1993 - 1994 EXPLORATION PROGRAM

on the

TASEKO PROPERTY

WESTPINE METALS LTD.

Vancouver, British Columbia

Clinton Mining Division, British Columbia

NTS 920/3W

Latitude 51°05', Longitude 123°24'W

by

WILLIS W. OSBORNE, M.Sc., FGAC

April 25, 1994

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SUMMARY

Property - The Taseko Property is located 225 km north of Vancouver in southwestern British Columbia along the eastern flank of the Coast Range. The property consists of 270 units and is in the Clinton Mining Division. Access is by four-wheel drive vehicle from Williams Lake (270 km) through the town of Hanceville, south to Taseko Lakes, then east along Taseko River.

History - Gold was discovered at the Taylor-Windfall mine in the 1920's. The area in and around the Taseko Property was actively explored between 1969 - 1976 as a porphyry copper-molybdenum target, and again in 1985, for its epithermal gold potential. Geochemical, geophysical and drilling programs were carried out during these periods. From 1988 through 1991 a new phase of geochemical, prospecting and drilling was implemented by Westpine Metals Ltd., the present owner of the property, and associated companies. A small program of mapping, whole-rock analysis and diamond drilling was completed in 1993.

Property Geology - The property occurs along an east-west contact between Cretaceous-age granitic intrusives of the Coast Plutonic Complex to the south and a thick sequence of volcanic strata of the Kingsvale Group to the north. An intense alteration zone up to 3 km in width occurs within the volcanic assemblage north of and adjacent to intrusive rock.

The main showing occurs in the Empress area where copper-gold mineralization is found in intensely altered volcanic rock. A pre-feasibility study of the Empress, using a cut-off of 0.40% cooper (not copper equivalent) showed in situ resources to be 11,078,000 tons of 0.61% copper and 0.023 opt gold. The East Zone, 3,300 feet east of the Empress, is similar to the Empress, but only three holes have been drilled into it. The Buzzer and Rowbottom zones consist of chalcopyrite and molybdenite which is disseminated and in vugs in granitic rock.

1993 Program & Results - The 1993 program consisted of geological mapping, 218 metres of diamond drilling in two holes, and lithogeochemical analysis of 48 whole rock determinations. Mapping located a number of granitic fragments with disseminated chalcopyrite and molybdenite over a length of 273 metres in the Buzzer West area, 600 metres southwest of the Buzzer Zone. These fragments occur just west of a copper soil anomaly which is a part of a series of copper soil anomalies extending west from the Buzzer over a length of 2,400 metres.

In diamond drilling, the source of breccia fragments anomalous in gold located northeast of the East Zone was intersected in a drill hole. Analysis of whole-rock data brought out a number of important aspects. The first is that the intrusive rock on the Taseko Property can be broken into two separate phases of a co-genetic intrusive suite. The intensely altered rock in the Empress area can be separated into three units: a volcanic suite and two sedimentary suites. Finally, it was concluded that two, probably unrelated, styles of mineralization are recognized. The first is Au, Ag and Cu in one of the two intrusive phases and in the highly altered volcanics, associated with alkali loss, calcium metasomatism and some silicification. Molybdenum also occurs in the intrusive. The second style consists of Au, Ag and Cu mineralization associated with pervasive silicification in one of the sediment groups.

Recommendation - Drilling is recommended for the Buzzer West Zone and for other areas within the large area of copper soil anomalies west of the Buzzer Zone. Drilling is also recommended for the East Zone to further define it. Several other areas also should be drilled. Further whole-rock determinations should be subjected to Pearce element ratio analysis to attempt to learn more about the rock in the area. It is thought that the mineralization in the Taseko Property is related to a large porphyry copper-gold system.

INTRODUCTION

Preface - During the summer of 1993, the management of Westpine Metals Ltd. decided to carry out a small exploration program on the Taseko Property. The program was designed to consist of four parts:

(1) Diamond drilling;

(2) Geological mapping of the intrusive rock on the property;

(3) Examination of the area where rusty fragments of granitic rock with disseminated chalcopyrite and molybdenite had been discovered at the end of the 1991 program; and

(4) Whole rock analysis of a suite of samples from the area.

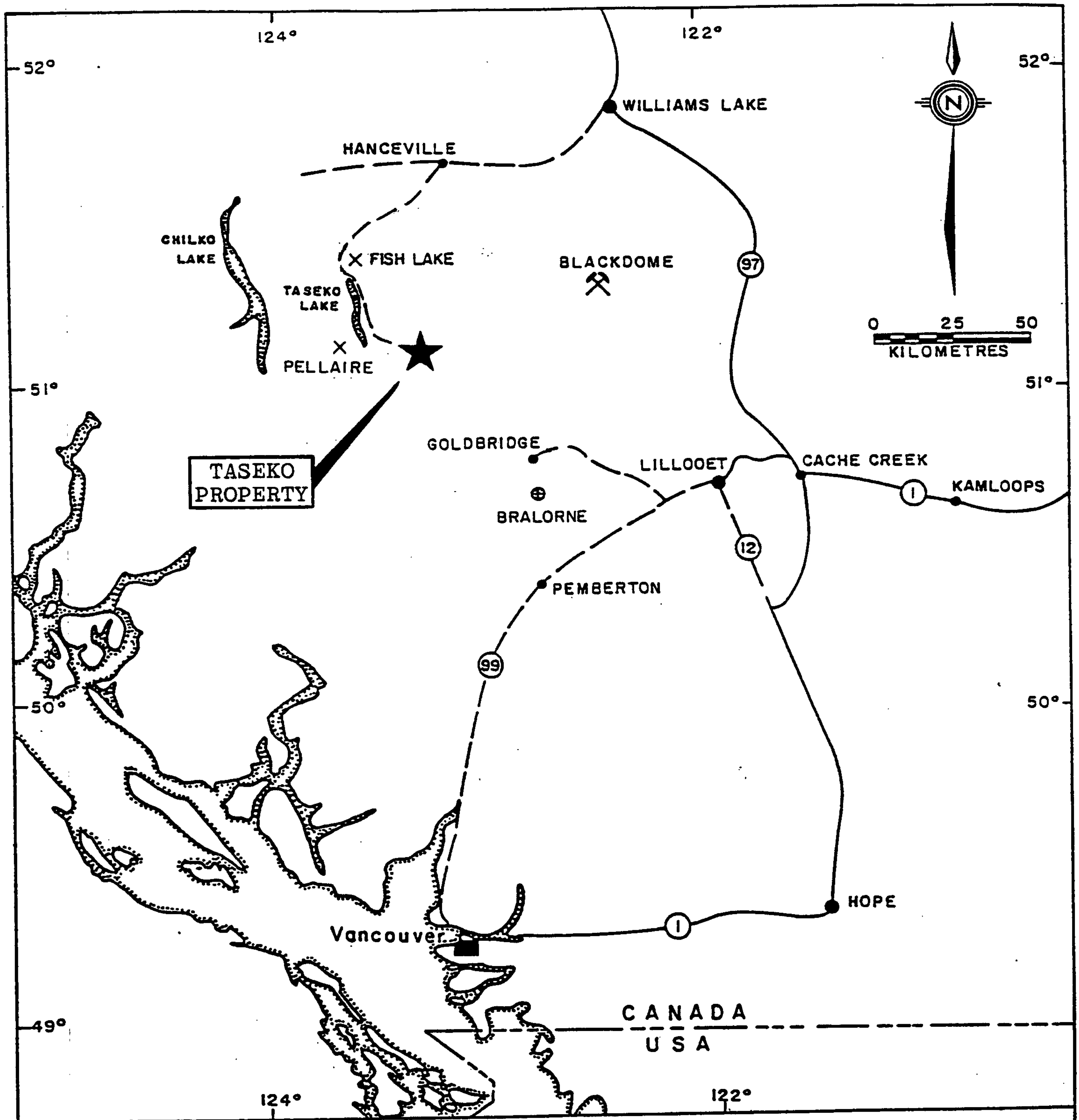
218 metres (720 feet) of diamond drilling were completed in two holes. Willis W. Osborne supervised the drilling and logged the core. The geological mapping was completed by Donald G. Allen and Willis W. Osborne. Willis W. Osborne examined the area southwest of the Buzzer. Donald G. Allen was on the property from September 14 through 18 and Willis W. Osborne worked on the project from September 12 through 18 and September 23 through October 7, 1993.

In order to better define the various phases of the intrusive rock, relate the host rock of the various mineral occurrences in granitic rock on the property and to attempt to learn more about the host rock in the Empress area, it was decided to run some whole rock analysis on rock from the property. Hans E. Madeisky, using Pearce Element Ratio Analysis, helped to interpret the results of the whole rock analysis.

The rocks for the whole rock analysis were selected and analyzed; the data was assessed and a report was written in January and February of 1994. Notable references pertaining to previous work include K. Nakashima (1970), K. Uchida et al. (1970), M.R. Wolfhard (1976), W.D. Melnyk et al. (1986) and E. Lambert (1988, 1989a,b, 1991). Much of the introductory material for this report was taken from E. Lambert (1991b).

Location - The Taseko Property is located 225 km north of Vancouver, British Columbia, in the Clinton Mining Division (Figure 1). It lies 10 km southeast of the southern end of Upper Taseko Lake along the Taseko River, at 51°05' latitude and 123°24' west longitude, NTS Map 92O/3W and 4E.

Access - The property can be reached by road from Williams Lake (270 km) or by helicopter from Gold Bridge (48 km), Pemberton (100 km), Lillooet (120 km) or Williams Lake (215 km). Access to the property from Williams Lake is via Route 20 west to Hanceville on paved roads, southwesterly along dirt roads to the Taseko Lakes, then southeasterly along the Taseko River to the claim area. Four-wheel drive vehicles are necessary for sections of the road south of Hanceville, and approximate travel time from Williams Lake is 6 hours. At the present time there is no bridge over the Taseko River for access to the southern portion of the property. The river can be forded in the vicinity of Granite Creek by a 4WD truck during low water levels, but it is risky when water level rises during spring runoff and after major rain storms. A second crossing exists near Battlement Creek and is the preferred crossing during high water. The property contains a network of old mining roads in various stages of overgrowth which provides easy access to trenches, drill sites and mineralized showings in the area.



× MINERAL OCCURRENCE
⊕ PAST PRODUCER
⚒ PRODUCER

WESTPINE METALS LTD.		
LOCATION MAP AND MINERAL DEPOSITS		
E.E. LAMBERT, P.GEOL.		
N.T.S. 92 O/3W	SCALE: 1:1,852,000	FIG.
DATE: JANUARY 1991	DRAWN: E.L./dw	1

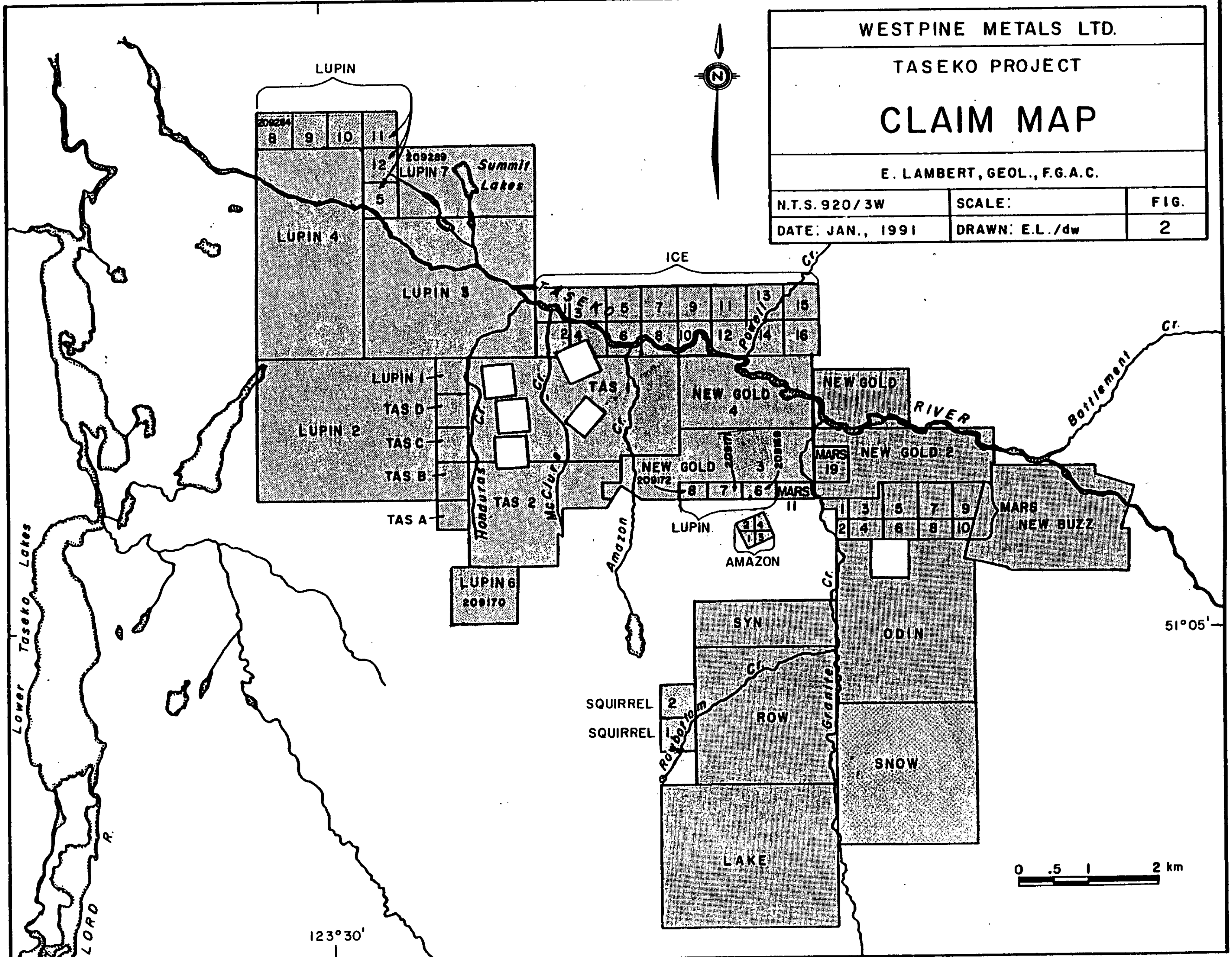
Physiography - Physiography of the claims area consists of a broad, U-shaped valley occupied by the Taseko River and its numerous tributaries. Elevation on the property ranges from 4,900' (1,500 m) in the valley to 7700' (2350 m) at mountain crests. At lower elevations the terrain is covered by lodgepole pine trees, with balsam fir and white pine occurring at higher elevations. Glacial cover consists of morainal deposits and glacial drift that appear to be relatively thin but extensive (typical depth is 3-8 m). Rock exposures are scarce and generally confined to creeks and peaks on ridges.

CLAIMS INFORMATION

The property is comprised of 17 four-post, 48 two-post and one fraction mineral claims totalling 270 units held by Westpine Metals Ltd. The claims are as follows (Figure 2):

Claim Name	Units	Record #	Expiry Date
New Gold 1	6	208506	Sep. 24, 1996
New Gold 2	10	208503	Aug. 30, 1996
New Gold 3	12	208502	Sep. 12, 1996
New Gold 4	8	208507	Sep. 24, 1996
New Buzz	15	208505	Sep. 26, 1996
Mars 1	1	208579	Oct. 21, 1996
Mars 2	1	208580	Oct. 21, 1996
Mars 3	1	208581	Oct. 21, 1996
Mars 4	1	208582	Oct. 21, 1996
Mars 5	1	208583	Oct. 21, 1996
Mars 6	1	208584	Oct. 21, 1996
Mars 7	1	208585	Oct. 21, 1996
Mars 8	1	208586	Oct. 21, 1996
Mars 9	1	208587	Oct. 21, 1996
Mars 10	1	208588	Oct. 21, 1996
Mars 11	1	208589	Oct. 21, 1996
Mars 19	1	208590	Oct. 21, 1996
Mars 20	1	208591	Oct. 21, 1996
Row	16	208791	Aug. 14, 1995
Syn	8	208601	Nov. 4, 1995
Lake	20	209181	Aug. 11, 1995
Odin	20	209156	Jul. 13, 1995
Tas 1	18	209056	May 23, 1996
Tas 2	15	209057	May 23, 1996
Tas A	1	209138	May 23, 1994
Tas B	1	209139	May 23, 1994
Tas C	1	209140	May 23, 1994
Tas D	1	209141	May 23, 1994
Lupin 1	1	209164	Jul. 27, 1995
Lupin 2	20	209165	Jul. 29, 1995

(Continued)



WESTPINE METALS LTD.
TASEKO PROJECT
CLAIM MAP
E. LAMBERT, GEOL., F.G.A.C.
N.T.S. 920/3W
SCALE:
FIG.
2
DATE: JAN., 1991
DRAWN: E.L./dw
LUPIN
209284
8
9
10
11
12
209289
LUPIN 7
Summit Lakes
5
LUPIN 4
LUPIN 3
ICE
13
15
16
LUPIN 1
TAS D
TAS C
TAS B
TAS A
LUPIN 2
TAS 1
TAS 2
LUPIN 6
209170
NEW GOLD 4
NEW GOLD 1
NEW GOLD 3
209172
NEW GOLD 2
MARS 19
MARS 11
MARS
NEW BUZZ
AMAZON
SYN
ODIN
ROW
SNOW
LAKE
SQUIRREL 2
SQUIRREL 1
RIVER
Battlement Cr.
Honduras Cr.
McClure Cr.
Amazon Cr.
Powell Cr.
Granite Cr.
Rowbottom Cr.
Lower Taseko Lakes
LORD R.
51°05'
123°30'
0 .5 1 2 km

Claim Name	Units	Record #	Expiry Date
Lupin 3	20	209166	Jul. 28, 1994
Lupin 4	18	209167	Jul. 28, 1994
Lupin 5	1	209168	Jul. 28, 1994
Lupin 6	1	209169	Jul. 29, 1996
Lupin 6	4	209170	Jul. 31, 1994
Lupin 7	1	209171	Jul. 29, 1996
Lupin 8	1	209172	Jul. 29, 1996
Lupin 8	1	209284	Jan. 19, 1995
Lupin 9	1	209285	Jan. 19, 1995
Lupin 10	1	209286	Jan. 19, 1995
Lupin 11	1	209287	Jan. 19, 1995
Lupin 12	1	209288	Jan. 19, 1995
Snow	16	209371	Apr. 14, 1996
Ice 1	1	209372	Apr. 14, 1996
Ice 2	1	209373	Apr. 14, 1996
Ice 3	1	209374	Apr. 14, 1996
Ice 4	1	209375	Apr. 14, 1996
Ice 5	1	209376	Apr. 14, 1996
Ice 6	1	209377	Apr. 14, 1996
Ice 7	1	209378	Apr. 14, 1996
Ice 8	1	209379	Apr. 14, 1996
Ice 9	1	209380	Apr. 14, 1996
Ice 10	1	209381	Apr. 14, 1996
Ice 11	1	209382	Apr. 14, 1996
Ice 12	1	209383	Apr. 14, 1996
Ice 13	1	209384	Apr. 14, 1996
Ice 14	1	209385	Apr. 14, 1996
Ice 15	1	209386	Apr. 14, 1996
Ice 16	1	209387	Apr. 14, 1996
Squirrel 1	1	303066	Aug. 02, 1995

PROPERTY HISTORY

1910's-1920's - Between 1909 and 1920, many large, bog-iron deposits were discovered by prospectors in the Taseko Lakes area. These deposits, consisting of bedded limonite, formed as a result of erosion and oxidation of heavily pyritized volcanic rocks (Crossland, 1920). In 1922, copper-gold porphyry mineralization was discovered in the vicinity of the current Taseko Property at the Mohawk and Spokane Showings (see Figure 4; Macrae, 1984). Consolidated Mining and Smelting Co. Ltd. dug numerous trenches and drove cross-cuts on these prospects in 1927-1928 (Quadros, 1981). The Mother Lode, a mineralized zone situated southeast of the Mohawk Showing, was also discovered at this time.

1930's-1960's - Further work was carried out by Taseko Motherlode Gold Mines Ltd. in 1933-1935 on the Mohawk and Spokane Showings. Work was halted after an avalanche destroyed the exploration camp and killed 7 men. No further significant work was performed in the area until 1956 when Canadian Explorations Ltd. conducted additional trenching and preliminary drilling on the Spokane Showing, as well as exploration on the Rowbottom shear zone exposed in Rowbottom Creek. Phelps Dodge (1963) drilled 8 diamond drill holes within an area extending from the Spokane Showing eastward to the Buzzer Showing in a search for Cu-Mo porphyry deposits in granodiorite.

1960's-1970's - From 1969 to 1976, prospects in and adjacent to the Taseko Property (including the Buzzer and Empress Showings) were extensively explored for Cu-Mo porphyry potential by the following companies:

(1) **Scurry Rainbow Oils Ltd. (1969)** - 16 DD holes, geological mapping, trenching, JEM-IP-MAG surveys;

(2) **Sumitomo Metals Mining Canada Ltd. (1970)** - 64 percussion drill holes, geological mapping, 82 km of grid layout, IP-MAG survey, 3550 soil samples;

(3) **Quintana Minerals Corp. (1975 & 1976)** - 9 DD holes, 39 percussion drill holes.

1980's - Esso Resources Canada, Ltd. optioned the property from Scurry Rainbow Oil Ltd. in 1985 and conducted a detailed program of geological mapping, geochemical sampling and geophysical surveying. The thrust of their exploration attempts was to locate economic concentrations of epithermal gold mineralization. No drilling was performed and the option was dropped.

