

83-#417 - #11407

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

11,407

DIAMOND DRILLING REPORT 9

on the

SWAMP SHOWING; CLIFF CLAIMS

LOCATED NEAR PORT HARDY
NANAIMO MINING DIVISION, B.C.

NTS - 92 L/11 W
50° 38' N. Latitude
127° 28' W. Longitude

for

ENERGEX MINERALS LTD.

by

R. J. DARNEY, GEOLOGIST
D. A. CAULFIELD, GEOLOGIST
C. K. IKONA, P. ENG.

PAMICON DEVELOPMENTS LIMITED.

May, 1983

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1.0

INTRODUCTION

The Cliff property is located just south of Port Hardy on the north end of Vancouver Island, British Columbia. The Cliff property consists of a number of massive sulphide skarn showings with significant precious metals. In light of the surge in gold and silver prices since any concrete exploration has taken place on the property, re-evaluation of the property became warranted.

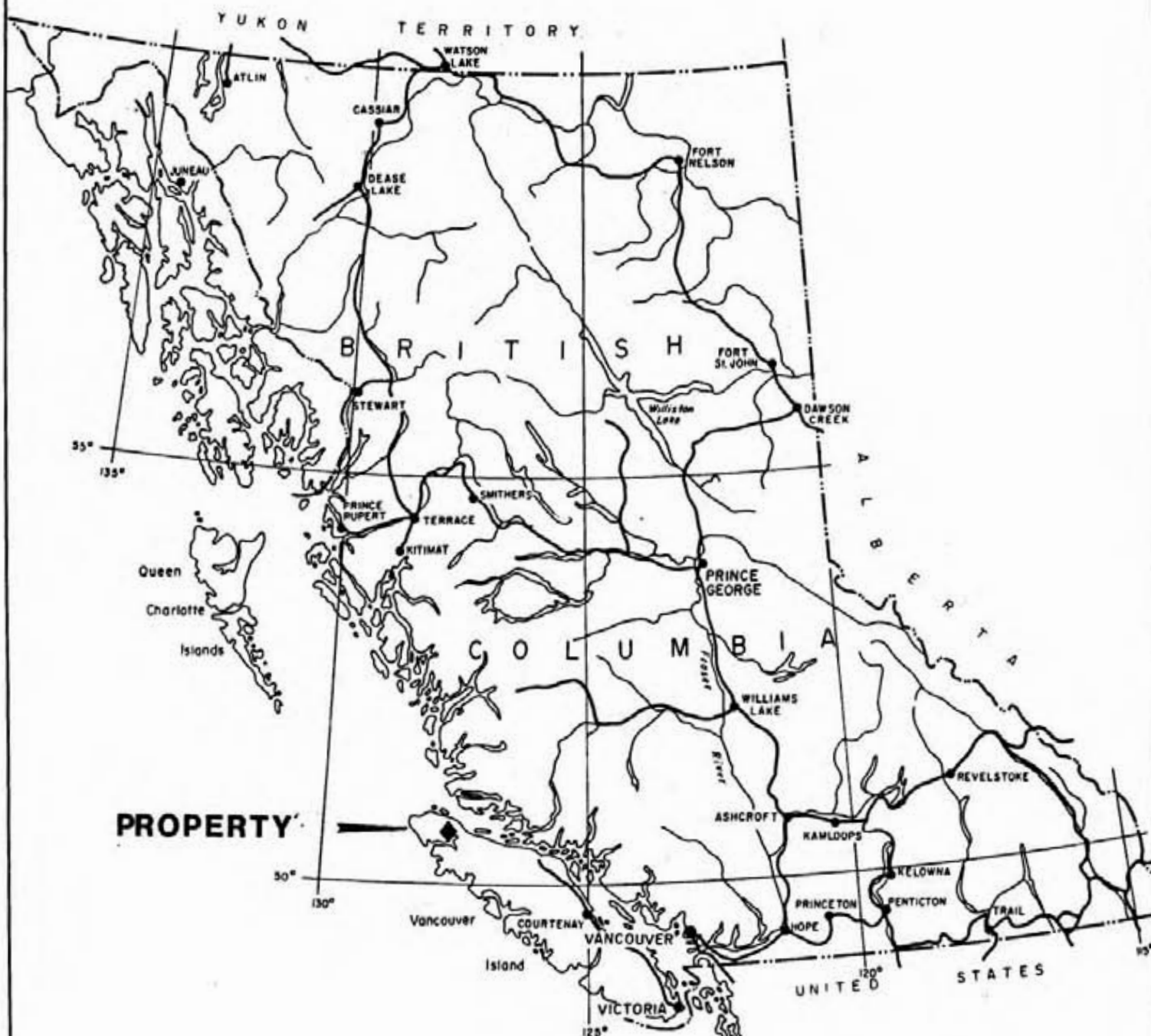
Pamicon Developments Ltd. was requested by Energex Minerals Ltd. to conduct a small program consisting of detailed mapping and diamond drilling on the Swamp showing. A plane table map at a scale of 1:200 was constructed and based on this geological map, eight BQ diamond drill holes, totalling 232.4 m were drilled. In order to obtain access to the showing, an old skid trail was re-opened using a D6 tractor. All mineralized intersections were sampled (44 samples) as well as one showing for Cu, Pb, Zn, Ag and Au.

The writers were retained by Energex Minerals Ltd. to assimilate all new data and to set forth recommendations on which a constructive, organized exploration program may be instituted.

2.0

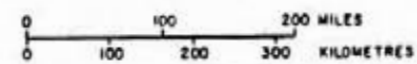
LIST OF CLAIMS

The B.C. Ministry of Mines, Energy and Petroleum Resources indicates that the following claims (Fig. 2) are included within the Cliff property:



ENERGEX MINERALS LTD.

**CLIFF MINERAL CLAIMS
PROPERTY LOCATION MAP**

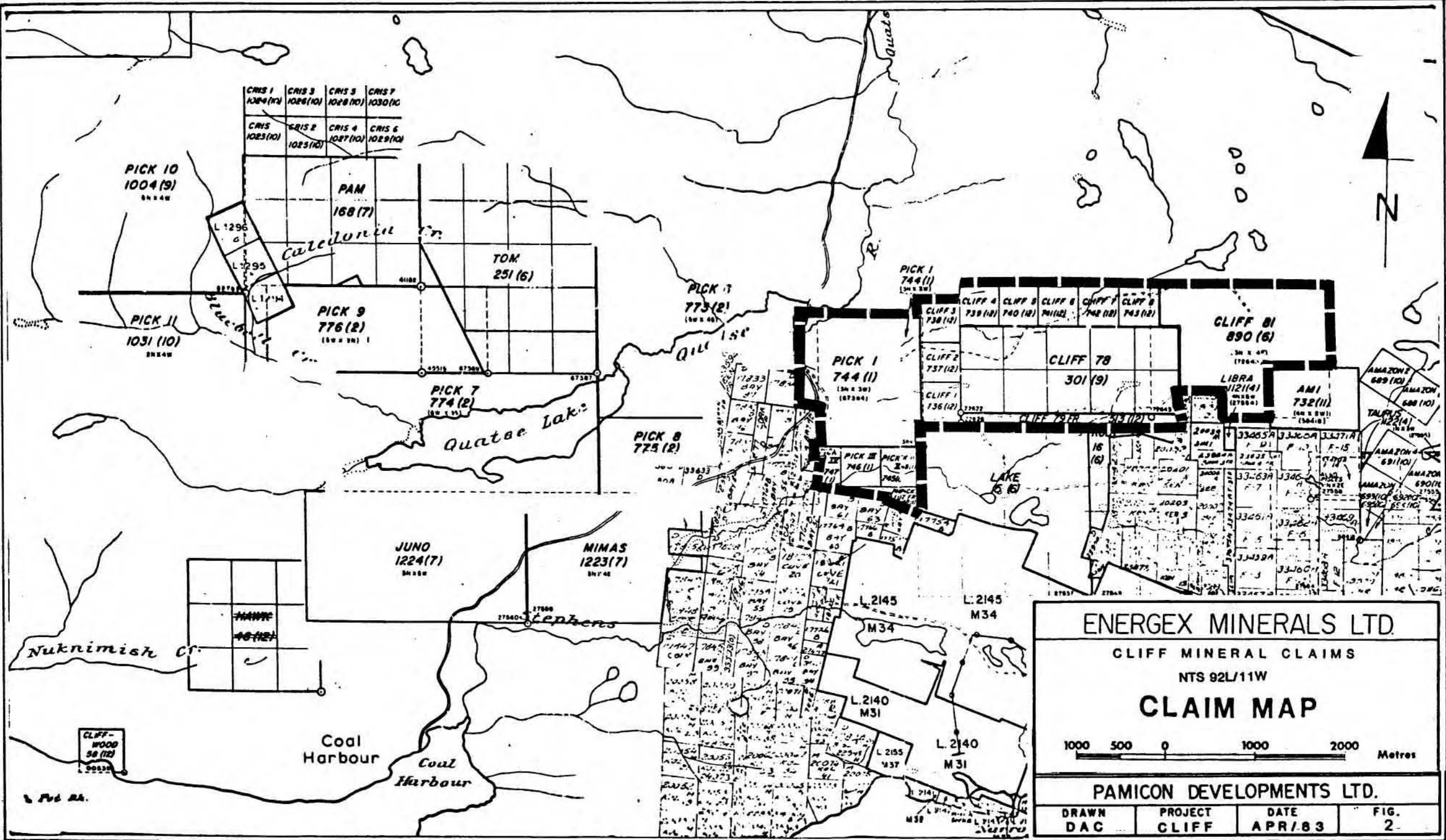


PAMICON DEVELOPMENTS LTD.

