GEOLOGICAL, GEOCHEMICAL AND GEOPHYSICAL

REPORT

- on the -

PIPE AND EXHALITE CLAIM GROUPS

KAMLOOPS MINING DIVISION

for

BARRIER REEF RESOURCES LTD. (N.P.L.),

904-675 West Hastings Street,

VANCOUVER, B. C. V6B 1N2.

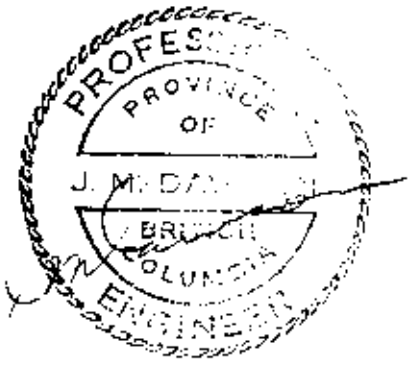
COVERING: Pipe #5 (20 units), Pipe #2 (20 units)
Pipe #1 (20 units) and Exhalite #2 (20 units)

WORK PERFORMED: July 20, 1977 to July 15, 1978.

LOCATION: (1). 51°35'N, 119°37'W.
(2). NTS Maps 82M/12E.
(3). 7 Km. east of Vavenby, B. C.

Prepared by:

KERR, DAWSON AND ASSOCIATES LTD.,
#1-219 Victoria Street,
Kamloops, B. C.
J. M. Dawson, P. Eng.,
September 30, 1978.



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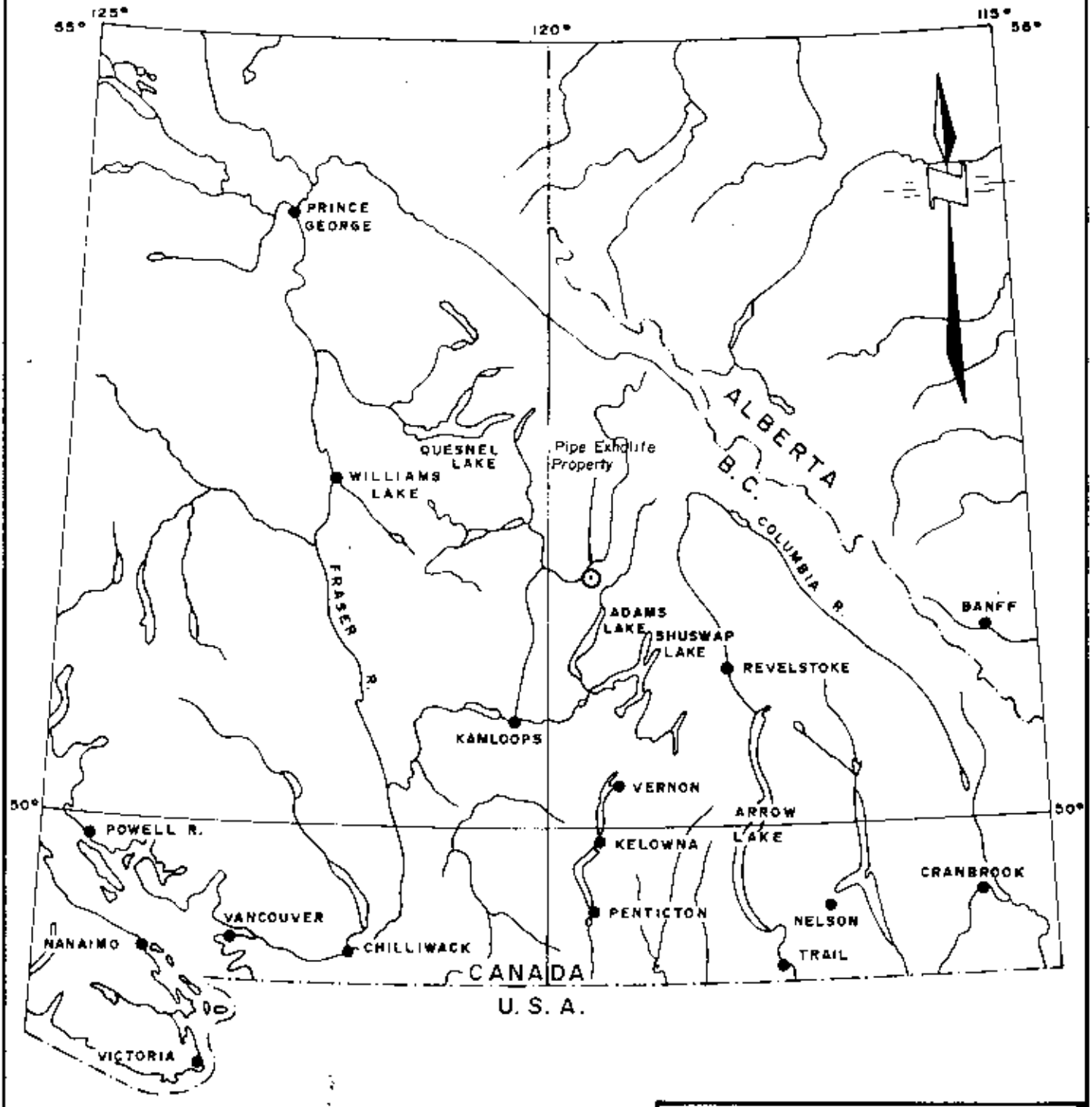


BARRIER REEF RESOURCES LTD.