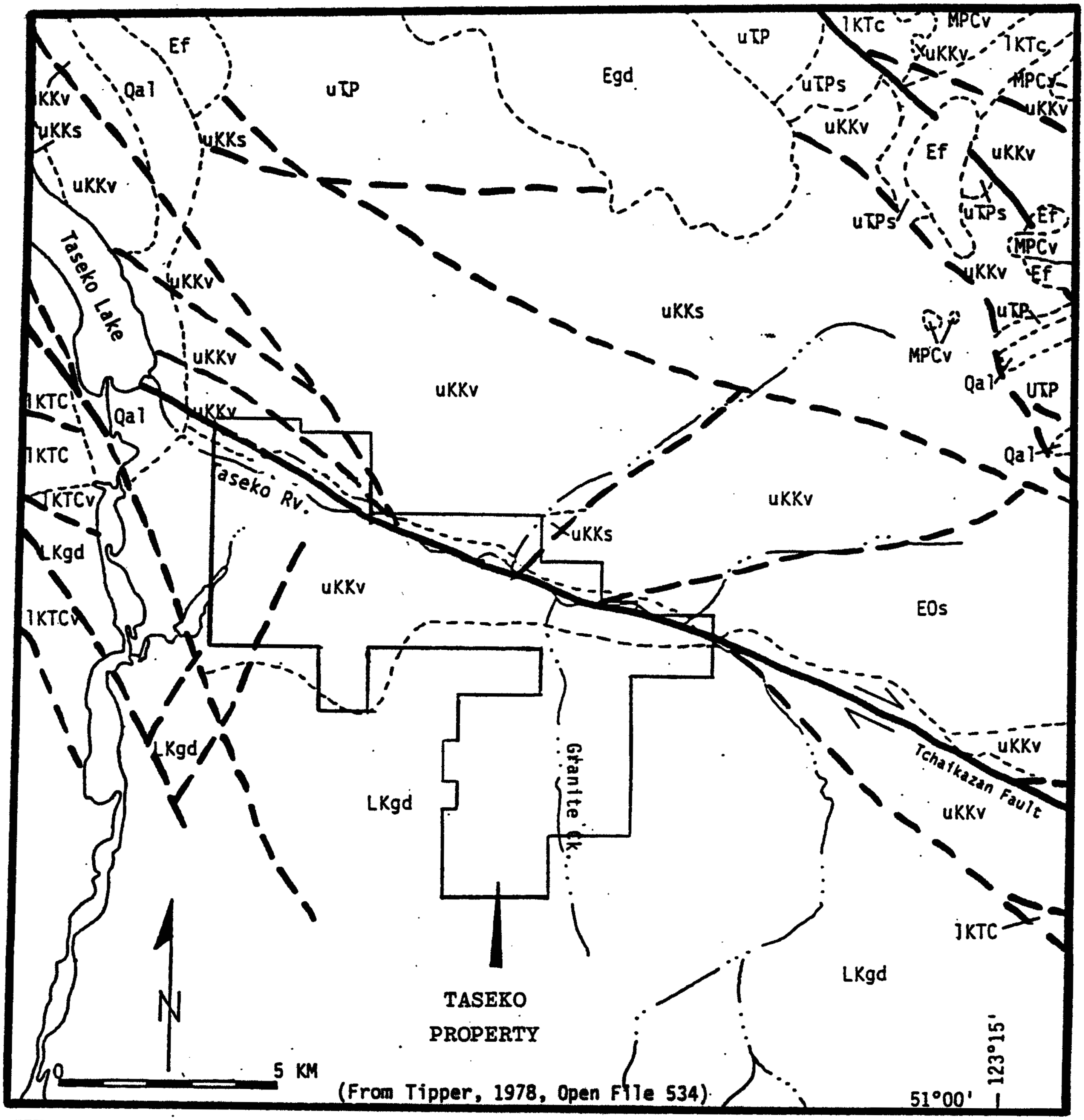
The property was restaked by New World Mines Development Ltd. after Scurry Rainbow allowed it to expire. Alpine Exploration Corporation and Westley Mines Ltd. optioned the property in early 1988. A geochemical, prospecting, geological and diamond drilling program was implemented during that field season. In March 1989, Westley Mines and Alpine Exploration vended their interest in the Taseko Property to Westpine Metals Ltd., and Westpine conducted further geochemical sampling and diamond drilling that summer.

1990's - Westpine entered into an option agreement in the spring of 1990 with ASARCO Exploration Company of Canada Ltd., a wholly owned Canadian subsidiary of ASARCO Inc. (a major U.S.-based, international mining company). Funding for the 1990 and 1991 exploration programs were provided by ASARCO under the terms of the option agreement. Following the 1991 program, ASARCO dropped their option, and the property was dormant in 1992.

REGIONAL GEOLOGIC SETTING AND MINERALIZATION

Regional Geology

The Taseko Property occurs on the northeastern margin of the Coast Plutonic Complex of Jurassic to Cretaceous age (Figure 3; Tipper, 1969 & 1978). Granitic magma of the Coast Plutonic Complex intruded sedimentary and volcanic rocks of Triassic to Cretaceous age. The oldest rocks of the area are basalts, pyroclastics and argillites of the Pioneer Formation, a subdivision of the upper Triassic Cadwallader



Qal	Quaternary Sediments
MPCv	Miocene-Pliocene Chilcotin Gp. Volcanics
EOs	Eocene-Oligocene Sheba Group Volcanics
Ef	Eocene Felsic Intrusives
Egd	Eocene Granodiorite
uKKs	Upper Cretaceous Kingsvale Group Sediments & Volcanics
1KTC	Lower Cretaceous Taylor Creek Group Sediments & Volcanics
LKgd	Late Cretaceous Granodiorite Coast Plutonic Complex (CPC)
uTPs	Upper Triassic Cadwallader Gp. Pioneer Formation
— —	Fault
-----	Geologic Contact

WESTPINE METALS LTD.		
TASEKO PROPERTY		
REGIONAL GEOLOGY		
E.E.LAMBERT,P.GEOL.		
DRAWN: E.E.L./dw	SCALE:	FIG.
DATE: 12/91	N.T.S.920/3W	3

Group, which outcrop 8 km north of the property. Overlying the Cadwallader Group are shales, siltstones, conglomerates, intermediate to mafic flows and pyroclastics of the lower Cretaceous Taylor Creek Group. These rock units are exposed roughly 8 km to the north, east and west of the property. Triassic to lower Cretaceous strata are tightly folded in NW trending folds.

Gently folded upper Cretaceous volcaniclastic sandstones, tuffs and breccias that correlate with the Kingsvale volcanics unconformably overlie the older, deformed strata, and are the predominant units both within and bordering the property to the north, east and west. The volcanic rocks are divided into 5 members (Glover and Schiarizza, 1986). Facies changes along northwest trending normal or strike-slip faults suggest that this volcanic and sedimentary activity occurred within a northwest-trending trough coincident with faulting.

Upper Cretaceous strata are unconformably overlain by rhyolite, dacite and basalt flows and pyroclastic rocks of Eocene age. Locally interstratified conglomerates suggest the Eocene volcanics were erupted synchronously with block-fault graben development. The youngest rock units of the area are andesite and basalt flows and pyroclastics of the upper Miocene and/or Pliocene Chilcotin Group, occurring 10 km northeast of the property.

Intrusive rocks in the Taseko area include quartz diorite to quartz monzonite of the Coast Plutonic Complex (86 Ma), and later stocks and dikes that intrude the Complex and adjacent volcanic-volcaniclastic units. These units occupy the entire southern portion of the area surrounding the property.

Regional Mineralization

Significant mineral deposits in the region east of the Coast Ranges and within 100 km of the Taseko Property are plotted on Figure 1 and include the following (data from MMEPR, 1987, and Taseko Mines Limited 1991 news releases):

(1) **Blackdome:** 254,000 tons: 0.739 oz/ton Au, 2.41 oz/ton Ag

(2) **Bralorne:** 740,000 tons: 0.286 oz/ton Au

(3) **Fish Lake:** 600,000,000 tons: 0.32% Cu, 0.016 oz/ton Au,

(4) **Pellaire:** 67,100 tons: 0.669 oz/ton Au, 2.34 oz/ton Ag

PROPERTY GEOLOGY

Introduction

The Taseko Property and surrounding area has been mapped in detail by a number of company and government geologists (see References). Because of an extensive blanket of glacial till covering most areas below treeline, outcrops are sparse, and geologic mapping has been confined to exposures in creeks and the upper parts of ridges and mountain tops. A wealth of information, however, exists in diamond drill core which totals 36,944' (11,264 m) to date. Detailed geological relationships in the volcanic rock, as described in this report, are based almost entirely on drill-core studies.

Geology

The property consists of Upper Cretaceous volcanic strata (probably correlative with the Kingsvale Group) intruded on the south by Late Cretaceous granodiorite and quartz diorite of the Coast Plutonic Complex (Figure 4; Glover and Schiarizza, 1986; Allen, 1991). The contact between the intrusive and volcanic rock is not exposed but is inferred from drilling to trend roughly east-west across the property. It dips steeply to the north then gently levels off to form a "bench" approximately 400 to 700 feet deep.

An intense alteration zone up to 3 km in width occurs adjacent to the northern perimeter of the batholith and can be traced from 500 m west of Honduras Creek to Big Creek, 10 km to the east (P. Schiarizza, personal comm.). Beyond the alteration zone, unaltered volcanic strata are exposed in prominent cliffs above the Taseko River and in canyon walls of Amazon Creek, Honduras Creek and Taseko River (Allen, 1991). These strata consist of massive to porphyritic andesite flows, pyroclastics and volcaniclastic sediments (McMillan, 1976; Melnyk, 1986). The volcanic strata trend NE to NW and dip between 15-35^{O} north. Breccia pipes, as well as dikes and stocks that post-date the batholith and alteration also occur.

Rock on the Taseko Property can be divided into three basic categories: a mafic to intermediate volcanic package; intrusive rock belonging to the Coast Plutonic Complex, south of the mafic rock; and cross-cutting dikes, stocks and breccia pipes. These units are briefly described below:

(1) **Volcanic Rock**
Outcrops of unaltered volcanic units are mostly observed in Amazon and Honduras Creeks, the canyon area of Taseko River, and north of Taseko River on Battlement Ridge. Dominant lithologies consist of lapilli and crystal tuffs, tuff-breccias and agglomerates, and andesite to dacite flows. Tuffaceous sediments and conglomerates occur locally.

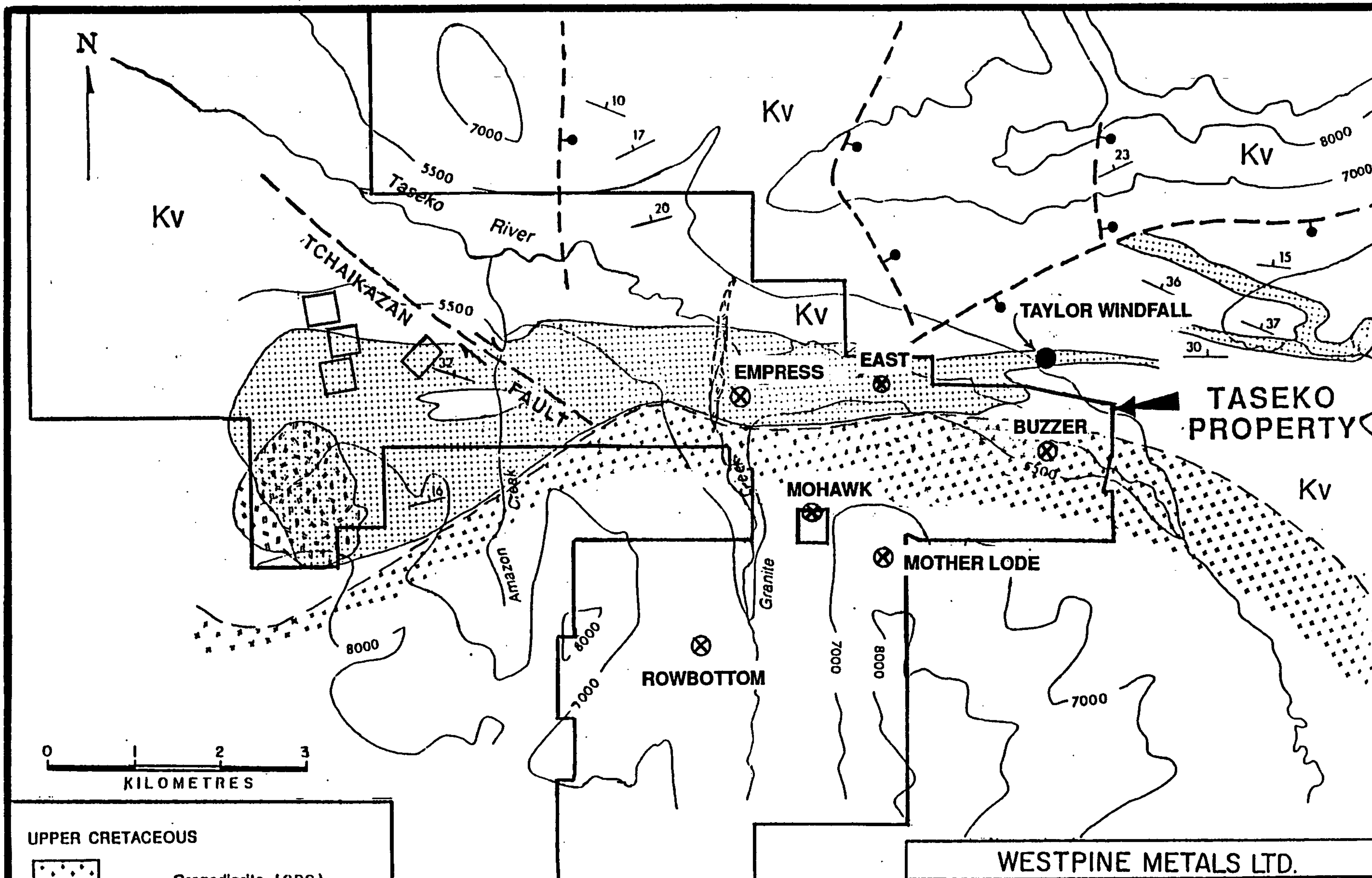
(2) **Intrusive Rock**
Lithologies of the Coast Plutonic Complex include equigranular and porphyritic quartz monzonite, granodiorite and quartz diorite. Quartz diorite and granodiorite were the most common varieties intersected in drill holes. A more thorough description of the intrusive rock occurs under "1993 Mapping Program".

(3) **Dikes, Stocks and Breccia Pipes**
A variety of intrusive rocks cross-cut the plutonic and volcanic units. Dike trends closely match those of prominent joint sets in the area: NW-SE and NE-SW (Nakashima, 1970; Uchida et al., 1970). Following are the most common types:

(A) Andesite: dark green, fine grained, with chilled margins and porphyritic textures (plagioclase phenocrysts) in the centre. Local calcite veins and amygdules. Contacts are either sharp or fault bounded.

(B) Feldspar (-Quartz) Porphyry: white to pinkish feldspar phenocrysts and local quartz eyes and biotite within a very fine grained, light-coloured groundmass. Local strong clay alteration has taken place along shear zones, and quartz-calcite veinlets are common. Contacts with enveloping units are either sharp or fault bounded.

(C) Felsite or Rhyolite: quartz eyes occur in a pale green aphanitic groundmass; flow banding is common, especially along contacts. Variable sericite alteration of groundmass. Locally occupies contacts between other dikes and country rock.



UPPER CRETACEOUS

Granodiorite (CPC)

Porphyritic intrusives

Kv Volcanic rocks (Kingsvale Group)

Hydrothermal alteration quartz-sericite-clay ± pyrite, magnetite

Fault

Geologic contact

Prospect

Past producer

Geology after Glover et al, 1986

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TASEKO PROPERTY

PROPERTY GEOLOGY AND MINERAL SHOWINGS

E.E.LAMBERT,P.GEOL.

DRAWN: E.E.L./dw	SCALE:	FIG.
DATE: December 1991	N.T.S.920/3W	4

(D) Aplite: medium grained, intimate mixture of quartz and plagioclase with graphic, equigranular or porphyritic textures. Contacts are either sharp or fault bounded.

(E) Breccia Pipes: a variety of breccia pipes occurs in the Taseko area. The Mohawk Showing is a breccia pipe that consists of rounded aplite breccia fragments in a quartz-sericite altered matrix containing disseminated pyrite and chalcopyrite. Abundant breccia float occurs 1100 meters east of the Empress Showing in an area called the "Breccia Zone". The float mineralogy is highly variable and consists of angular felsite fragments in one or two of the following matrices: felsitic, magnetite, chlorite, pyrite, pyrite + magnetite, or black tourmaline.

Structure

Fault Zones: Faulting is fairly common throughout all rock types exposed in creeks. The faults generally trend northwesterly (Allen, 1991). Determination of structural elements where there is no outcrop is based on evidence seen in drill core. Two types of fault structures were observed in drill core:

(1) Solid core displaying brecciated textures healed by silica, calcite, hematite or magnetite; faint mylonitic textures were also observed. At least three episodes of brecciation and rehealing and eight episodes of fractures and rehealing were noted in some intervals;

(2) Gouge and gouge-supported rock fragments, or intervals where core recovery is poor and only small rounded rock fragments are recovered.

Both types are common and indicate a complex and pervasive structural history for the area. Present interpretation of these structures is that type (1) breccias represent pre- or syn-alteration fault zones, whereas type (2) gouge and broken-up core represent more recent, post-alteration faults. In many cases, fault zones of type (1) are themselves crosscut by those of type (2), indicating repeated movements along some faults.

Fracturing: fractures filled with a variety of mineral assemblages are common both in outcrop and in drill core. They have been observed to be filled with one or more of the following minerals: quartz, pyrite, chalcopyrite, magnetite, hematite, chlorite, calcite, gypsum and clay.

PROPERTY ALTERATION

A large portion of the Taseko Property covers the 3 km wide alteration zone within the volcanic rocks north of the batholith (see Figure 4). Rocks within this zone have undergone silicification and propylitic, argillic and aluminosilicate alteration. A description of alteration of surface outcrops is found in Allen's (1991) report, and the remainder of this report will concentrate on alteration seen in drill core.

Alteration of rock seen in most drill holes is so intense that determination of original lithologies is impossible. In these strongly altered zones, the degree of alteration and mineral variety is very diverse, often changing over short distances (sometimes only tens of centimetres), which results in a very complex suite of rock types. For this reason many units have been divided and labelled according to the dominant minerals present rather than by protolith (see descriptions below). Enough drilling has been completed in adjacent, less altered areas to indicate that these intensely altered lithologies were most likely original volcanic rocks. One of the main reasons for suspecting this is the preservation of volcanic textures, which include breccias, compositional banding, and porphyritic features.

Overall, the most pervasive type of alteration observed from drilling is a fine grained overprint of quartz and a pale green mica. The green mica occurs locally within the Empress area as coarse clusters and has been identified by x-ray diffraction to be pyrophyllite. Staining of numerous pieces of core from this area showed only minor potassium, which suggests that pyrophyllite is prevalent here. It is not known, however, whether all of the green mica seen throughout the property is pyrophyllite, or if some of it is instead sericite. Pyrophyllite-bearing rocks appear to be an advanced argillic alteration assemblage. Alunite has also been identified in this assemblage from surface outcrops (Bradford, 1985).

Other alteration minerals include quartz, pyrophyllite, andalusite, plagioclase, perthite(?), clay, chlorite, magnetite, hematite, and more rarely corundum. Accessory minerals include dumortierite(?), tourmaline, fluorite, rutile, sericite, apatite, and bastnaesite (a mineral identified by x-ray analysis containing the rare-earth elements lanthanum and cerium). Gypsum, quartz, calcite and white or green clay are common as fracture fillings.

Some totally altered rock units have a consistent mineralogy and are repeatedly encountered in drill holes. The following is a description of these units:

(1) **QAS**[1]: QUARTZ-ANDALUSITE-PYROPHYLLITE ROCK: this rock is characterized by a mainly equigranular texture composed of these three minerals in varying proportions. Additional minerals in QAS include finely disseminated magnetite, clots of chlorite, specks of clay, and gypsum veining (locally up to 1 m in width). It is assumed that QAS represents an altered tuffaceous unit, probably crystal-rich and mafic in original composition.

(2) **PQSA**: PLAGIOCLASE-QUARTZ-PYROPHYLLITE-ANDALUSITE ROCK: rocks of this unit are the most complex mineralogically of any on the property due to multiple interconnected textures and wide diversity of mineral assemblages. It is presumed at this point that the complexity is a result of multiple episodes of fracturing of the QAS unit with additional alteration imposed from subsequent hydrothermal activity. The mineralogy of PQSA consists of plagioclase (which is white, green or pink in colour) and quartz that appear to have been introduced along fractures in QAS. Associated minerals include pyrophyllite, andalusite, magnetite, chlorite, carbonate, corundum, and clay (commonly an alteration product of plagioclase).

(3) **QR**: QUARTZ ROCK: QR is presently thought to represent intense *silicification.* Typical mineralogy consists of over 90% quartz with the remaining 10% being comprised of one or more of the following minerals: interstitial pyrophyllite, clay, magnetite, chlorite, carbonate, rutile, or sphene. The quartz in QR frequently occurs as fine to coarse surrounded grains with a texture resembling quartzite. Numerous volcanic features are perfectly preserved by the quartz and include breccias, compositional banding and welded-tuff textures.

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[1]Note: S stands for pyrophyllite.

(4) QM: QUARTZ-MAGNETITE ROCK: this unit is very similar to QR, but contains greater than 5% magnetite. Chlorite, hematite and sulphides are common in this unit. Magnetite constitutes 10 to 20% by volume of the rock and is locally massive, reaching 50 to 75%. It occurs interstitial to quartz grains or as fracture fillings. Intervals on the order of tens of meters of brecciated QR healed by a magnetite matrix are common. QM is typically the deepest altered unit intersected in drill holes, situated below quartz rock and above quartz diorite.

In addition to these units, vugs are common and contain coarse-grained minerals (>1 cm in size) of white quartz (often as terminated crystals), plagioclase, calcite, books of chlorite, euhedral magnetite and pyrite and gobs of chalcopyrite. Other, more rare minerals are molybdenite, apatite, sphene and rutile.

PROPERTY MINERALIZATION

Copper mineralization is found in four localities on the Taseko Property, historically referred to as the Empress, Buzzer, Rowbottom and Motherlode Showings (Figure 4). In addition to these known showings, preliminary prospecting, geological mapping and drilling in other areas of the property indicate the potential for further mineralized zones.

Empress Showing

Exploration activity from 1988 to 1990 has been concentrated on the Empress Showing. Very little outcrop occurs in the area, and nearly all known information about the Empress mineralization comes from drilling. Sulphides are typically disseminated with minor cross-cutting fractures and include pyrite, chalcopyrite, pyrrhotite, minor molybdenite and rare bornite and native copper. Microscopic examination of gravity concentrates of mineralized core indicates the additional presence of trace galena, sphalerite and free gold (Harris, 1988).

After the 1990 exploration program, three zones were defined as follows:

- **The Lower North Zone** contains the strongest mineralization defined to date. Chalcopyrite occurs disseminated and as fracture fillings in highly altered rock units, varying in abundance from 1-10%. The mineralized zone in which it occurs is neatly compacted into a relatively flat-lying, disc-shaped body. The body is situated about 450' below surface and measures approximately 800' x 900' in area, and 200' in thickness. A mineral inventory calculation for the Lower North Zone estimates 7.45 million tons grading 0.73% copper and 0.024 ounces per ton gold (Peatfield, 1991).

- **The Upper North Zone** is less well defined and consists of spotty mineralization occurring in what appears to be a northeasterly, linear trend. This zone occurs from near surface to roughly 400' in depth, overlying the lower North Zone, with approximate dimensions of 300' x 800' in area, and 400' in depth.

- **The 76 Zone** is situated south of the North Zone and appears to be a near vertical, linear zone trending northeasterly. It is presently felt to be fault controlled. Chalcopyrite is mainly disseminated in strongly altered rocks, and ranges from 1-25% by volume. The zone's dimensions are roughly 150' x 1000' in area, and 350' in depth. It is open to the northeast but apparently is cut off by quartz diorite to the southwest.

