Geology, Petrography, Silt Sediment Geochemistry, and Rock Geochemistry of Wanda Claims and Vicinity, Coal Harbour Area, Northern Vancouver Island

Nanaimo Mining Division

NTS 92L/12 E & W

Lat. 50°37' Long. 127°45'

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Dated: March 22, 1983

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Introduction

The Wanda Group of 57 claim units plus one fractional claim is centered 13 Km. west of Coal Harbor and 22 Km. southwest of Port Hardy on northern Vancouver Island. It lies along the northern shore of Holberg Inlet and extends from the flats along the inlet up onto the crest of the Pemberton Hills to the north. Maximum elevation is 582 M. Except at the highest elevations, the claims are covered by a dense growth of mature timber consisting largely of cedar and hemlock.

Access to the eastern and southern portions of the group is provided by an unpaved logging road which leaves the paved Port Hardy-Coal Harbor road 1250 meters north of the government pier at Coal Harbor. This road presently extends into the lower reaches of Hushamu Creek west of the Wanda claims. A branch which diverges east of the bridge at Wanokana Creek extends approximately 5½ Km. to the north along the eastern side of Wanokana Creek. Unfortunately, there are no branches leading to the north between Wanokana and Youghpan Creeks. Accordingly access to the higher portion of the claims is best achieved by using helicopter support. The area can only be reached on foot with great difficulty and the expenditure of much time due to the dense bush and the precipitous nature of the cliffs surrounding the upper reaches of the hills. As well, depending in part upon the seasonally high rainfall, the high volume and high gradient of the creeks in the deeply incised valleys which cut the area make travel difficult and hazardous. Both Youghpan and Wanokana Creeks flow through canyons which are, in places, in excess of 100 meters deep. Some portions of Wanokana Creek are bounded by overhanging cliffs.

Most of the ground covered by the Wanda claims lies in an area formerly held by Utah Mines, Ltd. which acquired it by staking in late 1967 and early 1968. That company ran a soil geochemical survey over the area using a line spacing of 500' with samples spaced at 200' intervals. Samples were analyzed for copper, molybdenum and zinc. Results were presented by Young (A.R.#2190, 1969). Clouthier (A.R.#3402, 1971) mapped the southeastern portion on a scale of 1" = 400'. He also ran I.P. and ground magnetometry. Ascencios (A.R.#4754, 1973) mapped the northwestern part of the area on a similar scale and ran ground magnetometry.

Aside from large-scale government-sponsored mapping (Muller et al, 1974, Northcote, 1970) the only geological mapping which covers the entire area of the Wanda claims was carried out by student assistants at the time they sampled the area for soil-geochemical purposes. The resulting map, on a scale of 1" = 1000' makes up a part of A.R.#2190.

None of the mapping carried out by Utah personnel was supported by other than hand-lens assisted gross hand-specimen examination for establishing rock nomenclature. Since most of the students had received only rudimentary training at the time of their survey, and since the generally sparse outcrops are heavily weathered and in many cases highly altered as well, there exists much room for refinement of the mapping.

Although the area of interest lies within a belt of altered Lower Jurassic Bonanza Volcanics very similar to and probably coextensive with the host-rocks of the Island Copper deposit, most of the work on it has been carried out by

workers who were only peripherally or not at all connected with the exploration work at Island Copper itself. The author of the present report was involved with the day-to-day delineation by core-drilling of that ore body for a period of approximately fifteen months, and is perhaps in a relatively unique position to evaluate the alteration features present on the Wanda group in terms of the potential for Island Copper-type mineralization.

Also important in a reexamination of the area is the rapid incease in gold prices since the 1960s. Resampling and reassessment of the ground in terms of the potential for gold content is suggested by the fact that gold is a significant byproduct of the Island Copper mine.

Work carried out over the past year by the present owner has had three main thrusts, as follow:

1. Sediment samples have been gathered from a number of drainages in the area in order to provide base-line data, since no such data presently exists in the public record.

2. Rock specimens have been gathered and analyzed for a somewhat broader range of elements than has been general in previous work.

3. Rocks of different character or varying degrees of alteration have been thin-sectioned and examined under a petrographic microscope in order to establish an accurate base for nomenclature, and in order to provide some understanding of the nature, intensity and patterning of alteration present on the ground, with a view to fitting such patterns as may emerge into one or another model of alteration developed in other porphyry-copper districts.

In contrast with previous work by Utah, which has tended to be concentrated over areas of alteration, the present work has covered both altered and unaltered ground, even though it was necessary to extend it in places beyond the actual boundaries of the claim group. It is believed that such an approach is absolutely vital. One cannot expect to develop an understanding of alteration unless one can trace it through its gradations back into unaltered rocks of common origin. To the extent that work has progressed thus far, and in view of the highly uneven patterns of outcrop distribution, the present work must be considered only a beginning.

Table 1 (following page) lists the claims and record numbers. Table 2 presents the statistics of work done and lists the claims on which work was actually carried out. Map 1 is an index map showing the layout of the claims with respect to drainages, inlets and nearby towns.

Table 1 Claim Record

Claim Name and number	Record number	Number of units
Wanda 1	1079(3)	20
" 2	1080(3)	20
" 3	1081(3)	1
" 4	1082(3)	1
" 5	1083(3)	1
" 6	1084(3)	1
" 7	1085(3)	1
" 8	1086(3)	1
" 9	1087(3)	1
" 10	1088(3)	1
" 11	1089(3)	1
" 12	1090(3)	1
" 13	1091(3)	1
" 14	1092(3)	1
" 15	1093(3)	1
" 16	1094(3)	1
" 17	1095(3)	1
" 18	1096(3)	1
" 19	1097(3)	1
" Fraction	1098(3)	Fraction

Owner: Bradford D. Pearson
7431 Lindsay Road
Richmond, B.C.
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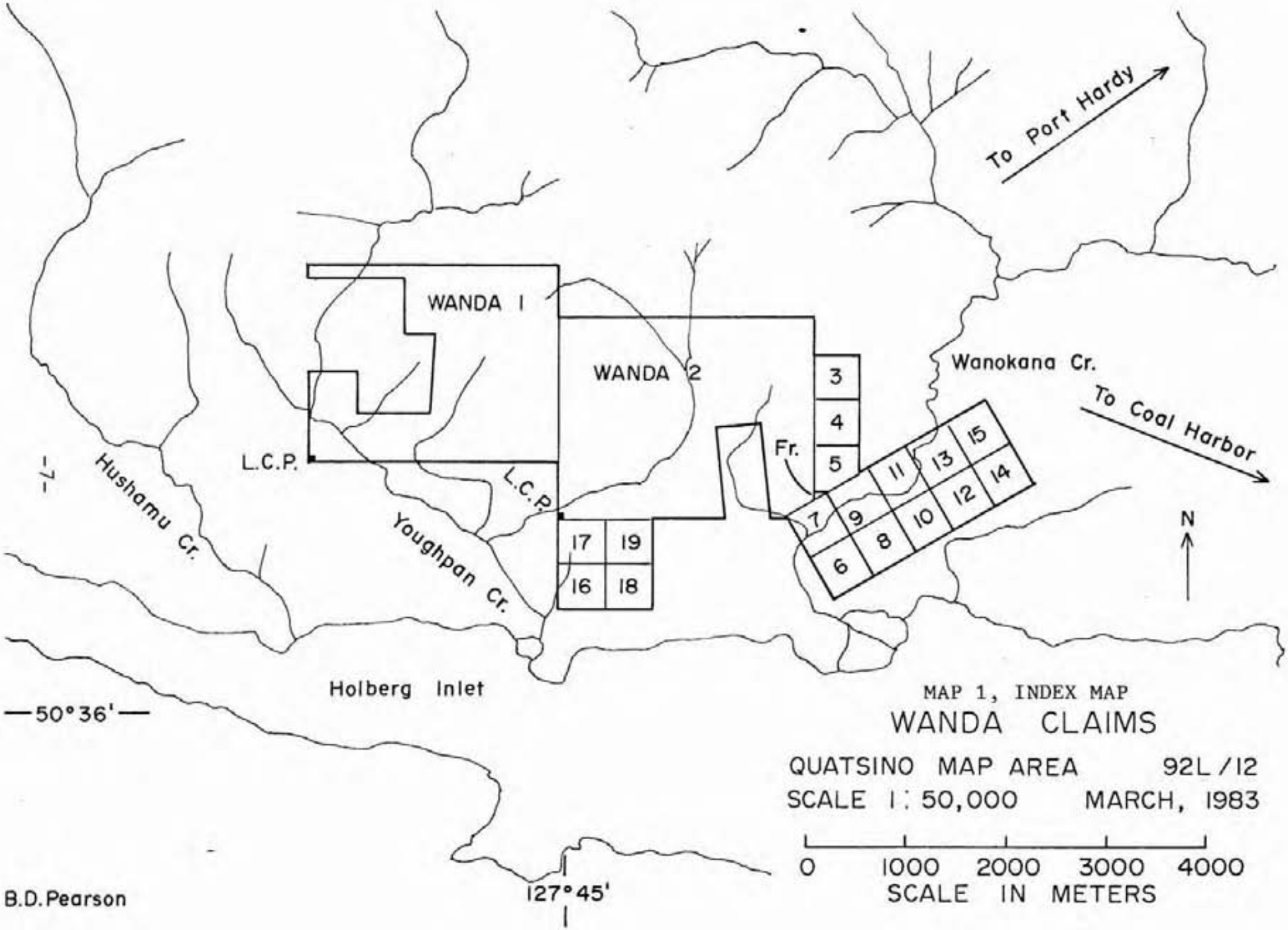
Table 2 Statistics of Work Done

Work has been carried out on Claims 1,2,7,9,10 and 17.

Rock sampling: 81 samples gathered.
Rock analyses: 32 samples have been analyzed. Of these, 13 were analyzed for 31 elements, 2 for 14 elements, 1 for 9 elements, 6 for 4 elements, 8 for 1 element, and 2 for 6 elements.
Sludge sample: 1 was collected and analyzed for 31 elements.
Silt samples: 17 were collected. Of these, four were analyzed for 31 elements. Five were analyzed for six elements. Eight were analyzed for five elements. Gold analyses in the latter group were carried out in replicate.
Petrographic samples: 17 thin sections have been prepared thus far. Detailed descriptive work has been carried out on ten to date. Work is continuing.

Rock samples have come from Claims 1,2,9 and 10.
Sludge sample came from Claim 2.
Silt samples came from Claims 1,7 and 17.
Thin sections came from specimens taken on Claims 1,2 and 10.
Note: as mentioned in the introduction and shown on the relevant maps, some of the rocks, silts and petrographic specimens came from outside the claim boundaries.



MAP 1, INDEX MAP

WANDA CLAIMS

QUATSINO MAP AREA 92L/12

SCALE 1:50,000 MARCH, 1983

0 1000 2000 3000 4000

SCALE IN METERS

Geological Framework

Gross examination of the Wanda Claims and adjoining areas reveals several lithological domains. These will be discussed and each assigned a letter name. No age relationships or structural relationships are implied by the order in which names are applied, nor, at this stage, is any distinction made between units which may be original depositional or intrusive masses and units which result from later alteration of pre-existing rock masses.