LOCATION MAP

PIPE-EXHALITE CLAIMS

KAMLOOPS MINING DIVISION, B.C.

Date: JULY, 1978.	Scale: 1" = 64 Miles
Dwn by: W.G.	Dwg no. 156-11

INTRODUCTION

Considerable activity has been focused on the "Eagle Bay succession" because of the numerous stratiform and disseminated base metal occurrences found in this unit.

This report describes an exploration programme carried out on a mineral property occurring in Eagle Bay rocks near the northerly end of this belt. The programme consisted on geological mapping and prospecting, geochemical soil sampling and a radiometric survey.

Results of these surveys have been interpreted and are presented on a series of maps accompanying this report.

SUMMARY AND CONCLUSIONS

(1). The Pipe-Exhalite property consists of 4 contiguous metric claims totalling 80 units. It is located in moderate, tree covered terrain in south-central British Columbia and is road acessible.

(2). Copper mineralization was discovered by Nicanex Mines in 1969. Geochemical and geophysical surveys as well as limited diamond drilling was carried out at that time. Reginal exploration of the "Eagle Bay succession" in 1976 and 1977 located additional mineralization and the subject claims were staked.

(3). The property is underlain by upper Paleozoic metasedamentary and metavolcanic rocks of greenschist facies metamorphic grade. Extensive folding and faulting has occurred; however, a lack of marker horizons allows only simplistic interpretation of structure at present.

(4). The main areas of interest as presently known consist of two stratabound zones of disseminated copper mineralization which may be connected. Mineralization is low grade but potential tonnage may be quite large as it is similar to the Harper Creek mineralization.

(5). Fluorite has been reported from this property and soil sampling has outlined several areas of anomalous uranium. The Rexspar uranium deposit is located less than 20 km. to the west in a similar sequence of rocks. Therefore, it is possible that similar uranium mineralization may occur on the subject property.

PROPERTY

The property consists of four, contiguous 20-unit metric claims in two groups as follows:

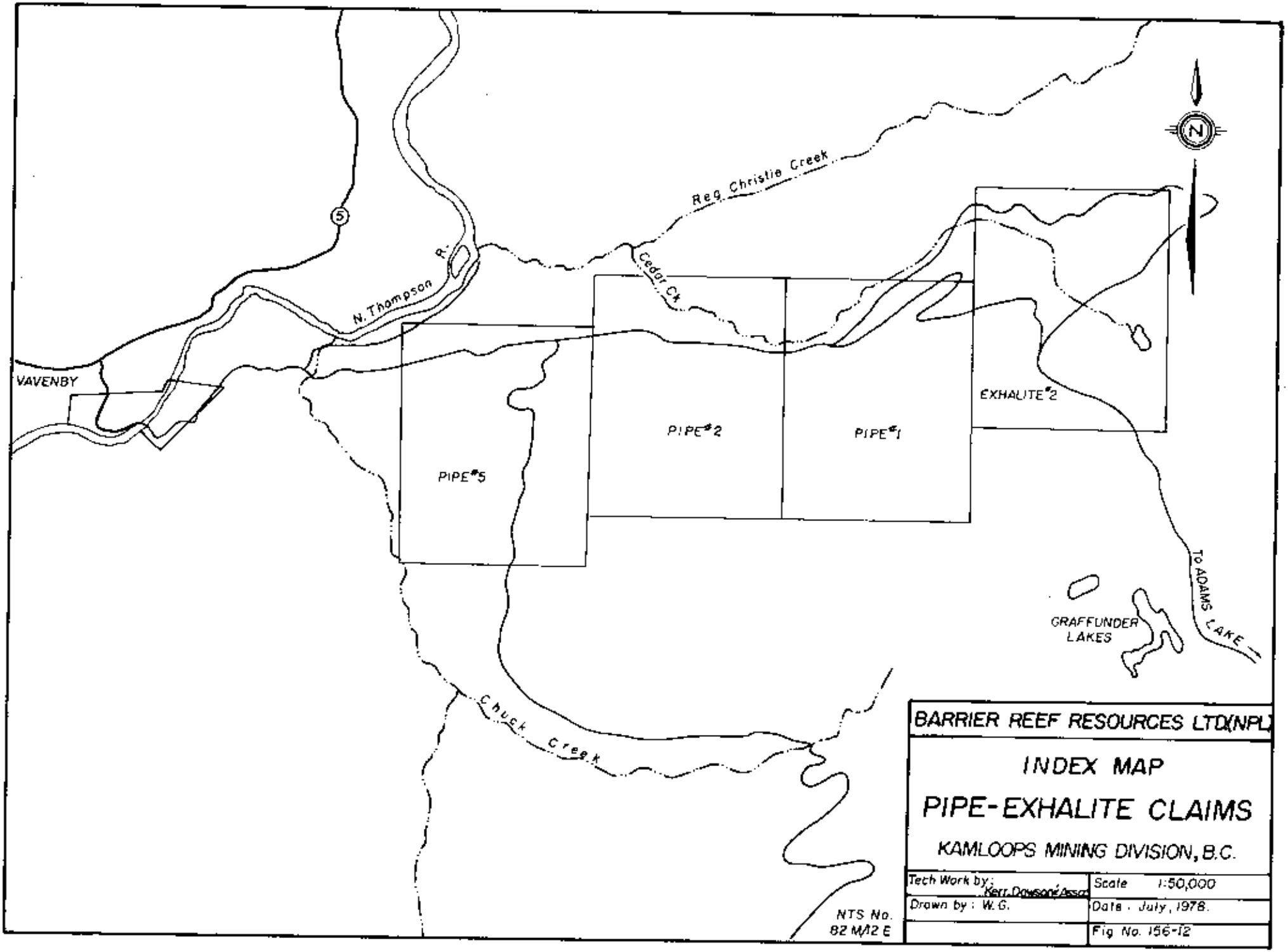
Pipe Group:

