FALCONBRIDGE LIMITED

GEOLOGICAL, GEOCHEMICAL AND DRILLING ASSESSMENT REPORT ON THE WATERFALL AND TANGLE GROUP CLAIMS

NANAIMO, M.D.

PN 091 - LABOUR DAY LAKE

NTS 92F 1 & 2

GEOLOGICAL BRANCH
ASSESSMENT REPORT

13,236

PART 1 OF 2

T. Chandler
D. Runkle

March, 1985

84-1461-13236

Province of British Columbia

Ministry of Energy, Mines and Petroleum Resources

ASSESSMENT REPORT TITLE PAGE AND SUMMARY

TYPE OF REPORT/SURVEY(S)	TOTAL COST
GEOLOGICAL, GEOPHYSICAL, DRILLING	$188,558.99

AUTHOR(S) T. E. Chandler SIGNATURE(S) Terence Chandler

DATE STATEMENT OF EXPLORATION AND DEVELOPMENT FILED Feb 7/85-Dec 28/84 YEAR OF WORK 1984

PROPERTY NAME(S) Labour Day Lake, Villalta, Torchy

COMMODITIES PRESENT Au, Ag, Cu, Zn

B.C. MINERAL INVENTORY NUMBER(S), IF KNOWN

MINING DIVISION Nanaimo NTS 92 F 1W, 2E

LATITUDE 40° 05' N LONGITUDE 124°25' W

NAMES and NUMBERS of all mineral tenures in good standing (when work was done) that form the property [Examples: TAX 1-4, FIRE 2 (12 units); PHOENIX (Lot 1706); Mineral Lease M 123; Mining or Certified Mining Lease ML 12 (claims involved)]:

Min, Specogna Copper, WO-1, 2, Wolfram 3, 4, WO 5-7, Villalta, Villalta A, C, D; Fido, Tangl 1, Surprise

OWNER(S)

(1) FALCONBRIDGE LIMITED (2)

MAILING ADDRESS

6415 64th Street
Delta, B.C. V4K 4E2

OPERATOR(S) (that is, Company paying for the work)

(1) Falconbridge Limited (2)

MAILING ADDRESS

6415 64th Street
Delta, B.C. V4K 4E2

SUMMARY GEOLOGY (lithology, age, structure, alteration, mineralization, size, and attitude):

The property is underlain by volcanic rocks of the Paleozoic Sicker Group with minor Buttle Lake Crinoidal limestones and Triassic age Karmutsen Fm. basalts. Jurassic age qtz monzonite to diorite intrusive cuts these units. The rocks are unconformably overlain by Cretaceous Nanaimo Group conglomerates. Tertiary porphyry intrudes the assemblage. Mineralization occurs as poddy sulphide in shears within Karmutsen basalts and as stratiform hematite-gold deposits above the Buttle Lake limestones.

REFERENCES TO PREVIOUS WORK

(over)

TYPE OF WORK IN THIS REPORT	EXTENT OF WORK (IN METRIC UNITS)	ON WHICH CLAIMS	COST APPORTIONED
GEOLOGICAL (scale, area)			
Ground	1: 10,000 40 Km^2	All Claims	$ 29,388.82
Photo			
GEOPHYSICAL (line-kilometres)			
Ground			
Magnetic			
Electromagnetic	41.1	W.O. 2, Walfram 4, Villalta, Villalta C, Specogna Copper, W.O. 1, Min, WO 5	5,971.10
Induced Polarization			
Radiometric			
Seismic			
Other			
Airborne			
GEOCHEMICAL (number of samples analysed for ....)			
Soil	1717 (Au, Ag, Cu, Pb, Zn)	As above	33,305.81
Silt	487 Au, Ag, Zn, Cu, Pb	All claims	16,259.69
Rock	191 (26 element + Icp+Au)	All claims	
Other	224 (Na_2O, S_1O_2, T_1O_2, K_2O, Cu, Zn, Ag, Ba.		12,435.84
DRILLING (total metres; number of holes, size)			84,461.63
Core	666.1 m	Villalta A, Villalta D	
Non-core			
RELATED TECHNICAL			
Sampling/assaying	231 Core assays Au	Villalta A, Villalta D	1,856.40
Petrographic			
Mineralogic			
Metallurgic			
PROSPECTING (scale, area)			
PREPARATORY/PHYSICAL			
Legal surveys (scale, area)			
Topographic (scale, area)			
Photogrammetric (scale, area)	1: 10,000 15 Km^2	All claims	4,880.00
Line/grid (kilometres)			
Road, local access (kilometres)			
Trench (metres)			
Underground (metres)			
		TOTAL COST	$ 188,558.99

FOR MINISTRY USE ONLY	NAME OF PAC ACCOUNT	DEBIT	CREDIT	REMARKS:
Value work done (from report)				
Value of work approved				
Value claimed (from statement)				
Value credited to PAC account				
Value debited to PAC account				
Accepted .... Date	Rept. No.			Information Class

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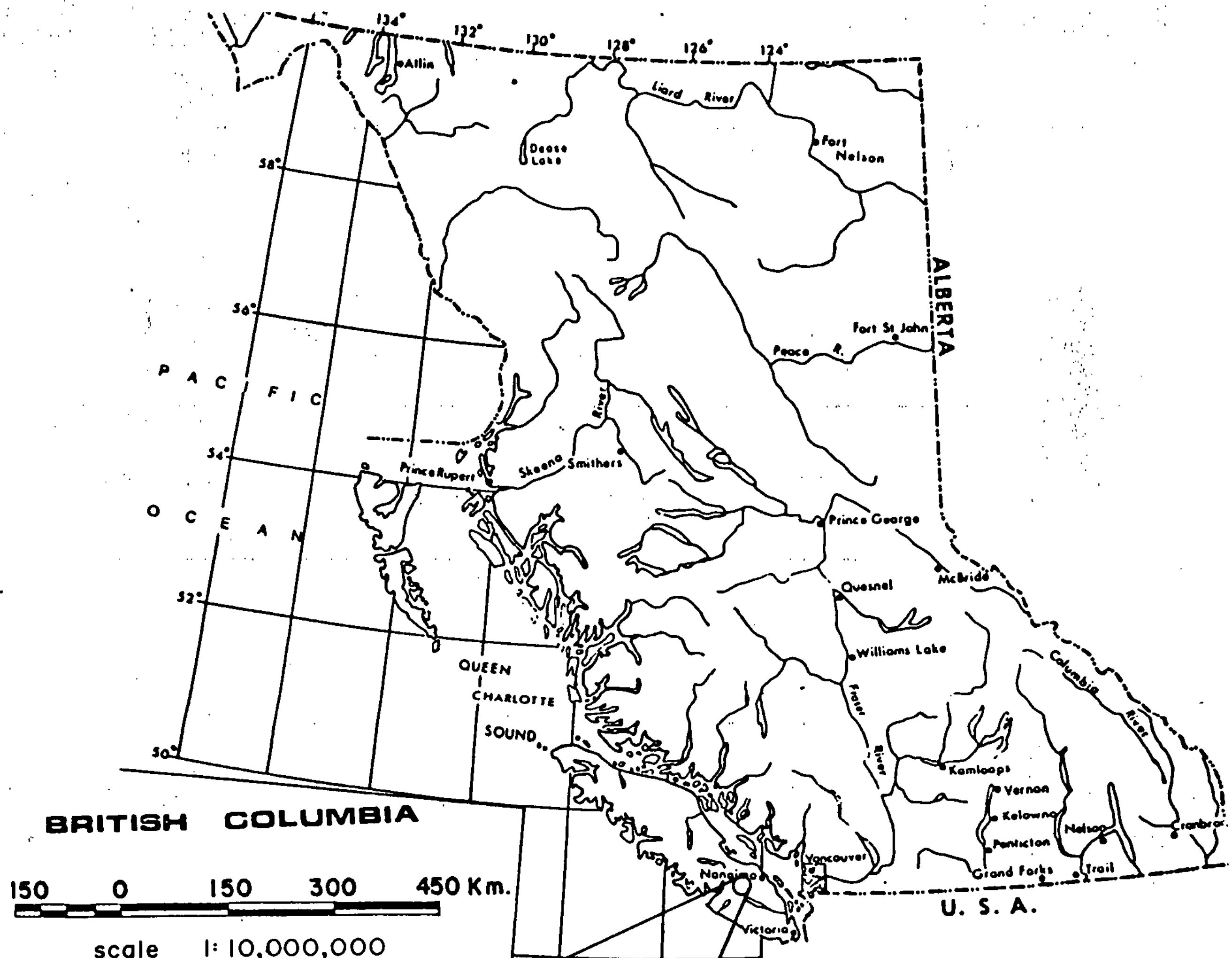
1. INTRODUCTION

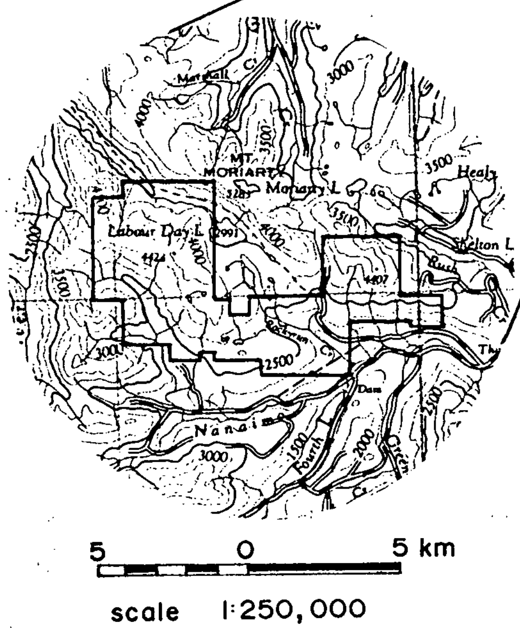
This report summarizes field work carried out on the Labour Day Lake property from June to October, 1984, by a four to nine person crew based in Nanaimo, B.C. The exploration program included geological mapping along roadcuts and most creek exposures at a scale of 1:5,000, collated at 1:10,000; lithogeochemical sampling at 200 meter intervals along mapping traverses; silt sampling of all drainages in the area, with follow-up sampling along creeks with anomalous initial results; grid survey of soil geochemistry in two areas, with follow-up sampling in anomalous areas; VLF-EM survey to correspond with the geochemical survey; and diamond drilling in two areas of previously known mineralization.

The 1984 field work failed to delineate any new target areas of mineralization. Drilling failed to significantly extend the known mineralized zones.

2. LOCATION AND ACCESS

The Labour Day Lake property is located in the Nanaimo Mining Division on Vancouver Island (see Figure 1). The claims are north of the Nanaimo River, and extend northward across the height of land into the Cameron River drainage. Coordinates are 40 degrees 05' N; 124 degrees 25' W; NTS Reference 92F/1&2. Access to the main part of the property is from Nanaimo along paved and gravel roads to the Crown Forest Logging office at First Nanaimo Lake, and from there along well maintained logging roads. Road distances to the near edge of the claims is 45 kilometers, and to the far edge is 60 kilometers. Access to the northern portion of the property is from B.C. Highway 4 between Parksville and Port Alberni along logging roads maintained by MacMillan Bloedel Inc., past the Mt. Arrrowsmith ski area for a distance of 175 kilometers from Nanaimo. Road access to all parts of the property is excellent, and both logging companies are generous with maps, information and assistance.





FALCONBRIDGE LIMITED		
PROPERTY: LABOUR DAY LAKE 091		
LOCATION: VANCOUVER ISLAND, B. C.		
TYPE OF MAP: LOCATION INDEX		
WORKING PLACE:		
BASED ON:		
DATE OF WORK:	MAP REF. NO.:	FIG. NO.: 091-84
DRAWN BY: JR.		
DATE: October 1984	N.T.S. NO.:	-1

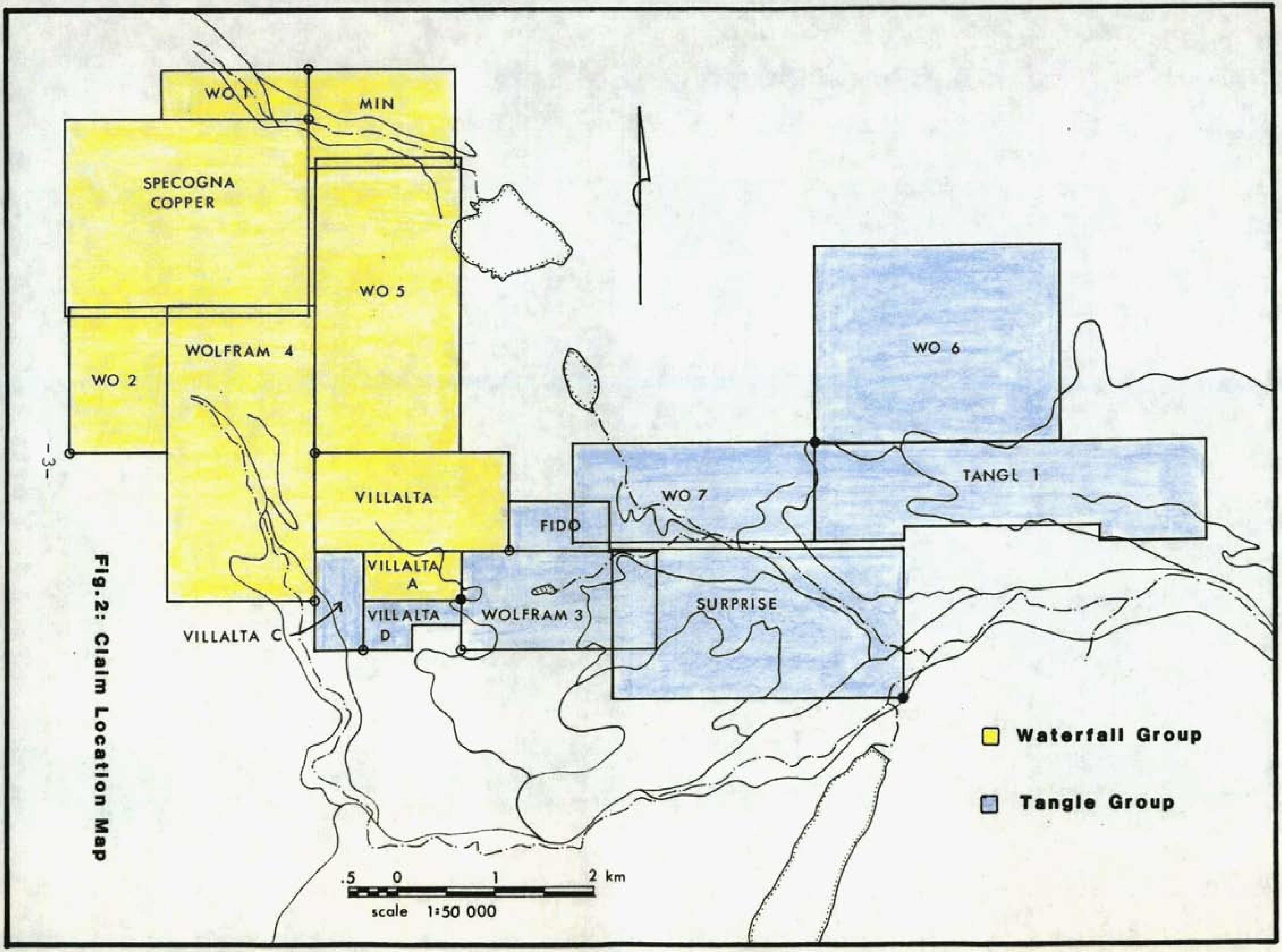


Fig.2: Claim Location Map

3. CLAIM INFORMATION

The Labour Day Lake property consists of 16 claims totalling 159 units. The claims are owned by Falconbridge Limited through an option agreement with Canamin Resources, dated October 1983. A claim map is presented as Figure 2. Claim information is as follows:

CLAIM NAME	RECORD NO.	UNIT	GROUP
Min	627 (5)	6	Waterfall
Specogna Cu	557 (3)	20	Waterfall
WO - 1	626 (5)	3	Waterfall
WO - 2	558 (3)	6	Waterfall
Wolfram 3	344 (3)	8	Tangle
Wolfram 4	1673 (3)	18	Waterfall
WO - 5	501 (12)	18	Waterfall
WO - 6	499 (12)	20	Tangle
WO - 7	500 (12)	10	Tangle
Villalta	105 (9)	8	Waterfall
Villalta A	104 (9)	2	Waterfall
Villalta C	133 (1)	2	Tangle
Villalta D	134 (1)	2	Tangle
Fido	889 (6)	2	Tangle
Tangl 1	786 (2)	16	Tangle
Surprise	1058 (12)	18	Tangle

4. HISTORY OF PREVIOUS WORK

The property was originally staked by E. Specogna in 1976. Primary interest focussed on the "Villalta Showing" a gold bearing hematitic horizon overlying Paleozoic Buttle Lake limestone. In addition, gold values were obtained from pyrite and pyrrhotite pods, veins and stringers within the limestone. The property was brought to the attention of Falconbridge in 1978, by J.J. McDougall. There followed a series of examinations and memos by B.D. Simmons and J.J. McDougall.

In 1980, Specogna formed Canamin Resources Ltd, and proceeded with a drill program on the Villalta showing. In the same year, the "Torchy Group" copper showing in the northern part of the property was reported. This consists of disseminated and semi-massive Cu-Ag sulfides in a shear zone in Karmutsen volcanics near the contact with Sicker group volcanic rocks.

A drill program in 1981 further tested the Villalta area. G.D. Belik reported on the six holes from 1980, and eight from 1981. Several holes intersected the hematite zone, but drilling failed to establish continuity of the mineralization.

Asarco optioned the claims in 1982, and conducted soil geochemistry over the Villalta area. Results were spotty for Au, Ag, Cu and Zn, but a linear arsenic anomaly was detected.

Examination of the Torchy group Cu showing by Read in December, 1981, was followed in 1982 by a limited drill program reported by Specogna and MacDougall in December 1982.

Subsequent activity includes a small mapping, sampling and drilling program on copper mineralization in the Island intrusion on the eastern portion of the property reported by P. Conroy in 1983. Conroy also logged the seven remaining holes from 1981, and relogged the rest.

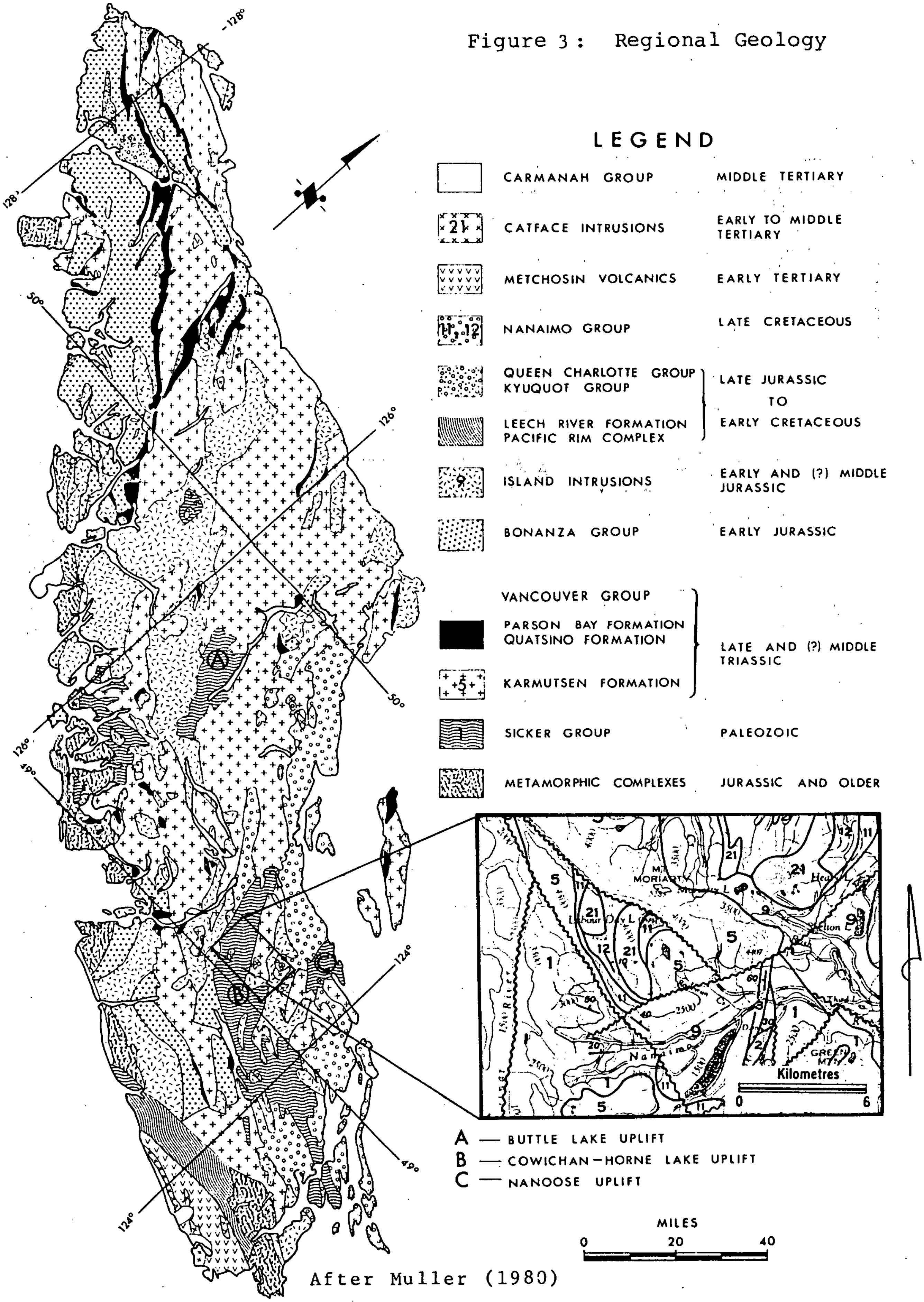
Falconbridge Limited optioned the property from Canamin Resources in October 1983 and commissioned a Dighem survey over the entire property in early 1984 to test for extensions of the known prospects and detect any new conductive zones. This survey was reported in Feb. of 1984. The results of a short drill programme of three holes at the Torchy Cu-Ag Showing was reported in October 1984 in a seperate report and will not be further discussed at this time.

5. REGIONAL GEOLOGY AND MINERAL DEPOSITS

Vancouver Island is part of an allochthonous upper Paleozoic arc terrane accreted to the North American continent by Upper Jurassic to Lower Cretaceous time. The arc complex is composed of flows, breccias and volcaniclastic rocks overlain by limestone, clastics and chert, followed by Mesozoic pillowed and subaerial basalt flows. These are in turn succeeded by limestone, cherty limestone and clastic rocks. The history also includes Jurassic and Tertiary plutonism. Mineralization accompanies the volcanic and plutonic episodes. Refer to Figure 3.

