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GEOLOGY AND GEOCHEMISTRY OF PRECAMBRIAN CARBONATE ROCKS, CAPE BRETON ISLAND, NOVA SCOTIA

by

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INTRODUCTION

The first phase of a program dedicated to a study of the Precambrian carbonate rocks of Cape Breton Island was initiated during 1986. The project was designed to increase the awareness of the mineral industry to the resource potential of the George River Group and related metacarbonate rocks of Cape Breton Island, and provide a database for mineral potential evaluations.

The scope of the project is two-fold: 1) to relate the major, minor and trace element geochemistry of the marbles to observed lithologic and mineralogic components; and 2) to identify, using statistical parameters, marble formations or environments of specific chemical composition which may be considered economically significant.

The work entailed detailed lithogeochemical sampling and geologic mapping, on a systematic regional basis, of the complex variety of carbonate units belonging to George River Group and related formations; as well as detailed sampling and examination of known areas of metallic and non-metallic mineralization. From a geologic perspective, the study has added to the general knowledge of Cape Breton Island geology by attempting to categorize and compare, using lithologic, mineralogic, structural and chemical criteria, Precambrian carbonate formations in a variety of metamorphic terranes. The study has also examined the characteristics of carbonate-hosted mineralization of both metallic and non-metallic association.

This report summarizes the geologic and geochemical relationships between various carbonate terranes and the contained mineral occurrences and presents a general summary of the economic potential of metacarbonate rocks in Cape Breton Island.

STUDY AREAS AND PROCEDURES

Four areas of Cape Breton Island underlain by Precambrian carbonate rocks were examined during the period June to September, 1986 (see figure 1). Three areas are underlain by "classic" George River Group metasediments, as defined by Milligan (1970), including: a)the Craignish Hills and North Mountain area, with the exception of Lime Hill, comprised of crystalline limestones and dolomites to marbles, arenaceous and argillaceous metasedimentary rocks (quartzite feldspathic sandstone, slate and phyllite) plus subdominant metavolcanics (massive andesite and basaltic flows); b) Boisdale Hills, characterized by approximately equivalent thicknesses of moderate to high metamorphic grade calcitic, dolomitic and silicious marbles and arenaceous sediments; and c) a narrow belt of dolomitic and calcitic marble in the Cape Dauphin-Kellys Cove (New Campbellton) area of southeastern Cape Breton Highlands. In addition, metacarbonate units of inferred George River affiliation mapped by previous workers throughout the central and northern Cape Breton Highlands were examined. The rocks consist predominantly of discontinous interlayers of calcareous, dolomitic and silicious marbles within medium to high metamorphic grade argillaceous and arenaceous sediments and intermixed (injection) granitoid rocks. Isolated marble outcrops in the Cape North area (mapped by Macdonald and Smith, 1980) and througout the Pleasant Bay, Dingwall, Cape St. Lawrence and Cape North sheets (mapped by Neale, 1963a, 1963b, 1964a, 1964b) were examined. More continuous marble units in the southern Highlands including carbonates of the Ingonish River metasedimentary sequence in the McMillan Flowage area (Raeside et al., 1984) were also described and sampled.

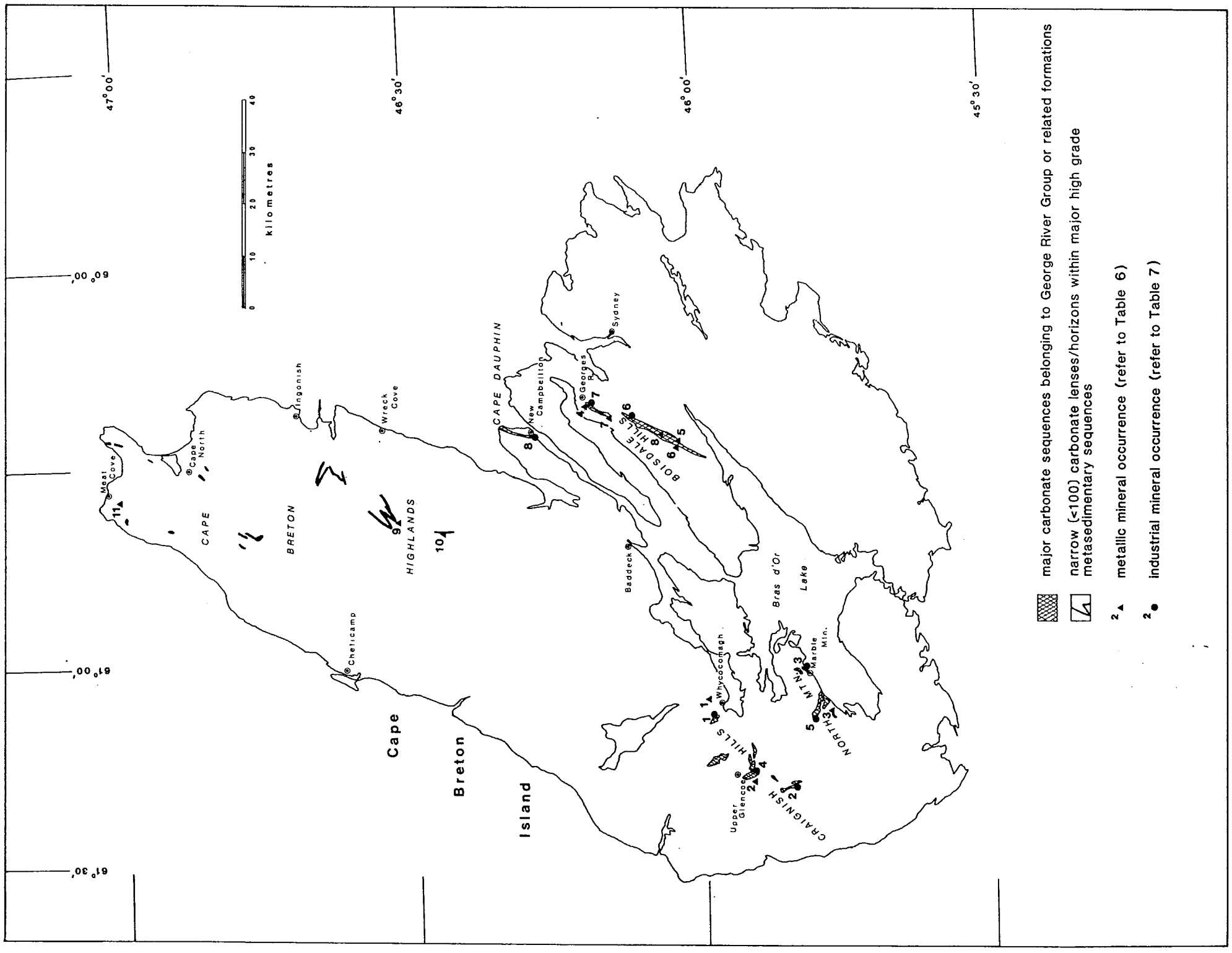


FIGURE 1: Distribution of Precambrian Carbonates, Cape Breton Island

Carbonate-hosted mineral occurrences of both metallic and non-metallic mineralization are common throughout the George River Group and equivalent units. A total of 11 metallic and 9 non-metallic (industrial) mineral occurrences were examined and sampled during the 1986 program. Preliminary identification of metacarbonate-hosted mineral occurrences was obtained through use of the Mineral Occurrence Data Card file of the Nova Scotia Department of Mines and Energy and through use of a computer-generated file containing all metallic and non-metallic mineral occurrences in Nova Scotia compiled by Ponsford and Lyttle (1984) and Ponsford et al. (1985). Depending upon the degree of exposure and preservation of old excavations such as quarries, test pits or trenches, an attempt was made to map the areal extent of mineralization and define zonation patterns in individual deposits. In most cases, old assessment reports or research papers containing descriptions of the showings were used to identify and delineate ore zone geometry and gangue assemblages. Sampling was carried out to determine elemental distributions in relation to lithologic/mineralogic phases, to determine element associations in metallic mineral deposits and , in the case of bulk limestone or dolomite occurrences, to determine quality and consistency of product over larger areas.

The second stage of field work involved regional lithogeochemical sampling within areas underlain by metacarbonate rocks. Two criteria controlled sample collection: 1) lithologic distinction based on variations in mineralogy, colour and texture of marbles as observed in the field which led to the identification of at least 40 varieties of carbonate rocks; and 2) systematic areal distribution whereby samples were collected at uniform 300-400 metre spacing (8-9 samples/km^2) to define regional major and trace element patterns in carbonate units

both within and between the main areas underlain by Precambrian marbles. For each rock sample, lithologic characteristics including colour, grain size, texture, structure, alteration, type of mineralization, dominant (macroscopic) mineral composition and mnemonic rock description or label for mapping purposes, were recorded as an alphanumeric code suitable for computer handling. A complete listing of all recorded data organized on sample number can be found in Appendices II to IV of this report.

GEOCHEMICAL PROCEDURES

A total of 481 rock samples (including duplicates and standards) collected during the field program were analysed using a variety of geochemical techniques for the major element oxides plus L.O.I., Ba, Sr, Nb, Y, Zr, Cu, Zn, and Pb with optional analysis of selected samples for Sn, W, Mo, Hg, As, Sb, Ag, or Au. The following analytical techniques outlined in Table 1 were used by XRAY Assay Labs Ltd., Toronto.

TABLE 1: Summary of Analytical Techniques

Component	Method	Detection Limit
major element oxides	XRF	0.01 %
whole rock minor elements	XRF	10.00 ppm
Cu	DCP	0.05 ppm
Zn	DCP	0.05 ppm
Pb	DCP	2.00 ppm
As	FAA	0.01 ppm
Sb	NA	0.20 ppm

TABLE 1: (cont'd)

Component	Method	Detection Limit
Sn	XRF	3.00 ppm
W	NA	1.00 ppm
Mo	DCP	1.00 ppm
Hg	Wet	5.00 ppb
Ag	DCP	0.05 ppm
Au	FADCP	1.00 ppb

Control reference standard samples were inserted in the field sequence at a frequency of one in ten samples for the purpose of testing laboratory precision. Two types of standards were sent - a very pure dolomitic marble (CRS1) and a silicious dolomitic marble containing base metal sulphides (CRS2). The geochemical data for the standard samples has been compiled separately in Appendix V. In addition, blind laboratory duplicate samples consisting of a split of the previous crushed and ground rock sample were inserted at a frequency of 1 in every 15 analyses. Results indicate a high degree of precision in reproducibility of geochemical values for all elements throughout the duration of analytical work.

Database management and statistical manipulation of the geochemical and field data were carried out on a microcomputer system using commonly available software packages. Database management was performed using dBase III Plus ^{TM} while statistical manipulation of data and graphical representation was accomplished through the use of Statgraphics ^{TM}.

GENERAL GEOLOGY

Introduction

The George River Group is a loosely-defined stratigraphic assemblage of interbedded carbonate and detrital sedimentary rocks with minor volcanic rocks of variable metamorphic grade and of probable Late Precambrian to pre-Middle Cambrian age (Milligan, 1970). Weeks (1954, p.8) states that the name was probably first applied by Fletcher (1877) in the George River area to describe metamorphosed calcareous rocks interbedded with a succession of detrital metasedimentary and intrusive units. Weeks, however, favoured an Archean age for the group. He also alluded to problems in correlation between different areas underlain by George River rocks especially between the "type-section" at George River and the North Mountain and Eskasoni areas.

Metasedimentary rocks of the George River Group have been recognized throughout much of Cape Breton Island by two recurrent chararacteristic lithologies - arenite and carbonate. Within the areas examined, carbonate units vary from relatively pure crystalline limestone and dolostone of very low metamorphic grade, as in the Craignish Hills and North Mountain areas, to more highly metamorphosed calcareous, dolomitic and silicious (calc-silicate bearing) marble of the Boisdale Hills and Lime Hill areas. Associated sedimentary rocks include quartzites, impure quarzites and feldspathic sandstones which stratigraphically bracket carbonate members. Argillaceous units are of more limited distribution as are volcanic rocks (tuffs, pyroclastics and flows) which are common in the Craignish Hills and North Mountain areas but virtually absent in the Boisdale Hills.

Throughout the Cape Breton Highlands, more highly metamorphosed and deformed carbonate-clastic metasedimentary rocks are less

obviously related to the southern George River Group lithologies. In the Cape North area, Macdonald and Smith (1980) have tentatively correlated semipelitic and pelitic gneisses, marble and calc-silicate-bearing gneiss of the Cape North Group with the George River Group, even though arenaceous and calcareous facies represent a relatively minor component of the sequence. Similarly, Precambrian (?) metasedimentary rocks in southeastern Cape Breton Highlands, informally grouped into the Ingonish River metasedimentary sequence by Raeside et al. (1984), have been referred to by previous workers as George River equivalent (Murray, 1976; Keppie, 1979). In fact, carbonate lithologies here are greatly subordinate to pelitic, semipelitic and psammitic units and the equivalence of George River Group clastic-carbonate rocks (as identified in the southern half of Cape Breton Island) with the Ingonish River metasedimentary sequence is tenuous (Barr, Raeside and Macdonald, 1985).

A description of the various lithologic members which form mappable units and a general dicussion of metamorphic and structural styles found in each of the main study areas follow. The descriptions are based to a large extent upon observations compiled during the recent geological and geochemical survey of Precambrian carbonate rocks. Detailed geologic maps for the Craignish Hills, Boisdale Hills and North Mountain areas showing distribution of all George River Group rocks can be found in Milligan (1970).

Craignish Hills

Carbonate rocks of the George River Group in the Craignish Hills are dominated by pure calcareous marble and crystalline to cryptocrystalline limestone. It is inferred without the benefit of thin section examination that metamorphic grade throughout the area is

low.

The most widely distributed unit is a banded calcareous marble, light to dark grey, blue or green tinted, medium to coarse grained and equigranular. The lighter layers are comprised of almost pure calcite grains, while the darker layers contain very fine grained argillaceous (micaceous) and/or carbonaceous material. The banding may reflect original compositional bedding or later metamorphic layering. Argillaceous marble units are characteristically more highly foliated than pure calcitic marbles. All marbles and limestones are highly fractured with calcite-filled veins pervasively crosscutting foliation. Sulphides are generally absent as accessory minerals.

The non-recrystallized limestone and dolostone beds appear to form relatively isolated units in the carbonate sequence, and are most commonly exposed at the upper and lower boundaries in contact with detrital sedimentary formations. Both limestones and dolostones are black to dark grey, massive, cryptocrystalline units, locally graphitic and perhaps argillaceous. The rocks are hard and fracture conchoidally but are pervasively cut by calcite and/or dolomite-filled fractures. Their presence can be considered anomalous, as the relatively unmetamorphosed carbonates appear to be in conformable contact with obviously recrystallized marbles. The absence of metamorphic textures may be explained by differences in heat conductivity resulting from chemical variations in carbonate sedimentary rocks (especially H_2O content). Similar relationships can be observed in skarn environments of the southwestern United States, where calcareous sedimentary formations 1 to 10 km distant from the intrusive contact may contain, at apparently random stratigraphic intervals, units of recrystallized limestones/marbles within an otherwise completely unmetamorphosed calcareous sequence.

Pure dolomitic marbles are generally rare in the carbonate sequence of the Craignish Hills, forming isolated lenses perhaps 2 to 5 metres in thickness. Dolomitic marbles occur either as light grey to buff, medium to coarse-grained, sugary-textured, buff weathering units or as massive, blue-grey, very fine-grained, highly fractured rock. Zones of dolomitization are commonly found within massive calcareous marble producing a brecciated texture and characteristic "lizard-skin" weathering pattern on outcrop surfaces.

Continuous stratigraphic sections of the carbonate sequences are rare but, where exposed, effectively illustrate the intimately interbedded nature of the marble and limestone members. For example, a 4 km stretch of East MacPhail Brook in the Upper Glencoe area exposed a highly deformed and thinly interbedded section (of indeterminable stratigraphic thickness) composed of 1-2 metre thick interbedded carbonaceous calcitic marble, argillaceous marble and banded calcitic marble; 3-4 m thick beds of pure buff-white calcitic marble; and wider interbeds of black argillaceous limestone, calc-argillite and slate at the upper and lower boundaries of the carbonate sequence. However, outcrop density decreases drastically away from the stream valleys and mappable units become almost impossible to trace along strike.

North Mountain

Carbonate units of the George River Group in the North Mountain area east of Lime Hill include marble and limestone/dolostone units similar to the Craignish Hills formations. The Lime Hill area itself is underlain by serpentine, calc-silicate and sulphide-bearing marble as well as clean dolomitic marble of medium to high metamorphic grade associated with high grade metasedimentary rocks and injection

complexes. The low grade terrain is typified by Kennedy's Big Brook (Campbell Brook) area. Here, a very pure, massive, calcitic marble, highly hematitic and pervasively cut by calcite and hematite-filled fractures, is dominant. Interbedded with this unit are numerous varieties of grey banded calcitic marbles, thinly foliated, micaceous, calcitic marbles and blue-grey, massive dolomitic marbles.

Cryptocrystalline, dark grey to black, massive limestones and dolostones similar to those found in the Craignish Hills, outcrop east of Kennedys Big Brook in a folded sequence of interbedded detrital sedimentary rocks. In the Marble Mountain area, a large block of crystalline calcitic and dolomitic marble is exposed in the pit and further north near MacAskills Lake. Units in this area include fine to coarse grained, white to buff, massive calcitic to dolomitic marble which may display minor talc-serpentine alteration (as in the lower quarry at Marble Mountain) and may contain minor calc-silicate minerals. Only locally is disseminated pyrite present.

In the Lime Hill area, it is immediately apparent that the carbonate and detrital sedimentary rocks have been affected by a much higher grade of metamorphism. This has led to the development of skarn lithologies including diopside and tremolite-bearing dolomitic marble, wollastonite-bearing calcitic marble and sulphide-bearing marble of economic interest. All display a retrograde talc-serpentine alteration overprint. The carbonate rocks are intermixed/interbedded in a highly complex structure with metapelitic gneisses and injection granitoid rocks suggesting that either: 1)the Lime Hill area represents an exposure of older Grenville-type basement upon which the younger George River sedimentary rocks (to the east) rest; or 2) the Lime Hill area represents a deeper stratigraphic level of the George River which has undergone more intense metamorphism due

to burial and/or contact metamorphism (Justino and Sangster, 1987).

Boisdale Hills

Metacarbonate rocks of the George River Group exposed in Boisdale Hills display the same amount of lithologic variability, but are of higher regional metamorphic grade, than carbonates in either the Craignish Hills or North Mountain areas. Varieties of grey banded calcareous to dolomitic marble dominate the sequence interbedded with more massive, white to buff calcitic and dolomitic marble plus minor, very fine grained, blue-grey, massive dolomitic marble. All units are calc-silicate-bearing containing from 1-2% fine grained diopside in layers to 50% megacrystic tremolite porphyroblasts in a calcite groundmass. Many units display a high mica content, predominantly phlogopite and biotite, while disseminated, fine grained pyrite (trace to 1%) is ubiquitous throughout the carbonate sequence.

In most areas, especially the block of carbonate rocks west of George River, retrograde metamorphism has resulted in talc-serpentine-calcite alteration of higher grade calc-silicate minerals such as forsterite, diopside or tremolite. Nowhere is this more evident than in the Scotch Lake quarry at the north end of the Boisdale Hills where pervasive serpentinization has resulted in the almost total alteration of earlier calc-silicate minerals. All evidence therefore suggests that George River Group carbonate rocks in the Boisdale Hills area have undergone metamorphism of greater intensity than in the Craignish Hills-North Mountain areas. The sequence is completely bounded in the west by younger intrusions while locally, contact metamorphic assemblages including calc-silicate and sulphide and/or magnetite skarns have developed adjacent to these intrusions. However, the entire carbonate sequence cannot in itself

be considered a skarn environment. More accurately, high-grade regional metamorphism could have led to the ubiquitous development of calc-silicate minerals and pyrite found in most carbonate units.

Cape Dauphin-New Campbellton Area

An almost continuous belt of George River carbonates plus minor metasediments extends along a belt 7 km long by 300 m (average) wide from Cape Dauphin south to the dolomite quarry at New Campbellton (Kellys Cove). The sequence is fault-bounded on the west by a major Late Proterozoic granitoid batholith (Kellys Mountain granite) and on the eat by apparently conformable petroliferous limestones and coal beds of Carboniferous age. Carbonate members of the George River Group consist of: 1) grey, banded to fissile calcitic marble which may be carbonaceous and micaceous; 2) green to pink, laminated calcitic marble with hematite, chlorite and epidote alteration; 3) buff to white, massive, crystalline very pure dolomitic marble ranging from a medium grained texture in the Cape Dauphin area to very fine grained in the quarry at Kellys Cove; and 4) black to dark grey, massive, cryptocrystalline limestone to argillaceous limestone.

The units appear to be of low metamorphic grade and nowhere is there evidence of contact metamorphism. Petrologically, the sequence can be most directly compared with George River carbonates of the Craignish Hills and North Mountain areas.

Cape Breton Highlands

Carbonate units throughout northern Cape Breton Highlands form narrow (<100 m) lenses within medium- to high-grade metasediments including metapelite, metasemipelite, quartzite and quartz-feldspar-

biotite gneiss. Minor metavolcanic units may also be associated with the carbonates. In the McMillan Flowage area, a tightly folded quartzite-carbonate horizon (part of the Ingonish River metasedimentary sequence) contains interbedded units of diopside and mica-bearing calcitic and dolomitic marble. The marble units are light grey to green to white, medium to coarse-grained, highly foliated and thinly banded with pervasive serpentinitic alteration. Narrow (<5 m) sulphide and calc-silicate-bearing skarn horizons occur within the carbonate units, some of which may be highly mineralized.

Further north in the Cape North area, carbonate lenses belonging to the cape North Group range in width from 30 cm to 100 m. In almost all outcrops examined, the marble unit consists of a relatively pure calcitic or dolomitic middle member with calc-silicate-bearing marble in contact with bounding metasedimentary rocks. The pure marble units are usually white to buff, coarse grained, foliated, with biotite, phlogopite and graphite lenses. The calc-silicate units are green-grey foliated marbles containing variable amounts of calcite, dolomite, diopside, tremolite, biotite, phlogopite and pyrite. Serpentine alteration is pervasive in the calc-silicate-bearing marble. The metamorphic grade of the enclosing metasediments reaches the sillimanite zone of the amphibolite facies (Barr, Jamieson and Raeside, 1985) which is the highest grade attained by any George River or affiliated rocks.

GEOLOGICAL AND GEOCHEMICAL CATEGORIZATION OF CARBONATE UNITS

Geological Criteria

A complex variety of lithologies has been recognized in George River Group and affiliated carbonate sequences examined throughout Cape Breton Island. Based on criteria such as chemical composition and intensity of metamorphism, most carbonate units fall into (or between) one of six basic lithologic categories. They are:

1. cryptocrystalline limestone, apparently non-recrystallized,
2. cryptocrystalline dolostone, apparently non-recrystallized,
3. fine to coarse grained calcitic marble, obviously recrystallized,
4. fine to coarse grained dolomitic marble, obviously recrystallized,
5. siliceous (calcareous or dolomitic) marble bearing a wide variety, of silicate minerals including micas and calc-silicates,
6. skarns of either calcareous or dolomitic affinity containing greater than 40% calc-silicate + Fe-rich minerals, and which may be characterized by contact metamorphic relationships.

A more detailed system of field categorization based on simple descriptive criteria such as colour, structure, and composition led to the recognition of approximately 60 lithologic units including carbonates, metasediments and igneous rocks (see Appendix I for a complete listing of rock types and their mnemonic codes). To facilitate mapping, a generalized geologic legend shown in Table 2 was assembled to include the following units (comprised of the rock types shown in brackets).

TABLE 2: Generalized Geological Legend
Precambrian Carbonate-dominated Terrain of Cape Breton

8. Intrusive Rocks
   a. granite (GRNT)
   b. quartz monzonite (QZMZ)
   c. granodiorite to quartz diorite (GRDI, QRZD, BQDI, HQDI)
   d. mafic diorite (BIDI, HBDI)
   e. syenite (SYNT)
   f. diabase (DBSE)
   g. gabbro (GBRO)

7. Metavolcanics (CTFF)

6. Metasediments (BSHL, CQZT, GPSC, HCSH, MARG, MGWK, MSPL, QFBG, SLST)

5. Skarns
   a. Ca-skarn
   b. Mg-skarn (MGSK)
   c. Ca + Mg skarn (CSSK, DCSK)
   d. sulphide skarn (GOSS)
   e. magnetite skarn (DMSK, MAGO, MASK, MASO)

4. Limestones
   a. relatively pure (BLST, GLST, HCLB, PLST)
   b. dolomitic (BDLT, GDLT)
   c. graphitic (GPLT)

3. Dolostones

   a. relatively pure (BDST, BKDT, GDST)

   b. calcitic

   c. graphitic

2. Calcitic Marbles

   a. relatively pure (BCMB, BFCM, BGCM, BKCM, BRCM, GBCM, GCMB, GRCM, HCMB, MCCM, PFCM, WBCM, WCMB, WGCM)

   b. dolomitic (BDCM, DCMB, GDCM, HDCM, WDCM)

   c. micaceous (ALCM, DMCM)

   d. calc-silicate + quartz bearing (CCMB, DQCM, DTMB, ECMB, EHCM, TRMB)

   e. graphitic (GPCM)

1. Dolomitic Marbles

   a. relatively pure (BDMB, BFDM, BWDM, GBDM, GDMB, GRDM, HDMB, MCDM, WDMB)

   b. calcitic (BCDM, CDMB, GCDM)

   c. micaceous

   d. calc-silicate + quartz bearing (CSMB)

   e. serpentinitic (CSDM, SDMB, WSDM)

Carbonate rocks in particular were described on the basis of colour, dominant carbonate mineralogy, dominant accessory mineralogy, structure (banded, laminated, massive) and degree of recrystallization or metamorphism. Further field descriptions of individual samples have been recorded in alphanumeric code in Appendix IV.

In attempting to correlate carbonate formations based on geological criteria alone, it is apparent that three distinct

metamorphic-stratigraphic carbonate assemblages characterize Proterozoic/Paleozoic metasedimentary terrain of Cape Breton Island (Hill, 1987). Carbonates underlying Craignish Hills, North Mountain (excluding the Lime Hill area) and the Cape Dauphin/Kellys Cove area are of low metamorphic grade forming thick, predominantly calcareous units associated with argillaceous and less commonly quartzitic metasedimentary and metavolcanic rocks - an assemblage representative of basinal sedimentary facies. The Boisdale Hills and Lime Hill areas are composed of silicious calcitic and dolomitic carbonate units which have been subjected to much higher intensities of metamorphism, generating forsterite-diopside-tremolite or diopside-wollastonite mineral assemblages. Associated lithologies are dominated by arenaceous metasedimentary rocks, including quartzite and feldspathic sandstone. The third category of metacarbonate rock includes the narrow, discontinous, calcitic to dolomitic and silicious marble layers and lenses of the Ingonish River metasedimentary sequence and Cape North Group associated with major thicknesses of moderate to high metamorphic grade (sillimanite zone) mica schists, quartz-feldspar-biotite gneisses and quartzites. Carbonate represents a very minor lithofacies within extensive, high-grade detrital metasedimentary sequences. Although the classic quartzite-carbonate association has locally been recognized, the correlation of Cape Breton Highlands carbonate units with formations belonging to the George River Group underlying Craignish Hills, for example, is not appropriate.

The geochemical data tends to reflect this broad-based classification system whereby carbonate populations originating from the four study areas can be defined on the basis of distinct chemical signatures. The following section examines the relationships in more detail.

Geochemical Criteria

The previous section outlined a geologic/lithologic system of carbonate rock classification based on macroscopic mineralogy, reaction to dilute HCl, field relationships and other physical characteristics. Carbonate rocks are however, more properly classified according to chemistry; specifically CaO:MgO ratio plus silica content (eg. Goudge, 1938; Hewitt, 1960; Pettijohn, 1975). A system outlined by Storey and Vos (1981) for Grenville-age marbles in the Renfrew area of Ontario has been applied to similar Precambrian marbles of Cape Breton Island. Table 3 below summarizes marble categories based on chemistry using a lithologic legend similar to that devised for mapping purposes. Each sample listed in Appendix IV therefore has been classed according to geologic criteria (as defined in Table 2) and chemistry (as defined in Table 3 below).

TABLE 3: Chemical Classification of Precambrian Carbonate Rocks, Cape Breton Island

Unit	Description	SiO_2	Cao:MgO
1A	pure dolomitic marble	< 5%	1.20 - 1.67
1B	calcitic dolomitic marble	< 5%	1.67 - 3.95
1C	silicious dolomitic marble	5 - 20%	< 3.95
1D	calc-silicate dolomitic marble	20 - 50%	< 3.95
2A	pure calcitic marble	< 5%	> 24.40
2B	dolomitic calcitic marble	< 5%	3.95 - 24.40
2C	silicious calcitic marble	5 - 20%	> 3.95
2D	calc-silicate calcitic marble	20 - 50%	> 3.95
3A	dolostone	< 5%	1.20 - 1.67
3B	calcitic dolostone	< 5%	1.67 - 3.95
3C	silicious dolostone	5 - 50%	< 3.95
4A	limestone	< 5%	> 24.4
4B	dolomitic limestone	< 5%	3.95 - 24.4
4C	silicious limestone	5 - 50%	> 3.95

Comparison between geologically defined lithotype and designated chemical class for individual samples provides an indication of the accuracy of field categorization procedures. Examining the characteristics of chemically-defined carbonate populations also reveals a number of quantitative and empirical relationships

1. Most pure calcitic (unit 2A) and pure dolomitic (unit 1A) marble populations can be accurately identified in the field based on reaction with dilute HCl. For marbles of intermediate composition (calcitic dolomitic and dolomitic calcitic marbles), the distinction is more discrete without the benefit of whole rock geochemistry. However, it is reassuring that samples of intermediate composition were correctly identified in terms of dominant composition based on field categorization techniques ie. most samples were correctly identified as being either predominantly dolomitic (Unit 1) or calcitic (Unit 2).
2. Difficulties arise in attempting to identify and quantify the silica component of marbles by macroscopic examination. In outcrop, very fine grained marbles containing calc-silicate minerals or quartz in the groundmass were difficult to identify. More commonly they were classed as "pure" calcitic or dolomitic units. It was also found that high-silica calcitic marbles were more likely to be identified as dolomitic lithologies based upon their low reactivity with dilute HCl.
3. Base metals (Cu + Zn) tend to be concentrated in silicious dolomitic marbles (Unit 1C) although anomalous concentrations can be found within all populations eg. up to 1800 ppm Zn and 170 ppm Cu in "pure" dolomitic marbles of the Boisdale Hills. In general, background Zn and Cu levels are higher in calcitic than in dolomitic marbles of the Craignish Hills while the opposite is

true of the Boisdale population.

4. Colour and textural variations found throughout any one lithologic unit do not appear to create noticeable chemical diversity within the population. It is concluded that colour in particular is not a suitable lithologic property with which to differentiate carbonate units on a regional basis

Statistical evaluation of marble populations was performed on data subsets created using the geological categorization system. Statistical measurements for each of the four largest populations (ie. Craignish and Boisdale calcitic and dolomitic marbles) have been calculated and the results summarized in Table 4. Histograms for a selected number of elements have also been constructed (Appendix VI). Unlike the observations made earlier, the statistical calculations were performed on lithologically diverse populations (ie. each population is made up at least five lithologic subunits). As a result, most histograms show highly skewed or bimodal distributions. The statistical calculations however reveal a number of interesting relationships.

1. The alumino-silicate component, probably representing a detrital fraction in the carbonates, tends to be higher in calcitic than in dolomitic marbles. This is contrary to trends found in similar Precambrian carbonate assemblages, for example those of the Grenville Province, where silicious dolomitic marbles dominate the stratigraphic sequence.
2. The large ion lithophile elements associated with carbonate depositional environments (eg. Ba and Sr) continue to show strong correlation with Ca in calcitic marbles. The present distribution therefore reflects the chemistry of the original

sedimentary environment and appears to have remained relatively unaltered by post-depositional events.

3. Based on arithmatic mean and median values for selected components, distinct chemical signatures define each of the carbonate populations underlying the four study areas. This observation supports earlier models which tentatively defined, on the basis of geological criteria, three major stratigraphic-metamorphic assemblages to which all Precambrian carbonate sequences are related.

TABLE 4: Statistical Summary of Precambrian Marbles in Cape Breton Island

1 = Calcitic Marbles of the Boisdale Hills (n = 34)
2 = Dolomitic Marbles of the Boisdale Hills (n = 45)
3 = Calcitic Marbles of the Craignish Hill (n = 103)
4 = Dolomitic Marbles of the Craignish Hills (n = 28)
5 = Marbles of the Kellys Cove Area (n = 18)
6 = Marbles of the Cape Breton Highlands (n = 19)

PARAMETER	SIO2	AL2O3	CAO	MGO	NA2O	K2O	FE2O3	MNO	TIO2	P2O5	LOI	CR	SR	RB	Y	ZR	NB	BA	CU	ZN	PB
ARITHMATIC MEAN																					
1.	11.78	1.63	41.03	8.81	0.10	0.39	1.06	0.04	0.08	0.04	34.52	5.6	334.4	16.8	6.9	8.5	10.0	29.1	4.1	63.4	20.7
2.	10.79	1.41	34.23	15.55	0.16	0.24	0.77	0.06	0.07	0.08	36.51	5.4	204.7	15.3	6.6	9.0	10.4	37.9	11.3	152.8	35.3
3.	4.50	0.89	49.50	2.65	0.05	0.14	0.47	0.03	0.04	0.04	41.36	5.0	272.7	10.1	6.6	5.8	10.5	27.9	1.8	23.7	5.3
4.	3.57	0.41	31.20	19.58	0.06	0.05	0.66	0.06	0.03	0.04	44.43	5.0	117.9	10.4	6.2	5.0	10.7	18.6	0.6	11.0	2.2
5.	6.34	1.48	41.89	8.71	0.10	0.33	0.79	0.07	0.12	0.05	40.28	5.3	270.6	14.2	7.2	14.4	14.2	48.7	3.5	155.9	154.1
6.	15.37	1.86	36.95	9.88	0.13	0.34	1.63	0.15	0.11	0.13	33.61	7.9	367.9	21.0	9.5	12.9	11.6	80.8	8.8	192.4	13.9
MIN. VALUE																					
1.	1.29	0.21	20.70	1.24	0.02	0.02	0.12	0.005	0.01	0.02	10.39	5.0	120.0	5.0	5.0	5.0	5.0	5.0	0.25	4.0	1.0
2.	0.68	0.07	18.70	2.85	0.005	0.01	0.11	0.01	0.01	0.01	3.77	5.0	30.0	5.0	5.0	5.0	5.0	5.0	0.25	3.0	1.0
3.	0.65	0.05	30.70	0.20	0.005	0.01	0.10	0.005	0.005	0.01	24.39	5.0	40.0	5.0	5.0	5.0	5.0	5.0	0.25	1.5	1.0
4.	0.42	0.05	25.70	7.10	0.03	0.01	0.16	0.01	0.01	0.01	34.85	5.0	50.0	5.0	5.0	5.0	5.0	5.0	0.25	2.5	1.0
5.	0.64	0.09	30.10	0.63	0.03	0.01	0.005	0.005	0.01	0.01	25.85	5.0	20.0	5.0	5.0	5.0	5.0	5.0	0.25	4.5	1.0
6.	0.73	0.07	19.70	0.63	0.04	0.01	0.005	0.01	0.02	0.02	13.16	5.0	20.0	5.0	5.0	5.0	5.0	5.0	0.25	3.5	1.0
MAX. VALUE																					
1.	38.70	8.55	51.40	18.80	0.58	3.80	5.71	0.20	0.45	0.19	44.46	20.0	730.0	60.0	20.0	80.0	30.0	250.0	29.0	600.0	460.0
2.	49.60	12.10	51.50	23.70	1.20	1.86	4.25	0.19	0.56	0.31	46.16	20.0	890.0	80.0	20.0	100.0	30.0	410.0	170.0	1800.0	610.0
3.	28.50	5.12	55.10	12.90	0.62	2.07	2.93	0.28	0.26	0.41	44.54	5.0	1110.0	50.0	20.0	40.0	20.0	170.0	15.0	580.0	240.0
4.	15.80	1.47	45.00	23.00	0.10	0.21	2.44	0.16	0.09	0.20	46.50	5.0	300.0	30.0	20.0	5.0	20.0	190.0	5.0	46.0	20.0
5.	22.70	6.76	54.70	22.50	0.32	1.59	3.72	0.21	0.79	0.19	46.16	10.0	1000.0	40.0	20.0	100.0	30.0	300.0	40.0	1900.0	2600
6.	44.30	8.23	53.30	23.60	0.43	1.81	6.47	0.63	0.45	0.46	45.62	30.0	1110.0	90.0	30.0	120.0	20.0	580.0	41.0	2400.0	160.0
MEDIAN																					
1.	12.35	0.76	42.20	8.38	0.06	0.15	0.53	0.03	0.03	0.04	34.62	5.0	330.0	10.0	5.0	5.0	10.0	20.0	1.5	15.5	1.0
2	4.43	0.44	31.10	19.10	0.07	0.08	0.58	0.04	0.03	0.04	40.62	5.0	150.0	10.0	5.0	5.0	10.0	20.0	1.0	30.0	2.0
3.	2.78	0.60	51.00	1.44	0.04	0.05	0.27	0.01	0.03	0.03	42.46	5.0	220.0	10.0	5.0	5.0	10.0	20.0	1.0	9.5	1.0
4.	1.68	0.33	30.45	20.50	0.06	0.02	0.48	0.06	0.02	0.03	45.50	5.0	100.0	10.0	5.0	5.0	10.0	7.5	0.25	8.2	1.0
5.	4.90	0.70	46.00	2.87	0.06	0.04	0.49	0.06	0.05	0.03	41.23	5.0	160.0	10.0	5.0	5.0	10.0	20.0	0.75	19.5	1.0
6.	12.00	0.88	33.20	5.89	0.08	0.11	0.79	0.14	0.07	0.13	36.23	5.0	200.0	10.0	5.0	5.0	10.0	40.0	2.0	42.0	1.0
STANDARD DEVIATION																					
1.	9.58	2.02	7.37	4.71	0.11	0.68	1.31	0.04	0.10	0.03	8.48	2.7	146.5	11.8	3.9	13.1	5.4	42.8	6.3	135.9	80.1
2.	13.02	2.41	7.97	7.32	0.27	0.42	0.81	0.04	0.10	0.08	11.07	2.3	164.0	14.8	3.5	16.9	5.4	72.2	28.2	350.9	109.8
3.	4.65	0.86	4.88	3.00	0.08	0.26	0.55	0.04	0.04	0.04	3.34	0.0	185.5	7.3	3.4	4.1	4.4	26.9	2.3	68.8	24.7
4.	4.65	0.33	3.49	3.37	0.02	0.06	0.54	0.04	0.02	0.04	2.74	0.0	63.3	6.2	3.2	0.0	4.8	35.7	1.1	9.4	3.7
5.	6.39	1.85	9.62	9.68	0.09	0.53	1.00	0.06	0.19	0.05	5.68	1.2	285.9	9.9	3.9	25.1	7.3	79.1	9.2	443.5	610.9
6.	14.44	2.09	11.16	8.33	0.11	0.53	1.77	0.15	0.11	0.10	10.51	7.1	357.0	22.0	7.6	26.6	4.7	137.6	13.4	540.6	37.6

The last observation is best illustrated by a graphic representation of the chemical differentiation between marble sequences obtained through the construction of notched box and whisker diagrams (Figures 2 to 7). The plots are defined by the following statistical parameters for each population (McGill et al., 1978):

a) upper and lower quartiles of the population define the top and bottom edges, respectively, of the box horizontally bisected by the median value (50th percentile);

b) "whiskers" cover sample points 1.5 times the interquartile range while extreme points beyond are plotted as individual adjacent values;

c) box widths are proportional to the square root of the number of observations in a sample population; and

d) notches correspond to the width of the 95th confidence interval and are a measure of the population's standard deviation. It should be noted that large standard deviation values characterizing Cape Breton Highlands and Kellys Cove data are a function of the relative small size of the populations and necessarily imply a low confidence in the calculated median value.

