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DETAILED GEOLOGICAL REPORT ON THE THISTLE MINE PROPERTY including the McQUILLAN, QUILL, LORE 1, LORE 2, LORE 3, LEVI, SUE, CROW, RAND, MUSEUM, APRIL, ROSE, and JUMBO CLAIMS Mount McQuillan Area Alberni and Victoria Mining Divisions British Columbia

> 49 06'N Latitude 124 38'W Longitude NTS 92 F/2E

> > for

NEXUS RESOURCE CORPORATION

by

T.E. Gregory Hawkins, P.Geol.

DECEMBER 31, 1982

# GEOLOGICAL BRANCH ASSESSMENT REPORT

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#### SUMMARY

Various approaches to the assessment of the mineral potential of the Mount McQuillan area have been attempted. In more recent times geophysics and geochemistry have been applied especially in the area of the Thistle Mine. Efforts have been mainly directed at the surface and sub-surface delineation of gold-bearing quartz veins to the east of the Thistle Mine area. 1979 grid work demonstrated that 250-500 ppm copper in soils appear along the east slope of the Franklin drainage north of the Thistle Mine area. The Thistle Mine mineralogy is chalcopyrite, pyrite with gold and some silver mineralization. VLF-EM in 1980 did not prove to delimit any major source 1982 I.P. and pulse E.M. magnetics have been for these anomalies. attempted with the delimiting of an 1.P. anomaly as a northerly extension of the old mine area. 1.P. has not been tried in the area of the more northerly geochemistry.

Geological mapping has indicated that elements of the Myra Formation may in fact exist in an area that has previously been mapped by Muller to be Nitinat Formation. Although the Myra Formation is known to exist in numerous other places on Vancouver Island the following factors make exploration potential in the Mount McQuillan area excellent.

- Continuous 250 to 650 ppm copper geochemistry appears to be generated from Myra strata between the Buttle Lake limestone and the lower Nitinat Formation.
- (2) The geophysics appear to reflect a stratigraphic horizon that continues to the north and the northwest from the Thistle Mine area.
- (3) The Thistle Mine area geology and stratigraphy is very confused due to a great degree of faulting but one mineralized horizon at the base of the Myra(?) or the top of the Nitinat(?) appears to be relatively consistent. Exposed tuffaceous argillite containing pyrite and chalcopyrite assayed 0.98% copper and 0.025 oz./ton gold across 10 feet. Very high grade remobilized shear material assayed 3.96% copper and 1.12 oz. gold per ton across 6 feet. New outcrops of rhyolite and more intermediate "dyke" material ran 430 ppm copper, 30 ppb gold, and 564 ppm copper and 80 ppb gold respectively.
- (4) Proximal massive sulphide type copper/zinc/gold mineralization might be discovered in this area.

Phase II follow-up to the drilling program is highly recommended and includes continued geophysics, trenching and detailed rock geochemistry. Phase II is estimated to cost \$74,500 to be spent over a period of three and one-half weeks.

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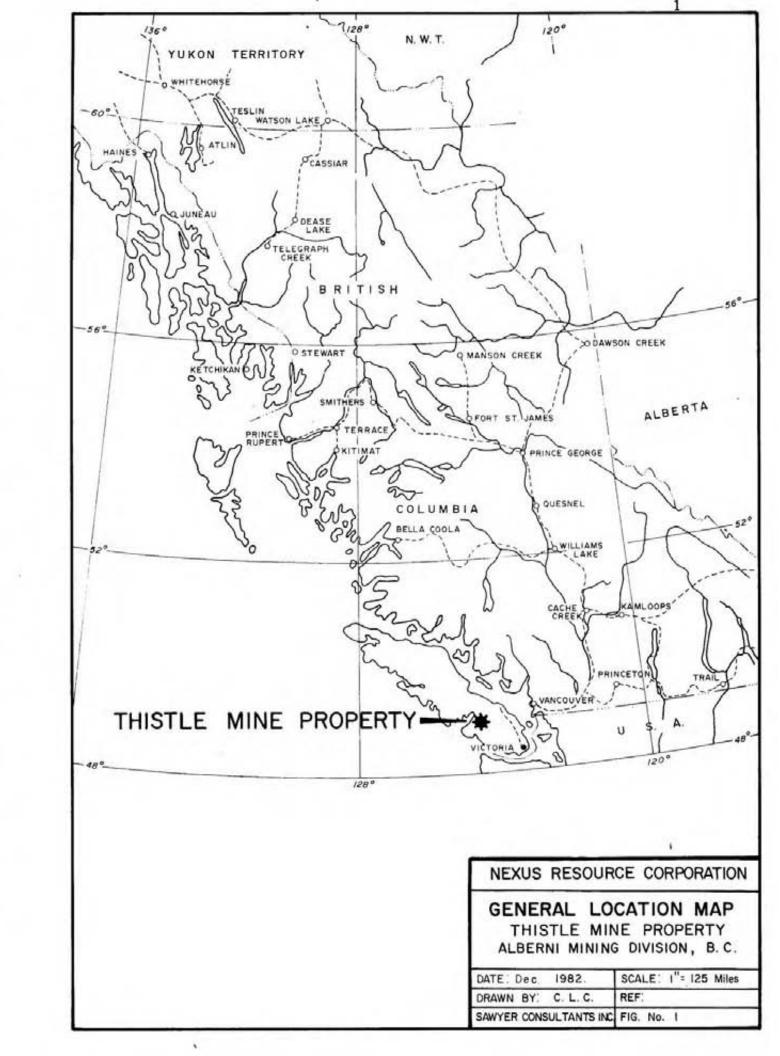
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#### INTRODUCTION

This report is completed as part of a program recommended to McQuillan Gold Ltd./Nexus Resource Corporation by Sawyer Consultants Inc. on September 30, 1982. This program was to include deep penetration pulse E.M., geological mapping, trenching and sampling in order to provide a reasonable data base for selection of preliminary drill targets.

The geological work included detailed mapping on the prescribed grid and the area immediately surrounding the grid basically to determine the volcanic stratigraphy, and more specifically, the nature of the Myra Formation. Rock geochemistry and assays were taken to determine possible Thistle Mine extensions. This work was completed from October 29 to November 9, 1982.

Geophysical work was carried out by Glen E. White from October 12 to November 7, 1982, and his work is summarized in his report "Geophysical Report, Nexus Resource Corporation" dated November 23, 1982. Approximately one-half of the recommended geophysical and other grid work was completed.

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### PROPERTY, LOCATION, ACCESS, TITLE

The Thistle Mine area is covered by three Crown Grants and two reverted Crown Grants, and is enclosed by McQuillan Gold Ltd.'s Crow claim. All are situated on NTS map 92F/2E at  $49^{\circ}06'N$ latitude,  $124^{\circ}38'W$  longitude, in the Alberni Mining Division (Figures 1 and 2).

The Crown Grants and mine area can be reached by twowheel drive vehicle by following a series of MacMillan Bloedel logging roads south of Port Alberni. The China Creek main is followed south to the Franklin River Museum Creek main turn-off to the east, and subsequently up the Thistle Mine main to the TM50 spur. The TM50 spur is followed to the southeast for approximately 2 kilometres to the site of the Crown Grants. The old workings can be reached from the road by a five minute climb.

