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GEOLOGICAL BRANCH
ASSESSMENT REPORT

13,026

GEOLOGY AND GEOCHEMISTRY
OF THE
TAH 22 CLAIM

ALBERNI MINING DIVISION
NTS 92E/15E
LATITUDE, 49° 48.5'
LONGITUDE, 126° 31'

HOMESTAKE MINERAL DEVELOPMENT COMPANY

Report by: M. FLanagan
Submitted: September 29, 1984

STATEMENT OF QUALIFICATIONS

I, Michael Flanagan, hereby certify that:

- 1) I have graduated from McGill University in Montreal, Quebec with an applied M.Sc degree, having specialized in mineral exploration.
- 2) I have been engaged in geological work during field seasons since 1975.
- 3) I am a geologist employed by Homestake Mineral Development Company, 201 - 856 Homer Street, Vancouver, B.C., involved in property and reconnaissance examinations.



Mike Flanagan

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1.0 INTRODUCTION

1.1 Geographic and Physiographic Position and Access

The TAH 22 claim is located in the Vancouver Island Ranges, approximately 16 km due southwest of Tahsis, B.C (figure 1). Tahsis Company logging roads provide access to and within the claim. The Head Bay Forest Road is the main route from Gold River to Tahsis, while subsidiary branches from this route provide direct access to a central portion and the extreme southwest corner of the claim (figure 2).

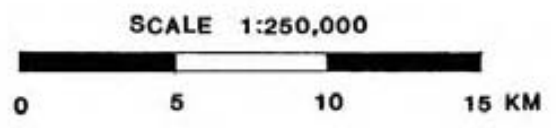
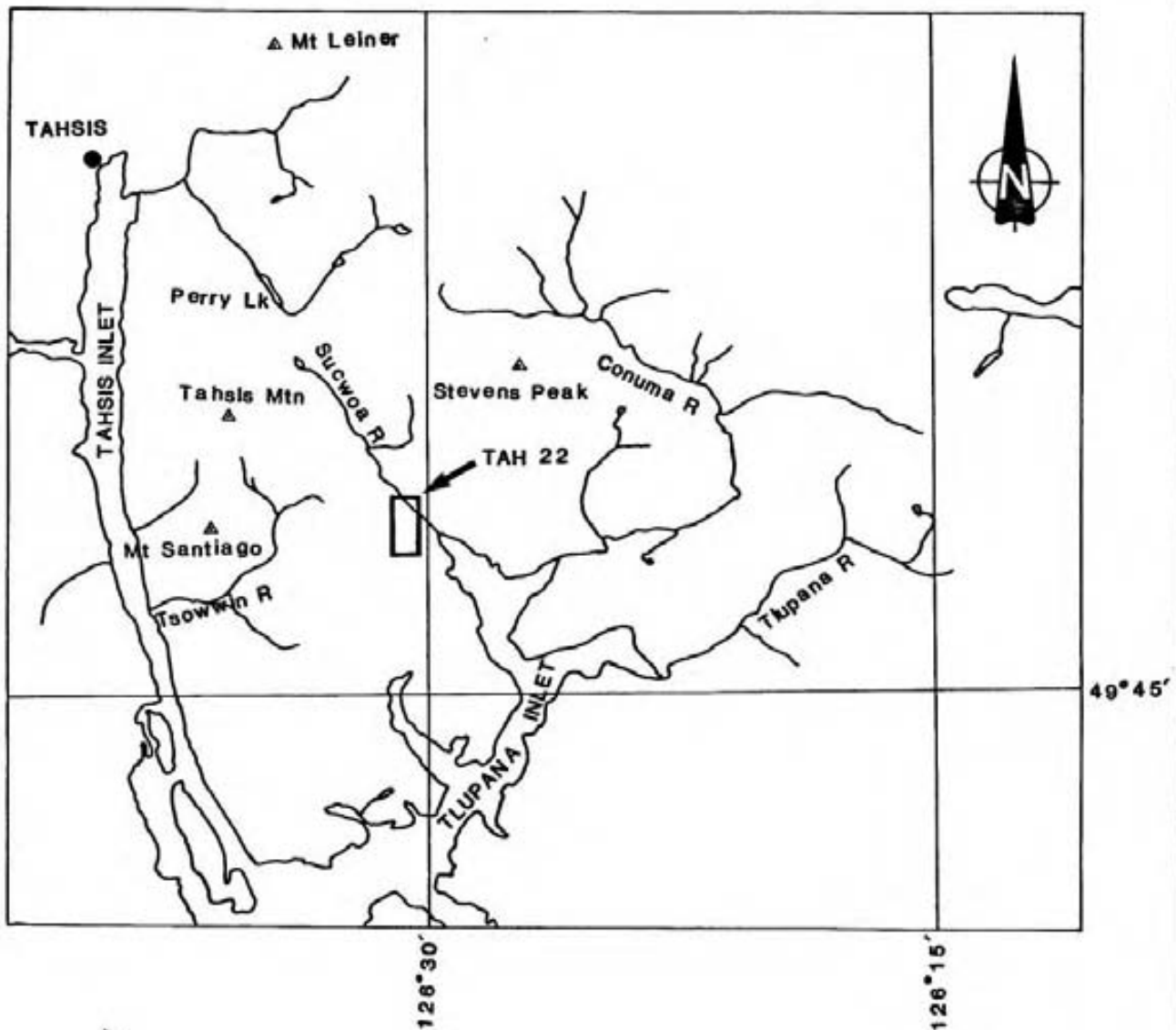
The claim is situated on the west to northwest facing slope of the Sucwoa River valley near the river's confluence with tide water at Head Bay. The slope is moderate to steep and within the claim attains an altitude of approximately 490 m. The area is generally heavily forested, with the exception of clear cut areas which comprise about 25% of the claim. Rock exposure is generally limited to clear cuts and two drainage systems which cross the claim. Partly overgrown mine workings are situated in the north central portion of the claim.

