## ASSESSMENT REPORT ON THE JACK MINERAL CLAIM NO.345(10) SKEENA MINING DIVISION, B. C.

55 56' North Latitude 129 44' West Longtitude N.T.S. 103 P 13 E

for

ZENORE RESOURCES INC. 1700-777 Hornby Street, Vancouver, B. C.

by

ALEX BURTON, P. Eng. Burton Consulting Inc., 5-924 West Hastings Street, Vancouver, B.C. V6C 124

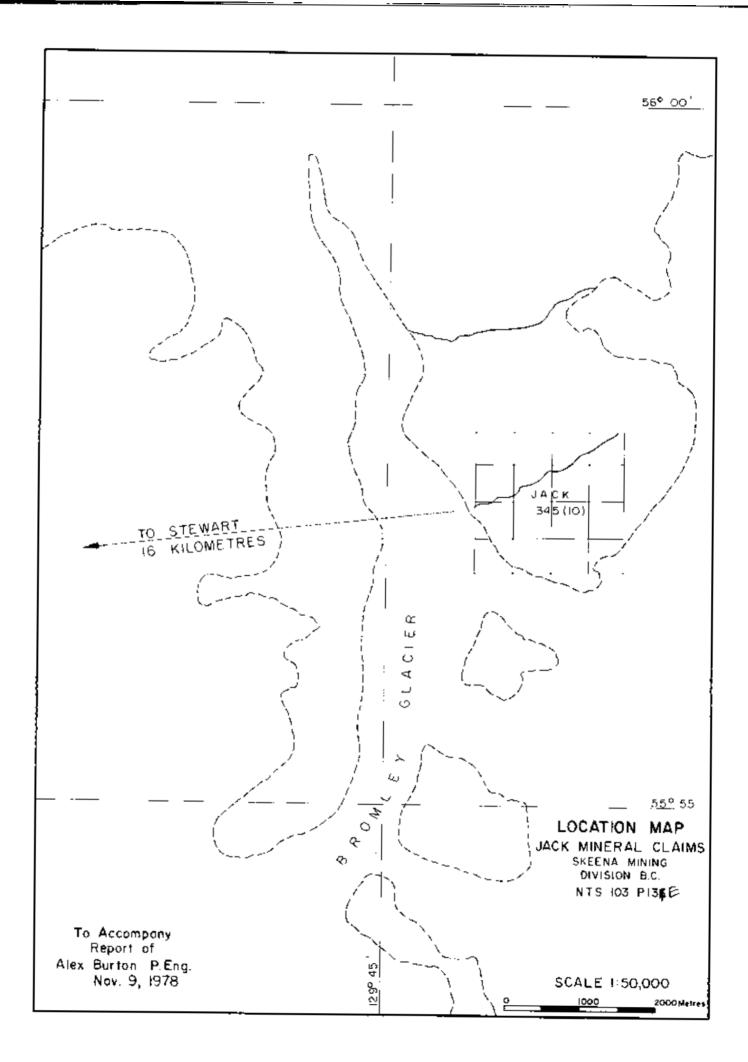
> MINERAL RESOURCES DRAMCH ASSEUSM AN REPORT

NOVEMBER 9, 1978

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#### LOCATION OF CLAIMS AND ACCESS

The Jack Mineral Claim No. 345 of 16 units is in the Skeena Mining Division some 16 kilometres due east of Stewart, B.C. The claim is at 55 56' North Latitude and 129 44' West Longtitude in N.T.S. co-ordinates 103 P 13 F.

The prospect is on the edge of the Cambria Snowfield off the Bromley Glacier which feeds Bitter Creek, a tributary of the Bear River.