FIGURE 2: Comparative Statistics for Carbonate Populations - SiO2

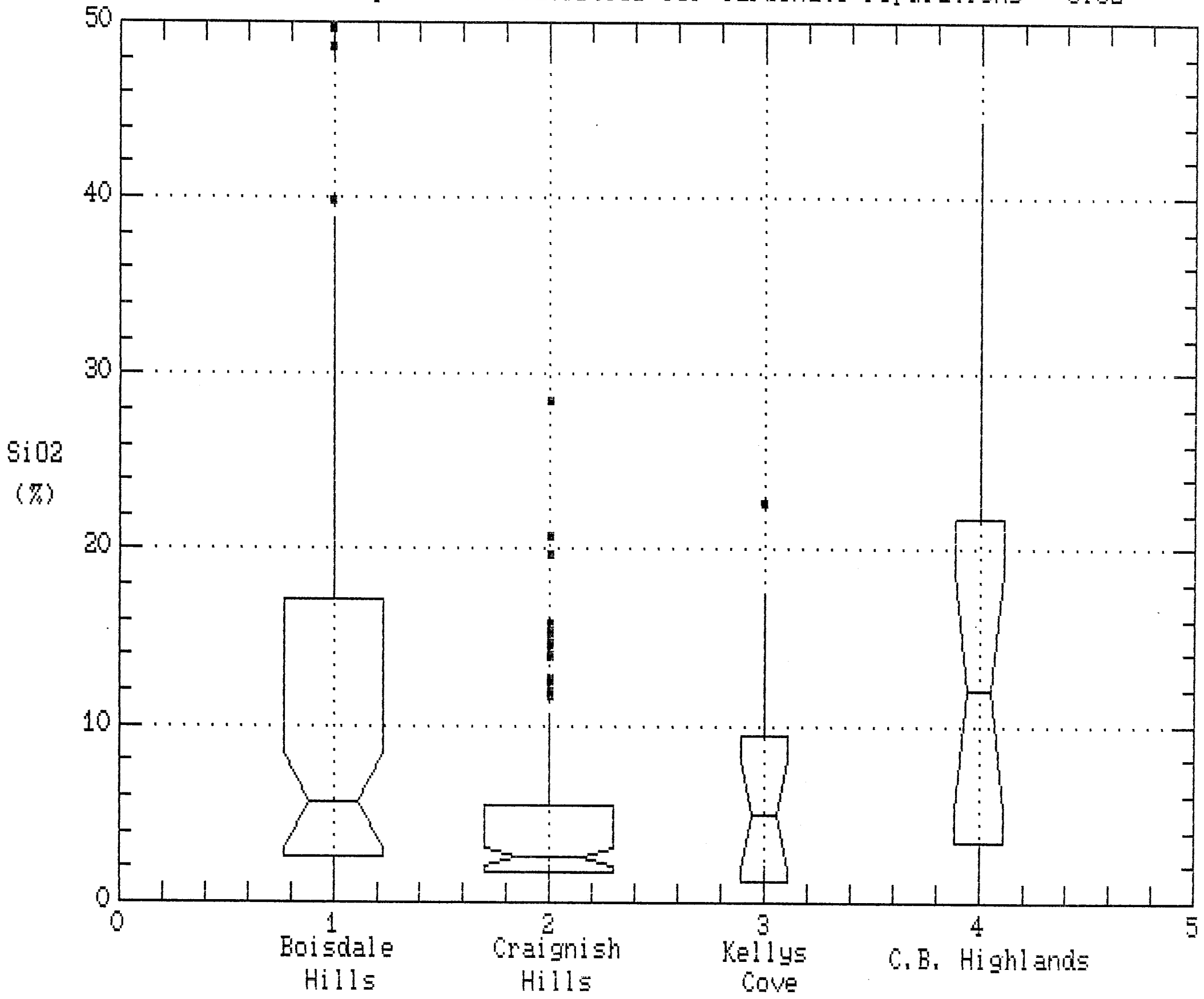


FIGURE 3: Comparative Statistics for Carbonate Populations - Al2O3

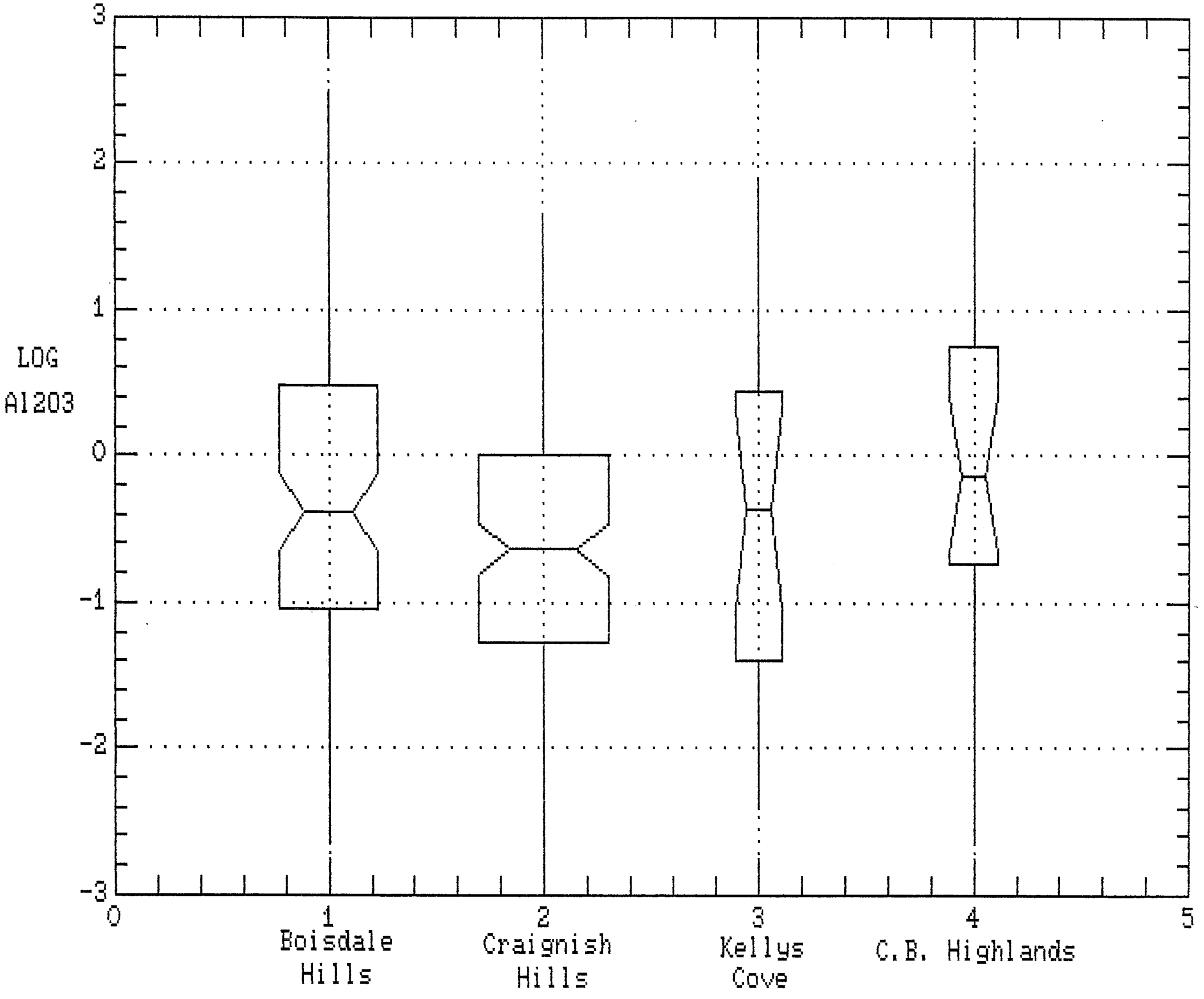


FIGURE 4: Comparative Statistics for Carbonate Populations - Cu

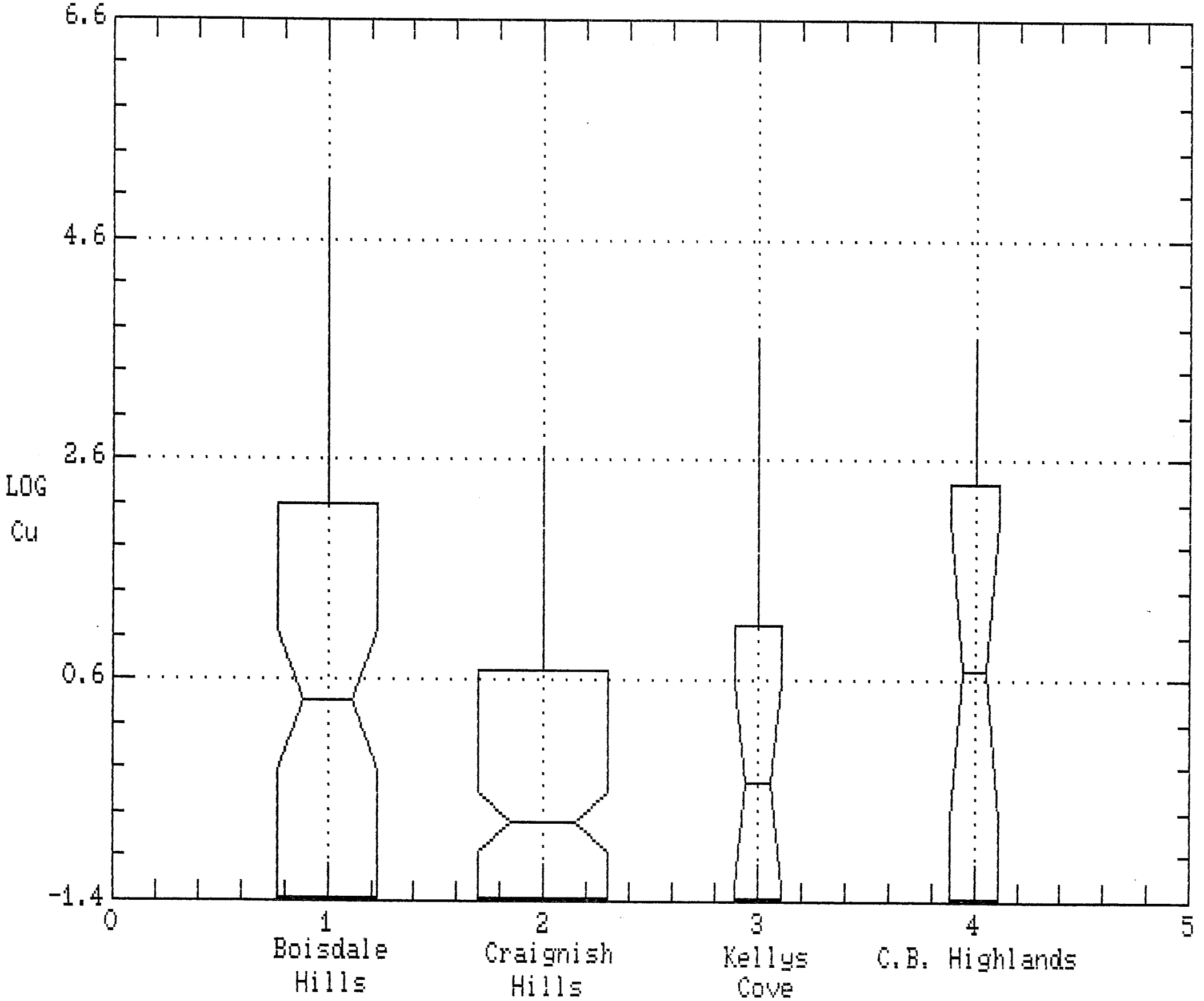


FIGURE 5: Comparative Statistics for Carbonate Populations - Zn

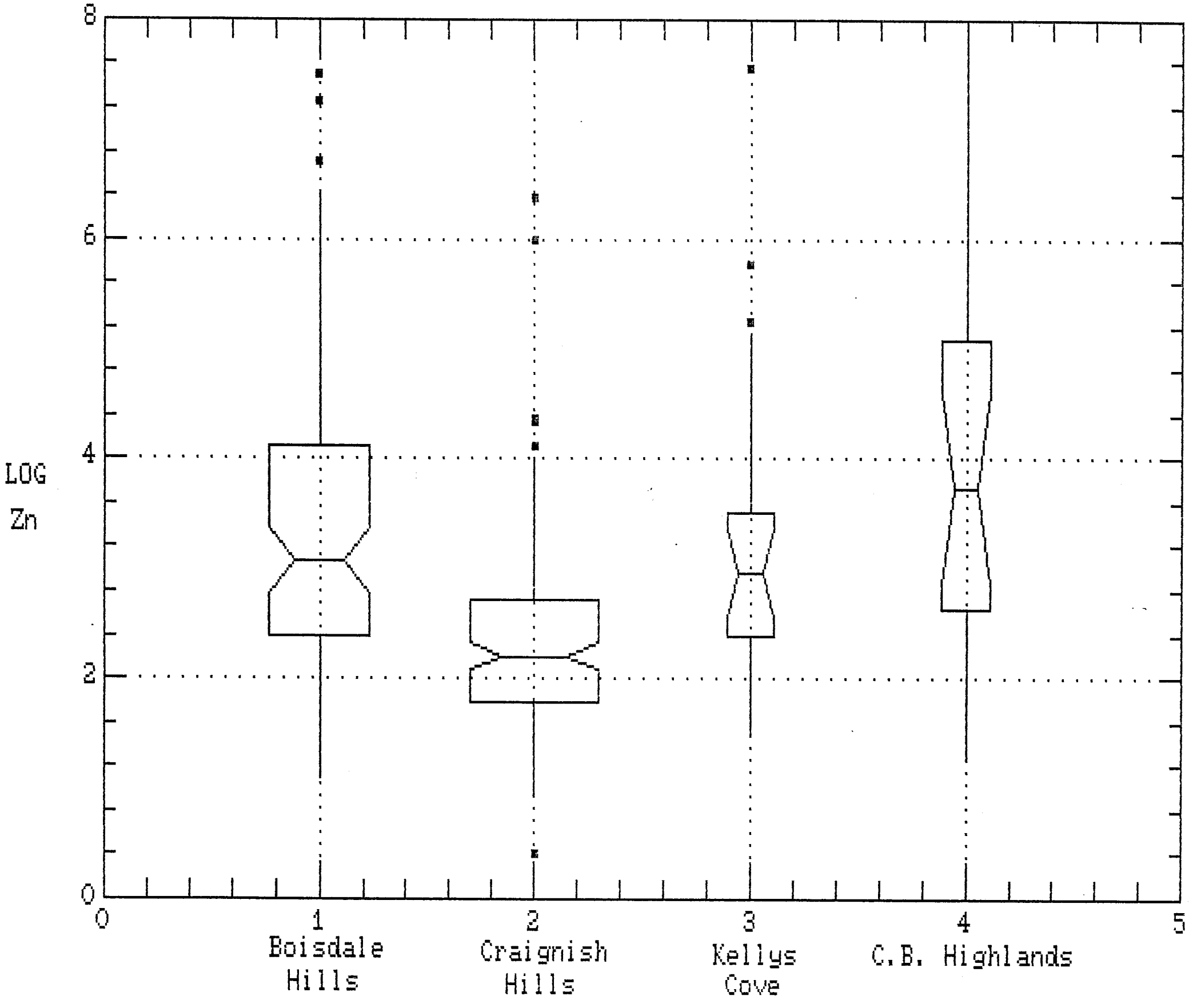


FIGURE 6: Comparative Statistics for Carbonate Populations - MnO

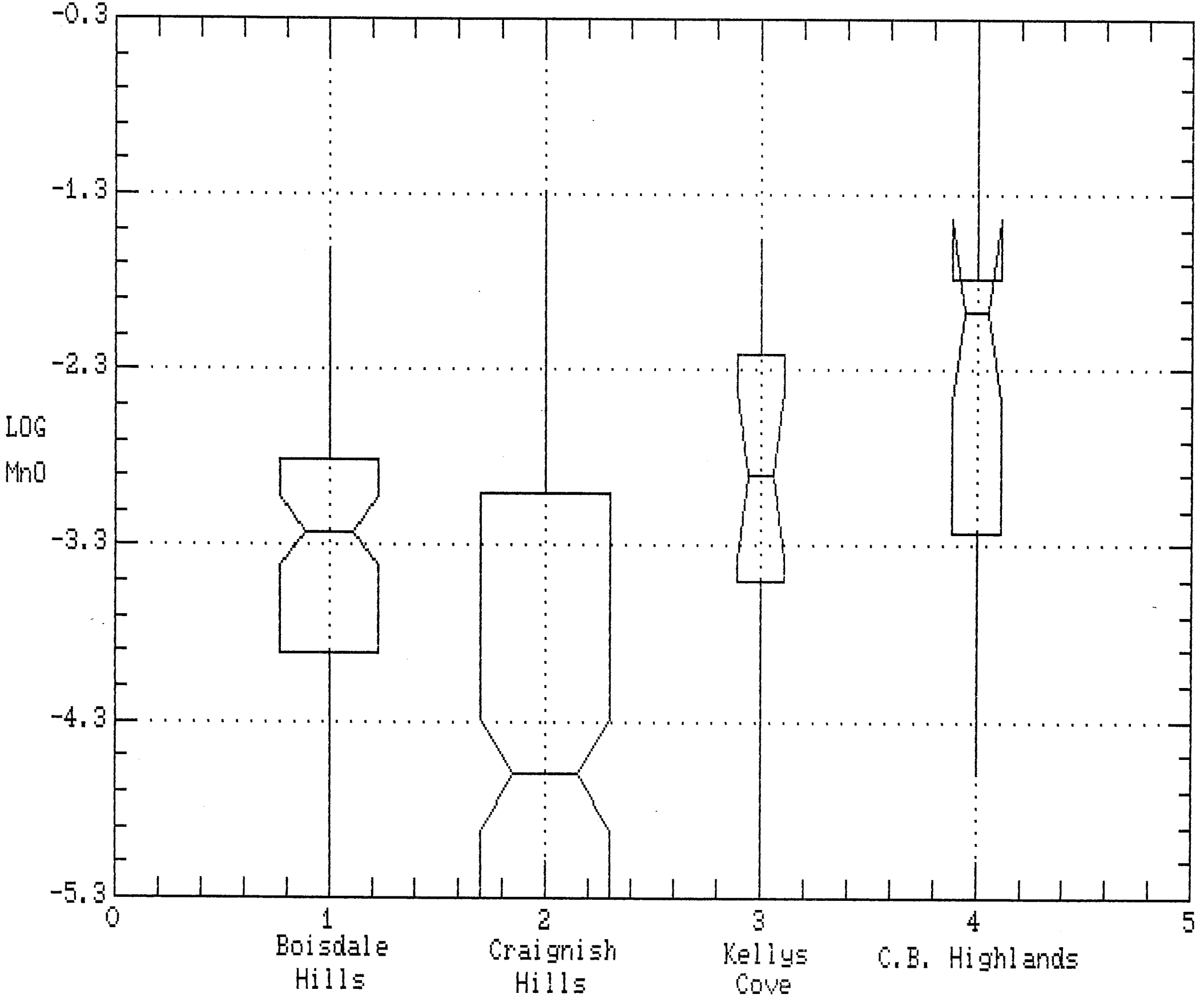
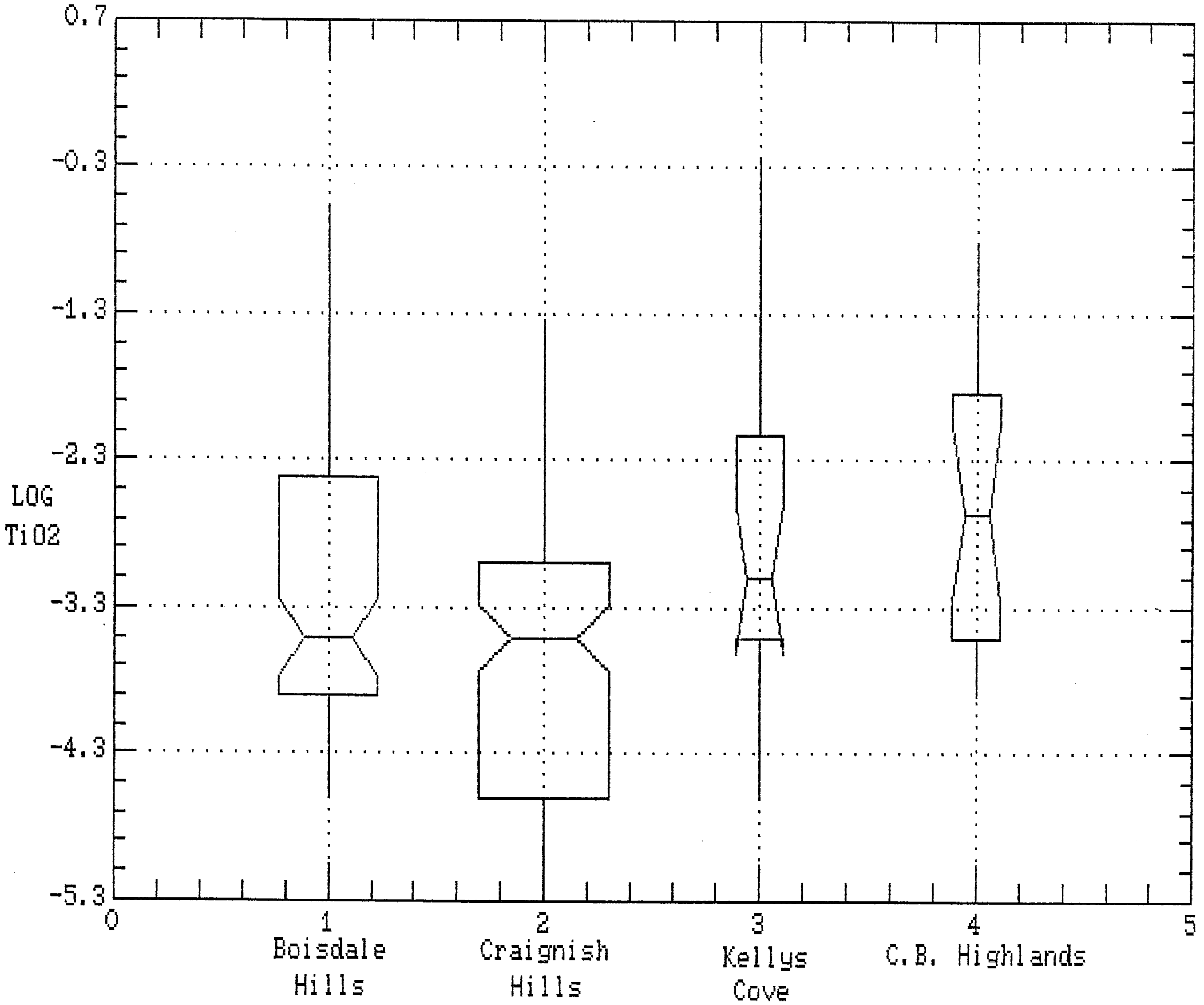


FIGURE 7: Comparative Statistics for Carbonate Populations - TiO2



An examination of the diagrams for selected elements showing the greatest variation between areas indicates that carbonate assemblages from the Craignish Hills, Boisdale Hills and Cape Breton Highlands represent three unique geochemical populations. The Kellys Cove assemblage, contrary to geological criteria, appears more closly related chemically to the Boisdale Hills carbonates than the Craignish marbles. A number of theories relating to the origin and post-depositional history of the carbonate assemblages are suggested by these observations. Enrichment in the granitoid suite elements shown by the Boisdale, Highlands and, to a lesser extent, the Kellys Cove carbonate assemblages is indicative of either a large detrital sedimentary component or a post-depositional, hydrothermal metasomatic event. The relative importance of depositional versus post-depositional processes in the development of observed chemical signatures can be approximated by examining dominant element associations in each carbonate assemblage.

The calculation of a correlation matrix for all elements within each population is a crude but effective method of discriminant analysis which targets those elements showing a high degree of interdependence. Element associations are summarized in Table 5 below.

TABLE 5: Element Associations in Carbonate Populations Based on Correlation Coefficients

Assemblage	Strong Pos.Correlation (avg. coeff. > 0.65)	Weak Pos. Correlation (avg. coeff. 0.45 - 0.65)
Craignish	Si-Al-Na Al-Na-K-Ti-Zr Zn-Pb	Al-Ti-Ba
Boisdale	Si-Al-Na Al-Na-Ti-Zr-Cr Cr-Zr-Ti Al-K-Ti-Rb	Cu-Pb-Zn
Kellys Cove	Si-Al-K-Fe-Ti-P-Cr-Zr-Ba-Cu-Zn-Pb	
Cape Breton Highlands	Al-K-Ti-Cr-Rb-Y-Zr Al-K-Cu Zn-Pb	Si-Na-Ti-Zr-Cu

As shown in Table 5, both the Craignish and Boisdale sequences are characterized by similar strong granitoid element associations, unrelated to the chalcophile suite of Cu + Zn + Pb. This suggests that the present chemical composition of Boisdale and Craignish carbonate rocks reflects a detrital sedimentary component. The presence of Cr in the Boisdale suite may, however, be a function of metasomatism associated with the emplacement of mafic dykes so commonly observed in the field. In contrast, marbles of the Kellys Cove area show strong correlation between granitoid and chalcophile elements, possessing a felsic potassic granitoid association closely related in composition to the adjacent Kellys Mountain pluton. It is therefore suggested that the assemblage displays a chemical signature representative of a strong metasomatic overprint. The Cape Breton Highlands assemblage shows similar, although less well developed, evidence of metasomatic activity in which the granitoid suite of elements is strongly

correlated with Cu. Lithologic relationships are less well defined in Highlands carbonate members due to the high grade of regional metamorphism, however, contact metasomatic relationships have been described at an number of localities which lends credence to the geochemical data.

Conclusions

Both geological and geochemical criteria suggest that sequences of Precambrian carbonate rocks underlying Cape Breton Island can be a differentiated on the basis of discrete lithologic, sedimentologic and metamorphic relationships. It is also evident that the geochemical data supports a geologic categorization system consisting of three major stratigraphic-metamorphic assemblages into which all carbonate formations underlying the four study areas can be placed. The Craignish Hills assemblage, which includes carbonate members of the George River Group underlying North Mountain but not those underlying Lime Hill, represents a relatively clean, compositionally uniform, predominantly calcareous carbonate sequence associated with a basinal (island arc?) sedimentary environment. The Craignish rocks have undergone only a very low grade of regional metamorphism.

The Boisdale Hills assemblage represents a "dirtier" carbonate sequence containing a greater detrital sedimentary component than the Craignish units. It can be considered more closly related to a near-shore, deltaic sedimentary environment. All carbonates of the Boisdale sequence have undergone a higher grade of regional metamorphism and only locally is there evidence of hydrothermal (contact) metasomatism. The higher background base metal content of these marbles, in comparison with the Craignish carbonates, is probably related to the original depositional environment or to

diagenetic processes and does not appear to be evidence of a major regional metasomatic event associated with large-scale post-diagenetic plutonism.

The Kellys Cove assemblage is closely related by chemistry to the Boisdale sequence but lithologically shows closer affinities to the Craignish Hills assemblage. The high degree of correlation between granitoid and chalcophile elements suggests that the entire assemblage has undergone a major, post-depositional contact metasomatic event probably related to intrusion of the Kellys Mountain quartz monzonite.

Carbonate members associated with high-grade metasedimentary sequences underlying Cape Breton Highlands comprise the third unique sedimentary assemblage characterized by the highest granitoid suite element component of all the carbonate formations. The unique chemistry may partially be a function of detrital contamination of the original depositional environment. Evidence also suggests that, locally, intrusive-related contact metasomatism of these high-grade metasediments has altered the original chemistry.

GEOLOGY AND GEOCHEMISTRY OF CARBONATE-HOSTED MINERAL OCCURRENCES

Introduction

Precambrian marbles of George River Group and related formations are host to a variety of metallic and industrial mineral occurrences of potential economic value. Historically, Fe deposits such as those at Currie Mine, Macpherson Mine and Upper Glencoe were actively investigated as potential sources of ore for the steel mills at Sydney with minor amounts shipped during the late 1800's and early 1900's. More recently, increased activity in the base metal markets led to the discovery of Zn deposits at Lime Hill and Meat Cove during the 1950's.

Of greater economic significance are deposits of calcitic and dolomitic marble representing sources of bulk industrial minerals for the metallurgical, agricultural and construction sectors. The Scotch Lake, Frenchvale and Marble Mountain quarries were once active producers of metallurgical grade material for the steel industry, agricultural lime, dimension stone and aggregate. Other minor operations involved recovery of filler grade dolomite from the Churchview quarry near Whycocomagh, dimension stone from the Marble Mountain quarry and talc from the Frasers Mill area. Recently, high purity dolomitic marbles in the New Campbellton area have been recovered for potential metallurgical and agricultural application.

Geological and geochemical data collected from carbonate-hosted metallic and industrial mineral occurrences examined during the 1986 field study are listed in Appendices II and III, respectively. General observations are dicussed below and metallogenic models dealing with deposit classification and origin are suggested based on results of the current study as well as those of previous workers. It is felt however that considerable additional work is necessary before

reliable genetic models can be established and applied to metallic deposits of the types found in Precambrian marbles of Cape Breton Island.

Metallic Mineral Occurrences

A summary of discrete geological characteristics of 11 metallic mineral occurrences examined during 1986 is outlined in Table 6. Much of the data is based on field observations by the author but with additional data on mineral assemblages and ore geometry taken from various published reports. It must be remembered that few of the occurrences are well exposed and many of the ore-grade samples were collected from waste heaps adjacent to old workings. Geochemical values for samples collected from the showings are listed in Appendix II which also includes coded lithologic descriptions for each sample.

A majority of the showings display mineralogic characteristics similar to skarn deposits; including a moderate to high metamorphic grade calc-silicate + Fe-rich mineral assemblage with a retrograde alteration overprint. Intrusive rocks commonly are spatially associated with mineralization but only rarely (Whycocomagh, McMillan Brook and Meat Cove) is intrusive-hosted mineralization present. In comparison to Paleozoic skarn environments of the southwestern United States however Paleozoic or older skarns of the George River Group display complex lithologic and metallogenic relationships resulting from numerous phases of deformation and metamorphism. For example, it is extremely difficult without the benefit of mineral chemistry data to differentiate between prograde metamorphic assemblages produced by regional events and high-grade contact metamorphic $\pm$ metasomatic assemblages related to a single intrusive system. In fact, as discussed in the previous chapter, it is apparent in many areas that

prograde metamorphism is related to a regional low pressure, high temperature event which generated mineral assemblages dependent upon the original composition of the carbonates.

TABLE 6: Summary of Marble-hosted Metallic Mineral Occurrences

#	Occurrence	Metals	Mode of Mineralization	Host Lithologies	Prograde Assemblage	Alteration
1.	Whycocomagh	Fe,Cu, W,Mo	endo- and exo-skarn replacement + fracture-controlled mag,cpy,py, sch,moly,po	calc. to dol. marbles, granodiorite intrusive	diopside-forsterite-garnet,tremolite	tremolite (?) talc-serp-chl chl-sericite
2.	Upper Glencoe	Fe,Cu	skarn(?), replacement mag,py,cpy,mal	calc. marble xenolith in monzodiorite pluton	diopside-forsterite(?)	talc-serp-epidote
3.	Lime Hill	Zn,Fe, Cu,Pb,W	banded, disseminated sph cpy,py,po,aspy,sch; shear zone-controlled py	serpentinized dolomitic marble	forsterite-monticellite wollastonite	serp-talc-phlogopite serp-sericite
4.	Macdonald Shaft	Fe,Cu	massive + vein-controlled py,mag,cpy,mal	silicious calcitic marble	diopside-tremolite	talc-serp-chlorite
5.	Currie Mine	Fe,Cu	massive, bedded(?) specular hem; trace mag,py	banded calc. marble	phlogopite-diopside	talc-serp-ser-chl
6.	Rear Boisdale	Fe,Zn,Pb Ag,Cu,W	massive replacement + stringer py,sph,gal,po, cpy,aspy	graphitic, micaceous, calc. marble	not apparent	talc-serp-chlorite
7.	MacPherson Mine	Fe,Cu	fracture-controlled mag, py,cpy	serp., calc. to dol. marble, diabase dyke	not apparent	talc-serp
8.	Frenchvale, Campbell Lk.	Pb,Cu	rare disseminated gal,cpy	micaceous dol. and calc. marble	tremolite-biotite	talc-serp-chl-sericite
9.	McMillan Bk.	Fe,Cu,Zn Sn,W,Mo	massive replacement + vein py,cpy,po,bo,sph; endoskarn py,po,cpy,bo; disseminated cass,sch,moly	silicious calc. and dol. marbles; qtz. monzonite	forsterite-monticellite diopside-forsterite (Chatterjee, 1977)	talc-tremolite antigorite
10.	Barachois R.	Fe,Cu	massive statiform mag,py,bo	calc. and dol. marble, microdiorite	diopside-forsterite	talc-serp
11.	Meat Cove, Pine Brook	Zn,Fe,Cu Pb	massive replacement and banded disseminated sph,po; vein-controlled sph,gal,py; endoskarn py,bo,cpy	silicious dol. marble (Mg-skarn); hornblende syenite	forsterite-periclase-chondrodite-monticellite diopside-spinel (Chatterjee, 1979)	talc-brucite-antigorite

Three broad categories of metallic deposits based on dominant element association can be identified in the occurrences of Table 6. The categories are equivalent to those devised for skarn deposits by Einaudi et al. (1979) ie. Fe, Zn, and Zn-Pb-Ag skarns, however, little geochemical or mineralogical data is available to suggest that all carbonate-hosted metallic deposits are ultimatly related to contact metasomatic processes. More detailed mineral chemistry studies and, ideally, subsurface evaluation of many of the occurrences is necessary before any definitive metallogenic models can be proposed.

Most common are Fe-deposits in which magnetite and/or pyrite and pyrrhotite are dominant but which also may contain abundant Cu plus variable Zn, W, Mo or Sn-bearing minerals. Of the seven Fe-deposits investigated, only the Whycocomagh and McMillan Brook occurrences display intrusion-hosted mineralization characteristic of obvious contact metasomatic relationships. Although endoskarn mineralization appears to be absent, massive magnetite-pyrite-chalcopyrite at Upper Glencoe and at the Macdonald shafts appears to have formed by replacement of calc-silicate skarns in a marble xenolith surrounded by felsic intrusive rock. In contrast, massive magnetite/hematite at the Currie and Barachois River showings form lenses parallel to compositional layering or regional foliation which may indicate recrystallization of sedimentary iron-formations. Another questionable skarn environment is the fracture-controlled magnetite + serpentine veins and lenses examined at the Macpherson showing. Here, mineralization appears to be related to the emplacement of diabase dykes and no high grade calc-silicate skarns are present in the host carbonate xenolith. The association of diabase dykes with carbonate-hosted mineralization is common in the Precambrian of Cape Breton Island and requires further investigation.

Geochemical data originating from ore and host rock samples of Fe + Cu-deposits indicates that background Cu content is approximately 25 ppm reaching a maximum of 0.12% Cu in ore from the Macdonald shaft. Massive magnetite samples may contain up to 85% Fe_2O_3 as in the Glencoe iron deposit. Scattered anomalous Zn values may be found throughout a number of showings however, with the exception of mineralization at the Macdonald and Currie occurrences, Zn tends to display only background concentrations of 20-30 ppm. Scattered anomalous Mo-Sn-W values were found in samples from the Whycocomagh Cu-skarn (up to 750 ppm Mo, 8 ppm Sn and 490 ppm W). However, data is too sporadic for any empirical observations to be made.

The zinc deposits at Lime Hill (2 Mt @ 2.5% Zn; E.M.R., 1983) and Meat Cove (4.4 Mt @ 4.0% Zn; E.M.R., 1983) probably represent the most significant carbonate-hosted base metal occurrences yet found in Cape Breton Island. Sphalerite is the dominant mineral of economic importance in both deposits but minor Cu, Pb, Cd, and W-bearing minerals are also present. Mineralization, especially at Lime Hill, is unique in that banded, stratiform, disseminated sphalerite is associated with high-grade Ca- and Mg-skarns overprinted by retrograde hydrothermal alteration. Both deposits are associated with silicious, predominantly dolomitic marbles. Replacement sulphide textures can be observed only on a microscopic scale at Lime Hill but are quite obvious at Meat Cove indicating some degree of epigenetic mineralization or recrystallization of sediment-hosted mineralization. The presence of intrusive-hosted mineralization at Meat Cove (Chattterjee, 1979) also suggests that here, contact metasomatic processes were active in the formation of mineralization.

Comparison of geochemical data originating from the Lime Hill and Meat Cove deposits indicate general metallogenic similarities

including predominance of Zn, only scattered Cu and Pb anomalies and background Mo-Sn-W concentrations. Unusually anomalous As + Hg values are found at Meat Cove which are not found at Lime Hill (A.L. Sangster, personal communication). The most conspicuous geochemical difference between the two deposits however lies in MnO content wereby Meat Cove rocks contain more than twice the MnO concentration of Lime Hill units. As shown by Einaudi et al. (1979, figs. 1 and 2) metamorphic mineral assemblages in carbonate rock can be differentiated from those generated by metasomatic processes by the manganese content of minerals formed during the development of tungsten and copper skarns. The higher MnO content of Meat Cove carbonates therefore tends to support a contact metasomatic origin for base metal mineralization at this locality.

The third category of deposits is singularily represented by the Rear Boisdale Zn-Pb-Ag occurrence where massive, replacement pyrite, sphalerite, galena and chalcopyrite pods and lenses formed in a micaceous, carbonaceous, calcitic marble. No apparent high grade calc-silicate + Fe-mineral assemblage developed in the host carbonate units. The deposit is unique in containing an elevated precious metal suite consisting of Au, Ag, As, Sb, and Hg. One sample of massive sulphide collected from the waste dump (sample # 869064) contained 0.029 oz./ton Au, 1.78 oz./ton Ag, 50 ppm Sb and 48 ppb Hg with 11% Zn and 4.7% Pb. A genetic model for mineralization remains inconclusive and considerable additional study of the deposit is warranted.

Industrial Mineral Occurrences

George River Group carbonate rocks have historically represented a major source of metallurgical grade dolomitic marble, agricultural

lime, dimension stone and aggregate. A number of former producers and prospects were examined and sampled during the 1986 field program and are listed in Table 7. Lithologic descriptions of carbonate units associated with or forming the deposit are summarized. Production figures have been taken from the Nova Scotia Department of Mines, Mineral Occurrence Data Card file.

TABLE 7: Summary of Carbonate-hosted Industrial Mineral Occurrences

#	Occurrence	Commodities	Lithologic Description	Production/usage
1.	Whycocomagh	dolomite	white to cream to blue, medium-grained, massive, pure dolomitic marble	2000 tons filler grade
2.	Glendale	graphite	flakey to amorphous graphite layers < 1m wide in thinly laminated, black, carbonaceous limestone + cross-cutting, Au-bearing, carbonaceous shears	no production
3.	Marble Mtn.	calcareous to dolomitic marble	1.massive, green-buff, med. to crs. grained calcitic dolomitic marble 2.varieties of grey to blue, banded, med. grained pure calc. marble (crystalline limestone) 3.sheared and highly foliated, multicoloured, fine grained calcitic marble 4.massive, grey-white, med. to crs. grained dol. marble with serpentine + epidote-filled fractures 5.varieties of white, blue-white and pink-white, massive, pure calc. marbles	2.5+ million tons metallurgical and agricultural grade marbles + dimension stone (1865-1921); aggregate stone (recent?)
4.	Upper Glencoe	calcareous and dolomitic marbles	1.blue-black to white, v. fine grained, massive dolomitic marble 2.varieties of grey, banded, fine to med. grained often micaceous or carbonaceous calc. marbles 3.grey to white, massive, med. to crs. grained calcitic marble	no production 175 Mt total estimated reserves metallurgical grade marble; 345 Mt total estimated reserves cement grade marble; (MacNeil, 1977)
5.	Campbell Bk.	calcitic marble	varieties of banded to thinly laminated, pink to buff and grey to blue, calc., often micaceous marbles, highly hematitic	no production
6.	Frenchvale	dolomitic marble	1.massive, grey to green to black, med. to crs. grained dolomitic marble 2.varieties of grey/green and buff, banded, med. to crs. grained dolomitic marble which may be highly micaceous and/or serpentinitic 3.biotite diorite 4.biotite granite	54,000 tons metallurgical grade marble (1954) aggregate stone (recent)

TABLE 7: (cont'd)

#	Occurrence	Commodities	Lithologic Description	Production/usage
7.	Scotch Lake	dolomitic marble	1.massive, grey to white, med. to crs. grained dol. marble with talc-serpentine alteration 2.diabase dykes	metallurgical grade marbles (1899 to 1954)
8.	New Campbellton	dolomitic and calcitic marbles	pink-grey and green-cream, fine to v. fine grained massive dolomitic marble	metallurgical and agricultural grade marble
9.	Meat Cove	brucite	retrograde alteration of Mg-skarn, up to 15% disseminated brucite crystals	no production

Numerous physical and chemical criteria define specifications for marble use in industry. Power (1985) and Amani (1984) summarize a number of industry specifications requiring dolomite and limestone (or dolomitic and calcitic marble) as raw materials. Marble for the production of lime can be of extremely variable composition, dependent upon end use. Agricultural lime may be of pure CaO or combined CaO + MgO composition. Lime for manufacture of standard set cement requires ‹1.5% acid insoluable components (calc-silicate, alumino-silicate and refractory minerals) and ‹4.0% MgO, however, certain speciality cements and mortars require up to 40% MgO. Marble for use as a fluxing agent in metallurgical procedures can be of variable CaO:MgO ratio but must contain ‹1% silica and acid insoluable components and only trace (‹0.1%) sulphur and phosphorus. Marble requirements for mineral filler and extender uses are highly specialized where colour, reflectance, particle size and shape, oil absorption, opacifying qualities, bonding properties, freedom from grit, non-reactance with other components and abrasiveness are important properties. Industry requirements for calcium carbonate as a "whiting" agent in paints,

plastics, rubber and paper is at least 96% $CaCO_3$ purity and greater dependent upon end use. The production of Mg metal requires pure dolomitic marble (CaO:MgO = 1.4) with MgO + CaO + LOI > 99%. Finally, colour, fabric, resistance to weathering and mineralogy of marbles are crucial in determining their potential as dimension or decorative stone.

Major reserves of metallurgical grade marble (defined by a 2.5% SiO_2 cut-off) and cement grade marble (defined by a 4.0% MgO cut-off) have been defined in the Glencoe Road area of Craignish Hills (MacNeil, 1977). Very pure calcitic marbles (99% CaO + LOI) are found throughout the area although their distribution appears to be sporadic. Former producers of metallurgical and agricultural grade marbles such as the Marble Mountain, Scotch Lake and Frenchvale quarries contain no current reserves of material suitable for modern metallurgical usage. The marbles of the Boisdale Hills in particular are high in silicate minerals plus sulphur and currently are used only as a source of aggregate stone.

Pure dolomitic marbles can be found in the Whycocomagh and New Campbellton areas. Filler grade dolomite used in paint manufacture was recovered from the Whycocomagh quarry while material suitable for metallurgical and agricultural usage has recently been recovered from the New Campbellton quarry. Both operations recovered a very high purity dolomitic marble which is closely comparable in chemical composition to dolomite currently recovered by Chromasco at the Haley deposit, Renfrew Co., Ontario for Mg metal production (see Table 8 below).

TABLE 8: Chemical Comparison of Dolomitic Marbles from the Haley Deposit, Renfrew Co., Ontario; Whycocomagh Quarry, Inverness Co. and New Campbellton Quarry, Victoria Co., N.S.

	SiO_2	Al_2O_3	CaO	MgO	Na_2O	K_2O	Fe_2O_3	MnO	TiO_2	LOI	Acid Insol.
Haley deposit (avg. 13 samples; Storey and Vos, 1981)	0.28 (2 samples)	0.30	31.3	21.2	--	--	0.19 (2 samples)	--	--	46.9	0.35
Whycocomagh quarry (sample # 869043)	0.62	0.08	32.0	21.8	0.09	0.02	0.07	0.03	0.01	45.7	--
New Campbellton quarry (sample # 869109)	0.61	0.16	30.2	22.1	0.06	0.04	0.34	0.07	0.02	46.6	1.40 (Milligan, 1970, p. 108)

Dolomitic marbles of the Cape Dauphin area have been identified by Milligan (1970, p.107) as a source of dimension stone. The Marble Mountain quarry, however, was the only active operation producing up to 6 varieties of cut marble for statuary and building stone use during the early 1900's.

Of the more specialized industrial minerals known to occur within Precambrian marble formations, wollastonite may have the greatest potential. Significant quantities of the mineral have been identified in calc-silicate units at Lime Hill and minor concentrations have been found at scattered localities throughout the Boisdale Hills. Chemical consistency of host carbonate sediments is a major factor in the formation of high purity deposits of calc-silicate minerals - a condition which is difficult to find in the thinly interbedded and highly deformed marble of Cape Breton Island.

Regional Implications and Recommendations

On a regional basis, the delineation of marble formations which may potentially be host to concentrations of base metal mineralization can be accomplished using the extensive database on marble geochemistry compiled during the current study. The definition of anomalous values is approximated using the 90th and 95th percentile levels for each element in each regional population, as summarized in Table 9 below.

TABLE 9: Threshold Base Metal Values for Precambrian Carbonate Populations

1. Marbles of the Boisdale Hills (average for calcitic and dolomitic)
2. Marbles of the Craignish Hills (" " " " ")
3. Marbles of the Kellys Cove (New Campbellton) area
4. Marbles of the Cape Breton Highlands

	Cu	Zn	Pb
90th Percentile			
1.	15.5	250	62
2.	3.2	30	4
3.	4.0	320	90
4.	34.0	310	44
95th Percentile			
1.	**39.5**	**660**	**92**
2.	**5.0**	**44**	**7**
3.	40.0	1900	2600
4.	41.0	2400	160

From Table 9, two series of cut-off values based on the 95th percentile level can be considered appropriate for the definition of anomalous values in all four populations. For the Craignish Hills area, marble samples containing greater than 5 ppm Cu, 44 ppm Zn and 7

ppm Pb are defined as anomalous. Marbles underlying the Boisdale Hills are defined as anomalous if they contain greater than 40 ppm Cu, 660 ppm Zn and/or 90 ppm Pb. The same cut-off values have been applied to the Kellys Cove and Cape Breton Highlands populations which, because of their small size and highly positively skewed distribution, are characterized by extremly large 95th percentile level values. The use of identical threshold values for all three populations is supported by their chemical similarity (as defined in the previous chapter) and, to a lesser extent, their similar metamorphic/deformation relationships.

Anomalous samples in the regional populations are highlighted by the use of symbols on the geologic and sample location maps. Table 10 presents a summary of all isolated samples and sample groupings found to contain anomalous Cu, Zn and/or Pb in each of the study areas. Observed geologic and mineralogic relationships are noted for each sample in an effort to evaluate the significance of the anomaly and recommend follow-up work.

