# 1912 PART 2

GEOCHEMICAL REPORT ON A SOIL SURVEY OF CONSOLIDATED REXSPAR MINERALS AND CHEMICALS LTD. (Project: Rex)

for

Denison Mines Limited 4 King Street West, Toronto, Ontario

Claims: 1. PA Group (

PA Group (PA 1-4, 10-23, 25-28, 30-46, 49 Fr., 50 Fr.) - 40 claims

2. PA Group (PA 51 Fr., 52-57, 58 Fr., 59 Fr.) - 9 claims

3. RADIO Group (RADIO 19-26) - 8 claims

Located: a) Quadrangle - 51°N 119°W SE corner porthwest quarter

N.T.S. 82M/12W

c) 1/2 - 3 miles S. Birch Island, Kamloops Mining Division, B.C.

Work Done: - May 15 - June 10, 1969 Report: July 10, 1969 Our Project No.: 69VF3-2 F. D. Forgeron, Ph. D. Bondar-Clegg & Company Ltd., Vancouver, B.C.

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### NOTE:

Drawings 1 - 6 accompanying report.



BASE FROM MAP





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### INTRODUCTION

This report deals with the results of a soil survey conducted over claims held by Consolidated Rexspar Minerals and Chemicals Limited. The soil survey covers crown grants in the area as well as several groups of claims. Soil Survey data of the whole area covered to date is given to give a clear picture of the metal dispersion on the claims for which assessment credit is applied. Details of claims and their location is given on the two location maps.

### GENERAL GEOLOGY

The regional geological setting is one of a series of metamorphosed sedimentary and volcanic rocks intruded by granitic rocks of approximate granodiorite composition. The metamorphic rocks are composed of argillites, quartz-sericite schists and metavolcanics of original trachyte and andesite composition. This belt of rocks is gently folded and has been subject to faulting and jointing. Reported ages for these rocks are Permian to Precambrian.

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### General Geology....Cont'd.

The Rexspar mineralization consists of uranium minerals, rare earths and fluorite and to a lesser extent, argentiferous galena and manganese minerals. Present interest centers largely around uranium. All the uranium mineralization found to date occurs in a trachyte member associated with pyrite and mica.

Earlier investigators of the Rexspar deposit have termed its origin as "replacement" or "contact metasomatic", the writer does not comment further on this terminology. The mineralogical association - i.e. uranium, thorium, rare earths, molybdenum - is that of late stage magmatic differentiation. This association points to the southern granitic intrusions as the source of mineralization. It is entirely possible, then, that should suitable depositional environments occur elsewhere in this metamorphic sequence, mineralization of similar or related nature should occur.

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### GEOCHEMISTRY

### Introduction

During the fall of 1968 the writer conducted an orientation geochemical survey in the area to test the metallic dispersions in stream sediments and soils. The results of this survey showed significant contrast in soil and drainage distributions of uranium, lead, silver and molybdenum. The molybdenum potential of the area has not been previously explored and was therefore made a subject of the soil survey as well as uranium.

### Sampling

A grid was laid out over the property with 300' lines cut on the crown grant area and 600' lines on the rest of the property. Samples were collected on 100' centers and in the initial phases were analyzed at 200' centers.

Podsols are generally fairly well developed throughout the area and good response was found in the B-Horizon. B-Horizon samples were collected wherever possible and a sampling depth of 6" to 1' was generally utilized. In wet areas, such as

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Sampling....Cont'd.

seeps or streams, an organic material was commonly collected (gley). The samples were stored in wet strength Kraft envelopes.

# Analytical

The analyses were carried out in the Vancouver laboratories of Bondar-Clegg & Company Ltd. Upon receipt the samples were dried in infra-red heated ovens at 40°C to 50°C. The dry samples were sifted to -80 mesh in 8" (Tyler) stainless steel sieves. Molybdenum was extracted from the sample in hot aqua-regia and determined by atomic absorption spectrophotometry using a modification of the Endako molybdenum assay technique. Uranium was extracted from the samples by hot nitric acid and determined fluorimetrically by a modification of the Eldorado assay technique.

# Classification of Data

The regional background of uranium and molybdenum in soils is about one part per million (0.0001%). Inspection of the analytical data shows an extreme contrast in the metal values. The incomplete survey data does not permit a rigorous

### Classification of Data....Cont'd.

classification at the present time. A tentative classification is given on Table I pending completion of the soil surveys whereby the anomalies in each metal can be truely outlined.

