MR71-2

MINERAL POSSIBILITIES OF THE ARM, POLE CREEK, AND GRAY GHOST CLAIM GROUPS--FREMONT COUNTY, WYOMING.

BY

JOHN P. ELY II

CONSULTING GEOLOGIST

INTRODUCTION

This report contains the pertinent geography, geology, and economics relating to the Arm, Pole Creek, and Gray Ghost claim groups, which belong to American Rare Metals Company, Inc. The three groups will be considered as a whole due to their mutual relationship.

LOCATION

The claims are located in Fremont County, Wyoming, approximately fifteen miles northeast from Dubois, Wyoming.

They may be reached by traveling nine miles southeast of Dubois on U. S. Highway 26 and 287, then turning left on a gravel road. From here travel fifteen miles northeasterly along the west side of the East Fork of the Wind River past the Duncan Ranch school to the prospect area.

There are 18 claims in the Arm Group, located in Sections 19 and 30, Township 43 North, Range 104 West, and in Sections 24 and 25, Township 43 North, Range 105 West.

There are 8 claims in the Pole Creek Group, located in Section 30, Township 43 North, Range 104 West.

There are 47 claims in the Gray Ghost Group, located in Sections 19, 20, 29, 30 and 31, Township 43 North, Range 104 West, and Sections 23, 24 and 25, Township 43 North, Range 105 West.

This comprises a total of 73 claims.

GEOLOGIC HISTORY

The prospect area was completely buried by volcanic rocks of the Yellowstone volcanic province during early and middle Tertiary time. Near the end of Tertiary time, uplift of tremendous magnitude took place, and the mountains were exhumed to bring about the present relief and drainage patterns. During recent time, erosion has exposed the Precambrian core

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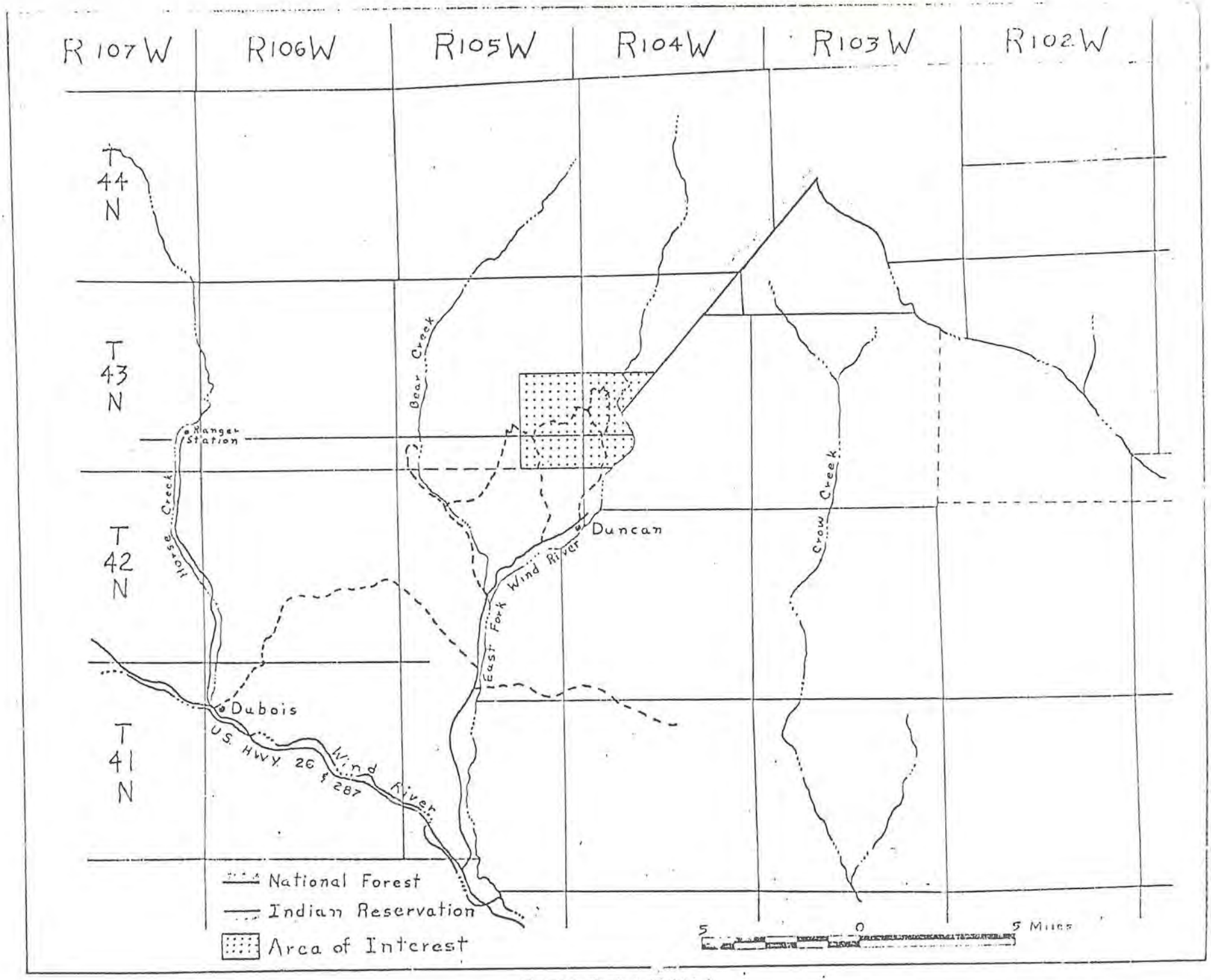

