash areas? And, it is the same debate obviously that we are going to have here, where should be the cut-off from an economic point of view? That is the significance of the KPA.

Q Will you continue with the exhibits then, please?

A Okay. I think we can just go through this basically fairly quickly, because I'm sure there will be lots of debate on it.

First of all, the explanation of "probable ore". Now, Mr. Donegan when asked what probable ore was, testified he was using as a general term and not in a technical sense; Mr. Van Sickle read us a definition of "indicated ore" which in the old terminology used to be "probable ore". The USGS uses "measured", "indicated", "inferred", some other people

use "proven", "probable", "possible" as analogous, so this is the indicated ore classification that Mr. Van Sickle was talking about. Therefore, it is projected 15 hundred feet from a data point, and not a thousand.

Now, the question of projected. Mr. Donegan testified that he is willing to project a half-a-mile radius or a four-mile diameter. In other words, this hole here in the middle would cover the whole section in essence, that is D-10 on 20 for the record.

I say, and testified before the Commission before to this effect, that the R-111 terminology says, "Commercial indicated reserves." Now, commercial indicated reserves are not a hypothetical outline that the USGS would put up which would put forward saying, "Yes," over the next 20 years as the economics change, this may be about the low side. These blockings are what one would take as mismanagement, with a recommendation to spend major amounts of money. You heard Mr. Rice, for instance, testify that the drilling in this area, this is the ore block they are drilling out, that they don't yet have enough data to call that proven and to now say to their management --

MR. KELLAMIN: (Interrupting) If the Commission pleases we would like to have the exhibits left up as we

are going to make reference to them.

(Whereupon, a discussion was held  
off the record.)

A (Continuing) First of all, I am the first one to admit that there are variances in this, there are variances in how far you can project the geological inference, as Mr. Donegan mentioned with regard to his map, but the real crux of this thing is that at what point you have enough data to go to your management and say, "I lay my reputation on the block, I recommend that you spend 40 to 50 million dollars for a complete new mine, new plant, whatever the case may be." I say, I advocate that you cannot go in with holes one mile apart, as these three roughly are, and say this is now ready for that decision, sign the check, and I am willing to submit that if Mr. Rice's geologist came to him and said, "This block here is now "X" tons of proven ore, give me the money," he would fire him. I am willing to suggest that.

In this area, based on what information we have, there is a good ore body starting to develop, and it is too bad for Skelly, but that is the way it is. Now, incidentally on the details of this blocking, we had just this 8.38 to the known hole since this polygonal system of blocking has



included the PCA holes which I do not have the data on, but on the basis of all of these other holes that were in here good, there is a pretty good bet that the fill-in drilling would hold up, and I wanted to be prepared to calculate it any way they came with their data, and it is not the least bit surprising to me that Mr. Rice testified that the drilling did, I think he said with one exception, held up, and this now is drilled down to about one thousand to 15 hundred foot centers, as you can see, and can take the category of proven ore. They have a small proven ore body here and they will keep drilling and stepping out from it and trying to enlarge it as he testified.

Now, the problem is: what about these areas? Here is a hole a mile-and-a-half apart. We saw later testimony that the USGS was projecting from three data points a mile-and-a-half apart, and that is just at a mile-and-a-half apart.

For measured ore, the technical definition is that is proven ore that you would recommend your management spend their money on. Now, there are no holes in between there, 7 thousand feet langbeinite, erratic minerals, there is just no way of knowing whether this thing will hold up or not. I think Mr. Rice made the statement that it was all drilled out, and they were firm about it, they wouldn't drill anymore

holes, why would they if they were ready to recommend to make a management decision. This must be drilled to see what is there, and I was shocked to hear today that the USGS has used a mile-and-a-half between data points in the langbeinite area. It is sufficient for measured ore with a technical deposition, but if they were working for most mining companies they would be fired.

Now, okay, there is the debate on how far you can project from a hole, how many holes do you need per section, and so forth? Now, we have put on these maps, we didn't color them because we didn't want to confuse them with all the other colors, the open mines, openings of IMC and Duval. I believe I heard testimony from someone this morning that Duval was mining out an area with very little data, okay, very little data relatively speaking. You see the density of drilling here, we put every hole that we had on it; I don't have the data on it, of course, so they are just locations, but there are up to 12 holes per section here in places. Specifically in Duval's case they are starting out here in an area that they don't particularly have a lot of holes, not this density, but, look, there are 1, 2, 3, 4 holes within a radius of 2640. I beg your pardon, just the radius from each of these holes is about 12 hundred feet, is it not?

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I'm sorry, I'm not supposed to ask questions. The point is, with their experience underground that thousand to 12 hundred foot projection out from a given hole is probably valid. After they started on the tighter drilling and found out what their problems were. Now, this roughly follows the 12 hundred foot radius is what we are working with here, we are working with a 15 hundred foot for probable, and one thousand foot proven. I haven't tried to show exactly what is proven, but again to just stay with one category of ore. Now, the other thing is: How many holes and so forth to block proven and probable ore under the set definition. These things out here which I have circled and used the same color on because they are lone holes would not really be probable ore, but we want to show them as well mineralized holes, that is mineralized to some degree. Incidentally, I should have said that everything that is colored has an economic intercept in one zone or another. The white holes that are not colored, in our opinion, do not have an economic intercept in any zone. So anyway, these are colored to show that they're contained in an economic intercept in one or more mineral zones, the 4th in this case, it's orange. The point is, you really wouldn't call it probable ore with only one hole to go on; if you had two or three in here, such as

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Something like this, you can then start to form a block out of it. Now, these are the IMC holes, incidentally, out here to the east and there has been made a record in front of the Commission. I don't have the logs on them, they go strictly on the -- well, I beg your pardon, we do have the logs on the ones that have the details; we don't on the ones that just have the langbeinite feet percent. We put them on principally for use on this map, and now we are going to get over to geological inference. Now on, let me summarize this map by simply saying that on a calculation where I have to go to management, W. R. Grace, if you like, and say, "Now, my people have drilled this, it looks like this now, the orange areas where there are two or more holes, I could call probable ore." If I came in and told them that this area here was ready to be mined in the 10th, I would be fired also, in my opinion. A hard, economic, commercial ore that I can calculate for this area is indicated on the map. Now, it comes out into the area under discussion, it covers about two sections of it, roughly, and we will get to the trend map with fill-in drilling, it will probably be expanded because we've got good holes roughly all the way around it, so you can expect that they are going to have a nice little ore body there in the 4th ore zone. But, right now, that

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exactly is what you could calculate as probable commercial ore reserves in this area. There is another small block here. Mr. Donegan mentioned this area, they have got a problem, they have a high hole, they filled in four holes around it and everyone of them were very low. The best you can give it is the one hole, in my opinion, is the one-hole designation as you see it there, and it is disconnected, it will probably never be mined as it too small an area to get at, depending on whether they should develop some more over in here somewhere or not.

One other point, in preparing the red areas over there, to these areas here, more specifically to this area, this map is a comparison of these, and not this one. This is a restricted-formal-ore-reserve-calculation-type development for what is now commercial, that you could make a recommendation to make a major investment on. In any case, in evaluating the hole we have used the straight polygonal system, cut the distance in half between the holes, and so forth, we went into some detail of how it works. That then results in equal weight in terms of spacing to a negative hole, unmineralized hole, as it gives to a positive hole. And this unmineralized hole in here, A 28, cuts the distance in between, exactly in half. I think you will use on some of

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these maps over here that this particular low hole, A-28, has just a little bit of an area right around it, and he makes the potential in between. We don't have so much of an argument here when we get over in to this map, but certainly for an oil reserve calculation, I think any engineer in the room would agree, you have to cut the difference between the holes for a formal ore reserve calculation.

Well we go back and forth between the two, let me move to --

Q (Interrupting) Go right ahead, sir, with Exhibit Number 4.

A Exhibit 4 is the same base, and we left on it the ore reserves calculations on it, so the contours you see here are simply added to this one. This is the foot-percent contour method used to try to determine geological trends to the mineralization. In other words, we are no longer restricted by geometric guidelines; we can just go so far, the geometric guidelines being guided by economics as we know them, of course.

Now, the foot-percent method, I think, there is no doubt that the method is accepted. Well, briefly what this is, you can see it is a contour of the feet percent on the 4th ore zone only; we have not tried to confuse the map by contouring every zone, we have indicated, in the purple,

the mineralized areas on the 10th ore zone, and over here, one here, one here, and they agree essentially with Mr. Donegan's except for how far you project them.

Generalized trends in the one, two and three, all put together as yellow, and when putting them together they make quite a body running along, cut out to the west, the yellow dashes in this case. They are not contours, they are just generalized areas covering mineralized holes.

Okay, now, I have already had some comments about the geometrical method of projecting foot percent versus just saying, based on the fact that we know the ore, the big ore zone is trending north, and northwest, which is quite true, and I basically agree with it. Therefore, it is going to generally run down through here. I agree with that also, with the exception in this case, we have enough holes out in here, roughly one per section, with a few exceptions. This one, and this one in here is a problem just for a lack of data. We know this thing is already fragmenting and breaking up, and Mr. Donegan pointed out the salt horses are occurring here as they occur throughout the district, very true, I agree with it. Anyway my interpretation of this area, as you know, has been cut out by erosion all across the bottom, and one of Mr. Donegan's previous exhibits

that showed that. This then is the lower termination of this mineralization, apart from the fact that it definitely goes over here, and we know there is some in the Permian-Potash grounds, so essentially what you have, in my opinion, is a termination, a fingering or an ending out of the potash contents of these salt beds chemically to some degree on the south along with some eroded holes. Okay, so the geological inference that this is a continuation of the big, northwest trending zone that all the potash mines are in, and while true, also it is, I think most people would agree, the termination of it, it is where it is running out.

So, the idea to say, "Well, it is coming through, and we will ignore the bad hole or put a very low area of influence on them." It is just not valid, it would be more valid up in the center of the mineralized zone as opposed to down here. Now, anyway to just quickly review this, these are just contours on the foot percent equivalent, both langbeinite and sylvite in these holes. I don't think there is too much to be said about it, this is the way it looks, plus 30 feet percent we have contoured in the brown, plus 40 in the light green, plus 50 in the blue, plus 60 in the pink, and so forth up in the very high foot percent hole of IMC over on the far east.

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Now we haven't said anything yet about where the foot percent cutoff is. Let's leave that for the moment and talk about trends. I would agree with Mr. Donegan that the general trend of mineralization through the area is north to northwest and we see when we contour this thing, it takes that shape, roughly.

This right here is a problem of data, I think as much as anything, we do not have these IMC 336 or 17 or 415 holes, and this would probably show a variance in here a little different if we had that data. We also don't have the D-25 or didn't have it, we haven't calculated it, so we didn't try because we don't have the 388, so we didn't try to run these lines any further. Now, what does this show, assuming that this is all ore or principally ore that IMC is working on, then the contours, of course, would run on in and be a part of that ore body and probably evolve over here, as a guess. So, again, this shows the northern trend, north to northwest trend of this mineralization coming down in here, bending out to the southeast, coming down in here and essentially terminating with the exception that there are some highs in both the 4th and 10th in this, and then we have the western extension of the one through three ore body right along the western cut out here. So, this would be my

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interpretation of the geological trend to the mineralization in this area.

Now, what's "ore", what is "commercial"? Mr. Kellahin has tried to draw this out of the other witnesses, there is the usual continuing problem here that the data is basically proprietary, everybody recognizes that, there is no doubt about it. There is some general information available by hearsay among the industry, there is some general of these average figures that the U. S. Bureau of Mines puts out. They take the whole area, average them so that any given mine cannot be identified and then publish it. So, this then is really the source of the information, it is complicated in the case of langbeinite, because as Mr. Rice pointed out in his testimony, these people have a unique situation there and they are very guarded with the information as to operating costs caused by the erratic nature of the langbeinite, grades, variances along headings and so forth. This data is not available, at least it is not available to me, so we have, again, as we did previously, attempted a pro forma type calculation, we used the published-average-operating costs, I increased them modestly I think about 10 percent, 15 percent, to take in the fact that it is langbeinite, I increased them 7 percent over last year in terms of inflation, it came out

of an operating cost, pro forma, obviously estimated operating costs for langbeinite deposits down in this area. We then, of course, with that data and assuming again a four-foot thickness, not a 4.5 necessary for the bigger continuous miners, assuming a 4 percent thickness we could calculate what we think is a cut-off value in terms of feet percent if we, of course, start with the product price. This is again what Mr. Rice testified about this morning. Mr. Elders testified two weeks ago, and until sometime late last year it was fairly steady in the 1850 range for standard grades. I took this in preparation of these maps, I took this and accelerated it 20 percent to 2230, I think it was. This is in recognition that I have no firm data; this is in recognition of the fact, as Mr. Rice testified that the potash industry along with the gas industry and so forth are generally on better days these days than it was a year ago, and it is an accepted fact, I have contacted potash consumers that they are paying higher prices for lists. Some of them are living on long-term contracts, but the contracts will run out, some of them are two-year contracts, some one-year, some, rarely, five-year contracts. They are going to run out and the price trend is up; I don't have specifics, but I wouldn't argue with the contention

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that the price trend is obviously up. Now, using the 2230- average-product price for langbeinite, I came out to approximately a 25 foot percent cut-off. As a comparison Mr. Rice testified that in the case of sylvite they are running about a 25 dollar average. We weren't quite successful in knowing the average of what exactly, but the sylvite increased over the 22, the 2074, 21 of the same price period, then is roughly about 25 or 30 percent, so this tells me that I am at least in the ball park, if conceivably a hair low. Maybe if PCA made this calculation they would calculate out to 22, 23, 24, in this range.

Now this map is contoured on the 30, but keep in mind that it is not an ore reserve map, it is a geological trend map. What this says is: We can expect high grade, higher grade plus 30, plus 40, plus 50 in this area, but in this area, this area. some in here, some in here, and a bit out here. A plus 30, it was put one way that if I were forced to -- one way to put it is: If you are going in here to drill you obviously drill in the brighter colors, in this case if you would drill the pink in preference to the blue, in preference to the green, in preference to the brown. So this then would be my interpretation by inference where one might expect that future ore reserves might be developed over

in here, and certainly in here, and, of course, PCA mean-  
while is drilling that area. We don't have the PCA data so  
this is contoured on the data we had prior to PCA's drill-  
ing, and what that tells the geologist is: "Yes, I want to  
drill it in here." That is where they drilled and they  
testified that they got -- that they tightened up the ores --  
probably moved it to the proven category over in an area  
something like that. Okay, now, using the same concept,  
there is some hope for a smaller ore body down here and in  
the 40-foot-percent range. Now, prior to those four holes  
this would have looked like a good area to drill, the  
obvious place to go in there and try to fill it out, and in  
this case, as can happen in this business, they were just  
unlucky, the ore wasn't there. Here, brown only, it only  
gets up to, well, this is 41 foot percent, there is a touch  
of the green there, it is above 40, I notice, but it happens  
that the 30, plus 30 zone where one can argue that after  
he has tried all of these and developed what ore there is,  
he might take a high-risk-drilling program down in here.  
That is my interpretation, of course. I am so far talking  
only about the 4th ore zone. Incidentally, I should say I  
told you how I arrived at my 25-foot percent for the lang-  
beinite cut-off. I used a 50-foot percentylvite cut-off,

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which is a 2.4 ratio between the two then, and I used it on the basis of there is testimony before the Commission that Kernac uses 53 for ore reserves, I calculated 70 using pro forma average data. Again, prices are increasing, I think that 60, which percent is probably a pretty valid cut-off. Of course, it is interesting to note that on Mr. Donegan's maps that what he has colored red, and what I haven't colored at all here are the same foot-percent criteria, 30-foot percent, I think he said 32, and langbeinite at 60-foot percent of sylvite. He then goes ahead and has the yellow areas which he says is intermediate grade I think, going down the USGS cut-offs, and I am saying that based on the pro forma type calculations, the USGS calculations, cut-offs at 16 and 40 as commercial, mineable ore is unfounded. That is the argument we have going here today apparently, so you can draw a comparison between what's colored here and what's colored red on Mr. Donegan's maps.

The fact that the color here is much more restricted again is the fact that we have not painted with quite as broad of a brush, we have contoured again using a standard contour method between various holes, and, for instance, the 30 must fall, the 30 must fall in here just on a calculation between the two holes. As opposed to saying, well, based on

geological knowledge, A-28 should not take the same weight as A-18 and A-17 because of good trends and so forth. We have done it mathematically in that sense by simply contouring between them, and, of course, where there is a value in the lower-grade holes that value has been used to set the contours as opposed to assuming there is nothing there.

We might just make mention, you see that there are white, what we call probable ore except that you can't have probable ore with one hole outside of the colored area. This, then, are the holes that have less than 30, but more than 25 percent feet.

Q What hole is that, Mr. Warnock?

A This one I'm looking at is A-3 which I have 28.8, there is langbeinite in it in the 4th ore zone. The same thing here, D-4, I get out to 27.4 equivalent. Incidentally that is the basis for information that Mr. Elder gave us two weeks ago, I do not have that log, but it comes out 27.4, so it's above the 25 at the circle around it on this map, but it is outside the 30. That question, of course, being where exactly will this foot percent cut-off fall?

I think I roughly summarized other than I would be willing here to add again, we're talking about langbeinite, just the calculation of the balance of the mineral break out

is difficult to start with. There are variances between log calculations between people. It is known to be more erratic. Any mathematical or geological inference is on shakier ground than with pure sylvite, I feel, but this is what the data would look like properly calculated, in my opinion. There is a good ore body up here in Sections 11, 3, probably going to extend into 10, we don't know that yet, though, 11 may extend, it probably will extend into 12. This area has an ore body in the 4th ore zone, and it has multiple zones as indicated here; some small hope down in here, lesser hope in this area, and to my opinion, that is the only material hope for the district.

I shouldn't, but I glossed over the 10th ore zone over here in Section 13, 8, 17, 18 and 30 and 13, 29. The purple outline is, to my mind, is a fairly marginal area mineralized in the 10th ore zone. Again this is not an attempt to contour foot percent, I'm just outlining four holes, each a mile apart, or a little more or a little less, that do contain mineralization. I'm not sure how serious this 10th ore zone is here; every hole we have is fairly marginal, again using my calculations, cutting off sylvite, this is lower sylvite, at 60, this is 61, this is 62, cutting off langbeinite at 25 or 30. This is 11, essentially this is 32.

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Certainly there is no way to block anything in the way of proven ore among those holes; they are too far apart. Whether you would drill in there for the 10th ore zone, I have very serious doubts on that data, but, you know, these things are continuing projects, five years from now it could look different.

Q Mr. Warnock, based on the information that is presently available, in your opinion is the entire area that is sought to be included in R-111-A underlayed by commercial deposits of potash?

A You said the whole area?

Q Yes, sir, the whole area?

A No, sir, even on the composite map of Mr. Donegan there are blank areas not purported to have commercial reserves on them, and there a lot of them on my map.

Q Yes. On the basis of your interpretation you referred to possible ore, or probable ore in Sections 11, 3, 10 and 12 in the north area?

A Assuming that the PCA holes are good, as they say they are, most of this would now be in a proven category, in my opinion.

Q Would you call those proven commercial ore deposits?

A Yes, sir.

Q Do you find proven commercial ore deposits elsewhere on your exhibit?

A Proven?

Q Yes, sir.

A Here is some, these three IMC holes.

Q I'm talking about within the --

A (Interrupting) Within the area?

Q Yes, sir.

A Proven, no.

Q Nowhere else?

A No proven as opposed to probable. Probable, you have a good development of a quarter of a section of probable here, and this is a trend developing here in the probable, and I think you could say these holes here are -- they are stretching the 15-hundred foot radius a bit.

Q Would you give the sections you are talking about, please?

A Sections 26, 7 and 35. There is certainly still a lot of hope of developed ore there.

Q That would be probable?

A Probable class ore now, and hope to develop it, yes, based on this contour here, as I mentioned, an area that will no doubt be eventually drilled for potash.

Q Now, on the basis of your experience and your study of this area, is it valid to project geological trends over an area as wide as this as has been done on the Exhibit 16 that has been offered by Potash Companies of America?

A Well, keep in mind that that is a composite of all of the zones.

Q Yes, sir.

A To compare them you have to compare the purple areas and the yellow areas to get a closer comparison. The area running up in here, for instance, is a low-grade area which does include, which runs up to about here, in my opinion, comes right on up as you see it here about like that, so speaking exactly to answer your question: no. I think that there are areas of red on Mr. Donegan's map that don't justify the red color, if that is your question.

Q Yes, sir.

A That is the obvious debate we have going here today. This is a pretty typical one, this is in part a lack of data, but on the other hand drilling around the area with a few exceptions is quite low grade, so you can understand that they didn't drill in there. Of course, the same problem over here, Mr. Donegan has this low here so we are basically in agreement there. I'd run the low up through

here because that is where it plots, based on the data I have, and Mr. Donegan has closed that up there, just a difference of opinion obviously.

Q Were Exhibits 3 and 4 prepared by you or under your direction?

A Yes, sir.

MR. KELLAHIN: At this time I would like to offer into evidence Exhibits 3 and 4.

MR. PORTER: Any objection?

MR. BLACKMAN: No objection.

MR. PORTER: No objection to Commission Exhibits, Exhibits 3 and 4 will be admitted.

(Whereupon, Commission Exhibits 3 and 4 were admitted into evidence.)

MR. KELLAHIN: That is all we have on direct examination.

CROSS EXAMINATION

BY MR. BLACKMAN:

Q Mr. Warnock, you testified to essentially two different areas here which you denominated proven commercial ore, and probable commercial ore, would you say that the indiscriminate drilling of oil and gas holes within either one of those areas would interfere with the orderly develop-

ment of those commercial potash areas?

A Any --

Q (Interrupting) I said indiscriminate drilling within those areas.

A Which areas?

Q Well, within the proven areas?

A The proven areas to start with --

MR. KELLAHIN: If the Commission pleases, I would like a definition of what "indiscriminate drilling" is. That's a drilling that I don't understand.