Claim Name	Record Number	Expiry Date
Pipe No. 2	938	July 18, 1978
Pipe No. 5	941	July 18, 1978

Exhalite Group:

Claim Name	Record Number	Expiry Date
Pipe No. 1	937	July 18, 1978
Exhalite No. 2	934	July 18, 1978

The registered owner of these claims is Barrier Reef Resources Ltd. (N.P.L.).



BARRIER REEF RESOURCES LTD(NPL)

INDEX MAP

PIPE-EXHALITE CLAIMS

KAMLOOPS MINING DIVISION, B.C.

Tech Work by: Kerr Dawson & Assoc.	Scale 1:50,000
Drawn by : W.G.	Date : July, 1978.
	Fig No. 156-12

LOCATION AND ACCESS

The property is located in south central British Columbia, about 110 kilometers NNE of the city of Kamloops and about 7 kilometers east of the village of Vavenby. The approximate center of the claim block is at 51°35' north latitude and 119°37' west longitude.

Access is gained via about 160 kilometers on Highway No. 5 from Kamloops to Vavenby and thence by the Adams Lake gravel road for about 10 kilometers to the center of the claim. A number of logging roads provide access to various parts of the property.

PHYSIOGRAPHY AND VEGETATION

The property covers portions of the south slope of the valley containing Reg Cristie Creek and most of the drainage area of its tributary, Cedar Creek. Topography is moderate to steep except near the south-eastern and eastern edges of the claims where the terrain becomes fairly gentle and rolling.

Elevations vary from about 1,500 feet (460 meters) at the north west corner of the claim block to more than 4,200 feet (1,280 meters) at the south-easterly boundary.

A dense growth of mature fir, spruce, hemlock, and cedar covers the entire property, except for logged areas. Undergrowth is fairly dense in some places and most bedrock exposures are found along roads or creek bottoms.

HISTORY

Some of the showings currently covered by the subject claims were discovered by Nicanex Mines Ltd. in 1969. This company performed soil sampling as well as magnetic and induced polarization surveys on the property during 1969. These surveys were concentrated in the discovery mineralized area to the north of Cedar Creek.

In 1970, approximately 1,000 feet of diamond drilling in three holes was completed.

Regional prospecting by Barrier Reef Resources Ltd. in 1976 and 1977 resulted in additional copper mineralization being discovered south of Cedar Creek and the Pipe and Exhalite claims were staked in July of 1977.

GEOLOGY

The property is underlain by a sequence of metasediments and metavolcanics of the upper Paleozoic "Eagle Bay succession". This enigmatic package of rocks outcrops in a linear belt which stretches from Sicamous to Clearwater and has been the object of intense exploration activity by numerous companies over the last 10 years.

In the Vavenby-Clearwater district this "Eagle Bay succession" seems to consist of (1) a lowermost unit of silvery phyllites, quartz sericite schists and sericitic quartzites (thickness unknown but at least several hundred meters); (2) overlying the buff coloured schists and phyllites is a thinner unit consisting mostly of dark blue grey to black graphitic phyllites and schists (thickness 0 to at least 40 meters); (3) above the graphitic horizon is a sequence of greenish, massive to foliated, chloritic and calcarious metavolcanics (thickness at least 100 meters). Above this unit is the distinative, massive, grey weathering Tshinikin limestone.

On the subject property all units except the Tshinikin limestone are encountered. The rocks of the lowermost unit have the widest distribution and are of greatest interest since they contain most of the mineral occurrences.

The lowermost unit consists typically of pale buff to silvery-surfaced phyllites and quartz sericite schists. With increasing amounts of quartz and chlorite they grade to sericitic quartzites and quartz-chlorite-sericite schists. Discrete quartz eyes are noted in some quartz-sericite schists.

Towards the eastern end of the property, some of the rocks of the lowermost unit grade into darker coloured phyllites and argillaceous quartzites some of which are calcarious.

Near and within the canyon of Cedar Creek, fairly thick sections of the lower unit are exposed. Within this area, near the center of the grid, a number of outcrops of quartz-felspar-biotite gneisses occur. These rocks are known to underlie the "Eagle Bay succession" in other parts of this district although they seem to be intimately associated with the light coloured schists here.

