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11/85

Geological Report on the TAN 1, 2, 3, and Dane Claims

New Westminster Mining Division
NTS 92 H/4W
Latitude 49° 01'
Longitude 121° 47'

Owner: G. Stapley
Sardis, B.C.

Operator: Aberford Resources Ltd.
Calgary, Alberta

Consultant: Garratt Geoservices
Kamloops, B.C.

Geological Report on the
TAN 1, 2, 3 and Dane Claims

for

Aberford Resources Ltd.

by

Garratt Geoservices Ltd.

GARRATT

GEOSERVICES

GEOLOGICAL ASSOCIATION OF CANADA
G. L. GARRATT
FELLOW

New Westminster M.D.
92H/4W

G. L. Garratt
June, 1984.

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INTRODUCTION

The author was contracted by Aberford Resources Ltd. of Calgary, Alberta, to undertake a reconnaissance mapping program on the Tan prospect, near Chilliwack, B.C., with the objective of defining the potential for discovering a volcanogenic massive sulphide deposit. Fourteen days were spent carrying out field traverses and logging core. Structural complexities severely inhibited geologic mapping, though a generalized stratigraphic column was derived and appears to be useful in determing the geologic environment underlying the claims. A bimodal suite of volcanic flows and pyroclastics are divided by a Pennsylvanian carbonate-(chert)-pyroclastic sequence and capped by a Permian carbonate sequence, indicating at least two cycles of volcanism. It is speculated that the stratigraphy exposed on the Tan claims represents distal deposition relative to a vent area that may be located to the south or southwest.

The majority of the mineralization exposed on the Tan property, or inferred by geochemical anomalies, is believed to be related to siliceous vein and replacement zones and related breccias that are post depositional (epigenetic). Syngenetic mineralization was found to be represented by pyritic carbonate-mudstone-tuffaceous sequences. Although the volcanic environment exposed on the TAN claims represents a positive exploration environment in the regional sense, it does not appear that the property encompasses proximal exploration targets; as a result of this conclusion it is recommended that no further work be undertaken at the present time. Logging operations are continuing on the property and new roadbuilding is planned as far ahead as 1988; this work will undoubtedly enhance the rock exposure on the property and aid in future evaluations.

LOCATION AND PHYSIOGRAPHY (Figures 1 & 2)

The Tan prospect is located on Tamihi Creek, a tributary of the Chilliwack River. The prospect extends northward from the U.S. - Canada International Boundary to Mt. McGuire, and is at 49 degrees 01 minute latitude and 121 degrees 47 minutes longitude in N.T.S. map 92H/4W. The claims are recorded in the New Westminster Mining Division.

Access to the property is by gravel logging road approximately eight kilometers from the Chilliwack River road which is a paved road leading approximately sixteen kilometers southward from the City of Chilliwack and the Trans-Canada Highway. Chilliwack is approximately 110 kilometers east of Vancouver, B.C.

The valley of Tamihi Creek typifies a U-shaped glacial valley. Major tributaries of Tamihi Creek originate in glaciated hanging vallies which are oriented at right angles to the main northwest flowing drainage. Elevations range from 550 meters to 1550 meters. Steep slopes, often attaining 45 degree attitudes, are the norm and cliff areas are common. The terrain is heavily timbered by fir, cedar and hemlock and commercial logging is active in the valley; many slopes have been logged and are covered by a combination of slash, reseeded timber or heavy deciduous second growth. Overburden, most commonly glacial deposits, many range up to 15 meters on steep slopes indicating a highly variable bedrock subsurface.

Annual precipitation is heavy, classifying the area as West Coast Rain Forest. Snow remains on the upper elevations until June or July and are generally snow-free until late October. The valley is inhabited by black bear, deer, coyote and occassionally by elk, moose, cougar and grizzly bear.

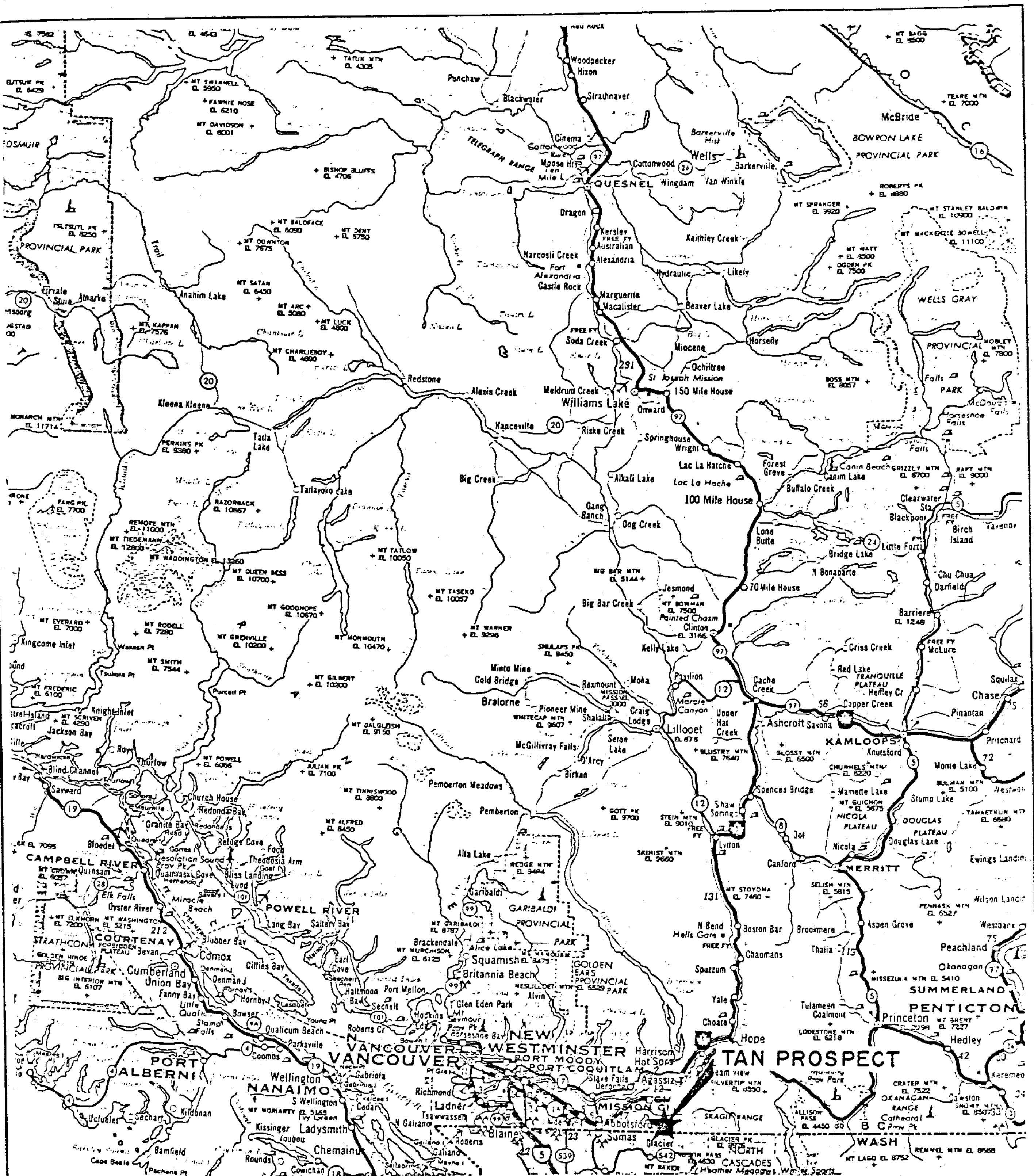


FIGURE 1

TAN PROSPECT

LOCATION MAP

NEW WESTMINSTER MINING DIVISION

SCALE

1:2.5million

(1"=1/4 mi.)

N.T.S.: 92H/4W

DATE: JULY,1984

GARRATT GEOSERVICES

KAMLOOPS, B.C.

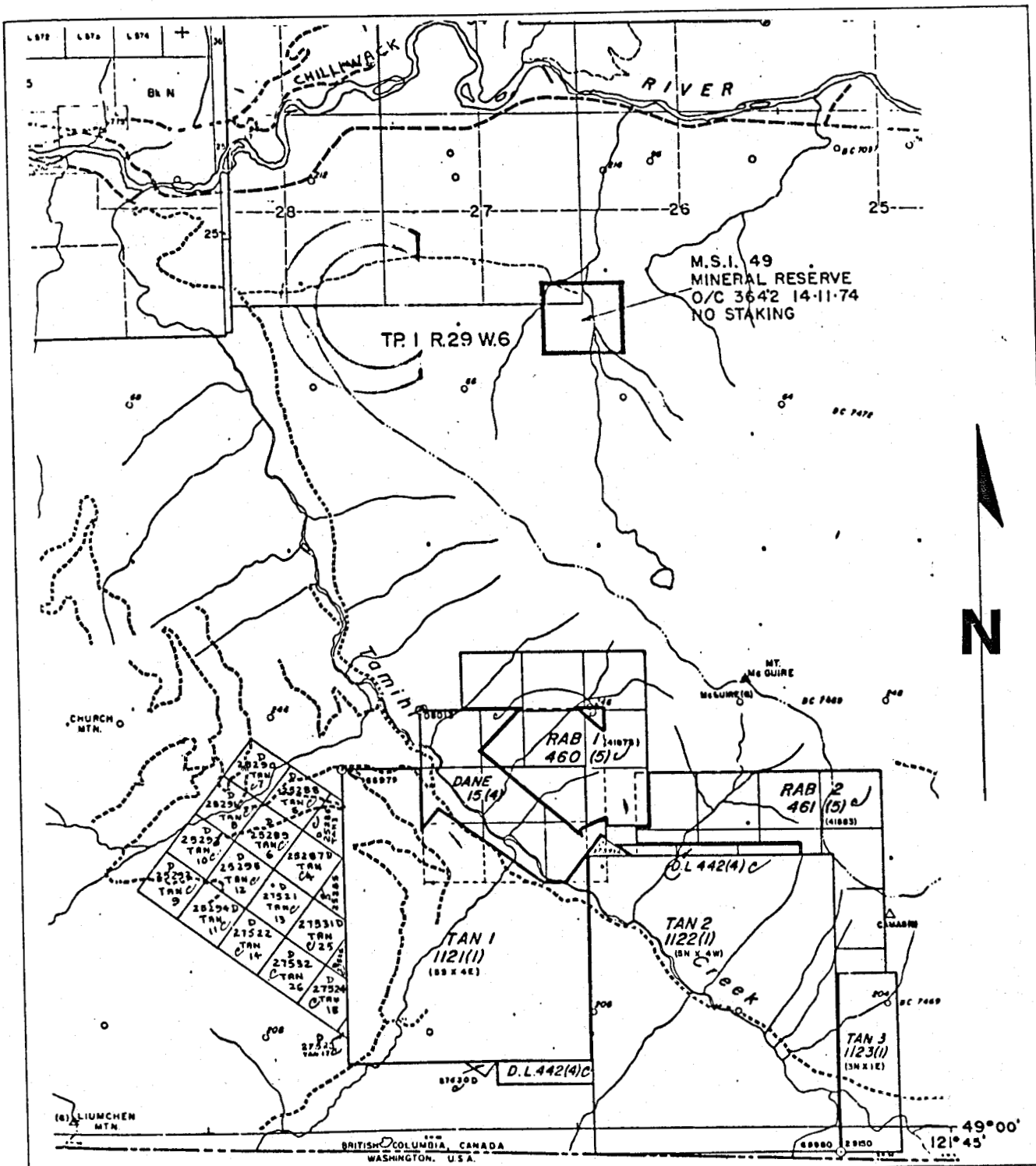


FIGURE 2

TAN PROPERTY

INDEX MAP

92H/ 4W

SCALE

1:50000

OWNERSHIP

The Tan and Dane claims are owned by Mr. Gordon Stapely who resides at Box 23, Bell Acres Rd., R.R. #3, Sardis, B.C. The claim group consists of 52 units as follows:

Claim Name	Record No.	No. of Units	Year of Expiry
Tan 1	1121(1)	20	1990
Tan 2	1122(1)	20	1990
Tan 3	1123(1)	3	1990
Dane 1	15(4)	9	1985

The Tan Group of claims was explored on behalf of Aberford Resources Ltd. of Calgary, under the terms of a letter agreement which constituted an option of the group from Mr. Stapely.