MR. BLACKMAN: Well, drilling without regard to the location of the potash majors. In other words, drilling solely upon the criteria of the most advantageous drilling location for oil and gas possibilities. In other words, without regard to whether there is any potash, that is what I mean by indiscriminate drilling.

BY MR. BLACKMAN:

Q Would you feel --

A (Interrupting) Yes, I would say the petroleum well would obviously cut the potash section.

Q Right.

A Now, the degree in monetary or otherwise of the damage done thereby, I don't feel like I am competent to say

Q How about in the probable potash area, do you think that such drilling would interfere with the orderly development of the probable areas that you have testified to as a probable into proven areas, by your definition?

A I don't believe that I have testified that the drilling of petroleum wells would interfere in the commercial.

Q No, I'm not asking you that. You testified that on your probable areas, if I understood you correctly -- correct me if I didn't -- but in the probable areas that more drilling shows good possibilities of developing into what you class as a proven area?

A That is correct. Fill-in drilling in the case of proven ore, yes.

Q Right. Now, what I am asking you is: If oil and gas wells are drilled in that area without regard to the possibilities of potash, without any consideration to it, just using oil and gas locations, an oil and gas criteria, would that interfere with the orderly commercial development of that?

A Well, again I want to ask you --

MR. KELLAMIN: (Interrupting) If the Commission please, this is improper cross examination. The witness didn't cover the question of the effect of oil drilling in

a potash area, and at the outset of this Hearing today it was my understanding we were restricted on cross examination to matters raised on direct examination.

MR. BLACKMAN: I think the Witness has sufficiently indicated that he feels it would so I will withdraw the question.

A (Continuing) The distinction of interfering, it would intercept or cut potash reserves, yes.

Q Yes, it would.

A How much the interference is, it's a --

Q Now, just to make sure that it is perfectly clear here, your Exhibit Number --

A (Interrupting) Three on the left, four on the right.

Q Four?

A Yes, sir.

Q Our contour is on the 4th ore zone?

A Correct.

Q Would the contours on the 10th ore zone be shown in purple?

A They are not contours.

Q Okay.

A They are not foot percent contours, they are

general outlines showing where the area is mineralized.

MR. BLACKMAN: That's all.

MR. PORTER: Does anyone else have a question of Mr. Warnock? You may be excused.

Mr. Kellahin, do you have anymore witnesses?

MR. KELLAHIN: No, we don't, Mr. Porter.

MR. PORTER: Does anyone else desire to present testimony in the Case? Don Allen? Mr. Allen, we will call on all those present in a moment for statements.

Mr. Blackman, would you like to go ahead with your closing statement, and then I would like Mr. Kellahin to proceed.

MR. BLACKMAN: I would like to call Mr. Rice back for just a few question.

MR. PORTER: Oh, you have some additional testimony?

MR. BLACKMAN: A few questions on rebuttal.

MR. PORTER: All right.

MR. BLACKMAN: Mr. Rice, will you take the stand again?

DAVID RICE

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

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BY MR. BLACKMAN:

Q Mr. Rice, you have been sworn before and I wanted to ask you to testify concerning the possibilities of mining more than one ore zone through one shaft. Would you explain how that is done and how it would affect, in your opinion, with respect to this particular series of ore bodies or just this ore body in this territory?

A The mining of multiple seams, or veins, or beds through one shaft is a well-known fact, Mr. Blackman, it is certainly possible, it has been done; International Minerals and Chemicals, I believe, does it in the Carlsbad area. What does it do to the economic picture? Certainly if you have more than one bed and they are all economic, certainly it answers the economic picture.

MR. BLACKMAN: I think that's all.

MR. PORTER: Any questions, Mr. Kellahin?

MR. KELLAHIN: No questions.

MR. PORTER: The witness may be excused. Thank you. At this time we will ask for closing statements.

We will take a very short recess, maybe ten minutes.

(Whereupon, a short recess was taken.)

MR. PORTER: The Hearing will come to order, please. Who would like to go first? Do you want that

privilege, Mr. Blackman?

MR. BLACKMAN: Do you suppose Mr. Kellahin would consider going first this time?

MR. PORTER: I think he would.

MR. KELLAHIN: If the Commission please, I do want to be as brief as possible. At the outset I entered an appearance for Skelly Oil Company, Phillips Petroleum Company, Belco Petroleum Corporation, Sun Oil Company, and today I entered an appearance for William A. and Edward R. Hudson all of whom have interest in these area proposed to be included in the R-111-A Order.

Now, we have been wrangling somewhat really over what we are trying to prove here, and as I pointed out when I objected to the original testimony offered by Mr. Blackman, what we are really here for is to determine the area which contains commercial deposits of potash, that's what the Statute says. It says: The drilling and producing operations of oil and gas in an area containing commercial deposits of potash where such operations would have the affect of unduly reducing the total quantity of such commercial deposits.

All the way through we are talking about commercial deposits. I think it is highly significant that in the presentation that has been made on behalf of the proponent

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of this Case. Nobody has testified that here are commercial deposits of potash. They painted the whole area red and said, "Well, we think maybe there are commercial deposits of potash here; hands off until we can drill it out and find out." They're talking about 50-some-odd sections of land here when the evidence offered, and I think Skelly was quite kind in offering this evidence. The evidence offered by Mr. Warnock shows there is probable ore in a small portion of this area, and that being the case that is really all the Commission can consider. There is nothing else, nothing has been offered in the way of projection of ore bodies, nothing in the way of analyzing the commercial deposits in any particular area here except by Mr. Warnock, and nobody else, and under those circumstances we don't feel that the Commission anything, anything at all, on which they can make a determination that there are possible, probable, or proven commercial deposits of potash underlying these 50 sections. The only evidence, as I said, was that offered by Mr. Warnock, and certainly we would have to concede there is probable ore in the little portion which is shown on his Exhibits 3 and 4.

Under those circumstances we feel that the application should be denied. Just as an example, the broad-brush

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approach that has been followed by these potash people. We have to remember that Mesa got the permit to drill on Sections 13 and 23, 29 right in the middle of their red area. Now, if they're correct, Mesa shouldn't be drilling there, but the owner of the potash lease apparently had no objection, and the well is presently drilling.

The Commission's duty is, I think, quite clear, and if it follows the Statute and its Order R-111-A then it will consider only the area which Mr. Warnock has shown to be possibly productive of potash. Certainly they should have the right to continue their checking of that area and see if it is productive. Now, as to the balance of the tract, they haven't made any core holes and they have included in the area, areas where core holes are more than a mile apart and which show they are not productive of potash, apparently, as Mr. Warnock testified. They have attempted to project interpretations of a mile and a mile-and-a-half in order to say that this area is possibly productive of potash, and that is not a valid projection as Mr. Warnock testified. If the Commission includes more than the small area in the northern portion of the proposed area, I feel they would have an order that is not supported by the evidence and we recommend that the application of the potash companies and

the lease owners be denied.

MR. BLACKMAN: Mr. Chairman and gentlemen, the law, it seems to me, provides that no drilling should be conducted which would interfere with the orderly commercial development of potash deposits, and I would like here to state that we have presented, in this Case, the best type of information that is available. There is a difference of opinion on geological projections between Mr. Donegan and Mr. Warnock, and Mr. Rice is in contravention to what Mr. Kellahin was saying and did testify that in his opinion the cut-offs as stated by Mr. Donegan were valid cut-offs, and the testimony is, without objection in many places here, that the cut-off point utilized by Mr. Donegan constitutes commercial potash.

Nobody can stand up here and state that in any certain area commercial potash exists and in any other area it doesn't. We're dealing in inferences and the question is: How far are you going to follow your inference? I think the Commission has been dealing with this particular problem long enough that it has made up its mind about what rules it is going to follow in dealing with those inferences. It is perfectly clear from Mr. Warnock's testimony that all of the areas that even he introduced has probable potash areas,

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would be interfering with, as far as their commercial development is concerned, by -- the words I used was "indiscriminate oil and gas drilling" -- that may not be the best words that could be found in there, but it points up the problem of the difficulty in which the Commission faces in a situation of this kind. Here we have, and this one body and the one immediately to the east, the only known langbeinite deposits in the, the testimony is the world, I don't know of any others, but the testimony is the world. This is it. The enormous drilling activity in the salt sections, which is where these things occur, and nobody else has brought up anything, so we are dealing with something that is a wasting asset, and it is the only one that is left. The basis of that which I think the Commission should take into consideration is not the short view, but the long view, because we have the possibility here of developing a very substantial addition to the potash industry, and I call your attention to Mr. Rice's testimony which kind of shocked me when I looked it up to verify it that over a billion-and-a-half dollars in potash has been produced from this area since the early 30's. It is absolutely fantastic in comparison with other mining areas. It is an enormous addition to New Mexico's economy when it is considered in

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comparison with just almost any industry. There has been a good deal of time in which the potash industry has been barely able to keep its nose above water, and all of the money that has come in has gone out in terms of wages and expenses for salaries and utilities and supplies, so that an enormous amount of this money has gone into New Mexico's economy.

I don't downgrade the oil and gas proposition at all; we stand on the same basis. Some party has an oil and gas lease and another party has a potash lease; the government has caused this difficulty; whether it is the Federal government or the State government, they are both guilty, and they both say, "Here is a lease and you take out the potash, and the other fellow, you take out the oil and gas, and the devil take the hindmost." That is about the way it is, because somebody is going to get hurt; there isn't any way out of it, and this Commission is in a position of being the body that is going to have to make the decision.

Now, one of the things that kind of disturbs me about the general trend, and the general view of this thing, from the point of view of the oil and gas industry, is that if this ore body, this area is placed within our 111-A there won't be any further drilling, that ends it. And that is

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not the case at all. There have been many, many wells drilled in R-111, and to my personal knowledge a large number of them in the area we haven't objected to. Out to the east, as you well know, Mr. Porter, this has been the situation. This is disturbing to me because it seems to me that there should not be that misunderstanding about the effect of R-111; it doesn't say you can't drill in the area, it just simply says: If you have a lease in this area you have to give the potash lessee notice so he can protest and then you have an arbitration meeting and if you can't get it settled you have a hearing. I think to require a potash lessee to first prove commercial ore before being entitled to notice places an extremely unfair burden upon the potash industry. In other words, I don't have any quarrel with the proposition that when you want to have a hearing and controversy about whether or not you should drill that particular well, that there is no argument about the fact that the Statute provides that you have to have commercial ore to protect. That is what it is saying, it says it in so many words that you have to prove commercial ore or prove an interference with the development. What I am saying is: That in the situation in which we find ourselves, with our R-111-A not providing, we are not arguing whether you can drill any wells



out there or not. What I think we are talking about is whether indiscriminate drilling will be permitted, because if you are going to drill on the sole criteria of what is best indicated, most indicated, most favorably indicated for oil and gas without regard to any of the testimony which has been presented on both sides here as to the substantial potash deposits that exist in this area, you are placing a very uncomfortable burden, and unfair and an inequitable burden on the potash lessee, because he doesn't get any notice of it, he doesn't get any opportunity to do it. In addition to that, you are placing an unreasonable restraint on the Oil Conservation Commission itself. We have introduced substantial testimony and Mr. Warnock has stated it himself that this is a constantly changing proposition. What is commercial today might not be commercial tomorrow, or vice versa, what is not commercial today might be commercial tomorrow; it depends upon economics, technology, and politics.

We are now looking at a difficult situation in which these things are happening so fast that it just isn't even funny. Mr. Warnock didn't agree that he should take up the langbeinite prices, up to 28 dollars on the average, but Mr. Rice's testimony was, based on his experience, it could

all be sold at that price if you could get it now. We have a worldwide food shortage and a fertilizer shortage that is substantial in this country. This is costly, these increases in prices. It looks like we are going to be the bread basket, at least in part of the world, and we need the fertilizer, particularly we need the potash, particularly we need potassium sulphate. These things should be considered by the Commission at the same time.

Technology is another one that brings it down here. I don't believe that the averages that are utilized by, reported by the Bureau of Mines are the figures that should be considered in here. You should consider the best evidence of the best technology that is available.. International has been in here to testify in one of their Phillip's cases, and I don't have that evidence to put in here, but I think the Commission might well take judicial notice of it as to the low grades they are able to handle in the mixed ore. If it is expected that anybody, whether it is FCA, or Day Mines, or anybody else, or Noranda, or anybody decides to open a new project around here, they will do just what everybody else has done as far as new operators coming in, they will take advantage of the very best technology that is available and they will beat the blazes out of the old

fellows because they always do. They take advantage of everybody's mistakes.

I think the very best evidence was stated by Mr. Rice with respect to this political situation. The one that comes along from Canada is Noranda coming into this country to get a position when they have an enormous position in Canada. I may be repeating here a little bit, but I say that I think that the Oil Conservation Commission should change its rules, if necessary, to provide that some form of notification is given to a potash lessee if the potash lessee has a lease within an area which has, let's say, good commercial possibilities because if wells are just drilled in the area, they are obviously going to intersect potash majors and losses are going to occur. This can result in the difference between a commercial ore body and a non-commercial ore body. It can be rendered non-commercial by drilling within it. I don't think that where the Oil Conservation Commission makes a decision granting the right to drill it should be on the best possible information that is available at that time. That is to say, let's suppose here that the Oil Conservation Commission makes an order here eliminating a substantial portion of this ore body which has been requested by Mr. Lamrock, and six months

down the road, or a year down the road somebody applies for permission to drill, that is routinely approved, and if in the meantime, the economic situation or the political situation or the technology situation has changed, and we haven't had time to come in and re-apply on the basis of new evidence, a substantial amount of very valuable mineral is going to be lost, and it seems to me the Oil Conservation Commission here is in a position of representing the State. They are representing the people of the State, not the potash companies, and not the oil companies; you sit in judgment on the economy of the State, and a viable addition to the potash industry would be a tremendous asset as far as the State of New Mexico is concerned. As you well know, the OCC doesn't have the facilities to keep up with this, you don't have the staff to do it, and don't have the budget if you could hire any additional staff, so you are dependent upon today the best information that is available today and six months from now in this particular case you probably won't have any better information than you have today, even though it may change. I think that that is the situation which, and I appreciate your rules are different in this case, but I think they should be changed.

Let's look at this for a moment: Does a notice to a

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potash lessee constitute a burden on an oil and gas lessee? Well, an oil and gas lessee can say in justification that this means that we have to take time out for notice; this means we have to take time out for a hearing before the Commission if the potash lessee objects. I don't feel in today's market and today's economy that the mere fact that holding a hearing or giving notice is a burden which ought to be recognized as being unconscionable; I don't think it is unconscionable at all; I don't think it is unreasonable. I don't think it is unreasonable at all to ask them to give notice, and give notice in all cases where a potash lessee has a lease. In all cases where a potash lessee does have a lease, he has paid, he has drilled a hole, or if it has gone on a known-potash area and somebody else has drilled a hole, a lot of work has gone into the thing before he ever gets a lease. It is valuable property and the delay, a little bit of delay on the part of the oil and gas lessee, is the only burden I can think of that is involved in the thing, because for everything else they can come before the OCC and ask to have it changed to fit the particular situation.

Mr. Kellahin made an allusion to the Mesa Petroleum hole which was permitted. I don't think that was in the evidence anywhere along the line, but it was in there that it

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was permitted. I beg your pardon, Mr. Kellahin, it was in there that it was permitted. This happened to be a compromise proposition, and I prefer to think about it as in evidence on our behalf as we weren't trying to be dogs in the manger. The situation with respect to that was this, Mr. Kellahin, that Mesa on the basis of their initial, original location, felt that they might have severe difficulties in proving it since it was coming up for a tested location. We have previously indicated that we would be willing to compromise the matter, and the matter was compromised on the basis of the hole, I think about probably a half or three-quarters-of-a-mile to the south, I am not exactly positive of that, but that is the basis upon which it was. Now, had we not compromised there, had we not been willing to take a chance on losing some potash in the bargain, in the 10th ore zone because it is mineralized there. They might well have lost their lease because it was running up on the first of August and there was not time to advertise a new unconventional location.

I have said that I don't think that it constitutes an unreasonable burden on the oil and gas industry to give notice, and I feel that is true, but I also in addition to the possibilities of just simple misunderstanding on the part of the oil and gas industry, I can understand why they may feel

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that in some instances, I don't know of any instances, it may have constituted an unconsionable burden, and I say at this point that that should not be. It should not be utilized in such a fashion that it would be a burden on the oil and gas industry; it wasn't intended in the first instance for that and it should not be solely intended now, and we don't so intend it to work out that way. If it is working out that way, in any way working out in that area, I think it would be in order, very much in order; we haven't had any meetings on this proposition since, we could go clear back to 1965 with our R-111-A -- 1955 -- I meant to say 1955. It goes clear back there and there haven't been any changes in the rules; it might be in order. We certainly stand ready to get together with the oil and gas industry and try and work it out. It think it is really incumbent on the Commission to try and work out this dilemma because I feel very strongly that the denial of notice under these circumstances, and I was over this in detail before, does constitute a denial of due process of law. I mean, we are, in the event a well location is approved without a hearing, and if we would like to have a hearing, we got no notice of it, so there is no doubt in my mind that it is a denial of due process of law. Now, what can we do about it? Well, it

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is pretty difficult to figure out how to get any recompense if that sort of thing has happened to you, and I think the only answer to it is to give notice, and if necessary, change the rules of the Commission around to the point where you can assure that nobody is going to be unreasonably disadvantaged.

I believe that I would like to have the Commission give very careful consideration to the proposition of changing its rules to, in some fashion, give notice to the potash lessee, because if you do, you will transfer from the Commission to the oil and gas lessee the obligation to give some kind of a notice because I think the Commission under due process of law probably has that obligation before it makes a decision. But it will also transfer from the Commission to the potash lessee the burden of proving evidence, or the burden of proving the existence of potash at that time, because it may be quite difficult and down the road a little bit. Both the potash lessee and the oil and gas lessee will have due process of law under that sort of circumstance, and the Commission will have absolved itself from any possibility of their conduct having been arbitrary or capricious.

As you know, the Geological Survey doesn't have any

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provisions for making any of these hearings, and over a period of years it has been customary to hold them before the OCC, and I can see no reason for not doing that. I do think that the Commission ought to give very careful consideration to that part of it. I realize that we have here an excellent possibility for a very good potash mine which could be substantially injured if we don't get any notice. Thank you.

MR. PORTER: Anyone else have a comment to make on the Hearing?

MR. EATON: Mr. Chairman, members of the Commission, Paul Eaton. I would like to read a statement prepared by Exxon Corporation. I have furnished the Commission with copies of the statement. I might say before reading the statement that Exxon would have been an active participant in this Hearing, but for some strange reason because of the Company bureaucracy they were totally unaware of this application for the extension of the potash area until sometime last week.

(Reading) The Applicant has requested that the presently designated potash area be extended to include additional lands in Eddy County, New Mexico. Since December, 1964 Exxon Corporation has acquired and presently holds approximately six thousand acres of Federal and New Mexico State oil and gas

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leases, half of which lie within the area of the proposed potash extension. As of this date, Exxon has expended in excess of five hundred thousand dollars in the acquisition and evaluation of said leases and considers them a valuable and irreplaceable asset and plans to proceed with the development of said leases toward the ultimate production of oil and gas or both.

Exxon opposes the granting of said application and in support of such opposition, we respectfully ask the Commission to consider the following: Exxon considers the area included within its referenced oil and gas leases to be geologically attractive and potentially productive. In order to fully develop the area, including the operations, it requires the area be considered as an entirety with freedom to explore, drill and conduct lease operations at geographical locations calculated to produce the more accurate geological data and hopefully the greatest amounts of oil and gas. This cannot be done on a piecemeal basis. Granting of the application will have a substantial impact on Exxon's ability to study and develop the area in a manner most likely to obtain oil and gas production.

Most of Exxon's leases were taken prior to the date of the application and were bought and paid for in good faith

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with the belief that the rights therein acquired could be fully exercised. The granting of the application could result in material loss of these rights and even in a complete denial of the drilling operations could be prohibited.

In either event, the attractiveness of the area insofar as potential productiveness is concerned, will be greatly diminished by the granting of the application by the reason Exxon will not be able to know where in the area it can plan to drill or even if it could drill. Exxon submits such is not in keeping with the terms and considerations of the lease contracts. If the area is not properly studied and developed, both the State of New Mexico and the United States could be deprived of valuable royalty income. In addition, it is possible that valuable and much-needed oil and gas reserves could be left in the ground undiscovered or unproduced.

Exxon is willing to cooperate with both State and Federal agencies in developing its leases in such a manner that the owners of the potash rights are not deprived of their right to produce their minerals and submit the rights of all parties may be preserved without the granting of subject application. This is in keeping with the principals of multiple use. Accordingly Exxon submits that the proposed

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potash extension is unnecessary and constitutes a deprivation of its rights and would arbitrarily grant one mineral owner superior rights over another. Therefore, Exxon respectfully submits that the application be denied. (End of reading.)

Mr. Chairman, a couple of remarks which I would like to make, aside from this statement. As I understand it the Commission by Statute has the power to determine the limits of any areas containing commercial potash deposits and from time to time re-determines such limits. Also, the Commission has the power by Statute to regulate and where necessary prohibit drilling or producing operations for oil or gas within any area containing commercial deposits of potash where such operations would have the effect to unduly reduce the total quantity of such commercial deposits of potash which may reasonably be recovered in commercial quantities or where such operations would interfere unduly with the orderly commercial development of such potash deposits.