The oldest rocks on Vancouver Island are Paleozoic subaqueous volcanic and sedimentary rocks of the Sicker group. Sicker rocks are exposed in three northwest trending structural culminations; Buttle Lake, Cowichan-Horne Lake, and Nanoose uplifts. The Cowichan-Horne Lake uplift, which includes the Labour Day lake property, contains the most complete section of Sicker group rocks. The lower, Nitinat formation consists of pillows, flows and flow breccias of basaltic composition, with local interbedded tuff. Nitinat volcanics have been pervasively metamorphosed to epidote-actinolite-chlorite-albite grade. Local to intrusions, thermal metamorphism has reached oligoclase-andesine amphibolite grade. The rocks are commonly shear folded. Nitinat flows are overlain by massive tuffs and volcaniclastic sediments of the Myra formation. These bedded rocks range from heterogeneous volcanic breccias to variable grain sized tuffs, to argillites. Age of the Nitinat and Myra formations, based on U-Pb ages from Saltspring Island, is thought to be late Devonian. Mineralization in the Sicker group centers around three areas. The Myra, Lynx and Price deposits of Westmin, at Buttle Lake, are Kuroko-type exhalate massive sulfide deposits. Mineralization occurs in

Figure 3: Regional Geology



After Muller (1980)

Table 1

TABLE OF FORMATIONS OF VANCOUVER ISLAND

SEQUENTIAL LAYERED ROCKS

Era	Period	Epoch	Stage	Group	Formation	Symbol	Ave. Thick. (m)	Lithology
CENOZOIC					late Tert. volc's of Port McNeill	Tvs		
CENOZOIC			EOCENE to OLIGOCENE		SOOKE BAY	mpTsb		conglomerate, sandstone, shale
CENOZOIC			EOCENE to OLIGOCENE		CARMANAH	eoTc	1,200	sandstone, siltstone, coglomerate
CENOZOIC			EOCENE to OLIGOCENE		ESCALANTE	eTE	300	conglomerate, sandstone
CENOZOIC			early EOCENE		METCHOSIN	eTM	3,000	basaltic lava, pillow lava, breccia, tuff
MESOZOIC		LATE	MAESTRICHTIAN	NANAIMO	GABRIOLA	uKGA	350	sandstone, conglomerate
MESOZOIC		LATE	MAESTRICHTIAN	NANAIMO	SPRAY	uKS	200	shale, siltstone
MESOZOIC		LATE	CAMPANIAN	NANAIMO	GEOFFREY	uKG	150	conglomerate, sandstone
MESOZOIC		LATE	CAMPANIAN	NANAIMO	NORTHUMBERLAND	uKN	250	siltstone, shale, sandstone
MESOZOIC		LATE	CAMPANIAN	NANAIMO	DE COURCY	uKDC	350	conglomerate; sandstone
MESOZOIC		LATE	CAMPANIAN	NANAIMO	CEDAR DISTRICT	uKCD	300	shale, siltstone, sandstone
MESOZOIC		LATE	CAMPANIAN	NANAIMO	EXTENSION - PROTECTION	uKEP	300	conglomerate, sandstone, shale, coal
MESOZOIC		LATE	SANTONIAN	NANAIMO	HASLAM	uKH	200	shale, siltstone, sandstone
MESOZOIC		LATE	SANTONIAN	NANAIMO	COMOX	uKC	350	sandstone, conglomerate, shale, coal
MESOZOIC		EARLY	CENOMANIAN ALBIAN	QUEEN CHARLOTTE	Conglomerate Unit	lKQC	900	conglomerate, greywacke
MESOZOIC		EARLY	APTIAN ?	QUEEN CHARLOTTE	Siltstone Shale Unit	lKQP	50	siltstone, shale
MESOZOIC		EARLY	VALANGINIAN BARREMIAN		LONGARM	lKL	250	greywacke, conglomerate, siltstone
MESOZOIC	JURASSIC	MID / LATE	TITHONIAN CALLOVIAN		Upper Jurassic Sediment Unit	uJs	500	siltstone, argillite, conglomerate
MESOZOIC	JURASSIC	EARLY	TOARCIAN ?	BONANZA	Volcanics	lJB	1,500	basaltic to rhyolitic lava, tuff, breccia, minor argillite, greywacke
MESOZOIC	JURASSIC	EARLY	PLIENSBACHIAN SINEMURIAN	BONANZA	HARBLEDOWN	lJH		argillite, greywacke, tuff
MESOZOIC	TRIASSIC	LATE	NORIAN	VANCOUVER	PARSON BAY	uTrPB	450	calcareous siltstone, greywacke, silty-limestone, minor conglomerate, breccia
MESOZOIC	TRIASSIC	LATE	KARNIAN	VANCOUVER	QUATSINO	uTrQ	400	limestone
MESOZOIC	TRIASSIC	LATE	KARNIAN	VANCOUVER	KARMUTSEN	muTrK	4,500	basalic lava, pillow lava, breccia, tuff
MESOZOIC	TRIASSIC	MID	LADINIAN	VANCOUVER	Sediment - Sill Unit	Tds	750	metasiltstone, diabase, limestone
PALEOZOIC	PENN. and ? PERM.			SICKER	BUTTLE LAKE	CPBL	300	limestone, chert
PALEOZOIC	PENN. and ? PERM.			SICKER	MYRA	CPSS	600	metagreywacke, argillite, schist, marble
PALEOZOIC	PENN. and ? PERM.			SICKER	NITINAT	CPSV	2,000	basaltic to rhyolitic metavolcanic flows, tuff, agglomerate
PALEOZOIC	DEV. or EARLIER							

CRYSTALLINE ROCKS, COMPLEXES OF POORLY DEFINED AGE

Name	Symbol	Isotopic Age Pb/U	Isotopic Age K/Ar	Lithology
SOOKE INTRUSIONS - silicic	Tg		32-59	quartzdiorite, trondhjemite, agmatite, porphyry
SOOKE INTRUSIONS - basic	Tgb		31-49	gabbro, anorthosite, agmatite
METCHOSIN SCHIST, GNEISS	TMn		47	chlorite schist, gneissic amphibolite
LEECH RIVER FM.	JKL		38-41	phyllite, mica schist, greywacke, argillite, chert
PACIFIC RIM COMPLEX	JKP			greywacke, argillite, chert, basic volcanics, limestone
ISLAND INTRUSIONS	Jg		141-181	granodiorite, quartzdiorite, granite, quartz monzonite
WESTCOAST COMPLEX silicic	PMns	264	163-192	quartz-feldspargneiss, metaquartzite, marble
WESTCOAST COMPLEX basic	PMnb			hornblende-plagioclase gneiss, quartz diorite, agmatite, amphibolite
diabase sills	PTrb			
metavolcanic rocks	PMmv			metavolcanic rocks, minor metasediments; limestone, marble
TYEE INTRUSIONS	Pg	>390		metagranodiorite, metaquartzdiorite, metaquartz porphyry
COLQUITZ GNEISS	Pns	>390		quartz feldspar gneiss
WARK DIORITE GNEISS	Pnb	>200	163-182	hornblende-plagioclase gneiss, quartz diorite, amphibolite

rhyolite, quartz porphyries and mixed breccias proximal to the vent source. A volcanic center on Saltspring Island is thought to be the source for the nearby Mt. Sicker deposits. Thirdly, vein deposits in the China Creek area may also be remote exhalative products.

The upper unit of the Sicker group is nearshore fossiliferous limestone with interbedded chert and siltstone of the Pennsylvanian-Permian age Buttle Lake formation. Intrusive activity has produced only minor skarn occurrences in the Paleozoic carbonates.

Late Triassic rocks consist of a thick sequence of tholeiitic basalts; a result of rifting. The Karmutsen formation is the oldest unit of the Vancouver group and the only one exposed on the Labour Day Lake property. It has been informally divided into a sequence of pillowed flows, pillow breccias and lava flows. Many copper occurrences have been noted in the Karmutsen. Copper minerals are derived from within the sequence, and none have been of economic significance.

Jurassic "Island Intrusions" range in composition from gabbro to quartz monzonite, but are mainly granodiorite and quartz diorite. They are in sharp, steep contact with the Karmutsen, and gradational with the Sicker group. Jurassic intrusive activity produced the porphyry copper deposit of Island Copper at Rupert Inlet.

The upper Cretaceous Nanaimo formation is a transgressive sedimentary succession, from fluvial through deltaic, lagoonal and nearshore marine to offshore marine deposits.

Tertiary intrusive rocks are predominantly dacite porphyry and take the form of sills and laccoliths. Porphyry copper deposits at Catface Mountain, and Mt. Washington are related to Tertiary intrusions. These intrusive rocks are also related to vein deposits of gold, pyrite, arsenopyrite, sphalerite, galena and pyrrhotite in rocks of all ages.

6. SCOPE OF PRESENT WORK

6.1 Objectives:

The claim block was acquired by option from Canamin Resources primarily to evaluate the known mineralized zones, namely the Villalta hematite-Au showing and the "Torchy" or "Cliff Zone" Cu-Ag ocurrence. The presence of pyrrhotite and sphalerite-rich massive sulphides in the limestones and tuffs near the Villalta showing also spurred a more widespread search for a potential massive sulphide deposit within the Myra Formation. In addition the presence of Tertiary intrusives instigated a grass roots programme for gold bearing vein or replacement mineralization.

6.2 Programme and Procedures:

Based on the findings of earlier reported investigations, the published regional geology and the results of an early 1984 Dighem EM and Magnetic airborne survey, the following programme was devised:

- Geologic mapping at 1:5000 scale compiled on the 1:10,000 property map to provide a framework for interpreting survey results.
- Rock chip ICP and major oxide lithogeochem to aid in location of alteration and trace element anomalies.
- Reconnaissance silt geochemistry and follow-up of anomalous responses.
- Local grid establishment over favourable stratigraphy and conductive zones for soil geochemistry and VLF surveys.
- Drilling at Villalta-Au showing.
- Drilling at Torchy Cu-Ag showing.(Subject of previous report)

7. RESULTS:

7.1 Geology:

Geology of the Labour Day Lake property was mapped along road cuts and creek exposures at a scale of 1:5,000. The field data was subsequently compiled at 1:10,000 and is presented in Figure 4.

Sicker Group:

Nitinat Formation:

Rocks of the Nitinat formation in the Labour Day Lake area are poorly understood from this study. They are thought to outcrop only in the far eastern portion of the property. Outcrops in this area are strongly sheared, and original textures are difficult to distinguish. They appear to be massive basic flows, composed of tiny (2mm) dark pyroxene (uralite?) phenocrysts, altered feldspar phenocrysts, light and dark green amygdules in a dark green aphanitic matrix.

Muller (1980) relates intrusive uralite porphyry in the Nitinat formation as possible feeder dykes. In this area, uralite porphyry occurs as xenoliths within the diorite phase of the Jurassic Island intrusion. The rock is dark grey and composed of .3 to 1 cm rounded to euhedral uralitized hornblende phenocrysts in a fine grained matrix. The phenocrysts are commonly surrounded by a thin feldspar selvedge.

Myra Formation:

A large portion of the southwest map area is underlain by volcaniclastic and sedimentary rocks of the Myra formation. It consists of interbeds of volcanic breccia, variable grain sized tuff, argillite and chert.

Volcanic breccias are multilithic agglomerate lapilli tuffs; composed of subangular fragments of dark grey basalt, cherty tuff, chert, crystal lithic tuff, laminated tuff and others, in a dark grey green feldspar porphyry coarse tuff matrix. Fragments range in size from .4 to 20 cm. Fragment rims range from distinct to indistinct, are often baked, and are more readily visible in weathered surfaces. The matrix is composed of chlorite, epidote, feldspar crystals and fragments, and lithic fragments. Original composition of the rock was probably andesitic, now metamorphosed to greenschist facies. Bands of agglomerate lapilli tuff are often irregular, and range from .5 to several meters thick.

Massive tuffs are similar in appearance to the matrix of the volcanic breccia. Grain size ranges from 1 to 4mm, and consists of chloritized mafic crystals and fragments, rounded to subangular feldspar grains and fragments, lithic fragments, glass fragments and fine grained chlorite and epidote. There is less than 1% of tiny disseminated pyrite. The unit contains 2 cm to 2 m wide fragmented bands of black argillite parallel to bedding, and local veinlets of quartz and/or epidote.

Banded tuff is very fine grained, and ranges in color from grey green to blue green, and buff on some weathered surfaces. The banding shows up better on weathered surfaces because of differential weathering with respect to grain size. From grain size relationships it is possible to determine tops of bedding. Scale of the banding ranges from 1cm to 1m.

Chert ranges in color from maroon and green, to white and grey, and is banded on scales of 10 cm and 1m. The bands locally display open folds, and fracture surfaces parallel to banding.

The upper, chert member of the Myra formation outcrops in the westernmost part of the property. All other members are intermixed. Bedding is grossly consistent and planer throughout the Myra formation.

<u>Buttle Lake Formation:</u>

Buttle Lake limestone occurs in several small pods in the central and the eastern part of the property. In the central area local to the Villalta showing, the unit is composed of coarse crystalline limestone with 30 cm interbeds of siliceous sediments, now quartzite. Both rock types are light grey to white, and both contain abundant crinoidal debris.

Of particular interest, drilling at the Villalta area has demonstrated the presence of f.g. tuffs, porphyritic andesitic flows and cherty tuff units stratigraphically above the Buttle Lake limestone. These rocks closely resemble the lower Myra Fm. rocks observed elsewhere on the property and have been field classified as such. Their presence above the limestone suggests an interfingering relations of reef facies limestone with volcanics at this location.

Crinoids are absent in limestone exposures on the eastern portion of the claims. Instead, coarse calc-silicate minerals such as garnet and diopside (?) are locally developed as a result of the nearby Island intrusions.

Karmutsen Formation:

Karmutsen basalt forms resistant bluffs in the north central to northeastern portion of the property. The rock is dark grey on fresh surfaces, and weathers buff to white. It is made up of thick flows that are locally pillowed or brecciated, but more commonly massive.

Massive flows contain splotchy, partially resorbed plagioclase crystals in a black fine grained matrix composed of plagioclase and mafic microlites. Triangular shaped brecciated areas may represent pillow interstices, and are often the only evidence of pillow structure. Elsewhere, pillows are well developed, .5 to 2m in diameter, with chilled glassy or devitrified margins c. 5cm thick.

In the extreme northern map area, on the flanks of Mt. Moriarty, the Karmutsen is characterized by a hyaloclastic pillow breccia containing monolithic fragments of amygdaloidal porphyritic basalt. Amygdules are 1-2 cm across, and filled with quartz and chlorite. Phenocrysts are plagioclase, as in the massive flows. The matrix is composed of 15-20% tiny glass spherulites.

Karmutsen rocks are devoid of sulfide mineralization except for rare patches of chalcopyrite and malachite. Local areas of red-brown weathering contain less than 1% disseminated pyrite in the rock. Quartz, epidote and calcite veining are common.

Island Intrusion

A Jurassic Island intrusion cuts the Karmutsen on the property, but is nowhere in contact with older Sicker Group rocks. The unit forms large rounded outcrops in the eastern half of the property. The rock is light grey to chalky white in weathered surfaces. Fresh surfaces display medium to coarse grained hypidiomorphic granular texture. Quartz monzonite is the predominant rock type, with local variations, notably a finer grained diorite to the northeast. The rock is composed of 65% feldspar (pink potassium feldspar slightly more abundant than greenish saussuritized plagioclase), 20% laths and irregular blobs of hornblende altered to biotite and chlorite, 15% fine interstitial quartz, and a trace of sphene.

Healed fractures in the quartz monzonite have a .5 cm to 2 cm selvedge of altered feldspars, and there are abundant quartz-epidote veinlets cutting the unit. Diabase dikes averaging less than one meter wide are common but not abundant in the Island intrusion.

Shear zones along road M-6 on the Surprise claim contain 8-10 m long, 2-7 cm wide lenses of quartz, pyrite, sparse malachite and rare bornite, this showing was written up by P. Conroy, and not considered to be a significant target for this study.

Nanaimo Group:

Clastic rocks of the Nanaimo group form a long ridge of northwest trending rounded bluffs in the western half of the property. The lower portion of this section is a matrix supported conglomerate composed of angular to rounded volcanic, intrusive, limestone and chert clasts ranging in size up to 20 cm. The upper portion of the Nanaimo group is black argillite that is buff to orange brown, because of fine disseminated pyrite. The argillite is highly fractured and locally contains bivalves and buff concretions.

The base of the Nanaimo in contact with the Buttle Lake limestone is a 12 cm thick red reggolith containing angular limestone fragments. Elsewhere, the lower contact is in angular unconformity with the Myra formation.

Tertiary Intrusion:

The youngest rock unit on the property is Tertiary porphyritic dacite that forms resistant cliffs in the northwest quarter. Outcrops are clean and blocky. Weathered surfaces are light grey to white, fresh surfaces are light grey. The rock is composed of 5-30% white albite twinned plagioclase phenocrysts, .3 to 1 cm across, and 1-2% long narrow hornblende phenocrysts to 1 cm length in a <1mm matrix of subhedral plagioclase and K-feldspar, <5% quartz, plus epidote, biotite and chlorite. There are no visible sulfides in this unit, even as accessories. The contact between the Tertiary intrusion and Nanaimo argillite is an interfingering one, along bedding in the argillite.

7.2 Silt Geochemistry:

Reconnaissance sampling of major streams draining the claim area was carried out using conventional sampling methods. No sample concentration techniques or sieving were employed to enhance ambient metal levels. Samples were collected in Kraft paper envelopes, dried and forwarded to CDN Labs, Delta for sample preparation and analysis of the -80 mesh fraction. All samples were analysed for Cu, Zn, Ag and Pb using conventional acid digestion and A.A. techniques and fire assay/A.A. finish methods for Au.

The initial sampling stage yielded 181 samples. These are plotted on Figure 7 for all elements except silver which was extremely low, often below detection limits. Figure 7 also shows the anomalous drainages, colour coded by element, based on threshold levels determined with the full suite of data without subdivision by drainage basin geology. A follow-up programme was initiated with silt samples collected at 50 meter intervals on the anomalous drainages and tributaries. The results of this follow-up (a further 306 samples) are plotted on Figures 7a-7i, with locations of the detail figures indexed on Figure 7. Results are summarized as follows:

Gold-Copper Anomalies:

These drainages occur primarily on the SE portion of the property, situated on Karmutsen Fm. basalts and Jurassic Island intrusives for the most part. Similar lithologies and anomalous values occur in the Cameron River tributaries in the northern claim area. Examination of the follow-up results (Figures 7a through 7i) show generally high background levels for copper in streams draining the Karmutsen basalts. These copper highs usually extend downstream into areas underlain by Jurassic intrusives. Streams draining Island intrusives alone display much lower background metal values. Follow-up sampling in intrusive areas were primarily based on original single point gold highs. These anomalies did not stand up under further sampling. (e.g. Figures 7d, 7e, 7f). Scattered mild gold kicks were obtained in detailed sampling in areas 7g, 7h and 7i. Prospecting of these drainages failed to detect any visible mineralized source. Zinc anomalies occurring in the higher tributaries of the creek in Figure 7g and in the stream of Figure 7c are uncharacteristic for the Karmutsen Fm. Their source is unknown but may reflect the presence of Nanaimo group argillites capping the Karmutsen Fm. basalts off the claim boundaries.

Zinc (+ Lead) Anomalies:

Drainages anomalous in zinc, with lesser lead occur in a N-S belt trending from the Villalta Claim area in the south to the southern portions of detail areas 7a and 7b on the north. Reference to the property geology map shows a marked correlation of zinc anomalies with mapped distribution of Cretaceous Nanaimo Group argillites. These argillites are occasionally pyrite rich, soft and carbonaceous. ICP rock geochemical data indicates that the argillites contain high background zinc levels. Prospecting the drainages failed to locate a mineralized source for the zinc.

Silt geochemistry failed to locate any anomalies within Sicker Group volcanics. Several minor gold kicks were detected without base metal correlation. One 600 ppb high at sample 78634 on the extreme west of the property could not be duplicated by resampling.

Silt geochemistry did locate the known "Torchy" Cu-Ag showing with samples 78627 and 78696.

7.3 Soil Geochemistry/ VLF-EM Grids:

Two grids were established to cover areas of special interest on the property. One - the Nanaimo Lake grid - is located over the belt of Sicker Group rocks on the southwest portion of the property. The second grid is located in the north of the claim block straddling the upper reaches of the Cameron River. This grid was established over a Dighem airborne EM conductor paralleling the river. Both grids were covered by soil geochemistry and VLF-EM surveys. The grid locations are shown on the index map Figure 8.

Nanaimo Lakes Grid:

The grid area covers a broad area of poorly exposed Sicker Group Myra Fm. in the headwaters of the Nanaimo River. Grid lines were established with pace and compass techniques at initial 200 metre line spacing. 100 meter lines were later added in areas of interest. The base line is 4.8 km long trending 330 degrees, offset 400m west at the northern end due to steep cliffs. All the cross lines were tied into the local road network for survey control. Figure 6 shows the corrected grid and the interpreted geology.

Soil Geochemistry:

A total of 1189 samples were collected at 25m station intervals from the B horizon at approximately 18cm depth. (Figure 13-16). Contoured soil geochemical plots are shown for Au Cu, Pb and Zn. All analyses were performed by CDN Labs, Delta on the -80 mesh fraction using nitric acid digestion with AA finish for 5 ppb detection levels.

Gold values (Figure 13) are spotty and scattered with values up to 390 ppb and usually less than 100. Most anomalous values occur in the SE of the grid and are not relatable to any particular geologic or structural feature. Resampling failed to reproduce initial results in nearly all cases. Prospecting in the vicinity of the anomalies failed to reveal a probable source.

Copper values (Figure 14) are essentially restricted to the NE of the grid and appear associated with a local down faulted block of Karmutsen Fm. basalts. In this respect, copper values are consistent with background values for Karmutsen Fm. elsewhere. Spotty highs west of the Karmutsen exposures partly reflect downslope dispersion.

Zinc anomalies (Figure 15) occur as widespread weak irregular and generally non-contiguous point values with only occasional spot highs. They are generally not coincident with copper or gold.

Lead (Figure 16) shows weak correlation with zinc at the western end of lines 11,600N to 11,900N. Lead values in general were at consistently low levels over the grid. Silver values were not plotted due to extremely low level response.

VLF-EM Survey: (Figure 19)

A VLF-EM survey was completed over all but the northern-most 5 lines using a Geonics EM-16 tuned to the Seattle, Washington transmitting station. Figure 19 shows the survey results with combined raw in phase data, in-phase profiles and positive Fraser Filter contours. Several inferred faults have been interpreted based on irregularities in the VLF data coupled with inferences from mapped geology and prominent shear/fracture orientations. The resultant pattern shows a number of weak to moderate semi continuous conductors offset by NE-SW to N-S faulting in the south half of the grid. These small conductors most likely represent contact relations within various units of the Myra Fm. and are parallel to the measured strikes. Outcrop exposure is sufficiently limited to preclude verification within the Sicker Group, however contact "conductors" are well defined on the NE of the grid at the edge of the Nanaimo Group conglomerates and the Karmutsen-Sicker contact.

The central and northwestern portion of the grid displays a large diffuse area of weak conductivity related to a thicker veneer of overburden and stream gravels. An apparently offset moderate conductor appears at the north western portion of the surveyed grid on lines 11,600N to 12,100N. Minor coincidence of weak zinc anomalies with the conductive zone in this area should be further evaluated. Otherwise correlation of geochemistry with VLF is poor and essentially fortuitous.

Cameron River Grid:

A 1.8km baseline was established at 120 degrees roughly parallel to the Cameron River on the property's northern limits. Crosslines were put at 100m intervals by pace and compass with flagged stations every 25m. Samples were collected at each station from the B soil horizon at an average depth of 25cm. Several swampy areas prevented collection of proper material and were not sampled. A total of 528 samples were sent to CDN Labs for analysis. Methods and element analyses requested were as for the Nanaimo Lakes grid. Figure 5 shows the grid outline relative to the logging road network with interpreted mapped geology.

Soil Geochemistry: (Figure 9-12)

Gold values are spotty, generally consisting of single point highs. Several anomalies occur within the Nanaimo argillites at slightly above threshold levels (30ppb-60ppb). Anomalies in the Karmutsen go up to 390ppb. No obvious shource has been located.

Copper shows a broad consistent anomaly on the north half of the grid with interval zones of plus 200-300ppm. The anomaly may be explained by an expected increase in background copper levels within the Karmutsen Fm. basalts relative to the argillites and Tertiary intrusive. Downslope dispersion would account for the southern overlap of the anomaly into the argillite.

Zinc values are elevated over the argillite with a strongly anomalous zone along the SE contact with the Tertiary intrusive. Lesser scattered anomalies do occur upslope on Karmutsen basalts and are as yet unexplained.

Lead anomalies are point highs; weak, scattered and essentially restricted to the area of Nanaimo argillite.

Silver values were very low, often below detection limits.

VLF-EM Survey: (Figures 17,18)

A VLF survey was conducted on the grid using a Geonics EM-16 instrument tuned to the Seattle, Washington transmitting station. Figure 17 shows the in-phase profiles. Raw data can be inferred graphically from the profiles. Figure 18 shows the contoured positive Fraser filter results from the same data. Reference to the geology map (Figure 5) allows immediate correlation of the northernmost linear conductor with the mapped Karmutsen Fm. fault contact. The strong oblique trending conductor extending from 10,000E/BL to 11,100E/4755 correlates perfectly with the western argillite-intrusive contact. The broad, weaker conductor on the SE of the grid commencing at 11,800E/BL is probably due, in part, to the eastern argillite-intrusive contact. Poor coupling would be expected in this case due to the rapid swing of the contact to a more N-S orientation. Similarly the weak anomaly at the south end of line 10,100E may be related to the inferred northerly trending Karmutsen-intrusive fault contact.

One interesting conductor without obvious geological source is located within the Nanaimo argillites commencing on line 11,000E at 130m S and trending SE to 11,400E/500S. There is no geochemical correlation of significance.

7.4 Lithogeochemistry

A combined programme of rock chip ICP sampling and major oxide/trace metal lithogeochemistry was carried out in conjunction with geological mapping. The object was to aid in defining local areas of enhanced metal levels related to Jurassic or Tertiary intrusive activity or alteration zones related to hydrothermal activity and potential massive sulphide mineralization. All samples were collected from fresh material as a series of small chips within a 1-2 metre radius on outcrop. ICP sampling was normally restricted to areas underlain by Jurassic and Tertiary intrusives, Karmutsen Fm. basalts and occasionally Nanaimo group sediments. Major oxide lithogeochemistry was performed almost exclusively within the volcanic rock - primarily those of the Sicker Group including both the Myra and Nitinat Formations. The Karmutsen Fm. was also sampled in the early stages of the programme before using ICP methods. ICP analyses were performed by Min-En Labs, Vancouver, using acid digestion sample preparation. All 26 elements were requested and are listed in Appendix 1. Gold was carried out separately using acid digestion and AA finish. Major oxide/trace element lithogeochemistry analyses were conducted by Terramin Research Labs, Calgary, Alberta, using a lithium metaborate fusion and AA technique for SiO_2, Na_2O, K_2O, TiO_2 and Barium. Trace metal Cu, Zn, and Ag were obtained by standard acid digestion/AA methods. All results are listed in Appendix 3.

Figure 36 shows the sample numbers and locations for all lithogeochemical samples. Figures 37 and 38 display results in selected elements/oxides for the two separate techniques.

<u>ICP Data:</u>

Figure 37 shows plotted ICP results for Cu, Pb, Zn, Ba, Ag and Au at each sample location. Anomalous threshold levels are indicated for each of the major rock groups involved based on elementary descriptive statistical analysis of samples from each group. Very few genuine anomalies of any magnitude were detected. Anomalies of note are:

1. <u>Headwaters of creek draining centre of Claim WO.6:</u> Mildly

elevated gold values with some copper, lead and weak zinc support previous weak stream sediment anomalies. Prospecting of these drainages failed to dectect a mineralized source.