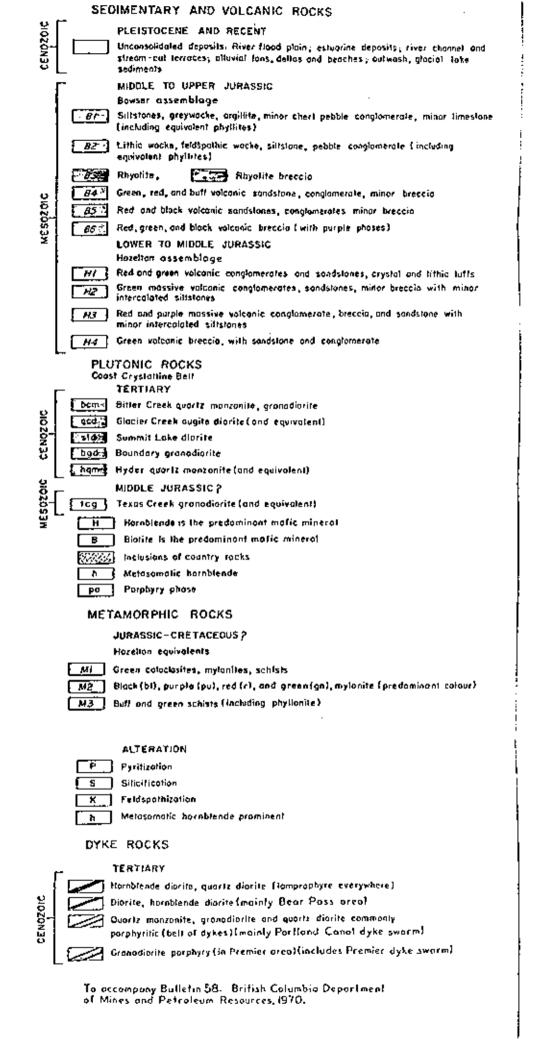
The easiest access to the claim is by a fifteen minute helicopter ride from the Vancouver Island Helicopter base at Stewart. There is a logging road up Bitter Creek Valley to within 8 kilometres of the property. The road could be extended to within two or three kilometres of either the hornblende porphyry in the Upper Bowl of Goldslide Creek or to the granodiorite at MacAdam Point if underground exploration or production was contemplated.

The camp in the Upper Bowl at 1500 metres elevation was used as a base for the 1978 exploration season as most of the work was done there.

#### HISTORY

The following excerpt from a report dated September 14, 1971, by M.P. Stadnyk, B.Sc., adequately describes the history:

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"The lower limits of the Bromley Glacier and upper reaches of Bitter Creek were explored by prospectors in search of gold in the early 1900's.

Since 1960 the ice level at Adam Point (sic) has dropped over 400 feet vertically and several hundred feet laterally.

In 1965, Messrs. Berkosha, Hutchings and Gilroy discovered and staked a molybdenum showing. The property was optioned by Hurley River Mines Ltd. (N.P.L.) and exploratory work was performed by Alrae Explorations Ltd. (geological mapping, hand trenching, sampling and diamond drilling). Diamond drilling was restricted to one Ax hole, 300 feet in depth. Eight men were employed over a 5 month period.

In 1967, Northgate Explorations Ltd. geologically mapped the property and a geochemical survey for copper, molyblenum and zinc was carried out. Five BQ diamond drill holes were completed, four in the cirque, and one near the edge of Bromley Glacier, for a total footage of 2,011 feet. Most of this 1967 work was concentrated in the Gold slide Creek cirque area."

The Jack Claim of 16 units was staked for Jack Howard on September 18, 1976 after the previous claims lapsed. Howard optioned the claim to Zenore Resources Inc. In 1977 the writer examined the claims and recommended a program of work. This work which was done in the 1977 season included the locating of the collars of the diamond drill holes drilled previously and the sampling and assaying of these holes. In addition the geology of the upper bowl and MacAdam Point was checked in the field and a map of the Upper Bowl prepared.

Inconsistencies in the geology noted during

the 1977 field work were the subject of the 1978 field work. Petrographic study of the hornblende porphyry and adjacent rock types was initiated and enough information gathered to justify a reinterpretation of the geology and economics.