A March 1991 preliminary pre-feasibility study by James Askew & Associates, Inc. of Denver, Colorado, calculated in situ resources within the Empress area to be 11,078,000 tons grading 0.61% copper and 0.023 oz/ton gold, using a cut-off of 0.40% copper (not copper equivalent). The Askew report calculates 10,474,000 tons of mineable reserves grading 0.582% copper and 0.022 oz/ton gold with a stripping ratio of 5.9:1. This figure was arrived at using a 10% dilution of in situ resources with a grade of dilution estimated to be 0.20% copper and 0.015 oz/ton gold.

A Bacon Donaldson metallurgical study completed in May, 1991, indicates that mineralization can be treated by conventional milling. Initial testing of the copper-gold core from Hole W90-21 resulted in a recovery of 97.1% copper and 69.3% gold. Bacon Donaldson recommends a microscopic examination of the tailings to determine processing options to recover the rest of the gold which is either free or in pyrite.

Allen (1991) concludes that the alteration and mineralization seen on the Taseko property represents a fossil geothermal or hot spring system, whereas the Empress deposit may be transitional between epithermal and porphyry environments.

Buzzer Showing

Copper-molybdenum mineralization is exposed in numerous trenches at the Buzzer Showing. Assaying of core from some of the holes indicates the additional presence of gold. Sulphides replace mafic minerals and occur as vug and fracture fillings in weakly to strongly altered quartz diorite (McMillan, 1976; Lambert, 1989b). The sulphides consist mainly of chalcopyrite, pyrite and molybdenite. Previous drilling (1963-1970) indicated copper-molybdenum mineralization continues at depth, but two test holes in 1989 failed to confirm this, possibly because the 1989 holes passed below the zone or entered a barren dike or stock of similar composition to the host intrusive. An estimate of grade and tonnage was calculated by Quintana in 1976 as 5.5 million tons of 0.35% Cu and 0.031% Mo.

Rowbottom Showing

Copper-molybdenum mineralization occurs in quartz diorite and consists of chalcopyrite, pyrite, molybdenite and pyrrhotite as replacements of mafic minerals. The only drilling conducted at this showing was performed in 1970 which confirmed that copper-molybdenum mineralization continues at depth. The best intersection was 185 feet of 0.41% Cu and 0.034% Mo.

Motherlode Showing

Bornite, chalcopyrite and magnetite are found disseminated in quartz diorite and hornfels in surface outcrop. Alteration of the two rock types consist of silicification and secondary biotite development. Sumitomo conducted chip sampling across trenches in 1970 and report 2.00% Cu and 0.008% Mo (Nakashima, 1970). The terrain is rugged and no further work has been done on this showing.

1993 DRILLING PROGRAM

The 1993 drill program on the Taseko Property consisted of 720 feet in two holes. The first hole, W91-56, was drilled on coordinates 41+00E - 6+00S and is located 240 feet (72.8 metres) southwest of hole W91-41 between the Empress area and East Zone (Map 1 in the pocket). The objective of the hole was to attempt to locate Empress-type mineralization in the area. W91-41 had intersected 273.5 feet of 0.16% copper from 228.5 to 502 feet.

W93-56 was similar to W91-41 in that it intersected zones of alteration much the same as those found at the Empress area. The hole also intersected 111 feet of 0.16% copper from 70 to 181 feet. From 160 to the end of the hole at 365, a monotonous sequence of plagioclase-andalusite-pyrophyllite was encountered with plagioclase decreasing and pyrophyllite increasing downward. Because mineralization was decreasing downward through this sequence, it was decided to stop the hole.

The second hole, W93-57, was drilled in an area where numerous breccia fragments were mapped in 1991. The fragments occur in an area bounded by lines 60+00 and 66+00E and by 1+00 and 7+00N. The objective of this hole was to locate the occurrence of the breccia and to obtain a sample of it. The location of the breccia was an issue because of the fact that the rock first intersected in drilling in the Taseko area is commonly dissimilar to the fragments of rock found in soil at the surface even though the soil appears to be residual.

The hole was spotted at 62+45E - 5+00N and was angled 75° to the south. This hole can be characterized as being somewhat strange. From 15 to 28 feet, it intersected black, feldspar porphyry with magnetite and xenoliths of breccia. From 28 to 97 feet, the rock consists of non-magnetic, altered andesite. The phenocrysts are not evident from 74 to 91 feet. From 97 to 142 the core consists of dark grey to grey altered andesite with alignment of minerals and partial segregation of light and dark minerals. The breccia zone extends from 142 to 201 feet. This consists mainly of fragments of grey granodiorite with dark grey phenocrysts, aphanitic dark grey felsite and a grey to pinkish felsite. These fragments are in a matrix consisting mainly of chlorite and sericite with some magnetite biotite, quartz and pyrite. From 201 to the end of the hole at 355 feet the rock is a grey granodiorite with dark grey phenocrysts similar to some of the fragments in the breccia.

Pyrite constitutes greater than 5% of the rock from 28to 97 feet and 109 to 142, but it constitutes only about 0.5% of the breccia and 0.2% of the granodiorite. There were few significant assays for gold or copper in rock from this hole, but just a corner of the breccia was intersected.

1993 MAPPING PROGRAM

Introduction

During the first four seasons of exploration (1988, 89, 90 and 91) on the Taseko Property, under the present management, work has been concentrated in the Empress area where copper-gold mineralization occurs in highly altered volcanics overlying granitic rock, and to a lesser degree, in the altered volcanic rock outside of the Empress. The reason for this is that it was thought that the best possibility for discovery of economic mineral deposits was to explore in and around the Empress area and in areas where Empress type mineralization might be duplicated, although the intrusive-hosted Buzzer and Rowbottom zones needed additional work. The description of the intrusive rock intersected by drill holes beneath the mineralized volcanic rock at the Empress did not change the focus. This rock was relatively unaltered without significant mineralization. The task of assessing the potential of the intrusive rock for economic mineralization was not helped by the fact that there is no outcrop for 3,000 feet south of the Empress and very little for 15,000 feet east to the Buzzer.

A number of events in 1991 helped change the focus of exploration to include intrusive rock as well as volcanic rock. First, drill hole W91-47 intersected extensive alteration as well as 297 feet of 0.23% copper in intrusive rock just north of the Empress area in what is called the Granite Creek Zone. Also, fragments of granitic rock with disseminated chalcopyrite and molybdenite were found 2,000 feet southwest of the Buzzer Zone. In addition, it was found that alteration in the intrusive rock below the altered volcanic rock in the East Zone appears to increase to the south. From this information it was concluded that the mineralization and alteration in the area may be related to a huge porphyry copper system. As a result, it was decided to map what granitic rock occurs in order to test this hypothesis. This occurs in outcrop mainly on the mountain south of the Empress area as well as in the Buzzer and Rowbottom areas. The main objective was to attempt to delineate and map different phases of the intrusive to see how they relate to that found at the Buzzer, Rowbottom, Buzzer West and other areas.

Below are the descriptions of various phases of the intrusive identified in mapping the property (See Map 1). The intrusive rock has been divided into four phases on the basis of texture and mineral constituents.

Mapping of the Granitic Rock

The granitic rock occurs in outcrop mainly on the mountain south of the Empress area as well as in the Buzzer and Rowbottom areas.

(A) **Inequigranular Biotite Granodiorite** (Unit 3) This massive unit occurs on the southwest side of Mohawk Mountain. Its total area of occurrence is not known. One traverse to the south indicates that it could underlie a major part of the area there.

(B) **Grey Biotite Quartz Diorite-Granodiorite** (Unit 4) This occurs on the top of Mohawk Mountain in the shape of an hourglass oriented northeast-southwest and ranging from 600 to 1,800 feet wide. It's limit to the southwest is not known because of a lack of outcrop. It consists of subhedral plagioclase from 0.1 to 0.7 cm in diameter in an equigranular matrix of quartz, k-feldspar and biotite. It is grey to dark-grey in colour.

(C) **Mohawk Biotite Granodiorite** (Unit 5) This occurs on the top of Mohawk Mountain where it is found northwest and southeast of Unit 3. It is an inequigranular to porphyritic biotite granodiorite-quartz monzonite. This is pinkish grey in colour with less mafics than is found in other phases. Sub-group 4(a) is similar to the above except for the fact that the texture is distinctly porphyritic.

(D) **Porphyritic Hornblende-Biotite Granodiorite** (Unit 6) This occurs in the southwestern part of the mapped area in the Rowbottom area and southwest. It also occurs to the north, although, because of a lack of outcrop its full extent is not known. It consists of an inequigranular to porphyritic rock with euhedral to subhedral, crowded plagioclase crystals, up to 1 cm long but weighing 0.05 cm, in intensified quartz and orthoclase. The quartz and orthoclase is generally fine-grained and euhedral. Rare miarolitic cavities occur in this rock.

As seen in Map 1, four other rock units occur. Unit 1 consists of mainly intensely altered volcanic and volcano-sedimentary rock. Very little of this occurs in outcrop, and the contact with the intrusive rock is drawn on the basis of drill holes and interpretation of geophysical data. Unit 2 is the quartz monzonite-granodiorite which occurs in the northern part of the map. Little of this occurs in outcrop; it was mainly seen in drill holes in the Empress and East Zones where it is below the volcanic rock. Under the description of the whole rock analysis, the report of which occurs as an addendum to this report, Unit 2 is designated as Group 3 rock whereas Units 3 through 7 fall under Group 4. Unit 7 consists of a leucocratic felsite. It occurs largely in the Buzzer West area and is further described in the next section. Unit 8 consists of feldspar (quartz) porphyry.

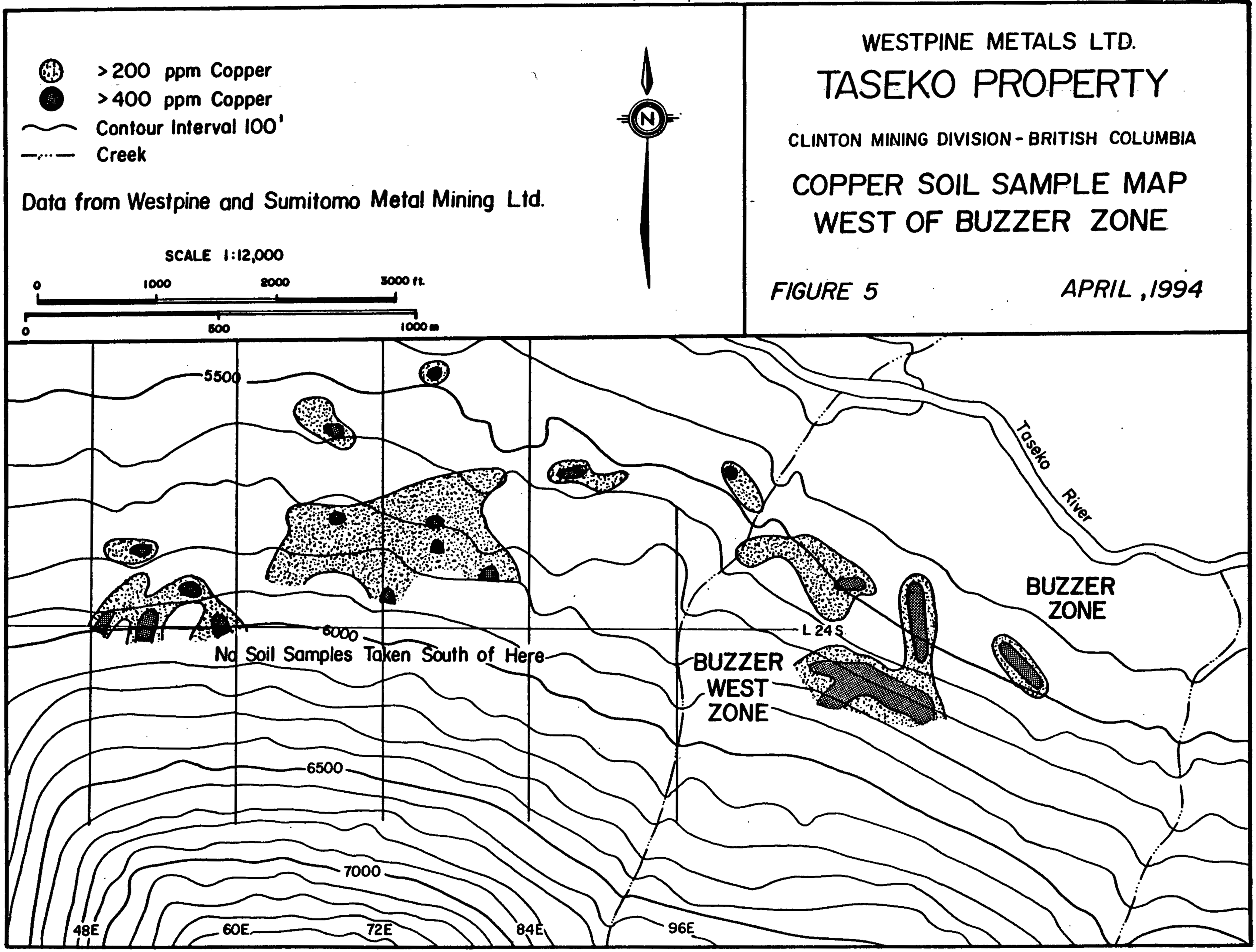
Buzzer West Area

In 1991 disseminated chalcopyrite and molybdenite were found in fine to medium grained, leucocratic granitic fragments 2,000 feet southwest of the Buzzer zone, where 5.5 million tons of 0.35% copper and 0.031% molybdenum is reported to occur. Because this discovery occurred at the end of the program, this mineralization was not followed up. An objective for the 1993 program was to attempt to determine how extensive the mineralization is and to integrate it into the general geological picture.

The discovery in 1991 was the result of an examination of a series of areas of anomalous copper of greater than 200 parts per million, extending for 8,000 feet west of the Buzzer Zone (Figure 5). When investigating the anomalous copper areas, it was found that most were covered by glacial drift consisting of granitic boulders in grey, sandy soil. Little copper mineralization was found in the granitic boulders. It was also discovered that most of the anomalous areas are very damp with numerous small streams, springs, deep moss, etc. It was concluded, as a result, that most of the anomalies are likely transported, and the copper was carried from the rock below through the glacial till to the surface by circulating ground water and then precipitated in the soil.

The 1991 discovery site was the starting point for the 1993 program in the area. It was found that granitic fragments with disseminated chalcopyrite and/or molybdenite could be traced for a length of 900 feet (Map 2 - in the pocket). The rock is generally well weathered with limonite occurring throughout, and it commonly has a dull pinkish cast. On a fresh surface, however, it is a fine grained, leucocratic rock. This is very similar to what has been referred to as a pink altered quartz diorite at the Buzzer which, on the rare, fresh surface, appears to be fine grained and leucocratic. Four rock samples from the area were assayed. They ran from 735 to 3,170 parts per million copper and from 8 to 1,195 parts per million molybdenum. In the area covered, a very fresh quartz monzonite-granodiorite was found to the southwest.

After the information from the 1993 field work was plotted, the soil sampling results from the 1989 program, in an area just east from the location of the mineralized fragments, were added. It can be seen from Map 2 that a copper anomaly of greater than 200 parts per million extends 1,200 feet east from the location of the most easterly mineralized fragment in the Buzzer West Zone. The anomalous values here range up to 1,282 parts per million copper. Strangely enough, the anomaly has a centre with values of less than 100 parts per million copper.



>200 ppm Copper
>400 ppm Copper
Contour Interval 100'
Creek
Data from Westpine and Sumitomo Metal Mining Ltd.
SCALE 1:12,000
0
1000
2000
3000 ft.
0
500
1000 m
N
WESTPINE METALS LTD.
TASEKO PROPERTY
CLINTON MINING DIVISION - BRITISH COLUMBIA
COPPER SOIL SAMPLE MAP
WEST OF BUZZER ZONE
FIGURE 5
APRIL, 1994
5500
6000
6500
7000
Taseko River
BUZZER ZONE
BUZZER WEST ZONE
L 24 S
No Soil Samples Taken South of Here
48E
60E
72E
84E
96E

Experience with geochem results on the Taseko Property has taught the lesson that a large soil anomaly may not necessarily pin-point the source of mineralization, but it does indicate the fact that the source of the copper is nearby. In the Empress area, for example there was a long east-west copper anomaly of greater than 1,000 parts per million copper in "residual soil". Early in the program, angle holes were drilled from opposite directions below this zone along two sections. The result: little copper mineralization was intersected. The conclusion: it seems possible that the glacier moved the soil a short distance. At any rate, subsequent concentrated drilling resulted in success in the Empress area where 11 million tons of 0.61 copper and 0.023 ounces per ton gold have been identified.

With this lesson in mind and keeping in mind the possibility that many of the anomalous zones west of the Buzzer are likely caused by the transport and precipitation of copper in the soil by ground water, it would appear ill-advised to make too strong interpretation from soil sampling results on the precise location of the copper mineralization. What can be said, however, is that because of the size of the area over which the copper soil anomalies occurs, the source of the copper could be very large. As to its grade, that is to be determined.

WHOLE ROCK ANALYSIS

Whole rock analyses were conducted on 48 samples (including 4 duplicates) consisting of samples of intrusive and volcanic rock from the Taseko Property. The results of the whole rock determinations were subjected to Pearce Element Ration Analysis by Hans E. Madeisky. The report by Mr. Madeisky, Lithogeochemical Data Analysis - Taseko Porphyry Cu-Au Project, Central B.C., appears as an addendum to this report. The location of the 48 samples analyzed is shown on Map 1 in the pocket.

RESULTS

The Buzzer West Zone

The most useful results of the 1993 program came from the mapping and the lithogeochemical data analysis. Intrusive rock fragments mineralized with chalcopyrite and molybdenite were traced over a length of 900 feet in an area 2,000 feet southwest of the Buzzer Zone in the Buzzer West Zone. Although soil geochemistry has never been completed in the area where these fragments were found, a large and strong copper anomaly occurs just to the east. This anomaly is part of a large series of copper anomalies that extends for a length of 8,000 feet in an east-west direction. Although it is thought that the copper in these soils over much of these anomalous areas is transported, the source of the copper is thought to be nearby.

Mapping and Lithogeochemical Analysis

This section describes the rock on the property in light of information gained from the lithogeochemical data analyses and the work by Hans E. Madeisky. In previous years rock on the Taseko Property was thought to fall into two broad categories; volcanic and intrusive.

Certainty as to the exact nature of the volcanic rock, in particular, has created much difficulty because of the fact that it has undergone such intense alteration. There has been speculation at times that at least some of this could be highly altered intrusive rock. Briefly, through the logging of drill-core, this altered volcanic rock was broken down in four broad categories, consisting of quartz-andalusite-pyrophyllite, plagioclase-quartz-pyrophyllite-andalusite, quartz and quartz magnetite.

On the basis of an Al_2O_3 VS Zr immobile element scatterplot, a suite of 48 samples of rock (including four duplicates) from the property was analyzed to determine co-genetic groups of rock. A co-genetic group of rocks refers to rock derived from a particular magma batch. The analyses is based on conserved elements or elements where ratios remain constant in a group of rock regardless of the type or intensity of alteration. Plotting the percentages of two conserved elements of a number of different samples from a single co-genetic group of rocks should result in a situation where all points occurring on a line that starts from the origin. The results of this exercise can be seen on Figure 2 on H.A. Madeisky's report. Plotting the results for Al_2O_3 and Zv resulted in the definition of five separate groups. The quartz and quartz-magnetite samples were found to fall in two separate groups (Groups 1 and 2) with both quartz and quartz-magnetite in each one of the groups. The nature of the original rock is not known because of this intense alteration, but it is thought that it is sedimentary in origin.

The intrusive rock was found to fall also into two groups (Groups 3 and 4). These are thought to represent two separate phases of a co-genetic intrusive suite. It is not known for certain which of these two phases came earlier. Although Group 4 is earlier in the fractionation sequence as seen from the graph, this group is the mineralized phase, and it may have originated from a deeper part of the magma chamber at a later time. Group 3 and 4 rocks have rarely been seen in contrast. On the basis of relationships seen in the field and drill core it is thought that Group 3 preceded Group 4. Evidence includes the alteration of Group 3 rock in Hole W91-49 (this was altered by a subsequent intrusive, presumably related to Group 4) and the situation in the Buzzer and Buzzer West areas where Group 4 rock appears to be surrounded by Group 3 rock. It must be noted that two of the three samples (W93-173 and W93-190) of felsite from the Buzzer West do not seem to fit within the groups on the TiO_2 versus Zr Conserved Element Scatterplot. This could include a third phase or may be just due to analytical error.

The volcanics constitute Group 5. One unaltered volcanic sample was included in this group. One of the surprises to come out of this exercise was the fact that a sample of supposedly volcanic origin, consisting of plagioclase-pyrophyllite-andalusite, fell into the intrusive Group 4.

One of the dilemmas posed by this interpretation is the conflict between this study and the mapping. Mapping has delineated five different intrusive phases within Group 4, whereas the lithogeochemical analysis shows two. There could be two different explanations for this. First, the "phases" identified in mapping could merely be variations within one phase of intrusive activity or, on the other hand, the separate mapped phases could be separate phases from the same magma chamber where little fractionation took place between intrusive pulses.

The areal distribution of Group 3 and 4 can be seen on Map I. Information from drill-holes indicates that Group 3 rock occurs below the intensely altered rock in the Empress area, the East zone and also the intervening ground. This is relatively unaltered and unmineralized intrusive rock. One of the interesting possibilities to come out of the lithogeochemical study is the suggestion that the highly altered and mineralized intrusive rock constituting the Granite Creek Zone, which was intersected in two drill holes just northwest of the Empress, also falls into Group 3. This was originally thought to be a separate phase. It now seems likely that the alteration and mineralization appears to have been caused by subsequent intrusive activity related to Group 4 rock or possibly a third phase (Buzzer West or some related rock?).

Group 3 rock also occurs southwest of the Buzzer West and constitutes one of three phases of rock (W93-209) found in the Buzzer area. This is a dense relatively unmineralized, slightly porphyritic granodiorite. One outcrop of Group 3 rock (W93-228) occurs west of the Mohawk Shearing and up from Granite Creek.

The Group 4 in this area constitutes a large "island" of Group 4 rock within Group 3 rock. Because of the fact that it is thought that the large, copper soil anomalies in this area are related to mineralized Group 4 rock below, the outline of the large copper soil anomalies was used to approximate the outline of the Group 4 rock. This area starts at the Buzzer, where Group 4 felsite and porphyritic quartz diorite occur, extends southwest 2,000 feet to the Buzzer West area and continues west for another 6,000 feet. The width of the outlined area as drawn ranges from 800 to 1,500 feet. Soil sampling, however, was discontinued to the south over the western portion of the area because of a slide and the anomalous area remains open to the south so the width of proposed Group 4 rock could be greater than shown here. The contact between Group 3 and 4 is not shown on Map 1 where it falls under the altered volcanic rock. If geochem could be used to approximate the contact, this would increase the width of Group 4 rock here to up to 2,000 feet.