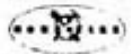
1.2 Property Definition

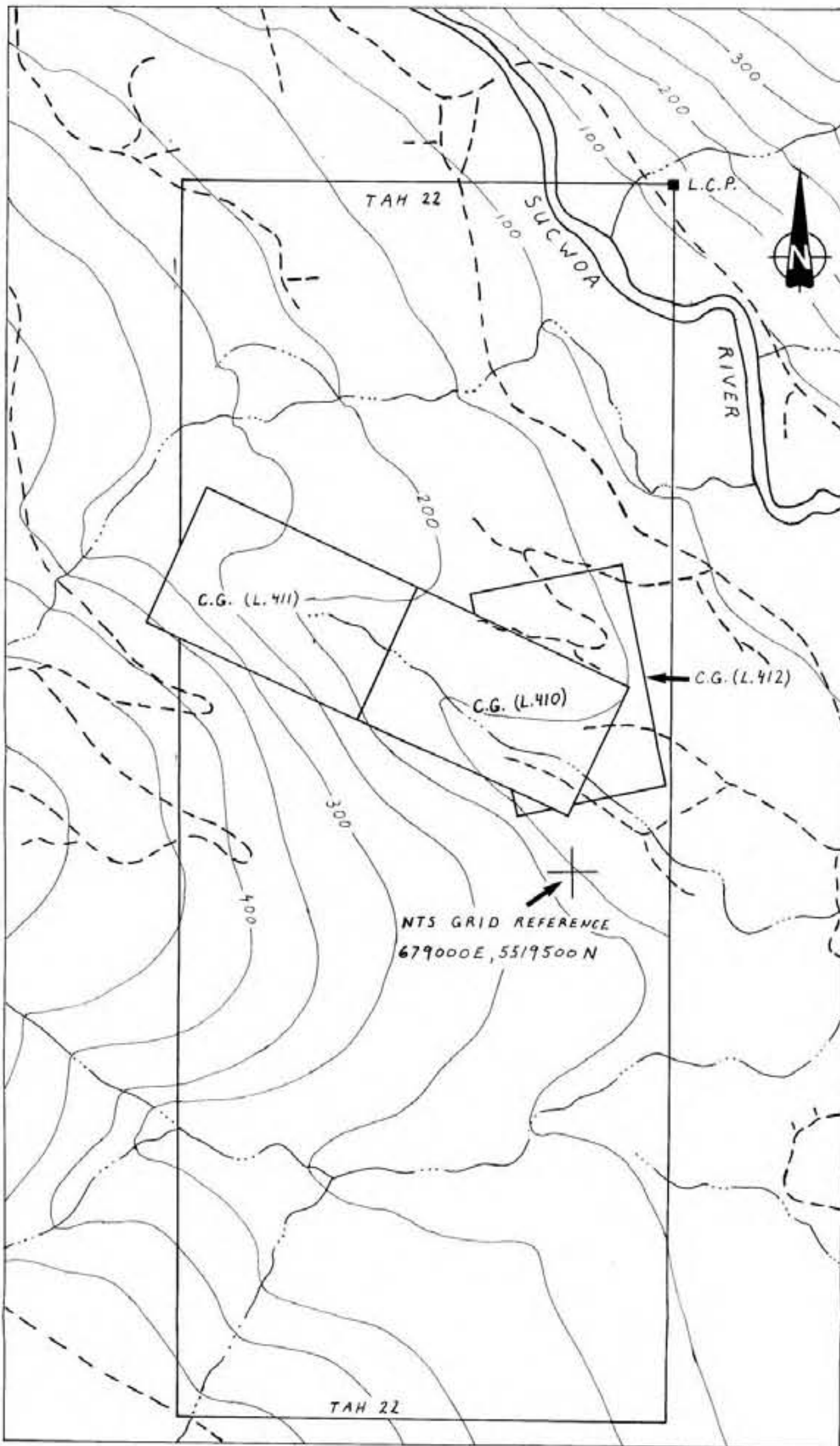
The TAH 22 claim, consisting of ten units was staked by Aberford Resources Ltd. and recorded on October 12, 1983. Three crown granted claims, the Glengarry (L410), Stormont (L411) and Texas (L412), all having folio number 2283 with the B.C. land office, are located within the TAH 22 claim. These crown grants were issued in 1909 and cover a magnetite skarn deposit which in the early 1960's produced 25,000 tons of magnetite concentrate. Taxes on these crown grants were last paid by Weldwood Canada Ltd., P. O. Box 2179, Vancouver, B.C.