Unit A

To the northeast of the claim group lies a large intrusive body of quartz monzonite. Locally it is intensely fractured and heavily veined with a pink mineral which is believed to be laumontite. Occasionally it resembles orthoclase, implying potassic alteration. Its softness where noted thus far negates this possibility. (See note at end of this section.)

Unit B

To the south of the intrusive, in the area north and east of the Wanokana delta lies a mass of light to medium green, relatively fresh, fine-grained microporphyritic volcanic rock which probably varies in composition from dacite to pyroxene andesite. Pyrite content is widely variable up to about 6%, generally as euhedral cubic crystals, more rarely in veins up to a few centimeters in thickness.

Unit C

Along the south edge of Wanda 10, Unit B is bounded on the south by a mass of intensely-altered, coarsely fragmental rock which now consists largely of clay minerals, silica

and disseminated pyrite. Somewhat similar rock can be seen to the southeast, along the shore of Holberg Inlet in the old Lafarge silica quarry. Harold Jones (personal commun.), who has mapped that area for its present owners, indicates that the two areas are separated by a body of andesitic volcanics which display little or no alteration.

Unit D

At the west end of the bridge crossing the Wanokana Creek, and in a quarry along the north side of the logging road immediately to the west of the bridge, the outcrops consist of a light green fragmental volcanic rock probably dacitic to andesitic in composition. Fragments are small (generally less than 1 cm.), angular, and consist of what appears to be a mixture of light and dark gray cherty tuffaceous sediments and slightly porphyritic volcanic flow rock.

Unit E

At the very western edge of the Wanokana delta, along the south side of the logging road (Wanokana Main), a large road quarry exposes a cream-to white colored, very fine grained rock with no obvious structural or sedimentary characteristics. However, careful examination shows some areas which resemble unbanded white chert. Some clay content is indicated, but the rock is generally very hard. Rounded pebble-sized fragments (clasts?) occur rarely. Their composition appears to be identical with that of the surrounding matrix rock.

The unit is probably an altered very-fine-grained tuff. A subaqueous depositional site is indicated by a largely-concealed bed of dark blue-grey chert containing bedded pyrite and specularite(?). This bed, which strikes exactly east-west and dips vertically, is no more than 20 cm. thick. Tops have not been determined as yet.

Outcrops to the south along the shoreline (about 100 meters away) were mapped by Utah geologists as cherty siltstones of Cretaceous(?) age. Examination of the shoreline exposures indicates the essential identity of these rocks with those exposed in the road quarry, and leaves little doubt that both are a part of the Jurassic Bonanza volcanic succesion.

Unit F

To the northwest of Unit E, rock of a somewhat similar type occurs on a hill which straddles the boundary of Wanda 2 and Wanda 19. Here the rock is whiter and such few fragments as have been seen are angular and larger (up to several cm. in size). No attitudes have been noted. From the air, considerable limonite stain can be seen on the upper cliff faces. At the base, very minor jarosite was noted at a few places. One fracture was coated with very fine grained, unoxidized pyrite. There is a presumption that Unit F is identical with Unit E. As yet however, no continuity has been demonstrated.

Unit G

Just to the west of the delta of Youghpan Creek, along the north side of Wanokana Main, a large road quarry exposes a distinctive, relatively basic fragmental rock. Small feld-

spar phenocrysts as white lathes to 2 mm. in length are set in a medium to dark grey groundmass. The rock has a porous appearance. Very fine grained, irregularly distributed hematite shows as scattered reddish patches. More outcrops of this rock can be seen as one travels northwest up Hushamu Main. Rock of similar type can be found in a road quarry along the old Rayonier logging spur which starts east of the Indian reserve north of Coal Harbour and runs easterly towards Frances (Bay) Lake, northwest of the Island Copper pit.

Unit H

At the top of Hushamu 600, the rock is a very fine grained, dark grey-green volcanic, probably andesitic in composition, which is here intensely fractured and heavily veined with laumontite. Coarse grained pyrite is disseminated along fractures in fair amounts, though pyrite veins as such have not been noted.

Unit I

The summit area of the Pemberton Hills from the area just west of Youghpan Creek (northeast of Hushamu 660) to the western edge of and about 500 meters into Wanda 2 is floored by a cliff-forming unit of massive grey-white rock which, at the base of the cliffs and rarely on upper faces, is intensely limonite-stained. Ground inspection reveals it to be a highly altered porphyrytic volcanic, probably originally fragmental in nature, though where seen, only ghosts of the fragmental texture were apparent. The rock now appears to be composed largely of silica, clay minerals and pyrite, all very fine grained. It would seem to fall into the advanced argillic alteration category.

The summit outcrops of Unit I are glacially polished (striations almost exactly east-west) and well-leached of iron over a thickness of a fraction of an inch. Inside this weathering rind, fresh, very fine grained pyrite is ubiquitous. These outcrops weather greyish-white. Limonite is apparent only where recent (post-glacial) rockfalls have exposed fresh faces to the oxidative effects of the atmosphere.

Map 5 has been prepared to summarize the distribution of type areas of the units described above. Where unusual element values were noted in rock-geochemical analytical work (to be discussed next), these unusual values are also plotted.

Note: Speciman 1, examined petrographically and classed as a quartz monzonite, was collected from a quarry on Wanokana 900 which consisted almost entirely of a fine grained, green volcanic rock which,on the basis of Speciman 1A, was classed by Woodcock as a dacitic lava. The relationship of the quartz monzonite to the dacite are obscured by overburden and dumped material, and it is entirely possible, indeed highly probable that the quartz monzonite is not in place, but has been transported to the south from the main mass to the north. This interpretation is followed in plotting lithological domains on Map 5.

J.R. Woodcock Consultants Ltd.

806 - 602 WEST HASTINGS STREET - VANCOUVER, B.C. V6B 1P2 - PHONE (604) 685-6720

February 21, 1983

Mr. Bradford Pearson
7431 Lindsay Road
Richmond, B. C.
V7C 3M7

Re: Port Hardy Specimens

Dear Brad:

I have briefly examined the stained specimens and the thin sections of these specimens to gain an overall impression of the alteration types. In a number of specimens further work will be needed to determine some of the alteration products. Following are some of the general conclusions:

1. The two specimens of quartz monzonite, with Spec. 2 slightly more basic than Spec. 1, are relatively fresh. There is some chlorite alteration of mafic minerals. In addition there is some hematite dusting and this gives the rock its flesh colour.
2. Specimen 16 is a prophyritic lava which is relatively fresh. There is chlorite alteration and some hematite dusting.
3. Specimen 1A is also a lava. Its light colour is an original rock characteristic. Alteration includes epidote and minor carbonate.
4. Specimen 15 is also a volcanic rock with more alteration to epidote, chlorite, and abundant carbonate.
5. Specimen 7 and 11 are quite similar. These are volcanic rocks with intense alteration to clay minerals and abundant pyrite.
6. Specimen 6 is similar to the above two in its intense alteration to clay minerals; however, it contains some sericite.
7. Specimens 3 and 13 are intensely altered tuffs. These are altered to clay minerals including abundant kaolinite. There is no accompanying pyrite. These contain jarosite indicating former high pyrite.

In places I have indicated kaolinite. This is based on its texture and low birefringence as it is too fine-grained for any optical work. In addition, there is another mineral with slightly higher birefringence and somewhat coarser grain. This may also be a clay mineral;

.../2

it should be identified by X-ray defraction. The best example is specimen 13. In addition to this unknown mineral, there are places where I have indicated uncertainty in identification of alteration products and you may wish to get further work done on such sections.

Yours very truly,

J. R. Woodcock

JRW/em

J. R. WOODCOCK CONSULTANTS LTD.

PETROGRAPHIC REPORT

Spec. No. 1 Classification quartz monzonite Date February, 1983

MEGASCOPIC DESCRIPTION: A pinkish granitoid rock with a few deep-red irregular patches.

MICROSCOPIC DESCRIPTION:

Texture: equi-granular phaneritic rock. Good graphic intergrowths of quartz and K-feldspar. Also some myrmekitic texture.

Essential Minerals and Habits:

	Phenocrysts	Matrix	Remarks
Quartz	20		
K-feldspar	30		
Plagioclase	45		
Biotite	5		altered to chlorite and muscovite
Amphibole			
Pyroxene			

Accessory Minerals:

Opaque Minerals:

Alteration and Mineralization: Mafic minerals altered to chlorite and muscovite. A brown dusting occurs on most feldspar. One very large unaltered, untwinned phenocryst (probably plagioclase) has red hematite along cleavages adjacent to fractures and near abounding muscovite patches. This is probably the brick-red patch noted on hand specimen. Also red hematite is scattered in other places; this is the reason for reddish color of rock.

Oxidation:

Remarks:

PETROGRAPHIC REPORT

Spec. No. 1A Classification dacite Date February, 1983

MEGASCOPIC DESCRIPTION: This is a light grey volcanic with scattered small altered phenocrysts. Matrix is irregularly yellow stained indicating some K-feldspar. It is quite hard, indicating low argillic or phyllic alteration.

MICROSCOPIC DESCRIPTION:

Texture:

Essential Minerals and Habits:

	Phenocrysts	Matrix	Remarks
Quartz		10%	a few scattered patches in matrix
K-feldspar		20%	
Plagioclase	10	60%	
Biotite			
Amphibole			
Pyroxene			

Accessory Minerals:

Opaque Minerals:

Alteration and Mineralization: Epidote replaces much of the plagioclase phenocrysts. A brown dusting or clay alters the remainder of the plagioclase phenocrysts and the small plagioclase laths of the matrix. Scattered small patches of carbonate occur in the matrix. Could have clay alteration in dirty matrix; but it is too fine-grained to determine. Some epidote pseudomorphs could be mafic phenocrysts.

Oxidation:

Remarks: Mineral amounts are very rough estimates.

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PETROGRAPHIC REPORT

Spec. No. 2 Classification quartz monzonite Date February, 1983

MEGASCOPIC DESCRIPTION: Coarser grained than Spec. #1 with some large unstained plagioclase phenocrysts and more mafic phenocrysts. It has only a slight reddish tint.

MICROSCOPIC DESCRIPTION:

Texture:

Essential Minerals and Habits:

	Phenocrysts	Matrix	Remarks
Quartz	15		
K-feldspar	25		
Plagioclase	40		
Biotite	10		
Amphibole	10		
Pyroxene			

Accessory Minerals:

Opaque Minerals:

Alteration and Mineralization: The small biotite crystals and parts of some amphibole crystals are altered to chlorite. Some very large amphibole crystals are unaltered. Minor epidote alteration of plagioclase and some mafics. Brown dusting on much of the K-feldspar. Some hematite in a very large plagioclase crystal, mainly in a patch of alteration to albite (?).

Oxidation:

Remarks:

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PETROGRAPHIC REPORT

Spec. No. 3 Classification altered tuff Date February, 1983

MEGASCOPIC DESCRIPTION: This is a highly altered white rock with no K-feldspar. It scratches readily and so probably is largely clay.