It appears to me that with respect to setting the limits of the area containing commercial potash deposits, the Commission must set those limits on the basis of satisfactory evidence of the existence of commercial deposits and in the future as subsequent developments are either brought to the attention of the Commission by potash companies or by oil

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companies through logs and its drilling activities would suggest the existence of commercial potash deposits elsewhere, then the Commission must re-define the limits of the potash area. Certainly here, observing this hearing, it appears to me that the applicant has not established that the entire proposed-extended area does contain commercial potash deposits. I think there is evidence that certain portions of the proposed area contain commercial deposits, and I should think that the Commission, as it is required to do, would have to extend the potash area to include those portions, and as the future goes by perhaps continue to re-define and extend the boundaries of the potash area to include possibly much of the area colored in red on the Applicant's Exhibits and shown in white on the Protestant's Exhibit 3. With respect to the "notice" argument made by Mr. Blackman, he asked what can the potash companies do. It appears to me that certainly they can receive notice of all applications filed before this Commission for unorthodox locations, they can receive notice of all notices of intention to drill either by maybe requesting the Commission to send them copies of those notices or by monitoring the OCC records or the records in the OCC's office in Artesia. What I am saying is that if the potash companies are interested in receiving notice of future drilling activities it is within their power

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to get that notice and if they feel that a proposed well outside of a potash area will drill through commercial deposits, at that time they can institute a proceeding before this Commission to oppose the drilling of that well. In any event, I do feel that the potash companies do have the means available to them of being notified of all potential drilling within and outside of the present existing potash area. Thank you.

MR. PORTER: Mr. Allen, did you have a statement?

MR. ALLEN. Mr. Chairman, you have in your hand a statement of Mr. Peter Hanagan of the New Mexico Oil and Gas Association; he couldn't be here this afternoon. My name is Don Allen and I am Associate Executive Director of the New Mexico Oil and Gas Association. I would like to just read the brief statement you have before you, plus a couple of other points, Mr. Chairman.

(Reading) The New Mexico Oil and Gas Association respectfully requests the Commission to scrutinize this application with great care, and to ascertain if it does in fact warrant extension of the potash area, and in view of the need to balance the competing interest of the potash and the oil and gas industries the petition should not be granted where it is clearly shown that the coexisting rights of both industries are fairly protected. This showing would include

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proven propositions that there are indeed commercial deposits in all of the requested areas. After all, the oil and gas operators have made large investments on the leases in the area with the expectation of being allowed to develop them concurrently in harmony with potash operations. (End of reading.)

Mr. Chairman, I would like to stress that point because most of these large investments I just referred to were made in good faith and were made outside the then existing areas with boundaries as they existed at that time. This is a very important point. There exists a natural need to explore for and develop all the various natural resources, not just potash, but also this Commission knows that that oil and gas today are furnishing somewhere in the neighborhood of 78 percent of the total energy of this country and there is certainly a need to develop and explore all possible new supplies in existence as far as what we know about. In a word, potash exploration and development should not be afforded preferential treatment so as to amount to in effect dis-enfranchising the oil and gas industry.

There is one closing note, Mr. Chairman, that is not in the written statement here, but I might just pass along the suggestion that we did receive, and in view of Mr. Blackman's

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comments that how very easy it is to obtain permits from the officer-type of leaseholder, I might just pass on one suggestion and that is that if the designation of the area is to be made that perhaps the Commission should consider designating it an oil and gas area.

MR. PORTER: Does anyone else have a statement to make? Mr. Kendrick?

MR. KENDRICK: H. L. Kendrick of El Paso Natural Gas Company. El Paso Natural Gas Company opposes the extension of the potash-oil areas as asked for in this application and recommends that the extension as asked for be denied.

MR. PORTER: Mr. Carr, I believe, has some comments he would like to have read.

MR. CARR: Mr. Chairman, we have received letters in opposition to the extension of the potash-oil area from Bass Enterprises Production Company and Perry R. Bass, from Phillips Petroleum and from Belco Petroleum Corporation.

MR. PORTER: Does anyone else have a statement? If there are no further statements the Commission will take the Case under advisement and the Hearing is adjourned.

( hereupon the Hearing was adjourned  
at 4.35 P.M.)



STATE OF NEW MEXICO )  
 ) ss.  
 COUNTY OF SANTA FE )

I, RICHARD L. NYE, Court Reporter, do hereby certify that the foregoing and attached Transcript of Hearing before the New Mexico Oil Conservation Commission was reported by me, and the same is a true and correct record of the said proceedings, to the best of my knowledge, skill and ability.



RICHARD L. NYE, Court Reporter

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BEFORE THE  
NEW MEXICO OIL CONSERVATION COMMISSION  
Santa Fe, New Mexico  
July 17, 1974

COMMISSION HEARING

IN THE MATTER OF:

Application of Leland A. Hodges, Trustee ) CASE  
for the extension of the Potash-Oil Area, ) 5276  
Eddy County, New Mexico. )

BEFORE: A. L. Porter, Secretary-Director

I. R. Trujillo, Chairman

Alex J. Armijo, Member.

TRANSCRIPT OF HEARING

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APPEARANCES (Continued)

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MR. PORTER: We'll take up Case 5276.

MR. CARR: Case 5276. Application of Leland A. Hodges, Trustee, for the extension of the Potash-Oil Area, Eddy County, New Mexico.

MR. PORTER: I would like to call for appearances at this time.

MR. BLACKMAN: My name is R.H. Blackman, I'm an Attorney in Carlsbad, New Mexico. I wish to enter my appearance on behalf of Leland A. Hodges, Trustee of the Hall Trust, and also as counsel for Ideal Basic Industries, Inc., Potash Company of America Division. Ideal Basic Industries, Inc. is a Colorado Corporation authorized to do business in New Mexico, and does so in this instance through its Potash Company of America Division.

MR. PORTER: Mr. Kellahin, do you desire to enter an appearance?

MR. KELLAHIN: If the Commission please, Jason Kellahin from Santa Fe, New Mexico, appearing on behalf of Skelly Oil Company in association with Chester E. Blodget, a member of the Oklahoma and Texas Bars. I'm also appearing on behalf of Phillips Petroleum Company, Belco Petroleum Corporation, and Sun Oil Company, in connection with this Case.

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MR. PORTER: That's Skelly, Phillips, Belco --

MR. KELLAHIN: (Interrupting) And Sun.

MR. PORTER: (Continuing) And Sun, and associated with --

MR. KELLAHIN: (Interrupting) Chester E. Blodget, Tulsa, Oklahoma.

MR. PORTER: (Continuing) Mr. Blodget of Tulsa.

MR. KELLAHIN: Right, he is here with me.

MR. PORTER: Any other appearances? The Commission at this time will recommend that Mr. Blackman -- not recommend -- recognize.

(Whereupon, a discussion was held off the record.)

MR. BLACKMAN: I'll call my first witness, Mr. Ben Donegan.

MR. PORTER: How many witnesses do you have, Mr. Blackman?

MR. BLACKMAN: So far I'll have only one to start with. I don't know whether I'll have any further witnesses or not. It will depend on the course the Case takes.

MR. PORTER: All right. Now, Mr. Kellahin, do you know how many witnesses you'll have?

MR. KELLAHIN: We'll probably have two.

MR. PORTER: Thank you. Will the Witnesses stand and be sworn, please.

(Witnesses sworn.)

MR. PORTER: The record will show that Mr. Kellahin's Witnesses have been sworn.

BEN DONEGAN

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

DIRECT EXAMINATION

BY MR. BLACKMAN:

Q Mr. Donegan, will you state your name please, your occupation and your name?

A I'm Ben Donegan, a consulting geologist with Donegan and Donegan of Albuquerque.

Q Are you a participating owner in the Hall Trust, the Applicant in this Case?

A Yes, I am. I am here today as a geologist representing Leland A. Hodges, Trustee, and also as an interest owner in the Hall Trust, owner of the potash leases being considered here today.

Q Mr. Donegan, for the record, this is an Application made by Leland A. Hodges for extension of the boundaries of Order K-111-A, as amended, to include the property as

advertised in the notice for this Hearing. Have you made a study of the geology of that area?

A Yes, I have.

Q Will you kindly explain to the Commission your qualifications as a consulting geologist and what experience you've had, and education.

A I'm a Certified Professional Geologist and have been engaged in exploration and development of natural resources, including oil and gas in New Mexico, for 20 years. My academic training in geology was at Texas Tech, the University of Texas at Austin, Stanford University, and the University of New Mexico. I have previously testified as a witness before the Oil Conservation Commission. My experience in potash exploration has been over the past ten years in several areas of Arizona and New Mexico, including the Carlsbad Potash District. This work was for and in conjunction with a number of potash and oil companies, including Texas Gulf, Phillips Petroleum, Shell Oil Company, Kern County Land Company, now Teneco, Southern Union Production Company, Atlantic Richfield, Leonard Enterprises, and the Potash Company of America. I conducted the initial evaluation of the Hodges-Carlsbad Potash Area that led to the acquisition of the Hodges leases, and I participated in



practically all phases of the exploration of this area by Leland A. Hodges to date.

MR. BLACKMAN: Mr. Chairman, will the Commission accept Mr. Donegan's qualifications?

MR. PORTER: The Commission considers Mr. Donegan qualified to testify.

MR. BLACKMAN: Thank you.

BY MR. BLACKMAN:

Q Mr. Donegan, I hand you the document marked for identification as Exhibit 1.

MR. BLACKMAN: This has not been marked as Exhibit 1 in this Case. Mr. Chairman, what is your pleasure with respect to this? We have stamped these but have not marked them as Exhibits. Would you like to have us mark them as Exhibits before discussing them?

MR. PORTER: Could you put them on the wall over there?

MR. BLACKMAN: Yes.

MR. DONEGAN: Mr. Porter, we have small copies of several of these Exhibits, a number of small copies with the single large copy that we put on the wall.

MR. PORTER: All right.

MR. DONEGAN: And a few of them, like this

particular Exhibit, we don't have the small copies; we can put it on the wall, but I'm not sure that you will be able to tell much about it from the distance.

MR. PORTER: You only have the one copy?

MR. DONEGAN: No, we have numerous copies of this Exhibit.

MR. PORTER: Of that one. All right.

MR. DONEGAN: We'll put it on the wall.

BY MR. BLACKMAN:

Q Mr. Donegan, would you kindly explain to the Commission who prepared Exhibit No. 1?

A I prepared Exhibit No. 1.

Q What does Exhibit No. 1 show?

A Exhibit No. 1 is the lease map showing the Hodges potash leases in the area proposed for extension of Rule 111-A as amended. The Hodges Federal leases in this area are indicated by the fine dots on the map and applied for Federal prospecting permit is shown by the square-rule pattern. The Hodges State potash leases are shown on the map by the diagonal-ruled lines. Potash core tests are shown on the map by small circles with accompanying data indicating the whole number and an abbreviation for the company that drilled each core test. The section

shows the dashed line across the present boundary of Rule 111-A as amended. The yellow line which follows the short-dashed line is the outline of the proposed extension of Rule 111-A as amended.

Q Who owns these leases?

A Leland A. Hodges, Trustee for Hall Trusts, is the owner of the leases shown on the map by the symbols that I have described. Leland A. Hodges, Trustee, is a group of individuals -- or I should say Hall Trusts -- is a group of individuals from Fort Worth, Texas, that formed the Trust to explore and develop mineral resources.

Q What is the interest of Ideal Basic Industries, or what we'll call Potash Company of America, in this property?

A Leland A. Hodges, Trustee, has a joint venture contract with Potash Company of America. This contract provides for a considerable amount of drilling and engineering studies preliminary to the construction of a mill and the sinking of shafts to initiate langbeinite production on the Hodges leases. PCA, or Potash Company of America, is currently drilling on the property in accordance with the joint-venture arrangement.

Q Mr. Donegan, I don't recall that you identified on this map the few parcels that are white. What are those

parcels?

A The parcels that are not shown by either lots, squares, or sections, in other words the white areas between the red and blue lines, are lands owned by Hodges. Some of these lands are unleased Federal lands held under the KPA, or known potash regulations; others are owned by other potash companies in the area.

Q Mr. Donegan, I hand you the document marked for identification as Hodges Exhibit No. 2 and ask you if you would please put a copy of that on the wall. Would you please explain what Exhibit No. 2 is?

A Exhibit No. 2 is a copy of the US geological survey map, made available to the public in June, showing boundaries of various potash areas. For instance, the red outlined area, which follows a dashed line, is the oil potash area covered by the Oil Conservation Commission's Rule 111-A as amended. The heavier dashed line, which is not colored on the map, is the oil potash area designated by the Secretary of Interior of May 11, 1955. The area colored yellow is the Leland A Hodges, Trustee, proposed extension of the potash oil area. Incidentally, the small copies are exact reproductions of the original map of the U.S. Geological Survey and the only additions to this map

are red lines in the yellow-colored area, and on the small copies, small title blocks. Otherwise, it is the exact copy of the U.S. Geological Survey Map.

Q Mr. Donegan, I hand you a copy of the document marked for identification as Hodges' Exhibit No. 3 and ask you if you will kindly identify that document?

A Exhibit No. 3 is a copy of the Secretary of the Interior's Order of May 11, 1965, designating the potash-oil area as shown on the map. You might note that the Secretary's area includes practically all of Hodges' potash leases and that the Hodges' potash leases are joined to the north and east by Rule 111-A boundary as it is today.

(Whereupon, a discussion was held  
off the record.)

BY MR. BLACKMAN:

Q Mr. Donegan, I was walking around; did you identify that document?

A Yes, I did, while you were walking around, Mr. Blackman.

Q That Order is the Order which establishes the dashed line on the Hodges Exhibit No. 2, the dashed blue line around the outside?

A Yes, sir.

Q Mr. Donegan, I hand you a document marked for identification as Hodges' Exhibit No. 4 and ask you if you will kindly identify that document?

A Exhibit No. 4 is a copy of the Memorandum of the Chief of the Conservation Division of the U.S. Geological Survey of February the 14th, 1974. This Memorandum provided (1) the expansion of the potash area to include areas not now in the Secretary's area -- I should say to include several potash areas not now included in the Secretary's area -- but which would include the Hodges' area -- and I guess I should correct that to say which should include the Hodges' area -- and (2) to compile and make public by June, 1974, maps showing potash enclaves in the potash-oil area.

Q By the structure of that order, Mr. Donegan, as you understand it, were all the potash companies instructed to submit information to the Geological Survey by a date certain, I believe April, 1974?

MR. KELLAHIN: We object to this line of questioning, to the discussion of these Exhibits relating to the Secretary's area and the Memorandum issued by the Chief of Geological Survey for the reason it has no bearing on this case. What we're concerned with is the statutory

authority vested in this Commission and the extension of the potash area under R-111-A. There is a degree of cooperation, that is true, between the Oil Commission and the United States Geological Survey, but their rules and regulations have no bearing on anything this Commission does or can the Commission rely on them for any purpose involved in this Hearing; we object to this line of questioning.

MR. BLACKMAN: If the Commission please, I suppose here we come to the basic difference in philosophy of the conduct of this particular Case before the Commission. As I view this particular Case, the Commission has been mandated by the Legislature of the State of New Mexico to protect potash. By the State Legislature the Commission has been given the authority and duty to make reasonable and fair regulations concerning the potash operations, particularly in connection with oil and gas operations. Thus, at this particular point and in this Hearing, the Oil Conservation Commission is acting in a legislative capacity; they are here making rules. An excellent example of the other side of the case is the case which was just dismissed this morning, which is the Mesa Petroleum Case, that it involves an application by Mesa Petroleum Corporation to drill one hole in one particular location. In that kind

of a proceeding, which is a judicial or adjudicatory proceeding, the Commission would be limited to some degree by the ordinary rules of evidence. It would be required to have sufficient evidence of record upon which to base its decision. However, in the case of the Commission acting in its legislative capacity, the Commission is not so bound.

I presume that now is the appropriate time to argue that matter fully because I think this is the crux of the case, in as to whether this document, whether this line of questioning, whether the additional exhibits which I propose to enter, are pertinent. May I continue sitting down where it may be a little easier if I speak loud enough so you can hear me?

MR. PORTER: Sure.

MR. BLACKMAN: We have in this particular situation what I consider to be a unique situation. I don't know whether it exists anywhere else in the Country or not, but the Department of the Interior, through the U.S. Geological Survey, has in effect delegated some authority to the New Mexico Oil Conservation Commission. They have done that by the Exhibit which I have just had identified by Mr. Donegan.

MR. PORTER: You are referring to Exhibit No. 4?

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MR. BLACKMAN: I'm referring to No. 4. I think that it would be well for those who are not familiar with it to go back and go over the history of why we happen to be in the position that we are with oil and potash.

There were many withdrawals made of land in the United States from oil and gas entry. The first one I know anything about was signed by President Wilson. Later there were withdrawals in particular by the Secretary of Interior along through the 30's and 40's. Early in 1951 the Secretary let it be known that the so-called potash areas which had been withheld from entry for oil and gas leasing, by an order dated February 6, 1938, would be revoked, and those lands would be thrown open to oil and gas leasing. That Secretary's order opening the area was dated October 16, 1951. It's in 17 Federal Regulations at 10,559. I have a copy of it which I can submit later. The details are not important at this time.

In July of 1951 there were many hearings held before the New Mexico Oil Conservation Commission concerning oil and gas drilling on potash land in Eddy and Lea Counties and Order No. R-111, in its original form, was the result of those initial hearings. That Order provided for two areas; they called them Area "A" and Area "B." It

my memory serves me correctly, Area "A" was supposed to be the area in which potash reserves existed, and Area "B" was supposed to be the area in which a potash potential existed, or a potential for potash reserves existed. During the next three or four years there were many meetings held between representatives of the potash industry and representatives of the oil and gas industry. The situation was recognized by both the potash industry and the oil and gas industry that they must have, they must work out some kind of a system to administer the problems that were bound to arise when potash leases and oil and gas leases existed on the same property, at the same time, with the obvious problem coming up that both of them were going to try and operate at the same time and some kind of rules had to be established.

Now, the Order R-111-A came along in 1955, October 13, 1955 was the original Order R-111-A. At that point they consolidated the two Areas "A" and "B," and that Order, so far as I'm advised, has not been amended to this point, except for the addition of acres. Acreage has been added from time to time and goes now through R-111-G, I believe, but basically the Order has not been changed at all except by statute. Now in 1960 the New

Mexico Legislature came along and passed House Bill No. 245, and House Bill No. 245 cast upon the Commission the duty to jurisdiction of authority over all matters relating to the conservation of oil and gas and the prevention of waste of potash as a result of oil and gas operations in the State. It said that the Commission shall have jurisdiction of authority and control above and over all persons, matters and things necessary or proper to enforce effectively the provisions of this Act or any other law of this State relating to the conservation of oil and gas and the prevention of waste of potash as a result of oil and gas operations.

Now, up until that law was passed, the Oil Conservation Commission's jurisdiction to limit oil and gas operations in potash areas and to limit potash mining operations, was dependent upon two sentences in R-111-A. One of those sentences said in effect that no operations will be conducted for oil and gas drilling which will interfere with the mining -- or something -- the recovery of potash or something of that kind. The other one said just the opposite; that no mining operations will be conducted which will interfere with oil and gas. Now, for that period, between the original order back in 1911 and

the passage of that law in 1965, the jurisdiction of the Oil Conservation Commission to do this regulating really depended upon an agreement between the two parties. It was never challenged, so far as I know, that order was never challenged in court; there were a great many hearings and a great many orders saying, "Yes, you can drill," and "No, you can't drill," and things of this kind, none of which were ever challenged in court so far as I know. But, as of now, the jurisdiction of this Commission and that particular section of R-111-A, has, in my opinion, been superseded by the law and the Commission now rests its jurisdiction upon the law. Now, during all of this time there has been certainly an unwritten agreement or some kind of an understanding -- I don't know whether it has ever been reduced to writing before -- but in the case of Federal oil and gas leases and Federal potash leases a notice of intention to drill would be filed, a protest would be entered, proceedings would be had following Rule 111-A, hearings would be had before this Commission and orders would be entered and all with this very very nebulous jurisdiction on the part of the Commission, based first upon the agreement between the two parties -- which never was reduced to writing -- and second upon the tacit permission

of the United States Geological Survey that the Oil Conservation Commission should make the decision. Now, I remember many times at the end of those hearings when the then Area Superintendent or District or Region Superintendent -- whatever his title is -- John Anderson use to stand up at the end of one of those hearings and state that the position of the United States Geological Survey, he would state that they -- In effect he would say, "We do not recognize that the Oil Conservation Commission has sovereignty over this question, but we have never yet come up against a situation where we or the United States Geological Survey have disagreed with the New Mexico Oil Conservation Commissior," and therefore, a whole series of decisions running over a great many years, I do not recall -- I was not in all of them so I don't know that it never has occurred -- I know of no instance in which the decisions of the Oil Conservation Commission was not followed by the United States Geological Survey, insisting all the time that they had exclusive jurisdiction. I think you will recognize, that under this police power, New Mexico has some jurisdiction to prevent the waste of potasn. I think under the police power we do have some jurisdiction. But, in addition to that, in this Order, our Exhibit No. 4,

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In Parts 5 and 7 of that Order, the Secretary of the Interior has, in effect, delegated power to the New Mexico Oil Conservation Commission to over-hear it and make some kind of determination. They have said that the potash lessee still has the right to protest to the Oil Conservation Commission and they've recognized that the Oil Conservation Commission is going to hold some hearings and make some kind of jurisdictional ruling on it.

This brings us down to the situation in which here we are today. I might refer also from the Titles of the 1955 Act which includes the following: Providing for the prevention by the Oil Conservation Commission of waste of potash as a result of oil and gas operations and protection of potash deposits. It seems to me that it would be difficult to draft a new nonredundant New Mexico law enjoining upon the Commission's broader duties to preserve and protect the potash deposits, or stronger and more complete authority over all phases of protection process. The Oil Conservation Commission is therefore the key agency; in fact it is the only agency in the State of New Mexico which has the duty, power, and authority to prevent the waste of potash, in so many words.

I will read from part of Exhibit No. 4 the language which is approved by the Secretary of the Interior. This is in the form of a memorandum directed to the Secretary of the Interior which the Secretary was called upon to approve and which he did approve. The Department recommends that: The Department reaffirms its intent to cooperate with the New Mexico Oil Conservation Commission in the implementation of that Agency's Rules and Regulations. In that regard, the potash lessee shall continue to have the right to protest to the New Mexico Oil Conservation Commission the drilling of a proposed oil and gas test on Federal lands provided that the location of said well is within the State of New Mexico's oil-potash area as that area is delineated by New Mexico Oil Conservation Commission Order No. 111 as amended.