R 107 W
R106W
R105W
R104W
R103W
R102W
T 44 N
T 43 N
T 42 N
T 41 N
Ranger Station
Horse Creek
Bear Creek
Duncan
East Fork Wind River
Crow Creek
Dubois
U.S. HWY 26 & 287
Wind River
National Forest
Indian Reservation
Area of Interest
5 0 5 Miles

GEOGRAPHY

in this area. Refer to Map 1 and Figure 1.

GEOLOGY

The general prospect area is composed of Precambrian rocks that are chiefly granite and granite gneiss cut by a conspicuous pegmatite many feet wide. It is aligned principally north-northwest, possibly influenced by old lines of weakness in the crystalline basement rocks.

The claims are situated in such a manner as to cover the quartz-feldspar pegmatic core of the containing granite pegmatite, which is also cut by a coarse grained white quartz vein.

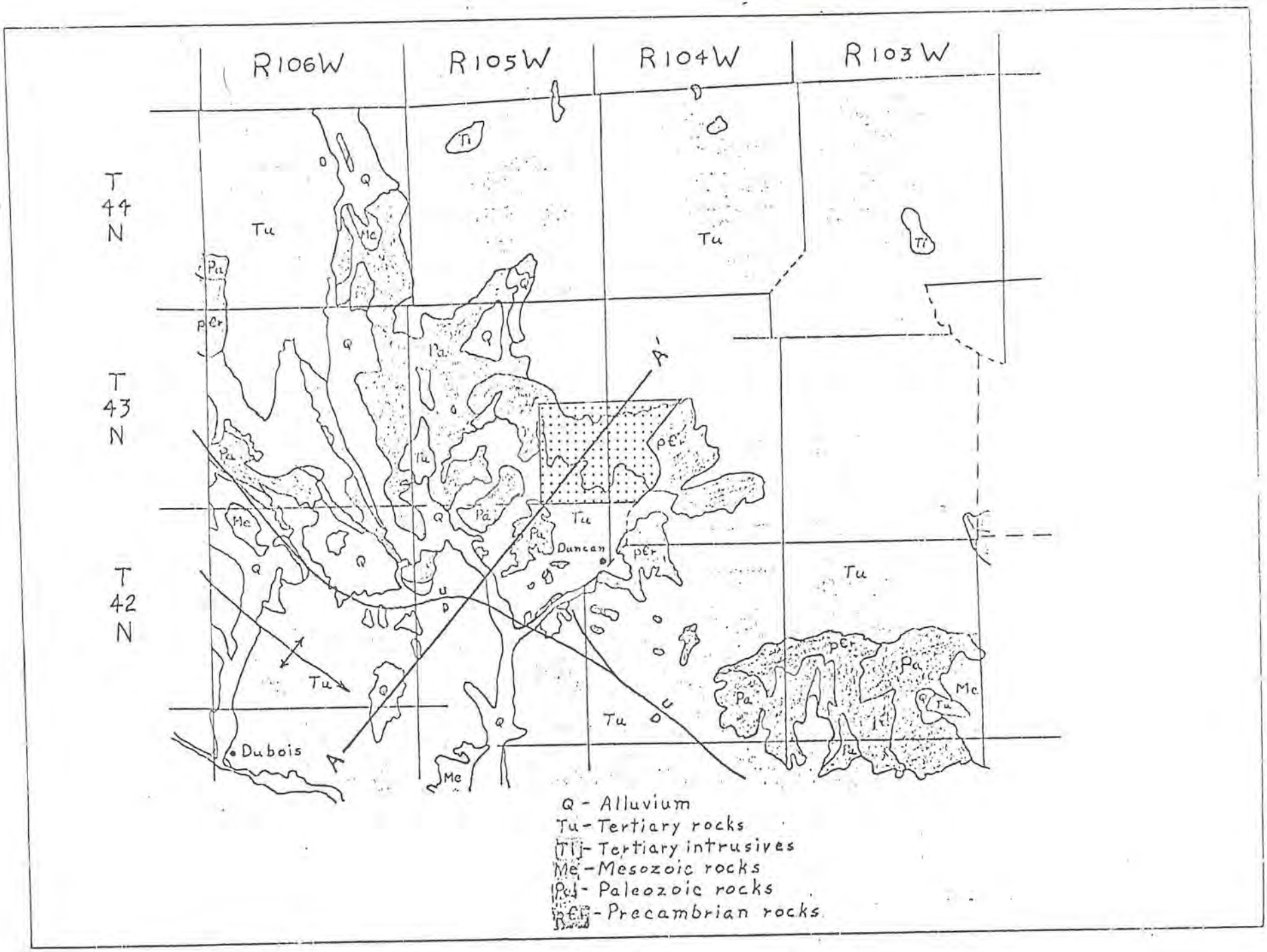
Due to its irregular shape, this pegmatite has probably been formed as a replacement body in a pre-existing pegmatite. This fact tends to obscure the zonal structure on account of the many offshoots and branches. Refer to Map 2 and Figure 2.