MICROSCOPIC DESCRIPTION:

Texture: Looks like a completely altered tuff with outlines of altered lithic and crystal fragments.

Essential Minerals and Habits:

	Phenocrysts	Matrix	Remarks
Quartz			
K-feldspar			
Plagioclase			
Biotite			
Amphibole			
Pyroxene			

Accessory Minerals:

Opaque Minerals:

Alteration and Mineralization: The rock is mostly kaolinite. A mineral with white birefringence surrounds some intense kaolinite patches; fills cavities and replaces some phenocrysts. It has no twinning, is somewhat dirty with inclusions. It has radiating structure in one place.

Oxidation:

Remarks:

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PETROGRAPHIC REPORT

Spec. No. 6 Classification altered volcanic Date February, 1983

MEGASCOPIC DESCRIPTION: Similar to No. 7. An argillized volcanic rock with some lineation.

MICROSCOPIC DESCRIPTION:

Texture: Altered porphyritic volcanic

Essential Minerals and Habits:

	Phenocrysts	Matrix	Remarks
Quartz			
K-feldspar			
Plagioclase			
Biotite			
Amphibole			
Pyroxene			

Accessory Minerals:

Opaque Minerals: Abundant fine-grained pyrite and leucoxine occur throughout both in altered phenocrysts and altered matrix.

Alteration and Mineralization: The plagioclase phenocrysts are marked by concentrations of sericite or similar mineral. Some patches of relatively coarse low birefringent fibrous mineral might by chlorite.

Matrix is too fine-grained to determine; could be kaolinite plus sericite.

Oxidation:

Remarks: Note presence of sericite not found in No. 7, 11, 16.

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PETROGRAPHIC REPORT

Spec. No. 7 Classification argillized volcanic Date February, 1983

MEGASCOPIC DESCRIPTION: Argillized volcanic rock with light grey color and small white argillized phenocrysts.

MICROSCOPIC DESCRIPTION:

Texture: No regular texture -- a mess.

Essential Minerals and Habits:

	Phenocrysts	Matrix	Remarks
Quartz			
K-feldspar			
Plagioclase			
Biotite			
Amphibole			
Pyroxene			

Accessory Minerals: Abundant fine pyrite throughout; also scattered pseudomorphs of leucoxine.

Opaque Minerals: Scattered small patches of pyrrhotite? throughout. Some small euhedral pseudomorphs of leucoxine replacing a mineral with low birefringence and good cleavage.

Alteration and Mineralization: The rock is completely altered so that even phenocrysts outlines are not readily apparent in thin section. Much of this may be kaolinite; however, it is coarser-grained than normal. Within this is another mineral with slight cleavage and birefringence up to yellowish grey (about 20%).

Oxidation:

Remarks: A few patches of birefringent fibrous mineral with lower birefringence than muscovite.

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PETROGRAPHIC REPORT

Spec. No. 11 Classification argillized volcanic Date February, 1983

MEGASCOPIC DESCRIPTION: A bleached rock in which phenocrysts are chalky white and matrix is light grey.

MICROSCOPIC DESCRIPTION:

Texture: The rock contains about 25% phenocrysts from 0.2 to 2 mm long in a matrix that also contains smaller altered feldspar crystals or phenocrysts up to .05 mm long.

Essential Minerals and Habits:

	25 Phenocrysts	75 Matrix	Remarks
Quartz		25	
K-feldspar			
Plagioclase			
Biotite			
Amphibole			
Pyroxene			
Kaolinite	25	50	from feldspar crystals

Accessory Minerals:

Opaque Minerals: Small white opaque patches scattered; in places these are square; could be replacement of pyrite, but looks like leucoxine.

Alteration and Mineralization: The large phenocrysts and the smaller feldspar crystals of matrix are completely altered to kaolinite (low birefringence).

Oxidation: Limonite occurs along fractures.

Remarks: Within some of the argillized phenocrysts are small euhedral isotropic crystals, with index higher than kaolinite. Many of these have triangular outline.

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PETROGRAPHIC REPORT

Spec. No. 13 Classification altered tuff Date February, 1983

MEGASCOPIC DESCRIPTION: Resembles Spec. 3 in color and softness. Some outlines of altered phenocrysts are visible in the limonite - stained part. No K-feldspar.

MICROSCOPIC DESCRIPTION:

Texture:

Essential Minerals and Habits:

	Phenocrysts	Matrix	Remarks
Quartz			
K-feldspar			
Plagioclase			
Biotite			
Amphibole			
Pyroxene			

Accessory Minerals:

Opaque Minerals:

Alteration and Mineralization: The rock is composed of irregular patches and euhedral patches of kaolinite (?) (replaced feldspar phenocrysts) within a mosaic of a coarser-grained mineral similar to the mineral in section 3. This also has small concentrations of kaolinite. The softness of the rock indicates that this is probably a clay mineral. Jarosite occurs in much of this section.

Oxidation:

Remarks:

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PETROGRAPHIC REPORT

Spec. No. 15 Classification altered volcanic Date February, 1983

MEGASCOPIC DESCRIPTION: A light grey aphanitic rock with scattered large ~~(epidote)~~ white feldspar phenocrysts and numerous small dark altered phenocrysts.

MICROSCOPIC DESCRIPTION:

Texture: Two generations of phenocrysts -- a large size and numerous small palgioclase laths in matrix.

Essential Minerals and Habits:

	Phenocrysts	Matrix	Remarks
Quartz			
K-feldspar			
Plagioclase			
Biotite			
Amphibole			
Pyroxene			

Accessory Minerals:

Opaque Minerals: leucoxine.

Alteration and Mineralization: Plagioclase phenocrysts about 15% altered to epidote, minor sericite and some brownish clay dusting and some concentrations of kaolinite. Matrix has dispersed carbonate and minor epidote. It is very dirty and could have abundant kaolinite in places. Concentrations of chlorite could be replaced mafic minerals. Large carbonate patches replace some of plagioclase phenocrysts.

Oxidation:

Remarks: Quartz only seen lining one vug. Leucoxine pseudomorphs occur. Only minor pyrite. Chlorite fills some irregular interstitial vugs.

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PETROGRAPHIC REPORT

Spec. No. 16 Classification andesite Date February, 1983

MEGASCOPIC DESCRIPTION: This is a porphyritic volcanic which may be less altered equivalent to No. 11.

MICROSCOPIC DESCRIPTION:

Texture: A porphyritic volcanic with good flow structure displayed by the small plagioclase crystals of the matrix.

Essential Minerals and Habits:

	Phenocrysts	Matrix	Remarks
Quartz			
K-feldspar			
Plagioclase	25%	60%	andesine (about An_{35}) pheno.
Biotite			
Amphibole			
Pyroxene			
Chlorite Patches		15%	

Accessory Minerals:

Opaque Minerals:

Alteration and Mineralization: Minor sericite flakes and clay dusting on the plagioclase phenocrysts. Unusual irregular patches of chlorite seem to be fillings of interstitial spaces. The chlorite crystals radiate inward from the irregular contacts. A thin opaque selvage bounds such patches. It is composed of leucoxine and hematite ~~is~~ (specular). Small patches of epidote scattered through matrix.

Oxidation:

Remarks: Staining shows no K-feldspar. No quartz noted. Abundant chlorite also in fine-grained matrix.

Sediment Sampling

An extensive program of sediment sampling was carried out by Utah Mines, Ltd. during the middle 1960s. It covered much of northern Vancouver Island. Similar surveys have undoubtedly been carried out by other companies. Unfortunately, none of the results of these programs are in the public record. In order to remedy this situation on a very local level, two programs of sampling were carried out in the general area of the Wanda claims.

The first was conducted by Mr. V. Ryback-Hardy of Hinterland Resource Services, Ltd. It was carried out while the claims were being staked, around the middle of March, 1982. The snow was melting rapidly and run-off very rapid, with stream levels very high. Samples were collected in large plastic sacks. Each sample consisted of several pounds of unsorted sediment. These samples were treated in the normal manner. The -80 mesh fraction was analyzed at Chemex Laboratories in North Vancouver. Atomic absorption techniques were used to determine copper, molybdenum, lead and zinc. Eight samples, one sample from each of eight sites, were treated in total. In addition, replicate portions of these eight samples were analyzed for gold using a combination of fire assay and atomic absorption techniques, whereby a bead collected by fire assay is then analyzed using atomic absorption. Replication of samples was considered advisable in order to eliminate the nugget effect created by discrete particles of gold which might be present. Separate portions of three of the eight samples were analyzed in quadruplicate, the remaining five in duplicate, for a total of 22 analyses.

The second sediment sampling program was carried out during the period Nov. 14 - 18, 1982 by the author and Mr. David Fletcher of Asarco Exploration Company of Canada, Ltd. Rainfal had been slight for a considerable period and runoff was very low. Samples were collected at single sites on each of three major drainages. The author collected duplicate samples on Youghpan and Wanokana Creeks and a single sample on Hushamu Creek. Fletcher collected duplicate samples on Youghpan Creek and single samples on Hushamu and Wanokana Creeks.

The author's samples were treated as before (-80 mesh, atomic absorption, Chemex Labs) and analyzed for copper, molybdenum, lead, zinc, gold, and silver. Fletcher's samples were sent to Acme Analytical Laboratories of Vancouver. There they were analyzed using inductively coupled plasma techniques. See assay report for exact details of treatment. Thirtyone elements have been characterized at the ppm level. In addition, gold, silver and mercury, which are generally present at too low a level for detection by ICP have been characterized by atomic absorption, the gold after concentration by fire assay.

Most of the samples reported on by Acme were rock chips. These will be reported on in a separate section of this report. These samples were dealt with entire, after crushing. The sediment samples were screened and the -80 mesh fraction analyzed. Two scree samples and a single sample of sludge (presumably a chemical precipitate) were also screened and the -80 mesh fraction analyzed. Results of the scree and sludge samples will be dealt with later.

Variations present almost certainly stem from the differences in analytical techniques. Two instances are suggested. Whereas copper and zinc values are both comparable between the two groups of samples, and molybdenum and silver values generally too low to ascertain any significant differences, lead values determined by AA are consistently lower than those determined by ICP. (The average with AA is 7 ppm, that with ICP 11 ppm.) Woodcock, in recent work for Brinco Mines, Ltd. (See Fin Assessment Report dated Dec. 13, 1982, page 21a, table 3) has noted inconsistencies between lead values reported from duplicate samples using AA and ICP. Interestingly enough, Woodcock's examples showed biases in the opposite direction from those apparent here. (His average for AA was 21 ppm, for ICP 7.8 ppm using 12 samples.)

Chemex's analyses for gold, which in this case used only AA without initial fire assay for bead preparation, show markedly lower results than Acme, which used the combination technique. Comparison results for copper, molybdenum, lead, zinc, silver and gold are tabulated in Table 3. Complete results are presented on the enclosed assay reports.