2. Weak copper + silver SE of above on Tangle 1 claim: Low level copper in this area occurs in Jurassic intrusives near their contact with Karmutsen basalts. Mafic inclusions and contamination may contribute to elevated background copper levels.

3. NE corner of Surprise claim: Low level copper and gold occurs in two samples of Jurassic monzonite.

4. NW Surprise claim, E end of Wolfram 3: A large arcuate zone of anomalous lead, zinc and lesser copper occurs in Jurassic diorite/monzonite. Lead values in particular are strongly elevated relative to background values in the intrusive. No field follow-up has been conducted.

5. Nanaimo sediments, WO.5 Claim: Weak lead highs and barium anomalies occur within a mixed assortment of Nanaimo sediments and Tertiary intrusive. Prospecting in the area failed to discover signs of economic mineralization. Erratic metal levels in the sediments are the probable cause of this "anomaly".

Major Oxides / Trace metal data:

Figure 38 shows the plotted results for Na2O, K2O, Ba and Zn at each sample site. Anomalous thresholds for sodium depletion, potassium enrichment and trace metal levels were established for the major rock types with the aid of computerized descriptive statistics analysis. These elements and major oxides were chosen for their particular relevance to hydrothermal alteration patterns associated with polymetallic massive sulphides. The major target area was in the Myra Fm. intermediate tuffs in the SW portion of the property. Some areas of Karmutsen and Nitinat Fm were covered early in the field programme before ICP methods were adopted. Discussion of the anomalous areas follows:

1. Nitinat Fm., E end of Tangle 1 Claim: A number of samples in this area display potassic enrichment with or without lesser associated sodium depletion. Trace metal levels are generally not anomalous or only mildly elevated (e.g. zinc). The rocks in this area are mafic flows, very deformed and metamorphosed. No mineralized areas were detected during geologic mapping and prospecting. Further follow-up to ascertain the nature of the alteration (if any) is warranted.

2. Sicker Group - Myra Fm. Wolfram 4 and WO.2 Claims: Several clustered anomalies occur in the westernmost portion of the claim block in rocks of the Myra Fm. Apparent sodic depletion is accompanied by relative barium enrichment but generally not in the same sample. Closer examination of field sampling notes indicates that the barium enrichment occurs in acidic units - generally cherty tuffs. Strong sodium depleted anomalies are mostly due to pure chert samples with +75-80% Si02. Association of base metal enrichment is generally poor or

absent. Further selected followup prospecting should be carried out in the vicinity of these "anomalies" to doublecheck for sulphides or overt signs of mineralization.

3. Cameron River Area Min and WO.1 Claims: Weakly elevated zinc levels occur in mafic breccias and basalts of the Karmutsen Fm. on the WO.1 claim. A second zone of elevated potassium occurs in several samples on the north edge of the Min claim. No obvious alteration was detected during mapping and prospecting on the grid coverage.

7.5 Drilling

Villalta Hematite - Au Showing:

The showing was discovered by E. Specogna in 1976 from exposure of hematite on a logging road. He sampled surface outcrops and obtained values ranging up to +1 oz/ton Au. Subsequently Specogna drilled 6 holes in 1980 and a further 15 holes in 1981. G. Belik, a consultant, reported on the 1980 drilling and 8 of the 1981 holes. He also carried out geologic mapping at 1:500 scale in the drilling area. Asarco optioned the property in 1982 and conducted surface soil sampling over the Villalta claims. Planned drilling was never carried out and the property was later returned to Specogna. Little further work was attempted until the present programme.

Figure 22 shows the summarized local geology, and compiled geochemistry after Asarco (1982). The hematite-Au outcrop area is shown in the centre of coincident Pb, Zn and As anomalies. A linear As anomaly trends NNE towards the Tertiary intrusive with local sub-coincident Pb and Zn highs.

The 1984 drill holes are shown on Figure 22. Holes 84-V-22 and 23 were laid out to test for a northward projection of the zone based on the arsenic anomaly. These holes are located on the Villalta A claim of the Waterfall Group Mineral Claims. A total of 468.9 meters were drilled in these holes. DDH 84-V-24 and 25 were located to test the center of the hematite zone for grade continuity and structure. A total of 197.2 meters were drilled in these holes on the Villalta D claim of the Tangle Group Mineral Claims.

Mineralization:

An essentially upright sequence of folded Sicker Group rocks are capped unconformably by Cretaceous age Nanaimo Group sediments. The Sicker Group rocks consist of a lower series of Myra Fm. tuffs in the south, overlain by Buttle Lake Fm. massive crinoidal limestones with local cherty and tuffaceous interbeds. Surface exposures of poddy and banded semi-massive to massive pyrrhotite and pyrite with minor sphalerite and chalcopyrite occur within both tuffaceous interbeds and massive limestone. The hematite zone outcrops near the apparent unconformable interface of the Buttle Lake limestone with the capping Nanaimo Group conglomerates and mudstones and was originally thought to represent a reggolith. Detailed mapping shows the Sicker rocks to be tightly folded along axial trends of 135 degrees with a 20 degree plunge to the NW. A second folding phase trending due north may be indicated by the surface outcrop pattern.

Drilling Results:

Referring to the section of Figure 23 it is evident that the hematite zone is semi-continuous over limited distances and appears to occur as a stratiform horizon, usually near the top of the limestone but locally enclosed within volcanic tuffs and wacke.

Descriptions of massive hematite intersections note the presence of rare cp and tuffaceous or limy layers. It is very likely that the hematite is a near surface oxidation product or gossan developed from down-dip sulphide rich horizons.

Gold content may be locally enhanced in the hematite relative to the sulphides but is certainly erratic in distribution. This is evident from the assay results of the closely spaced holes on the section of Figure 23. The 1984 holes 84-V-24 and 25 encountered problems with good values obtained over a narrow intersection in 84-V-24 and negligible gold in the much thicker zone in 84-V-25.

Due to the exhibited folding in the Sicker Group, the fluctuation in assayed grades and the likelihood of down dip extensions into sulphide-phase horizons there is a reasonable potential for extending the known mineralization with further drilling. Unfortunately the step out drilling of holes 84-V-22 and 23 (Section F-F', Fig. 32) failed to intersect the zone though several weak gold kicks were obtained in Sicker Group tuffs above the limestone. Chasing the zone to the north or west would require an ordered programme of short holes extending outwards from the known mineralization. Down-dip sulphide-rich horizons may be amenable to down-hole Pulse EM methods to aid drill hole site selection.

8. CONCLUSIONS AND RECOMMENDATIONS:

Property wide exploration efforts on the claims were largely dissappointing with few concrete anomalies not explained by normal variation in background metal contents of observed geology. The fact that silt geochemistry detected the known "Torchy" Cu-Ag showing and several other minor anomalies supported by rock geochemical work gives confidence that any near surface mineralization of significance was not over-looked.

Soil grid geochemistry on Sicker group rocks did not reveal any strong geochemical targets. Most anomalies are weak and rarely have coincident metal values. One exception occurs on the NW area of the grid with sub-coincident lead and zinc, a nearby VLF conductor and some support from barium enrichment in lithogeochemical samples. Follow up work should consist of initial prospecting, followed by more detailed soil sampling to define the source. If warranted, subsequent targets could be trenched or probed with short "Winkie" or equivalent drill holes.

Follow up resampling of most gold highs yielded dissappointing results and prospecting failed to locate any visible mineralized source or structural controls.

The Cameron River grid work effectively located the source of the Dighem EM conductor - the fault contact between Karmutsen basalts and Nanaimo Group Argillites. Minor soil anomalies in the Karmutsen Fm do not appear to warrant further work other than resampling of gold highs in the NW portion of the grid.

Several lithogeochemical targets required further examination. The anomalous creek drainage on claim WO.6. was supported by weak gold values in rock chip ICP sampling. A more detailed examination of these drainages is warranted with further rock chip sampling to locate the source. Other gold/copper anomalies within the Jurassic intrusives on the South should be rechecked. The probable sources are narrow shears with local sulphide concentrations known to exist elsewhere on the claims. Similarly the Pb-Zn anomalies on the Wolfram 3 and Surprise claims deserve further follow-up prospecting.

Other than the low-order follow-up targets listed above the 1984 field programme succeeded only in eliminating most of the property from further serious consideration. The "Torchy" Cu-Ag showing was shown to have very limited extent and has been discounted. The best mineralized target on the property remains the Villalta hematite-Au showing. The zone is open to the north and may re-occur to the west by fold repetition. Several holes could be easily located to test these possibilities and probe for northward continuity.

STATEMENT OF EXPENDITURES

	COST PER CLAIM GROUP	
ASSAYS:	TANGLE	WATERFALL
1. Grid soil geochemistry: CDN Labs, Delta Assayed for Cu,Pb,Zn,Ag,Au Nanaimo Lakes Grid 1196 samples Cameron River Grid 545 " Total 1741 " @ $9.00	-	$15,669.00
2. Stream sediment geochemistry: CDN Labs, Delta Assayed for Cu,Pb,Zn,Ag,Au		
Reconnaissance sampling 179 samples @ $9.00	$531.00	$1,080.00
Follow-up sampling 289 " "	$1,935.00	$666.00
3. Lithogeochemistry: Min-En Labs, N. Vancouver 26 element ICP ICP samples 192 @ $17.00	$2,703.00	$561.00
Terramin Research Labs, Calgary 4 major oxides, 4 trace elements 202 samples @ $14.95	$1,390.00	$1,629.00
4. Drillcore Assays: CDN Labs, Delta Fire assay Au 231 samples @ $8.40	$201.60	$1,654.80
5. Bus freight/shipping charges:	$116.90	$367.90
DIRECT DRILLING CHARGES:		
Longyear Canada 666 metres. Invoiced costs inclusive of mob, demob, set-up and interhole moves, casing, core boxes amd camp equipment rentals. Total costs $52,667.86 or $79.07/metre.		
DDH 84-V-24,25: 197.21 metres	$15,593.46	-
DDH 84-V-22,23: 468.78 metres	-	$37,074.40
SURVEY EQUIPMENT RENTALS:		
1. Sperry-Sun single shot borehole survey tool. Five weeks $1,669.31 pro rata	$494.24	$1,175.07
2. Geonics VLF-EM 16 units (2)	-	$881.50

TITLE	WORK ACTIVITY	DAYS AT TASK	$RATE/DAY	DAYS PER CLAIM GP. TANGLE	DAYS PER CLAIM GP. WTRFALL	COST PER CLAIM GP. TANGLE	COST PER CLAIM GP. WTRFALL
Project Geologist (TEC)	Selection of contractors, field programme preparation; acquiring field supplies and topo base maps; hiring crews.	May 14-17,22,23, 28-31 Jun 4,5	$200.00	6	6	$1,200.00	$1,200.00
	Programme supervision and direction. Coordination of workcrews. Logistics. Interpretation.	Jun 19,20,23,24,28, 29, Jul 4,9,11, 12,18-21,27-29 Aug 9,10,12, Sep 7, 19,20,24-26,30	$200.00	14	13	$2,800.00	$2,600.00
	Data collation and review. Interpretation, map and report preparation.	Oct 9-11,18,19,23, Nov 12-16,22,23,29, Jan 7-10,22-25,28	$200.00	11	12	$2,200.00	$2,400.00
Geologist (Party chief) (DR)	Prepare maps, field supplies. Mobilization. Camp setup.	Jun 1,4-8,11	$130.00	3.5	3.5	$455.00	$455.00
	Programme supervision and direction. Coordination of workcrews. Logistics. Interpretation.	Jul 6,9,30,31 Aug 20,27,29-31	$130.00	4.5	4.5	$585.00	$585.00
	Geological mapping and sampling. Field drafting. Drill site selection. Silt anomaly follow-up, prospecting and mapping. Soil grid mapping and prospecting.	Jun 12-25,27,28,30 Jul 1-4,7,8,10-16, 20,22,23,29 Aug 1-3,7-14,16,17 Sep 4,6-15,17-25, 27-30 Oct 1-5	$130.00	32	44	$4,160.00	$5,720.00
	Drilling mob and support, supervision and logistics. Interpretation.	Jun 26,29 Jul 5,17,18,21,22,25 Sep 1, Oct 6	$130.00	3	7	$390.00	$910.00
	Data collation and review. Interpretation, map and report preparation.	Oct 10-12,15-23, 26,29-31	$130.00	8	8	$1,040.00	$1,040.00
Jr. Geologist (TM)	Prepare maps, field supplies. Mobilization. Camp setup.	Jun 4-8,11	$85.00	3	3	$255.00	$255.00
	Geological mapping and sampling. Field drafting. Silt anomaly follow-up, prospecting and mapping. Soil grid mapping and prospecting.	Jun 12-25,27-30 Jul 1-4,6-18 Aug 11-16,18,21-27 Sep 5-8,11-15,17-21 25,28,30 Oct 1-3	$85.00	30	39	$2,550.00	$3,315.00
	Drillcore logging and surveys. Core sampling. Log and section drafts.	Jun 26, Jul 5,20-31 Aug 1-4,6-10,20 Sep 1,2,4,5,9, Oct 4	$85.00	10	20	$850.00	$1,700.00
	Data collation and review.	Oct 6-15	$85.00	5	5	$425.00	$425.00

TITLE	WORK ACTIVITY	DAYS AT TASK	$RATE/DAY	DAYS PER CLAIM GP. TANGLE	WTRFALL	COST PER CLAIM GP. TANGLE	WTRFALL
	Interpretation, map and report preparation.						
Geologist (SL)	Geological mapping and sampling. Field drafting. Silt anomaly follow-up, prospecting and mapping. Soil grid mapping and prospecting.	Sep 22-30	$100.00	3	6	$300.00	$600.00
Jr. Geologist (MH)	Silt anomaly follow-up, prospecting and mapping. Soil grid mapping and prospecting.	Aug 21,22 Sep 24-29	$85.00	1	7	$85.00	$595.00
Geotech. #1 (JM)	Prepare maps, field supplies. Mobilization. Camp setup.	Jun 5-8,11	$55.00	2.5	2.5	$137.50	$137.50
	Lithogeochem/ICP sampling	Jun 12,20,27,28,	$55.00	4		$220.00	$0.00
	Silt geochem sampling; reconn and follow-up Sample prep and shipping. Field plotting.	Jun 13-15,17-19, 21-25,29,30 Jul 1-5,7,8,14,15, 27,31 Aug 1,7,15,16,18 20,21-23, Sep 4	$55.00	15	19	$825.00	$1,045.00
	Grid soil geochem sampling. Sample prep and shipping. Field plotting.	Jul 6,9-12,16-21, 23,24,26-28,30 Aug 8-14,24-26,30 Sep 3,13,17,19	$55.00		32	$0.00	$1,760.00
	Grid VLF-EM surveys. Data reduction and plotting.	Aug 27-31 Sep 1,2,5-12,14-16, 18,20,22,26-30 Oct 1-8	$55.00		33	$0.00	$1,815.00
	Drillcore recovery and RQD.	Jun 26,Jul 22,25,29	$55.00		4	$0.00	$220.00
Geotech #2 (CB)	Prepare maps, field supplies. Mobilization. Camp setup.	Jun 6-8,11	$55.00	2	2	$110.00	$110.00
	Lithogeochem/ICP sampling	Jun 12,20,27,28 Jul 3, Sep 16	$55.00	5	1	$275.00	$55.00
	Silt geochem sampling; reconn and follow-up Sample prep and shipping. Field plotting.	Jun 13-15,17-19, 21-25,29,30 Jul 1,2,4-8,14,15 21-23 Aug 15,16,18,20 Sep 4,8,25	$55.00	19	13	$1,045.00	$715.00
	Grid soil geochem sampling. Sample prep and shipping.	Jul 9-13,16,17,19-24 26,29	$55.00		42	$0.00	$2,310.00

TITLE	WORK ACTIVITY	DAYS AT TASK	$RATE/DAY	DAYS PER CLAIM GP. TANGLE	DAYS PER CLAIM GP. WTRFALL	COST PER CLAIM GP. TANGLE	COST PER CLAIM GP. WTRFALL
	Field plotting.	Aug 8-14,24-29 Sep 9-15,17-22,24					
	Drillcore recovery and RQD. Core storage, sampling.	Jul 25,30,31 Aug 1,2,4,7 Sep 5-7	$55.00	5	5	$275.00	$275.00
Geotech. #3 (SAC)	Silt geochem sampling; reconn and follow-up Sample prep and shipping. Field plotting.	Sep 6,7,22,25,29	$55.00	5		$275.00	$0.00
	Grid soil geochem sampling. Sample prep and shipping. Field plotting.	Aug 21-25,27-31 Sep 1-5,11	$55.00		16	$0.00	$880.00
	Grid VLF-EM surveys. Data reduction and plotting.	Sep 21,24 Oct 1,2	$55.00		4	$0.00	$220.00
	Drillcore recovery and RQD.	Sep 8,9,15,26-28	$55.00	2	4	$110.00	$220.00
Geotech. #4 (KK)	Lithogeochem/ICP sampling	Sep 16,22	$55.00	1	1	$55.00	$55.00
	Silt geochem sampling; reconn and follow-up Sample prep and shipping. Field plotting.	Sep 6,7	$55.00	2		$110.00	$0.00
	Grid soil geochem sampling. Sample prep and shipping. Field plotting.	Aug 27-31 Sep 1-5,8-15,17 19-21,24	$55.00		23	$0.00	$1,265.00
	Grid VLF-EM surveys.	Sep 25	$55.00		1	$0.00	$55.00
Geotech. #5 (PF,JP)	Silt geochem sampling; reconn and follow-up.	Aug 15,16	$55.00	2		$110.00	$0.00
	Grid soil geochem sampling. Sample prep and shipping.	Aug 14,21,23,28-30	$55.00		6	$0.00	$330.00
	Grid VLF-EM surveys.	Aug 22,24,27	$55.00		3	$0.00	$165.00
						$20,842.50	$33,432.50

TRAVEL/BOARD/LODGING/CAMP EXPENSES:		COST PER CLAIM GROUP	
		TANGLE	WATERFALL
House rental, Nanaimo Jun 1-Oct 31	$2,130.00		
Furniture rentals "	$817.99		
Camp equip. rentals "	$539.40		
Food and sundries "	$6,107.34		
Consumible camp supplies "	$693.15		
B.C. Hydro "	$351.28		
Travel expenses on project (meals)	$245.64		
Communications:			
1) B.C. Tel house/truck mobile	$705.05		
2) Mobile radio rentals (portables and truck mobile)	$1,410.40		
Travel expenses to/from project (includes mob/demob, ferries, hotels)	$1,535.72		
Transportation:			
1) Fuel	$3,071.56		
2) Vehicle rentals (14.5 vehicle-months)	$18,658.74		
Map reproductions/drafting	$992.04		
Field Supplies:			
1)General and geological	$5,132.76		
2)Geochemical	$2,300.73		
3)Drilling	$988.32		
Preparatory Survey: McElhenney Surveys Photogrammetric 1:10000 Topo base map	$4,880.00		
SUBTOTAL (apportioned on pro rata basis as derived from distribution of direct field and wage costs per claim group)	$50,560.12	$16,638.70	$33,921.42

TOTAL EXPENDITURES: $188,558.99 by claim group.. $60,446.40 $128,112.59

FALCONBRIDGE LIMITED

6415 - 64th Street, Delta, B.C., Canada V4K 4E2

Tel. (604) 946-0441

Telex 04-357583

Chief Gold Commissioner
Ministry of Energy, Mines
and Petroleum Resources
Parliament Buildings
Victoria, B.C.
V8V 1X4

STATEMENT OF QUALIFICATIONS

Dear Sir:

This is to state that I have obtained a BSc (Hons) 1975 in Geology from Carleton University, Ottawa, Ontario, and have worked as a geologist for Falconbridge Limited since 1976.

Dita Runkle, project supervisor, worked under my supervision. She obtained a B.A. in Geology from Mount Holyoke College, Mass, 1974. She was granted an MSc in Geology fron the University of British Columbia in 1980 and has had work experience as a geologist since 1975.

Teresa MacKenzie who logged the drill core at the Villalta showing graduated from U.B.C. in 1983 with a B.Sc in Geology.

Yours truly,

FALCONBRIDGE LIMITED

T. E. Chandler
Project Geologist

TEC/gd

APPENDIX 1

Diamond Drill Logs, DDH 84-V-22,23,24,25

DRILL HOLE RECORD

FALCONBRIDGE LIMITED

	Inclination	Bearing
Collar	-59°	310
45.7	-59°	-
111.3	-62°	-
174.0	-63°	-
211.8	-63°	-
239.5	-64°	-

PROPERTY 091 Labour Day Lake	Length 244.85m	HOLE No: 84-V-22	Page #
Location Villalta Showing	Hor. Comp. / Vert. Comp.	Sheet 1 of 6	
Elevation	Bearing 310°	Logged by T. MacKenzie	
Coordinates On M35D2 Road N	Begun 20/07/84 / Completed 22/07/84	Sampled by T. MacKenzie	
Above Showing E	Core size NQ&BQ / Recovery 94 %	Driller LONGYEAR	

DEPTH (metres) From	To	RECOV'Y RQD	Core	DESCRIPTION	INTERSECTION ANGLE	GRAPHIC 1:500	SAMPLES Number	From	To	Length	ASSAYS Cu %	Zn %	Pb %	Ag	g/MT Au
0	10.06	0	0	CASING											
10.06	13.04	50	100	NANAIMO FINE SEDIMENTS											
13.04	57.16	88	99	INTRUSIVE - FELDSPAR PORPHYRY (NQ CORE TO 24.38)											
57.16	102.04	52	89	NANAIMO ARGILLITE											
102.04	167.33	74	95	NANAIMO CONGLOMERATE											
167.33	213.74	63	92	SICKER VOLCANICLASTICS											
213.74	222.86	69	99	SICKER TUFFS AND SILICIFIED LIMESTONE BRECCIA											
222.86	235.85	42	84	SILICIFIED LIMESTONE BRECCIA AND RARE TUFF ZONES											
235.85	244.75	70	97	CRYSTALLINE LIMESTONE											
10.06	13.04	50	100	Dark grey to black, f.g.-m.g. sandstone with occ. m.g. clasts; sub-rounded to sub-angular, white to dk. grey, range 0.5-6.0mm. Clasts oriented // poorly defined bedding. Matrix is f.g., light to dark grey and mottled. Unit is moderately fractured w. rare calcite veinlets. Shear (15cm. wide) at 12.2m. Lower contact with intrusive is very irregular and marked by pervasive hematite within 1-2cm. of contact. Hematite occurs in veins up to 7-8 cm. from contact, primarily as deep red radiating blades but also as metallic specularite. Chlorite occurs as selvage to hem. veins in the intrusive. No sulphides.	Bedding (?) 050'		6276 6277 6278 6279	10.14 11.0 12.0 12.5	11.0 12.0 12.5 13.0	0.86 1.0 0.5 0.5					0.05 0.05 0.05 0.05
13.04	57.16	88	99	Intrusive Feldspar Porphyry: Light grey, massive with white (K?) feldspar phenocrysts, 0.5-5.0mm. Feldspars are irreg. in shape, poss. resorbed. Chlorite (aft. amphib.?) occurs in the groundmass to 10%. Phenocrysts compose from 5-25% of rock. Rare partially absorbed xenoliths are f.g. dark grey and chloritic. Unit is slightly fractured with occ. calcite veinlets. 57.10-57.16: Lower contact with sediments is sharp with a narrow 3cm section of "banding" in the intrusive. The contact itself is marked by a 6cm breccia of dark argillite enclosed in the intrusive.	Calcite veinlets 018+020° to core axis fractured at 035+-45° Bands-050 Contact-050°		6280 6281	13.0 13.5	13.5 14.5	0.5 1.0					0.05 0.05
57.16	102.04	52	89	Nanaimo Argillites: Mostly grey to black mfg-f.g. soft argillite. Lesser narrow interbeds of sandstones, gravels and conglomerates. Variations as follows: 57.16-63.35: Light to dark grey, irregularly bedded soft argillite bearing rare to occ. feldspar and/or amphib. clasts (range: 0.5-7.0mm). Grain size in argillite varies considerably with lensy zones of coarser material and correlating lighter colour variation. 61.50m: Calcite-filled brecciated fracture zone. 63.35-63.69: Gravel Bed: f.g.-m.g., light grey silty matrix to mixed clasts (rounded to angular) up to 7mm. Clasts range from f.g. tuff to argillite to chloritic volcanics and quartz pebbles. 63.69-64.50: Argillite, variably light to med. grey, irregular - flaser bedding. 64.50-65.10: Conglomerate: Coarse, polymictic. Clasts as 63.35-63.69 in composition and compose from 33 to 80% of unit. Clast size up to 2.5 cm. 65.10-65.70: Argillite: As previous. 65.70-67.81: Mixed f.g. to c.g. sequence from argillite to gravel to conglomerate beds with clasts up to 3.5cm. Very irregular bedding. 67.81-69.18: Light grey sandstone with mixed f.g. silty layer and thin seams of argillite. 68.75-69.18: Fracture/shear zone. Trace v.f.g. dissem. Py.	Bedding = 57.36m = 62° 57.70m = 57° 57.80m = 50° 61.35m Calcite veinlets-030° 64.50m Bedding-055° 69m: Calcite vein 057° to core axis										

DRILL HOLE RECORD

FALCONBRIDGE LIMITED

	Inclination	Bearing
Collar		

PROPERTY
Location
Elevation
Coordinates N / E

Length
Hor. Comp. / Vert. Comp.
Bearing
Begun /Completed
Core size /Recovery %

HOLE No:
Page #
Sheet 2 of 6
Logged by
Sampled by
Driller

DEPTH (metres) From	To	RECOV'Y RQD	Core	DESCRIPTION	INTERSECTION ANGLE	GRAPHIC 1:500	SAMPLES Number	From	To	Length	ASSAYS Cu %	Zn %	Pb %	Ag g/MT	Au

69.18-71.40: Dark grey to black, v.f.g.-f.g. argillite as previous.
71.40-72.51: Conglomerate as previous. Clast size to 4.0cm, 10-65% of unit
 72.25: Irreg. veinlets of calcite with minor py.
72.51-73.53: Argillite as prev.
73.53-74.07: Conglomerate: 80% clasts to 1.5cm
74.07-75.50: Argillite + minor sandstone
75.50-77.15: Conglom: 60% clasts av. 2.0cm
77.15-77.89: Argillite: 1% fg green-grey clasts to 1.0cm increasing to 15% with depth
77.89-79.00: Conglom: 80% clasts up to 6.0cm
79.00-80.0m: Mixed bedded argillite and conglomeretes. Clasts to 1.5cm
 79.55-79.71: Calcite veining
80.0 -81.75: Conglomerate, fining upwards. 80-85% clasts to 3.0 cm. Minor thin seams of argillite occur at 80.20m and 80.60m
 80.80-81.08m: Shear zone
81.75-82.47: Argillite, broken and fractured. Occ. clasts to 1.5cm
 81.8m 3.0cm calcite vein
82.47-82.95: Conglomerate: 50% clasts average 3.0cm, range 1.0-6.0cm
82.95-83.59: Argillite: Bears increasing clasts to 2.0cm below 83.45m
83.59-83.82: Cglm: 75% clasts to 2.5m
83.82-84.23: Argillite: with thin interbedded silt and sandstones. 1% clasts to 4.0mm
84.23-84.51: Cglm: 85% clasts to 2.0cm. Grades to following:
84.51-86.70: Argill: rare clasts to 1.0cm increasing to 10% at base. Minor fg Py
86.70-88.05: Cglm: 85% clasts up to 7.0cm. Occ. thin zones of increased dark fg matrix and reduced clasts
88.05-91.44: Argill and Siltstone: fractured and crumbly at 89.95 with calcite veining. Gravel bed at 90.45m. Up to 15% clasts to 7.0mm overall
91.44-92.07: Cglm: 75% clasts up to 1.5cm
92.07-93.15: Argillite: plus minor mg sandstone and occ. clasts
93.15-93.28: Cglm: 75% clasts to 2.0cm
93.28-94.03: Argillite: Highly fractured from 93.50m to end
94.03-95.75: Cglm: Mixed sequence of coarse conglomerate to gravels, sandstones and argillite all bearing clasts. Coarse section consists of 95% clasts up to 7.0cm including rare intrusive cobbles, sub-rounded to sub-angular.
95.75-102.04: Argillite: dark grey, generally uniform but with occ. lensy beds of coarser silts and sandstones.