The three Crown Grants, being the Thistle, Pansy, and Primrose, have been optioned from Mr. Frank Harris of Port Alberni under the terms of an agreement dated January 30, 1980. The two reverted Crown Grants, being the Rose and Jumbo, have been optioned from Mr. Dave Murphy of Vancouver under the terms of an agreement dated January 10, 1980, as per the information summarized in the following table.

Claim Name	Record No.	Date Recorded	Expiry Date	Registered Owner
Crown Grants: L91G - Thistle L92G - Pansy L93G - Primrose	91G 92G 93G	-	July 2/83 July 2/83 July 2/83	Frank Harris Frank Harris Frank Harris
Reverted Crown Grants: L95G - Rose L97G - Jumbo	378 379	Feb. 20/79 Feb. 20/79	Feb. 20/83 Feb. 20/83	David W. Murphy David W. Murphy

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Resource Corporation include the following: Record Registered Claim Name Recorded Units No. Expiry Date Owner Sue 20 488 June 28/81 June 28/83 Kargen Development Corp. Crow 20 489 June 28/81 June 28/83 Kargen Development Corp. Levi 20 490 June 28/81 June 28/83 Kargen Development Corp. Rand 16 731 Feb. 29/80 Feb. 29/83 McQuillan Gold Ltd.

Feb. 25/80

June 23/81

Feb. 11/82

May 6/81

May 6/81

Aug. 17/81

Aug. 17/81

Aug. 17/81

Feb. 25/83

June 23/84

Feb. 11/83

May 6/83

May 6/83

Aug. 17/83

Aug. 17/83

Aug. 17/83

C.A. Ashworth

McOuillan Gold Ltd.

McQuillan Gold Ltd.

McQuillan Gold Ltd.

McQuillan

Gold Ltd.

McQuillan Gold Ltd.

McQuillan Gold Ltd.

McQuillan Gold Ltd.

Tan

Quill

Museum

April

Lore #1

Lore #2

Lore #3

McQuillan

16

20

8

15

20

1

1

1

313

1258

1391-1398

1223

1226

575

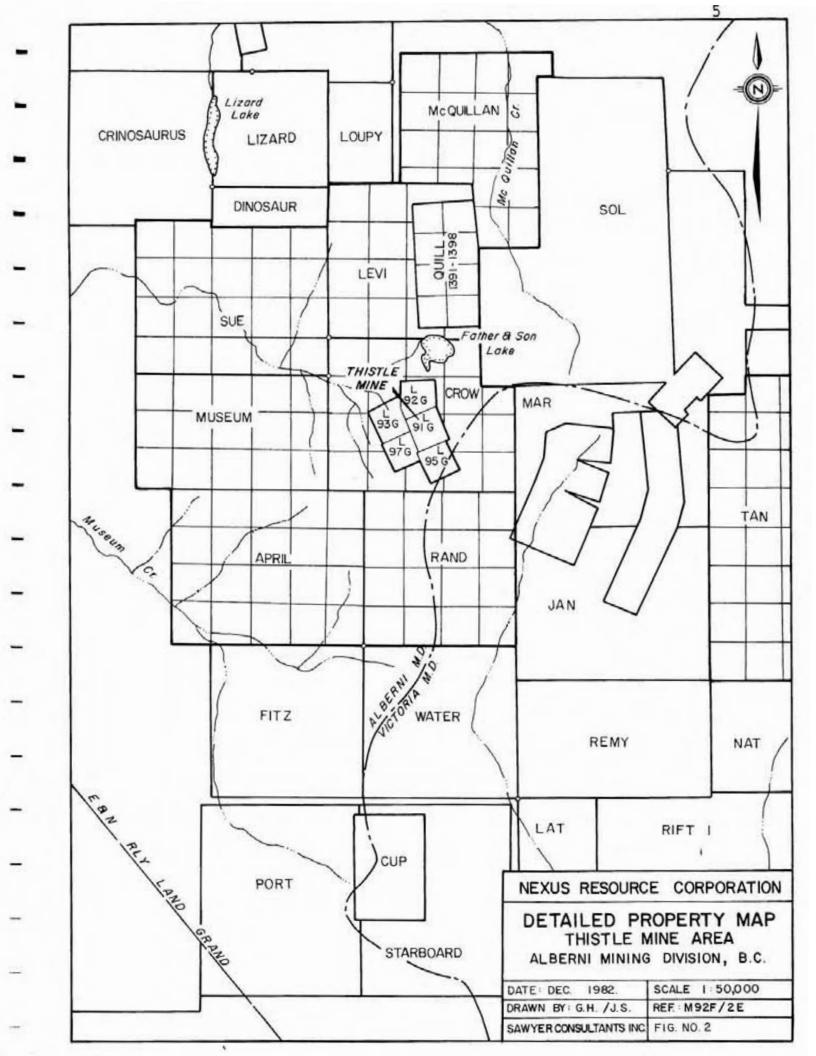
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Other claims staked in the area and controlled by Nexus

The Lore #1, #2 and #3 claims although not shown on the Government or enclosed maps (Figure 2) were staked to cover a fraction between the Mar and Crow claims.

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## HISTORY

Mineral prospecting and production from the China Creek/ Franklin Creek areas was initiated in 1862 with placer gold mining. At the turn of the century hard rock prospecting began and resulted in the discovery of sporadic preliminary development of eight properties to 1940. Recorded production to 1945 from the area totalled about 8400 tons of ore containing 3200 ounces of gold, 3000 ounces of silver, and 300 tons of copper. These properties have been recorded as two types; volcanic hosted gold polymetallic quartz veins and replacement skarn (Thistle). The two main production areas at the Thistle Mine area were mined from 1938 to 1942. 6867 tons of high grade ore containing 2667 ounces of gold, 1667 ounces of silver, and 626,556 pounds of copper were shipped.

The Thistle claims were originally staked in 1896 and before the turn of the century the 300 and 500 adits had been driven under the showings now exposed by open cut workings. The first road access was provided in 1901 from the Alberni Inlet to the mine. The property lay dormant until 1938 when a local group finished the road and increased the length of the adits. This same group produced and shipped the above mentioned tonnage. The property was idle to 1960 but for a minor amount of blasting and prospecting by various interested parties.

In 1960 Gunnex Limited completed geochemical and airborne magnetic surveys over the present claim area. Nothing warranting advanced exploration was noted. In 1966 Vananda Explorations Ltd. carried out ground geochemistry and magnetic surveys in the Thistle

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Mine area that resulted in the drilling of four diamond drill holes. Some of this core is still evident at the production site. The anomalies that were found and tested were attributed to "concentrations of iron pyrite" and no further consideration was given to the area.

In October 1979 and 1980 reconnaissance geochemistry was carried out by Glen E. White Geophysical Consulting & Services Ltd. for Kargen Development Corp. and McQuillan Gold Ltd. respectively. A good copper geochemical anomaly was outlined on the southeast corner of the Levi claim north of and along the geological trend of the Thistle Mine. The copper is in the order of 10 times background and roughly parallels the last 1000 metres of the TM50 spur road. This would appear also to parallel the upper to middle Sicker stratigraphy. Several copper showings were also noted in the area by Laanela. The 1980 work reconfirmed the presence and magnitude of this anomaly.

