D E F I A N T   M I N E R A L S   I N C.

REPORT ON THE IRON COP SHOWING

NANAIMO AND ALBERNI MINING DIVISIONS

BRITISH COLUMBIA

NTS 92 L/5E

BY

R. A. GONZALEZ, M.Sc., F.G.A.C.

ARCHEAN ENGINEERING LIMITED

JUNE, 1987

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SUMMARY

In 1987 **DEFIANT MINERALS INC.** optioned three Modified Grid Mineral Claims comprised of 40 units and one fractional claim in the Alberni and Nanaimo Mining Division of northern Vancouver Island, approximately 50 km southwest of Port Hardy. Work completed by **DEFIANT** including trenching, prospecting, geochemical sampling, and a ground magnetometer survey outlined four significant targets which warrant additional systematic exploration.

The geology of the claims indicates that the area is underlain by Vancouver Group rocks of Mesozoic age. This Group consists in part of the Triassic Karmutsen Formation and the Jurassic Bonanza Group. The Karmutsen Formation consists of a thick sequence of dark green basalts while the Bonanza Group consists of a thick sequence of dark green andesites, rhyodacites, and flow breccias. The area surrounding the Iron Cop Showing, the principal mineral showing and main target on the claims, is further complicated by the intrusion of post-Bonanza aged granitic rocks.

Development work prior to the 1987 programme consisted of surface sampling, trenching, and diamond drilling which indicated copper-gold-silver mineralization in narrow, structurally controlled zones. The mineralization encountered in the drill holes, although presently uneconomic, gave sufficient encouragement for **DEFIANT** to do additional development programme designed to test the continuation of mineralization along strike and to examine numerous other showings in the vicinity of the Iron Cop. The outcome of this programme identified four specific targets, a very high, nearly circular magnetic anomaly, an apparently structurally controlled, east-west magnetic anomaly, an east-west shear which hosts the Iron Cop showing, and a one metre wide quartz vein. Further work is now planned to upgrade these exploration results.

In general, the Iron Cop property has possibilities of developing modest tonnages of high-grade copper-gold bearing material; the potential of other showing, mineral occurrences, and anomalous geochemical samples is, at present, unknown. A basic Phase I programme of prospecting, detailed geological and structural mapping, trenching, detailed geochemical sampling, close-spaced magnetometer surveying, 2000 feet of diamond drilling, and assaying of previous diamond drill core is recommended, and estimated to cost $130,000. A Phase II programme of backhoe trenching and 4000 feet diamond drilling is contingent on the successful completion of Phase I and an independent engineer's recommendation to proceed.

1.0 INTRODUCTION

The Iron Cop Showing is the principal mineralized zone on the claims. The area has been sporadically explored since it was first staked in the early 1960's. The showing covers an area of approximately 150 m by 100 m and is underlain by weakly but locally moderate- to strongly- hydrothermally altered basalts in a volcanic package which has been subjected to low-grade regional metamorphism. This basalt is considered to be part of the Karmutsen Formation. The hydrothermal alteration, characteristic of a propylitic zone (i.e. epidote, chlorite, carbonate, and ubiquitous disseminated pyrite), extends beyond the area covered by the principal showing. Local moderate- to strong- hydrothermal alteration along shear zones includes the destruction of pyroxenes, hornblende, and plagioclase and the formation of chlorite and sericite. Associated with the hydrothermal zone are veins of quartz, pyrite, magnetite, galena, and chalcopyrite. Interesting values of gold and silver are also associated with the 'high-grade' copper sections.

This report discusses the economic potential of the Iron Cop Showing and other showing, mineral occurrences, and anomalous geochemical samples in the surrounding area and outlines a two-staged exploration and development programme designed to test the lateral extension of previously drilled mineralization.

1.1 LOCATION AND ACCESS

The Iron Cop Showing is located near Brooks Peninsula on the northwest end of Vancouver Island (Figure 1). Port Alice, the nearest community, is located 15 km to the northeast; Port Hardy, the principal population centre for the north end of the Island, is 50 km to the north. The claims are within the Central Vancouver Island Mountain Range which trends north to northwest with individual mountains separated by wide valleys. The Iron Cop area is on the northwestern flank of this range and is typified by rounded, subdued mountains and steep canyon and bluff studded valleys trending northwest and northeast. The Iron Cop Showing straddles the height of land between Klaskish River to the northwest, Colonial Creek to the northeast, and Power River to the southeast and is covered on Government Topographic Maps NTS 92L/5E.

Terrestial coordinates for the centre of the claim block are as follows:

50° 16' North Latitude
127° 41' West Longitude

Access to the property is currently by helicopter from Port Hardy; the trip usually taking approximately 20 minutes. Logging roads from Quatsino Sound extend to within 5 km of the northwestern boundary. A logging road starting near the southern end of Neroutsos Inlet and extending along Colonial Creek reaches a point approximately 4 km east of the eastern claim boundary. Tidewater is no more than 25 km in virtually any direction. The proximity of the area to tidal water is considered a decided advantage in the potential economics of any mineral deposit which might be developed.

Topography is very steep rising from 300 m (1000 feet) along the northwestern corner to over 1080 m (3550 feet) on Hart Mountain, approximately 4 km to the southeast. The area is covered with a dense undergrowth of huckleberry, slide-alder, salal, salmonberry, and small amounts of Devil's Club. Primary forest cover is red cedar, balsam fir, and western hemlock. Yellow cypress and stunted pine are the dominant species in swamp and transitional areas. Alder is the main deciduous species and is abundant in moist sites in areas of second growth and along stream courses. Immature lakes and swamps are sparse and are generally confined to the drainage divide which bisects the property in a northeast direction.

1.2 PHYSIOGRAPHY AND CLIMATE

The Iron Cop Showing lies within a physiographic subdivision, distinguished by Holland (1964) and named the Outer Mountain Area. The Vancouver Island Mountains are the dominant feature of this subdivision and represent a rugged terrain where elevations range between sea-level, in the deeply penetrating inlets, to peaks over 2100 m. Hart Mountain at 1082 m (3550 feet) is the highest point near the claims.

Most of Vancouver Island was covered by Wisconsin ice-sheet, continuous with that of the mainland and flowing southwestward across the Island. It is this ice-sheet that was responsible for the present day shape of the Island's mountains and valleys. Armstrong et al, (1965) suggests that the sculpture of Mount Wolfenden and other peaks west of Neroutsos Inlet indicates that the thickness of Wisconsin ice reached a maximum of approximately 900 m (3000 feet). During the height of this last glacial advance it is likely that most of the claim group was covered by ice.