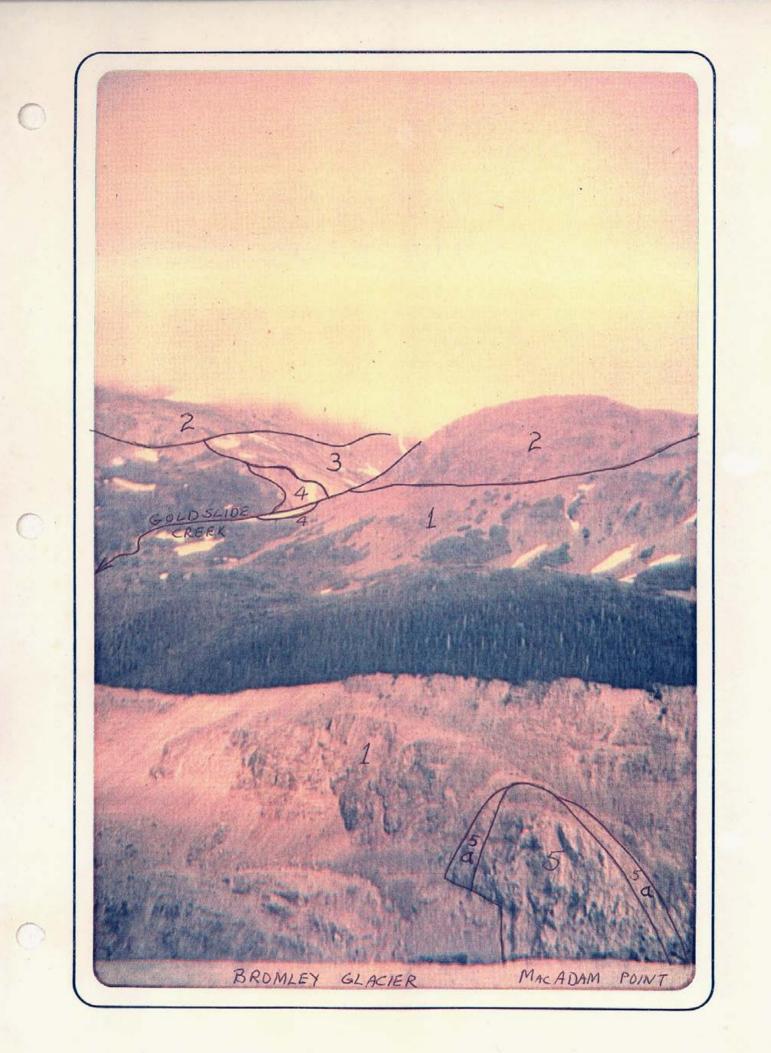
#### GENERAL GEOLOGY

The most comprehensive recent mapping in the Stewart district is the work done by E.W. Grove in B.C.D.M. Bulletin 58, 1971.

The eastern boundary of the area mapped in Bulletin 5 stops about eight kilometres west of the Jack Claim so no direct correlations can be made.

A traverse up Bitter Creek to the Jack Claim passes through the Bitter Creek intrusive stock. This is a "root" for some of the Portland Canal swarm of dykes which are well exposed on the west side of the Bromley Glacier (which is in Bitter Creek Valley) opposite the Jack Claim. There are few dykes from the Portland Canal swarm on the east side of the Bromley Glacier. On the east side of the Bitter Creek stock there is a section of Hazelton volcanics. By the time the present toe of the Bromley Glacier is reached the Hazelton volcanics have given way to sediments which have been tentatively associated with the Bowser assembly. The topographically lower part of these sediments are mainly thinly laminated siltstones,

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and metaquartzites. They fit reasonably well into Groves Bl unit of his Bowser assemblage.

These sediments grade upward with no apparent unconformity to a uniform rock type previously mapped as Rhyolite, but now thought to be mainly chert.

The MacAdam Point and Upper Bowl stocks cut these Bowser rocks.

Lamprophyre dykes cut all the rock types.

Gold and silver, plus copper are the principal economic minerals in the Stewart district. Although molybdenite mineralization is known it is more important in the adjacent Alice Arm and Ketchikan camps.

## GEOLOGY ON THE JACK CLAIM

#### Bedded Sediments and Chert

The oldest rocks on the property are presumed to be part of the Bowser assembly and are a sequence of thinly laminated, bedded sediments. Mostly they are siliceous siltstones, argillites and metaquartzites. In upper Goldslide Creek at about elevation 1400 metres they grade from a predominately siliceous well bedded quartzite sequence to a poorly banded almost homogenous chert. The chert is a uniform white weathering rock, but is surface stained red from the weathering of contained iron. Previously the chert was mapped as a Rhyolite and it was not until petrographic examination of the rocks in thin sections under the microscope that its true composition was discovered. The peak of the mountain east of Goldslide Creek was not visited and may have some Rhyolite, but this seems unlikely unless the Bowser section is overturned.