And then Part 7 goes on to say: Applications for permit to drill vertical tests for oil and gas at locations that are in the Secretary's potash area but outside the State of New Mexico oil-potash area, and which do not directly off-set an enclave, which is defined as within a quarter mile of an oil test and within a half mile of a gas test, will be routinely approved by the Oil and Gas Supervisor after review by the Mining Supervisor.

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I think that this action by the Federal Government invests the Oil Conservation Commission with the obligation to prevent potash wastes on Federal lands. Since the Department of Interior does not spell out in its regulations a system for resolution of oil-potash differences upon notice of hearing, the quotations in Parts 5 and 7 of its recent action can reasonably be construed as an invitation to the New Mexico Oil Conservation to provide the means whereby mutually antagonistic rights of oil and gas lessees and potash lessees may be resolved with due process of law.

It is my view that the Secretary of the Interior's action in stating that he will routinely approve drilling permits outside R-111-A as amended, without the notice, any notice, or any opportunity for hearing, clearly denies to the potash lessee due process of law. We feel it is incumbent upon New Mexico Oil Conservation Commission to provide the notice and hearing opportunities to correct this oversight.

Basically, the problems that we face here, arise out of the fact that oil and gas and potash cannot be contemporaneously produced from the same property without some damage to one or the other. The damage may consist

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of anything from a short delay through increasing stages to the substantial loss of recoverable minerals, which may be permanent, but when an oil and gas lease or potash lease is issued, the lessee receives valuable property rights. When both oil and gas and potash leases are issued to the same property, a conflict of interest is inevitable and the rights of one, or perhaps both lessees, may be adversely affected by the exercise of the rights given to one of the parties. I think it is undeniable that the rights granted by either the State or the Federal Government, or as far as that's concerned, by a private individual, in giving an oil and gas or a potash lease on the property, is a valuable property right; otherwise you wouldn't see all these people assembled in this room contesting about this particular problem. This is a valuable property right; an oil and gas lease is an extremely valuable property right. So is a potash lease. The problem that we have is that both the State and the Federal Government have provided their prescribed terms and conditions concerning the exercise of rights of oil and gas lessees and potash lessees, but the rules are set forth in general terms, and sometimes conflicting terms.

Now, I think that you can see with respect to the

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potash lease within the boundaries of Order R-111-A we have definitive procedures because within the boundaries of R-111-A we do have a provision for notice and we do have a provision for hearing. Due process of law is afforded. But when we get outside R-111-A, we do not have any such procedure. The U. S. Geological Survey has stated that they're going to routinely approve it, and the rules of the Oil Conservation Commission do not provide that there is any notice entitled to be given.

Now this raises a very serious constitutional question. The Constitution of New Mexico provides that no person shall be deprived of life, liberty, or property without due process of law. To restate that and shorten it, no person shall be deprived of property without due process of law.

Now substantially the same language appears in the 5th and 14th Amendments of the United States Constitution. In this consideration of value of property rights it is my opinion that oil and gas leases and potash leases stand on equal footing. It is equally obvious to me that any action, that the action of any governmental authority denying a right to proceed under such a lease constitutes a taking of property. The Oil Conservation Commission says

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one party can or cannot move, they automatically take the property of the other one. It is taking a valuable and substantial property right. The taking or denying the permit of one lessee which may have the effect of diminishing or delaying the exercise of any relevant right by the other lessee of the same property constitutes a deprivation of a valuable, substantial property right and I believe it is second to the constitutional prohibition.

Now the Oil Conservation Commission, under the laws that we have, under the regulations that the Oil Conservation Commission has, does have the power to deprive one or the other of those parties of that valuable property right. There is no doubt about that; the Oil Conservation Commission does have that power. But, to do so they must act within the constitutional limitation. What is due process of law? That is what they have to give, due process of law. Where proceedings are taken before an administrative agency, such as the New Mexico Oil Conservation Commission, a distinction is generally made whether the Commission is acting in a legislative capacity or judicial capacity.

73 Corpus Juris Secundum states that notice and hearing are required where an administrative body acts in a quasi-judicial manner but not when its actions are executive,

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administrative, or legislative. That general rule was quoted with approval in *Stauffer vs Weedlun* 195 Northwestern 2nd at 218. The appeal was dismissed by the United States Supreme Court at 93 Supreme Court, 307. The rule was recognized in New Mexico where the Court states in *Phillips Mercantile Company vs. The City of Albuquerque*, 60 New Mexico, page 1, where Justice Compton stated at page 12 (Reading) We believe the best statement of general principles is found in one *Merrill on Notice*, 1952 Edition 543, where it is said, "A common test for the implication of right to notification in administrative proceedings has been the nature of the action to be taken. If it is judicial in nature, the necessity of hearing upon notification is implied; if on the other hand it is legislative in nature, involving a determination of policy rather than an adjudication of rights, the courts decline to imply a right to notification in the absence of the statutory command. (End of Reading.) Now in the question of what constitutes judicial action, *Merrill on Notice* states at Section 517 (Reading) If an administrative body acts judicially, notice and opportunity for hearing are indispensable to due process. When does the administrative proceed judicially? The familiar test is that adjudication involves the

investigation and determination of the rights of parties under existing legal rules. Examples based upon judgment of the constitutional necessity of notification and hearing include proceedings to award or cancel water rights or to grant or revoke licenses. (End of reading.)

Later in the same Section 517 Merrill continues: (Reading) There is a tacit assumption that the rule imposed upon specific persons must be on proper hearing involving due notification. The latest pronouncement of the Supreme Court of the United States definitely establishes this as essential to due process of law. (End of reading.)

Now the Tenth Circuit of the Court of Appeals, which has jurisdiction over the State of New Mexico, held that the cancellation of a certificate of purchase of minerals is quasi-judicial in character, requiring notice, citing Merrill. That's Magnolia Petroleum vs. Carter Oil at 218 Federal Second, 1. It is our view that the issuance of a permit to drill on property held under a potash lease or permit constitutes the taking of a substantial property right without due process of law and is thus improper, unconstitutional action and I believe it would be enjoined by the courts.

Now the problem at this point is a practical

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problem. If the potash lessee does not receive actual knowledge of the intention of an oil and gas lessee to drill, or the issuance of the permit to drill, in sufficient time to get to the courthouse to get an injunction, the damage is done, since it is drilling through the potash measures that causes the waste since the potash lessee will leave some substantial amounts of potash in place to protect the well.

As Mr. Donegan has testified, the Potash Company of America has an exploration contract on this property. Since we began our exploration operation on the property we realized the difficulty and the problems connected with it, since it is outside of R-111-A, and we have employed an agent in Artesia who checks a time or two every day the Artesia offices of the U.S. Geological Survey and of the Oil Conservation Commission for applications, notices, rulings, and I suppose rumors too, to see if we can find out anything.

Back to the point on the appropriateness of the evidence that we are looking at in this Case, the H.F. Wilcox Oil and Gas Company vs. the State in 162 Oklahoma, 89, at 19 Pacific Second, 347, there is a head-note by Andrews which states -- it happens to be quoted from the

case itself -- (Reading) When the Corporation Commission acts in a legislative capacity for the purpose of making rules, it may ascertain in any manner it sees fit what rules should be made and may make such rules without the hearing of evidence or without regard to the evidence heard. But when it attempts to apply those rules in order to prevent waste or to regulate production, it acts in a capacity at least quasi-judicial and it must act either under rules of procedure and evidence provided by the legislature or under rules of procedure and evidence provided by itself, and it may not then act without evidence or upon incompetent, irrelevant, or immaterial evidence. (End of reading.)

Again, I would like to point to the distinction between this proceeding in which we are asking for the extension of a rule; we are asking that the Commission make a rule, which is applicable already to a substantial territory in New Mexico, to include additional territory. In that capacity, when the Commission is acting in its legislative capacity, it's entitled, and it should consider all kinds of evidence, whether it be arguments, the peculiar knowledge of its staff, the opinion of experts, any kind of evidence that it can obtain because in the

legislative capacity it is not bound by the rules of evidence as it is bound in the judicial capacity. Now, were we hearing the Mesa Case I should agree with Mr. Kellahin, that the probability is that the evidence that we seek to introduce would be questionable maybe. I think that even then it would still be admissible before this Commission because you are asking to make an administrative decision on a very broad basis and you should have all the knowledge that you can get, and what we are really interested in this time is getting before the Commission all of the information that is pertinent to this question. Now, the Conservation Commission itself, having been charged by the legislature with the duty of protecting potash, is none the less severely handicapped. The Conservation Commission does not have facilities for determining whether potash is present or whether the potash is of commercial value; it has no budget to provide such facilities. In comparison, the United States Geological Survey has a substantial organization to do that work on a continuing basis. The analysis of all potash-drill cores are reported to the United States Geological Survey, and they are entitled to the core itself if they desire. It maintains detailed records of all drilling and production

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activities, including activity on State and private lands. The Oil Conservation Commission has no such information, does not have official access to the Geological Survey's records, and it is doubtful if the Survey would respond to a subpoena. I say doubtful they would respond -- I don't think they have ever responded to a subpoena -- so you would probably have to take them to court to see whether you could get the information. As to how much information they are willing to give on an informal basis, I am not advised as to that, but the Oil Conservation Commission is placed in the position of having the duty to protect potash, as commanded by the New Mexico laws and as delegated by the Secretary of Interior, without having the means to keep itself informed of the facts necessary to carry out that obligation. I think that the Commission should avail itself of the best evidence that can be obtained when they are called upon to make any kind of a decision. In this Case, when you are called upon here to alter or to make a rule or to make a regulation, you should have every bit of information that you can think of or that any of the parties can think of. You should have it as up-to-date as possible because this changes, changes very much, very rapidly. The economics of the potash industry have

changed fantastically over the past few years.

I think we should not confuse, at this point, the character of this proceeding with a proceeding, for instance, to decide whether Skelly should be permitted to drill a particular well, or whether Mesa should drill a particular well.

I would like at this point to just elude to that Mesa Case for a minute because it illustrates a real problem. Mesa Petroleum Corporation is the operator, designated operator, in a unit which I believe they call the Mash Unit. That unit consists of eight sections in 3 by 3 configuration, leaving out the section in the northwest corner. At least two Federal oil and gas leases in the unit will expire on August 1st, 1974. Mesa Petroleum Corporation applied to the Geological Survey for locations on Federal potash leases which they desire to drill. I mean they applied for but they were not approved by the Geological Survey. They later filed an application for a permit, the one that was just dismissed this morning before the New Mexico Oil Conservation Commission, asking for permission to drill on a State lease, a 40-acre State lease. If they were permitted to drill on this 40-acre State lease they could hold the entire unit over the two-year period because

they would be drilling over the end of that period. Now, this was outside R-111-A but we were apprised and had known of Mesa's activity for a long time, and in fact we had conferred with the Mesa people prior to the time that they filed their application with the New Mexico Oil Conservation Commission. We were in a position -- we objected to the first hole that they drilled. There were three 40-acre tracts in a north and south configuration; their application was to drill near the north boundary of the northernmost 40-acre tract. To that location we objected. A hearing was set for today; we were able to reach a compromise in which Mesa withdrew their application and we permitted them to drill -- I should restate that -- we stated that if they applied for permission to drill in a location near the north boundary of the southernmost 40-acre tract we would not object and we have not so objected. But, if we had desired to object, we could have objected to a new location. They figured, obviously, that they couldn't win a case on their northernmost location because we had excellent evidence of good potash there. We have good evidence of potash in the lower section but it is in a different horizon and we're not real sure about it; we were willing to compromise on the lower basin.

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Think a minute where Mesa would be had we decided to object; if they had come to the hearing today and lost the Case, which was an excellent possibility, and filed a new application on any other location within the State; we could have objected to it. In fact, we had a general objection on file in advance to any locations anywhere since they are outside R-111-A. A hearing would have taken them much beyond the first of August and Mesa would not have been able to continue their unit by that type of action. They would have had to use some other means to see if they could get the unit extended. There is some barren acreage in there probably, which they said they didn't wish to drill on; they might have had to drill anyway there.

I mention that simply to say that being outside of R-111-A does not render the potash lessee helpless. I might put it a different way-- and this was recognized way back in the early 1950's when the original orders were made -- that if you have a possibility of an administrative decision before a group such as the New Mexico Oil Conservation Commission, with a completely competent staff in understanding what the problems are, you have a chance of getting a decision in a hurry, you get a decision made by people having expertise in the area, whereas if you take

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it to court you're liable to be tied up for many years, and in that connection, a potash lease and an oil and gas lease are different. Let's take the Federal situation. A Federal oil and gas lease lasts for ten years; you can get a two-year extension of it by drilling over the end, but you have to have production to continue it beyond that date. A potash lease is a different proposition. You do your drilling in the first instance to prove the existence of ore on the lease when you get it and you don't have to do anything more but pay the rent from there in. One dollar an acre and you continue to use your potash lease as long as you want it continued. Now, if you get in a situation where you are in court, time is on the side of the potash lessee, not on the oil and gas lessee. I believe that the oil industry should recognize this matter and should be in favor of putting this jurisdiction within R-111-A before the Oil Conservation Commission.

MR. KELLAHIN: If you please, I think this has certainly gone far enough. We're raising matters that have absolutely no bearing on this Case before the Commission in terms of potash leases or oil leases and everything else. We've been patient and listened for some 40 minutes of this. I think it has gone quite far enough and think

the Commission should stop it.

MR. PORTER: Mr. Blackman, I assume, or I believe you said, that you felt that the Oil Conservation Commission could or should -- I believe if you put it correct -- Part 7 of Exhibit 4 by extending the limits of R-111-A?

MR. BLACKMAN: I believe that they could correct it; I believe they could help us substantially. I think --

MR. PORTER: (Interrupting) All right. Would you like for this to apply to the entire area as described now in Exhibit A -- I don't believe there is a description in there -- the most recent outline of the oil-potash area by the Secretary; you feel that all of that area should be included in R-111-A so as to make this Part 7 here actually inoperative?

MR. BLACKMAN: Yes, I think that's our position. I think that's a fair position. I have --

MR. PORTER: (Interrupting) You're approving all of R-111-A should exclude all of the area that has presently been designated by the Secretary in the new map?

MR. BLACKMAN: Yes, and I feel that is a fair position.

MR. PORTER: You didn't read Part 6. Do you have a suggestion as to how that might be corrected?

MR. BLACKMAN: I'm sorry, I didn't have enough copies of that but I can keep one for myself.

MR. PORTER: I see.

MR. BLACKMAN: I have one in here but I don't have it immediately available. Part 6 reads: (Reading) The Department reasserts its prerogative to make the final decision of whether to approve the drillings of any proposed well on Federal oil and gas leases within the Secretary's potash area. (End of reading.) How would you correct that?

MR. PORTER: That's what I asked you to decide, if you had any suggestions on Part 6.

MR. BLACKMAN: I don't have any suggestions.

MR. PORTER: Mr. Kellahin, do you have any further response to Mr. Blackman?

MR. KELLAHIN: Yes, sir, I have some considerably additional material I would like to present right here; it's pertinent to this matter.

MR. PORTER: Well, the question I asked you, of course, was facetious as far as Part 6 was concerned.

MR. KELLAHIN: Could I get a ruling on my objection?

MR. PORTER: You mean as to the further presentation

of this?

MR. KELLAHIN: Yes.

MR. PORTER: Well, now your position and your objection was on the point, Mr. Kellahin, I believe, that the Exhibit 4 and the material in Exhibit 4 --

MR. KELLAHIN: (Interrupting) You misunderstand me, Mr. Porter, I -- Mr. Blackman has been talking for some 40 minutes and he is covering matters which have not been presented in the testimony. He is in effect making his closing statement, and I think he is imposing on the Commission, he is imposing on us, in making this type of presentation at this point in this hearing, and properly everything he has said which is not directed directly to my objection should be stricken from the record.

MR. BLACKMAN: Mr. Commissioner, in response to that I would like to say this. We have in this particular case, if the Commission rules that I think it should, that this is a legislative matter, and that very broad latitudes may be exercised in the admission of all kinds of evidence, then I would proceed along the lines that I have; if the Commission should take the other view, that this is a narrow case and that we should be limited to the matters of how much potash there is in each particular section here, we're



liable to be here for three weeks because this is not just like a -- if you proceed in that direction then we're going to have to take just about as much time for each one of these little sections that we have in here, maybe each 40 or each 160 or maybe each 320, as was taken in the recent case of Phillips Petroleum and the recent case of Belco with Kerr McGee. We can get into all of those things and we can battle about them, but my feeling is that we have in this hearing a very general proposition of whether -- very simply this -- R-111-A only in its essential provides for notice. The other provisions of R-111-A have either been superseded by statute, provisions that say that you can't mine and interfere with oil and gas and those that say you can't drill to interfere with mining. Those have all been superseded by statute. R-111-A, therefore, is reduced in its essentials to only the question of notice. It has, in addition, a casing program in it, but the Commission stands ready, and has modified that casing program very many times. There is, as I understand it -- I could be wrong on this -- but it is my understanding that before the Oil Conservation Commission there is a casing program prescribed for every location in the State of New Mexico. It is either under a general rule that says

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you'll do it this way or under a particular rule for a particular pool. Now, under those circumstances we're talking about a very broad proposition and I consider this to be under the rule-making power of the Commission. Therefore, the evidence submitted can be completely broad and I think the Commission is in a difficult position if they don't take that position. I was just about to offer you a solution to a lot of these problems, which I think is a solution to a lot of these problems.

MR. PORTER: Mr. Kellahin.

MR. KELLAHIN: Mr. Porter, I feel somewhat like the old cowpuncher who told the country preacher, when he hauled a load of hay out into the field and only one cow showed up, he didn't give him the whole load. I feel like this is what we've got here. I raised a very simple objection to a bit of evidence and we got the entire presentation in the response.

Now, Mr. Blackman has raised many questions which I won't even attempt to answer, nor do I think it is necessary. He did not pay any attention to Part 6, and I think it is a significant provision in this memorandum if the Commission pay any attention to anything here. The part reasserts its prerogative to make the final decision

of whether to approve the drilling of any proposed well on Federal oil and gas leases within the Secretary's potash area. I think that's nothing more than the lesson of the statement of the law. As a matter of fact, the Board of Land Appeals in a recent case involving an Oklahoma corporation in its decision said exactly that: He said that the powers of the State of Oklahoma do not supersede the powers of the Secretary of the Interior and held a forced pooling order entered by the Oklahoma Commission was invalid.

Now, Mr. Blackman's objection to leaving this area under the Secretary's area and not in R-111-A appears to be based primarily on the lack of notice in case somebody wants to drill in here. He has already taken steps to remedy that himself by having someone check the records at the Artesia office and if he wants notice and hearing before the Department of Interior, if he doesn't feel he is getting due process, then he should have resort to the Civil Procedures Act and made some demands on the Department of the Interior and not on this Commission because it is not this Commission's doing, if that is his complaint.

Now, when you get into this question of whether this is a legislative or a judicial function, that raises an age-old dispute of what is legislative and what is

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judicial. I would say in this particular instance we are in effect -- Mr. Blackman's clients in effect -- are asking that nobody be permitted to drill in here except after approval of this Commission under the special procedures of R-111-A. That certainly is an extension of the provisions of the Act to affect others is at best a quasi-judicial function; you are affecting valuable property rights of the people. Just as an example, in the Belco Case and the Phillips Case we had to go through this procedure and some two years passed in each instance at the expense of thousands of dollars, then we got our permits.

But, whether it is legislative or judicial -- and the cases quoted by Mr. Blackman had nothing to do with the law in the State of New Mexico, I might add -- I call your attention to Section 65,320 of the New Mexico Statutes: (Reading) Except as provided for herein, before any rule, regulation or order, including revocation of change, renewal or extension thereof, shall be made under the provisions of this Act. A public hearing shall be held at such time, or place, and manner as may be prescribed by the Commission. The Commission shall first give reasonable notice of such hearing, in no case to be less than ten days except in an emergency, and at such hearing any person having an interest

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in the subject matter of the hearing shall be entitled to be heard. (End of reading.) Now, a hearing contemplates the presentation of evidence and argument and, as the statute says, these hearings will be conducted under rules prescribed by the Commission. The rules prescribed by the Commission, bearing on the rules of evidence provide: (Reading) Full opportunity shall be afforded all interested parties at a hearing to present evidence and to cross examine witnesses. In general the rules of evidence applicable to a trial before a court without a jury shall be applicable provided that such rules may be relaxed where by so doing the ends of justice will be better served. (End of reading.) Now here is the key to it: (Continue reading.) No order shall be made which is not supported by common legal evidence. (End of reading.) That's what we are asking for.

Now, coming down to the basis of this case, Mr. Blackman has certainly put his finger directly on some very serious problems involved here: In the first place, Order R-111-A was adopted in 1955; the authority of this Commission to regulate oil and gas drilling to protect potash was passed by statute in 1965. Mr. Blackman says that in effect then superseded the part of R-111-A. I'm not at all sure, and I think there is a serious question, whether

a later statute can breathe life into an order entered without statutory authority. I think the Commission would have to rely solely on its right to prevent waste in adopting R-111-A, but certainly it has no statutory authority over potash at that point when it adopted the order. The real question we are faced with here, and one which Mr. Blackman, in his very last statement to be made, indicated they very definitely want to avoid, is the question of commercial deposits of potash. Now, the authority of this Commission, its powers and duties as Mr. Blackman stated, relates to the prevention of waste of potash as a result of oil and gas operations. Now, waste is defined by statute, and in Section 65, 34, Paragraph F, the statute says: (Reading) The drilling or producing operations for oil or gas in any area containing commercial deposits of potash, when such operations would have the effect unduly to reduce the total quantity of such commercial deposits of potash, which may be reasonably recovered in commercial quantities, or where such operations would interfere unduly with the orderly commercial development of such potash deposits -- (End of reading.) Now, there you are, four times in that one paragraph the New Mexico Legislature has pointed out that this Commission's authority relates to protection of

commercial deposits of potash. If the Potash Company of America has a case and Mr. Hodges has a case, it is a case to show where the commercial deposits of potash are in here, which this Commission has the authority to protect. If they can't show that there are commercial deposits of potash, commercial certainly means potash that can be mined at a profit, then this Commission has no jurisdiction or authority to act nor should it act. I believe that the other matters raised by Mr. Blackman are really immaterial to this case. Thank you.