No startling anomalies are present in the data. One gold value of 128 ppb obtained by Fletcher from Wanokana looks impressive, but in view of the low values present in the other Wanokana samples, probably represents an example of nugget effect. The most significant point is the absence of any copper - molybdenum anomaly in Hushamu Creek. A multi-million ton body of mineralization is believed to be present in outcrop five kilometers upstream from the sample site. The absence of any anomaly points out the high rate of leaching under present climatic conditions in the rain forest of northern Vancouver Island.

Below are presented the means and standard deviations for the various elements for which analyses were carried out in the silt sampling program. No statistics have been prepared for gold and silver, since it was judged that the analytical techniques were not sufficiently sensitive to yield values which had any real meaning at the levels of concentration present in the drainages sampled.

Element	Mean	Standard Deviation
Copper	37.1	7.5
Molybdenum	2.1	1.2
Lead	8.4	3.5
Zinc	54.3	13.1

In view of the absence of significant differences in values between the various drainages sampled, it was deemed unnecessary to plot the individual results on the accompanying location map (Map 2). Two exceptions are noted and plotted. Zinc values at two sites (Sites 3 and 4) on Youghpan Creek and a nearby tributary are greater than one standard deviation from the mean and probably should be followed up, especially in view of their proximity to one another.

Table 3 Comparison of Silt Sediment Analyses*
(See Map II for sample locations.)

Sampling of March, 1982	Cu	Mo	Pb	Zn	Ag	Au (ppb)
Site 1 (Youghpan)	39	3	14	59		10,10,10,10
Site 2 (Youghpan tributary)	49	3	9	50		< 5, <5
Site 3 (Youghpan)	42	1	6	72		< 5, <5
Site 4 (Youghpan trib. east)	41	2	9	92		10, 5
Site 5 (" " "	49	4	13	50		< 5, < 5
Site 6 ("Center Creek")	36	2	7	49		< 5, 25
Site 7 (Wanokana)	49	1	3	53		5, 5, 5, 55
Site 8 (Wanokana trib. west)	30	1	2	62		5, 5, 5, 10
Fletcher Sampling, Nov. 1982						
# 76886 (Wanokana)	30	2	9	41	0.1	128
# 76887 (Youghpan) (Same site)	33	3	12	40	0.1	36
# 76888 (") (Same site)	30	2	11	50	0.1	42
# 76889 (Hushamu)	36	5	13	34	0.1	46
Pearson Sampling, Nov. 1982)						
Site 9s (Wanokana) (Same site)	28	1	6	50	0.1	20
Site 10s (") (Same site)	27	1	6	58	0.1	10
Site 11s (Youghpan) (Same site)	33	1	8	52	0.1	< 10
Site 12s (") (Same site)	35	1	6	58	0.1	< 10
Site 13s (Hushamu)	44	3	9	53	0.1	< 10

* All values in ppm except gold which is given in ppb. -80 mesh fraction.

CHEMEX LABS LTD.

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NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: (604)984-0221
TELEX: 043-52597

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

TO : PEARSON, MR. BRAD

7431 LINDSAY ROAD
RICHMOND, B.C.
V7C 3M7

CERT. # : A8211170-001-A
INVOICE # : I8211170
DATE : 31-MAY-82
P.O. # : NONE

Sample description	Prep code	Cu ppm	Mo ppm	Pb ppm	Zn ppm		
LARGE 1 A	214	39	3	14	54	--	--
SMALL 2 A	214	49	3	9	50	--	--
SMALL 3 A	214	42	1	6	72	--	--
SMALL 4 A	214	41	2	9	92	--	--
SMALL 5 A	214	49	4	13	50	--	--
SMALL 6 B	214	36	2	7	49	--	--
LARGE 7 B	214	49	1	3	53	--	--
LARGE 8 C	214	30	1	2	62	--	--

Silt samples. -80 mesh fraction was analyzed.

Certified by Hart Bichler

CHEMEX LABS LTD.

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NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: (604)984-0221
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CERTIFICATE OF ANALYSIS

TO : PEARSON, MR. BRAD

7431 LINDSAY ROAD
RICHMOND, B.C.
V7C 3M7

CERT. # : A8210970-001-A
INVOICE # : I8210970
DATE : 11-MAY-82
P.O. # : NONE

Sample description	Prep code	Au FA+AA ppb					
LARGE 1A	202	10	--	--	--	--	--
LARGE 1B	202	10	--	--	--	--	--
LARGE 1C	202	10	--	--	--	--	--
LARGE 1D	202	10	--	--	--	--	--
SMALL 2A	202	<5	--	--	--	--	--
SMALL 2B	202	5	--	--	--	--	--
SMALL 3A	202	<5	--	--	--	--	--
SMALL 3B	202	5	--	--	--	--	--
SMALL 4A	202	10	--	--	--	--	--
SMALL 4B	202	5	--	--	--	--	--
SMALL 5A	202	5	--	--	--	--	--
SMALL 5B	202	<5	--	--	--	--	--
SMALL 6A	202	<5	--	--	--	--	--
SMALL 6B	202	25	--	--	--	--	--
LARGE 7A	202	5	--	--	--	--	--
LARGE 7B	202	55	--	--	--	--	--
LARGE 7C	202	<5	--	--	--	--	--
LARGE 7D	202	5	--	--	--	--	--
LARGE 8A	202	5	--	--	--	--	--
LARGE 8B	202	5	--	--	--	--	--
LARGE 8C	202	10	--	--	--	--	--
LARGE 8D	202	5	--	--	--	--	--

Silt samples. -80 mesh fraction was analyzed.

Certified by .....

CHEMEX LABS LTD.

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NORTH VANCOUVER, B.C.
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TELEPHONE: (604) 984-0221
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CERTIFICATE OF ANALYSIS

TO : PEARSON, MR. BRAD

7431 LINDSAY ROAD
RICHMOND, B.C.
V7C 3M7

CERT. # : A8214618-001-A
INVOICE # : I8214618
DATE : 3-DEC-82
P.O. # : NONE

Sample description	Prep code	Cu ppm	Mo ppm	Pb ppm	Zn ppm	Ag ppm	AU-AA ppb
# 9S	202	28	1	6	50	0.1	20
# 10S	202	27	1	6	58	0.1	10
# 11S	202	33	1	8	52	0.1	<10
# 12S	202	35	1	6	58	0.1	<10
# 13S	202	44	3	9	53	0.1	<10

Silt samples. -80 mesh fraction was analyzed.

Certified by Hart Bichler

ACME ANALYTICAL LABORATORIES LTD. 852 E. HASTINGS, VANCOUVER B.C. PH:253-3158 TELEX:04-53124

ICP GEOCHEMICAL ANALYSIS

A .500 GRAM SAMPLE IS DIGESTED WITH 3 ML OF 3:1:3 HCL TO HNO3 TO H2O AT 90 DEG.C. FOR 1 HOUR. THE SAMPLE IS DILUTED TO 10 MLS WITH WATER.
THIS LEACH IS PARTIAL FOR: Ca,P,Mg,Al,Ti,La,Na,K,W,Ba,Si,Sr,Cr AND B. Au DETECTION 3 ppb.
AU!! ANALYSIS FROM 10 GRAM FA+AA. AG! ANALYSIS BY AA. HG! ANALYSIS BY FLAMELESS AA FROM .500 GRAM SAMPLE. SAMPLE TYPE - ROCK CHIPS

DATE RECEIVED NOV 19 1982 DATE REPORTS MAILED Nov 29/82 ASSAYER D. Toye DEAN TOYE, CERTIFIED B.C. ASSAYER

ASARCO FILE # 82-1546 Project # Pemberton PAGE # 1

SAMPLE #	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au!! ppb	Hg! ppb	Ag! ppm
76881	8	35	24	11	.1	1	4	12	3.31	14	2	ND	2	11	1	2	7	13	.01	.01	2	2	.01	203	.01	4	.34	.01	.01	2	8	100	.1
76882	3	18	13	10	.1	1	1	19	1.35	25	2	ND	2	2	1	2	2	5	.01	.01	2	2	.01	13	.01	2	.06	.01	.01	2	3	5	.1
76883	2	3	6	4	.1	1	1	20	.39	4	2	ND	2	15	1	2	2	2	.01	.01	2	1	.01	82	.01	2	.12	.01	.01	2	5	40	.1
76884	13	153	22	3	.2	1	6	15	27.78	47	2	ND	2	3	1	7	2	36	.01	.05	2	4	.03	28	.01	2	.35	.01	.01	2	32	60	.2
76885	11	48	39	3	.2	1	3	2	9.48	23	2	ND	2	13	1	4	12	27	.01	.03	2	4	.01	73	.01	2	.26	.01	.01	2	30	30	.1
76886	2	30	9	41	.2	9	9	419	3.16	14	2	ND	3	70	1	2	3	72	1.23	.04	6	19	.74	64	.12	10	2.42	.05	.06	2	128	5	.1
76887	3	33	12	40	.1	8	7	379	3.49	7	3	ND	2	50	1	2	3	82	.42	.03	5	25	.88	112	.05	4	2.55	.03	.06	2	36	40	.1
76888	2	30	11	50	.1	6	10	570	4.87	9	2	ND	2	68	1	2	5	87	.64	.07	6	16	.81	218	.06	3	2.30	.03	.06	2	42	30	.1
76889	5	36	13	34	.1	6	8	333	5.25	10	2	ND	2	38	1	2	5	69	.37	.05	4	15	.77	134	.06	4	1.63	.02	.05	2	46	20	.1
~~76890~~	~~21~~	~~169~~	~~175~~	~~76~~	~~.4~~	~~21~~	~~204~~	~~71~~	~~12.24~~	~~1215~~	~~2~~	~~ND~~	~~2~~	~~63~~	~~8~~	~~5~~	~~5~~	~~44~~	~~.05~~	~~.02~~	~~2~~	~~17~~	~~.07~~	~~21~~	~~.01~~	~~2~~	~~1.04~~	~~.01~~	~~.01~~	~~2~~	~~28~~	~~320~~	~~.3~~
76891	4	6	53	10	.1	1	7	56	1.88	49	2	ND	2	9	1	2	2	10	.01	.01	2	3	.06	17	.01	4	.62	.01	.01	2	3	30	.1
76892	2	38	7	45	.1	7	15	31	5.22	6	2	ND	2	5	1	2	5	11	.01	.01	2	4	.01	27	.01	6	.58	.01	.01	2	9	10	.1
76893	3	9	5	15	.1	2	4	183	1.81	5	2	ND	8	25	1	2	2	40	.57	.03	10	7	.44	51	.09	5	.98	.07	.07	2	6	5	.1
76894	9	30	8	3	.3	42	30	18	5.77	10	2	ND	2	2	1	2	5	15	.01	.01	2	18	.01	33	.01	5	.47	.01	.01	2	28	110	.4
76895	1	46	10	65	.1	4	16	1241	5.60	22	7	ND	2	55	2	2	4	152	1.96	.11	12	5	1.93	102	.44	12	3.10	.10	.05	2	9	10	.1
76896	1	28	14	85	.1	4	13	1038	4.82	14	8	ND	2	97	2	2	2	126	2.30	.09	9	6	1.96	39	.24	8	4.05	.13	.08	2	6	30	.1
76897	2	53	22	86	1.1	8	21	1234	7.80	166	7	ND	2	61	2	2	4	60	2.94	.10	9	9	1.64	43	.09	2	2.27	.01	.20	2	149	5	1.2
76898	44	67	56	7	1.7	1	4	14	10.53	146	2	ND	2	10	1	5	35	14	.05	.11	2	6	.04	349	.01	10	.51	.01	.03	2	4	740	1.3
STD A-1	1	30	40	174	.4	33	12	1001	2.60	12	2	ND	2	37	1	2	2	55	.61	.10	8	70	.81	287	.08	7	1.90	.02	.19	2	540	50	.3

Si lt samples. -80 mesh fraction was analyzed.