The bedded sediments strike northwesterly and dip steeply to the south. There are minor folds and crumples along bedding planes, probably diagenetic folding. Major open folding is not apparent although there could be parallel isoclinal folding.

In the area of Goldslide Creek where the transition from bedded siliceous sediments to chert takes place the beds are steeply dipping and no unconformity is apparent. Between there and the intrusive hornblende porphyry and bedding in the chert is obscured by the intrusive contact alteration and no reliable attitudes can be seen.

The rest of the chert contact is along dangerously steep slopes and was not walked out although the rust on the chert shows up well from a distance. Previous mapping by others on the top of the mountain east of Goldslide Creek gave the same N.W. strike with dips, however, of 25 to the north. This was not field checked.

In thin sections the chert appears to be mainly quartz grains which make up 75% to 95% of the

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rock with epidote, zoisite, sericite, iron oxides and chlorite the remainder. The almost pure quartz cherts suggest they originated by precipitation from solution. In hand specimen it is easy to see how the cherts could be all called rhyolite.

Other rocks in the contact zone of the intrusive hornblende porphyry have in the past been field mapped as andesites. Several of these "andesite" outcrops have been examined in thin section under the petrographic microscope and are actually altered sediments. The weathering of the outcrop, and the alteration caused by the intrusive hornblende porphyry combine to make a field identification of the rock as andesite logical.

Generally speaking all the area previously mapped as andesite can now be labelled as a transition zone between the cherts and siliceous sediments and the margin of the intrusive hornblende porphyry. Within this zone the three major rock types can be variously altered and changed, often making it difficult to be positive of the origin of any one rock specimen.

In this section under the microscope in this zone we have identified such rocks as; ---metamorphased and altered chert adjacent to the intrusive;

---an altered fine grained phase of the intrusive hornblende porphyry classed as a rhyodocite/dacite;

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---a finer grained phase of the intrusive porphyry classed as a rhyodacite/dacite and previously field mapped as andesite;

---a highly altered rock previously mapped as rhyolite, but now thought to have been originally a fine grained sediment like the other wall rocks;
---a fine grained quartzofeldspathic sandstone/wacke which is strongly altered and previously mapped as andesite.

The rock type labelled as andesite is dropped from the geological map and a new term "alteration zone" is used in its place.

### Hornblende Porphyry Intrusive

The hornblende porphyry intrusive appears to be barely unroofed. This is borne out by structural evidence from field mapping and by microscopic examination of thin sections. Certainly it is finer grained and more altered in Goldslide Creek where both the roof and side walls of the intrusive are exposed.

Within the hornblende porphyry there are variations in grain size, ratio of freshness to alteration, "ghost" breccia zones, and degree of fracturing and tectonic development of chloritic shears, but there does not at first glance appear. to be a simple or obvious zoning pattern across the 2 kilometre exposed diameter. There is a need for more detailed mapping and considerable petrographic study of thin sections if the internal structure of the hornblende porphyry intrusive is to be worked out.

There is new field evidence on the northeast boundary of the hornblende porphyry where fingers or dykes of the porphyry extend out from the main body into the chert. Some of these dykelike fingers appear to "apex" at the present surface. Until the 1978 season this area was covered by permanent snow. Most of the outer edge of the hornblende porphyry is obscured by talus.

Near the roof at the side edges relicts of a glassy or aphanitic matrix can be seen in thin sections of the hornblende porphyry. The character of the porphyry towards the centre away from its outer boundary shows that it is a true igneous rock and not a volcanic extrusive.

## MacAdam Point Granodiorite

The MacAdam Point intrusive plug has been called both granodiorite and quartz monzonite, but there is only one rock type present. The plug is not differentiated although there are aplitic dykes from it into the country rock. A contact zone around the plug contains pink feldspar and mineralized quartz veins. Portions of this contact zone are well mineralized with molybdenite and grades are generally higher than in the plug itself.

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The MacAdam Point plug is identical to the intrusive exposed on the other side of the Bromley Glacier on Lost Mountain and several workers feel there is a good chance that both plugs represent the opposite boundaries of one stock hidden under the ice of the glacier.

Examination of the shape of the MacAdam Point plug during 1978 from the ground and helicopter supports an interpretation of the intrusive as a long dome, or apexing dyke, or the apex of a long cupola running N20E. The intrusive has been partially unroofed and the southern end appears to carry on to the north under (or through) the intruded sediments.