HISTORY

Although mineral showings were known in the area since the early 1960's, no known work was undertaken on the property until 1972 when Mssrs. W.A. Bell, G. Stapely and M. McClaren staked, prospected and trenched the area. The exploration history following this initial staking is summarized below:

1972: Falconbridge - geologic mapping and soil sampling

1972: Cominco - soil and stream silt sampling and geologic mapping

1973: Cominco - induced polarization survey, road building and drill site preparation

1975: Great Plains Development - geologic mapping, geochemical surveys, electromagnetic survey, road building and diamond drilling

1976: Great Plains Development - geologic mapping, geochemical sampling, electromagnetic and induced polarization surveying and diamond drilling

1977: Great Plains Development - airborne magnetometer and electromagnetic survey

1980: United Minerals Services Ltd. - diamond drilling, trenching, induced polarization survey

1981: Lornex Mining - geologic mapping, diamond drilling, VLF-EM and magnetometer surveys

REGIONAL GEOLOGY

The Tan claims are almost entirely underlain by the Chilliwack Group of Permian-Pennsylvanian volcanic and related sedimentary rocks. "The Lower Pennsylvanian to Lower Permian Chilliwack Group (Unit 2) consists of little metamorphosed pelite, sandstone and minor conglomerate pyroclastic rock, altered basic volcanic rock.....limestone and minor chert." (Monger, 1969) Mr. Monger divides the group into five stratigraphic and lithologic divisions which are, from oldest to youngest, as follows:

(a) pelite, siltstone, fine grained sandstone

(b) Lower Pennsylvanian Limestone (argillaceous, calcarenite, large crinoids)

(c) pelite, sandstone, minor conglomerate and tuff

(d) Lower Permian limestone (chert modules, fusulinids and crinoids)

(e) greenstone, pyroclastic rock and minor chert (comformably overlies or is stratigraphically equivalent to (b))

It is apparent, from the mapping undertaken in this project, that the map area is underlain by units b through e. It is also evident that the carbonate sequences carry a greater tuffaceous component than described by Monger (1969), especially in unit b.

The Chilliwack Group has been thrust (and recumbently folded) over the Triassic-Jurassic Cultus Formation and the trace of this fault contact can be interpolated in the northwest part of the map area. In the southeastern part of the map area it is deduced that the Pennsylvanian carbonate sequence has been overthrust onto the Permian part of the section.

PROPERTY GEOLOGY

GENERAL STATEMENT

The area to the southwest of Tamihi Creek to the U.S. Border was traversed and mapped in a reconnaissance style at a scale of 1:8,000 (see Plate 1). Lithologies were initially recorded according to their physical characteristics and subsequently grouped where continuity or stratigraphic correlations could be observed. A stratigraphic column was established that allows a definition of the geologic environment through parts of two volcanic cycles and enabled an understanding of structural dislocation of the section. The carbonate-tuff sequences were the only useful markers and field observation indicates complex internal folding in the western map area which complicates the interpretation of local features relative to the stratigraphic section. To aid in depicting the interpretations made by the author, a schematic longitudinal section is attached (Plate 2). The following paragraphs will describe the stratigraphy and will be followed by a discussion of their interrelationships.

STRATIGRAPHY

CULTUS FORMATION - TRIASSIC-JURASSIC

UNIT K

This unit is limited in its exposures to the western part of the map area and its eastward extent is delineated by the trace of a thrust fault which brings the older Chilliwack Group to an overlying position. The Cultus Formation consists here of thin bedded, dark brown to black argillites and shales.

CHILLIWACK GROUP - PERMIAN-PENNSYLVANIAN

Unit J - Amygdaloidal Flows (green)
This unit comprises the greatest volume of the exposures in the map area and likely encompasses a greater variety of flows than accounted for herein. The unit is characterized by a medium to dark green groundmass that is fine to very fine grained and chloritic, and by black spherical to elliptical to irregular amygdules which occur in varying quantities and sizes. The commonest variety displays five to fifteen percent, 0.2 to 0.5 cm amygdules though these may vary up to thirty percent, giving the flow a frothy appearance under a hand lens. The amygdules commonly have calcite cores and are rarely epidotized. Alteration may be seen to coarsen the groundmass and destroy the amygdules where proximity to a felsic intrusion is observed; in some cases it is difficult to determine whether the unit was a flow or tuff unless gradational contacts are evident. Unit J was less commonly observed to form flow breccias than other flow varieties, but they were noted. The unit occupies the lowermost and uppermost regions of the property although it consistently underlies the Permian (?) limestone-tuff-calcarenite Unit F which caps the ridges in the western part of the map area. West of Fumarole Creek, Unit J hosts one and perhaps two beds of Unit I. Stratigraphically this poses a problem in determining a relationship between Units H, I and J as it is apparent that generally H underlies I which underlies J except in this area where the sequence appears to be J-I-J-I-J. Two possible interpretations may both be applicable. Folding in the region may be responsible for the apparent repetition of Unit I; and Unit J may be regionally transgressive into Unit H. The exposure of amygdaloidal flow along the lowermost road above Tamihi Creek are also designated Unit J and are texturally and physically correlatable but are believed to be separate and lower in the stratigraphic column.

UNIT I - Felsic pyroclastics
This unit is distinctive and matches well with Monger's description of his Unit 2e. Tuffs of this unit are very similar to those of F2 but are separated from that carbonate-clastic sequence by massive flows. Unit I consists of thin to thick bedded, very fine grained, hard (cherty) light coloured tuffs to coarser lapilli tuffs, and less commonly multi-lithic breccias with average fragment size being less than one centimeter. These tuff units commonly host siliceous vein-breccia replacements and associated mineralization, and led early exploration efforts to a false conclusion of stratabound mineralized zones. The apparent repetition of this unit west of Fumarole Creek may be due to folding. The lower series is largely interpreted from what appears to be sub-outcropping accumulations of the unit, though the attitude of exposures to the north imply such a folded relationship.

UNIT H - purple and green flows and flow-breccias
This unit is highly variable in colouration and texture and comprises a variety of flow types but due to a relatively consistent purple (hematitic) colouration throughout the map area these units have been grouped to aid in simplifying the mapping. As a result, it appears that a relatively uniform distribution of the unit is depicted in plan view. The unifying characteristic of the unit are amygdaloidal flows that are variably purple and green. The purple hematitic colouration often crosses textural boundaries and may be restricted to amygdule, fragment or xenolith aureoles. It is suggested that these flows and flow breccias were deposited in a

shallow water environment in a turbulent (rather than planar) fashion, causing irregular oxygenation and the development of the variable colouring. Between Fumarole and Stapely Creeks, Unit H is less commonly flow brecciated, more pervasively purple coloured and contains a lesser variety of flow types than is exhibited west of Fumarole Creek. This latter area also encloses minor (1 to 2 meter) beds of fine ash tuff and green coarse-fragment flow breccia. A depositional direction of west to east may be indicated by these variations.

UNIT G - silicic purple flow

This unit was segregated from the section due to its distinctive characteristics of relatively pervasive purple (hematitic) colour, commonly silicic (hard) composition and fine grained texture with poorly developed feldspar phenocrysts and lack of amygdules. The unit appears to conform with the stratigraphy except west of Fumarole Creek where its contact relationship with carbonate-pyroclastic units is unknown. Where it is exposed in the Fumarole Creek valley it is autobrecciated and subsequently cut by white quartz veining. The unit may in part be silicified as indicated by light green siliceous selvages along fractures. These green bands occassionally are irregular and are commonly more silicic than the host rock, though this unit is commonly siliceous without the presence of these apparently late green zones. The extension of Unit G through sites 17, 18 and 19 is based predominantly on their similar textures. At sites 10 and 12 a similar interpretation has been made; it is possible that Unit G represents some form of intrusion that is not as extensive as interpreted herein. A dyke at sites 5 and 11 is similar in texture and colour with the addition of quartz eyes and may be a clue to the origin of Unit G.

UNIT F - limestone, calcareous siltstone, felsic pyroclastics (Permian?)

Differentiating the Permian and Pennsylvanian carbonate units is rather difficult as fossil occurrences are uncommon. Using Monger's (1969) descriptions it is apparent that the Permian carbonates are massive grey types characterized by large chert modules and this conforms well with site 107 though there are beds of calcareous siltstone and fine tuffs here as well. The massive grey carbonate at site 76 similarly is herein included as Permian though previously was believed to be Pennsylvanian. Outcrop of large crinoid-bearing carbonate (indicative of Pennsylvanian limestone) is reported from this area but was not observed by the author. It is suggested that this occurrence may be located near the valley bottom (Fumarole) and thus conform with the stratigraphy outlined in this report. Intercalation of the carbonate-tuff units at sites 106-107 with amygdaloidal flows suggests this section is in place and not thrust transported, giving further support to a Permian age for these high elevation occuring carbonates in the western part of the map area. Fine tuff beds at site 74 are difficult to relate to the local stratigraphy due to poor exposures and the non-conforming bedding attitude which is likely due to reorientation by folding and/or faulting. It is possible that the carbonates described here are Pennsylvanian but the author believes that their characteristics are more suitably Permian and fit the stratigraphy more logically.

UNIT E - Radiolarian cherts
This unit is known to outcrop only along the access road to Fumarole Creek (site 52) and was previously thought to be interbedded with the Permian carbonate pyroclastic unit. The author now believes that this latter unit is Pennsylvanian (see Unit C) though fossil evidence is lacking and the distinctions are made on the basis of lithologic similarities. The lack of cherts at sites 100-101 may indicate a facies change and supports the local nature of occurrence of the chert beds cited by Monger (1969). The outcrop of chert at site 52 displays doubly recumbent isoclinal folding indicating the severe nature of deformation in this area; this folding is believed to be related to proximity to the leading edge of the thrust plate.

UNIT D - rhyodacitic sills (flows?) and dykes
This unit occurs predominantly along the lowermost roads, in exposures in the lower sections of Fumarole and Stapely Creeks and in drill holes in this same area. It is highly probable that the felsic dykes denoted as Unit A are related. Exposures of this unit are generally insufficient to fully determine contact relationships. The unit is very fine grained with ghosty sub to euhedral feldspar phenocrysts and is light green in colour. The unit varies to contain quartz eyes as well as being aphanitic with no visible texture. Blocks of amygdaloidal flow are locally enclosed by this unit, are up to two meters in size and show alteration rims characterized by coarsening and loss of amygdaloidal texture. These characteristics indicate sill-like intrusion and it is suggested that variations on the textural character of fine grained, light green coloured rocks in this area are due in part to partial replacement of the country flows and in part to chill zones within these feldspar or quartz-feldspar "porphyry" rocks. The exposure of Unit D throughout the lower part of the map area supports the concept that the section displays continuity at this elevation. The area east of Stapely Creek, above the exposures of Unit D is outcrop poor but would be expected by the above conclusion to host Units H, G and J. This would support the concept that the lower section is in place here.

UNIT C - limestone, calcareous siltstone, shaly siltstone, pyroclastics (Pennsylvanian?)
This unit has been previously mapped in the western area as Permian and had not been observed in the eastern area. The author has concluded a probable Pennsylvanian age on the basis of comparison, lithologically, to Monger's (1969) description of units 2b and 2c. The western occurences of the unit at sites 50-53 and 100-101 are complexly folded but divideable sequences of dark calcareous siltstone with sandy intercalations and fine to coarse tuffs and multilithic breccias. The apparent simple bedding relationships on the plan map between the carbonate and pyroclastic units is decidedly more complex and therefore is oversimplified on the map, as indicated by the reversing of one unit over the other. The attitudes of this unit are considered more important and these indicate a traceable unit through this area with a possible fault offset between the two locales, though folding could easily cause the apparent movement. The exposures of this unit east of Stapely Creek indicate an overthrusting onto the lower part of the section. The exposures at sites 131 through 134 define a more tuffaceous sequence of fine pyroclastics with interbeds of calcareous siltstone and limestone. Sites 140-142 display a section of interbedded fine pyroclastics, grey limestone (podiform), grey to dark brown-black calcareous siltstone and dark thin bedded mudstone-shales with thin calcareous

interbeds. These units are somewhat repetitive but the shaly siltstone-calcarenite units with limestone interbeds are the most commonly exposed. Traversing up the hillside to the east found little outcrop but float was dominated by fine tuffaceous rocks as opposed to carbonates. A facies development is suggested here with a build-up of clastic material in the east and possibly an upward increase in tuffaceous material. Float boulders in the creek below and above site 141 indicate an upstream source for conglomerates and sandstones that distinctively carry angular to rounded clasts of the shaly sediments as well as tuffaceous and carbonate rocks, indicating a later clastic sequence derived by the erosion of rocks at 141. Imbricated boulder conglomerate was also observed and enclosed boulders of granitic rocks as well as the above mentioned varieties. If Monger's (1969) descriptions are adhered to, this section would correlate with units 2b and 2c. Boulders of the clastic rocks observed in float at 141 were also observed as float in Fumarole Creek at site 129 along with boulders of massive grey limestone. It is obvious that the conglomeratic-coarse clastic units must outcrop extensively south of the border. The south-southeasterly dips on the carbonate-pyroclastic sequence in this area indicates thrusting from that direction.