The climate of the north end of Vancouver Island may be considered mild, wet, and stormy; fog and copious rain fall can come at any season and continue for weeks without relief. The temperature extremes are reported to range from -12°C to 30°C. In the summer season the temperature seldom rises above 30°C. Freezing temperatures are common at the higher elevations but are moderated by the flow of moist Pacific air. Snow is ephemeral at sea-level, but a considerable snow pack develops at 750 m (2500 feet) and above. On Voodoo Peak (1026 m), immediately southeast of the claims, small patches of snow were still visible in mid-September. Gales may be expected at any season and are common in winter.

1.3 MINERAL CLAIMS

The Iron Cop Showing (Figure 2) is comprised of 40 units in three Modified Claim blocks plus one fractional claim covering an area of approximately 1000 ha (2500 acres). Table I summarizes the present status of the holdings.

TABLE I

DESCRIPTION OF THE MINERAL CLAIMS

CLAIMS	NUMBER	UNITS	ANNIVERSARY DATE
LONDON 1	1850 (9)	20	SEPTEMBER 26
BOZO 1	1595 (11)	8	OCTOBER 19
BOZO 2	1596 (11)	12	OCTOBER 19
BOZO 8 FR	2120 (10)	FR	APRIL 9

1.4 PREVIOUS WORK

No available information was found to indicate that this area had been staked prior to the staking by Wilf Tremblay in the early 1960s. Rio Tinto Canadian Explorations Ltd. optioned Tremblay's original 18 Wilf Claims in 1962 and proceeded with a mapping, trenching, and surface sampling programme in 1963. In 1964 Rio drilled at least three shallow holes and encountered stringers of chalcopyrite, magnetite, pyrite. They were searching for a porphyry type Cu-Mo deposit and held the ground for nearly ten years during which time they did sporadic but minor work on this showing as well as the Wilf Showing to the northeast.

In 1984, Brinco optioned the claims from the present holder, Jim McDonald who restaked the area in 1983, and re-examined and re-drilled the Iron Cop Showing. Detailed geologic mapping, geochemical sampling, and a magnetometer survey was also completed for a total expenditure of approximately $215,000 in order to fulfill their option agreement. Three holes were drilled beneath one of the hand trenches located near the centre of the Iron Cop Showing. Four additional holes were drilled in areas of anomalous soil geochemical values. Results of the drill programme were not encouraging enough to justify the expanded option payments call for in the agreement, and the option was terminated in late 1984.

DEFIANT MINERALS INC.

HART LAKE PROPERTY

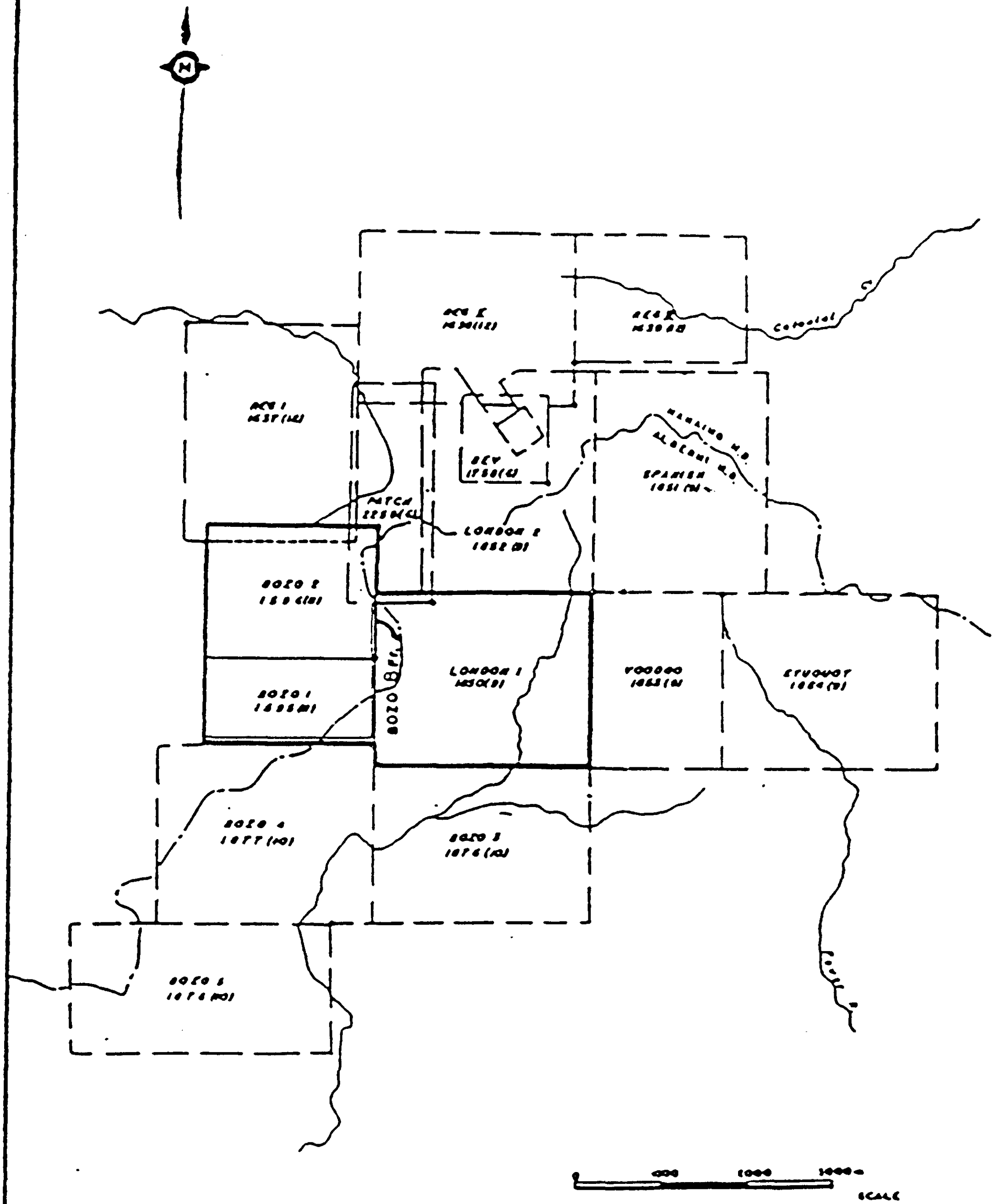
NANAIMO – ALBERNI MINING DIVISION, B.C.

LOCATION MAP

DATE: JUNE, 1987 DRAWN: R.G.

FIGURE 1

N.T.S. 92-L



DEFIANT MINERALS INC.