Overlying the lowermost unit of buff coloured schists and phyllites is a distinctive layer of dark blue grey to black graphitic phyllite and schists. Again, this succession has been noted elsewhere in the Clearwater-Vavenby district. It usually marks the top of the lowermost succession and can be as much as 40+ meters thick as at the northeastern edge of the Hail property.

Above the graphitic unit is a sequence of greenish chloritic rocks which grade from fairly massive greenstones, through friable chlorite schists to calcarious, chloritic metasediments or tuffs. Some bands of greyish impure marble occur within this succession.

There is some interfingering of the various units and the succession is complicated by folding and faulting. Within and near the valley of Cedar Creek, the attitudes seem to indicate a fairly gentle synclinal structure with the north limb on the north side of Cedar Creek and the south limb to the south. This conforms with the regional structure to the west of the subject property.

In contrast to this relatively simple structure, a number of outcrops display small scale isoclinal folds particularly the quasi-bedded, calcarious, chloritic metavolcanics.

MINERALIZATION

Within the "Eagle Bay succession", numerous strataform and stratabound occurrences of base metals have been discovered and explored in recent years. In general, stratabound, disseminated, chalcopyrite-pyrite occurrences seem to be concentrated within the buff coloured phyllites and schists (unit 1) while more massive, stratiform pyrrhotite-sphalerite-galena occurrences are generally found higher in the section, close to the base of the Tshinikin limestone.

On the subject property there are two main zones of disseminated copper mineralization which trend roughly east - west and lie respectively to the north and south of Cedar Creek.

The original Nicanex discovery zone is located on the north side of Cedar Creek. It consists of a zone of sparse mineralized outcrops and float which is approximately 800 meters long and up to 150 meters wide.

Mineralization consists of disseminated, fine grained chalcopyrite along foliation planes and on fractures in quartz-chlorite-sericite schists. This zone obviously contains more chlorite than the average schists and phyllites of unit No. 1. Scattered pyrite is usually found with the chalcopyrite and malachite is present on some weathered surfaces. Traces of molybdenite were seen with chalcopyrite at 2 locations.

Within the area outlined as the Nicanex mineralized zone (see figure 156-14), there are some outcrops which are barren and 2 drill holes which were put down here returned very low values. Nevertheless, some outcrops contain mineralization which is obviously 0.2% Cu or better and a number of grab samples taken by R. H. Janes, P. Eng. in 1970 averaged between 0.3% and 0.4% Cu.

The newly discovered zone referred to here as the AFR zone lies roughly parallel with the Nicanex zone to the south of Cedar Creek. It consists of

several mineralized outcrops and a number of occurrences of mineralized float in an area about 1,000 meters long (E-W) and about 150 meters wide. Mineralization consists of finely disseminated grains of chalcopyrite in silvery phyllite and slightly calcarious quartz-chlorite-sericite schists. A conspicuous feature of most mineralized rocks is a distinctive orange weathering carbonate (ankerite?) and orange brown limonite on fractures. Scattered pyrite usually accompanies the chalcopyrite and minor disseminated galena was seen in a cross cutting quartz vein.

There is very little outcrop visible in the AFR mineralized zone. Some outcrops of barren material were noted so that the degree of continuity of the mineralization is not known.

A number of other copper occurrences were found on the property; however, they mostly consist of minor chalcopyrite in cross cutting quartz veins.

A minor occurrence of chalcopyrite and sphalerite was found in outcrop and in float near the eastern edge of the claim block. In an outcrop which appears to be at the top of unit No. 1 (buff coloured

phyllite and quartz sericite schist) there are several bands of greenish, calc silicate rock with scattered pyrrhotite and magnetite and disseminated chalcopyrite and sphalerite. The calc silicate bands total about 1 1/2 meters in thickness and appear to be overlain by black graphitic phyllite. At least 10 boulders containing similar material were found to the north and east of the subject outcrop.

No uranium mineralization was seen on the property but because fluorite float has been reported from Cedar Creek and a vein of fluorite was encountered in one of the Nicanex drill holes as well as the fact that the AFR showings were first discovered because of a car-borne radiometric anomaly, it was felt that soil sampling and radiometric prospecting for uranium should be carried out.

GEOCHEMISTRY

On the subject property geochemical soil sampling was performed on a grid which covered both mineralized zones. Soil samples were collected at 100 foot (30 meter) intervals on lines spaced 400 feet (120 meters) apart (see figure 156-14 and 156-15).

Soil samples were collected from the "B" horizon where possible (approximately 15 to 45 cm deep). Sample stations were marked with flagging and the appropriate grid co-ordinates. After collection samples were stored and shipped in waterproof kraft envelopes.

A total of 431 soil samples were collected and analysed for copper and uranium. Analysis was performed by Bondar-Clegg and Company Ltd. at their Vancouver laboratories. Samples were dried and sieved and an aliquot of the -80 mesh fraction obtained. In the case of copper, extraction was by hot aqua regia with analysis by atomic absorption spectrophotometry. For uranium, extraction was by hot nitric acid with analysis by fluorimetry.

The mean and standard deviation for both metals were computed and the data were classified into the following categories:

Negative	0	-	Mean
Possibly Anomalous	Mean	-	(Mean + 1 Std. Dev.)
Probably Anomalous	(Mean + 1 Std. Dev.)	-	(Mean + 2 Std. Dev.)
Definitely Anomalous		>	(Mean + 2 Std. Dev.)