UNIT B - diorite dykes

There were only three outcrops of diorite dykes located during the program (sites 32, 68, 75) but it is likely that many more exist. There does not appear to be any spatial relationship between these occurrences though this is probably due to the lack of data. These intrusions are generally medium grained with ten to twenty per cent weakly chloritic groundmass. Two to four millimeter subhedral phenocrysts of feldspar and hornblende constitute the rest of the rock. The occurrence at site 68 constitutes a large boulder subcrop and the size of the zone may indicate a small stock rather than a dyke (approx. 10m. wide); the occurrence at site 75 is similar. Float of granodioritic material was located in several parts of the eastern end of the property but no outcrop or subcrop source could be found. The occurrence of granitic clasts in the Pennsylvanian clastic and pyroclastic units indicates that granitic intrusions may form a larger portion of the terrane than indicated by present exposures.

UNIT A - felsic dykes

As previously mentioned, these dykes may well be related to Unit D and remove the latter from the stratigraphic column. The occurrences are clustered in one area at sites 20, 23 and 26, though this may reflect a lack of exposure. The dykes are approximately three meters wide and at site 23, three dykes were noted. They are typically light to medium green and aphanitic with ghosty to subhedral white feldspars; one dyke showed fine spotty disseminated chlorite. The site 20 occurrence also contains quartz eyes and the contacts were not exposed. The dyke at 26 displays well formed columnar jointing (five and six sided) and carries minor disseminated pyrite. Sites 5 and 11 define an apparent dyke by their identical texture and composition but the contacts are not exposed. This dyke is a purple hematitic colour which weathers mauve and the dyke contains quartz eyes.

STRUCTURE

The mapping project was not detailed and the structural definition of the area was not developed. A few conclusions can be drawn concerning important structural events however, and these will be briefly discussed. Monger (1965) described the emplacement of the Chilliwack Group in this locale by a process of recumbent folding and related allocthonous thrusting. Though the stratigraphy in the map area appears to remain in an upright and generally cohesive form, the impact of Monger's thesis is very evident. The western part of the map area has locally been severely deformed as illustrated by doubly recumbent isoclinal folding in chert and tuff units as well as in massive flow units (site 44). The effects of folding on massive amygdaloidal flows is dramatic and results additionally in the local development of a strong shaly (thin parting) cleavage allowing recognition of the unit only by remnant textures and gradation to less affected outcrops. The development of the folding is strongest in the western part of the map area and this is believed to reflect proximity to the thrust front, implying a leading-edge drag-folding environment.

Normal faulting is locally evident, showing displacements of less than ten meters but does not appear to be regionally significant in the map area. Thrust faulting is obviously important as mentioned above and the author has interpreted the emplacement, in the southeastern map area, of Unit C to its present position by thrusting from the south-southeast (as implied by present dips).

Fracturing and faulting must have played an important role in the emplacement of vein systems and siliceous replacement zones but no defineable pattern has been deduced. This phenomenon will be discussed in the following section.

Unit C, in the southeastern map area appears to be broadly warped but strong isoclinal folding observed in the west was not noted here. Lineations at sixty degrees to bedding were observed however.

SILICIFICATION AND MINERALIZATION

Two general categories of mineralization can be discussed. The first and most prolific is associated with intense quartz vein stockworks, vein breccias and associated unit replacements. This event carries abundant pyrite and lesser amounts of chalcopyrite and sphalerite. The occurrence of galena is rare. These quartz vein/replacement zones often but not always appear to be generally zoned with an outer zone of broad quartz veining which has little effect on the host rocks. Quartz vein density increases dramatically towards silicified or replaced zones and with it, the country rocks become increasingly altered, often losing primary textures. The replacement zones commonly involve strong brecciation with quartz vein events both prior to and following brecciation. Many replaced zones are massive siliceous, complete replacements along bedding or fracture zones and are followed by hairline, black quartz veining and/or white quartz veining.

The black veinlets are characteristic of this hydrothermal system and commonly form networks that occasionally pervasively blacken the replaced unit. The black colouration is believed to be caused by chlorite. Occurrences at sites 59 and 69 are schematically diagrammed overleaf and depict the variable nature of the system. Generally these replacement/ mineralized zones are tens of meters or less in length but in certain areas silicification of this type has been observed for over one hundred meters, but significantly without the sulphides and quartz-sulphide veining that occur in the smaller zones. (sites 93 & 86) Samples of these zones were submitted for assay for gold and silver and returned zero values.(samples 23586-7)

The area drilled by Lornex in 1981 (holes 81-1,2 & 3) and previously drilled by the owners (holes 80-x-1-4 and 80-1,2) shows the same quartz vein and replacement style of mineralization but with a much higher sulphide content locally. In one of the 1980 holes fragmental pyrite occurs but the author believes that this is due to later brecciation and subsequent veining. The drill core shows a number of felsic, light green feldspar or quartz-feldspar sub-porphyry units (Unit D) and these often carry disseminated pyrite, but a direct correlation could not be made to the stronger mineralization which appears to be related to a later quartz-sulphide vein system. Amygdaloidal flows in this area have locally been completely altered and replaced such that the original rock type could not be determined without gradational contacts to lesser altered or unaltered equivalents. This hydrothermal system appears to have affected every unit throughout the map area and is remarkable in its extent and pervasiveness. It could not be determined clearly whether the event was a late system associated with the volcanism or occurred long after the volcanic activity and is related to a buried intrusion. It was noted in previous work by the author that crenulated pyrite veinlets occur in the main showing area indicating pre-deformation deposition and this would favour a volcanic relationship.

The second type of mineralization encountered on the property is syngenetic and consists of pyrite occurring in dark siltstone. Two types of occurrences were noted at three localities; two of these are float occurrences but are believed to be close to source. A float boulder at site 139 consisted of black shaly siltstone and contained rounded grey limestone clasts approximately one centimeter in diameter. Fine disseminated pyrite formed weak or discontinuous bands that paralleled bedding planes and curved around the included carbonate clasts. Outcrop at site 141 of the same dark fine sediment contains minor fine disseminated pyrite. Float found on the Fumarole access road near site 48 (downslope from carbonate outcrop) of black calcareous siltstone, contained thin, short lenses (0.5 x 2-4 cm) of felsic material which was laden with finely disseminated pyrite. These occurrences are considered significant regionally, as they indicate syngenetic sulphide deposition associated with a break in the cycle of volcanism that is also associated with felsic pyroclastic deposition.

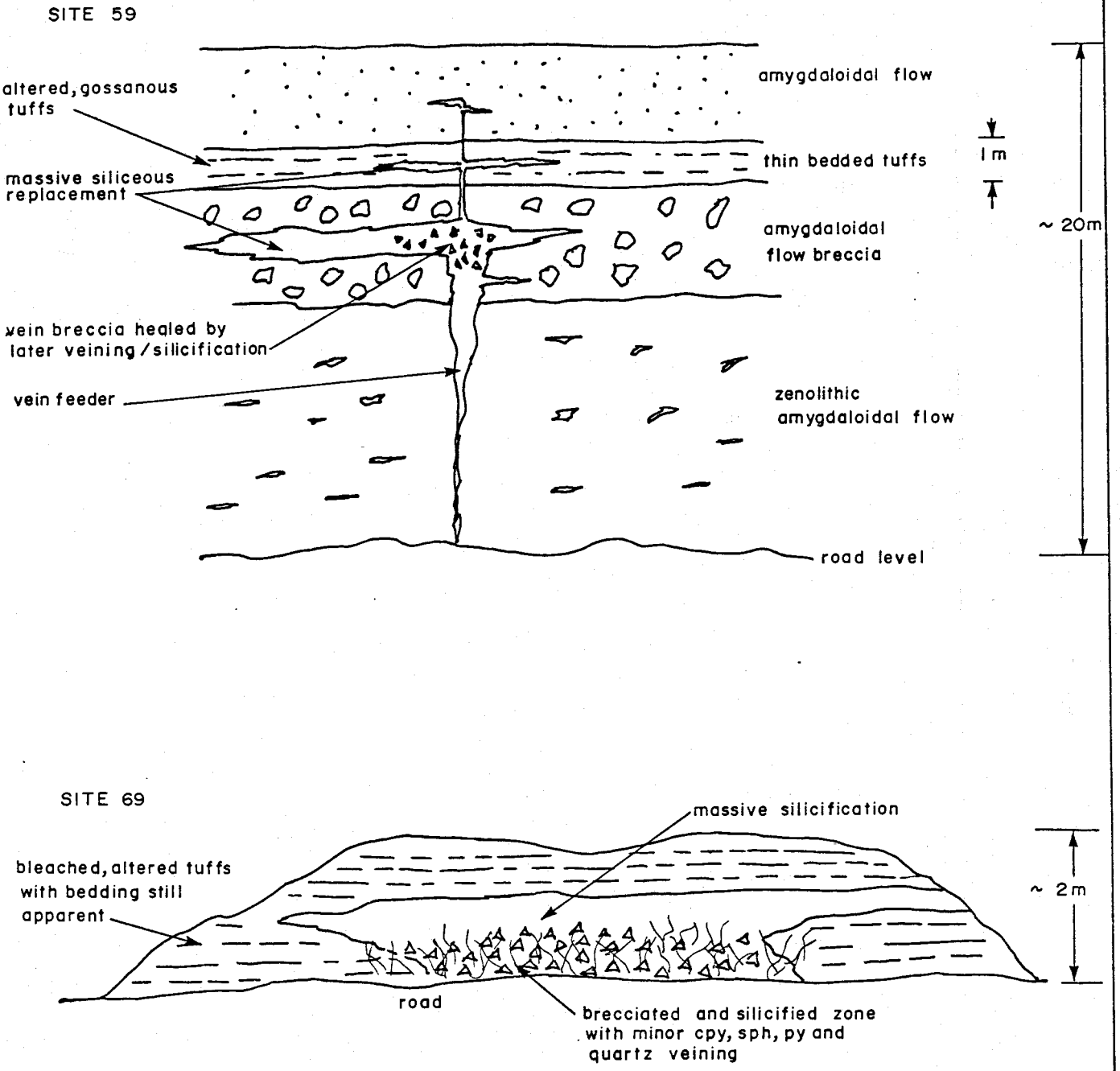


FIGURE 3

TAN PROSPECT

EXAMPLES OF VEIN/REPLACEMENT MINERALIZATION

NEW WESTMINSTER MINING DIVISION

G.L.GARRATT JULY, 1984

DISCUSSION OF RESULTS

The map area is underlain by a series of volcanic rocks and associated sediments and volcaniclastics that display ranges from basaltic to rhyodacitic and siltstone to conglomerate, respectively. The volcanic pile is dominated by amygdaloidal flows (of probable andesitic to basaltic composition) which contain minor interbeds of felsic ash and lapilli tuffs and lesser pyroclastic breccias. Breaks in the volcanism are indicated by carbonate-pyroclastic-clastic sequences which have been dated as Pennsylvanian and Permian and it is interpreted that the majoriy of exposures in the area are pre-Permian in age as this is the assumed age of the capping carbonate sequence. The stratigraphy appears to be upright though somewhat disconnected as a result of thrusting. With this in mind, the author believes that a depositional direction of westerly (proximal) to easterly (distal) is indicated. This is a rough direction that might vary to the south or north as more data is input. The basis for this generalization is as follows:

1. coarser pyroclastics associated with the Pennsylvanian(?) carbonate-clastic sequence in the west.

2. a build-up of clastic material intercalated with tuffs and carbonates in the Pennsylvania sequence in the east relative to a clastic poor carbonate-tuffaceous sequence in the west.

3. a greater incidence of flow breccias in the west, perhaps reflecting steeper slopes and a closer proximity to source.

