ASSESSMENT AND TRENCHING REPORT
TAN CLAIM
VICTORIA MINING DIVISION
LATITUDE 49°05.5'N, LONGITUDE 124°34.6'W
NTS 92F/2€

FOR
Owner Operator: NEXUS RESOURCE CORPORATION
FEBRUARY 27, 1987
J.S. Getsinger, Ph.D.

FILMED

GEOLOGICAL BRANCH ASSESSMENT REPORT

16,072



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Province of British Columbia Ministry of Energy, Min. and Petroleum ResourcescivED MINERAL RESOURCES DIVISION — TITLES BRANCH

STATEMENT OF EXPLORATION AND DEVELORMENT S.C.

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I, the undersigned Free Miner, hereby acknowledge and understand that it is an offence to knowingly make a false statement or provide false information under the *Mineral Act*. I further acknowledge and understand that if the statements made, or information given, in this Statement of Exploration and Development are found to be false and the exploration and development has not been performed, as alleged in this Statement of Exploration and Development, then the work reported on this statement will be cancelled and the subject mineral claim(s) may, as a result, forfeit to and vest back to the Province.

J. S. Getanger





SUMMARY

Exploration work consisting of prospecting, trenching and rock sampling for geochemical analysis was carried out on a portion of the Tan claim during February 1987.

A quartz-sulphide mineralized shear zone was located during fieldwork on the claim. A trench was excavated to better expose the zone and six rock samples were collected. The shear zone is 1.8 m wide and has been traced for 70 m along strike. Results of up to 60 ppb Au, 2.1 ppm Ag, 1620 ppm As, and 763 ppm Mo were returned from the trench samples. The discovery of this gold-bearing shear zone combined with the occurrence of Au silt geochemical anomalies along the west fork of the Nitinat River indicates that high-grade Au-quartz veins such as those present on the Black Panther property, adjacent to the west, may be present on the Tan claim.

A Phase I program of geological mapping, and rock sampling over the entire claim is recommended at an estimated cost of \$20,800. Phase II work consisting of follow-up geological mapping, soil sampling, and VLF-EM and magnetometer surveys on grids established over target areas located during Phase I is recommended, contingent upon favourable Phase I results. If warranted by Phase II results, a program of detailed IP and/or EM surveys, trenching, rock sampling and geological mapping over anomalous grid areas followed by diamond drilling is recommended.



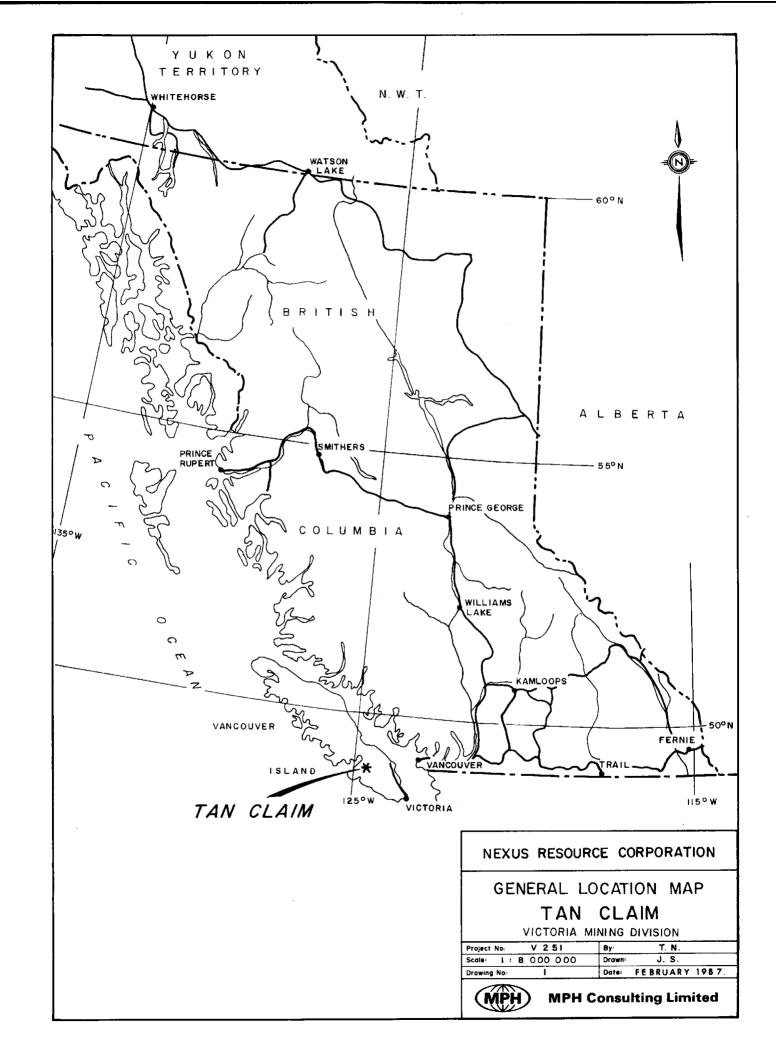
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1.0 INTRODUCTION

This report represents the compilation of geological fieldwork carried out by MPH Consulting Limited at the request of Nexus Resource Corporation on the Tan claim on February 13 - 16 and 21, 1987.

Work carried out to fulfill assessment work requirements included prospecting, trench excavation, and rock sampling for lithogeochemical analysis. The snowline was at about 750 m elevation, preventing any work from being carried out in the higher parts of the claim.

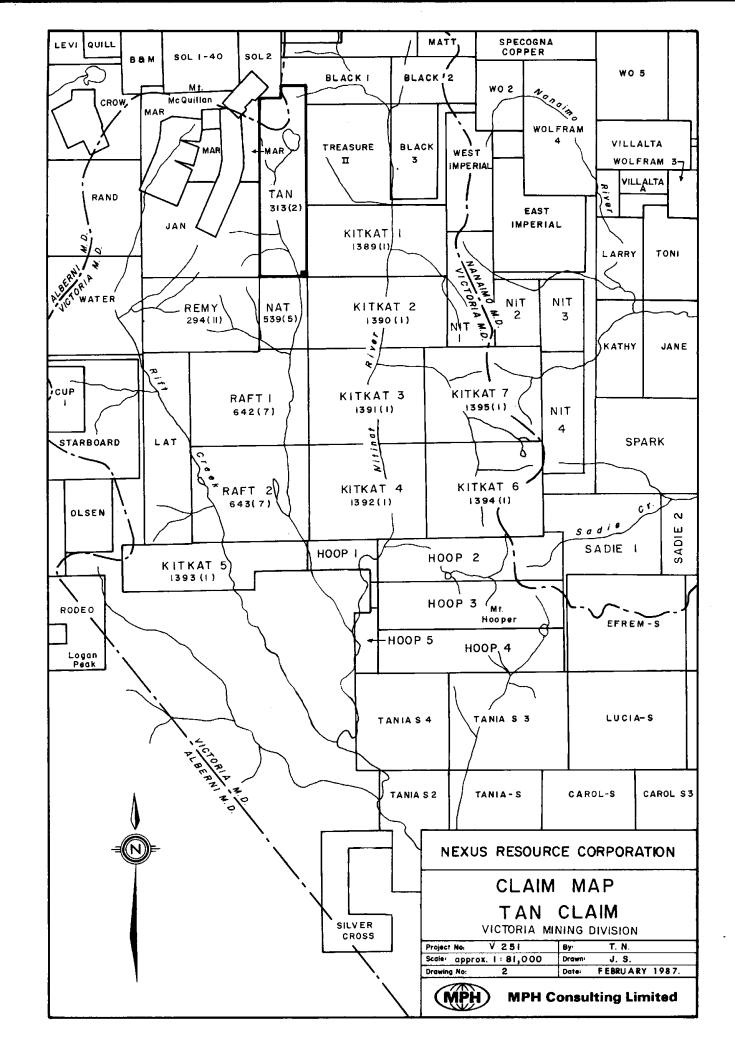


2.0 LOCATION, ACCESS, TITLE

The Nexus Resource Corporation Tan claim is located 24 km southeast of Port Alberni at the headwaters of the middle fork of the Nitinat River in the Victoria Mining Division of British Columbia. The claim is centred at 49°05.7'N latitude, 124°34.5'W longitude on NTS mapsheet 92F/2 (Figures 1 and 2).

Access to the claim is via the paved Nitinat Main Road of Crown Forest which may be reached from either Port Alberni or Youbou. Approximately 6.4 km north of the logging company gate, Road BR20 branches to the west, crossing the Nitinat River and follows the middle fork about 8 km north to the Tan claim. Several logging roads give good access to the southeastern part of the claim. The southwestern part has no roads and consists of steep talus slopes and cliffs. The northern half of the claim straddles the divide between China Creek and the middle fork of the Nitinat River. Access to the northern portion of the Tan claim is by helicopter or possibly by foot from the end of BR20.

The Tan claim is 16 units in size, has an anniversary date of February 25, 1989 and was registered in February, 1980. The record number is 313(2). The Tan claim is owned by Nexus Resource Corporation.



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3.0 PREVIOUS WORK

Government geological work in the area includes mapping by C.H. Clapp (1912 and 1914), J.E. Muller and D.J.T. Carson (1969), and J.E. Muller (1977 and 1980), and A. Sutherland Brown et al. (1986).

A regional aeromagnetic survey flown by Hunting Survey Corp. Ltd. in 1962 located a conspicuous north-south magnetic high along the crest of the ridge immediately west of the Tan claim.

During the years 1963 to 1966, Gunnex Ltd. carried out a regional mapping program over a large portion of the E&N Land Grant, with limited prospecting and silt sampling. They compiled a list of all known mineral occurrences in the area and visited many of them. Most of the creeks draining the ridge west of the Tan claim returned anomalous Total Heavy Metal values but no follow-up work was done by Gunnex on these creeks. The Tan claim was staked in 1980 to cover part of the anomalous area.