Intersection angles:
79.0m Bands 45° calcite vein at 65° Bedding-35°
81.0m Calcite vein 50°-60°
81.3m Bedding 60°
81.80m Calcite vein at 56°
83.59m Bed-ing 50°
83.82 40°
84.m 70° also 50-55°
84.5m 56° & 40°
91.2m 55°
93.15m 60°
95.7m Bedding 57°
102.0 50°

From	To	RQD	Core	Description
102.04	167.33	74	95	Nanaimo Conglomerate. Mostly coarse polymictic conglomerates with lesser sandstone beds, and very minor argillite. Red hematitic mudstones become increasingly common with depth. Clast composition in cglm is highly variable and includes qtz, fg massive mafic volcanics, variably coloured lithic and crystal tuffs, green to white cherts and rare intrusive. Tuffs are most abundant. Matrix is dark to light grey, fg-mg with occ. dissem. Py to 2%.

DRILL HOLE RECORD

FALCONBRIDGE LIMITED

	Inclination	Bearing
Collar		

PROPERTY
Location
Elevation
Coordinates N / E

Length
Hor. Comp. / Vert. Comp.
Bearing
Begun / Completed
Core size / Recovery %

HOLE No: 84-V-22 Page #
Sheet 3 of 6
Logged by T. Mackenzie
Sampled by
Driller

DEPTH (metres) From	To	RECOV'Y RQD	Core	DESCRIPTION	INTERSECTION ANGLE	GRAPHIC 1:500	SAMPLES Number	From	To	Length	ASSAYS Cu%	Zn %	Pb %	Ag g/MT	Au
				102.04 - 102.98: <u>Cglm</u>, 85% clasts to 4.0cm. 1-2% py in matrix.	102.7 - 45°										
				102.48 - 105.75: Fg - cg <u>sandstone</u>, well bedded. Occ. conglomerate beds increasingly common near base. eg: 102.67-102.73, 104.92-105.08, 105.16-105.53, 105.63-105.72. Sandstone is feldspathic with up to 25% mafic minerals (chlor/epidote) or rock chips.	102.7 - 45° Calcite vein 008°										
				105.75 - 109.71: <u>Cglm</u> up to 95% clasts to 7.0cm. Sandstone layer at 109.02-109.17m	Calcite Vein 025°										
				109.71 - 111.86: Light to dark grey laminated to thinly bedded <u>sandstone and argillite</u>. Sandstone layers bear occ. clasts of argillite. (rip-up?)	Bedding 50° - 55°										
				111.86 - 113.5: <u>Cglm:</u> 0-75% clasts, highly variable in dark grey argillaceous matrix with coarse qtz-feldspar grains (to 2mm). Soft and strongly fractured in general.	Calcite vn 25° - 45°										
				113.5 - 117.20: <u>Cglm:</u> as previous, 75% clasts to 5.0cm. Minor calcite veining. Red hematitic alteration occurs at 115.30m and continues with depth up to 5%. Hematite is spotty, more prevelent in clasts and appears related to hair fine quartz veining.	Calcite vn 38°										
				117.20 - 117.35: Red-brown <u>hematitic mudstone</u>: bears grey coarse clastic grains up to 7mm to 15% overall, generally sub-rounded. Very soft.	117.2m Contact 45°										
				117.35 - 129.78: <u>Cglm</u>: 75% clasts up to 6.0cm. Hematite alteration is observed below 118.45, increasing w. depth up to 20%, 5% average. Minor sandy layers (eg: 123.32-123.40). Red-brown <u>hematitic mudstones</u> occur at: 120.98-121.06, 121.27-121.48, 121.63-121.75, 126.71-126.93.	117.35m Contact: 90°										
				129.78 - 136.32: Red-brown <u>hematitic mudstone</u> as previous, with variable proportion of large clasts 5.0-8.0cm (5-40%, av. 15%). Distinct <u>conglomerate</u> beds occur at: 131.30-131.55, 133.80-134.00, 134.15-134.32.											

DRILL HOLE RECORD

FALCONBRIDGE LIMITED

	Inclination	Bearing
Collar		

PROPERTY	Length	HOLE No. 84-V-22	Page #
Location	Hor. Comp. / Vert. Comp.	Sheet 4 of 6	
Elevation	Bearing	Logged by	
Coordinates N E	Begun / Completed	Sampled by	
	Core size / Recovery %	Driller	

DEPTH (metres) From	To	RECOV'Y RQD	Core	DESCRIPTION	INTERSECTION ANGLE	GRAPHIC 1:500
				136.32 - 138.60: <u>Conglomerate</u>: 75% clasts up to 5.0cm. Upper contact irreg. and gradational. 5-10% hematitic alteration of both clasts and matrix. Hematitic mudstone layer at 138.37-138.47.	Calcite vn: 33°	
				138.60 - 140.67: <u>Hem. Mudstone:</u> as previous. Clasts up to 5.0cm average <10%, range 5-40%.		
				140.67 - 148.60: <u>Conglomerate:</u> as prev., 60% clasts (up to 95%), range 1.0-8.0cm. Occ. calcite veins. Numerous red-brown hematitic mudstone layers with gradational contacts at: 141.77-141.92, 142.02-142.15, 142.75-142.92, 143.01-143.68, 144.01-144.12, 146.15-146.21, 147.38-147.63, and 148.23-148.37.	Calcite vn: 10° - 20°	
				148.60 - 151.86: <u>Hem. Mudstone</u>: as previous, clasts up to 6cm av. 10% 149.71-149.80m: discontinuous calcite veining. 149.28-149.34m: Cglm. band	Calcite vn: 45°	
				151.86 - 167.33: <u>Conglomerate:</u> 60-95% clasts, av. 75%, 8-9cm size up to 39cm. Sub-angular, angularity increasing with depth. Minor hematite alteration as prev. Red hematitic mudstones at: 153.83-154.06, 155.26-156.35, 156.75-156.85, and 156.93-157.42.		
167.33	213.74	63	92	<u>Sicker Group Volcaniclastics:</u> Mainly vfg dark grey-green <u>tuffs</u>, occ. chloritic and/or bleached. Minor zones of intrusive <u>qtz-monzonite/diorite</u>.		
				167.33 - 169.09: Irregular contact between overlying Nanaimo Group conglomerate and fg Sicker Group <u>tuffs.</u> Tuffs are med. grey, consisting of qtz, chlorite, feldspars and mafic grains. Irregularly shaped patches of qtz-calcite and chlorite as local alteration. Fg dissem. py to 2%. Minor calcite veins and chloritic fractures.	Fracture: 30°	
				169.09 - 171.16: <u>Intrusive:</u> sharp irreg. contact with upper unit. Light grey, mg-cg, hard, weakly fractured. Qtz = feldspar, chlorite 25% after amphibole (?); increasing to 50-60% chlorite w. depth. Minor fine calcite veins; <1% hematitic speckles. Probably qtz-monzonite to diorite.	Contact: 25°	
				171.16 - 198.21: <u>Fg tuffs</u> as previous with numerous interfingered apophyses of chlorite-rich intrusive, occ. bearing fragments of tuff. Contacts are sharp and distinct but highly irregular. Intrusive as above with minor hematite. Variations as follows: 172.70-173.85: Chloritic fracture zone. Py to 5%. Chlorite both in fractures and as irreg. patches. 174.38 - 174.65: <u>Intrusive</u> 174.86 - 175.17: " 175.24 - 175.40: " 175.82 - 177.77: " 181.00 - 181.78: "	Py/Chlor. vns 25°, 43°, 75°	

SAMPLES Number	From	To	Length	ASSAYS Cu %	Zn %	Pb %	Ag	g/MT Au
6290	166.33	167.33	1.0					0.20
6291	167.33	169.10	1.77					0.20
6292	169.10	170.00	0.90					0.10
6293	170.00	171.20	1.20					0.05
6294	171.20	172.20	1.0					0.10
6295	172.20	173.20	1.0					0.10
6296	173.20	174.39	1.19					0.20
6297	174.39	175.50	1.11					0.30
6298	175.50	176.50	1.0					0.10
6299	176.50	177.78	1.28					0.10
6300	177.78	178.89	1.11					0.10
6301	178.89	180.05	1.28					0.10
6302	180.05	181.05	1.0					<.05
6303	181.05	181.81	0.76					<.05
6304	181.81	182.90	1.09					0.15

DRILL HOLE RECORD

FALCONBRIDGE LIMITED

	Inclination	Bearing
Collar		

PROPERTY
Location
Elevation
Coordinates N E

Length
Hor. Comp. / Vert. Comp.
Bearing
Begun /Completed
Core size /Recovery %

HOLE No: 84-V-22 Page #
Sheet 5 of 6
Logged by
Sampled by
Driller

DEPTH (metres) From	To	RECOV'Y RQD	Core	DESCRIPTION	INTERSECTION ANGLE	GRAPHIC 1:500
				189.06 - 189.30: Intrusive. 189.30 - 190.58: Hematitic alteration assoc. with chlorite and calcite adjacent to hairline veins and fractures. Hematite up to 10% locally. Host rock is fg dark grey tuff. 190.58 - 190.64: Intrusive 190.64 - 191.75: Altered tuffs. Much hematite as above to 191.35, Below 191.35 hematite very limited but rock is strongly bleached, soft and moderately well fractured. 191.99 - 195.81: Intrusive, hematite to 1% in discontinuous & irreg. hairline fractures. 197.48 - 198.21: Intrusive 198.21 - 198.39: Granular Quartz, up to 15% chlorite. Very minor hematite staining and discontinuous (2.0mm) calcite veining. 198.39 - 198.75: Chloritic alteration zone. Smears and mottled clots of chlorite in vague bands. Tr. hematite. Hard and competent. 198.75 - 213.74: Vfg to fg green-grey tuffs with up to 15% hematite average 5%, reduced to trace amounts below 202m. Minor bleached and chlorite mottled alteration blotches, related to fractures. 210.92 - 211.73: Zone of tuffs bearing epidote and chlorite phenocrysts to 5mm up to 5-10% combined. Hard, weakly fractured.	Alter. Bands 40° Calcite Vns: 30° Bands: 30°	
213.74	222.86	69	99	Sicker Tuffs and Silicified Limestone Breccias: Predominately vfg to fg grey tuffs as previous with subordinate intervals of silicified brecciated limestone. Variations in tuff appear related to chlorite content. Tuffs are cut by abundant irregular and discontinuous veinlets to 2.0mm of buff to tan, non calcareous material (siderite/dolomite?). The silicified limestone breccia is grey, hard and compact with few fractures. Breccia fragments are of same composition, subangular-angular, up to 8cm and comprise up to 95% of unit. The matrix to fragments is vfg white to grey material, occasionally chloritic. Fragments are individually fg and granular with occ. crinoid fragments. Contacts between tuffs and limestone breccia are usually irregular to uneven. Pyrite occurs to 2% in the limestone and tuff. Lst breccia intervals occur as follows: 213.74 - 214.22, 216.60 - 217.70, 218.38 - 218.72, 218.87 - 219.06, 219.89 - 221.21, 221.41 - 221.56, 221.80 - 221.92.	Contacts: 60 to 85° one contact at 48°	
222.86	235.85	42	84	Silicified Limestone Breccia and rare Tuffs: Silic. lst breccia (slb) as previous with rare thin tuff interbeds. Minor quartz, chlorite and red hematite pods to 15cm. Tendency to increased fracturing and less silicification below 228.0m. Pyrite as previous to 2% but increases to 3-5% below 234.09m. Breccia fragments and matrix as previous but less coarse; max fragment size: 2.0cm.		

SAMPLES Number	From	To	Length	Cu %	Zn %	Pb %	Ag	g/MT Au
6305	182.90	184.0	1.10					0.25
6306	184.0	185.0	1.0					0.10
6307	185.0	186.0	1.0					<.05
6308	186.0	187.0	1.0					<.05
6309	187.0	188.0	1.0					<.05
6310	188.0	189.0	1.0					0.20
6311	189.0	190.0	1.0					0.10
6312	190.0	191.0	1.0					0.15
6313	191.0	191.75	0.75					0.30
6314	191.75	191.99	0.24					0.80
6315	191.99	193.0	1.01					<.05
6316	193.0	194.0	1.0					<.05
6317	194.0	195.0	1.0					<.05
6318	195.0	195.81	0.81					<.05
6319	195.81	197.48	1.67					<.05
6320	197.48	198.21	0.73					<.05
6321	198.21	199.0	0.79					<.05
6322	199.00	200.0	1.0					<.05
6323	200.00	201.0	1.0					<.05
6324	201.0	202.0	1.0					<.05
6325	202.0	203.0	1.0					<.05
6326	203.0	204.0	1.0					<.05
6327	204.0	205.0	1.0					<.05
6328	205.0	206.0	1.0					<.05
6329	206.0	207.0	1.0					<.05
6330	207.0	208.0	1.0					<.05
6331	208.0	209.0	1.0					<.05
6332	209.0	210.0	1.0					<.05
6333	210.0	210.92	0.92					<.05
6334	210.92	211.73	0.81					<.05
6335	211.73	213.0	1.27					<.05
6336	213.0	213.74	0.74					<.05
6337	213.74	214.22	0.48					<.05
6338	214.22	215.41	1.19					<.05
6339	215.41	216.65	1.24					<.05
6340	216.65	217.70	1.05					<.05
6341	217.70	218.38	0.68					<.05
6342	218.38	219.38	1.0					<.05
6343	219.38	220.38	1.0					0.05
6344	220.38	221.21	0.83					<.05
6345	221.21	222.06	0.85					0.05
6346	222.06	222.86	0.80					<.05
6347	222.86	224.0	1.14					<.05
6348	224.0	225.0	1.0					<.05
6349	225.0	226.0	1.0					0.60
6350	226.0	227.0	1.0					<.05
6351	227.0	228.0	1.0					<.05
6352	228.0	229.40	1.40					<.05
6353	229.40	230.40	1.0					<.05
6354	230.40	231.40	1.0					0.10
6355	231.40	232.40	1.0					0.40

DRILL HOLE RECORD

FALCONBRIDGE LIMITED

Collar	Inclination	Bearing

PROPERTY
Location
Elevation
Coordinates N E

Length
Hor. Comp. / Vert. Comp.
Bearing
Begun /Completed
Core size /Recovery %

HOLE No: 84-V-22 Page #
Sheet 6 of 6
Logged by
Sampled by
Driller

DEPTH (metres) From	To	RECOV'Y RQD	Core	DESCRIPTION	INTERSECTION ANGLE	GRAPHIC 1:500	SAMPLES Number	From	To	Length	ASSAYS Cu%	Zn%	Pb%	Ag	g/MT Au
				230.50 - 233.00 and 233.75 - 234.00: Increased brecciation, highly broken and crumbly - due to shearing?			6356	232.40	233.25	0.85					<0.05
							6357	233.25	234.09	0.84					<.05
							6358	234.09	235.85	1.76					<.05
235.85	244.75	70	97	Crystalline Limestone: Massive, uniform, mg, light grey to white, with local brecciate zones. Clear to translucent particles may be crinoids (?). Py is present in very minor (≤ 1%) quantities as fg disseminated, and rare thin veinlets and fracture fillings. Pyrite veins listed below:			6359	235.85	237.00	1.15					<.05
							6360	237.00	238.0	1.0					<.05
							6361	238.0	239.25	1.25					<.05
					Veins at 20 - 40°		6362	240.84	241.90	1.06					<.05
				239.08m: 2.0mm py vein @ 40°			6363	242.52	243.00	0.48					0.20
				241.08m: " @ 25°											
				241.20m: " " "											
				241.63m Discontinuous 2mm py vein @ 20° to core											
				242.77m " 5mm " + sphalerite @ 25°											
				E.O.H. 84-V-22											

DRILL HOLE RECORD

FALCONBRIDGE LIMITED

	Inclination	Bearing
Collar	-75°	130°
40.84 m	-72°	in casing
78.00 m	-72°	"
136.00 m	-72°	"
166.4 m	-72°	"
194.5 m	-73°	"
224.0 m	-73°	123°

PROPERTY 091 Labour Day Lake	Length 224.03	HOLE No: 84-V-23	Page #
Location Villalta Showing	Hor. Comp / Vert. Comp.	Sheet 1 of 5	
Elevation	Bearing 130°	Logged by T. MacKenzie	
Coordinates On M35D2 Road N	Begun 23/07/84 /Completed 26/07/84	Sampled by C. Bilquist/T. Chapmen	
above showing E	Core size BQ /Recovery 94.7 %	Driller Longyear	

DEPTH (metres) From	To	RECOV'Y RQD	Core	DESCRIPTION	INTERSECTION ANGLE	GRAPHIC 1:500	SAMPLES Number	From	To	Length	ASSAYS Cu%	Zn %	Pb %	Ag g/MT	Au
0.00	9.45	0	0	Casing/Tricone											
9.45	49.53	49	95	Intrusive Feldspar Porphyry											
49.53	99.36	69	95	Nanaimo Group Sediments											
99.36	216.11	55	94	Sicker Group Tuffs (with lesser intrusive)											
216.11	224.03	89	99	Limestone											

9.45 | 49.53 | 49 | 95

Intrusive Feldspar Porphyry: (Tertiary?)
Light to med. grey, fg porphyritic, very hard and generally massive. White (K-spar?) feldspar phenocrysts up to 8mm, averaging <3mm to 20-25%. Minor hornblende and chlorite to 1mm. Intrusive contains rare pale green-grey xenoliths to 7cm with sharp distinct contacts. Chlorite increases at expense of hornblende near top and bottom of zone. Rare calcite veining at various angles. Unit is weakly fractured with occ. local fracture zones above 24.15m. Tr. (<< 1%) dissem. fg py.

Intersection angle: Calcite vns: 20°, 32°, 60°, 70°

49.53 | 99.36 | 69 | 95

Nanaimo Group Sediments:
Variable sequence of interlayered black mudstone or argillite, coarse feldspar sandstones, hematitic mudstones and extremely coarse polymictic conglomerates. Upper contact is sharp, distinct and fairly regular.

Intersection angle: Contact: 55°

49.53 - 52.12: Dark grey-black, vfg soft argillite. Rare clasts to 3mm (felds.) Clasts become more numerous with depth grading into following unit. Clasts up to 4cm, 25-30% at depth.

52.12 - 53.50: Grey-green Conglomerate: 60-80% sub-rounded to sub-angular clasts to 4.0 cm, ranging from quartz to fg tuffs, crystalline volcanics, chert clasts. Most clasts are tuffs. Matrix is med to dark grey, vfg-fg. Occ. calcite veins.

Intersection angle: Calcite Vn:

53.50 - 58.90: Vfg argillite as previous. Bears one 5cm layer of coarse gravel clasts and occ. clasts ≤ 1.0cm.
58.15 - 58.90: Transitional zone to following unit. Clasts increase to 50% and up to 2.5cm. Minor mg sandy layers.

58.90 - 59.38: Gradational contact to fg grey sandstone, moderately to highly fractured.

59.38 - 59.62: Conglomerate as previous (52.12 - 53.50)

59.62 - 60.12: Black argillite as prev.

60.12 - 60.34: Argillite, 25% clasts to 2cm.

60.34 - 60.48: Conglomerate, 90 - 95% clasts to 1 cm

60.48 - 60.93: Argillite, minor sandstone, clasts 5% to 0.5cm.

60.93 - 61.16: Cglm: 50% clasts to 3cm

61.16 - 61.72: Argillite, clasts 20% to 1cm

61.72 - 61.87: Cglm. as previous

61.87 - 61.96: Fg grey sandstone, well sorted, hard

61.96 - 62.20: Cglm

62.20 - 62.35: Fg grey sandstone, distinct upper and lower contacts

Intersection angle: Bedding: 60°

62.35 - 63.54: Cglm, 60% clasts to 5cm

63.54 - 64.27: Argillite

64.27 - 65.52: Cglm, black matrix, clasts 40-50% to 4cm

DRILL HOLE RECORD

FALCONBRIDGE LIMITED

	Inclination	Bearing
Collar		

PROPERTY

Location

Elevation

Coordinates N E

Length

Hor. Comp. / Vert. Comp.