1.3 Work Performed

Work on the TAH 22 claim was part of a larger mapping and geochemical study performed on this and adjoining claims by Homestake Mineral Development Company. Prior to staking, gold mineralization was noted on the claim in a quartz sulphide vein in diorite (see Aberford Resources Ltd. assessment report No. 84-144-12058). The purpose of the present work was to establish the extent of this mineralization, its relationship to skarn mineralization, and the degree of consistency of gold values in the diorite body. Toward this purpose it was necessary to map in greater detail, the geological relationships between and within the diorite and surrounding host rocks. Mapping was performed by two geologists using B.C. government air photos at a scale of 1:20,000 as a base. The geology and samples



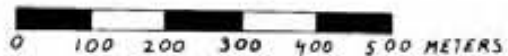
HOMESTAKE MINERAL DEVELOPMENT COMPANY 			
FIGURE 1 TAH 22 LOCATION MAP			
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LEGEND

- ROAD
- STREAM
- CLAIM BOUNDARY
- 200— CONTOUR LINE WITH ELEVATION
IN METERS ABOVE SEA LEVEL
- C.G. CROWN GRANTED MINERAL CLAIM

SCALE 1:10,000



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FIGURE 2
TAH 22
LOCATION AND TOPOGRAPHY

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were transposed to maps on a scale of 1:10,000. The total area of the claim is 2.5 sq. km. of which about 75% has been mapped with confidence, either by direct observation or inference. As part of a more regional geochemical survey, 17 rock samples were collected for analysis. A list of these samples with descriptions is provided in appendix A.

2.0 GEOLOGY

2.1 Regional Geology

Following G.S.C paper 80-16 by Muller, Cameron and Northcote, the area between Tlupana and Tahsis Inlet's (figure 1) is underlain by Upper Triassic volcanic and sedimentary rock formations of the Vancouver Group and Lower Jurassic Bonanza Group volcanic rocks intruded by a variety of sills, dykes, stocks and plutons of Jurassic and early Tertiary ages.

The Vancouver Group is divided into the lower, predominantly volcanic Karmutsen formation and two overlying sedimentary rock units known as the Quatsino and Parson Bay formations. The Karmutsen formation is generally tholeiitic basalt, consisting of pillow lavas, breccias, aquagene tuffs and flows, with minor intercalated sedimentary rocks. The Quatsino formation, in its lower portions consists of massive, grey limestone which becomes increasingly well-bedded in upper portions and grades into the overlying Parson Bay formation. The Parson Bay formation in the area is similar to the formation elsewhere, where a section has been broadly divided into a lower section of interbedded laminated to thinly bedded, fine grained dark grey to black silty limestone, calcareous siltstone and sandstone with some non-laminated micrite, followed by an upper section of somewhat more thickly bedded, alternating non-laminated limestone and crudely laminated micrite. This is overlain by a unit of coarse grained, graded to crossbedded, sandy feldspathic limestone and calcareous sandstone.

The Bonanza Group contains a wide variety of volcanic rocks, but in this area consists mainly of mafic to intermediate pyroclastic rocks.