The conclusion of the Madeisky report states that there are two distinct, probably unrelated, styles of mineralization. The first, gold, silver, copper, occurs in the Group 4 intrusive rock and Group 5, volcanic rock where it is associated with significant alkali loss, calcium metasomatism and some silicification. Molybdenum also occurs in Group 4 rock. The second style of mineralization consists of gold, silver and copper, probably associated with pervasive silicification in one of the sediment groups, Group 2.

Diamond Drilling

A small drilling program was carried out in 1993 with two short holes. 111 feet of 0.16% copper was intersected in W93-56 between the Empress and East Zone, although the hole was not drilled down to the granitic rock. Hole W93-57 located the source of breccia fragments, located northeast of the East Zone.

RECOMMENDATIONS

A $300,000 program is recommended for the property in 1994. This would include 9,000 feet of diamond drilling. The primary goal would be to test the area of the granitic fragments mineralized with chalcopyrite and molybdenite which were found in the Buzzer West area. If this plan meets with success, drilling could continue to test the series of copper soil anomalies that extend from the Buzzer for 8,000 feet. No hole has ever been drilled west of the Buzzer Zone in this area of copper soil anomalies.

Other areas requiring drilling include that following:

Empress Area:	Further drilling is needed to investigate the zones with the Empress area to the northeast. and east.
Granite Creek and East Zone:	Drilling is required to follow mineralization which was intersected on previous holes.
Breccia Area	At least one more hole should be drilled into the Breccia zone to locate the source of the anomalous gold found on the surface.
Follow-up Investigations:	Additional holes are recommended to follow-up copper-gold mineralization encountered in areas where only one hole was drilled in 1991. These include areas around holes W91-40, 41,44 and 47.

More work is also recommended for lithogeochemical analysis with interpretation of results through Pearce Element Ratios. For the original analysis, only limited samples were tested within the highly altered rock of the Empress area. Additional samples need to be analyzed here, especially on the plagioclase-pyrophyllite-andalusite rock to see if this is truly intrusive in nature.

Finally, mapping of the intrusive rock should be completed with concurrent lithogeochemical analyses of samples.

STATEMENT OF COSTS

Field Personnel		$	**10,135**
W. Osborne, geologist: 21.5 days at $390 per day	8,385		
D. Allen, geologist: 5 days at $350 per day	1,750		
Diamond Drilling		$	**17,388**
Diamond Drilling (720 feet at $18 per foot)	12,960		
Mob-Demob	2,500		
Core boxes	320		
Bulldozer	390		
Camp Costs	1,218		
Laboratory Analysis of Samples		$	**982**
Transportation		$	**2,188**
Helicopter	1,803		
Vehicle	282		
Freight	103		
Lithogeochemical Analysis		$	**5,883**
Preparation of Samples and Pearce element ratio analysis and interpretation	4,060		
Analysis of Samples	1,823		
Equipment, Supplies and Miscellaneous		$	**93**
Report Preparation		$	**2,975**
Report writing	2,675		
Drafting	150		
Reproduction	150		
		$	39,644

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STATEMENT OF QUALIFICATIONS

I, Willis W. Osborne of 905 - 2324 West First Avenue, Vancouver, British Columbia, hereby certify that:

1. I am a Fellow of the Geological Association of Canada.

2. I have a B.Sc. in geology from the University of Minnesota (1961) and a M.Sc. in geology from the University of British Columbia (1966).

3. I have practiced as a geologist full and part-time since 1963 in Canada and the United States. Since 1980 I have managed small companies involved in mineral exploration as well as being involved in the geological end.

4. I am the Chief Executive Officer of Westpine Metals Ltd. as well as acting as a Director and the Corporate Secretary. I own 157,667 shares in Westpine as well as an option on 107,000 shares.

5. I have been responsible for managing the program on the Taseko Property from 1988 through 1991 and 1992. My management style is a hands-on approach. This report is based on all of the data available on the Taseko Property as well as the experience picked-up over the years on the project.

April 12, 1994

Willis W. Osborne
M.Sc., FGAC

APPENDIX

1993 Summary Drill Logs

1993 Drill-Core Sample Numbers and Cu-Au-Ag Assays

1993 Assay Certificates of Drill-Core Samples

1993 Rock Sample Descriptions

1993 Assay Certificate of Rock Samples

SUMMARY DRILL LOG

HOLE 93-56

Azimuth:	41+00E - 6+00S
Dip:	-90°
Depth:	365 feet (110.7 metres)

INTERVAL (feet)	DESCRIPTION
0 - 15	**OVERBURDEN**
15 - 52	**PLAGIOCLASE-QUARTZ-PYROPHYLLITE ROCK:** Quartz most common above 41; plagioclase below. Pyrite and chalcopyrite is spotty. 0.6% pyrite
52 - 76	**PLAGIOCLASE-PYROPHYLLITE-ANDALUSITE ROCK:** Some of the plagioclase has been altered to andalusite and pyrophyllite. 0.5% pyrite.
76 - 86	Similar to above with quartz. 0.7% pyrite.
86 - 117	**QUARTZ MAGNETITE ROCK:** Some chlorite. Magnetite is in fractures and disseminated. Local breccia. 0.1% pyrite to 90; 1% pyrite to 97 and 3% pyrite to end.
117 - 121.5	**QUARTZ-PYROPHYLLITE ROCK:** 2.5% pyrite
121.5 - 125.5	**PLAGIOCLASE-PYROPHYLLITE-ANDALUSITE ROCK:** 0.4% pyrite.
125.5 - 141	**PLAGIOCLASE-PYROPHYLLITE-ANDALUSITE ROCK:** The rock in this section appears to be flooded by a quartz-plagioclase (?) combination. The original plagioclase is multi-coloured (light grey, light pink, tan and light orange). 0.4% pyrite.
141 - 160	Similar to above. This section of rock is well broken with gouge along fractures. 0.4% pyrite.
160 - 181	**ANDALUSITE-PYROPHYLLITE ROCK:** Quartz alteration along some fractures. 7% pyrite to 173; 3% pyrite to end. From 175 to end, 2% magnetite.
181 - 186	**ANDALUSITE-PYROPHYLLITE ROCK:** 5% magnetite, 0.4% pyrite.
186 - 227	**PLAGIOCLASE ROCK:** Zones of silicification. 5% magnetite is disseminated. It is also along fractures and along the rose quartz veins. 0.2% pyrite.

227 - 250	Mixed zones of plagioclase and andalusite-pyrophyllite. 4% magnetite in fractures. It appears that the plagioclase shows alteration to andalusite-pyrophyllite along fractures? 1.5% pyrite to 291, 0.2 to 245 and 0.7 to end.
250 - 299	**ANDALUSITE-PYROPHYLLITE ROCK:** Rock with small zones of plagioclase. 0.7% pyrite to 286 and 1.6% to end.
299 - 314	**ANDALUSITE-PYROPHYLLITE ROCK:** With zones of fractured rock. 1% magnetite. 1.3% pyrite.
314 - 334	**PLAGIOCLASE** with lesser amounts of andalusite and pyrophyllite. 4% magnetite. 0.3% pyrite.
334 - 337	**ANDESITE PORPHYRY WITH PLAGIOCLASE PHENOCRYSTS:** Specks of hematite.
337 - 352	**PLAGIOCLASE,** partly altered to andalusite and pyrophyllite with chlorite along fractures. 2% magnetite. 02% pyrite.
352 - 365	**ANDALUSITE ROCK:** Pyrophyllite increases down. Some plagioclase on top. 1% magnetite. 1.4% pyrite.

HOLE 93-57

Azimuth: 62+45E - 5+00N

Dip: -75°

Depth: 355 feet

INTERVAL (feet)	DESCRIPTION
0 - 15	**OVERBURDEN**
15 - 28	Black feldspar porphyry with feldspar phenocrysts. Xenoliths of breccia. The xenoliths consist of quartz, sericite and pyrite, and sericite, quartz and pyrite along fractures. 4% magnetite in feldspar porphyry. 0.3% pyrite.
28 - 72.5	Porphyritic andesite with partial alteration to quartz-sericite-pyrite. 7% pyrite. A few quartz veinlets.
72.5 - 74	Gougy fault zone.
74 - 91	**ANDESITE (?):** Highly altered to quartz-sericite-pyrite. Feldspar phenocrysts occur only locally. 12% pyrite to 83; 5% to end.

91 - 97	**ALTERED PORPHYRITE ANDESITE:** Strange rectangular fragments of quartz. 1.4% pyrite.
97 - 109	**DARK GREY ANDESITE:** This shows a discernible alignment and segregation of light coloured minerals. 1.2% pyrite.
109 - 128	**GREY TO DARK GREY DACITE:** Alignment and segregation of light minerals more pronounced then above. 7 bands of a felsic dikelet at 119. A broad stockwork of quartz veins from 114 to 125. 3.5% pyrite.
128 - 136	**GREY TO DARK GREY DACITE:** Moderately propylitized. 6% magnetite. 5% pyrite.
136 - 142	**DACITE:** Weakly to moderately propylitized. Pronounced alignment and segregation of light and dark minerals. 8% magnetite. 6% pyrite.
142 - 201	**BRECCIA:** Fragments of grey granodiorite porphyry with dark grey plagioclase phenocrysts, aphanite dark grey felsite and grey to pinkish felsite occur in a matrix of chlorite and sericite with some magnetite, biotite, quartz and pyrite. 0.5% pyrite.
201 - 355	**GREY GRANODIORITE PORPHYRY:** Phenocrysts of dark grey plagioclase. 0.2% pyrite.

ASSAY DRILL LOG FOR DOH W93-56

Coordinates: 41 + 00 E
6 + 00 S

Bearing: -
Inclination: -90°

Collar Elevation: 5,472
Total Depth: 365 feet

Sample No.	From	To	Interval	Cu (ppm)	Au (ppb)	Ag (ppm)
NS	0	15	15			
93001	15	21	6	92	<5	<0.1
93002	21	27	6	224	10	<0.1
93003	27	33	6	150	10	<0.1
93004	33	39	6	183	20	<0.1
93005	39	45	6	162	<5	<0.1
93006	45	52	7	248	<5	<0.1
93007	52	58	6	351	<5	<0.1
93008	58	64	6	417	10	0.1
93009	64	70	6	461	30	0.1
93010	70	76	6	2150	100	1.0
93011	76	81	5	1808	60	0.5
93012	81	86	5	1750	130	0.3
93013	86	92	6	991	40	0.1
93014	92	97	5	2048	230	0.6
93015	97	103	6	2031	90	0.3
93016	103	110	7	2842	120	0.4
93017	110	117	7	3297	200	0.7
93018	117	125	8	1520	300	0.6
93019	125	132	7	725	40	0.2
93020	132	139	7	261	10	<0.1
93021	139	146	7	657	30	0.3
93022	146	153	7	1426	80	0.4
93023	153	160	7	1155	40	0.7
93024	160	166	6	331	30	0.1
93025	166	173	7	210	10	0.1
93026	173	181	8	3222	260	1.5
93027	181	188	7	635	10	0.1
93028	188	195	7	999	30	0.6
93029	195	202	7	252	20	0.1
93030	202	210	8	732	40	0.2
93031	210	216	6	961	50	0.3
NS	216	272	56			
93032	272	278	6	278	10	0.3
NS	278	302	24			
93033	302	308	6	392	10	0.2
NS	308	357	49			
93034	357	363	7	454	20	0.2
NS	363	365	2			

ASSAY DRILL LOG FOR DOH W93-57

Coordinates: 62 + 45 E
5 + 05 n

Bearing: 180
Inclination: -70°

Collar Elevation: 5,315
Total Depth: 355 feet

Sample No.	From	To	Interval	Cu (ppm)	Au (ppb)	Ag (ppm)
NS	0	15	15			
93035	15	22	7	112	20	0.1
93036	22	28	6	131	30	0.1
93037	28	33	5	677	190	0.2
93038	33	40	7	69	90	0.1
93039	40	46	6	152	40	0.1
93040	46	51	5	1518	80	0.8
NS	51	123	72			
93041	123	129	6	360	20	<0.1
93042	129	136	7	171	30	<0.1
93043	136	141	5	139	50	<0.1
93044	141	148	7	162	30	<0.1
93045	148	155	7	148	30	<0.1
93046	155	162	7	156	30	<0.1
93047	162	169	7	92	20	<0.1
93048	169	176	7			
93049	176	183	7	87	40	<0.1
93050	183	190	7	135	30	<0.1
93051	190	197	7	69	10	<0.1
NS	197	355	158			

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ICAP GEOCHEMICAL ANALYSIS

A .5 gram sample is digested with 5 ml of 3:1:2 HCL to HNO_3 to H_2O at 95 °C for 90 minutes and is diluted to 10 ml with water.
This leach is partial for Al, Ba, Ca, Cr, Fe, K, Mg, Mn, Na, P, Sn, Sr and W.

ANALYST: [signature]

REPORT #: 930045 PA ALPINE EXPLORATION CORP. PROJECT: None Given DATE IN: JUNE 11 1993 DATE OUT: JUNE 14 1993 ATTENTION: MR. BILL OSBORNE

Sample Name	Ag	Al	As	*Au	Ba	Bi	Ca	Cd	Co	Cr	Cu	Fe	K	Mg	Mn	Mo	Na	Ni	P	Pb	Sb	Sn	Sr	U	W	Zn
	ppm	%	ppm	ppb	ppm	ppm	%	ppm	ppm	ppm	ppm	%	%	%	ppm	ppm	%	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm
W93-013	0.1	1.11	<3	<5	168	<3	0.27	<0.1	12	60	11	2.89	<0.01	0.31	869	8	0.04	25	0.04	6	<2	<2	24	<5	<3	51
W93-014	0.2	1.84	<3	10	103	3	0.31	<0.1	24	85	36	4.43	<0.01	0.86	683	7	0.05	51	0.06	9	<2	<2	20	<5	<3	94
W93-015	1.3	1.06	<3	190	78	<3	0.12	0.2	22	97	55	3.81	<0.01	0.41	942	4	0.04	61	0.04	19	<2	<2	12	6	<3	123
W93-017	0.1	1.61	<3	<5	100	<3	0.20	<0.1	20	78	28	3.83	<0.01	0.72	706	2	0.04	34	0.04	5	<2	<2	16	<5	<3	81
W93-019	0.2	2.08	<3	10	89	<3	0.28	<0.1	27	91	23	4.70	<0.01	1.11	907	6	0.03	44	0.04	18	<2	<2	17	<5	<3	88
W93-021	0.1	1.78	<3	10	109	<3	0.25	<0.1	22	71	30	4.25	<0.01	0.82	696	4	0.05	48	0.05	6	<2	<2	19	<5	<3	94
W93-022	0.2	3.21	<3	40	70	<3	0.47	<0.1	39	133	60	6.13	<0.01	1.89	1109	8	<0.01	62	0.06	<2	<2	<2	16	<5	<3	103
W93-024	0.1	1.96	<3	<5	99	<3	0.18	<0.1	21	82	27	4.16	<0.01	0.89	816	5	0.03	40	0.05	7	<2	<2	15	<5	<3	90
W93-026	0.3	1.03	24	360	86	<3	0.10	<0.1	15	83	25	3.05	<0.01	0.38	728	4	0.04	33	0.04	16	<2	<2	12	<5	<3	76
W93-027	0.2	0.90	<3	10	76	<3	0.08	<0.1	13	54	23	3.05	<0.01	0.30	519	5	0.04	29	0.04	14	<2	<2	11	6	<3	62
W93-031	0.1	2.22	<3	<5	116	<3	0.15	0.1	11	48	19	3.73	<0.01	0.63	263	8	0.04	25	0.03	28	<2	<2	17	<5	<3	83
W93-033	0.2	2.66	<3	<5	141	<3	0.16	<0.1	22	59	25	4.51	<0.01	0.81	527	7	0.03	43	0.04	15	<2	<2	19	<5	<3	93
W93-035	0.3	2.35	<3	40	195	<3	0.65	<0.1	22	89	35	5.01	<0.01	0.88	855	6	0.01	58	0.09	177	<2	<2	33	<5	<3	132
Minimum Detection	0.1	0.01	3	5	1	3	0.01	0.1	1	1	1	0.01	0.01	0.01	1	1	0.01	1	0.01	2	2	2	1	5	3	1
Maximum Detection	50.0	10.00	2000	10000	1000	1000	10.00	1000.0	20000	1000	20000	10.00	10.00	10.00	20000	1000	10.00	20000	10.00	20000	2000	1000	10000	100	1000	20000

< - Less Than Minimum > - Greater Than Maximum is - Insufficient Sample ns - No Sample *Au Analysis Done By Fire Assay Concentration / AAS Finish.

1993 ROCK SAMPLE DESCRIPTIONS

W93 - 170	Fine grained, pinkish-tan granitic rock with some clay alteration. Chalcopyrite and pyrite, disseminated and possibly along fractures. Moderately well weathered with limonite and some pyrolusite and malachite.
W93 - 176	Similar to W93 - 170 with molybdenite in fractures and disseminated. Weakly weathered.
W93 - 177	Same as W93 - 170 with molybdenite. In some areas the mineralization is associated with magnetite.
W93 - 185	Breccia. Cream coloured aphanitic fragments in a granitic matrix.
W93 - 193	Similar to W93 - 185 with moderate limonite.
W93 - 223	Probably Mohawk granodiorite with veins of magnetite and actinolite.

[redacted]
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ICAP GEOCHEMICAL ANALYSIS

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This leach is partial for Al, Ba, Ca, Cr, Fe, K, Mg, Mn, Na, P, Sn, Sr and W.

ANALYST: [signature]

REPORT #: 930154 PA   ALPINE EXPLORATION CORP.   PROJECT: None Given   DATE IN: DEC 14 1993   DATE OUT: DEC 15 1993   ATTENTION: MR. BILL OSBORNE

Sample Name	Ag	Al	As	Ba	Bi	Ca	Cd	Co	Cr	Cu	Fe	K	Mg	Mn	Mo	Na	Ni	P	Pb	Sb	Sn	Sr	U	W	Zn
	ppm	%	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	%	%	ppm	ppm	%	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm
W93-170	0.9	0.53	35	879	<3	1.03	<0.1	6	52	825	1.36	0.36	0.06	262	24	0.07	<1	0.03	8	11	<2	49	<5	<3	24
W93-176	1.2	0.50	13	545	<3	1.07	<0.1	10	42	247	1.41	0.28	0.20	248	63	0.07	4	0.03	4	<2	<2	24	<5	<3	28
W93-177	0.9	0.52	13	862	9	1.18	<0.1	4	39	960	1.22	0.26	0.38	251	364	0.07	<1	0.03	2	<2	<2	30	<5	<3	25
W93-185	0.3	1.07	13	755	6	2.43	<0.1	9	34	35	2.03	<0.01	0.61	826	8	0.05	9	0.04	<2	<2	<2	49	<5	<3	38
W93-193	0.1	0.57	39	184	5	0.82	<0.1	7	44	91	1.94	0.15	0.20	536	4	0.08	3	0.03	5	<2	<2	24	<5	<3	26
W93-223	0.8	0.79	29	57	<3	1.39	<0.1	25	56	177	>10	<0.01	0.79	701	7	0.15	24	0.01	19	<2	<2	26	<5	<3	59
Minimum Detection	0.1	0.01	3	1	3	0.01	0.1	1	1	1	0.01	0.01	0.01	1	1	0.01	1	0.01	2	2	2	1	5	3	1
Maximum Detection	50.0	10.00	2000	1000	1000	10.00	1000.0	20000	1000	20000	10.00	10.00	10.00	20000	1000	10.00	20000	10.00	20000	2000	1000	10000	100	1000	20000

< - Less Than Minimum   > - Greater Than Maximum   is - Insufficient Sample   ns - No Sample   ANOMALOUS RESULTS - Further Analyses By Alternate Methods Suggested.

ADDENDUM

Report by: H.E. Madeisky, M.Sc., DIC, P.Geo.

Subject: Lithogeochemical Data Analysis - Taseko Porphyry Cu-Au Project, Central B.C.

HEMAC Exploration Ltd.
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REPORT

To: W.W. Osborne, C.E.O. - Westpine Metals Ltd.

From: H.E. Madeisky MSc DIC PGeo

Date: 20 February 1994

Subject: **Lithogeochemical Data Analysis - Taseko Porphyry Cu-Au Project, Central B.C.**

Pearce element ratio (PER) analysis of 48 samples (including 4 duplicates) representing various rock types from the Taseko project has been completed. The objective was to determine which samples belong to co-genetic groups, to examine the relationship of Cu-Au mineralization to one or more of these groups, and where possible to determine the nature and the extent of the hydrothermal alteration associated with mineralization. In addition, seven specific questions were to be answered:

1. Are intrusives (I-1) through (I-5) really different phases?
2. To which phase is the Buzzer quartz-diorite (W93-207) related?Is it related to the Rowbottom phase (intrusive I-4)?
3. Does Buzzer sample W93-209 fit anywhere?
4. How does the Buzzer "altered" felsite compare with the Buzzer West samples?
5. Where do the various intrusive drill-core samples fit into the intrusive picture?
6. With which phase does intrusive (I-?) fit?
7. What does the whole-rock analysis show about the Volcanic (?) rocks?

Lithogeochemical data and PER analysis on diskette

The results of the PER analysis are summarized in this report. A complete set of assays and PER analysis data is in the QUATTRO PRO 4™ spreadsheet file TASEKO.WQ!, which along with this report, WP5.1™ file TASEKO-1.RPT, are on the attached diskette. In addition to the diagrams in this report, a comprehensive set of PER analysis diagrams is combined into a slide show in the spreadsheet file. These diagrams may be viewed by loading the file, and invoking the /GRAPH/Name/Slide command to launch the slide show. Pressing any key or clicking the left mouse button advances through the slides, pressing the <BACKSPACE> key or clicking the right mouse button returns to the previous slide (graph) to the screen. A list of graph names and descriptions is appended. Diagrams can be viewed through the /GRAPH/Name/Display/graph name command, and can be printed by using the /PRINT menu in the spreadsheet.