MINERAL POSSIBILITIES

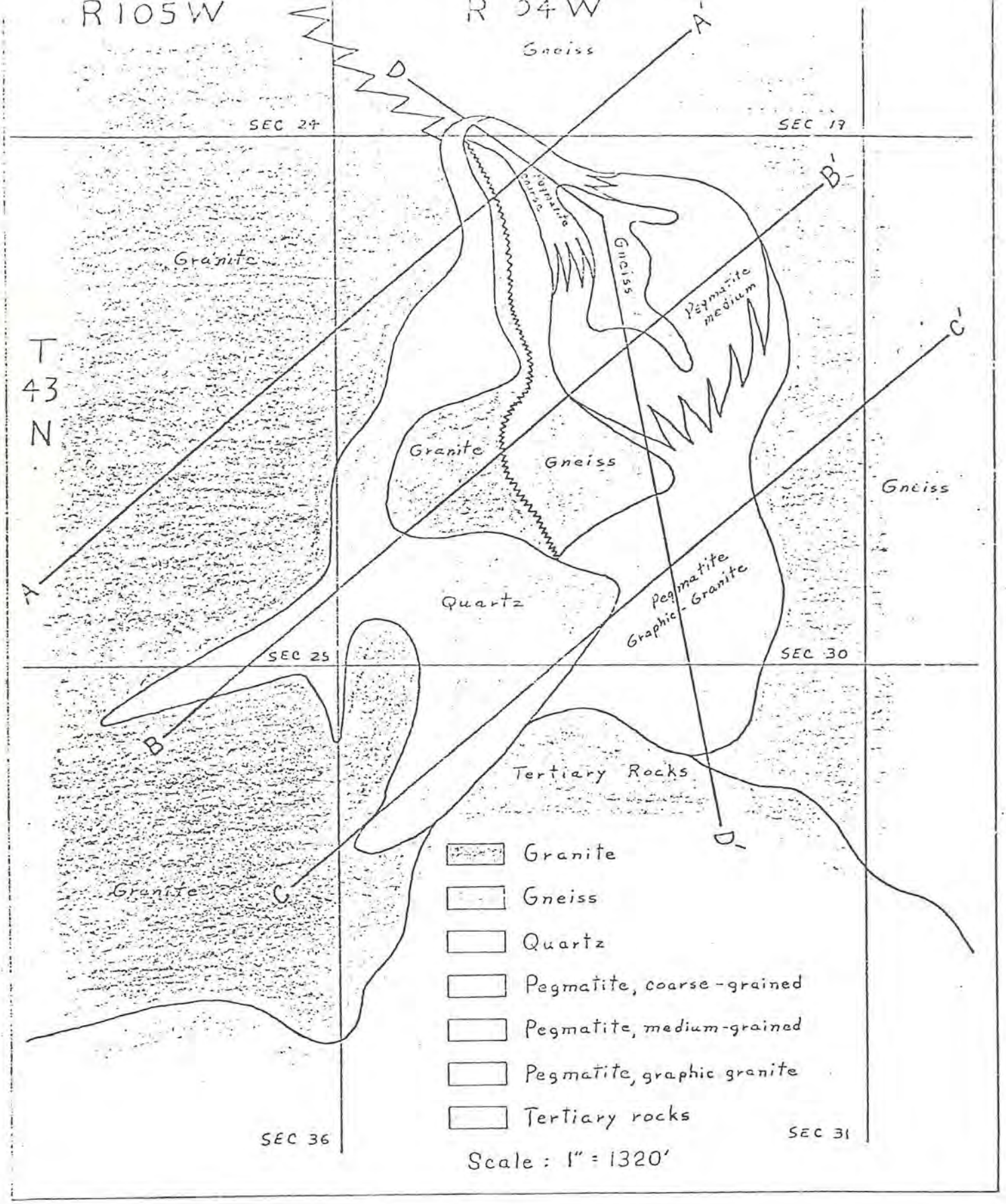
As most of the research for this report was done on feldspar, it will be discussed in greater detail than other mineral possibilities on which a lessor amount of work has been done.

The feldspar exposed on the claims constitutes three grades which intertongue with each other, which will be discussed later.

Uranium mineralization is known to exist 4 miles south of the Pole Creek claims on another Precambrian rock outcrop. Using a Precision Model 111-B Scintillator, 0.30% eU_3O_8 was recorded in a narrow black glassy quartz vein in the coarse grained pegmatite. An Emission Spectrograph Scan taken on a sample of this black quartz showed the following elements to be present: Aluminum, Boron, Copper, Lead, Silver, Nickel, Titanium, Magnesium, and Manganese. It is not possible to record whether or not uranium is present on this type of analysis. A copy of this assay