Rock Geochemistry

Initial efforts were aimed at testing the sulfides in the advanced argillic zone (Unit I) for gold and silver, since Utah's soil sampling across the area indicated little likelihood of outcropping copper-molybdenum mineralization. Rock geochemical analyses were carried out for Pearson by Chemex Labs using fire assay and atomic absorption (Samples 6,7,8 and 9, Cert. # A8212033-001-A). These showed only background values for gold (5-15 ppb). Another sample (12) taken at the summit of Pemberton Hill was a part of a float boulder of limonitic boxwork . It yielded a value of 20 ppb gold which was judged to be unimportant.

David Peterson collected five samples (#3612 to #3616) from Unit I. These were assayed at Chemex for Cu, Mo, Ag and Au. Results are reported on Cert. # A8212026-001-A. Only silver is above the detection limit. Values range from 0.8 g/tonne to 2.3 g/tonne, again unimportant. Peterson's last sample, # 3617, the values for which are comparable with those from Unit I, was taken at the old Lafarge silica quarry on Holberg Inlet east of Wanokana Creek, in rock comparable with that of Unit C.

Pearson also tested two specimens (13 and 13A) from Unit F. Specimen 13 was slightly jarositic. Specimen 13A showed one face coated with very fine grained pyrite. Gold was not significant in either. Pearson's Specimen 14 from the Lafarge quarry also yielded no significant gold values.

Continuing work consisted of broadening the range of elements checked and investigating outcrop areas not previously studied. Two samples (48A and 48B) from the bedded chert-sulfide band found within Unit E were assayed for Pearson by Chemex. Results are reported on Cert.# A8214617-001-A. Values for Cu, Mo, Pb and Zn do not exceed the hundredths of a percent range. Values for gold and silver are also very low.

However, Walker and Benvenuto, sampling for Westmin, and Fletcher, sampling for Asarco, subjected their samples of the bedded chert-pyrite to analytical work of more sensitivity with interesting results. Walker's sample (82Pemb-1) was analyzed by Chemex using atomic absorption. Fletcher's sample (#76890) was analyzed by Acme using inductively coupled plasma techniques. The results for each are shown below and plotted on Map 5. Unfortunately none of the elements approach grades of economic interest.

Element	Fletcher #76890	Walker 82Pemb-1
As (ppm)	1215	350
Hg (ppb)	320	100
Pb (ppm)	175	180
Cu "	169	200
Mo "	21	18
Co "	204	168
Zn "	76	1000
Ba "	21	1900
Ag "	0.3	0.6
Au (ppb)	28	80

Excepting zinc and barium, there is unusually good agreement

between these analyses. Admittedly the arsenic values vary by a factor of four, but both are unusually high and easy to spot as anomalous. Gold is not impressive. However, Walker had an assay run as well, and this yielded a value of 0.026 oz/T. (See Cert.# A8214548-001-A). Perhaps more sampling is indicated.

Unit B has beentested by both Fletcher (Sample #76897) and Walker (Sample 82Pemb-2). Fletcher's value for Au (149 ppb) was obtained using fire assay and atomic absorption. However, Walker's sample taken at the same site but analyzed by atomic absorption alone showed less than 10 ppb. The differences are unexplained.

Unit C has been tested by Walker and by Fletcher. Fletcher's sample (#76894) was somewhat elevated in Hg (110 ppb), Walker's sample (82Pemb-3) very much more so (1500 ppb). Clearly more work is warranted here.

Unit F was tested by Fletcher (Sample #76883) with no unusual results. However, material taken at a seep draining from the cliff face (probably a chemical precipitate) was analyzed (Sample #76898) and yielded a mercury content of 740 ppb, very definitely anomalous. This will be followed up.

Sampling by Fletcher of Unit A (#76893), Unit G (#76895) and Unit H (#76896) yielded no values beyond those expected for rocks of the type sampled. A sample of Unit E (#76891), taken by Fletcher several feet to the west of the bedded chert-sulfides also showed no unusual element distributions.

Fletcher took three samples of Unit I where the rock was fresh. Bearing in mind the petrographic work, the iron analyses of these samples (#76881, #76882 and #76892) allow the calculation of the pyrite content which, for the three, averages 7.1%. Two other samples taken at the base of a limonite-stained scree slope were treated by the lab as soils and only the -80 mesh fraction analyzed. The limonite-rich nature of the material is reflected by the high iron values (9.48% and 27.78%). Copper is proportional to iron in these samples (#76885 and #76884), running 48 ppm and 153 ppm respectively.

The rock geochemical work suggests several approaches for future consideration. One of these consists of the widespread use of further ICP analyses, which offer a large number of elemental analyses at very low cost per element. Since each rock unit should tend to have a unique ratio of elements, this procedure would contribute to the correlation of outcrops separated by wide expanses of overburden or of other rock units.

The detection of mercury in abnormal concentrations may be of use in delineating zones of hydrothermal alteration. Likewise, elevated arsenic and cobalt levels may aid in the detection of extensions of the chert-sulfide horizon, possibly with results of economic significance.

CHEMEX LABS LTD.

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TELEPHONE: (604) 984-0221
TELEX: 043-52597

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CERTIFICATE OF ANALYSIS

TO : PEARSON, MR. BRAD

7431 LINDSAY ROAD
RICHMOND, B.C.
V7C 3M7

CERT. # : A8212033-001-A
INVOICE # : I8212033
DATE : 28-JUL-82
P.O. # : NONE

Sample description	Prep code	Au FA+AA ppb					
# 6	205	10	--	--	--	--	--
# 7	205	5	--	--	--	--	--
# 8	205	10	--	--	--	--	--
# 9	205	15	--	--	--	--	--
# 12	205	20	--	--	--	--	--
# 13	205	<5	--	--	--	--	--
# 13A	205	5	--	--	--	--	--
# 14	205	5	--	--	--	--	--

Certified by ..... Hartwig Richter

CHEMEX LABS LTD.

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TELEPHONE: (604) 984-0221
TELEX: 043-52597

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CERTIFICATE OF ASSAY

TO : RIOCANEX INCORPORATED

STE. 520 - 800 W. PENDER STREET
VANCOUVER, B.C.
V6C 2V6

ATTN: D. PETERSON

CERT. # : A8212026-001-A
INVOICE # : I8212026
DATE : 23-JUL-82
P.O. # : NONE
PROPERTY EXAM 8301

Sample description	Prep code	Cu %	Mo %	Ag AA g/tonne	Au g/tonne		
3612	207	<0.01	<0.001	1.9	<0.1	--	--
3613	207	<0.01	<0.001	1.7	<0.1	--	--
3614	207	0.01	<0.001	2.3	<0.1	--	--
3615	207	<0.01	<0.001	1.0	<0.1	--	--
3616	207	<0.01	<0.001	0.8	<0.1	--	--
3617	207	<0.01	<0.001	1.7	<0.1	--	--
~~3618~~	~~207~~	~~0.05~~	~~<0.001~~	~~2.3~~	~~<0.1~~	~~--~~	~~--~~

RECEIVED
JUL 26 1982

Ken Ancenini
Registered Assayer, Province of British Columbia

CHEMEX LABS LTD.

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NORTH VANCOUVER, B.C.
CANADA V7J 2C1

TELEPHONE: (604) 984-0221
TELEX: 043-52597

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CERTIFICATE OF ASSAY

TO : PEARSON, MR. BRAD

7431 LINDSAY ROAD
RICHMOND, B.C.
V7C 3M7

CERT. # : A8214617-001-A
INVOICE # : I8214617
DATE : 7-DEC-82
P.O. # : NONE

Sample description	Prep code	Cu %	Mo %	Pb %	Zn %	Ag FA oz/T	Au FA oz/t
48 A	207	0.02	0.003	0.04	0.01	0.04	0.003
48 B	207	0.01	0.003	0.06	0.01	0.04	0.003

Registered Assayer, Province of British Columbia

ACME ANALYTICAL LABORATORIES LTD. 852 E. HASTINGS, VANCOUVER B.C. PH:253-3158 TELEX:04-53124

ICP GEOCHEMICAL ANALYSIS

A .500 GRAM SAMPLE IS DIGESTED WITH 3 ML OF 3:1:3 HCL TO HNO3 TO H2O AT 90 DEG.C. FOR 1 HOUR. THE SAMPLE IS DILUTED TO 10 MLS WITH WATER.
THIS LEACH IS PARTIAL FOR: Ca,P,Mg,Al,Ti,La,Na,K,W,Ba,Si,Sr,Cr AND B. Au DETECTION 3 ppm.
AU‡ ANALYSIS FROM 10 GRAM FA+AA. AG‡ ANALYSIS BY AA. HG‡ ANALYSIS BY FLAMELESS AA FROM .500 GRAM SAMPLE. SAMPLE TYPE - ROCK CHIPS