In 1981 Western Geophysical Aero Data Ltd. carried out an airborne VLF-EM and magnetic survey of the Crow, Levi, Sue, Mar, Jan, Rand, and Remy claims for McQuillan Gold Ltd., Oliver Resources Ltd., and Jan Resources Ltd. Coincident anomalies were outlined adjacent a number of known prospects including the Thistle Mine. Detailed geophysical ground checks in this area were not completed until recently.

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# GEOLOGY REVIEW

# Regional Geology

The regional geology has been reviewed in numerous other Sawyer Consultants Inc. reports the most recent of which is September 30, 1982 to which the reader is referred for detail.

### Local Geology and 1982 Mapping

Detailed grid mapping was carried out by W.C. Day for Sawyer Consultants Inc. during the period November 2, 1982 to November 9, 1982. The rock types encountered during the field program include andesites, volcaniclastics, intrusive dykes and limestones with minor argillite.

The andesitic volcanics traversed in the field were thought to be representative of the Nitinat Formation. They are herein considered as Lower Myra Formation. In general they are massive and may range from aphanitic to coarse grained. Pyroxene phenocrysts are often present and may reach 4 mm in size which lends a porphyritic texture to the rock. Brecciation is common and mode of occurrence indicates that it results from flows. Flow characteristics are present in only a few areas. The colour of these rocks is generally green though alteration may cause some variation. Alteration is indicated by silicification, epidotization and carbonatization. Hematite is commonly found along fracture faces.

The volcaniclastics that were located in the area are represented by massive and banded cherty tuffs. These rocks are considered to represent the Upper Myra Formation which is defined as thick bedded volcaniclastics (Muller, 1980).

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Exposures to these rocks were found in only two localities and their relationship to the andesites is not obvious in these outcrops. It appears, however, that the deposition of volcaniclastics was at least initially periodic. During the final stages of the extrusive volcanism represented by the andesites more quiescent periods may have enabled deposition of the clastics. As volcanic activity continued to become less extrusive in favour of exhalative events this ratio of andesites to volcaniclastics would diminish. During the initial stages of change, however, a repeated section of flow and exhalative deposition representing each pulse would likely occur. This may explain why andesites overlie the tuffs in sample areas 4-1, 4-2.

There appears to be significant dislocation and rotation in the two outcrops cited which may be explained by faulting. If this is the case then the underlying andesites likely have experienced equivalent faulting and rotation.

The intrusives in the area consist of trapp and aplite dykes. The trapp dykes are aphanitic, black and may be flinty due to silicification. The aplite dykes which have been tentatively mapped as rhyolitic in composition are intensely fractured, aphanitic and leucocratic with high silica content. Another intrusive body possibly exists in sample area 4-4. This area, 50 metres along strike, was where one of the aplite dykes samples was taken from (4-3) in outcrop of pyritized andesite in a pyritized leucocratic dioritic textured rock. The contacts between the two appear to be gradational. The leucocratic rock is considered to be an altered silicified equivalent to the andesite and not an intrusive, although the cause of this alteration is not apparent.

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The limestone bodies where they occur appear to be of local One body outcrops approximately 75 metres north of areal extent. the Thistle Mine workings and the other is located about 300 metres south of the entrance to Father & Son Lake. These formations are crystalline and weathered surfaces indicate the presence of fossil These fossils indicate that they are biogenic limestones structures. and they are not chemical precipitates associated with volcanism. Since they appear to be enclosed within the andesites they may have grown as small atoll type bodies in shallow waters around the vent during dormancy of the volcanic activity, or they may have been deposited in proximity to deeply submerged vents made possible by the nutrient rich warm water resulting from mild undersea volcanism. Should these limestones prove to be associated with vents and not remnants of the Buttle Lake Formation they may be valuable in locating vents.

### Mineralization

The mineralization in the area appears to be (a) fault/shear related, and (b) stratiform. The mineralization in the mine appears to be dominantly fault/shear related but also shows stratiform control of the same nature as that found outside of the mine area. In the easterly face of the upper open pit 10 feet of outcropping material demonstrates a possible cogenetic or very nearly syngenetic mode. The mineralization clearly crosscuts the stratiform limy tuffaceous argillites but the deformation appears to be that of a soft sediment type rather than in lithified material. In some instances mineralization appears to follow a bedding plane whereas the crosscutting "vein"

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type does not appear to have highly altered surrounding rock and it does form large pods of higher grade material on occasion. Ten feet of this face assayed 0.98% copper and 0.025 oz./ton gold. Similarly at the top of the formation where the rhyolitic tuff overlies the limy argillites there are minor shears and some pyritization both along the contact and in the tuff. A sample across 3 feet of this contact and including the sulphide areas analyzed very low in base and precious metals. The remobilized shear material in the lower open pit on the north wall is a remnant of the higher grade mineralization that was mined from both pits. Clearly the faulting and shearing has resulted in a partial remobilization and concentration of the economic elements. Six feet of mineralization across this sheared area ran 2.69% copper and 1.12 oz./ton gold with 0.89 oz./ton silver. Lead and zinc again were virtually non-existent. Therefore in terms of high grade mineralization and the mining that has been carried out to date the sheared and remobilized mineralization creates the most attractive target. However, mineralization in the source rocks, i.e. the limy tuffaceous argillites, could represent a lower grade but much greater tonnage along that horizon.

Mineralization located outside the mine area was found to be very finely disseminated. The most common sulphide mineral was pyrite which can be found throughout the area as very sparsely disseminated crystals. Significant very finely disseminated mineralization was located in only a few areas and more specifically in samples 1-1, 2-1, 2-4, 2-5, and 5-1. Pyrite also predominates in these samples with secondary chalcopyrite also being evident. A sooty, very fine grained material is also present which was tentatively identified as

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sphalerite. Zinc geochemistry would suggest that it is not. The physical appearance therefore suggests specularite or hematite.

The mineralization appears to be stratiform with the mineralized zone trending about  $310^{\circ}$  and dipping at  $20^{\circ}-35^{\circ}$  northeasterly into the hillside. This attitude is particularly evident in sample 1-1. The distribution of the mineralization indicates that the sulphides are for the most part confined to a particular andesitic flow or to a particular horizon or zone within a flow. The trend between samples 1-1 and 2-1 appears continuous. Sample 5-1 may be a faulted down equivalent, and samples 2-4 and 2-5 appear to be consistent or slightly dislocated from the trend implied by samples 1-1 and 2-1. The mine area may be another section of the same trend which has been faulted down as in the case at 5-1.

The geochemical results summarized in Appendix I indicate that the banded fine pyritic mineralization, i.e. 1-1, does not carry appreciable base or precious metals. However, a schistose or sheared version of the same lithology further south demonstrates slightly anomalous gold geochemistry. At location 4-4 564 ppm copper and 80 ppb gold are reported. These are clearly anomalous and demonstrate that mineralization can occur in other areas other than the mine area and that the copper/gold relationship is a relatively consistent one. Aphanitic dyke rock in proximity to this area runs 20 ppb gold but with anomalously low base metal values. Finally, 430 ppm copper and 30 ppb gold were recorded in the sheared rhyolitic(?) rocks outcropping in the road in the bottom of the Franklin River basin. This represents an appreciable 200 foot (outcrop) area that has been exposed by the road washout. The relationship of this material to

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the stratigraphy is not clear although this is downfaulted material in relation to the mine area and the east slope of the Franklin basin. Mixed tuffy argillites not far down the road suggest that this may be a horizon similar to that at the mine area.