Intrusive rocks of the region are classified as either Jurassic Island Intrusions or Tertiary Catface Intrusions. Distinguishing between the two is difficult in the field since petrologically both series of intrusions may have similar phases. However, the proximity of the property to known Tertiary intrusions suggests that most intrusive rock on or near the property is of Tertiary age. Compositionally the intrusions in the area vary from gabbro to granodiorite.

2.2 Geology of the TAH 22 Claim

The northeastern part of the property is underlain by mafic volcanic rock of the Karmutsen Formation. It is generally chloritic with variable amounts of epidote and calcite as veins, lenses and pods. To the southwest and south the formation is overlain, presumably conformably, by massive to poorly bedded limestone of the Quatsino formation. This contact is a significant control on the skarn mineralization mentioned earlier. Where bedding can be observed it dips moderately to the south-southwest.

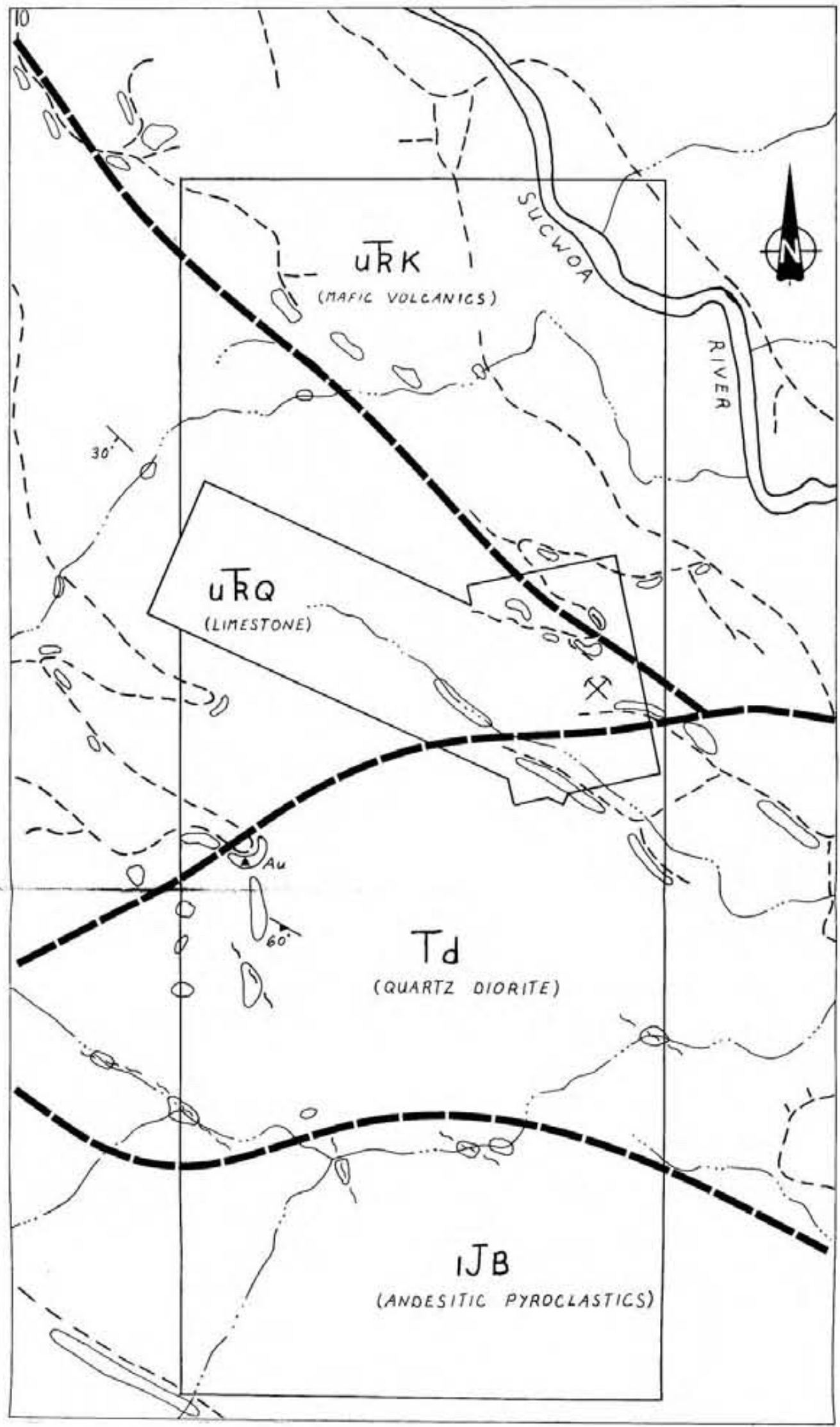
The limestone, and possibly the underlying volcanic rock are cut by an intrusion of variable composition. In some areas it is a hornblende-rich gabbro. In others, quartz diorite grades into patches of white to pale green, fine grained tonalite to granodiorite with very few mafic minerals. Generally, however, the intrusion is a grey to pale green, medium to fine grained, equigranular hornblende bearing quartz diorite with up to 5% magnetite \pm pyrite.