Bearing

Begun /Completed

Core size /Recovery %

HOLE No. 84-V-23 Page #

Sheet 2 of 5

Logged by T. MacKenzie

Sampled by

Driller

DEPTH (metres) From	To	RECOV'Y RQD	Core	DESCRIPTION	INTERSECTION ANGLE	GRAPHIC 1:500	SAMPLES Number	From	To	Length	ASSAYS Cu %	Zn %	Pb %	g/MT Ag	Au
				65.52 - 65.62: Argillite											
				65.62 - 67.39: Cglm.											
				67.39 - 67.80: Argillite, rare clasts, fg sandstone bed.											
				67.80 - 68.44: Cglm, 90 - 95% clasts to 2cm	Bedding 55 - 60°										
				68.44 - 68.96: Argillite with silt and sandstone layers											
				68.96 - 75.95: Cglm with irreg. argillite beds. Clasts 70 - 90%, 1-8cm size. Sorting, clast size and ratio clasts to matrix are highly variable.											
				75.95 - 76.44: Argillite, light to dark, mg-fg sandy layers. Clasts increase from rare to 10-15% with depth.	Calcite Vn: 020°										
				76.44 - 77.77: Cglm as prev. but with minor argillite layers. Calcite veining.											
				77.77 - 78.34: Argillite with sandstone layers, as above.											
				78.34 - 78.79: Cglm, 75% clasts to 1cm.											
				78.79 - 85.62: Argillite, minor silty layers, rare calcite & chlorite veins.	Calcite Vn: 20°										
				85.62 - 91.33: Cglm, 95% clasts to 9cm, 3cm calcite vein at 15°											
				91.33 - 92.05: Red hematitic mudstone, sub-rounded clasts 20-25% to 4.0 cm. Matrix is red-brown fg ferruginous mud.	Bedding: 55-60°										
				92.05 - 92.44: Cglm, minor hematititic alteration of clasts. Clasts 50% to 7cm.											
				92.44 - 92.64: Red hematitic mudstone as prev.											
				92.64 - 94.62: Cglm, clasts 75%-95%. Black argillite layers occ.	Calcite Vn: 10°										
				94.62 - 95.34: Red hematitic mudstone.											
				95.34 - 95.53: Cglm, minor hematite alteration.											
				95.53 - 95.71: Red hematitic mudstone.											
				95.71 - 96.21: Cglm, sandy at top with only 25% clasts.											
				96.21 - 96.42: Red hematitic mudstone.											
				96.42 - 96.56: Cglm, hematitic mud in matrix, approx. 15% clasts with hematitic alteration.											
				96.56 - 96.83: Red hematitic mudstone.											
				96.83 - 98.99: Cglm, 1-5% hem. altered clasts, 90-95% clasts to 6cm overall.											
				98.99 - 99.36: Red hematitic mudstone, fractured, gouged - Basal reggolith??			6388	98.36	99.36	1.00					<.05
99.36	216.11	55	94	Sicker Group volcaniclastics with intrusive zones (185.16-204.59m):											
				99.36 - 100.26: Altered tuff: soft, dark green, highly chloritic, very fractured and sheared with mottled texture. Minor calcite in irreg. hairline veinlets and patches. Tr. hematite << 1%			6389	99.36	100.26	0.90					<.05
				100.26 - 102.41: Tuffs (shear zone?). Soft, vfg highly chloritic with up to 5% chlorite phenocrysts (2mm). Spotty brick red hematite, 1% overall, in 3-4mm specks and veinlets. Rock becomes harder with depth correlative with decreasing fracture density. Calcite veins.			6390	100.26	101.30	1.04					0.20
							6391	101.30	102.41	1.11					<.05

DRILL HOLE RECORD

FALCONBRIDGE LIMITED

Collar	Inclination	Bearing

PROPERTY	Length	HOLE No: 84-V-23
Location	Hor. Comp / Vert. Comp.	Sheet 3 of 5
Elevation	Bearing	Logged by T. MacKenzie
Coordinates N E	Begun /Completed	Sampled by
	Core size /Recovery %	Driller

Page #

DEPTH (metres) From	To	RECOV'Y RQD	Core	DESCRIPTION	INTERSECTION ANGLE	GRAPHIC 1:500
				<u>102.41 - 122.61:</u> Vfg <u>tuff</u> with brecciated and sheared zones. Strongly altered, soft and mottled, rock as previous is restricted to the brecciation and shearing. Overall the tuffs are hard, occasionally silicified, grey-green in colour. Hematite alteration averages 2% with local concentrations to 25%. Very irreg. and discontinuous calcite veining (up to 4mm wide). 106.38 - 107.18: Fg <u>layered tuff</u>. Patchy hematite sub-parallel layering to 25% 120.53 - 122.02: Sheared, mottled, <u>brecciated tuff</u> bearing 20cm wide zone of ~20% hematite in mg-cg breccia. Highly fractured.	Bedding: 107m: 45° 108.67: 60°	
				<u>122.61 - 122.74:</u> Med. grey, vfg <u>andesite</u>(?) flow with 5mm phenocrysts of pyroxene (augite?) and light feldspar phenocrysts to 2mm. Sharp upper and lower contacts.	Contact: 25° Contact: 29°	
				<u>122.74 - 127.97:</u> Vfg-fg med. grey <u>tuff</u>, generally uniform save for minor irregular colour mottling and slight variation in grain size. Soft and fractured, with 1-3% red hematitic patches. Rare specular hematite as rounded blebs rimmed by red hematite. Clasts of lower unit at base.	Contact: 50°	
				<u>127.97 - 130.18:</u> Sharp contact to vfg grey, <u>augite</u> (?) <u>andesite porphyry</u> as previous. Abundant chlorite in groundmass with qtz, feldspar and epidote. Hard, moderately fractured, with abundant calcite veins.		
				<u>130.18 - 130.97:</u> Med. grey, <u>vfg-fg tuff</u>. Tr. dissem. pyrite < 1%. Minor mottled sections. Similar to previous tuff unit above. Altered lower contact with much chlorite and minor pink hematitic alteration; plus weak brecciation.		
				<u>130.97 - 132.30:</u> Augite (?) <u>andesite porphyry</u> as previous.	Contact: 20°	
				132.30 - 136.60: Vfg to fg tuff, as previous. Not mottled. Bears py in calcite-chlorite veins and in matrix of tuff.		
				136.60 - 141.26: Highly variable crystalline <u>porphyritic flow</u> with variable concentration of pyroxene and feldspar phenocrysts from average 25% to up to 40% and to as little as 1% in bleached, pale zones. Irregular but distinct lower contact.	Contact: 20°	
				141.26 - 142.91: Dark grey, <u>fg tuff</u> as previous.		

SAMPLES Number	From	To	Length	ASSAYS Cu%	Zn %	Pb %	Ag g/MT	Au g/MT
6392	102.41	103.50	1.09					<.05
6393	103.50	104.50	1.00					0.05
6394	104.50	105.46	0.94					1.10
6395	105.46	106.38	0.92					0.20
6396	106.38	107.18	0.80					0.30
6397	107.18	108.67	1.49					0.50
6398	108.67	109.67	1.00					<.05
6399	109.67	110.77	1.10					<.05
6400	110.77	111.25	0.48					0.10
6401	111.25	111.75	0.50					0.40
6402	111.75	113.00	1.25					0.70
6403	113.00	114.63	1.63					0.10
6404	114.63	115.50	0.87					0.30
6405	115.50	116.50	1.00					0.10
6406	116.50	117.46	0.94					0.40
6407	117.46	118.21	0.75					0.30
6408	118.21	119.60	1.39					0.10
6409	119.60	120.53	0.93					0.30
6410	120.53	122.02	1.49					1.50
6411	122.02	122.61	0.57					0.60
6412	122.61	122.74	0.15					<0.05
6413	122.74	124.0	1.26					<.05
6414	124.0	125.0	1.00					<.05
6415	125.0	126.0	1.00					<.05
6416	126.0	127.0	1.00					1.40
6417	127.0	127.97	0.97					0.60
6418	127.97	129.0	1.03					0.10
6419	129.0	130.18	1.18					0.20
6420	130.18	130.97	0.79					0.30
6421	130.97	132.30	1.33					<.05
6422	132.30	133.30	1.00					0.10
6423	133.30	134.30	1.00					0.10
6424	134.30	135.30	1.00					<.05
6425	135.30	136.60	1.30					0.10
6426	136.60	137.50	0.90					0.10
6427	137.50	138.50	1.00					0.05
6428	138.50	139.50	1.00					<.05
6429	139.50	140.50	1.00					<.05
6430	140.50	141.26	0.76					0.20
6431	141.26	142.91	1.65					0.30

DRILL HOLE RECORD

FALCONBRIDGE LIMITED

Collar	Inclination	Bearing

PROPERTY
Location
Elevation
Coordinates N E

Length
Hor. Comp. / Vert. Comp.
Bearing
Begun /Completed
Core size /Recovery %

HOLE No: 84-V-23
Page #
Sheet 4 of 5
Logged by T. MacKenzie
Sampled by
Driller

DEPTH (metres) From – To	DESCRIPTION	INTERSECTION ANGLE
142.91 - 150.05:	Highly variable porphyritic andesite as previous. Lower contact is very irregular but distinct. Highly fractured at contact with much associated calcite veining.	Contact: 0°
150.05 - 155.65:	Med. to dark grey, fg, uniform, well-sorted tuff as previous. Minor mottling, slight colour variations. Occ. light green phenocrysts to 2mm and 1%. Fg py in clusters (2mm) and 3cm zones of chlorite.	
155.65 - 177.65:	Porphyritic, andesitic flow as previous. Strongly variable in both colour, degree of alteration, and concentration of phenocrysts. Augite (?) phenocrysts grade up to 1cm. Contains bleached and mottled green-white altered patches. Occasional calcite veining up to 8mm wide. Sharp, regular, lower contact.	Calcite Vn: 18° Contact: 65°
177.65 - 180.20:	Shear zone. Extremely fractured and altered; soft, friable, clay-altered. Grey-black to light green, mottled in colour. Lower 65cm of zone is less sheared and altered - appears to be fg grey tuff originally. Py is present throughout in calc-chlorite veins and fracture filling. Minor brecciation.	
180.20 - 184.15:	Light to dark grey vfg tuff. Hard, siliceous, moderate to highly fractured. Brecciate texture (vague) with frags to 1cm. Colour variation produces mottled appearance based on variation in grain size mostly. Non calcareous with numerous hairline fractures lined with calcite. Tr. to 5% (locally) fg dissem. py, and py coatings on fractures. Distinct but irregular banding. Well defined lower contact.	Banding: 45° Contact: 50°
184.15 - 185.16:	Altered tuff; Probably as above, now bleached, sheared, locally gouged. Generally hard, siliceous, with local soft dark green chlorite patches. Upper contact has 30cm zone of bleached tuff with irreg. calcite, chlorite ± minor py banding. Py tr. - 5% overall.	
185.16 - 186.32:	Feldspar Porphyry Intrusive: Med. green grey, hard, minimally fractured, fg with 15-20% chlorite to 4mm. White feldspar phenocrysts 5% of rock up to 2mm in size. Qtz and chlorite & fg feldspar in groundmass. Much darker in colour than previously described intrusive (9.45-49.53m) due to increased chlorite content.	

GRAPHIC 1:500

SAMPLES Number	From	To	Length	Cu %	Zn %	Pb %	Ag g/MT	Au g/MT
6432	142.91	144.0	1.09					<.05
6433	144.0	145.0	1.0					<.05
6434	145.0	146.0	1.0					<.05
6435	146.0	147.0	1.0					0.10
6436	147.0	148.0	1.0					<.05
6437	148.0	149.0	1.0					<.05
6438	149.0	150.05	1.05					<.05
6439	150.05	151.0	0.95					<.05
6440	151.0	152.0	1.0					<.05
6441	152.0	153.30	1.30					0.10
6442	153.30	154.65	1.35					0.20
6443	154.65	155.65	1.0					<.05
6444	155.65	156.50	0.85					<.05
6445	156.50	157.50	1.0					0.10
6446	157.50	158.50	1.0					<.05
6447	158.50	159.50	1.0					<.05
6448	159.50	160.50	1.0					<.05
6449	160.50	161.50	1.0					<.05
6450	161.50	162.50	1.0					<.05
6451	162.50	163.50	1.0					<.05
6452	163.50	164.50	1.0					<.05
6453	164.50	165.50	1.0					<.05
6454	165.50	166.50	1.0					<.05
6455	166.50	167.50	1.00					<.05
6456	167.50	168.50	1.00					<.05
6457	168.50	169.50	1.00					<.05
6458	169.50	170.50	1.00					<.05
6459	170.50	171.50	1.00					<.05
6460	171.50	172.50	1.00					<.05
6461	172.50	173.50	1.00					<.05
6462	173.50	174.50	1.00					0.40
6463	174.50	175.50	1.00					<.05
6464	175.50	176.50	1.00					<.05
6465	176.50	177.65	1.15					<.05
6466	177.65	178.65	1.00					0.10
6467	178.65	179.55	0.90					<.05
6468	179.55	180.20	0.65					<.05
6469	180.20	181.20	1.00					<.05
6470	181.20	183.20	1.00					<.05
6471	182.20	183.20	1.00					<.05
6472	183.20	184.15	0.95					<.05
6473	184.15	185.16	1.01					<.05
6474	185.16	186.32	1.16					<.05

DRILL HOLE RECORD

FALCONBRIDGE LIMITED

	Inclination	Bearing
Collar		

PROPERTY
Location
Elevation
Coordinates N E

Length
Hor. Comp / Vert. Comp.
Bearing
Begun /Completed
Core size /Recovery %

HOLE No: 84-V-23 Page #
Sheet 5 of 5
Logged by
Sampled by
Driller

DEPTH (metres) From	To	RECOV'Y RQD	Core	DESCRIPTION	INTERSECTION ANGLE
				186.32 - 200.27: Vfg to fg tuff, brown to grey to black. Hard, siliceous, slightly altered in places. Rare zones bearing 1% white phenocrysts to 1.0mm. Generally uniform with respect to grain size and composition. Abundant hairline fractures & irreg. veins bearing calcite. Minor fg dissem py (≤ 1%) and some py on fracture planes. Top 60cm of zone is mottled grey to brown with 5-10% chlorite patches (up to 5mm) possibly due to proximity to intrusive. Lower contact similarly altered, broken and irregular.	Upper Contact 83°
				200.27 - 204.59: Feldspar Porphyry intrusive. Medium grey, hard, moderately fractured; mg - cg with 5-10%, 2-5mm feldspar phenocrysts. Qtz & chlorite in ground mass. Chlorite to 30%, f. grained. Euhedral cubes of py ≤1% disseminated fine grains. Uniform character throughout unit with only minor changes in chlorite content.	Contact: 50°
				204.59 - 216.11: Andesite porphyry as previous (136.60-141.26m). Augite? phenocrysts vary from 1-15% and from 3-15mm with gradational changes. Unit overall is green-grey, f-mg, hard moderately fractured. Trace vfg dissem. py. Groundmass vfg with 2% white feldspar phenocrysts. Rock is generally fresh and unaltered.	Contact: 40°
216.11	224.03	89	99	Crystalline Limestone: Broken, irregular, upper contact. Unit is calcareous, grey, f-mg, hard and moderately fractured, usually massive and uniform. Minor chlorite in fractures in upper portion. Rare py ± po veining, irregular and poddy (?). Occasional stylolites and pseudo brecciation prob. related to pressure solution and recrystallization. Crinoid fragments compose majority of limestone, as tightly packed mass with carbonate cement. Rare silicification ± chlorite related to fractures. Recrystallized bioclastic (crinoidal) limestone. 218.30m: Py, po vein (1cm) 050° to core axis.	Po, py vein(s) 50°
				E.O.H. 84-V-23	

SAMPLES Number	From	To	Length	ASSAYS Cu %	Zn %	Pb %	Ag g/MT	Au g/MT
6475	186.32	187.30	0.98					<.05
6476	187.30	188.30	1.00					<.05
6477	188.30	189.30	1.00					<.05
6478	189.30	190.30	1.00					<.05
6479	190.30	191.30	1.00					<.05
6480	191.30	192.30	1.00					<.05
6481	192.30	193.30	1.00					<.05
6482	193.30	194.30	1.00					<.05
6483	194.30	195.30	1.00					<.05
6484	195.30	196.30	1.00					<.05
6485	196.30	197.30	1.00					0.10
6486	197.30	198.30	1.00					<0.05
6487	198.30	199.30	1.00					<0.05
6488	199.30	200.27	0.97					<0.05
6489	200.27	201.50	1.23					<0.05
6490	201.50	202.50	1.00					0.10
6491	202.50	203.50	1.00					<.05
6492	203.50	204.59	1.09					<.05
6493	204.59	205.57	0.98					<.05
6494	205.57	206.50	0.93					<.05
6495	206.50	207.50	1.00					<.05
6496	207.50	208.50	1.00					<.05
6497	208.50	209.50	1.00					<.05
6498	209.50	210.50	1.00					<.05
6499	210.50	211.50	1.00					<.05
6500	211.50	212.50	1.00					<.05
7001	212.50	213.50	1.00					<.05
7002	213.50	214.50	1.00					<.05
7003	214.50	215.50	1.00					<.05
7004	215.50	216.11	0.61					<.05
7005	216.11	217.11	1.00					<.05
7006	217.67	218.53	0.86					<.05

DRILL HOLE RECORD

FALCONBRIDGE LIMITED

	Inclination	Bearing
Collar	-70°	285°
53.34m	-72.5°	284°

PROPERTY 091 Labour Day Lake
Location Villalta Showing
Elevation C. 840m
Coordinates N E

Length 53.34
Hor. Comp / Vert. Comp.
Bearing 285° (-70°)
Begun 27/07/84 / Completed 28/07/84
Core size BQ / Recovery 91 %

HOLE No. 84-V-24
Page #
Sheet 1 of 2
Logged by T. MacKenzie
Sampled by C. Bilquist/T. Chapman
Driller Longyear

DEPTH (metres) From	To	RECOV'Y RQD	Core	DESCRIPTION
0	1.83	0	0	Casing/Tricone
1.83	31.41	73	91	Nanaimo Group conglomerate and hematitic mudstones.
31.41	32.86	63	90	Hematite
32.86	39.80	65	97	Silicified limestone (breccia)
39.80	53.34	51	89	Crystalline limestone

1.83 – 31.41 (RQD 73, Core 91)

Nanaimo Group Conglomerate and hematitic mudstones: Dominantly green grey polymictic conglomerate with variable ratio of clasts to matrix. Clasts compose 15-90% of unit, averaging 50-60%. Clasts range from 1cm to +12cm, are sub-rounded to sub-angular and are composed of fg green tuffs with lesser buff to pale green chert, black argillite, crystalline to porphyritic volcanic flows, and rare monzonitic intrusive clasts. Matrix to the clasts consists fg to cg sand & silt material comprised of quartz, feldspars, lithic grains and minor chlorite. Pyrite is commonly disseminated within the matrix to 1-2% overall. Minor hematite staining/alteration affects both clasts and matrix to limited extent, < 5% overall.

Conglomerate bears intercalations & irregular beds of sandstone, silt and red-brown hematitic mudstones. The mudstones are generally soft, vfg and bear 5-20% clasts up to 5cm as in the conglomerate.

Irregular calcite veining affects all the sediments but is generally not widespread. Upper 5m of section is softer, weathered, discoloured with more abundant fracturing.

Prominent hematitic mudstone layers occur as follows:

3.20 - 4.25 m.
7.40 - 7.62 m.
9.63 - 9.78 m.
16.42 - 16.72 m.
19.81 - 20.42 m.
28.86 - 28.92 m.
28.95 - 29.05 m.

30.40 - 31.41 m: Altered zone (reggolith?): Weathered crumbly hematitic mudstone with abundant volcanic clasts. Hematite alteration increases to 35% with depth resulting in nearly complete replacement of some clasts and matrix. Calcite is common in veins and locally within matrix.

Sample Number	From	To	Length	Au g/MT
63.64	29.40	30.40	1.0	1.20
6365	30.40	31.41	1.01	1.75

31.41 – 32.86 (RQD 63, Core 90)

Hematite: Indistinct upper contact defined by colour contrast from red to nearly black. Hematite is dark red-black, hard, very dense, relatively unfractured, and mottled with red to yellow brown patches and streaks. Remnant (?) clasts of partially replaced tuffs, 0.5cm, <1%. Specular hematite occurs as fg disseminations and masses within the unit. Py also is observed in trace amounts. Calcite occurs within yellow-brown mottled patches and in fine 1mm veinlets.

Intersection angle: Contact: 60°; Mottled Bands: 50°; Calcite Vn 45°

Sample Number	From	To	Length	Au g/MT
6366	31.41	32.20	0.79	1.60
6367	32.20	32.86	0.66	0.40

DRILL HOLE RECORD

FALCONBRIDGE LIMITED

	Inclination	Bearing	PROPERTY		Length		HOLE No. 84-V-24	Page #
Collar			Location		Hor. Comp.	/ Vert. Comp.	Sheet 2 of 2	
			Elevation		Bearing		Logged by T. MacKenzie	
			Coordinates	N	Begun	/Completed	Sampled by	
				E	Core size	/Recovery %	Driller	

DEPTH (metres) From	To	RECOV'Y RQD	Core	DESCRIPTION	INTERSECTION ANGLE	GRAPHIC 1:500	SAMPLES Number	From	To	Length	ASSAYS Cu %	Zn %	Pb %	Ag g/MT	Au
32.86	39.80	65	97	Silicified Limestone (Breccia): Vfg, light grey - white, hard, non-calcareous moderately fractured. Light brown (sideritic/ankeritic) material on fracture surfaces and between breccia fragments. Breccia frags up to 6cm, average 1-2cm, compose 90-95%, are sub angular. Minor chlorite in inter clasts matrix. Rare stylolitic structures and discernible translucent particles (crinoids?) to 5mm.			6368	32.86	34.00	1.14					<.05
							6369	34.00	35.00	1.00					0.05
39.80	53.34	51	89	Crystalline Limestone: Hard, moderately to occ. well fractured, calcareous, grey, massive, uniform recrystallized limestone. Mottled sub-brecciate texture poss. stylolitic/pressure solution features. Chlorite sometimes outlines fragments. Crinoid(?) fragments are observed but generally are difficult to distinguish from groundmass. Trace very fg py cubes.											
				E.O.H. 84-V-24											

DRILL HOLE RECORD

FALCONBRIDGE LIMITED

	Inclination	Bearing
Collar	-90°	—
38.1 m	-88°	292°
78.03 m	-88°	292° ?
143.87m	-89°	283°

PROPERTY 091 Labour Day Lake
Location Villalta Showing
Elevation 840m approx.
Coordinates N E

Length 143.87
Hor. Comp / Vert. Comp.
Bearing vertical
Begun 28/07/84 /Completed 18/08/84
Core size BQ /Recovery 95.5 %

HOLE No: 84-V-25 Page #
Sheet 1 of 2
Logged by T. MacKenzie
Sampled by C. Bilquist/T. Chapman
Driller Longyear

DEPTH (metres) From	To	RECOV'Y RQD	Core	DESCRIPTION	INTERSECTION ANGLE	GRAPHIC 1:500	SAMPLES Number	From	To	Length	ASSAYS Cu%	Zn%	Pb%	Ag g/MT	Au g/MT
0	1.83	0	0	Casing/Tricone											
1.83	31.47	68	93	Nanaimo Conglomerate with Hematite Mudstone:											
31.47	37.80	63	95	Main Hematite zone											
37.80	43.25	69	95	Mixed Hematite/Silicified Limestone Breccia											
43.25	44.85	63	96	Silicified Limestone Breccia											
44.85	123.09	78	97	Crystalline Limestone + Breccia											
123.09	125.50	25	87	Silicified Limestone Breccia											
125.50	143.87	38	93	Limestone Breccia											
1.83	31.47	68	93	Nanaimo Conglomerate with Hematitic Mudstone Layers: Upper 4.5m is weathered, crumbly, highly fractured, conglomerate. Lower portion is less weathered more massive conglomerate with silt/sand and hematitic mudstone beds. Conglomerate: Green-grey overall, clasts compose 15-20%, average 50-60%, and range from 1cm to 18cm in size. Composition of clasts is mostly dark green vfg tuffs with subordinate pale green to white chert, dark argillite, crystalline volcanic flows, and rare intrusive (monzonite). Minor silt/sand layers. Hematitic Mudstone: red-brown, soft, vfg bearing 3-25% clasts of same composition as those in conglomerate, up to 1cm. Fine, hairline, discontinuous calcite veins. Mudstone layers occur as follows: 8.97 - 9.34 m 9.59 - 9.69 m 9.72 - 9.95 m 17.22 - 17.48 m 20.03 - 20.70 m											
				29.51 - 31.47 m: Altered Zone (reggolith?). Mostly altered grey-brown conglomerate with decreasing abundance of clasts with depth. Soft and crumbly with clasts preferentially altered to yellow-brown colour. Matrix remains grey but is harder and more siliceous. Numerous fractures and calcite filled veins with f-cg pyrite. Contact at 31.47m is very irregular with a sharp, deep red hematite border.	Calcite Vn: 25°		6370 6371 6372	28.50 29.51 30.51	29.51 30.51 31.47	1.01 1.00 0.96					0.05 <.05 0.10
31.47	37.80	63	95	Soft red to hard red-black Hematite. Well cemented overall with yellow-brown patches, streaks and mottlings with occ. chloritic patches. Dark black dense areas contain much specular hematite as fg aggregates. Yellow-brown to ochre fragments in the hematite may have been original tuff or limestone. Traces of vfg dissem. py.			6373 6374 6375 6376 6377 6378	31.47 32.50 33.50 34.50 35.50 36.50	32.50 33.50 34.50 35.50 36.50 37.80						0.10 <.05 <.05 <.05 <.05 0.20
37.80	43.25	69	95	Silicified Limestone breccia with zones of Hematite: Upper contact of hematite with silicified limestone breccia is sharp, well-defined. The silicified limestone breccia is light grey to white, hard, non-calcareous, fg and fragmental in texture with fragments outlined by vfg brown matrix (sideritic/hematite stained dolomite?).	Contact: 55°		6379 6380	37.80 38.50	38.50 39.52						<0.05 <0.05

DRILL HOLE RECORD

FALCONBRIDGE LIMITED

	Inclination	Bearing
Collar		

PROPERTY
Location
Elevation
Coordinates N E

Length
Hor. Comp. / Vert. Comp.
Bearing
Begun /Completed
Core size /Recovery %

HOLE No: 84-V-25 Page #
Sheet 2 of 2
Logged by
Sampled by
Driller

DEPTH (metres) From	To	RECOV'Y RQD	Core	DESCRIPTION	INTERSECTION ANGLE	GRAPHIC 1:500	SAMPLES Number	From	To	Length	ASSAYS Cu %	Zn %	Pb %	Ag	g/MT Au
				Local chlorite alteration and patchy aggregates are observed. Internal "seams" of hematite within the limestone breccia have irregular contacts with discontinuous bands and seams of mottled discoloured silicified limestone.											
				39.52 - 40.04 m: Hematite, deep red, minor mottled yellow-brown patches.	Contacts: 40° & 50°		6381	39.52	40.04	0.52					<.05
				41.03 - 41.06 m: Hematite			6382	40.04	41.00	0.96					0.15
				41.48 - 41.24 m: "			6383	41.00	42.00	1.00					<.05
				41.43 - 41.48 m: "			6384	42.00	43.25	1.25					0.10
				42.30 - 42.75 m: "											
				43.20 - 43.25 m: "											
43.25	44.85	63	96	Silicified Limestone Breccia (SLB): Light grey-white, very hard, moderately to highly fractured, vfg, non-calcareous. Brecciate fragments are angular to sub-angular, up to 6cm, average 1-2cm. Sideritic/ankeritic brown matrix to fragments. 43.66 - 43.38: Specular hematite 5% in altered zone.			6385	43.25	44.85	1.60					<.05
44.85	123.09	78	97	Crystalline Limestone with brecciate zones: Distinct upper contact to light grey, hard, massive, generally uniform f-mg recrystallized limestone with crinoidal fragments. Stylolites are common with black insoluble residuals. Brecciated zones may reflect local areas of increased pressure solution and stylolite density. "Breccia" zones at: 77.39-81.23, 95.92-102.22, 103.90-107.20, 108.20-108.57, 114.36-116.10.	Contact 40°		6386	44.85	46.00	1.15					<.05
							6387	46.00	47.00	1.0					<.05
123.09	125.50	25	87	Silicified Limestone Breccia: Sharp, distinct upper contact. Minor py in veins at contact. Very similar to previous zone of SLB at 43.25 - 44.85. Possible layering of pink tuffaceous fragments. Local chloritic zones are also observed.	Contact 50° Banding (?) 50°										
125.50	143.87	38	93	Limestone Breccia: Brecciate and laminar textured sequence of calcareous limestone (crystalline, crinoidal) as previous with silicified or dolomitized equivalents. Brecciate zones are generally distinguishable as mixtures of both types with occasional sharp contacts at 60°. 142.80 - 143.87: Non calcareous, silicified bands with one 10cm wide hard chert band. Fg to vfg. Tr. py.	Contact ? 60°										
				E.O.H. 84-V-25 143.87m.											