The coarse clastic segment of the Pennsylvanian sequence indicates that the area had built up to a very shallow and probably partly subaerial environment at the close of the lower volcanic cycle. Pillowed lavas overlying this lower group and a final return to carbonate-pyroclastic deposition (Permian) at the end of the second cycle indicate that subsidence occurred after the deposition of the Pennsylvanian sequence.

The section exposed in the map area is indicative of an area moderately distal to a vent source. This is supported by the following:

1. relatively small fragment sizes in the pyroclastic sequences.

2. relatively low volume and variety of pyroclastic rocks in the section.

3. the occurrence of planar and thin bedded (quiet, low energy environment) shaly siltstones and calcareous siltstones in the clastic portions of the section (both Pennsylvanian and Permian) as well as in the pyroclastics.

4. the presence of abundant felsic dykeing and/or sill intrusion may indicate an environment not too distal to a central vent area; combined with the above factors allows the term "moderately distal".

The above statements pertaining to source direction and distance to vent may be useful in exploring other areas in search of massive sulphide deposits. It is known that volcanogenic massive sulphide deposits occur within a few miles south of the property in correlative rocks. Using the above criteria it seems plausible that exploration to the south of the western part of the map area or further to the west of this area might be appropriate. The presence of syngenetic sulphide deposition in the Pennsylvanian portion of the sequence would indicate that this break in the volcanic section may be the most promising to trace back towards a postulated vent area. Gauging the thickness of the volcanic pile separating the Permian and Pennsylvanian sedimentary breaks might aid in locating possible vent areas. The section at the Tan prospect might also indicate that the Pennsylvanian-Permian section is high in a much thicker volcanic pile which has become less sulphide enriched, thus indicating that a lower cycle in the pile should be sought. While the author is not aware of the most recent developments in the age dating of the volcanics south of the border, they were previously considered to be Devonian and perhaps this is a more likely section to pursue.

CONCLUSIONS AND RECOMMENDATIONS

The map area is underlain by a section of volcanic and related rocks that indicate a positive environment for the deposition of syngenetic Kuroko-type massive sulphides. It seems likely that the section exposed here is either too distal or too high in the section to host such a deposit.

The author must conclude that the company should not undertake further exploration of the Tan claims, but exploration in regions southward and westward from this area is warranted. The region is poorly accessed, difficult to prospect even with reasonable access and structural deformation adds complexity to the proposition of exploring this terrane. It must also be considered, however, that these are excellent reasons why the potential for making a new discovery is high.

APPENDIX I

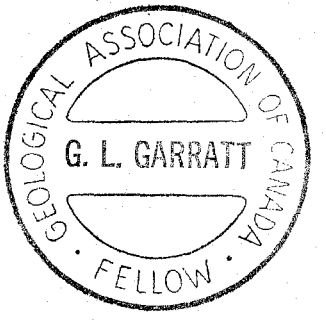
Statement of Qualification

Statement of Qualification

I, Glen L. Garratt, residing at 2540 Skeena Drive in the City of Kamloops, Province of British Columbia, do hereby state that:

1. I am a practising geologist and have been since completing a B. Sc. in geology at the University of British Columbia in 1972.
2. I am a member in good standing of the Association of Professional Engineers, Geologists and Geophysicists of Alberta and a Fellow of the Geological Association of Canada.
3. The conclusions and statements made in this report are the result of work undertaken by myself during the month of June, 1984.

G. L. Garratt, P. Geol., F.G.A.C.
July, 1984.



APPENDIX 2

Certificates of Analyses

Bondar-Clegg & Company Ltd.
130 Pemberton Ave.
North Vancouver, B.C.
Canada V7P 2R5
Phone: (604) 985-0681
Telex: 04-352667

BONDAR-CLEGG

Geochemical
Lab Report

REPORT: 124-1253

PROJECT: TAN PAGE 1

SAMPLE NUMBER	ELEMENT UNITS	Ag PPM	Au PPB	NOTES
R 23586		<0.2	<5	
R 23587		<0.2	<5	
R 23588		<0.2	<5	

APPENDIX 3

Cost Statement

COST STATEMENT

Field Work

Salaries: G.L. Garratt, Geologist June 11 to July 1, 1984 - 15 days @ $250.00/day	=	$3,750.00
Room and Board: 13 days @ $30.00/day	=	390.00
Truck Rental: 15 days @ $35.00/day	=	525.00
Expenses - Travel	=	218.85

Analytical

Lithogeochemical Analysis: 3 rock samples analyzed for Au and Ag @ $12.00/sample	=	36.00

Report Preparation

Salaries: G.L. Garratt, Geologist July 2 - July 5 - 4 days @ $250.00/day	=	1,000.00
Drafting: 11 hours @ $12.00/hour	=	132.00
Secretarial	=	91.00
Copying and printing, materials	=	85.00
		$6,227.85

APPENDIX 4

References

REFERENCES

Christopher, Peter A. and Clendenan, Art D. - 1981. Geology and Diamond Drilling Report on the TAN 1, 2, 3 and Dane 1 Claims, New Westminster Mining Division, for Lornex Mining Corporation Ltd.

Garratt, G.L., 1978. Helicopter Borne Geophysical Survey on the TAN Property, British Columbia for Great Plains Development Company of Canada Ltd., B.C. Government Ass. Rept. 6673.

Garratt, G.L., McClaren, M., and McInnis, M.D., 1975. Year End Report, TAN Claims, British Columbia for Great Plains Development Company of Canada Ltd., B.C. Government Ass. Rept. 5732.

Garratt, G.L. and McInnis, M.D., 1976. Geological, Geophysical, Geochemical, and Diamond Drilling Report on the TAN, AX, SO and DANE Claims, British Columbia for Great Plains Development Company of Canada Ltd., B.C. Government Ass. Rept. 6113.

Gill, F.D. and Heddle, D.W., 1972. Geological and Geochemical Report on the So1, So3, So7, So9, So9Fr, Ax1-Ax4. Ax6. Tan 20, Tan 22 - Tan 24, Tan 27 - Tan 29, Tan 31 - Tan 34, Tan 36, Tan 39 - Tan 50 Claims situated in the Tamihi Creek Area, New Westminster Mining Division, for Cominco Ltd., B.C. Government Ass. Rept. 4085.

Monger, J.W.H., 1970. Hope Map-Area, West Half, British Columbia, Geol. Surv., Canada, Paper 69-47.

Monger, J.W.H., 1965. Ph.D. Thesis, University of British Columbia.

APPENDIX 5

Summary of Field Notes and Drill Logs

SUMMARY OF FIELD NOTES
G.L. GARRATT -
TAN PROSPECT
JUNE/84.

1. fine - very f.g. volcanic flow with few 1-2 mm feldspar phenocrysts visible; colore purple by hematite (?); few hematitic hairline veinlets; may be subcrop - large 10' boulders; also a light - med. green variety.

2. volcanic flows - moderate, pervasive chlorite; local zones of breccia-silicification (jasperoidal)(?); late chloritic + quartz - hematite veinlets; med. green.

3. subcrop? - andesitic amygdaloidal volc.; weak - med. pervasive spotty chlorite hematite around amygdules; fine grained.

4. green chloritic + purple hematitic sub-porphyry flows - close to source if not outcrop; amygdules locally visible in green unit; almost jasperoidal + siliceous locally.

5. quartz-feldspar porphyry with purple hematitic very fine grained groundmass, mauve weathering; clusters + single phenocrysts of euhedral feldspar + clear to white quartz eyes.

6. variably purple hematitic to green chloritic amygdaloidal (5-10%) flow with 2 mm to 1 cm spherical, elliptical & very irregular chlorite or chlorite-calcite filled amygdules; very fine grained groundmass; purple streaks + irregular zones; 4-5 hardness.

7. 2 x 1 m. boulders - ~~angular~~ subangular - fragmental with subangular to angular to subrounded fragments (0.2 to 30 cm) of andesitic + rhyolitic rock - light green to med. green + purple; average frag. = 0.5-1.0 cm; 20% hematitic matrix.

8. purple amygdaloidal flow - same as 6.

9. med. green, fine grained, weakly chloritized amygdaloidal flow; 10-20% 2-4 mm black to chloritic amygdules with hematitic envelopes; similar to 3.

10. purple + light green altered flows; mafics + amygdules gone; quartz eyes?; quartz ± chlorite ± hematite veins to 1 cm; fldsp. rarely visible.

11. purple quart-feldspar porphyry as @ 5; at least 50-100 ft. exposed (large boulder of flow breccia? of similar comp. here)

12. purple fine to very fine grained flow with few feldspars - subporphyry?; similar to 1.; approx. 50ft. east of med. green flow - fine grained with tiny black spots (amygdules?) - spotty pervasive chlorite.

13. talus boulders - subcrop? - of mauve weathering monolithic flow breccia; very fine grained grey-green sub porphyry with purple hematitic matrix.

14. intensely fractured with gossanous coatings - hematitic volcanic - no textures, very fine grained.

15. Large talus pile of mostly flows but including purple + green multilithic pyroclastics - abundant cherty fragments - average 0.5cm; ~~subcrop~~ subcrop indicated by no. of boulders - subangular to subrounded frags = clast supported, & locally matrix is pervasively hematized = purple color; no apparent grading (sorting); frags are pale to med. green to grey & are cherty; the purple type has dominantly red-brown frags but also white-grey-green; minor fine pyrite in light colored frags.

16. talus? - purple amygdaloidal flow; 20-30% - 2-5mm chlorite-calcite amygdules in very fine grained hematitic groundmass; foliated.

17. light to med. green volcanic with pervasive tiny specks of white mineral (alteration?) + rare, faint 2mm feldspars.

18. green + purple mottled amygdaloidal flow breccia - fragmental zones of slightly altered flow outlined by purple hematitic matrix.

19. very fine grained purple flow with fine pervasive - spotty hematite + few yellow feldspar (?) phenocrysts; numerous quartz veins.

20. light green altered looking (recrystallized?) with few grey-white quartz eyes, fine grained.

21. grey cherty silicified volc. cut by quartz vein networks.

22. med. green & grey-green amygdaloidal flow; occasional epidote in amygs but generally black; local spotted alt'n (sphene?) heavily fractured, minor shears 10% amygdules (some quartz ~~filled~~)

23. med. green volc. flow cut by dyke @ 300/80 SW = light-med. green rhyolitic rock with white feldspar + chlorite specks which is in turn cut by quartz veining - contact marked by vuggy qtz. veining parallel to contact = 2 inches wide; actually there are 3 dykes - each 3 m. wide; very fine grained.

24. med. green amygdaloidal flow with black + quartz filled amygdules - little effect from dykes.

25. mottley green + purple amygdaloidal flow similar to 18 although greener + similar to 24.

26. dark grey, fine grained flow; occasional vague feldspar phenocrysts - cut by barren sugary textured quartz veinlets; dyke - beautifully columnar jointed (5+6 sided) @ 90° to strike; med - light green, cherty, very fine grained, rare vague (ghosty) feldspar phenos., < 0.5% euhedral disseminated pyrite, dyke is ~ 3 m. wide.

27. med. green chloritic, andesitic amygdaloidal flow; 10% black amygdules often alligned; fine crystalline groundmass where visible.

28. looks like a flow breccia - may be pyroclastic flow (?) - generally monolithic frothy looking amygdaloidal fragments (subangular) to 2 cm, set in a mottley looking groundmass that occasionally displays feldspar phenocrysts - streaks of chlorite; fragments best observed on weathered surface - difficult to discern boundaries on fresh surface; minor pyrite. - also a light green recrystallized looking (sub-sugary texture) volcanic -
29. weak to mod. chlorite, fine grained, cut by black hairline veinlets.

29. cherty light green rock with black veinlets - silicified; rest o/c south is a green-beige amygdaloidal flow (30% amygs) cut by white to black quartz veinlets - a little further South is a coarser version of same with few amygdules - almost looks like a fine grained diorite; minor epidote.

30. light green, very fine grained, hard (5-6) rocks cut by numerous white quartz + black hairline veinlets; cherty (tr) with greater density of veins, minor pyrite.

31. variably altered flow - black to chloritic amygdules; spotty chlorite in groundmass fine grained, grey-green; some calcite in amygs; locally bleached where cut by veins.

32. diorite dyke - sub-euhedral 2-4 mm fldsp + hnbl. crystals in 10% groundmass of very fine grained very light green material; microvariety; cuts med green amygdaloidal flow.

33. variably altered frothy looking flow (amygdaloidal), small 1-3mm amygdules = 20%-30%.

34. coarse amygdaloidal flow; small black amygs to large (2-3cm) open rusty vugs with feldspar phenocrysts, chlorite; enough amygs to give frothy appearance locally; may in part be flow breccia.