Analytical procedures

All 48 samples were analyzed by Chemex Labs, using their XRF Whole-Rock Package (A-412) for SiO_2, Al_2O_3, CaO, Cr_2O_3, Fe_2O_3, K_2O, MnO, Na_2O, P_2O_5, TiO_2, Ba, Nb, Rb, Sr, Y and Zr determinations. In addition, their standard ICP-32 Package was used for Ag, Al, As, Ba, Be, Bi, Ca, Cd, Co, Cr, Cu, Fe, Ga, Hg, K, La, Mg, Mn, Mo, Na, Ni, P, Pb, Sb, Sc, Sr, Ti, Tl, U, V, W and Zn determinations. Au concentrations were determined using a Fire Assay - AA finish procedure. The accuracy of the high quality whole-rock XRF procedure is necessary for PER analysis (or for any other data analysis of this type). The aqua-regia ICP procedure, despite reasonable detection limits of the elements in solution, is severely handicapped by the incomplete digestion of elements bound up in silicate and other refractory minerals. And although some useful information can be obtained from the ICP data, in particular the base metal concentrations, it cannot be used to construct fractionation, molar co-variation, or mixing models for PER analysis. This particular method of lithogeochemical data analysis depends on accurate analyses of major oxides and certain (conserved) trace elements, as well as on reasonably good analyses of base, precious, and pathfinder metals. And therefore all three analytical procedures (XRF whole-rock, 32 element ICP, and FA-AA for Au) will need to be used. It may be more efficient (and economical) to combine these three procedures into one, however at present no commercial lab is offering such an option.

PER analysis

In addition to measurement error (i.e., nugget effect, analytical inaccuracies, bias) and closure, two other fundamentally different sources of geochemical variability exist in altered host rocks of hydrothermal mineralization: i) rock-forming processes which are petrologically controlled, and ii) metasomatism which is controlled by mineral stability and solubility in hydrothermal fluids. PER analysis uses linear variation diagrams to model the petrologically controlled variation in host rocks, and uses the residuals to these petrologic models to characterize and quantify hydrothermal alteration. By removing the background petrologic variations, geochemical contrast is substantially improved, and even the effects of weak hydrothermal alteration can be recognized. Using either PER or molar co-variation models, metal deposition can be correlated with specific hydrothermal alteration facies. By quantifying metasomatism, PER analysis can provide lithogeochemical vectors which can point to the core of a hydrothermal system, and to potential mineralization.

PER analysis requires that three basic assumptions be met: i) the rocks must be derived from a homogeneous source (i.e., from a single co-genetic group), ii) at least one, but preferably more, conserved elements must be present in these rocks (used to identify co-genetic groups, to overcome the effect of closure, and to monitor mass changes), and iii) mass transfer processes must have acted on these rocks (i.e., fractionation, metasomatism) to produce the geochemical heterogeneity now present in these rocks.

Conserved elements and co-genetic groups

Before proceeding with an analysis of lithogeochemical data, and especially when igneous rocks are involved, it is necessary to determine which samples belong to a co-genetic group (i.e., to a particular magma batch). It makes no sense to compare the geochemical variability among rock samples coming from different co-genetic groups, because that variability may well be a function of the different chemistries of separate co-genetic groups to begin with. Often, but not always, individual co-genetic groups can be identified by unique constant conserved element ratios. Whenever possible, several conserved element pairs should be examined to confirm a co-genetic group. The conserved nature of elements and the existence of co-genetic groups is determined by examining the behaviour of concentrations of conserved elements on an X-Y scatterplot (TiO_2, Nb, Y vs. Zr). If, given analytical error, the data plot either at a single point, or form an array co-linear with the origin, then these elements are conserved, and those samples which plot at that point, or lie within that linear array belong to a co-genetic group. When no conserved element pair is present in the rocks, then the conserved nature of an element must be assumed on the basis of geochemical knowledge (e.g., Zr has a K_D near zero and is insoluble in hydrothermal fluids - that's why it is so difficult to take Zr into solution using acid digestion techniques), and co-genetic groups of rocks must then be identified on the basis of field relationships.

The XRF whole-rock data include analyses of TiO_2, P_2O_5, Nb, Y and Zr, all of which are potentially conserved elements. Each of these elements was plotted against Zr (the element most likely to be conserved). Both, the Nb vs. Zr, and the Y vs. Zr scatterplots are inconclusive, failing to yield distinct data groupings probably because of analytical error in Nb and Y determinations. On the P_2O_5 vs. Zr scatterplot the un-altered intrusives form a cluster roughly co-linear with the origin. The remaining data are scattered.

Figure 1 is a TiO_2 vs. Zr conserved element scatterplot on which one distinct (3 & 4), and one less distinct (5) group of data can be recognized. With the exception of two felsite samples (W93-173 and W93-190), all other intrusive rocks plot along a single array co-linear with the origin, with a TiO_2:Zr ratio of about 0.003. The other group is more scattered, has a higher TiO_2:Zr ratio of about 0.006, and includes a sample (W90-34 206-207) identified as an un-altered volcanic rock. The remaining samples are scattered. On the basis of this scatterplot the following conclusions can be reached: i) the intrusive samples (with two possible exceptions) were all taken from a single co-genetic suite, and Ti and Zr are conserved in this group of rocks; ii) a second group of co-genetic rocks exists among the samples (based on the higher TiO_2:Zr ratio they are probably mafic to intermediate volcanics), and Ti and Zr may be conserved; and iii) the strongly altered rocks do not form a coherent group, either because they are not related or because Ti or Zr are not conserved, or all of the above.

Figure 2 is an Al_2O_3 vs. Zr immobile element scatterplot used to identify individual intrusive phases. Given that Zr is conserved, and that the composition of this intrusive suite varies as a consequence of feldspar and quartz fractionation (both are present as phenocryst phases in these rocks), then as these rocks become more evolved the Zr concentration increases, accompanied by a gradual decrease in Al_2O_3 concentration. This general relationship has been used to very good effect as a chemo-stratigraphic correlation tool in volcanic rocks of the Noranda camp. The negative trend with the Y-axis intercept represents igneous fractionation. The positive trends through the origin are a consequence of simultaneous dilution or enrichment of Al_2O_3 and Zr by some mass transfer process not involving either of these two elements. This other process could be fractionation or crystal sorting of mafic minerals or quartz, metasomatic gains or losses, or mixing. Five positively sloping linear trends (1 - 5) are distinguished on this scatterplot. Trends 1 and 2 are formed by the strongly altered (silicified) rocks identified as QR, QM and QMC, and are probably mixing lines. What these rocks were before they became altered and silicified is difficult to say. Considering the magnitude and the range of Zr and TiO_2 concentrations, and the fact that these rocks do not plot within either co-genetic group, it is not likely that these rocks are derived from either the intrusive or the volcanic suite. The remarkable linearity of trends 1 and 2 leads one to suspect that either some Zr and Al bearing mineral, or an igneous glass is involved. Both could explain the behaviour of the Zr concentrations and the constant Al_2O_3:Zr ratio. Trends 3 and 4 are two separate phases of the co-genetic intrusive suite. Which of the two intrusive phases is the earlier cannot be reliably determined on this, or any other PER diagram. The late phase may well be the less evolved (i.e., group 4) if it originated in the deeper part of a magma chamber. Anomalous Cu and Au are preferentially associated with trend 4 rocks, whereas anomalous Mo is present in both trend 3 and 4 rocks. Trend 5 rocks are probably the volcanics (they include the un-altered volcanic sample). Thes volcanic rocks are geochemically anomalous in Cu and Au, but not in Mo.

Fractionation - Sorting (Mixing) models

The principal fractionating mineral phases in the intrusive suite (quartz-diorite to quartz-monzonite) probably consist of feldspar, hornblende and minor clino- or orthopyroxene, quartz, and perhaps some biotite. The main phases in the volcanics are likely to be feldspar, clino- or orthopyroxene, and possibly magnetite. In the sediments mixing rather than fractionation is likely to be the mass transfer process affecting alkali elements and Al. On the PER model (2Ca+Na+K)/Zr vs. Al/Zr the effect of fractionation and/or crystal sorting (and mixing) of anorthite $CaAl_2Si_2O_8$, albite $NaAlSi_3O_8$, and orthoclase $KAlSi_3O_8$, and biotite $K(Fe,Mg)_3AlSi_3O_{10}(OH)_2$ in un-altered rocks plots along a line with a slope of 1.0. In other words, the bulk alkali:Al ratio in un-altered igneous rocks fractionating only those minerals is 1:1. If clinopyroxene $Ca(Fe,Mg)Si_2O_6$ is involved, the line becomes steeper (greater than 1.0), defined by the clinopyroxene:feldspar ratio. Quartz SiO_2 and orthopyroxene $(Mg,Fe)SiO_3$ have no effect on this diagram. The slope of the line is also affected by the involvement of hornblende $(Na,K)_{0-1}Ca_2(Mg,Fe,Al)_5Si_{6-7}Al_{2-1}O_{22}(OH,F)_2$, but this effect cannot be defined without knowledge of the actual hornblende composition(s) and the amount(s) involved. In practical terms this means that the slope of the line defining un-altered rocks cannot be precisely defined, but rather must be observed. If clinopyroxene, and hornblende compositions and amounts vary in these rocks then a diffuse linear trend, rather than a single line will define the un-altered rock compositions. Hydrothermally altered rocks, depending on whether they have gained or lost alkalis, will plot either above or below the un-altered line (or trend), respectively. Since neither Na nor K are form igneous or alteration minerals with alkali:Al molar ratios greater than 1.0, only rocks containing igneous and metasomatic Ca minerals will plot above the model line (m = 1.0).

Because igneous Ca minerals cannot be distinguished from metasomatic Ca minerals on this model, it is useful to plot the data on a fractionation model where Ca has no effect, i.e., the alkali feldspar fractionation model (Na+K)/Zr vs. Al/Zr. If anorthite and other Al and Ca bearing minerals are present, then the model line defining alkali feldspars and biotite in un-altered rocks will have positive intercept on the Al/Zr axis. The magnitude of this intercept is a bulk measure of the amount of Al involved in Ca minerals.

Another means of assessing the impact of Ca metasomatism is to plot a Si based feldspar - clino- and orthopyroxene - biotite fractionation model (2Ca+3Na+3K)/Zr vs. Si/Zr. On this diagram clinopyroxene, feldspar, and biotite plot along a line with the slope of 1.0, quartz and orthopyroxene plot along the Si axis, and hornblende plots along a line with a slope of 1/2 to 1/3 depending on its composition. Alkali metasomatism acts along the vertical axis and Si metasomatism acts along the horizontal axis. In rocks which contain quartz as a fractionating mineral phase the slope of the line defining un-altered rocks is less than 1.0, and is defined by the bulk feldspar : quartz ratio in the rocks. This diagram can be an effective means of identifying and quantifying silicification in altered rocks, but depends on reliable identification of un-altered rocks and on a constant quartz:feldspar ratio during fractionation.

Figures 3 and 4 are Al based feldspar fractionation - sorting models on which all samples are plotted and are identified by trend number, respectively. The data form four distinct groups: i) groups 1 and 2 (probably sediments) plot near the origin because of their high Zr and low Ca, Na, K, and Al concentrations, with alkali:Al ratios ranging from 1.2 to 0.4; ii) group 3 forms a cluster at the centre of the Al/Zr range, with alkali:Al ratios varying from 1.2 (probably in un-altered rocks) to 0.7 in altered rocks; iii) group 4 forms a cluster to the right of group 3, with alkali:Al ratios ranging from 1.2 in un-altered rocks to 0.35 in rocks that contain primarily sericite as the alkali bearing mineral phase; iv) group 5 (the volcanics) plots to the right of group 4, with alkali:Al ratios ranging from 1.2 to 0.25. In all groups, the samples plotting below the line with a slope of 1.0 are considered to have suffered metasomatic alkali losses.

Since Al is immobile in most hydrothermal regimes, the vertical distance of from a sample to the fractionation model line is a quantitative measure of the **absolute amount** alkali depletion within each group. The angular distance (i.e., the inverse (2Ca+Na+K)/Al molar ratio) measures the **relative** amount of alkali depletion suffered by these rocks. Because the relative amount of alkali depletion is not sensitive to Zr concentrations, it is a very practical and effective means of quantifying alkali metasomatism. Mis-classified samples or compositionally mixed rocks (group 1 and 2 sediments) have no effect at all on this measurement. Group 5 rocks (volcanics ?) have suffered the greatest alkali depletion, followed by groups 4, 2 and 1. Group 3 represents the least altered rocks (at least from the perspective of alkali metasomatism. They have neither lost nor gained significant amounts of Ca, Na or K.

Figures 5 and 6 are Si based feldspar - clinopyroxene fractionation - sorting models on which the data are plotted and are identified by group, respectively. The most substantially silicified rocks belong, not surprisingly, to groups 1 and 2. Both igneous phases are quartz bearing, and are also silicified, with group 4 rocks more frequently and slightly more strongly silicified. The volcanics (group 5) have undergone the least amount of silicification.

Distribution of metals in rock units, and the relationship to hydrothermal alteration

The objective of this data analysis is to examine the relationship of the Cu-Au mineralization present in these rocks to specific recognisable rock types (or igneous phases), and to specific types and degrees of hydrothermal alteration, and, if possible, to develop an exploration strategy that can exploit these relationships as a geochemical tool in the further exploration of the property. On the TiO_2 vs. Zr conserved element scatterplot (Figure 1) at least one (the intrusives), and possibly a second (the volcanics) co-genetic group of rocks have been identified. The sediments do not appear to form a single co-genetic group (or one or both of these elements are not conserved). All rock units, intrusives, volcanics, and sediments contain anomalous amounts of Au, Ag and Cu. The intrusives also contain anomalous amounts of Mo. The Al_2O_3 vs. Zr immobile element scatterplot permits the identification of five separate groups of rocks, two groups of sediments, two phases of intrusive rocks, and one group of volcanic rocks.

Figures 7, 8 , 9, 10, 11, 12, 13 and 14 are "bubble plots" of Au ppb, Ag ppm, Cu ppm, Mo ppm, Pb ppm, Zn ppm , As ppm and Sb ppm, respectively, on the Al_2O_3 vs. Zr scatterplot. The diameter of the "bubbles" is scaled from 0.0 to the maximum amount (identified on the plot) of an element present in a sample. These "bubbles" have the same maximum diameter for each element on each individual plot, and should not be used to compare concentrations of the different elements. Of the sediments, group 1 contains relatively minor amounts of Au, Ag, Cu, Mo, Pb, Zn, As and Sb. In contrast, group 2 sediments contain from 5 to 10 times as much of these elements. However, compared to the intrusives (groups 3 and 4), neither sediment group contains any significant Mo. Of the two intrusive phases, only group 4 contains significant amounts of Au, Ag, Cu, As and Sb. Both groups 3 and 4 contain Mo, Pb, and Zn, although with the exception of Zn, these elements are clearly more abundant in group 4. The volcanics (group 5) contain anomalous amounts of Au, Ag and Cu, but they do not contain significant amounts of Mo, Pb, Zn, As or Sb.

Figures 15, 16, 17, 18, 19 and 20 are "bubble plots" of all the above metals on the feldspar fractionation - sorting model (2Ca+Na+K)/Zr vs. Al/Zr. The purpose of plotting metal concentrations on this model is to examine the relationship between mineralization and the degree of alkali metasomatism.

In groups 1 and 2 (the sediments) Au, Ag, Cu, Pb and Zn are present throughout the entire range of alkali:Al ratios (1.0 - 0.4), suggesting that silicification rather than alkali depletion, may play the significant role in deposition of these metals.
In the group 3 intrusive phase, Pb and Zn, Pb and Zn are present throughout the entire range of alkali:Al ratios in these rocks, whereas Mo is found only in relatively un-altered rocks.
Group 4 is the preferentially mineralized intrusive phase. Alkali:Al ratios range from un-altered rocks (at 1.2) to completely sericitized rocks (at 0.35). Au and Ag are present both in un-altered rocks (alk:Al = 1.0), as well as in highly altered rocks (alk:Al = 0.35), but are most abundant in rocks whose alk:Al ratio is about 0.75. Likewise Cu and Mo are most also abundant in rocks whose alk:Al ratios about 0.75, whereas As and Sb are concentrated in the completely sericitized rocks.
Group 5 rocks (volcanics) do not contain Mo, As or Sb, but they do contain anomalous Au, Ag and Cu, but only in completely sericitized rocks. Here the term sericitized refers to rocks whose bulk alkali:Al ratio is 0.33 or less. When these rocks are metamorphosed it is probable that no sericite will actually be present. Instead, an assemblage comprised of, for example, biotite, sillimanite and anthophyllite may be present, but in strict molar proportions constrained by the bulk alkali:Al ratio of these rocks (for each mole of biotite, two moles of an alumino-silicate mineral containing no alkalis must then also be present).

Figures 21a, b, c, d, e and f are scatterplots of TiO_2, Al_2O_3, Fe_2O_3, CaO, Na_2O and K_2O wt% XRF (Metaborate) whole-rock vs. Ti, Al, Fe, Ca, Na and K wt% ICP (Aqua Regia) analyses, respectively. Although detection limits of elements in solution for both XRF and ICP analytical procedures are practically equal, the ICP method suffers significant degradation of analytical data quality because of incomplete and variable digestion of elements bound up in silicate and other refractory minerals. This means that lithogeochemical data obtained by the ICP (Aqua Regia) method cannot be used in constructing PER models. However, most Fe analyses correspond reasonably well (see Figure 25c), as do some of the Ca analyses (see Figure 25d). Fe bearing minerals, both sulphides and silicates seen to be adequately soluble in aqua regia. Likewise, metasomatic Ca minerals, sulphates, carbonates, and perhaps some hydrothermal silicates, also appear to be soluble in aqua regia. This means that a CaO - XRF (Metaborate) vs. Ca - ICP (Aqua Regia) plot can be used to identify rocks that contain significant amounts of metasomatic Ca minerals.

Figures 22, 23, 24 and 25 are "bubble plots" of Au, Ag, Cu and Mo on scatterplots of CaO - XRF (Metaborate) vs. Ca - ICP (Aqua Regia) analyses. The object of these plots is to demonstrate that the bulk of the mineralization in the intrusive phase (4) is associated with Ca metasomatism. This is confirmed by field observations of gypsum (or anhydrite) found with Cu-Mo mineralization in the intrusives (W.W. Osborne, pers. comm.). In the sediments (1 and 2) and the volcanics (5) Au, Ag and Cu is directly associated with soluble Ca minerals (i.e., alteration minerals). Likewise, Au, Cu and Mo in the mineralized intrusive phase (4) are also associated exclusively with soluble Ca minerals. The same relationship holds for Ag, except for two samples (W93-173 and W93-190) of the mineralized intrusive phase (4).

Answers to questions 1 - 7

1. Intrusives (I-1) through (I-5) belong to a single co-genetic group, which is suggested by the constant TiO_2:Zr ratio (about 0.003) for all these rocks. Two separate phases of intrusives are recognized on the Al_2O_3 vs. Zr plot, one is mineralized and the other is not. The mineralized intrusive phase (4) includes samples from each of the intrusive phases (I-1 through I-5) distinguished in the field mapping. Sample numbers of the mineralized intrusive phase (4) are identified on Table 1. The barren intrusive phase (3) contains two samples of I-2 and the I-? samples. These are also identified on Table 1.

2. The Buzzer quartz-diorite sample W93-207 belongs to the mineralized intrusive phase (4), and may well be related to the Rowbottom I-4 intrusive, which is also a member of the mineralized intrusive phase (4).

3. Buzzer sample W93-209 is part of the barren intrusive phase (3).

4. On the basis of the Al_2O_3 vs. Zr plot, the Buzzer altered felsite and the Buzzer West felsite samples appear to be members of the mineralized intrusive phase (4), although the Buzzer West felsite samples both plot outside the co-genetic intrusive group on the TiO_2 vs. Zr plot. This may be a function of analytical error, and without resort to additional samples cannot be resolved further.

5. The relationship of the various drill-core samples with respect to the intrusives is illustrated on Table 1. All groups of rocks (1 - 5) are represented in the drill core samples.

6. Intrusive I-? belongs to the barren intrusive phase (3).

7. PER analysis of the whole-rock data from the volcanic rocks suggest that they are intermediate to mafic rocks. On the basis of a rather scattered trend on the TiO_2 vs. Zr plot, they appear to belong to one co-genetic group, and also plot as a separate group (5) on the AL_2O_3 vs. Zr plot. The un-altered volcanic sample (W90-34 206-207) has a bulk alkali:Al molar ratio of 1.2, indicating that Ca bearing minerals other than feldspars were involved in fractionation. The

volcanics are the most altered rocks of the samples analyzed. Mineralization in the volcanics is restricted to completely "sericitized" rocks, meaning those rocks which have a bulk alkali:Al ratio of 0.33 or less. This however does not mean that where these rocks are strongly metamorphosed (i.e., completely de-volatilized) that sericite will necessarily be present as the alteration mineral phase.

Conclusions

On the basis of a TiO_2 vs. Zr conserved element scatterplot, two separate co-genetic groups of rocks can be identified in the data, the intrusives (3 and 4) and the volcanics (5). Other co-genetic groups may exist (i.e., the sediments) but they cannot be identified on this plot because one or both of the elements may not be conserved.

On the basis of an Al_2O_3 vs. Zr immobile element scatterplot, five separate groups of rocks can be identified. There are two groups of what may well be silicified sediments (1 and 2), also two intrusive phases, one barren (3) and one mineralized (4), and one group of mafic to intermediate volcanics (5), and they can be distinguished by their different Al_2O_3:Zr ratios.

Two distinct, probably un-related, styles of mineralization are recognized: i) Au, Ag and Cu mineralization in one of the two separate intrusive phases (4) and in the volcanics (5), associated with significant alkali loss, Ca metasomatism, and some silicification, and ii) Au, Ag and Cu mineralization associated with pervasive silicification of one of the sediment groups (2), probably representing an altered roof pendant to the intrusive complex. Mineralization in the intrusives is further distinguishable from mineralization in the other rocks by the presence of anomalous Mo.

Base and precious metal mineralization in the sediments (1 and 2) is probably associated with pervasive silicification. Base and precious metal mineralization in the mineralized intrusive phase (4) is associated with moderate alkali loss, and with Ca metasomatism as indicated by the presence of aqua regia soluble Ca minerals in mineralized samples. Mineralization in the volcanics (5) is related to severe alkali loss. In all groups the mineralized samples appear to contain aqua regia soluble Ca minerals, which may be exploitable as an exploration guide.

In addition to having suffered alkali loss, mineralized intrusive samples are also silicified. However since un-altered samples cannot be reliably identified (because of the involvement of Ca minerals in fractionation and their presence in hydrothermally altered rocks), silicification in these rocks cannot be quantified.

Recommendation

The spatial distribution of the mineralized intrusive phase (4), or of the alteration facies associated with the other mineralized rock types (1 and 5) cannot be properly defined with the limited number of samples available in this study. There are two ways to take advantage of relationships uncovered in this lithogeochemical data analysis: i) re-examine the field data (maps , notes and type samples) to see if some visually distinguishing feature, common to all samples from the mineralized intrusive phase (4) can be recognized (this is relatively inexpensive), and failing that, ii) analyze the remainder of the samples available by the same procedures (and by the same lab) as the samples used in this study, and if the presently observed relationships are confirmed, plan an appropriate lithogeochemical sampling campaign to cover all prospective areas on the property.

