RECONNAISANCE GEOLOGICAL

MAGNETOMETER AND SCINTILLOMETER SURVEY

VERITY # 1, AR # 1,2 CLAIMS

PARADISE CREEK

URANIUM-COLUMBIUM PROSPECT

KAMLOOPS MINING DIVISION

BLUE RIVER, BRITISH COLUMBIA

N.T.S. 83D

52° 17' N 119°10' W

For

John Krueszewski

By

MEYERS CONSULTING

October , 1977

E. Meyers, P. Geol.

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MAPS

TABLES

PARADISE CREEK PROSPECT

N.T.S. - 83D

British Columbia

INTRODUCTION

From October 26 - November 2, 1977, a geological ev aluation and reconnaisance magnetometer and scintillometer survey was conducted on the Paradise Creek Prospect by the author and Ellis Goodwin, both of Calgary, Alberta. Preliminary sampling was conducted on older excavations.

A total of 3½ line miles (4.9 kilimeters) of both magnetometer and scintillometer surveying was completed, and an additional 3 miles (4.2) kilometers) of scintillometer work was conducted. A total area of 1.4 sq. miles (362 hectares) of geological mapping was conducted.

Of primary interest is the uranian pyrochlore and uranian columbite contained in a carbonatite host rock. The carbonatite also contains tantalum, apatite, zirconium, and vermiculite of potential economic importance. The pyrochlore has not been assayed for rare-earths. The carbonatite host containing the uranium bearing pyrochlore has been traced over 4 miles in length and spanning a verticle range of over 4,000 feet.

The Paradise Creek Prospect has a potential for finding economic concentrations of columbium, uranium, tantalum, and is worthy of further work.

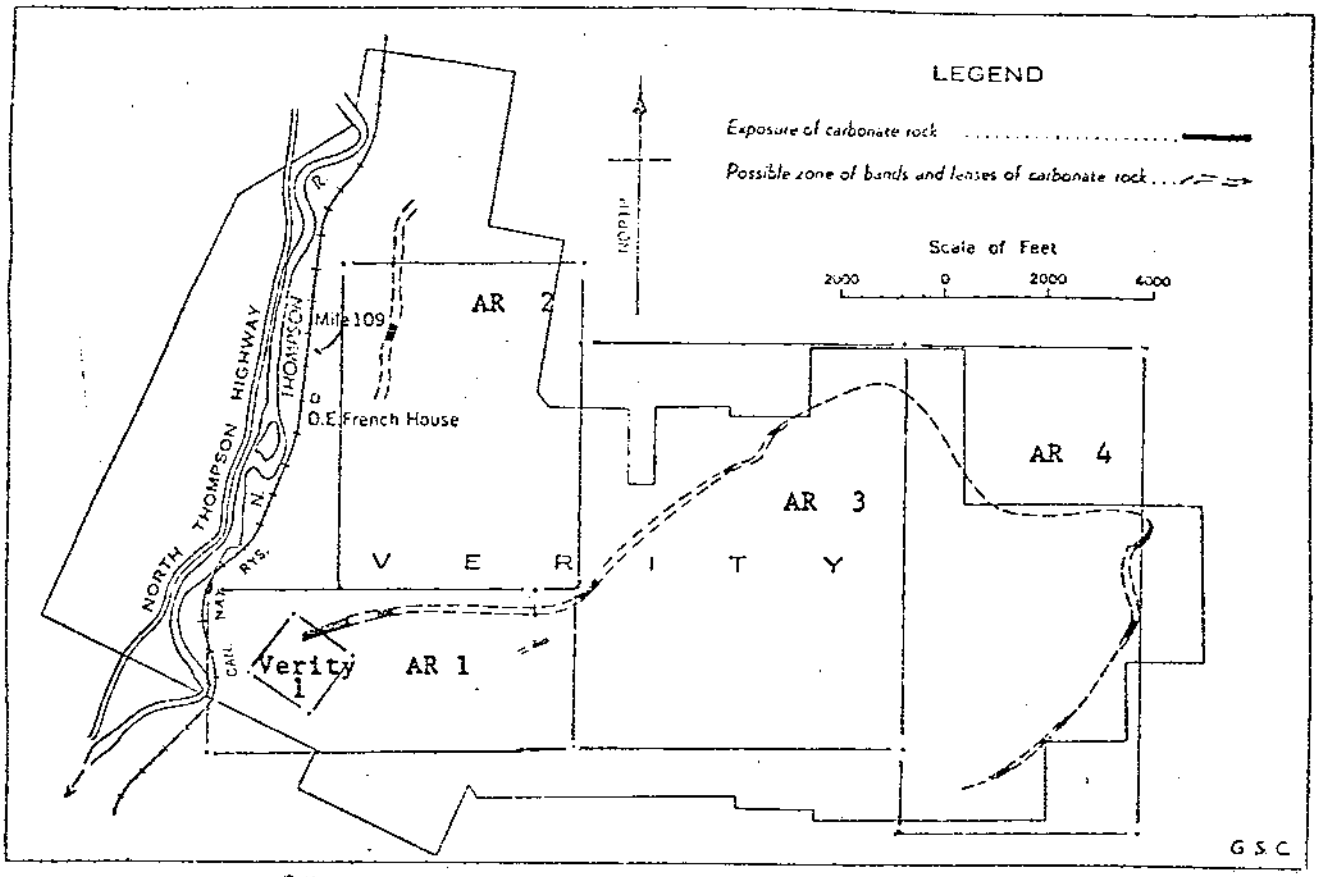
This report was authorized by Mr. John Krueszewski, President of Rask Resources of Calgary, Alberta, which controls the Paradise Creek Property.

CLAIM DISPOSITION (Map 2)

Rask Resources controls 4 contiguous claim groups by staking. The claim group covers 3600 acres and are designated as follows:

MAP 2

Sketch Map of Carbonatite Rocks and
Claim Boundary on the A. R. Property



Sketch-map of the AR property, southeastern British Columbia, showing occurrences of carbonate rocks. (From map by H. D. Hughes, 1952.)

Claim Name	No.		No. of Units
AR-1	25060	486(8)	9
AR-2	25061	487(8)	12
AR-3	03353	505(9)	20
AR-4	03354	505(9)	18
		TOTAL	59

The anniversary date for the claims are unknown. Rask has an option on the Verity Claim owned by Miss Elizabeth French of Blue River, British Columbia.

LOCATION AND ACCESSIBILITY (See Regional Index Map)

AR 1 and 2 are accessible by logging roads approximately 2 miles south of the Lempriere flag stop. Lempriere is located 26 miles north of Blue River and 30 miles south of Valemont, B.C. along the Yellowhead Highway. Lempriere is located 169 miles north of Kamloops, B.C., and is the focal point for section gangs working on the Canadian National Railway tracks. A cleared power line right-of-way, 250' in width, bisects AR 1 and 2. Logging is currently active on AR-2.

TOPOGRAPHY AND CLIMATE

Relief ranges from 3000' to 7500' within the claim boundaries. Slopes are steep and undergrowth consisting of buckbrush, devils-club, and huckleberry is thick. Heavy stands of hemlock, cedar, fir, and white pine cover the slopes. The tree line is 6500' in elevation. Precipitation averages 50" per year and snow fall is generally heavy. Overburden generally does not exceed 15 feet.

CERTIFICATE

I, Eugene P. Meyers, of the City of Calgary, in the Province of Alberta, certify as follows:

1. That I am a geologist residing at 139 Coleridge Rd. N.W. Calgary, Alberta.

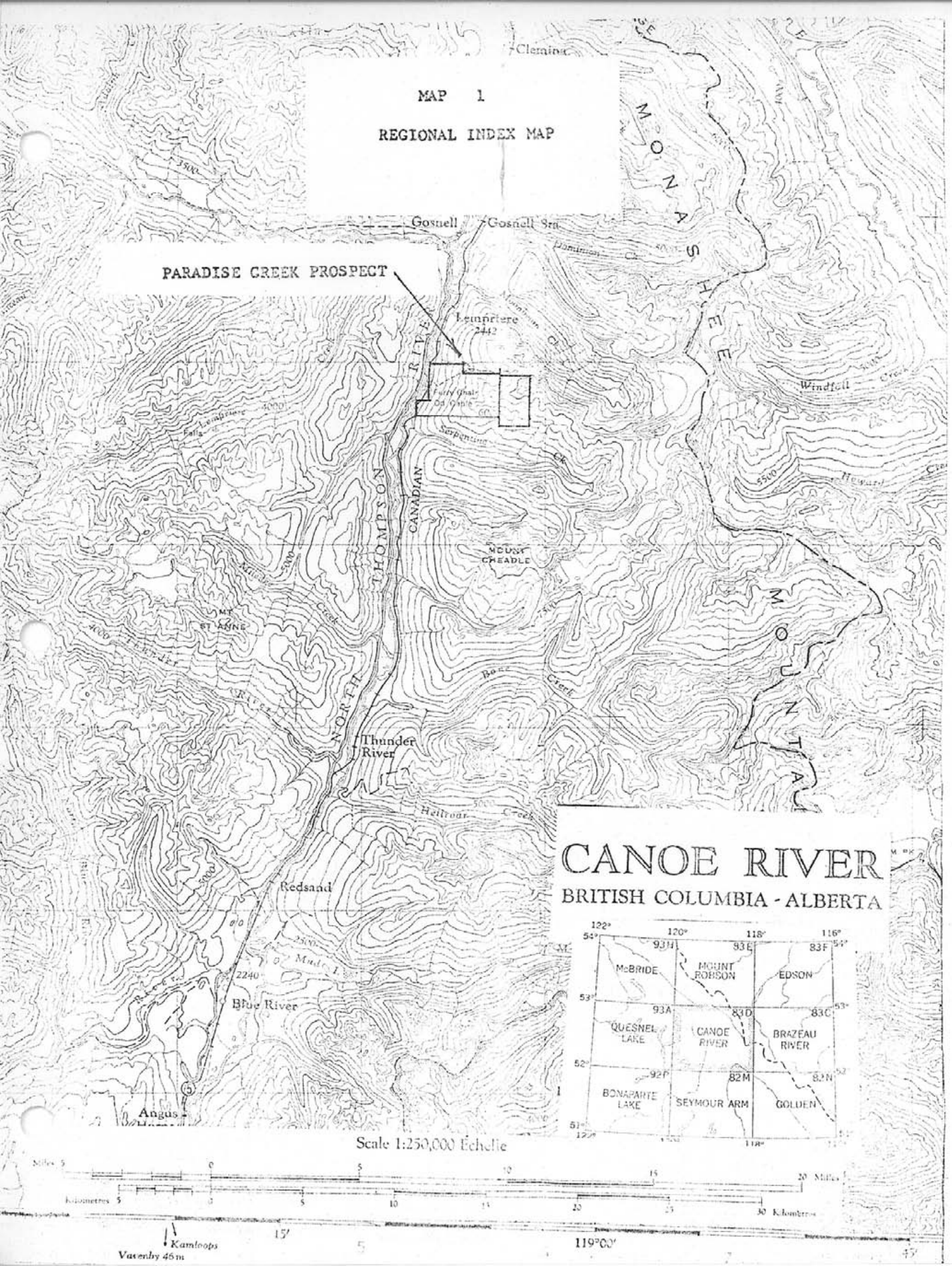
2. That I graduated with a Bachelor of Science Degree in Geology from the University of Idaho in 1963.