DRAWN DAC	PROJECT CLIFF	DATE APR/83	FIG. 1
----------------------	--------------------------	------------------------	-------------------

NTS 92/11W

<u>CLAIM NAME</u>	<u>RECORD #</u>	<u>UNITS</u>	<u>RECORD DATE</u>
Cliff 78	301	10	Sept. 21, 1978
Cliff 79 Fr.	513	1	Dec. 19, 1979
Cliff 1 - 8	736-743	8	Dec. 15, 1980
Cliff 81	890	12	June 2, 1981
Pick 1 - 4	744-747	12	Jan. 9, 1981
Pick 5 Fr.	748	<u>1</u>	Jan. 9, 1981
Total =		44 Units	



3.0 LOCATION AND ACCESS

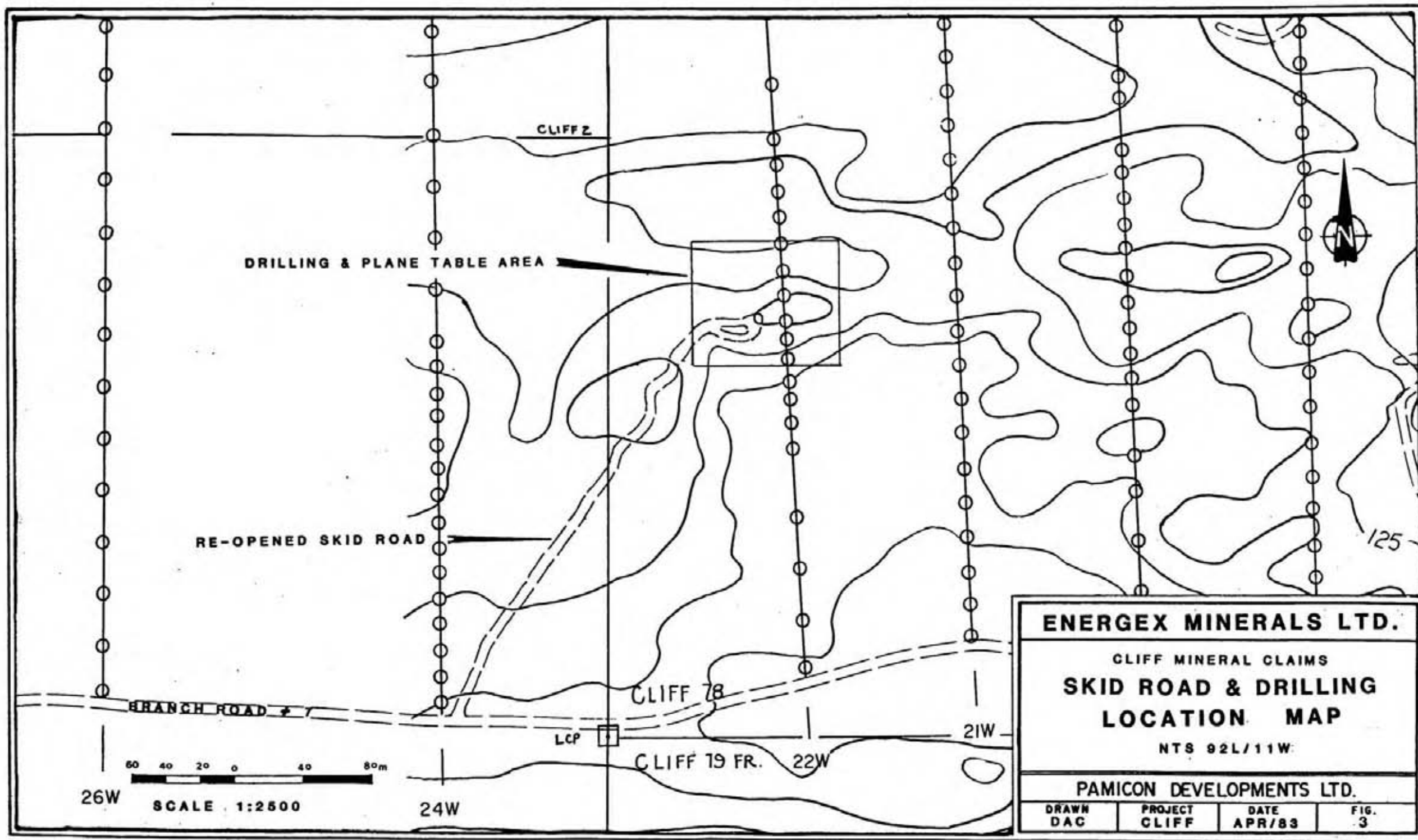
The Cliff claims are 9.5 km due south of Port Hardy, Vancouver Island, British Columbia in the Nanaimo Mining Division. The claims are located along the northern boundary of Island Copper Ltd., a major copper-molybdenum - gold producer for Utah Mines Ltd.

Access to the property is made via logging road (Branch 7) which departs the paved highway from Port Hardy to Coal Harbour on Rupert Inlet. A four-wheel drive vehicle is not needed to negotiate the gravel logging roads. Port Hardy, itself, may be reached by driving up the paved Island Highway from the ferry terminal in Nanaimo or by making a direct flight from Vancouver. Air service is available on a daily basis to Port Hardy via Pacific Western Airlines or Air B.C.

To obtain access to the Swamp showing, an old tote road was re-opened using a D6 tractor (Fig. 3). The skid road departs Branch #7 approximately 10 m east of line 24W (1981 grid). The skid road which is 270 m in length branches off in a northeasterly direction. Tractor equipment is required to travel the new skid road.

4.0 PHYSIOGRAPHY

The claims generally cover a rolling area with minimal relief except along the western edge of the property where steeper slopes exist. Elevations range from 122m to 213m. In the vicinity of the drilling project, the lowest elevations are occupied by swampy terrain. Outcrop availability is poor but exposures may be found along resistant ridges or beside old logging road cuts.



4.0

PHYSIOGRAPHY CONTINUED

Vegetation is typical of west coast British Columbia. First growth timber was removed years ago by logging and second growth evergreen regeneration is dominated by a cedar population. The undergrowth of salal and berry bushes is very thick and combined with logging debris makes traversing on the property extremely difficult. Although the old logging roads are passable, the sides are overgrown with alder and may require some minor clearing to make access more manageable.

Heavy rainfall may be expected year round with brief periods of snow-fall during the winter months. Work activity on the property could be pursued twelve months of the year without much difficulty.

5.0

HISTORY

Before the acquisition of the property by Energex Minerals Ltd. in 1981 from John M. McAndrew, P. Eng., several major and junior companies have operated on the property. A summary of past and present operators include:

1963 - Port Hardy Copper Mines Ltd.
1964 - Anaconda American Brass Ltd.
1968 - Goldfields Corporation
1970
1971 - Yellowknife Bear & Ram Petroleum Ltd.
1978
1980 - John M. McAndrew
1981 - Energex Minerals Ltd.

5.0 HISTORY CONTINUED

Although considerable time and expense has been spent on the prospect, this does not detract from its overall value. Large areas of the claims have yet to have been mapped and extensive anomalous geochemical and geophysical zones have not been tested. In light of the recent surge (i.e. since 1971) in precious metal prices, exploration is fully warranted at this time.

6.0 GEOLOGY

6.1 Regional Geology

The geology of the area was adequately described by K. E. Northcote (1968, 1971), formerly of the B.C. Dept. of Mines, Energy and Petroleum Resources, and J. E. Muller (1977; O.F. 463) of the Geological Survey of Canada. The area is situated within the Insular Belt, the western most major tectonic belt of the Canadian Cordillera. The geology as extracted from the Summary Report (1981) by J. Chapman of Garratt Geoservices Ltd. is as follows:

The Cliff property lies within a series of Upper Triassic to Lower Jurassic eugeosynclinal rocks consisting of the Karmutsen and Quatsino formations and Bonanza Subgroup of the Vancouver Group. These rocks have been intruded by late Jurassic to Cretaceous predominately granodiorite and diorite plutons. The intrusions follows a northwest-southeast trend across the north end of Vancouver Island.

Rocks of the Karmutsen Formation consist largely of massive basalt and andesite flows, some fragmental volcanic beds, a few poorly developed pillow lavas and some thin argillaceous limestone beds at the top of the sequence.

QUEEN CHARLOTTE
SOUND

CIM Special Volume No. 15

GEOLOGY OF NORTHERN VANCOUVER ISLAND

(AFTER MULLER et al., 1974)



PROPERTY LOCATION

ISLAND COPPER
MINE

PACIFIC
OCEAN

LEGEND

- MIOCENE**
Basalts to diorite lava, tuff, breccia, conglomerate
- CRETACEOUS**
Unconformably deposited sediments: siltstone, shale, greywacke, conglomerate
- JURASSIC**
ISLAND INTRUSIONS: quartz diorite, gneiss, quartz monzonite, quartz feldspar porphyry
- LOWER JURASSIC**
BONANZA VOLCANICS: andesite to rhyolitic lava, tuff, breccia
- UPPER TRIASSIC**
PARKS BAY FORMATION: calcareous siltstone, shale, limestone, greywacke, conglomerate, breccia
- QUATZING FORMATION**: limestone
- KARMUTSEN FORMATION**: basaltic lava, pitch lava, breccia, nepheline tuff
- GEOLOGICAL BOUNDARY (APPROXIMATE)
- FAULT, LINEAMENT (APPROXIMATE)
- BEDDING

FIG. 4

6.1 Regional Geology continued

Conformably overlying the Karmutsen in the property area is approximately 150 metres of Quatsino limestone; however, south of the Rupert Inlet this thickens to almost 1000 metres (Northcote 1970). This dark grey weathering massive limestone exhibits skarnification, recrystallization to marble or silicification in the vicinity of some intrusive rocks and along Karmutsen contacts. Copper, lead, zinc, silver, gold and magnetite mineralization commonly occur in these skarn zones. The limestone beds within the upper part of the Karmutsen may, in fact, belong to the similar overlying Quatsino Formation.