Respectfully submitted,

Hans E. Madeisky MSc DIC PGeo

TASEKO.WQI
Whole-rock lithogeochem data
form W.W. Osborne

Aqua Regia ICP analyses

Sample No.	Location	HEM Sample No.	Rock Type Code	WWO Alteration Code	HEM Rocktype Code	Ag ppm	Au ppb	Cu ppm	Mo ppm
W90-18 66-67	Empress	35	QR	1	1	0.1	15	564	3
W90-19 575-576	Empress	41	QMC	1	1	0.2	5	343	2
W90-18 279-280	Empress	37	QR	1	1	0.1	30	465	3
W90-18 449-450	Empress	39	QM	1	2	2.8	770	8777	3
W90-18 400-401	Empress	38	QR	1	2	1.2	295	6649	13
W89-3 50-51	Empress	34	QMC	1	2	1.0	140	355	57
W89-2 310-311	Empress	33	QMC	1	2	2.0	65	4467	3
W89-2 156-157	Empress	32	QR	1	2	1.4	275	4203	17
A 337	Mohawk-Motherlode	1	I2	2	3	0.1	5	46	1
W91-54 785-786	East Zone	28	EZ	2	3	0.1	5	29	1
W93-187	W of Buzzer West	11	I2	2	3	0.1	5	31	4
W91-48 714-715	Empress	23	E	2	3	0.1	5	3	1
W93-209 (dupl)	Buzzer	45	GD p	2	3	0.1	5	116	3
W93-209	Buzzer	17	GD p	2	3	0.1	5	118	2
W91-37 494-495	Empress	21	E	2	3	0.1	5	111	0.5
W90-21 724-725	Empress	20	E	2	3	0.1	5	34	9
W91-49 367-368	Granite Creek	25	GC	2	3	0.1	5	69	114
W91-41 642-643	Empress - East	22	EE	2	3	0.1	5	33	2
W91-49 788-790	Granite Creek	27	GC	2	3	0.1	15	438	1
W91-49 477-479	Granite Creek	26	GC	2	3	0.1	5	22	422
W93-228 (dupl)	E of Mohawk Mtn.	46	I?	2	3	0.1	5	58	5
W93-228	E of Mohawk Mtn.	19	I?	2	3	0.1	5	55	3
W93-207 (dupl)	Buzzer	43	QD f	6	4	0.4	390	601	87
W93-207	Buzzer	15	QD f	6	4	0.4	85	685	89
A 344	Mohawk Mtn.	8	I4	5	4	0.1	5	52	22
W91-90	S of Mohawk Mtn.	47	I1	3	4		5		
A 341	Rowbottom	5	I4	5	4	0.8	5	639	3
A 343	Rowbottom	7	I4	5	4	0.1	5	60	0.5
W93-182	Buzzer West	10	F	7	4	1.4	160	3167	1194
W93-222	Mohawk Mtn.	18	I3	5	4	0.1	35	87	1
W93-173	Buzzer West	9	F	7	4	0.2	25	735	8
A 338	Mohawk Mtn.	2	I5	4	4	0.1	5	7	0.5
W93-204	Mohawk Mtn.	14	I1	5	4	0.1	5	28	0.5
W93-201	Mohawk Mtn.	13	I2	4	4	0.1	5	53	0.5
A 339	Mohawk Mtn.	3	I5	5	4	0.1	5	7	0.5
W93-203	Mohawk Mtn.	48	I1	5	4		5		
W93-190	Buzzer West	12	F	7	4	0.2	50	909	4
A 340	Rowbottom	4	I4	6	4	1.0	115	833	2
W90-18 227-228.5	Empress	36	PSA	?	4	1.0	320	2448	110
A 342	S of Rowbottom	6	I4	6	4	0.1	5	10	1
W93-208	Buzzer	16	F a	7	4	1.8	400	5884	224
W93-208 (dupl)	Buzzer	44	F a	7	4	1.8	285	5685	203
W91-49 138-139	Granite Creek	24	GC	?	4	0.1	5	30	64
W90-34 206-207	NW of Empress	42	UAV	1	5	0.1	5	99	0.5
W89-1 238-239	Empress	30	AR	1	5	0.1	5	56	0.5
W89-1 171-172	Empress	29	SAR	1	5	0.1	5	25	3
W90-19 274-275	Empress	40	QAS	1	5	1.2	565	5586	17
W89-2 97-98	Empress	31	KSA	1	5	0.2	55	972	31

Table 1 - Details of Samples (ID numbers, location, rocktype codes, Au, Ag, Cu & Mo analyses)

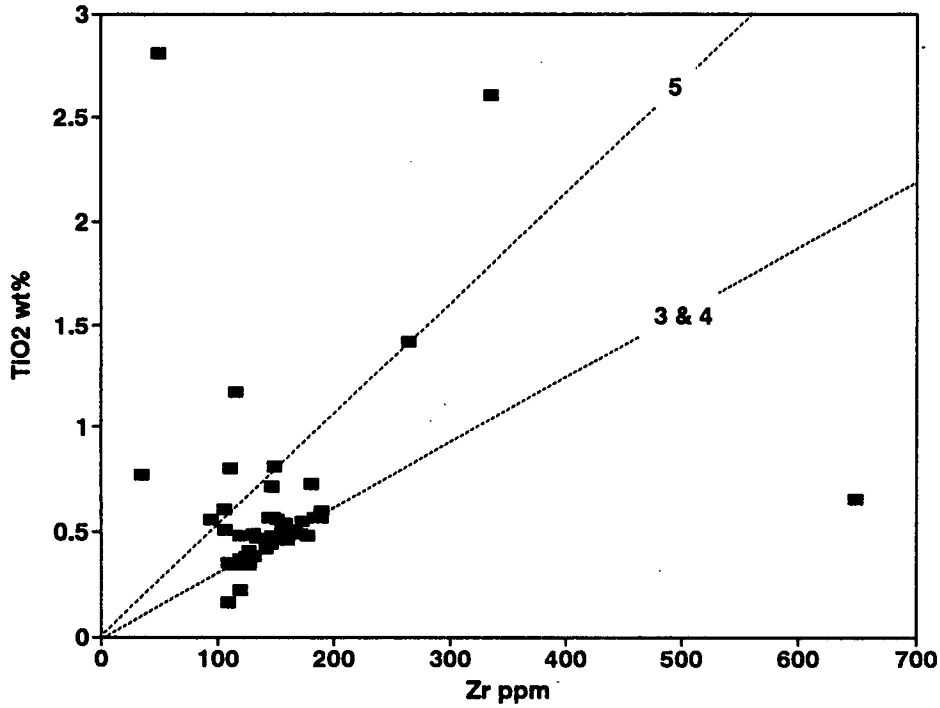


Figure 1 - TiO_2 vs. Zr Conserved Element Scatterplot

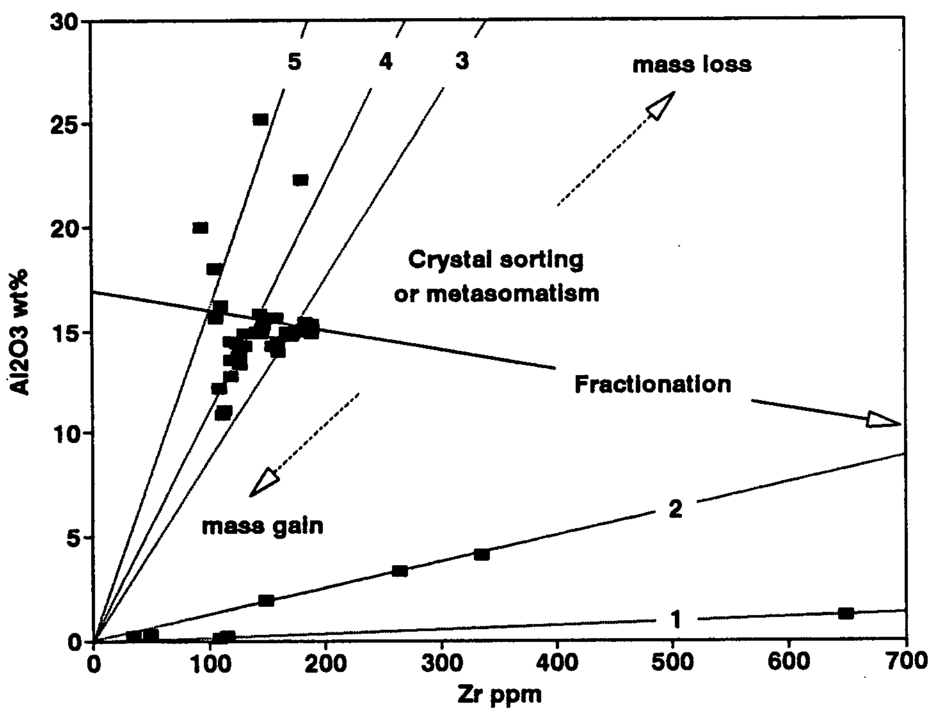


Figure 2 - Al2O3 vs. Zr Immobile Element Scatterplot

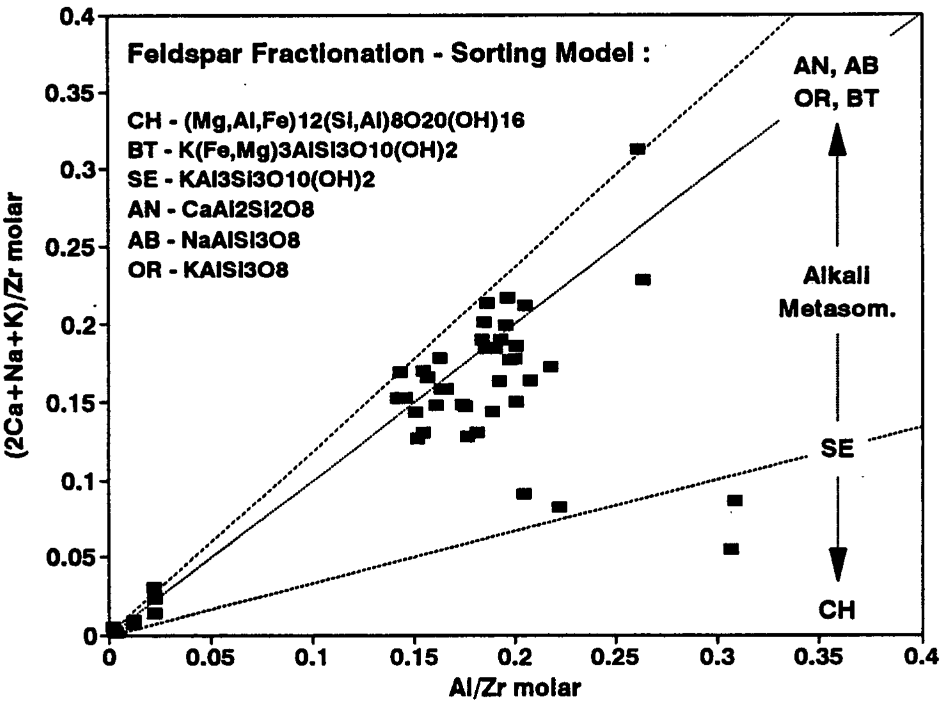


Figure 3 - Al Based Feldspar Fractionation and Sorting Model (all samples)

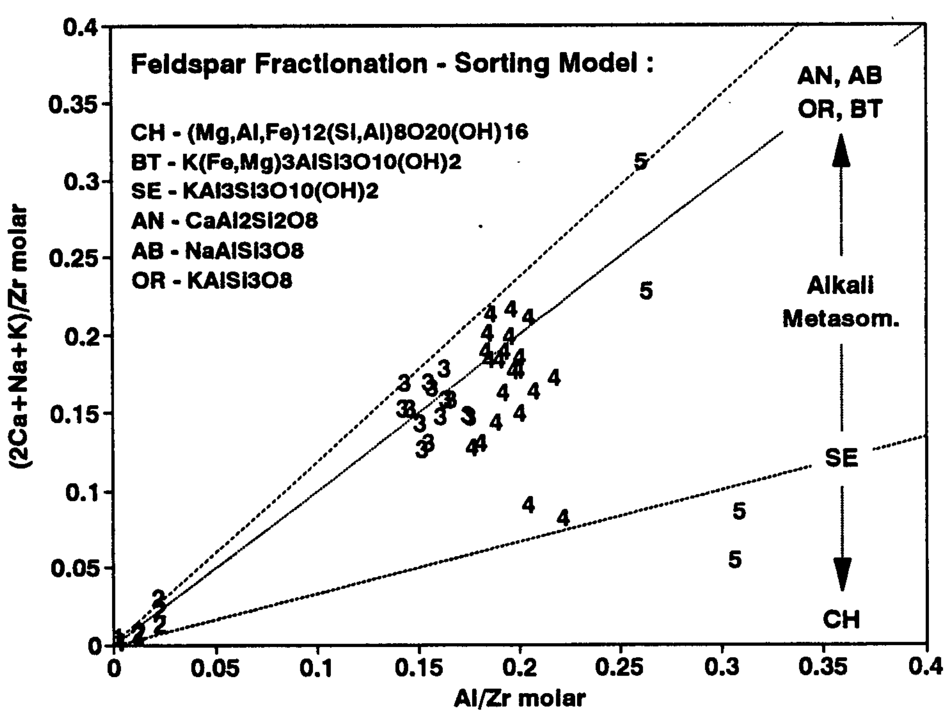


Figure 4 - Al Based Feldspar Fractionation and Sorting Model (Group Numbers)

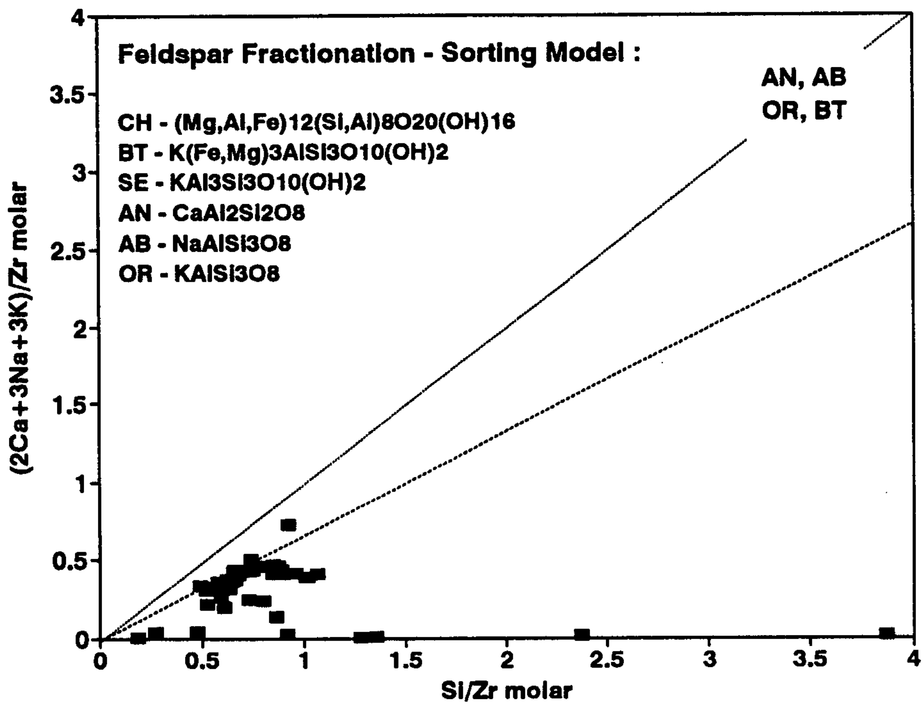


Figure 5 - Si Based Feldspar Fractionation and Sorting Model (all samples)

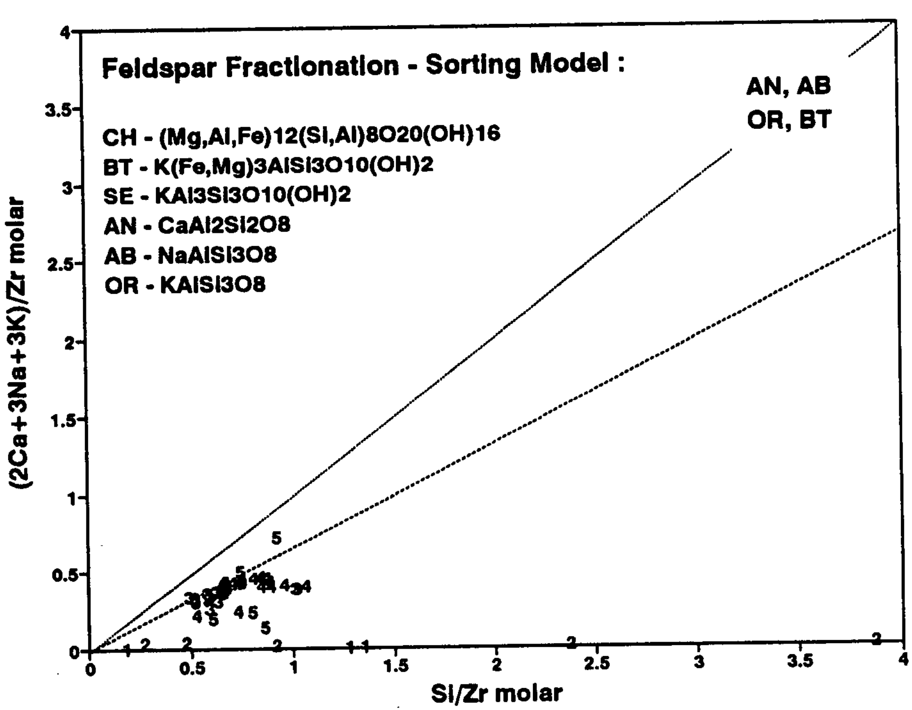


Figure 6 - Si Based Feldspar Fractionation and Sorting Model (Group Numbers)

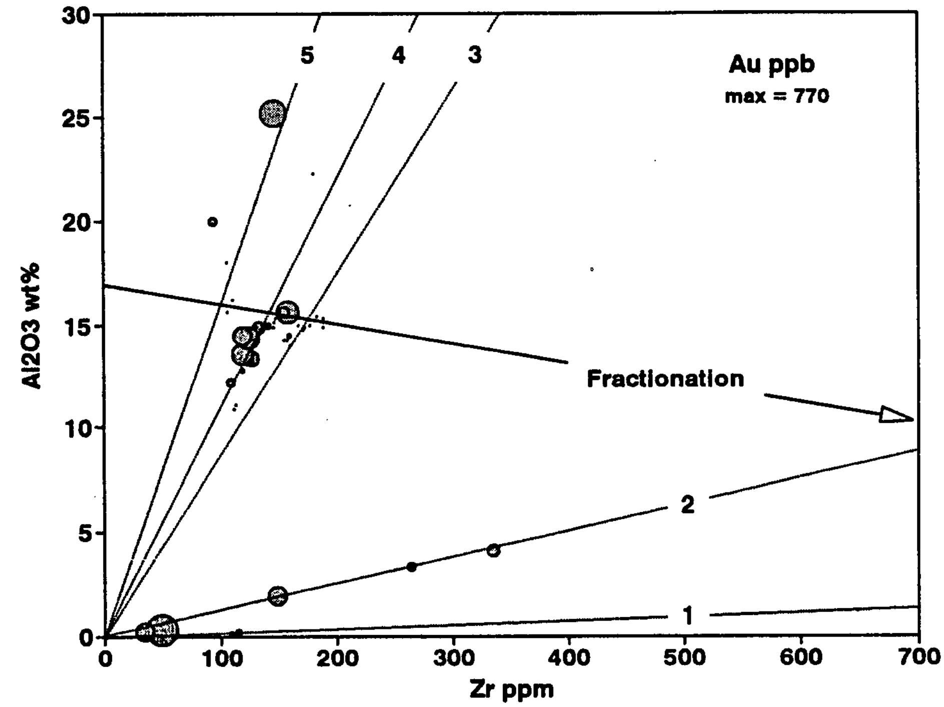


Figure 7 - Au ppb on Al_2O_3 v.s Zr Immobile Element Scatterplot (all samples)

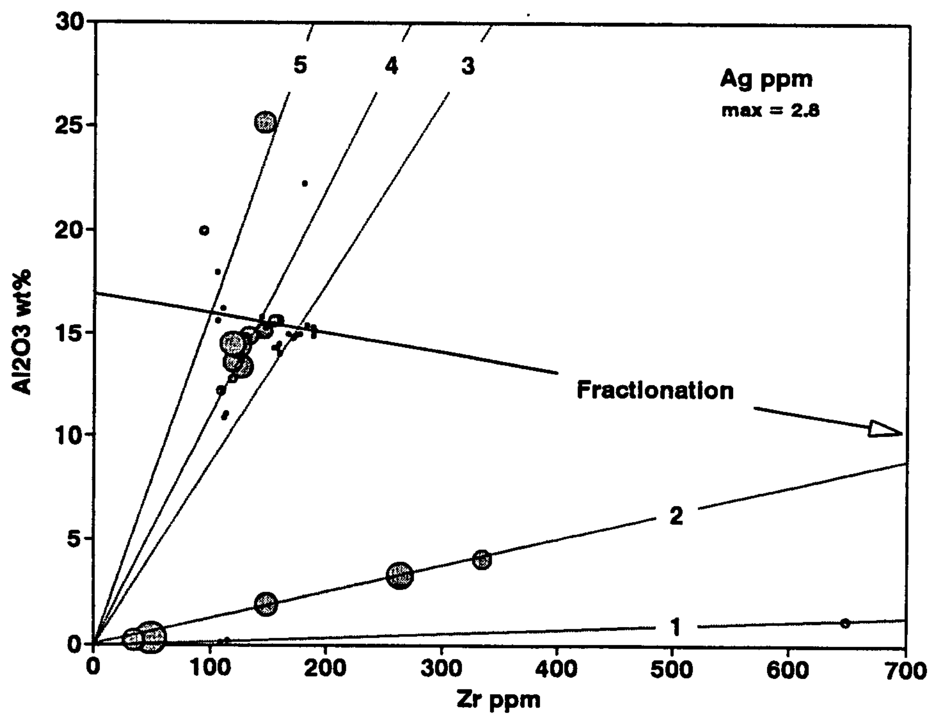


Figure 8 - Ag ppm on Al_2O_3 vs. Zr Immobile Element Scatterplot (all samples)