3. That I am registered as a Professional Geologist in the Province of Alberta.

4. That I have practiced my profession in mining and minerals exploration in Canada and the United States continuously for the past thirteen years.

DATED IN CALGARY THIS 5 DAY OF November, 1977.

Eugene P. Meyers, P. Geol.


MAP 1
REGIONAL INDEX MAP
PARADISE CREEK PROSPECT
Clemina
Gosnell
Gosnell Sta.
Lempriere
2442
Windfall
MOUNT CHEADLE
MT ST ANNE
Thunder River
Redsand
Blue River
Angus
MONASHEE
MOUNTAINS
THOMPSON RIVER
NORTH
CANADIAN
Scale 1:250,000 Echelle
Miles
Kilometres
Kamloops
Vasenby 46 m
119°00'
CANOE RIVER
BRITISH COLUMBIA - ALBERTA
McBRIDE
MOUNT ROBSON
EDSON
QUESNEL LAKE
CANOE RIVER
BRAZEAU RIVER
BONAPARTE LAKE
SEYMOUR ARM
GOLDEN

HISTORY

The property was originally staked by O. E. French, a homesteader in the area, in 1950 on the basis of a vermiculite showing. Subsequent investigation by French resulted in the discovery of uranium bearing pyrochlore. In the spring of 1952, St. Eugene Mining Corp. Ltd. optioned the property and additional claims were staked. Most of the exploration work consisting of trenching, sampling, and blasting was confined to the verity and mill claims situated at elevations of from 3000' - 3500'.

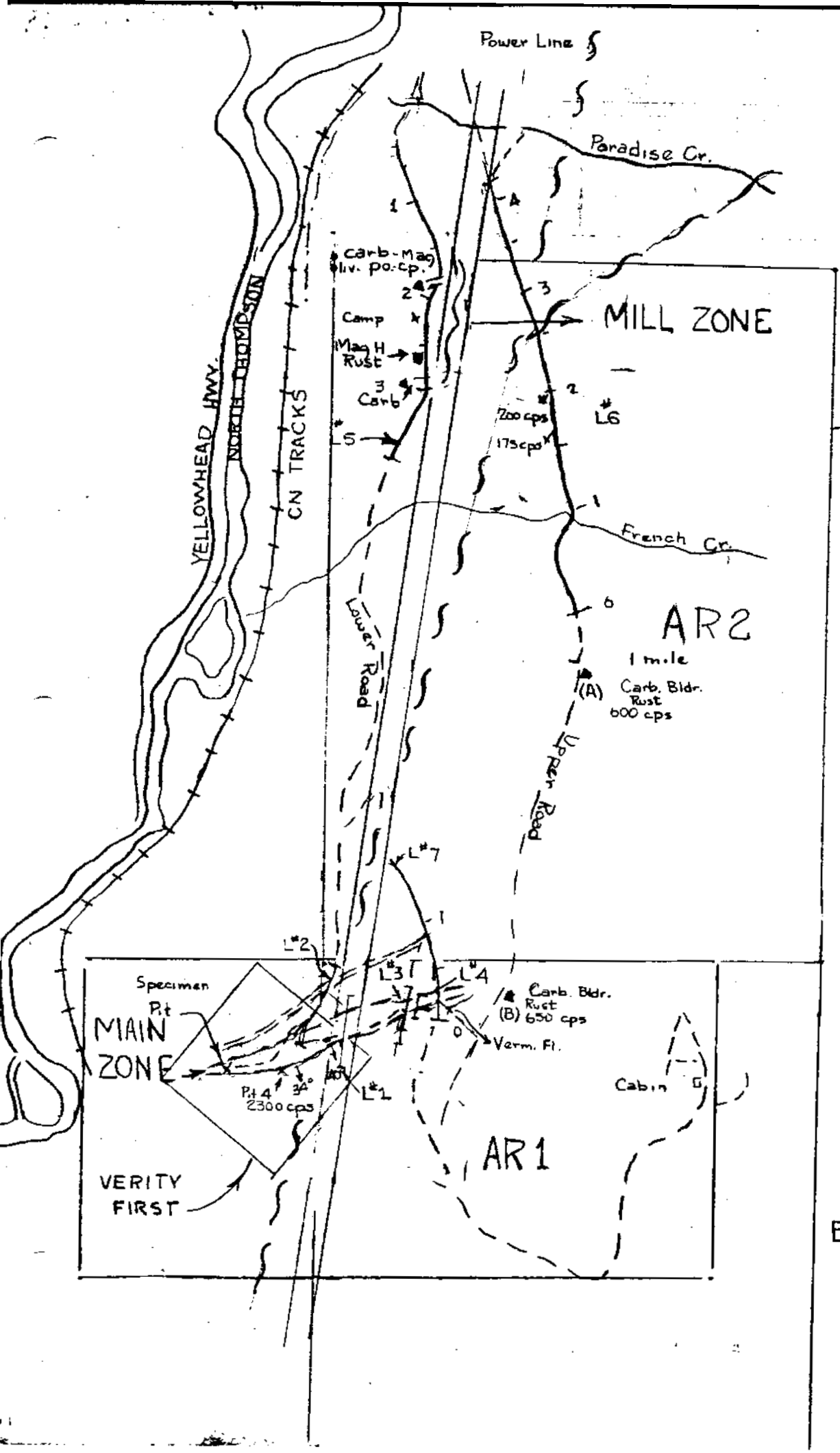
The Paradise Group of claims is some 3 miles east and at an elevation of 6500', and received little work outside of trenching. The option was dropped by St Eugene and the property has remained idle since that time.

REGIONAL GEOLOGY

The claim area has been mapped and is covered by G.S.C. Map 15, 1967. The rocks in the area are mapped as the Kaza Group belonging to the Windemere Period of Late Proterozoic Age.

Locally the rock-type underlying the area is a quartz hornblende mica gneiss having a gneissosity trending from 80-120° Azimith and dipping from 20-45° to the south.

There are numerous pegmatitic occurences within the claim area consisting of feldspar and quartz and white in color. Of the pegmatites observed, none appear to be radioactive. G.S.C. Map 15 defines two



AR3

SYMBOLS

- Scintillometer Reconnaisance only
- Magnetometer and Scintillometer Reconnaisance Lines
- ■ High Magnetometer Reading
- ▲ High Scintillometer Reading
- ~ Fault

Scale:

1" = 1/4 mile : 15840

0 500' 1000' 2000'

RASK RESOURCES

Claim & Geophysical line location location of Mill and Main Zone

Map 3

E Meyers Consulting

faults (See Map 3) joining in the vicinity of the Mill Zone. The major fault, trending N 10° E, cuts both the Mill and the Main Zone.

LOCAL GEOLOGY

General Remarks About Carbonatite

Carbonatites are generally calcitic or dolomitic intrusive rocks associated with volcanism. Classic description of carbonatites described in literature are as follows:

1) distinctive accessory minerals such as magnetite, apatite, and pyrochlore; minerals such as fluorite, zircon, barite are commonly present.
2) commonly developed ring-structure.
3) variation in size commonly ranging from 1 to 4 miles and roughly circular in plan.
4) proximity to rift valleys. (The Rocky Mountain Trench is 25 miles to the east.)

Main Zone

The carbonatite in the Main Zone has been mapped by the G.S.C., Economic Geology No. 18 (See Map 2). The carbonatite appears to be elliptical in plan view has been traced along strike for four miles over a vertical range of 4000 feet. The zone has a width of over 100 feet, highly fractured, and always in proximity to a pegmatite sill where exposed. The carbonatite is conformable with the strike of the

surrounding gneiss. The carbonatite weathers to a soft, yellow to sugary-appearing rock easily crumbled in the hand. Clots and dissemination of apatite, vermiculite, hornblende, and magnetite have a preferred linear trend. The fresh rock is relatively soft, white-grey in appearance with dark minerals standing out in contrast. There are two to three other carbonatite satellite zones to the north of the main zone. They are much smaller in size and little work has been conducted on them.

Past mapping on the Paradise showings indicate they are an extension of the Main Zone. These older showings lie on a projected extension of the Main Zone some 3 miles to the east of an elevation from 6200 to 7500 feet. Their geologic settings are identical with the main zone and more than one zone appears to be present.

Mill Zone

The Mill Zone is 7000' north of the Main Zone and is exposed along a lower logging road and the lower end of the power line right-of-way. (See Map 3). The zone can be traced discontinuously in a north-south direction for 1000'. Exposures are too limited to give an accurate determination of width. The carbonatite is much fresher in appearance, relatively unfractured, and the accessory minerals are more coarsely crystalline. The carbonatite also contains olivine in coarse irregular shaped clots over 1" in diameter in addition to accessory minerals present in the Main Zone. There is also a trace amount of chalcopyrite and pyrrhotite as fracture fillings.

TABLES 1 and 2

Uranian pyrochlore occurs as disseminated crystals and gneiss that range up to 1¼ inches in size. The colour varies from pale brown to brown to reddish brown to very dark brown to almost black. Some of the smaller grains have a reddish halo. A partial analysis of a specimen of the uranian pyrochlore is given in Table I.

Uranian columbite was identified by the late H. V. Ellsworth of the Geological Survey in specimens of carbonate rock that were sent to him by O. E. French. It gives an X-ray powder picture like that of columbite-tantalite and occurs as small, black, metallic grains. Table I contains a partial analysis of this mineral.

TABLE I

Partial Analyses of Niobium Minerals, Verity Property, Southeastern British Columbia

Uranian pyrochlore		Uranian columbite	
	Per cent		Per cent
Nb_2O_5	65	$Nb_2O_5+Ta_2O_5$	60 to 70
Ta_2O_5	10	U_3O_8	9 to 10
U_3O_8	6	$(Fe,Al)_2O_3$	10
ZrO_2	0·03	TiO_2	2 to 3
		Rare earths	2 to 3
		CaO	2 to 3
		MgO	2 to 3
Analyst: R. J. Traill, Geol. Surv., Canada.		Analyst: H. V. Ellsworth, Geol. Surv., Canada.	
Method: Semi-quantitative X-ray fluorescence.		Method: Chemical, described by Ellsworth as "a rough diagnostic analysis".	