TABLE 10: Summary of Basemetal Anomalies Delineated in the Regional Populations

Sample Grouping	# Samples	Map No.	Max. Cu	Max. Zn	Max. Pb	Distribution	Follow-up
Craignish Hills and North Mountain Areas							
869304 - 869309	5	1-1	320	72	66	Glendale graphite occurrence	Yes
869223,224	2	1-1	20	--	--	graphitic and pyritic dolostone north of Glendale graphite	Yes
869404 - 869406	3	1-2	--	57	20	pyritic metargillites and limestones, McPhail Brook	No

TABLE 10: (Cont'd)

Sample Grouping	# Samples	Map No.	Max. Cu	Max. Zn	Max. Pb	Distribution	Follow-up
869415 - 869438	12	1-2	79	580	240	related to southern contact of granodiorite	Yes
869447 - 869486	8	2-4 2-5	5	79	40	series of isolated, 1 or 2 element, low-level anomalies, North Mtn. area	No
Boisdale Hills area							
869237		1-1	41	--	--	isolated sample	No
869240		1-1	66	810	88	" "	Yes
869267		1-2	730	--	--	massive pyrrhotite showing	Yes
869269 - 869273	4	1-2	170	1800	430	area east of MacPherson Mine	Yes
869284 - 869299	7	1-2	710	39000	610	area of Scotch Lake quarry and Macdonald shaft includes massive sulphide showing related to gabbro dyke	Yes
New Campbellton							
869494		3-1	--	--	90	isolated sample	No
869508		3-1	40	1900	2600	isolated sample related to contact with Kellys Mtn. quartz monzonite	Yes
Cape Breton Highlands							
869523		4-2	41	--	--	isolated sample	No
869535 - 869538	3	4-3	130	2400	170	belt of silicious marbles in metasediments, Bay St. Lawrence area	Yes

Marbles which may be considered suitable as a source of Mg metal were defined chemically in the previous section. Pure dolomitic marbles are characterized by a CaO:MgO of approximately 1.4 with a

total acid insoluable component of ‹1% (CaO + MgO + LOI › 99%). Table 11 lists 9 samples identified in the regional populations which may be considered very pure dolomitic marbles defined by CaO:MgO = 1.3 to 1.5 and SiO_2 ‹‹ 1.0%. The samples are closely comparable in composition to dolomitic marbles currently mined as ores of Mg metal (see Table 8)

TABLE 11: Summary of Pure Dolomitic Marbles Defined Regionally

Sample No.	Map No.	Geology/Mineralogy/Distribution	Follow-up
869286	1-2	isolated outcrop of grey, graphitic dolomitic marble, limited areal distribution	No
869310	2-1	isolated outcrop of grey dolostone, unknown areal distribution, probably limited	No
869336,337	2-1	series of outcrops, grey and buff-weathered dolomitic marble underlie area approximately 25 ha	Yes
869389	2-2	single outcrop of minor, 100 m wide grey dolomitic marble unit	Yes
869462	2-4	grey, graphitic dolomitic marble in a thinly interbedded sequence of calcareous and detrital metaseds.	No
869490,499 869506	3-1	semi-continuous belt of marbles from Cape Dauphin to Kellys Cove including the dolomitic marbles of the New Campbellton quarry	Yes

A more detailed examination of the geology and metallogeny of Precambrian carbonate-hosted mineral occurrences in Cape Breton Island based on results compiled during the initial phase of the study has been proposed. The five objectives of such a follow-up programme are:

1. to re-examine areas underlain by carbonate rock found to contain anomalous metallic or non-metallic components as defined by the 1986 regional lithogeochemical survey;
2. to re-examine a number of economically significant but less well known showings such as the Rear Boisdale Zn-Pb-Ag deposit or the carbonaceous (auriferous?) shear zones at the Glendale graphite showing to determine the relationship between mineralization and the host carbonate rocks;
3. to undertake a detailed comparison of field and chemical relationships between carbonate rocks of the Craignish Hills and the Boisdale Hills representing two end-member populations of the Precambrian carbonate suite;
4. to undertake a thin-section and polished-section examination of rock samples from both mineralized and regional carbonate environments in order to better study metallogenic relationships and attempt to differentiate between metasomatic and metamorphic imprints on carbonate lithologies;
5. to expand the geochemical database for carbonates by analysis for additional elements and by compilation of relevant data obtained from other geologic and geochemical programs including those of Barr and Raeside in the Cape Breton Highlands.

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APPENDIX I

Legend For Field Characteristics Data

LEGEND FOR FIELD CHARACTERISTICS DATA

Area

1 Boisdale Hills
2 Craignish Hills
3 Kellys Cove (New Campbellton)
4 Cape Breton Highlands

Map Number

1-1 Frenchvale
1-2 Georges River
1-3 Ironville
2-1 River Denys Road
2-2 Glencoe Road/Kewstoke
2-3 Whycocomagh
2-4 Lime Hill/Kennedy's Big Brook
2-5 Marble Mountain
3-1 New Campbellton/Cape Dauphin
4-1 McMillan Flowage
4-2 Aspy River
4-3 Cape North
4-4 Barachois River
4-5 Meat Cove

Lithotype

1 Dolomitic Marbles
- a. relatively pure (BDMB, BFDM, BWDM, GBDM, GDMB, GRDM, HDMB, MCDM, WDMB)
- b. calcitic (BCDM, CDMB, GCDM)
- c. micaceous
- d. calc-silicate + quartz bearing (CSMB)
- e. serpentinitic (CSDM, SDMB, WSDM)

2 Calcitic Marbles
- a. relatively pure (BCMB, BFCM, BGCM, BKCM, BRCM, GBCM, GCMB, GRCM, HCMB, MCCM, PFCM, WBCM, WCMB, WGCM)
- b. dolomitic (BDCM, DCMB, GDCM, HDCM, WDCM)
- c. micaceous (ALCM, DMCM)
- d. calc-silicate + quartz bearing (CCMB, DQCM, DTMB, ECMB, EHCM, TRMB)
- e. graphitic (GPCM)

3 Dolostones
- a. relatively pure (BDST, BKDT, GDST)
- b. calcitic
- c. graphitic

4 Limestones
    a. relatively pure (BLST, GLST, HCLB, PLST)
    b. dolomitic (BDLT, GDLT)
    c. graphitic (GPLT)

5 Skarns
    a. Ca-skarns
    b. Mg-skarns (MGSK)
    c. Ca + Mg skarns (CSSK, DCSK)
    d. sulphide skarns (GOSS)
    e. magnetite skarns (DMSK, MAGO, MASK, MASO)

6 Metasediments
    (BSHL, CQZT, GPSC, HCSH, MARG, MGWK, MSPL, QFBG, SLST)

7 Metavolcanics
    (CTFF)

8 Intrusives
    (BIDI, BQDI, DBSE, GBRO, GRDI, GRNT, HBDI, HQDI, QRZD, QZMZ, SYNT)

Chemical Type

see Table 3

Rock Type

ALCM	argillaceous laminated calcitic marble
BCDM	banded calcitic dolomitic marble
BCMB	buff-grey calcitic marble
BDCM	banded dolomitic calcitic marble
BDLT	buff dolomitic limestone
BDMB	blue dolomitic marble
BDST	buff dolostone
BFCM	buff calcitic marble
BFDM	buff dolomitic marble
BGCM	buff-grey (banded) calcitic marble
BIDI	biotite diorite
BKCM	black calcitic marble
BKDT	black dolostone
BLDP	blind duplicate sample
BLST	black limestone
BQDI	biotite quartz diorite
BRCM	brecciated calcitic marble
BSHL	black shale
BWDM	buff-weathered dolomitic marble
CCMB	calcsilicate-bearing calcitic marble
CDMB	calcitic dolomitic marble
CLAG	calcareous argillite
CLSC	chlorite schist
CQZT	calcareous quartzite
CRS1	control reference standard ALS-1

CRS2	control reference standard ALS-2
CSDM	calcite- and serpentine-bearing dolomitic marble
CSMB	calcsilicate-bearing dolomitic marble
CSSK	calcsilicate- and serpentine-bearing skarn
CTFF	crystal tuff
DBSE	diabase
DCMB	dolomitic calcitic marble
DCSK	diopside calcite skarn
DMCM	dirty micaceous calcitic marble
DMDM	dirty micaceous dolomitic marble
DMSK	diopside magnetite skarn
DQCM	diopside- and quartz-bearing calcitic marble
DTMB	diopside- and tremolite-bearing marble
ECMB	epidote-bearing calcitic marble
EHCM	epidote- and hematite-bearing calcitic marble
FDSS	feldspathic sandstone
GBCM	grey banded calcitic marble
GBDM	grey banded dolomitic marble
GBRO	gabbro
GCDM	grey calcitic dolomitic marble
GCMB	grey calcitic marble
GDCM	grey dolomitic calcitic marble
GDLT	grey dolomitic limestone
GDMB	grey dolomitic marble
GDST	grey dolostone
GLST	grey limestone
GOSS	gossan
GPCM	graphitic calcitic marble
GPLT	graphitic limestone
GPSC	graphitic schist
GRCM	green calcitic marble
GRDI	granodiorite
GRDM	green dolomitic marble
GRNT	granite
GRGN	granite gneiss
GSST	grey sandstone
HBDI	hornblende diorite
HCLB	hematitic calcitic limestone breccia
HCMB	hematitic calcitic marble
HCSH	hematitic calcitic shale
HDCM	hematitic dolomitic calcitic marble
HDMB	hematitic dolomitic marble
HEMO	hematite ore zone
HQDI	hornblende quartz diorite
MAGO	magnetite ore zone
MARG	meta-argillite
MASK	magnetite skarn
MASO	magnetite-serpentine ore zone
MCCM	multicoloured calcitic marble
MCDM	multicoloured dolomitic marble
MGSK	magnesian skarn
MGWK	meta-greywacke
MSPL	meta-semipelite
MVLC	metavolcanic
PDMB	pink dolomitic marble

PFCM	pink fine-grained calcitic marble
PLST	petroliferous limestone
QFBG	quartz feldspar biotite gneiss
QRZD	quartz diorite
QTZT	quartzite
QZMZ	quartz monzonite
SCMB	serpentine-bearing calcitic marble
SDMB	serpentine-bearing dolomitic marble
SLLS	silicious limestone
SLST	silicious siltstone
SPEO	specularite ore zone
SYNT	syenite
TRMB	tremolitic marble
WBCM	white banded calcitic marble
WCMB	white calcitic marble
WDCM	white dolomitic calcitic marble
WDMB	white dolomitic marble
WGCM	white and grey calcitic marble
WSDM	white serpentinitic dolomitic marble

Colour

0	white (0-20% dark minerals)
1	blue
2	multicoloured
3	black and white (60-80% dark minerals)
4	black (04=50/50 light and dark minerals)
5	grey
6	green
7	buff
8	pink
9	red or purple

Grain Size

0	glassy
1	aphanitic
2	cryptocrystalline
3	fine
4	fine to medium
5	medium
6	medium to coarse
7	coarse
8	very coarse
9	fine to coarse

Texture

0	equigranular
1	porphyrytic
2	inequigranular
3	brecciated

Alteration

0 not evident
1 serpentinization
2 carbonatization
3 hematization
4 talcose
5 argillation
6 sericitization
7 chloritization
8 sausuritization
9 gossanous

Structure

0 massive
1 bedded
2 laminated
3 banded
4 veined
5 schistose/foliated

Rock-forming Minerals

AM	amphibole	FE	potassic feldspar	PH	phlogopite
AP	apatite	GA	garnet	PL	plagioclase
BI	biotite	GP	graphite	PX	pyroxine
BR	brucite	HE	hematite	QU	quartz
CA	calcite	HO	hornblende	SE	sericite
CL	chlorite	KA	kaolinite	SR	serpentine
CS	calc-silicate	LI	limonite	TA	talc
DI	diopside	MA	magnetite	TR	tremolite
DO	dolomite	MU	muscovite		
EP	epidote	PC	periclase		

Economic Minerals

AR	arsenopyrite	MO	molybdenite	SP	sphalerite
CH	chalcopyrite	PY	pyrite	PO	pyrrhotite
GA	galena	SC	scheelite	TT	tetrahedrite
MA	malachite				

Character of Mineralization

0 disseminated
1 banded
2 fracture-controlled
3 stringer
4 vein
5 shear zone
6 foliated
7 massive

APPENDIX II

Summary of Field and Geochemical Data: Metallic Mineral Occurrence Samples

CARBONATE-HOSTED METALLIC MINERAL OCCURRENCES
Field Characteristics

Sample Number	Showing	Map No.	Rock Type	Colour	Grain Size	Texture	Alteration	Structure	Rock-forming Minerals	Economic Minerals	Type of Mineral'n
11F14 869001	Lime Hill	2-4	QRZD	0	5	1	0	0	FEQUBI	PY	0
11F14 869002	Lime Hill	2-4	GDMB	15	6	0	0	0	DOCADI	PY	0
11F14 869003	Lime Hill	2-4	DTMB	15	3	0	1	2	DOCADISR	PY	0
11F14 869004	Lime Hill	2-4	CDMB	5	4	0	1	4	DOCASR	SPPY	0
11F14 869005	Lime Hill	2-4	GDCM	1	4	0	0	3	CABI	PY	0
11F14 869006	Lime Hill	2-4	CSDM	06	5	0	14	0	CASRBIMU		
11F14 869007	Lime Hill	2-4	TRMB	6	3	1	41	0	TR		
11F14 869008	Lime Hill	2-4	QZMZ	0	4	0	0	0	PLFEQUBI	PY	0
11F14 869009	Lime Hill	2-4	CDMB	56	5	0	17	3	CADOSRBI	SPPY	1
11F14 869010	Lime Hill	2-4	GOSS	4	4	0	8	0	LI	PY	5
11F14 869011	Lime Hill	2-4	CRS1								
11F14 869012	Lime Hill	2-4	DQCM	04	5	2	1	3	CADISRBI	PY	0
11F14 869013	Lime Hill	2-4	CDMB	6	6	2	16	3	CADOSRMU		
11F14 869014	Lime Hill	2-4	BWDM	15	7	2	0	0	DO	SP	0
11F14 869015	Lime Hill	2-4	BLDP								
11F14 869016	Lime Hill	2-4	CDMB	6	5	2	1	3	DOSRCA	SP	1
11F14 869017	Lime Hill	2-4	CSDM	6	6	2	1	3	DOCASRBI	SP	0
11F14 869018	Lime Hill	2-4	BWDM	06	6	0	1	0	DOSR	PY	0
11F14 869019	Lime Hill	2-4	CDMB	1	4	2	1	3	DOSRCA	PYSP	1
11F14 869045	Whycocomagh	2-3	BLDP								
11F14 869046	Whycocomagh	2-3	CQZT	75	4	2	6	0	QUCADOMUPH	MACHPY	0
11F14 869047	Whycocomagh	2-3	DMCM	5	4	2	1	5	CADIBI	PY	0
11F14 869048	Whycocomagh	2-3	MGWK	5	3	2	6	05	QUBIPL	PY	0
11F14 869049	Whycocomagh	2-3	CDMB	05	3	0	4	04	CADODITA	PY	0
11F14 869050	Whycocomagh	2-3	CSDM	06	3	2	14	3	CASRTA	PY	0
11F14 869051	Whycocomagh	2-3	CRS1								
11F14 869052	Whycocomagh	2-3	CCDM	56	3	0	3	3	DOMAHEDI	PY	0
11F14 869053	Whycocomagh	2-3	GRDI	58	3	2	76	0	HOPLQUFE	PYMAMOCH	02
11F14 869054	Whycocomagh	2-3	GRDI	5	5	0	0	6	FEBIHO		
11F14 869055	Whycocomagh	2-3	TRMB	60	7	2	41	0	TRMAGAHECASRTA		
11F14 869056	Whycocomagh	2-3	DMSK	64	3	0	0	05	MADICAGA	CHPYMA	0
11KO1 869057	Currie Mine	1-1	GBCM	56	5	0	1	35	CACLDI	PYHE	0
11KO1 869058	Currie Mine	1-1	WCMB	0	7	0	41	05	CADIGPTASR	PY	0
11KO1 869059	Currie Mine	1-1	HEMO	96	3	0	7	04	CACLHE		
11KO1 869060	Currie Mine	1-1	BLDP								
11KO1 869061	Currie Mine	1-1	CRS2								
11KO1 869062	Currie Mine	1-1	WCMB	0	6	0	7	0	CACLPH	PYCHMA	0
11KO1 869063	Rear Boisdale	1-1	GPCM	5	6	2	0	04	CAGP	PY	0
11KO1 869064	Rear Boisdale	1-1	GPCM	06	5	0	1	04	CAGP	PYGASPMOTT	03
11KO1 869065	Rear Boisdale	1-1	GCMB	3	6	0	7	054	CACLTAGP		
11KO1 869066	Frenchvale	1-1	HDMB	78	6	2	3	04	DOCAHE		
11KO1 869067	Frenchvale	1-1	GPCM	75	4	2	0	04	DOCAGP		
11KO1 869068	Frenchvale	1-1	HDMB	7	5	0	3	04	DOHE	PYCHMA	02
11KO1 869069	Campbells Lake	1-1	ALCM	0	4	2	6	32	CABIMU	PY	2
11KO1 869070	Campbells Lake	1-1	GBCM	1	4	2	0	03	CABIAM	PY	0
11KO1 869071	Campbells Lake	1-1	CRS1								

CARBONATE-HOSTED METALLIC MINERAL OCCURRENCES
Field Characteristics

Sample Number	Showing	Map No.	Rock Type	Colour	Grain Size	Texture	Alteration	Structure	Rock-forming Minerals	Economic Minerals	Type of Mineral'n
11KO1 869072	Campbells Lake	1-1	ALCM	3	3	0	7	03	CABICL	PY	0
11KO1 869087	MacPherson	1-2	BQDI	5	5	0	0	0	QUPLFEBI		
11KO1 869088	MacPherson	1-2	GRNT	85	5	0	0	0	QUPLFEBI		
11KO1 869089	MacPherson	1-2	CSDM	60	4	2	1	075	DOCASR		
11KO1 869090	MacPherson	1-2	BLDP								
11KO1 869091	MacPherson	1-2	CRS1								
11KO1 869092	MacPherson	1-2	MASO	46	4	2	1	0	MACASR	MAPY	2
11KO1 869093	MacPherson	1-2	MSPL	46	5	2	0	05	QUBIPL	PY	0
11K01 869094	Leitches Creek	1-2	CDMB	5	4	2	0	0	DOCASR	PY	0
11K01 869100	Macdonald Shaft	1-2	DCSK	56	3	0	7	04	DICAQUCL	PYMA	4
11K01 869101	Macdonald Shaft	1-2	CRS2								
11K01 869102	Macdonald Shaft	1-2	DCSK	06	9	2	7	0	DICAQUCL		
11K01 869103	Macdonald Shaft	1-2	DCSK	46	9	2	71	0	DIQUCACL	PY	0
11F16 869104	MacIntosh Brook	1-1	GCMB	5	6	2	0	0	CADOPHDI	PY	0
11F16 869105	MacIntosh Brook	1-1	BLDP								
11F16 869106	MacIntosh Brook	1-1	GDMB	5	6	2	0	0	DOCA	PY	0
11F16 869107	MacIntosh Brook	1-1	WDMB	0	9	2	0	5	DOCAGP	PY	06
11F16 869108	MacIntosh Brook	1-1	WDMB	0	9	2	0	0	DOCA	PY	0
11F14 869118	Glencoe	2-2	MASK	54	3	0	3	0	MACACS	PYCHMA	02
11F14 869119	Glencoe	2-2	MASK	56	3	0	1	0	MACSSR	PY	0
11F14 869120	Glencoe	2-2	BLDP								
11F14 869121	Glencoe	2-2	CRS2								
11F14 869122	Glencoe	2-2	MASK	54	3	2	3	04	MACAHE	PY	0
11F14 869123	Glencoe	2-2	ECMB	60	3	2	1	0	CAEPHE		
11F14 869124	Glencoe	2-2	HBDI	6	7	2	8	0	PLFEHOBIQU		
11F14 869125	Glencoe	2-2	WDCM	0	4	2	0	0	CA		
11K07 869126	Barachois River	4-4	CCMB	56	3	0	1	05	CACS	PY	0
11K07 869127	Barachois River	4-4	MASK	4	2	0	0	0	MA		
11K07 869128	Barachois River	4-4	WDMB	50	4	2	0	05	DOMUCA		
11N02 869129	Meat Cove	4-5	MGSK	04	6	2	01	03	CADOSRBR	SPPY	03
11N02 869130	Meat Cove	4-5	GRCM	69	3	0	1	3	CASR	SPPY	30
11N02 869131	Meat Cove	4-5	CRS1								
11N02 869132	Meat Cove	4-5	SYNT	74	3	2	0	5	FEBIHOQU		
11N02 869133	Meat Cove	4-5	MGSK	04	6	2	1	3	CASRPC	PYPOSP	0
11N02 869134	Meat Cove	4-5	MGSK	56	4	2	1	03	DOSRCA	PYSP	0
11N02 869135	Meat Cove	4-5	BLDP								
11N02 869136	Meat Cove	4-5	MGSK	05	5	2	0	0	CADOBRSRPC	PYSP	0
11N02 869137	Meat Cove	4-5	MGSK	04	6	2	0	03	CADOBRSR	PYSP	0
11N02 869138	Meat Cove	4-5	SYNT	94	7	2	0	05	FEHO		
11N02 869139	Meat Cove	4-5	MGSK	04	6	2	0	05	DOCASRBRPC		
11N02 869140	Meat Cove	4-5	MGSK	65	4	2	1	05	CADOSR	PY	0
11N02 869141	Meat Cove	4-5	CRS2								
11N02 869142	Meat Cove	4-5	MGSK	04	6	2	4	0	DOCAPCTA	PY	0

CARBONATE-HOSTED METALLIC MINERAL OCCURRENCES
Whole Rock Geochemistry

Sample Number	SIO2	AL2O3	,CAO	MGO	NA2O	K2O	FE2O3	MNO	TIO2	P2O5	LOI	SUM	CR	RB	SR	Y	ZR	NB	BA
869001	73.50	13.30	1.60	0.56	4.110	3.26	1.480	0.050	0.210	0.07	1.00	99.300	10	110	300	20	100	20	760
869002	2.15	0.27	29.90	22.60	0.090	0.01	0.780	0.060	0.020	0.01	44.23	100.100	5	20	40	5	5	10	40
869003	9.42	0.92	29.20	21.30	0.070	0.38	1.180	0.060	0.060	0.03	36.23	98.900	5	20	90	5	5	10	80
869004	7.82	1.55	29.50	15.30	0.520	0.01	1.410	0.030	0.070	0.02	29.85	86.100	5	10	50	5	5	10	10
869005	8.52	1.83	44.30	5.77	0.050	1.36	0.870	0.010	0.070	0.03	36.23	99.100	5	20	320	20	5	10	90
869006	16.20	0.19	32.30	18.50	0.060	0.08	0.570	0.030	0.020	0.01	32.08	100.100	5	10	100	5	5	5	60
869007	55.10	0.97	13.90	24.70	0.270	0.14	0.660	0.060	0.090	0.12	3.93	100.000	5	30	20	10	5	10	80
869008	71.70	14.40	1.96	0.83	3.970	5.16	0.750	0.030	0.100	0.06	1.08	100.200	10	180	270	10	40	30	950
869009	4.65	0.80	13.50	10.30	2.870	0.03	3.670	0.080	0.050	0.01	9.16	45.100	5	5	5	5	5	10	190
869010	3.24	0.26	0.18	0.42	0.090	0.02	72.000	0.020	0.060	0.02	23.85	100.200	50	5	5	5	5	10	200
869011	0.44	0.01	30.30	23.30	0.060	0.02	0.060	0.020	0.010	0.05	45.50	99.800	5	10	180	10	5	5	50
869012	13.40	1.93	31.40	18.10	0.080	0.17	2.520	0.050	0.090	0.02	30.62	98.400	5	10	50	10	5	5	20
869013	22.20	7.09	22.50	19.40	0.130	3.07	1.950	0.100	0.090	0.02	22.39	99.000	5	120	70	5	5	30	190
869014	1.66	0.54	25.10	19.80	0.520	0.14	2.510	0.090	0.020	0.01	35.23	85.600	5	10	30	5	5	20	40
869015	1.62	0.52	25.30	19.90	0.550	0.18	2.530	0.080	0.010	0.01	33.39	84.100	5	10	30	5	5	10	50
869016	3.10	0.33	3.97	5.23	4.450	0.10	5.880	0.070	0.020	0.01	14.54	37.700	10	5	5	5	5	10	320
869017	17.50	0.26	30.10	19.30	0.130	0.03	0.850	0.050	0.020	0.01	28.39	96.700	5	10	80	5	5	20	5
869018	2.30	0.03	29.80	23.10	0.050	0.01	0.500	0.050	0.020	0.01	44.39	100.300	5	10	50	5	5	10	5
869019	3.30	-0.01	21.80	17.50	1.120	0.01	2.200	0.030	0.010	0.01	27.54	73.500	5	10	40	5	5	20	5
869045	1.75	0.08	30.20	23.30	0.060	0.03	0.110	0.005	0.010	0.01	44.85	100.400	5	5	70	5	5	10	50
869046	48.80	16.90	11.80	1.94	6.980	1.65	1.230	0.080	0.070	0.25	10.77	100.500	5	70	150	5	10	20	80
869047	27.30	4.00	23.60	19.50	0.630	0.66	2.000	0.080	0.170	0.12	21.08	99.200	5	5	110	5	10	10	20
869048	59.00	19.50	0.79	2.72	2.070	4.89	7.190	0.070	0.780	0.10	2.85	100.100	110	180	30	50	170	30	600
869049	5.61	1.36	34.60	14.30	0.100	0.28	2.650	0.070	0.060	0.04	39.08	98.200	5	20	90	10	5	10	30
869050	16.20	1.34	32.50	15.50	0.100	0.33	1.620	0.070	0.070	0.05	30.77	98.600	5	20	140	5	5	10	20
869051	0.44	0.01	30.50	23.30	0.060	0.02	0.050	0.020	0.010	0.04	45.54	100.000	5	10	180	5	5	5	50
869052	4.23	0.87	30.60	20.10	0.100	0.02	1.580	0.050	0.050	0.04	41.92	99.600	5	10	60	5	5	5	10
869053	52.50	22.00	2.94	4.38	4.930	3.80	3.650	0.050	0.830	0.14	4.62	100.000	130	330	250	60	180	40	200
869054	57.40	20.50	0.50	3.69	2.230	5.56	5.920	0.030	0.950	0.15	3.16	100.200	120	180	40	30	140	20	450
869055	39.90	8.04	17.40	20.80	2.090	0.75	1.500	0.030	0.350	0.11	9.31	100.300	30	20	40	10	40	20	5
869056	39.50	3.20	13.80	17.30	0.100	1.56	19.800	0.110	0.160	0.07	3.31	98.900	10	80	5	5	5	20	50
869057	9.14	2.12	43.40	6.75	0.070	0.42	0.890	0.030	0.080	0.10	35.77	98.800	5	20	360	10	10	10	30
869058	2.51	0.45	50.30	3.73	0.050	0.03	0.340	0.010	0.020	0.03	41.62	99.100	5	10	390	10	5	10	5
869059	11.60	1.03	32.60	2.42	0.030	0.02	20.600	0.050	0.060	0.03	28.54	97.000	5	5	60	10	5	10	30
869060	11.40	1.05	32.80	2.46	0.030	0.02	20.700	0.050	0.070	0.04	28.54	97.200	5	5	50	5	5	5	20
869061	27.80	2.27	21.30	19.30	0.520	0.16	3.510	0.110	0.320	0.09	21.70	97.100	5	20	250	5	10	20	50
869062	4.21	0.61	38.00	13.50	0.060	0.23	0.820	0.060	0.040	0.07	41.92	99.600	5	5	280	10	5	10	50
869063	4.19	0.41	36.50	14.20	0.030	0.01	0.960	0.110	0.030	0.04	41.92	98.400	5	10	170	5	5	20	10
869064	-22.00	-22.00	-22.00	-22.00	-22.000	-22.00	-22.000	-22.000	-22.000	-22.00	-22.00	-22.000	-22	-22	-22	-22	-22	-22	-22
869065	3.27	0.44	50.10	3.13	0.030	0.04	0.510	0.040	0.020	0.05	41.23	98.800	5	5	270	10	5	10	10
869066	0.99	0.25	30.10	22.10	0.080	0.10	0.180	0.040	0.020	0.03	46.16	100.100	5	5	70	10	5	5	20
869067	1.52	0.32	31.60	20.40	0.070	0.10	0.200	0.070	0.030	0.03	45.69	100.000	5	10	80	5	5	5	30
869068	2.29	0.80	29.50	21.10	0.070	0.01	1.080	0.090	0.360	0.10	44.54	100.000	5	5	100	10	5	10	40
869069	31.80	2.95	29.90	12.10	0.130	1.11	1.410	0.080	0.110	0.05	19.39	99.100	5	30	180	5	5	5	30
869070	21.50	2.40	32.70	14.60	0.080	0.38	1.160	0.050	0.100	0.10	25.46	98.600	5	20	540	5	5	10	10
869071	0.45	0.01	30.60	23.50	0.050	0.02	0.060	0.020	0.010	0.04	45.50	100.300	5	5	180	5	5	5	50

CARBONATE-HOSTED METALLIC MINERAL OCCURRENCES
Whole Rock Geochemistry

Sample Number	SIO2	AL2O3	CAO	MGO	NA2O	K2O	FE2O3	MNO	TIO2	P2O5	LOI	SUM	CR	RB	SR	Y	ZR	NB	BA
869072	25.60	3.65	24.90	19.80	0.110	0.92	1.310	0.070	0.160	0.11	22.70	99.400	5	40	170	10	10	10	30
869087	72.90	14.70	1.20	0.79	4.180	2.07	2.460	0.040	0.300	0.09	1.62	100.500	20	110	250	20	140	10	510
869088	69.70	14.90	2.52	1.27	3.760	3.39	2.490	0.060	0.320	0.09	1.54	100.200	10	110	290	30	120	10	640
869089	12.40	0.16	33.00	17.50	0.050	0.01	0.540	0.080	0.020	0.20	36.31	100.300	5	5	120	5	5	10	20
869090	12.60	0.16	32.80	17.80	0.080	0.02	0.330	0.080	0.010	0.21	36.39	100.500	5	5	120	5	5	10	20
869091	0.45	0.02	30.30	23.40	0.060	0.02	0.050	0.020	0.020	0.04	45.92	100.300	5	10	180	10	5	10	50
869092	17.70	1.04	4.50	17.50	0.080	0.02	49.400	0.690	0.090	0.24	8.46	99.800	30	5	5	5	5	30	160
869093	57.20	20.20	1.26	2.86	1.400	4.38	8.590	0.090	0.980	0.15	2.93	100.200	100	100	90	50	200	20	610
869094	6.85	0.36	32.60	19.70	0.050	0.01	0.690	0.080	0.020	0.03	39.92	100.300	5	20	140	5	5	10	20
869100	53.80	7.09	13.00	7.33	0.080	0.04	6.460	0.230	0.330	0.05	11.62	100.100	20	10	210	10	40	5	50
869101	28.20	2.34	21.90	19.60	0.510	0.15	3.550	0.120	0.320	0.09	21.93	98.100	5	5	230	5	5	10	40
869102	26.50	1.58	37.40	2.88	0.030	0.01	1.140	0.150	0.060	0.14	29.93	99.800	5	10	110	5	5	10	20
869103	69.90	6.36	2.10	9.74	0.050	0.03	5.730	0.160	0.280	0.32	4.93	99.600	50	20	5	5	40	20	120
869104	5.51	1.24	35.10	14.70	0.070	0.25	1.530	0.360	0.080	0.03	41.46	100.300	5	10	70	5	5	5	20
869105	5.48	1.21	35.00	14.70	0.090	0.27	1.500	0.350	0.090	0.03	41.16	99.900	5	20	80	20	5	10	10
869106	1.24	0.36	31.40	21.10	0.070	0.02	0.620	0.070	0.030	0.02	45.54	100.500	5	5	50	10	5	10	5
869107	10.30	0.70	36.80	10.80	0.050	0.02	1.030	0.230	0.030	0.05	40.16	100.200	5	10	70	5	5	20	30
869108	1.32	0.28	29.60	21.70	0.050	0.01	1.930	0.100	0.030	0.03	43.31	98.400	5	10	110	5	5	20	5
869118	10.80	0.82	2.04	2.46	0.020	0.02	83.100	0.130	0.040	0.01	0.00	99.500	40	5	5	5	5	40	180
869119	9.50	0.37	2.52	2.13	0.005	0.05	85.600	0.100	0.060	0.01	0.08	100.500	40	5	5	5	5	30	190
869120	9.42	0.37	2.44	2.11	0.020	0.04	85.300	0.100	0.060	0.01	0.08	100.000	40	5	5	5	5	30	200
869121	27.40	2.27	21.00	19.10	0.490	0.16	3.490	0.110	0.310	0.09	21.93	96.400	5	20	230	5	10	10	40
869122	10.00	0.57	8.99	0.62	0.010	0.01	75.000	0.190	0.070	0.01	4.62	100.100	30	5	5	5	5	10	120
869123	41.90	8.07	23.30	6.40	0.040	0.02	10.700	0.240	0.310	0.17	9.39	100.600	10	5	370	5	60	20	20
869124	59.00	17.20	4.27	3.84	4.180	2.01	6.380	0.140	0.580	0.16	2.77	100.600	20	70	350	10	150	20	330
869125	0.85	0.10	53.50	1.73	0.030	0.01	0.030	0.010	0.010	0.01	43.54	99.800	5	10	100	5	5	10	20
869126	26.20	1.58	26.80	18.70	0.080	0.02	4.090	0.150	0.080	0.07	21.31	99.100	5	10	150	5	5	10	20
869127	27.20	3.42	8.08	3.42	0.340	0.54	54.600	0.270	0.200	0.17	0.00	99.300	30	10	5	5	20	5	9070
869128	4.25	0.95	29.60	21.10	0.070	0.13	1.380	0.090	0.050	0.21	42.62	100.500	5	20	150	5	5	10	520
869129	2.02	0.44	20.10	14.60	1.310	0.01	5.310	0.260	0.030	0.02	14.46	58.600	5	5	10	5	5	10	70
869130	13.20	0.63	28.20	14.00	0.730	0.01	3.990	0.120	0.040	0.01	17.16	78.100	5	20	160	5	5	20	10
869131	0.46	0.02	30.90	22.80	0.050	0.02	0.005	0.020	0.020	0.04	46.16	100.500	5	10	180	5	5	10	60
869132	55.40	17.30	3.33	2.75	5.920	3.20	7.090	0.190	1.650	0.81	2.00	100.000	10	50	300	50	690	20	1590
869133	3.14	0.57	34.60	22.00	0.120	0.02	0.750	0.060	0.040	0.02	37.31	98.600	5	5	30	10	5	10	40
869134	49.00	2.29	22.90	17.50	0.080	0.29	4.850	0.060	0.130	0.01	2.08	99.200	5	10	10	10	20	10	380
869135	49.10	2.31	22.90	17.60	0.110	0.36	4.940	0.070	0.120	0.02	1.77	99.400	5	5	5	10	30	10	370
869136	3.04	0.62	36.90	16.50	0.220	0.01	1.530	0.120	0.030	0.01	34.39	93.400	5	10	50	5	5	10	40
869137	3.47	0.60	32.60	23.90	0.120	0.01	1.040	0.060	0.030	0.01	37.39	99.300	5	10	40	10	5	10	110
869138	58.00	18.90	3.80	1.26	5.610	4.01	4.450	0.230	1.090	0.44	2.23	100.400	10	60	600	50	690	30	1860
869139	5.25	0.56	32.20	23.30	0.100	0.02	0.620	0.110	0.030	0.01	38.00	100.300	5	20	80	5	5	10	1080
869140	14.20	0.12	30.60	20.90	0.030	0.02	0.420	0.100	0.030	0.02	33.85	100.300	5	5	40	10	5	5	60
869141	28.40	2.31	22.00	19.10	0.450	0.18	3.590	0.120	0.330	0.09	21.85	98.500	5	5	250	5	10	10	30
869142	3.44	0.06	33.80	23.60	0.070	0.01	0.550	0.100	0.020	0.01	38.46	100.200	5	10	30	5	5	10	260

CARBONATE-HOSTED METALLIC MINERAL OCCURRENCES OF CAPE BRETON
Trace Element Geochemistry

Sample Number	AU (ppb)	CU (ppm)	ZN (ppm)	AS (ppm)	MO (ppm)	AG (ppm)	SN (ppm)	SB (ppm)	W (ppm)	HG (ppb)	PB (ppm)
869001	-999.0	7.50	120.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	22
869002	-999.0	0.25	32.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	4
869003	-999.0	2.50	45.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	10
869004	-999.0	14.00	34000.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	16
869005	-999.0	3.00	140.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	6
869006	-999.0	0.25	250.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	4
869007	-999.0	0.25	1400.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	4
869008	-999.0	7.50	210.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	60
869009	-999.0	7.00	270000.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	8
869010	-999.0	110.00	6400.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	120
869011	-999.0	0.25	8.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	2
869012	-999.0	8.00	420.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	26
869013	-999.0	4.00	1100.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	130
869014	-999.0	77.00	41000.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	12
869015	-999.0	77.00	43000.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	12
869016	-999.0	150.00	440000.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	180
869017	-999.0	0.50	2300.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	4
869018	-999.0	0.25	250.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	8
869019	-999.0	68.00	91000.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	80
869045	-999.0	0.25	19.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	4
869046	0.5	830.00	17.00	2.20	92.0	0.25	8.0	0.1	8.0	2.5	1
869047	0.5	1.50	22.00	6.30	2.0	0.25	1.5	0.2	2.0	2.5	4
869048	0.5	19.00	17.00	8.90	8.0	0.25	2.0	0.3	1.0	11.0	1
869049	0.5	22.00	8.00	1.10	0.5	0.25	1.5	0.1	1.0	2.5	1
869050	-999.0	59.00	160.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	2
869051	-999.0	0.25	10.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869052	0.5	13.00	9.00	11.00	0.5	0.25	1.0	0.6	2.0	7.0	1
869053	4.0	990.00	40.00	1.00	750.0	0.25	4.0	0.3	19.0	2.5	1
869054	0.5	76.00	28.00	0.40	5.0	0.50	1.5	0.4	5.0	2.5	1
869055	0.5	9.50	23.00	0.70	0.5	0.25	1.0	0.3	5.0	5.0	1
869056	0.5	59.00	37.00	0.80	100.0	0.25	8.0	0.2	490.0	2.5	1
869057	0.5	23.00	68.00	6.40	3.0	-999.00	1.5	0.2	1.0	2.5	6
869058	0.5	1.00	20.00	0.40	0.5	0.25	1.0	0.1	0.5	5.0	2
869059	2.0	210.00	31.00	4.00	3.0	0.25	1.5	0.3	28.0	2.5	1
869060	0.5	210.00	33.00	-999.00	3.0	-999.00	1.5	-999.0	25.0	6.0	1
869061	-999.0	760.00	6600.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	610
869062	0.5	11.00	44.00	10.00	2.0	0.25	1.5	0.1	0.5	2.5	10
869063	4.0	2.00	12.00	6.30	0.5	0.25	1.5	0.3	1.0	2.5	30
869064	1000.0	410.00	110000.00	12000.00	0.5	61.00	1.5	50.0	3.0	48.0	47000
869065	2.0	2.00	290.00	34.00	3.0	0.25	4.0	0.9	1.0	9.0	62
869066	-999.0	0.25	60.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	14
869067	-999.0	10.00	53.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	8
869068	0.5	620.00	34.00	-999.00	0.5	0.25	1.5	-999.0	1.0	2.5	6
869069	-999.0	9.50	30.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	2
869070	-999.0	11.00	32.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	4
869071	-999.0	0.25	9.50	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1

CARBONATE-HOSTED METALLIC MINERAL OCCURRENCES OF CAPE BRETON
Trace Element Geochemistry

Sample Number	AU (ppb)	CU (ppm)	ZN (ppm)	AS (ppm)	MO (ppm)	AG (ppm)	SN (ppm)	SB (ppm)	W (ppm)	HG (ppb)	PB (ppm)
869072	0.5	15.00	25.00	0.40	2.0	0.25	1.0	0.1	2.0	2.5	2
869087	-999.0	13.00	48.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	12
869088	-999.0	3.00	40.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	8
869089	-999.0	2.00	23.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	6
869090	-999.0	1.50	25.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	6
869091	-999.0	0.25	12.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	2
869092	12.0	570.00	610.00	6.90	0.5	0.25	4.0	0.2	4.0	5.0	140
869093	0.5	45.00	83.00	0.10	3.0	0.25	2.0	0.1	0.5	2.5	1
869094	-999.0	2.50	18.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869100	0.5	17.00	270.00	0.60	2.0	0.25	64.0	0.1	0.5	2.5	48
869101	-999.0	770.00	6800.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	660
869102	0.5	16.00	72.00	6.10	2.0	0.25	24.0	0.1	1.0	2.5	22
869103	0.5	1200.00	300.00	2.40	1.0	2.50	1.5	0.1	1.0	6.0	460
869104	-999.0	13.00	1900.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	54
869105	-999.0	12.00	1900.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	60
869106	0.5	0.25	60.00	-999.00	0.5	0.25	1.5	-999.0	0.5	-999.0	28
869107	1.0	0.25	55.00	-999.00	0.5	0.25	1.5	-999.0	0.5	-999.0	18
869108	3.0	0.25	22.00	-999.00	0.5	0.25	1.5	-999.0	0.5	-999.0	6
869118	2.0	870.00	120.00	5.90	2.0	1.00	1.5	0.7	6.0	7.0	36
869119	2.0	140.00	54.00	5.30	1.0	0.50	1.5	4.5	2.0	6.0	1
869120	0.5	140.00	58.00	4.40	1.0	0.50	1.5	3.9	3.0	6.0	1
869121	-999.0	740.00	6800.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	620
869122	2.0	360.00	81.00	-999.00	0.5	0.25	1.5	-999.0	2.0	2.5	54
869123	-999.0	30.00	110.00	-999.00	0.5	-999.00	1.5	-999.0	1.0	-999.0	88
869124	0.5	18.00	120.00	0.80	2.0	0.25	1.5	0.1	0.5	2.5	1
869125	-999.0	5.50	6.50	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869126	0.5	9.50	36.00	0.40	3.0	0.25	1.5	0.1	0.5	2.5	1
869127	0.5	25.00	170.00	0.20	0.5	0.25	1.5	0.2	0.5	2.5	1
869128	0.5	0.25	23.00	0.40	0.5	0.25	1.0	0.1	0.5	5.0	1
869129	0.5	28.00	120000.00	5.20	0.5	2.00	1.5	0.5	0.5	450.0	20
869130	0.5	21.00	52000.00	12.00	1.0	1.00	1.5	0.7	0.5	120.0	1
869131	-999.0	0.25	9.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869132	0.5	4.00	690.00	1.80	0.5	0.25	2.0	0.1	0.5	10.0	10
869133	0.5	0.25	4000.00	11.00	0.5	0.25	1.5	0.3	0.5	61.0	1
869134	-999.0	26.00	640.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	10
869135	-999.0	27.00	620.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	10
869136	0.5	8.00	15000.00	4.70	0.5	0.25	1.0	0.2	0.5	220.0	1
869137	-999.0	0.25	5800.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869138	0.5	2.50	210.00	1.10	3.0	0.50	1.5	0.1	0.5	10.0	10
869139	0.5	1.00	490.00	0.60	0.5	0.25	1.0	0.5	0.5	18.0	28
869140	0.5	6.50	59.00	4.00	3.0	0.25	1.5	0.3	1.0	13.0	1
869141	-999.0	740.00	6600.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	610
869142	-999.0	15.00	210.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	340