Lode Resource Corporation has carried out an extensive exploration program on the Black Panther property, adjacent to the Tan claim on the west. One of the areas investigated in detail is the Summit Lake area, adjacent to the northwest corner of the Tan claim. Trenching of the mineralized quartz veins near Summit Lake was first carried out in the late 1930's. Lode Resource Corporation carried out detailed grid soil sampling, channel sampling of the old trenches and drilled 5 diamond drill holes totalling 726.34 m in 1980 (locations of drill holes marked on Figure 5). Diamond drilling intersected "significant gold and some associated silver values" (in quartz veins?) hosted by interbedded volcanics and sediments believed to be of the Myra Formation. Increased sulphide contents in holes SL80-4 and

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S180-5 were believed to have possible significance with respect to volcanogenic massive sulphide mineralization (Sawyer, 1980).

Work done by Lode Resource Corporation on the Tan claim in 1984 consisted of a geochemical silt sampling program. Above background or anomalous Cu, Zn, or Au results were returned from nearly all of the creeks draining the west side of the claim while Pb and Ag values were low. This confirms the results of the Gunnex Ltd. survey. One creek draining the east side of the Tan claim returned an anomalous Au value.

A program of detailed soil sampling, geological mapping, and lithogeochemical sampling was recommended for the area of the anomalous Au sample on the east side of the claim. The anomalous area on the west side of the claim was recommended to be covered by detailed silt and soil sampling and by geological mapping.

Exploration by MPH Consulting Limited for Nexus Resource Corporation in February 1985 in the area of the eastern Au anomaly located basaltic tuff, agglomerate and flows with minor cherty, argillaceous, and jasper layers. Rock sampling failed to locate a source for the 1984 Au anomaly but alteration patterns similar around volcanogenic gold and/or base metal those located. Later that year Lode Resource Corporation carried out a program of reconnaissance stream and soil sampling with limited mapping and prospecting. Anomalous Au, Ag, Cu, Pb, and Zn values were obtained, mainly from streams draining the eastern side of the Mt McQuillan ridge (i.e. western portion of the claim and beyond western claim boundary.) A very anomalous silt sample result of 760 ppb Au, 2.6 ppm Ag with 36 ppm Pb was obtained from a stream draining Black Lake in the northern part of the claim.



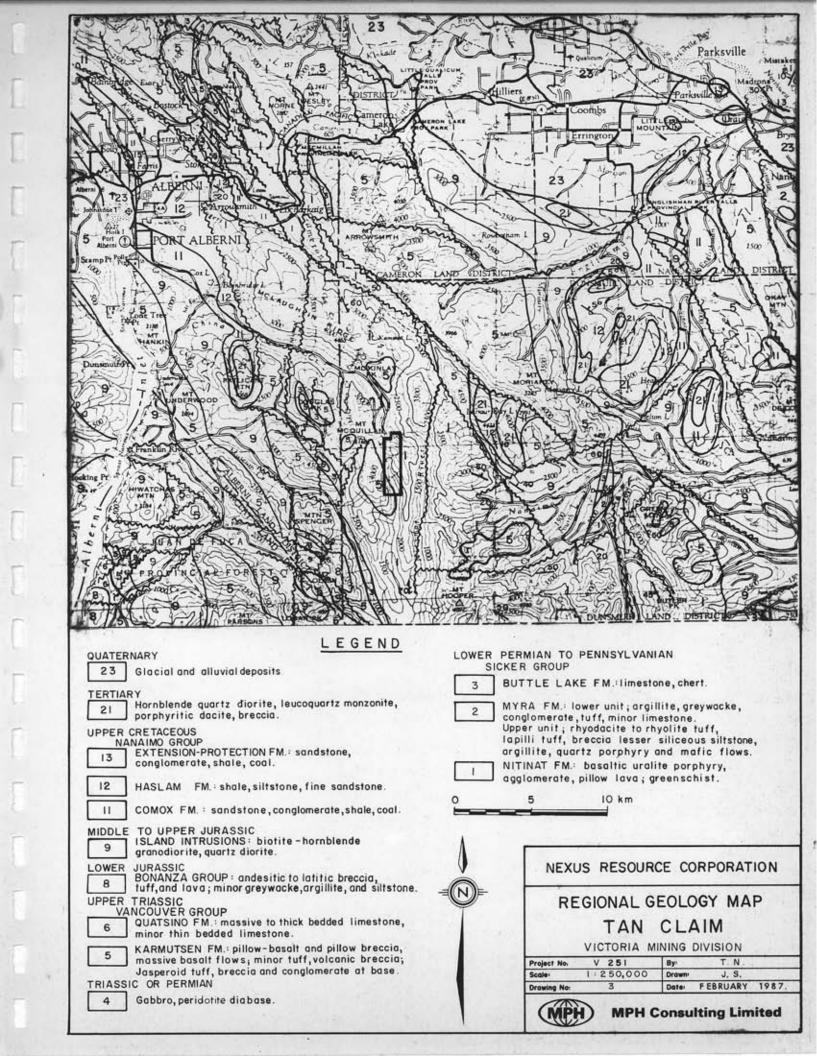
4.0 REGIONAL GEOLOGY

The predominant rock units in the Port Alberni-Nitinat River area are the Upper Paleozoic Sicker Group rocks and the Lower Mesozoic Vancouver Group rocks. Both are eugeosynclinal sequences of volcanic and sedimentary rocks. Lesser amounts of the Upper Cretaceous Nanaimo Group and of intrusive rocks of various ages also occur (Figure 3). Mapping of the area has recently been carried out by Sutherland Brown et al. (1986) resulting in a new subdivision of the Sicker Group. As this work is not complete yet, Muller's work is used to provide the description of the Sicker Group.

4.1 Sicker Group

The oldest rocks in the area are those of the Sicker Group. Muller (1980) proposed the following subdivision of the Group from youngest to oldest: Buttle Lake Formation, Sediment-Sill Unit, Myra Formation, and Nitinat Formation.

The Nitinat Formation (Unit 1) consists predominantly of basic volcanic rocks, most commonly flow-breccias, including some massive flows and rare pillow basalts or agglomerates. medium grained, generally massive basaltic tuff is interbedded The flow-breccia is composed of fragments of with the flows. basalt up to 30 cm in length containing uralite phenocrysts and black or white amygdules, both from 1 mm to more than 1 cm in size, in a matrix of finer grained, similar basalt(?). Thin sections show that the uralite is replacing diopside. Uralitized gabbroic rocks underlie and intrude the volcanics believed to represent feeder dykes, sills, and magma chambers to The Nitinat Formation may be distinguished from the volcanics. the similar Karmutsen Formation by the usual lack of pillow basalts, the abundance of uralite phenocrysts, the pervasive shear foliation, and lower greenschist or higher metamorphic grade.





The Myra Formation (Unit 2) unconformably overlies the Nitinat In the Nitinat-Cameron River area the Myra Formation is made up of a lower massive to widely banded basaltic tuff and breccia unit, a middle thinly banded pelitic albite-trachyte tuff and argillite unit, and an upper thick bedded, medium grained albite-trachyte tuff and breccia unit. In the lower unit crudely layered mottled maroon and green volcaniclastic greywacke, grit, and breccia are succeeded by beds of massive, medium grained dark tuff up to 20 m thick interlayered with thin bands of alternating light and dark fine grained tuff with local fine to coarse breccias containing fragments of Nitinat Formation volcanics. The middle unit is comprised of a sequence of thinly interbedded, light feldspathic tuff (albite trachyte or keratophyre composition) and dark marine argillite which has the appearance of a graded greywacke-argillite turbidite sequence. In the upper part of the middle unit sections of thickly bedded to massive black argillite occur. The upper unit contains fine and coarse crystal tuffs in layers up to 10 m thick with local rip-up clasts and slabs of argillite up to 1 m in length as well as synsedimentary breccias of light coloured volcanic and chert fragments in a matrix of black argillite.

The type locality of the Myra Formation is Myra Creek, at the south end of Buttle Lake, about 100 km northwest of the Tan claim. There, volcaniclastic rocks consisting dominantly of rhyodacitic or rhyolitic tuff, lapilli tuff, breccia, and some quartz porphyry and minor mafic flows and argillite (Upper Myra Formation) are host to Westmin Resources' Myra, Lynx, Price, and H-W massive sulphide (Cu-Zn-Pb-Au-Ag-Cd) deposits.

Muller (1980) estimated the thickness of the Nitinat Formation at about 2000 m and that of the Myra Formation at 750 to 1000 m. Both the Nitinat and Myra Formations were dated as Devonian and/or older by Muller (1980).



The <u>Sediment-Sill Unit</u> contains thinly bedded to massive argillite, siltstone, and chert with interlayered sills of diabase. It is transitional between the Myra and Buttle Lake Formations. It is not mapped within the report map area.

The <u>Buttle Lake Formation</u> (Unit 3) consists of a basal green and maroon tuff and/or breccia overlain by coarse grained crinoidal and calcarenitic limestone, fine grained limestone with chert nodules and some dolomitic limestone. Lesser amounts of argillite, siltstone, greywacke, or chert may also be present.

The Buttle Lake Formation is up to 466 m thick. The age of the formation, on the basis of fossil dating appears to be Middle Pennsylvanian, but could possibly be as young as Early Permian (Muller, 1980).

4.2 Vancouver Group

The <u>Karmutsen Formation</u> volcanic rocks (Unit 5) overlie the Buttle Lake Formation limestone paraconformably to form the base of the Vancouver Group. They are the thickest and most widespread rocks on Vancouver Island. The formation, which is well exposed southeast of Port Alberni, consists mainly of dark grey to black pillowed basalt, massive basalt, and pillow breccia. Flows are commonly aphanitic and amygdaloidal. Pillowed volcanics generally occur toward the base of the section.

Conglomerate containing clasts of Sicker Group rocks and jasperoid tuff form basal sections in the Nitinat-Horne Lake area.

Karmutsen Formation rocks are generally relatively undeformed compared to Sicker Group rocks and are dated Upper Triassic and older.