Several samples of carbonate rock were collected by McCammon (1953 and 1955) and the results of the analyses are given in Table II.

TABLE II

Analyses of Carbonate Rock, Verity Property, Southeastern British Columbia

Width (inches)	Per cent				
	Nb_2O_5	U_3O_8	CaO	MgO	P_2O_5
A 5	0·38	0·039	—	—	—
B 60	0·37	<0·01	27·6	12·4	1·88
C 39	<0·1	<0·01	36·8	5·7	2·75
D 31	<0·1	0·02	42·4	4·7	2·02
E 51	<0·1	0·017	—	—	—
F 44	0·60	0·101	33·3	12·5	4·85

MINERALOGY

The accessory mineral assemblage in order of economic significance consist of uraniun pyrochlore, uraniam columbite, vermiculite, apatite, and zircon. Other accessory minerals include hornblende, magnetite, olivine pyrrhotite and chalcopyrite. The pyrochlore occurs as small disseminations, irregular small masses and octahedral shaped crystals. The presence of pyrochlore can be observed in some cases to be rimmed by a red halo. Pyrochlore ranges in color from black to a distinctive resinous brown resembling sphalerite. No uraniun columbite was observed and its presence has been established by lab work conducted by the G.S.C. The presence of tantalum has been also identified in both the pyrochlore and columbite (See Table 1).

Vermiculite has three modes of occurence; as small disseminations, thin bands occuring along fractures and large books occuring in zones observed up to 27' in width. Vermiculite is deep green in color.

Apatite occurs as small individual laths, off-white in color, and stand out in relief from the softer host rock.

The presence of zircon was not observed magoscopically. Miss French showed the author some crystals originating from the verity claim. The author used a fluorescent lamp to identify zircon in a hand sample taken from the Mill Zone where its presence is identified by a deep yellow fluorescent color.

Magnetite occurs as either small isolated disseminations or large masses in rather erratic distribution patterns within the carbonatite host.

ECONOMIC CONSIDERATIONS

The economically important elements and minerals are uranium. columbium, tantalum, possible rare earths, phosphates, zirconium, and vermiculite.

Apatite is being produced for its phosphate, fluorine, rare earths from the Khibina Massif in Russia and the Palabora carbonatite complex in South Africa.

Vermiculite is an industrial mineral having application as an insulator and light weight building aggregate, kitty litter, and is sold under the trade name of ZONALITE. A more thorough treatment of the potential economics of the property is given in the Commodity Data Summary of 1977, issued by the U.S. Bureau of Mines and covered in Appendix A.

ASSAY

No systematic assaying was conducted because of limited exposure and sloughing in of older trenching. A selected sample taken from older trenching from pit # 4, and the specimen pit. Assay results are as follows:

Location	Cb_2O_5	U_3O_8	P_2O_5	Ta_2O_5 in %
Specimen Pit	0.26	0.005	1.80	nil
Pit # 4	0.03	nil	3.68	nil

A semi-quantative composite was run on both samples for a total spectrographic analysis and is included in the supplement of this report.

Included in Table 1 is an x-ray analysis of a mineral sample supplied to the G.S.C. by O. French. Table 2 is an assay analysis conducted by the B.C. Dept. of Mines in the early 1950s. Values resulting from current assaying indicate that leaching has contributed to low assay results as compared to assay results of the G.S.C. and the B.C. Dept of Mines. Representative sampling must be accompanied by trenching to expose unweathered mineralization.

Scope, Equipment and Procedure

A Reconnaisance Magnetometer and Scintillometer survey was undertaken on the property to determine a) degree of response over exposed mineralization b) outline the amptitude of anomalies based on response of radioactive pyrochlore and magnetite contained within the carbonatite. c) determine degree of geophysical response in untested areas along the projected strike of the carbonatite.

The equipment used was a McPhar flux-gate M700 Magnetometer. This instrument is self-levelling; insensitive to orientation; has a temperature drift of less than 200 gammas over -35 to plus 55 degrees centigrade; and has a range of from 5 to 100,000 gammas. A latitude adjustment allows readings of the most sensituve scale by cancelling the earth"s magnetic field. All readings recorded are the vertical component cancelled to the most sensitive scale. The amptitude of the earth"s magnetic field will be reflected in a higher vertical magnetic intensity when underlying rocks contain higher concentrations of iron, in this case magnetite.

The scintillometer was an Exploranium Model GRS-101. This

instrument is a total count scintillometer capable of detection of gamma radiation into a visual readout when present in sufficient intensity. It employs a 1½" diameter sodium Iodide detection crystal over a vertical range of from 1 to 10,000 counts per second visual readout. The idea is detection of gamma radioactive decay emination from a uranium source, in this case, bismuth 214, a decay series eminating from uranian pyrochlore.

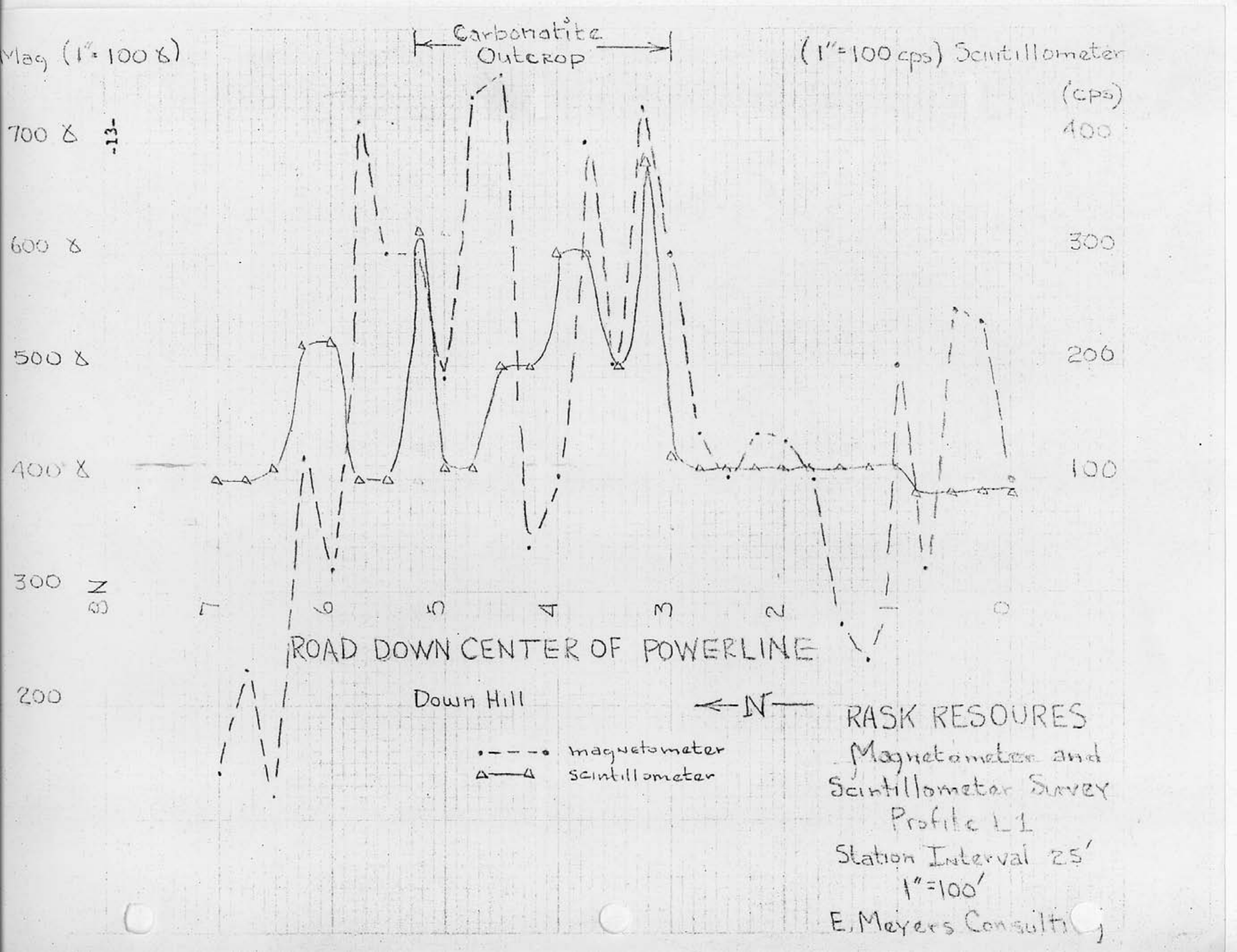
Procedure

Lines were run along existing logging roads and power lines normal to the projected strike of the carbonatite. Readings were taken at 25'-50' and 100 stations depending on observed geology. Station intervals were paced off and flagged. A total of 7 lines were run employing both the magnetometer and scintillometer. The scintillometer was also used on a reconnaisance of the upper logging road. All of the geophysical lines are plotted on Map 3. No attempt was made to correct for magnetic diurnal variation.

DISCUSSION OF RESULTS

The profile of lines 1 through 7 are contained on Maps L1 through L7. Line one indicates individual amptitudes of 3 to 4 times background on the scintillometer response and high magnetic readings over the observed carbonatite outcrop.