### Presentation of Data

The uranium data are plotted on Drawings 1 to 3 and are contoured at 2, 4, 8 and 16 ppm intervals. The molybdenum data are contoured at 4, 8, 12, 20 and 40 ppm intervals. Preliminary anomalous classes are assigned and given graphic symbols for ease of inspection. In contouring the maps, sporadic highs and lows were excluded to permit a clearer picture.

### Discussion of Results

<u>General</u>: In attempting an interpretation of the data on the Rexspar property several features, which inhibit accurate description of the extent of mineralization, must be considered.

- 1) The survey is incomplete.
- 2) Sample density is reconnaissance.
- 3) No information exists on molybdenum occurrences on the property.
- 4) In the northern part of the property, fluvo-glacial deposits are locally thick and dilute soil contents of the metals.

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# TABLE I

# Preliminary Classification of Molybdenum and Uranium in Soils, Consolidated Rexspar Minerals and Chemicals Ltd., Birch Island, B.C.

Class	Mo ppm	U ppm
Negative	0 - 3	0 - 3
Possibly Anomalous	4 - 7	4 - 7
Probably Anomalous	8 - 12	8 - 16
Definitely Anomalous	12+	16+

# Discussion of Results....Cont'd.

Considering the above features a detailed interpretation is not attempted at this time but some projections are possible. Both molybdenum and uranium are readily fixed by hydrated ferric oxides, manganese dioxide, and by humic compounds. All three compounds are prominent in the area and chemical mobility is indicated to be somewhat limited. Further indications of the limited mobility of uranium and molybdenum is the extremely sharp boundaries of the anomalies and the failure of the uranium anomalies to connect toward the Rexspar A-Zone.

The overall fit of uranium and molybdenum anomalies under environmental conditions of low mobility suggest that the mineralization is polymetallic in part but that zonation within either one large deposit or several smaller deposits is operative.

<u>Uranium</u>: Four definitely anomalous zones are outlined on Drawing 1. These zones line up roughly in an east-west direction. The Rexspar A-zone occurs upslope from these anomalies at a distance of about one mile and the anomalies are not connected indicating separate sources. Favourable stratographic intersection with topography is suggested as a

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### Discussion of Results....Cont'd.

probable source of these anomalies. The source may or may not be connected as shown on Drawing 1.

The Clay Creek area displays more or less consistently anomalous uranium in a north-south direction for a distance of two miles south of Birch Island. The northernmost part of this anomaly occurs in organic sediments and is probably an accumulation anomaly of no direct interest. The remainder of Clay Creek, however, has samples largely of B-Horizon composition which are anomalous. A structural feature such as faulting or jointing with associated uranium mineralization is indicated. The extent of the mineralization is not clearly defined because of the superimposition of drainage characteristics.

In addition to the dominant features presented above, several anomalies of lower rating are shown. These areas are considered secondary pending more extensive and corroborative data.

Molybdenum: The essential features of the molybdenum distribution are shown on Drawing 5. The top third of the map is largely definitely anomalous and the source of this anomaly is within or south of the anomaly as depicted. The

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# Discussion of Results....Cont'd.

anomaly extends down Clay Creek in a manner analogous to the uranium distribution and the interpretation is as for the uranium.

In addition to the above described anomalies, several other areas are anomalous and should be investigated on a lower priority. Particularly interesting of the secondary anomalies are those occurring in Foghorn Creek. These anomalies have no known source but because of the steep valley walls should have a local source.

### SUMMARY AND CONCLUSIONS

Soil surveys of the Consolidated Rexspar Minerals and Chemicals Ltd. properties have been carried out during May and June, 1969. B-Horizon, or equivalent, soils have been analyzed for molybdenum and uranium. Several anomalies have been outlined on a preliminary basis pending more extensive survey data.

The following conclusions are based on the metallic dispersions presented on Drawings 1 to 6 accompanying this report, on published and unpublished reports on the area and upon the writer's observations.

- The uranium anomalies in soil are related to stratographic or tectonic features in bedrock.
- 2) The uranium anomalies are not connected to either the A- or the BD- zones indicating that uranium mineralization is more extensive than that reported to date.
- 3) The uranium and molybdenum anomalies coincide in part. Zonation of uranium and molybdenum in bedrock is postulated as an explanation of the displacement of anomalies at least in part.
- 4) Molybdenum mineralization is indicated to be extensive. Failure to have previously recognized the molybdenum in related to its similarity in appearance to fluorite.

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# Summary and Conclusions....Cont'd.

- 5) The Rexspar deposit is considered to be a zoned poly-metallic deposit, the nature and extent of mineralization, of which is largely unknown.
- 6) Molybdenum and uranium will probably give sufficient information, on a phase one basis, to explore the area; however, other metals such as lead, silver and rare earths should be investigated.