The Bonanza Subgroup can be subdivided into a lower sedimentary unit and an upper volcanic unit (Northcote 1970). The sedimentary section, also referred to as the Parsons Bay unit, consists of thin bedded black argillaceous and carbonaceous limestones, calcareous shales, siltstones and greywackes. Basaltic and andesitic breccias and flows, tuffs and tuff breccias comprise the bulk of the upper part of the Bonanza Subgroup. Basalt and andesite dykes and sills are commonly found cutting Bonanza rocks and may have been feeders for flows higher in the section.

Intrusive rocks in the region form a trend extending from Rupert Inlet in the southeast to Christensen Point in the northwest. This consists of a belt of quartz diorite to granodiorite stocks with a mid-late Jurassic to early Cretaceous age.

Hydrothermal activity from shallow underlying intrusives is probably responsible for the skarn zones developed in Quatsino limestone, and the propylitic and argillic alteration of Bonanza rocks. Extensively altered and pyritized quartz feldspar porphyry dykes are commonly found cutting Bonanza rocks, as at Island Copper. A low grade of regional metamorphism is evident by the pervasive chloritization and epidotization exhibited by the basalts of the Karmutsen Formation.

6.1 Regional Geology continued

Structurally, this is a region of block faulting with northwesterly and northeasterly trends being the most prominent (Muller, Northcote, Carlisle 1974). Folding appears to be minimal, although bedding is generally inconspicuous and often covered by vegetation. Repetition and loss of sections of the stratigraphy has occurred through faulting which in general has a strike approximately parallel to that of bedding. This makes lateral movement along these faults difficult to detect; vertical displacement is thought to be on the order of hundreds of metres. The regional strike is northwest-southeast with a gentle to moderate southwest dip.

6.2 Property Showings

Nine showings have been located on the property to date:

1. Rainbow Showings
2. Cranberry Showings
3. Branch 7 Showing
4. South Showing
5. East Showing
6. Drillsite Showing
7. Magnetite Showing
8. West Showing
9. Swamp Showings

These skarn showings exhibit considerable variation in size, mineral content, attitudes and locations. Gangue mineralization includes diopside calcite, quartz, tremolite, amphiboles and two different types of garnet. Metallic minerals associated with the skarn zones are pyrite, chalcopyrite, magnetite, sphalerite, galena, specularite, and bornite. Most of the skarns are located along either volcanic - limestone contacts (i.e. Rainbow Showings) or intrusive - limestone contact (i. e. Swamp Showings) but some skarns are located entirely within the limestone or are occurring within the intrusive - as replacements of limestone inclusions.

6.2 Property Showings continued

The skarns located within the limestone are probably the result of structural breaks which provided channelways for mineralizing fluids. The limestone provides an excellent host for the chemical exchange of ions from the mineralizing fluids which are thermally driven by a nearby cooling intrusive. Banding of the skarn minerals is a common occurrence; probably a result of a number of factors:

- (1) Succeeding waves of ascending fluids.
- (2) Different pressure and temperature conditions in relation to geothermal gradients.
- (3) Diffusion rates of the mineralizing components from structural channelways.

The 1983 investigation was initiated to test only the Swamp Showing due to time and budget restraints but this should not detract from the encouraging results that have been encountered at the other areas throughout the property.

6.2.1 Detailed Geology of the Swamp Showings

Four different rock types were recognized through detailed surface mapping and diamond drilling and they include: 1) marblized limestone, 2) skarn 3) hornblende granodiorite (with its well altered border phase) and 4) andesite dike. The normally grey, fine-grained Quatsino limestone has been recrystallized to a very coarse grained, white marble by the nearby intrusive. This limestone forms the resistant weathering east-west ridge at the showing (Fig. 5). The intrusive is best described as a medium grained equigranular hornblende granodiorite with the following visible components: quartz, plagioclase, potassium feldspar and hornblende.

6.2.1 Detailed Geology of the Swamp Showings continued

Alteration of this intrusive consists of quartz-chlorite-carbonate fractures with minor sulphides enveloped by potassium feldspar distinguished by its strong salmon pink coloration. Grading out from these envelopes, the alteration changes into pervasive phyllic alteration. That is, the feldspar grains are altered to pale, apple-green sericite and the mafic grains are replaced by chlorite and epidote. In the eight holes drilled, none of the economic mineralization has been associated with these above alteration assemblages. The border phase of the intrusive appears as a mottled, light-dark green, fine-grained rock with a variable sulphide content. In DDH83-7 the border phase is spotted with 2-3 mm chloritic clots which contain either pyrite, chalcopyrite, or pyrrhotite. Furthermore, it is now believed that the outcrops of what was assumed to be a volcanic dike or flow at plane table station 44 is in fact also the border phase. Texturally and mineralogically, the intercept in DDH83-7 and the surface exposure are very similar. The only rock type which can be truly classified as a separate volcanic identity is the hard, dark green andesite intersected at the top of DDH83-5 and 6. This basic volcanic dike (or sill) exhibits chilled upper and lower boundaries.

Economically, the most important rock type is the skarn which has been exposed as far north and south as plane table stations 6 and 44 respectively. The skarn is a chemical replacement of the limestone along the limestone's contact with the intrusive. The skarn limestone contact is sharp whereas the contact with the border phase of the hornblende granodiorite is more gradual. The major gangue constituents are red (grossularite) and pale yellow (Andradite) garnets, calcite, chlorite, quartz and magnetite. Andradite garnet is most easily identifiable when it occurs in its crystal form. Occasionally, one finds reaction rims of the red garnet around euhedral crystals of the pale yellow garnet.

6.2.2. Mineralization of the Swamp Showings

All important sulphide mineralization is contained within skarn zones located along the intrusive - limestone contact. Sulphide mineralogy, in order of abundance, consists of pyrite, sphalerite, chalcopyrite, galena and bornite. Texturally, the sulphides occur in a variety of forms from discrete disseminated grains to massive bands. As is the case with most skarn mineralization, the grade and thickness of intersections may be very irregular. The zone at the Swamp showing is near vertical at surface but flattens out abruptly at depth to form an L - shape body (Fig. 6,8). So far the drilling has shown that the best intersections occur either at the flexure of the mineralized body or along its more vertical extensions. At the flexure in DDH83-2 an intersection 8.4 m long indicated values of 1.26 % Cu, 0.28 % Pb, 7.72 % Zn, 1.67 oz/T Ag and 0.005 oz/T Au.

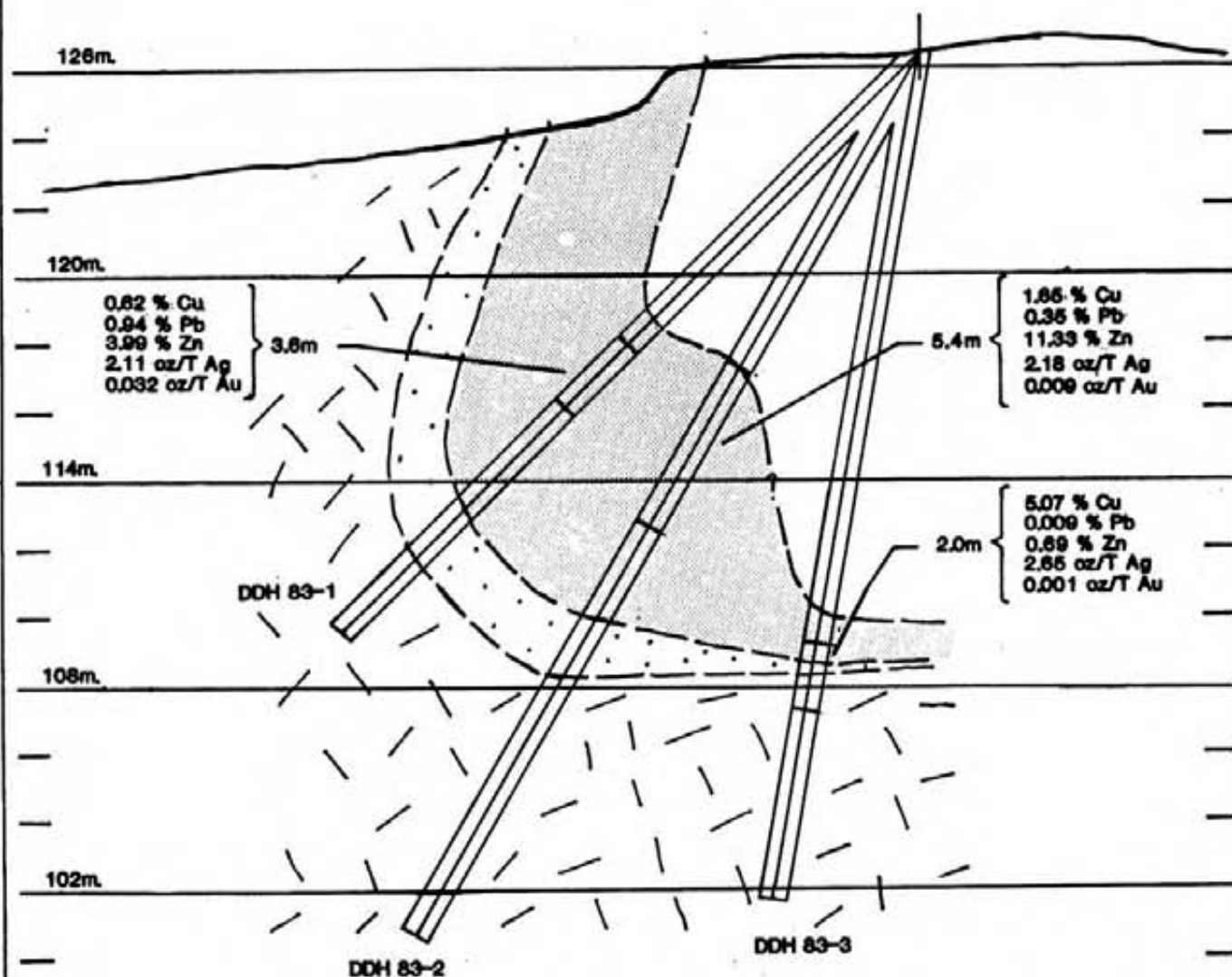
Only as a point of interest, the presence must be mentioned of a black sooty material which may be found either coating the recrystallized carbonate grains in the limestone particularly near the contact with the skarn or in late stage fractures in the intrusive. This material which was first identified in the area at Island Copper Mines Ltd. is likely gilsonite or pyrobitumen, a hydrocarbon that probably originated from the underlying Parsons Bay Formation. Positive identification of this material may be made by detecting its diagnostic tar odour upon exposure to flame.