DATE RECEIVED NOV 19 1982 DATE REPORTS MAILED Nov 29/82 ASSAYER D. Toye DEAN TOYE, CERTIFIED B.C. ASSAYER

ASARCO FILE # 82-1546 Project # Pemberton PAGE # 1

SAMPLE #	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au‡ ppb	Hg‡ ppb	Ag‡ ppm
76881	8	35	24	11	.1	1	4	12	3.31	14	2	ND	2	11	1	2	7	13	.01	.01	2	2	.01	203	.01	4	.34	.01	.01	2	8	100	.1
76882	3	18	13	10	.1	1	1	19	1.35	25	2	ND	2	2	1	2	2	5	.01	.01	2	2	.01	13	.01	2	.06	.01	.01	2	3	5	.1
76883	2	3	6	4	.1	1	1	20	.39	4	2	ND	2	15	1	2	2	2	.01	.01	2	1	.01	82	.01	2	.12	.01	.01	2	5	40	.1
76884 SCREE	13	153	22	3	.2	1	6	15	27.78	47	2	ND	2	3	1	7	2	36	.01	.05	2	4	.03	28	.01	2	.35	.01	.01	2	32	60	.2
76885 SCREE	11	48	39	3	.2	1	3	2	9.48	23	2	ND	2	13	1	4	12	27	.01	.03	2	4	.01	73	.01	2	.26	.01	.01	2	30	30	.1
~~76886~~	~~2~~	~~30~~	~~9~~	~~41~~	~~.2~~	~~9~~	~~9~~	~~419~~	~~3.16~~	~~14~~	~~2~~	~~ND~~	~~3~~	~~70~~	~~1~~	~~2~~	~~3~~	~~72~~	~~1.23~~	~~.04~~	~~6~~	~~19~~	~~.74~~	~~84~~	~~.12~~	~~10~~	~~2.42~~	~~.05~~	~~.06~~	~~2~~	~~120~~	~~5~~	~~.1~~
~~76887~~	~~3~~	~~33~~	~~12~~	~~40~~	~~.1~~	~~8~~	~~7~~	~~379~~	~~3.49~~	~~7~~	~~3~~	~~ND~~	~~2~~	~~50~~	~~1~~	~~2~~	~~3~~	~~82~~	~~.42~~	~~.03~~	~~5~~	~~25~~	~~.88~~	~~112~~	~~.05~~	~~4~~	~~2.55~~	~~.03~~	~~.06~~	~~2~~	~~36~~	~~40~~	~~.1~~
~~76888~~	~~2~~	~~30~~	~~11~~	~~56~~	~~.1~~	~~6~~	~~10~~	~~570~~	~~4.87~~	~~9~~	~~2~~	~~ND~~	~~2~~	~~68~~	~~1~~	~~2~~	~~5~~	~~87~~	~~.64~~	~~.07~~	~~6~~	~~16~~	~~.81~~	~~218~~	~~.06~~	~~3~~	~~2.30~~	~~.03~~	~~.06~~	~~2~~	~~42~~	~~30~~	~~.1~~
~~76889~~	~~5~~	~~36~~	~~13~~	~~34~~	~~.1~~	~~6~~	~~8~~	~~333~~	~~5.25~~	~~10~~	~~2~~	~~ND~~	~~2~~	~~38~~	~~1~~	~~2~~	~~5~~	~~69~~	~~.37~~	~~.05~~	~~4~~	~~15~~	~~.77~~	~~134~~	~~.06~~	~~4~~	~~1.63~~	~~.02~~	~~.05~~	~~2~~	~~46~~	~~20~~	~~.1~~
76890	21	169	175	76	.4	21	204	71	12.24	1215	2	ND	2	63	8	5	5	44	.05	.02	2	17	.07	21	.01	2	1.04	.01	.01	2	28	320	.3
76891	4	6	53	10	.1	1	7	56	1.88	49	2	ND	2	9	1	2	2	10	.01	.01	2	3	.06	17	.01	4	.62	.01	.01	2	3	30	.1
76892	2	38	7	45	.1	7	15	31	5.22	6	2	ND	2	5	1	2	5	11	.01	.01	2	4	.01	27	.01	6	.58	.01	.01	2	9	10	.1
76893	3	9	5	15	.1	2	4	183	1.81	5	2	ND	8	25	1	2	2	40	.57	.03	10	7	.44	51	.09	5	.98	.07	.07	2	6	5	.1
76894	9	30	8	3	.3	42	30	18	5.77	10	2	ND	2	2	1	2	5	15	.01	.01	2	18	.01	33	.01	5	.47	.01	.01	2	28	110	.4
76895	1	46	10	65	.1	4	16	1241	5.60	22	7	ND	2	55	2	2	4	152	1.96	.11	12	5	1.93	102	.44	12	3.10	.10	.05	2	9	10	.1
76896	1	28	14	85	.1	4	13	1038	4.82	14	8	ND	2	97	2	2	2	126	2.30	.09	9	6	1.96	39	.24	8	4.05	.13	.08	2	6	30	.1
76897	2	53	22	86	1.1	8	21	1234	7.80	166	7	ND	2	61	2	2	4	60	2.94	.10	9	9	1.64	43	.09	2	2.27	.01	.20	2	149	5	1.2
76898 SLUDGE	44	67	56	7	1.7	1	4	14	10.53	146	2	ND	2	10	1	5	35	14	.05	.11	2	6	.04	349	.01	10	.51	.01	.03	2	4	740	1.3
STD A-1	1	30	40	174	.4	33	12	1001	2.60	12	2	ND	2	37	1	2	2	55	.61	.10	8	70	.81	287	.08	7	1.90	.02	.19	2	540	50	.3

Note: Whereas rock chips were crushed to provide analytical material for most of these samples, this was not the case for the scree and sludge samples. In these latter cases, only the -80 mesh fraction of the original dried sample was analyzed.

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TELEX: 043-52597

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CERTIFICATE OF ANALYSIS

TO : WESTMIN RESOURCES LIMITED

904-1055 DUNSMUIR STREET
VANCOUVER, B.C.
V7X 1C4

CERT. # : A8214549-001-A
INVOICE # : 18214549
DATE : 2-DEC-82
P.O. # : NONE
SICKER-GENERATIVE

CC: RICHARD WALKER , CAMPBELL RIVER

Sample description	Prep code	Cu ppm	Mo ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm
82-PEMB-2	205	76	14	18	30	1.0	--

Certified by ..Hart Bichler...

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CERTIFICATE OF ANALYSIS

TO : WESTMIN RESOURCES LIMITED

904-1055 DUNSMUIR STREET
VANCOUVER, B.C.
V7X 1C4

CERT. # : A8214549-001-C
INVOICE # : 18214549
DATE : 2-DEC-82
P.O. # : NONE
SICKER-GENERATIVE

CC: RICHARD WALKER , CAMPBELL RIVER

Sample description	Prep code	Sb ppm	Ba ppm				
82-PEMB-2	205	4.2	--	--	--	--	--

Certified by Hart Bichler

CHEMEX LABS LTD.

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CANADA V7J 2C1

TELEPHONE: (604) 984-0221
TELEX: 043-52597

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CERTIFICATE OF ANALYSIS

TO : WESTMIN RESOURCES LIMITED

904-1055 DUNSMUIR STREET
VANCOUVER, B.C.
V7X 1C4

CERT. # : A8214549-001-B
INVOICE # : I8214549
DATE : 2-DEC-82
P.O. # : NONE
SICKER-GENERATIVE

CC: RICHARD WALKER , CAMPBELL RIVER

Sample description	Prep code	Co ppm	Mn ppm	AS ppm	AU-AA ppb	W ppm	Hg ppb
82-PEM8-2	205	--	--	24	<10	--	--

Certified by Hart Bichler

CHEMEX LABS LTD.

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CANADA V7J 2C1

TELEPHONE: (604) 984-0221
TELEX: 043-52597

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CERTIFICATE OF ANALYSIS

TO : WESTMIN RESOURCES LIMITED

904-1055 DUNSMUIR STREET
VANCOUVER, B.C.
V7X 1C4

CERT. # : A8214548-001-A
INVOICE # : I8214548
DATE : 3-DEC-82
P.O. # : NONE
SICKER-GENERATIVE

CC: RICHARD WALKER, CAMPBELL RIVER, B.C.

Sample description	Prep code	Cu ppm	Mo ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm
82-PEMB-1	207	200	18	180	1000	0.6	30
82-PEMB-3	207	67	3	15	180	1.3	17

Certified by Hart Bichler

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CERTIFICATE OF ANALYSIS

TO : WESTMIN RESOURCES LIMITED

904-1055 DUNSMUIR STREET
VANCOUVER, B.C.
V7X 1C4

CERT. # : A8214548-001-B
INVOICE # : I8214548
DATE : 3-DEC-82
P.O. # : NONE
SICKER-GENERATIVE

CC: RICHARD WALKER, CAMPBELL RIVER, B.C.

Sample description	Prep code	Co ppm	Mn ppm	AS ppm	AU-AA ppb	W ppm	Hg ppb
82-PEMB-1	207	168	55	350	80	1	100
82-PEMB-3	207	23	12	17	60	1	1500

Certified by ...Hartt Bichler.....

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CERTIFICATE OF ANALYSIS

TO : WESTMIN RESOURCES LIMITED

904-1055 DUNSMUIR STREET
VANCOUVER, B.C.
V7X 1C4

CERT. # : A8214548-001-C
INVOICE # : I8214548
DATE : 3-DEC-82
P.O. # : NONE
SICKER-GENERATIVE

CC: RICHARD WALKER, CAMPBELL RIVER, B.C.

Sample description	Prep code	Sb ppm	Ba ppm				
82-PEMB-1	207	4.6	1900	--	--	--	--
82-PEMB-3	207	0.8	120	--	--	--	--

Certified by Hart Bichler

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CANADA V7J 2C1

TELEPHONE: (604) 984-0221
TELEX: 043-52597

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CERTIFICATE OF ASSAY

TO : WESTMIN RESOURCES LIMITED

904-1055 DUNSMUIR STREET
VANCOUVER, B.C.
V7X 1C4

CERT. # : A8214548-001-A
INVOICE # : I8214548
DATE : 3-DEC-82
P.O. # : NONE
SICKER-GENERATIVE

CC: RICHARD WALKER, CAMPBELL RIVER, B.C.

Sample description	Prep code	Ag FA oz/T	Au FA oz/t				
82-PEMB-1	207	0.04	0.026	--	--	--	--
82-PEMB-3	207	0.04	0.005	--	--	--	--

R. Stewart

Registered Assayer, Province of British Columbia

References

Ascencios, A. 1973: Expo Group, A.R. #4754

Clouthier, G. 1971: Expo Group, A.R. #3402

Muller, J.E., Northcote, K.E. and Carlisle, D. 1974: Geology and Mineral Deposits of Alert Bay-Cape Scott Map-Area, Vancouver Island, B.C. G.S.C. Paper 74-8

Northcote, K.E. 1969: Geology of the Port Hardy-Coal Harbour Area, B.C.D.M. Annual Report on Lode Metals, 1968, p.84-87

Northcote, K.E. 1971: Rupert Inlet-Cape Scott Map-Area, B.C.D.M. G.E.M. 1970, p.254-278

Young, M. 1969: Expo Group, A.R. #2190

Qualifications of Personnel

Bradford D. Pearson

S.B., Mass. Inst. of Tech. 1950; M.A., Boston Univ. 1961; Grad. work in Econ. Geol., Harvard Univ.,1955-6. Member Prof. Eng. of B.C., Fellow, Geol. Assoc. Canada. Member Geol. Soc. Amer., A.A.A.S. Have practiced as an exploration and mining geologist in western Canada since 1962. Experience includes carbonate-hosted lead-zinc deposits, massive sulfides, porphyry copper-molybdenum deposits, uranium exploration, heavy oil, tar sands and natural gas. Have specialized in geochemical approaches to exploration.

Chris Pearson

Four years experience as geological and geophysical field assistant. Experienced in soil, silt and rock sampling, grid layout and magnetometry, scintillometry and induced polarization surveys. Has worked in B.C., Yukon and Northwest Territories.

J.R.Woodcock, P.Eng., F.G.A.C.

Consulting Geologist based in Vancouver, B.C. Specializes in characterization of hydrothermal alteration patterns, especially as they apply to porphyry copper-molybdenum deposits. One of Canada's leading authorities on molybdenum deposits.

David Fletcher, F.G.A.C., P.Eng.