Line 2 gives a similar response with a pronounced magnetic low over 27' of massive vermiculite. This low reflects either the southerly


Mag (1"=100 γ)
Carbonatite Outcrop
(1"=100 cps) Scintillometer
(cps)
700 γ
600 γ
500 γ
400 γ
300
200
400
300
200
100
6N
5
4
3
2
1
0
ROAD DOWN CENTER OF POWERLINE
Down Hill
N
magnetometer
scintillometer
RASK RESOURCES
Magnetometer and Scintillometer Survey
Profile L1
Station Interval 25'
1"=100'
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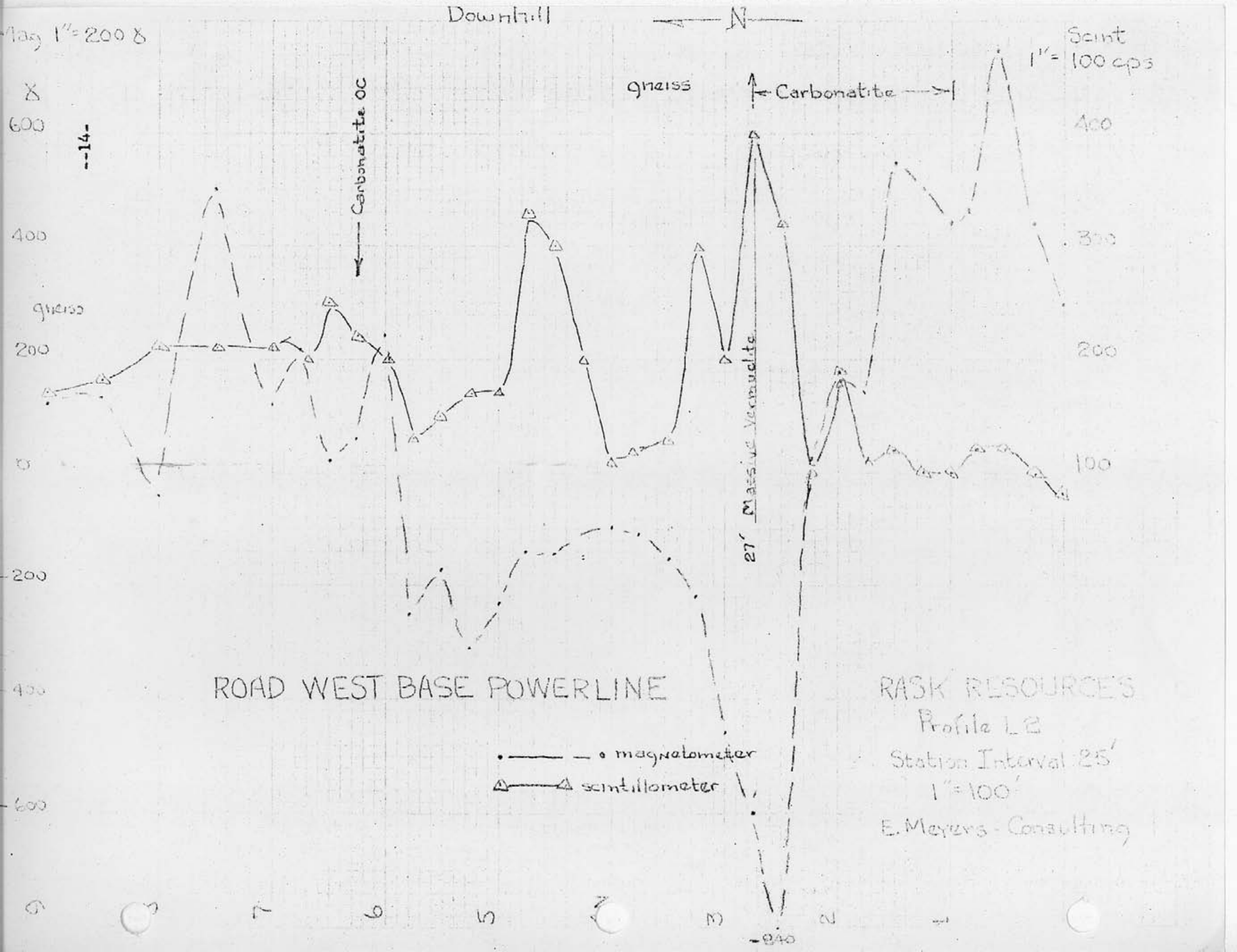
Downhill
N
Mag 1"=200 γ
γ
600
400
200
0
200
400
600
--14--
Carbonatite oc
gneiss
Carbonatite
gneiss
27' Massive Vermiculite
Scint
1"= 100 cps
400
300
200
100
-940
magnetometer
scintillometer
ROAD WEST BASE POWERLINE
RASK RESOURCES
Profile L2
Station Interval 25'
1"=100'
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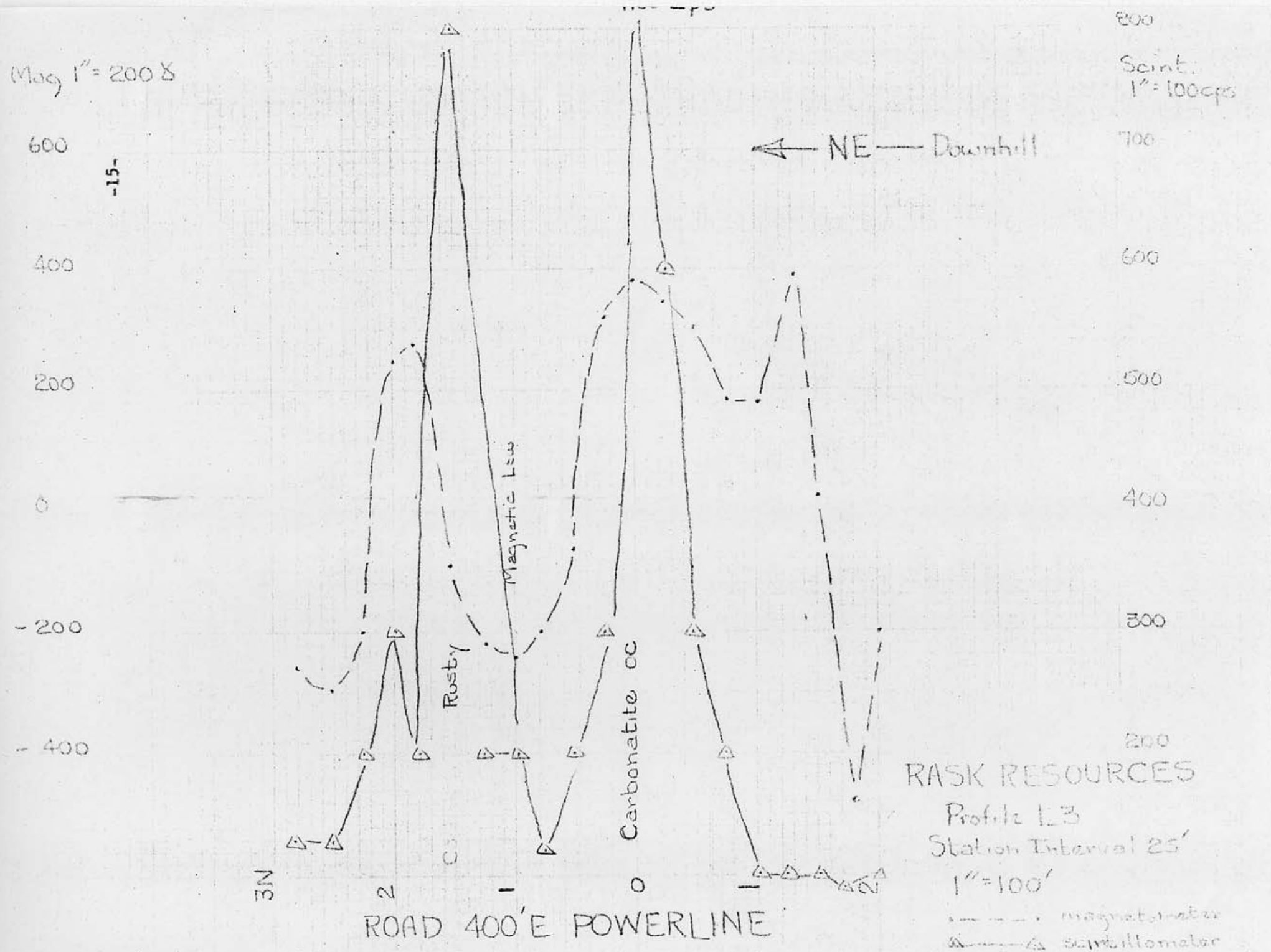
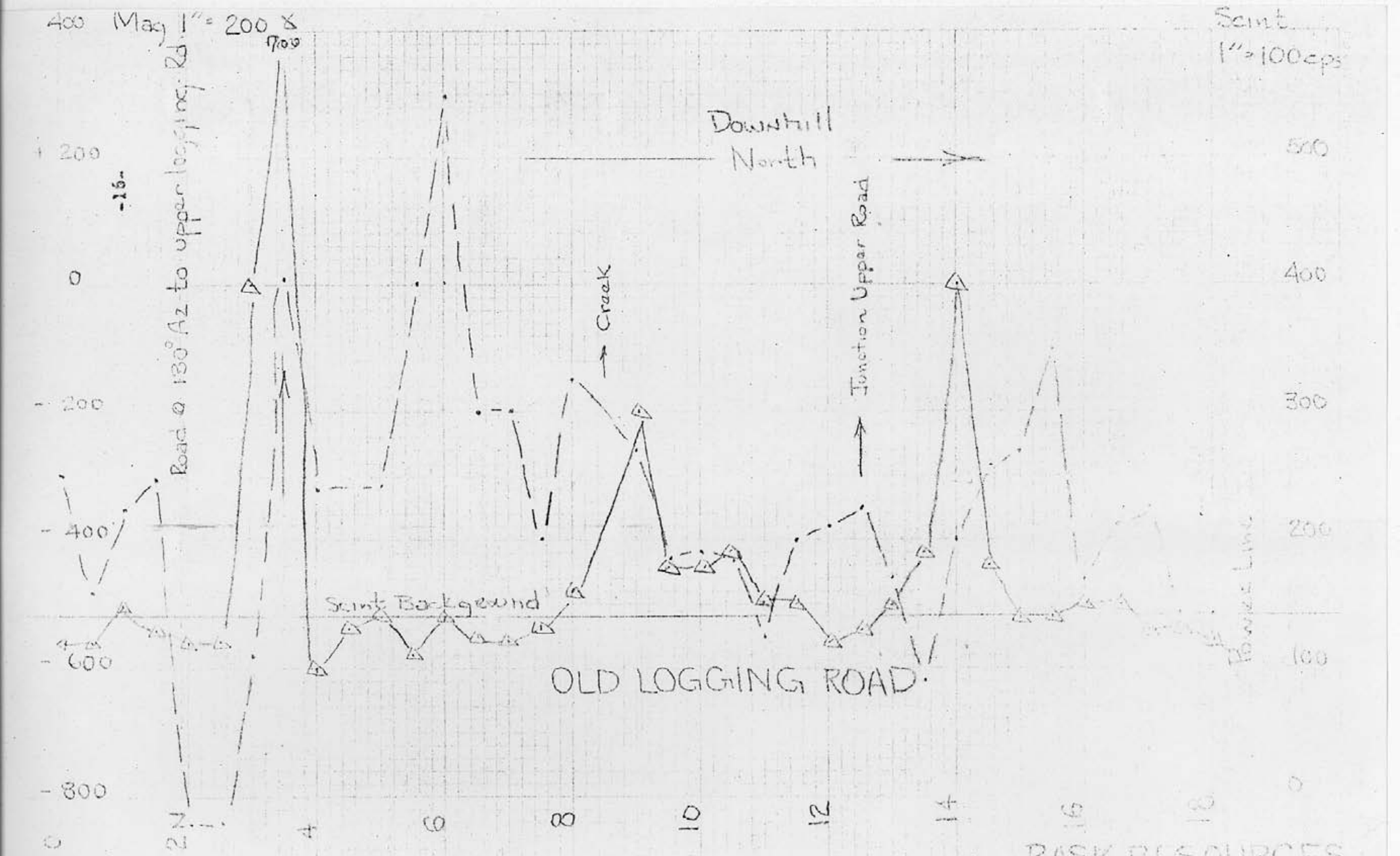


RASK RESOURCES
Profile L3
Station Interval 25'
1" = 100'

magnetometer
scintillometer

E. Mavers Consulting


Mag 1" = 200 γ
Saint
1" = 100 cps
Downhill
North
Road @ 130° Az to upper logging Rd.
Creek
Junction Upper Road
Saint Background
OLD LOGGING ROAD
400
+ 200
0
- 200
- 400
- 600
- 800
500
400
300
200
100
0
2
4
6
8
10
12
14
16
18
RASK RESOURCES
Profile Line 7
Station Interval 50'
Scale 1" = 200'
E. Plexer

dip of the carbonatite along the footwall or a lack of magnetic susceptibility in the vermiculite.