7.0

DIAMOND DRILLING

The 1983 drilling program consisted of eight BQ diamond drill holes totalling 232.4 m. On arrival at the property, a plane table map at a scale of 1:200 was constructed and based on this information, a fan of three diamond drill holes were drilled. A summary of all the holes is as follows:

HOLE	LOCATION	AZIMUTH	DIP	DEPTH	INTERSECTION (M)	%Cu	%Pb	%Zn	oz/T Ag.	oz/T Au.
DDH83-1	STN.18	292°	-045°	23.8m	11.0-14.6 m	0.62	0.94	3.99	2.11	0.032
					11.0-18.8 m	0.58	0.57	2.06	1.33	0.016
DDH83-2	STN 18	292°	-060°	29.7m	10.5-15.9 m	1.65	0.35	11.33	2.18	0.009
					10.5-18.9 m	1.26	0.28	7.72	1.67	0.005
DDH83-3	STN 18	292°	-080°	25.0m	17.5-18.1 m	16.60	0.03	2.26	8.66	0.005
					17.5-19.5 m	5.07	.01	0.69	2.65	0.001
DDH83-4	2 m E of STN 18	345°	-050°	32.6m	14.0-17.0 m	1.34	1.34	2.99	0.79	0.002
DDH83-5	2 m N of STN 36 between STN 36 & 37	292°	-045°	35.7m	27.5-28.0 m	1.03	1.13	8.95	2.56	0.034
					26.6-28.9 m	0.31	0.53	3.0	0.85	0.008
DDH83-6	"	292°	-060°	32.6m	25.0-25.4 m	0.28	0.08	0.08	0.40	0.003
DDH83-7	STN 40	N/A	-090°	25.0m	17.7-18.1 m	1.01	0.01	0.03	0.30	0.003
DDH83-8	STN 40	074°	-045°	28.0m						



ENERGEX MINERALS LTD.

CLIFF MINERAL CLAIMS

CROSS SECTION A-A'

NTS 9211/W

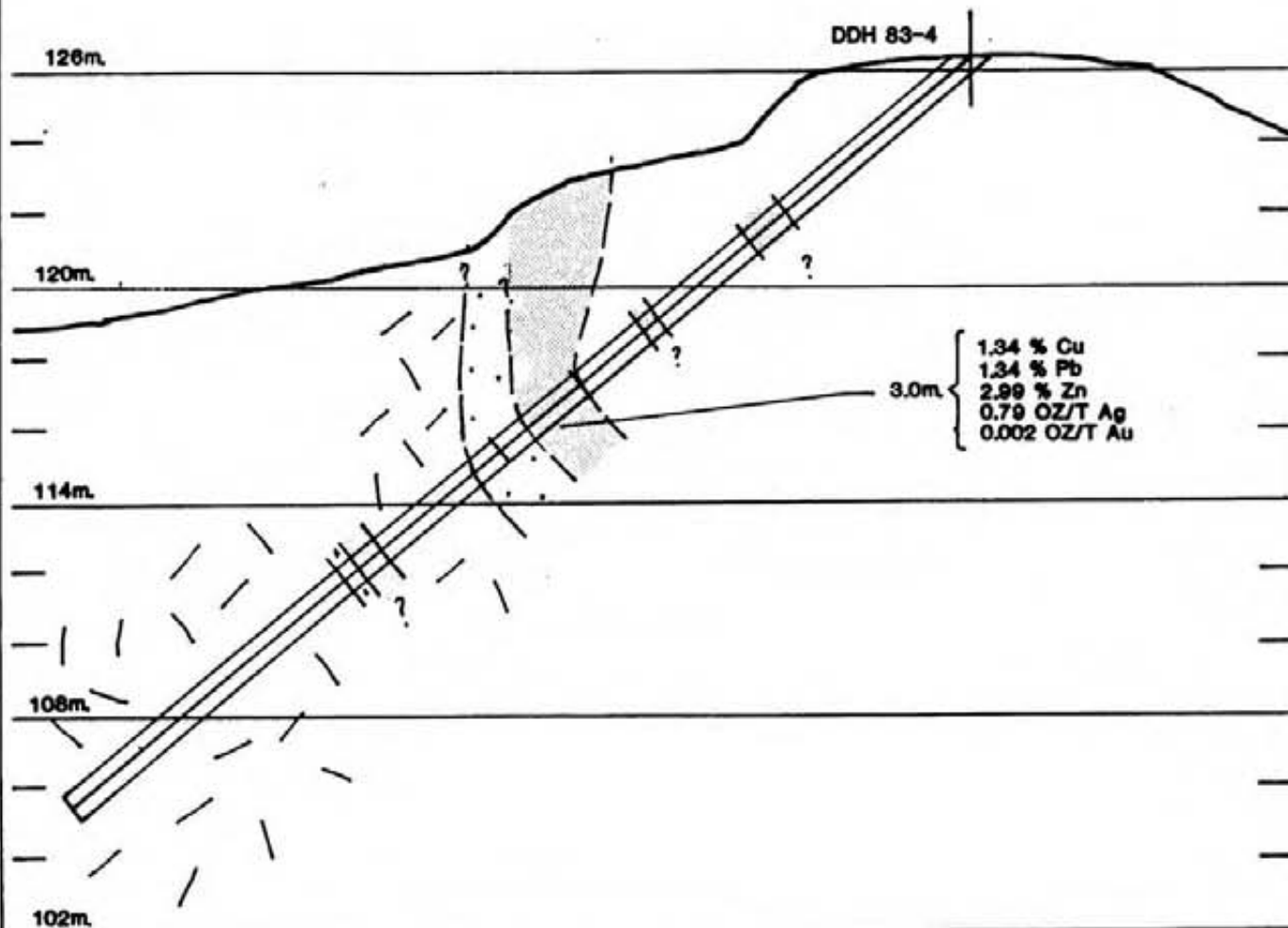
PAMICON DEVELOPMENTS LTD.

DRAWN
DAC

PROJECT
CLIFF

DATE
APR/83

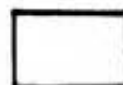
FIG.
6



Skarn



Border zone/
Hornblende granodiorite



Limestone



Contact, assumed

SCALE 1:200

ENERGEX MINERALS LTD.

CLIFF MINERAL CLAIMS

CROSS SECTION B-B'

NTS 92L/11W

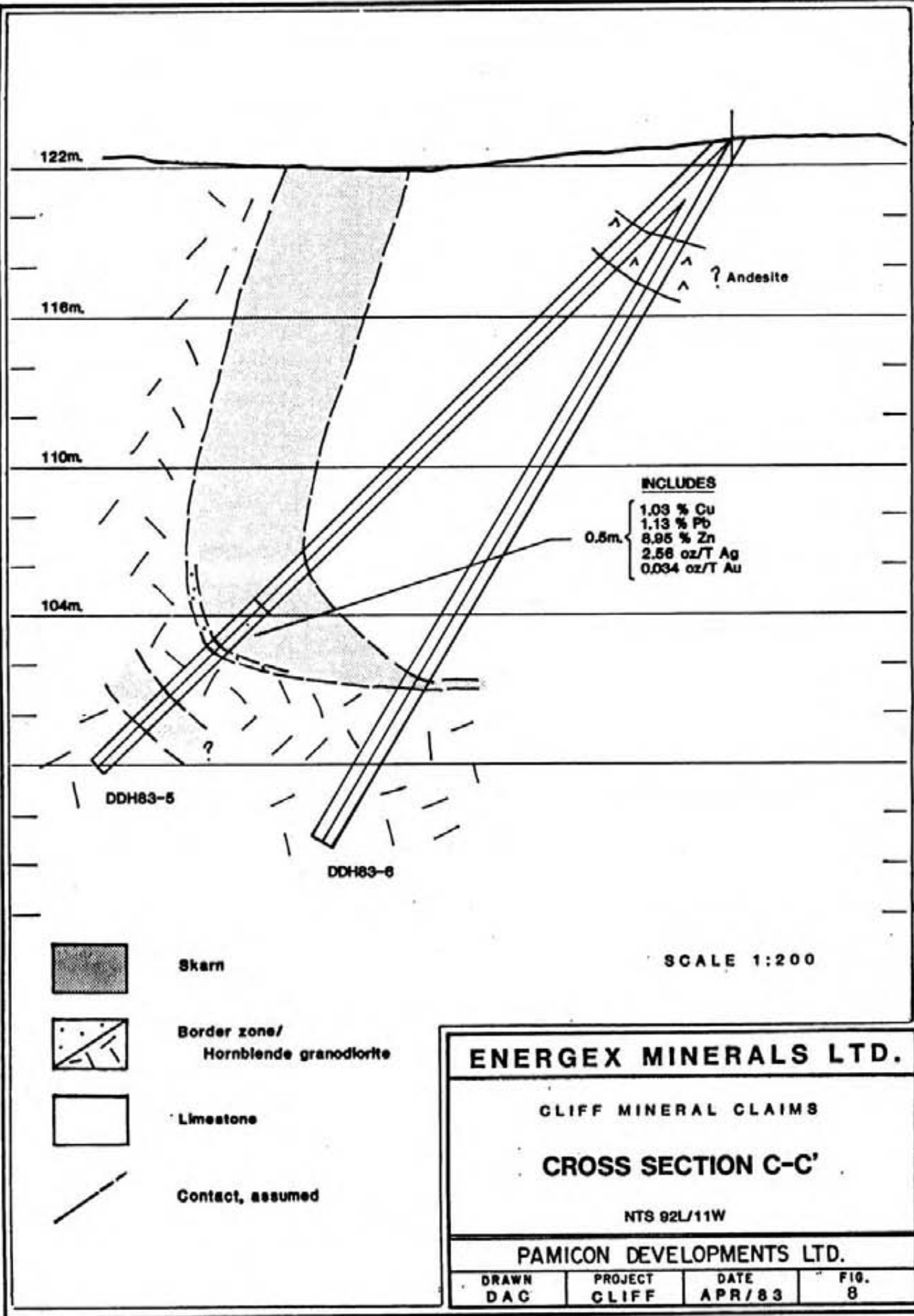
PAMICON DEVELOPMENTS LTD.