Exactly S2OW from MacAdam Point across the glacier is the Falconbridge Lost Mountain identical plug. The attitude of the plug on Lost Mountain is difficult to ascertain conclusively because of its proximity to icefall bergschrund and crevasse blocks from the glacier, but it does appear to be the structural analogue of the MacAdam Point intrusive. It is logical to assume that the two intrusives are either joined or are separate beads on the string of the same structure.

It is interesting to speculate that this dykelike apexed intrusive is subparallel with the Portland Canal dyke swarm exposed on the west side of the Bromley Glacier. Molybdenite occurs in the Bitter

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Creek stock as an accessory mineral, an occurrence in the "root" of the intrusive rather than the "apex" as at MacAdam Point.

#### Dykes

A dyke of granodiorite is known to the east of MacAdam Point and a small mass of Hornblende Porphyry is northeast of the MacAdam Point along the contact between the chert and sediments. Neither of these occurrences were visited by the writer.

A large number of lamprophyre dykes are exposed in the Upper Bowl of Goldslide Creek. It is likely that more lamprophyre dykes than are seen occur in other parts of the property due to their recessive weathering qualities. Even so, there is a definite correlation between lamprophyre dykes and hornblende porphyry. The lamprophyres follow the three typical Stewart area directions with N.W. strikes being most common followed by E.W. and N.E.

Lamprophyres cut all rock types and structures.

## Pyrite Zones

Pyrite zones or veins cut the hornblende porphyry. They are well exposed near the southeastern margin of the hornblende porphyry along the canyon of upper Goldslide Creek, where they strike N65 E. with vertical dips. Some of the pyrite zones extend along strike into the intruded rocks. The pyrite zones are cut by the lamprophyre dykes and do not appear to be offset by any faulting even though there are significant fracture zones (fault zones?) in the hornblende porphyry. Samples of the weathered pyrite and country rock (hornblende porphyry) were assayed for copper, molybdenum and gold. Gold is present in significant amounts in the peripheral mineralized zone around the MacAdam Point intrusive and in pyrite veins and pyritic float nearby. However, the gold values were all less than 0.003 oz./T. It may be advisable to resample the pyrite veins on freshly blasted surfaces rather than accepting the assays of strongly weathered material. The pyrite zones have not been reported in previous mapping.

#### PETROGRAPHIC STUDIES

A suite of representative rocks was collected in the field from what had been previously mapped as hornblende porphyry, the andesite, the rhyolite and the bedded sediments. After examination of the hand specimens in Vancouver, groups of rocks were sliced with a diamond saw and some were stained for feldspar identification. Selected sawn rocks were chosen for petrographic examination and eight thin sections prepared, and studied by Graham Nixon, postgraduate student at the University of B.C. His notes arc followed by my comments.

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Sample Number: BURTON 1 - Jack Mineral Claim

Mineralogy(%): 20 Green biotite/chlorite 64 Plagioclase 8 Glay minerals and white mica 5 Potassium feldspar 2 Fe-Ti Oxides 1 Quartz

Classification: Rhyodacite/dacite

The plagioclase in this rock is extensively altered to an assemblage of clay minerals and sericite. Twinning is relatively uncommon but original phenocrysts have a composition of calcic oligoclase.

Potassium feldspar forms small grains with irregular outline confined to the groundmass, and much less altered than the plagioclase. A small amount of quartz is also present and together with the K-feldspar probably represent the last phases of crystallisation in this part of the intrusive body.

Green biotite and chlorite may be pseudomorphous after an original magmatic hydrous mafic phase, or may have been introduced during later hydrothermal alteration.

Anastomising veinlets and fractures are commonly filled with quartz and fresh potassium feldspar, and minor Fe-Ti oxide generally oxidised to hematite.

The rock is evidently of magmatic origin, and probably a finer-grained phase of the main porphyry intrusion. It was previously mapped as an andesite.

Classification: Rhyodacite/dacite

This specimen is the same rock type as sample number BURTON 1. Hydrothermal alteration and weathering are more extensive and thin stringers carry more diverse assemblage of epidote, clinozoisite, muscovite, potassium feldspar, minor quartz, and chlorite.