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### RECOMMENDATIONS

- 1. B-Horizon soil sampling is recommended to be continued at 100' intervals to at least 2000' east and west of that sampled to date.
- 2. Sampling is recommended to continue south to outline anomalies to background contents.
- Analysis is recommended to be extended to 100' intervals within areas of greater than 2 ppm molybdenum and uranium on samples taken to date.
- 4. Uranium and molybdenum analyses are recommended at 100' intervals on all future sampling.
- 5. A complete delineation of the anomalous metal dispersions of the area is recommended before surface or underground exploration commences.
- 6. I.P. Surveys are recommended as a corroborative device on geochemical anomalies above 2500' A.S.L., not vice-versa, because of the large areal extent of the anomalies and the distinct geochemical response. Below 2500' A.S.L. over-burden conditions may results in incomplete geochemical delineation and I.P. results may be more definitive.
- 7. Second phase exploration should consist of trenching and/or diamond drilling. Coincidence of geochemical, geophysical anomalies and proximity to establish mineralization constitute the best initial sites for second phase exploration.

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# SOIL SURVEY COSTS

# SAMPLING COSTS:

	a)	Salaries:				
		Mr. M. Morrison - May 15th to June 10th 25 days @ \$750.00/mo. Mr. Y. Krizak - May 15th to June 10th	\$	625.00		
		25 days @ \$500.00/mo.		415.00		
	b)	Room & Board:				
		Room for 2 men - 25 days @ \$5.00/man/day Board for 2 men - 25 days @ \$5.00/man/day	\$	250.00 250.00		
	c)	Vehicle Costs:		- 		
- - - 		25 days @ \$375.00/mo. Operational Costs	\$	312.00 50.00		
5 	d)	Sample Bags:	<u>\$</u>	126.00		
		TOTAL	<u>\$ 2</u>	,028.00		
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ANA	LYTI	CAL COSTS:				
and the second se	117	7 samples @ \$3.20/sample TOTAL	\$ 3	,766.40		
PRO	FESS	IONAL COSTS:				
	Con	sulting Costs:		ć		
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		October 24th, 25th, 1968, Report November 10, 1969	\$	750.00		
		May 7, 1969 (visit to property)		100.00		
, i , i		July 3, 4, 1969 (visit to property) Geochemical Report - July 10, 1969		200.00		

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TOTAL

\$ 1,300.00

SOIL SURVEY COSTS.....Cont'd

SAMPLING COSTS:	TOTAL	\$ 2,028.00
ANALYTICAL COSTS:	TOTAL	\$ 3,766.40
PROFESSIONAL COSTS:		
Consulting Costs:	TOTAL	\$ 1,300.00
Consulting Expenses:		
November 10, 1968 - (encl. draughting May 7, 1969 - Tuly 10, 1969 -	& reproduction)	\$ 163.75 132.74
(encl. draughting	& reproduction)	258.00
	TOTAL	\$ 554.49

GRAND TOTAL SURVEY COSTS

Total Line Miles Sampled40.2Total Line Miles on Claims Applicable for Assessment14.6

Total Value Submitted for Assessment on P.A. and Radio Claim Groups:-

 $\frac{14.6}{40.2}$  x \$7,648.89 =

\$ 2,777.96

F. D. Forgeron, Ph. D. Bondar-Clegg & Company Limited, Vancouver, B.C.

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July 10, 1969.

\$ 7,648.89

### STATEMENT OF QUALIFICATIONS

I, Fabian David Forgeron, of the City of Vancouver do hereby declare that:

I am a geologist residing at #805 - 1875
Bellevue Street, West Vancouver.

2. I have practised in the geological profession for 12 years and specialized in geochemistry for the past seven years.

3. I am a graduate of the following universities:

St. Francis Xavier, N.S. - B.Sc. (Geology) 1957 Carleton University, Ont. - M.Sc. (Geology) 1962 University of Manchester, U.K. - Ph.D. (Geochemistry) 1966

4. I have no interest, direct or indirect, in Denison Mines Ltd. or any affiliate nor do I expect to receive any.

5. This report is based on published and unpublished material, and on my personal observations.

F. D. Forgeron, Ph. D. Bondar-Clegg & Company Ltd., Vancouver, B.C.

July 10, 1969

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# NAMES AND ADDRESSES OF SAMPLERS

Mr. M. Morrison, B. Sc. (Geology) Box 148, Clearwater, B.C.

Mr. Y. Krizak, Box 148, Clearwater, B.C.

F. D. Forgeron, Ph. D. Bondar-Clegg & Company Ltd. Vancouver, B.C.

July 10, 1969





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