APPENDIX 2

Listings of Lithogeochemical Results

DATA TITLE: PN 091 LABOUR DAY LAKE ICP ROCK GEOCHEMISTRY

ROCK CHIP SAMPLES COLLECTED SUMMER 1984 AND ANALYZED FOR 26 ELEMENT ICP METHOD PLUS GEOCHEM AU. ANALYSES PERFORMED BY MIN-EN LABS, N. VANCOUVER. ALL VALUES IN PPM EXCEPT AU IN PPB.

SAMPLE NO.	AG	AL	AS	B	BI	CA	CD	CO	CU	FE	K	MG
51	0.200	10800.000	0.000	0.000	4.000	9230.000	0.000	10.000	10.000	31600.000	1130.000	3410.000
52	0.400	10100.000	0.000	0.000	5.000	9370.000	0.100	11.000	16.000	32000.000	1040.000	3160.000
53	1.200	12200.000	0.000	0.000	6.000	13400.000	0.400	13.000	63.000	35100.000	1540.000	6100.000
54	0.500	11900.000	0.000	0.000	4.000	6710.000	0.000	11.000	10.000	33000.000	1550.000	5520.000
55	0.200	7660.000	9.000	0.000	3.000	3890.000	0.000	8.000	6.000	19900.000	1730.000	3100.000
56	0.300	8380.000	0.000	0.000	5.000	7570.000	0.000	8.000	5.000	27900.000	1730.000	2690.000
57	0.300	10000.000	0.000	0.000	5.000	5350.000	0.100	11.000	28.000	30000.000	1880.000	4460.000
58	0.700	18200.000	0.000	0.000	7.000	13700.000	0.300	17.000	9.000	41700.000	1520.000	8550.000
59	0.100	6780.000	3.000	0.000	0.000	25200.000	0.500	10.000	5.000	27900.000	3330.000	6250.000
60	1.100	22800.000	0.000	0.000	12.000	24500.000	0.400	28.000	159.000	57600.000	1910.000	15500.000
61	2.400	6180.000	0.000	0.000	4.000	46800.000	1.100	39.000	187.000	57900.000	2840.000	19200.000
62	1.800	19300.000	0.000	0.000	16.000	15900.000	0.000	27.000	105.000	61700.000	463.000	14500.000
63	1.700	16300.000	0.000	0.000	16.000	14800.000	0.000	30.000	104.000	63000.000	669.000	14500.000
64	2.700	44900.000	0.000	3.000	25.000	11900.000	0.000	55.000	107.000	127000.000	278.000	29300.000
65	0.200	9900.000	0.000	0.000	3.000	9420.000	0.100	11.000	16.000	31600.000	941.000	4290.000
66	0.400	11600.000	0.000	0.000	3.000	10400.000	0.200	11.000	11.000	35000.000	1500.000	4090.000
67	0.600	9750.000	0.000	0.000	7.000	7640.000	0.000	12.000	8.000	35000.000	1900.000	4030.000
68	0.500	11800.000	0.000	0.000	4.000	9590.000	0.000	10.000	9.000	31400.000	1560.000	4120.000
69	0.500	9970.000	0.000	0.000	2.000	13300.000	0.000	10.000	23.000	37400.000	1660.000	4800.000
70	0.700	13500.000	0.000	0.000	6.000	12700.000	0.100	12.000	23.000	38800.000	2010.000	3740.000
71	0.100	15600.000	0.000	0.000	4.000	3800.000	0.400	14.000	19.000	38200.000	2150.000	8530.000
72	0.000	11100.000	0.000	0.000	4.000	6390.000	0.000	9.000	23.000	27700.000	1420.000	3550.000
73	0.500	13600.000	0.000	0.000	5.000	7830.000	0.200	13.000	13.000	29300.000	1090.000	7130.000
74	0.000	13100.000	0.000	0.000	3.000	10300.000	0.400	10.000	14.000	22100.000	2070.000	5370.000
75	1.200	37400.000	0.000	4.000	14.000	22500.000	0.000	17.000	153.000	40600.000	374.000	6320.000
76	0.900	17100.000	0.000	0.000	13.000	16700.000	0.000	22.000	119.000	47900.000	482.000	11300.000
77	1.000	16000.000	0.000	0.000	16.000	16700.000	0.000	28.000	132.000	58500.000	413.000	13000.000
78	1.200	28900.000	0.000	112.000	20.000	45400.000	0.000	32.000	151.000	69600.000	293.000	13500.000
79	1.000	22000.000	0.000	0.000	18.000	18300.000	0.000	36.000	183.000	70000.000	837.000	14000.000
80	1.100	27800.000	0.000	0.000	16.000	28700.000	0.000	28.000	198.000	54700.000	346.000	10500.000
81	0.900	24900.000	0.000	0.000	17.000	25600.000	0.000	33.000	143.000	67000.000	549.000	15400.000
82	1.300	24300.000	0.000	0.000	23.000	25200.000	0.000	39.000	84.000	84500.000	468.000	18100.000
83	1.100	20700.000	0.000	0.000	18.000	21100.000	0.000	32.000	215.000	66300.000	610.000	13100.000
84	0.900	25600.000	0.000	0.000	17.000	22000.000	0.000	29.000	149.000	63400.000	2230.000	11900.000
85	1.400	25300.000	0.000	0.000	25.000	25800.000	0.000	37.000	168.000	81800.000	511.000	14300.000
86	0.300	14300.000	0.000	0.000	7.000	6970.000	0.100	13.000	21.000	40500.000	2440.000	6640.000
87	1.100	36600.000	0.000	0.000	21.000	28200.000	0.000	32.000	164.000	69300.000	796.000	12900.000
88	0.900	32800.000	0.000	3.000	18.000	25700.000	0.000	29.000	143.000	66600.000	516.000	12000.000
89	1.200	28600.000	0.000	0.000	21.000	19600.000	0.000	38.000	122.000	80400.000	398.000	18100.000
90	1.000	33700.000	0.000	0.000	20.000	26300.000	0.000	40.000	212.000	81500.000	726.000	16500.000
91	1.600	30300.000	0.000	0.000	29.000	22300.000	0.000	47.000	156.000	103000.000	450.000	21300.000
92	1.000	39800.000	0.000	0.000	19.000	23400.000	0.000	37.000	154.000	78200.000	712.000	21600.000
93	1.300	33300.000	0.000	1.000	20.000	26300.000	0.000	38.000	129.000	71200.000	837.000	17100.000
94	1.400	24200.000	0.000	0.000	23.000	23300.000	0.000	39.000	131.000	84200.000	462.000	17000.000
95	1.500	29600.000	0.000	0.000	27.000	22400.000	0.000	39.000	141.000	97000.000	647.000	14000.000
96	0.800	23700.000	0.000	24.000	5.000	13000.000	0.600	14.000	6.000	34000.000	682.000	9390.000
97	1.000	21100.000	0.000	22.000	5.000	10200.000	0.000	14.000	4.000	36900.000	732.000	10500.000
98	0.300	19600.000	0.000	18.000	5.000	8090.000	0.300	14.000	4.000	34300.000	1010.000	9010.000
99	0.600	27400.000	0.000	27.000	7.000	9200.000	0.200	16.000	5.000	42400.000	1400.000	10800.000
100	2.500	57500.000	0.000	64.000	25.000	33900.000	0.000	48.000	304.000	112000.000	1120.000	16400.000
101	0.700	23400.000	0.000	25.000	6.000	12200.000	0.300	16.000	10.000	39900.000	1270.000	9850.000
102	0.900	29400.000	0.000	31.000	7.000	17000.000	0.000	15.000	4.000	41000.000	939.000	10200.000
103	1.700	25500.000	0.000	28.000	15.000	14400.000	0.000	37.000	181.000	83900.000	677.000	12900.000
104	2.000	31400.000	0.000	34.000	19.000	20800.000	0.000	32.000	164.000	83300.000	505.000	6180.000
105	2.000	44200.000	0.000	41.000	20.000	26300.000	0.000	31.000	146.000	86200.000	589.000	7740.000
106	2.100	25700.000	0.000	28.000	18.000	16000.000	0.000	35.000	102.000	93300.000	687.000	9890.000
107	1.700	32100.000	0.000	31.000	17.000	23200.000	0.000	25.000	144.000	62200.000	390.000	7500.000
108	0.100	5230.000	0.000	9.000	0.000	1820.000	0.900	1.000	4.000	3330.000	3540.000	376.000
109	2.100	26500.000	0.000	28.000	16.000	18200.000	0.000	25.000	182.000	68600.000	382.000	8300.000
110	1.300	37800.000	0.000	33.000	12.000	22600.000	0.000	18.000	132.000	48200.000	411.000	7310.000

SAMPLE NO.	AG	AL	AS	B	BI	CA	CD	CO	CU	FE	K	MG
111	1.700	31400.000	0.000	30.000	15.000	15300.000	0.000	31.000	192.000	65300.000	276.000	17900.000
112	2.200	23000.000	0.000	25.000	21.000	19400.000	0.000	29.000	160.000	81600.000	613.000	12100.000
113	1.400	29600.000	3.000	28.000	5.000	16200.000	0.000	21.000	7.000	65700.000	388.000	11100.000
114	1.500	28700.000	0.000	29.000	7.000	14300.000	0.000	23.000	7.000	74100.000	728.000	12900.000
115	1.400	31300.000	2.000	27.000	5.000	11700.000	0.200	22.000	6.000	72400.000	627.000	12200.000
116	1.700	28100.000	0.000	28.000	6.000	16200.000	0.000	22.000	5.000	71500.000	293.000	11800.000
117	1.500	25600.000	10.000	24.000	6.000	7500.000	0.400	20.000	4.000	62300.000	1400.000	11500.000
118	0.300	7340.000	16.000	9.000	3.000	8010.000	0.100	7.000	13.000	22700.000	806.000	2260.000
119	0.900	11900.000	28.000	16.000	13.000	14600.000	0.900	14.000	353.000	37200.000	1170.000	7220.000
120	2.200	11300.000	37.000	12.000	16.000	5330.000	0.500	17.000	736.000	23700.000	1590.000	5590.000
121	0.700	15000.000	32.000	15.000	7.000	9270.000	0.300	15.000	39.000	30200.000	695.000	7260.000
122	0.100	9880.000	31.000	17.000	3.000	32000.000	0.900	13.000	8.000	25700.000	1980.000	7590.000
123	0.300	3380.000	20.000	4.000	1.000	15200.000	0.300	1.000	3.000	3870.000	2800.000	431.000
124	0.700	21600.000	34.000	23.000	8.000	11600.000	0.000	15.000	19.000	30900.000	378.000	8610.000
125	0.600	20000.000	29.000	21.000	7.000	9720.000	0.400	15.000	15.000	29500.000	327.000	8620.000
126	0.600	26600.000	35.000	28.000	4.000	16900.000	0.300	14.000	64.000	28600.000	411.000	10200.000
127	0.600	18000.000	42.000	17.000	9.000	3400.000	0.200	16.000	10.000	32900.000	602.000	10200.000
128	0.400	22600.000	34.000	23.000	5.000	13500.000	0.500	14.000	8.000	26500.000	335.000	8940.000
129	0.300	22000.000	31.000	23.000	5.000	12500.000	0.300	14.000	10.000	23900.000	284.000	7490.000
130	0.700	21500.000	32.000	22.000	8.000	12800.000	0.100	15.000	12.000	30300.000	258.000	7730.000
131	0.800	24000.000	64.000	67.000	9.000	15900.000	0.200	16.000	4.000	30500.000	303.000	8910.000
132	0.900	23900.000	109.000	25.000	9.000	11800.000	0.200	17.000	9.000	36000.000	315.000	9750.000
133	0.200	21700.000	2.000	18.000	7.000	1650.000	2.100	24.000	30.000	34200.000	686.000	9500.000
134	2.700	27900.000	0.000	28.000	30.000	12500.000	1.000	40.000	119.000	86200.000	717.000	18200.000
135	2.000	23400.000	0.000	21.000	22.000	16300.000	0.800	26.000	62.000	56500.000	539.000	9550.000
136	1.300	17300.000	0.000	16.000	13.000	9170.000	0.800	14.000	11.000	40400.000	1190.000	6580.000
137	0.800	18400.000	12.000	18.000	7.000	24800.000	1.600	13.000	3.000	28300.000	4060.000	6870.000
138	1.000	17600.000	1.000	17.000	13.000	10300.000	1.000	15.000	10.000	37300.000	1300.000	7390.000
139	1.100	26800.000	0.000	28.000	14.000	25600.000	2.500	25.000	46.000	63000.000	1520.000	13400.000
140	1.400	34600.000	0.000	36.000	15.000	23800.000	1.600	25.000	111.000	56300.000	1570.000	9000.000
141	1.200	19600.000	0.000	20.000	12.000	18300.000	0.600	20.000	31.000	37600.000	848.000	5650.000
142	0.600	25600.000	0.000	21.000	9.000	14000.000	3.400	13.000	95.000	43300.000	1570.000	4360.000
143	0.900	21300.000	0.000	23.000	10.000	15800.000	3.500	14.000	30.000	52400.000	2470.000	4710.000
144	0.900	17200.000	0.000	22.000	8.000	10600.000	1.600	12.000	24.000	57500.000	1890.000	4340.000
145	0.900	17400.000	0.000	27.000	8.000	11300.000	2.400	13.000	12.000	57500.000	2230.000	5050.000
146	0.500	19900.000	0.000	20.000	7.000	6350.000	1.200	13.000	7.000	53800.000	3200.000	5750.000
147	0.800	20100.000	0.000	22.000	10.000	15500.000	0.800	12.000	121.000	57000.000	1680.000	3770.000
148	0.700	20100.000	0.000	21.000	8.000	8020.000	0.600	14.000	26.000	61300.000	2210.000	5710.000
149	1.100	32900.000	0.000	27.000	9.000	22000.000	0.800	13.000	3.000	51000.000	2330.000	6010.000
150	0.100	16000.000	18.000	24.000	3.000	5460.000	1.300	15.000	20.000	53800.000	3230.000	4220.000
151	0.900	26300.000	0.000	24.000	10.000	14500.000	1.000	14.000	6.000	59700.000	1550.000	6090.000
152	0.500	11400.000	15.000	13.000	5.000	8270.000	0.400	6.000	32.000	24800.000	2680.000	1970.000
153	0.800	16900.000	0.000	18.000	9.000	7880.000	0.300	12.000	142.000	53800.000	2160.000	4500.000
154	0.500	25600.000	0.000	23.000	9.000	10800.000	2.800	21.000	83.000	62800.000	2700.000	10300.000
155	1.100	25900.000	0.000	25.000	12.000	15000.000	0.400	15.000	119.000	63100.000	1670.000	7060.000
156	0.700	17400.000	1.000	18.000	7.000	18300.000	0.400	15.000	16.000	53800.000	2410.000	6350.000
157	0.300	15200.000	18.000	26.000	3.000	6260.000	1.300	13.000	42.000	39300.000	5060.000	1670.000
158	0.500	18600.000	0.000	20.000	6.000	9400.000	0.100	12.000	1.000	48500.000	4030.000	4130.000
159	0.500	12400.000	15.000	16.000	4.000	24800.000	0.800	8.000	1.000	29800.000	3780.000	2990.000
160	0.900	13500.000	0.000	13.000	5.000	11000.000	0.000	10.000	18.000	46800.000	1720.000	2600.000
161	0.600	14200.000	0.000	15.000	7.000	8580.000	0.000	10.000	3.000	46100.000	1680.000	3860.000
162	0.800	17400.000	0.000	18.000	8.000	10000.000	0.100	12.000	3.000	56300.000	1680.000	5090.000
163	3.900	16100.000	0.000	16.000	7.000	9240.000	0.000	11.000	0.000	51400.000	1980.000	4470.000
164	0.800	14100.000	0.000	14.000	7.000	11500.000	0.000	11.000	55.000	47400.000	1480.000	3260.000
165	0.800	12500.000	0.000	13.000	7.000	11600.000	0.000	11.000	13.000	49900.000	1880.000	3370.000
166	0.900	13000.000	0.000	13.000	7.000	12300.000	0.000	9.000	30.000	47500.000	1490.000	2990.000
167	1.100	36500.000	0.000	35.000	11.000	16100.000	0.700	18.000	0.000	62000.000	1710.000	10900.000
168	1.100	37300.000	0.000	38.000	10.000	19000.000	0.600	16.000	0.000	61300.000	1240.000	8760.000
169	0.900	15100.000	0.000	17.000	9.000	12000.000	0.000	13.000	4.000	63800.000	1700.000	2950.000
170	0.700	17600.000	0.000	18.000	8.000	9300.000	0.000	13.000	15.000	59700.000	2330.000	4060.000

SAMPLE NO.	AG	AL	AS	B	BI	CA	CD	CO	CU	FE	K	MG
171	0.900	18000.000	0.000	19.000	9.000	10100.000	0.200	14.000	7.000	63600.000	1840.000	5960.000
172	0.300	13500.000	3.000	15.000	5.000	9290.000	0.300	9.000	128.000	44000.000	1560.000	3450.000
173	0.400	13400.000	5.000	14.000	5.000	12600.000	0.200	9.000	8.000	42300.000	1510.000	3050.000
174	0.500	13000.000	4.000	15.000	5.000	11900.000	0.000	10.000	15.000	47600.000	1440.000	2790.000
175	0.500	22900.000	0.000	19.000	8.000	11300.000	0.200	13.000	1.000	42500.000	1860.000	6190.000
176	0.600	17300.000	0.000	16.000	6.000	8600.000	0.000	12.000	4.000	51800.000	1400.000	5280.000
177	0.600	17600.000	0.000	14.000	8.000	5010.000	0.300	13.000	1.000	51400.000	1510.000	6520.000
178	0.600	20100.000	0.000	18.000	8.000	10800.000	0.200	8.000	11.000	44800.000	1870.000	4520.000
179	0.600	12700.000	0.000	17.000	6.000	9670.000	0.000	11.000	1.000	55800.000	1910.000	3970.000
180	0.400	20500.000	0.000	19.000	5.000	11800.000	0.400	12.000	11.000	46000.000	1340.000	5950.000
181	0.300	8920.000	16.000	9.000	3.000	10300.000	0.300	6.000	5.000	27900.000	2100.000	2310.000
182	0.600	15700.000	0.000	18.000	9.000	15900.000	0.100	11.000	115.000	48900.000	1820.000	4820.000
183	0.400	12400.000	0.000	13.000	5.000	11800.000	0.600	9.000	3.000	44300.000	1600.000	3150.000
184	0.400	12000.000	0.000	14.000	5.000	8890.000	0.000	9.000	5.000	45700.000	1510.000	3030.000
185	0.500	12800.000	6.000	13.000	5.000	9210.000	0.400	9.000	6.000	42100.000	1390.000	2870.000
186	0.600	25900.000	0.000	27.000	7.000	16100.000	1.000	17.000	29.000	69900.000	1500.000	7400.000
187	0.900	24300.000	0.000	25.000	8.000	19100.000	0.400	18.000	8.000	53200.000	702.000	8030.000
188	1.700	51800.000	0.000	44.000	20.000	19600.000	0.500	48.000	142.000	136000.000	557.000	17700.000
189	1.500	31000.000	0.000	32.000	15.000	22700.000	0.000	31.000	114.000	95300.000	1320.000	11500.000
190	0.700	14400.000	5.000	15.000	9.000	18100.000	0.300	12.000	95.000	44800.000	2600.000	5150.000
191	0.100	12300.000	0.000	8.000	3.000	11400.000	0.200	9.000	41.000	37000.000	1510.000	3180.000
192	0.200	16300.000	0.000	8.000	7.000	11300.000	0.300	11.000	11.000	37300.000	1610.000	4490.000
193	0.000	27000.000	0.000	15.000	9.000	11800.000	1.400	13.000	1.000	37400.000	1940.000	10300.000
195	1.000	32500.000	0.000	20.000	18.000	17800.000	1.400	13.000	1.000	37400.000	1940.000	10300.000
196	0.000	16880.000	7.000	8.000	4.000	3230.000	0.800	66.000	84.000	33000.000	2040.000	3550.000
197	0.500	25200.000	0.000	11.000	11.000	10500.000	0.800	66.000	84.000	33000.000	2040.000	3550.000
198	0.600	37600.000	0.000	17.000	16.000	21200.000	1.300	24.000	43.000	66500.000	1150.000	7030.000
199	2.900	32000.000	0.000	21.000	44.000	23400.000	0.000	46.000	163.000	114000.000	347.000	19500.000
200	3.200	41200.000	0.000	29.000	45.000	26100.000	0.000	50.000	167.000	124000.000	594.000	17800.000
201	2.100	29500.000	0.000	18.000	39.000	12900.000	0.300	97.000	866.000	120000.000	258.000	14700.000
202	2.200	19900.000	0.000	8.000	35.000	20800.000	0.000	36.000	149.000	87800.000	339.000	11300.000
203	1.600	19900.000	0.000	9.000	25.000	13800.000	0.000	53.000	209.000	98500.000	370.000	10200.000
204	2.200	44900.000	0.000	23.000	33.000	26200.000	0.700	42.000	154.000	104000.000	735.000	19600.000
205	1.900	16200.000	0.000	4.000	29.000	13200.000	0.000	36.000	91.000	86100.000	612.000	9450.000
206	0.800	31700.000	0.000	14.000	14.000	14800.000	1.400	16.000	135.000	44300.000	896.000	10200.000
207	1.200	77300.000	0.000	41.000	22.000	25600.000	3.000	35.000	124.000	73600.000	5620.000	16700.000
208	0.800	47700.000	0.000	34.000	12.000	45000.000	1.800	18.000	8.000	45100.000	810.000	10200.000
209	0.200	27900.000	0.000	0.000	11.000	9120.000	0.900	114.000	2.000	38500.000	1430.000	9820.000
210	1.300	50700.000	0.000	30.000	17.000	4890.000	1.600	28.000	38.000	73700.000	4130.000	16600.000
211	1.000	3600.000	0.000	19.000	13.000	17800.000	1.200	19.000	6.000	42800.000	454.000	13000.000
212	1.400	48600.000	0.000	27.000	22.000	10800.000	1.200	19.000	6.000	42800.000	454.000	13000.000
213	0.800	28900.000	0.000	12.000	13.000	10500.000	1.500	15.000	21.000	41600.000	901.000	9820.000
214	4.400	51700.000	0.000	33.000	57.000	23400.000	0.000	62.000	175.000	156000.000	445.000	30100.000
215	0.000	44700.000	0.000	27.000	7.000	2290.000	2.800	31.000	45.000	60300.000	2400.000	15000.000
216	0.100	46600.000	7.000	30.000	6.000	2320.000	3.100	33.000	50.000	61700.000	3160.000	15200.000
217	2.000	39500.000	0.000	20.000	30.000	6770.000	0.900	30.000	4.000	76500.000	3310.000	16300.000
218	2.500	25700.000	0.000	7.000	36.000	19400.000	0.000	37.000	144.000	85200.000	416.000	16400.000
219	0.600	22600.000	1.000	7.000	10.000	20000.000	0.900	12.000	12.000	35200.000	1590.000	7170.000
220	0.700	24600.000	0.000	8.000	12.000	20900.000	1.200	14.000	0.000	28700.000	2210.000	9530.000
221	0.700	24300.000	0.000	6.000	9.000	12300.000	1.300	13.000	0.000	32300.000	2780.000	9670.000
222	0.800	20400.000	0.000	1.000	12.000	9680.000	0.900	15.000	16.000	43300.000	1650.000	8240.000
223	1.100	18400.000	0.000	1.000	13.000	17200.000	0.700	13.000	4.000	39600.000	1950.000	8240.000
224	0.900	15500.000	0.000	1.000	11.000	14600.000	0.700	12.000	4.000	39400.000	2070.000	5780.000
225	0.800	16000.000	0.000	4.000	12.000	11800.000	0.200	10.000	0.000	38500.000	2020.000	4310.000
226	0.500	16600.000	0.000	0.000	11.000	8440.000	0.300	10.000	4.000	33600.000	2080.000	4800.000
227	1.000	22300.000	0.000	4.000	13.000	10900.000	1.400	12.000	15.000	34700.000	3160.000	4980.000
228	0.500	16700.000	0.000	1.000	8.000	13800.000	0.800	12.000	11.000	39100.000	3250.000	5300.000
229	0.600	18300.000	0.000	3.000	7.000	6800.000	1.000	11.000	4.000	34200.000	2570.000	5030.000
230	0.700	23200.000	0.000	6.000	11.000	18700.000	0.700	11.000	3.000	35900.000	1650.000	3730.000
231	0.100	14000.000	1.000	0.000	5.000	3710.000	0.800	13.000	1.000	29800.000	1290.000	5870.000