The interesting mineralization appears, from these results, to be primarily shear related for high grade mineralization but sulphides and related gold do appear to be consistent along a particular horizon and in a particular rock type. Pyritized horizons within the massive andesite flows are only slightly anomalous in gold. High copper does, however, appear to correlate with high gold values. This then makes the 1979 anomalous soil geochemistry of great interest.

#### Structure

The area investigated is structurally very complex with faulting and/or shearing predominating. Faulting appears to be far more intensive than that indicated in the literature. Two directions of faulting appear to dominate, the first and strongest being in a northerly direction and the second being northeasterly. The cliffs and rock faces in the area studied are considered to be a result of the northerly trending fault and have been further complexed by the northeasterly faults. Both are considered to have played a major part in the dislocation of the mineralized horizon. The northerly trending faults may have caused slumping as outlined in a report prepared by Sawyer Consultants Inc. on September 30, 1982 and the northeasterly faults may have caused horst and graben type movement.

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This complimentary fault system has produced discontinuous blocks and displaced stratigraphy especially in the vicinity of the mine and Father & Son Lake. This may have resulted in the truncation of the continuation of the Buttle Lake Formation from Douglas Peak through the mine area. The mine is hosted in tuffaceous argillites underlying Buttle Lake (Father & Son Lake), and since Limestone Mountain limestone outcrops are some 400 metres higher in elevation it is evident that a true stratigraphic column across the Franklin River drainage basin cannot yet be interpreted. A less disturbed and unfaulted section is likely to be found on the Limestone Mountain side of the basin and also in the proximity of Douglas Peak and west from that point.

In tracing the desired anomalous horizon and therefore in the spotting of drill holes it is essential that the faulting at least be considered and, when possible, thoroughly interpreted in order to predict the location of mineral deposits. A perfect example of this is believed to be in the upper and lower open pits in the mine area. A reconstruction of this particular stratigraphy would likely place the upper and lower pit "deposits" in the same horizon. Downfaulting and slipping of the blocks has separated two parts of the same mineralized zone. In addition, the faulting and shearing has also reconcentrated and upgraded the economic elements of the lower grade mineralized horizon.

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#### GEOPHYSICAL AND GEOCHEMICAL SUMMARY

The following comments summarize the report of geophysical and geochemical surveys carried out by Glen E. White Geophysical Consulting & Services Ltd. dated November 23, 1982. These surveys included pulse E.M., time domain induced polarization, and magnetics.

Firstly, the pulse E.M. survey failed to provide any high priority targets as horizontal field cross overs were not evident. Weak response in the vertical component is coincident with the upper glory hole mineralization and trends to the northeast and then northwest. These also coincide with downslope geochemical highs.

Time domain induced polarization provides a consistent moderate response across five lines. A significant trend strikes northnortheast through the lower glory hole and swings north-northwest. This zone would coincide with the heavily mineralized shear through the lower glory hole as both dip westerly. A second northerly trending anomaly occurs above the old workings. The strongest response of 12.7 milliseconds is recorded on the fourth separation and appears to be in line with a northerly trend from the upper glory hole area. Very low resistivities in the line where this response occurs suggests that penetration due to conductive overburden may not be correlatible with that of adjacent lines. In terms of known stratigraphy and the downslope geochemistry this area demonstrates the best potential for tracing mineralization similar to the stratabound type in the upper glory hole.

Previous drilling by Vananda Exploration appears to have been located on the same targets from anomalies produced by an S.P.

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survey. These proved to have been caused by "concentrations of iron pyrites." The induced polarization survey has served to delineate the major northwest trend.

Magnetic surveying has also produced an interesting but very limited response to the east and to the periphery of the northnortheasterly trending 1.P. anomaly. Local one reading highs of 500 gammas above background are indicated. Local response could be caused by concentrations of magnetite and/or pyrrhotite that are known to exist locally in the ore or by some of the diabase dykes that are also known to occur in the area.

Geochemical analyses were carried out on the same lines that geophysics was completed on. The most promising results are indicated by values of greater than 240 ppm copper. A trend directly to the north and slightly to the east of the upper glory hole is represented by what must be considered as downslope highs of 490 ppm on Line 3N and 780 ppm on Line 4N. These would then approximately coincide with the north trend of the 1.P. results but are displaced some 100 metres downhill. These results then also indicate similar magnitude to the 1979 results acquired further to the north and west along the westerly slope of Douglas Peak. Interpretation of these results is complicated by the extremely steep terrain but reasonable trends are indicated from this limited sampling (Figure 6).

The geophysics and geochemistry were not completed over an area that was initially recommended. Only two separations of induced polarization were completed due to various difficulties encountered on site. Any future work must therefore include at least

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four separations in order that interpretation of the dips and strikes of the zones can be approximated. It is also recommended since the association of gold with high copper in mineralized areas appears to be consistent that soil samples also be run for gold.

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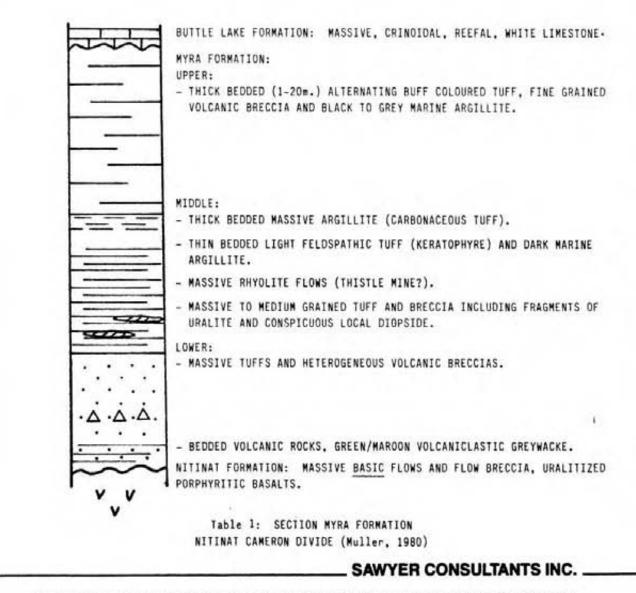
#### INTERPRETATION (Figures 6 and 7)

Figure 6 is a rough interpretation and compilation of geology, geophysics and geochemistry. Coincident anomalous characteristics of all three techniques have resulted in the location of six possible drill holes at four sites. The key determining factor at this point has been geophysics and most particularly high chargeability response in the 1.P. Past drilling by Vananda Explorations Ltd. was logged by Hemsworth (1966) and sections of those logs are provided in Figure 7. Unfortunately the logs were completed with the view of "replacement" type mineralization in mind. As such no stratigraphic descriptions or data were noted and no assays or geochemical analyses have been provided for further interpretation. In addition, the rock types as described by Hemsworth have tended to continue to support the view of a replacement and skarn genesis for the mineralization. This has been based on the occurrence of a high percentage of diopside and the supposed occurrences of limestone at the mine area. The occurrence of diopside is now recognized as not being only indicative of skarns. The buff, massive material overlying this diopside in the mine area is rhyolitic in composition. Therefore, given these factors and the brief research carried out on massive sulphide deposits in the area, and on the Sicker Group itself, plus a certain degree of confirmation with Westmin Resources geologists, the volcanogenic model is now considered. The following key characteristics supporting this hypothesis can now be documented.