Line 3 has limited outcrop. The geophysical response indicates a split in the main zone. Again the magnetic low indicates a southerly dip.

Line 4 was started during a heavy rain in the bush about 200' east of line 3. The devils club was too thick to proceed without line cutting, so the traverse was discontinued after 300'. The significance of this aborted line was that the first radioactive response after digging about 6" into the overburden with a grub-hoe was 1000 c.p.s., plus 9 times background and a magnetic response of 650 gammas. Two hundred feet north the readings were 120 c.p.s. and 380 gammas. We had encountered the zone in our first station. Estimated depth of overburden at this location is 10-15' with no outcrop in the area.

Line 5 was run on the lower logging road along which the Mill Zone is located. The zone displays anomalous radioactive and magnetic values, although erratic, from Station 14 through 30S. Carbonatite outcrop was observed at Station 19 and 29. When contrasted with the profile of Station 0 through 14S, the anomaly can clearly be identified. Station 27S had a magnetic high of +2200 gammas and maintains a high over 3 stations. The presence of magnetite is indicated and a high probability of associated carbonatite. The strike of the Mill Zone is north which agrees with Map 2.

Line 6 was run along the upper logging road. The only significant readings appear between Line 16 and 20N. This area should be checked out in more detail using reconnaisance survey techniques.

Line 7 was conducted on an old logging road above the projected extension of the main zone. The probable existence of the main zone again gives a corresponding magnetic low and high between Station 2 to 4 north. There is a magnetic high at 6 North with no coincidental radiometric response which may again reflect a branch or concentration of magnetitic within the main zone. There are two other minor anomalous features at 8-9N and 13+75 to 14+75N which may represent a satellite zone.

Clearly the profiles indicate that geophysical prospecting employing a magnetometer and scintillometer offer an inexpensive means for tracing the carbonatite under areas of overburden.

The highest scintillometer readings of 2300 c.p.s. were obtained in the #4 pit.

Prospecting also could be useful. The unique yellow to brick red limonitic weathering of carbonatite can easily be identified on the surface where no outcrop exists.

Vermiculite float observed in locations where geophysical profiles offer evidence of carbonatite can also be a useful indicator of the presence of carbonatite.

Ultraviolet light, used during darkness is a useful indicator of zircon which fluoresces a brilliant deep yellow.

SUMMARY AND RECOMMENDATIONS

The Paradise Creek Prospect contains values of uranium, columbium, tantalum, phosphorus, zirconium, and vermiculite within a carbonatite host rock.

Pyrochlore, contained in an intrusive carbonatite host, is mined for economic concentrations of columbium in Africa, -Mrima, and Mbeya, Germany, -Kaiserstuhl, and Norway, -Sove.

The Paradise Creek carbonatite is extensive, having been traced by past mapping by the G.S.C. for over 4 miles and extending over a vertical range of 4000'.

No work has been conducted on the property since 1954; nor has any systematic sampling been undertaken. No assaying has been done for possible values of rare-earths.

Geophysical reconnaisance on the property using a magnetometer and scintillometer demonstrate that they are useful tools for quick, inexpensive exploration in defining suitable targets.

Access is excellent and cat trenching could be conducted with a minimal ecological impact due to the disturbance caused by power line construction and current logging activities.

RECOMMENDATIONS

An exploration program be undertaken in which trenching, line-cutting, reconnaisance geophysical magnetometer and scintillometer prospecting, detailed and systematic sampling, and geological mapping be undertaken along the carbonatite.

The initial work program will consist of running scintillometer and magnetometer profiles on flagged lines along the inferred strike of the carbonatite.

Anomalous response will be followed up by cat trenching. Plugger trenching will be conducted in areas not accessible to cat stripping.

Stripping will be followed by systematic channel sampling in areas of high radioactivity and geological mapping.

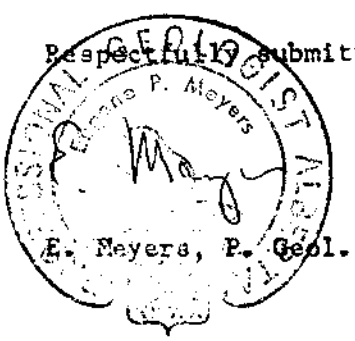
Priority will be given to assaying for uranium and columbium with composites taken for tantalum and associated rare earths. Periodic sampling for phosphorus, vermiculite and zirconium where visual indications are favorable.

The bulk of the sampling will be confined to the more accessible areas.

Compilation of results in report form will assess the economic potential and define areas requiring additional work.

The initial work program will last 6 weeks at an estimated cost of $40,240.00.

Respectfully submitted,



E. Meyers, P. Geol.

WORK PROGRAM

I Pre-Field - (3 days)
- Air photos & relevant maps
- Mobilization of equipment & supplies and personnel
- Travel

II Field - (1 month)
- Flagging of lines & reconnaisance geophysics
- Trenching
- Sampling and mapping
- Expedite samples
- Return

III Post Field - (7 days)
- Compilation of assaying
- Drafting of map and report with specific recommendations

BUDGET

I	A. Air photos & maps		$ 50	
	Miscellaneous supplies		200	
	B. Professional geologist - 3 days @ $150 p/day		450	
	C. Travel Calgary - Property		100	
			800	$ 800
II	A. Personnel: i) Professional geologist 1 month @ $3000 p/month		3000	
	ii) Assistant	3 man mos.		
	iii) Geophysical operations, flagging of lines sampling	@ $1600p/mo apiece	4800	
	B. Rental: 1 scintillometer @ $220 p/mo		220	
	1 magnetometer @ $250 p/mo		250	
	2 4-wheel drives @ $700 apiece		1400	
	1 black lamp @ $50		50	
	Helicopter - 8 hrs. @ $250.p/hr.		2000	
	Camp equipment			
	1 D-8 catapillar tractor w/ rippers 80 hrs. @ $65 p/hr.		5200	
	Mob and demob		400	
	C. Food - 120 man days @ $15 p/day		1800	
	Lodging - 20 man days @ $18 apiece		320	
	Return Property - Calgary		100	
			$ 18340	
			1500	$ 19,840

BUDGET - con't.

III.	Assaying		
	A. 300 samples @ $40 apiece	$ 12000	
	B. Drafting, printing & duplication	600	
	C. Professional geologist report writing, drafting compilation of material 7 days @ $200 p/day	1400	
	D. Postage, phone, miscellaneous supplies	400	
		14400	$14,400.00

SUMMARY

I	$ 800
II	19,840
III	14,400
	35,040
Contingency @ 15% of total	5,200
TOTAL	$40,240.

Respectfully submitted,

E. Meyers, P. Geol.

PROFESSIONAL GEOLOGIST ALBERTA
Eugene P. Meyers

May 24, 1978

Mr. John Krueszewski - President
Rask Resources
714 - 315 9th St. S.W.
Calgary, Alberta

Dear Sir:

The pro-rated value of assessment work attributable to the Verity # 1 Claim is as follows:

Assay cost - Pit #4, Speciment pit		$143.00
Magnetometer & Scintillometer Survey		
Line 2 & 4 ½ mile @ $200.00 per mile Line Mile ½ of $200		$100.00
Geological mapping ½ day @ $250.00 p/day		$125.00
	TOTAL	$368.00

Respectfully submitted:

E. Meyers

E. Meyers P.Geol.

COLUMBIUM

(Data in thousand pounds columbium content, unless noted)

1. Domestic Production and Use: There has been no domestic columbium mining industry since 1959. Metals and alloys were produced from imported concentrates, tin slags, and ferrocolumbium. Nine companies operating ten plants, processed imported concentrates and tin slags. Consumption was mainly by the iron and steel, and aerospace industries located in the Eastern United States, California, and Washington. Total estimated value, based on metal, compounds, and ferrocolumbium production was $22 million. Tin, tantalum, tungsten, titanium, zirconium, and rare-earth minerals were byproducts of columbite production. End uses as metals and alloys in fabricated form were: Construction, 40%; oil and gas industries, 20%; transportation, 20%; machinery, 10%; Other, 10%.

2. Salient Statistics--United States:

	1972	1973	1974	1975	1976 e/
Mine production	-	-	-	-	-
Imports for consumption:					
Concentrates and tin slags	2,105	1,917	2,010	964	2,100
Ferrocolumbium e/	1,530	2,120	3,276	1,872	2,000
Exports: Metal, alloys, waste and scrap e/	15	48	17	27	33
Shipments from Govt. stockpile excesses	778	2,343	2,739	463	70
Consumption, reported:					
Raw material	2,489	2,806	3,250	2,137	2,200
Ferrocolumbium and other 1/	3,676	4,056	4,626	3,348	3,300
Consumption, apparent	4,587	6,049	7,837	3,934	4,600
Prices: Columbite 2/	$0.95	$1.28	$1.80	$1.85	$2.55
Pyrochlore 3/	$1.27	$1.38	$1.56	$1.56	$1.85
Industry stocks: Processor and dealer, yearend	4,240	4,493	4,665	4,006	3,500
Employment: Processor and refinery e/	600	600	800	700	700

3. Recycling: Recycling of old scrap was not significant. Recycling of prompt industrial scrap was about 100,000 pounds columbium content.

4. Import Sources (1972-75): Brazil, 78%; Thailand, 11%; Nigeria, 3%; Malaysia, 2%; Other, 6%.

5. Tariff:

Item	Number	Rate of Duty 1/1/77	Rate of Duty Statutory
Columbium concentrate	601.21	Free	Free
Columbium metal	628.15	5% ad valorem	25% ad valorem
Ferrocolumbium	607.80	5% ad valorem	25% ad valorem

6. Depletion Allowance: 22% (Domestic), 14% (Foreign).

7. Government Programs: The Office of Minerals Exploration is authorized to lend up to 50% of approved exploration costs, but no applications were processed in 1976 owing to lack of funds for contract purposes.