Massive to thick bedded limestone of the Quatsino Formation (Unit 6) occurs south of Mount Spencer. The limestone is black to dark grey and fine grained to micro-crystalline. In the vicinity of intrusive rocks, coarse grained marble is recognized. Thin bedded limestone also occurs in the formation. Fossils indicate an age of Upper Triassic (Muller and Carson, 1969).

4.3 Bonanza Group

The Bonanza Group (Unit 8) is made up of interbedded lava, breccia, and tuffs ranging in composition from basalt to rhyolite with intercalated beds of marine argillite and greywacke. It is exposed south of Mount Spencer and south of Corrigan Creek and consists of light coloured andesite to latite breccia, tuff, and flows with minor greywacke, argillite, and siltstone. The Bonanza Group is considered to be of Lower Jurassic age.

4.4 Nanaimo Group

Upper Cretaceous Nanaimo Group sedimentary rocks are scattered throughout the area. Extensive exposures occur near Port Alberni, Patlicant Mountain, and south and northwest of Mount Moriarty. The formations present comprise the basal portions of the Nanaimo Group.

The <u>Comox Formation</u> (Unit 11) consists mainly of quartzofeld-spathic, cross-bedded beach facies sandstone and lesser conglomerate. Numerous intercalations of carbonaceous and fossiliferous shale and coal are characteristic.



The <u>Haslam Formation</u> (Unit 12) is a near shore littoral depositional facies unit characterized by massive bedded fossiliferous sandy shale, siltstone and shaly sandstone.

Interbedded coarse clastic conglomerate, pebbly sandstone and arkosic sandstone of the Extension-Protection Formation (Unit 13) are beach and deltaic sands. Minor shale and coal are reported.

4.5 Intrusive Rocks

Gabbro, Peridotite, Diabase (Unit 4). Mafic and ultramafic rocks of Triassic or Permian age are scattered throughout the area. A large band is exposed approximately 8 km north of Port Alberni.

Although mapped as intrusive, some of these rocks may be basal flow units of the Karmutsen Formation.

Island Intrusions (Unit 9). Exposures of mainly quartz diorite and lesser biotite-hornblende granodiorite occur throughout the area and are assigned an age of Middle to Upper Jurassic. Intrusive contacts with Sicker and Vancouver Group volcanic rocks are characterized by transitional zones of gneissic rocks and migmatite although contacts with Karmutsen Formation volcanic/sedimentary rocks are sharp and well defined. Skarn zones are reported at the contact of Island Intrusion rocks with Quatsino Formation limestone and less frequently with Buttle Lake Formation limestone.

Tertiary (Catface or Sooke) Intrusions (Unit 21). Sills and stocks of mainly hornblende-quartz diorite and dacitic hornblende-feldspar porphyry plus lesser leucocratic quartz monzonite intrude Nanaimo Group sedimentary rocks and Sicker Group rocks in the area.



4.6 Structure

The Buttle Lake Arch, Cowichan-Horne Lake Arch and Nanoose Uplift are north-northwesterly trending axial uplifts and are believed to be the oldest structural elements in south central Vancouver Island. Uplifting occurred before the late Cretaceous, and possibly before the Mesozoic (Muller and Carson, 1969). Sicker Group volcanic and sedimentary rocks occur at the core of these uplifts.

Asymmetric southwest verging anticlinal structures characterized by sub-vertical southwest limbs and moderately dipping northeast limbs are reported at Buttle Lake and in the Cameron-Nitinat River area. Intense shearing and metamorphism to chlorite-actinolite and chlorite-sericite schist occurs in steep and overturned limbs of folds. Overlying Buttle Lake Formation limestones are relatively undeformed except where they are thin.

Vancouver Group units are not as intensely folded; gentle monoclinal and domal structures have been mapped. However, Karmutsen Formation volcanic rocks locally conform to the attitude of underlying Myra and Buttle Lake Formations (Muller, 1980).

Some early Mesozoic faulting occurred in the area prior to emplacement of Island Intrusions. Middle to Upper Jurassic intrusive activity (Island Intrusions) occurred along northwesterly trends.

Extensive west-northwest trending faulting occurred during the Tertiary and is best illustrated by large displacements of Nanaimo Group sediments. The north trending Alberni Valley fault is traced over 70 km and displaces a section of Karmutsen Formation approximately 1,500 m (Muller and Carson, 1969).



4.7 Economic Setting and Mineral Occurrences

The Sicker Group, and to a lesser extent, the Vancouver Group of volcanic rocks, have been explored intermittently since the 1890's for gold and base metal mineralization.

Until recently, deposits of copper and gold-silver in quartz veins and shear zones hosted by mafic to intermediate volcanic rocks and base metal plus gold-silver skarn deposits were the most widely recognized economic and subeconomic metal concentrations in the Port Alberni area. Placer mining for gold was carried out during the 1940's in various localities, especially in the China, Mineral and Corrigan Creeks area.

The volcanogenic massive sulphide deposits of Westmin Resources Ltd., first discovered in 1917 although not recognized as volcanogenic until the late 1960's, occur at Buttle Lake, approximately 70 km northwest of the Port Alberni area. Four zones of mineralization consisting of the ore minerals sphalerite, chalcopyrite, galena, tetrahedrite-tennantite plus minor bornite and covellite, are hosted by pyritic rhyolitic to rhyodacitic volcanic and pyroclastic rocks of the Myra Formation.

Proven reserves of the Lynx (open pit), Price and Myra deposits are 926,400 t grading 1% Cu, 0.9% Pb, 7.4% Zn, 2.1 g/t Au, 89 g/t Ag (1983). Published reserves of the H-W zone are 13,815,000 t averaging 2.2% Cu, 5.3% Zn, 0.3% Pb, 2.4 g/t Au and 38 g/t Ag (Walker, 1983). In the 3 years 1980 to 1982, there were 811,809 t of ore milled producing 7,322,272 kg Cu, 43,798,176 kg Zn, 6,468,636 kg Pb, 1,742 kg Au, 78,628 kg Ag and 58,636 kg Cd.

Another volcanogenic massive sulphide deposit in the Sicker Group is the Twin J Mine near Duncan on Mount Sicker, about 65 km



southeast of the Tan claim. Two parallel orebodies, each containing pyrite, chalcopyrite, sphalerite and minor galena in a barite-quartz-calcite gangue and chalcopyrite in quartz, occur in schists believed to have been derived from acidic volcanics (Myra Formation).

Total production from 1898 to 1964 was 277,333t producing 1,384 kg Au, 29,066 kg Ag, 9,569,708 kg Cu and 20,847,567 kg Zn with at least 164,934 kg Pb and 4.5 kg Cd.

At the Lara property (55 km southeast of the Tan claim) Abermin Corp. has traced the polymetallic volcanogenic massive sulphide Coronation and Coronation Extension Zones over a strike length of over 1500 m and to depths of 245 m. Average grades are 5.1 g/t Au, 111.4 g/t Ag, 0.81% Cu, 1.32 % Pb, and 5.79% Zn over an average thickness of 3.9 m. A 162 m long high-grade zone within the Coronation Zone averages 8.2 g/t Au, 229.7 g/t Ag, 1.5% Cu, 3.1% Pb, and 14.9% Zn over an average thickness of 3.4 m. Recent exploration has located other similar horizon(s) up to 2.4 km long parallel to the Coronation Zone in the northern part of the property. The mineralized zones are hosted by felsic volcanics of the Myra Formation.

Six past producing mines occur in the Port Alberni area (Figure 4). The Thistle Mine produced 85,844 g Au, 65,938 g Ag and 309,739 kg Cu from 6,276 t of ore. It was originally considered to be a skarn deposit (Stevenson, 1944; Carson, 1968). Disseminated and massive sulphide mineralization occurs as lenses and bands within pyritic quartz-sericite schist and at the contact of quartz-sericite schist with chloritized mafic volcanic rocks (Sicker Group). Disseminated sulphide mineralization occurs throughout the host rocks. The deposit is now believed to be of syngenetic-volcanogenic origin. It is located 4 km west of the Tan claim.

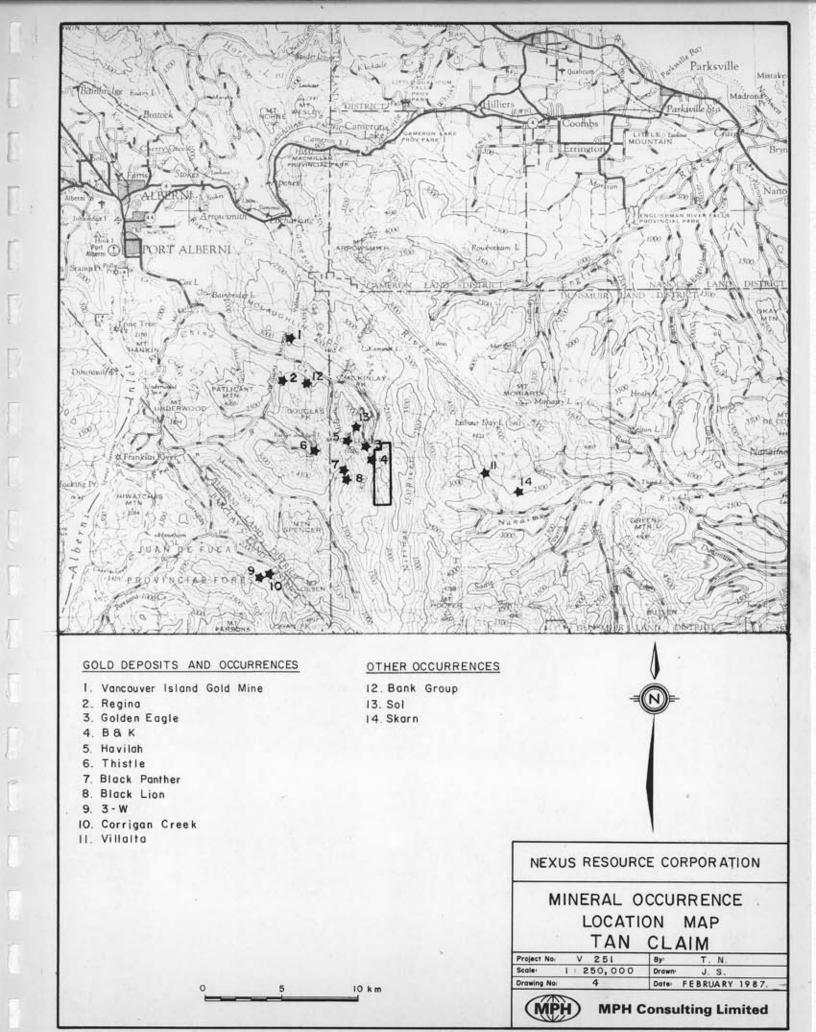


The Havilah Mine (949 t produced 8,056 g Au, 43,669 g Ag) and the Vancouver Island Gold Mine (438 t produced 11,944 g Au, 1,617 g Ag) are quartz vein deposits hosted by andesite and andesite tuff of the Sicker Group and are located 2.5 km and 10 km, respectively, northwest of the Tan claim.