GENERAL GEOLOGY



GEOLOGY OF PEGMATITE

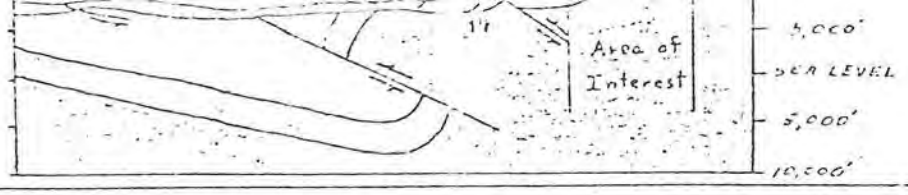


FIG. 1

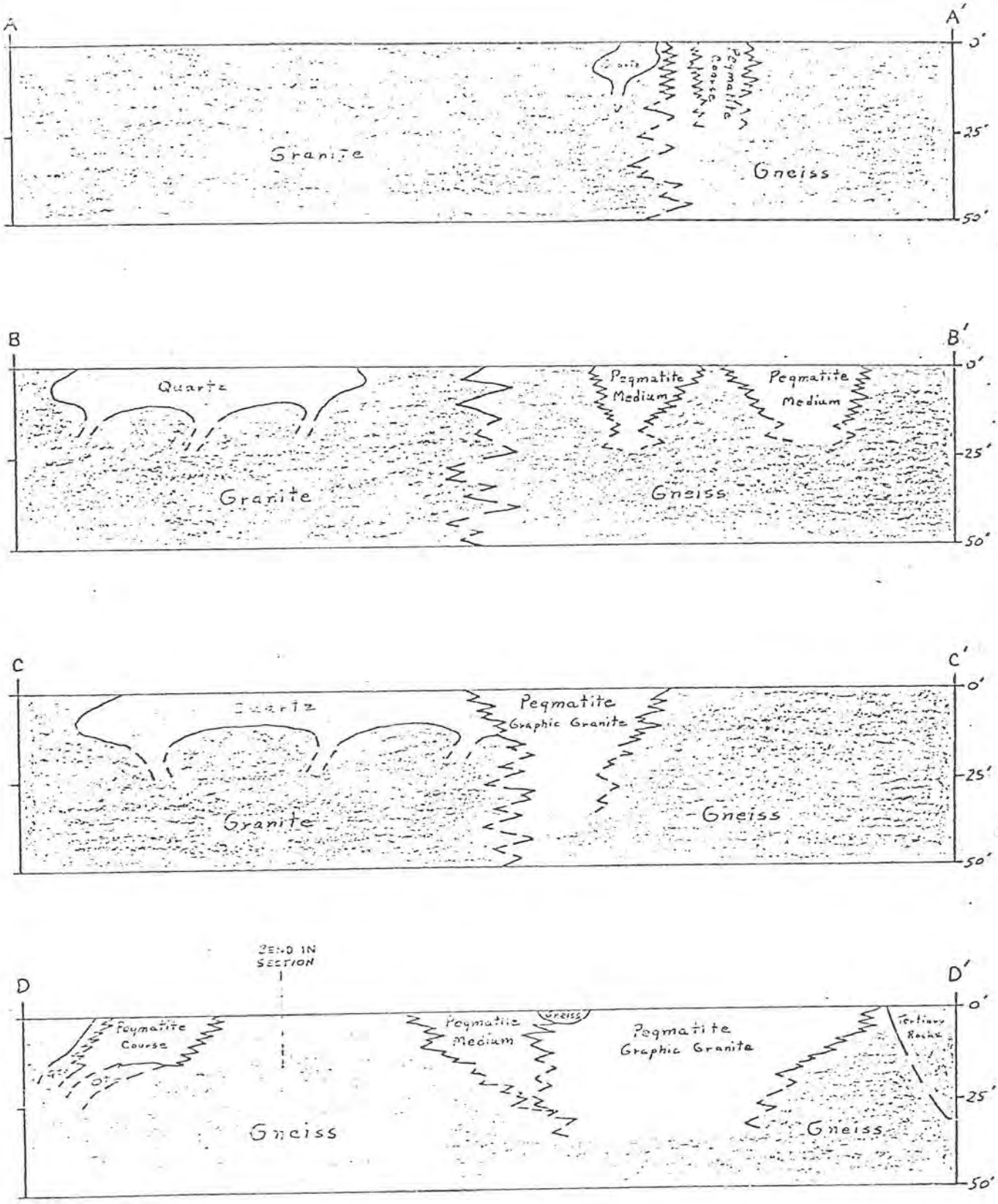


FIGURE 2

follows the report.