SAMPLE NO.	AG	AL	AS	B	BI	CA	CD	CO	CU	FE	K	MG
232	0.600	14500.000	4.000	0.000	10.000	6120.000	0.300	14.000	3.000	33600.000	2970.000	4110.000
233	0.700	23100.000	0.000	8.000	9.000	20600.000	0.700	11.000	0.000	33900.000	1960.000	3210.000
234	0.600	17400.000	0.000	0.000	9.000	6120.000	1.200	15.000	58.000	38600.000	2120.000	6070.000
235	0.600	12100.000	5.000	5.000	9.000	8470.000	0.300	12.000	3.000	37900.000	1990.000	3370.000
236	0.100	11600.000	10.000	0.000	4.000	3280.000	0.500	11.000	15.000	24200.000	1820.000	1590.000
237	0.600	13100.000	0.000	0.000	11.000	10500.000	0.400	12.000	26.000	36700.000	1580.000	3170.000
238	1.100	22300.000	0.000	2.000	14.000	11400.000	0.700	17.000	74.000	44400.000	1130.000	6430.000
239	0.700	15800.000	0.000	0.000	11.000	8890.000	0.500	17.000	41.000	33200.000	1120.000	4900.000
240	0.600	19900.000	0.000	4.000	10.000	9170.000	1.200	20.000	21.000	40800.000	3020.000	5090.000
241	0.500	17100.000	1.000	0.000	10.000	8160.000	0.900	15.000	4.000	41100.000	1850.000	6740.000
242	0.800	12600.000	5.000	0.000	8.000	11900.000	0.500	12.000	16.000	35200.000	1400.000	2500.000

SAMPLE NO.	MN	MO	NA	NI	P	PB	SB	SR	TH	U	V	ZN
51	305.000	2.000	561.000	9.000	828.000	0.000	0.000	34.000	6.000	5.000	56.000	12.000
52	412.000	3.000	707.000	11.000	911.000	1.000	0.000	44.000	8.000	6.000	57.800	23.000
53	511.000	3.000	489.000	12.000	803.000	2.000	0.000	40.000	8.000	9.000	53.300	37.000
54	423.000	2.000	452.000	9.000	705.000	1.000	0.000	37.000	5.000	8.000	49.400	17.000
55	303.000	2.000	427.000	11.000	320.000	2.000	0.000	23.000	15.000	10.000	30.900	18.000
56	229.000	1.000	431.000	8.000	812.000	0.000	0.000	28.000	7.000	6.000	48.200	6.000
57	327.000	3.000	479.000	11.000	676.000	0.000	0.000	35.000	6.000	5.000	46.500	13.000
58	626.000	3.000	595.000	10.000	1010.000	3.000	0.000	71.000	3.000	8.000	61.500	16.000
59	717.000	2.000	382.000	10.000	1100.000	10.000	2.000	168.000	6.000	15.000	29.500	28.000
60	902.000	2.000	1680.000	37.000	437.000	0.000	0.000	60.000	0.000	0.000	124.500	28.000
61	1050.000	3.000	60.000	70.000	432.000	17.000	9.000	79.000	0.000	0.000	87.800	61.000
62	705.000	1.000	1110.000	29.000	426.000	0.000	0.000	30.000	0.000	0.000	106.700	32.000
63	627.000	1.000	1830.000	36.000	439.000	0.000	0.000	21.000	0.000	0.000	125.000	45.000
64	2230.000	4.000	523.000	65.000	382.000	0.000	0.000	45.000	0.000	0.000	253.900	156.000
65	547.000	2.000	519.000	12.000	990.000	1.000	0.000	30.000	7.000	3.000	59.500	28.000
66	446.000	2.000	414.000	9.000	1050.000	0.000	0.000	35.000	8.000	8.000	59.700	22.000
67	427.000	2.000	740.000	10.000	901.000	0.000	0.000	38.000	8.000	13.000	58.900	16.000
68	390.000	3.000	570.000	8.000	845.000	0.000	0.000	65.000	7.000	15.000	52.100	18.000
69	367.000	4.000	735.000	11.000	1120.000	0.000	0.000	53.000	4.000	13.000	64.800	14.000
70	337.000	2.000	706.000	11.000	1150.000	0.000	0.000	54.000	5.000	10.000	67.800	13.000
71	770.000	3.000	441.000	13.000	1060.000	6.000	1.000	28.000	7.000	7.000	56.200	41.000
72	323.000	2.000	477.000	8.000	950.000	0.000	0.000	39.000	5.000	0.000	44.600	13.000
73	557.000	2.000	382.000	11.000	973.000	4.000	0.000	143.000	5.000	6.000	41.300	41.000
74	481.000	2.000	279.000	10.000	753.000	5.000	0.000	132.000	6.000	2.000	23.600	39.000
75	300.000	3.000	4210.000	16.000	470.000	0.000	0.000	97.000	0.000	0.000	97.800	5.000
76	434.000	1.000	1810.000	27.000	387.000	0.000	0.000	34.000	0.000	0.000	99.300	34.000
77	530.000	1.000	2200.000	36.000	387.000	0.000	0.000	20.000	0.000	0.000	119.300	36.000
78	555.000	2.000	1700.000	30.000	369.000	0.000	0.000	83.000	0.000	0.000	130.400	47.000
79	516.000	1.000	1780.000	43.000	420.000	0.000	0.000	44.000	0.000	0.000	132.200	53.000
80	414.000	2.000	1150.000	31.000	350.000	0.000	0.000	45.000	0.000	0.000	114.600	20.000
81	661.000	3.000	3450.000	41.000	498.000	1.000	0.000	47.000	0.000	0.000	148.700	45.000
82	769.000	1.000	2300.000	42.000	420.000	0.000	0.000	64.000	0.000	0.000	175.100	49.000
83	568.000	2.000	3150.000	41.000	436.000	0.000	0.000	36.000	0.000	0.000	146.500	49.000
84	563.000	2.000	2630.000	32.000	765.000	0.000	0.000	95.000	0.000	0.000	132.000	62.000
85	735.000	1.000	1930.000	35.000	380.000	0.000	0.000	64.000	0.000	0.000	159.000	51.000
86	433.000	2.000	878.000	9.000	900.000	0.000	0.000	59.000	4.000	2.000	60.400	23.000
87	507.000	3.000	4800.000	33.000	428.000	0.000	0.000	77.000	0.000	0.000	142.400	26.000
88	604.000	2.000	2360.000	30.000	488.000	0.000	0.000	46.000	0.000	0.000	154.200	22.000
89	608.000	2.000	1970.000	46.000	354.000	0.000	0.000	81.000	0.000	0.000	173.600	41.000
90	620.000	3.000	3830.000	48.000	438.000	0.000	0.000	60.000	0.000	0.000	175.300	37.000
91	847.000	2.000	2110.000	49.000	368.000	0.000	0.000	89.000	0.000	0.000	210.900	37.000
92	792.000	3.000	3360.000	57.000	307.000	0.000	0.000	62.000	0.000	0.000	176.900	33.000
93	497.000	2.000	2910.000	57.000	293.000	0.000	0.000	56.000	0.000	0.000	123.100	26.000
94	612.000	1.000	2240.000	41.000	396.000	0.000	0.000	71.000	0.000	0.000	179.200	34.000
95	609.000	3.000	3050.000	42.000	382.000	0.000	0.000	60.000	0.000	0.000	196.100	30.000
96	606.000	2.000	493.000	14.000	367.000	0.000	0.000	24.000	7.000	0.000	40.700	59.000
97	579.000	2.000	707.000	10.000	402.000	0.000	0.000	36.000	7.000	0.000	43.700	50.000
98	636.000	1.000	825.000	12.000	349.000	0.000	0.000	38.000	7.000	0.000	37.600	37.000
99	545.000	2.000	1420.000	11.000	440.000	0.000	0.000	69.000	7.000	0.000	52.400	30.000
100	706.000	3.000	811.000	53.000	147.000	0.000	0.000	41.000	4.000	0.000	227.600	0.000
101	357.000	2.000	401.000	13.000	361.000	4.000	0.000	23.000	6.000	0.000	49.200	22.000
102	557.000	2.000	854.000	8.000	515.000	0.000	0.000	40.000	7.000	0.000	47.200	28.000
103	436.000	1.000	2270.000	48.000	407.000	0.000	0.000	50.000	4.000	0.000	207.000	30.000
104	283.000	1.000	3300.000	30.000	390.000	0.000	0.000	68.000	0.000	0.000	174.200	9.000
105	391.000	2.000	4910.000	35.000	380.000	0.000	0.000	89.000	0.000	0.000	182.700	0.000
106	441.000	2.000	2670.000	40.000	386.000	0.000	0.000	53.000	0.000	0.000	226.900	24.000
107	337.000	1.000	3800.000	24.000	379.000	0.000	0.000	65.000	1.000	0.000	121.100	14.000
108	262.000	1.000	295.000	3.000	69.000	21.000	1.000	10.000	5.000	1.000	3.100	77.000
109	289.000	1.000	2270.000	27.000	417.000	0.000	0.000	54.000	0.000	1.000	121.100	10.000
110	288.000	2.000	3200.000	26.000	356.000	0.000	0.000	72.000	2.000	4.000	97.300	1.000

SAMPLE NO.	MN	MO	NA	NI	P	PB	SB	SR	TH	U	V	ZN
111	527.000	1.000	1800.000	51.000	302.000	0.000	0.000	52.000	8.000	0.000	120.900	37.000
112	471.000	0.000	2050.000	26.000	509.000	0.000	0.000	37.000	1.000	0.000	163.700	20.000
113	553.000	3.000	613.000	9.000	382.000	3.000	0.000	73.000	0.000	17.000	56.700	45.000
114	755.000	3.000	750.000	11.000	556.000	1.000	0.000	102.000	0.000	18.000	54.600	57.000
115	604.000	4.000	1540.000	12.000	481.000	1.000	0.000	123.000	0.000	21.000	58.000	51.000
116	541.000	3.000	1130.000	9.000	426.000	1.000	0.000	88.000	0.000	22.000	58.100	39.000
117	688.000	3.000	485.000	5.000	563.000	11.000	0.000	103.000	0.000	22.000	50.600	59.000
118	221.000	2.000	456.000	7.000	885.000	3.000	0.000	30.000	7.000	0.000	44.000	13.000
119	530.000	20.000	384.000	11.000	1300.000	17.000	6.000	51.000	9.000	0.000	64.700	29.000
120	313.000	3.000	267.000	12.000	1370.000	8.000	6.000	39.000	8.000	4.000	58.700	43.000
121	584.000	3.000	296.000	11.000	1320.000	3.000	5.000	155.000	9.000	0.000	38.900	65.000
122	651.000	2.000	258.000	13.000	680.000	9.000	6.000	64.000	7.000	0.000	20.100	56.000
123	442.000	2.000	257.000	6.000	83.000	9.000	1.000	38.000	4.000	0.000	2.000	19.000
124	551.000	3.000	876.000	14.000	506.000	7.000	4.000	68.000	6.000	0.000	46.300	28.000
125	524.000	2.000	612.000	14.000	525.000	1.000	3.000	50.000	6.000	0.000	42.800	50.000
126	382.000	4.000	350.000	14.000	555.000	6.000	4.000	29.000	6.000	0.000	47.100	30.000
127	540.000	3.000	431.000	12.000	446.000	6.000	3.000	31.000	6.000	0.000	47.000	46.000
128	427.000	3.000	648.000	14.000	442.000	2.000	1.000	67.000	6.000	0.000	43.300	32.000
129	505.000	2.000	985.000	14.000	469.000	17.000	3.000	85.000	5.000	0.000	39.300	22.000
130	384.000	3.000	1110.000	13.000	517.000	6.000	5.000	84.000	6.000	0.000	44.100	23.000
131	432.000	3.000	731.000	16.000	604.000	5.000	5.000	68.000	6.000	0.000	45.600	28.000
132	509.000	4.000	802.000	15.000	598.000	9.000	9.000	76.000	7.000	0.000	50.000	33.000
133	595.000	2.000	564.000	35.000	636.000	54.000	7.000	21.000	3.000	0.000	46.800	124.000
134	946.000	0.000	1570.000	46.000	382.000	21.000	0.000	33.000	0.000	1.000	201.700	52.000
135	553.000	0.000	883.000	28.000	398.000	14.000	0.000	68.000	0.000	1.000	103.600	23.000
136	601.000	2.000	578.000	9.000	1060.000	16.000	2.000	74.000	5.000	2.000	63.500	20.000
137	956.000	3.000	209.000	11.000	1140.000	27.000	9.000	41.000	9.000	2.000	33.100	57.000
138	827.000	2.000	418.000	11.000	1080.000	17.000	3.000	82.000	5.000	2.000	57.800	32.000
139	1110.000	3.000	1560.000	14.000	2180.000	36.000	10.000	119.000	5.000	3.000	132.500	69.000
140	554.000	1.000	2210.000	12.000	2270.000	21.000	5.000	201.000	0.000	2.000	147.100	34.000
141	500.000	0.000	684.000	10.000	1360.000	10.000	0.000	152.000	0.000	2.000	61.000	37.000
142	916.000	1.000	616.000	2.000	1150.000	272.000	0.000	79.000	0.000	0.000	51.500	184.000
143	894.000	3.000	619.000	2.000	1160.000	285.000	1.000	116.000	3.000	4.000	56.800	189.000
144	472.000	0.000	884.000	0.000	1080.000	180.000	0.000	40.000	3.000	2.000	67.000	120.000
145	561.000	1.000	789.000	2.000	1160.000	176.000	0.000	62.000	3.000	6.000	70.100	146.000
146	690.000	1.000	961.000	3.000	1130.000	67.000	2.000	52.000	7.000	2.000	65.400	56.000
147	470.000	1.000	861.000	1.000	1090.000	58.000	0.000	61.000	2.000	2.000	67.800	51.000
148	663.000	1.000	653.000	1.000	1130.000	18.000	0.000	88.000	2.000	2.000	65.600	39.000
149	667.000	2.000	170.000	3.000	1120.000	27.000	1.000	386.000	2.000	14.000	34.200	60.000
150	1320.000	3.000	680.000	7.000	1680.000	53.000	10.000	32.000	8.000	5.000	69.400	98.000
151	704.000	1.000	930.000	2.000	1140.000	27.000	0.000	92.000	2.000	4.000	68.700	38.000
152	276.000	2.000	662.000	2.000	351.000	23.000	3.000	35.000	11.000	2.000	22.600	27.000
153	575.000	3.000	720.000	2.000	974.000	18.000	0.000	58.000	4.000	2.000	60.300	32.000
154	1730.000	2.000	642.000	12.000	1020.000	51.000	8.000	49.000	2.000	5.000	82.600	114.000
155	885.000	4.000	752.000	4.000	1240.000	15.000	1.000	119.000	1.000	7.000	76.700	49.000
156	851.000	2.000	643.000	3.000	1040.000	15.000	0.000	40.000	3.000	4.000	62.800	46.000
157	999.000	5.000	270.000	5.000	1040.000	23.000	10.000	19.000	8.000	2.000	25.700	27.000
158	704.000	2.000	821.000	3.000	1120.000	21.000	2.000	55.000	3.000	2.000	60.700	33.000
159	661.000	3.000	540.000	3.000	614.000	18.000	5.000	59.000	6.000	6.000	26.100	26.000
160	467.000	4.000	1000.000	1.000	809.000	13.000	0.000	36.000	4.000	4.000	54.600	27.000
161	511.000	1.000	867.000	3.000	784.000	18.000	0.000	37.000	6.000	3.000	53.300	28.000
162	724.000	0.000	796.000	2.000	931.000	12.000	0.000	45.000	3.000	1.000	63.500	36.000
163	578.000	1.000	764.000	1.000	826.000	8.000	0.000	48.000	4.000	3.000	54.200	17.000
164	448.000	1.000	793.000	1.000	874.000	7.000	0.000	39.000	6.000	5.000	54.500	15.000
165	463.000	2.000	1100.000	2.000	855.000	6.000	0.000	34.000	5.000	6.000	56.500	20.000
166	368.000	1.000	845.000	2.000	922.000	9.000	0.000	30.000	5.000	4.000	56.300	15.000
167	702.000	0.000	1020.000	14.000	466.000	10.000	3.000	182.000	0.000	5.000	66.100	29.000
168	599.000	0.000	1290.000	5.000	503.000	5.000	3.000	93.000	0.000	5.000	57.800	48.000
169	776.000	0.000	1150.000	0.000	1270.000	3.000	0.000	54.000	1.000	5.000	81.300	13.000
170	565.000	1.000	962.000	1.000	1120.000	4.000	0.000	60.000	2.000	3.000	70.300	21.000

SAMPLE NO.	MN	MO	NA	NI	P	PB	SB	SR	TH	U	V	ZN
171	866.000	1.000	1210.000	4.000	1220.000	5.000	0.000	67.000	2.000	7.000	79.200	27.000
172	431.000	1.000	685.000	3.000	1160.000	10.000	1.000	27.000	3.000	0.000	66.300	20.000
173	475.000	2.000	828.000	2.000	997.000	8.000	0.000	31.000	7.000	1.000	60.400	17.000
174	516.000	2.000	1070.000	2.000	1230.000	10.000	0.000	36.000	5.000	2.000	70.800	23.000
175	580.000	2.000	849.000	4.000	1010.000	11.000	0.000	196.000	3.000	6.000	34.700	21.000
176	631.000	0.000	532.000	3.000	1030.000	5.000	0.000	87.000	4.000	2.000	61.600	25.000
177	801.000	1.000	447.000	2.000	877.000	4.000	0.000	44.000	3.000	1.000	43.700	38.000
178	532.000	1.000	842.000	3.000	924.000	2.000	0.000	106.000	4.000	4.000	45.600	14.000
179	461.000	1.000	874.000	0.000	1070.000	3.000	0.000	32.000	4.000	4.000	69.800	11.000
180	761.000	2.000	620.000	3.000	940.000	9.000	2.000	42.000	6.000	2.000	55.800	27.000
181	390.000	2.000	561.000	4.000	463.000	5.000	2.000	28.000	13.000	4.000	29.200	15.000
182	508.000	1.000	536.000	2.000	921.000	9.000	1.000	34.000	6.000	1.000	56.000	17.000
183	478.000	1.000	773.000	2.000	947.000	3.000	0.000	37.000	7.000	1.000	58.100	12.000
184	443.000	1.000	859.000	3.000	919.000	1.000	0.000	30.000	5.000	0.000	61.200	10.000
185	486.000	1.000	774.000	4.000	1060.000	10.000	1.000	37.000	6.000	3.000	56.800	23.000
186	491.000	1.000	1600.000	5.000	2330.000	9.000	1.000	86.000	0.000	0.000	119.600	16.000
187	547.000	1.000	714.000	8.000	2430.000	10.000	2.000	158.000	0.000	4.000	78.000	32.000
188	994.000	0.000	2880.000	57.000	453.000	3.000	0.000	103.000	0.000	0.000	333.400	32.000
189	653.000	0.000	1720.000	23.000	1330.000	2.000	0.000	117.000	0.000	2.000	196.700	32.000
190	648.000	4.000	575.000	3.000	877.000	9.000	2.000	59.000	6.000	5.000	53.500	26.000
191	334.000	3.000	946.000	3.000	1150.000	11.000	0.000	47.000	2.000	0.000	61.700	14.000
192	486.000	2.000	1260.000	6.000	1070.000	10.000	0.000	79.000	2.000	0.000	61.500	17.000
193	603.000	2.000	1550.000	7.000	592.000	13.000	0.000	99.000	2.000	0.000	37.400	38.000
195	771.000	2.000	1440.000	10.000	2770.000	24.000	0.000	170.000	3.000	0.000	141.300	26.000
196	591.000	3.000	783.000	20.000	918.000	18.000	2.000	34.000	2.000	0.000	55.800	18.000
197	715.000	2.000	836.000	11.000	1170.000	15.000	0.000	124.000	3.000	0.000	63.400	35.000
198	359.000	2.000	4120.000	31.000	748.000	11.000	0.000	88.000	1.000	0.000	204.000	8.000
199	950.000	0.000	912.000	40.000	362.000	6.000	0.000	28.000	1.000	0.000	196.600	52.000
200	872.000	0.000	1520.000	39.000	379.000	0.000	0.000	51.000	1.000	0.000	244.100	46.000
201	557.000	2.000	1270.000	86.000	174.000	50.000	0.000	38.000	3.000	0.000	126.200	60.000
202	577.000	0.000	3490.000	53.000	394.000	6.000	0.000	18.000	1.000	0.000	180.400	34.000
203	394.000	6.000	780.000	74.000	410.000	17.000	0.000	47.000	1.000	0.000	158.400	33.000
204	864.000	0.000	3540.000	52.000	378.000	26.000	0.000	67.000	3.000	0.000	224.200	19.000
205	518.000	0.000	1380.000	48.000	388.000	4.000	0.000	31.000	1.000	0.000	177.600	28.000
206	534.000	2.000	744.000	11.000	512.000	16.000	1.000	33.000	2.000	0.000	55.700	39.000
207	638.000	4.000	6510.000	83.000	323.000	32.000	7.000	195.000	4.000	2.000	230.000	40.000
208	684.000	3.000	1140.000	16.000	535.000	17.000	1.000	53.000	2.000	0.000	67.800	38.000
209	679.000	2.000	1390.000	9.000	529.000	19.000	1.000	95.000	2.000	0.000	46.100	55.000
210	839.000	2.000	1040.000	63.000	301.000	32.000	3.000	74.000	4.000	0.000	112.400	128.000
211	463.000	2.000	1450.000	33.000	422.000	18.000	1.000	79.000	3.000	0.000	70.800	22.000
212	863.000	3.000	2610.000	66.000	1450.000	25.000	2.000	123.000	3.000	0.000	165.800	33.000
213	594.000	2.000	1310.000	12.000	464.000	26.000	2.000	81.000	2.000	0.000	55.000	48.000
214	1410.000	0.000	2100.000	58.000	338.000	11.000	0.000	53.000	4.000	0.000	331.700	46.000
215	608.000	3.000	268.000	90.000	385.000	45.000	13.000	55.000	5.000	0.000	115.500	177.000
216	721.000	5.000	343.000	93.000	414.000	48.000	13.000	58.000	5.000	0.000	118.800	213.000
217	680.000	0.000	870.000	109.000	493.000	14.000	0.000	30.000	3.000	0.000	208.100	65.000
218	679.000	0.000	2860.000	36.000	387.000	17.000	0.000	29.000	2.000	0.000	175.500	34.000
219	686.000	3.000	776.000	7.000	934.000	18.000	1.000	123.000	3.000	1.000	44.900	25.000
220	626.000	2.000	954.000	6.000	579.000	11.000	0.000	86.000	2.000	0.000	33.500	41.000
221	614.000	1.000	804.000	10.000	618.000	20.000	5.000	48.000	3.000	0.000	28.800	49.000
222	914.000	1.000	841.000	6.000	1130.000	21.000	0.000	144.000	3.000	0.000	52.900	42.000
223	780.000	1.000	841.000	6.000	1130.000	21.000	0.000	144.000	3.000	0.000	52.900	42.000
224	653.000	1.000	767.000	6.000	944.000	13.000	0.000	103.000	3.000	2.000	57.800	21.000
225	523.000	0.000	925.000	6.000	1010.000	10.000	0.000	43.000	3.000	0.000	58.800	10.000
226	616.000	0.000	812.000	4.000	839.000	9.000	0.000	118.000	3.000	0.000	43.100	20.000
227	699.000	1.000	666.000	6.000	941.000	17.000	1.000	80.000	3.000	2.000	43.000	23.000
228	714.000	0.000	684.000	7.000	1080.000	15.000	0.000	43.000	3.000	0.000	59.600	23.000
229	738.000	1.000	520.000	7.000	897.000	25.000	3.000	153.000	3.000	2.000	53.600	11.000
230	631.000	0.000	731.000	6.000	1060.000	7.000	0.000	98.000	2.000	2.000	53.600	11.000
231	740.000	1.000	374.000	9.000	1070.000	21.000	2.000	22.000	3.000	0.000	31.800	46.000

SAMPLE NO.	MN	MO	NA	NI	P	PB	SB	SR	TH	U	V	ZN
232	504.000	1.000	537.000	13.000	982.000	13.000	0.000	47.000	3.000	1.000	46.800	25.000
233	450.000	0.000	553.000	7.000	1020.000	15.000	0.000	44.000	2.000	0.000	60.100	8.000
234	691.000	1.000	490.000	11.000	1260.000	34.000	11.000	61.000	3.000	0.000	52.000	41.000
235	489.000	1.000	720.000	8.000	1250.000	18.000	3.000	43.000	2.000	0.000	78.100	17.000
236	919.000	1.000	531.000	11.000	975.000	16.000	4.000	23.000	3.000	0.000	44.500	32.000
237	502.000	1.000	647.000	13.000	1160.000	53.000	9.000	42.000	2.000	0.000	73.900	19.000
238	815.000	0.000	564.000	11.000	1200.000	25.000	1.000	107.000	3.000	2.000	66.600	64.000
239	620.000	1.000	612.000	13.000	1040.000	12.000	0.000	97.000	3.000	0.000	57.000	44.000
240	757.000	1.000	693.000	11.000	1370.000	19.000	3.000	51.000	3.000	0.000	64.200	34.000
241	799.000	1.000	578.000	13.000	1160.000	24.000	2.000	49.000	4.000	0.000	67.400	30.000
242	391.000	1.000	787.000	11.000	1220.000	16.000	1.000	50.000	2.000	1.000	73.000	14.000