The Black Panther Mine is a quartz vein deposit hosted by a shear zone in Sicker Group andesite and diorite located 2 km west of the Tan claim on the adjacent Mar claim. Production of 1,714 t of ore yielded 15,831 g Au, 29,641 g Ag, 5,600 kg Pb and at least 2,035 kg Zn and 226 kg Cu.

Other past producers in the area include the 3-W Mine ('limited' production of Au-Ag) and the Corrigan Creek Mine (105 t of ore grading 137 g/t Au, 147 g/t Ag, 0.23% Cu, 1.1% Pb), both quartz vein deposits hosted by diorite and granodiorite (Island Intrusions) and both located 9 km southwest of the Tan claim.

Numerous precious/base metal bearing quartz veins occur in the area north and west of the Tan claim. In addition to the Black Panther Mine; the High Grade Vein, Middle Vein, Black Lion, Lakeview, B & K, and Golden Eagle are all located within 2.5 km of the Tan claim (Figure 4). Detailed descriptions of these veins and other significant base metal and gold deposits and occurrences of the Sicker Group in the Port Alberni to Nitinat River area are included in a previous report on the Tan claim (Hawkins and Neale, 1985) and the reader is referred to that report for further information.





5.0 1987 ASSESSMENT WORK

Work carried out in February 1987 included prospecting, excavation of a trench 3 m long by 1 m wide by 1 m deep, and rock sampling for geochemical analysis. A total of 21 rocks and 1 silt sample was collected and analyzed by atomic absorption for Au by Rossbacher Lab and by 30-element ICP by Acme Analytical Lab. Brief rock sample descriptions with Au, Ag, and other anomalous results are listed in Appendix II, while full analytical results are included in Appendix III. Seven samples were selected for thin section preparation and petrographic analysis. Results are included in Appendix IV.

5.1 Geology (Figure 6)

The area underlain by the Tan claim has been mapped by Muller (1980) as Nitinat Formation mafic to intermediate volcanics. House (1984) reports that Myra Formation rocks have been mapped in the Summit Lake area adjacent to the north-west corner of the Tan claim. Mapping by MPH Consulting on part of the Tan claim (Hawkins and Neale, 1985) located mainly basaltic pyroclastic Nitinat Formation rocks including tuff, agglomerate, and flows with local minor interbeds of chert and/or argillite.

Recent mapping of the Port Alberni area by Sutherland Brown et al. (1986) has resulted in a new subdivision of the Sicker Group. The work is incomplete, however, preliminary mapping of the Tan claim area indicates that it is underlain by Units PS4 and PS5. Unit PS5 appears to be approximately equivalent to the Nitinat Formation, as it consists of pyroxene porphyry, agglomerate, tuff breccia, sandstone, and chert. Unit PS4 is likely equivalent to a portion of Muller's Myra Formation. It

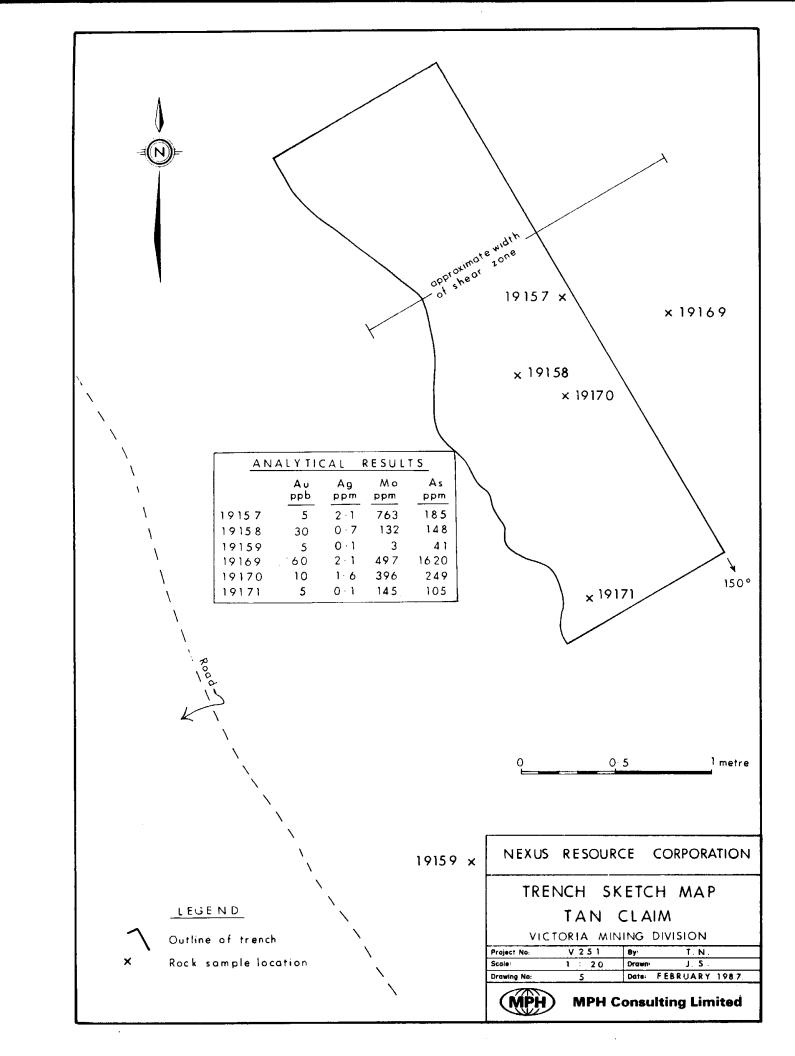


comprises volcanic sandstone, conglomerate, and tuff. A major fault is shown along the west fork of the Nitinat River running up to Summit Lake.

Rocks from the 1987 trench and vicinity are indicated by petrographic studies (see Appendix IV) to be felsic volcanic breccias, indicating that this area of the Tan claim may be underlain by Myra Formation rocks rather than Nitinat Formation.

5.2 Lithogeochemistry

The most significant result of the exploration was the location of a sulphide-quartz - filled shear zone. The shear zone is at least 1.8 m wide and has been traced in intermittent surface exposures and rusty quartz vein float for approximately 70 m. strikes 150° and dips about 45° to the east. The trench was excavated by hand and dynamite in order to expose more of the shear for rock sampling (Figure 5). Six rock samples were collected from the trench with an additional 4 samples collected to the north and south along strike. Lithogeochemical analysis reveals a strong Mo-As-Ag Au association in this mineralized zone with 7 of 10 samples anomalous in Mo, 6 in As, 5 in Ag, and Highest values for these elements from the trench samples are: 763 ppm Mo in sample 19157; and 60 ppb Au, 2.1 ppm Ag, and 1620 ppm As in sample 19169. As the mineralized shear is parallel to the major fault running up the west fork of the Nitinat River, about 150 m to the west, there is a good possibility that the 2 structures are in some way related. The presence of numerous silt and soil samples anomalous in Au (Laanela, 1985) along the trace of the fault indicates that it may be mineralized as well, perhaps in a similar fashion to the trench shear. Mineralization on the adjacent Black Panther property consists of at least 3 auriferous quartz veins hosted by shear zones trending roughly north-south.





Elsewhere on the property, 2 samples collected from the upper road near the eastern boundary of the claim returned anomalous Pb and Zn values. Sample 19166, in addition to 32 ppm Pb and 127 ppm Zn analyzed 60 ppb Au, while sample 19174 contained 511 ppm Pb, 745 ppm Zn and 0.8 ppm Ag. Other anomalous results include sample 19165 with 1188 ppm Cu, 19153 with 40 ppb Au, and 19164 with 20 ppb Au.

Silt sample 19173 is weakly anomalous to anomalous in Au, Ag, Ni, Mn, and Cr. Rock sampling carried out uphill from this silt sample in a previous survey (Hawkins and Neale, 1985) indicated the presence of anomalous Ni± Mn± Cr.



6.0 PROPOSED WORK PROGRAM

6.1 Plan

Work to date on the Tan claim has located numerous indications of the possible existence of Au mineralization; however, it has been piecemeal rather than systematic. Phase I work, therefore, is to consist of geological mapping and rock sampling covering the entire claim. Mapping is necessary to determine the geological setting of mineralized zones.

Particular attention should be paid to the location and delineation of major structural features, such as the fault in the west fork of the Nitinat River, as they are know to host gold-bearing quartz veins in the vicinity of the Tan claim and previous geochemical results indicate that similar mineralization could be present on the Tan. The shear zone trenched in 1987 should be traced along strike and sampled. The Summit Lake area should also be covered in detail, as there are strong indications that volcanogenic massive sulphide mineralization hosted by Myra Formation rocks may occur in the area (Sawyer, 1980).

Contingent upon favourable results from Phase I, Phase II is to consist of detailed geological mapping, soil sampling, and VLF-EM and magnetometer surveys on grid(s) located over target areas outlined in Phase I. Phase II will incorporate the recommendations for silt and soil sampling made by House (1984). Grid(s) are to be established at right angles to strike with flagged lines 50 m apart. Soil samples and VLF-EM and magnetometer readings are to be taken at 25 m intervals along the grid lines. Close-spaced sampling is necessary as the mineralized quartz veins tend to be narrow and might be missed on a coarser grid.