MR. BLACKMAN: Gentlemen, I agree with Mr. Kellahin that there is a very good argument on this question of commercial. The statute, however, is not that narrow. The statute says "prevention of waste of potash," and it defines waste as being commercial. But let's assume for the moment that it does limit it to commercial, and what is commercial. Well, I have listed a few here of the elements bearing on something as to whether it is commercial: You have industry economics, you have company economics, you have governmental action, Washington is liable to do something, Canada is liable to do something; the situation in Canada is absolutely fabulous if you haven't heard. The situation in Canada is such that it has

changed the economics of the potash industry fantastically. Up there, in both oil and gas and potash, between the Federal Government and the Province of Saskatchewan, I believe the tax figures out to something like 130 percent because the Federal Government says we don't recognize the right of a province to tax, but the province taxes anyway. It's something like 80 -- everything over what they consider to be a reasonable profit. You have technology; technology changes. Very different and new methods are coming in. The location of a particular core that you have with respect to other ore bodies, the location of the core body with respect to transportation, the location within a particular ore body. If you have a core that indicates the presence of potash, which everybody in the room would agree be below margin, it might nonetheless be commercial in the particular situation because it was in an area which you were about to drive entry ways. It might be very much nicer to drive it through 4% material than to drive it through salt. The size of the ore body is very pertinent. When you have a core hole, you don't know much about the size of the ore body; you have lots of them. The complexity of the ore itself; for example, here in the recent Kerr McGee Case it was assumed, and in testimony concerning



whether a particular core showed commercial potash, that carnallite could not be recovered, but Kerr McGee turns out to be recovering it, so --

MR. PORTER: Mr. Blackman, I want to interrupt you at this point. I think the Commission has probably enough information to rule on the objection. We recognize that commercial potash can be a flexible term, considering the degree of economics involved, and so forth, so we're going to recess the Hearing for a few moments while we make a decision on the motion.

(Whereupon, a short recess was had.)

MR. PORTER: The Hearing will come to order, please. The Commission will sustain the objection, and in order to save time I want to make this statement: That is the Commission will decide the case upon the sworn testimony of the witnesses in the Hearing relative to the presence or absence of commercial potash in the area under consideration. Now, if you desire to offer information that has been developed by the USGS, then a proper foundation will have to be laid by the witnesses who participated in the preparation of that information. I think we can save time if we observe those ground rules and proceed

with the Hearing.

MR. BLACKMAN: If the Commission please, I would make an exception to that ruling of the Commission.

MR. PORTER: Your exception will be noted in the record, Mr. Blackman.

MR. BLACKMAN: At the appropriate time, if I am not able to comply with the rules, I will make an offer of proof.

BY MR. BLACKMAN:

Q Mr. Donegan, I hand you a document which has been marked for identification as Exhibit No. 5. Mr. Donegan, will you explain what that Exhibit 5 is?

A Exhibit 5 is a base map prepared by U.S. Geological Survey to which we have added certain features and show certain geological conditions that exist in the Carlsbad potash district. The original USCS map has been reduced to one-half scale for the purpose of convenience of the Commission. We have a larger copy of the original that we can put on the wall.

This map shows in red the mined-out areas in the Carlsbad potash district. This includes the areas of first mining and second mining both colored red, but the

second-mined area, but the second-mined area is to be identified by the diagonal-ruled lines and dots assembled from the USGS. The proposed Hodges area, or the Hodges area proposed for extension in this Rule 111-A as amended is colored yellow on the map. The green line is the west truncation of the ore zones in the Hodges area. This line could be extended along the margin of the ore bodies to the north; they are also truncated to the west. The blue line to the south is the north border of an area leaching and subsidence of the potash ore zones. This area extends on into Texas and is apparently due to the presence of permeable sand zones in the lower Salado that permitted an influx of ground water and caused solutions to open up and subsequent collapse or subsidence of the ore zones and leaching of the ore zones. This trend or fairway of ore bodies through here is the high-grade deposits of the Carlsbad district. These are the great producers of Carlsbad and some of the greatest mines of the world; they made Carlsbad one of the great potash districts of the world. The mines to the east are deeper and were developed later. The significance of this trend is related to this subsidence area that the trend is cut-off only by that subsidence area. Perhaps this trend ore body

was continued on into Texas if it hadn't been for the leaching in the subsidence area. The drilling that has been done to date to the south on the Hodges area confirms conditions similar to the area to the north in this trend of great ore bodies. I will show you later on another map and as you can see on this map there are areas indicated by the symbols of equal signs are random equal signs areas of no data and by crosses barren areas. You can see in the area of these ore bodies there are a number of barren areas. For instance here, and inside those mines are the mined-out areas; there are numerous local barren areas or salt horses. The point of this is that any individual hole drilled in there wouldn't tell the story, or six or eight holes. The regional picture is the only way we can evaluate the Hodges area. We have some great potash holes in the Hodges area and some locally weakly mineralized holes. Those don't tell the picture except in a general way. They show that we're in this trend of major ore bodies and we likely have similar ore bodies to the south and we likely have local poor areas that would be ideal drill sites.

This map also shows the USGS area of mineable reserves. There are two symbols showing that; one is the

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diagonal line which shows the measured mineable potash reserves in one or more zones. The broken-dashed line shows indicated mineable reserves. I think it is extremely important to consider, and perhaps this is somewhat out of order from what we've just said, but when you consider that the mining companies in this area work in a confidential manner, no one person knows everything about this district; very few know much more than about one mine. But one organization knows everything, that is the USGS. They are the only ones that can actually see the whole picture in there, and that's why a map of this kind is extremely important, because we are able to see from information of this kind data that wouldn't be available any other way to the Commission. If we consider only the data in the area that we're involved in then we're in a very small part of the picture and we're not going to get the true story.

I should point out that the Hodges leases in the proposed areas for extension of Rule 111-A as amended is pretty well defined by geological and other boundaries to where it is a discreet and definite thing. It's not just a lot of land that somebody's trying to get withdrawn. We have a west truncation and south subsidence. The east Rule 111-A area has been withdrawn -- or not withdrawn -- but

has been placed under Rule 111-A as the IMC and Permian potash langbeinite area, and we're bounded on the north by Rule 111-A.

Incidentally, the Hodges' leases and permits covered quite a large area when we first made our play there. What you see now is kind of the guts of the potash that we decided to maintain. We drilled several holes outside this area, confirmed they weren't in this fairway of ore bodies, and abandoned those potash permits. We narrowed our block down to the area that we considered, based on our drilling or regional considerations, probably have potash under substantial part of the block. When I say substantial part we haven't done enough drilling to say that there's potash under every location. We have enough information to show there is a number of potash ore bodies there, probably a number of potash ore bodies, and until we do more drilling we're not going to know the boundaries of those ore bodies. But if we should use one or two barren holes, or several barren holes to call some of this area not to be under Rule 111-A, we may be withdrawing our -- I shouldn't say withdrawing -- we may be ruling out areas very similar to the salt-horses right in the middle of these ore bodies to the north. That's why the entire area should be placed

in Rule 111-A, and then give us the chance when someone wants to drill, to discuss hole-by-hole basis.

I would like, Mr. Blackman, to further show this idea here of the 12th ore zone.

(Whereupon, a discussion was held  
off the record.)

BY MR. BLACKMAN:

Q Mr. Donegan, I'll hand you a document marked for identification as Exhibit 7, Hodges' Exhibit No. 7, and ask you to identify that document.

A This is a study of the fifth ore zone by Charles Young, one of the great potash experts in the USGS, and the value or purpose of submitting this particular Exhibit and a particular map out of this Exhibit is that it will show the characteristics of one ore zone in such detail it involves about a thousand holes.

MR. KELLAHIN: If the Commission please, in view of the Commission's ruling on our objection and its statement as to what would be admitted, we object to this Exhibit unless it is shown that the Witness participated in the preparation of information contained in it.

MR. PORTER: Objection sustained.

MR. BLACKMAN: I think that you have made a ruling

all right that material cannot be put in unless you can show who prepared it.

MR. PORTER: I believe my ruling, Mr. Blackman, was that the proper foundation would have to be laid by someone who participated in the preparation. In view of that --

MR. BLACKMAN: (Interrupting) As you well know, in dealing with the United States Geological Survey, they have been forbidden to testify. I can call them up and have them refuse to testify if you think you would like that, but I cannot produce anybody from the United States Geological Survey to identify anything. Now, Mr. Donegan here is testifying as an expert geologist in the field. He has referred unquestionably and studied many, many, many different sources of information and authorities on geology and the like. This is a study that has been made in that particular instance and I would offer this for the limited purpose of simply showing how, from a map that this thing contains, what a potash deposit looks like, as it is outlined on the map. I think that the Commission has placed an impossible barrier upon proceeding in this manner when we are not permitted to utilize the best information that is available. I feel that the Commission



is denying itself at its peril the use of large amounts of information available in the field. I realize you ruled against me and I don't want to belabor the point, but I would offer this particular evidence simply to show that in that limited purpose.

MR. KELLAHIN: With the limitation placed on the Exhibit by Mr. Blackman we'll withdraw our objection.

BY MR. BLACKMAN:

Q Mr. Donegan, would you explain that map, bearing in mind the limitations which I have placed upon you and which the Commission has ruled.

A This is a map showing details of the fifth ore zone from -- what were the limitations, Mr. Blackman?

Q Show what an ore zone looks like.

A Mr. Jones in this bulletin -- and incidentally this is a public bulletin, it costs a dollar from the U.S. Geological Survey -- Mr. Jones used 350 cores, cores from 350 holes, and about 700 logs to prepare this map. The map shows by color the changes in minerality of the fifth ore zone. The area to the north, shown in blue, is an area predominately carnallite in the fifth ore zone.

Q Mr. Donegan, let's lay a little different preliminary on that. Explain what you mean by a fifth ore zone.

How many ore zones are there in the potash producing area?

A The Carlsbad potash district has several kinds of occurrences of potash minerals. Jones classifies them in two main groups: the massive deposits and the disseminated deposits. In addition there are other minor occurrences even as veins. The disseminated deposits are not of economic significance. They are of scientific interest in understanding the massive deposits. The deposits that we are concerned with here are massive deposits and those massive deposits have been named by each company in their own mine with separate names. The USGS has a standard of their own which is convenient to use because it would apply over the entire district. When you talk about the number 3 bed in one mine or Abel bed or Fox bed in another mine, it gets kind of confusing, so the reason that I was talking about the fifth ore zone, that's one of the 12 ore zones that is named by the USGS by their standards. These ore zones occur in the upper Salado formation in a zone approximately equivalent to the old McNutt potash zone. Eleven of the ore zones were in McNutt potash zone, and the 12th is high up in the section and 12 never amounted to very much and is not a commercial ore zone. The fifth is a commercial ore zone; it is mined in the IMC mine. The most significant

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thing that this map shows is that these ore bodies are not simple blanket deposits. As Charles Jones has said, the ore zones in ore bodies of the Carlsbad potash district are labyrinthic complexes. And you can imagine when we're dealing with eleven ore zones and maybe four or five of them are significant and will be significant production in the past and in the future, what a complex of ore bodies we would have in any given drill site if we superimposed five or ten of these kind of patterns. In other words, a drill hole here in one zone could miss all of the zones, and there seems to be some relationship to some of these islands. If you can imagine this has been precipitated in a late Permian Sea over an irregular surface that has brief mounds of concerted areas, then this irregular surface would have local highs and that has some control over the thickness of the ore zones and the location or absence of potash. Also, it's important in this area to remember we have something else to make it very complicated. I don't want to belabor the geology here, but I think it will help to understand our problems to the south. Originally potassium in some form or another, probably sylvite and carnallite was precipitated as the first development of these ore

bodies. Then later a very complex metamorphism took place. Solutions moved vertically and horizontally and that's what changed these ores from the original sylvite and carnallite. That's why, as I started to say, we have this unusual situation the colors are showing. We could ignore this map as a USGS map and just say that -- well we can't do that -- but this might be typical of any ore zone, it's just a selected ore zone that they had a lot of data on. Anyway, the blue area is principally carnallite, the purple area is principally sylvite. This color here, the reddish orange, is principally langbeinite, and various areas we have a different combination of minerals between the two. For instance, in some areas we have mixed sylvite and langbeinite. We have similar conditions in our area to the south. Now, the fifth ore zone does not completely apply to our area except as an example of the characteristics of just one ore zone. The ore zones that we're dealing with to the south, there are several of them, and we only have minor mineralization in the fifth, so what we're trying to imply, anything about our area, about the fifth ore zone specifically, but just give an example of one ore horizon.

Q Mr. Donegan, would you give us your opinion concerning the possibilities and probabilities of commercial

deposits of langbeinite ore in this area down here which is colored yellow?

A This area on this map?

Q Yes, the area that is colored yellow is the same on Exhibits 5 and also on Exhibit 1 and I believe 2.

MR. KELLAKIN: If the Commission please, we object to the question as no foundation has been laid for it. The only testimony so far in regard to presence of any kind of potash ore is Exhibit No. 5 which obviously shows the area involved does not contain ore in its entirety.

I think Mr. Blackman's question is proper if he lays a foundation for it and shows that this Witness has actually made a study of the area colored in yellow for the purpose of determining the presence of ore.

MR. BLACKMAN: I beg your pardon, I think he did that to start with, Mr. Kellakin. I'll ask him again. I'm sure he testified to it previously, but I'll ask him again.

BY MR. BLACKMAN:

Q Mr Donegan, have you made a study of the ore zones, all of the ore zones in the yellow area on Exhibit 5, and particularly in the fourth ore zone? Can you kindly testify as to what you believe the possibilities are

with respect to the existence of commercial ore bodies within that area in the fourth ore zone and then continue your testimony with respect to the other ore zones insofar as you can.

A I have examined --

MR. KELLAHIN: (Interrupting) If the Commission please, Mr. Blackman misses the point of my objection. If this Witness has made a study, he should first produce the results of this study, show how it was made, and the basis of the information on which he bases this. Certainly he's an expert and he can make conclusions, but we have a right to know what he basis those conclusions on. If Mr. Blackman is prepared to present this testimony later, it should come before this question.

MR. BLACKMAN: I will ask that the Commission rule on that question because I think Mr. Donegan, having made a study of it, is entitled at this point to state the results of his study, and he has the background area of the study, which I will present at a later date if the Commission so desires.

MR. PORTER: Mr. Blackman, the Commission feels that he should give us the results of his study and then draw his conclusions from that study after you put that in

the record.

Now, at this point we will recess the Hearing until 1:00 P.M.

(Whereupon the noon recess was held.)

MR. PORTER: The Hearing will come to order, please. The Commission will recognize Mr. Blackman who will continue examination of his Witness.

BY MR. BLACKMAN:

Q Mr. Donegan, you testified that you have made a study of the potash and langbeinite possibilities and probabilities in the area designated in yellow on several of these Exhibits. I would like you to refer specifically to Hodges' Exhibit No. 1, where you will note many drill holes are identified and testifying for a while from that Exhibit, which will make locations of the holes easy, would you kindly tell us what your investigation indicated with respect to hole A-10? What was the log in each of the ore zones which shows any mineralization?

A Mr. Blackman, A-10, encountered in the fourth ore zone, 5.2 feet of 9.1 percent langbeinite, 4.8 percent sylvite, and these are, of course, equivalent K2O

MR. PORTER: What was the first figure you gave?

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MR. DONEGAN: 5.2 feet of 9.1 percent K2O as langbeinite.

MR. PORTER: Thank you.

MR. DONEGAN: I think I can shorten these since there is so many of them; if you like I won't say K2O each time, just the mineral, if that's agreed.

MR. PORTER: Yes.

MR. BLACKMAN: May I interrupt just one minute. I would like the record to show here, that in response to a request, copies of all of these logs have been furnished to Mr. Kellahin -- or rather to Mr. Warnock on behalf of Mr. Kellahin -- unless we testify to the contrary.

MR. PORTER: I see.

MR. BLACKMAN: We gave him all we had; we didn't include everything but we don't have everything.

BY MR. BLACKMAN:

Q Were there any other mineralizations in that? Any other ore zones?

A Yes, sir. Once we get these folded out here it won't take so long. The same holes have quite a bit of mineralization in other ore zones. In the fourth ore zone -- I've given that -- in the first ore zone, Hole A-10 had 5.3 feet of 10.1 langbeinite.



Q Repeat that please, 5.3 feet?

A Of 10.1 percent langbeinite, 2.1 percent sylvite.

In the 10th ore zone in Hole A-10 we cored 4.1 feet of 8.5 percent sylvite and 3.0 percent langbeinite.

Q That's in the 4th zone, the 1st zone and the 10th zone?

A Right.

Q Is there any other mineralization in there?

A There was slight mineralization in other zones, the 2nd and 3rd ore zones.

Q All right. Move over now to page 4 which is along the lower boundary, I believe, of Section 2.

A Yes. H-4 encountered 5.9 feet of 8.6 percent langbeinite.

Q Which ore zone are you in?

A Pardon me, 4th ore zone.

Q 4th ore zone. Repeat the figures please.

A 5.5 feet of 8.6 percent langbeinite.

MR. PORTER: I believe your first figure was 5.9

MR. DONEGAN: I'm sorry, it is 5.9 feet.

MR. PORTER: Thank you.

BY MR. BLACKMAN:

A (Continuing) 8.6 percent langbeinite and 8.0

percent sylvite. In the 1st ore zone, in Hole H-4, we cored 10.4 feet of 12.0 percent sylvite and 4.4 feet langbeinite.

Q And what percentage of langbeinite?

A 4.4 percent langbeinite.

Q 4.4 percent langbeinite?

A Yes.

Q That would be 10.4 feet of 4.4 percent langbeinite.

A Yes, sir. Now, the feet, these are K20 values; not percent of langbeinite but percent K20 equivalent.

Q Any other zones?

A Yes, sir. In the 10th ore zone in Hole H-4 we cored 6.6 feet of 20.1 percent sylvite and 2.3 percent langbeinite. The 2nd and 3rd ore zones were slightly mineralized in Hole H-4.

Q Second and third slight. Now nearby, a half a mile to the west, H-2.

A H-2 in the 4th ore zone had 5.5 feet of 9.3 percent langbeinite K20.

Q Repeat those please?

A 5.5 feet of 9.3 percent K20 langbeinite. In the 1st ore zone in Hole H-2 we encountered 6.7 feet of 3.2 percent sylvite and 6.7 percent langbeinite. It is

unfortunate that we have to give figures on such good holes next to land that we don't have leased.

Q Any other mineralizations in any other zones?

A Yes, sir. In the 2nd ore zone in H-2 we have 3.5 feet of 6.9 percent sylvite, 3.5 percent langbeinite and 1.6 percent leonite; 3rd ore zone slightly mineralized; 10th ore zone 6.8 feet, 12.2 percent sylvite, 3.7 percent langbeinite and 0.8 percent leonite all K20, of course.

Q Now, there are several holes around there numbered PCA 1 through 5. Would you explain the situation with respect to those holes?

A PCA is drilling in this area at the present time. They're on Hole 6 and may be on Hole 7, which is not shown on the map. We do not yet have the analysis of the PCA holes. The PCA people have seen the cores and think they look good, but until we actually have the chemical analysis we can't give you the exact figures. I might say that we do know one thing has been proven in there; that we have apparently continuity of the ore body with some minor exceptions.

Q Now, with respect to the next hole to the south-east, H-3?

A H-3 in the 4th ore zone at 4.5 feet of 10.3 percent langbeinite. In the 1st ore zone, Hole 3 at 6.4 feet sylvite -- excuse me -- 6.4 feet of 8 percent sylvite.

MR. PORTER: Which zone is that?

MR. DONEGAN: First ore zone.

MR. PORTER: Thank you.

BY MR. BLACKMAN:

A (Continuing) 2.8 feet of langbeinite and 1.1 foot of 6.4 percent glaserite. The significance of glaserite in this area -- this is my opinion, the reason we have the glaserite figures here -- glaserite is a potassium sodium sulfate not being mined to my knowledge anywhere, but I understand that some companies have tried to make it artificial, and we've discovered glaserite in some of our holes, especially to the south, and we have a very exciting possibility in the central part of our block there, that we might develop a glaserite ore body, a product that we could mine that apparently would make a valuable fertilizer. This is all something that would have to be determined when we drilled around the holes that had the glaserite.

MR. NUTTER: Mr. Donegan, you did not give the percentage of that langbeinite at 2.8 feet.

MR. DONEGAN: It was 6.4 feet of 2.8 percent

langbeinite.

MR. NUTTER: Thank you. And what was the percentage of the glaserite?

MR. DONEYGAN: Well, what I have here is -- I don't have an average for the entire zone. I might have confused you there. Out of that interval there is a zone of glaserite and it's 1.1 foot thick of 6.4 percent K2O glaserite.

BY MR. BLACKMAN:

Q Any other mineralization in H-3?

A Yes, sir. In the 2nd ore zone we have a thin zone; 2.4 feet 6.7 percent sylvite, 3.9 percent langbeinite, and 0.8 percent leonite; 3rd ore zone only slightly mineralized; 10th ore zone of H-3, 11.2 feet of 9.0 sylvite and 3.5 langbeinite. Now I have a couple of other breakdowns on that ore zone because we had some high-grade streaks; first I gave you the average of the entire 11.2 feet. We have in that interval 5.4 feet of 8.9 percent langbeinite and we have in another interval in that ore zone of 11.2 feet 3.2 feet of 16.9 sylvite. That is the only mineralization of significance in that Hole 3.

Q Now, moving to the east --

MR. KELLAHIN: If the Commission please, in the interests of time it would seem to me that all of the

figures that have been read, as far as we're concerned we can read them. I'm sure we can sift through them. If the Applicant here wishes to submit an exhibit showing these figures I see no reason to take these one by one and go over the whole area. Their duty is to show commercial ore deposits. We've got no interpretation on the basis of these figures yet, I'm sure we will come to it, I don't see the necessity to read all those figures into the record if we have some Exhibit that shows us. We've got 58 core holes and we've got a long way to go.