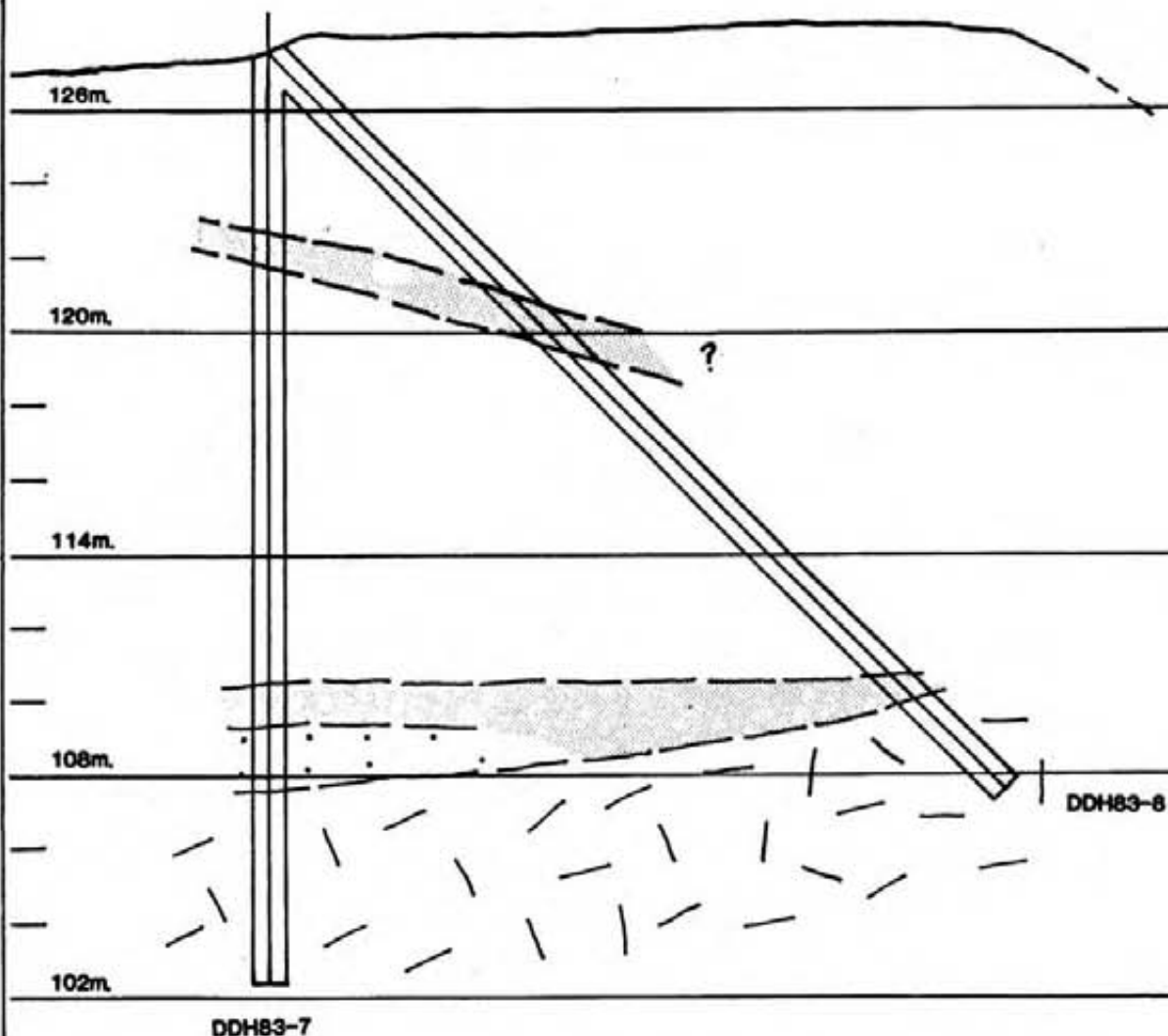
DRAWN
DAC

PROJECT
CLIFF

DATE
APR/83

FIG.
7





DDH83-7

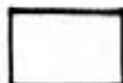
DDH83-8



Skarn



Border zone/
Hornblende granodiorite



Limestone



Contact, assumed

SCALE 1:200

ENERGEX MINERALS LTD.

CLIFF MINERAL CLAIMS

CROSS SECTION D-D'

NTS 92L/11W

PAMICON DEVELOPMENTS LTD.

DRAWN
DAC

PROJECT
CLIFF

DATE
APR/83

FIG.
9

DRILL LOG

LEGEND

APPENDIX V

QVB	-	Overburden
LST	-	Limestone
HBGR	-	Hornblende granodiorite
c.a	-	Core axis
Py	-	Pyrite
CP	-	chalcopyrite
GL	-	galena
SP	-	Sphalerite
PR	-	pyrrhotite
CL	-	chlorite
CA	-	calcite
GA	-	garnet
QZ	-	quartz
MG	-	magnetite
Bo	-	bornite
HE	-	hematite
EP	-	epidote
SE	-	sericite
CY	-	clay
HB	-	hornblende
KF	-	potassium feldspar

DRILL HOLE LOG

AZIM: 292°	ELEV: 126.43 m
DIP: -045°	LENGTH: 23.8 m
	CORE SIZE: 80

DIP TEST

FOOTAGE	READING	CORRECT	FOOTAGE	READING	CORRECT

PROPERTY:

Cliff Group - Swamp Showing

CLAIM NO:

SECTION:

LOGGED BY: R.Darney, D.A. Caulfield

DATE LOGGED:

DRILLING CO: Globe Diamond Drilling Ltd.

ASSAYED BY: Chemex Labs Ltd.

STARTED: March 22/83

COMPLETED: March 23/83

PURPOSE: To test mineralized skarn zone

CORE RECOVERY: $\geq 90\%$

FOOTAGE		DESCRIPTION	SAMPLE NO.	FOOTAGE		LENGTH	ASSAYS					
FROM	TO			FROM	TO		Cu %	Pb %	Zn %	Ag oz/T	Au oz/T	
0	2.0 m	QVB (Broken LST)										
2.0	11.0 m	LST - Coarsely grained light grey marbilized lime- stone - calcite grains up to 2 cm Grain boundaries accentuated by coatings of pyrobitumen:black coatings; more pronounced towards skarn contact. No original bedding features										
11.0	18.8 m	Skarn - upper contact @ 50° to c.a. lower contact obscured in broken rubble. 11.0-13.2 Dark green - black, massive sulphide skarn sulphides: PY:strong euohedral habit grains up to .5 cm,more obvious at skarn contact										
		CP: interstial Pyrite diss. + Blebs.	37812	11.0	12.1	1.1 m	0.52	0.14	2.77	1.04	0.090	
		SP: Dark Red Brown Diss. GL:minor, Diss. Crude banding in sulphides - 45° to c.a. * Magnetite throughout but strong from 12.3-13.2m Gangue: includes CL, CA, QZ, Red & Green GA 11.3-11.5 m broken w/ 30° c.a. brecciated sulphide vein. 13.2 - 13.7 m strong GA/CL skarn w/ appearance of skarn as a crackle zone with CL -CA - QZ - sulphide matrix 13.7-14.2 m-Remnant LST, moderately altered with minor sulphides	37813	12.1	13.2	1.1 m	0.79	0.79	6.94	3.80	0.012	
		upper contact @ 55° to c.a. Lower Boundary @ 45° to c.a. Band of coarsely xtalline PY for 3 cm @ lower boundary.	37814	13.2	14.2	1.0 m	0.23	0.62	1.15	0.72	0.003	

DRILL HOLE LOG

AZIM:	292°	ELEV:	126.43 m
DIP:	-045°	LENGTH:	23.8 m
		CORE SIZE:	BQ

DIP TEST

FOOTAGE	READING	CORRECT	FOOTAGE	READING	CORRECT

PROPERTY:

Cliff Group - Swamp Showing

CLAIM NO:

SECTION:

LOGGED BY: R.Darney, D.A. Caulfield

DATE LOGGED:

DRILLING CO: Globe Diamond Drilling Ltd.

ASSAYED BY: Chemex Labs Ltd.