Total \$177,500



If warranted by Phase II results, Phase III will consist of trenching, rock sampling, and detailed geological mapping and IP/EM surveys over anomalous grid areas, with diamond drilling to follow.

Cost estimates for Phase I, II, and III exploration programs are provided below.

6.2 Budget

Phase I

	Mobilization/Demobilization Personnel - geologist, assistant, consul Support Costs - room & board, truck, helicopter, etc. Analyses Report Costs Administration and Contingency	ting	\$ 300 8,400 5,550 1,690 900 3,950
		Total	\$ 20,800
Phase	e II		
	Mobilization/Demobilization Personnel - geologist, soil samplers, geophysical technicians,		\$ 600
	consulting Support Costs - room & board, truck,		24,300
	helicopter, etc. Equipment Rental - mag, VLF-EM Analyses Report Costs Administration and Contingency		 13,450 2,000 10,958 2,000 12,692
		Total	\$ 66,000
Phase	e III		
	IP and/or EM survey (all-inclusive) Trenching (all-inclusive) Diamond drilling (all-inclusive) Administration and Contingency		\$ 30,800 16,500 99,000 31,200



7.0 CONCLUSIONS

- 1. The Tan claim is underlain by rocks of the Sicker Group including Nitinat Formation mafic to intermediate volcanics and possibly Myra Formation volcanic and sedimentary rocks.
- Exploration to date on the Tan claim has located numerous soil, silt, and rock samples anomalous in Au as well as other precious and base metals. To date the only surface exposure of a mineralized zone discovered is a quartz-sulphide - bearing shear zone anomalous in Mo, As, Ag± Au.
- 3. Geochemical results indicate that a fault in the valley of the west fork of the Nitinat River may be mineralized in a similar manner to that of the Black Panther property, adjacent to the west. There, quartz veins and associated quartz-carbonate alteration zones in shear zones contain high-grade gold values (up to 205 g/t Au over 15 cm in the High-grade vein).
- 4. Further work on the Tan claim including geological, geochemical, and geophysical surveys followed by diamond drilling of the highest priority targets located by the surveys is warranted.



8.0 RECOMMENDATIONS

- 1. It is recommended that geological mapping, and rock sampling be carried out over the entire Tan claim as Phase I at an estimated cost of \$20,800.
- 2. It is recommended that the west fork of the Nitimat River be explored in detail to investigate the possibility that a fault mapped in the valley is mineralized and to trace the anomalous shear zone trenched in 1987.
- 3. It is recommended that the stream draining Black Lake and the area around the stream be explored in an attempt to locate the cause of the high Au silt anomaly (760 ppb Au) located by Laanela (1985).
- 4. It is recommended that the Summit Lake area of the Tan claim be explored to follow-up reported (Sawyer, 1980) possible massive sulphide mineralization in the area.
- 5. Phase II work, including detailed geological, geochemical, and geophysical exploration on grid(s) over target area(s) defined by Phase I work is recommended at an estimated cost of \$66,000, contingent upon favourable Phase I results.
- 6. Phase III trenching, geophysical survey(s) and diamond drilling is recommended at an estimated cost of \$177,500 if warranted by the results of the previous phases.

Respectfully submitted, MPH Consulting Limited

J.S. Getsinger, Ph.D

J. S. Getsinger



CERTIFICATE

I, J.S. Getsinger, do hereby certify:

- 1. That I have studied geology at Harvard University (A.B., 1974), and have graduate degrees in geology from the University of Washington, Seattle (M.S. 1978), and from the University of British Columbia, Vancouver (Ph.D. 1985).
- That I have practised within the geological profession for the past twelve years.
- 3. That the opinions, conclusions, and recommendations contained herein are based on geological research and fieldwork carried out by MPH Consulting Limited personnel in February 1987 and on my knowledge of the area.
- 4. That I own no direct, indirect, or contingent interest in the subject property, or shares or securities of Nexus Resource Corporation or associated companies.

J.S. Getsinger, Ph.D.

J. S. Getsinger

Vancouver, B.C. February 27, 1987



REFERENCES

- Clapp, C.H. 1912. Southern Vancouver Island; GSC Memoir 13.
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- Sawyer, J.B.P. 1980. Report on the 1980 Diamond Drilling Program on the Summit Lake, High Grade, and Black Panther Veins; for Jan Resources Ltd., December 31, 1980.
- Sutherland Brown, A., C.J. Yorath, R.G. Anderson and K. Dom. 1986. Geological Maps of Southern Vancouver Island., Lithoprobe I (92C11, C15, F2, F7 and parts of C10, C14, C16, F1 and F8 1:50,000); GSC O.F. 1272.
- Walker, R.R. 1983. Ore Deposits at the Myra Falls Minesite; Western Miner, May, 1983, pp. 22-25.



APPENDIX I

List of Personnel and Statement of Expenditures



List of Personnel and Statement of Expenditures

The following expenses have been incurred on the Tan claim for the purposes of mineral exploration on the dates of February 13 -16 and 21, 1987.

Personnel T. Hayes, Prospector 5 days @ \$250	\$1,250.00	
J.S. Getsinger, Ph.D 8.25 days @ \$350	2,887.50	
T.G. Hawkins, P.Geol. 2 hours @ \$80	160.00	\$4,297.50
Equipment Rental 4WD Truck 5 days @ \$90		450.00
Expenditures Meals and Accommodation Transportation (gas, ferries) Analyses 21 @ \$12.75 (Au, ICP-rock 1 @ \$11.75 (Au, ICP-silt Thin Section preparation and analysis Report Costs (drafting, typing, copying) Administration Fee	275.00 125.82 267.75 11.75 510.75 622.23 64.13	1,877.43 \$6,624.93



APPENDIX II

Rock Sample Descriptions and Lithogeochemistry Results



V251 TAN PROPERTY ROCK SAMPLE DESCRIPTIONS AND LITHOGEOCHEMICAL RESULTS

	Description	Au ppb	Ag ppm	Other ppm
Sample: Location: Rock Name:	19153 Tan claim Silicified hematitic radiolarian chert	40	0.1	8.28% Fe
Description:	Grab. See thin section description.			
Sample: Location: Rock Name:	19154 Tan claim Pyritic, silicified hematitic (red) chert	5	0.1	
Description:	Patchy red jasper (50%) is broken up with interstitial greyish-white quartz, and creby quartz-calcite veins (less than 5 mm, Calcite reacts in HCl. Rock is non-magnestringers of pyrite grains (less than 0.5 crosscut some quartz veins but are crosscothers. Pyrite (less than 5%).	cosscut 10%). etic. mm)		
Sample: Location: Rock Name:	19155 Tan claim Float/Grab?	5	0.5	16.78% Fe 1014 As 136 Mo
Description:	Very rusty, gossanous rock with boxwork limonite. Cut surface shows brecciated multiply sulphide (pyrite) clasts (up to 1.0 cm) a light-coloured, white-veined clastic(?) he very minor reaction to HCl. Host rock is hard, could be chert and/or felsic volcar Total unweathered pyrite less than 5%.	and nost roc s aphani		105 Cr
Sample: Location: Rock Name:	19156 Tan claim Grab	5	0.1	129 Cu 235 V
Description:	Dark green volcaniclastic fragmental with blebs of pyrite up to 0.5 cm. Subrounded angular clasts of aphanitic grey to green volcanic and/or chert sit in a finer-grain green matrix, which is crosscut by vuggy fractures. Sample is bounded by weathere white prehnite(?) vein on one side and limit rusty surface on another. Pyrite is also disseminated, total about 5%. Slight read to HCl indicates minor calcite.	l to ined, ed-out monitio	1	



	Description	Au p pb	Ag ppm	Other ppm
Sample: Location: Rock Name:	19157 Tan claim Brecciated, pyritic, silicified rhyolite with prehnite veins	5	2.1	763 Mo 101 Cu 22 Pb 185 As
Description:	Grab. See thin section description.			
Sample: Location: Rock Name:	19158 Tan claim Pyritic brecciated volcanic with prehnite	30	0.7	107 Cu 148 As 132 Mo
Description:	Grab. See thin section description.			
Sample: Location: Rock Name:	19159 Tan claim Brecciated volcanic(?)	5	0.1	247 V
Description:	Grab. Grey clastic rock is similar to 19 with less pyrite. Subrounded to subangul fine-grained clasts up to 2 cm are probab volcanic and/or chert fragments. White veinlets (less than 2 mm, less 3-5%) may prehnite (no reaction to HCl). Pyrite(?) and/or very fine-grained black metallic s are finely disseminated (less than 1%).	ar ly have		
Sample: Location: Rock Name:	19160 Tan claim Carbonate-altered mafic volcanic or volcaniclastic(?)	5	0.1	56 Ni 113 Cr
Description:	Grab. Dark green rock with calcite(?) stringers and quartz blebs, 2% pyrite.			
Sample: Location: Rock Name:	19161 Tan claim Pyritic, silicified lithic (volcanic and chert) breccia	50	0.6	29 Mo 448 As
Description:	Float. See thin section description.			
Sample: Location: Rock Name:	19162 Tan claim Silicified red chert and mafic volcanicla with prehnite	5 stic	0.1	136 Cu 974 Mn
Description:	Grab. See thin section description.			