MR. PORTER: Do you have an Exhibit prepared that would show those thicknesses and percentages.

MR. DONEGAN: No, sir. I have my work maps -- coming by bus -- I guess we were too optimistic. We never dreamed that we were going to have to reveal every hole that we were talking about a hole-to-hole basis. Now I have one work sheet drafted of everything I am giving you, with the exception of about 10 holes. If this thing goes into tomorrow I will certainly have all of this in the morning. I have ordered 6 copies of these maps. I also have here a stack of 58 logs that have all of this data -- it's more than 58 -- and all of that data is right here; we can offer that, which is the same thing

that Mr. Kellahin has.

(Whereupon, a discussion was held  
off the record.)

MR. TRUJILLO: Mr. Donegan, can the information  
be put on these maps that you will give by tomorrow?

MR. DONEGAN: It is already on the map.

MR. TRUJILLO: It is just a matter of having them  
ready not sooner than tomorrow, is that it?

MR. DONEGAN: My daughter put them on a bus to  
go to Albuquerque to get a blueprint and ship them back.  
Now, whenever the bus gets here, at the latest tonight I  
would think.

MR. PORTER: Would that be satisfactory?

MR. KELLAHIN: If the Commission please, mine was  
not an objection, they have a perfect right to put this in,  
but it seems to me that it would be rather burdensome to  
go in this fashion through all these core holes and still  
have nothing which shows where the projections of this  
information --

MR. TRUJILLO: (Interrupting) Mr. Kellahin, are  
you willing to stipulate that if they provide us with maps  
with the required information shown on these maps, would  
you stipulate to that?

MR. KELLAHIN: Subject to our checking them against the information which we have, yes.

MR. BLACKMAN: I'm not sure --

MR. KELLAHIN: Subject to checking them against the information which you have furnished us, to be sure they are correct.

MR. BLACKMAN: You mean the exhibits that we are going to furnish will be essentially correct or will reveal the core hole information as it is as we know it?

MR. KELLAHIN: That is correct.

MR. BLACKMAN: Well I think I have to proceed around the perimeter of this area anyway to show you what's in there. Otherwise you will object again and Mr. Donegan has not told you what studies he has made. I'm reading into the record what studies he has made, what he has examined, and what is revealed by it. I asked him in the first instance what his conclusion was and you objected to that and the Commission ruled that I had to show what studies he has made. I can't show that by one exhibit until tomorrow, so I will simply have to put it in piece by piece today, unless you are also willing to go ahead and say that I can ask him what his opinion with respect to the trends, the existence of potash, particularly langbeinite



within this area and let him testify with respect to that. I'm willing to go ahead on that but I don't see how I can go ahead both ways.

MR. PORTER: When you come to a fork in the road you can't go down both roads.

MR. KELLANIN: If the Commission please, this Commission has heard many, many potash cases, and never in the history of this Order has a case been presented in such a fashion as this, with core hole, core hole, core hole. In every instance they've had an exhibit with the core holes on it, the information on the exhibit, their interpretation and projection of that information to show where the ore body lies, and that is the basis of their presentation. Now, to say he can go ahead now and ask him to say whether this is productive commercial quantities or not leaves us in the dark. I have nothing to cross examine him on until the exhibit is produced. There is still nothing, and if he goes down through here and gives us the information on every single solitary core, we still don't know he's done. All he has done is determine that at that one point this situation existed. We don't know what he did with it. I'm at a loss to know how we can possibly proceed at this point.

MR. BLACKMAN: Well, I don't see what other way we can proceed; you want to know how he did it; when I get the information in the record I'll ask him how he did it.

MR. KELLAHIN: I've made my objection. If the Commission wants to let him proceed in this fashion, that is fine.

(Whereupon, a discussion was held off the record.)

MR. PORTER: Mr. Blackman, is it your intention to discuss each one of these core holes separately anyway, regardless of whether you have them tabulated or with these results on them?

MR. BLACKMAN: I would discuss them by groups, but I might suggest something like this. I have no desire to take the Commission's time up by going into all this detail which obviously will take a long, long, long time to put in there and give all the details of all the projections. My feeling about this particular case is that it is quite different from the cases that have come along before. We have here a substantial area which has high probabilities of potash mineralization. As to whether needs -- we really do not have very much information about it at the present

time. This is the reason why we are drilling these holes PCA 1 through 6 up there. We're trying to get that information and this is a method of trying to establish the size of the ore body, to see if it's sufficient. This means that we will be looking around in different places within here based on rather sketchy information. It is not easy to say whether there is, not easy to establish positively that you can say that as of here we have an ore body that goes from here to here because the information that we have is not sufficiently detailed to do very much of that. We can do it up there at the north where PCA is but the only thing that I can suggest is that we might proceed in this fashion if the Commission would prefer the information put in the form of a map with projection lines on it indicating where the ore bodies are projected to be. We could prepare such an exhibit, the trouble is that it would take a little more time than just drawing a few lines because of the fact of these multiple ore zones.

MR. PORTER: You say you are now in the process of drilling additional core holes in the area?

MR. BLACKMAN: Yes. As Mr. Donegan said, we've drilled 5, we've completed 5 holes. PCA 6 is located on

here. I'm not sure at this moment whether PCA 6 has been completed and PCA 7 is started or not. The process of analysis of the cores in these instances is quite difficult. It is very easy to run an ore in, take a particular section of potash and hand it over to the laboratory and run the K2O on it to find out how much potash is actually present. But to try to find out what the makeup of that potash is requires a large amount of detailed engineering and analytical work, ending up with a material balance, and our chemists won't release the work until they got their material all in balance and they are willing to say positively that this has so many feet of this percentage of sylvite and so many feet of this percentage of langbeinite and so many feet of something else, so we don't have that information. All we can say is that it looks good, but that's all at this point. Now that's only -- that only applies to that area up there. With Mr. Kellahin's permission, what we have done that Mr. Donegan has testified to is we entered into a contract and we are obligated to keep on drilling until we either do something with it or give it up. If we decide to do something on it we'll end up in a joint venture with them as to what it is. We have spotty areas around here and we could draw such a map

and I can get something like that ready so you might suggest one thing, that within the areas with which we are proceeding or in this area we might prepare such a map for the Commission. We can't do it by tomorrow; we would have to say that we would get it as soon as we could in some continuing basis, but otherwise ---

MR. TRUJILLO: (Interrupting) Mr. Blackman, would you have the information for all the holes you have listed on your Exhibit 1?

MR. BLACKMAN: Do we have information for all these holes? Let me ask Mr. Donegan that, a few we do not have, for instance, D-32 in there that I was going, and D-4 I believe which I was going --

MR. TRUJILLO: (Interrupting) If you do have the data for this, is it possible to provide the Commission with a map indicating all that data on the map with the holes that are presently shown here, by say tomorrow?

MR. BLACKMAN: Is that what you have, Ben?

MR. DONEGAN: No, sir. I would like to point out that this is what Mr. Kellahin wouldn't let us -- stopped us from talking about earlier. We don't have the edges of these ore bodies. We have a lot of information to show that there is probably a number of ore bodies in

there and we have some beautiful holes scattered out by themselves and there's no holes near them. We have some blank holes. Our contention of what we were trying to show earlier is that a substantial part of this land probably had potash ore in it and some parts of it doesn't have potash ore. The map you are talking about, Mr. Blackman, I would be hard pressed to see where the edge of any of these ore bodies are. We haven't done enough drilling to any more than generalize. We can show what may be a square mile here that is all ore, or an area down here that looks real good, but we're too early in the development of this thing to say any part of it doesn't have ore other than in the two-inch diameter of say a barren hole.

MR. KELLAHIN: If the Commision please. Based on what the Counsel and the Witness have both stated, it would appear that this Application is wholly premature. They admit they don't have evidence available to them to support their burden under the statute which would be to show the commercial deposits of potash in this area. We're not talking about indicated potash or some other terminology, we're talking about commercial deposits of potash, and if they aren't prepared to go forward with

that then the case should be dismissed.

MR. BLACKMAN: We're prepared to go forward on a hole-by-hole basis, Mr. Kellahin, but you don't want to do it that way. We can show you where we are and show you what the possibilities are because I strongly feel that this is an ideal example of a situation in which we have possibilities of very valuable potash measures in this very area here. This area and the one immediately to the east, which is known as Permian potash area, are the last known langbeinite possibility deposits in the Western Hemisphere. There aren't any anyplace else that are known. The Commission needs the individual information we are talking about. It needs exactly that information that we're talking about to make decisions on whether a particular well should be drilled or should not be drilled, whether a particular oil well should be drilled or should not be drilled. I don't know a way to put the evidence before the Commission as to what it is except to go through and do it and give it to you hole by hole. Mr. Donegan says it is a difficult thing to tell how far you should go. If you have a hole out in the middle -- a mile around you in all directions -- it's a good hole, how much potash do you have? Goodness knows, nobody knows because

you only know when you come up with a core hole that you found let's say 3 inches of potash at a depth of 650 feet and it was 10 feet thick. If you go ten feet away from that you do not know anything; you haven't proven it. Now, when you come to try to prove that it is a very difficult thing. It seems to me that when we're only asking for notice in a case of this kind of intention to drill so the Commission can decide in a particular instance that the character of the proof that Mr. Kellahin is requesting that we have is asking too much. We're thinking that we're not only talking about the Hodges Trust here and PCA, we're talking about the State of New Mexico. We're talking about a very valuable piece of property here. This is of extreme value to the Commission. I can cite a case back years ago that Mr. Porter would remember in which we lost the case before the Commission and many wells were drilled in an area out in Lea County. That land was eventually given up by PCA and I'll be switched if the potash that has been permanently lost in there isn't worth \$100,000,000 right now.

MR. KELLAHIN: If the Commission please, if Mr. Blackman wishes to testify, let him get on the witness stand and be sworn. We don't know anything about any case they lost. What we are talking about is what



requirements of the New Mexico statutes are in this Case. At best, if the Commission doesn't see fit to dismiss the Case, I think it ought to be continued and give FCA a chance to prepare an adequate case. They're certainly not prepared to go forward with the Case today, obviously, and I think both the Counsel and the Witness have admitted that they can't say what is commercial deposits in this area since they're talking about

MR. PORTER: Mr. Blackman, you say you have active coring going on in that area right now?

MR. BLACKMAN: Yes, sir.

MR. PORTER: What time do you think it would take you to complete that coring.

MR. BLACKMAN: To complete this coring in this area?

MR. PORTER: In the area that you are asking for.

MR. BLACKMAN: It will take a long time, Mr. Porter. We have been at it now -- a core hole down there is about 650 feet. It takes somewhere between three days and four weeks to drill a hole, depending on how much trouble they get into. We are obligated to drill a minimum of 15 core holes and as many more as we feel is necessary to determine the existence of ore bodies. Now there isn't

any way to tell that because each core hole gives you a little more information.

MR. PORTER: How many rigs do you have?

MR. BLACKMAN: We only have one. We could only get one. There is a representative of Norandex here, they are drilling; there is not a representative of Day Mines here, they're trying to find a rig. Pennsylvania Drilling Company has been operating in that area for a long time; they haven't been able to get crews. I would say that we hope to be finished with this within possibly a year from now, maybe a year and a half, to get the holes drilled and to get the evaluation made.

MR. PORTER: Would you like to continue the Case for a year and a half?

MR. BLACKMAN: No, sir, I would not. I would be willing to prepare such an Exhibit as the Commission indicates it wants. We will do our best to put the information that is necessary on such an Exhibit and submit it to the Commission to see what you feel, to see what you think about it. At that point I would -- I also feel very strongly that this is a situation in which the Commission should take a different view. I'm asking the Commission to change its rule, the basis on which it has been operating.

MR. PORTER: Well we've already ruled on that.

MR. BLACKMAN: Yes you have, you have already ruled that you're not going to do that today. I think you haven't ruled that two weeks in advance.

MR. DONEGAN: Mr. Porter, while you're considering that decision, I wonder if I could make a statement on behalf of Leland A. Hodges concerning something that I would like you to be aware of in consideration of that decision. We have the current situation, Skelly drilled a No.1 49er Ridge well, we understand they are planning a No. 2 well in this area. The No. 1 well, and we have evidence that we have already seen that they encountered valuable potash in their hole. It was not in Rule 111 although it was near an old hole that did have potash. We didn't receive notice or have right of hearing. There is other drilling going on, we're being crowded by drilling. Of course that's the primary reason we came in; we're trying to show with evidence we have now that if we don't take action right now we're going to lose a lot of potash in there. This idea of waiting until there is more drilling, this drilling in the contract with PCA provides for continuous drilling. They may have to drill 5 years or 3 years. There is no point that we can wait to finish their

drilling. Meanwhile, all the other oil and gas well activities are going on. The potash situation is changing from day to day. It's just been a matter of the last few weeks the economics have completely changed and I don't see how we can wait for another map or another --

MR. KELLAHIN: If the Commission please, I want to correct just one statement made. He said he had no notice of this Skelly well. Well, if he had no notice it is because he didn't pay any attention to the official notification by this Commission. That well was within a unit and was approved after a hearing; the well location was approved after a hearing and certainly they had adequate notice, the same notice of any other operator gets in the oil business. If they didn't see it, well that's unfortunate, but just to say that we got to put this in an area now so we can get notice when the statute says the purpose of it is to protect commercial deposits of potash.

MR. DONEGAN: When I said "notice," I said notice and right of hearing. We knew about the well; we came to the hearing; we didn't have right under anything except through the courts to protest the well. We didn't have the right of Rule 111-A to ask for opportunity to discuss the potash in the holes in that area.

MR. KELLAHIN: You did have notice?

MR. DONEGAN: Well we had the notice that there was going to be a hearing about a unit.

MR. BLACKMAN: I think that sort of illustrates the point in here. If the Commission is disposed to continue the case, I would like to think about it just a little bit, but I would like to request two things: I have one witness here to testify to some particular problem who would not be able to come back probably at any other time, and I would like to put that little bit of evidence in. Another one is that we would like to put in the evidence particularly about this area around the Skelly hole and about some of these other areas where we show good potash holes and we'll just leave out all of the bum ones and say here is where we indicate the potash is and where the ore zone is and then see what information we can get with respect to projections and things of this kind. I say to you now when you start to try to determine what constitutes something that is commercial you have a real job on your hands and it is a very difficult thing to do.

I would like to cooperate with the Commission by having a continuance in preparing such an exhibit because I probably would illustrate the matter and it would

certainly tighten up the argument quite a bit.

MR. PORTER: Is it your plan to try to correlate these various core holes? You're not yet talking about the evidence that you are planning right in the core holes, how one relates to the other, and so forth?

MR. BLACKMAN: We would give what evidence we can as to what one relates to the other. I just had an offer from one of my colleagues from another company down there that they would be glad to take a look at this thing this evening and see what we can put down on the map with respect to making correlations which might be helpful to the Commission if we simply recess the hearing until tomorrow. Mr. Donegan has indicated that he didn't think he would be able to do that by himself; perhaps two or three of us could do it.

MR. PORTER: The Commission is considering continuing this case for a couple of weeks until about July 31st, which would be two weeks from today, to allow time for some exhibits to be prepared. I feel that in so doing we could probably shorten this proceeding. Now, what do the interested parties, how do you feel about the date of the 31st?

MR. KELLAHIN: That date would be satisfactory

with us.

MR. BLACKMAN: It sounds all right to me. What day of the week is that?

MR. PORTER: It's on Wednesday.

MR. BLACKMAN: That will be fine.

MR. PORTER: All right. July 31st would be on Wednesday, two weeks from today.

So, the Commission will continue the case until that time. It should give ample time to prepare the exhibits and come forward with testimony.

MR. BLACKMAN: Very good.

(Whereupon a discussion was held off the record.)

MR. BLACKMAN: I would explain to the Commission the reason for putting this, notwithstanding the exhibit we intend to prepare, we've had difficulty in getting the information on two holes, Mr. Elers' old Duval holes that they've drilled, and we were able to get the information on them and I just wanted to put those --

MR. PORTER: (Interrupting) He has that information and you would like to get that in the record while he is here.

MR. BLACKMAN: Yes, some information with respect to the price of potash.

MR. PORTER: Let the record show that the Case is being reopened for the purpose of questioning one Witness.

(Witness sworn.)

KARL E. ELSERS

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

DIRECT EXAMINATION

BY MR. BLACKMAN:

Q Mr. Elers, will you state your name?

A Karl E. Elers.

Q Your position, please.

A Resident Manager, Duval Corporation, Carlsbad Properties.

Q In that position do you have official custody of the records and material of that sort concerning drill holes drilled by Duval Corporation in the past?

A That is correct.

Q Based on that information, can you testify as to the log information, core information on the drill hole D-4 which is in the -- I can tell you in a minute if I can figure it out -- in Section 28, the southwest corner, 23 South, 30 East?



A I can.

Q Would you so testify as to what that core information shows according to your records?

A Our records on Duval's No. 4 core test show a total of 5 feet 11 inches of 11.1 percent K20 sylvite.

Q 11 point what?

A 11.1 percent K20 as sylvite.

Q Are there any other mineralizations in that hole?

A We show very minor langbeinite mineralization which at that time was not analyzed.

Q Can you give the same testimony with respect to hole No. D-32 which is in the Northeast quarter of Section 14, Township 23 South, Range 30 East -- Range 29 East.

A Yes, I can.

Q Will you testify please?

A D-32, which was drilled in 1948, was not assayed. An estimate was made of the core that was recovered, the estimate being 4 feet 4 inches of 5 percent K20 as langbeinite, 3 percent K20 as sylvite.

Q You said that is not based on analysis?

A That is correct.

Q It is based on an estimate?

A It is based on a visual estimate by the geologist

on the hole.

Q Now, Mr. Elers, would you kindly testify what is the current price per ton of ore of the product known as Kaymag sold by your Company, which is sulfate of potash magnesia.

A Kaymag's current price for the standard grade material is \$26 per ton. For the granular material it is \$29 per ton.

Q Now this is the commercial product made from the ore langbeinite, is that correct?

A That's right.

Q Can you tell us what the price was a year and a half, two years ago?

A Approximately \$18 per ton.

Q Is that for standard or granular?

A Well, that would be an average. I believe it was 16 for standard and 19 for granular.

MR. BLACKMAN: That's all Mr. Elers.

CROSS EXAMINATION

BY MR. KELLAHIN:

Q Mr. Elers, on your core D-4, what is your estimate based on? How did you arrive at those figures?

A D-4, Mr. Kellahin, it was based on analytical

assays from chloraplatinate analysis.

Q From what?

A It is a type of potash analysis that is conducted on core tests.

Q Did you utilize a log on the analysis?

A Yes.

Q Would you make that log available to us?

A The log could be made available, yes, sir.

Q We would like to have a copy.

A I don't have it in Santa Fe with me.

Q We're recessing for two weeks.

A I will make it.

Q The Commission will appreciate it. Now, on your D-32 you say that is based on estimates.

A That is correct.

Q Who made the estimate?

A Mr. Kellahin, I found no names on the log. I can only give you the name of the two individuals who did all of Duval's logging at that time.

Q I will ask you this, are they present here?

A No, sir.

Q Is the estimate the visual estimate that you were talking about?

A That's correct.

Q How reliable is that?

A I would say the reliability is generally within 10 percent on a visual estimate by an experienced geologist.

Q Do you have any records to support this 10 percent accuracy?

A I think we could furnish them, yes, sir.

Q Where you have a visual estimate and then an analysis?

A Correct.

Q Now, on your price, is that a spot price?

A No, sir, that's published list price.

Q From what is it taken?

A From our published list price to our customers.

Q That is a spot price, is it not?

A Well, it's our price in effect for the product fob plant for the period I believe July 1st through February 28th.

Q Do you have any long-term contracts at those prices?

A This I could not tell you, Mr. Kellahin.

Q Do you know what your long-term contract price is?

A At the present time?

Q That's right.

A I don't believe we have any in Kaymag.

Q Do you know what 1973 long-term contract price was?

A No, sir, I don't.

Q You don't make any long-term contracts?

A Our Company may make them but they are made outside of my realm of activity.

Q Now, that brings us back to the question, you say this is Kerr Mac products?

A No, sir, this is Duval products.

Q You know what your posted price is but you don't know what your contract price is, is this what you are saying?

A Well, we're kind -- our list price is the going rate of the material we're selling. Whether we're contracting over long periods of time, I'm not qualified to answer that.

Q If this is the price, if I drove up in a truck you would sell it to me wouldn't you?

A Correct.

Q But if I wanted to buy in volume over a period of years I would negotiate with a different party?

A Whether or not we're doing long-term contract work

in Houston at this time I couldn't say.

Q You don't know?

A No.

Q You don't know what price it is?

A No.

MR. KELLAHIN: Thank you.

REDIRECT EXAMINATION

BY MR. BLACKMAN:

Q Mr. Elers, does this price that you testified to, was that a new increase price as of January 1st, 1974?

A No, sir. The \$26, \$29 price I believe was effective July 1st, 1974.

Q July 1st, 1974, I intended to say

A Yes.

MR. PORTER: Any further questions?

MR. BLACKMAN: I would like to make one statement not directed to Mr. Elers, it is very short.

Earlier in the Hearing, Mr. Porter, you asked me if it were my position that the R-111-A boundary should be made coextensive with the Secretary's area boundaries and I said I thought that was the proper position. I did not want to leave the impression that I was advocating that at this hearing because it is not in the notice.

STATE OF NEW MEXICO )  
 ) SS.  
COUNTY OF SANTA FE )

I, RICHARD L. NYE, Court Reporter, do hereby certify that the foregoing and attached Transcript of Hearing before the New Mexico Oil Conservation Commission was reported by me, and the same is a true and correct record of the said proceedings, to the best of my knowledge and skill and ability.

  
\_\_\_\_\_  
RICHARD L. NYE, Court Reporter

THE NYE REPORTING SERVICE  
STATE-WIDE DEPOSITION NOTARIES  
225 JOHNSON STREET  
SANTA FE, NEW MEXICO 87501  
TEL. (505) 982-0386

MR. PORTER: I realize that Mr. Blackman. The reason for my question was that you felt that that would -- then the whole area would make Section 7 more or less moot.