Senior Exploration Geologist, Asarco Exploration Company of Canada, Ltd. Based in Vancouver, B.C.

Richard Walker, PhD.
Gary Benvenuto, PhD.

Exploration geologists with Westmin Resources specializing in Vancouver Island. Based in Cambell River, B.C.

David Peterson

At the time of the work reported, Senior Geologist with Riocanex, Vancouver, B.C. Had been with that company for approximately eleven years. Formerly with Placer Development, Ltd.

Victor Ryback-Hardy, P.Eng.

President of Hinterland Resource Services, Ltd. Active throughout western Canada and the western United States as an exploration and consulting geologist since the early 1970s. Worked as a student assistant on the Expo Group for Utah Mines. Has served in senior positions with El Paso, and with Kennco Explorations.

Statement of Costs

Personnel

B.D.Pearson

Field time: July 8,9, Aug. 27, Nov. 15,17,18	6 days @ $250	$1500.00
Office time: Period March 7-22	6 days @ $250	1500.00
Chris Pearson: Field time, July 8,9 Nov. 15,17,18	5 days @ $65	325.00
David Peterson, Riocanex: July 9,10;	2 days	N.C.*
Richard Walker, Westmin: Nov. 15;	1 day	N.C.
Gary Benvenuto, Westmin: Nov. 15;	1 day	N.C.
David Fletcher, Asarco: Nov. 17,18;	2 days	N.C.

Truck Charges: 4 wheel drive, July 8,9, Nov. 15,17,18 5 days @ $40	200.00
Helicopter, Nov. 18: 1.1 hrs. @ $450	495.00
Fuel and oil	55.70
Petrographic Preparations	
Thin sections and K-staining: 17 @ $7.50	
1 rock polish @ $5.00	
2 cuts @ $1.50	135.50
Assays (See enclosed bills for unit costs)	
Paid by Pearson $371.80	
" " Westmin 96.93	
" " Asarco 244.17	
" " Riocanex Not available	712.90
Petrographic Report by J.R.Woodcock	640.00

* Although these individuals worked on the property on the dates specified, their times are not credited for assessment work.

Motel, Port Hardy, C. & B.D.Pearson			
	July 9	$36.04	
	Nov. 14-17	161.12	$197.16
Food and meals, Port Hardy, C. & B.D.Pearson			
	July 8,9	$36.38	
	Nov. 14-18	46.34	82.72
Typing: 27 pages @ $5			135.00
Drafting: 7 hours @ $20			140.00
Map reproductions and xeroxing:			119.74
Total			$6238.72

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TELEX: 043-52597

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

*** INVOICE ***

To : PEARSON, MR. BRAD

7431 LINDSAY ROAD
RICHMOND, B.C.
V7C 3M7

Invoice # : I8214617

Date : 7-DEC-82
P.O. # : NONE
Project

Invoice for analytical work reported on certificate(s) A8214617-001

Quantity	Analysed for code	description		unit price	amount
2	301	Cu	%		
	306	Mo	%		
	312	Pb	%		
	316	Zn	%		
	383	Ag FA	oz/T		
	396	Au FA	oz/t	30.00	60.00
		Sample preparation and other charges :			
2	207	Assay - PULVERIZE		3.75	7.50
				TOTAL	$ 67.50
				Please pay this amount ---->	$ 67.50

TERMS -- NET 30 DAYS
1.5 % per month (18 % per annum) charged on overdue accounts

Pd Dec 10 chq # 116 Acct 101213-5
(Also pd. Inv. # 18214618) $121.00

CTA MEMBER CANADIAN TESTING ASSOCIATION

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TELEX: 043-52597

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*** INVOICE ***

To : PEARSON, MR. BRAD

7431 LINDSAY ROAD
RICHMOND, B.C.
V7C 3M7

Invoice # : I8210970

Date : 11-MAY-82
P.O. # : NONE
Project

Invoice for analytical work reported on certificate(s) A8210970-001

Quantity	Analysed for code	description	unit price	amount
22	100	- Au FA+AA ppb	6.00	132.00
		Sample preparation and other charges :		
22	202	- -80 mesh, save reject	0.80	17.60
			TOTAL	$ 149.60
			Please pay this amount ---->	$ 149.60

TERMS -- NET 30 DAYS
2.0 % per month (24 % per annum) charged on overdue accounts

Pd May 19 chq # 107 -
Acct 100463-9

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*** INVOICE ***

To : PEARSON, MR. BRAD

7431 LINDSAY ROAD
RICHMOND, B.C.
V7C 3M7

Invoice # : I8211170

Date : 31-MAY-82
P.O. # : NONE
Project

Invoice for analytical work reported on certificate(s) A8211170-001

Quantity	Analysed for code	description	unit price	amount
8	002 - Cu	ppm		
	003 - Mo	ppm		
	004 - Pb	ppm		
	005 - Zn	ppm	4.15	33.20
	Sample preparation and other charges :			
8	214 - Bag pulp		0.00	0.00
			TOTAL	$ 33.20
			Please pay this amount ---->	$ 33.20

TERMS -- NET 30 DAYS
2.0 % per month (24 % per annum) charged on overdue accounts

Pd June 15, Cheque # 111
Acct 100463-9

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TELEX: 043-52597

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*** INVOICE ***

To : PEARSON, MR. BRAD

7431 LINDSAY ROAD
RICHMOND, B.C.
V7C 3M7

Invoice # : I8214618

Date : 3-DEC-82
P.O. # : NONE
Project

Invoice for analytical work reported on certificate(s) A8214618-001

Quantity	Analysed for code	description	unit price	amount
5	002 - Cu	ppm		
	003 - Mo	ppm		
	004 - Pb	ppm		
	005 - Zn	ppm		
	006 - Ag	ppm		
	017 - AU-AA	ppb	9.90	49.50
	Sample preparation and other charges :			
5	202 - -80 mesh, save reject		0.80	4.00
			TOTAL	$ 53.50
			Please pay this amount ---->	$ 53.50

TERMS -- NET 30 DAYS
2.0 % per month (24 % per annum) charged on overdue accounts

Pd Dec 10 Cheque # 116 Acct 101313-5 $121.00
(Also pd Inv. # 18214617)

CTA MEMBER CANADIAN TESTING ASSOCIATION

CHEMEX LABS LTD.

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TELEPHONE: (604) 984-0221
TELEX: 043-52597

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*** INVOICE ***

To : PEARSON, MR. BRAD

7431 LINDSAY ROAD
RICHMOND, B.C.
V7C 3M7

Invoice # : I8212033

Date : 28-JUL-82
P.O. # : NONE
Project

Invoice for analytical work reported on certificate(s) A8212033-001

Quantity	Analysed for code	description	unit price	amount
8	100	Au FA+AA ppb	6.00	48.00
		Sample preparation and other charges :		
8	205	Rock geochem - RING	2.50	20.00
			TOTAL	$ 68.00
			Please pay this amount ---->	$ 68.00

TERMS -- NET 30 DAYS
2.0 % per month (24 % per annum) charged on overdue accounts

PAID
By cheque
Aug. 30, 1982
L. Ondowski

Pd by cheque # 101
Acct 101313-5

ACME ANALYTICAL LABORATORIES LTD.

PHONE: 253-3158 852 East Hastings St., Vancouver, B.C. V6A 1R6

File: 82-1546

Date: Nov. 29, 1982

Asarco Exploration Co. of Canada Ltd.,
504 - 535 Thurlow St.,
Vancouver, B.C.
V6E 3L2

TERMS:
NET TWO WEEKS
2% PER MONTH CHARGED ON
OVERDUE ACCOUNTS.

NUMBER	ASSAY	PRICE	AMOUNT
	Project : Pemberton Hills		
18	ICP analysis @	$5.50	$ 99.00
18	Geochem Au by FA + AA @	5.25	94.50
18	Geochem Hg assays @	2.00	36.00
18	Geochem Ag assays @	0.60	10.80
11	Rock sample preparations @	2.50	27.50
7	Soil sample preparations @	0.50	3.50
			$271.30
	Less 10% discount		27.13
			$244.17

CHG BY: REG. DATE PAID: Dec 6/82 2294

PAID DEC 1982

PLEASE PAY LAST AMOUNT

CHEMEX LABS LTD.

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*** INVOICE ***

WESTMIN RESOURCES LIMITED
MINING DIVISION

) : WESTMIN RESOURCES LIMITED

904-1055 DUNSMUIR STREET
VANCOUVER, B.C.
V7X 1C4

Invoice # : I8214549

Date : 2-DEC-82
P.O. # : NONE
Project SICKER-GENERATI

)voice for analytical work reported on certificate(s) A8214549-001

Quantity	Analysed for code	description		unit price	amount
1	002 -	Cu	ppm		SAMPLE 82-PEMB-2
	003 -	Mo	ppm		
	004 -	Pb	ppm		
	005 -	Zn	ppm		
	006 -	Ag	ppm		
	013 -	AS	ppm		
	017 -	AU-AA	ppb		
	022 -	Sb	ppm	16.90	16.90

$16.90
2.50
19.40
- 10%
$17.46

Sample preparation and other charges :

+2.50 For 82-PEMB-2

4	205 -	Rock geochem - RING	2.50	10.00

TOTAL	$ 118.10
Discount (10 %)	$ 11.81
Please pay this amount ---->	$ 106.29

RMS -- NET 30 DAYS
0 per month (24 % per annum) charged on overdue accounts

CTA MEMBER CANADIAN TESTING ASSOCIATION

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*** INVOICE ***

To : WESTMIN RESOURCES LIMITED

904-1055 DUNSMUIR STREET
VANCOUVER, B.C.
V7X 1C4

Invoice # : I8214548

Date : 3-DEC-82
P.O. # : NONE
Project SICKER-GENERATI

Invoice for analytical work reported on certificate(s) A8214548-001

Quantity	Analysed for code	description	unit price	amount
2	002 - Cu	ppm		
	003 - Mo	ppm		
	004 - Pb	ppm		
	005 - Zn	ppm		
	006 - Ag	ppm		
	008 - Ni	ppm		
	009 - Co	ppm		
	011 - Mn	ppm		
	013 - AS	ppm		
	017 - AU-AA	ppb		
	018 - W	ppm		
	020 - Hg	ppb		
	022 - Sb	ppm		
	025 - Ba	ppm		
	383 - Ag FA	oz/T		
	396 - Au FA	oz/t	40.40	80.80

SAMPLES 82-PEMB-1 AND 82-PEMB-3

Sample preparation and other charges :