CORE RECOVERY: 90%

[illegible]

LOCATION: Plane Table Map A18

DRILL HOLE LOG

HOLE No.	DDH83-1
----------	---------

PAGE NO.
3/3

AZIM: 292° ELEV: 126.43 m

DIP: -045° LENGTH: 23.8 m

CORE SIZE: BQ

STARTED: March 22/83

COMPLETED: March 23/83

PURPOSE: To test mineralized skarn zone

CORE RECOVERY:

DIP TEST

FOOTAGE	READING	CORRECT	FOOTAGE	READING	CORRECT

PROPERTY:

Cliff Group - Swamp Showing

CLAIM NO:

SECTION:

LOGGED BY: R.Darney, D.A. Caulfield

DATE LOGGED:

DRILLING CO: Globe Diamond Drilling Ltd.

ASSAYED BY: Chemex Labs Ltd.

[illegible]

LOCATION: Plane Table A18

DRILL HOLE LOG

HOLE No.
DDH83-2

PAGE NO.
2/2

AZIM: 292°	ELEV: 126.43 m
DIP: -060°	LENGTH: 29.7 m
	CORE SIZE: 80

DIP TEST

FOOTAGE	READING	CORRECT	FOOTAGE	READING	CORRECT

PROPERTY:

Cliff Group - Swamp Showing

CLAIM NO:

SECTION:

LOGGED BY: R.Darney, D.A. Caulfield

DATE LOGGED:

DRILLING CO: Globe Diamond Drilling Ltd.

ASSAYED BY: Chemex Labs Ltd.

STARTED:	March 24/83
COMPLETED:	March 25/83
PURPOSE:	Intercept down Dip extension of zone intersected in DDH83-1
CORE RECOVERY:	> 95%

[illegible]

DRILL HOLE LOG

AZIM: 292° ELEV: 126.43 m

DIP: -080° LENGTH: 25 m

CORE SIZE: BQ

STARTED: March 25/83

COMPLETED: March 26/83

PURPOSE: Intersect Zone under DDH83-1.2

CORE RECOVERY: > 95%

DIP TEST

FOOTAGE	READING	CORRECT	FOOTAGE	READING	CORRECT

PROPERTY:

Cliff Group - Swamp Showing

CLAIM NO:

SECTION:

LOGGED BY: R.Darney, D.A. Caulfield

DATE LOGGED:

DRILLING CO: Globe Diamond Drilling Ltd.

ASSAYED BY: Chemex Labs Ltd.

[illegible]

LOCATION: 2 mE of A18

AZIM: 345° ELEV: 126.43 m

DIP: -050 LENGTH: 32.6 m

CORE SIZE: BO

STARTED: March 26/83

COMPLETED: March 27/83

PURPOSE: To test strike extension of the zone

CORE RECOVERY: > 95%

DRILL HOLE LOG

HOLE No.

DDH83-4

PAGE NO.

1/2

DIP TEST

PROPERTY:

Cliff Group - Swamp Showing

CLAIM NO:

SECTION:

LOGGED BY: R.Darney, D.A. Caulfield

DATE LOGGED:

DRILLING CO: Globe Diamond Drilling Ltd.

ASSAYED BY: Chemex Labs Ltd.

[illegible]

LOCATION: 2 m E of 18

AZIM: 345° ELEV: 126.43 m

DIP: -050 LENGTH: 32.6 m

CORE SIZE: BQ

STARTED: March 26/83

COMPLETED: March 27/83

PURPOSE: To test strike extension of the zone

CORE RECOVERY: 95%

DRILL HOLE LOG

HOLE No.	DDH83-4
----------	---------

PAGE NO.
2/2

DIP TEST

FOOTAGE	READING	CORRECT	FOOTAGE	READING	CORRECT

PROPERTY:

Cliff Group - Swamp Showing

CLAIM NO:

SECTION:

LOGGED BY: R.Darney, D.A. Caulfield

DATE LOGGED:

DRILLING CO: Globe Diamond Drilling Ltd.

ASSAYED BY: Chemex Labs Ltd.

[illegible]

[illegible]

[illegible]

[illegible]

PAGE NO.
1/2

LENGTH: 32.6 m

CORE SIZE: BO

CORE RECOVERY: $> 95\%$

Cliff Group - Swamp Showing

ASSAYED BY: Chemex Labs Ltd.

FOOTAGE	READING	CORRECT	FOOTAGE	READING	CORRECT

[illegible]

LOCATION: Between Plane Table Points

36 & 37

AZIM: 292

ELEV: 123.06 m

DIP: -060°

LENGTH: 32.6 m

CORE SIZE: B0

STARTED: March 29/83

COMPLETED: March 30/83

PURPOSE:	Down hole extension of intersection in DDH83-5
----------	---

CORE RECOVERY: > 95%

DRILL HOLE LOG

HOLE No.
DDH83-6

PAGE NO.
272

DIP TEST

FOOTAGE	READING	CORRECT	FOOTAGE	READING	CORRECT

PROPERTY:

Cliff Group - Swamp Showing

CLAIM NO:

SECTION:

LOGGED BY: R.Darney, D.A. Caulfield

DATE LOGGED:

DRILLING CO: Globe Diamond Drilling Ltd.

ASSAYED BY: Chemex Labs Ltd.

[illegible]

LOCATION: Plane Table A 40

DRILL-HOLE LOG

HOLE No. DDH83-7	
----------------------------	--

PAGE NO.
2/2

AZIM:	N/A	ELEV:	127.59 m
-------	-----	-------	----------

DIP: -90° LENGTH: 25.0 m

CORE SIZE: BQ

STARTED: March 30/83

COMPLETED: March 31/83

PURPOSE: To intersect lateral extension of zone intercepted in DDH83-1,2,3,4
--

CORE RECOVERY: 7 95%

DIP TEST

FOOTAGE	READING	CORRECT	FOOTAGE	READING	CORRECT

PROPERTY:

Cliff Group - Swamp Showing

CLAIM NO:

SECTION:

LOGGED BY: R.Darney, D.A. Caulfield

DATE LOGGED:

DRILLING CO: Globe Diamond Drilling Ltd.

ASSAYED BY: Chemex Labs Ltd.

[illegible]

LOCATION: Plane Table A 40

DRILL HOLE LOG

HOLE No.	DDH83-8
-----------------	---------

PAGE NO.
1/2

AZIM: 074° ELEV: 127.59 m

DIP: -045° LENGTH: 28.0 m

CORE SIZE: BQ

STARTED: March 31/83

COMPLETED: March 31/83

PURPOSE:	Test Geochemical high in saddle between LST ridges
----------	--

CORE RECOVERY: > 95%

DIP TEST

FOOTAGE	READING	CORRECT	FOOTAGE	READING	CORRECT

PROPERTY:

Cliff Group - Swamp Showing

CLAIM NO:

SECTION:

LOGGED BY: R.Darney, D.A. Caulfield

DATE LOGGED:

DRILLING CO: Globe Diamond Drilling Ltd.

ASSAYED BY: Chemex Labs Ltd.

[illegible]

[illegible]

7.0

DIAMOND DRILLING CONTINUED

Each hole was logged and mineralized sections were split of which half was sent to Chemex Labs Ltd., Vancouver, for analysis. Results were obtained for %Cu, %Pb, %Zn, and oz/T (F.A.) Ag and Au. All core was brought to Vancouver for storage.

Drilling conditions on the Swamp showing are described as excellent. Overburden depths were generally restricted to less than 3.0 m and the core recovery was essentially 100% once the broken, surface weathered bedrock had been penetrated. Water for the drilling was initially obtained from a pond on site but later water requirements were gained from a small creek 275 m to the southeast. Globe Diamond Drilling Ltd. was contracted to do all the drilling. With the use of the hydraulic Hydra-Core drill, the drilling was both time and cost efficient.

8.0

CONCLUSION

The diamond drilling program on the Swamp showing has indicated both lateral and vertical continuation of the contact skarn zone. Assaying of mineralized intersections also verifies the existence of economically interesting values at depth.

The mineralized skarn zone which is controlled by the limestone-intrusive contact is arcuate in shape and is near vertical to a depth of approximately 18 meters where it abruptly flattens along the base of the limestone roof pendant.

Some thickening and increase in grade appears to be associated with this flexure.

8.0

CONCLUSION CONTINUED

As is common in skarn deposits, fluxuation in both grade and thickness must be expected within the zone.

Although the drilling has shown a local depth limitation to the mineralized zone, the surface geochemical expression indicates good strike length along the perimeter of the limestone. The overall strike length of the zone indicates good potential for the development of a small tonnage high grade base metal deposit with precious metal values. Such a zone with well defined contacts and a limestone hanging wall would readily lend itself to open cut mining methods.

The existence of good grade mineralization in the Swamp showing with favourable geological strike potential in combination with the many other property showings makes the Cliff group an excellent exploration target.

No economic sulphide mineralization was seen within the intrusive rocks. However, the locally intense alteration assemblages are suggestive of alteration patterns seen in porphyry type copper deposits. Since the property is nearby and in an identical geologic setting to that of the Island Copper deposit, care should be taken to not overlook the porphyry potential of the property while development of the skarns is being carried out.

9.0

RECOMMENDATIONS

The following program of continued exploration is hereby recommended for the Cliff Property.

(1) Re-mapping of the existing grid at 1:2500 scale with emphasis on defining the limits of the limestones and distribution of the intrusives.

9.0

RECOMMENDATIONS CONTINUED

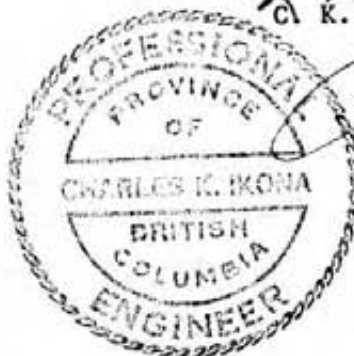
- (2) Close spaced magnetometer surveying in the vicinity of known showings. The magnetite content in the Swamp showings indicates that the skarn zone may be definable along strike with the aid of very close spaced surveying.
- (3) Re-evaluation of present geochemical data following (1) & (2).
- (4) Fill-in geochemistry on intermediate lines to verify newly acquired data.
- (5) A diamond drilling program to further delineate the Swamp zone mineralization and preliminary drilling of other showings to obtain mineralized intersection for assay checks on previous surface results.