35. Same veggy amygdaloidal flow as 34.

36. Subhedral mafics + 2-3mm feldspar phenos set in a light grey-green groundmass; intrusive?

37. weakly foliated med. green flow with 2mm white feldspar phenocrysts.

38. probably same as 37 + similar to 36 - med grained with chloritic mafics + whitish 2-4mm feldspar in med. chloritic groundmass; andesitic flow; minor epidote; trace py; elliptical mafics (amygs?), sheared varieties with no mafics up the road; abundant float of green-white spotted flow breccia boulder & heavily quartz veined altered flow.

39. Cultus shales @ 260/40 SE.

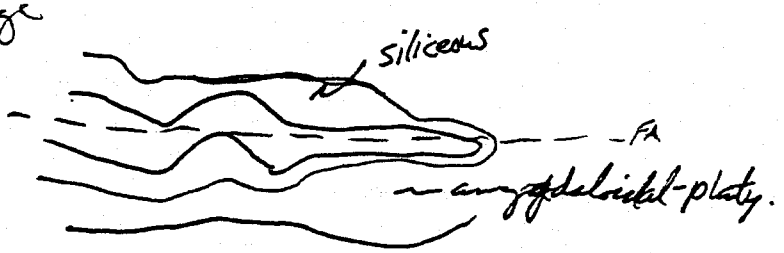
40. O/C?- med. green, very fine grained rhyolite with faint-ghosty white 1-2mm feldspar phenocrysts.

41. Shaly argillite, black-brown, platy cleavage - Cultus.

42. med. green amygdaloidal flow; black irregular mafics in fine grained chloritic groundmass; qtz veins.; pale green hard rock with alligned, black elliptical to streaky chloritic amygdules + quartz-filled (chalcedonic?) amygdules - looks rhyolitic - fine white crystals in groundmass with 2-3mm subround to irregular amygs w. occasional calcite - green-grey light colored groundmass + greener with specks of chlorite.

43. med. to dark green very fine grained with white euhedral feldspars & few ghosty quartz eyes - varies where altered up the road to light green grey & ns quartz eyes - cherty - siliceous.

44. frothy light green amygdaloidal flow as @ 42 but overlain (in folded?) by silicified rocks cut by quartz stockworks - white to grey white; platy cleavage in amygdaloid; looks like recumbent isoclinal fold with boudinage



45. intensely sheared with strong foliation - blotchy grey-green with distinct white subhedral 2-3mm subhedral feldspars + occasional 0.5cm frags; chlorite streaks

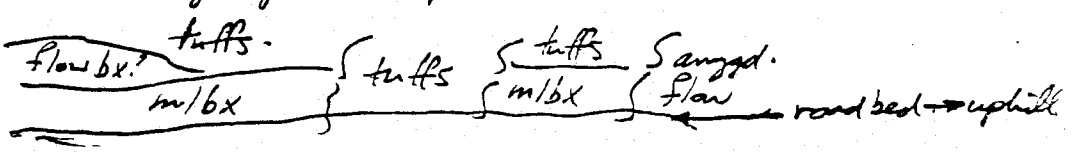
46. light-med green w. black spots (amygs?), fine to very fine grained groundmass.

47. red-brown but under lens is grey with red-brown hematitic spots; fine grained no texture

48. frothy looking amygd. flow w 20-30% calcite-chlorite filled amygs to 0.5cm but most commonly are 1-2mm; originally light-med green but blotchy hematite gives large areas of purple color; large boulder of multilithic breccia with a variety of cherty to andesitic subangular to subrounded frags (40%) - average 1.0cm diameter, streaky matrix.

49. light green, v.f.g., with ghosty white subhedral-euhedral feldspars & few small quartz eyes; abundant quartz veining; also a med. to dark green variety; blotchy red-brown color locally.

50. overlies 49; 1-2 meters of green amygdaloidal flow breccia which in turn is overlain by the multilithic breccia described above (48) - some frags to 5cm generally 0.5-1.0cm - non sorted, strong foliation (structural?) - appears to be @ 0/30W but may be fault plane; breccia is overlain by a weakly foliated fine grained tuff (?) - more NW'ly attitude; overlain by grey to purple stained tuffs to light green & purple tuffs.



51. multilithic breccia as @ 50 but dip appears to vary to EX folding.

52. thin bedded green + purple cherts; doubly recumbent isoclinal folds are displayed - horizontal axial planes; abundant quartz veining.

53. black fine grained calcareous siltstone; N0°W strike + 15°W dip - may be in fault contact with cherts but not well exposed.

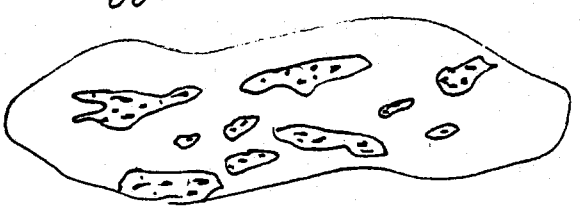
54. andesitic (?) flow with xenoliths or frags (?) (rounded) of frothy amygdules, set in white groundmass; rocks generally med. green with white subhedral 2-4 mm fldsps; pervasive spotty alteration (sphene?)

55. 1 meter boulder of rhyolitic feldspar porphyry breccia with frags to 10 cm.

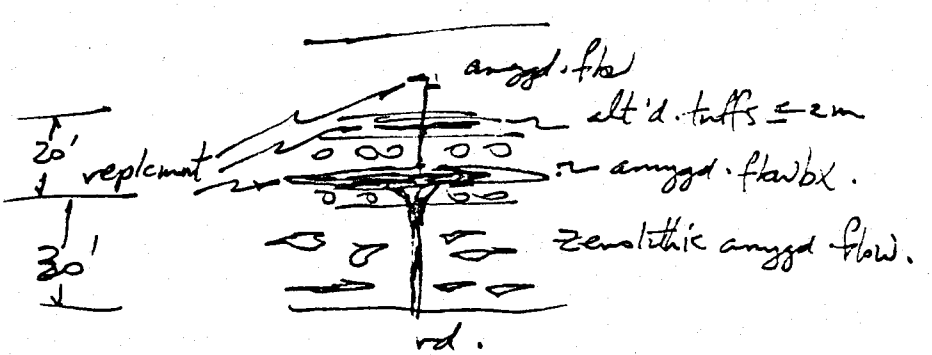
56. deep purple amygdaloidal flow; 2 mm black round to flat amygs in fine grained purple groundmass.

57. med to dark green, fine grained, amygd. flow; black elliptical amygs + 10 mm abundant calcite veining + some quartz.

58. Shaly cleavage developed in what appears to have been an amygdaloidal flow, - around the corner it is massive + is a green amygdaloidal flow with purple amygdaloidal xenoliths 1-20 cm long + irregular in shape.



59. hydrothermal system moving up along fracture system + mushrooming out to replace various units + fract. zones



60. black rhyolite (very dark purple?) very fine grained with ghosty fldsps - 1-2mm; siliceous (+6), overlain by fine to very fine grained jasperoidal cherty tuffs (+6) (Celtic?) which have 2-6mm fine tuff bands; the black rhyo. is underlain (below rd.) by the amygd. flow breccia.

61. foliated amygd. flow, green + purple, xenolithic type probably.

62. strongly foliated chloritic to massive med. green amygd. flow, med grained with black 2-4mm mafics; mod. chloritic; quartz-filled vuggy tension gashes

63. variably purple + green amygd. flow; well developed spherical to elliptical 2-6 mm black amygs in vfg groundmass; very chloritic smooth fault/slip planes; overlain by med. dark green amygd. flow + flow breccia.

64. crystal lapilli tuff or pyroclastic flow?? - 1-5mm attenuated to sub angular lapilli, black flat to curvy (~) lapilli (?) & subhedral fldsp. phenos + some frags are black with white fldsp. phenos; a banded (foliated?) or poorly bedded appearance; grade up to vfg indurate med. green tuffs.

65. same tuffaceous unit as 64 - some frags to 2cm, multilithic, does have a flow appearance - not conclusive; some cherty looking matrix but generally f.g. - med green, unsorted, no sulphides.
- a small 1'x2' silicified veined zone in section of vfg tuffs; fine spotty pervasive alteration.

66. small subcrop (?) of silicified breccia material + med. grained fldsp - mafic rock - flow? - dyke?; very little to no groundmass, anhedral - subhedral white fldsp. + sub-anhedral chloritized mafics (hnbl.?)

67. bedded tuffs @ ± 60/15 NW; vfg, hard cherty (5-6) to med. grained (sandy), light green, green-grey; one bed of coarser tuff has cherty frags + frags up to 5cm x 1cm; avg. frag = < 0.5cm; planar bedded; some fldsp crystals

68. diorite (qtz.?) sub-anhedral fldsp + hnbl., weakly chloritic groundmass, med. grained; large boulder subcrop; beige-pink subhedral alteration mineral (cubic?); ~10m. wide boulder zone - dyke? stock?.

69. siliceous zone ~10-20 m wide & 2-3 m vertical exposed; series of thin bedded tuffs which are completely brecciated, altered & silicified at bottom & selectively & replaced at top with adjacent beds being bleached & altered; i.e. both pervasive brecciation-silicification & pervasive bed replacement such that bedding is still apparent locally @ 10/55 NW.

70. Large boulders of med. green amygd. flow; 2mm to 1cm black ± calcite amygs; also flow breccia with purple hematitic matrix.

71. o/c - subcrop? - f.g. med-dark green flow, black small amygs - mafics.

72. subcrop? - lapilli tuff - foliated & dark - hard to see relationships or character of frags, max. size ±1cm

73. fine grained, med-dark green flow; small black amygs (?) - mafics.

74. creek o/c of thin bedded tuffs; black to light green; @ 300/90 (unit c.?) abundant large lmstn. boulders.

75. diorite - crowded porphyry; sub-euhedral close packed white fldsp. + lesser sub-euhedral black hornblende; vr little to no groundmass; 2-5 mm phenos.

76. massive grey limestone bluffs; thin qtz veins throughout; no signs of fossils.; large boulder of from above of fldsp-hnbl. porphyry - 5-10mm white fldsp & 20-30% 2-4 mm black hnbl. (euhedral) in a finer groundmass of same.

77. med to dark green amygdaloidal flow; abundant boulders & 1x1.5m o/c. fine grained, mod. chloritic groundmass with 5-10%, 1-4 mm black amygs. & minor float way down rd. before last switch of siliceous replacement breccia.

78. abundant float of green flow & a little beige-brown weathering tuff. subcrop?.

79. Swirly purple & green fldsp porphyry flow breccia, euhedral white fldsp in vfg green or purple groundmass; matrix commonly purple in blks; barren quartz veining, weak alteration of fldsps & mottley discoloration of groundmass locally; some frags to 1ft. - rounded; locally siliceous - dacitic.

80. fine grained amygd. flow; med-dark green + purple; 1 mm black amygs; pillows exposed ~ 1' avg. diameter - poorly formed w. thin selvages + large spaces between pillows.

81. talus - subcrop - f-med. grained, med. green flow - white + black spotty like a fine diorite; minor epidote; also boulders of flow breccia w white weathering frags.

82. andesitic flow breccia - 2-6 in. embayed + rounded frags in hematitic matrix; ~70% fragments; amygdaloidal; some frags with hematitic rims in green matrix with fewer frags.

83. flow breccias as above but large zone of intense pervasive silicification turns rocks to gray color; prolific late veining, no sulphides; silicic zone is ~ 30-40 m x 20 m minimum exposure.

84. med. green, fine grained amygd. flow; qtz-epidote veining; boulders of altered andesite (?) - calcareous, specks of chlorite + tiny beige alteration mineral - fldsps occ. visible, sugary look when dry + fresh

85. intensely sheared andesite (?) - granular texture, elliptical grains with streaks of chlorite between.; 50 ft. South = green amygd. flow (sheared) + V.f.g. light grey-green tuffs - cherty looking but not siliceous.

86. very siliceous dark flow (?) - heavy qtz veining but may have been siliceous before; green w purple hematitic staining; quartz stockwork over large area; may be slump block from upslope - ~100 ft. across.

87. 2 - 1m bldrs of multilithic breccia w fldsp porphyry + cherty frags, minor py in frags (one frag cut by qtz vein), ~0.2 cm avg. size; clast supported.

88. heavy float accumulation of siliceous replacement breccia - bedded tuff, minor pyrite + heavy qtz veining.