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 The Myra Formation acid volcanic equivalents exist in the Thistle Mine area.

The following rough section of the Myra Formation is provided as a guide to the Thistle Mine area. The key elements depicted in this section are known to exist but their inter-relationship is assumed. Key outcrops of the thick banded tuff are noted to occur along the road to the north and west of the mine area. Differentiation between the thick and thin banded tuffs has not been substantiated. Thick bedded massive argillite (noted to be carbonaceous by Muller and Seraphim) is not noted in the area although mention of dark



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argillaceous material is made by Hemsworth. It is of great importance that the thin bedded feldspathic tuff is reported to be keratophyre by Muller, probably representing a very distal phase of an acid extrusive. The more proximal massive rhyolite flows are identified in the Thistle Mine area and are believed to lie within and near the contact with the lower Myra Formation. This consists of the more coarse grained and massive breccias and tuffs that are reported to contain breccia fragments of uralitized basalt probably from the Nitinat Formation as well as conspicuous local diopside. The marker horizon between the Nitinat and the Myra is noted to be the green and maroon volcaniclastic greywackes which are not seen in outcrop. It is therefore expected that even though Muller has mapped this area as Nitinat Formation this may represent an area of greater thicknesses of the lower Myra Formation. Flow structures, schistosity and bedding have been noted in these rocks in the 1982 mapping.

(2) The mineralization in the Thistle Mine area is not replacement as originally thought but is controlled by volcanic venting in a sub-marine environment.

Massive sulphide mineralization in general and more specifically within the Western Mines district are described to include basal stringer pyrite, chalcopyrite ore as well as massive pyrite ore and massive pyrite/chalcopyrite ore. Others include banded galena, sphalerite, pyrite which is not known to occur in the Thistle area. The most striking feature of the Thistle Mine area is the association of chalcopyrite and pyrite with the very high values in gold. The average grade for the reserves at Westmin were reported as 0.06 oz./ton

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gold for 1.6% copper plus other elements in 1980. The Myra High Grade Zone, however, has produced an average grade of 0.21 oz./ton gold for 0.8% copper plus other elements.

The material that was mined in the Thistle Mine area is thought to be within a minor vent system. Overlying and some distance from this system are indications of similarly banded pyrite. This is noted at surface in the mapping as well as being reported by Hemsworth as "narrow bands of pyrite" in drill core. Seraphim states that "in the main Myra vent stope ... chalcopyrite predominates as veinlets, small masses and disseminations in the matrix of the schistose breccia fragments at depth within the core of the vent." Although other minerals such as sphalerite and galena are not evident at the Thistle Mine it appears that under certain conditions this type of mineralization may occur exclusively.

(3) The recommended Phase I of the 1980 program has successfully supported the hypothesis of massive sulphide potential on the Thistle Mine property and has indicated a number of good drill targets.

Although the entire program was not completed as originally recommended work that has been done demonstrates mineralized trends and anomalous geology. The drilling as recommended herein will be directed at the delineation of ore but of great additional importance is the collection of stratigraphic information and the completion of petrographic studies in order to interpret further the favourable horizons for mineralization.

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# PHASE 11 PROGRAM

The preliminary and Phase I results already obtained indicate a good probability of defining an extension of the coincident geophysics and geochemistry of Line 3N. There is also reason to anticipate that the geochemistry anomaly from the 1979 work will prove to be an extension of geochemistry on the Thistle area. Given the delineation of a geochemical and geophysical coincidence with geological support a preliminary drilling program totalling an estimated 1000 feet will be required to test the validity of these anomalies. Figure 6 indicates the proposed drill hole locations. They are:

Hole	Location	Depth	Dip	Azimuth
DDH 83-1	3+00N, 2+75E	500 feet	90°	-
DDH 83-2 (Optional)	3+00N. 2+75E	500 feet	65 <sup>0</sup>	270 <sup>0</sup>
DDH 83-3 (Optional)	4+00N, 3+00E	500 feet	90 <sup>°</sup>	-
DDH 83-4 (Optional)	4+00N, 3+00E	500 feet	60 <sup>0</sup>	270 <sup>°</sup>
DDH 83-5	4+00N, 0+00 (Road)	500 feet	60 <sup>0</sup>	0°
DDH 83-6 (Optional)	Road Grid, 4+00E	500 feet	60°	90 <sup>0</sup>

Optional holes represent targets that should be tested given favourable preceding results and proper financing. Immediate high priority holes are 83-1 and 83-5 totalling 1000 feet (Figure 6).

Provision is made for the geophysics and line cutting recommended in Phase I but not completed as part of that phase.

The initial work carried out for Kargen Development Corp. in 1979 and confirmed by similar work carried out by McQuillan Gold

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Ltd., indicates that extended follow-up is required along the southwest slope of Douglas Peak. Ten times background geochemistry in copper with occasional zinc coincidence and isolated VLF-EM crossovers suggest that more extensive deep penetration geophysical surveying, mapping, and trenching is warranted. Due to the change in orientation of stratigraphy to west-northwest it is recommended that an additional 15 line kilometres of 1.P. be completed on north-south oriented grid lines in the area of the copper geochemical anomaly. This work can be carried out as a direct and continued extension of the Thistle area work provided that a favourable response is obtained in the Thistle survey.

Additional cat trenching is also recommended with followup mapping and sampling where indicated.

Geochemical data for this area is already sufficient.

Phase 111

A third phase for the Thistle area assessment is recommended again given that results from Phase 11 have proved encouraging. The results provided by Phase II geophysics and geology are expected to increase the number of drillable targets. Provision is, therefore, made herein for the completion of an additional 4000 feet of drilling at an estimated total cost of \$44.50 per foot, or \$178,000.00.

Detailed budgeting and scheduling will be required following the assessment of the first phases.

The following cost estimates and schedule are provided for review by the project manager prior to Phase II implementation.

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**Cost Estimates** 

# Phase 11

Mobilization/Demobilization including 7 hours Hiller helicopter time		\$ 5,000.00
1000' BQ Core Drilling @ \$30.00/foot including support facilities and materials		30,000.00
Geological Work and Supervision 14 days @ \$250.00/day		3,500.00
Analyses (Geochem - Pb, Zn, Cu, Au, Ag) 100 samples @ \$13.35/sample		1,335.00
Sub total (Drilling) excluding Consulting Project Management and Contingency		\$39,835.00
Linecutting 14 man days @ \$125.00/man day		1,750.00
Geophysics - 15 km. 1.P 7 days @ \$1,300.00/day \$ 9,100.0 Magnetics - 4 days @ \$125.00/day 500.0 Down-hole 3,000.0 \$12,600.0	0	12,600.00
Geology and Sampling (in addition to drill supervision) 7 days @ \$250.00/day \$1,750.0 Assays (Au, Ag, Pb, Zn, Cu) 25 samples @ \$33.50/sample <u>837.5</u> <u>\$2,587.5</u>	0	2,588.00
Trenching 20 hours @ \$100.00/hour including operator and fuel		2,000.00
Transportation Truck rental (4x4) two weeks plus fuel		500.00
Consulting, Project Management 10 days @ \$400.00/day \$4,000.0 Report costs 1,500.0 \$5,500.0	0	5,500.00
Sub total		\$64,773.00
Contingency @ 15%		9,700.00
Total Phase II	Say	\$74,500.00
		Contraction Contraction of Cold State