A quantitative analysis of the high-grade feldspar showed there to be 0.10% Cesium present. A copy of this assay follows the report.

As the coarse-grained pegmatite contains small rather than large quantities of mica, it may be possible to recover some rare earths as by-products of the feldspar.

Other accessory pegmatite minerals that are present in some areas include Spodumene (Lithium), Beryl (Beryllium), Wolframite (Tungsten), Columbium, and Tantalum.

FELDSPAR AND QUARTZ OCCURRENCE

The high grade feldspar is designated as Pegmatite - coarse. It is generally free from iron and mica and contains no more than 6% quartz. The outcrop measures approximately 1500 feet long by 300 feet wide by 10 feet deep. A typical assay may be found at the end of this report.

The medium grade feldspar is referred to as Pegmatite - medium. It is also generally free from mica but may contain up to 0.10% iron and 20% quartz. The outcrop measures approximately 1500 feet long by 1700 feet wide, allowing for the gneiss in the middle, and 5± feet deep.

The final grade, Pegmatite - Graphic Granite is a marginal type of feldspar ore. It generally contains considerable iron, mica, and up to 30% quartz. It may be mined economically if the iron and mica content are not too high. The outcrop measures approximately 3000 feet long by 1500 feet wide by an unknown thickness.

The white coarse grained quartz vein measures approximately 6500 feet long by an average of 1500 feet wide by 5± feet deep. Refer to Map 2 and Figure 2.

RESERVES

Feldspar

Pegmatite - coarse = $\frac{1500' \times 300' \times 10'}{12 \text{ cu.ft./ton}}$ - 6% Quartz = 350,000 tons

Pegmatite - medium = $\frac{1500' \times 1700' \times 5'}{12 \text{ cu.ft./ton}}$ - 20% Quartz = 850,000 tons

Pegmatite - Graphic Granite = no reserve figures because depth is unknown

Quartz

White Quartz Vein $\frac{1500' \times 6500' \times 5'}{12 \text{ cu.ft./ton}}$ = 4,000,000 tons

ECONOMIC CONSIDERATIONS

Feldspar is primarily used for making glass, china, porcelain, enamelware, and false teeth. The United States Bureau of Mines forecasts a 5% growth in feldspar mining per year through 1975.

Clean quartz, crushed and graded, is used in "flint" sandpaper, metal polishes, metallurgical works, and ceramics.

It is difficult to put an exact value on these types of ore due to the variable mining and shipping costs. However, an initial agreement has been made by Northwestern Feldspar Corporation to American Rare Metals Company, Inc. for delivery of twenty thousand tons of feldspar to Northwestern's mill at Bonneville, Wyoming for the sum of $184,000.00. A copy of this agreement is included in the back of this report.

$\frac{\text{[illegible]} \times 300' \times 10'}{\text{[illegible]} \text{ cu.ft./ton}}$ - 6% Quartz = 350,000 tons

$\frac{\text{[illegible]} \times 1700' \times 5'}{\text{[illegible]} \text{ cu.ft./ton}}$ - 20% Quartz = 850,000 tons

[illegible]c Granite = no reserve figures because depth is unknown

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As the reserves and dimensions of the orebody referred to in this report are approximations taken from preliminary field and photo work, the author reserves the right to change them as further exploration and development are done on the property.