89. amygdaloidal flow, slightly bleached; chloritized amygs; spotty chlorite in groundmass, minor disseminated pyrite; abundant black hairline veinlets + white qtz veins; local zones of silicification; intensely sheared (folding) @ ~4400 ft elev.

90. look like tuffs but occasionally see flow-like texture - amygs? - elliptical to flat black + alligned; light to med. green + purple varieties - variable colors; no distinct bedding or fragmental; siliceous locally with thin quartz veining.

91. base of cliffs - med. green amygd. flow - 2-4 mm amygs in fine grained groundmass; some white qtz veins to 2cm; quite a bit of light green (bleached?) volcanic with no amygs + occ (rare) fldsp. phenos + hairline quartz veinlets; trace cubic disseminated pyrite.

92. next slide/bluff area to east, same except there are some silicified breccias, abundant light green silicified volc. + sheared + re-crystallized flows; both black hairline + variety of white to grey quartz veining; some rx appear to be silicified + rebrecciated + rehealed.

93. bluffs + large boulder talus are all silicified breccias + qtz stockwork; several hundred feet of silicification - no sulphides; light green with abundant black veining but grey + white quartz veins predominate; v.f.g., occ. original volc. textures in less altered rocks.

94. thin bedded tuffs, v.f.g., light green-grey, intensely fractured; @ ~ 50/20 NW; overlain by weakly altered to very locally silicic green flows.

95. med. green f-vfg amygd. flow, 2-5 mm amygs (< 10%); some mottled cherty siliceous zones or inclusions - irregular + small, locally vein brecciated, less alt'd frags have a purple hematitic rim + green centre while more alt'd. smaller pieces are siliceous purple-brown to red-brown hematitic.

96. med. green vfg flow with 15-25% - 2-4 mm amygs - spherical to elliptical black ± calcite, frothy looking locally; few black hairline veinlets.

97. variable dark grey-black to purple + occ. to med. green amygd. flow - f-vfg groundmass of each color with 10% black to green 1-3 mm amygs, occ. calcite; amygs occ'ly larger + more abundant.

98. light to med. green flow breccia with 1-2 cm rounded purple hematitic frags with black amygdules - irregularly shaped.

99. Light to med. green ~~flow breccia~~ to purple amygd. flow all along this road; locally a flow breccia & locally large vugs; locally intensely sheared & elsewhere heavily fractured with chlorite on fractures.

100. Lapilli tuff (crystal?) sheared, flow frags 2mm - 0.5cm, greenish-white; looks like alt'd. sheared flow locally w. white anhedral fldsp. grains. (abundant in unit C2)

101. black calcarenite - grey weathering, 270/45 S; to grey-black limestone looks med. grained - recrystallized; 20-30 ft. vertical exposed

102. Large (1m) boulders of multilithic breccias, purple cherty frags 0.5 - 6.0 cm in light green vfg matrix; angular; also purple breccia very similar; 10-40% matrix (C-2)

103 Large boulder (10-30 ft.) talus from cliffs above - amygd. flow & silicified brecciated flow as @ 93.

104. Sheared med. green amygd. flow, black 1-3mm amygs; generally white & black speckled sheared rock but occ. see vole textures (flow)

105. Light to med green weakly altered (clay-chl) fine grained with 1-2mm white fldsps pervasively disseminated; ~100 ft. up rd = same rock with some amygdules, some black discoloration.

106. 2 meter vfg tuff, interbed to green to black altered amygd. flow - shaly cleavage @ 320/40 SW overlain (apparently) by dark grey weathering brown-black f-vfg limestone & brown calcareous siltstone - clayey - sandy @ ~ 300/20 SW.

107. Large boulder of massive limestone - dark grey slightly recrystallized with minor pyrite in discontinuous stringers; o/c of light green altered spotted flow (no original textures visible - overlying flow = massive dark grey-black crystalline limestone with black 6inch to 1ft. chert nodules; minor disseminated (?) & stringer pyrite in both chert & limestone, Sample 23588.

108. boulder ? - 2m x 1m - flt.? - dark black vfg sheared with subhedral white fldsp, one green cherty looking frag ~ 1cm; tuff? - sheared flow?
fresh grizzly tracks in snow - 6in x 8in.

109. v-fg light green-grey, minor diss'mtd py + few thin dark veinlets (qtz?); spotty alteration locally as @ 107.; limestone boulders on ridge top - subcrop?

110. boulders? - subcrop? - weakly altered amygd. flow, 2-3mm black spots in light green vfg groundmass; disseminated fine pinkish-beige crystals - alteration.

111. fine green amygd. flow as in rd below

112. variable amygd. flows - generally med green with 1mm black spots + occ. to few spherical black amygs in f.g. groundmass; varies with silicification + alteration - some flow breccia, some dark green or purple zones.

113. light green quartz eye fldsp porphyry; ghosty white fldsp; sub hedral quartz eyes + specks of chlorite in vfg groundmass - area of large boulder talus landslide + therefore may not be o/c.

114. 2 large 3m boulders of med. green flow with 2-10cm angular to rounded cherty siliceous grey frags - pyroclastic flow?; dominantly green amygd. flow in float here - some pillowed some flow breccia.

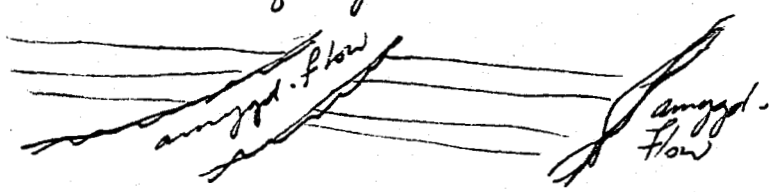
115. foot of waterfalls Stapely Cr - moving up - clayey - pyritic green-blue fault zone ~ 3m. wide ~ E-W; pale green altered fldsp porphyry (qtz eyes) w. chlorite specks + ghosty clusters or phenos of white fldsp, minor pyrite.
- altered, pyritized zones bleached with coarse euhedral pyrite along 1-6 inch vein/fracture systems - less alt'd + still greenish away from veins + with minor disseminated pyrite; intensely sheared-fractured, pyrite almost massive in spots.
- slightly less alt'd. but sheared rocks with chloritic amygdules in dark grey flow.
- some rocks appear to be silicified with minor diss'mtd pyrite.
- bedded tuffs in bluffs.
- float in Creek here shows everything = limestone, white spotted flow breccia, cherty breccia, flows, conglomerate with sandy/pebble matrix + granitic clasts.

116. boulders of everything; one 2-3m boulder of coarse conglomerate with large granitic clasts as seen at Stapely Cr.

117. altered amygd. flows - grey-green to grey white with spherical, sometimes frothy appearing amygys. - black; occaisionally brecciated & veined with quartz ± pyrite - trace cpy; cut by dyke (?) of light pale green (white) qtz eye porphyry - no obvious fldsp - in turn cut by white quartz veinlets & pyrite - some diss. py - can't see contacts well but appears to be cutting altered flows.

118. pyrite showing - base is a crudely banded dark grey cherty replacement breccia with quartz-py (50% pyrite) band adjacent - coarse euhedral pyrite; overlain by light to med. green frothy looking amygd. flow with 10-30% elliptical & spherical dark green amygys - closer to pyrite showing the flow loses amygys & is f.g. light green rock w. occ. chloritic spots & occ. diss pyrite with quartz. (Similar to top of Stapely Cr near ridge?); trace cpy w. py along fracture; abundant cpy locally with pyrite bands; ~ 50 ft. from the showing the amygy. flows are more of a grey-green to grey-brown color - groundmass alteration.

119. amygd. flow overlain by vfg light green banded rock - tuffs? - banding shows turbulent zones - may be slumping - may also be flow banding & felsic - not siliceous - 0.5% diss. py locally but rare; contacts appear to indicate high angle (reverse?) faulting with a 1 ft. wide block of amygd. flow in middle of rhyolitic dc.



120. highly sheared & altered flow (?) elliptical grains of fldsp (& qtz?) & spotted (white) green chloritic grains ~ 50/50; 2-5mm aligned grains - Large 3x3m boulders - subcrop?

121. siliceous pale green (bluish) rock cut by numerous hairline to ⅛" quartz ± qtz-py veinlets (< 0.5% py); spots of dark green chlorite; rare white fldsp grain or pheno - may be silicified??; ~ 100 ft. up rd. is a 4 ft. x 4 ft. boulder of amygd. flow breccia with disseminated pyrite clots in the frags, no apparent veining.

122. silicified flow? - rhyo dyke/sill? - pale green f - vfg, occ. spots o/ chlorite, no phenocrysts; occ. vague white quartz veins; py (euhedral) concentrated along fracture/joint sets with qtz.; < 0.5% diss. py (magnetite?)

123. same as 122 but more obvious silicification with minor vein breccia + abundant black hairline veinlets; py gossan along fracture.

124. Same as 122-3 but occ. see zones with subhedral quartz phenos (grey glassy) + ghosty white to pale greenish (replaced?) euhedral fldsp. - tiny soft white spots = alteration product?; in this o/c zone also see siliceous zone with black hairline quartz veining + non-textured vfg type
- a fault wedge of frothy altered amygd. flow (1 x 2m) = light grey-brown - green is enclosed in the rhyodacitic rock
- where the black veining is intense the rock is occasionally pervasively blackened over a few inches + a vein breccia appearance is observed - also pyrite increases.

125 same again but bottom of o/c is a med-dark green amygd. flow with black spherical amygs in f.g. chloritic groundmass; as you go uphill, see quartz-fldsp grainy textured rock with chlorite streaks + then a hard pale green rhyolitic rock with black hairline veinlets - appears to be a gradational alteration that might indicate intrusion

126. gradation again visible from brown altered amygd. flow to grey quartz veined (black + grey w py) variety with no amygs ~~to~~ to the green + black silicified rock.

127. grey quartzose variety with chloritic patches; 0.2-0.5% diss. py; occ. fldsp. phenos in or on border of chlorite patch; patches have sharp boundaries + suggest altered fragments (?) - grey quartz occ. looks banded; grey changes to pale green over a short distance + chlorite patches disappear or dramatically reduced; occ black hairline veinlets.

128 good exposure of quartz-fldsp. porphyry up + down Tsumarble Cr. + to 2000 ft. elevation; 3-4 ft. blocks of green amygd. flow enclosed + have coarse grained boundaries + infusion along fractures within; QFP occ. loses phenos + occ. see abundant black veinlets; generally barren of sulphides; ~2000 ft. boulder of granite breccia cut by white qtz veins to 1 cm; also boulder of breccia similar to c-2 with granitic clasts amongst

dominantly volcanic fragments; also a large boulder (probably from cliffs above)

(10-30' bldrs) pile of purple + green mottley flow.

129. ~2100 ft. - boulders of clastic with angular black argillite frags to 0.5 cm as seen in creek @ E end of map area; also massive grey limestone.
~2150 - Large limestone boulders, one large granitic boulder + abundant float of green + purple fragmentals (one w. granitic clasts + purple flow clasts).

130. ~3550 - large boulders - o/c? sheared vfg tuff.? cut by black veinlets; grey with strong shear foliation/cleavage.
3600 - some less altered subcrop indicates these may have been flows though some flt. indicates tuffs in the area; change in slope ~ 3600-700'.
3800' - 2m boulder, round, of a biotite diorite-gabbro, coarse; also small piece of altered volc. - light green vfg - numerous black veinlets + white qtz veins
4000' - 1' angular boulder of vfg light grey tuff - no obvious bedding but a weak foliation/lineation; minor fine pyrite.

131. 4350' - (?) - on the border line + ridge top = abundant small flt - subcrop of thin bedded vfg grey-green tuffs.
4250' - 3m boulder of altered flow.? tuff.? - med. grey (green) f.g. + tiny specks of greyish altered mafics (?).

132. ~4100' - rotten, altered tuff.?, spotted grainy texture.
~4060' - bluffs - intensely sheared, shaly cleavage in tuff, very rotten + soft - foliated; attitude ~ 65/45 SE; just below = o/c of tuff + finely - calcareous siltstone - black to black-brown

133. ~3900' - f.g. altered flow? - grey brown with greenish blotches - spotty mafics (?) minor diss py.

134. ~3800' - chlorite specks + fldsp grains - alt'd flow?

135. ~3300' - top of logging slash - several angular boulders of what looks like a coarse altered flow.? - fine alt'd diorite? - chloritic mafics.