HART LAKE PROPERTY

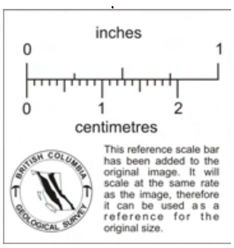
NANAIMO – ALBERNI MINING DIVISION, B.C.

CLAIM MAP

DATE: JUNE, 1987 DRAWN: R.G.

FIGURE 2

N.T.S. 92-L

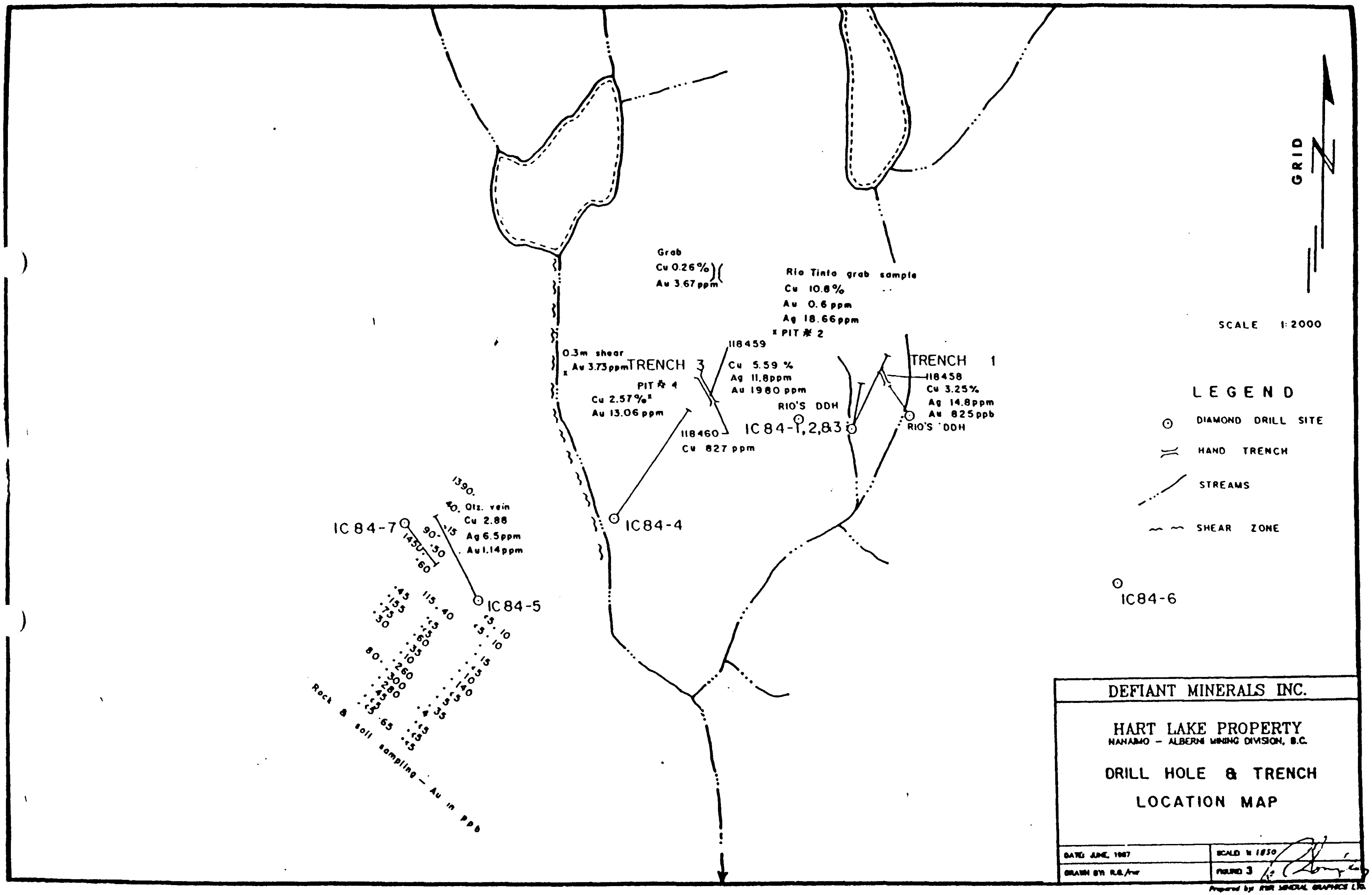


In 1985, BP Canada Inc. (Selco Division) visited the property and sampled several of the trenches and drill core. The results of some the this sampling is referred to under Section 2.3-Discussion.