This specimen was previously considered as andesite, but is in fact a finer-grained marginal phase of the hornblende porphyry.

- Written by Graham Nixon

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Sample Number: BURTON 3 - Jack Mineral Claim

Classification: Intensely altered wall rock of uncertain primary origin.

This specimen comprises an alteration assemblage of potassium feldspar, quartz, sericite, magnetite, epidote, zoisite, and clay minerals. A hematite-stained quartz vein occupies a corner of the thin section.

This assemblage is common to the intrusion and surrounding rocks alike, and in this particular sample masks its true identity. The rock may originally have been a fine grained sodiment like the other wall rocks.

This rock was mapped previously as a rhyolite.

Sample Number: BURTON 4 - Jack Mineral Claim

Classification: Fine-grained quartzofeldspathic sandstone/wacke

A strongly altered rock but with original clastic texture preserved. Angular quartz and subangular plagioclase form the majority of the detrital grains, and no potassium feldspar has been identified. Magnetite euhedra are distributed evenly throughout the rock and appear to be of secondary origin. Sericite and chlorite are also prevasive.

Localised concentrations of sericite and clay minerals are a distinctive feature in thin section. They probably represent selvages in areas of more intense alteration since ghost clastic texture can be discerned.

This specimen was previously identified as an andesite interbedded with the sedimentary rocks at the margin of the hornblende porphyry.

Sample Number: BURTON 5 - Jack Mineral Claim

Mineralogy(%): 15 Epidote/zoisite 4 Fe-Ti Oxides 5 Sericite 74 Quartz 2 Chlorite

Classification: Chert

The specimen consists essentially of quartz grains that exhibit polygonal to cuspate grain boundaries. The other minerals present might represent minor impurities in the chert that have recrystallised during later metamorphism and alteration. An attractive alternative is that they have been subsequently introduced during hydrothermal activity in common with the adjacent intrusive and sedimentary rocks.

Veinlets of quartz, epidote/zoisite, chlorite, and magnetite are also present in the rock.

This rock was previously mapped as rhyolite.

Sample Number:	BURTON 6 - Jack Mineral Claim
Mineralogy(%):	35 Amphibole 40 Plagioclase 25 Recrystallised glassy groundmass

Classification: Amphibole porphyry

Large amphibole phenocrysts have been extensively altered to an intergrowth of green biotite and chlorite, and exhibit no preferred orientation. Original plagioclase phenocrysts have undergone alteration to sericite and clay mineral assemblages. An originally glassy subvolcanic matrix has recrystallised to mainly quartz and potassium feldspar. Fe-Ti oxides consist essentially of magnetite partly oxidised to hematite.

In thin section of sharp intrusive contact is evident between the amphibole porphyry and a partly altered fine-grained clastic rock, probably a siltstone.

The intrusion is undoubtedly exposed at its roof or margin since it is unlikely that glass would not have crystallised entirely within an intrusive body of this size. The textures of the matrix suggest that the glass has in fact recrystallised during later alteration events.

Sample Number: BURTON 7 - Jack Mineral Claim

Classification: Extensively altered amphibole porphyry

This rock is the more hydrothermally altered and weathered equivalent to sample number BURTON 6. A greater proportion of sericite and clay minerals are present, and only ghost outlines of former plagioclase phenocrysts can be identified. The distinct hiatal texture is of course unique to the porphyry.

A single quartz vein was encountered in thin section.

Sample Number: BURTON 8 - Jack Mineral Claim

Classification: Chert

Mineralogy(%): 4 Sericite 1 Magnetite 95 Quartz

This specimen is a very pure chert, only slightly affected by hydrothermal alteration. Quartz grains have polygonal to reinform boundaries which distinguishes them from the ragged mosaics and generally coarser grain size of crystals in thin quartz stringers. The magnetites have euhedral outlines, a common feature in rock types such as this. The purity of this chert suggests it originated by precipitation from solution.

The rock was previously mapped as a rhyolite interculated with the sedimentary sequence of the country rocks.

## SAMPLES BURTON 6 AND BURTON 7

Sample Burton 6 represents a border phase of the hornblende porphyry in contact with an intruded siltstone. The sharp intrusive contact is visible in the thin section as is some recrystallized originally glassy subvolcanic matrix.

Sample Burton 7 represents a more altered phase of the hornblende porphyry.