Stockpile Status 4/--11-30-76

Material	Goal	Total Inventory	Authorized For Disposal	Sales, 11 Months
Columbium:				
Carbide Powder	-	21,372	1,372	-
Concentrate	3,131,000	1,780,301	-	68,908
Ferro	-	622,786	-	-
Metal	-	44,851	-	-

In addition to data shown stockpile contained 308,125 pounds of nonstockpile grade ferrocolumbium.

e/ Estimate. NA Not available. 1/ Includes a small tantalum content. 2/ Average price per pound of contained pentoxides for material having a Cb_2O_5 to Ta_2O_5 ratio of 10 to 1. 3/ Average content price per pound of contained pentoxide. 4/ Pounds of contained columbium. 5/ Data may not add to totals shown because of independent rounding.

Prepared by R. E. Stipp, telephone number (202) 634-1015.

8. Events, Trends, and Issues: Prices of columbium mineral concentrates imported for domestic consumption increased about 32% over yearend 1975 prices. Domestic demand for columbium was expected to increase at an annual rate of about 5% through 1980. Supply needs are expected to be met by foreign mine production and industry stocks.

Although domestic resources are not large in comparison to estimated world total, some means of employing them would minimize future supply problems. The feasibility of extracting columbium from such resources deserves attention. Fumes, gases, dust, and low-level radiation generated by columbium processing plants can be controlled by modern technology. Significant technological developments were the increased use of columbium in large-diameter pipeline steels, ship plate steels, heavy machinery steels, and offshore drilling platform steels. Alloys of columbium with tin, titanium or germanium were receiving increasing attention as superconductors of electricity at cryogenic temperatures.

9. World Mine Production and Reserves:

	Mine Production		Reserves
	1975	1976 e/	
United States	-	-	-
Brazil	24,288	25,000	18,000,000
Canada	2,626	2,200	1,300,000
Malaysia	e/ 59	60	NA
Mozambique	18	30	NA
Nigeria	961	950	650,000
Zaire	43	35	910,000
Other Market Economy Countries	130	145	900,000
Central Economy Countries	NA	NA	NA
World Total	e/ 28,125	28,420	5/ 22,000,000

10. World Resources: Most of the world's identified resources of columbium lie outside the United States and occur mainly as pyrochlore in carbonatite deposits. On a worldwide basis, resources are more than adequate to supply projected needs. The United States had approximately 228 million pounds of columbium located in identified deposits, which were considered to be uneconomic at 1976 prices for columbium.

11. Substitutes and Alternates: Vanadium may be substituted for columbium in high-strength low-alloy steels; tantalum in stainless and high-strength steel and superalloys; molybdenum, vanadium, tungsten, tantalum, and ceramics in high-temperature applications.

TANTALUM

(Data in thousand pounds tantalum content, unless noted)

1. Domestic Production and Use: There has been no domestic tantalum mining industry since 1959. Metals, alloys, and compounds were produced from imported concentrates, tin slags, and scrap; and from Government stockpile excesses and industry stocks. Six companies with seven plants processed imported concentrates and tin slags accounting for 100% of production. End uses as metal, powder, sponge, ingot, fabricated forms, and compounds and alloys were: Electronic components, 63%; machinery, 28%; transportation, 6%; other 3%. Total estimated value of 1976 domestic production, based on metal and compounds, was about $95 million. Tantalum minerals were produced as byproducts of tin, columbium, tungsten, titanium, zirconium and rare-earth minerals.

2. Salient Statistics--United States:

	1972	1973	1974	1975	1976 e/
Mine production	-	-	-	-	-
Imports for consumption: Concentrates and tin slags	1,082	1,147	1,504	830	917
Exports: Concentrates, metal, alloys, waste and scrap e/	228	280	400	412	410
Shipments from Govt. stockpile excesses	88	266	884	87	8
Consumption, reported	1,280	2,221	2,425	1,077	1,350
Consumption, apparent	1,542	1,513	1,880	260	870
Price: Tantalite 1/	$6.00	$6.88	$14.13	$15.00	$16.63
Industry stocks: Processor and dealer, yearend	3,369	3,181	3,523	3,884	3,600
Employment: Processor and refinery e/	500	500	700	600	600

3. Recycling: Old scrap produced totaled about 50,000 pounds, which was about 4% of consumption. Production of prompt industrial scrap was about 200,000 pounds.

4. Import Sources (1972-75): Thailand, 50%; Canada, 17%; Australia, 8%; Brazil, 7%; Other, 18%.

5. Tariff:

Item	Number	Rate of Duty 1/1/77	Rate of Duty Statutory
Tantalum concentrate	601.42	Free	Free
Tantalum metal	629.05	5% ad valorem	25% ad valorem

6. Depletion Allowance: 22% (Domestic), 14% (Foreign).

7. Government Programs: The Office of Minerals Exploration is authorized to lend up to 75% of approved exploration costs, but no applications were processed in 1976 owing to lack of funds for contract purposes.

Stockpile Status 2/--11-30-76

Material	Goal	Total Inventory	Authorized For Disposal	Sales 11 Months
Carbide powder	889,000	28,688	-	-
Metal	1,650,000	201,133	-	-
Minerals	5,452,000	2,545,410	-	-

e/ Estimate. NA Not available.
1/ Average price per pound of contained tantalum pentoxide, 60% basis.
2/ Pounds of contained tantalum.
3/ Tin slags production not available.
4/ Data may not add to totals shown because of independent rounding.

Prepared by H. E. Stipp, telephone number (202) 634-1015.

8. Events, Trends, and Issues: U.S. demand for capacitor-grade tantalum increased somewhat from its low in 1975 and prices for tantalum products and tantalum concentrate increased from 10% to 25%. Domestic demand for tantalum is expected to increase at an average annual rate of about 5% through 1980. There are no reserves of tantalum in the United States; however, tantalum resources do occur. Supply needs are expected to be met primarily by foreign production and industry stocks. New domestic tantalum deposits should be sought and new or improved methods for extracting tantalum from submarginal mineral materials and tin slags should be developed so that future requirements can be satisfied more economically and reduce our reliance on imports.

There are no known health hazards connected with production or fabrication of tantalum metals and compounds. Fumes, gases, dust, and low-level radiation generated by extraction plants can be easily controlled by modern technology.

9. World Mine Production and Reserves:

	Mine Production (Concentrates only 3/)		Reserves
	1975	1976 e/	
United States	-	-	-
Brazil	e/ 58	90	6,600
Canada	324	360	3,000
Malaysia	e/ 26	30	8,000
Mozambique	108	100	NA
Nigeria	145	150	16,000
Thailand	57	30	10,000
Zaire	43	35	82,000
Other Market Economy Countries	139	170	7,000
Central Economy Countries	NA	NA	NA
World Total (Excluding Central Economy Countries)	e/900	965	4/ 130,000

10. World Resources: Most of the world's resources of tantalum occur outside the United States. On a worldwide basis, identified resources of tantalum are considered adequate to meet projected needs. These resources are largely located in Zaire, Rwanda, Nigeria, Brazil, Canada, Thailand, Malaysia, and Australia. The United States has about 3.4 million pounds of tantalum located in identified deposits, which were considered uneconomic at 1976 prices.

11. Substitutes and Alternates: Columbium can be substituted for tantalum in high-strength steel and superalloys; aluminum for electronic capacitors; silicon, germanium, and selenium in electrical rectifiers; glass, titanium, zirconium, columbium, and platinum in corrosion-resistant equipment; tungsten, rhenium, osmium, molybdenum, iridium, ruthenium, hafnium, columbium, and boron in high-temperature applications.

PHOSPHATE ROCK

(Data in thousand short tons, unless noted)

1. Domestic Production and Use: Marketable phosphate rock, with an estimated value of $1 billion, was produced by 28 companies and the Tennessee Valley Authority. Nine companies produced 78% of the total from mines in Florida. The percent distribution pattern by State was Florida and North Carolina, 84; California, Idaho, Arkansas, Missouri, Montana, Utah, and Wyoming, 12; and Tennessee, 4. The principal markets for phosphate rock were fertilizers and animal feed supplements, 65%; industrial and food grade products, 13%; and 22% was exported.

2. Salient Statistics--United States:

	1972	1973	1974	1975	1976 e/
Production: Marketable	40,831	42,137	45,686	48,816	49,000
Imports for consumption	55	65	182	37	40
Exports	14,275	13,875	13,897	12,272	10,500
Apparent consumption	29,535	31,233	34,720	34,203	35,000
Value: Average per short ton, f.o.b. mine 1/	$5.10	$5.66	$10.98	$22.99	$20.00
Stocks yearend	10,501	8,482	6,975	9,946	14,000
Employment (mine and beneficiation plant)	4,173	4,300	4,500	5,000	5,000

3. Recycling: No significant quantity is recycled.

4. Import Sources (1972-75): Netherlands Antilles 58%, Mexico 16%, Spanish Sahara 15%, Israel 7%, Other 4%.

5. Tariff:

Item	Number	Rate of Duty 1/1/77	Rate of Duty Statutory
Phosphates, crude and apatite	480.5	Free	Free

6. Depletion Allowance: 14% (Domestic), 14% (Foreign).

7. Government Programs: Although final or draft environmental impact statements on the effects of mining phosphate rock from the Los Padres, Caribou, and Osceola National Forests have been completed, the Government has not issued preference right leases pending completion of additional studies. A draft environmental impact statement on the central Florida phosphate industry was authorized by the Environmental Protection Agency. The U.S. Geological Survey and the Bureau of Mines are making a hydrological study of the Osceola National Forest phosphate area. A study of the international trade in phosphate rock projected to 1985 was prepared for the Bureau of Mines by Florida State University. The Bureau of Mines has initiated a study of the reserves of phosphate rock in Florida. The Bureau of Mines Metallurgy Research Laboratories are continuing investigations on phosphate rock wastes disposal systems and phosphoric acid processes.

e/ Estimate.

1/ Selling prices are not published. Effective July-December 1976 estimated export prices for 68 and 70% bone phosphate of lime (BPL) are $18.29 and $23.22 per short ton f.o.b. mine respectively.

2/ Marketable phosphate rock.

Prepared by W. F. Stowasser, telephone number (202) 634-1190.

8. Events, Trends, and Issues: The world surplus of phosphate rock, that developed in the second half of 1975, continued through 1976. The principal causes for a significant reduction in international trade were buyer resistance to relatively high phosphate rock prices and an increase in consumption of phosphate rock in the United States that was converted into diammonium phosphate and triple superphosphate for the export market. The competition for world phosphate rock markets eroded the selling prices from January 1976 levels $37.55 (70% BPL) per metric ton, f.o.b. vessel, Tampa Range to $29.55 (70% BPL) estimated for December 1976. The trend toward converting phosphate rock to fertilizer intermediates or fertilizers increased in 1976. More than adequate supplies of phosphatic fertilizers produced in the U.S. and the world contributed to a further decline in domestic and export prices of these commodities. At yearend, prices appeared to have stabilized at $125-$140 per metric ton for diammonium phosphate and $90-$110 per metric ton for triple superphosphate.