The values were plotted on 1:4,800 scale base maps of the property and definitely anomalous, probably anomalous and possibly anomalous areas were outlined (see figures 156-15 and 156-16).

Anomalous copper values in soils seem confined to the two known zones of copper mineralization. Downhill slumping of outcrops probably accounts for the isolated highs downslope from the Nicanex zone. In the AFR zone, high values seem confined to the known areas of mineralized outcrop and float between the main Adams Lake road and the old road which parallels it downslope.

Definitely anomalous uranium values are confined to a few clusters and isolated highs, south of Cedar Creek. There is practically no coincidence with anomalous copper values or the zone of copper mineralization. The bulk of the anomalous uranium values occur south of and upslope from the copper bearing zone in an area of no outcrop.

RADIOMETRIC SURVEY

A radiometric survey was performed on the subject property utilizing the same grid as for soil sampling. The instrument used was an Exploranium Model GR-101A. This instrument is a total count gamma ray scintillometer.

Readings of approximately 20 seconds duration were taken at each station with the instrument held at waist level in each case.

Average background for the property is 150 counts per second. An area of higher than background readings roughly coincides with the outline of the AFR mineralized zone (see figure 156-17). There seems to be no correlation between anomalous uranium in soils and areas of higher gamma radiation.

EXPLORATION POTENTIAL

The presently known zones of disseminated copper mineralization though of low grade are potentially large tonnage situations similar to the U. S. Steel-Noranda Harper Creek deposit which is located a few kilometers to the southwest. These zones have not been fully delineated on the ground due to extensive overburden and vegetation cover.

The upper part of the Eagle Bay section has the potential for hosting more massive, stratiform sulphides similar to Mount McClennen, Lucky Strike, and numerous similar occurrences on the Adams Plateau.

No uranium mineralization was found and anomalous gamma radiation seems to be associated with potassic alteration surrounding the AFR disseminated-copper zone. However there are a number of clusters of anomalous uranium soil values which

occur in overburden covered areas. Fluorite has been reported from this property and the Rexspar uranium - fluorite deposit occurs less than 20 km. to the west. It is possible therefore that similar uraniferous mineralization could exist on the subject property.

Respectfully submitted by:

KERR, DAWSON & ASSOCIATES LTD.,

James M. Dawson, P. Eng.,
GEOLOGIST

APPENDIX A

PERSONNEL

PERSONNEL

J. M. Dawson, P. Eng.	Geologist	July 30, 31, 1977 Sept. 14, 15, 16, 1977 May 20, 27, 1978 July 11, 12, 13, 14, 15, 1978 - 12 days
A. P. Reeve, P. Eng.	Geologist	June 20, 21, 1978 July 8, 12, 1978 - 4 days
L. P. Duquette	Prospector	June 2 - June 13, 1978 - 12 days
R. Marini	Linecutter	May 27, 28, 29, 30, 31, 1978 June 1, 1978 - 7 days
D. Ivanco	Linecutter	May 27 - 31, 1978 inc. June 1, 1978 - 7 days

APPENDIX B

STATEMENT OF EXPENDITURES

STATEMENT OF EXPENDITURES

(1).	Labour		
	J. M. Dawson, P. Eng., 12 days @ $175.00/day	$2,100.00	
	A. F. Reeve, P. Eng., 4 days @ $175.00/day	700.00	
	L. P. Duquette, 12 days @ $75.00/day	900.00	
	D. Ivanco 7 days @ $95.00/day	665.00	
	R. Marini 7 days @ $95.00/day	665.00	$5,030.00
(2).	Expenses and Disbursements:		
	(a). Truck Rental (J. M. Dawson) 12 days @ $20.00/day $240.00; 885 miles @ 20¢/mile 177.00	$417.00	
	Truck Rental (L.P. Duquette) 12 days @ $20.00/day $240.00; 950 miles @ 20¢/mile 190.00	430.00	
	Truck Rental (Ivanco & Marini) 7 days @ $35.00/day	245.00	
		1,092.00	
	(b). Room and Board 37 man days	943.70	
	(c). Base Map Preparation	73.50	
	(d). Geochemical Analyses	454.00	
	(e). Maps, Air photos, flagging, freight, and field equipment	112.45	
	(f). Scintillometer rental 12 days @ $10.00/day	120.00	2,795.65
	TOTAL HEREIN		$7,825.65

APPENDIX C

REFERENCES

REFERENCES

Janes, R. H. (1970): - Report on the Properties of Nicanex Mines Ltd. (NPL). Private report by Chapman, Wood, and Griswald to Nicanex Mines.

Kruzick, J. H. and Chrisholm, E. D.: - A Geochemical Report on the ESP Group, Vavenby Area, B. C.

Belik, G. D. (1973): - Geology of the Harper Creek Copper Deposit, Unpublished M. Sc. Thesis University of B. C.

Campbell, R. B. (1964): - Adams Lake, British Columbia; Geol. Surv. Can Map 48-1963.

Annual Reports of Minister of Mines, British Columbia: - 1967 - 1973 inclusive.