APPENDIX III

Summary of Field and Geochemical Data: Industrial Mineral Occurrence Samples

CARBONATE-HOSTED INDUSTRIAL MINERAL OCCURRENCES
Field Characteristics

Sample Number	Showing	Map No.	Rock Type	Colour	Grain Size	Texture	Alteration	Structure	Rock-forming Minerals	Economic Minerals	Type of Mineral'n
11F14 869020	Marble Mtn.	2-5	BWDM	06	4	2	1	0	DOCASR	PY	0
11F14 869021	Marble Mtn.	2-5	CRS2								
11F14 869022	Marble Mtn.	2-5	GBCM	04	4	0	0	3	CA	PY	0
11F14 869023	Marble Mtn.	2-5	GBCM	5	5	2	0	24	CA		
11F14 869024	Marble Mtn.	2-5	WCMB	5	4	2	14	0	CASRTA		
11F14 869025	Marble Mtn.	2-5	MCCM	04	3	2	0	05	CA	PY	0
11F14 869026	Marble Mtn.	2-5	CSDM	5	4	2	1	04	DOSRCAEP	PY	0
11F14 869027	Campbell Brook	2-4	HDCM	15	3	3	3	0	CADOHE		
11F14 869028	Campbell Brook	2-4	WGCM	15	2	0	3	2	CAHE		
11F14 869029	Campbell Brook	2-4	HCMB	8	2	2	3	07	CAHE		
11F14 869030	Campbell Brook	2-4	BLDP								
11F14 869031	Campbell Brook	2-4	CRS1								
11F14 869032	Campbell Brook	2-4	HCMB	78	5	0	3	0	CAHEDO		
11F14 869033	Campbell Brook	2-4	GBCM	04	4	0	3	27	CAHE		
11F14 869034	Upper Glencoe	2-2	GBCM	15	2	0	0	2	CA	PY	0
11F14 869035	Upper Glencoe	2-2	PFCM	8	2	0	3	04	CAHEDO		
11F14 869036	Upper Glencoe	2-2	GPCM	15	4	0	0	24	CAGP		
11F14 869037	Upper Glencoe	2-2	WGCM	56	4	0	0	02	CADO		
11F14 869038	Upper Glencoe	2-2	GPCM	4	3	0	0	24	CAGP		
11F14 869039	Upper Glencoe	2-2	GDMB	15	2	0	0	04	DO		
11F14 869040	Upper Glencoe	2-2	HCMB	59	5	0	3	04	CAHE		
11F14 869041	Upper Glencoe	2-2	CRS2								
11F14 869042	Upper Glencoe	2-2	ALCM	5	3	0	1	2	CASR		
11F14 869043	Whycocomagh	2-3	WDMB	0	4	0	0	04	DOCA		
11F14 869044	Whycocomagh	2-3	WDMB	05	5	0	0	04	DO		
11KO1 869073	Frenchvale	1-1	GDMB	5	6	2	41	0	DOBIGP	PY	0
11KO1 869074	Frenchvale	1-1	GBDM	2	6	2	0	3	DOCAPHBI	PY	0
11KO1 869075	Frenchvale	1-1	BLDP								
11K01 869076	Frenchvale	1-1	BDMB	1	8	3	0	0	DOGPBI	PY	0
11KO1 869077	Frenchvale	1-1	SDMB	65	4	2	41	0	DOSRTA	PY	2
11KO1 869078	Frenchvale	1-1	BIDI	64	4	2	14	0	PLBISRTA		
11K01 869079	Frenchvale	1-1	GBDM	05	5	0	1	03	DOCABI	PY	0
11KO1 869080	Frenchvale	1-1	GRNT	95	3	2	14	0	QUPLFEBI	PY	0
11K01 869081	Ironville	1-3	CRS2								
11K01 869082	Ironville	1-3	GLST	45	2	0	3	07	CAHE		
11KO1 869083	Ironville	1-3	GLST	45	2	0	0	04	CA		
11KO1 869084	Ironville	1-3	HCSH	95	2	2	3	1	CAHE		
11K01 869085	Ironville	1-3	HCLB	94	8	2	3	74	CAHE		
11KO1 869086	Ironville	1-3	SPEO	5	8	2	3	07	CAHE		
11K01 869095	Scotch Lake	1-2	GDMB	50	9	2	1	0	DOCASRMA	PY	06
11K01 869096	Scotch Lake	1-2	CSDM	56	3	0	1	0	DOCASR	PY	0
11K01 869097	Scotch Lake	1-2	WDMB	0	6	2	1	0	DOCASR	PY	0
11K01 869098	Scotch Lake	1-2	DBSE	46	3	1	17	0	PXSRCL	PY	0
11K01 869099	Scotch Lake	1-2	WDMB	05	6	2	1	0	DOCASR	PY	2
11K08 869109	New Campbellton	3-1	MCDM	86	3	0	3	0	DO		
11K08 869110	New Campbellton	3-1	BLST	4	2	0	0	74	CAGP		

CARBONATE-HOSTED INDUSTRIAL MINERAL OCCURRENCES
Field Characteristics

Sample Number	Showing	Map No.	Rock Type	Colour	Grain Size	Texture	Alteration	Structure	Rock-forming Minerals	Economic Minerals	Type of Mineral'n
11K08 869111	New Campbellton	3-1	CRS1								
11K08 869112	New Campbellton	3-1	BSHL	4	2	0	0	0			
11K08 869113	New Campbellton	3-1	BDCM	06	4	2	0	03	CADO	PY	2
11K08 869114	New Campbellton	3-1	GBCM	46	3	0	7	03	CA		
11K08 869115	New Campbellton	3-1	GDMB	5	3	0	0	07	DO		
11K08 869116	New Campbellton	3-1	GBCM	2	4	2	0	3	CABI	PY	0
11K08 869117	New Campbellton	3-1	QZMZ	8	6	2	0	0	FEPLQUHO		

CARBONATE-HOSTED INDUSTRIAL MINERAL OCCURRENCES
Whole Rock Geochemistry

Sample Number	SIO2	AL2O3	CAO	MGO	CaO:MgO	NA2O	K2O	FE2O3	MNO	TIO2	P2O5	LOI	SUM	CR	RB	SR	Y	BA
869020	1.02	0.15	54.00	0.80	67.50	0.020	0.02	0.120	0.005	0.010	0.02	42.85	99.000	5	5	180	5	5
869021	28.40	2.34	21.80	19.70	1.11	0.490	0.15	3.600	0.120	0.320	0.09	21.62	98.700	5	5	240	5	40
869022	0.72	0.16	50.10	5.15	9.73	0.040	0.04	0.240	0.005	0.010	0.02	42.39	98.900	5	10	130	5	5
869023	4.16	1.48	51.00	1.45	35.17	0.060	0.41	0.600	0.005	0.090	0.03	40.70	100.000	5	20	360	5	50
869024	0.85	0.11	54.50	0.63	86.51	0.040	0.02	0.110	0.005	0.005	0.02	43.16	99.500	5	20	160	5	20
869025	6.09	1.19	48.99	2.30	21.30	0.340	0.04	0.720	0.020	0.080	0.05	38.93	98.800	5	10	330	5	20
869026	10.70	0.26	27.90	22.90	1.22	0.070	0.05	0.740	0.030	0.030	0.02	37.62	100.300	5	20	60	5	20
869027	4.35	1.23	29.80	19.80	1.51	0.070	0.15	1.140	0.100	0.040	0.08	43.23	100.000	5	20	110	5	50
869028	2.12	0.43	53.10	0.69	76.96	0.020	0.07	0.260	0.005	0.020	0.03	41.85	98.600	5	5	220	5	20
869029	0.74	0.17	43.60	10.50	4.15	0.050	0.02	0.350	0.030	0.010	0.01	43.54	99.000	5	20	130	5	10
869030	0.74	0.17	43.50	10.60	4.10	0.030	0.01	0.330	0.030	0.020	0.01	43.39	98.800	5	10	110	5	20
869031	0.44	0.01	30.30	23.20	1.31	0.060	0.02	0.040	0.020	0.010	0.04	45.50	99.700	5	10	190	5	50
869032	1.92	0.58	54.10	0.41	131.95	0.020	0.07	0.130	0.005	0.020	0.04	42.39	99.700	5	10	110	5	10
869033	1.58	0.39	53.40	0.46	116.09	0.020	0.02	0.260	0.005	0.010	0.03	43.00	99.300	5	5	690	5	5
869034	8.89	2.27	46.90	2.15	21.81	0.090	1.28	0.750	0.005	0.120	0.06	37.39	99.900	5	20	220	5	70
869035	9.39	1.63	48.10	0.74	65.00	0.030	0.48	0.370	0.070	0.060	0.06	38.93	99.900	5	30	150	5	20
869036	2.39	0.03	53.60	0.23	233.04	0.030	0.01	0.080	0.020	0.005	0.01	42.77	99.200	5	10	120	5	20
869037	1.17	0.44	47.70	6.38	7.48	0.030	0.01	0.210	0.030	0.030	0.04	44.00	100.100	5	10	150	10	5
869038	0.89	0.42	54.30	0.74	73.38	0.040	0.03	0.120	0.005	0.020	0.03	43.23	99.900	5	10	640	5	20
869039	1.19	0.08	31.00	22.10	1.40	0.080	0.01	0.310	0.010	0.020	0.02	45.69	100.500	5	20	130	5	5
869040	0.30	0.03	55.30	0.46	120.22	0.020	0.01	0.090	0.005	0.005	0.01	43.70	99.900	5	5	190	5	10
869041	27.40	2.27	21.00	19.10	1.10	0.510	0.15	3.480	0.110	0.310	0.09	21.77	96.200	5	10	230	5	50
869042	2.45	0.46	53.10	1.34	39.63	0.020	0.01	0.220	0.005	0.020	0.02	42.39	100.100	5	10	270	10	5
869043	0.62	0.08	32.00	21.80	1.47	0.090	0.02	0.070	0.030	0.010	0.02	45.69	100.500	5	10	90	5	50
869044	1.80	0.08	30.50	23.00	1.33	0.060	0.03	0.110	0.005	0.020	0.01	44.54	100.200	5	5	70	5	50
869073	1.25	0.34	30.40	21.50	1.41	0.060	0.08	0.260	0.040	0.030	0.03	46.16	100.200	5	5	80	10	10
869074	12.80	1.59	30.30	15.60	1.94	0.060	0.48	0.820	0.110	0.070	0.05	38.31	100.200	5	10	90	5	30
869075	12.80	1.60	30.50	15.40	1.98	0.060	0.51	0.820	0.120	0.080	0.05	38.46	100.400	5	20	80	10	40
869076	2.00	0.36	37.50	15.50	2.42	0.050	0.01	0.270	0.100	0.030	0.03	44.70	100.600	5	5	80	5	10
869077	48.90	2.40	17.10	8.30	2.06	0.060	0.01	5.710	0.070	0.050	0.03	12.77	95.400	5	10	70	20	50
869078	65.70	15.50	2.35	1.99	1.18	3.400	4.31	4.350	0.090	0.560	0.16	1.54	100.200	10	190	200	60	1050
869079	1.38	0.30	29.50	23.40	1.26	0.090	0.08	0.200	0.020	0.030	0.03	45.24	100.300	5	10	70	5	20
869080	61.70	15.70	2.18	3.65	0.60	3.680	3.60	5.460	0.070	0.980	0.28	2.70	100.200	10	200	230	30	670
869081	28.20	2.30	21.70	19.50	1.11	0.490	0.15	3.610	0.120	0.310	0.09	22.00	98.500	5	10	260	5	50
869082	7.01	0.75	50.70	0.31	163.55	0.060	0.12	0.420	0.020	0.020	0.05	40.31	99.800	5	5	120	5	20
869083	8.20	1.28	48.90	0.49	99.80	0.050	0.21	0.580	0.030	0.040	0.09	39.77	99.700	5	20	190	5	20
869084	24.00	7.19	33.90	1.11	30.54	0.140	2.01	2.740	0.140	0.270	0.11	28.77	100.400	5	50	110	20	160
869085	6.23	0.13	45.50	4.32	10.53	0.030	0.02	1.760	0.210	0.010	0.02	41.31	99.600	5	10	120	5	530
869086	7.94	0.67	18.50	0.45	41.11	0.060	0.04	52.800	0.050	0.040	0.07	17.16	97.800	5	5	20	5	490
869095	2.05	0.33	30.40	21.40	1.42	0.060	0.01	1.080	0.120	0.020	0.19	44.70	100.400	5	10	80	5	20
869096	11.10	0.78	35.50	15.60	2.28	0.080	0.07	0.490	0.050	0.040	0.07	35.85	99.600	5	10	150	5	20
869097	3.08	0.13	31.20	20.90	1.49	0.050	0.01	0.210	0.080	0.020	0.20	44.31	100.200	5	5	100	10	20
869098	37.60	18.40	5.36	15.10	0.35	0.560	5.20	9.740	0.070	0.810	0.11	7.08	100.100	40	380	190	10	290
869099	4.51	0.55	31.40	21.70	1.45	0.090	0.03	0.440	0.030	0.030	0.32	41.23	100.400	5	10	140	5	5
869109	0.61	0.16	30.20	22.10	1.37	0.060	0.04	0.340	0.070	0.020	0.02	46.62	100.200	5	5	50	5	5
869110	7.35	0.59	47.70	2.94	16.22	0.030	0.03	0.380	0.090	0.040	0.04	39.85	99.100	5	10	160	5	20

CARBONATE-HOSTED INDUSTRIAL MINERAL OCCURRENCES
Whole Rock Geochemistry

Sample Number	SIO2	AL2O3	CAO	MGO	CaO:MgO	NA2O	K2O	FE2O3	MNO	TIO2	P2O5	LOI	SUM	CR	RB	SR	Y	BA
869111	0.45	0.01	30.60	23.50	1.30	0.060	0.02	0.040	0.020	0.020	0.05	45.50	100.300	5	5	180	5	30
869112	61.10	16.20	2.44	2.38	1.03	0.820	8.22	3.100	0.020	1.240	0.20	3.77	99.700	130	220	100	50	750
869113	2.87	0.71	52.20	1.53	34.12	0.030	0.07	0.610	0.020	0.050	0.03	41.62	99.800	5	20	100	5	10
869114	8.73	1.25	46.70	4.17	11.20	0.040	0.24	2.500	0.050	0.140	0.06	36.31	100.200	5	20	110	5	70
869115	1.88	0.33	30.10	22.00	1.37	0.050	0.04	0.300	0.080	0.020	0.05	45.46	100.300	5	10	30	5	5
869116	1.62	0.43	51.70	2.87	18.01	0.040	0.05	0.590	0.060	0.030	0.01	42.46	99.900	5	10	200	5	70
869117	74.40	13.30	1.00	0.47	2.13	4.260	4.44	1.060	0.040	0.210	0.05	0.93	100.300	10	190	100	40	560

CARBONATE-HOSTED INDUSTRIAL MINERAL OCCURRENCES
Trace Element Geochemistry

Sample Number	Nb (ppm)	Zr (ppm)	Au (ppb)	Cu (ppm)	Zn (ppm)	As (ppm)	Mo (ppm)	Ag (ppm)	Sn (ppm)	Sb (ppm)	W (ppm)	Hg (ppb)	Pb (ppm)
869020	5	5	-999	0.25	210.00	-999.00	-999.0	-999.00	-999	-999.0	-999.0	-999.0	2
869021	5	5	-999	750.00	6700.00	-999.00	-999.0	-999.00	-999	-999.0	-999.0	-999.0	610
869022	10	5	-999	0.25	190.00	-999.00	-999.0	-999.00	-999	-999.0	-999.0	-999.0	6
869023	20	10	-999	8.00	100.00	-999.00	-999.0	-999.00	-999	-999.0	-999.0	-999.0	4
869024	5	5	-999	0.25	35.00	-999.00	-999.0	-999.00	-999	-999.0	-999.0	-999.0	1
869025	20	20	-999	1.50	55.00	-999.00	-999.0	-999.00	-999	-999.0	-999.0	-999.0	4
869026	5	5	-999	0.25	84.00	-999.00	-999.0	-999.00	-999	-999.0	-999.0	-999.0	14
869027	20	5	-999	0.25	38.00	-999.00	-999.0	-999.00	-999	-999.0	-999.0	-999.0	4
869028	10	5	-999	1.00	31.00	-999.00	-999.0	-999.00	-999	-999.0	-999.0	-999.0	4
869029	10	5	-999	0.25	28.00	-999.00	-999.0	-999.00	-999	-999.0	-999.0	-999.0	2
869030	10	5	-999	0.25	27.00	-999.00	-999.0	-999.00	-999	-999.0	-999.0	-999.0	2
869031	10	5	-999	0.25	7.50	-999.00	-999.0	-999.00	-999	-999.0	-999.0	-999.0	4
869032	10	5	-999	1.00	14.00	-999.00	-999.0	-999.00	-999	-999.0	-999.0	-999.0	2
869033	20	5	-999	1.00	26.00	-999.00	-999.0	-999.00	-999	-999.0	-999.0	-999.0	4
869034	10	5	-999	7.00	25.00	-999.00	-999.0	-999.00	-999	-999.0	-999.0	-999.0	6
869035	10	5	-999	5.00	17.00	-999.00	-999.0	-999.00	-999	-999.0	-999.0	-999.0	2
869036	10	5	-999	0.25	9.00	-999.00	-999.0	-999.00	-999	-999.0	-999.0	-999.0	4
869037	20	5	-999	0.25	11.00	-999.00	-999.0	-999.00	-999	-999.0	-999.0	-999.0	2
869038	10	5	-999	0.25	6.00	-999.00	-999.0	-999.00	-999	-999.0	-999.0	-999.0	4
869039	10	5	-999	0.25	12.00	-999.00	-999.0	-999.00	-999	-999.0	-999.0	-999.0	1
869040	20	5	-999	0.25	12.00	-999.00	-999.0	-999.00	-999	-999.0	-999.0	-999.0	2
869041	10	5	-999	760.00	6700.00	-999.00	-999.0	-999.00	-999	-999.0	-999.0	-999.0	610
869042	10	5	-999	4.50	10.00	-999.00	-999.0	-999.00	-999	-999.0	-999.0	-999.0	2
869043	5	5	-999	17.00	14.00	-999.00	-999.0	-999.00	-999	-999.0	-999.0	-999.0	2
869044	10	5	-999	0.25	19.00	-999.00	-999.0	-999.00	-999	-999.0	-999.0	-999.0	4
869073	5	5	-999	0.25	15.00	-999.00	-999.0	-999.00	-999	-999.0	-999.0	-999.0	6
869074	5	5	-999	4.50	18.00	-999.00	-999.0	-999.00	-999	-999.0	-999.0	-999.0	1
869075	10	5	-999	4.50	17.00	-999.00	-999.0	-999.00	-999	-999.0	-999.0	-999.0	1
869076	20	5	0.5	2.00	5.00	0.30	0.5	0.25	1.0	0.1	0.5	2.5	2
869077	10	5	0.5	110.00	35.00	-999.00	2.0	0.25	1.5	-999.0	1.0	2.5	8
869078	30	380	-999	13.00	71.00	-999.00	-999.0	-999.00	-999	-999.0	-999.0	-999.0	12
869079	5	5	0.5	0.25	210.00	0.10	0.5	0.25	1.0	0.1	0.5	2.5	42
869080	40	220	0.5	51.00	54.00	-999.00	3.0	-999.00	8.0	-999.0	0.5	2.5	8
869081	20	5	-999	730.00	6700.00	-999.00	-999.0	-999.00	-999	-999.0	-999.0	-999.0	600
869082	5	5	-999	1.50	8.00	-999.00	-999.0	-999.00	-999	-999.0	-999.0	-999.0	2
869083	10	5	-999	2.00	11.00	-999.00	-999.0	-999.00	-999	-999.0	-999.0	-999.0	4
869084	20	30	0.5	4.50	11.00	13.00	3.0	0.25	1.5	1.3	0.5	2.5	2
869085	10	5	6.0	1.50	14.00	3.60	0.5	0.25	1.0	0.7	0.5	5.0	2
869086	20	5	0.5	0.50	25.00	50.00	43.0	0.25	1.5	2.9	7.0	2.5	1
869095	10	5	-999	7.00	80.00	-999.00	-999.0	-999.00	-999	-999.0	-999.0	-999.0	4
869096	5	5	0.5	7.00	140.00	2.70	0.5	0.25	1.0	0.2	1.0	5.0	14
869097	5	5	0.5	0.25	25.00	0.80	0.5	0.25	1.0	0.1	0.5	18.0	2
869098	10	30	0.5	71.00	74.00	0.50	3.0	0.25	12.0	0.2	3.0	2.5	1
869099	10	5	3.0	2.00	4000.00	2.10	1.0	0.25	1.5	0.9	0.5	2.5	590
869109	10	5	-999	0.25	16.00	-999.00	-999.0	-999.00	-999	-999.0	-999.0	-999.0	2
869110	20	10	5.0	0.25	190.00	0.20	0.5	0.25	1.0	0.1	0.5	11.0	26

CARBONATE-HOSTED INDUSTRIAL MINERAL OCCURRENCES
Trace Element Geochemistry

Sample Number	Nb (ppm)	Zr (ppm)	Au (ppb)	Cu (ppm)	Zn (ppm)	As (ppm)	Mo (ppm)	Ag (ppm)	Sn (ppm)	Sb (ppm)	W (ppm)	Hg (ppb)	Pb (ppm)
869111	10	5	-999	0.25	10.00	-999.00	-999.0	-999.00	-999	-999.0	-999.0	-999.0	1
869112	90	360	3.0	26.00	44.00	1.20	2.0	1.00	6.0	0.8	2.0	7.0	20
869113	10	5	-999	0.25	27.00	-999.00	-999.0	-999.00	-999	-999.0	-999.0	-999.0	6
869114	20	30	-999	0.25	33.00	-999.00	-999.0	-999.00	-999	-999.0	-999.0	-999.0	6
869115	10	5	-999	0.25	24.00	-999.00	-999.0	-999.00	-999	-999.0	-999.0	-999.0	2
869116	10	5	-999	0.25	93.00	-999.00	-999.0	-999.00	-999	-999.0	-999.0	-999.0	8
869117	10	100	-999	1.50	36.00	-999.00	-999.0	-999.00	-999	-999.0	-999.0	-999.0	10

APPENDIX IV

Summary of Field and Geochemical Data: Regional Samples

REGIONAL GEOCHEMICAL SAMPLING PROGRAMME
Field Characteristics

Sample Number	Area	Map No.	Lith Type	Chemical Type	Rock Type	Colour	Grain Size	Texture	Alter'n	Structure	Rock-forming Minerals	Economic Minerals	Type of Mineral'n
11K01 869201	1	1-1	1A	1B	GDMB	57	6	2	0	0	DOCAGP	PY	0
11K01 869202	1	1-1	1A	1A	GBDM	0	5	0	0	3	DOCA	PY	0
11K01 869203	1	1-1	2A	2B	GCMB	5	4	2	0	04	CADOGP	PY	0
11K01 869204	1	1-1	1A	1C	GBDM	56	6	2	0	5	DODIBIGPPH	PY	0
11K01 869205	1	1-1	1A	2B	GBDM	5	4	2	0	054	CABI	PY	0
11K01 869206	1	1-1	2A	2B	GBCM	5	4	2	0	3	CA	PY	0
11K01 869207	1	1-1	2A	1C	GBCM	5	6	2	0	03	CAPH	PY	0
11K01 869208	1	1-1	2A	2B	WBCM	0	6	2	0	05	CA	PY	0
11K01 869209	1	1-1	2A	1C	GBCM	04	4	2	0	3	CADOGP	PY	0
11K01 869210	1	1-1	2A	2B	GBCM	04	6	2	0	3	CABIPH	PY	0
11K01 869211	1	1-1			CRS1								
11K01 869212	1	1-1	2A	1C	GBCM	0	4	2	0	05	CABI	PY	0
11K01 869213	1	1-1	2A	2B	GBCM	04	6	2	0	05	CADOBITA	PY	0
11K01 869214	1	1-1	1A	1A	WDMB	0	8	2	14	0	DOCATASR	PY	0
11K01 869215	1	1-1			BLDP								
11K01 869216	1	1-1	2A	2C	GBCM	5	3	0	0	03	CABI	PY	0
11K01 869217	1	1-1	1A	1A	GDMB	5	6	2	1	0	DOCABI	PY	0
11K01 869218	1	1-1	1A	1A	WDMB	0	8	2	4	0	DO	PY	0
11K01 869219	1	1-1	1A	1D	BDMB	04	2	0	1	0	DOCASRBI		
11K01 869220	1	1-1	1B	2D	CDMB	5	9	2	4	03	DOCA	PY	0
11K01 869221	1	1-1			CRS2								
11K01 869222	1	1-1	2E	1B	GPCM	0	6	2	0	07	DOCAGP	PY	0
11K01 869223	1	1-1	1A	1A	BWDM	7	5	0	4	0	DOCA	PY	0
11K01 869224	1	1-1	1A	1D	GBDM	5	9	2	71	30	DOCACLSR	PY	0
11K01 869225	1	1-1	2A	2C	GBCM	04	3	0	0	30	CADO	PY	0
11K01 869226	1	1-1	2B	2B	BDCM	04	5	0	4	30	CADOGP	PY	0
11K01 869227	1	1-1	2A	1D	GBCM	5	3	0	0	03	CADO	PY	0
11K01 869228	1	1-1	2A	1C	GCMB	5	3	3	0	05	CADOBI	PY	0
11K01 869229	1	1-1	2B	2C	BDCM	0	4	2	0	3	CADOBI	PY	0
11K01 869230	1	1-1			BLDP								
11K01 869231	1	1-1			CRS1								
11K01 869232	1	1-1	1B	2C	CDMB	56	6	0	1	0	DOCASRPH	PY	0
11K01 869233	1	1-1	2B	2A	BDCM	56	6	0	1	3	CADOBISR	PY	0
11K01 869234	1	1-1	1B	2D	CDMB	56	6	2	1	5	DOCASRGP	PY	0
11K01 869235	1	1-1	1B	1D	BCDM	56	8	2	1	30	DOCASRAMBI	PY	0
11K01 869236	1	1-1	2D	1D	TRMB	5	4	2	0	5	CATRDO		
11K01 869237	1	1-1	1B	1B	CDMB	5	6	2	0	0	DOCABI	PY	0
11K01 869238	1	1-1	2D	2C	CCMB	56	7	0	7	0	CAAMPXBIPH	PY	0
11K01 869239	1	1-1	2A	2C	GBCM	57	4	0	0	3	CADOBI	PY	0
11K01 869240	1	1-1	1A	1A	GDMB	5	4	2	0	0	DOCATRBI	PY	0
11K01 869241	1	1-1			CRS2								
11K01 869242	1	1-1	1B	1D	BCDM	04	2	0	0	35	DOCABI	PY	0
11K01 869243	1	1-1	1A	1A	GDMB	05	6	2	0	0	DOCA	PY	0
11K01 869244	1	1-1	2A	2C	WCMB	0	7	0	1	0	CABIPHTR	PY	0
11K01 869245	1	1-1			BLDP								
11K01 869246	1	1-1	1B	2B	CDMB	5	4	0	1	03	DOCAGPBIPH	PY	0

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Sample Number	Area	Map No.	Lith Type	Chemical Type	Rock Type	Colour	Grain Size	Texture	Alter'n	Structure	Rock-forming Minerals	Economic Minerals	Type of Mineral'n
11K01 869247	1	1-1	2B	2B	BDCM	04	4	2	1	3	CADO	PY	0
11K01 869248	1	1-1	1A	1C	WDMB	06	6	2	17	0	DOCASRPHDI	PY	0
11K01 869249	1	1-1	1A	1A	GDMB	5	5	0	0	05	DOCA	PY	0
11K01 869250	1	1-1	2B	2C	DCMB	5	6	2	0	0	CADOPX	PY	0
11K01 869251	1	1-1			CRS1								
11K01 869252	1	1-1	1B	2D	CDMB	56	4	0	1	5	CADOSR		
11K01 869253	1	1-1	2B	1D	DCMB	65	4	2	1	0	CASRBIAM	PY	0
11K01 869254	1	1-1	2D	1D	CCMB	54	6	0	1	0	CADOAM	PY	0
11K01 869255	1	1-1	2D	1D	CCMB	65	4	2	1	0	CSCABIFEQU	PY	0
11K01 869256	1	1-1	2B	2C	DCMB	5	5	2	0	0	CADOBI		
11K01 869257	1	1-1	2D	1C	CCMB	5	4	2	1	03	CADOBIPHSR	PY	0
11K01 869258	1	1-1	2D	1C	CCMB	46	5	0	1	0	CADOBIAMSR	PY	0
11K01 869259	1	1-1	8		DBSE	46	6	2	0	0	PLHOBI	PY	0
11K01 869260	1	1-1			BLDP								
11K01 869261	1				CRS2								
11K01 869262	1	1-2	2B	2B	DCMB	05	6	2	1	0	CADOBISR	PY	0
11K01 869263	1	1-2	1B	1D	CDMB	56	3	0	1	3	DOCABISR		
11K01 869264	1	1-2	1A	1C	GBDM	56	4	2	14	30	DOCA		
11K01 869265	1	1-2	2B	2B	DCMB	5	7	0	0	03	DOCA	PY	0
11K01 869266	1	1-2	2D	1D	TRMB	6	8	2	14	0	CATRTASRDO	PY	0
11K01 869267	1	1-2	5D		GOSS	7	2	0	0	0		POPY	0
11K01 869268	1	1-2	2A	1B	WCMB	0	4	2	14	05	CADOBIDI	PY	0
11K01 869269	1	1-2	1A	1A	GDMB	5	4	2	0	03	DOCA	PY	0
11K01 869270	1	1-2	1A	1A	WDMB	0	6	2	17	0	DOCASRCL	PY	0
11K01 869271	1	1-2			CRS1								
11K01 869272	1	1-2	1A	1B	GBDM	04	9	2	7	3	DOCABICL	PY	0
11K01 869273	1	1-2	7		CTFF	46	3	0	7	5	PXAMCL		
11K01 869274	1	1-2	1A	1A	GDMB	57	9	2	0	705	DOCAGP		
11K01 869275	1	1-2			BLDP								
11K01 869276	1	1-2	1B	2C	BCDM	04	6	2	0	3	DOCA	PY	0
11K01 869277	1	1-2	1B	2B	CDMB	5	9	2	0	05	DOCABI	PY	0
11K01 869278	1	1-2	1A	1C	WDMB	06	3	0	14	5	DOSRCATA		
11K01 869279	1	1-2	1E	1A	WSDM	06	3	0	1	05	DOSRCA	PY	0
11K01 869280	1	1-2	1B	2B	BCDM	04	6	2	0	3	DOCAGP	PY	0
11K01 869281	1	1-2			CRS2								
11K01 869282	1	1-2	1B	1C	CDMB	15	3	0	7	03	DOCAAMPXCL	PY	0
11K01 869283	1	1-2	1A	1A	WDMB	06	3	0	1	0	DOCSCASR	PY	0
11K01 869284	1	1-2	2B	2B	BDCM	04	4	2	0	35	CADOGP	PY	0
11K01 869285	1	1-2	1E	1C	WSDM	06	3	0	1	0	DOCASR	PY	0
11K01 869286	1	1-2	1A	1A	GDMB	5	4	2	0	0	DOCAGP		
11K01 869287	1	1-2	2B	2B	BDCM	04	6	2	4	03	CADOGPTAMU	PY	0
11K01 869288	1	1-2	1D	1D	CCDM	15	3	0	1	0	DOCACS	PY	0
11K01 869289	1	1-2	1E	1C	WSDM	06	5	0	1	0	DOCASR		
11K01 869290	1	1-2			BLDP								
11K01 869291	1	1-2			CRS2								
11K01 869292	1	1-2	8		GBRO	46	8	2	0	0	HOPLPX	PY	0

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11K01 869293	1	1-2	5E		MAGO	4	4	2	9	0	MA		
11K01 869294	1	1-2	5C		CSSK	6	3	0	14	0	AMPXCADOSRTA	PY	0
11K01 869295	1	1-2	1E	1A	WSDM	06	9	2	1	0	DOCASR	PY	0
11K01 869296	1	1-2	1B	2C	CDMB	0	5	0	0	05	DOCA	PY	0
11K01 869297	1	1-2	8		HQDI	06	5	0	0	0	HOPLQU	PY	0
11K01 869298	1	1-2	1E	2C	CSDM	06	4	2	14	0	DOCASRTA	PY	0
11K01 869299	1	1-2	1D	1A	CCDM	06	9	2	1	0	DOCACSSRMA		
11K01 869300	1	1-2	1B	2C	GCDM	56	4	2	1	0	DOCACS	PY	0
11K01 869301	1	1-2			CRS2								
11K01 869302	1	1-2	1B	2B	GCDM	56	4	2	1	0	DOCACS	PY	0
11F14 869303	2	2-1	4A	4B	BLST	4	2	0	0	074	CADO		
11F14 869304	2	2-1	4B	4C	BDLT	57	2	0	0	04	CADO		
11F14 869305	2	2-1			BLDP								
11F14 869306	2	2-1	4C	3C	GPLT	4	2	0	41	04	CAGP	PY	0
11F14 869307	2	2-1	6		GPSC	4	2	0	0	5	GP		
11F14 869308	2	2-1	6		GPSC	4	2	0	0	5	GP	PY	67
11F14 869309	2	2-1	1A	1C	GDMB	56	5	4	1	0	DOCA	PY	0
11F14 869310	2	2-1	1A	1A	GDMB	54	2	2	0	04	DO		
11F14 869311	2	2-1			CRS1								
11F14 869312	2	2-1	3A	3A	BDST	7	2	0	0	0	DO		
11F14 869313	2	2-1	4A	4C	BLST	45	2	0	0	04	CAGP	PY	0
11F14 869314	2	2-1	4B	4C	GDLT	5	2	0	0	04	CADO		
11F14 869315	2	2-1	4C	4A	GPLT	45	2	0	0	04	CAGP		
11F14 869316	2	2-1	4A	4A	BLST	45	2	0	0	24	CA		
11F14 869317	2	2-1	2A	2A	GCMB	54	3	2	3	04	CAHE		
11F14 869318	2	2-1	4C	4A	GPLT	54	2	2	0	054	CAGP		
11F14 869319	2	2-1	2A	2A	GCMB	5	3	2	3	04	CAGP		
11F14 869320	2	2-1			BLDP								
11F14 869321	2	2-1			CRS2								
11F14 869322	2	2-1	4A	4A	BLST	45	2	0	0	04	CAGP		
11F14 869323	2	2-1	3A	3C	BKDT	54	2	0	0	04	DOGP	PY	0
11F14 869324	2	2-1	3A	3C	GDST	5	2	0	0	0	DOCA	PY	0
11F14 869325	2	2-1	4A	4B	BLST	54	3	2	0	04	CA		
11F14 869326	2	2-1	3A	3A	BKDT	54	2	0	0	04	DOGP		
11F14 869327	2	2-1	2A	2A	GCMB	56	6	2	3	50	CACL		
11F14 869328	2	2-1	2A	2A	GCMB	5	3	2	3	5	CACLGP		
11F14 869329	2	2-1	2A	2A	GCMB	5	4	2	0	5	CACLGP		
11F14 869330	2	2-1	2A	2C	GCMB	5	6	2	4	04	CATA		
11F14 869331	2	2-1			CRS1								
11F14 869332	2	2-1	1A	1A	BFDM	7	2	0	0	07	DO	PY	0
11F14 869333	2	2-1	2A	2A	GCMB	5	2	0	4	04	CA		
11F14 869334	2	2-1	1B	1B	CDMB	7	2	0	0	0	DOCA		
11F14 869335	2	2-1			BLDP								
11F14 869336	2	2-1	1A	1A	GDMB	5	3	0	0	03	DO		
11F14 869337	2	2-1	1A	1A	GDMB	5	5	0	0	0	DO		
11F14 869338	2	2-1	1A	1A	GBDM	54	5	0	0	03	DO		

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Sample Number	Area	Map No.	Lith Type	Chemical Type	Rock Type	Colour	Grain Size	Texture	Alter'n	Structure	Rock-forming Minerals	Economic Minerals	Type of Mineral'n
11F14 869339	2	2-1	2A	2C	GCMB	54	2	0	0	04	CAGP		
11F14 869340	2	2-1	1A	1A	BFDM	7	3	0	4	0	DO		
11F14 869341	2				CRS2								
11F14 869342	2	2-2	1A	1A	BDMB	15	2	0	0	0	DO		
11F14 869343	2	2-2	2A	2A	GBCM	54	3	2	3	3	CAHE		
11F14 869344	2	2-2	2A	2A	GBCM	5	3	0	0	3	CA		
11F14 869345	2	2-2	2A	2A	GBCM	54	2	0	0	3	CAGP		
11F13 869346		2-2	2A	2C	GRCM	58	3	2	74	34	CACLTA		
11F14 869347	2	2-2	2A	2C	GBCM	58	3	2	0	34	CAGP		
11F14 869348	2	2-2	1A	1A	BDMB	15	2	0	0	0	DOGP		
11F14 869349	2	2-2	2A	2B	GBCM	54	3	0	0	3	CA		
11F14 869350	2	2-2			BLDP								
11F14 869351	2	2-2			CRS1								
11F14 869352	2	2-2	1A	1A	GDMB	54	2	0	0	0	DO		
11F14 869353	2	2-2	2A	2A	GBCM	5	3	2	0	34	CA		
11F14 869354	2	2-2	2A	2A	GCMB	54	3	0	0	0	CA		
11F14 869355	2	2-2	2A	2C	BGCM	57	3	2	0	3	CAGP		
11F14 869356	2	2-2	1A	1A	BDMB	15	2	0	0	03	DO		
11F14 869357	2	2-2	2A	2C	GBCM	5	3	0	0	34	CAGP		
11F14 869358	2	2-2	2A	2A	BFCM	7	3	0	0	03	CA		
11F14 869359	2	2-2	2A	2C	GBCM	5	3	0	0	3	CA		
11F14 869360	2	2-2	2A	2A	GCMB	5	5	0	0	0	CA		
11F14 869361	2	2-2			CRS2								
11F14 869362	2	2-2	1A	1A	BDMB	15	2	0	0	0	DO		
11F14 869363	2	2-2	2A	2C	GRCM	68	3	0	7	3	CA		
11F14 869364	2	2-2	2A	2C	HCMB	59	3	0	3	3	CAHE		
11F14 869365	2	2-2			BLDP								
11F14 869366	2	2-2	2A	2A	GBCM	5	4	2	0	3	CA		
11F14 869367	2	2-2	2A	2A	GBCM	5	4	2	0	3	CA		
11F14 869368	2	2-2	2A	2B	GBCM	5	4	2	0	30	CA		
11F14 869369	2	2-2	2A	2A	GBCM	54	4	2	0	30	CAGP		
11F14 869370	2	2-2	2A	2C	BGCM	67	3	0	7	3	CACL		
11F14 869371	2	2-2			CRS1								
11F14 869372	2	2-2	2A	2C	GBCM	59	3	0	3	34	CAHE		
11F14 869373	2	2-2	1A	1A	GDMB	5	3	0	0	0	DO		
11F14 869374	2	2-2	2A	2C	BGCM	57	3	0	0	3	CA		
11F14 869375	2	2-2	2A	2A	GCMB	5	3	0	0	0	CAGP		
11F14 869376	2	2-2	2A	2B	GCMB	5	3	0	0	03	CA		
11F14 869377	2	2-2	2A	2C	GCMB	59	4	2	3	0	CAGPHE		
11F14 869378	2	2-2	2A	2A	GBCM	5	4	2	3	3	CA		
11F14 869379	2	2-2	2A	2B	GBCM	5	3	0	0	3	CA		
11F14 869380	2	2-2			BLDP								
11F14 869381	2	2-2			CRS2								
11F14 869382	2	2-2	2A	2B	GBCM	50	6	2	0	30	CA		
11F14 869383	2	2-2	2A	2A	GBCM	54	4	2	0	3	CA		
11F14 869384	2	2-2	2A	2A	GBCM	5	3	0	0	3	CA		

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11F14 869385	2	2-2	2A	2B	BFCM	7	3	0	0	0	CA		
11F14 869386	2	2-2	2A	2C	BGCM	57	3	0	0	30	CA		
11F14 869387	2	2-2	2A	2A	WGCM	04	3	0	0	3	CA		
11F14 869388	2	2-2	2A	2A	GBCM	5	3	0	0	3	CA		
11F14 869389	2	2-2	1A	1A	GDMB	54	3	0	0	04	DOCAGP		
11F14 869390	2	2-2	2A	2B	BRCM	59	8	2	3	70	CADOHE		
11F14 869391	2	2-2			CRS1								
11F14 869392	2	2-2	2A	2A	GBCM	5	3	0	0	30	CAGP		
11F14 869393	2	2-2	2A	2A	HCMB	09	7	2	3	07	CAHE		
11F14 869394	2	2-2	2A	2A	GBCM	54	5	2	0	3	CA		
11F14 869395	2	2-2			BLDP								
11F14 869396	2	2-2	2A	2A	BFCM	57	7	2	0	0	CA		
11F14 869397	2	2-2	2A	2A	GBCM	54	6	2	0	3	CA		
11F14 869398	2	2-2	2A	2B	GBCM	59	3	0	34	57	CAHETA		
11F14 869399	2	2-2	2A	2A	WCMB	05	3	0	3	5	CA		
11F14 869400	2	2-2	2A	2A	GBCM	5	3	0	0	3	CA		
11F14 869401	2	2-2			CRS2								
11F14 869402	2	2-2	2A	2C	GBCM	5	3	0	0	345	CA		
11F14 869403	2	2-2	2A	2A	GBCM	54	3	0	0	53	CA		
11F14 869404	2	2-2	2A	2A	GBCM	54	9	2	0	30	CA		
11F14 869405	2	2-2	4A	4C	BLST	4	2	0	0	0	CA		
11F14 869406	2	2-2	2A	1D	GCMB	5	3	2	0	0	CA	PY	0
11F14 869407	2	2-2	2A	2A	GBCM	5	4	2	0	3	CAGP		
11F14 869408	2	2-2	2A	2B	BFCM	57	2	0	0	50	CA		
11F14 869409	2	2-2	2A	2C	BCMB	54	2	0	0	0	CA		
11F14 869410	2	2-2			BLDP								
11F14 869411	2	2-2			CRS1								
11F14 869412	2	2-2	2A	2B	GCMB	5	3	2	0	05	CA	PY	0
11F14 869413	2	2-2	1A	1B	BFDM	75	2	0	0	03	DO	PY	0
11F14 869414	2	2-2	2A	2A	GBCM	5	3	0	0	34	CAGP		
11F14 869415	2	2-2	2A	2A	GBCM	50	3	2	0	3	CA		
11F14 869416	2	2-2	2A	2B	GBCM	56	3	0	47	03	CACLTA		
11F14 869417	2	2-2	1A	1A	GDMB	5	3	0	0	05	DO		
11F14 869418	2	2-2	2A	2B	BKCM	54	2	0	0	05	CAGP		
11F14 869419	2	2-2	2A	2A	BRCM	09	9	2	3	74	CAGPHE		
11F14 869420	2	2-2	1A	1C	GDMB	5	3	0	0	03	DO	PY	0
11F14 869421	2	2-2			CRS2								
11F14 869422	2	2-2	6		MARG	65	3	2	7	05	QUBICL		
11F14 869423	2	2-2	1A	1A	GDMB	54	2	0	0	0	DO		
11F14 869424	2	2-2	6		MARG	4	3	2	7	5	QUBICL	PY	03
11F14 869425	2	2-2			BLDP								
11F14 869426	2	2-2	1A	1C	GDMB	15	2	0	0	0	DO		
11F14 869427	2	2-2	2E	2A	GPCM	04	4	2	0	504	CAGP	PY	03
11F14 869428	2	2-2	2A	2A	GCMB	5	3	0	0	5	CA	PY	0
11F14 869429	2	2-2	2A	2B	GCMB	5	3	0	0	05	CA		
11F14 869430	2	2-2	1A	1A	GDMB	50	3	0	0	0	DO		