Respectfully submitted,

David A. Caulfield, Geologist

Bob J. Darney, Geologist

Cl. K. Ikona, P. Eng.



ITEMIZED COST STATEMENTWages

David Yeager - Geologist
Bowen Bay Road, Bowen Island
B.C.

Feb : 25 & 28 - ½ day x 2 @ \$250.00/day	= \$250.00	
March : 1, 2 & 3 - 2½ days @ \$250.00/day	= 562.50	
April : 21 - ½ day @ \$250.00/day	= 62.50	\$ 875.00

Robert Darney - Geologist
R.R. #1
Sechelt, B.C.

Feb. 25 & 28 - 2 days @ \$250.00/day	= 500.00	
March : 15 - 31 - 14 days @ \$125.00/day	= 1,750.00	
2 days @ \$250.00/day	= 500.00	
April : 1 & 2 - 2 days @ \$250.00/day	= 500.00	\$3,250.00

David Caulfield - Geologist
#208-850 W. Hastings St.
Vancouver, B.C.

March : 18 - 30, 12 days @ \$100.00	= 1,200.00	
April : 1 & 2, 2 days @ \$125.00/day	= 250.00	\$1,450.00

Kevin Milledge, Accountant
#208-850 W. Hastings St.
Vancouver, B.C.

March : 28 - ½ day @ \$150.00	= 37.50	\$ 37.50
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TOTAL WAGES		<u>\$5,612.50</u>
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Communications & Telephone

L. D. phone charges	7.48
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Accounting

K. Milledge - 1 day @ \$100.00/day	100.00
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Outside Reproduction

Western Reproducers	11.29
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Commercial Freight

Pacific Western	17.00
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Equipment Rental

C. Philbrook - Rental D6	\$1,337.50	
C. Philbrook -Removal drill equipment	<u>867.25</u>	\$2,204.75

Drill Contract

Globe Drilling - 232.4 metres @ \$51.61/metre		11,993.10
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Chemical Analyses

Chemex Labs. Ltd.
212 Brooksbank Ave.
North Vancouver, B.C.

Invoice #18310800		
9 samples assayed for Cu,Pb,Zn,Ag,Au.		
@ \$25.00	225.00	
9 samples pulverize @ 3.75	<u>33.75</u>	

Invoice #18310869		
26 samples assayed for Cu,Pb,Zn,		
Ag, Au @ \$26.25	682.50	
26 samples pulverize @ 3.75	<u>97.50</u>	

Invoice #18310956		
2 samples assayed for Cu,Pb,Zn,Ag,		
Au @ \$26.25	52.50	
2 samples pulverize @ 3.75	<u>7.50</u>	

Invoice #18310849		
8 samples assayed for Cu,Pb,Zn,		
Ag, Au @ \$25.00	200.00	
8 samples pulverize @ 3.75	<u>30.00</u>	1,328.75

Miscellaneous Expense

194.28

Materials & Supplies expended

Lumber, tools, nails, fittings		256.63
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Travel Expense

MacDonald Travel	172.80	
MacDonald Travel	<u>345.60</u>	518.40

Food & Accommodation

32 man days @ \$48.53/day	1,552.84
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Automotive Expense

Chevron - Fuel	152.00	
Truck Rental -		
14 days @ \$35.00/day	<u>490.00</u>	642.00

Report Preparation

David Caulfield - Geologist		
12 days @ \$100.00/day	1,200.00	
Typing & Reproduction	<u>300.00</u>	1,500.00

Contractors Fees

2,955.97

TOTAL PROJECT COSTS

\$28,894.99

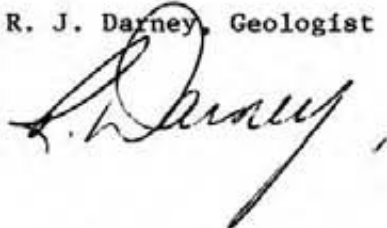
STATEMENT OF QUALIFICATIONS

I, ROBERT J. DARNEY of R.R. #1, Sechelt, in the Province of British Columbia, DO HEREBY CERTIFY THAT:

1. I am a Geologist in the employment of Pamicon Developments Ltd. with offices at 208 - 850 West Hastings St. Vancouver, B.C.
2. I am a graduate of the University of British Columbia with a Bachelor of Science Degree in Geology.
3. My primary employment since 1966 has been in the field of mineral exploration.
4. My experience has encompassed a wide range of geological environments and has allowed considerable familiarization with geophysical, geochemical, and diamond drilling techniques.
5. This report is based on data generated from work done by myself and David Caulfield under the supervision of C.K. Ikona, P. Eng. I visited the property during the month of March of 1983.
6. I have no interest in the property described herein, nor in securities of Energex Minerals Ltd.; nor do I expect to acquire any such interests.

DATED at VANCOUVER, BRITISH COLUMBIA, this 22 of Aug. 1983

R. J. Darney, Geologist



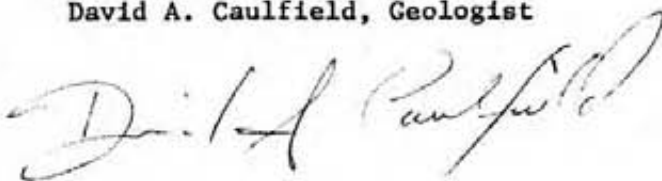
STATEMENT OF QUALIFICATIONS

I, DAVID A. CAULFIELD, of 3433 West 12th Street, Vancouver, in the Province of British Columbia, DO HEREBY CERTIFY THAT:

1. I am a Geologist in the employment of Pamicon Developments Ltd. with offices at 208-850 West Hastings St., Vancouver, B.C.
2. I am a graduate of the University of British Columbia with a Bachelor of Science Degree in Geology.
3. My primary employment since 1978 has been in the field of mineral exploration.
4. My experience has encompassed a wide range of geological environments and has allowed considerable familiarization with geophysical, geochemical, and diamond drilling techniques.
5. This report is based on data generated from work done by myself and R. Darney under the supervision of C.K. Ikona, P. Eng. I visited the property during March 1983.
6. I have no interest in the property described herein, nor in securities of Energex Minerals Ltd.; nor do I expect to acquire any such interests.

DATED at VANCOUVER, BRITISH COLUMBIA, this 9th day of MAY 1983

David A. Caulfield, Geologist



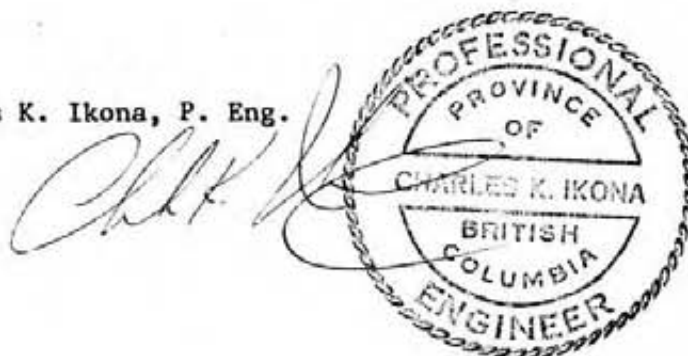
ENGINEERS CERTIFICATE

I, CHARLES K. IKONA, of 5 Cowley Court, Port Moody in the Province of British Columbia, DO HEREBY CERTIFY THAT:

1. I am a Consulting Mining Engineer with offices at 208 - 850 West Hastings Street, Vancouver, British Columbia.
2. I am a graduate of the University of British Columbia with a degree in Mining Engineering.
3. I am a member in good standing of the Association of Professional Engineers of the Province of British Columbia.
4. This report is based on work carried out under my supervision by Robert J. Darney, Geologist and David A. Caulfield, Geologist.
5. I have no interest in the property reported on.
6. I consent to the use by Energex Minerals Ltd. of this report in a Prospectus or Statement of Material Facts or any other such document as may be required by the Vancouver Stock Exchange or the office of the Superintendent of Brokers.

DATED at VANCOUVER, BRITISH COLUMBIA, this 16th day of Aug. 1983

Charles K. Ikona, P. Eng.





CHEMEX LABS LTD.

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: (604) 984-0221
TELEX: 043-52597

• ANALYTICAL CHEMISTS

• GEOCHEMISTS

• REGISTERED ASSAYERS

CERTIFICATE OF ASSAY

TO : PAMICON DEVELOPMENTS LIMITED

208 - 850 W. HASTINGS STREET
VANCOUVER, B.C.
V6E 1E1

CERT. # : A8310800-001-A
INVOICE # : 18310800
DATE : 6-APR-83
P.O. # : NONE

Sample description	Prep code	Cu %	Pb %	Zn %	Ag FA oz/T	Au FA oz/T	
37812	207	0.52	0.14	2.77	1.04	0.090	--
37813	207	0.79	0.79	6.94	3.80	0.012	--
37814	207	0.23	0.62	1.15	0.72	<0.003	--
37815	207	1.48	4.40	6.41	3.95	0.010	--
37816	207	0.21	0.66	0.70	0.12	<0.003	--
37817	207	0.17	0.06	0.56	0.16	0.005	--
37818	207	0.96	0.20	0.15	1.28	0.003	--
37819	207	0.04	0.01	0.03	0.02	<0.003	--
37820	207	<0.01	<0.01	0.01	0.04	<0.003	--

.....
Registered Assayer, Province of British Columbia



MEMBER
CANADIAN TESTING
ASSOCIATION



CHEMEX LABS LTD.