2	207 - Assay - PULVERIZE	3.75	7.50

TOTAL	$ 88.30
Discount (10 %)	$ 8.83
Please pay this amount ---->	$ 79.47

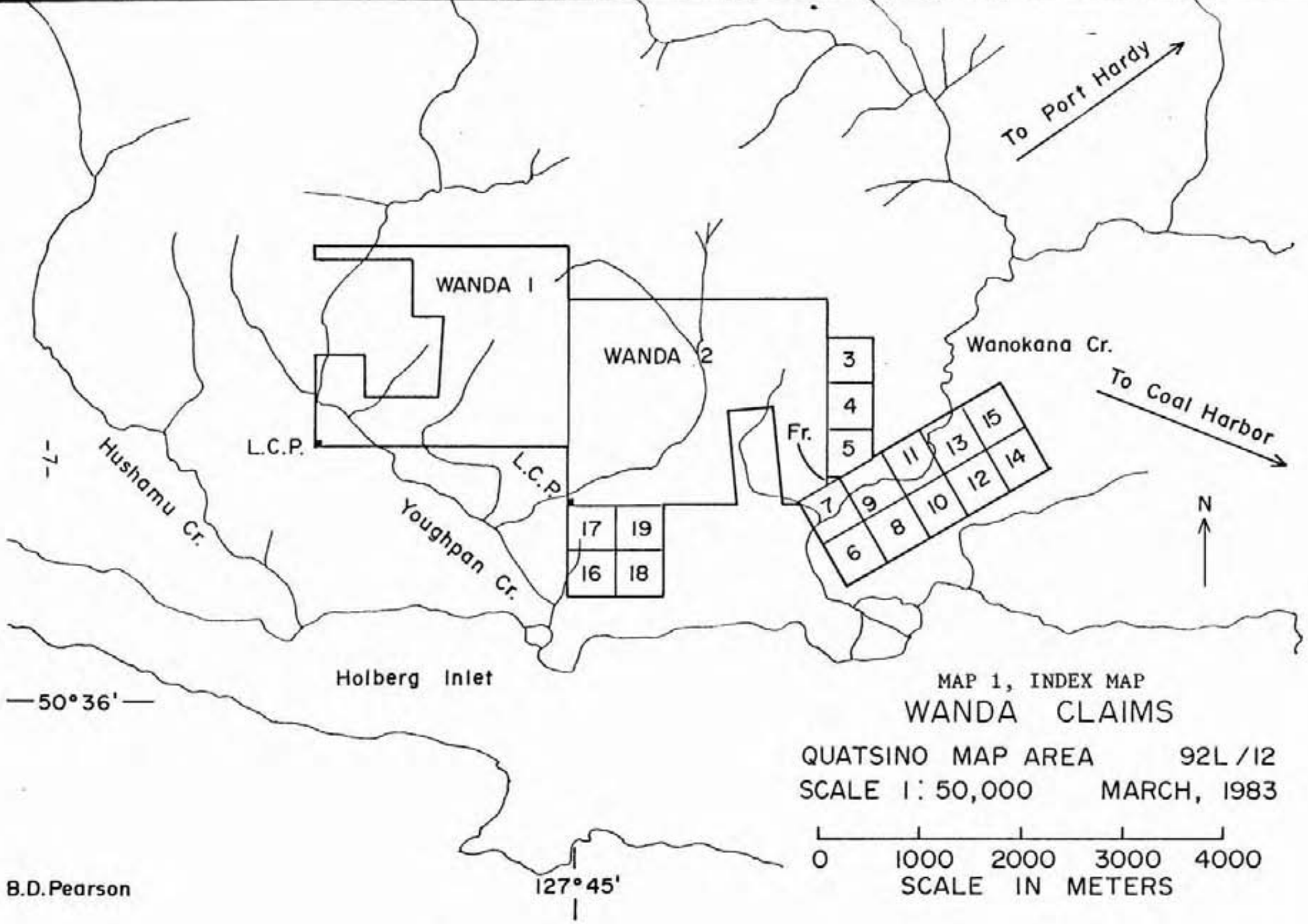
TERMS -- NET 30 DAYS
10 % per month (24 % per annum) charged on overdue accounts

DISTRIBUTION

AFE	G.L.	SUB.	AMOUNT
50082	8361	335	79.47

Checked RRW Cheque No. ____
Approved RRW Date Paid ____

CTA MEMBER CANADIAN TESTING ASSOCIATION



MAP 1, INDEX MAP

WANDA CLAIMS

QUATSINO MAP AREA 92L/12

SCALE 1:50,000 MARCH, 1983

0 1000 2000 3000 4000

SCALE IN METERS

B.D. Pearson

Table 3 Comparison of Silt Sediment Analyses*
(See Map II for sample locations.)

Sampling of March, 1982	Cu	Mo	Pb	Zn	Ag	Au (ppb)
Site 1 (Youghpan)	39	3	14	59		10,10,10,10
Site 2 (Youghpan tributary)	49	3	9	50		< 5, < 5
Site 3 (Youghpan)	42	1	6	72		< 5, < 5
Site 4 (Youghpan trib. east)	41	2	9	92		10, 5
Site 5 (" " "	49	4	13	50		< 5, < 5
Site 6 ("Center Creek")	36	2	7	49		< 5, 25
Site 7 (Wanokana)	49	1	3	53		5, 5, 5, 55
Site 8 (Wanokana trib. west)	30	1	2	62		5, 5, 5, 10
Fletcher Sampling, Nov. 1982						
# 76886 (Wanokana)	30	2	9	41	0.1	128
# 76887 (Youghpan) (Same site)	33	3	12	40	0.1	36
# 76888 (") (Same site)	30	2	11	50	0.1	42
# 76889 (Hushamu)	36	5	13	34	0.1	46
Pearson Sampling, Nov. 1982)						
Site 9s (Wanokana) (Same site)	28	1	6	50	0.1	20
Site 10s (") (Same site)	27	1	6	58	0.1	10
Site 11s (Youghpan) (Same site)	33	1	8	52	0.1	< 10
Site 12s (") (Same site)	35	1	6	58	0.1	< 10
Site 13s (Hushamu)	44	3	9	53	0.1	< 10

* All values in ppm except gold which is given in ppb. -80 mesh fraction.

235,000 N

230,000 N

225,000 N

220,000 N

245,000 E

250,000 E

255,000 E

260,000 E

265,000 E

270,000 E

275,000 E

76896

Hush. 600

H 660

H600A

H640

H635

H630

H620

Hush. 610

H 400

H 300

H200

Hushamu Cr.

Hushamu Main

Youghpon Cr.

76895

HOLBERG INLET

76882

76892

76881

76884

76885

3616

12

6
3615

7
3612

8
3613

9
3614

76883

76898

13
13A

82PEMB-2
76897

W 1000

W 1200

82PEMB-3
76894

Wanokana Main

82PEMB-1
76890
48A
48B

76891

HOLBERG INLET

76893

Wan. 900

Wanokana Cr.

W 902

Wanokana Main

14
3617

DETAILS OF SAMPLING

SAMPLE No.	SAMPLING BY	ANALYSES BY
76,000 SERIES	FLETCHER (ASARCO)	ACME
3600 SERIES	PETERSON (RIOCANEX)	CHEMEX
82PEMB SERIES	WALKER & BENVENUTO (WESTMIN)	CHEMEX
REMAINDER	C. PEARSON	CHEMEX

CLAIM LOCATIONS FROM TOPOGRAPHIC MAP 92L/12, B.C. AIRPHOTOS 80088-182 & 278, AND UTAH GRID.
SAMPLE LOCATIONS AND ROADS FROM B.C. AIRPHOTOS AND WESTERN FOREST PRODUCTS TOPOGRAPHIC MAPS.

— — — — LOGGING ROADS

NATURE OF SAMPLE

- SLUDGE AT SEEP
- BEDROCK
- SCREE (BASE OF CLIFF)
- FLOAT

N

0 500 750 1000

SCALE IN METERS

MAP 3
WANDA CLAIMS LOCATION MAP
ROCK GEOCHEMISTRY

QUATSINO MAP AREA 92L/12
SCALE 1:12,000 MARCH, 1983
BRADFORD D. PEARSON, P.Eng., F.G.A.C.

235,000 N

230,000 N

225,000 N

220,000 N

245,000 E

250,000 E

255,000 E

260,000 E

265,000 E

270,000 E

275,000 E

Husham. 600

H 660

H 600A

H 640

H 635

H 630

H 620

Husham. 610

H 400

H 300

H 200

Hushamu Cr.

Hushamu Main

Yaughpani Cr.

Wanokana Cr.

Wan. 900

W 902

Wanokana Main

W 1000

W 1200

11

6

7

13

16

3

2

1A

15

HOLBERG INLET

HOLBERG INLET

SAMPLES COLLECTED BY B.D. & C. PEARSON
PETROGRAPHIC DESCRIPTIONS BY J.R. WOODCOCK

CLAIM LOCATIONS FROM TOPOGRAPHIC MAP 92L/12,
B.C. AIRPHOTOS 80066-182 & 278, AND UTAH GRID.
SAMPLE LOCATIONS AND ROADS FROM B.C. AIRPHOTOS
AND WESTERN FOREST PRODUCTS TOPOGRAPHIC MAPS.

— — — — LOGGING ROADS

GEOLOGICAL BRANCH
ASSESSMENT REPORT

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MAP 4
WANDA CLAIMS LOCATION MAP
PETROGRAPHIC SAMPLES

QUATSINO MAP AREA 92L/12
SCALE 1:12,000 MARCH, 1983
BRADFORD D. PEARSON, P.Eng., F.G.A.C.

0 500 750 1000
SCALE IN METERS

N

235,000 N

230,000 N

225,000 N

220,000 N

245,000 E

250,000 E

255,000 E

260,000 E

265,000 E

270,000 E

275,000 E

DOMAIN A

DOMAIN B

DOMAIN C

DOMAIN G

DOMAIN I

H

Hush. 600

H 660

H600A

H635

H640

H630

H 620

Hush. 610

H 400

H 300

H200

Hushamu Cr.

Hushamu Main

Youghpan Cr.

Wanokana Cr.

Wan. 900

W 902

Wanokana Main

W 1000

W 1200

76898 : 740 ppb Hg

76897 : 149 ppb Au

82Pemb-3 : 1500 ppb Hg

76894 : 110 ppb Hg

F

E

D

HOLBERG INLET

HOLBERG INLET

CHERT - SULFIDE BED

	76890	82Pemb-1
As (ppm)	1215	350
Pb "	175	180
Cu "	169	200
Mo "	21	18
Co "	204	168
Zn "	76	1000
Ba "	21	1900
Hg (ppb)	320	100

CLAIM LOCATIONS FROM TOPOGRAPHIC MAP 92L/12, B.C. AIRPHOTOS 80066-182 & 278, AND UTAH GRID.

SAMPLE LOCATIONS AND ROADS FROM B.C. AIRPHOTOS AND WESTERN FOREST PRODUCTS TOPOGRAPHIC MAPS.

— — — — LOGGING ROADS

----- OUTLINES OF LITHOLOGICAL DOMAINS ARE NOT NECESSARILY BOUNDARIES OF THE RESPECTIVE ROCK UNITS.

N

GEOLOGICAL BRANCH
ASSESSMENT REPORT

11,132

MAP 5

WANDA CLAIMS LOCATION MAP

ROCK - GEOCHEM ANOMALIES & ROCK DOMAINS

QUATSINO MAP AREA 92L/12

SCALE 1:12,000 MARCH, 1983

BRADFORD D. PEARSON, P.Eng., F.G.A.C.

0 500 750 1000

SCALE IN METERS