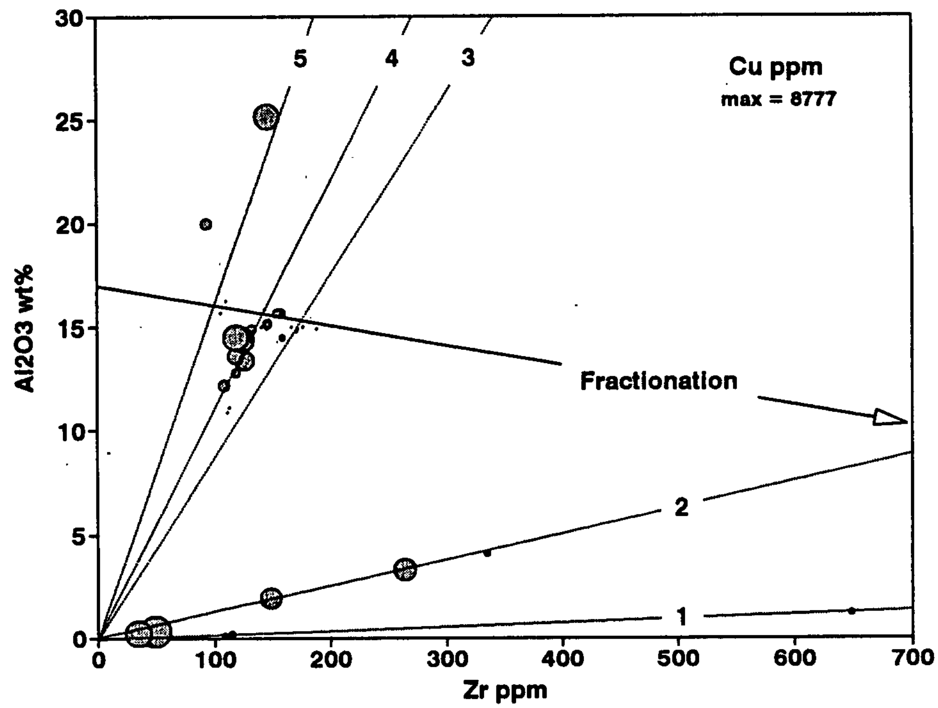


Figure 9 - Cu ppm on Al_2O_3 v.s Zr Immobile Element Scatterplot (all samples)

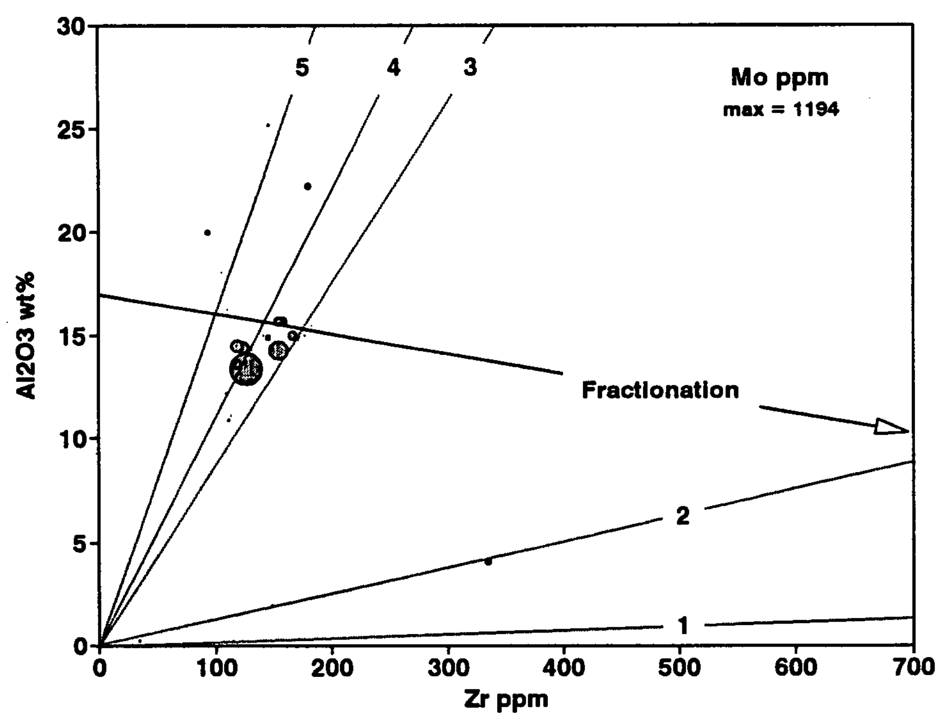


Figure 10 - Mo ppm on Al_2O_3 vs. Zr Immobile Element Scatterplot (all samples)

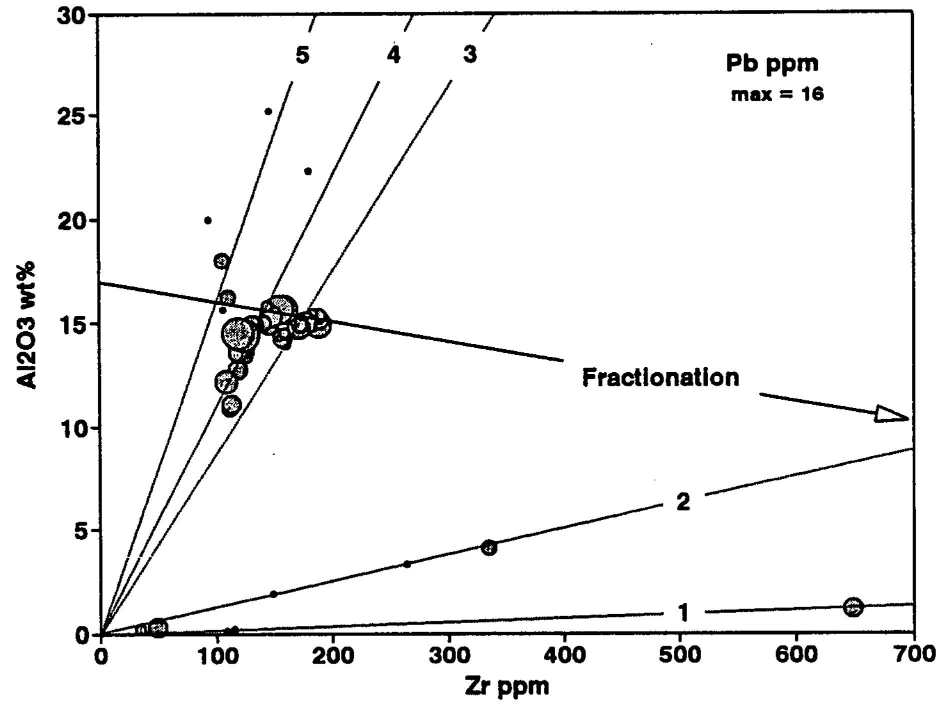


Figure 11 - Pb ppm on Al_2O_3 v.s Zr Immobile Element Scatterplot (all samples)

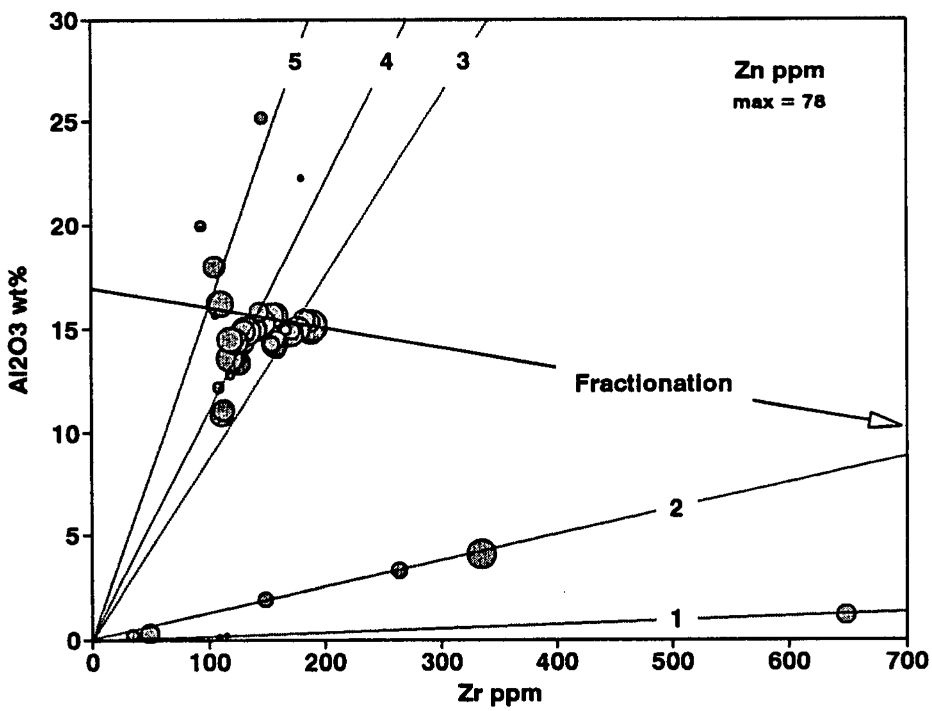


Figure 12 - Zn ppm on Al_2O_3 vs. Zr Immobile Element Scatterplot (all samples)

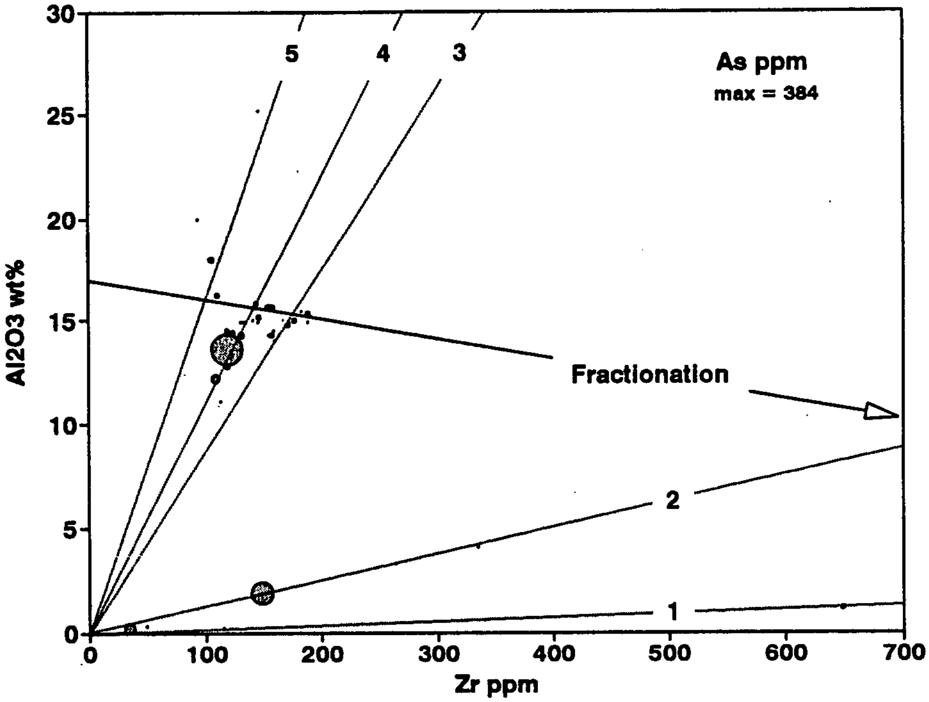


Figure 13 - As ppm on Al_2O_3 v.s Zr Immobile Element Scatterplot (all samples)

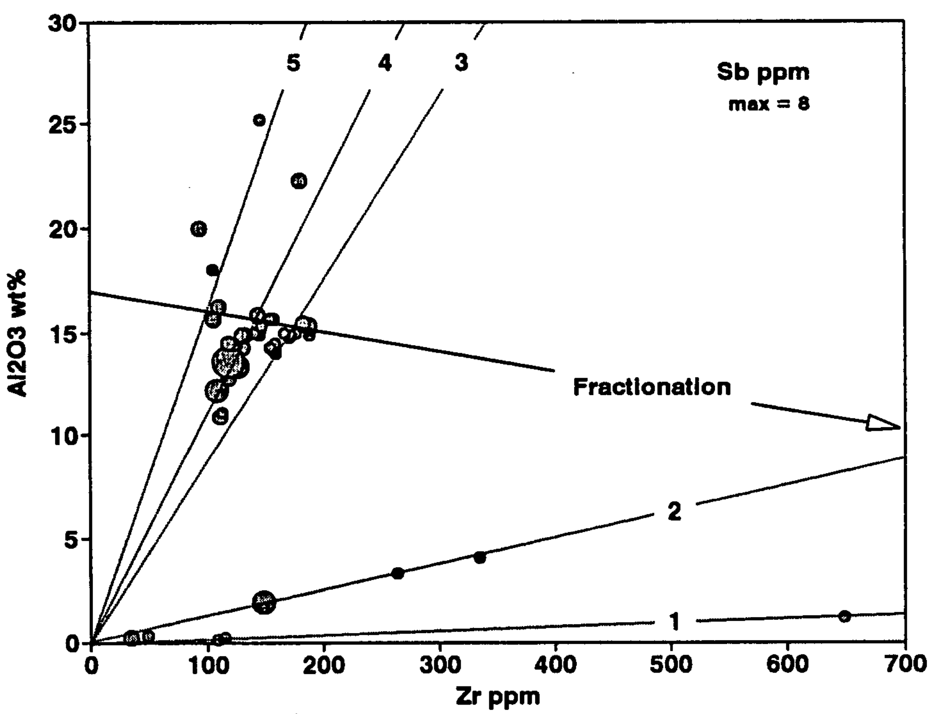


Figure 14 - Sb ppm on Al_2O_3 vs. Zr Immobile Element Scatterplot (all samples)

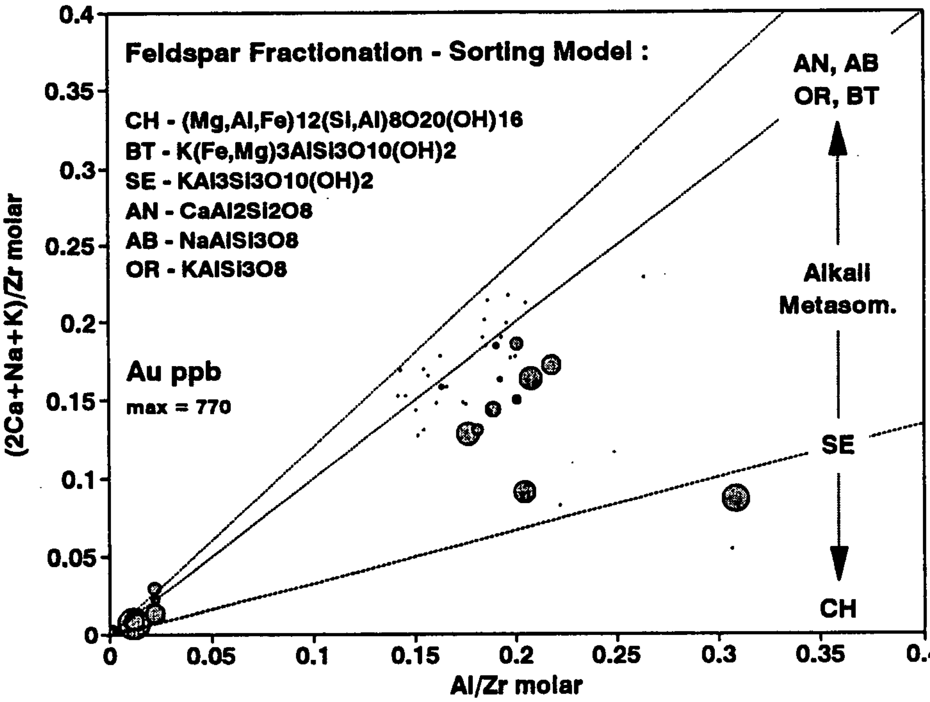


Figure 15 - Au ppb on Feldspar Fractionation Model (all samples)

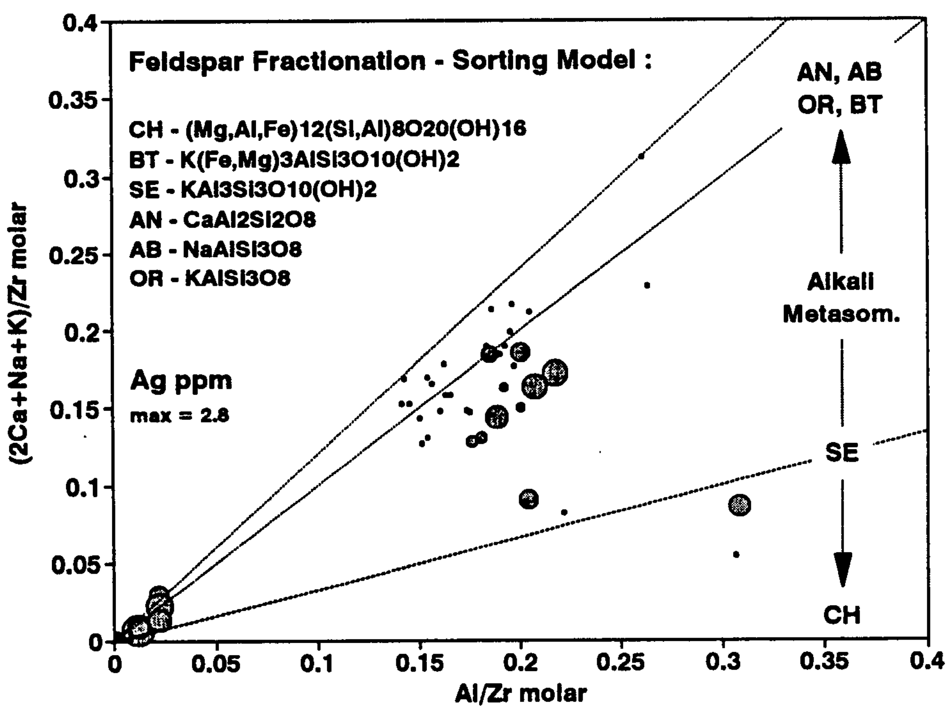


Figure 16 - Ag ppm on Feldspar Fractionation Model (all samples)

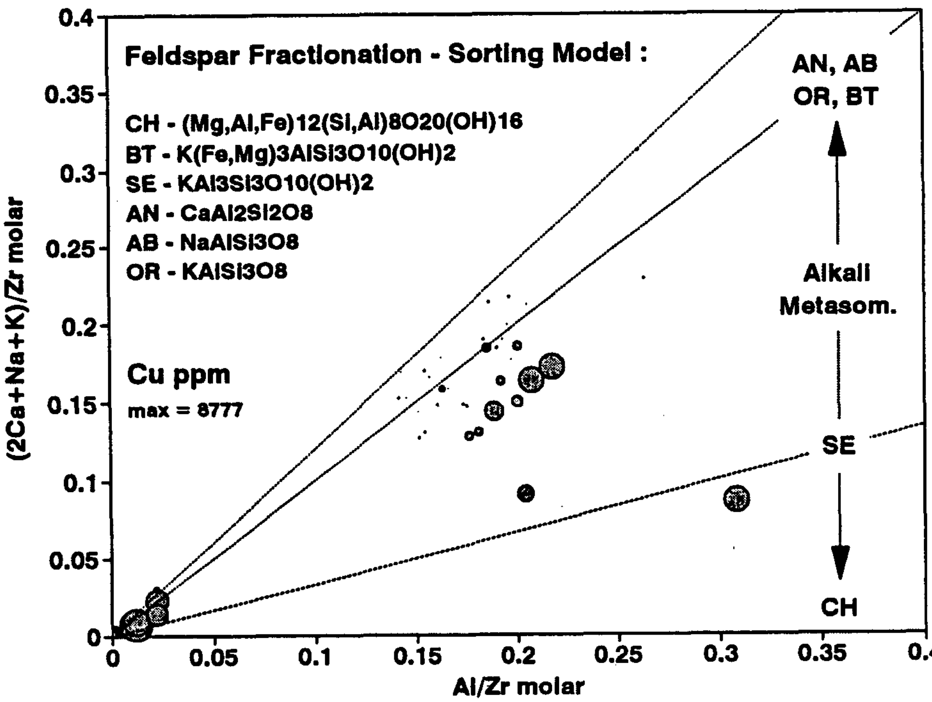


Figure 17 - Cu ppm on Feldspar Fractionation Model (all samples)

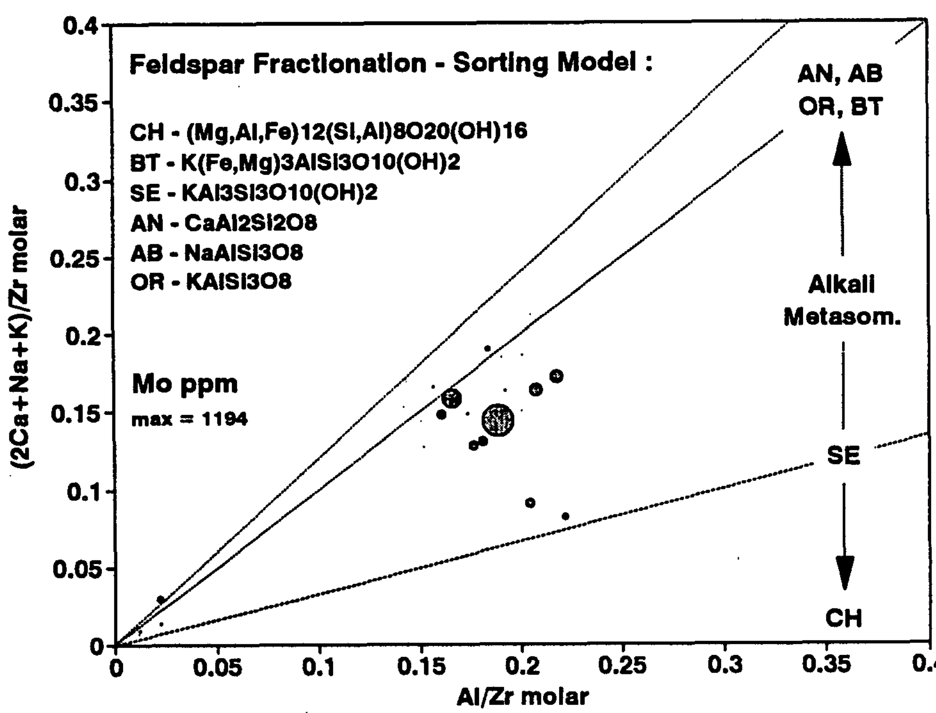


Figure 18 - Mo ppm on Feldspar Fractionation Model (all samples)