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	Description	Au ppb	Ag ppm	Other ppm	
Sample: Location: Rock Name:	19163 Tan claim Altered intermediate to mafic volcanic or volcaniclastic (cherty tuff?)	5	0.1		
Description:	Grab. See thin section description.				
Sample: Location: Rock Name:	19164 Tan claim Metagreywacke siltstone	20	0.1		
Description:	Float. Blocky, hard, aphanitic, greenish-grey, finely laminated (laminae less than 0.5 mm, beds less than 1 cm) rock, which breaks along weak fracture cleavage(?) at high angle to bedding. Grain size is less than 0.1 mm but visible; dark and light clastic grains and finely disseminated pyrparallel to laminations (less than 1%) making the rock. Rock may be slightly metamors silty greywacke.	a Site			
Sample: Location: Rock Name:	19165 Tan claim Altered, mineralized volcanic(?)	5	0.1	1188 Cu 11.39% Fe	
Description:	Float. Rusty (limonitic) on all fracture weathered surfaces. White, altered fine-coolcanic(?) host rock is crosscut by rusty fractures and blebs of pyrite (+ chalcopyr and a black submetallic(?) mineral (non-mark) No visible reaction to HCl. Metallics less than 5-10%.	grained (ite?) agnetic			
Sample: Location: Rock Name:	19166 Tan claim Altered mafic volcanic or volcaniclastic	60	0.4	175 Cu 32 Pk 127 Zr	b n
Description:	Grab. Dark green, mafic volcanic or volcaniclastic rock has white crystals or clasts of feldspar(?) up to 2 mm (10%). Patches of different textures indicate possible relict clasts. Rock appears altered to chlorite. No reaction to HCl or magnet. White alteration may be prehnst-tolay minerals.	ite		983 Mr	1



	Description	Au ppb	Ag ppm	Other ppm	
Sample: Location: Rock Name:	19167 Tan claim Pyritic, epidote-altered volcanic	5	0.1		
Description:	Float. Patchy epidote green, orange to pinkish brown-weathering altered felsic(? volcanic with finely disseminated and fra pyrite (3%). Pyritic appears to be related to quartz(?) and epidote alteration. Less altered (or silicified?) host rock is liggrey.	cture ed s			
Sample: Location: Rock Name:	19168 Tan claim Pyritic, epidote-altered mafic volcanic	5	0.1		
Description:	Grab(?). Rusty-brown weathering, hard rowith mottled dark and light-green patches it may be epidote-altered mafic volcanic(Pyrite is disseminated (less than 0.1 mm, Rusty fractures are weathered out. Epidopatches surround veinlets. Little reactito HCl; none to magnet.	; ?). 5%). te			
Sample: Location: Rock Name:	19169 Tan claim Massive sulphide	60	2.1	124 d 36 1	Mo Cu Pb
Description:	Grab(?) from trench. Pyrite (40%), quartz (10%).			33.39% i	Fe As
Sample: Location: Rock Name:	19170 Tan claim Massive sulphide in quartz	10	1.6	113 (7.64%)	Mo Cu Fe As
Description:	Grab(?) from trench. Pyrite (40%), quartz (60%)				B
Sample: Location: Rock Name:	19171 Tan claim Rusty, altered volcanic(?)	5	0.1	155 (Mo Cu As
Description:	Grab from trench. Rusty white rock, with probable pyrite				



	Description	Au ppb	Ag ppm	Other ppm
Sample: Location: Rock Name:	19172 Tan claim Veined mafic volcanic(?)	5	0.2	
Description:	<pre>Grab(?) from trench. Green volcanic(?) many small, white veinlets throughout.</pre>	with		
Sample: Location: Rock Name: Description:		30	0.6	106 Cu 27 Pb 1006 Mn 193 Cr
Sample: Location: Rock Name:	19174 Tan claim Epidote-altered felsic(?) volcanic Grab. See thin section description.	5	0.8	511 Pb 745 Zn >5% Ca 117 Cr
Description:	Gran. See this section description.			105 Cr



APPENDIX III

Certificates of Analysis



ROSSBACHER LABORATORY LTD.

2225 S. SPRINGER AVENUE BURNABY, B.C. V5B 3N1

TEL: (604) 299 - 6910

CERTIFICATE OF ANALYSIS

TO : MPH CONSULTING LTD.

301-409 GRANVILLE STREET

VANCOUVER B.C.

PROJECT: V 251

TYPE OF ANALYSIS: GEOCHEMICAL

CERTIFICATE#: 87071

7470 INVOICE#:

DATE ENTERED: 87-02-20 FILE NAME: MPH87071

PAGE # :

	ANALYSIS: GEOCHEMI	UAL ====================================	PAGE # : 1
RE IX	SAMPLE NAME	PPB Au	
— ——— А	19153	40	
A	19154	5	
4	19155	5	
A	19156	5 5	
٩	19157	5	
7	19158	30	
A	19159	5	
^ .	19160	5	
A İ	19161	50	
4	19162	5	
4	19163	5	
A	19164	20	
4	19165	5	
4	19166	60	
<u> </u>	19167	5	
4	19168	5	
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"O : MPH CONSULTING LTD.

301-409 GRANVILLE STREET

VANCOUVER B.C.

ROJECT: V 251

YPE OF ANALYSIS: GEOCHEMICAL

CERTIFICATE#: 87081 INVOICE#:

DATE ENTERED: 87-02-24

7480

FILE NAME:

MPH87081

PAGE # :

'RE 'IX	SAMPLE NAME	PPM Cu	PPM Ag	PPM Zn	PPM Pb	PPB Au
Α	19169	82	2.0	20	22	60
Α	19170	90	0.8	24	10	10
Α	19171	124	0.2	54	6	5
A	19172	60	0.2	66	18	当
<u></u>	19173	86	0.2	88	8	30

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ROSSBACHER LABORATORY LTD.

2225 S. SPRINGER AVENUE BURNABY, B.C. V5B 3N1 TEL: (604) 299 - 6910

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O : MPH CONSULTING LTD.

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VANCOUVER B.C.

ROJECT: V 251

YPE OF ANALYSIS: GEOCHEMICAL

CERTIFICATE#: 87110 7499 INVOICE#:

DATE ENTERED: 87-03-06 FILE NAME: MPH87110

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CERTIFIED BY :

RECEIVED MAR 9 1987

DATA LINE 251-1011

GEOCHEMICAL ICP ANALYSIS

.500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HN03-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER. THIS LEACH IS PARTIAL FOR MN.FE.CA.P.CR.MG.BA.TI.B.AL.NA.K.M.SI.ZR.CE.SN.Y.NB AND TA. AU DETECTION LIMIT BY ICP IS 3 PPM.

DATE RECEIVED: FEB 19 1987 DATE REPORT MAILED: 1019 24/87

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19153	2	32	8	38	.1	11	5	603	8.2B	10	5	ND	ı	11	i	2	3	42	.30	.008	2	84	1.14	15	.03	3	1.76	.05	.01	1	
19154	3	10	2	8	. 1	4	2	344	4.60	6	9	ND	2	68	1	2	2	13	7.13	. 005	2	87	. 25	19	.01	2	.39	.09	.02	2	
19155	136	79	21	11	.5	7	11		16.78	1014	5	ND	1	11	1	2	2	169	.19	.029	2	105	.14	15	.21	15	.50	.07	.09	1	
19156	10	129	- 4	95	.1	18	23		6.83	35	5	ND	2	14	i	2	2	235	1.41	.051	4	53		19	. 32	2	2.45	.09	. 13	1	
19157	763	101	22	24	2.1	14	17		4.43	185	5	ND	ī	14	i	2	2	166	2.21	.029	2	71	.16	13	.18	2	1.42	.08	.06	1	
19158	132	107	11	16	.7	11	18	153	4.52	148	5	ND	2	12	1	2	2	158	3.14	.030	2	53	. 14	10	.19	2	1.98	.09	. 05	1	
19159	3	80	8	34	. 1	10	10	98	.75	41	5	ND	1	9	1	2	2	247	.80	.048	2	80	.07	17	. 21	4	. 56	.05	.15	ı	
19160	3	91	8	59	.1	56	22	745	4.55	2	6	MD	4	108	1	2	2	146	6.47	. 085	4	113	3.55	10	. 29	12	4.27	.13	.05	1	
19161	29	92	12	14	. 6	19	17	78	4.99	448	5	ND	1	9	1	3	2	110	1.27	.035	2	72	.06	15	. 19	2	.83	.06	.10	1	
19162	2	136	2	77	.1	10	18	974	6.39	2	5	ND	2	65	1	2	2	170	4.14	.033	2	40	2.81	9	.27	4	4.14	.11	.01	1	
19163	3	57	4	53	.i	8	15	711	4.07	19	5	ND	ι	81	i	2	3	109	3.45	.043	3	85	1.39	5	.21	2	2.45	.10	.01	1	
19164	8	43	16	64	. i	15	14	716	4.60	16	5	HD	2	34	1	2	3	115	2.82	.066	6	47	1.60	19	.32	3	2.80	.11	.02	1	
19165	2	1188	7	61	. 1	26	19	617	11.39	8	5	ND	2	4	1	2	2	89	.53	.114	7	69	1.25	10	.02	8	1.73	.07	.04	1	
19166	5	175	32	127	.4	45	32	983	6.82	19	5	ND	3	31	1	2	2	175	3.93	.110	3	37	3.12	6	.49	6	4.13	.12	.02	1	
19167	2	31	5	33	.1	14	13	355	3.15	5	5	MD	2	218	1	2	2	82	2.47	.129	5	40	.87	7	.33	3	1.97	.10	.03	1	
19168	2	25	10	29	.1	23	16	346	4.02	6	5	ND	2	123	1	2	2	136	2.63	.067	3	36	1.08	6	.29	2	2.29	. 11	.02	1	
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ACME ANALYTICAL LABORATORIES LTD.

852 E.HASTINGS ST.VANCOUVER B.C. V&A 1R6

PHONE 253-3158

DATA LINE 251-1011

GEOCHEMICAL ICP ANALYSIS

.500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HN03-H20 AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.

THIS LEACH IS PARTIAL FOR MN.FE.CA.P.CR.MG.BA.TI.B.AL.NA.K.W.SI.ZR.CE.SN.Y.NB AND TA. AU DETECTION LIMIT BY ICP IS 3 PPN.

- SAMPLE TYPE: SOLUTION

Date Heleived: FEB 25 1987 Date REPORT MAILED: 1624 ASSAYER. ASSAYER. ASSAYER.