REGIONAL GEOCHEMICAL SAMPLING PROGRAMME
Field Characteristics

Sample Number	Area	Map No.	Lith Type	Chemical Type	Rock Type	Colour	Grain Size	Texture	Alter'n	Structure	Rock-forming Minerals	Economic Minerals	Type of Mineral'n
11F14 869431	2	2-2			CRS1								
11F14 869432	2	2-2	2A	2C	GRCM	56	2	0	7	05	CACL		
11F14 869433	2	2-2	2A	2B	BFCM	70	3	2	0	0	CA		
11F14 869434	2	2-2	2A	2B	BFCM	70	3	2	0	0	CA	PYSPMO	0
11F14 869435	2	2-2	2A	2B	GCMB	5	3	0	0	0	CA		
11F14 869436	2	2-2	2A	2B	GBCM	5	3	0	0	3	CA		
11F14 869437	2	2-2	2A	2A	GBCM	5	4	0	0	35	CA		
11F14 869438	2	2-2	6		SLST	5	3	0	0	05	CAQU	PY	0
11F14 869439	2	2-2	2A	2B	GBCM	5	3	0	0	3	CA		
11F14 869440	2				BLDP								
11F14 869441	2				CRS2								
11F14 869442	2	2-3	1A	1A	BFDM	76	3	3	0	05	DO		
11F14 869443	2	2-4	2A	2A	GBCM	5	3	0	0	3	CAGP		
11F14 869444	2	2-4	2B	2C	GDCM	5	3	0	0	0	CADO		
11F14 869445	2	2-4	2A	2A	HCMB	95	3	0	3	5	CAHE		
11F14 869446	2	2-4	2A	2A	HCMB	95	3	0	3	05	CAHE		
11F14 869447	2	2-4	2A	2C	BFCM	7	4	2	4	5	CATA		
11F14 869448	2	2-4	2A	2A	GBCM	54	9	2	0	35	CA		
11F14 869449	2	2-4	1A	1A	GDMB	15	3	0	0	074	DO		
11F14 869450	2	2-4	4A	4C	BLST	4	2	0	0	04	CA		
11F14 869451	2	2-4			CRS1								
11F14 869452	2	2-4	2A	2C	HCMB	95	3	2	3	54	CAHE		
11F14 869453	2	2-4	2A	2A	GBCM	5	4	2	7	35	CAGPCL		
11F14 869454	2	2-4	2A	2C	GCMB	56	3	0	75	0	CACL		
11F14 869455	2	2-4			BLDP								
11F14 869456	2	2-4	2A	2C	GCMB	56	3	0	7	5	CACL		
11F14 869457	2	2-4	2A	2B	WCMB	07	3	2	0	05	CA		
11F14 869458	2	2-4	2A	2A	GCMB	5	2	0	3	05	CA		
11F14 869459	2	2-4	2C	2C	ALCM	56	3	0	7	534	CACL		
11F14 869460	2	2-4	2A	2C	GCMB	5	3	0	0	5	CA		
11F14 869461	2	2-4			CRS2								
11F14 869462	2	2-4	1A	1A	GDMB	15	3	0	0	07	DOGP	PY	0
11F14 869463	2	2-4	1A	1A	GDMB	15	3	0	0	04	DO		
11F14 869464	2	2-4	2A	2B	GCMB	5	3	0	4	0	CA		
11F14 869465	2	2-4	2A	1C	GCMB	54	2	0	0	05	CA	PY	0
11F14 869466	2	2-4	2A	1D	GCMB	56	3	0	7	05	CACL	PY	0
11F14 869467	2	2-4	2A	1C	GCMB	56	3	0	7	0	CACL		
11F14 869468	2	2-4	2A	2A	GCMB	5	2	0	0	047	CA		
11F14 869469	2	2-4	1B	1C	CDMB	5	2	0	0	047	DOCA		
11F14 869470	2	2-4			BLDP								
11F14 869471	2	2-4			CRS1								
11F14 869472	2	2-4	1A	1C	GDMB	15	3	0	0	04	DO		
11F14 869473	2	2-4	2A	2C	GCMB	54	3	0	7	05	CACL	PY	0
11F14 869474	2	2-5	1B	2B	CDMB	07	2	0	7	04	DOCA		
11F14 869475	2	2-5	2A	2A	GBCM	5	3	0	0	3	CA		
11F14 869476	2	2-5	2A	2C	GRCM	65	3	0	4	53	CADOTA		

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Sample Number	Area	Map No.	Lith Type	Chemical Type	Rock Type	Colour	Grain Size	Texture	Alter'n	Structure	Rock-forming Minerals	Economic Minerals	Type of Mineral'n
11F14 869477	2	2-5	2A	2A	WCMB	07	8	2	0	0	CA		
11F14 869478	2	2-5	2A	2B	GCMB	5	3	0	0	0	CADO		
11F14 869479	2	2-5	2A	2A	GCMB	5	6	2	0	05	CA		
11F14 869480	2	2-5	2B	2B	WDCM	05	5	2	0	0	DOCA		
11F14 869481	2	2-5			CRS2								
11F14 869482	2	2-5	2A	2B	WCMB	05	3	0	0	0	CA		
11F14 869483	2	2-5	2A	2A	WCMB	05	7	2	0	05	CA		
11F14 869484	2	2-5	2A	1C	GCMB	56	3	0	0	0	CA	PY	2
11F14 869485	2	2-5			BLDP								
11F14 869486	2	2-5	2C	2C	ALCM	69	3	0	0	05	CACL		
11F14 869487	2	2-5	2A	2A	GBCM	5	4	2	0	30	CA		
11K08 869488	3	3-1	2A	2C	BRCM	54	2	2	3	47	CAGPHE		
11K08 869489	3	3-1	1A	1A	BFDM	78	6	2	3	07	DOCA		
11K08 869490	3	3-1	1A	1A	BFDM	7	6	2	0	0	DO		
11K08 869491	3	3-1			CRS1								
11K08 869492	3	3-1	2A	2A	GBCM	56	4	2	4	3	CATA		
11K08 869493	3	3-1	2A	2C	GBCM	54	4	2	0	53	CAGP		
11K08 869494	3	3-1	1A	1A	GDMB	57	4	2	0	05	DO		
11K08 869495	3	3-1	2A	2A	BFCM	07	6	2	0	0	CA		
11K08 869496	3	3-1	2D	2C	EHCM	69	3	0	3	3	CAHEEP		
11K08 869497	3	3-1	2D	2C	EHCM	69	3	2	37	3	CAHEEPCL		
11K08 869498	3	3-1	2A	2A	GBCM	04	3	0	0	35	CAGP		
11K08 869499	3	3-1	1A	1A	GDMB	15	3	0	0	0	DO		
11K08 869500	3	3-1			BLDP								
11K08 869501	3	3-1			CRS2								
11K08 869502	3	3-1	2A	2C	GBCM	54	2	0	0	3	CAGP		
11K08 869503	3	3-1	2A	2C	BFCM	76	2	0	4	3	CATA		
11K08 869504	3	3-1	2A	2C	GBCM	54	3	2	7	034	CACLGP	PY	0
11K08 869505	3	3-1	2A	2C	GBCM	56	3	2	47	3	CATACL		
11K08 869506	3	3-1	1A	1A	WDMB	07	6	2	0	0	DO		
11K08 869507	3	3-1	1A	1A	GBDM	04	3	2	0	3	DO		
11K08 869508	3	3-1	2A	2D	GBCM	56	3	0	74	3	CACLTA	PY	0
11K10 869509	4	4-1	2A	2A	WCMB	07	4	2	0	05	CA		
11K10 869510	4	4-1	2D	1C	CCMB	76	4	2	1	1	CASRCSPH		
11K10 869511	4	4-1			CRS1								
11K10 869512	4	4-1	1D	1C	CSMB	06	6	2	1	0	DOCSSR		
11K10 869513	4	4-1	5C		CSSK	65	3	2	1	0	DOCACSSR	PY	0
11K10 869514	4	4-1	2C	1D	DMCM	56	4	2	4	0	CABICSTA	PY	0
11K10 869515	4	4-1			BLDP								
11K10 869516	4	4-1			DMDM	56	4	2	74	5	DOCAPHCLTA		
11K10 869517	4	4-1	2C	1D	DMCM	65	6	2	0	5	CABIPHDI		
11K10 869518	4	4-1	2D	1C	CCMB	65	6	2	0	05	CADIPH	PY	0
11K10 869519	4	4-1	8		QRZD	0	4	2	0	0	QUPLMU	PYMO	0
11K15 869520	4	4-2	1A	1A	BFDM	78	6	2	0	0	DOCAMU		
11K15 869521	4	4-2			CRS2								
11K15 869522	4	4-2	2D	2D	CCMB	65	3	2	7	0	CACSCLBI		

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Sample Number	Area	Map No.	Lith Type	Chemical Type	Rock Type	Colour	Grain Size	Texture	Alter'n	Structure	Rock-forming Minerals	Economic Minerals	Type of Mineral'n
11K15 869523	4	4-2	2D	2D	DTMB	65	5	2	0	0	CATRDI		
11K16 869524	4	4-3	2A	2A	WCMB	07	3	2	0	0	CAPHGP		
11K08 869525	3	3-1	4A	4C	PLST	57	2	0	0	1	CA		
11K16 869526	4	4-3	2A	2A	WCMB	0	4	2	0	3	CAGP	PY	0
11K16 869527	4	4-3	2D	1D	CCMB	60	7	2	0	05	CATR		
11K16 869528	4	4-3	2A	2C	WCMB	05	2	0	7	5	CAGPBICL	PY	0
11K15 869529	4	4-2	2A	2C	WCMB	07	4	2	0	53	CAGP	PY	0
11K15 869530	4	4-2			BLDP								
11K15 869531	4	4-2			CRS1								
11K15 869532	4	4-2	1A	1A	WDMB	0	3	2	0	05	DO		
11N01 869533	4	4-3	2A	2C	GCMB	50	6	2	0	05	CAGPPH	PY	0
11N01 869534	4	4-3	2B	2A	GDCM	50	6	2	7	5	CADOBICL	PY	0
11N01 869535	4	4-3	6		QFBG	56	6	2	0	5	QUFEBI	PY	0
11N01 869536	4	4-3	1B	2D	CDMB	06	8	2	0	05	DOCACS		
11N01 869537	4	4-3	1A	1B	WDMB	05	7	0	4	0	DOPHTA		
11N01 869538	4	4-3			DMDM	65	4	2	1	1	BIPHDOCS		
11N01 869539	4	4-3	1A		GRDM	60	8	2	1	0	DOCS	PY	0

REGIONAL GEOCHEMICAL SAMPLING PROGRAMME
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Sample Number	SIO2	AL2O3	CAO	MGO	CAO:MGO	NA2O	K2O	FE2O3	MNO	TIO2	P2O5	LOI	SUM	CR	RB	SR	Y	BA
869201	1.89	0.29	32.00	19.00	1.68	0.060	0.01	0.720	0.150	0.020	0.03	46.08	100.300	5	10	80	5	20
869202	1.76	0.35	31.10	21.10	1.47	0.090	0.02	0.630	0.040	0.030	0.03	45.00	100.200	5	10	150	5	40
869203	2.36	0.43	50.50	2.90	17.41	0.040	0.09	0.220	0.130	0.020	0.04	42.54	99.300	5	5	160	5	20
869204	10.50	2.78	26.70	20.50	1.30	0.100	1.02	1.840	0.150	0.190	0.25	36.46	100.500	5	20	110	10	80
869205	4.08	0.67	46.80	6.39	7.32	0.030	0.10	0.470	0.030	0.030	0.05	40.70	99.400	5	20	230	5	10
869206	2.47	0.37	48.90	5.05	9.68	0.110	0.10	0.150	0.005	0.020	0.04	42.85	100.100	5	5	270	5	5
869207	16.00	0.72	40.00	11.30	3.54	0.060	0.49	0.240	0.005	0.030	0.03	31.46	100.400	5	30	570	5	10
869208	2.69	0.43	46.20	7.25	6.37	0.020	0.15	0.130	0.010	0.020	0.04	43.00	100.000	5	10	340	5	5
869209	10.70	0.47	41.40	10.90	3.80	0.060	0.28	0.230	0.020	0.020	0.02	36.08	100.200	5	20	330	5	30
869210	1.91	0.39	48.10	5.52	8.71	0.030	0.12	0.180	0.010	0.020	0.03	43.39	99.700	5	10	210	5	20
869211	0.45	0.02	30.40	23.20	1.31	0.060	0.02	0.050	0.020	0.010	0.04	45.92	100.200	5	5	190	10	60
869212	19.50	0.33	40.00	10.80	3.70	0.070	0.18	0.120	0.005	0.020	0.03	28.70	99.800	5	10	570	5	20
869213	2.63	0.49	48.80	4.93	9.90	0.060	0.14	0.180	0.010	0.020	0.05	42.70	100.000	5	20	290	5	10
869214	1.40	0.38	29.50	22.30	1.32	0.080	0.04	0.770	0.070	0.050	0.02	44.85	99.500	5	20	110	5	10
869215	1.49	0.40	29.90	22.30	1.34	0.070	0.04	0.800	0.070	0.040	0.02	45.23	100.400	5	5	100	5	10
869216	15.40	4.89	36.90	2.06	17.91	0.120	3.80	3.790	0.020	0.450	0.09	26.62	94.200	5	40	350	5	100
869217	4.58	0.99	28.00	21.90	1.28	0.120	0.26	0.850	0.040	0.090	0.03	42.54	99.400	5	5	70	5	30
869218	1.74	0.31	30.60	21.70	1.41	0.050	0.13	0.140	0.030	0.030	0.02	45.62	100.400	5	20	260	5	20
869219	49.60	12.10	18.70	13.00	1.44	0.960	1.55	0.440	0.040	0.060	0.04	3.77	100.300	5	60	320	10	120
869220	33.30	0.93	35.50	5.84	6.08	0.300	0.20	0.320	0.010	0.050	0.05	23.77	100.300	5	20	290	5	20
869221	27.70	2.28	21.30	19.20	1.11	0.500	0.16	3.480	0.120	0.310	0.09	22.00	97.200	5	10	240	5	60
869222	2.62	0.49	40.60	12.30	3.30	0.050	0.08	0.250	0.030	0.030	0.03	44.00	100.500	5	20	250	5	20
869223	4.04	0.80	29.90	21.00	1.42	0.090	0.39	0.530	0.030	0.050	0.04	43.00	100.000	5	20	640	5	410
869224	48.60	0.23	26.10	19.10	1.37	0.150	0.02	0.640	0.050	0.020	0.03	5.62	100.600	5	10	30	5	20
869225	5.70	0.81	43.00	9.69	4.44	0.040	0.23	0.250	0.010	0.030	0.05	40.31	100.200	5	10	440	5	20
869226	1.29	0.21	44.30	9.82	4.51	0.020	0.14	0.140	0.005	0.020	0.03	44.46	100.500	5	5	350	5	10
869227	20.80	0.99	30.50	18.80	1.62	0.050	0.26	0.740	0.040	0.060	0.05	28.23	100.600	5	10	350	10	20
869228	14.70	2.30	31.60	16.60	1.90	0.050	0.93	1.760	0.080	0.110	0.09	31.00	99.300	5	10	230	10	30
869229	15.10	0.90	43.70	7.21	6.06	0.030	0.58	0.340	0.020	0.030	0.06	32.23	100.200	5	30	270	5	20
869230	15.00	0.91	43.50	7.21	6.03	0.050	0.60	0.370	0.020	0.040	0.06	32.23	100.000	5	30	260	10	10
869231	0.46	0.01	30.60	23.30	1.31	0.060	0.02	0.050	0.020	0.010	0.04	45.80	100.400	5	20	190	5	50
869232	6.09	1.42	48.30	2.85	16.95	0.090	0.21	0.720	0.020	0.050	0.04	39.16	99.100	5	5	890	5	30
869233	3.91	0.71	50.70	1.24	40.89	0.060	0.15	0.690	0.030	0.040	0.07	41.31	99.000	5	20	360	5	40
869234	24.30	0.71	40.90	3.10	13.19	0.240	0.20	0.280	0.030	0.030	0.04	30.16	100.000	5	10	240	5	10
869235	31.50	1.77	34.20	10.80	3.17	0.660	0.25	0.650	0.020	0.070	0.06	20.00	100.000	5	30	490	5	10
869236	20.10	2.08	38.10	9.80	3.89	0.190	0.55	0.470	0.010	0.100	0.05	28.46	100.000	5	30	660	10	40
869237	1.80	0.32	33.50	18.50	1.81	0.070	0.08	0.480	0.090	0.020	0.02	45.54	100.400	5	10	100	5	10
869238	14.00	0.99	41.10	9.13	4.50	0.120	0.11	1.230	0.070	0.060	0.04	33.16	100.100	5	20	730	5	10
869239	14.30	2.70	43.30	4.87	8.89	0.100	0.39	1.450	0.030	0.100	0.05	32.39	99.700	5	10	370	5	50
869240	3.09	0.69	29.40	21.60	1.36	0.060	0.12	0.660	0.050	0.060	0.05	44.39	100.200	5	20	110	5	10
869241	27.90	2.29	21.30	19.40	1.10	0.500	0.16	3.490	0.120	0.320	0.09	21.70	97.300	5	20	230	5	40
869242	22.00	1.37	38.70	9.92	3.90	0.080	0.06	0.580	0.030	0.070	0.06	27.46	100.400	5	5	260	5	10
869243	2.17	0.40	29.40	22.40	1.31	0.005	0.08	0.300	0.040	0.030	0.03	45.69	100.600	5	10	80	5	20
869244	17.10	1.20	43.20	5.60	7.71	0.280	0.11	0.880	0.030	0.070	0.05	31.93	100.500	5	20	170	5	10
869245	17.10	1.24	43.10	5.65	7.63	0.330	0.11	0.880	0.030	0.070	0.05	31.93	100.500	5	5	140	20	30
869246	1.99	0.24	44.30	9.02	4.91	0.080	0.03	0.190	0.030	0.010	0.03	44.23	100.200	5	10	200	5	10

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Sample Number	SIO2	AL2O3	CAO	MGO	CAO:MGO	NA2O	K2O	FE2O3	MNO	TIO2	P2O5	LOI	SUM	CR	RB	SR	Y	BA
869247	2.64	0.54	47.40	6.04	7.85	0.030	0.09	0.210	0.010	0.030	0.04	42.77	99.800	5	5	230	10	20
869248	12.90	1.53	28.90	20.20	1.43	0.080	0.94	1.710	0.060	0.140	0.10	33.39	100.000	5	10	90	5	30
869249	1.60	0.33	29.40	22.50	1.31	0.060	0.12	0.190	0.020	0.030	0.03	46.16	100.400	5	5	80	5	20
869250	17.30	2.94	40.10	6.36	6.31	0.100	0.24	1.860	0.040	0.110	0.04	30.23	99.400	5	20	200	5	20
869251	0.46	0.02	30.50	23.40	1.30	0.060	0.02	0.050	0.020	0.020	0.04	45.46	100.100	5	10	180	5	40
869252	27.60	3.76	34.00	7.93	4.29	0.280	0.41	2.550	0.050	0.140	0.08	22.62	99.500	5	20	230	10	60
869253	20.50	1.95	34.10	13.40	2.54	0.150	0.10	1.310	0.070	0.110	0.04	27.85	99.600	5	10	330	5	10
869254	21.30	1.98	30.30	17.10	1.77	0.150	0.10	1.530	0.040	0.100	0.04	27.08	99.800	5	5	370	20	10
869255	34.70	8.24	27.50	7.63	3.60	0.580	1.55	3.710	0.040	0.330	0.08	15.08	99.500	10	60	560	10	250
869256	8.38	1.08	46.90	3.61	12.99	0.050	0.29	0.890	0.020	0.040	0.04	37.39	98.700	5	20	300	5	30
869257	19.50	3.00	36.50	9.70	3.76	0.070	0.47	3.450	0.140	0.130	0.03	25.70	98.700	5	20	190	10	40
869258	17.40	2.59	32.60	12.80	2.55	0.100	0.74	5.710	0.200	0.120	0.19	25.93	98.400	5	30	160	10	30
869259	46.50	20.40	9.83	3.42	2.87	2.390	1.74	9.070	0.120	1.770	1.41	2.70	99.400	5	100	370	20	230
869260	46.30	20.40	9.87	3.47	2.84	2.410	1.71	9.030	0.120	1.750	1.40	2.77	99.300	10	5	350	5	250
869261	28.30	2.32	21.70	19.60	1.11	0.500	0.15	3.570	0.120	0.320	0.09	21.54	98.200	5	5	240	5	40
869262	4.06	0.65	43.00	10.00	4.30	0.060	0.02	1.050	0.050	0.040	0.02	40.39	99.400	5	10	170	5	10
869263	39.80	9.47	23.60	6.91	3.42	1.090	1.86	4.250	0.120	0.460	0.15	11.00	98.800	10	80	520	20	310
869264	5.72	0.40	32.30	20.80	1.55	0.050	0.01	0.180	0.040	0.030	0.26	40.62	100.400	5	20	150	5	20
869265	3.79	0.69	48.00	5.70	8.42	0.120	0.33	0.280	0.005	0.030	0.02	40.77	99.800	5	10	440	5	10
869266	38.70	8.55	20.70	17.60	1.18	0.380	0.08	1.670	0.050	0.370	0.08	10.39	98.600	20	10	120	20	20
869267	36.10	1.22	17.00	7.84	2.17	0.140	0.02	28.000	0.420	0.100	0.05	8.08	99.000	5	5	5	5	20
869268	3.60	0.44	37.50	15.60	2.40	0.030	0.03	0.590	0.020	0.030	0.03	40.85	98.800	5	20	350	5	20
869269	1.68	0.44	29.90	22.70	1.32	0.050	0.04	0.210	0.040	0.020	0.04	45.31	100.500	5	10	140	5	10
869270	2.27	0.33	28.60	23.70	1.21	0.060	0.02	0.440	0.040	0.030	0.01	44.70	100.200	5	10	160	5	10
869271	0.45	0.01	30.50	23.30	1.31	0.060	0.02	0.050	0.020	0.010	0.04	45.92	100.400	5	5	180	5	40
869272	2.47	0.39	35.20	16.60	2.12	0.040	0.06	0.540	0.150	0.030	0.03	43.92	99.500	5	5	130	10	20
869273	46.40	14.20	8.58	6.26	1.37	3.190	0.65	14.000	0.270	2.250	0.20	2.46	98.800	150	30	210	20	130
869274	1.28	0.25	30.20	22.00	1.37	0.050	0.01	0.290	0.060	0.030	0.02	46.08	100.300	5	10	160	5	5
869275	1.29	0.28	30.30	21.90	1.38	0.070	0.01	0.300	0.060	0.040	0.02	46.00	100.300	5	10	170	10	5
869276	5.36	1.42	48.50	3.53	13.74	0.050	0.45	0.590	0.010	0.090	0.04	38.93	99.000	5	20	330	5	30
869277	3.43	0.51	48.20	5.98	8.06	0.040	0.04	0.690	0.020	0.030	0.03	40.23	99.200	5	10	190	10	20
869278	15.30	0.14	30.90	19.60	1.58	0.060	0.01	0.650	0.130	0.020	0.11	33.46	100.400	5	10	120	5	10
869279	4.43	0.34	30.00	22.50	1.33	0.050	0.01	0.600	0.050	0.020	0.28	42.31	100.600	5	5	70	5	30
869280	1.93	0.36	51.50	2.99	17.22	0.030	0.13	0.110	0.020	0.020	0.03	42.39	99.500	5	20	260	5	20
869281	28.30	2.31	21.70	19.60	1.11	0.500	0.16	3.600	0.120	0.310	0.09	21.93	98.700	5	5	240	5	50
869282	15.40	1.93	29.30	20.70	1.42	0.080	0.19	1.730	0.190	0.100	0.06	28.85	98.500	5	10	80	20	20
869283	2.58	0.20	29.80	22.50	1.32	0.060	0.01	0.570	0.090	0.020	0.08	44.46	100.400	5	5	220	10	5
869284	3.03	0.40	48.10	5.64	8.53	0.050	0.15	0.150	0.050	0.020	0.03	42.16	99.000	5	10	370	5	20
869285	5.90	0.24	38.30	14.20	2.70	0.070	0.01	0.170	0.100	0.010	0.21	40.70	99.900	5	5	150	5	5
869286	0.68	0.15	30.40	22.60	1.35	0.070	0.02	0.170	0.040	0.020	0.11	45.69	100.000	5	5	130	5	20
869287	2.18	0.32	51.40	2.52	20.40	0.070	0.09	0.180	0.050	0.010	0.03	42.16	99.000	5	5	310	5	10
869288	29.50	7.05	20.90	17.80	1.17	1.200	1.29	3.250	0.050	0.560	0.15	15.39	97.200	20	50	120	5	60
869289	9.14	0.33	32.00	23.00	1.39	0.060	0.01	0.680	0.040	0.020	0.22	34.70	100.200	5	5	110	5	10
869290	9.17	0.32	32.00	23.10	1.39	0.060	0.02	0.680	0.040	0.020	0.22	34.85	100.500	5	5	110	10	20
869291	27.60	2.27	21.00	19.20	1.09	0.500	0.16	3.480	0.110	0.320	0.08	21.70	96.500	5	10	230	5	40
869292	25.20	8.07	9.07	8.90	1.02	0.300	0.29	44.100	0.040	0.290	0.09	3.31	99.700	40	5	180	5	130

REGIONAL GEOCHEMICAL SAMPLING PROGRAMME
Whole Rock Geochemistry

Sample Number	SIO2	AL2O3	CAO	MGO	CAO:MGO	NA2O	K2O	FE2O3	MNO	TIO2	P2O5	LOI	SUM	CR	RB	SR	Y	BA
869293	6.89	1.37	2.37	2.84	0.83	0.350	0.05	80.700	0.030	0.050	0.04	0.39	95.100	40	5	5	5	180
869294	31.30	1.71	20.50	19.70	1.04	0.550	0.10	3.970	0.040	0.070	0.03	11.85	89.800	5	10	70	5	40
869295	4.16	0.34	30.00	22.70	1.32	0.050	0.02	0.500	0.040	0.030	0.31	42.16	100.300	5	5	110	5	5
869296	13.20	3.54	41.90	7.74	5.41	0.180	0.04	0.760	0.020	0.130	0.05	31.85	99.400	5	10	180	10	10
869297	62.50	16.50	4.51	2.34	1.93	3.950	1.78	5.120	0.050	0.430	0.15	3.00	100.400	10	110	400	10	340
869298	9.22	0.07	42.40	10.60	4.00	0.030	0.01	0.790	0.080	0.010	0.01	37.00	100.200	5	10	90	5	20
869299	3.48	0.53	34.30	20.60	1.67	0.050	0.01	0.340	0.120	0.030	0.10	40.00	99.600	5	5	90	5	5
869300	7.90	1.63	46.60	5.39	8.65	0.110	0.37	0.780	0.060	0.080	0.03	37.00	100.000	5	10	340	10	40
869301	27.40	2.28	21.00	19.20	1.09	0.510	0.16	3.480	0.110	0.310	0.09	21.93	96.500	5	20	240	5	30
869302	4.31	0.82	49.50	3.88	12.76	0.050	0.08	0.520	0.070	0.040	0.03	40.16	99.500	5	20	300	5	20
869303	4.90	0.67	46.20	5.81	7.95	0.030	0.07	0.690	0.100	0.020	0.06	41.85	100.400	5	5	130	5	20
869304	7.69	0.59	50.10	0.83	60.36	0.030	0.08	0.310	0.050	0.020	0.07	39.85	99.700	5	5	470	5	80
869305	7.55	0.58	50.40	0.81	62.22	0.020	0.07	0.300	0.050	0.020	0.07	39.92	99.900	5	10	450	5	60
869306	28.10	5.68	26.70	8.49	3.14	0.060	0.27	4.530	0.140	0.210	0.13	22.54	96.900	5	20	100	10	40
869307	28.80	14.40	0.38	0.51	0.75	0.270	3.80	4.190	0.020	0.630	0.08	46.80	100.000	110	190	5	10	360
869308	16.70	3.63	0.34	0.43	0.79	0.110	0.58	41.000	0.040	0.180	0.03	37.38	100.500	50	5	5	5	240
869309	15.80	0.82	29.20	16.10	1.81	0.070	0.17	2.440	0.160	0.040	0.20	34.85	99.900	5	30	140	5	10
869310	0.52	0.17	30.30	22.20	1.36	0.040	0.01	0.180	0.120	0.020	0.03	46.46	100.100	5	5	240	5	20
869311	0.47	0.01	30.50	23.50	1.30	0.050	0.02	0.050	0.020	0.020	0.04	45.62	100.300	5	10	180	5	40
869312	2.62	0.22	30.00	21.70	1.38	0.070	0.03	0.590	0.050	0.010	0.06	45.08	100.400	5	10	160	5	5
869313	9.59	0.89	49.20	1.04	47.31	0.180	0.08	0.380	0.040	0.020	0.09	38.62	100.200	5	10	520	5	110
869314	12.10	1.71	43.50	3.58	12.15	0.290	0.32	1.090	0.050	0.070	0.13	37.16	100.100	5	20	440	10	50
869315	2.67	0.91	53.40	0.37	144.32	0.020	0.24	0.290	0.010	0.030	0.02	42.23	100.300	5	10	740	5	10
869316	1.07	0.40	54.90	0.56	98.04	0.040	0.03	0.220	0.010	0.010	0.02	43.08	100.400	5	5	460	5	10
869317	1.45	0.36	54.10	0.55	98.36	0.030	0.02	0.300	0.020	0.010	0.02	42.62	99.500	5	5	570	5	5
869318	0.89	0.24	55.00	0.29	189.66	0.020	0.01	0.090	0.005	0.010	0.01	43.62	100.300	5	10	670	5	100
869319	0.65	0.15	55.00	0.27	203.70	0.005	0.01	0.140	0.005	0.010	0.02	43.70	100.000	5	5	530	5	20
869320	0.66	0.15	54.90	0.27	203.33	0.010	0.01	0.120	0.005	0.005	0.02	43.70	99.900	5	5	530	5	10
869321	28.00	2.32	21.70	19.60	1.11	0.480	0.15	3.600	0.120	0.320	0.09	22.00	98.400	10	5	250	5	40
869322	1.40	0.18	54.20	0.37	146.49	0.030	0.01	0.140	0.010	0.005	0.03	43.62	100.100	5	10	690	5	5
869323	22.30	3.81	22.60	15.90	1.42	1.080	0.56	1.580	0.180	0.150	0.08	31.31	99.600	5	20	160	10	180
869324	23.00	4.03	22.50	14.30	1.57	1.750	0.40	1.590	0.180	0.160	0.08	30.54	98.600	5	20	450	10	190
869325	2.63	0.22	50.80	3.34	15.21	0.030	0.04	0.160	0.020	0.010	0.04	42.92	100.400	5	20	960	5	300
869326	0.71	0.12	30.80	21.70	1.42	0.030	0.02	0.090	0.050	0.010	0.04	46.39	100.000	5	5	210	5	270
869327	2.78	0.88	53.40	0.50	106.80	0.020	0.04	0.160	0.120	0.030	0.04	42.08	100.100	5	10	80	5	5
869328	1.00	0.37	54.60	0.43	126.98	0.050	0.01	0.110	0.010	0.010	0.01	43.46	100.100	5	10	600	5	5
869329	2.59	0.97	53.10	0.70	75.86	0.060	0.13	0.360	0.010	0.040	0.05	42.16	100.200	5	5	350	5	20
869330	6.35	0.53	45.10	5.63	8.01	0.080	0.02	0.450	0.280	0.010	0.05	41.16	99.700	5	5	60	5	10
869331	0.45	0.01	30.50	23.50	1.30	0.050	0.02	0.050	0.020	0.020	0.04	45.92	100.600	5	10	180	5	30
869332	4.66	0.30	30.20	20.00	1.51	0.060	0.04	0.430	0.060	0.020	0.05	44.46	100.300	5	10	80	5	5
869333	4.26	0.30	51.50	1.29	39.92	0.040	0.04	0.140	0.050	0.010	0.05	42.31	100.000	5	10	210	5	20
869334	2.48	0.34	35.30	16.30	2.17	0.080	0.01	0.670	0.140	0.010	0.05	44.92	100.300	5	10	90	5	20
869335	2.50	0.35	35.30	16.30	2.17	0.050	0.01	0.670	0.140	0.020	0.05	45.00	100.400	5	5	100	5	10
869336	0.61	0.21	30.40	22.20	1.37	0.050	0.04	0.400	0.090	0.010	0.05	46.16	100.200	5	10	100	5	5
869337	0.42	0.10	30.40	23.00	1.32	0.060	0.01	0.230	0.060	0.020	0.01	46.08	100.400	5	10	100	5	5
869338	1.63	0.86	29.70	22.10	1.34	0.050	0.04	0.670	0.120	0.040	0.03	45.08	100.300	5	5	110	5	5

REGIONAL GEOCHEMICAL SAMPLING PROGRAMME
Whole Rock Geochemistry

Sample Number	SIO2	AL2O3	CAO	MGO	CAO:MGO	NA2O	K2O	FE2O3	MNO	TIO2	P2O5	LOI	SUM	CR	RB	SR	Y	BA
869339	5.66	0.66	50.00	0.91	54.95	0.030	0.05	0.180	0.060	0.020	0.16	41.46	99.200	5	10	210	5	20
869340	3.09	0.21	29.60	21.00	1.41	0.060	0.01	0.540	0.090	0.020	0.06	45.62	100.300	5	10	50	5	5
869341	28.10	2.30	21.60	19.60	1.10	0.480	0.15	3.600	0.120	0.320	0.09	22.16	98.600	5	5	240	5	40
869342	1.75	0.16	31.80	20.00	1.59	0.060	0.03	0.280	0.060	0.030	0.08	45.69	100.000	5	20	140	5	5
869343	4.63	0.56	51.00	0.50	102.00	0.030	0.08	0.780	0.050	0.030	0.02	42.23	100.000	5	10	270	20	20
869344	3.21	0.68	52.80	0.83	63.61	0.040	0.16	0.230	0.005	0.030	0.02	42.23	100.300	5	10	210	10	10
869345	0.82	0.08	55.10	0.53	103.96	0.010	0.01	0.080	0.010	0.010	0.01	43.54	100.200	5	5	250	5	20
869346	10.40	2.89	45.60	1.53	29.80	0.080	0.56	1.000	0.050	0.120	0.04	37.93	100.200	5	10	200	10	60
869347	5.88	1.26	50.10	0.91	55.05	0.020	0.18	0.400	0.050	0.060	0.03	40.70	99.600	5	5	400	5	50
869348	0.60	0.13	31.80	21.10	1.51	0.070	0.01	0.160	0.030	0.010	0.02	46.00	99.900	5	20	100	10	5
869349	2.39	0.46	51.90	2.28	22.76	0.020	0.03	0.200	0.005	0.020	0.02	42.62	100.000	5	5	320	5	30
869350	2.37	0.45	52.00	2.22	23.42	0.040	0.03	0.230	0.005	0.020	0.02	42.77	100.200	5	5	320	10	20
869351	0.49	0.02	30.30	23.20	1.31	0.070	0.02	0.060	0.020	0.010	0.04	46.16	100.400	5	5	200	5	20
869352	3.69	1.02	30.50	20.00	1.52	0.050	0.21	0.470	0.010	0.060	0.03	44.08	100.100	5	10	80	10	5
869353	2.16	0.41	53.70	0.66	81.36	0.040	0.03	0.120	0.010	0.020	0.02	42.92	100.100	5	5	190	5	5
869354	2.84	0.73	52.60	0.64	82.19	0.030	0.09	0.290	0.005	0.040	0.02	42.62	100.000	5	5	810	5	20
869355	8.70	1.52	47.80	1.74	27.47	0.030	0.08	0.670	0.005	0.070	0.03	39.39	100.100	5	10	330	5	10
869356	1.10	0.34	30.50	22.40	1.36	0.080	0.06	0.230	0.020	0.030	0.03	45.54	100.300	5	5	100	5	5
869357	5.20	0.36	50.60	1.36	37.21	0.030	0.03	0.450	0.010	0.010	0.04	41.54	99.700	5	5	740	5	60
869358	0.83	0.22	54.90	0.44	124.77	0.020	0.02	0.100	0.060	0.010	0.02	43.54	100.200	5	20	120	5	10
869359	6.66	1.10	44.30	5.03	8.81	0.080	0.19	1.100	0.040	0.070	0.05	41.16	99.800	5	10	140	5	20
869360	4.41	0.05	52.60	0.33	159.39	0.030	0.01	0.030	0.005	0.010	0.02	42.00	99.600	5	20	170	5	20
869361	27.90	2.34	21.80	19.60	1.11	0.470	0.15	3.590	0.120	0.320	0.09	21.93	98.300	5	5	250	5	50
869362	1.78	0.38	32.20	19.60	1.64	0.040	0.06	0.310	0.050	0.030	0.04	45.46	100.000	5	5	110	5	5
869363	12.60	2.93	44.30	1.11	39.91	0.260	0.60	1.130	0.060	0.140	0.10	36.70	100.000	5	20	110	10	80
869364	13.90	3.42	42.00	2.42	17.36	0.080	0.73	1.820	0.040	0.160	0.06	35.39	100.000	5	20	100	5	60
869365	14.10	3.51	42.10	2.47	17.04	0.080	0.73	1.880	0.040	0.160	0.06	35.08	100.200	5	20	80	10	60
869366	1.61	0.21	54.10	0.33	163.94	0.040	0.02	0.040	0.010	0.010	0.02	43.46	99.900	5	5	120	5	20
869367	1.81	0.21	52.80	1.93	27.36	0.030	0.01	0.010	0.005	0.010	0.02	43.39	100.200	5	5	230	10	20
869368	1.66	0.19	51.30	2.17	23.64	0.040	0.01	0.160	0.010	0.010	0.02	43.39	99.000	5	5	160	10	20
869369	1.95	0.35	53.80	0.40	134.50	0.030	0.05	0.080	0.050	0.010	0.02	43.16	99.900	5	10	170	5	20
869370	8.59	1.38	47.70	1.50	31.80	0.070	0.14	0.690	0.020	0.070	0.04	39.39	99.600	5	10	160	5	30
869371	0.44	0.01	30.30	23.30	1.30	0.070	0.02	0.040	0.020	0.010	0.04	45.92	100.200	5	5	190	5	30
869372	5.11	1.00	50.40	1.00	50.40	0.020	0.10	0.270	0.080	0.040	0.02	41.16	99.200	5	30	140	5	70
869373	0.98	0.08	32.20	20.70	1.56	0.060	0.01	0.170	0.040	0.010	0.02	45.92	100.200	5	5	110	5	5
869374	10.60	2.15	45.40	2.53	17.94	0.060	0.21	1.050	0.020	0.100	0.05	38.16	100.400	5	10	180	10	20
869375	0.81	0.38	54.50	0.64	85.16	0.030	0.03	0.140	0.060	0.010	0.02	43.46	100.100	5	10	130	5	10
869376	2.90	0.95	51.00	2.27	22.47	0.050	0.02	0.440	0.005	0.050	0.03	42.16	99.900	5	10	280	5	10
869377	5.95	1.43	50.00	0.64	78.12	0.060	0.19	0.590	0.020	0.090	0.04	40.70	99.700	5	5	310	5	20
869378	1.37	0.28	54.80	0.25	219.20	0.005	0.03	0.080	0.005	0.010	0.01	43.16	100.000	5	10	410	5	10
869379	3.83	1.00	50.80	2.52	20.16	0.040	0.12	0.370	0.005	0.050	0.04	41.31	100.100	5	10	270	5	40
869380	3.82	0.97	51.10	2.48	20.60	0.040	0.11	0.350	0.005	0.050	0.04	41.46	100.500	5	10	290	10	50
869381	28.00	2.33	21.60	19.60	1.10	0.490	0.15	3.600	0.120	0.320	0.09	22.08	98.400	5	5	230	5	40
869382	0.93	0.17	50.20	4.37	11.49	0.030	0.04	0.150	0.005	0.010	0.01	43.77	99.700	5	5	300	5	20
869383	3.52	1.15	52.10	0.20	260.50	0.030	0.19	0.250	0.005	0.030	0.03	42.31	99.800	5	5	260	5	50
869384	2.18	0.36	52.70	1.05	50.19	0.030	0.01	0.160	0.010	0.020	0.04	42.77	99.400	5	5	440	5	40