Phosphate rock demand in both domestic and international markets is expected to increase. From an estimated production of 49 million short tons of marketable phosphate rock in 1976, production is estimated to increase to 62 million short tons in 1980. U.S. demand for phosphate rock is forecast to increase at an annual rate of about 3% per year through 1985; however, it is probable that world demand will exceed the rate of increase projected for the United States.

Strip mining phosphate rock and beneficiating crude ore in washing and flotation plants created problems for the industry. Land reclamation programs in past years were not vigorously pursued as both economic and environmental incentives were lacking. Competition for water from communities and agriculture interests has increased opposition to mining, particularly in central Florida. Systems to concomitantly dispose of process wastes, reclaim mined land, and minimize aquifer water consumption are under development.

9. World Mine Production and Reserves 2/

	Production		Reserves
	1975	1976 e/	
United States	48,816	49,000	2,500,000
Australia	143	500	1,000,000
Morocco	14,934	15,000	10,000,000
Senegal	1,986	2,000	130,000
South Africa, Republic of	1,955	2,000	4,000,000
Spanish Sahara	2,956	1,500	400,000
Togo	1,279	1,500	50,000
Tunisia	3,845	4,000	500,000
Other Market Economy Countries	10,372	11,000	900,000
Central Economy Countries	32,300	30,000	930,000
World Total	118,586	116,500	20,400,000

10. World Resources: Most of the United States and world resources are in widely distributed marine phosphorite deposits. Identified resources of the world are measured in tens of billions of tons of contained phosphorus and hypothetical resources are probably many times as great. Identified resources in Morocco and Spanish Sahara alone are estimated to be about six times present reserves. Phosphate rock contains fluorine and potentially economically recoverable amounts of vanadium, uranium, and rare earths.

11. Substitutes and Alternates: There are no substitutes for phosphorus in agriculture. Substitutes for detergent builders are under development.

ZIRCONIUM

(Data in short tons, unless noted)

1 Domestic Production and Use: Coproduct zircon (zirconium silicate) is extracted from sand deposits, along with ilmenite and rutile, by three firms in Florida and Georgia. One company with a plant in Oregon produces primary zirconium sponge and coproduct hafnium sponge. This firm and two others, one in California and another in Massachusetts, convert zirconium sponge to ingot. Most zircon was used in the Northeastern States; 38% was used in foundry sands, 33% in refractories, 12% in ceramics, and the rest in making zirconium metal used in alloys for nuclear and refractory applications and in chemical processing equipment.

2. Salient Statistics--United States:

	1972	1973	1974	1975	1976 e/
Production: Zircon		Company confidential data			
Zirconium metal		Company confidential data			
Imports (General):					
Zircon 1/	67,537	98,023	62,504	40,205	50,000
Zirconium metal	207	500	366	814	800
Exports: Zircon	17,360	28,921	21,487	18,766	15,000
Zirconium, alloys, and scrap	659	508	830	820	800
Apparent consumption, zircon	168,000	175,000	167,000	122,000	130,000
Price: Zircon, domestic, per short ton	$54-55	$60	2/$300	2/$300	2/$200
Stocks: Zircon, consumer and dealer, yearend 3/	44,500	51,500	42,100	38,033	50,000
Employment: Mine and mill	475	550	500	550	550
Metal plant	1,000	1,000	900	850	800

3. Recycling: Insignificant.

4. Import Sources (1972-75): Australia 92%, remainder from Malaysia, Republic of South Africa, and Canada.

5 Tariff:

Item	Number	Rate of Duty 1/1/77	Rate of Duty Statutory
Zirconium oxide	422.80	5% ad valorem	25% ad valorem
Other zirconium compounds	422.82	5% ad valorem	25% ad valorem
Zirconium ore & concentrate	601.63	Free	Free
Unwrought zirconium	629.60	6% ad valorem	25% ad valorem
Unwrought zirconium alloys	629.62	7.5% ad valorem	25% ad valorem
Wrought zirconium	629.65	9% ad valorem	45% ad valorem

6. Depletion Allowance: 22% (Domestic), 14% (Foreign).

7. Government Programs: None.

e/ Estimate. W Withheld to avoid disclosing individual company confidential data.
1/ Includes baddaleyite (zirconium oxide) 1972-385 tons; 1973-1,019 tons; 1974-2,950 tons; 1975-1,000 tons; 1976-2,000 tons.
2/ Yearend price.
3/ Excludes foundries.

Prepared by S. G. Ampian, telephone number (202) 634-1180.

8. Events, Trends, and Issues: Domestic zircon output declined nearly 30% in 1976. Zircon imports, mostly from Australia, were estimated at 50,000 short tons or 25% above the 1975 quantity. Zircon exports decreased in 1976 from 18,766 tons in 1975 to nearly 15,000 tons. Demand for zirconium, nonmetal and metal, is expected to return to its annual rate of increase between 3% and 5% through 1980. The major growth areas for the mineral zircon are in refractories, abrasives, and chemicals, and for zirconium metal are in material for constructing nuclear reactors, in refractory alloys, and in chemical processing plants.

9. World Mine Production and Reserves:

	Mine Production		Zircon Reserves
	1975	1976 e/	
	W	W	
United States	421,000	400,000	12,000,000
Australia	30,000	25,000	13,000,000
Other Market Economy Countries	large	large	8,000,000
Central Economy Countries			large

10. World Resources: Identified resources of zircon in the United States are more than 14 million short tons containing about 7 million tons of zirconium. An additional 26 million tons of zircon is estimated from titanium resources in sand deposits. More than 80% of the identified zircon resources are in the States along the Atlantic Coast and the Gulf Coast embayment area. Identified world resources of zircon exceed 44 million tons. Another 36 million tons of zircon is associated with titanium resources in sand deposits. Undiscovered resources similar to those already identified undoubtedly occur throughout the world. Phosphate and sand and gravel deposits especially may yield substantial amounts of zircon as a byproduct in the future.

11. Substitutes and Alternates: Chromite and some aluminum silicate-minerals in certain foundry applications.

VERMICULITE (CRUDE)

(Data in thousand short tons, unless noted)

1. Domestic Production and Use: One company operating an open-pit mine in Montana and several pits in South Carolina produced virtually the entire output of vermiculite in 1976. A second company also operated a small mine in South Carolina. A majority of the production was from Montana. Value of production was $13.4 million in 1976. Most of the crude vermiculite was shipped to 51 exfoliating plants in 30 States. A small quantity was exported to Canadian processing plants. The major uses for exfoliated vermiculite were lightweight concrete aggregate, 32%; insulation, 31%; plaster and cement aggregate, 18%; agriculture, 16%; and miscellaneous, 3%.

2. Salient Statistics--United States:

	1972	1973	1974	1975	1976 e/
Production: Mine	337	365	341	330	300
Imports: Crude	26	30	42	33	30
Exports:	NA	NA	NA	42	45
Consumption: Exfoliated	247	293	275	235	225
Prices: Average per ton, f.o.b. mine	$24.01	$25.93	$29.68	$41.76	$42.00
Producer stocks, yearend		Not available			
Employment: Mine and mill	225	250	250	250	250

3. Recycling: There is no significant recycling of vermiculite.

4. Import Sources (1972-75): Republic of South Africa 100%.

5. Tariff

Item	Number	Rate of Duty 1/1/77	Rate of Duty Statutory
Crude or processed	523.81	Free	Free

6. Depletion Allowance: 14% (Domestic), 14% (Foreign).

7. Government Programs: None.

e/ Estimate. NA Not available.
1/ Excluding Central Economy Countries.

Prepared by S. K. Haines, telephone number (202) 634-1202.

8. Events, Trends, and Issues: The continued decline in building construction activity resulted in a drop in vermiculite production for the third straight year. Increasing use of formerly discarded fines in fireproofing cements and plasters and in agriculture encouraged development of lower-grade deposits. Continued litigation has held up the development of vermiculite deposits in central Virginia.

Demand for vermiculite is expected to increase at an annual rate of about 4.0% through 1980. Transportation costs from the source to exfoliation plants, near the point of end use, limit the size of marketing areas as well as the competitive position with regard to other commodities. The number of operating quarries is small, and the industry poses severe environmental problems.

9. World Mine Production and Reserves:

	Production		Reserves e/
	1975	1976 e/	
United States	330	300	60,000
South Africa, Republic of	229	210	75,000
Other Market Economy Countries e/	12	12	15,000
Central Economy Countries	NA	NA	NA
World Total 1/	571	522	150,000

10. World Resources: Subeconomic resources of vermiculite in North Carolina, Texas, Wyoming, Colorado and Nevada are estimated to be 2 to 3 million tons. Undiscovered domestic resources are estimated to be 25 to 100 million tons. Resources other than domestic and South African have generally been found to have inferior exfoliation characteristics.

11. Substitutes and Alternates: Expanded perlite is a substitute for vermiculite in lightweight concrete and plaster. Other more dense but less costly substitutes in these applications are expanded clay, shale, or slate. Alternate materials for loosefill fireproofing insulation include fiberglass and slag wool. In agriculture, substitutes include peat, perlite, sawdust, bark, and other plant materials and synthetic soil conditioners.

X-RAY ASSAY LABORATORIES

LIMITED

45 LESMILL ROAD DON MILLS ONTARIO 445-5755

Certificate of Analysis

NO. 2294 Page 2 of 2

TO. RASK RESOURCES

RECEIVED Nov . 19/77 INVOICE NO. 2294

SAMPLE(S) OF 1 composite SUBMITTED TO US SHOW RESULTS AS FOLLOWS:

Specimen	Concentration Composite of Pit Plus #4 Sample	Specimen	Concentration Composite of Pit Plus #4 Sample
	ND		L
	ND		ND
	FT		ND
	ND		FT
	ND		ND
	ND		ND
	TL		ND
	ND		ND
	FT		FT
	FT		ND
	FT		FT
	ND		FT
	M		ND
	FT		ND
	ND		ND

X-RAY ASSAY LABORATORIES LIMITED

DATE Nov. 25/77 CERTIFIED BY E J Brooks

X-RAY ASSAY LABORATORIES

LIMITED

45 LESMILL ROAD DON MILLS ONTARIO 445-5755

Certificate of Analysis

NO. 2294 1 of 2

TO. RASK RESOURCES,
610-304 - 8th Avenue,
CALGARY, Alta.