APPENDIX D

WRITER'S CERTIFICATE

JAMES M. DAWSON, P.ENG.
GEOLOGIST

SUITE 1 - 219 VICTORIA STREET
KAMLOOPS, B.C.

PHONE (604) 374-6427

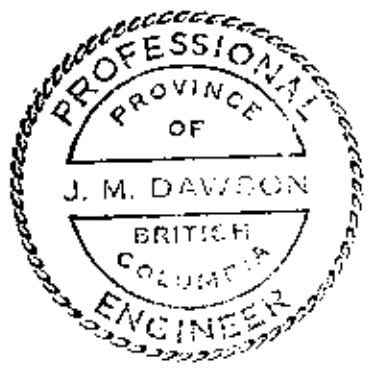
CERTIFICATE

I, JAMES M. DAWSON, OF KAMLOOPS, BRITISH COLUMBIA, HEREBY CERTIFY THAT:

(1). I am a geologist residing at 380 Powers Road, Kamloops, B. C. and employed by Kerr, Dawson and Associates Ltd. of Suite #1, 219 Victoria Street, Kamloops, B. C.

(2). I am a graduate of the Memorial University of Newfoundland - B. Sc. (1960), M. Sc. (1963), a fellow of the Geological Association of Canada and a member of the Association of Professional Engineers of B. C. I have practised my profession for 15 years.

(3). The exploration programme described in this report was done by me and under my supervision. I am the author of this report which is based on the results of this exploration programme as well as my familiarity with the subject district.



KERR, DAWSON & ASSOCIATES LTD.,

James M. Dawson, M. Sc., P. Eng.,
GEOLOGIST

September 30th., 1978,
KAMLOOPS, B. C.


N. THOMPSON RIVER
Reg. Christie Creek
Cedar Creek
Chuck Creek
5
2000
2500
3000
3500
4000
N
LEGEND
3 Green-gray, massive to schistose, chloritic greenstone; frequently calcareous & sometimes interbedded with impure limestone.
2 Dark gray to black graphitic phyllite & schist.
1 Light to dark gray, silvery phyllite, quartz-sericite schist & sericitic quartzite - sometimes chloritic; minor quartz-feldspar-biotite gneiss & marble.
Outcrop area.
Attitude of foliation or schistosity
cpy, py, ga, po, mo, sph & He. Mineral occurrence, chalcopyrite, pyrite, galena, pyrrhotite, molybdenite, sphalerite & specular hematite.
Mineral occurrence in float.
Diamond drill hole
Building
Claim boundary
Road (gravel).
PROFESSIONAL
PROVINCE OF
J. M. DAWSON
BRITISH COLUMBIA
ENGINEER
6933
To accompany a report by J.M Dawson, P. Eng.
BARRIER REEF RESOURCES LTD. (N.P.L.)
PIPE - EXHALITE CLAIMS
PROPERTY GEOLOGY
KAMLOOPS MINING DIVISION, B.C.
Tech. Work by: Kerr, Dawson and Associates Ltd.
Scale: 1:10,000
0 50 100 200m 400
Drawn by: W. G
Date: July, 1978
Approved by: J.M Dawson, P. Eng
Fig No. 156-13

NICANEX ZONE

AFR ZONE

2000

2500

3000

3500

4000

L-12W

L-6W

L-0

L-6E

LEGEND

- 3500 Topographic contour in feet (a.s.l.)
- Creek
- Road
- Claim boundary
- Building
- Diamond drill hole location
- Outcrop area with description of rock type.
- Attitude of foliation or schistosity
- Mineral occurrence, chalcopyrite, galena, pyrite, molybdenite & pyrrhotite.

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
J. M. DAWSON

To accompany a report by J.M. Dawson, P. Eng.

BARRIER REEF RESOURCES LTD. (N.P.L.)

PIPE - EXHALITE CLAIMS

GEOLOGY OF GRID AREA

KAMLOOPS MINING DIVISION, B.C.

Tech. Work by: Kerr, Dawson and Associates Ltd.	Scale: 0 100' 200' 400 feet 600' 1:4800 0 24 48 96 meters 192 m.
Drawn by: W.G.	Date: July, 1978.
Approved by: J.M. Dawson, P. Eng.	Drawing No. 156-14

2000

2500

3000

3500

4000

L 12+00 W

L 24+00 W

L 16+00 W

L 8+00 W

L 0+00

L 8+00 E

L 16+00 E

N

LEGEND

3500 Topographic contour in feet (a.s.l.)

Creek

Road

Claim boundary

Building

120 Geochemical soil sample site with copper value in parts per million (ppm)

GEOCHEMICAL CATEGORIES

0	- 50 ppm	Negative
•	51 - 139 ppm	Possibly anomalous
○	140 - 228 ppm	Probably anomalous
△	> 228 ppm	Definitely anomalous

NO. 6933

To accompany a report by J.M. Dawson, P.Eng.