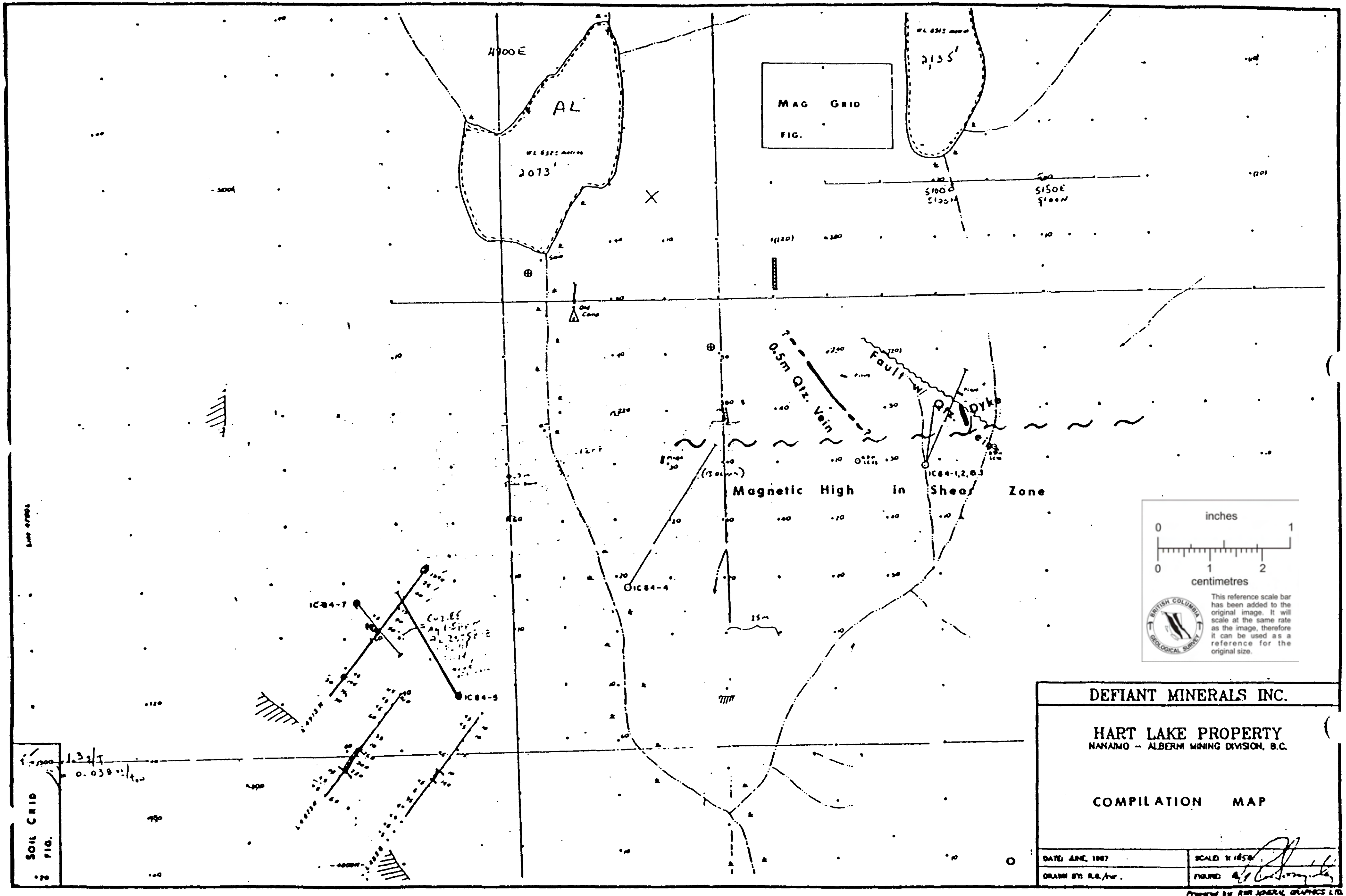
In 1986, Jim Mcdonald continued prospecting the claims. He collected, for assaying, some the Brinco's drill core (14 samples) and sampled several previously unknown mineralized shear zones (75 samples). Selected portions of the drill core assayed up to 6.5 gm/T gold and rock samples from mineralized shear zones had detectable gold with 10% in the ppm range. He also did some minor trenching using a plugger and explosives. The results of this prospecting, in the Iron Cop area, are shown on Figure 3.

1.5 SUMMARY OF WORK PERFORMED BY DEFIANT MINERALS INC.

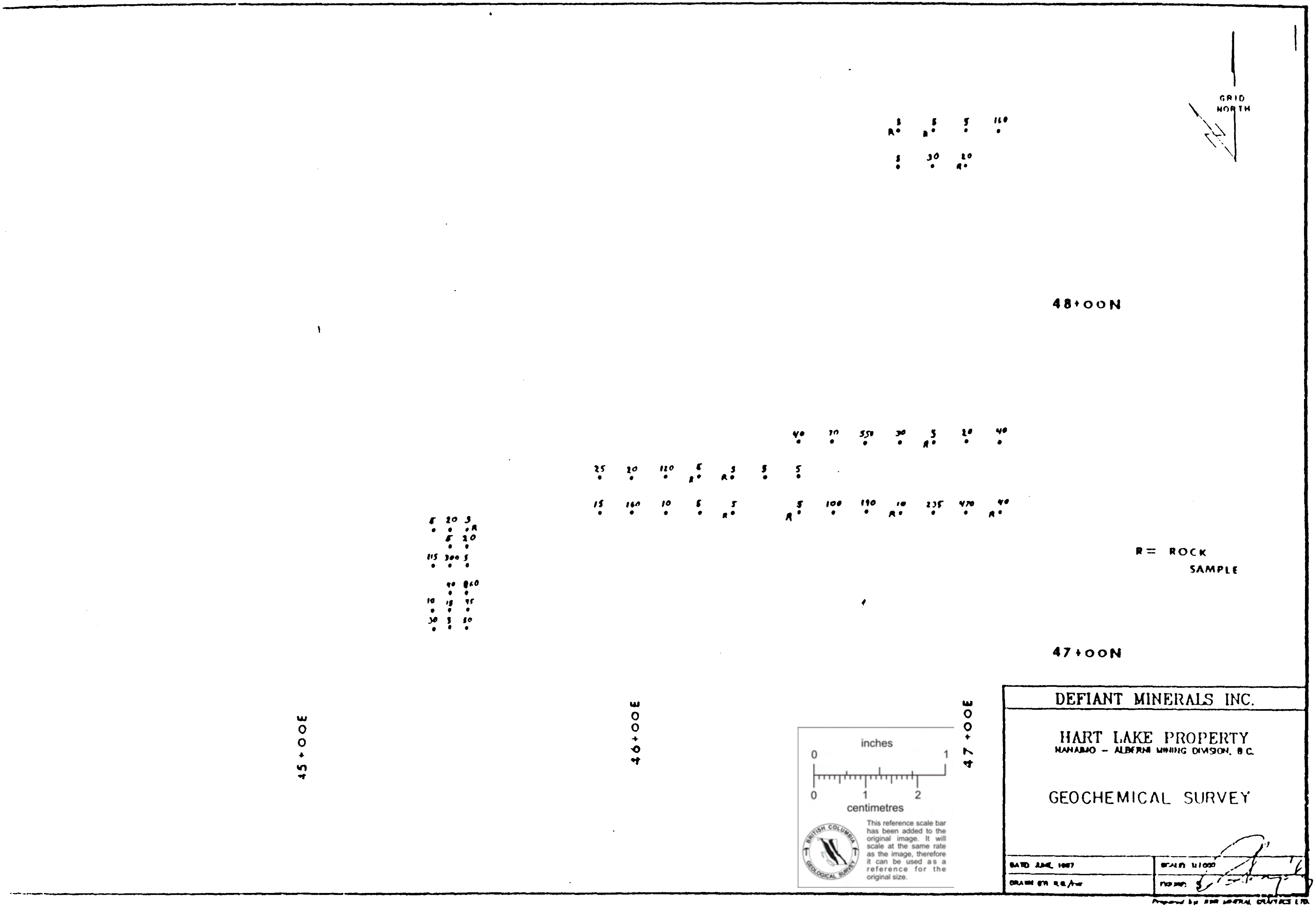
From late May to mid-June an eight man exploration camp was established to examine the Iron Cop and surrounding area. The programme was designed to evaluate the original showing and confirm the work done by Brinco. A detailed ground magnetometer survey was completed over several known magnetic anomalies. Trenching of the anomalies followed and the original Iron Cop Trench #1 was reopened and expanded. A tight soil and rock sampling grid was established in areas of anomalous gold values detected by Brinco, and approximately 75 samples were collected and analysed. Samples were also collected from the trenching and prospecting programmes. The results of this work identified four specific targets: 1) a round, very-high magnetic anomaly northeast of the Iron Cop showing; 2) an elongate, southeast trending major shear zone with an associated magnetic anomaly and several bifurcating structural features including cross faults and dykes; 3) a north trending mineralized quartz vein; and 4) a large, multi-element geochemical anomaly northwest of the Iron Cop. The results of this programme are summarized on a Compilation Map, Figure 4, details of the geochemical survey are on Figure 5, and the results of the magnetometer survey are on Figure 6.