Younger dykes are present locally on the claim, and more abundantly in other areas, and range in composition from mafic to felsic. The dykes cross-cut the quartz diorite and other rocks, but are thought to be later phases of the same intrusive complex. They often impart an alteration to the quartz diorite, generally with a chlorite, epidote, and calcite mineralogy. In many locations the quartz diorite is cut by microveinlets and veins of coarse grained quartz, locally containing sulphide minerals.

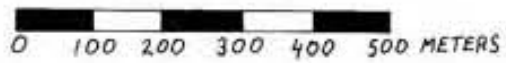
The quartz diorite intrudes or is in fault contact with Bonanza group volcanic rock which is found in the southern portions of the TAH 22 claim. The volcanics are generally green-grey to maroon colored andesitic pyroclastic rocks. In the southwest corner of the property, volcanic rock is invaded by fine grained, pale grey to white intrusive rock that is presumably related to the quartz diorite.

2.3 Mineralization

Both skarn and vein type mineralization are present on the TAH 22 claim, (figure 3), although most of the skarn mineralization occurs within the crown granted properties. For orientation purposes samples of this mineralization were collected and analysed. Skarn mineralization is predominantly a magnetite, garnet, epidote, calcite



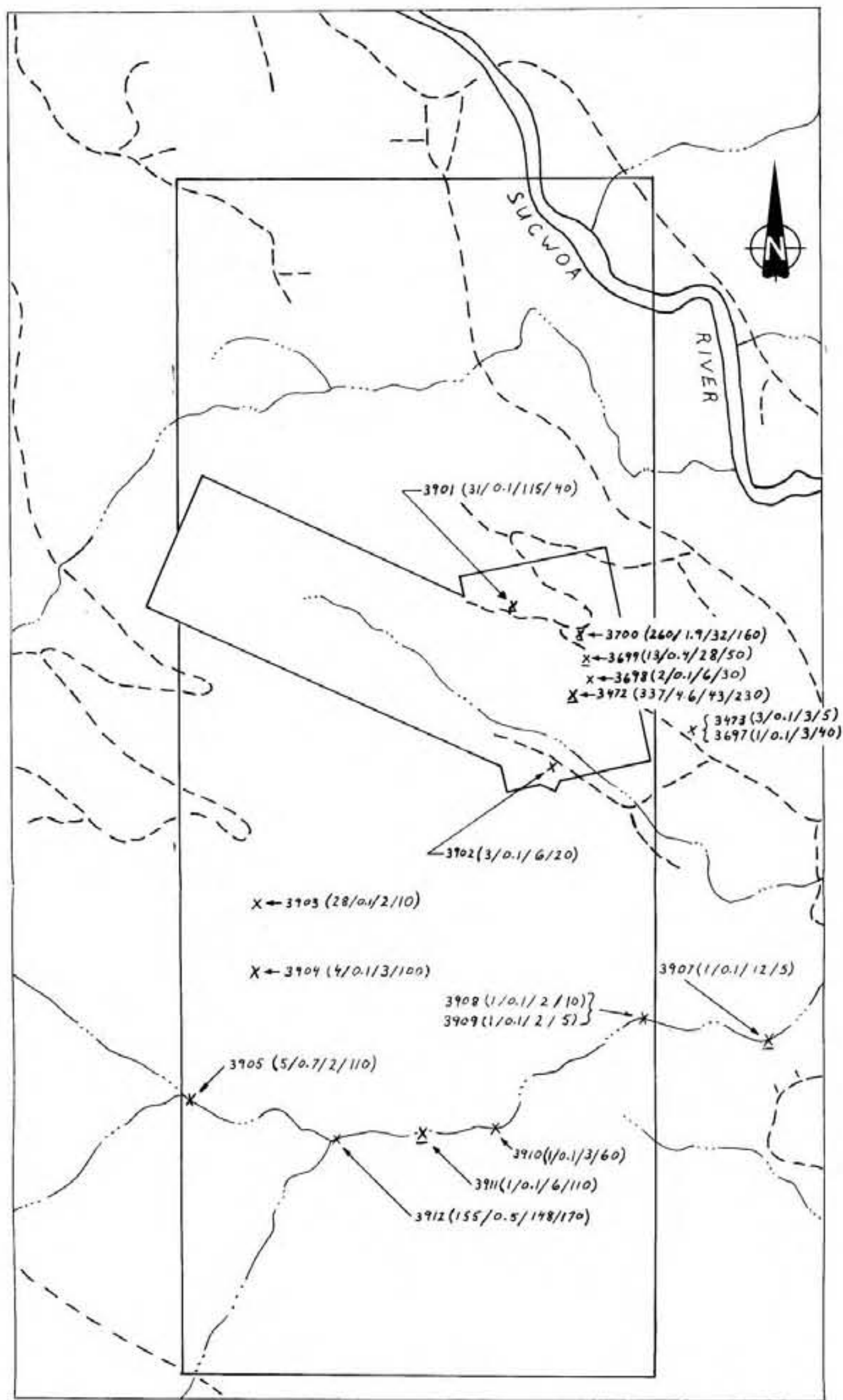
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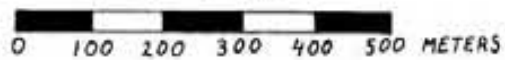
LEGEND