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: (604) 984-0221
TELEX: 043-52597

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• GEOCHEMISTS

• REGISTERED ASSAYERS

CERTIFICATE OF ASSAY

TO : PAMICON DEVELOPMENTS LIMITED

208 - 850 W. HASTINGS STREET
VANCOUVER, B.C.
V6E 1E1

CERT. # : A8310849-001-A
INVOICE # : I8310849
DATE : 11-APR-83
P.O. # : NONE
CLIFF

CC: ENERGEX MINERALS

ATTN: A. D. BIKRELAND

Sample description	Prep code	Cu %	Pb %	Zn %	Ag FA oz/T	Au FA oz/T	
37821	207	1.32	0.58	9.39	3.23	0.022	--
37822	207	3.60	0.22	9.79	2.57	0.006	--
37823	207	0.78	0.15	10.70	1.45	0.010	--
37824	207	1.32	0.55	13.70	2.20	0.006	--
37825	207	0.15	0.03	0.41	0.02	<0.003	--
37826	207	1.07	0.29	2.26	1.70	<0.003	--
37827	207	0.04	0.02	0.36	0.02	<0.003	--
37828	207	0.05	0.02	0.11	0.10	0.003	--



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CHEMEX LABS LTD.

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1

TELEPHONE: (604) 984-0221
TELEX: 043-52597

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• GEOCHEMISTS

• REGISTERED ASSAYERS

CERTIFICATE OF ASSAY

TO : PAMICON DEVELOPMENTS LIMITED

208 - 850 W. HASTINGS STREET
VANCOUVER, B.C.
V6E 1E1

CERT. # : A8310869-001-A

INVIGICE # : 18310869

DATE : 12-APR-83

P.O. # : CLIFF CL

CLIFF CLAIMS

ATTN: D.A. CAULFIELD & B. CARNEY

Sample description	Prep code	Cu %	Pb %	Zn %	Ag FA oz/T	Au FA oz/T	
37829	207	16.60	0.03	2.26	8.66	0.005	--
37830	207	0.13	<0.01	0.03	0.08	<0.003	--
37831	207	0.04	0.04	0.10	<0.01	<0.003	--
37832	207	0.02	0.06	0.05	<0.01	<0.003	--
37833	207	1.26	0.74	2.74	1.00	<0.003	--
37834	207	1.64	0.04	2.50	0.36	0.003	--
37835	207	0.07	0.01	0.10	<0.01	<0.003	--
37836	207	<0.01	0.01	0.02	<0.01	<0.003	--
37837	207	0.32	0.05	0.77	0.08	<0.003	--
37838	207	<0.01	0.01	0.04	<0.01	<0.003	--
37839	207	1.12	3.26	3.72	1.00	0.003	--
37840	207	0.23	0.42	0.33	0.26	0.003	--
37841	207	0.12	0.50	0.43	0.08	<0.003	--
37842	207	0.03	0.32	0.30	0.10	<0.003	--
37843	207	0.08	0.50	1.48	0.16	<0.003	--
37844	207	1.03	1.13	8.95	2.56	0.034	--
37845	207	0.14	0.22	1.22	0.48	0.003	--
37846	207	<0.01	0.02	0.05	<0.01	<0.003	--
37847	207	0.07	0.11	0.09	0.05	<0.003	--
37848	207	0.28	0.08	0.08	0.40	<0.003	--
37849	207	<0.01	<0.01	0.01	0.02	<0.003	--
37850	207	0.01	0.01	0.03	0.04	<0.003	--
70796	207	0.05	0.01	0.01	<0.01	<0.003	--
70797	207	1.01	0.01	0.03	0.30	<0.003	--
70798	207	0.05	0.01	0.01	0.04	<0.003	--
70800	207	<0.01	0.01	<0.01	<0.01	<0.003	--

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Registered Assayer, Province of British Columbia



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• GEOCHEMISTS

• REGISTERED ASSAYERS

CERTIFICATE OF ASSAY

TC : PAMICON DEVELOPMENTS LIMITED

208 - 850 W. HASTINGS STREET
VANCOUVER, B.C.
V6E 1E1

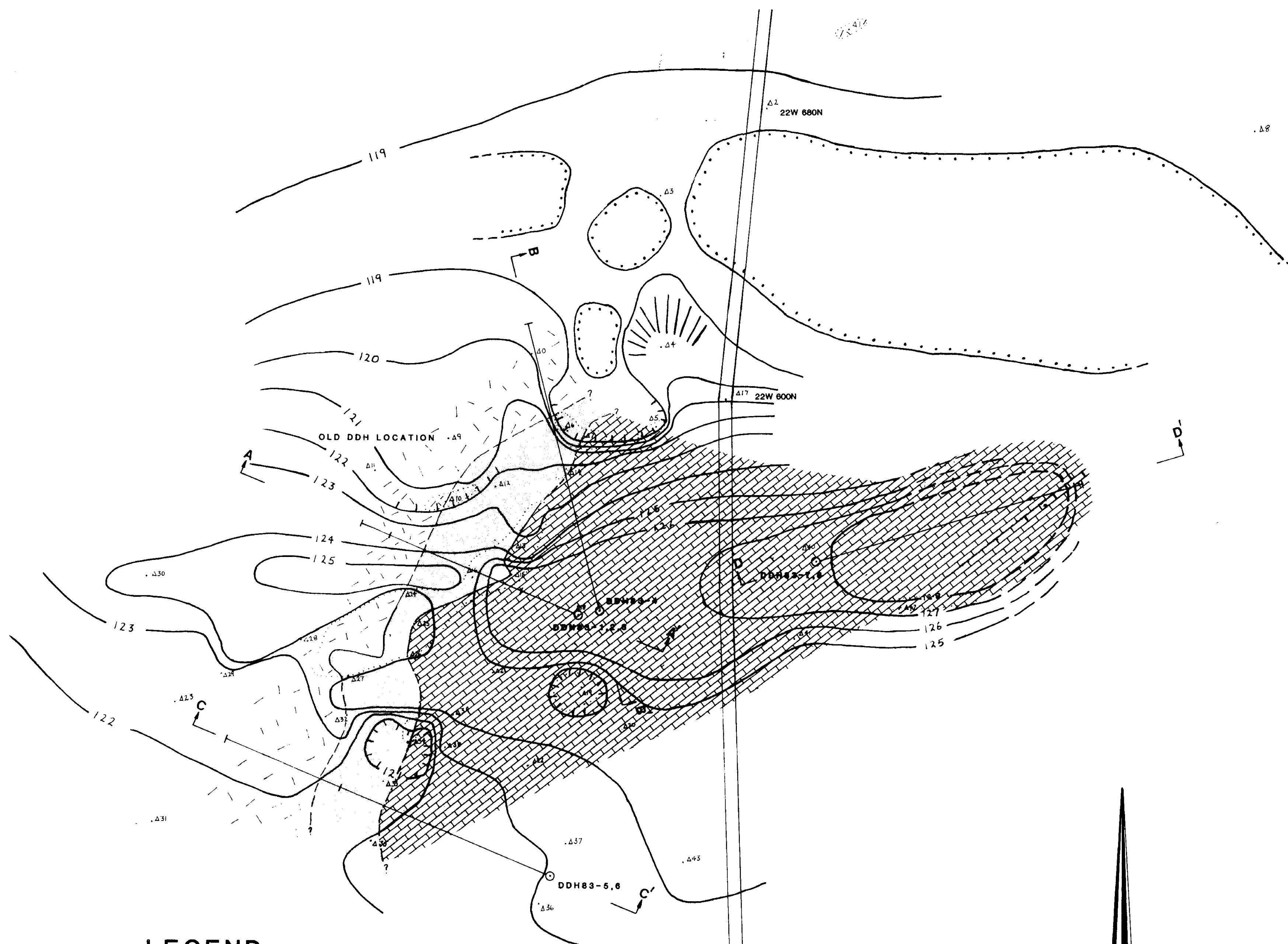
CERT. # : A8310956-001-
INVOICE # : I8310956
DATE : 18-APR-83
P.C. # : NONE

Sample description	Prep code	Cu %	Pb %	Zn %	Ag FA oz/T	Au FA oz/T	
66051	207	0.11	<0.01	0.06	0.14	<0.003	--
70799	207	0.03	<0.01	0.04	0.06	<0.003	--






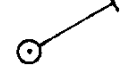






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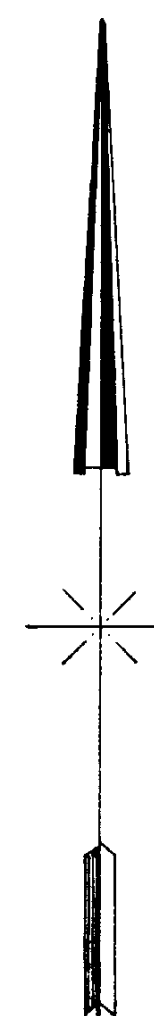


LEGEND

-  SKARN/ INCLUDING BORDER ZONE
-  HORNBLENDE GRANODIORITE
-  LIMESTONE
-  GEOLOGIC CONTACT, ASSUMED
-  OUTCROP
-  DRILL HOLE -HORIZONTAL PROJECTION
-  SWAMP
-  DUMP
-  OPEN CUT
-  SURVEY STATION

ELEVATION CONTOURS IN METERS ASL

22W(1981 GRID)



11,407

ENERGEX MINERALS LTD.

CLIFF MINERAL CLAIMS
COMPILATION MAP
SWAMP SHOWING

4 2 0 4 8 meters

PAMICON DEVELOPMENTS LTD.

NTS 92L/11W	SCALE 1:200	DATE APRIL, 1983	FIGURE 5
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