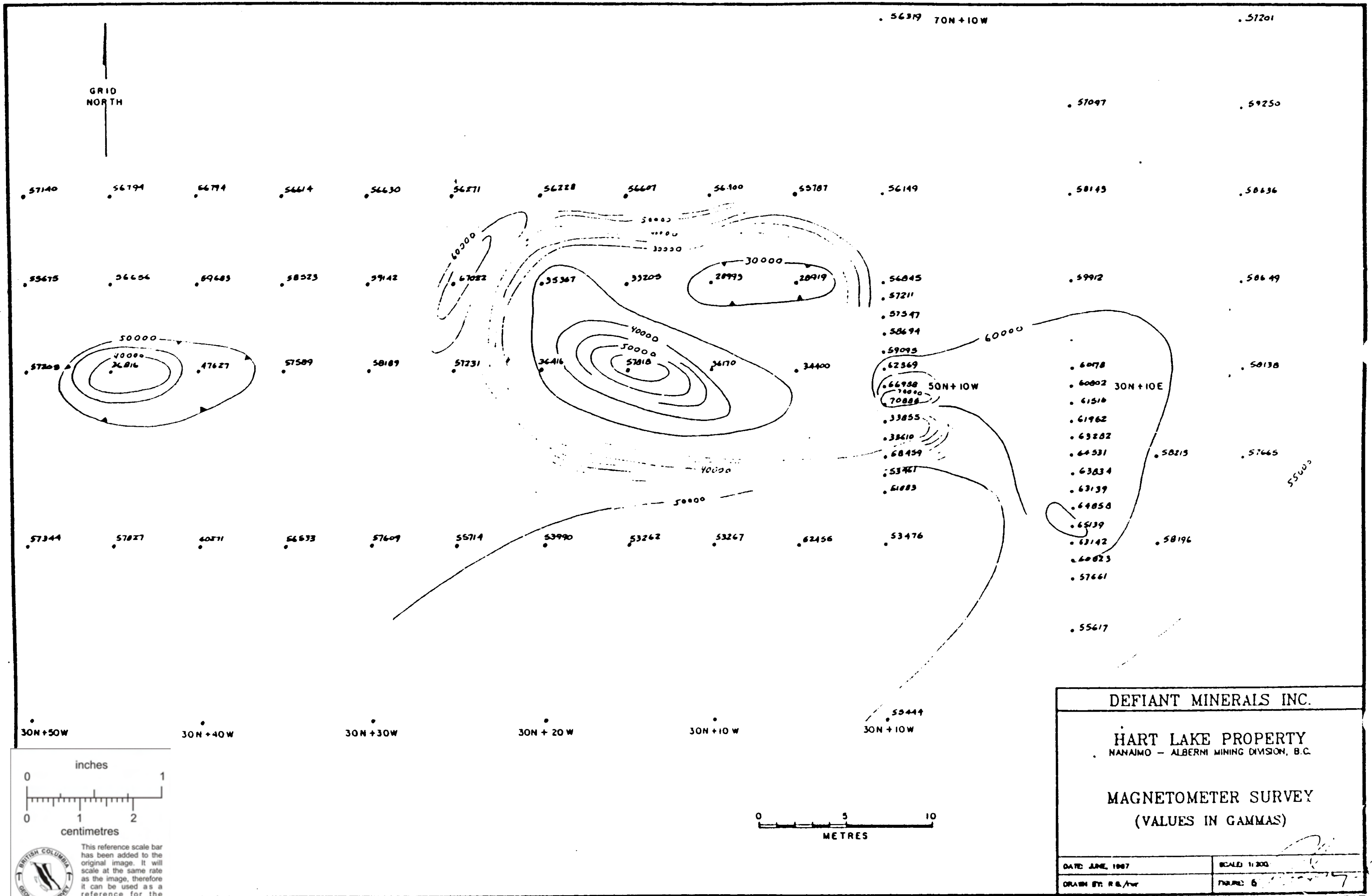


GRID
SCALE 1:2000
LEGEND
DIAMOND DRILL SITE
HAND TRENCH
STREAMS
SHEAR ZONE
Grab
Cu 0.26%
Au 3.67 ppm
Rio Tinto grab sample
Cu 10.8%
Au 0.6 ppm
Ag 18.66 ppm
PIT # 2
118459
Cu 5.59 %
Ag 11.8 ppm
Au 1980 ppm
TRENCH 1
118458
Cu 3.25%
Ag 14.8 ppm
Au 825 ppb
RIO'S DDH
IC 84-1,2,&3
RIO'S DDH
0.3m shear
Au 3.73 ppm
TRENCH 3
PIT # 4
Cu 2.57%
Au 13.06 ppm
118460
Cu 827 ppm
IC 84-4
1390.
40. Qtz. vein
Cu 2.88
Ag 6.5 ppm
Au 1.14 ppm
IC 84-7
IC 84-5
IC 84-6
Rock & soil sampling - Au in ppb
DEFIANT MINERALS INC.
HART LAKE PROPERTY
NANAIMO - ALBERNI MINING DIVISION, B.C.
DRILL HOLE & TRENCH
LOCATION MAP
DATE: JUNE, 1987
DRAWN BY: R.B./rw
SCALE: 1:1850
FIGURE 3
Prepared by: RSR MINERAL GRAPHICS LTD.



4900E
AL
2073'
2135'
MAG GRID FIG.
5100E 5100N
5150E 5100N
Old Camp
0.5m Qtz. Vein
Fault w/ Qtz. Dyke
Magnetic High in Shear Zone
IC84-1,2,&3
IC84-4
IC84-5
IC84-7
SOIL GRID FIG.
inches
centimetres
This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.
BRITISH COLUMBIA GEOLOGICAL SURVEY
DEFIANT MINERALS INC.
HART LAKE PROPERTY
NANAIMO – ALBERNI MINING DIVISION, B.C.
COMPILATION MAP
DATE: JUNE, 1987
DRAWN BY: R.G./mr.
Prepared by: RHR MINERAL GRAPHICS LTD.