- | | | | |
|--|------------------|--|------------------------------|
| | ROAD | | OUTCROP |
| | STREAM | | OPEN PIT IRON MINE |
| | CLAIM BOUNDARY | | GOLD SHOWING |
| | GEOLOGIC CONTACT | | TERTIARY DIORITE |
| | SHEAR ZONE | | LOWER JURASSIC BONANZA GR. |
| | BEDDING | | UPPER TRIASSIC QUATSIND FM. |
| | FELSIC DYKE | | UPPER TRIASSIC KARHUTSEN FM. |

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FIGURE 3 TAH 22 GEOLOGY		
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SCALE 1:10,000



LEGEND

- ROAD
- STREAM
- CLAIM BOUNDARY
- X 3904 OUTCROP SAMPLE (ppb Au/ppm Ag/ppm As/ppm Hg)
- Σ 3911 FLOAT SAMPLE (ppb Au/ppm Ag/ppm As/ppm Hg)

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FIGURE 4
TAH 22
SAMPLE LOCATIONS AND ANALYTICAL RESULTS

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assemblage with, or without diopside/actinolite, pyrite and chalcopyrite. Where chalcopyrite occurs it is usually associated with pyrite, and may be inferred in places by the presence of malachite along fractures. Alteration generally grades from increasing degrees of limestone recrystallization, to epidotization and finally skarnification.

Vein mineralization on the TAH 22 claim has been described in a previous report for Aberford Resources Ltd. (Assessment report No. 84-144-12058). A significant occurrence was discovered along the logging road which crosses the western boundary of the claim, near the central portion of the boundary. This occurrence is described as an auriferous quartz-sulphide vein in diorite. The vein is variable in thickness up to about 60 cm, and where thickest, has a banded appearance with quartz and pyrite in nearly equal proportions. Fifteen samples were taken for Aberford along the 23 meters of exposed vein length, yielding an average gold value of 54.95 gm/tonne with a maximum value of 282.10 gm/tonne. Silver averaged 12.96 gm/tonne. Work during the present assessment revealed no other occurrences of this type of mineralization. A felsic dyke nearby contains very slightly anomalous gold, (sample VT-22-4-3903, 28ppb Au). Where quartz veins are present elsewhere on the property very little sulphide is observed. Although quartz diorite containing quartz veins and veinlets, with or without sulphides, was sampled in a number of localities, no anomalous values were obtained.

3.0 ROCK GEOCHEMISTRY

The objective of the rock sampling program was to determine the potential for more extensive gold mineralization within the diorite and for gold mineralization in skarns outside the crown granted properties. Figure 4 shows the sample locations and values for gold and its important indicator elements, silver, mercury and arsenic. For clarity only these elements are shown although analyses were for 32 elements, including those listed above. Complete results are shown in Appendix B.

Outcrop distribution was sufficient to obtain representative data by rock sampling alone. Grab samples were chosen based on the geologists' perception of mineralization potential indicated directly or by alteration; i.e. degree of silicification, pyritization, skarnification, etc. Sample descriptions are provided in Appendix A.