136. red + green swirly amygd. flow w. qtz veining - silicic; mostly purple-dark, vfg with occ. fldsp phens, very silicic though locally not.

137. subcrop of lapilli tuff + tuff, sheared w. strong foliation such that textures destroyed - can see obvious lapilli in coarser varieties.

138. silicic vfg purple flows with sub-euhedral fldsp (white) + chlorite spots, probably equivalent of bluffs across Fumarole; light green zones in + around fractures; white quartz veins throughout but flows probably only locally silicified - already dacitic.

139. ~2420' - o/c? very large boulder talus? - altered flow cut by quartz-pyrite veining, some light green vfg rock with minor pyrite + fldsp phenos.
~2560' - float of limestone cobbles set in a fine clastic with syngenetic - stratiform fine pyrite - grey limestone frags + grey-black matrix - weakly bedded or foliated; abundant float of conglomerate + ~~tuff~~/clastic with angular black ±cm clasts & abundant flt. of grey massive lmstn + green flows.

140. @ the border, on creek, @ 80/20 SE = lmstn + interbedded limestone-argillite or black calcareous siltstone; thin bedded to laminated, some more massive limestone with dark silty intercalations, some of the black argillite has minor pyrite; also some green (light) tuff interbeds - lenses up to 2m thick; calcite remobilized into fractures in tuff - 1-4mm lapilli very hard to see - altered - fine spotted texture with some chlorite; strong cleavage in siltstone @ 60° from planar bedding (axial plane?)

141. limestone-clastic still o/c @ 2650' + more boulders of sharpstone volcaniclastic (? with blocks of up to 1' of shaly limestone; also large boulder of rhyolite - light green with grey angular clasts - fldsp. phenos in matrix - pyroclastic flow? - no sulphide - same as boulder at bottom of Fumarole Cr. (bridge) ~ 40/80/20 SE.

142. 2800' - limestone o/c
2860' - flt of felsic lapilli tuff.
2870' - " " limestone/shale-arg.
2950' - float - thin bedded vfg grey tuff.

Summary Logs of Available Drill Core.

XR-80-4: 10 ft. hole with about 3 ft. of core; altered + silicified flow - grey-white with < 1.0% disseminated pyrite + a few py ± cpy + quartz veinlets, euhedral pyrite; chlorite spots in less altered rock.

XR-80-5: mostly vein quartz + euhedral pyrite; one 2 inch piece of fragmental pyrite in white quartz; a little altered amygdaloidal flow; about a 20 foot hole with ~ 3 ft. or less of core.

80-1 (NQ):

12.5-16.5 - siliceous black-grey replacement grades down to siliceous, quartz veined altered flow with minor py - cpy - sph with quartz veinlets.

16.5-18.5 - altered amygdaloidal flow; med-light green; some minor quartz - pyrite veining.

18.5-25.5 - quartz vein + brecciated replacement zone - minor cpy-sph-py.

25.5-37.0 - quartz-feldspar porphyry; some quartz veining; light green; trace cpy.

37-41 - green-grey altered amygdaloidal flow; v.f.g.; quartz veining increases in last ~~foot~~ or so.

41-42 - quartz vein system with 3-4 inches of massive py-cpy-sph with boundaries of vein quartz; subhedral pyrite.

42-71 - altered amygdaloidal flow cut by quartz-sulphide veinlets + calcite

— EOH —

80-2 (NQ)

8-17: light grey-green rocks, v.f.g., no apparent textures; minor quartz eyes

17-27: siliceous replacement breccia with quartz-sulphide veins; underlain by altered amygdaloidal flow with quartz vein networks + sulphides.

27-35: altered + veined amygdaloidal flow with quartz-sulphide veins (py + minor cpy-sph).

35-44: quartz vein + siliceous vein breccia replacement with occasional altered flow (?) material; minor py-sph-cpy.

44-50: brecciated, mottled green + white altered flow + quartz vein replacement.

50-60: altered + locally brecciated + silicified green-grey amygdaloidal flow; black + white siliceous breccia zone with euhedral pyrite, white quartz veining; occasional light green patch with subhedral ghosty feldspar phenocrysts.

EOH ?

DRILL HOLE RECORD

	Inclination	Bearing
Collar	-90	

PROPERTY TAN
Location 92 11/4W
Elevation
Coordinates

Length 389ft.
Hor. Comp. Vert. Comp.
Bearing
Began Completed
Core Size Recovery %

Hole No. 81-1 (LORNEX)
Sheet 1 of 2
Logged by GLG
Sampled by

FOOTAGE		RECOV.	DESCRIPTION	MINERALIZATION	GRAPHIC LOG	SAMPLES No.	From	To	Length	ASSAYS
0	14		casing							
14	85		altered rhyolitic flow/sill? - pale green silicic rock with ghosty fldsps occ. visible; <1% cubic py - disseminated + veinlet; black hairline veinlets; occas. dark green zones (flow cm) with black spots (amygdules?) specks of chlorite; 81-85 = brown amygd. flow	minor quartz eyes.						
85	167		rhyolite(?) fine to very fine grained, pale green, minor cubic disseminated pyrite; no qtz eyes; occ. chlorite specks; grey + white quartz veinlets.							
167	183		brown fine grained altered flow (?) - cut by quartz-carbonate-py veinlets; occ. zone of pale green silicic variety (dykes?); few dark amygs + some spherical + quartz or calcite filled.							
183	212		Mottled quartz-chlorite-py zone - pseudo breccia; occ. see ghosty fldsp., qtz-filled spherical amygs; @ 190-1 = brown colored rock.							
212	281		Dacite quartz-feldspar sub-porphyry - darker green + finer grained from 220 with no quartz eyes + cubic py-pile; from 230 get a mix with some brownish amygdaloidal rx (minor); back to quartz eyes @ 240-242; 242-4' = quartz-py zone + feldsp + carbonate - grey-white with coarse py - then grt green mottley altered to grey chloritic rocks with abundant veining + few textures.							
281	288		mottley quartz chlorite pseudo breccia (fract'd + healed)							
288	297		green-brown amygdaloidal flow - dark green-grey; dark green-grey as well as epidote altered feldspar phenos in a f-grained groundmass.							
297	303		Quartz eye sub porphyry - pale green. Dacite.							
303	307		Fine grained, green altered flow; abundant quartz-carbonate veining.							
307	326		quartz-feldspar sub porphyry - white fldspr + occ. qtz eyes in light green, silicic, fine grained groundmass.							
326	335.5		brecciated + altered amygdaloidal flow with quartz + dark chlorite filled spherical amygdules - 10-20%; rounded-embayed frags to 2 cm; epidote occasionally; in places may be minor felsic tuff + lapilli tuff w 2-4mm lapilli + fldsp phenos?"							
335.5	338		Quartz - white to grey silicified(?) zone.							
338	342		grey buff altered flow (tuff?) - specks of chlorite sometimes spherical, cut by numerous qtz-carb. veinlets - m. py.							

DRILL HOLE RECORD

	Inclination	Bearing
Collar		

PROPERTY
Location
Elevation
Coordinates

Length
Hor. Comp. Vert. Comp.
Bearing
Began Completed
Core Size Recovery %

Hole No. 80-1
Sheet 2 of 2
Logged by
Sampled by

FOOTAGE		RECOV.	DESCRIPTION	MINERALIZATION	GRAPHIC LOG	SAMPLES No.	From	To	Length	ASSAYS
342	357		Quartz-feldspar porphyry - pale green.							
357	360		med-green f. grained with spherical quartz (?) grains or amygdules & locally altered + vein brecciated.							
360	389		brecciated + altered flow (feldspar porphyry) - chlorite - epidote - carbonate alteration + quartz-carb veining; <1% diss. py; (altered flow breccia ?); amygdules with chlorite - calcite - epidote from ~379, still has autobreccia texture + still some white or yellow altered feldspar phenocrysts.							
			EOH = 389.0 ft. = 118.6 m							

DRILL HOLE RECORD

	Inclination	Bearing
Collar	-90	

PROPERTY TAN
Location
Elevation
Coordinates

Length 414 Ft. = 126.2 m
Hor. Comp. Vert. Comp.
Bearing
Began Completed
Core Size Recovery %

Hole No. 81-2
Sheet 1 of 2
Logged by GLG
Sampled by

FOOTAGE		RECOV.	DESCRIPTION	MINERALIZATION	GRAPHIC LOG	SAMPLES No.	From	To	Length	ASSAYS
0	15		casing							
15	28		dacite pale green, very fine grained; 1% diss py + few quartz-py ±ins							
28	31		brown-beige altered flow (tuff?) - f-vf.g. cut by quartz-carb. veinlets	minor py.						
31	52		pale grey-green siliceous unit as above with disseminated py; local zones of brown-beige rock w. quartz ± pyrite veinlets & quartz blebs (replacement? amygs.?) - very siliceous replacement-vein system - coarse cubic pyrite to 0.4cm.							
52	67.5		Amygdaloidal flow - cut by numerous qtz & quartz-Kspar-pyrite veinlets; locally brecciated & silicified; up to 3% py over 2-5cm zones but generally <1%; some very blotchy alt'd. zones.							
67.5	141		chalky silicic zone w. coarse py; few remnant textures & brown color locally; trace galena in amygd.?, mostly py; amygdules filled w. quartz-calcite-py; grey to pale green chilly type dominates - more pyritic where grey-white; amygd. zone @ 111-117; pale green siliceous from 120-141.	py-cpy-qtz (sericite?) tr. sph? replacement.						
141	160		mottled ~~brecciated~~ silicified breccia with wispy chloritic matrix; vague to distinct brecciation probably a replacement zone; <1% py.							
160	163		brown Amygdaloidal flow - orientated amygs @ 10° gr. chlorite-calcite minor qtz-carb-py veinlets.							
163	240		silicified zone - few inches of mottled qtz-chl-py then light green chalky siliceous rx with coarse pyrite; abundant qtz-carbonate veining + <1% py; spotted w. tiny alt'n. mineral; ~1% diss. cubic py from ~180'; from 197 get short intervals of mottled type amyd. type w calc-dark-red green to light green type - lighter colors & more qtz-less chl; less py from 197; ~220-230 altered amygd. flow; ~230-239' grey qtz-carb + 0.5% diss. py.							
240	257		pale green rhyolitic rx with ghosty fldsp. phenos; few brown-green zones; qtz eyes <1/50; sub porphyry.							
257	302.5		variable silicified zone: amygd. rx & grey siliceous & very brecciated & f.g. green altered silicic type 2; abundant qtz-carb veining & some mottled variety; amygs @ 270-290 & some qtz eyes & py; amygs @ 297-302.5.	cpy-sph trace.						
302.5	320		Rhyolacite sub-porphyritic grey (240-257) qtz eyes grey, subhedral; white fldsps; pale green groundmass.							

DRILL HOLE RECORD

	Inclination	Bearing
Collar		

PROPERTY
Location
Elevation
Coordinates

Length
Hor. Comp. Vert. Comp.
Bearing
Began Completed
Core Size Recovery %

Hole No. 81-2
Sheet 2 of 2
Logged by G.L.G.
Sampled by

FOOTAGE		RECOV.	DESCRIPTION	MINERALIZATION	GRAPHIC LOG	SAMPLES No.	From	To	Length	ASSAYS
320	335		med. grey-green altered flow(?) - qtz-carb + epidote veining + minor epidote alteration; f.g., no obvious textures							
335	347		Dacitic quartz-feldsp porphyry; pale green							
347	354		med grey-green altered zone - f.g. + qtz-carb. veining.							
354	363		mottled qtz-chl alt'd zone - w feldsp phenos in chlorite - f.g. white - grey siliceous zones - alt'd - silicified flow.							
363	378		med green-grey f.g. alt'd flow w. occ. poorly developed small dark amygs.; m. qtz-py.							
378	409	409-414	mottled siliceous replacement breccia - grey-white + black, interspersed with f-vfg siliceous light grey-green rock; tr-py.							
378	409		alt'd flow but dominated by pale green chalky siliceous replacement interspersed w. f.g. silicic feldsp sub-porphyry rocks (silt.?); hairline + 0.3 cm quartz-carb ± py veinlets.							