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19169	497	124	36	28	2.1	6	18	143	33.39	1620	6	ND	8	5	1	3	2	90	.07	.012	2	43	. 15	14	. 17	2	.59	-01	.10	,	
19170	396	113	18	22	1.6	13	20	131	7.64	249	5	ND	2	7	1	2	2			.025			.22		.18	_	.52			ī	
19171	145	155	15	56	.1	10	27	399	4.58	105	5	ND	1	3	1	2	2	141	. 24	.031	2		.62		. 25		1.33		.09	1	
19172	1	74	27	65	.2	29	18	920	4.97	28	6	ND	4	50	1	2	2	122	1.17	. 058	6	70	1.45	31	.19	8	2,23	.03	. 05	ī	
19173	1	106	12	88	.6	56	27	1006	5.81	16	5	ND	2	62	i	2	2	165	1.09	.047	5	193	3.59	48	.22	22	4.26	.04	.15	1	
STD C	20	61	37	131	7.0	67	28	990	3.94	41	16	В	35	47	16	17	20	61	.48	.094	35	56	.88	176	.08	40	1.70	. 07	.12	13	

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852 E.HASTINGS ST. VANCOUVER B.C. V6A 1R6

PHONE 253-3158

DATA LINE 251-1011

GEOCHEMICAL ICP ANALYSIS

.500 GRAN SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HN03-H20 AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER. THIS LEACH IS PARTIAL FOR MM.FE.CA.P.CR.MG.BA.TI.B.AL.NA.K.M.SI.ZR.CE.SN.Y.NB AND TA. AU DETECTION LIMIT BY ICP IS 3 PPM.

ROSSBACHER LABORATORY PROJECT - CERT#87110 FILE # 87-0651 V257

SAMPLE

19174





APPENDIX IV

Petrographic Report



by J.S. Getsinger, PhD

Date 87-02
Collector T.H.
Date Collected 1987

Location:

Project

Sample

Tan claim

V251 - TAN

V251-19153

Nexus/Goldenrod

Rock Type:

Silicified hematitic radiolarian chert

Lithogeochemistry: 40 ppb Au

Hand Specimen: Red and grey siliceous rock, possibly hematitic chert.

Microcrystalline to fine-grained red jasper (50-60%) is broken up and crosscut by vuggy grey quartz veinlets (40-45%) and open space fractures (5%). Pyrite cubes (up to 1 mm, mostly <0.5 mm) are disseminated (3%). Rock is non-magnetic. There may also be some very fine-grained, black metallic material. Parts of rock streak red.

THIN SECTION (Polished No_):

% (Approx.) MINERALS

85%	Quartz - Varying grain sizes, from very fine to coarse. Coarser grains crosscut boundaries of veins and jasper fragments indicating recrystallization or replacement
5%	Chlorite - Green to yellow; alteration of pyrite
10-15%	Opaque dust - hematite(?) - fine-grained black dust is restricted to jasper (red) fragments, and has altered to reddish-brown material along edges of grains which is visible in crossed polars as "brown" quartz. Opaque dust outlines many round forms, including one 0.5 mm in diameter with concentric rings and radial segments within one particular ring. The quartz is completely recrystallized. This is interpreted as a remnant radiolarian.
3%	Pyrite - subhedral, blocky grains to 1 mm
< 1%	Hematite - bright red grains

Rock Textures/Structures: Quartz with black inclusions is crosscut by clear veinlets, but grains are optically continuous across these structures, indicating recrystallization.

Protolith: Radiolarian chert, hematitic

Alteration/Mineralization: Hematitic dust is primary; pyrite secondary. Quartz has been recrystallized (with new grain boundaries) subsequent to quartz veining of chert.

Conditions of Formation: Marine deposition of radiolarian ooze near hydrothermal vent.



by J.S. Getsinger, PhD J.S. Setse

 For
 Nexus/Goldenrod
 Date
 87-02

 Project
 V251 - TAN
 Collector
 T.H.

 Sample
 V251-19157
 Date Collected
 1987

Location: Tan claim

Rock Type: Brecciated pyritic, silicified rhyolite with prehnite veins

Lithogeochemistry: 763 ppm Mo, 101 ppm Cu, 22 ppm Pb, 2.1 ppm Ag, 185 ppm As

Hand Specimen: Rusty-weathering with yellowish-orange to brown colour. Creamy white quartz(?) veinlets (<2 mm) crosscut rock in various orientations; there are also open spaces and vugs; only minor local reaction to HCl. Rock is varying shades of grey, and looks like chert conglomerate or felsic volcanic breccia with subrounded to subangular clasts (1-10 mm). Very fine-grained fragments as well as matrix area translucent grey with inclusions of finely disseminated pyrite and/or other impurities. Larger blebs and grains of pyrite (to 5 mm) are up to 5%, associated with quartz veins. Some open fractures are encrusted with fine-grained pyrite crystals. Rock is non-magnetic.</p>

THIN SECTION (Polished No):

% (Approx.) MINERALS

10-15%	Quartz - veinlets, also with fine-grained feldspar, and in interstitial masses
5-10%	<pre>Feldspar - Alkali feldspar: phenocrysts in lithic fragments; Carlsbad twins; parthitic, patchy, (-) relief</pre>
50-65%	Plagioclase (+ K-feldspar?): microlitic, trachytic laths in ground-mass, twinned, (+) relief (at least in part)
5%	Chlorite - filled amygdules in lithic fragments
1%	Epidote(?) - fills cracks in pyrite
10-15%	Prehnite - In veins, the 'creamy white' ones. Birefringence = 0.030. Elongate to blocky grains have parallel extinction, medium-high relief, radiating habit
5%	<pre>Pyrite - blebs and aggregates to 2 mm; interstitial to lithic fragments</pre>
2- 3%	Opaques - semi-opaque masses and fine-grained dust
1%	Sphene(?) - high birefringence; relief

Rock Textures/Structures: Porphyritic and trachytic texture in lithic fragments indicate volcanic origin. Pyrite is interstitial to lithic fragments, along with most of the quartz. Prehnite veins crosscut fragments, quartz veins, and pyrite grains.

Protolith: Felsic volcanic (rhyolitic?)

Alteration/Mineralization: Brecciation; pyrite growth; silicification; prehnite veining

Conditions of Formation: Felsic volcanic rock has been brecciated, silicified, pyritized, fractured, and veined with prehnite.



by J.S. Getsinger, PhD

 Date
 87-02

 Collector
 T.H.

 Date Collected
 1987

Location:

Project

Sample

Tan claim

V251 - TAN

V251-19158

Nexus/Goldenrod

Rock Type:

Pyrite brecciated volcanic with prehnite

Lithogeochemistry: 30 ppb Au, 132 ppm Mo, 107 ppm Cu, 0.7 ppm Ag, 148 ppm As

Hand Specimen: Yellow to brown rusty-weathering, grey siliceous rock with 5% open spaces (vugs and fractures), 5% white quartz veinlets (<1-2mm) and up to 5-10% pyrite in 5 mm aggregates of finer grains; and also very finely disseminated throughout. Rock is composed of various fragments of white to grey translucent quartz(?) + felsic volcanics with milky-white specks in places (clay minerals or altered feldspar?). Non-magnetic. Very minor reaction to HCl.

THIN SECTION (Polished No): (2 sections)

% (Approx.) MINERALS

10-15%	Quartz - mainly secondary, and in veins
45-55%	Feldspar - mostly twinned, may be plagioclase; phenocrysts and as felted laths in groundmass of volcanic lithic fragments; possibly albitized plagioclase
< 5%	<pre>Clinopyroxene(?) - altered, relict grains, with inclined extinction; otherwise similar to prehnite</pre>
5%	Chlorite - anomalous blue birefringence; green; fills amygdules
20-25%	Prehnite - in veins, and as replacement, in large optically continuous patches replacing plagioclase; filling amygdules in lithic fragments; large radiating clusters crosscut earlier veins, are poikilitic with opaques. May include vermicular forms of high relief which appear to be individual grains but have the optical properties of the background prehnite.
5%	Pyrite - aggregates up to 3 mm and finely disseminated
< 1%	Sphene or Zircon? - high relief; slightly pleochroic in brown, round grains, high birefringence

Rock Textures/Structures: Volcanic lithic clasts are crosscut by quartz veins and extensive prehnite alteration. Growth of large clusters or rosettes of prehnite postdates mineralization and veining.

Protolith: Porphyritic volcanic rock, probably felsic

Alteration/Mineralization: Pyrite mineralization. Prehnite alteration

Conditions of Formation: Volcanic porphyry has been brecciated; altered by
 prehnite (P <3 Kilobars)</pre>



by J.S. Getsinger, PhD Q. S. Setsinger

Date Collected

Date 87-02
Collector T.H.

1987

Location:

Project

Sample

For

Tan claim

V251-19161

Nexus/Goldenrod V251 - TAN

Rock Type:

Pyritic, silicified lithic breccia

Lithogeochemistry: 50 ppb Au, 29 ppm Mo, 0.6 ppm Ag, 448 ppm As

Hand Specimen: Rusty-weathering, light grey quartz vein breccia(?). Fragments and veins of darker to lighter grey translucent quartz are crosscut by milky-white quartz veinlets in an anastomosing network. Some of the "clasts" may have been felsic volcanic rock, but all parts appear silicified. Pyrite is locally 5-10%, very finely disseminated, and in subhedral grains and aggregates to 1 mm. Some quartz "clasts" and pyrite grains have rounded corners as if abraded somewhat during brecciation; some larger pyrite grains appear to be broken up into smaller grains around the edges, as in a cataclastic mortar texture. However, there is only weak structural fabric to the rock, evidenced by a weak preferred orientation of crosscutting quartz veins. Latest clear quartz veins are vuggy with encrustations of pyrite. Sparse green patches in fine-grained groundmass may be chlorite.