SAMPLE NO.	BA	SE	AU
51	33.000	0.000	3.000
52	38.000	0.000	2.000
53	75.000	0.000	6.000
54	46.000	0.000	260.000
55	43.000	0.000	7.000
56	124.000	0.000	2.000
57	59.000	1.000	9.000
58	92.000	2.000	5.000
59	574.000	9.000	3.000
60	48.000	0.000	3.000
61	36.000	5.000	7.000
62	18.000	0.000	4.000
63	30.000	0.000	5.000
64	31.000	0.000	2.000
65	50.000	6.000	1.000
66	67.000	0.000	5.000
67	94.000	0.000	5.000
68	39.000	0.000	3.000
69	113.000	2.000	15.000
70	81.000	0.000	7.000
71	82.000	12.000	6.000
72	33.000	6.000	5.000
73	35.000	3.000	9.000
74	45.000	11.000	7.000
75	36.000	0.000	5.000
76	21.000	0.000	2.000
77	17.000	0.000	5.000
78	18.000	0.000	1.000
79	27.000	0.000	2.000
80	14.000	0.000	3.000
81	35.000	0.000	3.000
82	21.000	0.000	2.000
83	23.000	0.000	4.000
84	67.000	0.000	1.000
85	28.000	0.000	2.000
86	63.000	0.000	4.000
87	29.000	0.000	3.000
88	25.000	0.000	2.000
89	25.000	0.000	3.000
90	28.000	0.000	2.000
91	25.000	0.000	4.000
92	24.000	0.000	3.000
93	22.000	0.000	2.000
94	16.000	0.000	3.000
95	29.000	0.000	1.000
96	59.000	0.000	1.000
97	138.000	0.000	1.000
98	75.000	0.000	1.000
99	101.000	0.000	1.000
100	50.000	0.000	2.000
101	74.000	0.000	1.000
102	36.000	0.000	1.000
103	30.000	0.000	2.000
104	24.000	0.000	1.000
105	30.000	0.000	3.000
106	29.000	0.000	2.000
107	16.000	0.000	3.000
108	43.000	4.000	5.000
109	17.000	0.000	7.000
110	17.000	0.000	5.000

SAMPLE NO.	BA	SE	AU
111	18.000	0.000	26.000
112	20.000	0.000	4.000
113	32.000	0.000	17.000
114	116.000	0.000	15.000
115	27.000	0.000	6.000
116	25.000	0.000	3.000
117	224.000	0.000	1.000
118	29.000	0.000	14.000
119	60.000	0.000	45.000
120	24.000	3.000	60.000
121	26.000	0.000	10.000
122	54.000	1.000	8.000
123	52.000	0.000	11.000
124	20.000	0.000	12.000
125	19.000	0.000	8.000
126	10.000	2.000	13.000
127	53.000	1.000	15.000
128	17.000	1.000	16.000
129	15.000	0.000	28.000
130	13.000	0.000	29.000
131	20.000	0.000	12.000
132	18.000	4.000	15.000
133	47.000	0.000	2.000
134	49.000	0.000	1.000
135	16.000	0.000	6.000
136	64.000	0.000	4.000
137	80.000	0.000	7.000
138	36.000	0.000	3.000
139	129.000	0.000	3.000
140	69.000	0.000	5.000
141	31.000	0.000	7.000
142	45.000	0.000	2.000
143	49.000	0.000	1.000
144	57.000	0.000	2.000
145	77.000	0.000	5.000
146	88.000	0.000	3.000
147	71.000	0.000	4.000
148	49.000	0.000	1.000
149	453.000	0.000	3.000
150	159.000	0.000	2.000
151	98.000	0.000	3.000
152	57.000	0.000	5.000
153	77.000	0.000	5.000
154	101.000	0.000	4.000
155	42.000	0.000	7.000
156	54.000	0.000	2.000
157	85.000	0.000	4.000
158	67.000	0.000	1.000
159	72.000	0.000	3.000
160	45.000	0.000	6.000
161	48.000	0.000	4.000
162	40.000	0.000	4.000
163	47.000	0.000	8.000
164	51.000	0.000	2.000
165	53.000	0.000	5.000
166	49.000	0.000	2.000
167	454.000	0.000	2.000
168	134.000	0.000	7.000
169	64.000	0.000	21.000
170	64.000	0.000	4.000

SAMPLE NO.	BA	SE	AU
171	80.000	0.000	6.000
172	79.000	0.000	4.000
173	53.000	0.000	3.000
174	59.000	0.000	7.000
175	40.000	0.000	3.000
176	44.000	0.000	5.000
177	33.000	0.000	8.000
178	59.000	0.000	4.000
179	52.000	0.000	2.000
180	54.000	0.000	1.000
181	45.000	0.000	6.000
182	49.000	0.000	4.000
183	45.000	0.000	3.000
184	60.000	0.000	3.000
185	58.000	0.000	2.000
186	54.000	0.000	4.000
187	28.000	0.000	1.000
188	231.000	0.000	4.000
189	42.000	0.000	18.000
190	62.000	0.000	2.000
191	46.000	0.000	2.000
192	49.000	0.000	5.000
193	103.000	1.000	4.000
195	105.000	0.000	7.000
196	56.000	1.000	6.000
197	49.000	0.000	3.000
198	51.000	0.000	5.000
199	33.000	0.000	2.000
200	52.000	0.000	1.000
201	19.000	0.000	118.000
202	15.000	0.000	118.000
203	15.000	0.000	78.000
204	39.000	0.000	46.000
205	19.000	0.000	6.000
206	126.000	0.000	1.000
207	431.000	2.000	2.000
208	56.000	0.000	1.000
209	276.000	0.000	3.000
210	161.000	2.000	1.000
211	46.000	0.000	2.000
212	197.000	1.000	4.000
213	64.000	1.000	1.000
214	32.000	0.000	2.000
215	104.000	4.000	2.000
216	128.000	4.000	3.000
217	101.000	0.000	2.000
218	37.000	0.000	4.000
219	39.000	0.000	1.000
220	90.000	0.000	1.000
221	89.000	2.000	1.000
222	43.000	0.000	3.000
223	115.000	0.000	3.000
224	63.000	0.000	1.000
225	70.000	0.000	3.000
226	48.000	0.000	6.000
227	86.000	1.000	2.000
228	66.000	1.000	1.000
229	45.000	1.000	3.000
230	91.000	0.000	1.000
231	46.000	1.000	1.000

SAMPLE NO.	BA	SE	AU
232	78.000	0.000	5.000
233	48.000	0.000	2.000
234	77.000	1.000	1.000
235	88.000	0.000	1.000
236	75.000	1.000	3.000
237	43.000	0.000	2.000
238	55.000	0.000	2.000
239	50.000	0.000	1.000
240	88.000	2.000	4.000
241	83.000	1.000	2.000
242	157.000	0.000	1.000

DATA TITLE: LABOUR DAY LAKE PN 091 -- MAJOR OXIDE/TR. ELEMENT LITHOGEOCHEM

ROCK CHIP SAMPLES COLLECTED 1984 AND ANALYZED BY TERRAMIN RESEARCH LABS IN CALGARY. ALL OXIDES IN %, ELEMENTS IN PPM. VALUES OF AG LESS THAN .1 ARE TREATED AS 0.

SAMPLE NO.	SIO2	NA2O	K2O	TIO2	CU	ZN	AG	BA
10501	44.500	2.060	1.430	1.320	99.000	87.000	0.100	220.000
10502	50.500	2.370	0.469	1.520	164.000	35.000	1.200	280.000
10503	49.000	2.280	0.531	1.600	211.000	49.000	0.100	290.000
10504	48.800	2.470	0.169	1.370	148.000	85.000	0.000	350.000
10505	49.400	1.770	0.078	1.320	134.000	54.000	0.000	300.000
10506	50.500	2.710	0.158	1.330	142.000	61.000	0.700	300.000
10507	4.100	0.020	0.012	0.050	9.000	8.000	0.000	390.000
10508	48.600	3.460	2.040	0.734	60.000	109.000	0.400	350.000
10509	53.500	4.530	0.687	0.867	111.000	72.000	0.300	280.000
10510	51.800	2.160	0.104	1.470	153.000	57.000	0.200	160.000
10511	56.900	5.850	1.200	0.651	110.000	58.000	0.100	340.000
10512	58.400	2.970	2.040	0.434	153.000	79.000	0.100	620.000
10513	68.200	2.410	1.900	0.417	68.000	76.000	0.000	820.000
10514	66.100	3.090	0.937	0.450	71.000	78.000	0.000	890.000
10515	69.500	2.280	1.590	0.434	34.000	87.000	0.100	1070.000
10516	64.600	5.500	0.476	0.384	58.000	70.000	0.100	330.000
10517	58.000	5.140	1.610	0.517	56.000	71.000	0.100	910.000
10518	51.300	2.520	0.283	1.570	153.000	64.000	0.300	660.000
10519	88.100	0.038	0.609	0.050	18.000	28.000	0.000	170.000
10520	87.500	0.129	0.715	0.050	8.000	25.000	0.000	170.000
10521	49.600	2.390	0.165	1.330	106.000	60.000	0.400	240.000
10522	50.100	2.320	0.443	1.600	141.000	87.000	0.400	1130.000
10523	50.300	3.330	0.376	1.520	157.000	72.000	0.300	1120.000
10524	78.700	0.104	0.842	0.117	36.000	54.000	0.100	1010.000
10525	51.300	2.760	0.680	1.630	137.000	59.000	0.200	600.000
10526	60.300	2.020	2.410	0.450	59.000	52.000	0.300	1150.000
10527	60.800	0.724	4.280	0.450	49.000	51.000	0.300	2690.000
10528	51.800	3.980	0.799	0.734	46.000	66.000	0.400	260.000
10529	51.300	3.140	0.946	1.130	116.000	63.000	0.400	940.000
10530	48.600	4.140	0.886	0.901	108.000	74.000	0.400	370.000
10531	50.300	0.805	1.770	0.667	75.000	73.000	0.400	440.000
10532	74.900	2.280	0.941	0.183	52.000	50.000	0.200	1660.000
10533	61.600	3.910	2.950	0.334	8.000	38.000	0.000	850.000
10534	49.000	3.860	1.230	0.767	92.000	72.000	0.400	520.000
10544	50.100	4.660	1.420	0.851	82.000	60.000	0.000	390.000
10545	54.500	3.940	2.000	0.901	91.000	68.000	0.000	1760.000
10546	52.000	5.740	1.310	0.767	56.000	72.000	0.000	900.000
10547	55.200	5.500	2.210	0.751	91.000	68.000	0.000	1670.000
10548	54.300	7.040	0.656	0.967	100.000	76.000	0.000	310.000
10549	51.300	3.770	0.112	1.870	159.000	73.000	0.100	80.000
10550	49.800	3.090	0.133	1.770	149.000	95.000	0.000	70.000
10551	79.600	0.062	0.900	0.133	37.000	93.000	0.000	360.000
10552	62.700	1.940	0.142	1.470	37.000	93.000	0.000	360.000
10553	57.800	1.830	0.940	1.370	410.000	35.000	0.100	510.000
10554	54.800	1.640	1.430	1.550	76.000	95.000	0.000	840.000
10555	56.900	1.170	1.490	1.270	65.000	97.000	0.000	540.000
10556	59.300	1.620	2.270	0.784	60.000	116.000	0.100	780.000
10557	55.000	1.690	1.510	0.951	66.000	112.000	0.100	540.000
10558	60.800	1.810	1.810	0.801	57.000	93.000	0.200	610.000
10559	55.600	1.310	1.770	1.030	79.000	85.000	0.200	600.000
10560	49.400	3.260	0.260	1.600	139.000	100.000	0.100	100.000
10561	64.600	3.240	1.430	0.350	11.000	44.000	0.000	350.000
10535	53.100	6.310	1.030	0.717	117.000	83.000	0.000	600.000
10536	55.000	2.570	3.720	0.484	71.000	77.000	0.000	2250.000
10537	47.900	5.730	1.130	1.400	9.000	73.000	0.000	420.000
10538	48.300	2.430	0.406	1.430	157.000	71.000	0.000	1260.000
10539	76.200	0.700	1.280	0.183	39.000	57.000	0.000	500.000
10540	49.000	2.900	0.345	1.480	160.000	66.000	0.000	1170.000
10541	67.000	4.040	1.350	0.350	51.000	56.000	0.000	1050.000
10542	86.600	0.461	0.951	0.117	25.000	39.000	0.000	820.000

SAMPLE NO.	SIO2	NA2O	K2O	TIO2	CU	ZN	AG	BA
10543	82.600	0.237	1.050	0.133	21.000	41.000	0.000	730.000
10562	48.600	3.060	0.446	1.720	129.000	42.000	0.000	220.000
10563	49.400	3.460	0.183	1.700	129.000	42.000	0.000	220.000
10564	47.500	3.420	0.345	1.720	152.000	50.000	0.000	90.000
10565	31.200	0.034	0.809	1.230	175.000	73.000	0.100	110.000
10566	50.700	3.420	0.524	1.780	97.000	48.000	0.000	280.000
10567	48.600	2.820	0.439	1.920	67.000	42.000	0.000	120.000
10568	56.900	1.330	1.480	1.320	127.000	110.000	0.000	4100.000
10569	48.800	3.370	1.040	1.570	110.000	105.000	0.000	360.000
10570	53.300	3.900	1.210	0.867	37.000	84.000	0.000	540.000
10571	48.300	2.120	0.290	1.670	184.000	41.000	0.000	130.000
10572	55.200	1.370	0.952	1.130	59.000	91.000	0.000	460.000
10573	47.500	4.120	0.252	1.570	280.000	119.000	0.100	180.000
10574	51.800	3.400	0.648	1.480	260.000	39.000	0.400	130.000
10575	50.700	3.210	0.230	1.920	47.000	16.000	0.000	110.000
10576	50.900	3.860	0.434	1.870	100.000	51.000	0.100	170.000
10577	50.100	3.410	0.369	1.830	73.000	51.000	0.000	110.000
10578	50.900	2.660	0.246	1.630	810.000	26.000	0.700	110.000
10579	48.800	3.570	0.190	1.930	162.000	260.000	0.100	30.000
10580	57.100	3.300	0.598	0.550	27.000	58.000	0.000	150.000
10581	70.200	2.820	0.306	0.434	84.000	53.000	0.000	490.000
10582	78.100	3.750	0.315	0.183	32.000	43.000	0.000	420.000
10583	62.200	4.910	0.572	0.417	56.000	57.000	0.000	1200.000
10584	86.000	0.404	1.450	0.100	19.000	34.000	0.000	720.000
10585	63.700	0.468	2.800	0.500	56.000	57.000	0.000	1200.000
10586	76.600	0.221	1.140	0.250	89.000	84.000	0.100	480.000
10587	94.500	0.101	0.764	0.117	24.000	25.000	0.000	310.000
10588	51.800	3.340	1.720	1.950	16.000	90.000	0.100	540.000
10589	86.200	0.283	1.630	0.150	34.000	19.000	0.100	540.000
10590	73.400	2.260	0.778	0.150	35.000	27.000	0.000	480.000
10591	67.000	2.750	0.971	0.167	38.000	45.000	0.000	1080.000
10592	51.300	2.410	1.100	0.667	88.000	67.000	0.000	940.000
10593	77.400	3.810	0.259	0.300	66.000	62.000	0.000	350.000
10594	47.500	2.480	1.180	0.934	67.000	93.000	0.000	870.000
10595	50.500	2.470	0.430	1.250	192.000	24.000	0.000	170.000
10596	49.800	1.750	0.252	1.250	100.000	25.000	0.000	110.000
10597	49.600	2.130	0.311	1.300	125.000	32.000	0.000	150.000
10598	50.300	2.350	0.341	1.300	58.000	29.000	0.000	120.000
10599	45.600	3.020	0.230	1.750	200.000	42.000	0.000	150.000
10600	50.500	3.650	0.447	1.650	147.000	46.000	0.000	180.000
10601	51.300	2.710	0.509	1.820	87.000	56.000	0.000	250.000
10602	50.900	3.420	0.401	1.630	127.000	30.000	0.000	140.000
10603	50.500	2.780	0.264	1.600	145.000	47.000	0.000	140.000
10604	59.900	1.930	1.930	0.667	54.000	155.000	0.400	620.000
10605	60.100	1.730	2.250	0.600	50.000	147.000	0.300	710.000
10606	60.800	1.360	2.450	0.584	33.000	138.000	0.000	710.000
10607	54.300	2.520	0.049	1.670	36.000	92.000	0.200	30.000
10608	44.900	2.520	0.622	1.570	136.000	75.000	0.000	160.000
10609	55.400	3.980	0.343	1.900	150.000	104.000	0.200	50.000
10610	49.400	3.260	0.237	1.900	260.000	76.000	0.200	120.000
10611	50.100	3.140	0.337	1.920	197.000	62.000	0.100	110.000
10612	47.700	1.780	0.562	1.680	139.000	98.000	0.000	60.000
10613	46.200	1.820	0.716	1.300	139.000	73.000	0.000	120.000
10614	47.900	2.160	0.166	1.570	158.000	40.000	0.000	70.000
10615	50.500	3.420	0.198	1.670	176.000	24.000	0.000	80.000
10616	49.600	2.450	0.460	1.730	100.000	23.000	0.000	100.000
10617	49.400	2.910	0.330	1.720	124.000	26.000	0.000	100.000
10618	49.800	2.200	0.236	1.680	149.000	18.000	0.000	90.000
10619	58.600	1.280	1.890	0.684	58.000	80.000	0.000	560.000
10620	60.800	1.590	1.630	0.717	67.000	138.000	0.000	530.000

SAMPLE NO.	SIO2	NA2O	K2O	TIO2	CU	ZN	AG	BA
10621	51.800	1.150	1.280	1.120	85.000	91.000	0.100	610.000
10622	59.900	1.700	1.090	0.967	-70.000	100.000	0.000	550.000
10623	59.000	1.240	2.210	0.634	45.000	70.000	0.000	670.000
10624	60.800	1.700	2.410	0.667	59.000	180.000	0.200	860.000
10625	59.900	1.900	2.290	0.600	54.000	180.000	0.400	720.000
10626	60.800	1.280	2.080	0.667	56.000	93.000	0.000	620.000
10627	56.700	0.930	2.530	0.701	68.000	143.000	0.000	650.000
10628	58.400	1.360	2.010	0.667	56.000	93.000	0.000	620.000
10629	49.600	2.480	0.243	1.620	93.000	35.000	0.100	110.000
10630	49.800	3.010	0.266	1.630	75.000	33.000	0.100	100.000
10631	52.200	4.100	0.611	1.580	53.000	38.000	0.000	160.000
10632	70.800	4.300	2.950	0.133	9.000	47.000	0.000	610.000
10633	49.200	2.950	0.439	1.580	115.000	39.000	0.000	140.000
10634	49.400	2.550	0.413	1.680	100.000	29.000	0.200	140.000
10635	57.300	0.077	0.027	1.480	128.000	8.000	0.000	210.000
10636	48.300	2.220	0.351	1.520	86.000	45.000	0.000	200.000
10637	49.200	2.660	0.277	1.650	127.000	58.000	0.000	150.000
10638	49.600	3.260	0.196	1.720	161.000	35.000	0.000	70.000
10639	48.300	2.820	0.374	1.720	126.000	64.000	0.000	530.000
10640	51.100	2.790	0.289	1.670	152.000	66.000	0.200	1380.000
10641	53.900	3.600	0.434	1.180	77.000	43.000	0.000	540.000
10642	61.600	5.680	0.277	0.534	55.000	60.000	0.000	180.000
10643	56.500	2.220	3.080	0.651	65.000	83.000	0.000	1720.000
10644	55.600	2.560	0.415	1.630	153.000	73.000	0.000	1420.000
10645	61.200	3.400	1.480	0.417	57.000	64.000	0.000	1650.000
10646	50.100	4.020	0.831	0.834	79.000	84.000	0.000	250.000
10647	81.700	2.560	0.451	0.167	14.000	40.000	0.000	570.000
10648	52.200	2.780	0.434	1.500	120.000	48.000	0.100	170.000
10649	52.800	2.130	0.192	1.600	122.000	22.000	0.000	110.000
10650	63.300	0.132	2.580	0.567	64.000	40.000	0.700	220.000
10651	53.700	4.150	1.360	1.670	16.000	95.000	0.000	360.000
10652	61.600	4.910	1.140	0.334	12.000	34.000	0.000	500.000
10653	54.500	4.650	2.000	1.430	9.000	100.000	0.000	830.000
10654	84.300	0.550	1.060	0.217	28.000	31.000	0.000	610.000
10655	89.200	0.053	0.809	0.100	9.000	21.000	0.000	190.000
10656	83.400	0.310	1.020	0.117	18.000	24.000	0.000	390.000
10657	49.200	3.110	0.034	1.850	49.000	86.000	0.000	170.000
10658	52.000	2.800	0.043	1.570	105.000	86.000	0.000	90.000
10659	53.700	3.640	2.330	0.684	73.000	61.000	0.000	720.000
10660	49.800	2.210	0.276	1.550	126.000	53.000	0.000	1680.000
10661	46.000	1.240	0.193	1.500	65.000	22.000	0.000	110.000
10662	51.100	0.016	0.019	0.017	6.000	590.000	0.000	160.000
10663	42.800	0.051	0.013	0.567	39.000	103.000	0.000	180.000
10664	72.700	0.070	0.193	0.067	7.000	8.000	0.000	100.000
10665	16.700	0.038	0.189	0.100	7.000	-1.000	0.000	280.000
10666	66.100	0.620	2.720	0.484	30.000	82.000	0.000	860.000
10667	21.000	0.040	0.568	0.150	9.000	25.000	0.000	300.000
10668	53.700	0.394	6.820	0.434	6.000	50.000	0.000	970.000
10669	85.600	0.275	0.525	0.100	70.000	168.000	1.100	1570.000
10670	51.300	2.220	0.163	1.630	126.000	33.000	0.000	110.000
10671	49.800	2.240	0.253	1.570	88.000	43.000	0.000	130.000
10672	48.100	2.310	0.290	1.730	92.000	47.000	0.000	160.000
10673	47.900	1.600	0.164	1.580	169.000	40.000	0.000	80.000
10674	52.800	4.020	1.010	0.901	9.000	55.000	0.000	540.000
10675	41.700	0.042	0.098	0.367	5.000	107.000	0.000	160.000
10676	72.300	2.800	2.570	0.100	2.000	6.000	0.000	230.000
10677	43.300	2.310	6.190	1.980	158.000	93.000	0.000	200.000
10678	52.600	3.670	1.460	2.000	320.000	94.000	0.000	70.000
10679	50.100	2.910	1.750	1.570	139.000	86.000	0.000	110.000
10680	56.700	4.840	1.510	0.584	51.000	73.000	0.000	1320.000

SAMPLE NO.	SIO2	NA2O	K2O	TIO2	CU	ZN	AG	BA
10681	50.500	2.630	1.230	0.917	62.000	68.000	0.000	320.000
10682	43.200	0.829	1.140	1.520	146.000	81.000	0.000	160.000
10683	53.100	2.700	0.541	1.470	75.000	300.000	0.000	290.000
10684	77.700	2.910	2.830	0.033	118.000	61.000	0.000	230.000
10685	51.800	0.313	3.820	1.220	104.000	102.000	0.200	810.000
10686	49.200	3.150	0.539	1.700	118.000	61.000	0.000	230.000
10687	51.300	3.480	0.218	1.750	22.000	41.000	0.000	110.000
10688	79.100	0.644	1.800	0.133	29.000	44.000	0.000	1320.000
10689	80.400	0.725	1.870	0.267	35.000	43.000	0.000	1370.000
10690	74.000	3.690	0.159	0.300	46.000	52.000	0.000	170.000
10691	54.300	3.100	0.981	0.684	94.000	57.000	0.000	370.000
10692	54.800	3.190	0.181	1.930	159.000	79.000	0.000	140.000
10693	68.500	2.510	1.760	0.267	3.000	56.000	0.000	980.000
10694	56.300	5.200	2.370	0.734	48.000	117.000	0.000	740.000
10695	69.500	3.670	3.860	0.183	6.000	37.000	0.000	960.000
10696	53.700	3.420	1.170	0.734	66.000	28.000	0.000	480.000
10697	51.100	3.630	2.010	0.917	80.000	68.000	0.000	440.000
10698	50.500	2.630	1.140	0.701	56.000	70.000	0.000	680.000
10700	65.500	0.253	4.460	0.250	7.000	19.000	0.000	360.000
10701	57.800	2.980	3.210	0.667	65.000	60.000	0.000	720.000
10702	56.500	5.040	1.480	0.517	11.000	58.000	0.000	370.000
10703	54.500	4.720	1.890	0.634	86.000	47.000	0.000	580.000
10704	52.000	3.250	0.633	1.650	110.000	59.000	0.000	380.000
10705	46.400	1.390	2.330	0.717	96.000	72.000	0.000	520.000