### SAMPLES BURTON 3, 5 AND 8

These specimens represent rocks previously mapped as rhyolite and are two cherts and an altered sediment.

#### SAMPLE BURTON 4, 1 AND 2

Burton 4 is a quartzofeldspathic sandstone and was previously mapped as the andesite. Other "andesites" such as Burton 1 and 2 are fine grained hornblende porphyry which were irregularly traced in the field through their gradation from coarse hornblende porphyry by the small, but still visible bornblende phenocrysts to a fine grained rock previously mapped as andesite. Other andesites were fine grained without the phenocrysts and probably are the altered sediments.

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## SAMPLING PROGRAM AND ASSAYS

Nineteen samples were collected in the Upper Bowl of Goldslide Creek and all were assayed for Cu, Mg and gold.

- Samples J1, J2, J3, J8, J9

are from the contact zone in the altered sediments intruded by the hornblende porphyry.

- <u>Samples J4, J5, J10, J11, J14, J15, J19</u> are leached hornblende porphyry
- <u>Sample J6</u>

was a leached quartz veinlet in the hornblende porphyry.

- <u>Samples J7, J12, J13, J16, J17, J18</u> are from oxidized pyrite veins or zones in the hornblende porphyry.

Leaching is more extensive than first supposed as sample J11 has visible molybdenite flecks, but still ran only 0.005%Mo.

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· ANALYTICAL CHEMISTS

#### • GEOCHEMISTS

• REGISTERED ASSAYERS

## CERTIFICATE OF ASSAY

TO:

Burton Consulting #5 924 W. Hastings Vancouver, B.C.

CERTIFICATE NO.	33922
INVOICE NO.	26652
RECEIVED	July 14/78
ANALYSED	July 21/78

ATTN:

SAMPLE NO. :	%	% N-1-1-1	Oz/Ton		
	Copper	· · · · · · · · · · · · · · · · · · ·	enum Cold	<u>,</u>	 
J 1	< 0.01	0.015	< 0.003		
2	0.01	0.002	< 0.003		
3	0.01	0.009	< 0.003		
4	< 0.01	0.003	< 0.003		
5	0.01	0.002	< 0.003		 
6	< 0.01	0.002	< 0.003		
7	< 0.01	0.004	< 0.003		
8	< 0.01	0.004	< 0.003		
9	0.03	0.026	< 0.003		
.10	< 0.01	0.006	_<.0.003		
11	< 0.01	0.006	< 0.003		
12	< 0.01	0,002	< 0.003		
13	< 0.01	0.003	< 0.003		
14	< 0.01	< 0.001	< 0.003		
15	< 0.01	0.001	< 0.003		
16	0.01	0.003	< 0.003		
17	< 0.01	0.001	< 0.003		
18	< 0.01	0.003	< 0.003		
J- 19	< 0.01	0.002	< 0.003		
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#### CONCLUSIONS

The mapping and petrographic studies have materially changed the geological picture on the Jack Claim.

The rhyolite is now recognized as a chert.

The andesite is recognized as a peripheral border feature of altered bedded sediments, cherts and fine grained hornblende porphyry. There is no andesite as such.

The MacAdam Point granodiorite is structurally recognized as an apexing dykelike body with a N20 f axis.

The hornblende porphyry is now recognized as an intrusive body just barely unroofed. It is of considerable complexity and is not understood. The molybdenite mineralization is leached on the surface.

## RECOMMENDATIONS

- The hornblende porphyry should be mapped in detail supported by petrographic studies of thin sections.
- 2) The pyrite veins, both in Upper Bowl of Goldslide Creek and near the MacAdam Point granodiorite should be located, mapped, and properly sampled to test for gold mineralization.

3) The hornblende porphyry should be drilled to at least 500 metres depth to test for molybdenite mineralization.

ALEX BURTON, E 1 F

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## 1978

July	4_ July 14 🖌	Burton 6 days 33250		1500.00
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July	5-9	Helicopter	Ý	350.00
July	5	"ir fares (2)	9	456.00
vuly	4-21	Axpenses	С,	439.40
July	22 Sept 18	Axpenses	÷	05.99
July	20	Asseys	ъ.	294.50
July	-Sept.	Fetrographic studies	<b>.</b>	215.25

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