REGIONAL GEOCHEMICAL SAMPLING PROGRAMME
Whole Rock Geochemistry

Sample Number	SIO2	AL2O3	CAO	MGO	CAO:MGO	NA2O	K2O	FE2O3	MNO	TIO2	P2O5	LOI	SUM	CR	RB	SR	Y	BA
869385	3.71	0.87	45.90	6.24	7.36	0.060	0.14	0.400	0.040	0.060	0.04	42.70	100.200	5	5	220	5	170
869386	12.20	2.87	44.10	2.30	19.17	0.060	0.47	1.140	0.020	0.130	0.09	36.77	100.200	5	30	340	5	100
869387	2.50	0.53	52.60	1.45	36.28	0.020	0.06	0.230	0.005	0.020	0.03	42.54	100.000	5	10	240	5	10
869388	2.75	0.94	53.20	0.37	143.78	0.010	0.22	0.160	0.005	0.030	0.02	42.39	100.200	5	10	750	10	20
869389	0.55	0.33	31.00	21.30	1.46	0.050	0.01	0.230	0.040	0.030	0.02	46.54	100.100	5	5	90	5	5
869390	1.84	1.13	42.50	9.45	4.50	0.040	0.22	0.990	0.030	0.070	0.06	43.54	99.900	5	5	80	10	10
869391	0.45	0.01	30.20	23.30	1.30	0.060	0.02	0.040	0.020	0.010	0.04	45.62	99.800	5	10	190	5	50
869392	2.80	0.55	53.10	0.61	87.05	0.040	0.05	0.310	0.005	0.030	0.03	42.46	100.000	5	10	330	5	30
869393	1.75	0.62	53.80	0.35	153.71	0.030	0.10	0.220	0.005	0.020	0.41	42.39	99.700	5	5	90	10	10
869394	3.03	1.11	52.40	0.48	109.17	0.020	0.27	0.370	0.005	0.040	0.05	42.16	100.000	5	5	820	5	20
869395	2.98	1.08	52.60	0.50	105.20	0.030	0.25	0.360	0.005	0.030	0.06	42.16	100.200	5	5	840	10	20
869396	0.72	0.10	54.60	0.47	116.17	0.010	0.02	0.110	0.005	0.010	0.03	43.70	99.800	5	10	220	5	40
869397	2.06	0.66	52.30	0.40	130.75	0.040	0.17	0.210	0.005	0.030	0.02	42.92	98.900	5	10	440	5	30
869398	1.99	0.52	49.40	3.87	12.76	0.040	0.07	0.210	0.005	0.030	0.04	43.31	99.500	5	10	120	5	5
869399	1.68	0.89	52.90	0.85	62.24	0.040	0.17	0.180	0.005	0.030	0.04	43.08	99.900	5	5	210	10	20
869400	1.41	0.15	53.60	0.45	119.11	0.010	0.02	0.080	0.005	0.010	0.03	43.54	99.300	5	5	140	20	10
869401	27.40	2.27	21.10	19.20	1.10	0.500	0.16	3.480	0.110	0.310	0.09	21.85	96.500	5	5	240	5	10
869402	5.59	0.74	49.40	2.15	22.98	0.020	0.04	0.340	0.010	0.040	0.04	40.77	99.200	5	10	510	5	40
869403	3.46	0.58	51.70	1.77	29.21	0.030	0.15	0.450	0.005	0.030	0.05	41.92	100.200	5	5	330	5	10
869404	1.63	0.20	54.00	0.59	91.53	0.010	0.01	0.170	0.005	0.010	0.01	43.16	99.900	5	20	680	10	40
869405	27.60	8.54	31.50	2.10	15.00	1.090	2.09	3.320	0.030	0.570	0.12	22.39	99.400	10	80	390	20	210
869406	20.80	2.55	32.20	12.20	2.64	0.160	0.18	2.930	0.130	0.140	0.07	27.39	98.800	5	10	370	5	60
869407	3.30	1.13	52.50	0.78	67.31	0.060	0.26	0.240	0.005	0.040	0.05	41.85	100.200	5	10	230	5	20
869408	4.61	1.10	43.30	7.16	6.05	0.050	0.44	0.490	0.030	0.070	0.05	42.16	99.500	5	10	390	5	60
869409	5.24	0.99	45.90	5.05	9.09	0.040	0.30	0.510	0.010	0.050	0.06	41.62	99.800	5	20	310	5	50
869410	5.23	0.99	45.70	5.03	9.09	0.040	0.34	0.540	0.010	0.060	0.06	41.70	99.700	5	5	310	10	70
869411	0.43	0.01	30.50	23.20	1.31	0.050	0.02	0.040	0.020	0.010	0.04	46.16	100.500	5	5	180	5	40
869412	2.78	0.60	48.10	4.40	10.93	0.040	0.07	0.270	0.005	0.040	0.05	43.00	99.400	5	10	150	20	20
869413	0.59	0.18	38.00	15.20	2.50	0.030	0.01	0.500	0.060	0.010	0.02	45.77	100.400	5	10	80	5	20
869414	2.44	0.49	52.70	1.34	39.33	0.010	0.03	0.230	0.005	0.030	0.03	42.70	100.000	5	5	210	5	20
869415	3.06	0.11	53.50	0.46	116.30	0.020	0.01	0.130	0.005	0.005	0.01	42.70	100.000	5	5	180	10	10
869416	1.40	0.33	47.40	6.60	7.18	0.030	0.02	0.220	0.010	0.020	0.04	43.77	99.900	5	10	140	10	5
869417	1.57	0.33	31.60	20.30	1.56	0.050	0.02	0.460	0.020	0.020	0.02	45.62	100.000	5	20	60	5	5
869418	4.63	1.58	48.00	3.42	14.04	0.030	0.05	0.710	0.005	0.060	0.02	40.70	99.200	5	10	270	5	20
869419	1.39	0.67	52.70	1.44	36.60	0.020	0.01	0.370	0.170	0.005	0.02	42.85	99.700	5	10	240	5	10
869420	5.49	1.47	28.40	19.90	1.43	0.050	0.12	1.160	0.040	0.090	0.07	43.46	100.300	5	10	130	10	30
869421	28.20	2.34	21.70	19.50	1.11	0.520	0.16	3.580	0.120	0.310	0.09	21.93	98.500	5	5	230	5	30
869422	52.60	13.10	7.45	4.97	1.50	3.520	0.42	9.450	0.200	1.490	0.20	6.00	99.500	90	5	170	20	210
869423	2.20	0.66	30.20	21.10	1.43	0.100	0.13	0.590	0.030	0.070	0.06	45.08	100.200	5	5	90	10	5
869424	69.20	14.10	0.57	1.57	0.36	1.510	3.28	5.590	0.030	0.600	0.09	3.46	100.100	70	170	50	20	410
869425	68.90	14.20	0.59	1.60	0.37	1.500	3.29	5.510	0.030	0.610	0.09	3.54	100.000	80	170	50	40	420
869426	11.90	0.68	27.80	17.80	1.56	0.070	0.13	1.600	0.040	0.040	0.04	40.31	100.400	5	20	240	5	30
869427	3.64	1.08	49.80	1.28	38.91	0.040	0.17	0.560	0.010	0.040	0.04	41.70	98.400	5	10	360	5	20
869428	3.42	1.22	49.80	1.43	34.83	0.060	0.17	0.390	0.020	0.040	0.07	42.31	99.000	5	10	240	5	30
869429	0.89	0.19	45.40	8.07	5.63	0.060	0.01	0.170	0.110	0.020	0.01	44.54	99.500	5	5	40	5	10
869430	1.70	0.17	32.70	19.80	1.65	0.070	0.01	0.340	0.070	0.020	0.01	45.39	100.300	5	10	60	20	10

REGIONAL GEOCHEMICAL SAMPLING PROGRAMME
Whole Rock Geochemistry

Sample Number	SIO2	AL2O3	CAO	MGO	CAO:MGO	NA2O	K2O	FE2O3	MNO	TIO2	P2O5	LOI	SUM	CR	RB	SR	Y	BA
869431	0.48	0.01	30.20	23.20	1.30	0.090	0.03	0.030	0.020	0.020	0.04	46.23	100.400	5	5	170	5	60
869432	5.89	1.22	46.80	5.40	8.67	0.050	0.14	0.790	0.010	0.070	0.05	39.92	100.400	5	10	230	5	40
869433	1.60	0.28	47.30	6.78	6.98	0.040	0.02	0.190	0.040	0.020	0.01	43.62	99.900	5	5	130	5	5
869434	2.14	0.43	51.80	2.52	20.56	0.040	0.03	0.150	0.050	0.020	0.04	42.62	99.900	5	5	140	5	10
869435	0.93	0.18	44.70	10.40	4.30	0.070	0.03	0.290	0.010	0.020	0.04	43.62	100.300	5	10	140	5	10
869436	2.69	0.65	50.50	3.38	14.94	0.040	0.04	0.360	0.020	0.030	0.04	42.16	100.000	5	10	340	5	40
869437	1.80	0.20	53.50	0.86	62.21	0.020	0.02	0.110	0.010	0.010	0.02	43.08	99.700	5	10	280	5	30
869438	22.30	4.44	23.50	17.30	1.36	0.360	1.14	2.860	0.120	0.230	0.08	27.66	100.000	5	60	150	10	120
869439	3.42	0.60	47.30	4.88	9.69	0.070	0.10	0.400	0.010	0.030	0.04	43.00	99.900	5	10	170	5	20
869440	3.36	0.57	47.50	4.82	9.85	0.050	0.11	0.390	0.010	0.030	0.04	42.77	99.700	5	10	170	5	10
869441	27.50	2.28	21.10	19.20	1.10	0.500	0.16	3.480	0.110	0.310	0.09	22.00	96.800	5	20	240	5	50
869442	1.67	0.66	31.00	21.00	1.48	0.070	0.13	0.740	0.020	0.050	0.03	44.77	100.200	5	10	150	5	190
869443	2.13	0.64	53.00	0.89	59.55	0.080	0.05	0.170	0.005	0.030	0.03	42.92	100.000	5	5	250	5	10
869444	6.28	2.68	48.10	0.92	52.28	0.050	0.07	0.810	0.030	0.110	0.06	40.54	99.700	5	5	120	5	20
869445	4.53	1.26	50.70	1.00	50.70	0.030	0.20	0.490	0.005	0.060	0.04	41.46	99.800	5	10	180	5	20
869446	1.84	0.42	53.40	0.96	55.62	0.090	0.02	0.270	0.010	0.030	0.03	43.08	100.200	5	5	100	5	5
869447	6.35	1.50	49.60	0.62	80.00	0.050	0.40	0.360	0.010	0.070	0.03	40.62	99.600	5	10	150	5	30
869448	2.67	1.01	52.00	0.62	83.87	0.040	0.34	0.420	0.005	0.030	0.04	42.08	99.400	5	10	1110	5	60
869449	2.30	0.09	29.50	22.30	1.32	0.090	0.02	0.390	0.050	0.010	0.02	45.54	100.300	5	10	110	5	10
869450	9.03	1.11	42.30	5.50	7.69	0.050	0.20	0.790	0.060	0.030	0.06	39.62	98.800	5	5	260	10	40
869451	0.46	0.01	30.40	23.40	1.30	0.090	0.02	0.030	0.020	0.010	0.04	45.31	99.800	5	5	180	5	50
869452	5.84	2.07	48.70	1.02	47.75	0.040	0.31	0.810	0.010	0.090	0.05	40.31	99.300	5	10	160	10	30
869453	1.78	0.44	53.60	0.74	72.43	0.030	0.04	0.150	0.005	0.020	0.03	42.85	99.800	5	5	650	5	10
869454	6.26	1.46	49.10	1.97	24.92	0.100	0.49	0.560	0.005	0.070	0.04	39.77	99.900	5	10	210	10	40
869455	6.31	1.48	49.40	1.95	25.33	0.100	0.47	0.580	0.005	0.070	0.04	39.70	100.100	5	5	210	5	40
869456	11.70	2.93	43.10	3.63	11.87	0.180	1.01	1.230	0.010	0.140	0.05	35.62	99.700	5	30	330	10	110
869457	3.18	0.39	47.10	6.12	7.70	0.070	0.05	0.190	0.005	0.030	0.04	42.46	99.700	5	10	180	5	10
869458	1.62	0.06	53.90	0.70	77.00	0.030	0.01	0.110	0.010	0.005	0.01	43.23	99.700	5	10	160	5	20
869459	9.01	1.79	46.30	2.76	16.78	0.070	0.19	0.920	0.010	0.100	0.05	38.70	99.900	5	5	260	10	40
869460	6.99	1.54	46.00	3.40	13.53	0.050	0.23	0.760	0.010	0.070	0.05	40.16	99.300	5	5	230	5	50
869461	27.80	2.27	21.20	19.40	1.09	0.500	0.16	3.500	0.120	0.320	0.09	21.54	96.900	5	20	240	5	50
869462	0.75	0.36	29.60	21.70	1.36	0.050	0.03	1.220	0.050	0.020	0.02	46.40	100.200	5	5	50	5	20
869463	1.29	0.05	29.80	22.10	1.35	0.050	0.01	0.790	0.080	0.020	0.01	46.00	100.200	5	5	60	5	10
869464	2.38	0.59	49.60	2.92	16.99	0.040	0.01	0.200	0.010	0.020	0.02	43.16	99.000	5	5	180	5	10
869465	10.70	1.16	36.30	12.20	2.98	0.070	0.02	1.930	0.070	0.060	0.06	37.62	100.200	5	10	300	5	20
869466	28.50	1.55	30.70	11.30	2.72	0.100	0.03	2.900	0.100	0.060	0.07	24.39	99.700	5	20	160	10	20
869467	15.50	0.99	36.80	11.40	3.23	0.100	0.02	1.950	0.080	0.050	0.05	33.39	100.400	5	5	290	5	10
869468	1.98	0.12	52.50	1.77	29.66	0.030	0.01	0.060	0.010	0.005	0.02	43.23	99.800	5	10	450	5	30
869469	14.40	0.37	30.90	13.90	2.22	0.060	0.02	1.690	0.060	0.020	0.03	39.00	100.500	5	5	240	5	10
869470	14.50	0.37	30.90	13.70	2.26	0.050	0.02	1.710	0.060	0.020	0.03	38.84	100.200	5	5	230	20	20
869471	0.45	0.01	30.30	23.40	1.29	0.080	0.01	0.020	0.020	0.020	0.04	46.00	100.400	5	5	190	5	60
869472	15.00	0.67	25.70	18.10	1.42	0.060	0.12	1.070	0.090	0.030	0.05	39.30	100.200	5	10	300	5	60
869473	9.00	0.48	47.70	2.33	20.47	0.030	0.01	1.010	0.100	0.020	0.04	38.31	99.100	5	10	240	5	5
869474	1.58	0.34	45.00	7.10	6.34	0.030	0.01	0.530	0.070	0.020	0.05	44.62	99.400	5	10	90	5	10
869475	2.78	0.51	51.80	1.64	31.59	0.050	0.02	0.340	0.020	0.030	0.02	42.77	100.000	5	10	190	5	5
869476	14.70	3.47	42.90	2.78	15.43	0.190	0.93	1.750	0.030	0.160	0.07	32.16	99.200	5	40	150	5	110

REGIONAL GEOCHEMICAL SAMPLING PROGRAMME
Whole Rock Geochemistry

Sample Number	SIO2	AL2O3	CAO	MGO	CAO:MGO	NA2O	K2O	FE2O3	MNO	TIO2	P2O5	LOI	SUM	CR	RB	SR	Y	BA
869477	0.93	0.17	53.30	0.60	88.83	0.030	0.04	0.070	0.005	0.010	0.03	43.46	98.700	5	5	160	5	20
869478	1.19	0.19	48.70	5.31	9.17	0.060	0.08	0.180	0.005	0.010	0.02	43.54	99.300	5	10	170	5	30
869479	1.34	0.37	53.90	0.57	94.56	0.020	0.07	0.130	0.010	0.020	0.01	43.00	99.500	5	10	520	10	5
869480	0.96	0.40	50.40	4.18	12.06	0.060	0.10	0.130	0.010	0.010	0.03	43.70	100.000	5	5	110	10	10
869481	27.50	2.27	21.20	19.20	1.10	0.470	0.16	3.480	0.110	0.320	0.09	21.85	96.700	5	20	240	5	40
869482	1.05	0.18	51.60	3.61	14.29	0.050	0.06	0.090	0.005	0.010	0.02	43.46	100.200	5	10	110	10	20
869483	0.66	0.14	53.70	1.52	35.33	0.040	0.04	0.060	0.005	0.010	0.03	43.62	99.800	5	10	150	5	20
869484	6.52	0.87	38.90	12.90	3.02	0.070	0.08	0.530	0.070	0.040	0.03	39.77	99.800	5	20	210	5	30
869485	6.45	0.89	39.20	12.80	3.06	0.080	0.05	0.540	0.070	0.040	0.03	39.62	99.800	5	5	210	5	30
869486	19.80	5.12	38.80	2.42	16.03	0.620	2.07	1.810	0.030	0.260	0.06	29.46	100.500	5	50	140	20	110
869487	1.67	0.52	53.70	0.72	74.58	0.030	0.02	0.070	0.050	0.040	0.02	43.00	99.900	5	5	420	10	10
869488	8.84	1.24	49.20	0.63	78.10	0.080	0.13	0.220	0.160	0.080	0.03	39.77	100.400	5	10	390	10	10
869489	1.12	0.37	31.40	21.00	1.50	0.050	0.02	0.260	0.060	0.030	0.02	46.16	100.500	5	10	40	10	10
869490	0.79	0.25	32.00	22.10	1.45	0.050	0.01	0.190	0.060	0.020	0.01	45.00	100.500	5	10	80	5	30
869491	0.46	0.02	30.90	22.80	1.36	0.060	0.02	0.005	0.020	0.020	0.04	46.00	100.400	5	10	180	5	60
869492	2.26	0.62	53.60	0.82	65.37	0.040	0.09	0.210	0.005	0.040	0.03	42.46	100.200	5	10	150	5	5
869493	6.94	1.15	50.20	1.26	39.84	0.110	0.10	0.490	0.060	0.050	0.06	40.00	100.500	5	20	930	5	10
869494	1.28	0.17	31.20	22.20	1.41	0.050	0.01	0.280	0.060	0.030	0.01	45.00	100.300	5	10	60	5	20
869495	0.85	0.13	54.70	0.94	58.19	0.030	0.03	0.050	0.005	0.010	0.01	43.54	100.400	5	5	460	5	20
869496	13.40	3.61	45.70	1.16	39.40	0.320	0.94	1.530	0.130	0.170	0.10	33.31	100.400	5	30	220	10	80
869497	9.39	2.63	46.30	1.69	27.40	0.260	0.99	1.050	0.020	0.130	0.07	37.23	99.800	5	30	160	5	40
869498	1.24	0.09	54.00	1.05	51.43	0.040	0.01	0.005	0.020	0.010	0.01	43.54	100.100	5	20	1000	5	40
869499	0.89	0.28	30.80	22.50	1.37	0.070	0.01	0.500	0.050	0.030	0.02	45.00	100.200	5	10	80	5	10
869500	0.88	0.29	30.80	22.20	1.39	0.060	0.01	0.520	0.050	0.020	0.02	45.39	100.300	5	20	80	5	10
869501	28.20	2.33	21.90	19.30	1.13	0.450	0.15	3.540	0.120	0.330	0.09	21.85	98.300	10	5	250	5	40
869502	9.64	0.79	48.40	1.60	30.25	0.050	0.02	0.520	0.030	0.040	0.02	39.16	100.300	5	10	160	5	5
869503	5.99	1.41	47.80	4.05	11.80	0.040	0.05	0.730	0.110	0.080	0.04	39.85	100.200	5	10	150	10	20
869504	6.89	1.56	48.90	1.56	31.35	0.040	0.56	0.630	0.030	0.120	0.04	39.31	99.700	5	10	420	5	30
869505	17.50	4.81	38.00	4.05	9.38	0.130	1.59	2.910	0.030	0.420	0.12	30.00	99.600	5	5	300	20	210
869506	0.64	0.21	30.80	22.20	1.39	0.060	0.02	0.190	0.040	0.030	0.01	46.00	100.200	5	10	30	10	10
869507	3.80	0.58	30.10	21.00	1.43	0.060	0.03	0.810	0.210	0.050	0.03	43.92	100.600	5	5	20	5	10
869508	22.70	6.76	30.90	7.02	4.40	0.240	1.43	3.720	0.150	0.790	0.19	25.85	99.800	10	40	220	5	300
869509	3.26	0.72	52.60	0.63	83.49	0.070	0.11	0.350	0.010	0.030	0.02	41.46	99.300	5	10	200	10	40
869510	18.70	1.93	32.00	16.20	1.98	0.140	0.07	2.300	0.070	0.090	0.04	28.93	100.500	5	10	90	5	20
869511	0.47	0.02	31.00	23.00	1.35	0.060	0.02	0.005	0.020	0.020	0.04	45.70	100.400	5	10	190	5	50
869512	5.17	0.16	28.00	23.60	1.19	0.060	0.02	0.580	0.040	0.030	0.02	42.62	100.300	5	20	110	5	20
869513	52.80	14.40	17.00	3.31	5.14	0.280	0.31	7.780	0.100	0.680	0.10	3.31	100.100	40	50	270	30	110
869514	44.30	4.11	19.70	13.60	1.45	0.120	0.33	3.650	0.090	0.210	0.13	14.23	100.500	20	50	60	10	60
869515	44.10	4.07	19.90	13.50	1.47	0.100	0.32	3.670	0.090	0.210	0.13	14.31	100.400	20	50	70	20	80
869516	9.25	2.98	38.80	11.50	3.37	0.070	0.09	1.160	0.030	0.180	0.06	36.00	100.200	5	5	280	5	30
869517	21.80	4.06	25.50	18.20	1.40	0.100	1.66	3.340	0.170	0.160	0.19	24.23	99.500	5	40	80	10	580
869518	17.10	1.91	28.00	20.80	1.35	0.080	0.07	2.340	0.140	0.090	0.10	30.08	100.700	5	20	110	10	70
869519	77.10	13.10	3.70	0.47	7.87	4.150	0.53	0.360	0.020	0.100	0.02	0.77	100.400	30	30	490	20	260
869520	4.77	0.86	31.30	18.80	1.66	0.040	0.11	0.790	0.310	0.060	0.10	43.08	100.200	5	20	110	10	100
869521	29.00	2.38	22.50	19.50	1.15	0.490	0.14	3.650	0.120	0.330	0.09	21.85	100.100	5	5	240	5	40
869522	21.00	4.70	32.30	5.89	5.48	0.220	0.84	3.380	0.630	0.330	0.46	30.62	100.400	20	50	200	30	80

REGIONAL GEOCHEMICAL SAMPLING PROGRAMME
Whole Rock Geochemistry

Sample Number	SIO2	AL2O3	CAO	MGO	CAO:MGO	NA2O	K2O	FE2O3	MNO	TIO2	P2O5	LOI	SUM	CR	RB	SR	Y	BA
869523	44.10	8.23	24.30	1.46	16.64	0.380	1.81	3.600	0.150	0.450	0.13	15.85	100.600	30	90	270	30	300
869524	3.13	0.48	51.70	1.95	26.51	0.040	0.07	0.310	0.100	0.040	0.13	41.77	99.800	5	10	870	5	20
869525	21.00	4.11	34.10	5.31	6.42	0.090	0.88	1.580	0.070	0.250	0.05	32.54	100.000	5	40	180	5	110
869526	3.81	0.58	51.80	1.70	30.47	0.040	0.06	0.100	0.040	0.050	0.14	41.77	100.200	5	5	900	10	20
869527	41.00	0.88	23.80	14.40	1.65	0.160	0.09	6.470	0.310	0.040	0.04	13.16	100.400	5	10	20	5	10
869528	12.00	2.11	45.50	2.23	20.40	0.190	0.38	0.920	0.170	0.170	0.15	36.23	100.100	5	10	540	5	50
869529	7.90	1.49	48.80	1.13	43.19	0.230	0.35	0.450	0.010	0.080	0.13	38.93	99.800	5	20	1110	5	70
869530	7.33	1.40	49.70	1.12	44.38	0.200	0.30	0.430	0.005	0.080	0.14	39.39	100.200	5	10	1120	5	40
869531	0.46	0.02	30.80	22.80	1.35	0.060	0.01	0.005	0.020	0.020	0.04	46.08	100.300	5	5	190	5	60
869532	0.73	0.08	33.20	20.50	1.62	0.070	0.02	0.005	0.010	0.020	0.08	45.62	100.300	5	10	70	5	10
869533	13.70	0.71	44.90	5.19	8.65	0.080	0.11	0.500	0.020	0.070	0.29	34.70	100.400	5	5	940	10	30
869534	3.40	0.27	53.30	0.99	53.84	0.050	0.02	0.110	0.140	0.020	0.13	41.92	100.400	5	5	580	5	5
869535	43.60	16.40	6.10	6.77	0.90	2.910	2.79	13.300	0.130	1.300	0.16	5.77	99.400	110	150	420	20	690
869536	24.60	2.07	37.30	4.38	8.52	0.430	0.27	1.750	0.260	0.140	0.11	29.23	100.600	5	10	560	5	40
869537	1.69	0.07	38.10	16.00	2.38	0.050	0.01	0.080	0.150	0.030	0.02	44.23	100.500	5	5	170	5	10
869538	62.50	10.50	9.12	6.29	1.45	1.500	2.87	4.670	0.140	0.580	0.13	2.00	100.500	70	150	200	30	740
869539	72.00	15.30	2.02	0.64	3.16	5.320	3.14	0.340	0.020	0.100	0.05	1.31	100.400	30	120	420	5	530

REGIONAL GEOCHEMICAL SAMPLING PROGRAMME
Trace Element Geochemistry

Sample Number	Nb (ppm)	Zr (ppm)	Au (ppb)	Cu (ppm)	Zn (ppm)	As (ppm)	Mo (ppm)	Ag (ppm)	Sn (ppm)	Sb (ppm)	W (ppm)	Hg (ppb)	Pb (ppm)
869201	5	5	-999	0.25	31.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	6
869202	10	5	-999	0.25	3.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	2
869203	5	5	-999	1.50	270.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	58
869204	5	10	-999	19.00	95.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	30
869205	10	5	-999	0.25	5.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	4
869206	5	5	-999	5.00	6.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	2
869207	10	5	-999	1.50	43.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	4
869208	10	5	-999	2.00	7.50	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869209	10	5	-999	12.00	8.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	4
869210	10	5	-999	2.50	5.50	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869211	10	5	-999	0.25	7.50	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869212	10	5	-999	0.25	21.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869213	20	5	-999	0.50	90.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	8
869214	20	5	-999	0.25	5.50	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869215	20	5	-999	0.25	5.50	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869216	10	10	-999	12.00	9.50	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	2
869217	10	5	-999	0.25	260.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	38
869218	10	5	-999	0.25	29.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	8
869219	5	10	-999	0.25	24.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869220	10	5	-999	4.00	10.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	6
869221	5	10	-999	730.00	6800.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	630
869222	5	5	-999	0.25	6.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869223	5	5	-999	0.25	3.50	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869224	20	5	-999	0.25	13.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	2
869225	5	5	-999	1.50	11.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869226	10	5	-999	0.25	22.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869227	10	5	-999	2.00	12.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869228	5	5	-999	14.00	15.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869229	10	5	-999	1.50	14.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869230	5	5	-999	1.50	14.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869231	5	5	-999	0.25	10.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869232	10	5	-999	4.00	18.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869233	5	5	-999	0.25	11.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869234	10	5	-999	2.00	3.50	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869235	5	5	-999	14.00	13.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869236	10	5	-999	3.00	7.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869237	5	5	-999	41.00	30.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869238	10	5	-999	0.25	16.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869239	20	5	-999	7.00	21.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869240	5	5	-999	66.00	810.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	88
869241	10	10	-999	770.00	6600.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	650
869242	10	5	-999	3.00	26.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869243	5	5	-999	1.00	61.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869244	10	5	-999	3.50	15.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869245	10	5	-999	3.50	15.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869246	5	5	-999	0.25	16.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1

REGIONAL GEOCHEMICAL SAMPLING PROGRAMME
Trace Element Geochemistry

Sample Number	Nb (ppm)	Zr (ppm)	Au (ppb)	Cu (ppm)	Zn (ppm)	As (ppm)	Mo (ppm)	Ag (ppm)	Sn (ppm)	Sb (ppm)	W (ppm)	Hg (ppb)	Pb (ppm)
869247	10	5	-999	0.25	20.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869248	10	5	-999	1.00	57.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869249	10	5	-999	0.25	4.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869250	10	5	-999	0.50	35.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869251	10	5	-999	0.25	8.50	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869252	10	5	-999	1.50	54.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869253	10	5	-999	0.25	17.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869254	10	20	-999	0.25	12.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869255	10	20	-999	17.00	44.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869256	20	5	-999	0.25	20.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869257	5	10	0.5	2.00	40.00	0.30	2.0	0.25	1.5	0.1	0.5	2.5	1
869258	10	10	0.5	11.00	13.00	0.40	2.0	0.25	1.5	0.1	0.5	2.5	1
869259	10	60	0.5	28.00	75.00	0.20	6.0	1.00	1.5	0.1	2.0	2.5	1
869260	5	30	0.5	33.00	79.00	0.20	6.0	1.00	1.5	0.1	0.5	5.0	2
869261	10	5	-999	730.00	6600.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	630
869262	5	5	-999	4.00	13.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869263	10	70	-999	13.00	150.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869264	5	5	-999	0.25	8.50	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869265	10	5	-999	0.25	4.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869266	30	80	-999	0.25	39.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869267	20	5	0.5	730.00	110.00	0.40	5.0	0.25	3.0	0.1	3.0	2.5	1
869268	10	5	0.5	3.00	180.00	0.20	0.5	0.25	4.0	0.1	1.0	11.0	44
869269	10	5	-999	62.00	100.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	26
869270	20	5	-999	170.00	1400.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	430
869271	20	5	-999	0.25	10.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869272	5	5	0.5	11.00	1800.00	0.40	0.5	0.25	1.0	0.1	0.5	7.0	4
869273	20	120	0.5	68.00	140.00	0.20	0.5	0.25	6.0	0.1	0.5	14.0	1
869274	10	5	-999	7.50	6.50	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869275	5	5	-999	7.00	5.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869276	10	5	-999	2.00	15.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	6
869277	10	5	-999	4.50	18.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869278	20	5	-999	19.00	320.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	80
869279	10	5	-999	0.25	7.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869280	10	5	-999	0.25	140.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	82
869281	10	10	-999	730.00	6400.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	580
869282	20	5	-999	17.00	23.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	2
869283	10	5	0.5	0.25	57.00	0.20	1.0	0.50	1.5	0.1	2.0	5.0	10
869284	5	5	-999	1.00	510.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	98
869285	10	5	-999	0.25	29.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	8
869286	10	5	-999	0.25	6.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869287	5	5	0.5	29.00	600.00	1.20	1.0	0.25	1.0	0.3	0.5	11.0	460
869288	30	100	-999	12.00	53.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869289	10	5	-999	0.25	63.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	14
869290	5	5	-999	0.25	67.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	16
869291	10	10	-999	730.00	6800.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	650
869292	10	100	2.0	21.00	2700.00	0.40	0.5	0.25	4.0	0.3	6.0	11.0	36

REGIONAL GEOCHEMICAL SAMPLING PROGRAMME
Trace Element Geochemistry

Sample Number	Nb (ppm)	Zr (ppm)	Au (ppb)	Cu (ppm)	Zn (ppm)	As (ppm)	Mo (ppm)	Ag (ppm)	Sn (ppm)	Sb (ppm)	W (ppm)	Hg (ppb)	Pb (ppm)
869293	30	5	0.5	710.00	32000.00	0.30	0.5	0.25	1.0	0.1	16.0	110.0	14
869294	10	5	1.0	29.00	39000.00	0.50	0.5	0.25	1.0	0.2	0.5	84.0	50
869295	5	5	-999	0.25	70.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869296	20	10	-999	0.25	54.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	2
869297	20	80	-999	86.00	81.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	6
869298	10	5	-999	0.25	140.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	56
869299	10	5	-999	10.00	470.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	610
869300	10	10	-999	10.00	55.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	10
869301	5	5	-999	770.00	6800.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	660
869302	10	5	-999	9.00	320.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	42
869303	20	5	-999	3.50	42.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	6
869304	20	5	-999	6.00	20.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	2
869305	10	5	-999	4.50	23.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	4
869306	10	10	0.5	45.00	72.00	1.80	0.5	0.25	1.0	0.7	0.5	32.0	10
869307	30	90	6.0	86.00	47.00	50.00	1.0	0.25	4.0	1.5	1.0	69.0	14
869308	5	40	28.0	320.00	70.00	220.00	0.5	0.50	1.0	23.0	0.5	530.0	66
869309	10	5	-999	2.50	46.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	20
869310	10	5	-999	0.25	10.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869311	5	5	-999	0.25	9.50	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	2
869312	5	5	-999	0.25	17.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869313	20	5	-999	3.50	10.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	4
869314	10	5	-999	2.50	12.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869315	10	5	-999	3.00	10.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869316	5	5	-999	4.00	11.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869317	20	5	-999	2.50	9.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869318	10	5	-999	0.25	6.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869319	10	5	-999	0.25	5.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869320	10	5	-999	0.25	6.50	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869321	10	5	-999	760.00	6700.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	610
869322	20	5	-999	2.00	8.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869323	10	20	-999	20.00	19.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	6
869324	10	5	-999	19.00	14.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	2
869325	20	5	-999	1.50	11.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	2
869326	10	5	-999	0.25	17.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	2
869327	10	5	-999	3.00	11.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	2
869328	10	5	-999	0.25	12.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869329	5	5	-999	1.00	12.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869330	10	5	-999	1.50	15.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	4
869331	10	5	-999	0.25	8.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869332	20	5	-999	0.25	14.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869333	5	5	-999	1.50	14.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	2
869334	20	5	-999	0.25	8.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869335	20	5	-999	0.25	6.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869336	10	5	-999	0.25	5.50	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869337	10	5	-999	0.25	5.50	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	4
869338	10	5	-999	0.25	15.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	4

REGIONAL GEOCHEMICAL SAMPLING PROGRAMME
Trace Element Geochemistry

Sample Number	Nb (ppm)	Zr (ppm)	Au (ppb)	Cu (ppm)	Zn (ppm)	As (ppm)	Mo (ppm)	Ag (ppm)	Sn (ppm)	Sb (ppm)	W (ppm)	Hg (ppb)	Pb (ppm)
869339	10	5	-999	2.50	13.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	8
869340	20	5	-999	0.25	10.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869341	10	10	-999	770.00	6800.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	610
869342	10	5	-999	0.25	8.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	2
869343	10	5	-999	2.00	7.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	4
869344	10	5	-999	0.25	6.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	2
869345	20	5	-999	0.25	6.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	2
869346	10	10	-999	5.00	10.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869347	5	5	-999	2.00	10.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869348	10	5	-999	0.25	5.50	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869349	20	5	-999	0.50	8.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869350	10	5	-999	0.50	12.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	2
869351	10	5	-999	0.25	9.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	2
869352	10	5	-999	0.25	10.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	4
869353	10	5	-999	1.50	9.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	4
869354	20	5	-999	0.25	8.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869355	20	5	-999	2.00	13.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869356	5	5	-999	0.25	6.50	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869357	10	5	-999	0.25	11.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869358	5	5	-999	0.25	7.50	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869359	10	10	-999	0.50	47.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869360	10	5	-999	0.25	5.50	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869361	20	5	-999	770.00	6800.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	660
869362	5	5	-999	0.25	8.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869363	10	20	-999	1.00	27.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869364	20	10	-999	1.50	20.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869365	10	10	-999	1.50	24.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869366	10	5	-999	0.25	6.50	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869367	10	5	-999	2.00	15.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869368	5	5	-999	0.25	5.50	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869369	10	5	-999	1.00	8.50	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869370	10	5	-999	2.00	16.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869371	10	5	-999	0.25	11.00	-999.00	999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869372	10	5	-999	2.00	8.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869373	10	5	-999	0.25	3.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869374	10	5	-999	3.00	34.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	2
869375	10	5	-999	0.25	6.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	2
869376	10	5	-999	0.25	5.50	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869377	5	5	-999	0.25	10.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	4
869378	5	5	-999	1.00	8.50	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869379	20	5	-999	1.00	8.50	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869380	10	5	-999	1.00	6.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869381	10	5	-999	730.00	6600.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	630
869382	20	5	-999	0.25	10.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	4
869383	20	5	-999	4.00	17.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	2
869384	10	5	-999	2.00	6.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1

REGIONAL GEOCHEMICAL SAMPLING PROGRAMME
Trace Element Geochemistry

Sample Number	Nb (ppm)	Zr (ppm)	Au (ppb)	Cu (ppm)	Zn (ppm)	As (ppm)	Mo (ppm)	Ag (ppm)	Sn (ppm)	Sb (ppm)	W (ppm)	Hg (ppb)	Pb (ppm)
869385	5	5	-999	0.25	7.50	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	2
869386	10	5	-999	15.00	18.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869387	5	5	-999	2.00	6.50	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869388	10	5	-999	0.50	10.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869389	10	5	-999	0.25	34.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869390	10	5	-999	0.25	34.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	4
869391	10	5	-999	0.25	9.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	2
869392	10	5	-999	1.00	3.50	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869393	10	5	-999	0.25	25.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869394	10	5	-999	1.00	9.50	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869395	10	5	-999	1.00	11.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869396	10	5	-999	6.00	16.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	10
869397	10	5	-999	1.00	5.50	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	4
869398	10	5	-999	0.25	8.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869399	10	5	-999	1.00	7.50	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869400	10	5	-999	1.00	3.50	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869401	10	5	-999	750.00	6700.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	650
869402	10	5	-999	2.00	5.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869403	10	5	-999	1.00	5.50	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869404	5	5	-999	0.25	44.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	8
869405	40	100	-999	4.50	57.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	4
869406	20	10	-999	5.00	50.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	20
869407	5	5	-999	2.00	27.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	2
869408	5	5	-999	1.50	6.50	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869409	20	5	-999	1.00	7.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869410	10	5	-999	0.50	6.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869411	10	5	-999	0.25	9.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869412	10	5	-999	0.25	6.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869413	5	5	-999	0.25	5.50	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869414	10	5	-999	0.50	19.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869415	10	5	-999	7.00	12.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869416	10	5	-999	0.25	3.50	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869417	10	5	-999	0.25	4.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869418	10	5	-999	2.50	62.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	4
869419	10	5	-999	0.25	10.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869420	10	5	-999	0.25	11.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869421	20	5	-999	760.00	6600.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	640
869422	20	160	0.5	79.00	110.00	7.40	0.5	0.25	4.0	0.7	0.5	5.0	1
869423	10	5	-999	0.25	9.50	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869424	20	300	2.0	26.00	57.00	1.30	0.5	0.50	6.0	0.7	2.0	2.5	18
869425	20	290	0.5	27.00	61.00	-999.00	-999.0	0.50	-999.0	-999.0	-999.0	-999.0	16
869426	5	5	-999	1.00	22.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869427	10	5	-999	5.00	15.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869428	20	5	-999	7.50	17.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869429	10	5	-999	6.50	9.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869430	5	5	-999	0.25	12.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1

REGIONAL GEOCHEMICAL SAMPLING PROGRAMME
Trace Element Geochemistry

Sample Number	Nb (ppm)	Zr (ppm)	Au (ppb)	Cu (ppm)	Zn (ppm)	As (ppm)	Mo (ppm)	Ag (ppm)	Sn (ppm)	Sb (ppm)	W (ppm)	Hg (ppb)	Pb (ppm)
869431	10	5	-999	0.25	8.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869432	20	5	-999	2.00	16.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869433	10	5	-999	7.00	400.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	70
869434	10	5	0.5	2.50	580.00	2.20	1.0	0.25	1.5	0.2	0.5	7.0	240
869435	10	5	-999	0.25	13.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	8
869436	10	5	-999	4.00	11.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	2
869437	10	5	-999	2.00	5.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869438	10	40	-999	11.00	24.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	2
869439	5	5	-999	0.50	11.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	2
869440	20	5	-999	0.25	7.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869441	10	5	-999	730.00	6600.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	600
869442	20	5	-999	0.50	8.50	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869443	20	5	-999	0.50	3.50	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869444	10	5	-999	4.50	2.50	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869445	10	5	-999	1.00	13.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869446	5	5	-999	0.25	3.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	4
869447	10	5	-999	7.00	3.50	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869448	10	5	-999	3.00	6.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	2
869449	20	5	-999	0.25	3.50	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869450	5	5	-999	5.00	8.50	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869451	5	5	-999	0.25	10.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869452	5	5	-999	3.00	32.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869453	10	5	-999	0.25	3.50	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869454	10	5	-999	2.00	15.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869455	20	5	-999	3.00	16.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869456	10	20	-999	10.00	55.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869457	10	5	-999	0.25	7.50	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869458	10	5	-999	0.25	4.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869459	5	10	-999	4.00	15.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	2
869460	10	5	-999	2.50	11.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869461	20	5	-999	730.00	6600.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	640
869462	10	5	-999	0.25	6.50	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869463	10	5	-999	0.25	12.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869464	10	5	-999	0.25	1.50	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869465	10	5	-999	0.25	13.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869466	20	5	-999	0.25	76.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869467	5	5	-999	0.25	11.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869468	10	5	-999	1.50	5.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869469	5	5	-999	0.25	15.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869470	10	5	-999	0.25	15.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869471	20	5	-999	0.25	8.50	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869472	10	5	-999	3.00	6.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	4
869473	5	5	-999	0.25	19.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869474	10	5	-999	5.00	2.50	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	2
869475	10	5	-999	1.00	2.50	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869476	10	5	-999	4.00	48.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1

REGIONAL GEOCHEMICAL SAMPLING PROGRAMME
Trace Element Geochemistry

Sample Number	Nb (ppm)	Zr (ppm)	Au (ppb)	Cu (ppm)	Zn (ppm)	As (ppm)	Mo (ppm)	Ag (ppm)	Sn (ppm)	Sb (ppm)	W (ppm)	Hg (ppb)	Pb (ppm)
869477	10	5	-999	0.25	4.50	-999.00	999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869478	10	5	-999	0.25	3.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869479	10	5	-999	1.50	79.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	40
869480	5	5	-999	0.25	8.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869481	20	10	-999	730.00	6600.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	630
869482	10	5	-999	0.50	8.50	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869483	10	5	-999	1.00	6.50	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869484	10	5	0.5	2.00	6.00	31.00	0.5	0.25	1.0	0.8	0.5	2.5	1
869485	5	5	0.5	2.00	6.50	30.00	-999.0	0.25	-999.0	0.5	-999.0	2.5	1
869486	10	40	-999	0.25	38.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	10
869487	10	5	-999	0.25	18.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869488	10	5	-999	2.00	22.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869489	10	5	-999	0.25	14.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869490	10	5	-999	0.25	18.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869491	10	5	-999	0.25	11.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869492	20	5	-999	1.00	11.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869493	20	5	-999	3.00	12.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869494	10	5	-999	0.25	190.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	90
869495	20	5	-999	3.00	11.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869496	10	20	-999	1.00	34.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	2
869497	10	5	-999	0.50	21.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869498	10	5	-999	0.25	11.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869499	10	5	-999	0.25	6.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869500	10	5	-999	0.25	5.50	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869501	20	20	-999	730.00	6800.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	640
869502	10	5	-999	0.50	17.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869503	5	5	-999	2.00	23.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869504	20	10	-999	4.00	320.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	64
869505	30	60	-999	4.00	22.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869506	10	5	-999	0.25	4.50	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869507	10	5	-999	0.25	170.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	4
869508	30	100	0.5	40.00	1900.00	13.00	0.5	0.50	1.0	1.0	0.5	2.5	2600
869509	5	5	0.5	2.00	16.00	0.20	0.5	0.25	1.0	0.1	0.5	2.5	6
869510	10	5	0.5	34.00	42.00	0.20	0.5	0.25	0.0	0.1	0.5	2.5	1
869511	10	5	-999	0.25	6.50	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869512	10	5	-999	0.25	7.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869513	20	100	0.5	33.00	120.00	1.00	2.0	0.25	6.0	1.9	1.0	6.0	1
869514	5	30	0.5	3.00	160.00	80.00	0.5	0.25	1.0	2.0	0.5	2.5	1
869515	10	20	-999	3.00	150.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869516	20	5	-999	1.00	11.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869517	10	10	-999	33.00	42.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869518	10	5	0.5	0.25	37.00	0.60	0.5	0.25	1.5	0.2	0.5	2.5	1
869519	5	5	0.5	12.00	16.00	0.20	280.0	0.25	1.5	0.1	0.5	2.5	14
869520	10	10	-999	0.25	36.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869521	20	5	-999	750.00	6700.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	640
869522	20	5	0.5	11.00	62.00	0.30	0.5	0.25	8.0	0.2	0.5	2.5	1

REGIONAL GEOCHEMICAL SAMPLING PROGRAMME
Trace Element Geochemistry

Sample Number	Nb (ppm)	Zr (ppm)	Au (ppb)	Cu (ppm)	Zn (ppm)	As (ppm)	Mo (ppm)	Ag (ppm)	Sn (ppm)	Sb (ppm)	W (ppm)	Hg (ppb)	Pb (ppm)
869523	20	120	-999	41.00	50.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869524	10	5	-999	5.00	170.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	40
869525	20	50	-999	4.50	46.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	12
869526	10	5	-999	2.00	9.50	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869527	10	5	-999	0.25	310.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869528	20	5	9.0	6.50	190.00	2.20	0.5	0.25	1.0	0.1	0.5	2.5	44
869529	10	5	0.5	2.00	14.00	6.70	3.0	0.25	1.5	0.1	0.5	2.5	1
869530	10	5	-999	2.00	16.00	-999.00	4.0	-999.00	1.5	-999.0	0.5	-999.0	1
869531	10	5	-999	0.25	9.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869532	10	5	-999	0.25	3.50	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869533	10	5	-999	2.00	33.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869534	10	5	-999	0.25	63.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869535	20	90	0.5	130.00	1600.00	1.80	0.5	0.25	1.0	0.7	0.5	12.0	1
869536	20	5	0.5	24.00	2400.00	1.80	12.0	0.25	1.0	0.1	0.5	7.0	160
869537	10	5	-999	0.25	11.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869538	20	190	0.5	25.00	370.00	1.20	0.5	1.50	1.0	0.2	0.5	2.5	170
869539	5	40	-999	2.50	200.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	46