Attn: John Kruszewski

RECEIVED Nov. 19/77 INVOICE NO. 2294

SAMPLE(S) OF 2 rocks SUBMITTED TO US SHOW RESULTS AS FOLLOWS:

	Sample	%P_2O_5	%Cb_2O_5	%Ta_2O_5	%U_3O_8
Specimen	PIT	1.80	0.26	nil	0.005
	4	3.68	0.03	nil	trace

X-RAY ASSAY LABORATORIES LIMITED

DATE Nov. 25/77. CERTIFIED BY E. J. Brooks

X-RAY ASSAY LABORATORIES

LIMITED

45 LESMILL ROAD DON MILLS ONTARIO 445-5755

Certificate of Analysis

NO.

TO.

RECEIVED INVOICE NO.

SAMPLE(S) OF SUBMITTED TO US SHOW RESULTS AS FOLLOWS:

Element	Sens*	Element	Sens*
Antimony	(4)	Manganese	(1)
Arsenic	(4)	Mercury	(4)
Beryllium	(2)	Molybdenum	(3)
Bismuth	(2)	Nickel	(1)
Cadmium	(4)	Silver	(1)
Cerium	(5)	Tantalum	(5)
Columbium	(4)	Thorium	(3)
Chromium	(4)	Tin	(2)
Cobalt	(3)	Titanium	(2)
Copper	(1)	Tungsten	(4)
Gallium	(2)	Uranium	(3)
Germanium	(1)	Vanadium	(2)
Iron	(2)	Yttrium	(3)
Lead	(2)	Zinc	(4)
Lithium	(4)	Zirconium	(4)

LEGEND

Key To Symbols

H - 10% plus	L - 0.1-1%
MH - 5-15%	TL - 0.05-0.5%
M - 1-10%	T - 0.01-0.1%
LM - 0.5-5%	FT - 0.01% or less
	ND - Not detected

*Sensitivity (limit of detection)

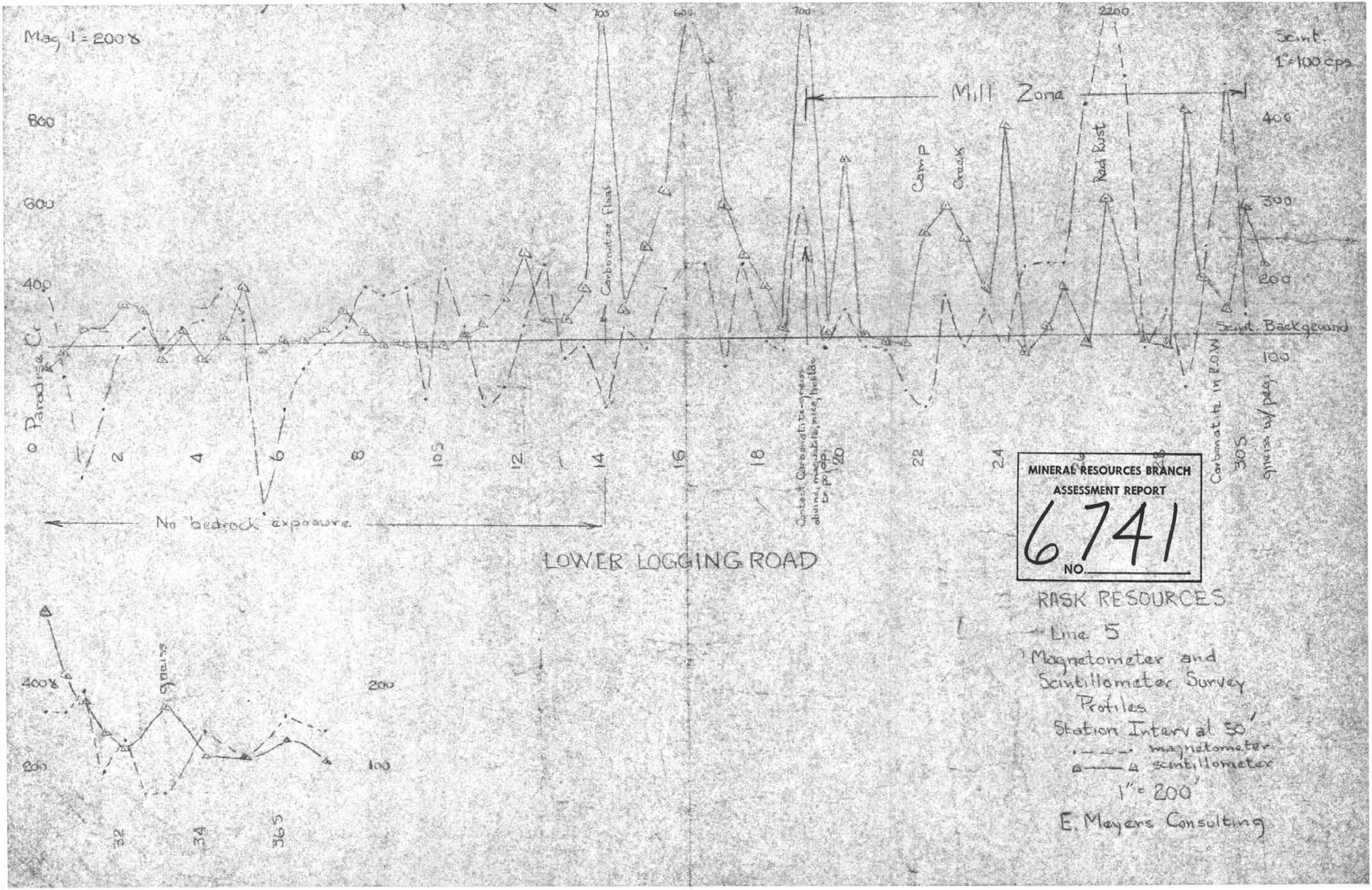
1-	0.0005-0.001%
2-	0.001-0.005%
3-	0.005- 0.01%
4-	0.01 - 0.05%
5-	0.05 - 0.1%

Note: Better sensitivities can be obtained with special techniques, if and when required.

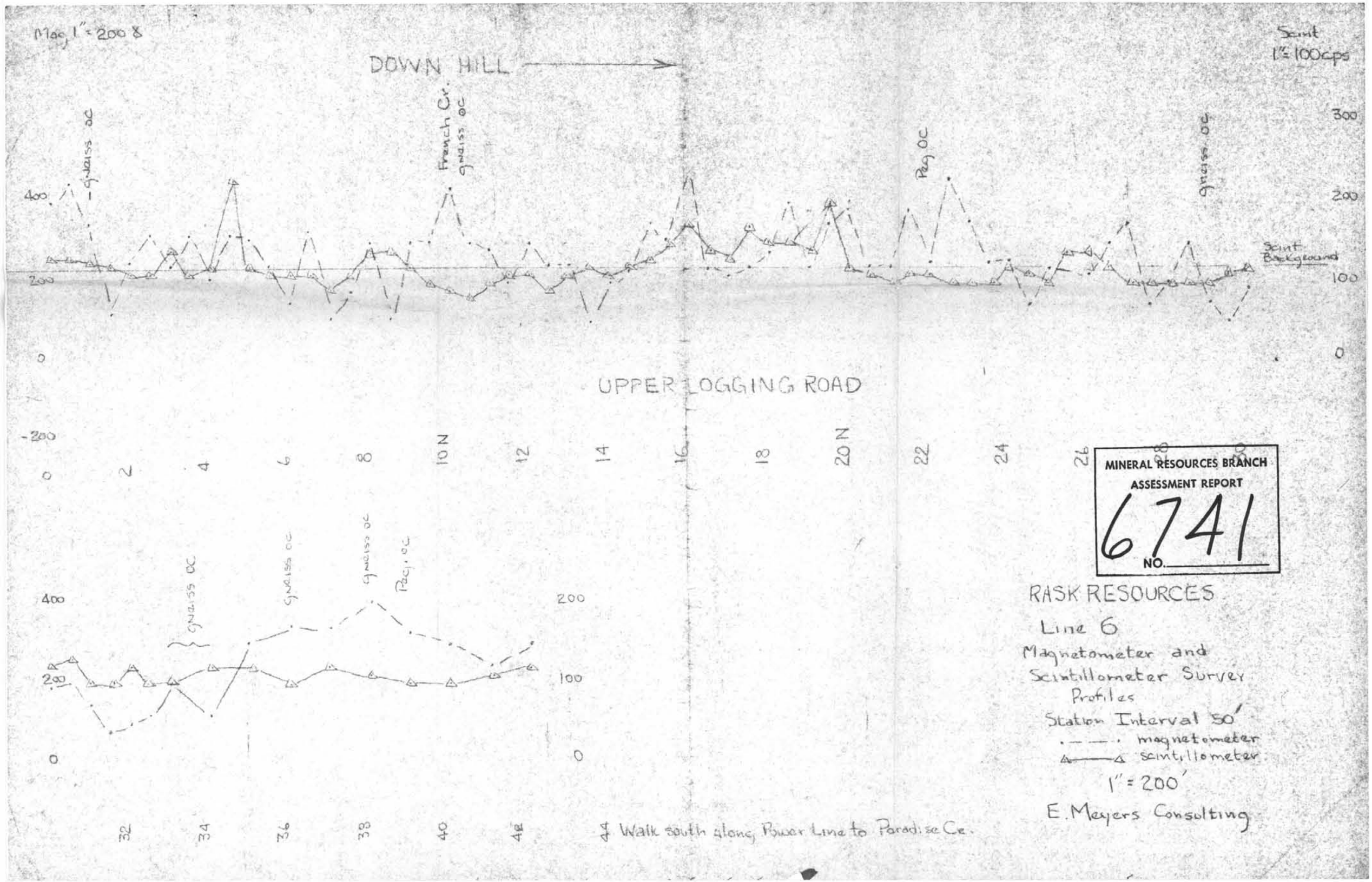
X-RAY ASSAY LABORATORIES LIMITED

DATE

CERTIFIED BY _____



Mag 1" = 200γ
Scint. 1" = 100 cps
Mill Zone
800
600
400
400
300
200
100
700
600
700
2200
Paradise Cr.
Carbonatite Float
Camp Creek
Red Rust
Scint. Background
Carbonatite in R.O.W.
gneiss w/ peg.
2
4
6
8
10.5
12
14
16
18
20
22
24
30.5
No bedrock exposure
LOWER LOGGING ROAD
MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
NO. 6741
RASK RESOURCES
Line 5
Magnetometer and Scintillometer Survey Profiles
Station Interval 50'
magnetometer
scintillometer
1" = 200'
E. Meyers Consulting
400γ
200
gneiss
200
100
32
34
36.5



RASK RESOURCES

Line 6

Magnetometer and Scintillometer Survey Profiles

Station Interval 50'

. — — . magnetometer

△——△ scintillometer

1" = 200'

E. Meyers Consulting