THIN SECTION (Polished No):

% (Approx.) MINERALS				
45-55%	Quartz - (1) Cherty lithic fragments with fine-grained quartz. One fragment has ovoid structures, now recrystallized quartz, which may have been microfossils				
	(2) Interstitial quartz between lithic fragments; polygonal texture and comb structure				
	(3) Crosscutting quartz veins, with elongate crystals perpendicular to vein selvages, slightly curved with undulatory extinction implying late relative movement of the sides of the vein (8 mm wide); vein is vuggy in hand specimen; textures imply open space filling				
2- 3%	White mica - in quartz veins; medium birefringence, flaky habit, lower relief than prehnite				
< 2%	Epidote - filling fractures in broken up pyrite, and a few grains in quartz vein				
5-10%	Prehnite - rectangular to radiating grains occur in secondary quartz veins, but are crosscut by latest set of quartz veins				
<18	<pre>Pumpellyite(?) - pale green, vermiform, medium-high relief minerals occur in quartz vein; birefringence = anomalous blue to grey; inclined extinction; square cross-sections; curved habit; nearly isotropic</pre>				
10%	Pyrite - blocky euhedral grains to 2 mm, and aggregates of broken(?) grains				
< 2%	<pre>Iron oxides - rusty fracture-lining material with high relief, orange to brown absorption; alteration products</pre>				



P.2 Sample V251-19161 (continued)

Rock Textures/Structures: Fragments of volcanic and cherty rocks are crosscut by quartz and prehnite veins. Matrix between fragments is polygonal and comb quartz.

Protolith: Felsic(?) volcanic and fossiliferous chert

Alteration/Mineralization: Pyrite mineralization, brecciation, silicification, prehnite veining, quartz veining.

Conditions of Formation: Volcanic/sedimentary marine environment of deposition; hydrothermal activity may have caused pyrite mineralization, brecciation, quartz veining; very low-grade metamorphic and/or hydrothermal conditions account for prehnite-pumpellyite association.



by J.S. Getsinger, PhD

Date 87-02 Nexus/Goldenrod Collector T.H. Date Collected 1987

Location:

Project

Sample

Tan claim

V251 - TAN

V251-19162

Rock Type:

Silicified red chert and mafic volcaniclastic with prehnite

Lithogeochemistry: 136 ppm Cu, 974 ppm Mn

Hand Specimen: Grab from outcrop. Sample is 4x6x10 cm. Most of the rock is dark green, chlorite-altered mafic volcaniclastic with angular to subangular clasts 1-5 mm, with sand-sized grains in matrix, somewhat obscured by chlorite and epidote alteration. Irregular veinlets (<1 mm) of calcite and/or quartz are common. Minor disseminated pyrite and chalcopyrite(?) are visible. The dark green rock is in contact with what looks like pyritic red and white chert, but the "chert" appears to be intrusive(?) into (and includes xenoliths of) the greenstone. Subhedral pyrite (up to 1 mm) is disseminated and on fractures (2-3%) in the red siliceous rock. Grey quartz veinlets infiltrate the greenstone as well as jasper. Calcite and epidote veinlets (<0.5 mm) crosscut all other features in both rock types.

THIN SECTION (Polished No):

% (Approx.) MINERALS

Red	! Green			
	.1			
70% Quartz	! 10-20% Quartz - veins, irregular; with			
(1) Fine-grained in chert fragments				
(2) Interstitial between	<pre>veins; crosscut by calcite</pre>			
fragments, polygonal,	! veins			
recrysallized, and as	! 5% Carbonate - veins, late			
recrystallized chert, and	! alteration			
veinlets	! 5-10% Prehnite - In veins and as			
5% Carbonate (calcite) - in veins,	! alteration of plagioclase			
with quartz; and in late,	! 10-15% Chlorite - green, low biref.;			
crosscutting sheared veins	! replaces mafic grains and			
displacing quartz-prehnite	! occurs in veins			
veins	! 30% Plagioclase - relict subhedral			
<5% Sericite(?) - fine-grained	! crystals and microlitic			
5% Chlorite - in late veins with	! groundmass; mainly altered			
with iron oxide	! to epidote and prehnite			
5% Prehnite - subhedral laths, in	! 10-15% Epidote - replacing mafic grains			
veins, with quartz	! and plagioclase			
5% Opaques - black dust, in places	! <5% Sericite(?) - colourless; medium			
altered to reddish material	! high birefringence			
patchy, defining jasper	! 5% Opaques - fine-grained			
fragments	! 5% Hydrous iron or titanium			
3% Hydrous iron oxides(?) - brown,	! oxides(?) - brown, medium-high			
high relief alteration	! relief alteration products(?)			
products	1			



P.2 Sample V251-19162 (continued)

Rock Textures/Structures:

Fragments of red chert are cemented by grey quartz, crosscut by veins of ! grain sizes; crystal and lithic quartz, prehnite, quartz.

! Mainly clastic texture with various

! fragments in finer matrix.

Protolith: Red chert (jasper)

! Mafic volcaniclastic, probably

! 'aquagene' tuff

Alteration/Mineralization:

Quartz recrystallization; quartz veins, prehnite veins, calcite veins ! quartz-epidote veins; chlorite-

! Prehnite-calcite-quartz veins;

! epidote alteration

Conditions of Formation:

Marine deposition of siliceous sediment in volcanic/sedimentary environment; hydrothermal brecciation,! altered hydrothermally(?) to chlorite silicification, veining.

! Volcaniclastic rock deposited in cherty

! volcanic/sedimentary environment;

! and epidote, crosscut by quartz and

! prehnite veins, with later calcite

! veining.



by J.S. Getsinger, PhD

 Por
 Nexus/Goldenrod
 Date
 87-02

 Project
 V251 - TAN
 Collector
 T.H.

 Sample
 V251-19163
 Date Collected
 1987

Location:

Tan claim

Rock Type:

Altered intermediate to mafic volcanic or volcaniclastic (cherty

tuff?)

Lithogeochemistry: -

Hand Specimen: Light green, fine-grained crystalline rock extensively crosscut by white veinlets (<5 mm, 10-20%) of quartz and calcite (reacts in HCl). Calcite veinlets crosscut quartz-rich veinlets. Fine parallel epidote-rich veinlets occur locally, and epidote is commonly associated with quartz veinlets. Pyrite is in short stringers, individual grains (<0.5 mm), and very finely disseminated, up to 3%. Pale green colour may be due to chlorite(?).

THIN SECTION (Polished No):

% (Approx.) MINERALS

25-30%	Quartz - mainly in veins
20-25%	Plagioclase - small crystals, and/or clasts, twinned
10%	Carbonate (calcite) - in latest vein set, crosscuts prehnite veins
15%	Epidote - in stringers and quartz veins, and as altered host rock
10%	Prehnite - in veins with quartz
5%	Opaques - high relief, brown to black masses, possibly hydrous iron and/or Ti-oxides (mixed in with epidote). Some larger grains may be pyrite.

Rock Textures/Structures: Fine-grained, volcaniclastic(?) and cherty(?) host rock is broken up and veined by prehnite-quartz veins, and calcite-quartz-epidote veins.

Alteration/Mineralization: Prehnite-quartz veins, epidote alteration; cross-cutting quartz-calcite-epidote veins.

Conditions of Formation: Burial metamorphism or hydrothermal alteration of tuff(?) in prehnite conditions followed by epidote alteration and veining of quartz-calcite-epidote.

MPH)

PETROGRAPHIC REPORT

by J.S. Getsinger, PhD J. S. Hetsi

~	
Date	87-02
Collector	T.H.
Date Callested	1007

Location:

Project

Sample

Tan claim

V251 - TAN V251-19174

Nexus/Goldenrod

Rock Type:

Epidote-altered felsic volcanic

Lithogeochemistry:

511 ppm Pb, 745 ppm Zn, 0.8 ppm Ag, 342 ppm Sr, >5% Ca, 117 ppm Cr

Eand Specimen: Altered mafic volcaniclastic(?) with light green 'host rock' composed of fine clastic grains and even finer white feldspar(?) or altered feldspar, with probable chlorite. The bulk of the specimen is extensively epidotized, with a few coarser, darker grains (1 mm) which may be chlorite, and the rest replaced by pistacio-green epidote. Quartz and calcite veins crosscut the epidote-altered rock subparallel to vague layering(?) and across it. In one place there appears to be graphic intergrowth between quartz and epidote or perhaps growth of subhedral epidote with interstitial quartz. Non-magnetic.

THIN SECTION (Polished No):

% (Approx.) MINERALS

	Host Rock	1	Altered Rock
10%		!	25-30% Epidote - dull yellow pleo- chroic, colourful biref.; some euhedral crystals with interstitial quartz, mostly pervasive alteration
70-75%	(b) Microlitic laths - twinned, felted	1	10-15% Quartz - mostly in veins, and in blebs associated with
5-10%	Epidote - yellowish pleochroic, probably replacing mafic grains, and in veins	1 1 1	epidote 5-10% Carbonate - calcite veins crosscut epidote, quartz
	Sericite - alteration Calcite - alteration	!!	40-45% Plagioclase - altered 5-10% Opaques - fine-grained opaque brown alteration products



APPENDIX V

Conversion Factors for Metric Units



CONVERSION FACTORS FOR METRIC UNITS

			05 4 1111 .	
1 inch		=	25.4 millimetres	(mm)
			or 2.54 centimetres	(cm)
1 cm		=	0.394 inch	
1 foot		=	0.3048 metre	(m)
1 m		=	3.281 feet	
1 mile		=	1.609 kilometres	(km)
1 km		=	0.621 mile	
1 acre		=	0.4047 hectares	(ha)
1 ha		=	2.471 acres .	
1 ha		=	$100 \text{ m} \times 100 \text{ m} - 10,000 \text{ m}^2$	
1 km ²		=	100 ha	
·				
1 troy	ounce	=	31.103 grams	(g)
1 g		=	0.032 troy oz	
1 pound	1	=	0.454 kilogram	(kg)
1 kg		=	2.20 lb	
1 ton	(2000 lb)	= -	0.907 tonne	(t)
1 tonne	:	=	1.102 ton = 2205 lb	
1 troy	ounce/ton (oz/ton)	=	34.286 grams/tonne	(g/t)
1 g/t		=	0.0292 oz/ton	
1 g/t	,	=	1 part per million	(ppm)
1 ppm		=	1000 parts per billion	(ppb)
10,000	a/t	=	1%	
,	J			