APPENDIX V

Summary of Geochemical Data:
Control Reference Standards

04/11/87

CONTROL REFERENCE STANDARD CRS1
Whole Rock Geochemistry

Sample Number	SIO2	AL2O3	CAO	MGO	NA2O	K2O	FE2O3	MNO	TIO2	P2O5	LOI	SUM	CR	RB	SR	Y	BA	NB	ZR
869011	0.44	0.01	30.30	23.30	0.060	0.02	0.060	0.020	0.010	0.05	45.50	99.800	5	10	180	10	50	5	5
869031	0.44	0.01	30.30	23.20	0.060	0.02	0.040	0.020	0.010	0.04	45.50	99.700	5	10	190	5	50	10	5
869051	0.44	0.01	30.50	23.30	0.060	0.02	0.050	0.020	0.010	0.04	45.54	100.000	5	10	180	5	50	5	5
869071	0.45	0.01	30.60	23.50	0.050	0.02	0.060	0.020	0.010	0.04	45.50	100.300	5	5	180	5	50	5	5
869091	0.45	0.02	30.30	23.40	0.060	0.02	0.050	0.020	0.020	0.04	45.92	100.300	5	10	180	10	50	10	5
869111	0.45	0.01	30.60	23.50	0.060	0.02	0.040	0.020	0.020	0.05	45.50	100.300	5	5	180	5	30	10	5
869131	0.46	0.02	30.90	22.80	0.050	0.02	0.005	0.020	0.020	0.04	46.16	100.500	5	10	180	5	60	10	5
869211	0.45	0.02	30.40	23.20	0.060	0.02	0.050	0.020	0.010	0.04	45.92	100.200	5	5	190	10	60	10	5
869231	0.46	0.01	30.60	23.30	0.060	0.02	0.050	0.020	0.010	0.04	45.80	100.400	5	20	190	5	50	5	5
869251	0.46	0.02	30.50	23.40	0.060	0.02	0.050	0.020	0.020	0.04	45.46	100.100	5	10	180	5	40	10	5
869271	0.45	0.01	30.50	23.30	0.060	0.02	0.050	0.020	0.010	0.04	45.92	100.400	5	5	180	5	40	20	5
869311	0.47	0.01	30.50	23.50	0.050	0.02	0.050	0.020	0.020	0.04	45.62	100.300	5	10	180	5	40	5	5
869331	0.45	0.01	30.50	23.50	0.050	0.02	0.050	0.020	0.020	0.04	45.92	100.600	5	10	180	5	30	10	5
869351	0.49	0.02	30.30	23.20	0.070	0.02	0.060	0.020	0.010	0.04	46.16	100.400	5	5	200	5	20	10	5
869371	0.44	0.01	30.30	23.30	0.070	0.02	0.040	0.020	0.010	0.04	45.92	100.200	5	5	190	5	30	10	5
869391	0.45	0.01	30.20	23.30	0.060	0.02	0.040	0.020	0.010	0.04	45.62	99.800	5	10	190	5	50	10	5
869411	0.43	0.01	30.50	23.20	0.050	0.02	0.040	0.020	0.010	0.04	46.16	100.500	5	5	180	5	40	10	5
869431	0.48	0.01	30.20	23.20	0.090	0.03	0.030	0.020	0.020	0.04	46.23	100.400	5	5	170	5	60	10	5
869451	0.46	0.01	30.40	23.40	0.090	0.02	0.030	0.020	0.010	0.04	45.31	99.800	5	5	180	5	50	5	5
869471	0.45	0.01	30.30	23.40	0.080	0.01	0.020	0.020	0.020	0.04	46.00	100.400	5	5	190	5	60	20	5
869491	0.46	0.02	30.90	22.80	0.060	0.02	0.005	0.020	0.020	0.04	46.00	100.400	5	10	180	5	60	10	5
869511	0.47	0.02	31.00	23.00	0.060	0.02	0.005	0.020	0.020	0.04	45.70	100.400	5	10	190	5	50	10	5
869531	0.46	0.02	30.80	22.80	0.060	0.01	0.005	0.020	0.020	0.04	46.08	100.300	5	5	190	5	60	10	5

CONTROL REFERENCE STANDARD CRS1
Trace Element Geochemistry

Sample Number	Au (ppb)	Cu (ppm)	Zn (ppm)	As (ppm)	Mo (ppm)	Ag (ppm)	Sn (ppm)	Sb (ppm)	W (ppm)	Hg (ppb)	Pb (ppm)
869011	-999	0.25	8.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	2
869031	-999	0.25	7.50	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	4
869051	-999	0.25	10.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869071	-999	0.25	9.50	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869091	-999	0.25	12.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	2
869111	-999	0.25	10.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869131	-999	0.25	9.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869211	-999	0.25	7.50	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869231	-999	0.25	10.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869251	-999	0.25	8.50	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869271	-999	0.25	10.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869311	-999	0.25	9.50	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	2
869331	-999	0.25	8.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869351	-999	0.25	9.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	2
869371	-999	0.25	11.00	-999.00	999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869391	-999	0.25	9.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	2
869411	-999	0.25	9.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869431	-999	0.25	8.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869451	-999	0.25	10.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869471	-999	0.25	8.50	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869491	-999	0.25	11.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869511	-999	0.25	6.50	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1
869531	-999	0.25	9.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	1

CONTROL REFERENCE STANDARD CRS2
Whole Rock Geochemistry

Sample Number	SIO2	AL2O3	CAO	MGO	NA2O	K2O	FE2O3	MNO	TIO2	P2O5	LOI	SUM	CR	RB	SR	Y	BA	NB	ZR
869021	28.40	2.34	21.80	19.70	0.490	0.15	3.600	0.120	0.320	0.09	21.62	98.700	5	5	240	5	40	5	5
869041	27.40	2.27	21.00	19.10	0.510	0.15	3.480	0.110	0.310	0.09	21.77	96.200	5	10	230	5	50	10	5
869061	27.80	2.27	21.30	19.30	0.520	0.16	3.510	0.110	0.320	0.09	21.70	97.100	5	20	250	5	50	20	10
869081	28.20	2.30	21.70	19.50	0.490	0.15	3.610	0.120	0.310	0.09	22.00	98.500	5	10	260	5	50	20	5
869101	28.20	2.34	21.90	19.60	0.510	0.15	3.550	0.120	0.320	0.09	21.93	98.100	5	5	230	5	40	10	5
869121	27.40	2.27	21.00	19.10	0.490	0.16	3.490	0.110	0.310	0.09	21.93	96.400	5	20	230	5	40	10	10
869141	28.40	2.31	22.00	19.10	0.450	0.18	3.590	0.120	0.330	0.09	21.85	98.500	5	5	250	5	30	10	10
869221	27.70	2.28	21.30	19.20	0.500	0.16	3.480	0.120	0.310	0.09	22.00	97.200	5	10	240	5	60	5	10
869241	27.90	2.29	21.30	19.40	0.500	0.16	3.490	0.120	0.320	0.09	21.70	97.300	5	20	230	5	40	10	10
869261	28.30	2.32	21.70	19.60	0.500	0.15	3.570	0.120	0.320	0.09	21.54	98.200	5	5	240	5	40	10	5
869281	28.30	2.31	21.70	19.60	0.500	0.16	3.600	0.120	0.310	0.09	21.93	98.700	5	5	240	5	50	10	10
869291	27.60	2.27	21.00	19.20	0.500	0.16	3.480	0.110	0.320	0.08	21.70	96.500	5	10	230	5	40	10	10
869301	27.40	2.28	21.00	19.20	0.510	0.16	3.480	0.110	0.310	0.09	21.93	96.500	5	20	240	5	30	5	5
869321	28.00	2.32	21.70	19.60	0.480	0.15	3.600	0.120	0.320	0.09	22.00	98.400	10	5	250	5	40	10	5
869341	28.10	2.30	21.60	19.60	0.480	0.15	3.600	0.120	0.320	0.09	22.16	98.600	5	5	240	5	40	10	10
869361	27.90	2.34	21.80	19.60	0.470	0.15	3.590	0.120	0.320	0.09	21.93	98.300	5	5	250	5	50	20	5
869381	28.00	2.33	21.60	19.60	0.490	0.15	3.600	0.120	0.320	0.09	22.08	98.400	5	5	230	5	40	10	5
869401	27.40	2.27	21.10	19.20	0.500	0.16	3.480	0.110	0.310	0.09	21.85	96.500	5	5	240	5	10	10	5
869421	28.20	2.34	21.70	19.50	0.520	0.16	3.580	0.120	0.310	0.09	21.93	98.500	5	5	230	5	30	20	5
869441	27.50	2.28	21.10	19.20	0.500	0.16	3.480	0.110	0.310	0.09	22.00	96.800	5	20	240	5	50	10	5
869461	27.80	2.27	21.20	19.40	0.500	0.16	3.500	0.120	0.320	0.09	21.54	96.900	5	20	240	5	50	20	5
869481	27.50	2.27	21.20	19.20	0.470	0.16	3.480	0.110	0.320	0.09	21.85	96.700	5	20	240	5	40	20	10
869501	28.20	2.33	21.90	19.30	0.450	0.15	3.540	0.120	0.330	0.09	21.85	98.300	10	5	250	5	40	20	20
869521	29.00	2.38	22.50	19.50	0.490	0.14	3.650	0.120	0.330	0.09	21.85	100.100	5	5	240	5	40	20	5

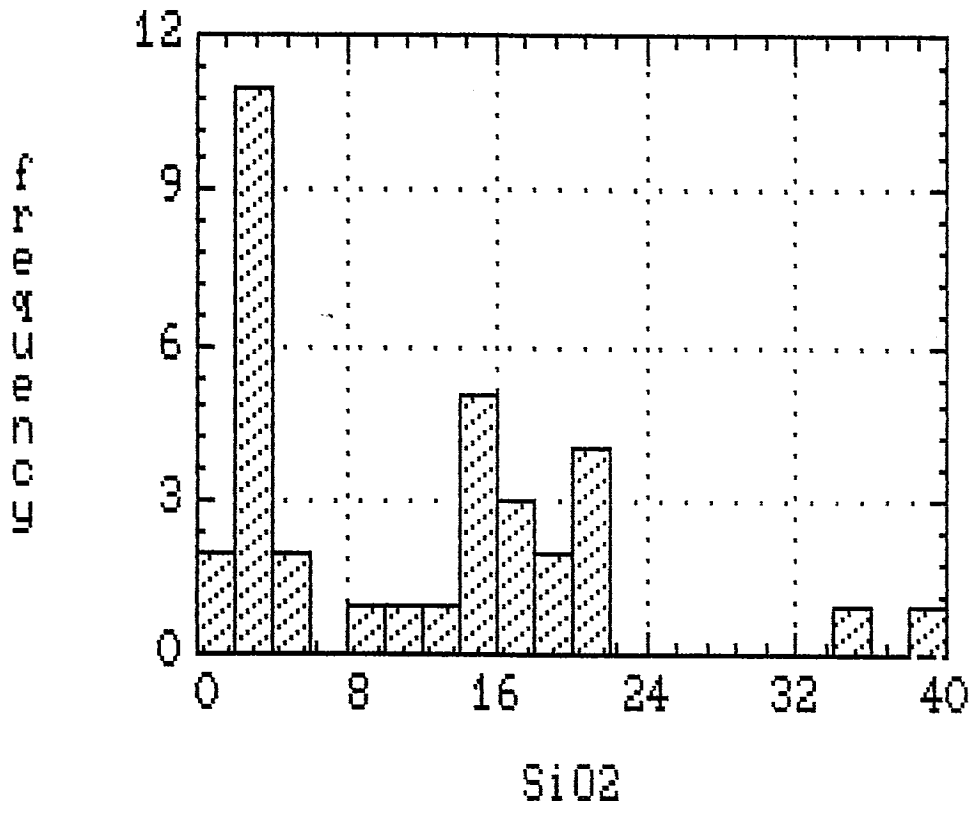
CONTROL REFERENCE STANDARD CRS2
Trace Element Geochemistry

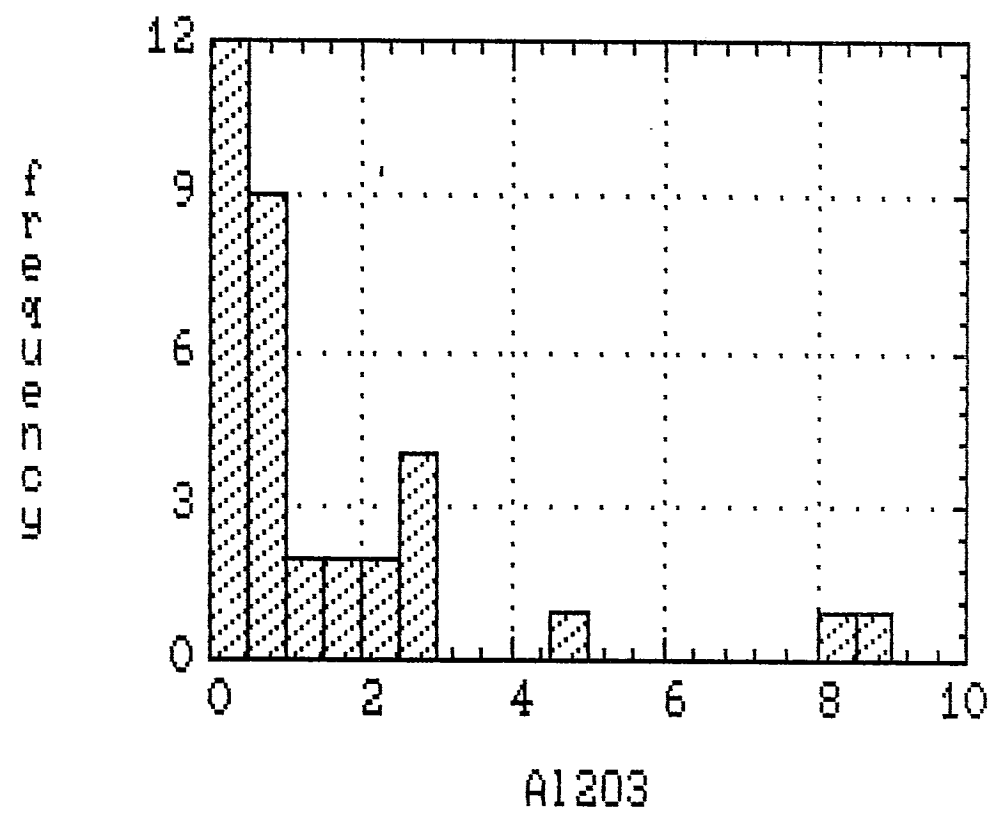
Sample Number	Au (ppb)	Cu (ppm)	Zn (ppm)	As (ppm)	Mo (ppm)	Ag (ppm)	Sn (ppm)	Sb (ppm)	W (ppm)	Hg (ppb)	Pb (ppm)
869021	-999	750.00	6700.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	610
869041	-999	760.00	6700.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	610
869061	-999	760.00	6600.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	610
869081	-999	730.00	6700.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	600
869101	-999	770.00	6800.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	660
869121	-999	740.00	6800.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	620
869141	-999	740.00	6600.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	610
869221	-999	730.00	6800.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	630
869241	-999	770.00	6600.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	650
869261	-999	730.00	6600.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	630
869281	-999	730.00	6400.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	580
869291	-999	730.00	6800.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	650
869301	-999	770.00	6800.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	660
869321	-999	760.00	6700.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	610
869341	-999	770.00	6800.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	610
869361	-999	770.00	6800.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	660
869381	-999	730.00	6600.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	630
869401	-999	750.00	6700.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	650
869421	-999	760.00	6600.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	640
869441	-999	730.00	6600.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	600
869461	-999	730.00	6600.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	640
869481	-999	730.00	6600.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	630
869501	-999	730.00	6800.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	640
869521	-999	750.00	6700.00	-999.00	-999.0	-999.00	-999.0	-999.0	-999.0	-999.0	640

APPENDIX VI

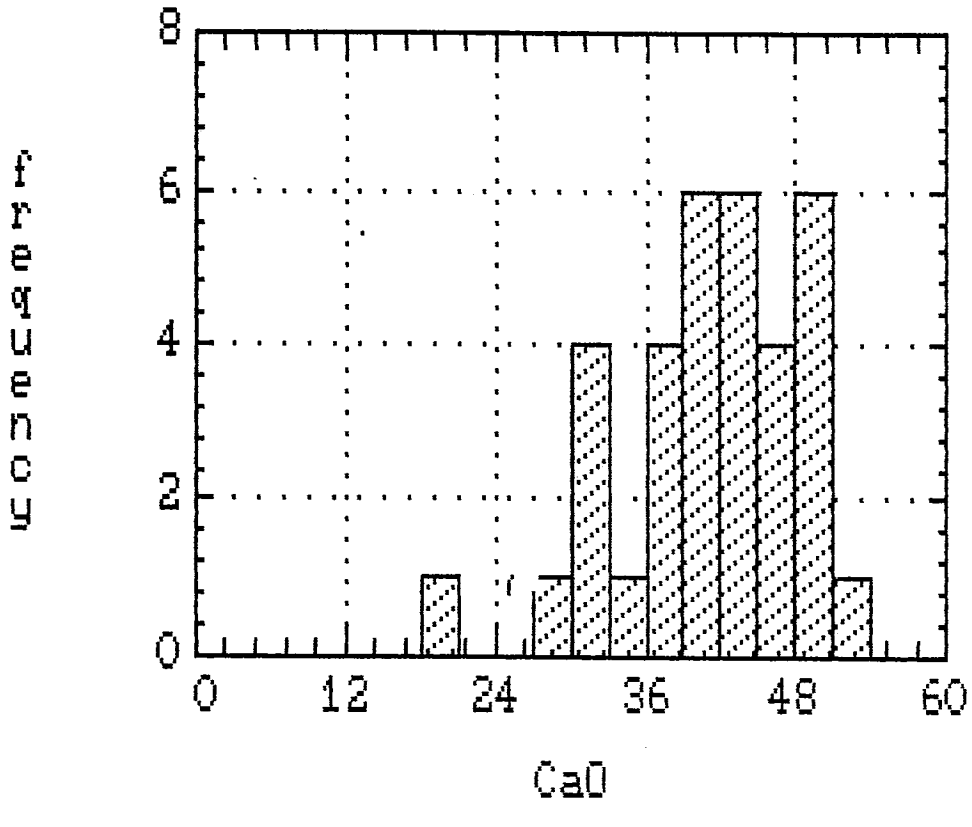
Histograms
Boisdale and Craignish Hills Calcitic and
Dolomitic Marble Populations

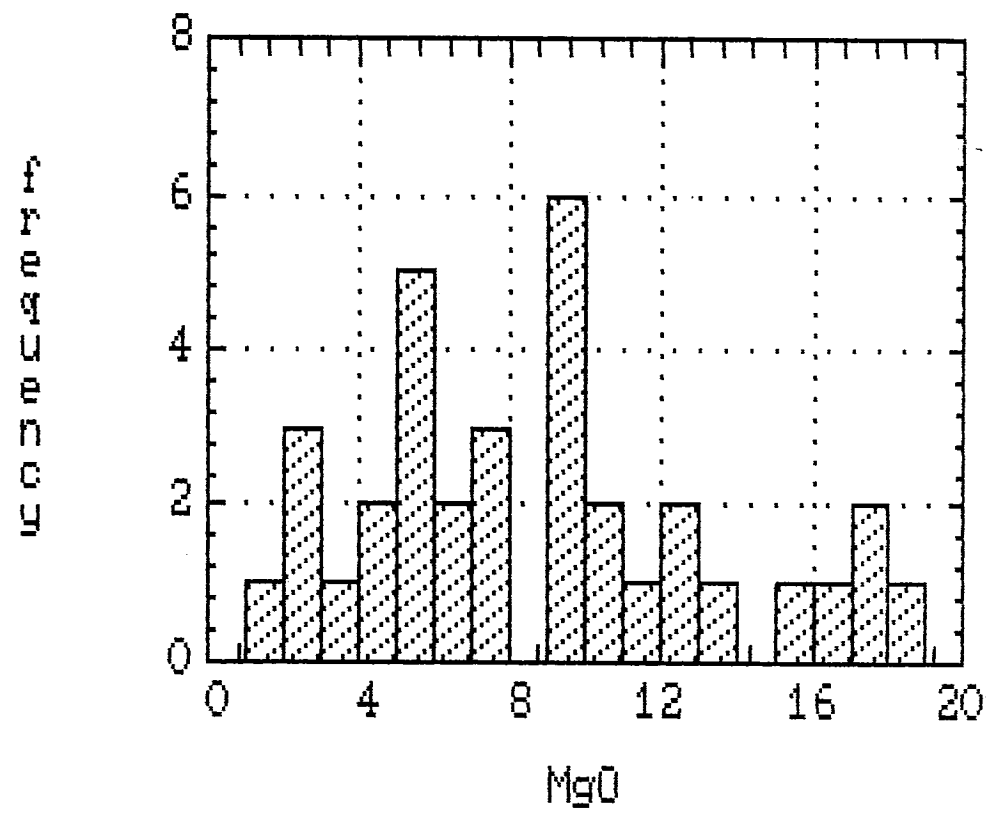
Boisdale Hills Calcitic Marbles - Frequency Histograms



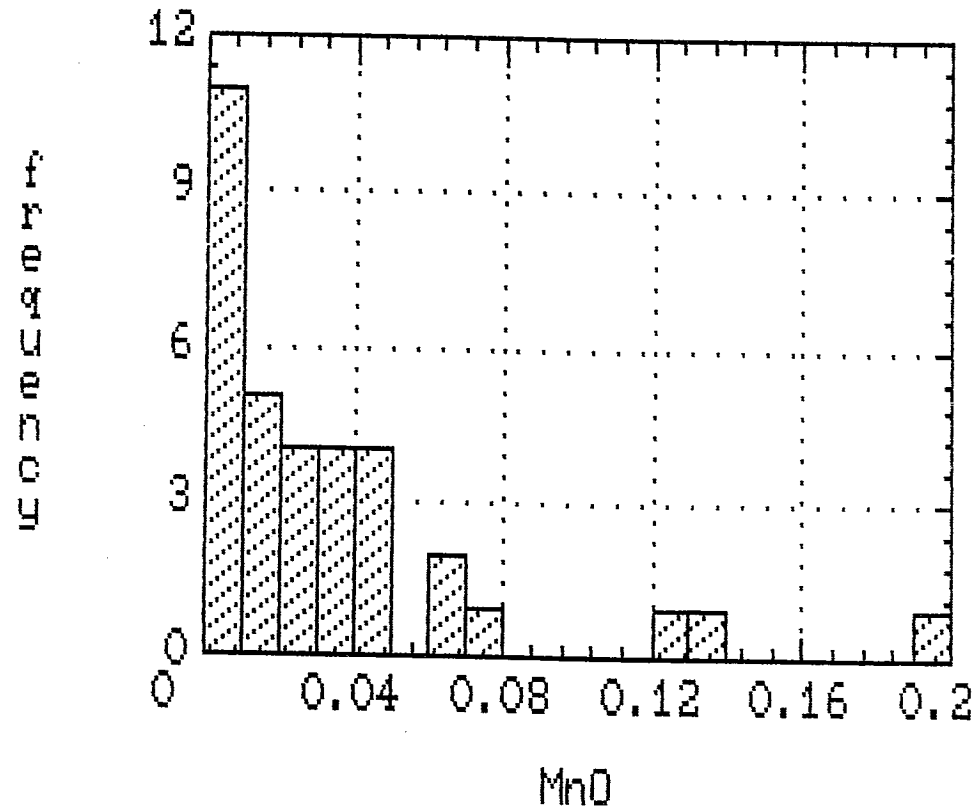


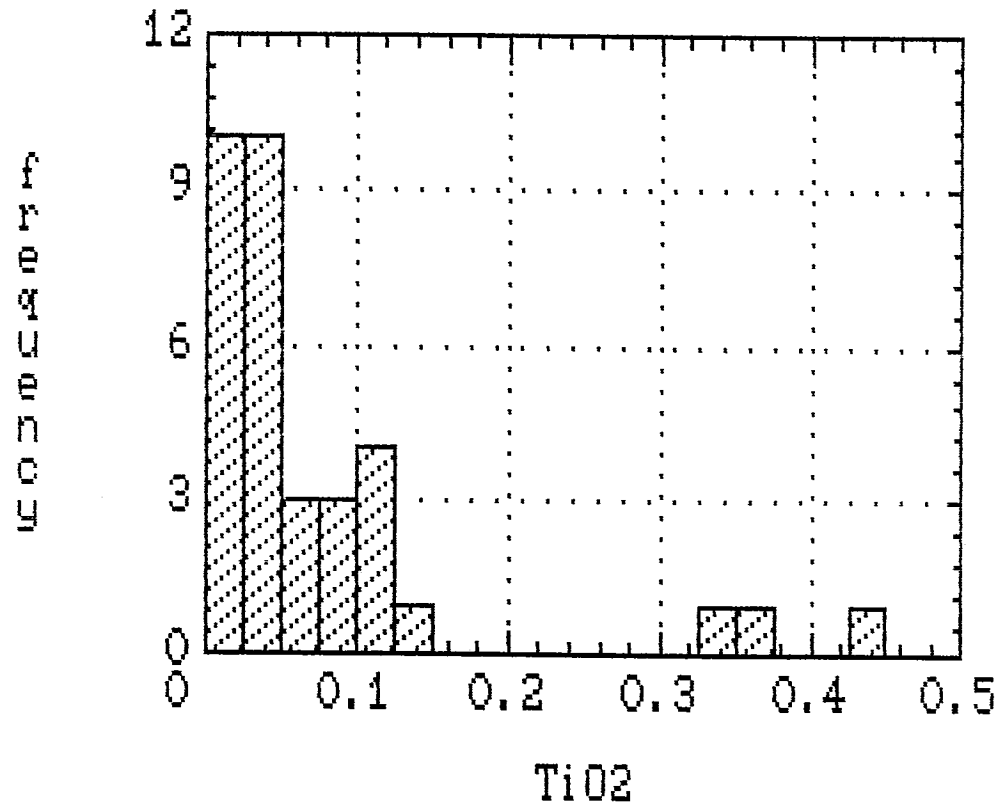
N = 34



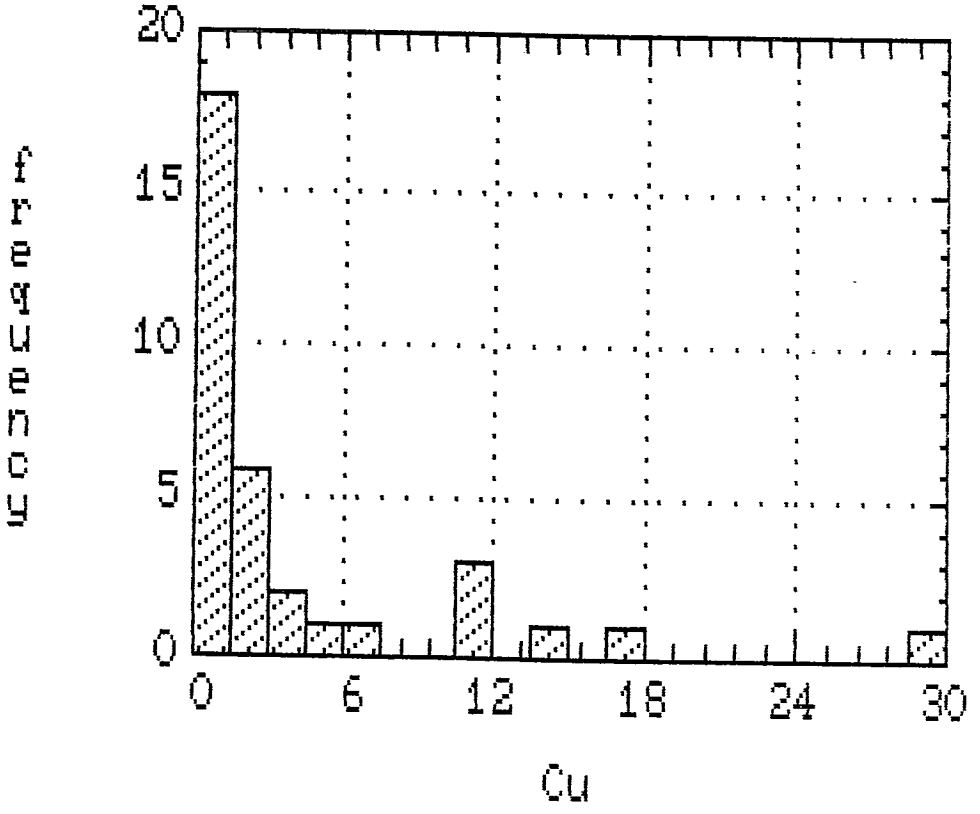


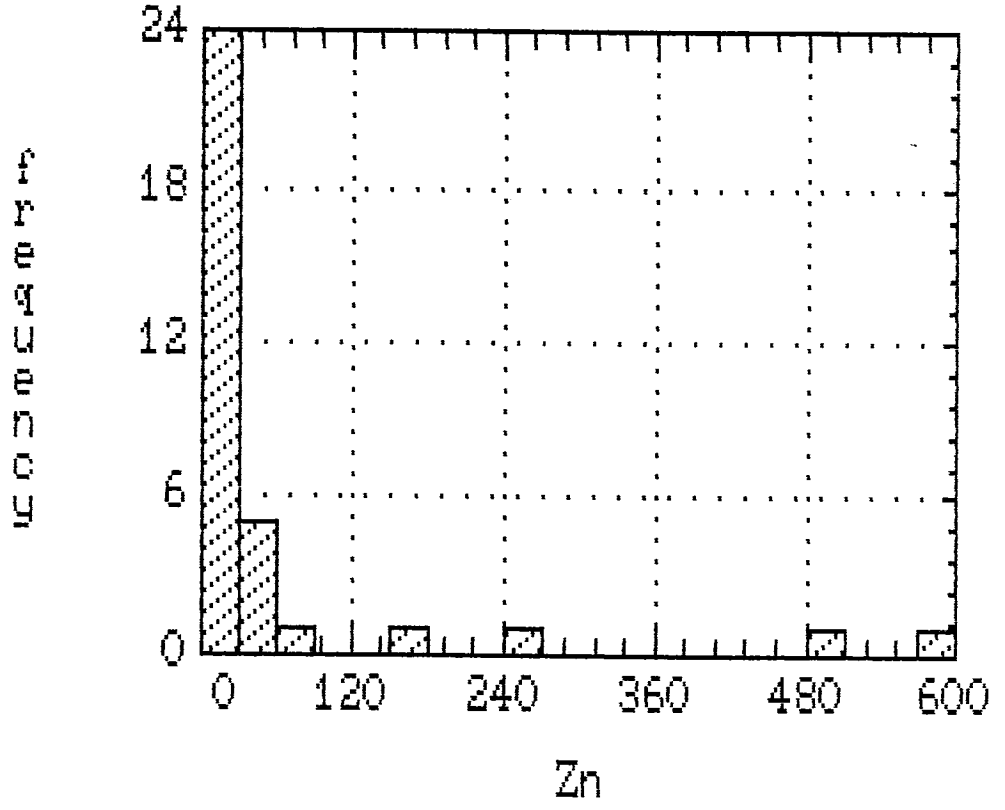
Boisdale Hills Calcitic Marbles - Frequency Histograms



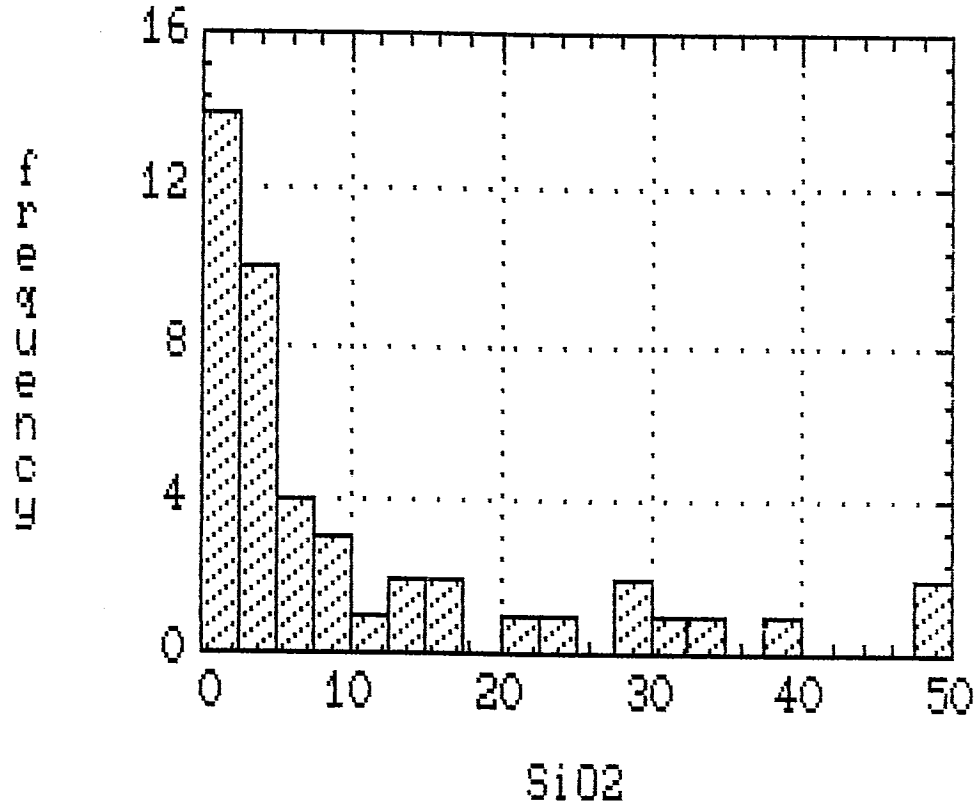


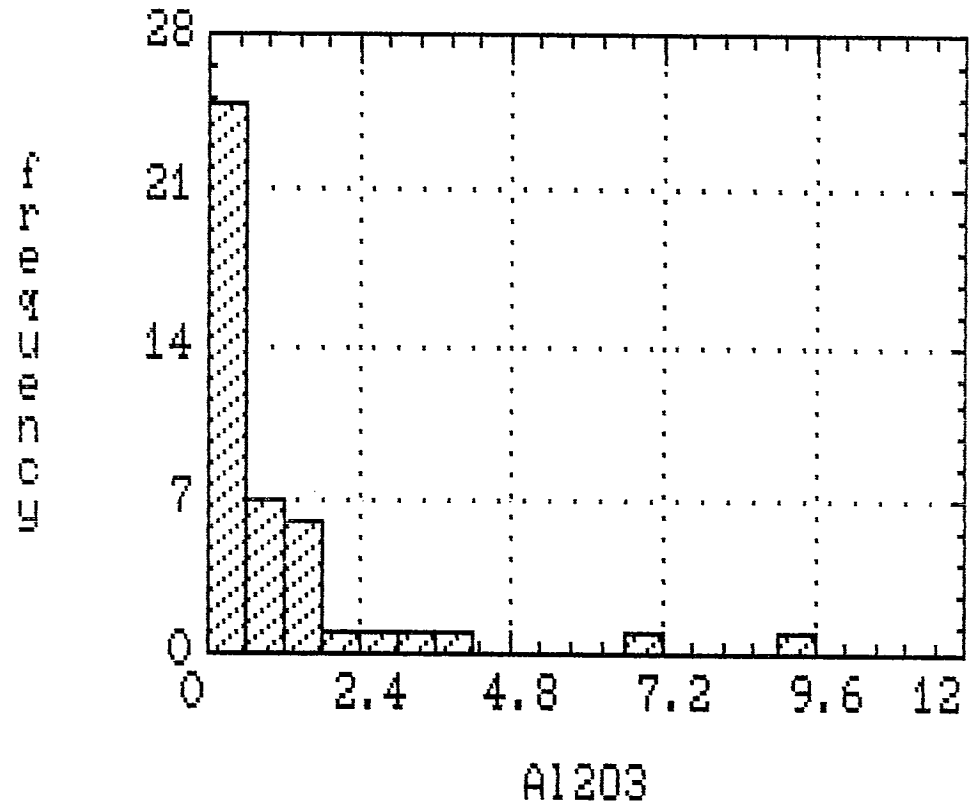
N = 34



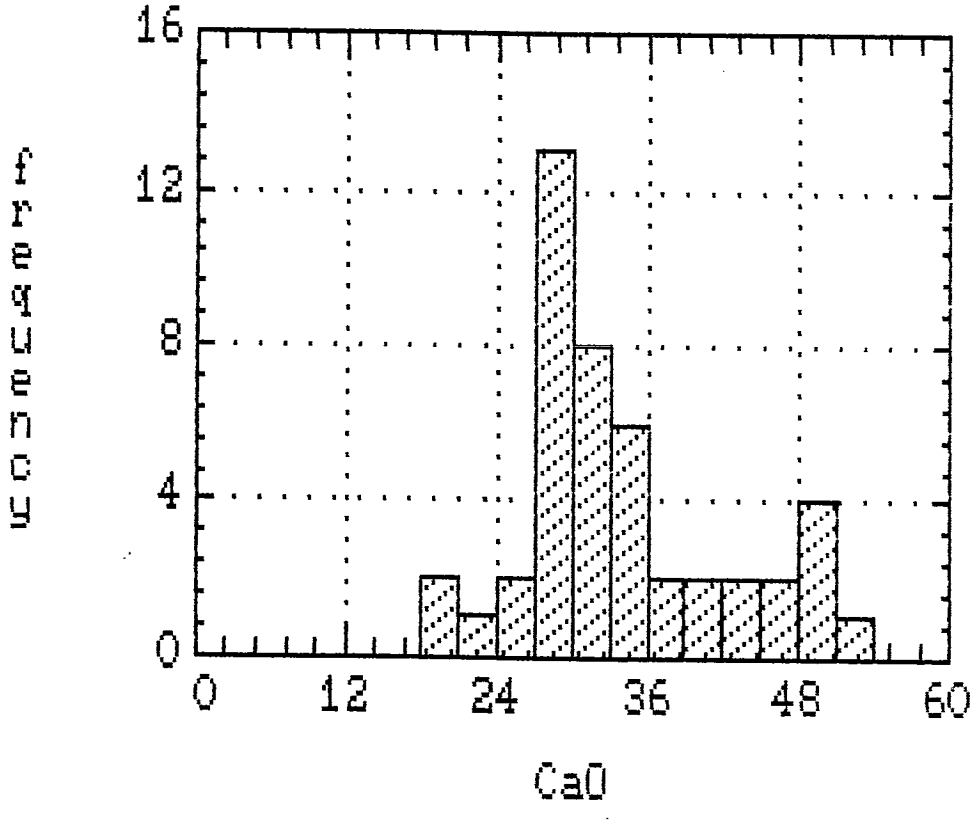


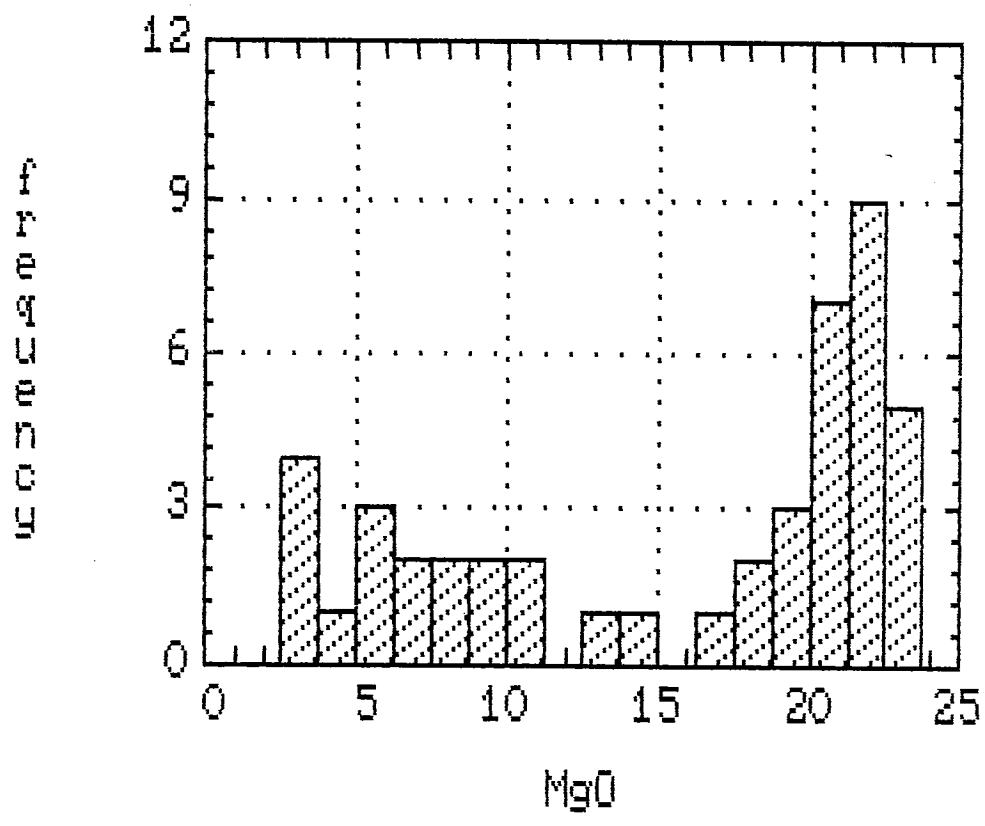
Boisdale Hills Dolomitic Marbles - Frequency Histograms