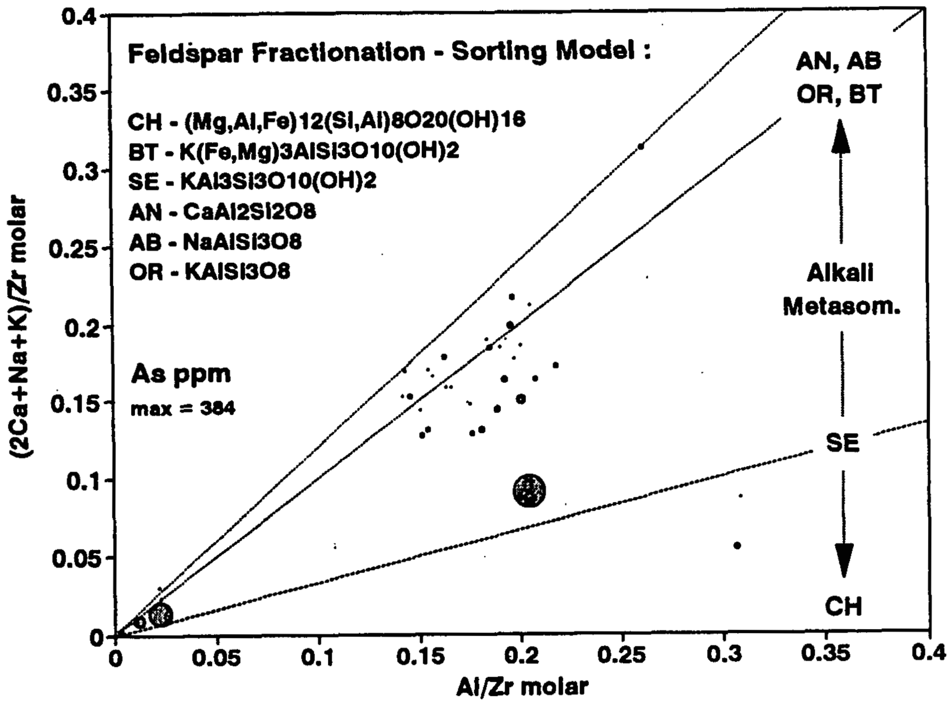


Figure 19 - As ppm on Feldspar Fractionation Model (all samples)

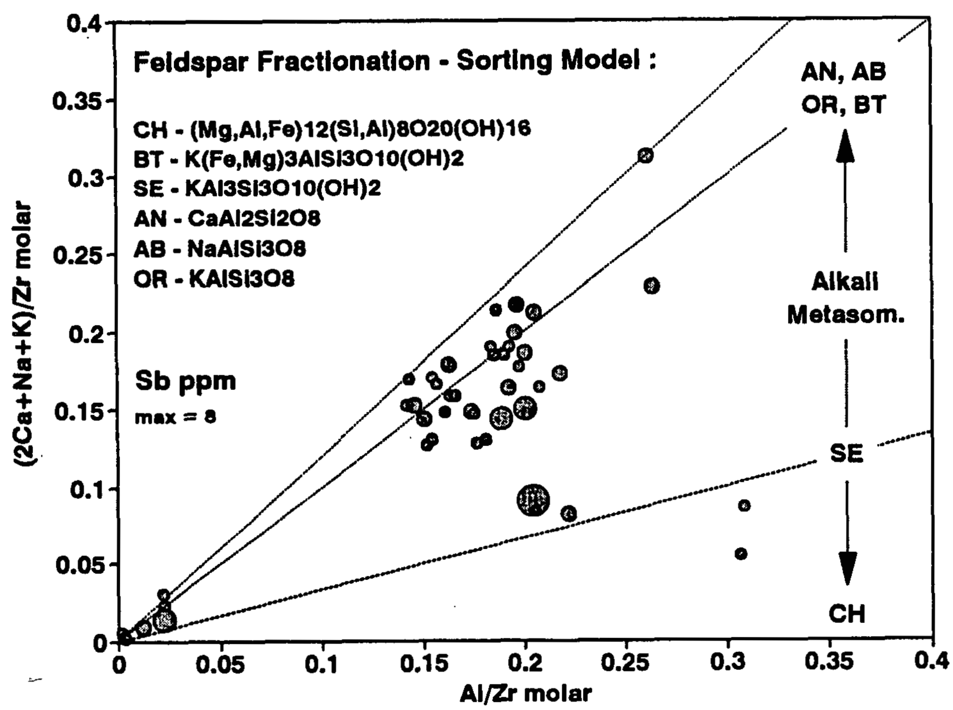


Figure 20 - Sb ppm on Feldspar Fractionation Model (all samples)

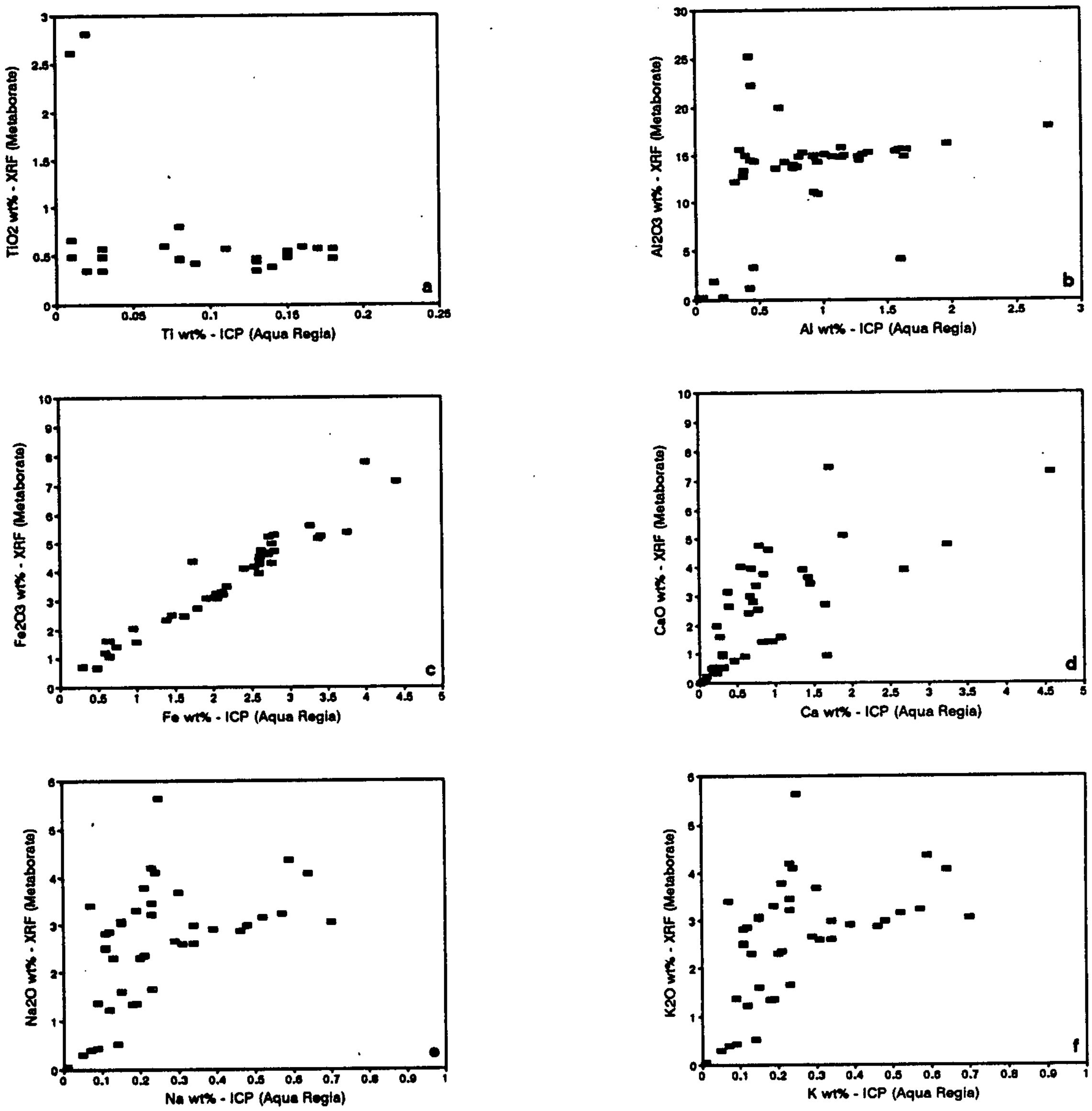


Figure 21 - Comparison Plots of XRF (Metaborate) and ICP (Aqua Regia) Analyses

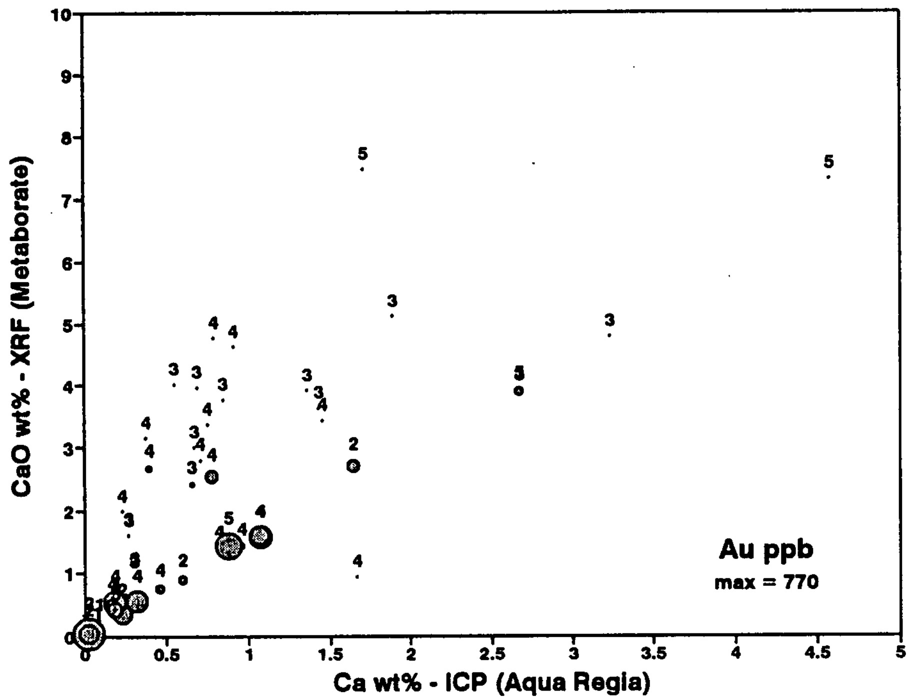


Figure 22 - Au ppb on CaO wt% (XRF) vs. Ca wt% (ICP) Plot (all samples)

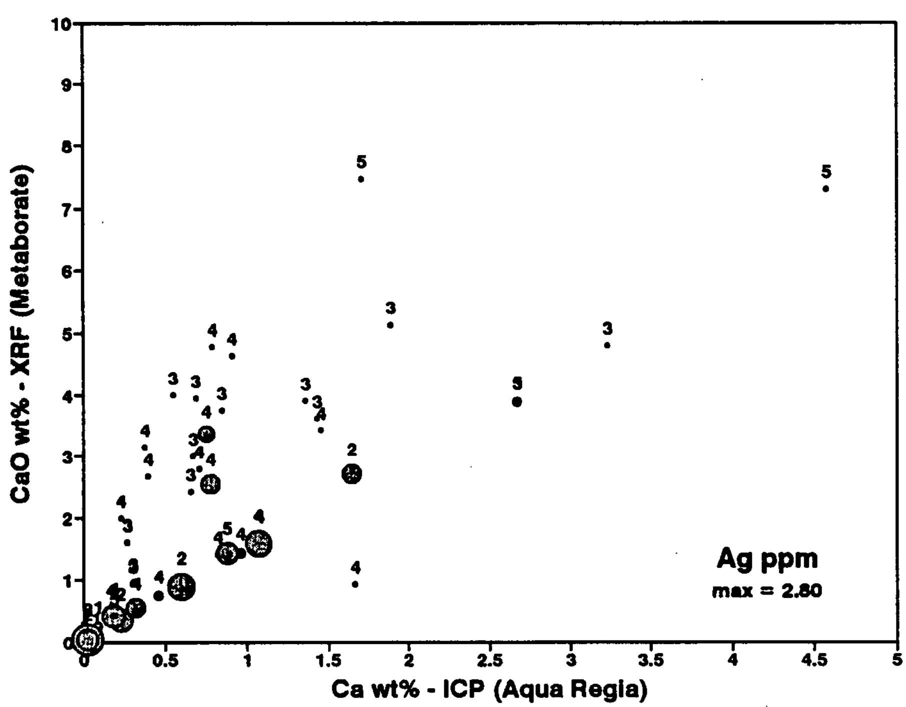


Figure 23 - Ag ppm on CaO wt% (XRF) vs. Ca wt% (ICP) Plot (all samples)

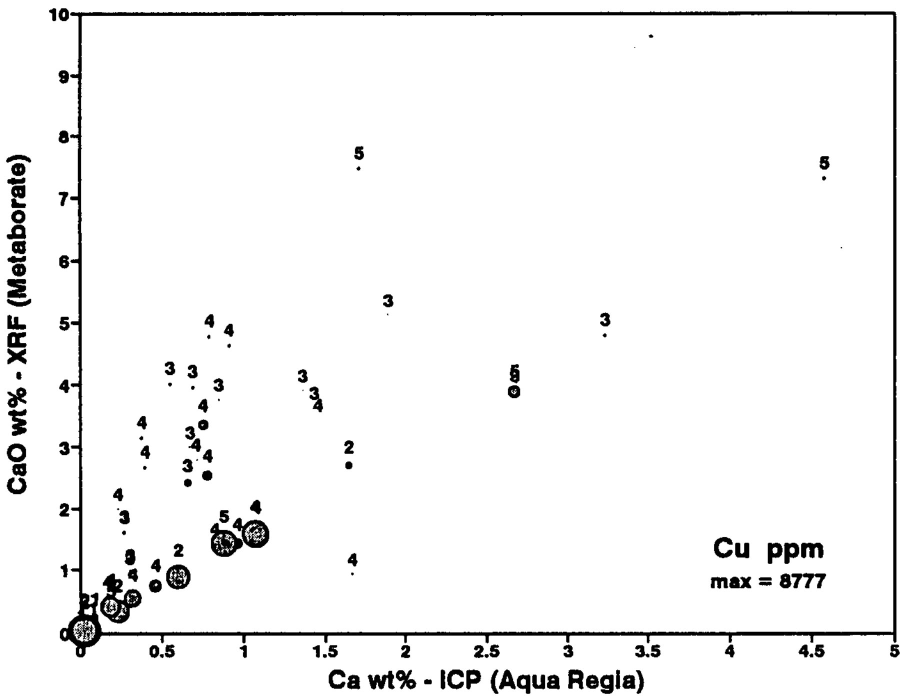


Figure 24 - Cu ppm on CaO wt% (XRF) vs. Ca wt% (ICP) Plot (all samples)

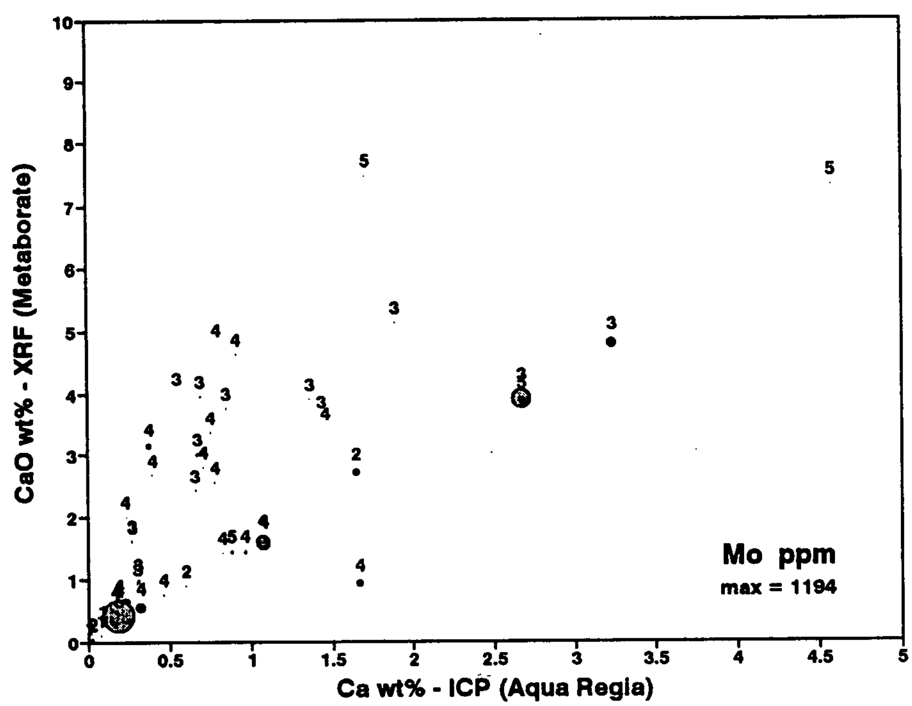
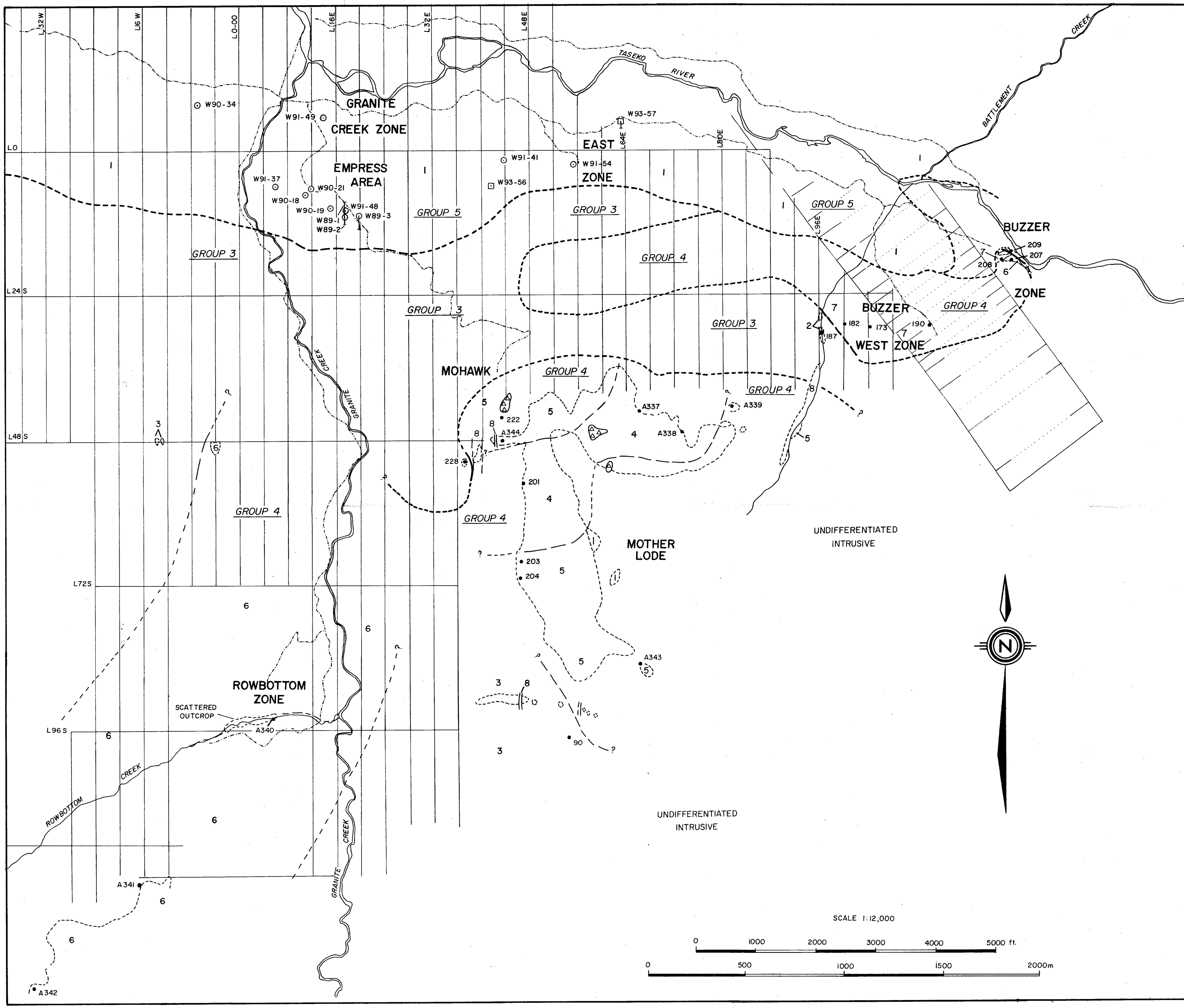


Figure 25 - Mo ppm on CaO wt% (XRF) vs. Ca wt% (ICP) Plot (all samples)



LEGEND

8 (Quartz) Feldspar Porphyry

GROUP 4 ROCK

7 Quartz latite, felsite
6 Porphyritic hornblende - biotite granodiorite
5 Mohawk biotite granodiorite
4 Grey biotite quartz diorite - granodiorite
3 Massive inequigranular biotite - granodiorite

GROUP 3 ROCK

2 Quartz monzonite - granodiorite

GROUP 5 ROCK

1 Altered volcanic, Volcanic - sedimentary

SYMBOLS

Breccia
Known
Approximate contact
Assumed contact
Contact between Groups 3,4 and 5
W-93-56 1993 Drill hole
W-91-41 Drill hole where samples for Whole Rock Analysis were taken
• 202 •A337 Location of samples for Whole Rock Analysis
Outcrop
Rivers, streams
Road
Grid lines

GEOLOGICAL BRANCH
ASSESSMENT REPORT

23,361

WESTPINE METALS LTD.

TASEKO PROPERTY

CLINTON MINING DIVISION - BRITISH COLUMBIA

GEOLOGICAL MAP

MAP 1 *APRIL, 1994*

Field work by D.G. Allen and W.W. Osborne


96+00E
100 E
104 E
108 E
24
25
26
27
28
29
30
31
32
33
34
MAINLY GRANITIC BOULDERS
MAINLY GRANITIC BOULDERS
L 25 E
89 BUZ 5 (7034,40,?)
Granod.c Bx. X 185 35,nd,8
187 31,<5,4
X 182 3170,160,1195
Cu X 176 247,60,63
X 173 735,25,8
X 172 Cu,Mo
Cu,Mo
Cu X
Cu X Cu
X Cu,Mo
X Cu
Med qned gd.
X 177 960,60,364
91-93 (911,40,?)
91-94 (959,30,?)
DISCOVERY AREA
X Weak Cu
X Cu
X Cu
X Cu
BOULDERS
175 74,50,4
Sheared granitic rock
X 174 Por Alt Gr
X Cu
X Cu
X Cu,Mo
X Mo
X 193 float 91, nd,4
190 Cu 909,50,4
192 (o.c.) qtz dior.
191 (2161,10,86)
1
2
2
2
1
N
SCALE 1:1,200
0 100 200 300 400 500 ft.
0 50 100 150 200m
GEOLOGICAL BRANCH ASSESSMENT REPORT
23,361
WESTPINE METALS LTD.
TASEKO PROPERTY
CLINTON MINING DIVISION - BRITISH COLUMBIA
GEOLOGICAL AND GEOCHEMICAL MAP
WEST BUZZER ZONE
MAP 2
APRIL, 1994
LEGEND
2 Quartz Latite, Felsite (GROUP 4)
1 Quartz Monzonite - Granodiorite (GROUP 3)
x 175 Rock Sample (Cu (ppm), Au (ppb), Mo (ppm)
x Cu, Mo Rock fragment with copper, molybdenum
• Soil Sample
Greater than 200 ppm Cu (Soils)
Greater than 400 ppm Cu (Soils)
Trench
Road
Outcrop