IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
P. O. BOX 1716
CARLSBAD, NEW MEXICO

April 10, 1964

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
P.C.A. Exhibit No. L
Case No. 3029

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

Gentlemen:

You recently requested that this office compile data relative to the potash orebody contained in the SE¼, Sec. 17, T. 20 S., R. 30 E., N.M.P.M., New Mexico, which is embraced in your State of New Mexico potash lease, with special reference to unrecoverable tonnages and values involved in the event a high pressure gas or oil well should be drilled in the SE¼, Sec. 17, which would require protection when mining operations progressed to the vicinity of the well.

Data sheets are attached hereto which set forth the information desired. The four potash core tests located at the four corners of the SE¼, Sec. 17, indicate the potash orebody will average 4 feet in thickness with a grade of 24.8% K_2O. Tonnages are computed on the basis of 16 cubic feet = 1 ton. The average value per unit of K_2O during the current fertilizer year is 37.5 cents for standard muriate. Mining extraction is computed on the basis of 65% for first mining and 25% for second mining. Mill efficiency should approximate 90%. The orebody lies at an average depth of about 700 feet and observance of a 45 degree subsidence angle would be required to protect a producing oil or gas well. In the event of a high pressure gas well the normal 100-foot radius mine protection ore pillar adjacent to the well should be increased to at least a 200-foot radius pillar.

In summary, the potash orebody in the SE¼, Sec. 17, computes to a recoverable value of $81,870 per acre with a recoverable value per ton of ore of $8.35. Total losses involved in protecting a producing oil or gas well compute to 116,632 tons with a recoverable value of $973,877, consisting of a second mining loss of 88,358 tons and a well pillar loss of 28,274 tons.

While I am not aware of the future production potential of the Barber pool, the pool has been producing since discovery in 1937. In the normal course of events it would appear that, to some degree, production should be declining and the pool should be approaching economic exhaustion. If

this be true, it would not be unreasonable to assume that within the next sixteen years, which your company estimates as the remaining productive life of the mine, the pool wells normally would be plugged and abandoned, thus rendering available for mining the considerable tonnage of ore presently required to be left intact to protect the pool wells.

Very truly yours,

R. S. Fulton

R. S. Fulton
Regional Mining Supervisor

RSF:nb
Attachment:

POTASH ORE DATA - SE¼, SEC. 17, T. 20 S., R. 30 E., N.M.P.M.

Average thickness and grade of ore under 160-acre tract:

Well No.	% K_2O	Thickness in Feet	Assay Ft.
P-32	24.0	4.0	96.00
P-4A	22.5	4.0	90.00
P-64	21.6	4.0	86.40
P-63	30.9	4.0	123.60
		4/16.0	16/396.00

Average thickness = 4.0 ft; Average Grade = 24.75% K_2O

Average value per unit of K_2O = 37.5 cents

Recoverable Value/Acre = 2,722.5 x 4.0' x .2475 x .81 x 100 x .375 = $81,870

Recoverable Value/Ton = .2475 x .90 (Mill Efficiency) x 100 x .375 = $ 8.35

Recoverable Ore Tons and Values Involved in 700 ft. Radius Subsidence Area Containing 200 ft. Radius Solid Ore Pillar Left To Protect High Pressure Gas or Oil Well

Conditions: 16 cu. ft. = 1 ton; first mining extraction = 65%; second mining extraction = 25%; mill efficiency = 90%; average depth of orebody = 700 feet.

Total subsidence area = πr^2 = 3.1416 x $(700')^2$ = 1,539,384 sq. ft.

Total tons contained ore = $\frac{1,539,384 \times 4 \text{ ft.}}{16}$ = 384,846

Solid Ore Pillar Area = πr^2 = 3.1416 x $(200')^2$ = 125,664 sq. ft.

Total Tons contained ore = $\frac{125,664 \times 4 \text{ ft.}}{16 \text{ cu. ft.}}$ = 31,416

	Recoverable Tons	Value/Ton	Recoverable Value
1st Mining (65% ext.)	250,150	$ 8.35	$ 2,088.753
2nd Mining (25% ext.)	96,212	"	803,370
Total Mining	346,362	$ 8.35	$ 2,892,123
Pillar Stumps (10%)	(38,484)	Not Recoverable	($ 321,341)
Total Ore	384,846	$ 8.35	$ 3,213,464

Recoverable Ore Tons and Value Lost in 700-ft. Radius Subsidence Area Containing 200-ft. Radius Solid Ore Pillar to Protect Well:

	Tons	Value/ton	Total Value
Total Subsidence Area	384,846	$ 8.35	$ 3,213,464
Less Ore Pillar Area	- 31,416	"	- 262,324
Available Ore	353,430		$ 2,951,140
Lost 2nd Mining (25% ext.)	- 88,358	"	- 737,789
Lost Recoverable Ore in Pillar (90% ext. of 31,416 tons)	- 28,274	"	- 236,088
Total Recoverable Ore Lost	116,632	$ 8.35	$ 973,877