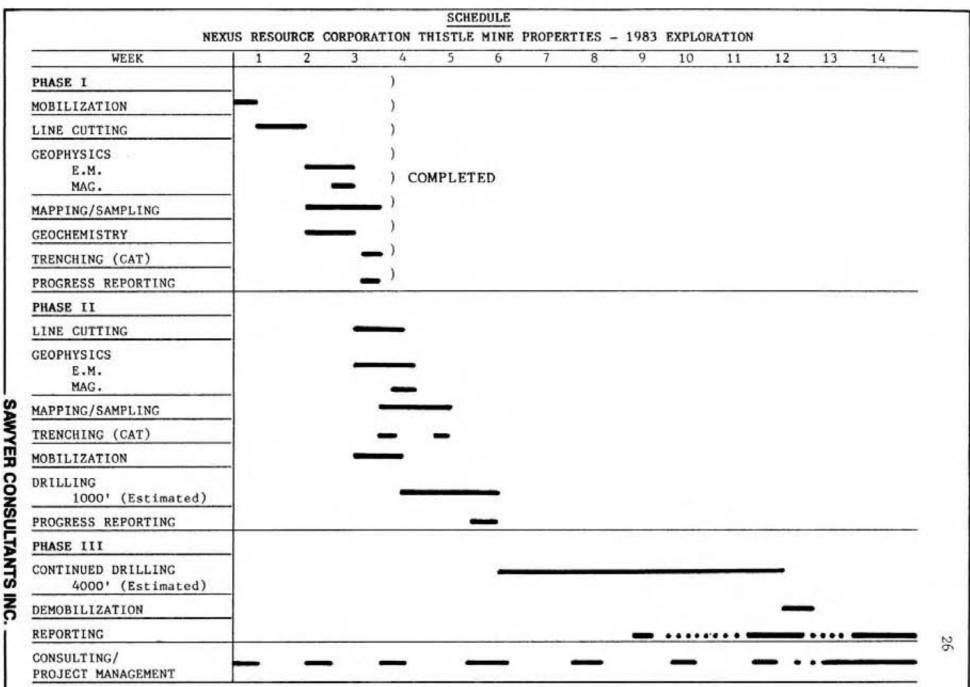
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Phase 111

Cost estimates for Phase 111 below are provided	d as a pre-
liminary estimate only but indicate the cash requiremen	it should a
continuous program be warranted and desirable.	
4000' BQ Core Drilling @ \$30.00/foot including support facilities and materials	\$120,000.00
Geological Supervision 30 days @ \$250.00/day \$7,500.00 Field costs for geologist 30 days @ \$75.00/day 2,250.00 \$9,750.00	9,750.00
Assaying (Pb, Zn, Cu, Au, Ag) 150 samples @ \$33.50/sample \$5,025.00 Detailed rock and ore studies 1,500.00 \$6,525.00	6,525.00
Down-hole Geophysics	10,000.00
Consulting, Project Management 12 days @ \$400.00/day \$4,800.00 Field costs 1,000.00 Report costs (data compilation, drafting, reproduction, typing) 2,500.00	
\$8,300.00	8,300.00
Sub total	\$154,575.00
Contingency @ 15%	23,200.00
Total Phase III Say	\$178,000.00

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#### CONCLUSIONS

- (1) Elements of a volcaniclastic suite occur between the massive crystalline limestone of the Buttle Lake Formation and lower massive andesitic flows of the Nitinat Formation in the area of the Thistle Mine. These are believed to be Myra Formation equivalents and consists of chert, cherty tuff and limy tuffaceous argillites and rhyolite tuffs.
- (2) The overall thickness of this acid volcaniclastic pile is in the order of 100-200 feet(?) in the mine area.
- (3) The measurement of the thickness of this pile in the area of the Thistle Mine and below Father & Son Lake is very difficult. Intense faulting has resulted in a great disruption of the Myra and Nitinat Formations stratigraphy.
- (4) High copper geochemistry is related to copper mineralization at the top of the Nitinat and along this horizon. The rock geochemistry that demonstrates anomalous copper also carries anomalous gold values. This is consistent with mineralization that occurs locally in the Thistle Mine.
- (5) Previously mined mineralization in the Thistle Mine area is a reconcentration of copper, pyrite, magnetite, pyrrhotite, and gold and silver along shear zones that cut the lower grade mineralized limy argillaceous tuff. It is therefore anticipated that it is possible to:
  - a) trace the lower grade mineralization along this zone and within this stratigraphic horizon; and
  - b) to find higher grade concentrations of mineralization within the horizon in sheared and faulted sections.

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(6) The high copper/gold geochemistry found in the road rocks in the bottom of the Franklin basin are most interesting. The stratigraphic sequence that is represented on the Thistle Mine side of the basin is expected to be repeated on the Limestone Mountain side although block faulting and disturbances evident around the mine are possibly not as evident on the other side thereby making the mapping somewhat easier. This again is likely to be the case in the area directly below Douglas Peak.

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# RECOMMENDATIONS

- (1) Since the Phase I work has indicated favourable results continued and extended geochemistry, mapping and geophysics totalling 15 line kilometres is recommended.
- (2) Six drill holes from four drill sites are also recommended. The two high priority holes total 300 metres (1000 feet).
- (3) This Phase II work is estimated to cost \$74,500.00 to be spent over 3.5 weeks.

# Respectfully submitted,

INC. SAWYER CONSULTANTS Hawkins F.Geol. TO

# SAWYER CONSULTANTS INC.

### CERTIFICATE

1, T.E. Gregory Hawkins, DO HEREBY CERTIFY:

- That I am a Consulting Geologist, of Sawyer Consultants Inc., with business offices at 1201 - 675 W. Hastings St., Vancouver, British Columbia, V6B 1N2.
- (2) That 1 am a graduate in geology of The University of Alberta, Edmonton (B.Sc. 1973), and of McGill University, Montreal (M.Sc. (1979).
- (3) That I have practised within the geological profession for the past twelve years.
- (4) That I am a Fellow of the Geological Association of Canada and a Professional Geologist registered in the Province of Alberta.
- (5) That the observations and recommendations described herein are based upon related and specific 1982 field work carried out by myself and W.C. Day on the Thistle property, and on research and previous work carried out by Sawyer Consultants Inc.
- (6) That 1 own no direct, indirect, or contingent interest in the properties in or around the area, or in Nexus Resource Corporation or associated companies.

GEOLO F.Geol. Hawkip TO

Dated at Vancouver, British Columbia this 31st day of December, 1982.