John P. Ely II

John P. Ely II
Consulting Geologist

February 2, 1971

CHEMICAL & GEOLOGICAL LABORATORIES
P. O. Box 2794
Casper, Wyoming

ANALYTICAL REPORT

From Champion Ventures, Inc. (John Ely) Product Crude mineral
Address Denver, Colorado Date November 3, 1970
Other Pertinent Data Quartz sample

Analyzed by RBC Date November 10, 1970 Lab No. 4619-1

Qualitative - Semi-quantitative
Emission Spectrographic Scan

Estimated Percentages
or Percentage Range

X	Aluminum	X	Nickel
	Antimony		Niobium
	Barium		Osmium
	Beryllium		Palladium
	Bismuth		Platinum
X	Boron		Potassium
	Cadmium		Rhenium
X	Calcium		Rhodium
	Chromium		Ruthenium
	Cobalt		Scandium
X	Copper	M	Silicon
	Gallium	X	Silver
	Germanium		Sodium
	Gold		Strontium
	Hafnium		Tantalum
	Indium		Tellurium
	Iridium		Thallium
X	Iron		Thorium
	Lanthanum		Tin
X	Lead	X	Titanium
	Lithium		Tungsten
X	Magnesium		Vanadium
X	Manganese		Yttrium
	Mercury		Zinc
	Molybdenum		

All elements are sought. Only those detected are marked with quantity estimates.

LEGEND:

X - - - - - - Trace - 0.01%
XX - - - - - - 0.01 - 0.1%
XXX - - - - - - 0.1 - 1%
XXXX - - - - - - 1 - 10%
M - - - - - - Major (+10%)
* - - - - - - Quantitative Determination

INVOICE

CHEMICAL & GEOLOGICAL LABORATORIES

Remit to: P. O. Box 2794 Casper, Wyoming 82601

№ 5268

TO Mr. John Ely

ADDRESS 2848 Hanway
Casper, WY 82601

DATE January 18, 1971

YOUR ORDER NO.

TERMS: NET 30 DAYS
1% DISCOUNT ALLOWED ON INVOICES OVER $5.00 IF PAID WITHIN 30 DAYS.

DATE	LAB. NO.	DESCRIPTION	AMOUNT
1/5/71	4950	1 quantitative Rubidium & Cesium @15.00	$ 15.00
		Rb ------ 0.005% 50 ppm	
		Cs ------ 0.1% 1000 ppm	

PAID 1-18-71 Chemical & Geological Lab 420 Casper, Wyoming

NO FURTHER STATEMENT WILL BE RENDERED UNLESS REQUESTED

CHEMICAL & GEOLOGICAL LABORATORIES

P. O. Box 279
Casper, Wyoming

ANALYTICAL REPORT

Company: Champion Ventures (John Ely) Type of sample: Crude Mineral
Address: Denver, Colorado Date: November 3, 1970 Lab. No. 4319
Other Pertinent Data:

Analytical method: Analytical classification: Quantitative

Sample		SiO_2%	Al_2O_3%	CaO%	Fe_2O_3%	K_2O%	Na_2O%
1 #2	(Feldspar)	67.51	18.20	0.03	0.04	11.92	2.11
2							
3			Graphite %				
4 #3			2.91				
5							
6							
7							
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25							
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27							
28							
29							
30							
Threshold							

ND - Not detected

Remarks:

December 14, 1970

American Rare Metals Company Inc.
Red Cliff Lodge
Dubois, Wyoming 82513

Attention: Mr. Jim Nordwick, Secretary-Treasurer

Dear Jim,

Pursuant to our telephone conversation the following describes the manner in which the Company would be willing to purchase feldspar ore from your mine near Dubois.

The Company will purchase all the feldspar ore of acceptable quality produced from your mine within the next year up to 20,000 tons.

The schedule of payment is as follows: $10.00 per ton for the first 4,000 tons delivered. The $10.00 price is offered as an incentive to offset costs of initial haul road and starting operations. Thereafter, $8.00 per ton will be paid for the next 6,000 tons and at such time as the additional 6,000 tons have been delivered a bonus of $1.00 per ton totaling $6,000 will be paid. A price of $9.00 per ton will be paid for each ton delivered thereafter up to an aggregating total tonnage of 20,000 tons over the next year. Ore shipments will be computed on a weekly basis and payment in full will be submitted the latter part of the week immediately following.