GRID NORTH
48+00N
47+00N
R = ROCK SAMPLE
45+00E
46+00E
47+00E
inches
centimetres
This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.
BRITISH COLUMBIA GEOLOGICAL SURVEY
DEFIANT MINERALS INC.
HART LAKE PROPERTY
NANAIMO – ALBERNI MINING DIVISION, B.C.
GEOCHEMICAL SURVEY



GRID NORTH
70N + 10W
30N + 50W
30N + 40W
30N + 30W
30N + 20W
30N + 10W
30N + 10W
50N + 10W
30N + 10E
60000
50000
40000
30000
55000
0 5 10
METRES
DEFIANT MINERALS INC.
HART LAKE PROPERTY
NANAIMO – ALBERNI MINING DIVISION, B.C.
MAGNETOMETER SURVEY
(VALUES IN GAMMAS)
DATE: JUNE, 1987
SCALE: 1:200
DRAWN BY: R.B./hw
FIGURE: 6
Prepared by: RMR MINERAL GRAPHICS LTD.

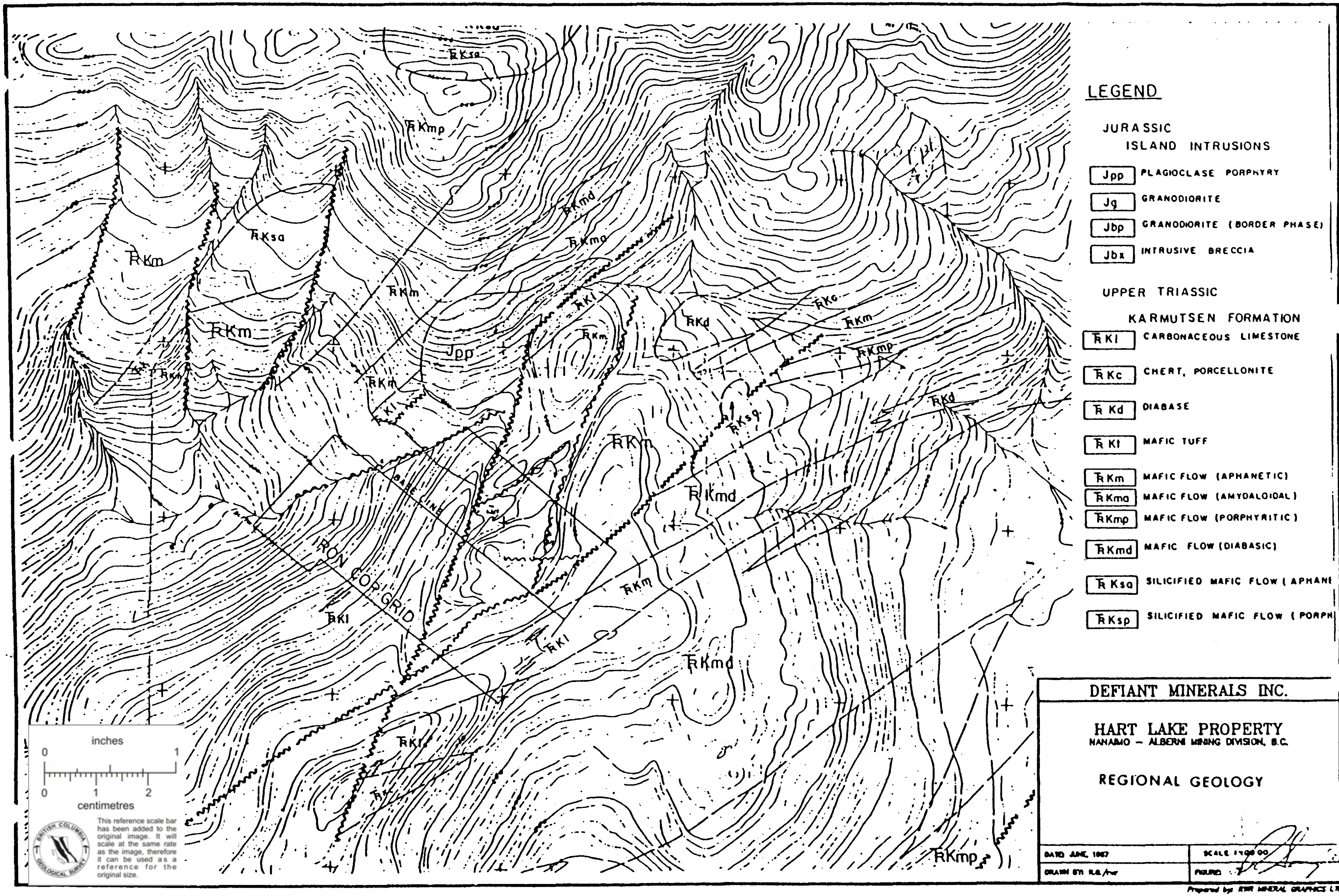
2.0 GEOLOGY

2.1 REGIONAL AND LOCAL GEOLOGY

Most of Vancouver Island is underlain by rocks of the Insular Belt, of which the island makes up the greater portion, in the Canadian Cordillera. In recent years the lower part of the Insular Belt stratigraphy, comprising at least the Paleozoic Sicker Group and the Triassic Vancouver Group, has been recognized as part of an allochthonous terrain derived from more southern latitudes (Jones, et al 1977, Muller 1981, and Jones, et al 1982). This major allochthonous block has been named Wrangellia by Jones et al (1977). Wrangellia, the foundation of Vancouver Island, apparently docked with the North American plate during the Early Jurassic, coincident with the deposition of the volcanic Bonanza Group and contemporaneous Island Intrusions. Terrigenous sediments unconformably overlie the Bonanza Group.

The north end of Vancouver Island is underlain by rocks of the Vancouver Group, which, as defined by Dawson (1887), include: the Karmutsen Formation, the Quatsino Formation, and the Bonanza Volcanics. Bancroft (1913) and Crickmay (1928) described two additional formations, Parson Bay and Harbledown, as lying between the Quatsino Formation and the Bonanza Volcanics (TABLE II). The Vancouver Group is intruded by rocks of Jurassic and Tertiary age and disconformably overlain by Cretaceous and younger sedimentary rocks. The region is further characterized by large-scale block faulting with thousands of metres of displacement. These are often offset by younger strike-slip faults with displacements on the order of 1000 m.