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#### BIBLIOGRAPHY

Hawkins, T.E.G., 1982: Report with Recommendations for the Thistle Mine Property for McQuillan Gold Ltd.; Sawyer Consultants Inc., Sept. 30, 1982. Sicker Group of Vancouver Muller, J.E., 1980: The Paleozoic Island, British Columbia, GSC Paper 79-30. Seraphim, R.H., 1980: Western Mines Myra, Lynx, and Price Deposits; CIM Bull. December 1980, pp. 71-108. White, G.E., 1982: Geophysical Report for McQuillan Gold Ltd.; Glen E. White Geophysical Consulting & Services Ltd., Sept. 27, 1982. -----. 1980: Geophysical-Geochemical Report for McQuillan Gold Ltd.; Glen E. White Geophysical Consulting & Services Ltd., July 21, 1980. Geochemical Report for Kargen Development . 1980: Corp.; Glen E. White Geophysical Consulting & Services Ltd., February 5, 1980. -, 1981: Geophysical Report on an Airborne VLF-Electromagnetometer and Magnetometer Survey for McQuillan Gold Ltd., Oliver Resources

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Ltd., Jan Resources Ltd.; Western Geophysical Aero Data Ltd., April 8, 1981.

# APPENDIX 1(a)

Summary of Costs and List of Personnel (for Assessment Purposes)

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APPENDIX 1(a)

# SUMMARY OF EXPENDITURE

Project Consultant	
Field trip Sept. 23, 1982, project proposals, field work Oct. 29 to Nov. 2, 1982,	
report preparation Dec. 1 to Dec. 31, 1982	\$ 6,910.00
report preparation beer 1 to beer or, 1902	• •,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
Project Geologist	
Field mapping and sampling	
Nov. 2 to Nov. 9, 1982	2,700.00
Field European (including mobilization	
Field Expenses (including mobilization and demobilization	676.93
Truck rental	594.32
Fuel	130.82
r det	
Analyses	352.70
Report Preparation Costs - telephone, typing, drafting, copying, miscellaneous	2,326.42
draiting, copying, miscenaneous	2,320.42
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\$13,691.19

W.B. Kraigsley, President Nexus Resource Corporation 206 - 475 Howe Street Vancouver, B.C. V6C 2B3

# SAWYER CONSULTANTS INC.

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APPENDIX 1(a)

### LIST OF PERSONNEL

T.E. Gregory Hawkins, P.Geol.

Project consulting, report preparation

15 days @ \$400.00/day

\$6,000.00

910.00

13 hours @ \$70.00/hour

\$6,910.00

W.C. Day, P.Geol.

Project geologist

9 days @ \$300.00/day

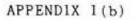
\$2,700.00

Kright

W.B. Kraigsley, Bresident Nexus Resource Corporation 206 - 475 Howe Street Vancouver, B.C. V6C 2B3

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Sampling Summary, Assay Certificates

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			-		EOCHI	• •		
C	Location	Description	Cu	Pb	Ag Au			
Sample No.	(Fig. 3)	Description	ppm	ppm	2n ppm 67	.2	5	
63058	TM 1-1	Andesite - fine to coarse grained; silicified; grey/green; minor carbonate filled hematite stained fractures; minor epidotization. Abundant very fine grained sulphides; disseminated; dominantly pyrite with chalcopyrite and sooty sphalerite?	82	11				
63059	TM 1-2	Andesite - slightly schistose; green; minor carbonate blebs and small quartz eyes; some fractures hematized.	36	5	62	.3	5	
63060	TM 1-3	Andesite - green; fractured; minor carbonate. Minor very fine grained disseminated sulphides; pyrite and chalcopyrite?	106	6	65	.3	5	
63061	TM 1-4	Limestone - light grey; crystalline; few fossils in relief on weathered surfaces.	6	9	17	.6	5	
63062	TM 1-5	Andesite - green; coarse grained, few quartz eyes; abundant pyroxene phenocrysts with some greater than 3 mm.	74	6	68	.4	5	
63063	TM 1-6	Andesite – green; fine grained; silicified; quartz eyes; minor carbonate; epidotized fractures.	73	4	60	.3	5	
63064				4	24	.1	5	

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				GI	EOCHI	ΕM		
Sample No.	Location (Fig. 3)	Description	Cu ppm	РЬ ppm	Zn ppm	Ag ppm	Au pp	
63065	TM 2-2	Andesite - green, coarser grained pyroxene phenocrysts; minor carbonate veinlets and minor quartz veinlets.	64	5	82	.3	5	
63066	TM 2-3	Andesite – green; sub schistose; wetted fresh surface indicates breccia fragments. Minor disseminated pyrite crystals.	91	6	77	.3	10	
63067	TM 2-4	Andesite – green; coarser grained; pyroxene phenocrysts present; minor quartz veinlets; hematized fractures. Abundant very fine grained disseminated sulphides; dominantly pyrite with chalcopyrite, sooty sphalerite?	104	8	47	.4	15	
63068	TM 2-5	Andesite - grey/green; silicified with pyroxene phenocrysts; minor quartz and carbonate veinlets; hematized fractures. Very fine grained dis- seminated sulphides; pyrite with chalcopyrite and sooty sphalerite?	73	5	33	,1	10	
63069	TM 2-6	Andesite - green, fine grained; carbonate veinlets; quartz smears and veinlets. Disseminated pyrite.	62	2	70	.2	5	
63070	TM 3-1	Andesite - grey/green; silicified; fine grained.	10	4	35	.1	5	
63071	TM 3-2	Andesite – grey/green; silicified; minor pyroxene phenocrysts; quartz veining. Minor disseminated pyrite.	14	3	23	.1	5	
63072	TM 3-3	Andesite - green, coarse grained; pyroxene crystals.	63	3	86	.2	5	
63073	TM 3-4-	Andesite - green; sub schistose with definite grain in one direction; fine grained. Minor disseminated sulphides, pyrite and chalcopyrite.	52	8	60	.1	5	

				G 1	EOCHI	EM	
Sample No.	Location (Fig. 3)	Description	Cu ppm	РЬ ppm	Zn ppm	Ag ppm	Au ppl
63074	TM 4-1	<ul> <li>Andesite - outcrop variously: (over 2 m)</li> <li>a) green banded cherty volcaniclastic (303°/-80°N).</li> <li>b) green fine grained andesite with flow textures.</li> <li>c) brecciated cherty green andesite.</li> </ul>	117	4	93	.2	5
63075	TM 4-2	Andesite – green; coarse grained; minor carbonate veinlets.	16	3	51	.2	40
43235	TM 4-3	Rhyolite? dyke in andesite - both very heavily fractured; dyke 5 m wide 342°/-90°.	6	5	7	.1	20
43236	TM 4-4	<ul> <li>Variegated outcrop with gradational contact?</li> <li>or alteration.</li> <li>a) andesite - green, coarse grained; hematite fractures and sulphide burns. Disseminated pyrite crystals.</li> <li>b) andesite? - dioritic texture; silicified; leucocratic (bleached). Minor disseminated pyrite crystals.</li> </ul>	564	3	22	.3	80
43237	TM 4-5	Andesite – green; medium grained; sparse finer grained (<1 mm) pyroxene phenocrysts.	23	4	75	.3	5
· · · · · · · · · · · · · · · · · · ·		95	4	48	.2	5	

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Sample No.	Location (Fig. 3)	Description		Cu ppm	Pb ppm	Zn ppm	Ag ppm	Au Ppl
43239	TM 6-1	Rhyolite? dike. White to grey to grey/purpl andesite fragments; rusty on weathered surfaces. Very fine grained disseminated pyrite.	430	6 71		.6	30	
Sample No.	Location (Fig. 4)	Description	Au oz./ton	Ag oz./ton		1	РЬ %	Zn %
62964	Upper glory hole	Chip channel across 10' of east face upper glory hole, pyrite, chalcopyrite.	.025	.05		98	.01	.01
62965	Lower glory hole	Pyritic, chalcopyritic quartz vein above eastern edge of lower glory hole across 3".	.005	.03	.3	39	.01	.01
62965 62966		above eastern edge of lower glory	.005	.03		39 01	.01	.01

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ACME ANALYTICAL LABORATORIES LTD.