Chemical analysis have been performed on representative samples taken from your mine and visual inspection of the mine was made by Northwestern people. The chemical quality of the ore appears to be good and if caution is exercised in mining you should have no problems maintaining ore shipments of acceptable quality. Available tonnage appears to be substantial and exposures indicate a sufficient body of ore to justify mining.

I am most anxious for your operation to commence as the Company is sincerely interested in helping to generate independent mining within the Wyoming area. Company personnel have been instructed to cooperate and assist your operation

in the interest of success.

I would appreciate being kept advised as to progress and should you require further assistance please contact me.

Sincerely,

NORTHWESTERN FELDSPAR CORPORATION

Robert L. Cullum
President & General Manager

RLC:ch

SCC: I was pleased to learn of Joe Highsmiths and Ray Hansens interest in mining as I am confident a good operator will generate profits. I would suggest the Corporation allow the operator the majority of revenue produced from production of feldspar ore and that the Corporation look mainly toward sale of associated minerals for compensation.

NORTHWESTERN
FELDSPAR CORPORATION

P. O. Box 706, Custer, South Dakota 57730
— Telephone: AC 605/673-2200 —

March 5, 1971

Mr. Melvin Gustin, President
American Rare Metals Company, Inc.
Box 161
Lander, Wyoming 82520

Dear Mr. Gustin:

Northwestern Feldspar - Wyospar Division is willing to purchase potash feldspar from your company that conforms with the specifications listed below:

Ing Loss	.3
SiO_2	65.8%
Al_2O_3	18.5%
Fe_2O_3	0.05%
CaO	.4%
Na_2O	3.5%
K_2O	11.0% or over

We are not in position at this time to contract for more than 1,500 tons per month for the next three months, by which time we will have a better estimate of the market.

The price is $10.00 per ton for the 4,500 tons delivered to our plant at Bonneville. The $10.00 per ton price is offered as an incentive to offset costs of initial haul road and starting operations, thereafter the price will be reduced to $9.00 per ton delivered to the Bonneville Plant. Ore shipments will be computed on a weekly basis, and payment in full will be submitted the latter part of the following week.

We believe that we will be able to continue buying after the 4,500 tons have been delivered, but as previously stated, we must, after being assured a greater tonnage, establish a market for all our product.

Company personnel have been instructed to cooperate and assist your operation.

I expect to visit Bonneville within the next ten days and would like to personally meet and discuss this matter with you. In the meantime, do not hesitate to telephone me.

Sincerely,

NORTHWESTERN FELDSPAR CORPORATION

By C. E. Fertig

C. E. Fertig, General Manager

CEF/cnk

NORTHWESTERN
FELDSPAR CORPORATION
Telephone 605-673-2200
Box 706 - Custer, South Dakota 57730

Plant Location: SHOSHONI, WYOMING 82649

LABORATORY REPORT

Lab. No. MS- 311 Date: OCT. 22, 1970
Sample SALMON FELDSPAR Order No.
Car No: (EDWARD GUSTIN, JR) Date Shipped

Customer JOHN McINTOSH
LANDER ROUTE P.O. BOX 65
Destination RAWLINS, WYOMING

CHEMICAL ANALYSIS

Ignition Loss	.2%
Silica (SiO_2)	65.2
Alumina (Al_2O_3)	18.9
Iron Oxide (Fe_2O_3)	.03
Lime (CaO)	.3
Magnesia (MgO)	TRACE
Soda (Na_2O)	3.2
Potash (K_2O)	12.2
	100.0

Copy

SCREEN ANALYSIS

MESH	% ON	% PASSING

'ARKS: THIS IS A SAMPLE OF THE PURE FELDSPAR ONLY.

'ULLIM
ILLER

Chemist L. EVERETT