The Iron Cop Showing, as shown on G.S.C. Map 1522A, is underlain by a rather monotonous sequence of dark green basalts belonging to the Triassic Karmutsen Formation; this formation trends northwesterly through the claims and is bounded on the northwest by a northeast trending block fault (Figure 7). The overlying sediments of the Parson Bay Formation forms a narrow band on either side of the Karmutsen Formation suggesting an antiform through the region. Exposed along the eastern and western margins and through the northern half of the property are andesites, rhyodacites, and flow breccias of the Jurassic Bonanza Group. Intruding the sequence and exposed as small plugs on the west, north, and east sides of the claims are post-Bonanza quartz diorite and microdiorite intrusives. These plugs are part of the Island Intrusives representing a belt of intermediate intrusives, some hundreds of square kilometres in size and common throughout Vancouver Island.



LEGEND
JURASSIC
ISLAND INTRUSIONS
Jpp PLAGIOCLASE PORPHYRY
Jg GRANODIORITE
Jbp GRANODIORITE (BORDER PHASE)
Jbx INTRUSIVE BRECCIA
UPPER TRIASSIC
KARMUTSEN FORMATION
TrKl CARBONACEOUS LIMESTONE
TrKc CHERT, PORCELLONITE
TrKd DIABASE
TrKt MAFIC TUFF
TrKm MAFIC FLOW (APHANETIC)
TrKma MAFIC FLOW (AMYDALOIDAL)
TrKmp MAFIC FLOW (PORPHYRITIC)
TrKmd MAFIC FLOW (DIABASIC)
TrKsa SILICIFIED MAFIC FLOW (APHANE
TrKsp SILICIFIED MAFIC FLOW (PORPH
DEFIANT MINERALS INC.
HART LAKE PROPERTY
NANAIMO – ALBERNI MINING DIVISION, B.C.
REGIONAL GEOLOGY
DATE JUNE, 1987
SCALE
DRAWN BY
FIGURE
IRON COR GRID
BASE LINE
inches
0
1
0
1
2
centimetres
This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.
BRITISH COLUMBIA GEOLOGICAL SURVEY

2.2 ECONOMIC GEOLOGY

Metalliferous deposits at the north end of Vancouver Island are divided into five groups. This is a modification from the original classification used by Carson (1968) and include:

1) Porphyry Copper Deposits
2) Skarn Deposits
3) Copper Mineralization in Volcanic Rocks
4) Vein Deposits
5) Gold Quartz Veins (Fissure-type)

1) Porphyry copper deposits are associated with bodies of quartz-feldspar porphyry which intrude the Bonanza Volcanics. All known porphyry copper showing are located on the north side of Rupert Inlet and lie within a zone of hydrothermally altered Bonanza Volcanics approximately two km wide and twenty-five km long.

The Island Copper Mine is the only operating porphyry copper deposit on the island and is located approximately 40 km north-northeast of the Iron Cop property. Mineralization is associated with a quartz-feldspar porphyry which intrudes the Bonanza pyroclastic volcanic sequence. Emplacement and crystalization of the porphyry occurred in a subvolcanic environment and was accompanied by a complex history of brecciation and fracturing, metasomatism, hydrothermal alteration, and mineralization. Mineralization consists mainly of fine-grained chalcopyrite disseminated in silicified, sericitized and biotitized Bonanza rocks. Fine-grained magnetite is commonly associated with copper mineralization. Molybdenite occurs in fractures and is found throughout the mineralized zone but is particularly abundant in silicified and biotitized rocks. Production commenced late in 1971, and the mine presently has a milling rate of about 40,000 tones per day. It is estimated that approximately 115 million tons of 0.52 per cent copper, 0.029 per cent molybdenum sulphide, and 0.25 g gold remain.

2) Skarn deposits of copper, iron and lead-zinc are associated with intrusive rocks cutting limestones of the upper Karmutsen Formation, the Quatsino Formations and the lower carbonate sequence of the Parson Bay Formation. Skarns mostly occur along the limestone-intrusion contact, but at some skarn showings intrusive rocks are not exposed. Contact alteration consists of silicification of the limestone and formation of epidote- andradite-magnetite skarns locally accompanied by hedenbergite and ilvaite. Chalcopyrite, pyrite, bornite, sphalerite, and galena occur within these skarns.

The deposits at Benson Lake (mined by Cominco, 1957-70), approximately 30 km east-northeast of the Iron Cop property, were the only significant example of Cu-Fe skarn at the north end of the island. These deposits include the Merry Widow, Kingfisher, and Old Sport; the Merry Widow and Kingfisher were mined for iron in magnetite while the Old Sport produced copper and iron. The orebodies at the Old Sport Mine occur at the contact between Quatsino Limestone and the underlying basic Coast Copper Stock. It is believed that the intrusion of this stock 1) fractured the Karmutsen volcanics; 2) was responsible for the development of calc-silicate (skarn) minerals in both the overlying limestone and the underlying volcanics; and 3) emplaced the sulphides within the fractured volcanics. The metallic minerals are magnetite, which is contemporaneous with the skarn, chalcopyrite, bornite, pyrrhotite, and pyrite. Gangue minerals includes garnet, epidote, and calcite.

3) Copper showings in volcanic rocks are restricted to the Karmutsen Formation. Chalcopyrite, bornite, and native copper occur in amygdules, fractures, and small shears. Associated alteration consists of minor amounts of carbonate and quartz. Although there are a great number of copper bearing veins on the island none have so far proven to be of great economic importance.

4) Vein deposits occur in the Karmutsen Formation, the Bonanza Volcanics, and granitic rocks. Chalcocite and chalcopyrite with pyrite, pyrrhotite, and molybdenite occur in shear zones, large fractures and fracture zones near faults. Intense silicification and carbonatization can be associated with the copper mineralization.

5) The gold-quartz vein or fissure type of deposit are best represented on Vancouver Island by the deposits near Zeballos. The gold-quartz veins consist of quartz-sulphide filling in well defined fracture systems rarely greater than 30 cm in width although some sheeted zones are known to exceed 1 metre. Generally the veins, although narrow, have fairly uniform attitudes for considerable distances. Sulphides consist of pyrite, sphalerite, arsenopyrite, chalcopyrite, galena, pyrrhotite, and minor marcasite. Gangue minerals include quartz, sericite, chlorite, and calcite in a host rock of either granodiorite or quartz diorite.

2.3 DISCUSSION

The Iron Cop Showing appears to have characteristics similar to Type 4 (i.e. copper mineralization in veins and along shears) and to a minor extent Type 3 (i.e. copper showing in volcanic rocks). Geologic mapping shows that pyrite-chalcopyrite with gold and silver values are confined to small high-grade copper lenses in a complex branching, southeasterly trending (125°50°SW) shears over a length of about 150 metres. Narrow stringers of chalcopyrite are common in the wall rock and in the drill core obtained in the 1984 drilling programme. Detailed mapping indicates that the mineralized shears zones are subsidiary to more regional northeast faulting.