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
J. M. DAWSON

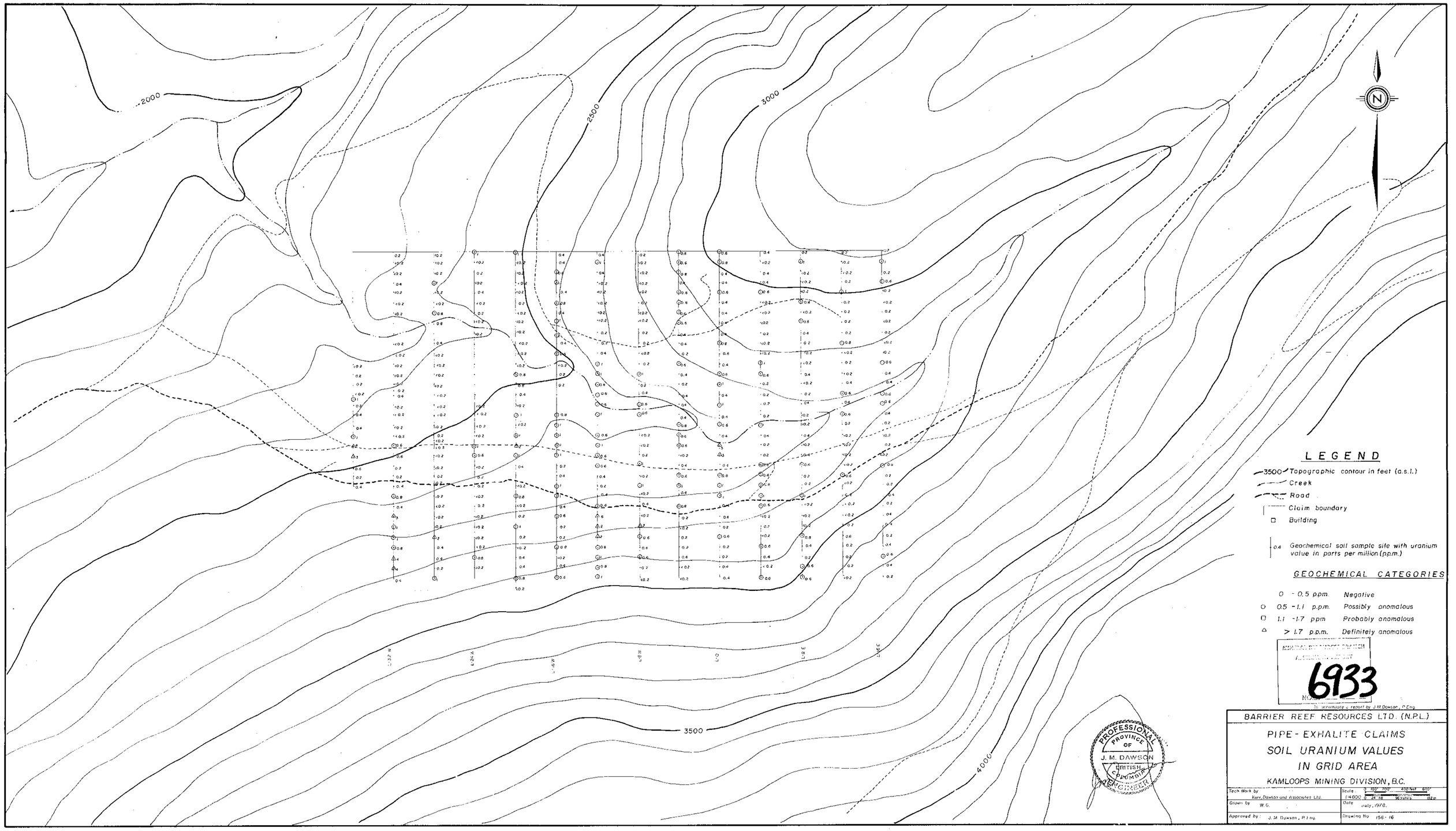
BARRIER REEF RESOURCES LTD. (N.P.L.)

PIPE-EXHALITE CLAIMS

SOIL COPPER VALUES IN GRID AREA

KAMLOOPS MINING DIVISION, B.C.

Tech Work by: Kerr, Dawson and Associates Ltd.	Scale: 1:4800 (0 100 200 400 feet; 0 24 48 96 Meters)
Drawn by: W.G.	Date: July, 1978.
Approved by: J. M. Dawson, P. Eng.	Drawing No. 156-15



LEGEND

- 3500 — Topographic contour in feet (a.s.l.)
- Creek
- Road
- Claim boundary
- Building
- 0.4 — Geochemical soil sample site with uranium value in parts per million (p.p.m.)

GEOCHEMICAL CATEGORIES

	0 - 0.5 p.p.m.	Negative
○	0.5 - 1.1 p.p.m.	Possibly anomalous
□	1.1 - 1.7 p.p.m.	Probably anomalous
△	> 1.7 p.p.m.	Definitely anomalous