Analyses were done by Acme Analytical Laboratories, 852 E. Hastings Street, Vancouver, B.C. Rock samples were crushed to a -100 mesh pulp. Half a gram of crushed material was then digested in 95°C dilute aqua regia in a boiling water bath for one hour and then diluted to 10 ml with demineralized water. Extracted metals were analysed by Inductively Coupled Argon Plasma for 30 elements. Gold analysis requires a 10.0 to 30.0 gram sample which is subjected to Fire Assay

preconcentration techniques to produce a silver bead. The bead is dissolved and gold content is determined in the solution by graphite furnace Atomic Absorption. For Mercury analysis, 0.5 grams of pulp sample is digested in aqua regia and diluted with 20% HCl. Mercury in the solution is determined by cold vapour Atomic Absorption. A small portion of the extract is added to a stannous chloride/hydrochloric acid solution. The reduced mercury is swept out of the solution and passed into a Mercury cell where it is measured by Atomic Absorption.

The analytical results are not favorable. The skarn mineralization locally hosts copper and gold values up to 0.5% and 0.38 grams/tonne respectively (sample VT-22-4-3472). As discussed earlier, other than the occurrence found by Aberford, gold mineralization is negligible on the claim despite the presence of sulphide in some localities. Locally, minor shears and fault gouge contain geochemically anomalous gold and mercury values.

4. SUMMARY AND CONCLUSION

Six man-days were spent mapping and sampling the TAH 22 claim, with four additional man-days spent compiling, interpreting and reporting on the results. Seventeen rock samples were collected and analyzed for 30 elements by the I.C.P. method. Atomic Absorption and Fire Assay methods were employed for gold and mercury analysis. Two of the seventeen samples were assayed for copper, zinc, silver and gold.

The TAH 22 claim is primarily underlain by quartz diorite intruding limestone in the northern portion of the claim and andesitic pyroclastic rocks in the southern portion. Skarns of variable intensity of alteration, with locally anomalous copper and gold values are found at or near the contact of the quartz diorite with limestone, while quartz veining with locally anomalous sulphide content occurs within and peripheral to the intrusive. Only one quartz vein, described in a previous report, appears to contain significant gold mineralization, and this occurrence is of local importance only.

The potential for significant gold mineralization is extremely limited. Previously known gold mineralization in quartz-sulphide veins does not appear to have any consistency, nor are there any indications of potential for more consistent mineralization at depth. Other quartz veins and veinlets in the area are relatively barren. Similarly, skarn mineralization is primarily magnetite with only local, slightly anomalous copper and gold contents. No further work is warranted on the property at present.

5.0 ITEMIZED COST STATEMENT

Introduction

Examination of the TAH 22 claim was part of a larger investigation in the region, so only part of the costs incurred can be directly applied to the TAH 22 claim. The method of apportioning costs to this claim is as follows:

Man-days spent on field work on TAH 22 - total man-days spent on field work in the region, x 100 = percent man-days of work on TAH 22, exclusive of travel and office time. Costs which cannot be directly applied to the TAH 22 claim, but which were incurred while carrying out geological investigations in the region are multiplied by the percentage figure calculated above and attributed to the TAH 22 claim. These costs include vehicle rentals, accommodations, food, transportation and locally purchased field supplies. Sample shipment costs are calculated based on the ratio of samples collected on the TAH 22 claim to samples collected over the entire area.

Costs which can be directly attributed to the TAH 22 claim include wages for two geologists, for both field and office work, and analytical costs.

Two geologists spent 10½ days doing field work in the area with three days concentrating on the TAH 22 claim. Work took place between August 2 and August 12, 1984. The crew travelled to the area from Campbell River on August 1, and from the area to Port McNeill on August 13, 1984. Trips to Tahsis for supplies were made on two days during the work period. Also included in the indirect costs is a percentage of travel expenses incurred during a visit by the project geologist on August 4, departing August 6, 1984.

COST SUMMARY

6 man-days spent on Tah 22 claim
4 man-days spent on reports

DIRECT COSTS

Salaries

6 man-days @ 90.38/day	542.28
4 man-days @107.69/day	430.76
	<hr/>

973.04

Analytical Costs-
17 Samples

30 Element ICP @ \$6.00/sample	102.00	
Geochemical Hg Assay @ \$3.00/sample	51.00	
Rock Sample Preparation @ \$2.75/sample	46.75	
Geochemical Au by FA+AA @ \$5.50/sample		
15 samples	82.50	
Au Assay @ \$6.75/sample 2 samples	13.50	
Cu, Zn, Ag Assay @ \$11.25/sample	11.25	
	<hr/>	307.00

INDIRECT COSTS

6 man-days - 21 man-days x 100 = 28.57%

Travel Expenses:

Accommodations:

August 1 Campbell River	42.80	
August 6 Tahsis	43.87	
August 12 Gold River	50.29	
	<hr/>	
	136.96	
	x28.57%	
	<hr/>	
	39.13	39.13