A chip sample (118458-BP Selco, 19852; Figure 3) of sulphide, oxide, and quartz material was collected from the vein exposed in Trench No. 1 along a 2 metre strike returned: Cu 3.25%, Ag 14.8 ppm, Au 825 ppb. Diamond drill core from this vein was geochemically analysed by Brinco and returned: Cu >1%, Ag 2.2 ppm, and Au 435 ppb over a drill intersection of two metres.

Another copper bearing shear zone was sampled (by BP-Selco) in Trench No. 3. Erratic clots of chalcopyrite and pyrite in a sinuous chloritic shear trending 110° to 160°/30°-50°SW returned: Cu 5.6%, Ag 11.8 ppm, and Au 1980 ppb. Chip sampling of the wall rock containing stockwork veins returned 827 ppm Cu and background precious metal values. Diamond drilling by Brinco failed to intersect this zone at depth. Prospecting and soil sampling in 1986 outlined a major northeast trending shear zone 100 m north of this trench. Figure 3 is a summary map showing pre-1987 sampling, trenching, and diamond drilling.

According to modern geologic modeling, the Iron Cop showing could represent the stockwork zone (hydrothermal alteration pipe) of a volcanogenic massive sulphide deposit in which the massive sulphide portions has been removed, presumably through erosion. This type of model should contain base and precious metal concentrations in the stringer veins and especially along the margins of the alteration pipe.

The area surrounding the Iron Cop showing has a number of addition mineral showings which have received only cursory attention. In its 1964 programme, Rio Tinto discovered a cobalt showing and did some minor trenching and sampling. Selected sampling of 5 to 7 cm wide fractures yielded assays of over 7% Co (Sellmer, 1964). Chip samples yielded 0.76% Co with minor gold and silver over 2 metres. Although its location was not found during the Brinco Programme of 1984, it is reported to be approximately 1.5 km west of the Iron Cop Showing (near the common boundaries between the original Iron Cop #1 and #18 Claims). The showing is reported to contain cobaltite and erythrite in a fracture zone within silicified volcanics. The mineralization occurs in siliceous fractures up to 6 inches wide, striking N25°E50°SE.

Two significant geochemically anomalous gold areas (one northeast and the other southwest of the Iron Cop Showing) should be examined to determine their source. Stream sediment sampling (Brinco, 1984) detected gold up to 800 ppb in eastward draining streams approximately 1.5 km northeast of the Irop Cop Showing. Time did not allow Brinco to follow-up this occurrence and no work was done in this area. Brinco outlined a large area, southwest of the Iron Cop, in which gold was detected in soils, stream sediments, and rock samples. Two drill holes attempted to test an area beneath a surface showing but failed to intersect significant widths of gold. High gold values, in the soils, require additional sampling in the area.

3.0 CONCLUSIONS

The work by Defiant has outlined a number of targets which warrant additional work. Trenching, especially at the Iron Cop, has been useful in identifying the structural setting host this showing. The geochemical programme has indicated that gold geochemistry is more widespread than previously known. High gold values, in the soils, require additional sampling to determine their grade and extent. Also, anomalous values in other elements including platinum and vanadium are present and require further testing. The magnetic survey has outlined two areas which may prove to have an economic potential. The nearly circular feature shown on Figure 7 suggests a magmatic plum or a volcanic vent. Trenching has indicated concentric layers comprised of alternating quartz veins host rock. A southeast trending magnetic anomaly in a major shear zone was also identified. This shear bounds or host the Iron Cop and its ultimate limits have yet to be defined. A mineralized quartz vein, 0.5 m wide, was discovered while prospecting and, although it returned low gold values, it was traced for over 25 m and additional testing is warranted.

The Iron Cop Showing has received the most work and is considered to be the area's principal target for future work. Additional mineral showings which warrant careful examination and evaluation to assess their potential include: a cobalt showing (Sellmer, 1964), a gold showing approximately 500 m west of the Iron Cop, and several anomalous gold values reported in silt sediments and soils scattered about the London 1 Mineral Claim (Gonzalez, 1984; and Epp, 1984).

Although no economic concentrations were outlined by the previous investigators the fact that wide spread mineralization is common suggests that the source of mineralization is most likely within the claim boundaries. This property is an interesting prospect with a potential for hosting a deposit of considerable importance and the following programme is designed to evaluate the known mineral showings.

4.0 RECOMMENDATIONS AND WORK PROPOSAL

Based on the results of previous surveys, the following exploration programme is recommended to further evaluate the potential for hydrothermal gold-copper mineralization on the property. The following recommendations are to be considered a Phase I programme which will consist mainly of target identification (geophysical and geochemical), minor enhancement by trenching, and preliminary diamond drilling of approximately 2000 feet.

The former surveys were conducted along northeast lines spaced at 25 m with stations at 25 m intervals, and it is the writer's opinion that for a gold deposit of the Iron Cop nature closer spaced lines are required. To aid in the geological interpretation and to locate specific drill or trenching targets, close interval lines with stations at 5 m intervals will be required. A magnetic and a VLF-EM survey should be used across specific targets outlined by the 1987 programme.

The magnetic anomalies and the quartz vein should be trenched and sampled in detail. All geochemical highs warrant bedrock investigation and where possible should be trenched.

The proposed Phase I programme should cost approximately $130,000 and will give sufficient information to lead to a Phase II programme. However, successive work phases should be undertaken only if the results of the initial testing programme is encouraging and additional work is recommended by an independent engineer's recommendation to proceed.

PHASE I

- Planning, supervision, field assistant drafting, and reporting	10,000
- Access and site preparation	5,000
- Geophysical surveys	
Magnetometer 25 line Km	2,500
Ground VLF-EM 25 line Km	2,500
- Geochemical sampling	4,000
- Trenching	20,000
- 2000 feet diamond drilling @ $30/ft.	60,000
- Assaying drill core	8,000
- Logistics, travel, accommodations supplies, consumables, communication etc.	8,000
- Administration and licenses fees	10,000
- Estimated total	$130,000

PHASE II

Phase 2 will include backhoe trenching and approximately 4000 feet of additional diamond drilling. Total estimated cost for this phase is $160,000.

Respectfully submitted,

R.A. Gonzalez, M.Sc., F.G.A.C.
ARCHEAN ENGINEERING LIMITED

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