MR. BLACKMAN: I don't know whether it would make it moot or not but I do think it would answer the question of due process of law.

MR. PORTER: In that event --

MR. BLACKMAN: (Interrupting) I didn't want to say I was advocating that, that's all, I'm not trying to --

MR. PORTER: (Interrupting) Well, in that event

MR. BLACKMAN: (Interrupting) I'm not trying to do that to the extent that I may have inferred that I was trying to do that I wish to state the contrary.

MR. PORTER: No, I realize you were not trying to do it, but inasmuch that you thought that the Section 7 should be corrected, and I thought you might have the idea that that was the way to correct it.

MR. BLACKMAN: My idea was to get the Secretary of the Interior to correct it.

MR. PORTER: The Case will be continued until 9:00 A.M. on July 31st.

(Whereupon, the Hearing was adjourned at 2:05 p.m.)





## OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO  
P. O. BOX 2088 - SANTA FE  
87501

September 3, 1974

I. R. TRUJILLO  
CHAIRMAN  
LAND COMMISSIONER  
ALEX J. ARMIJO  
MEMBER  
STATE GEOLOGIST  
A. L. PORTER, JR.  
SECRETARY - DIRECTOR

Mr. R. H. Blackman  
Potash Company of America  
Post Office Box 31  
Carlstad, New Mexico 88220

Re: CASE NO. 5276  
ORDER NO. R-111-I

Applicant:  
Leland A. Hodges, Trustee

Dear Sir:

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

Very truly yours,

*A. L. Porter, Jr.*

A. L. PORTER, JR.  
Secretary-Director

ALP/ir

Copy of order also sent to:

Hobbs OCC x  
Artesia OCC x  
Aztec OCC           

Other Jason Kellahin, Chester E. Blodget, H. L. Kendrick,  
Paul Eaton, Don Allen, Donald Van Sickle

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. 5276  
Order No. R-111-I

APPLICATION OF LELAND A. HODGES,  
TRUSTEE, FOR THE EXTENSION OF  
THE POTASH-OIL AREA, EDDY COUNTY,  
NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on July 17, 1974, at Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this 3rd day of September, 1974, the Commission, a quorum being present, having considered the testimony presented 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, Leland A. Hodges, Trustee, is the owner of certain potash leases in Townships 22, 23, and 24 South, Ranges 29 and 30 East, NMPM, Eddy County, New Mexico.

(3) That the applicant seeks the amendment of Order No. R-111-A, as amended, to extend the Potash-Oil Area as set forth in said order to include the following described lands in Eddy County, New Mexico:

TOWNSHIP 22 SOUTH, RANGE 29 EAST, NMPM

Section 31: SE/4

Section 32: All

Section 33: W/2, W/2 NE/4, SE/4 NE/4, and SE/4

Section 34: SW/4 SW/4 and E/2 E/2

Section 35: W/2 NW/4 and NE/4 NW/4

TOWNSHIP 23 SOUTH, RANGE 29 EAST, NMPM

Section 2: W/2 SW/4 and SE/4 SW/4

Sections 3, 4, & 5: All

Section 6: E/2

Section 7: NE/4

Section 8: N/2 and SE/4

Sections 9, 10, and 11: All

Section 12: S/2 N/2 and S/2

Sections 13, 14, and 15: All

Section 21: E/2

Sections 22 thru 27: All

Sections 34, 35, and 36: All

TOWNSHIP 23 SOUTH, RANGE 30 EAST, NMPM

Section 7: SW/4 NW/4 and S/2

Sections 16 thru 23: All

Section 26: W/2

Sections 27 thru 32: All

Section 33: N/2

Sections 35 and 36: All

TOWNSHIP 24 SOUTH, RANGE 29 EAST, NMPM

Section 2: N/2

TOWNSHIP 24 SOUTH, RANGE 30 EAST, NMPM

Section 2: N/2

(4) That the NE/4 NE/4 of Section 11, Township 23 South, Range 29 East, NMPM, is already included in the Potash-Oil Area as defined by Order No. R-111-A, as amended, and the application for inclusion of said quarter-quarter section in the area should be dismissed.

(5) That of the remaining lands described in Finding No. (3) above, and not described in Finding No. (4) above, the evidence presented at the hearing indicates that only the following described lands contain potash deposits in commercial quantities:

TOWNSHIP 22 SOUTH, RANGE 29 EAST, NMPM

Section 31: SE/4

Section 32: NE/4 and S/2

Section 33: W/2, NW/4 NE/4, S/2 NE/4, and SE/4

Section 34: SW/4 SW/4 and E/2 E/2

Section 35: N/2 NW/4 and SW/4 NW/4

TOWNSHIP 23 SOUTH, RANGE 29 EAST, NMPM

Section 2: W/2 SW/4 and SE/4 SW/4

Sections 3, 4, and 5: All

Section 6: E/2

Section 7: N/2 NE/4

Section 8: N/2 N/2 and SE/4 NE/4

Section 9: NW/4 and E/2 NE/4

TOWNSHIP 23 SOUTH, RANGE 29 EAST, NMPM cont'd

Section 10: All  
Section 11: NW/4, N/2 SW/4, W/2 NE/4, SE/4 NE/4,  
and SE/4  
Section 12: S/2 N/2 and S/2  
Section 13: E/2 E/2  
Section 15: W/2, W/2 E/2, and NE/4 NE/4  
Section 21: SE/4  
Section 22: W/2, W/2 NE/4, SE/4 NE/4, and SE/4  
Section 23: S/2  
Section 24: E/2 NE/4  
Section 26: All  
Section 27: N/2 and E/2 SE/4  
Section 34: E/2 NE/4 and NE/4 SE/4  
Section 35: NW/4, N/2 SW/4, W/2 NE/4, SE/4 NE/4,  
and NW/4 SE/4  
Section 36: S/2 NW/4, SW/4 NE/4, N/2 SW/4,  
and NW/4 SE/4

TOWNSHIP 23 SOUTH, RANGE 30 EAST, NMPM

Section 7: SW/4 NW/4 and S/2  
Sections 16, 17, and 18: All  
Section 19: N/2, NE/4 SW/4, and N/2 SE/4  
Section 20: SE/4 SE/4  
Section 21: SW/4 SW/4  
Section 28: W/2 W/2  
Section 29: E/2 E/2  
Section 32: NE/4 NE/4  
Section 33: NW/4 NW/4

(6) That to promote the orderly development of the natural resources in the potash-oil area, Order No. R-111-A, as amended, should be further amended to include in the Potash-Oil Area, as defined by said order, the lands described in Finding No. (5) above.

(7) That the application of Leland A. Hodges, Trustee, for the extension of the Potash-Oil Area to include those lands described in Finding No. (3) above but which are not described in Findings Nos. (4) and (5) above should be denied.

IT IS THEREFORE ORDERED:

(1) That Order No. R-111-A, as amended, is hereby further amended to include the following described lands within the Potash-Oil Area in Lea and Eddy Counties, New Mexico:

Case No. 5276  
Order No. R-111-I

TOWNSHIP 22 SOUTH, RANGE 29 EAST, NMPM

Section 31: SE/4  
Section 32: NE/4 and S/2  
Section 33: W/2, NW/4 NE/4, S/2 NE/4, and SE/4  
Section 34: SW/4 SW/4 and E/2 E/2  
Section 35: N/2 NW/4 and SW/4 NW/4

TOWNSHIP 23 SOUTH, RANGE 29 EAST, NMPM

Section 2: W/2 SW/4 and SE/4 SW/4  
Sections 3, 4, and 5: All  
Section 6: E/2  
Section 7: N/2 NE/4  
Section 8: N/2 N/2 and SE/4 NE/4  
Section 9: NW/4 and N/2 NE/4  
Section 10: All  
Section 11: NW/4, N/2 SW/4, W/2 NE/4, SE/4 NE/4,  
and SE/4  
Section 12: S/2 N/2 and S/2  
Section 13: E/2 E/2  
Section 15: W/2, W/2 E/2, and NE/4 NE/4  
Section 21: SE/4  
Section 22: W/2, W/2 NE/4, SE/4 NE/4, and SE/4  
Section 23: S/2  
Section 24: E/2 NE/4  
Section 26: All  
Section 27: N/2 and E/2 SE/4  
Section 34: E/2 NE/4 and NE/4 SE/4  
Section 35: NW/4, N/2 SW/4, W/2 NE/4, SE/4 NE/4,  
and NW/4 SE/4  
Section 36: S/2 NW/4, SW/4 NE/4, N/2 SW/4,  
and NW/4 SE/4

TOWNSHIP 23 SOUTH, RANGE 30 EAST, NMPM

Section 7: SW/4 NW/4 and S/2  
Sections 16, 17, and 18: All  
Section 19: N/2, NE/4 SW/4, and N/2 SE/4  
Section 20: SE/4 SE/4  
Section 21: SW/4 SW/4  
Section 28: W/2 W/2  
Section 29: E/2 E/2  
Section 32: NE/4 NE/4  
Section 33: NW/4 NW/4

(2) That the application of Leland A. Hodges, Trustee, to include the NE/4 NE/4 of Section 11, Township 23 South, Range 29 East, NMPM, in the Potash-Oil Area as defined by Order No. R-111-A, as amended, is hereby dismissed.

(3) That the application of Leland A. Hodges, Trustee, to include in the Potash-Oil Area, as defined by Order No. R-111-A, as amended, the lands described in Finding No. (3) of this order but not described in Orders Nos. (1) and (2) above is hereby denied.

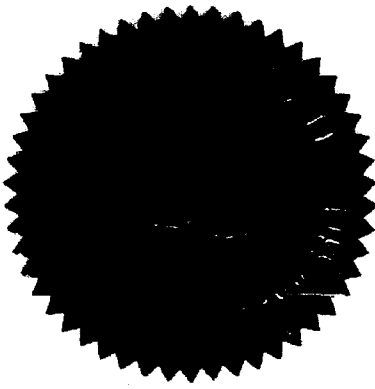
-5-

Case No. 5276  
Order No. R-111-I

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

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

STATE OF NEW MEXICO  
OIL CONSERVATION COMMISSION



*I. P. Trujillo*  
I. P. TRUJILLO, Chairman

ALEX J. ARMILLO, Member

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

S E A L

dr/

OIL CONSERVATION COMMISSION

P. O. BOX 2088

SANTA FE, NEW MEXICO 87501

May 22, 1974

Mr. Roy Blackman  
The Potash Company of America  
Box 31  
Carlsbad, New Mexico 88220

Dear Roy:

Ralph and I have agreed on a date of July 17, 1974  
for a hearing if you would like it at that time.

Sincerely,

A. L. PORTER, Jr.  
Secretary-Director

ALP/it

DOCKET: COMMISSION HEARING - WEDNESDAY - JULY 17, 1974

OIL CONSERVATION COMMISSION - 9 A.M. - MORGAN HALL, STATE LAND OFFICE  
BUILDING, SANTA FE, NEW MEXICO

CASE 5275: Application of Mesa Petroleum Company for an unorthodox gas well location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location for its Nash Unit Well No. 1 to be drilled to the Morrow formation at an unorthodox location 1300 feet from the South line and 660 feet from the East line of Section 12, Township 23 South, Range 29 East, Eddy County, New Mexico, the E/2 of said Section 12 to be dedicated to the well.

CASE 5276: Application of Leland A. Hodges, Trustee, for the extension of the Potash-Oil Area, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks the extension of the Potash-Oil Area in Eddy County, New Mexico, as defined by Order No. R-111-A, as amended, by the addition of the following-described lands:

TOWNSHIP 22 SOUTH, RANGE 29 EAST

Section 31: SE/4  
Section 32: All  
Section 33: W/2, W/2 NE/4, SE/4 NE/4, and SE/4  
Section 34: SW/4 SW/4 and E/2 E/2  
Section 35: W/2 NW/4 and NE/4 NW/4

TOWNSHIP 23 SOUTH, RANGE 29 EAST

Section 2: W/2 SW/4 and SE/4 SW/4  
Sections 3, 4, & 5: All  
Section 6: E/2  
Section 7: NE/4  
Section 8: N/2 and SE/4  
Sections 9, 10 and 11: All  
Section 12: S/2 N/2 and S/2  
Sections 13, 14 and 15: All  
Section 21: E/2  
Sections 22 thru 27: All  
Sections 34, 35 and 36: All

TOWNSHIP 23 SOUTH, RANGE 30 EAST

Section 7: SW/4 NW/4 and S/2  
Sections 16 thru 23: All  
Section 26: W/2  
Sections 27 thru 32: All  
Section 33: N/2  
Sections 35 and 36: All

TOWNSHIP 24 SOUTH, RANGE 29 EAST

Section 2: N/2

TOWNSHIP 24 SOUTH, RANGE 30 EAST

Section 2: N/2



BEST AVAILABLE COPY

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JUL 16 1974

OIL CONSERVATION COMMISSION

1974 JUL 16 AM 9:41

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TLX GEOTECH GARL  
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PMS MR A L PORTER, JR SECRETARY-DIRECTOR  
OIL CONSERVATION COMMISSION  
LAND OFFICE BLDG  
SANTA FE N MEX

SURGENT PLS DEL IMMEDIATELY  
SUBJ CASE 5276

TELEDYNE INC., OWNS OIL AND GAS RIGHTS TO APPROXIMATELY  
4566 ACRES WHICH PARTIALLY OVERLAPS THE ACREAGE INCLUDED IN THE  
PROPOSED EXTENSION OF THE POTASH-OIL AREA IN EDDY COUNTY, .  
NEW MEXICO AS DEFINED BY ORDER NO R-111-A. THESE OIL AND GAS  
RIGHTS ARE LEASED TO AMOCO AND A WELL IS NOW BEING DRILLED ON  
THE PROPERTY. WE STRONGLY PROTEST ANY EXTENSION OF THE R-111A  
AREA WHICH WOULD ~~PREVENT~~ THE ORDERLY DEVELOPMENT OF OUR OIL AND  
GAS PROPERTY. IT WOULD BE APPRECIATED IF YOU WOULD ENTER THIS  
INTO RECORD OF CASE NO 5276.

G A ROBERTS, PRESIDENT  
TELEDYNE ~~INC~~ INC  
AM

1138 EDT

HINDER

IPMFEKA SANA

ram  
western union  
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western union

**RECEIVED**

**JUL 17 1974**

**OIL CONSERVATION COMMISSION**

1974 JUL 17 11:10:57

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MR CHAIRMAN OF THE OIL CONSERVATION COMMISSION, DLR

NEW MEXICO STATE LAND OFFICE BLDG

SANTA FE NM

RE OSC CASE NUMBER 5276 APPLICATION OF LELAND H HODGES, TRUSTEE  
FOR THE EXTENSION OF THE POTASH OIL AREA EDDY COUNTY NEW MEXICO  
MR CHAIRMAN THE ALBUQUERQUE CONSUMER FEDERATION IS DISTURBED  
BY THE POSSIBLE CURTAILMENTS OF PRESENT AND FUTURE PETROLEUM  
PRODUCTION IN THE AREA AFFECTED BY THE APPLICATION

WE WOULD OPPOSE ANY FINAL ACTION BY THE COMMISSION AT THIS TIME  
AND WOULD REQUEST AN OPPORTUNITY TO IMPACT ON PRESENT AND FUTURE  
PETROLEUM PRODUCTION AND SUBMIT A WRITTEN PROVISION ON BEHALF  
OF THE ALBUQUERQUE CONSUMER FEDERATION

ROBERT H BORKENHAGEN LEGAL ADVISOR TO THE ALBUQUERQUE CONSUMER  
FEDERATION 1100 AMERICAN BANK OF COMMERCE ALBUQUERQUE NEW MEXICO

1253 EDT

IPNFEKA SANA

Western Union  
Telegram  
Western Union

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1-003380A197 07/16/74  
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001 HOUSTON, TEXAS JULY 16, 1974  
PMS

MR A L PORTER, JR  
NEW MEXICO OIL CONSERVATION COMMISSION  
SANTA FE, NEW MEXICO

RE COMMISSION HEARING JULY 17, 1974 (CASE NO. 5276), EXTENSION OF  
OIL-POTASH AREA, EDDY COUNTY, NEW MEXICO.  
AMOCO PRODUCTION COMPANY AS AN OWNER OF LEASES IN THE SUBJECT AREA  
STRENUOUSLY OBJECTS TO THE EXTENSION OF THE OIL-POTASH AREA AS PROPOSED  
IN THIS CASE.

E. E. MORRIS, DIVISION ENGINEER  
AMOCO PRODUCTION COMPANY

0907 EDT

IPMFEKA SANA

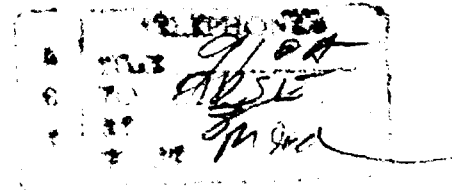
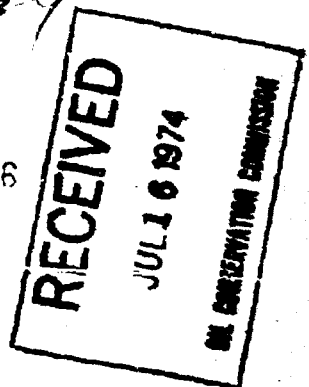
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File



Roswell Daily Record

ROSWELL, N. M.

JUL 7 1974

New Mexico Press Clipping Bureau  
Albuquerque, N. M.

## Hearing planned 22

SANTA FE, N.M. (AP) — A July 17 hearing was set by the Oil Conservation Commission on a proposal to extend the potash area in Eddy County.

The proposal is to protect the state's potash resources from possible harm as additional oil fields are developed in Eddy County.

Protecting the potash deposits from being harmed by oil and gas development is the duty, under law, of the OCC.

STATEMENT OF PETER HANAGAN, EXECUTIVE VICE PRESIDENT OF THE  
NEW MEXICO OIL & GAS ASSOCIATION BEFORE THE OIL CONSERVATION  
COMMISSION, CASE 5276 FOR EXTENSION OF POTASH AREA, JULY 31, 1974

THE NEW MEXICO OIL AND GAS ASSOCIATION RESPECTFULLY REQUESTS THE COMMITTEE TO SCRUTINIZE THIS APPLICATION WITH GREAT CARE TO ASCERTAIN THAT IT DOES IN FACT WARRANT EXTENSION OF THE POTASH AREA.

IN VIEW OF THE NEED TO BALANCE THE COMPETING INTERESTS OF THE POTASH AND THE OIL AND GAS INDUSTRIES, THE PETITION SHOULD NOT BE GRANTED WITHOUT A CLEAR SHOWING THAT THE COEXISTING RIGHTS OF BOTH INDUSTRIES ARE FAIRLY PROTECTED. THIS SHOWING WOULD INCLUDE PROOF BY PETITIONER THAT THERE ARE INDEED COMMERCIAL DEPOSITS OF POTASH IN ALL REQUESTED AREAS.

AFTER ALL, OIL AND GAS OPERATORS HAVE MADE LARGE INVESTMENTS IN LEASES IN THE AREA WITH THE EXPECTATION OF BEING ALLOWED TO DEVELOP THEM CONCURRENTLY AND IN HARMONY WITH POTASH OPERATIONS.

THERE EXISTS A NATIONAL NEED TO EXPLORE FOR AND DEVELOP ALL OF THE VARIOUS NATURAL RESOURCES, NOT JUST POTASH, IN THE REQUESTED AREA. IN A WORD, POTASH EXPLORATION AND DEVELOPMENT SHOULD NOT BE ACCORDED PREFERENTIAL TREATMENT SO AS TO AMOUNT TO EFFECTING DISENFRANCHISING THE OIL AND GAS INDUSTRY.

BEFORE NEW MEXICO OIL CONSERVATION COMMISSION

IN RE: APPLICATION OF LELAND A. HODGES,  
TRUSTEE, FOR THE EXTENSION OF THE  
POTASH-OIL AREA, EDDY COUNTY, NEW MEXICO.

CASE NO. 5276

STATEMENT BY EXXON CORPORATION

Applicant has requested presently designated potash areas be extended to include additional lands in Eddy County, New Mexico.

Since December 1964 Exxon Corporation has acquired and presently holds approximately 6,000 acres of federal and New Mexico State oil and gas leases, half of which lie within the area of the proposed potash extension. As of this date Exxon has expended in excess of \$500,000.00 in the acquisition and evaluation of said leases, considers them a valuable and irreplaceable asset, and plans to proceed with the development of said leases toward the ultimate production of oil or gas or both.

Exxon opposes the granting of said Application and in support of such opposition respectfully asks the Commission to consider the following:

Exxon considers the area included within its referenced oil and gas leases to be geologically attractive and potentially productive. In order to fully develop the area, prudent operations require the area be considered as an entirety with freedom to explore, drill and conduct lease operations at geographic locations best calculated to produce the most accurate geological data and, hopefully, the greatest amounts of oil and gas. This cannot be done on a piecemeal basis. Granting of the Application will have a substantial impact on Exxon's ability to study and develop the area in a manner most likely to obtain oil and gas production.

Most of Exxon's leases were taken prior to the date of the Application and were bought and paid for in good faith with the belief the rights therein acquired could be fully exercised. The granting of the Application could result in a material loss of these rights and even in a complete denial if drilling operations should be prohibited. In either event the attractiveness of the area, insofar as potential productiveness is concerned, will be greatly diminished by the granting of the Application for the reason Exxon will not be able to know where within the area it could plan to drill, or even if it could drill. Exxon submits such is not in keeping with the terms and considerations of the lease contracts.

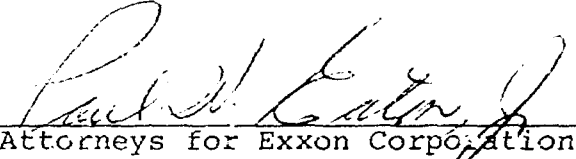
If the area is not properly studied and developed, both the State of New Mexico and the United States could be deprived of valuable royalty income. In addition, it is possible that valuable and much needed oil and gas reserves could be left in the ground undiscovered or unproduced.