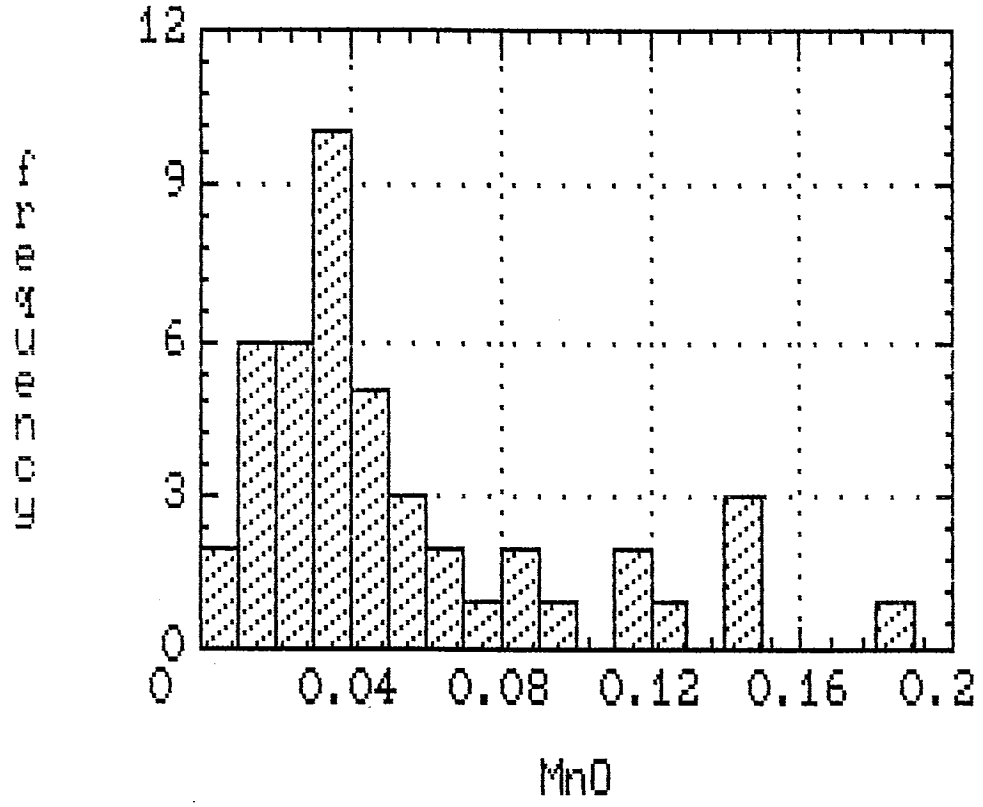


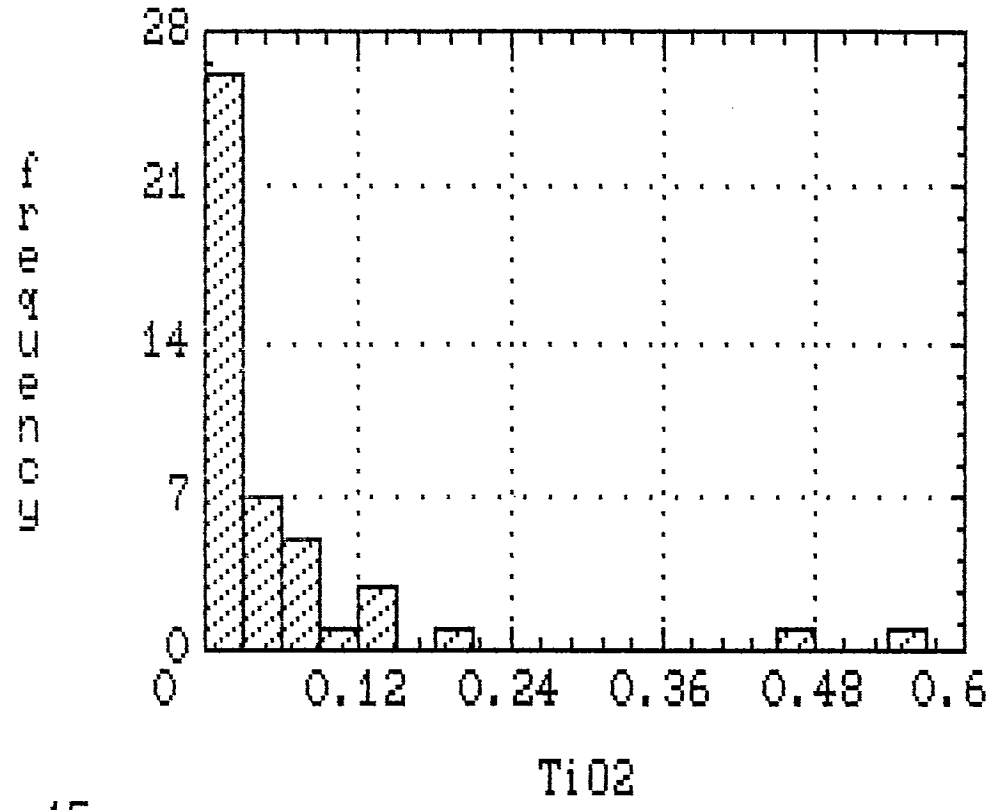
N = 45



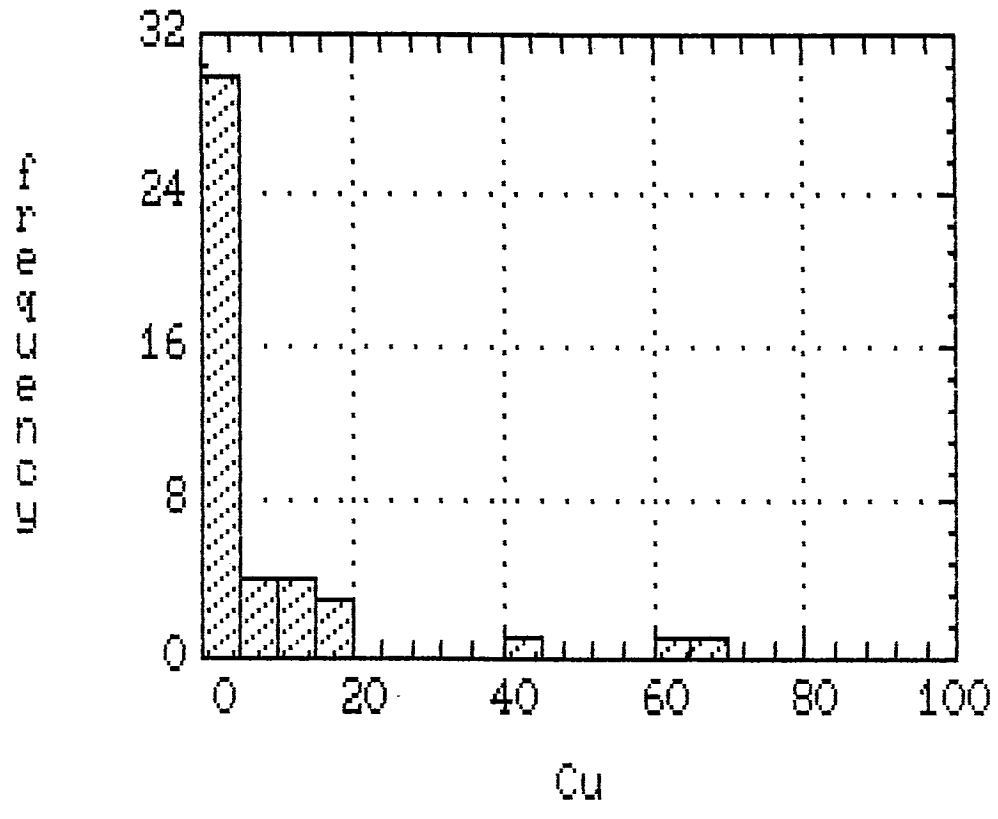


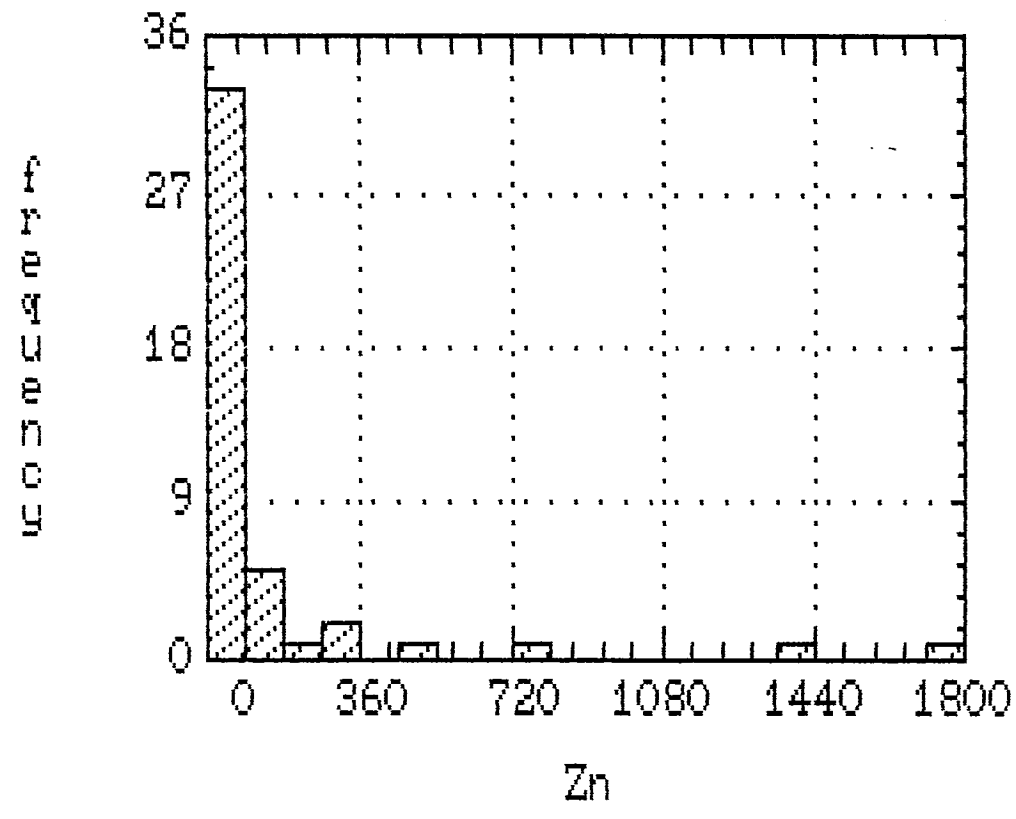
Boisdale Hills Dolomitic Marbles - Frequency Histograms



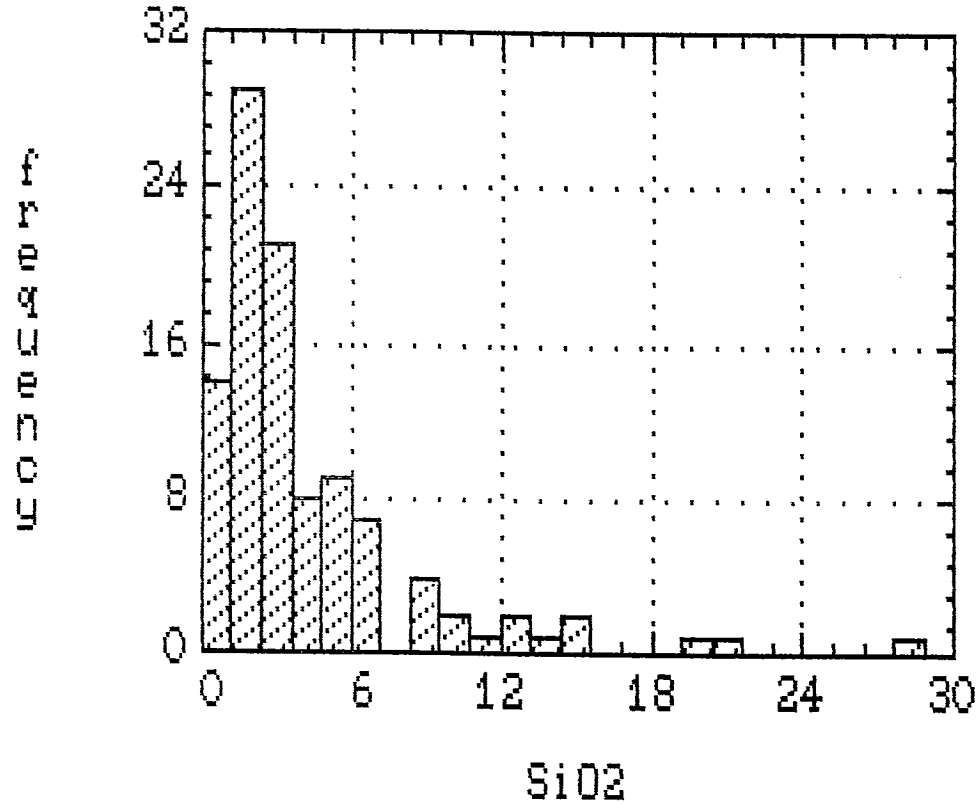


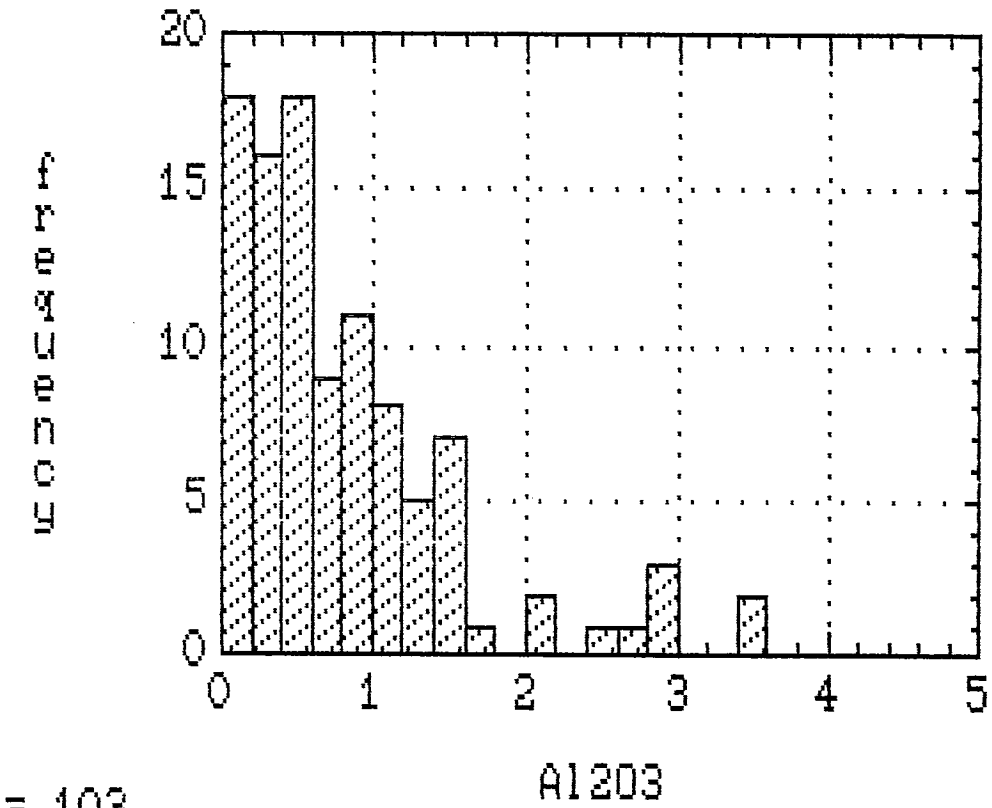
N = 45



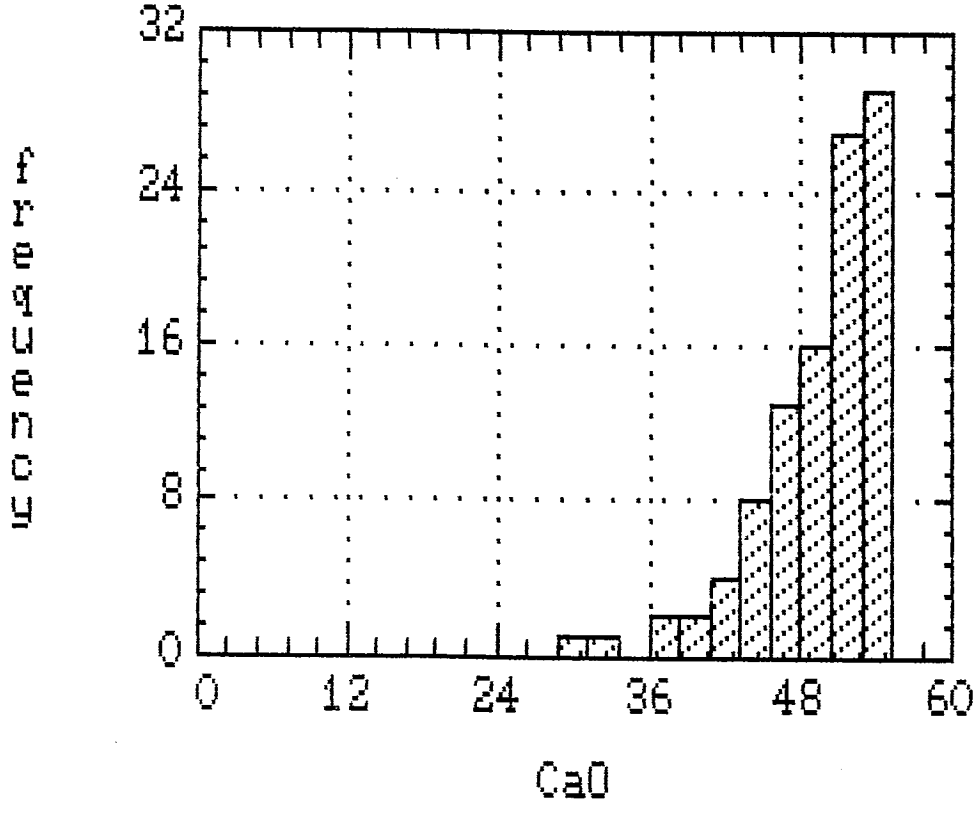


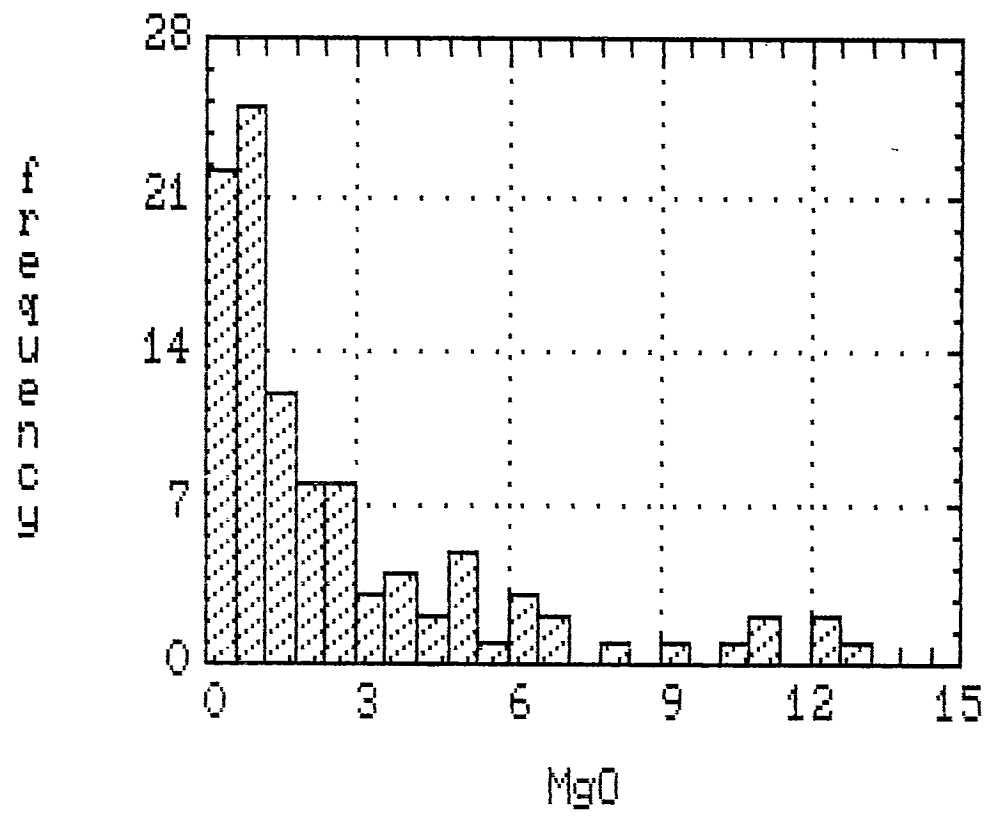
Craignish Hills Calcitic Marbles - Frequency Histograms



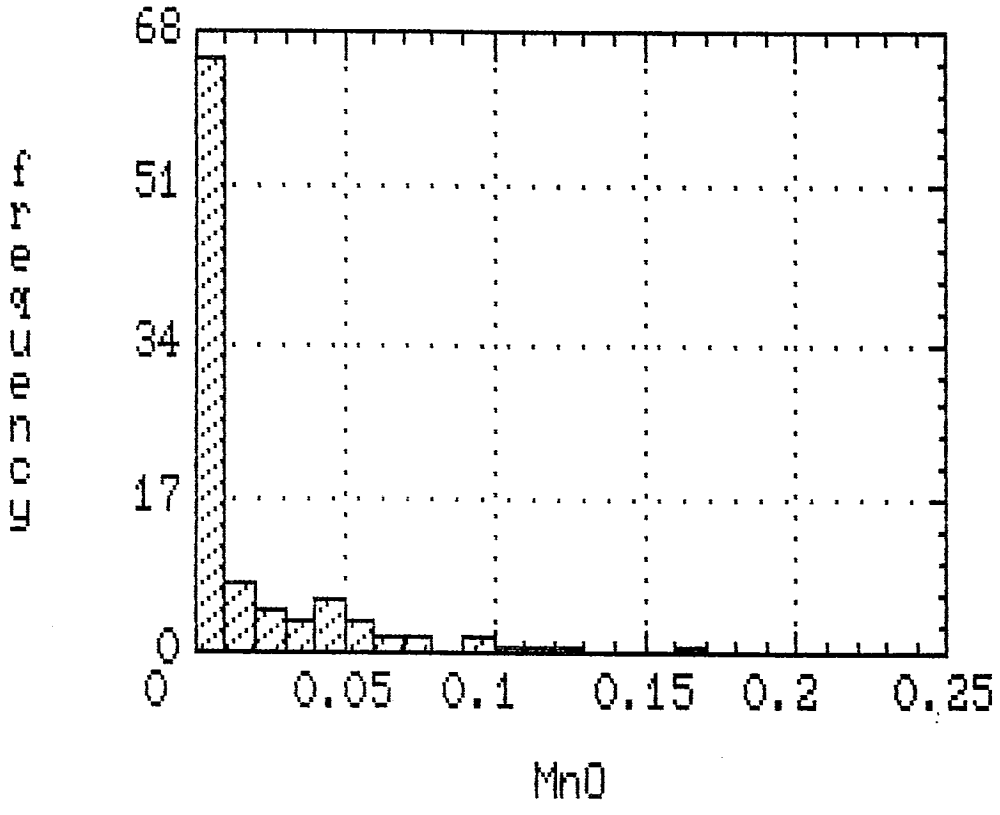


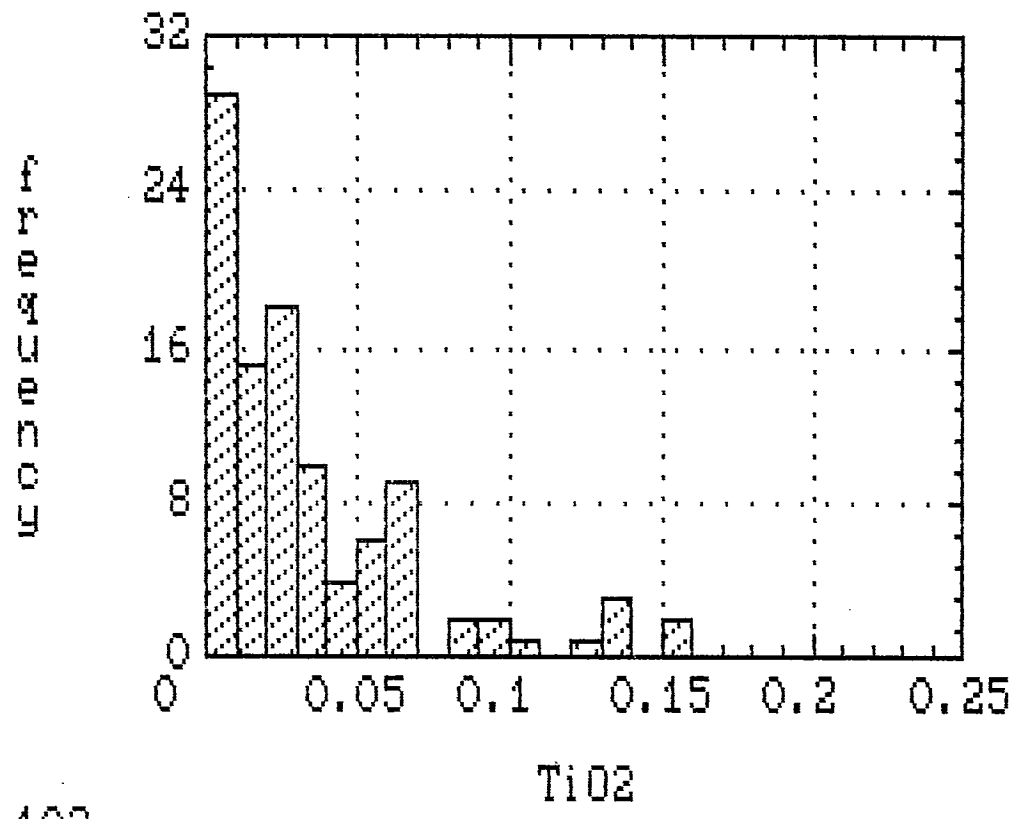
N = 103





Craignish Hills Calcitic Marbles - Frequency Histograms





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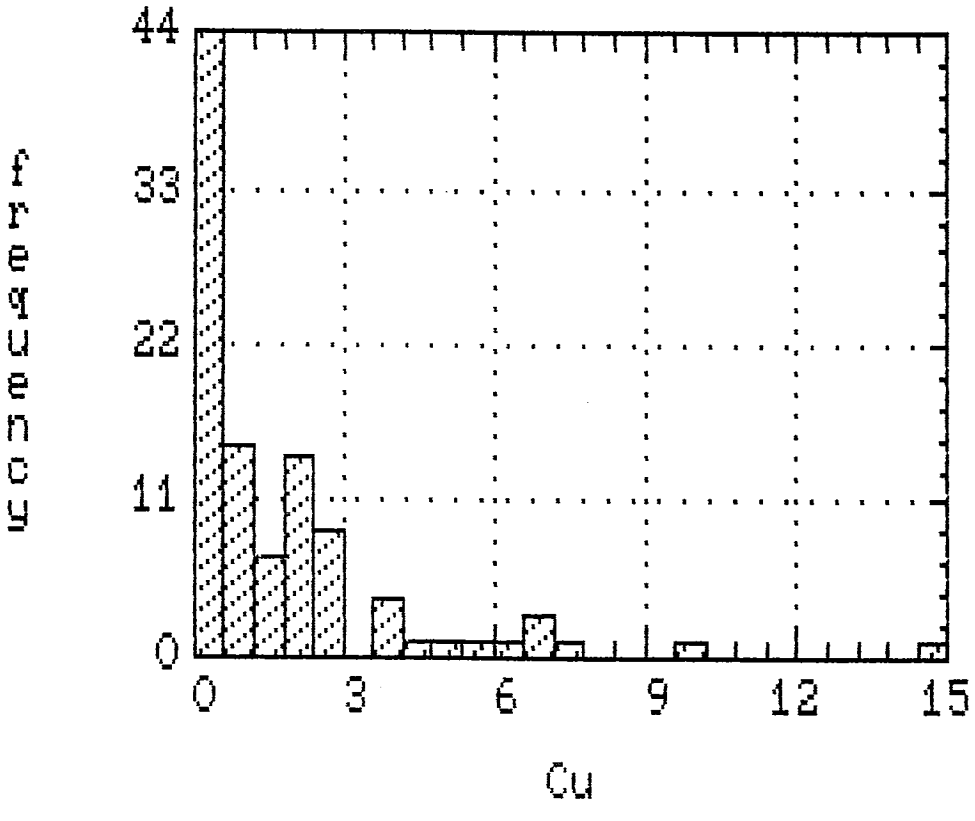
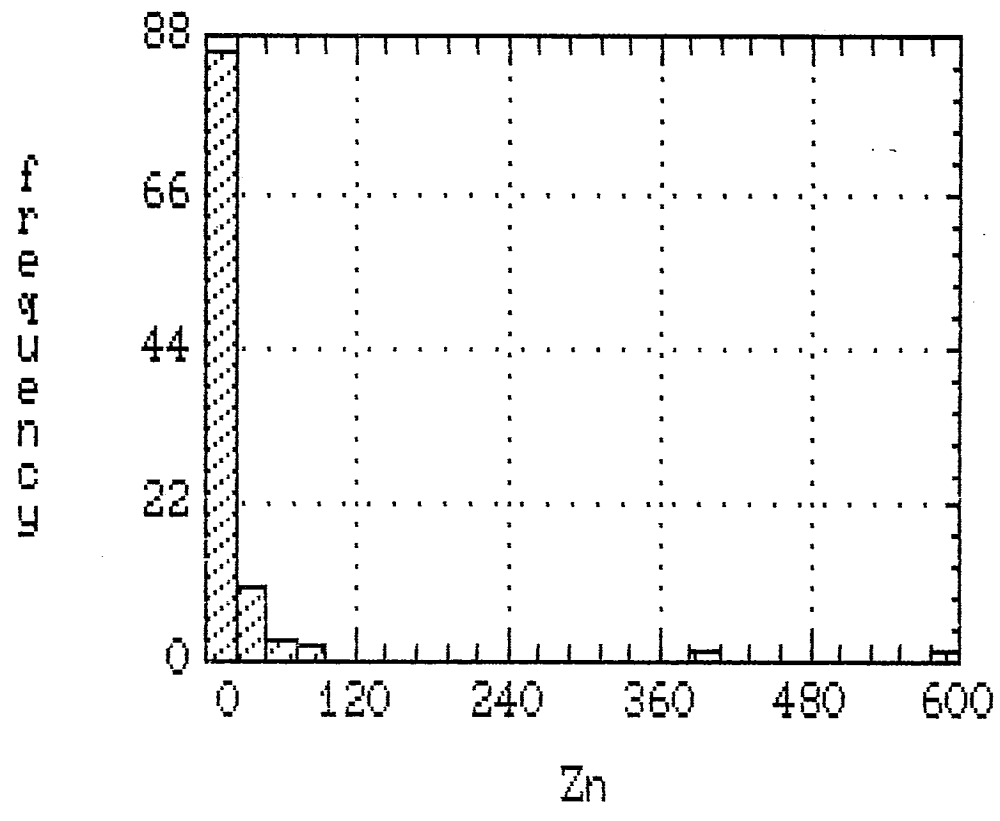
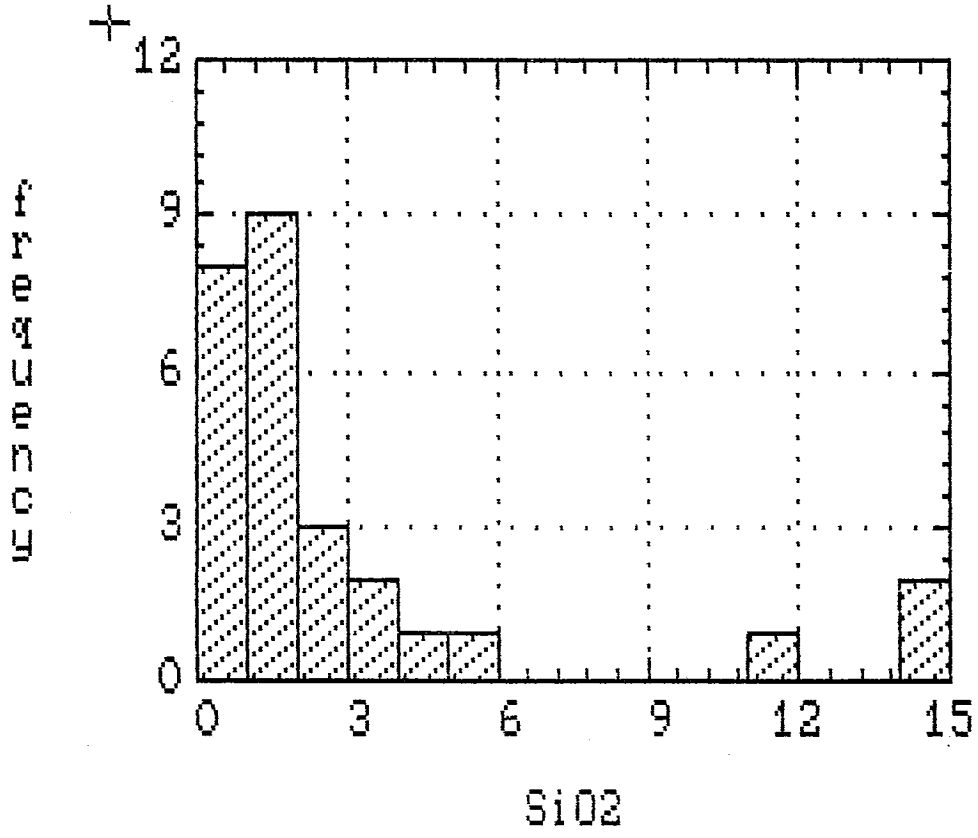
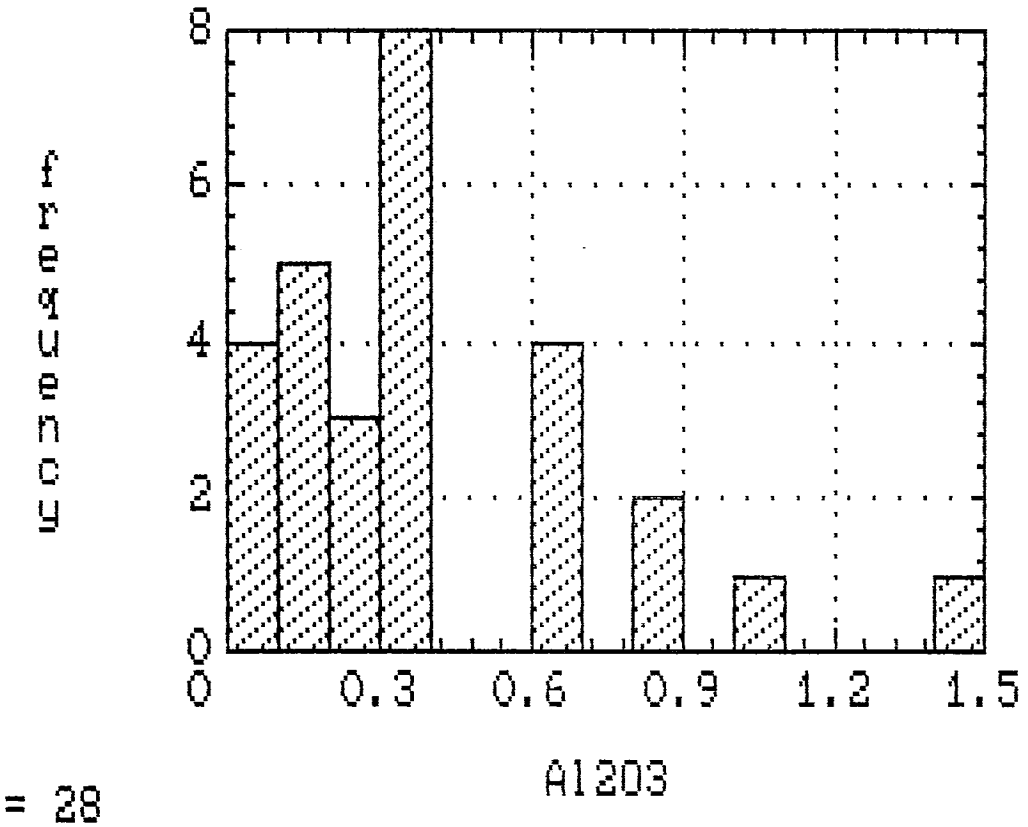




Craignish Hills Dolomitic Marbles - Frequency Histograms





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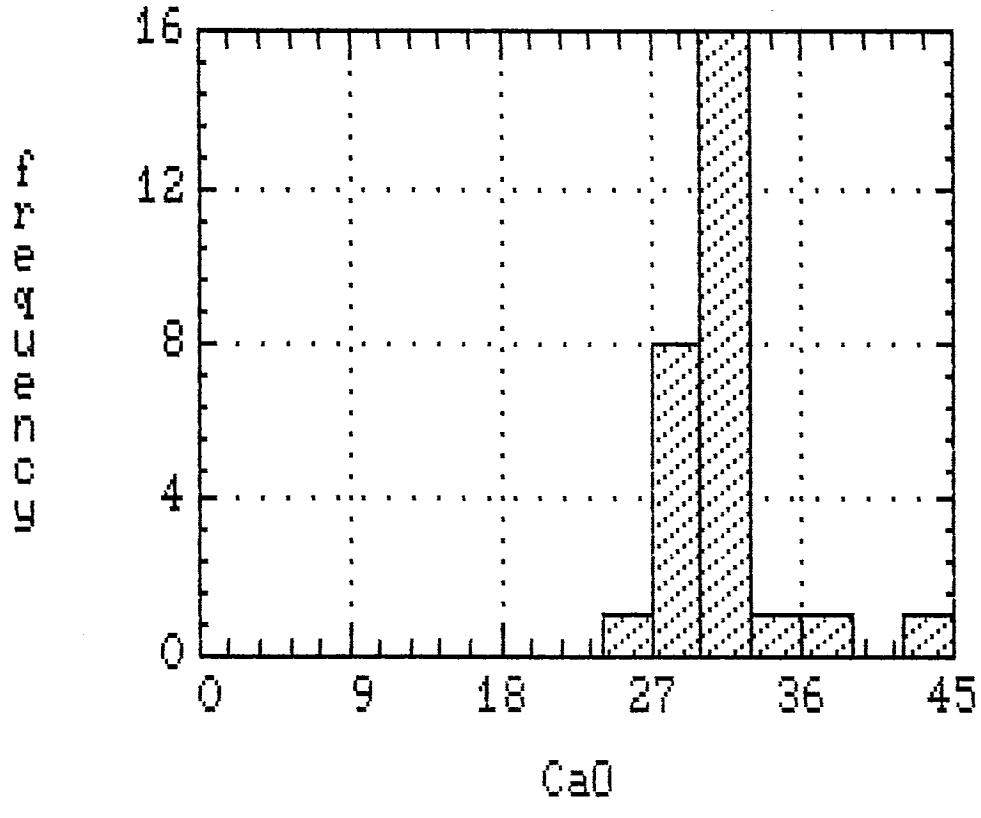
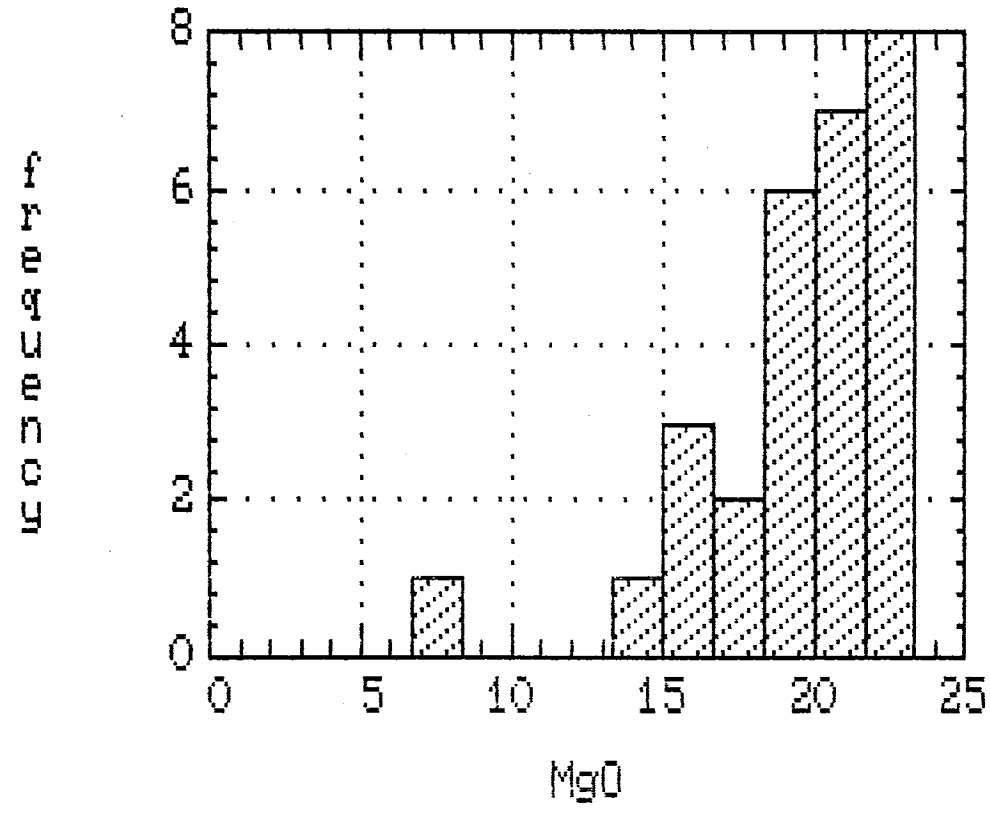
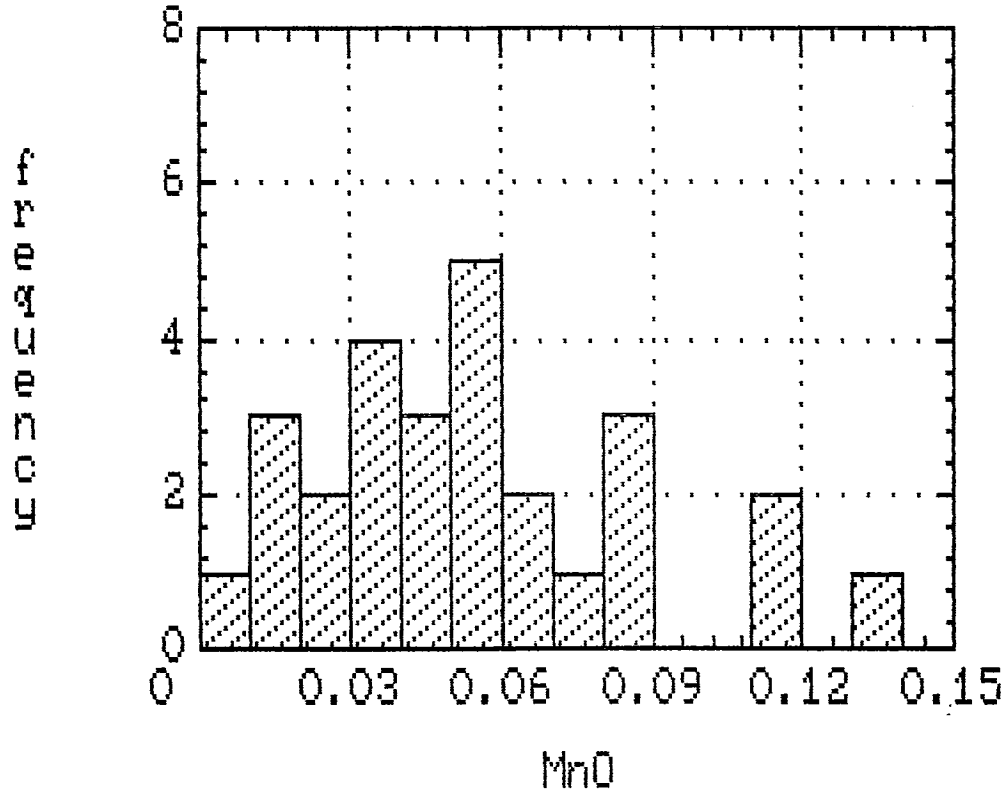
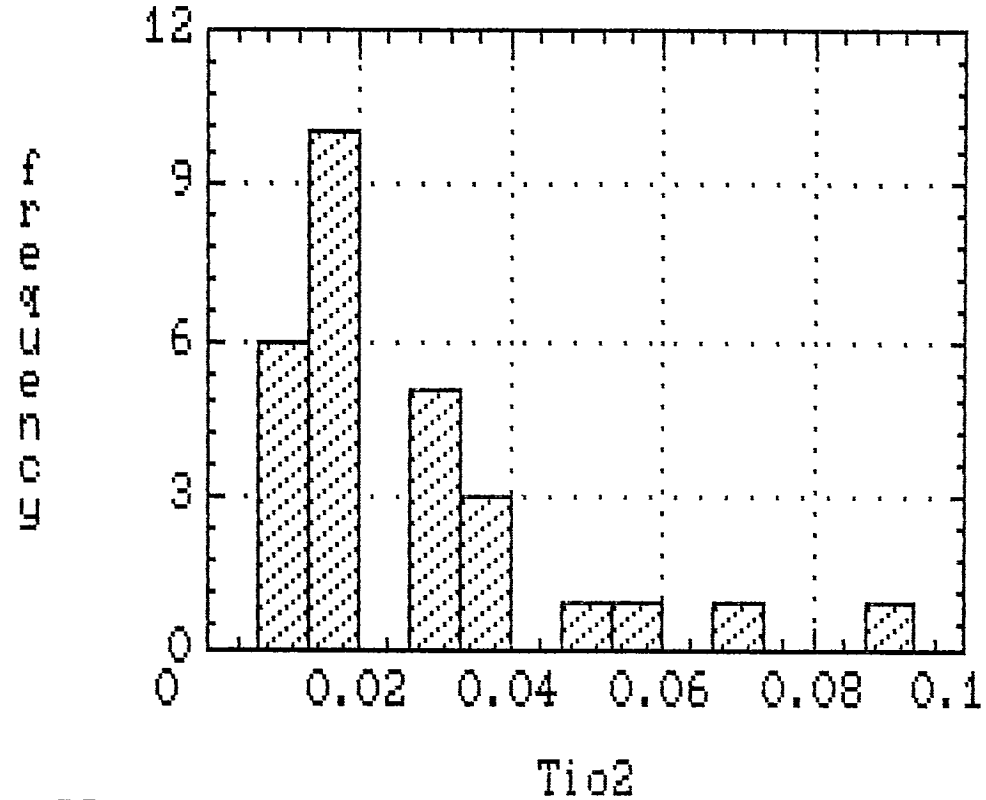




Craignish Hills Dolomitic Marbles - Frequency Histograms





N = 28