Assaying & Trace Analysis

852 E. Hastings St., Vancouver, B. C. V6A 1R6

phone:253 - 3158

82-1512 File No.

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Type of Samples \_ Rocks \_\_\_\_

## GEOCHEMICAL ASSAY CERTIFICATE

Disposition\_\_\_\_\_

SAMPLE No.	Cu	Pb*	Zn	Ag	Au ppb	
43235 43236 43237 43238 43239	6 564 23 95 430	5 3 4 4 6	7 22 75 48 71	.1 .3 .2 .6	20 80 5 5 30	
63058 63059 63060 63061 63062 63063 63064 63065 63066 63067 63068 63069 63070 63071 63072 63073 63074 63075	82 36 106 6 74 73 77 64 91 104 73 62 10 14 63 52 117 16	11 5 6 9 6 4 4 5 6 8 5 2 4 3 3 8 4 3	67 62 65 17 68 60 24 82 77 47 33 70 35 23 86 60 93 51	.2 .3 .6 .4 .1 .3 .4 .1 .2 .1 .2 .1 .2 .2	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	
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						DEAN TOYE, B.Sc. CHIEF CHEMIST CERTIFIED B.C. ASBAYER



To: Sawyer Consultants Inc.

Vancouver, B.C.

V6B 1N2

1201 - 675 W. Hastings St.,

ACME ANALYTICAL LABORATORIES LTD. Assaying & Trace Analysis



852 E. Hastings St., Vancouver, B.C. V6A 1R6 Telephone:253 - 3158

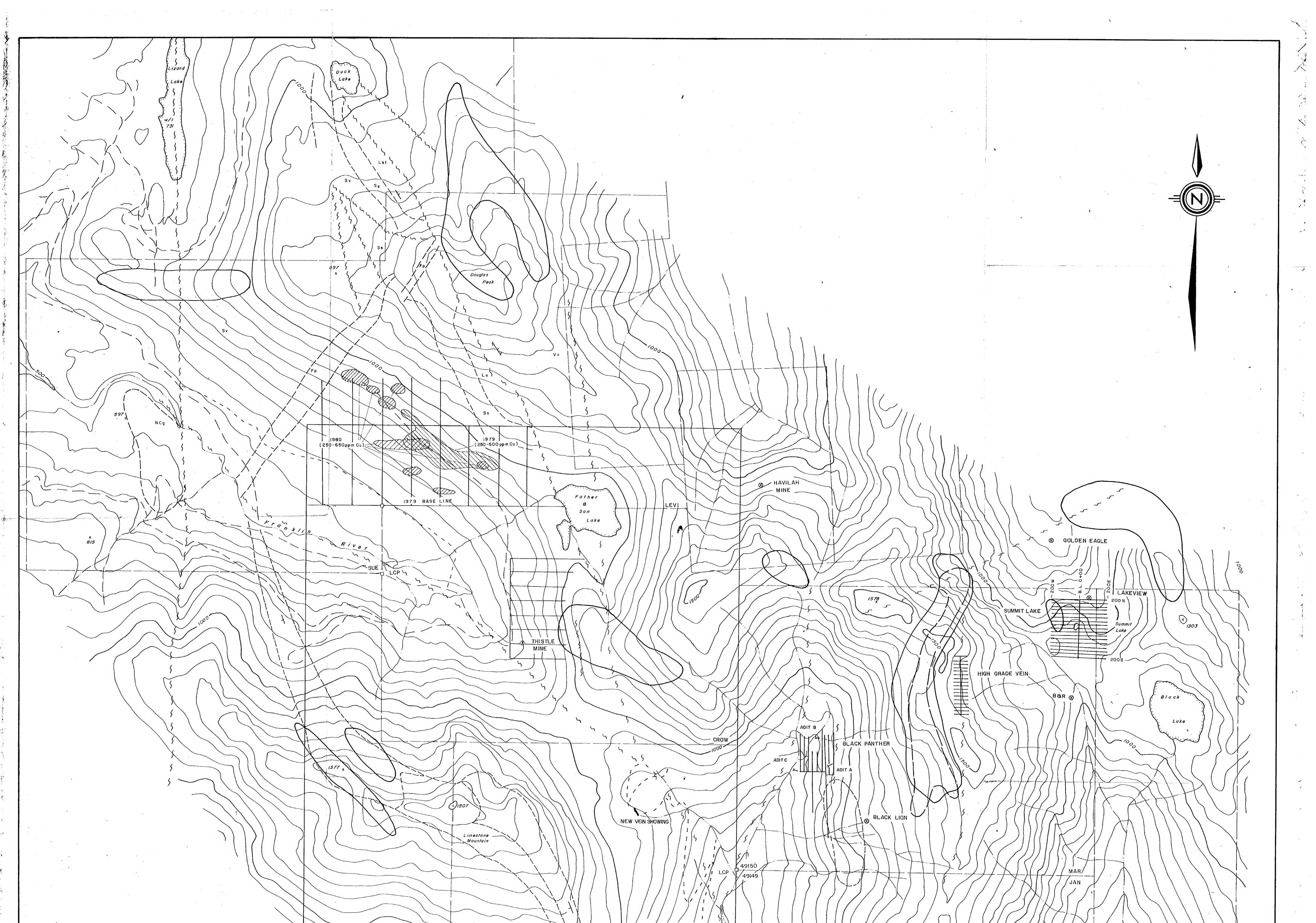
Vancouver, B.C.

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**ASSAY CERTIFICATE** 

Disposition\_\_\_\_\_

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No.	Sample	Cu%	Pb%	Zn%	Ag oz/ton	Au oz/ton		No.
1	62964	.98	.01	.01	.05	.025		1
2	62965	. 39	.01	.01	.03	.005		2
3	62966	.01	.01	.01	.01	.001		3
4	62967	2.69	.01	.01	.89	1.120		4
5						1.110		5
6								6
7								7
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### JURASSIC TO TRIASSIC

Vv Vancouver Group Massive basalt, amygdaloidal pillows, breccia minor andesite

### PERMIAN

### Sicker Group Sg

- Lst Limestone.Buttle Lake Formation
- Lst Limesrone. Ss Chert, cherty tuff, tuff Myra Formation (?)
- Sv Massive andesite to basaltic flows. Nitinat Formation pyroclastic breccia, minor jasper, chert tuff.

× 395

## .Fp Feldspar porphyry. Dacite dyke.

~~~~ Fault .

## GEOPHYSICS

- AIRBORNE MAGNETICS > 57 200 GAMMAS EM >10 % LOCAL FIELD INTENSITY ABOVE BACK GROUND GROUND VLF. EM. 1. P. MAGNETICS
- MINERAL SHOWING 8

### CONTOUR INTERVAL 40 METRES.