Exxon is willing to cooperate with both state and federal agencies in developing its leases in such a manner that the owners of potash rights are not deprived of their right to produce their minerals and submits the rights of all parties may be preserved without the granting of the subject Application. This is in keeping with the principles of multiple use.

Accordingly, Exxon submits the proposed potash extension is unnecessary, constitutes a deprivation of its rights and would arbitrarily grant one mineral owner superior rights over another. Therefore, Exxon respectfully submits that the Application be denied.

HINKLE, BONDURANT, COX & EATON

By

  
Attorneys for Exxon Corporation  
P. O. Box 10  
Roswell, New Mexico 88201

DOCKET: COMMISSION HEARING - WEDNESDAY - JULY 17, 1974

OIL CONSERVATION COMMISSION - 9 A.M. - MORGAN HALL, STATE LAND OFFICE  
BUILDING, SANTA FE, NEW MEXICO

CASE 5275: Application of Mesa Petroleum Company for an unorthodox gas well location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location for its Nash Unit Well No. 1 to be drilled to the Morrow formation at an unorthodox location 1300 feet from the South line and 660 feet from the East line of Section 12, Township 23 South, Range 29 East, Eddy County, New Mexico, the E/2 of said Section 12 to be dedicated to the well.

CASE 5276: Application of Leland A. Hodges, Trustee, for the extension of the Potash-Oil Area, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks the extension of the Potash-Oil Area in Eddy County, New Mexico, as defined by Order No. R-111-A, as amended, by the addition of the following-described lands:

TOWNSHIP 22 SOUTH, RANGE 29 EAST

Section 31: SE/4  
Section 32: All  
Section 33: W/2, W/2 NE/4, SE/4 NE/4, and SE/4  
Section 34: SW/4 SW/4 and E/2 E/2  
Section 35: W/2 NW/4 and NE/4 NW/4

TOWNSHIP 23 SOUTH, RANGE 29 EAST

Section 2: W/2 SW/4 and SE/4 SW/4  
Sections 3, 4, & 5: All  
Section 6: E/2  
Section 7: NE/4  
Section 8: N/2 and SE/4  
Sections 9, 10 and 11: All  
Section 12: S/2 N/2 and S/2  
Sections 13, 14 and 15: All  
Section 21: E/2  
Sections 22 thru 27: All  
Sections 34, 35 and 36: All

TOWNSHIP 23 SOUTH, RANGE 30 EAST

Section 7: SW/4 NW/4 and S/2  
Sections 16 thru 23: All  
Section 26: W/2  
Sections 27 thru 32: All  
Section 33: N/2  
Sections 35 and 36: All

TOWNSHIP 24 SOUTH, RANGE 29 EAST

Section 2: N/2

TOWNSHIP 24 SOUTH, RANGE 30 EAST

Section 2: N/2



P.O. Box 19234  
8707 Katy Freeway  
Houston, Texas 77024  
Telephone (713) 461-2662  
Cable: BELPETEX

## Belco Petroleum Corporation

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# Belco

July 17, 1974

New Mexico Oil Conservation Commission  
P. O. Box 2088  
Santa Fe, New Mexico 87501

Re: Case No. 5276 7/17/74  
Application for Extension  
of Oil-Potash Area in  
T22-24S, R29-30E  
Eddy County, New Mexico

Gentlemen:

In the above described Case No. 5276, to be heard before the Commission on July 17, 1974, Leland A. Hodges, Trustee, has petitioned that the Oil-Potash Area presently existing under New Mexico Oil Conservation Commission Order Number R111A-H be enlarged to include in excess of 24,000 acres.

Belco Petroleum Corporation holds oil and gas leases, both productive and non-productive, situated in and adjacent to the nearby Los Medanos Gas Field and within the immediate vicinity of the areal extent of the requested expansion of the existing Oil-Potash regulated area. Belco is currently engaged, together with other oil and gas exploration organizations, in a vigorous program to discover and develop hydrocarbon energy reserves in southeast New Mexico.

Belco Petroleum Corporation objects to the application of Leland A. Hodges, Trustee, not in its entirety but as to its extensive areal extent, on the grounds that it is detrimental to the welfare of the general



New Mexico Oil Conservation Commission  
Case No. 5276 7/17/74  
Page 2

economy of the State of New Mexico and the Nation as a whole. The requested wholesale implied withdrawal of such a highly potential energy bearing area is not consistent with good management of our natural resources. We contend that this is an arbitrary selection of acreage and that there is not sufficient incontrovertible evidence to demonstrate that the entire area contains potash deposits in commercial quantities.

It has been shown in areas of Townships 19 and 20 South, Range 30 East of Eddy County, New Mexico, that the oil and gas and the potash industries can successfully co-exist in the recovery and bringing to market of their respective mineral resources. While it cannot be denied that there are some impeding factors to both industries in such co-existence, it also cannot be denied that both industries can and must accept those equally onerous factors as being negligible to the end benefits of bringing both natural resources to use.

Belco Petroleum Corporation herewith respectfully requests that the Oil and Gas Commission reject the Application of Leland A. Hodges, Trustee, for Extension of the Oil-Potash Area in Townships 22, 23 and 24 South, Ranges 29 and 30 East, Eddy County, New Mexico, on the grounds that the area covered thereby is unjustified and not supported by reasonable fact, but without prejudice to the filing by Leland A. Hodges, Trustee, of a new Application.

# Belco

New Mexico Oil Conservation Commission  
Case No. 5275 7/17/74  
Page 3

Belco urges the Commission to critically evaluate any submitted evidence for realistic and accurately substantiated economic determination of commercial potash and to carefully consider in reasonable economic parameters any proposals or suggestions that this entire large area will indeed be developed for potash.

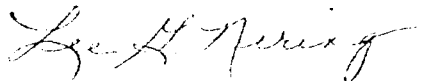
We also urge the Commission to consider oil and gas operators' investment in leases, and all Royalty and Working Interest correlative rights of the existing oil and gas leases which may be jeopardized. In addition, we ask that the Commission review previous R111A extension applications and the actual beneficial results for the State of New Mexico and the United States of those approved applications for extension of R111A.

Belco respectfully requests that the Commission favorably consider Belco's so stated objection.

It is not here requested that the Commission rule in this matter to the exclusion of the potash industry from the affected area, but that the potash industry seek and be granted approval of the expansion of its development and exploration areas by the Commission on the same basis and upon the presentation of factual data as is made by the oil and gas industry in like applications.

Yours very truly,

BELCO PETROLEUM CORPORATION



Lee G. Nering  
Administrative Geologist  
North American Operations

IGN:sn

Statement of Phillips Petroleum in  
Opposition to Extension of R111A

We oppose the extension of R111A area further into Township 23S, Range 30E, Eddy County, New Mexico, because of the following reasons:

1. No new core tests have been drilled outside the R111A area since the 1970 "H" Extension. It obviously was felt at that time that additional area could not justifiably be added.
2. Although there is a large area listed as "no data" in T23S R30E (1974 USGS Potash Map), in actuality, there have been 5 potash core tests drilled that indicate the area to be of very low quality or barren of potash. Three additional core holes were drilled offsetting the west township line, in Sec. 26 and Sec. 36 T23S R29E, that are poor or barren.
3. By extending the R111A into an area that will probably never be mineable, the oil companies would be required to spend unnecessary money to drill wells.
4. Two core holes are considered adequate to call an area in Secs. 19, 20, and 29, mineable, yet an entire area called "no data" has 6 core holes.
5. A recent agreement by the potash company to let a well be drilled in Sec. 13, T23S R29E, directly offsetting the township in question, indicates the poor quality of nearby potash.
6. In 1970, Sec. 26 T23S R30E was divided in half for placement into the R111H Extension. This was done because of what was considered a hole barren of potash located near the center of the west line of Sec. 26. No new information is available.
7. Core holes drilled in the NW NW of Sec. 24 and near the center of the west line of Sec. 24 T23S R30E were barren or near barren of potash. Although this area is called "no data" on the 1974 USGS Potash Map, in actuality it should be considered barren.

*B.C. Largent* 7-23-74  
B. C. Largent, Area Geologist

**PERRY R. BASS**  
DIVISION LAND & GEOLOGICAL OFFICE  
POST OFFICE BOX 111  
MIDLAND, TEXAS 79701

July 29, 1974

New Mexico Oil  
Conservation Commission  
Santa Fe, New Mexico

Re: Case #5276  
Application of Leland A. Hodges,  
Trustee, for the extension of  
the Potash Oil Area  
Eddy County, New Mexico

Gentlemen:

Perry R. Bass and Bass Enterprises Production Co. are the leasehold owners of Oil and Gas leases in 7,620 gross acres within the application for enlargement under consideration at this hearing. As a major owner of Oil and Gas leases within the area, we support and concur with the position of Skelly Oil Company that unproven commercial Potash Ore should not be allowed to be included in this proposed enlargement of R-111-A and amendments thereto. Any speculative Potash acreage, without proven commercial value would be a hindrance in the development of Oil and Gas lease during this time of an Energy Crisis.

Perry R. Bass and Bass Enterprises Production Co. acquired their Oil and Gas leasehold prior to any Potash leases being issued in the area.

We sincerely request the New Mexico Oil Conservation Commission to disallow and reject the request for enlargement of R-111-A and the

New Mexico Oil  
Conservation Commission  
Page Two  
July 29, 1974

amendments thereto, and to support and concur in the position of Skelly  
Oil Company that any enlargement of R-111-A would be a hindrance toward  
the development of Oil and Gas leases in the area under consideration.

Yours very truly,

Perry R. Bass

By

Bice Seltzer

Bass Enterprises Production Co.

By

Bice Seltzer

**CARLSBAD BASIN TONNAGE AND GRADE**  
**1974**

	<u>January</u>	<u>February</u>	<u>March</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>August</u>	<u>September</u>	<u>October</u>	<u>November</u>	<u>December</u>	<u>Total</u>
AMAX Chemical Corporation	204,756 19.12	193,465 17.72	213,705 17.57	208,360 15.33	215,397 16.30	65,175 16.95							
Potash Company of America	281,548 18.25	248,186 19.60	258,539 19.90	245,148 19.97	254,078 18.57	251,557 18.63							
*International Minerals & Chemical	380,289 7.80	352,889 7.96	374,493 7.71	386,812 8.49	421,721 8.81	376,382 8.08							
*Duval Corporation	124,688 16.50	116,983 16.70	125,944 16.40	119,201 15.60	122,363 14.24	118,405 15.05							
National Potash Company	163,600 20.09	145,601 19.53	163,254 20.18	146,889 19.61	168,578 20.92	48,852 22.18							
Kermac	246,212 15.46	276,350 16.40	229,626 15.42	259,368 16.02	239,199 16.16	220,629 15.60							

\* IMC - Reflects ore grade of sylvinitic only.  
Duval - Tonnage and grade on sylvinitic only.

DAN NUTTER

BEST AVAILABLE COPY

Case 5276

Skelly Exhibits  
Complete

2, 3, & 4

there was no

No. 1



ROY H. BLACKMAN

1009 EAST RIVERSIDE DRIVE CARLSBAD NEW MEXICO 88220

June 19, 1974

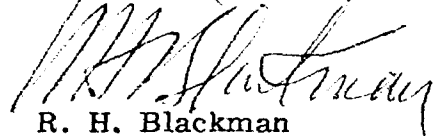
*Case 5-276*

Mr. Dan Nutter, Chief Engineer  
New Mexico Oil Conservation Commission  
P. O. Box 2088  
Santa Fe, New Mexico 87501

Dear Mr. Nutter:

Enclosed herewith is the petition of Leland A. Hodges requesting the extension of the boundaries of the potash-oil area in Eddy County, New Mexico.

Very truly yours,



R. H. Blackman  
Attorney for  
Leland A. Hodges, Trustee

RHB/jm  
enc.

DOCKET MAILED

Date

BEFORE THE OIL CONSERVATION COMMISSION  
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE APPLICATION  
OF LELAND A. HODGES, TRUSTEE, FOR  
EXTENSION OF THE BOUNDARIES OF THE  
POTASH-OIL AREA IN EDDY COUNTY,  
NEW MEXICO

PETITION OF LELAND A. HODGES, TRUSTEE

Comes now Leland A. Hodges, Trustee, the owner of state and federal potash leases in the vicinity of the following described lands and requests that the following described lands be included within the boundaries of the potash-oil area of the State of New Mexico as delineated in NMOCC order No. 111 in Case No. 278, as amended, to the extent that such properties are not already within such area.

T. 22S, R. 29E

Sec. 31	SE4
32	All
33	All
34	All
35	W2NW, NENW

T. 23S, R. 29E

Sec. 2	W2SW4, SESW
3	All
4	All
5	All
6	E2
7	NE4
8	NW4, E2
9	All
10	All
11	All
12	All
13	All
14	All
15	All
21	E2
22	All

T. 23S, R. 29E

Sec. 23	All
24	All
25	All
26	All
27	All
34	All
35	All
36	All

T. 24S, R. 29E

Sec. 2	All
--------	-----

T. 23S, R. 30E

Sec. 7	All
16	All
17	All
18	All
19	All
20	All
21	All
22	All
23	All
26	W2
27	All
28	All
29	All
30	All
31	All
32	All
33	N2
35	All
36	All

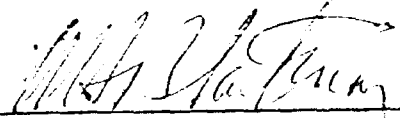
T24S, R30E  
Sec 2 All

Dated: June 19, 1974

Respectfully submitted

LELAND A. HODGES, TRUSTEE

By

  
R. H. Blackman,

His Attorney

P. O. Box 31

Carlsbad, New Mexico 88220

*add*  
*2/1*

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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. 5276  
Order No. R-111-I

APPLICATION OF LELAND A HODGES,  
FOR TRUSTEE, FOR THE EXTENSION  
OF THE POTASH-OIL AREA, EDDY  
COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on July 17, 1974,  
at Santa Fe, New Mexico, before the Oil Conservation Commission  
of New Mexico, hereinafter referred to as the "Commission."

NOW, on this \_\_\_\_\_ day of August, 1974, the Commission, a  
quorum being present, having considered the testimony presented  
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, Leland A. Hodges, Trustee, is the  
owner of certain potash leases in Townships 22, 23, and 24 South,  
Ranges 29 and 30 East, NMPM, Eddy County, New Mexico.

(3) That the applicant seeks the amendment of Order No. R-111-A,  
as amended, to extend the Potash-Oil Area as set forth in said  
order to include the following described lands in Eddy County,  
New Mexico:

TOWNSHIP 22 SOUTH, RANGE 29 EAST, NMPM  
Section 31: SE/4  
Section 32: All  
Section 33: W/2, W/2 NE/4, SE/4 NE/4, and SE/4  
Section 34: SW/4 SW/4 and E/2 E/2  
Section 35: W/2 NW/4 and NE/4 NW/4

TOWNSHIP 23 SOUTH, RANGE 29 EAST, NMPM

Section 2: W/2 SW/4 and SE/4 SW/4

Sections 3, 4, & 5: All

Section 6: E/2

Section 7: NE/4

Section 8: N/2 and SE/4

Sections 9, 10 and 11: All

Section 12: S/2 N/2 and S/2

Sections 13, 14, and 15: All

Section 21: E/2

Sections 22 thru 27: All

Sections 34, 35, and 36: All

TOWNSHIP 23 SOUTH, RANGE 30 EAST, NMPM

Section 7: SW/4 NW/4 and S/2

Sections 16 thru 23: All

Section 26: W/2

Sections 27 thru 32: All

Section 33: N/2

Sections 35 and 36: All

TOWNSHIP 24 SOUTH, RANGE 29 EAST, NMPM

Section 2: N/2

TOWNSHIP 24 SOUTH, RANGE 30 EAST, NMPM

Section 2: N/2

(4) That the NE/4 NE/4 of Section 11, Township 23 South, Range 29 East, NMPM, is already included in the Potash-Oil Area as defined by Order No. R-111-A, as amended, and the application for inclusion of said quarter-quarter section in the area should be dismissed.

(5) That of the remaining lands described in Finding No. (3) above, <sup>and not described in Finding No. (4) above,</sup> the evidence presented at the hearing indicates that only the following described lands contain potash deposits in commercial quantities:

TOWNSHIP 22 SOUTH, RANGE 29 EAST, NMPM

Section 31: SE/4

Section 32: NE/4 and S/2

Section 33: W/2, NW/4 NE/4, S/2 NE/4, and SE/4

Section 34: SW/4 SW/4 and E/2 E/2

Section 35: N/2 NW/4 and SW/4 NW/4

1                    TOWNSHIP 23 SOUTH, RANGE 29 EAST, NMPM  
2                    Section 2: W/2 SW/4 and SE/4 SW/4  
3                    Sections 3, 4, and 5: All  
4                    Section 6: E/2  
5                    Section 7: N/2 NE/4  
6                    Section 8: N/2 N/2 and SE/4 NE/4  
7                    Section 9: NW/4 and N/2 NE/4  
8                    Section 10: All  
9                    Section 11: NW/4, N/2 SW/4, W/2 NE/4, SE/4 NE/4,  
10                    and SE/4  
11                    Section 12: S/2 N/2 and S/2  
12                    Section 13: E/2 E/2  
13                    Section 15: W/2, W/2 E/2, and NE/4 NE/4  
14                    Section 21: SE/4  
15                    Section 22: W/2, W/2 NE/4, SE/4 NE/4, and SE/4  
16                    Section 23: S/2  
17                    Section 24: E/2 NE/4  
18                    Section 26: All  
19                    Section 27: N/2 and E/2 SE/4  
20                    Section 34: E/2 NE/4 and NE/4 SE/4  
21                    Section 35: NW/4, N/2 SW/4, W/2 NE/4, SE/4 NE/4,  
22                    and NW/4 SE/4  
23                    Section 36: S/2 NW/4, SW/4 NE/4, N/2 SW/4,  
24                    and NW/4 SE/4  
25                    TOWNSHIP 23 SOUTH, RANGE 30 EAST, NMPM  
26                    Section 7: SW/4 NW/4 and S/2  
27                    Sections 16, 17, and 18: All  
28                    Section 19: N/2, NE/4 SW/4, and N/2 SE/4  
29                    Section 20: SE/4 SE/4  
30                    Section 21: SW/4 SW/4  
31                    Section 28: W/2 W/2  
32                    Section 29: E/2 E/2  
33                    Section 32: NE/4 NE/4  
34                    Section 33: NW/4 NW/4

35                    (6) That to promote the orderly development of the natural  
36                    resources in the potash-oil area, Order No. R-111-A, as amended,  
37                    should be further amended to include in the Potash-Oil Area, as  
38                    defined by said order, the lands described in Finding No. (5)  
39                    above.

40                    (7) That the application of Leland A. Hodges, Trustee, for  
41                    the extension of the Potash-Oil Area to include those lands  
42                    described in Finding No. (3) above but which are not <sup>described</sup> ~~included~~  
43                    in Findings Nos. (4) and (5) above should be denied.

44                    IT IS THEREFORE ORDERED:

45                    (1) That Order No. R-111-A, as amended, is hereby further  
46                    amended to include the following described lands within the  
47                    Potash-Oil Area in Lea and Eddy Counties, New Mexico:

Case No. 5276  
Order No. R-111-I

TOWNSHIP 22 SOUTH, RANGE 29 EAST, NMPM

Section 31: SE/4  
Section 32: NE/4 and S/2  
Section 33: W/2, NW/4 NE/4, S/2 NE/4, and SE/4  
Section 34: SW/4 SW/4 and E/2 E/2  
Section 35: N/2 NW/4 and SW/4 NW/4

TOWNSHIP 23 SOUTH, RANGE 29 EAST, NMPM

Section 2: W/2 SW/4 and SE/4 SW/4  
Sections 3, 4, and 5: All  
Section 6: E/2  
Section 7: N/2 NE/4  
Section 8: N/2 N/2 and SE/4 NE/4  
Section 9: NW/4 and N/2 NE/4  
Section 10: All  
Section 11: NW/4, N/2 SW/4, W/2 NE/4, SE/4 NE/4,  
and SE/4  
Section 12: S/2 N/2 and S/2  
Section 13: E/2 E/2  
Section 15: W/2, W/2 E/2, and NE/4 NE/4  
Section 21: SE/4  
Section 22: W/2, W/2 NE/4, SE/4 NE/4, and SE/4  
Section 23: S/2  
Section 24: E/2 NE/4  
Section 26: All  
Section 27: N/2 and E/2 SE/4  
Section 34: E/2 NE/4 and NE/4 SE/4  
Section 35: NW/4, N/2 SW/4, W/2 NE/4, SE/4 NE/4,  
and NW/4 SE/4  
Section 36: S/2 NW/4, SW/4 NE/4, N/2 SW/4,  
and NW/4 SE/4

TOWNSHIP 23 SOUTH, RANGE 30 EAST, NMPM

Section 7: SW/4 NW/4 and S/2  
Sections 16, 17, and 18: All  
Section 19: N/2, NE/4 SW/4, and N/2 SE/4  
Section 20: SE/4 SE/4  
Section 21: SW/4 SW/4  
Section 28: W/2 W/2  
Section 29: E/2 E/2  
Section 32: NE/4 NE/4  
Section 33: NW/4 NW/4

(2) That the application of Leland A. Hodges, Trustee, to include the NE/4 NE/4 of Section 11, Township 23 South, Range 29 East, NMPM, in the Potash-Oil Area as defined by Order No. R-111-A, as amended, is hereby dismissed.

(3) That the application of Leland A. Hodges, Trustee, to include in the Potash-Oil Area, as defined by Order No. R-111-A,

-5-

Case No. 5276  
Order No. R-111-I

1 as amended, the lands described in Finding No. (3) of this order  
2 but not described in Orders Nos. (1) and (2) above is hereby  
3 denied.

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

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

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CASE 5276, Application of LELAND  
A. HODGES, TRUSTEE, FOR THE  
EXTENSION OF THE POTASH-OIL AREA.