MINERAL RESOURCES BRANCH
Assessment Report
No. 6933

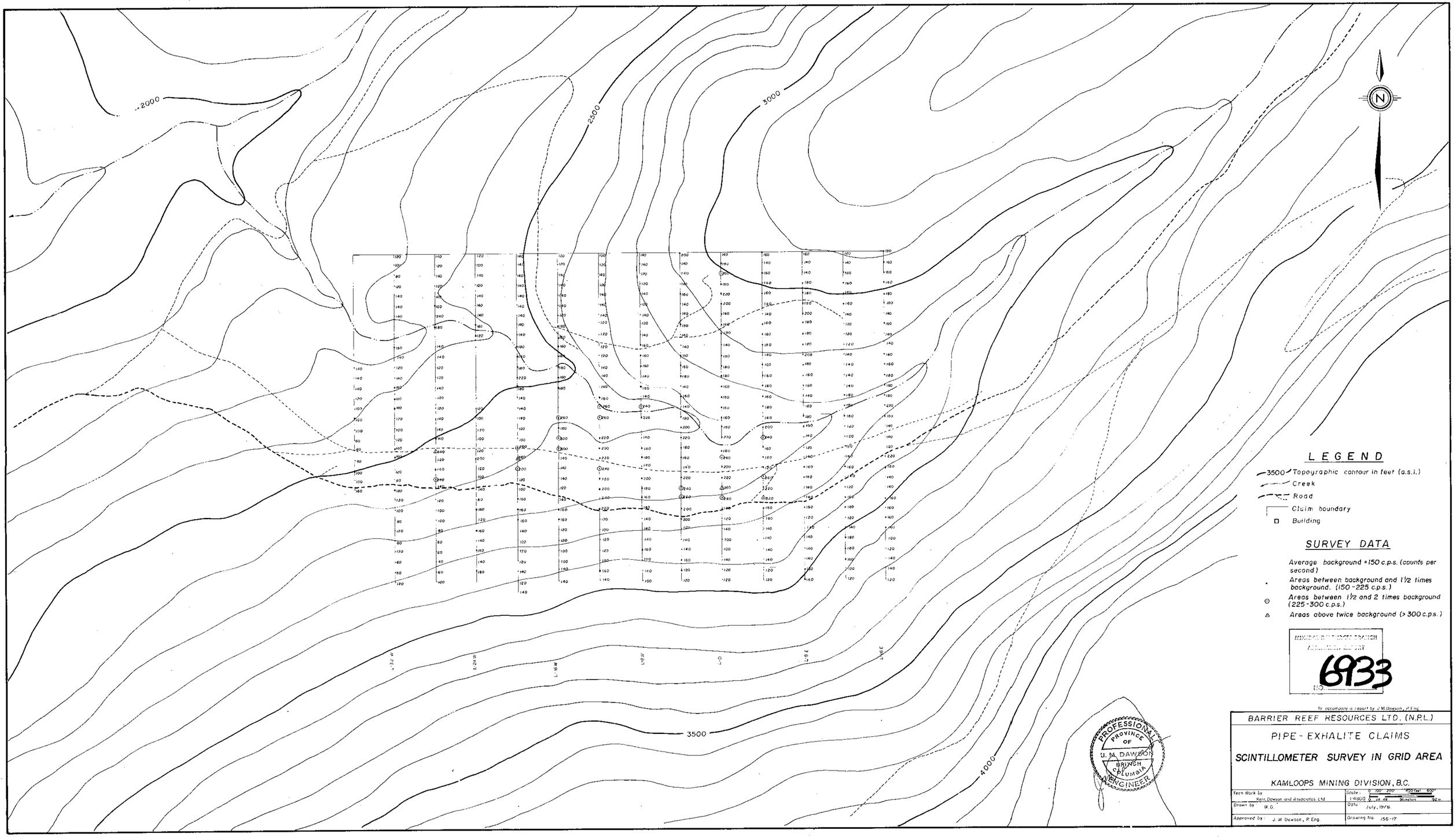
To accompany a report by J.M. Dawson, P.Eng.

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
J. M. DAWSON

BARRIER REEF RESOURCES LTD. (N.P.L.)

PIPE - EXHALITE CLAIMS
SOIL URANIUM VALUES
IN GRID AREA
KAMLOOPS MINING DIVISION, B.C.

Tech Work by: Kerr, Dawson and Associates Ltd.	Scale: 0 100' 200' 400 Feet 600' (1:4800 0 24 48 96 metres 192 m)
Drawn by: W.G.	Date: July, 1970.
Approved by: J. M. Dawson, P.Eng.	Drawing No. 156 - 16



LEGEND

- 3500 Topographic contour in feet (a.s.l.)
- Creek
- Road
- Claim boundary
- Building

SURVEY DATA

Average background = 150 c.p.s. (counts per second)

- Areas between background and 1½ times background. (150 - 225 c.p.s.)
- ⊙ Areas between 1½ and 2 times background (225 - 300 c.p.s.)
- △ Areas above twice background (> 300 c.p.s.)

MINERAL RESOURCES BRANCH
Assessment Report

6933

NO.

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
J. M. DAWSON

To accompany a report by J. M. Dawson, P. Eng.

BARRIER REEF RESOURCES LTD. (N.P.L.)

PIPE - EXHALITE CLAIMS

SCINTILLOMETER SURVEY IN GRID AREA

KAMLOOPS MINING DIVISION, B.C.

Tech Work by: Kerr, Dawson and Associates Ltd.	Scale: 1:4800 (1 in. = 400 feet) 0 100 200 400 Feet 600' 0 50 100 Metres 150 m.
Drawn by: W.G.	Date: July, 1978.
Approved by: J. M. Dawson, P. Eng.	Drawing No. 156-17