EOH = 414 ft = 126.2 m

DRILL HOLE RECORD

	Inclination	Bearing
Collar	-90	

PROPERTY TAN
Location
Elevation
Coordinates

Length 364 ft. = 110.9 m
Hor. Comp. Vert. Comp.
Bearing
Began Completed
Core Size BQ Recovery %

Hole No. 81-3
Sheet 1 of 2
Logged by GLG
Sampled by

FOOTAGE		RECOV.	DESCRIPTION	MINERALIZATION	GRAPHIC LOG	SAMPLES No.	From	To	Length	ASSAYS
0	27		o/b.							
27	101		Rhyolite (?) - appears to be a silicified flow (may be ash?) pale green - cut by numerous quartz veinlets; 0.5% diss + fract. pyrite; local blotchy alt'n - may be chlorite - darker green; varies in hardness, light brown disseminated mineral - hydrothermal alt'n; faint fldsp phenos locally visible - subhedral; some veinlets weakly ringy; rare glassy qtz eyes; minor grey-black color in qtz veinlets; pyrite often cubic + with chlorite; increase in qtz+py veins - 80-90'; locally has breccia appearance.							
101	106		silicified qtz stockwork zone w. coarse py, amber sph + cpy; some grey calcedon.							
106	133		Amygdaloidal Flow - buff-beige color - black irreg. to elliptical amygd often calcite filled + aligned ~10-15°; cut by py - qtz - carb. veinlets ag at 112-116 - looks brecciated + replaced here; rarely see tiny fldsp phenos; 116-118.5 = qtz - carb - py (cpy - sph); although from 118 the rock has granular looking texture I think it is the same unit (flow???)							
133	167		Rhyolite - Light green; ghosty 1-2 mm fldsp; ± % diss cubic py; speckled pink-buff alt'n min; very fine green chlorite specks; varies alt'n. increase in last foot - minor cpy.							
167	174		looks fragmental but appears to be an alt'd. perhaps brecciated then qtz healed unit; very chloritic diffuse fragments set in a white crystalline looking matrix.							
174	183		Rhyolite as 133-167, Light green, pyritic.							
183	221		Same chloritic pseudo breccia as 167-174 - contact zones support alt'n - fragmentation; strong chlorite - calcite qz get near 207-9; distinct amygd flow pieces indicating origin of frags.							
221	231.5		similar to above but has is very siliceous + grey looking frags set in a felty chloritic matrix; somewhat mottled but often fragmental looking; no textures left in frags.; diss cubic py.	cpy sph.						
231.5	281		Flow - weakly amygdaloidal; buff-green-suite alt'd; spotted w. pink-buff mineral; textures gone; where less alt'd amygs are visible coarser; where alt'd. (clay-chl alt'n.); locally brecciated with chlorite-carbonate matrix @ 271-281; some amygs w. quartz ± calcite.							

DRILL HOLE RECORD

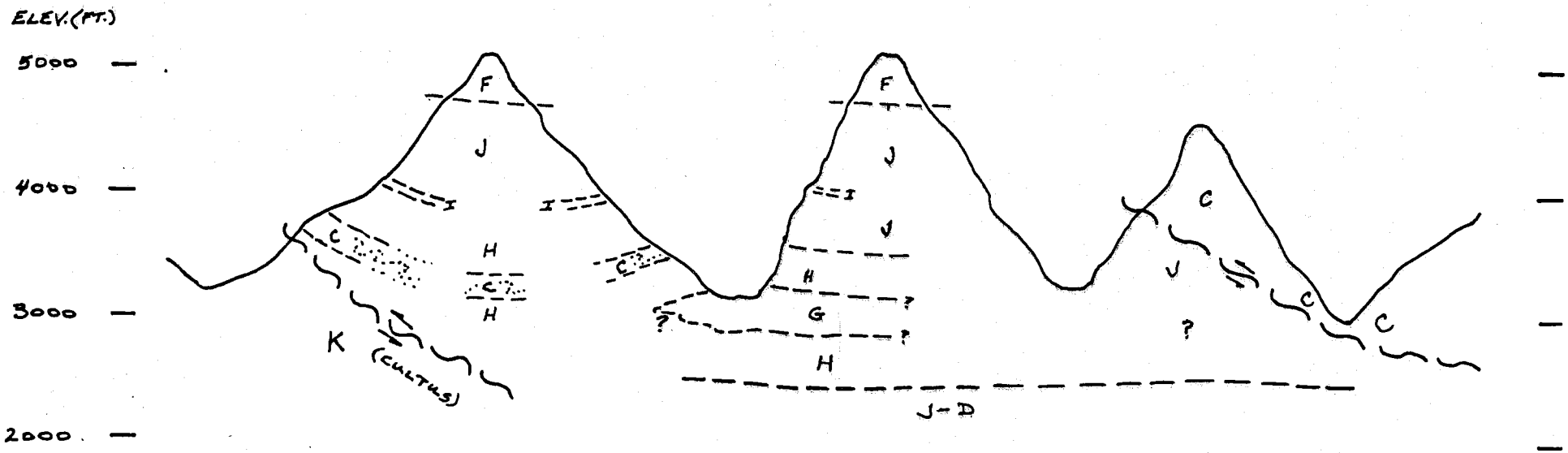
	Inclination	Bearing
Collar		

PROPERTY TAV
Location
Elevation
Coordinates

Length
Hor. Comp. Vert. Comp.
Bearing
Began Completed
Core Size Recovery %

Hole No. 81-3
Sheet 2 of 2
Logged by
Sampled by

FOOTAGE		RECOV.	DESCRIPTION	MINERALIZATION	GRAPHIC LOG	SAMPLES No.	From	To	Length	ASSAYS
281	282		siliceous grey-green banded unit with Fldsp. pleos; flow banding?							
282	313		green-beige Amygdaloidal flow - as above, locally brecciated; generally quite altered (clay-chl-carb); occ. qtz-carb veinlets; 2 inch pegmatitic qtz vein @ 296 ft							
313	353		Altered zone (Shear?) clay-chlorite; locally quite siliceous with veining - minor pyrite; gets light grey-green; gets more siliceous as you go down until @ 337' it is a vfg pale green cherty rock cut by white qtz veinlets (replacement zone); green chlorite tuffs.							
353	364.5		Tuffs - v.f.g to f.grained grey (to pale green) chert, often siliceous tuffs with minor finely disseminated pyrite (occ. looks stratiform); py on fractures; thin bedded (0.5-2.0 cm)	< ½ % py.						
			364.5 ft. = 110.9 m							



K — CULTUS FMTN.- shales, argillites

J — green amygdaloidal flows

I — felsic tuffs

H — purple and green flows

G — silicic purple flow-sill?

F — Permian - carbonate - pyroclastics

D — rhyodacitic sill-flow?+ dykes

C — Pennsylvanian - carbonate - clastic - pyroclastics

Plate 2

TAN PROSPECT

SCHEMATIC LONGITUDINAL SECTION

(NOT TO SCALE)

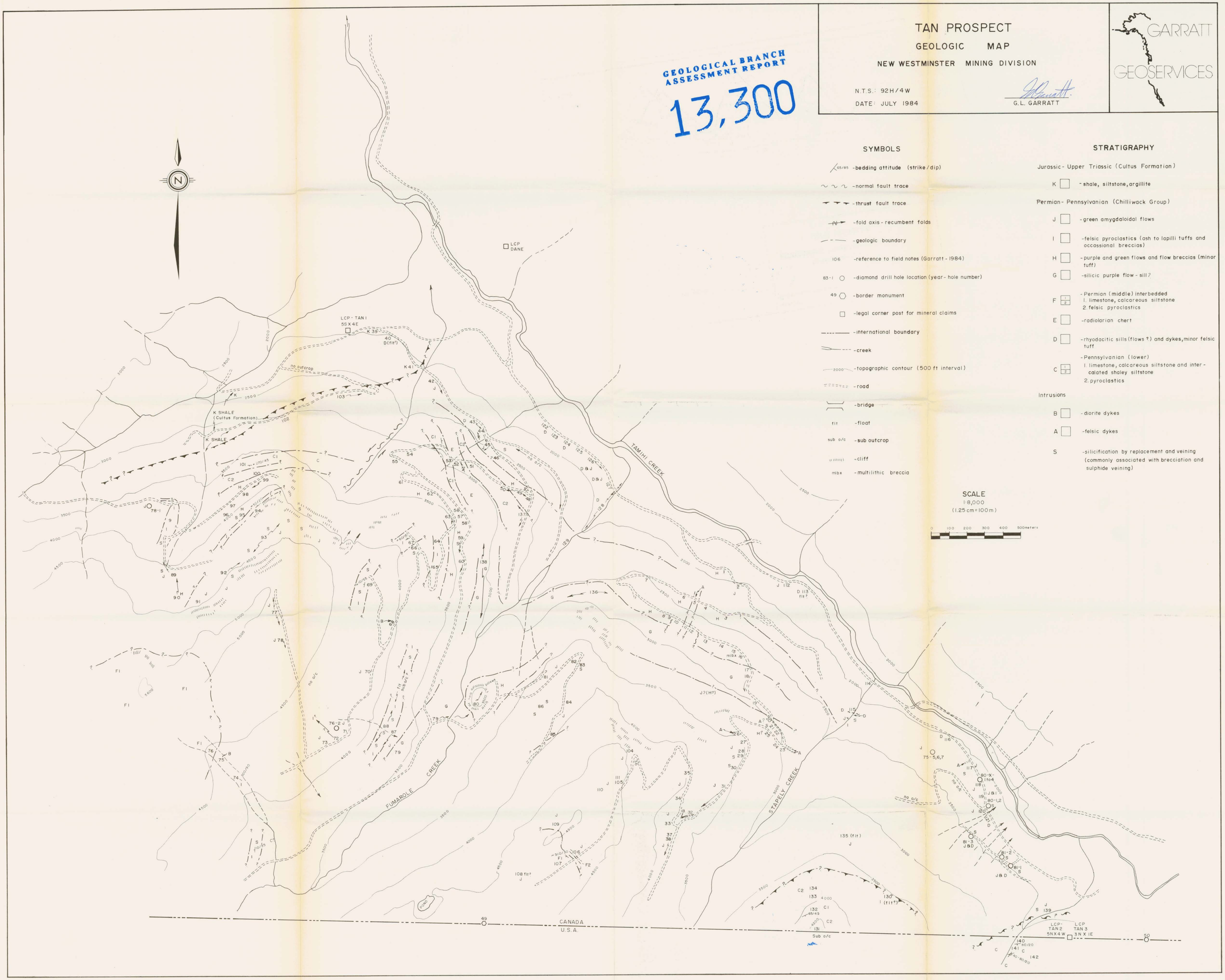
NEW WESTMINSTER M.D.

92H/4W

G.L. GARRATT

JULY, 1984.

Plate 1



TAN PROSPECT
GEOLOGIC MAP
NEW WESTMINSTER MINING DIVISION
N.T.S.: 92H/4W
DATE: JULY 1984
G.L. GARRATT
GARRATT GEOSERVICES
GEOLOGICAL BRANCH ASSESSMENT REPORT
13,300
SYMBOLS
-bedding attitude (strike/dip)
-normal fault trace
-thrust fault trace
-fold axis - recumbent folds
-geologic boundary
106 -reference to field notes (Garratt - 1984)
83-1 -diamond drill hole location (year - hole number)
49 -border monument
-legal corner post for mineral claims
-international boundary
-creek
2000 -topographic contour (500 ft interval)
-road
-bridge
flt -float
sub o/c -sub outcrop
-cliff
mlbx -multilithic breccia
STRATIGRAPHY
Jurassic - Upper Triassic (Cultus Formation)
K - shale, siltstone, argillite
Permian - Pennsylvanian (Chilliwack Group)
J - green amygdaloidal flows
I - felsic pyroclastics (ash to lapilli tuffs and occassional breccias)
H - purple and green flows and flow breccias (minor tuff)
G - silicic purple flow - sill ?
F - Permian (middle) interbedded 1. limestone, calcareous siltstone 2. felsic pyroclastics
E - radiolarian chert
D - rhyodacitic sills (flows ?) and dykes, minor felsic tuff
C - Pennsylvanian (lower) 1. limestone, calcareous siltstone and intercalated shaley siltstone 2. pyroclastics
Intrusions
B - diorite dykes
A - felsic dykes
S - silicification by replacement and veining (commonly associated with brecciation and sulphide veining)
SCALE
1:8,000
(1.25 cm = 100 m)
0 100 200 300 400 500 meters
TAMIHI CREEK
FUMAROLE CREEK
STAPELY CREEK
LCP - TAN 1 5 5 X 4 E
LCP DANE
K SHALE (Cultus Formation)
K SHALE
LCP - TAN 2 5 N X 4 W
LCP TAN 3 3 N X 1 E
CANADA
U.S.A.