Meals:

2 persons, August 1 Campbell River	26.85
3 persons, August 5 Tahsis	71.21
2 persons, August 6 Tahsis	11.20
2 persons, August 7 Tahsis	24.95
2 persons, August 12 Gold River	28.18
2 persons, August 13 Gold River, Port McNeill	75.37

237.76
x28.57%

Total Meals

67.93

67.93

Transportation:

Vehicle Rental; Cana
Rental, Vancouver

436.00

Supervisory Visit,
Rent-a-Wreck

96.99

532.99
x28.57%

152.27

152.27

Gasoline:

August 1, Campbell River	58.00
August 4, Campbell River	16.75
August 7, Tahsis	30.10
August 13, Gold River	28.00

132.85
x28.57%

37.95

37.95

Supplies:

Groceries: August 1,
Campbell River 259.74
August 7,
Tahsis 115.70

375.44
x28.57%

107.26

107.26

Field Supplies:

August 1
Campbell River 3.06
August 2
Tahsis 21.40
August 6
Tahsis 9.29
August 7
Tahsis 6.41

40.16
x28.57%

11.47

11.47

Air Photos:

4 @ 2.50

10.00

Sample Shipment Cost:
 (number of samples collected
 in Tah 22 claim - total
 number of samples collected
 from entire area)
 $17 - 92 = 0.185$

August 14 Sample Shipment	69.20 x0.185	
	<hr/>	
	12.79	12.79
Laundry: August 7 August 13	4.00 7.25	
	<hr/>	
	11.25 x28.57%	
	<hr/>	
	3.21	3.21
Phone Call: August 1	5.63 x28.57%	
	<hr/>	
	1.61	1.61
		<hr/>
TOTAL COST		1,723.66

6.0

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B.C. Assessment Report No. 84-144-12058.

APPENDIX A

Sample Descriptions

APPENDIX A

Sample Descriptions (All Samples Prefixed by the Number VT-22-4)

- 3472 Float sample from roadside of pyrite, magnetite, chalcopyrite epidote, calcite bearing skarn.
- 3473 Net-textured, coarse-grained-quartz vein in quartz diorite. Sample mainly of quartz vein material with minor hematite and chloritic fragments.
- 3497 Quartz diorite; fine to medium grained with a few epidote veinlets up to 1 cm wide and microveinlets of quartz less than 1 mm wide. Trace hematite.
- 3698 Greenstone underlying magnetite skarn; containing pervasive chlorite + epidote and irregular veinlets of calcite. Trace of very fine grained disseminated pyrite.
- 3699 Float sample at old mine workings of calc-silicate, magnetite skarn containing calcite, actinolite, garnet and epidote with magnetite + pyrite.
- 3700 Mainly massive magnetite with some garnet, and minor chalcopyrite suggested by malachite staining. (Roadside float).
- 3901 Float from trench of rusty weathering, nearly massive pyrite with white, vuggy calcite.
- 3902 Medium grained, weakly magnetic and chloritic, hornblende bearing quartz diorite with minor 1 mm wide quartz veinlets, cut by a $\frac{1}{2}$ m wide shear zone.
- 3903 Very fine grained, silica-rich, light green to light grey, felsic dyke intruding hornblende quartz diorite. Dyke roughly parallel to gold bearing quartz sulphide vein occurrence found by Aberford.
- 3904 Slightly sheared hornblende quartz diorite with moderately abundant quartz veinlets up to 2mm wide containing traces of very fine grained sulphide (pyrite?)
- 3905 80 cm wide shear zone in hornblende quartz diorite containing trace of very fine grained disseminated pyrite.
- 3907 Light grey colored, fine grained, lithic tuff with rare feldspar phenocrysts; moderate to strong silicification; fine grained disseminated pyrite - 4% of sample (float).

- 3908 Fine to medium grained, weakly magnetic, pyritic quartz diorite.
- 3909 5 mm. wide quartz vein in moderately magnetic quartz diorite; calcite veinlets \pm epidote cross-cut host rock and quartz veinlets.
- 3910 Lithic-crystal-tuff; weak pervasive chlorite; irregular thin veinlets of calcite; very fine grained, disseminated pyrite.
- 3911 Light colored, lithic lapilli tuff; rounded lapilli in a dark, fine grained matrix. Minor pyrite (float).
- 3912 Sheared tuff adjacent to 30 cm. wide fault gouge. Weak pervasive chlorite; abundant irregular calcite veinlets, lenses, and pods subparallel to shear.

APPENDIX B

Rock Analysis

