GEOLOGICAL SURVEY OF CANADA

OPEN FILE 2370

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NON-FERROUS MINERAL RESOURCE ASSESSMENT, WESTERN LABRADOR, NORTH OF 54 DEGREES LATITUDE[1]

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1 Contribution to the Canada-Newfoundland Mineral Development Agreement 1984-1989

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NON-FERROUS MINERAL RESOURCE ASSESSMENT, WESTERN LABRADOR, NORTH OF 54 DEGREES LATITUDE

1. PRELIMINARIES

1.1 INTRODUCTION

Under the Canada-Newfoundland Mineral Development Agreement (1984-1989), a study of the mineral resource potential of western Labrador was initiated by the Geological Survey of Canada. The various products of the study are listed in Geological Survey of Canada Open File Report 2144 (anon. 1989).

The purpose of the present study was to provide a preliminary assessment of non-ferrous mineral resources in the northern portion of western Labrador. The scope of the study was dictated by the availability of geological and mineral deposits information, and by the specific requirements of a metallogenic survey. There exists a large body of data concerning the iron deposits of Labrador, and recent studies of the associated manganese potential in adjacent Quebec have been published. Therefore, given the present economics of iron production in the region, only a brief review of the manganese potential is included here. The study area (Fig. 1) was selected because a recent compilation by Wardle (1982) provided a geological base map. Most other areas of western Labrador are not yet adequately documented to support a study of this nature. Certain aspects of the geology and geological development of the area, however, were inadequately known. Documentation of the absolute ages of geological events was inadequate, and this has been addressed by age dating of selected units. The possible effects of alteration by possible mineralizing fluids on the igneous rocks of the Nimish suite and the gabbros of the Howse Lake area were unknown, and have been addressed. Several questions of local interest have been studied through field investigations. These include the geological relationships in the areas of Dyke and Astray Lakes where corrections to the existing geological maps will be reported by Watanabe (*in prep.*).

The study area has been mapped, and for the majority of the area, all of the outcrops have already been located. Significant exceptions are the area of Dyke Lake, where Watanabe (*in prep.*) has recognized ultramafic rocks outcropping on the shore of the lake, and Birch Lake, where several new outcrops have been located. In addition, the area has remarkably few occurrences of base metal mineralization. This later factor is especially important in setting the direction of the study. Since few mineral occurrences exist to be typified, the approach was to evaluate the mineral resource potential of various geological units based on their geochemistry and the historical geology of the area. Thus various geological environments have been identified and their mineral deposits potential evaluated by

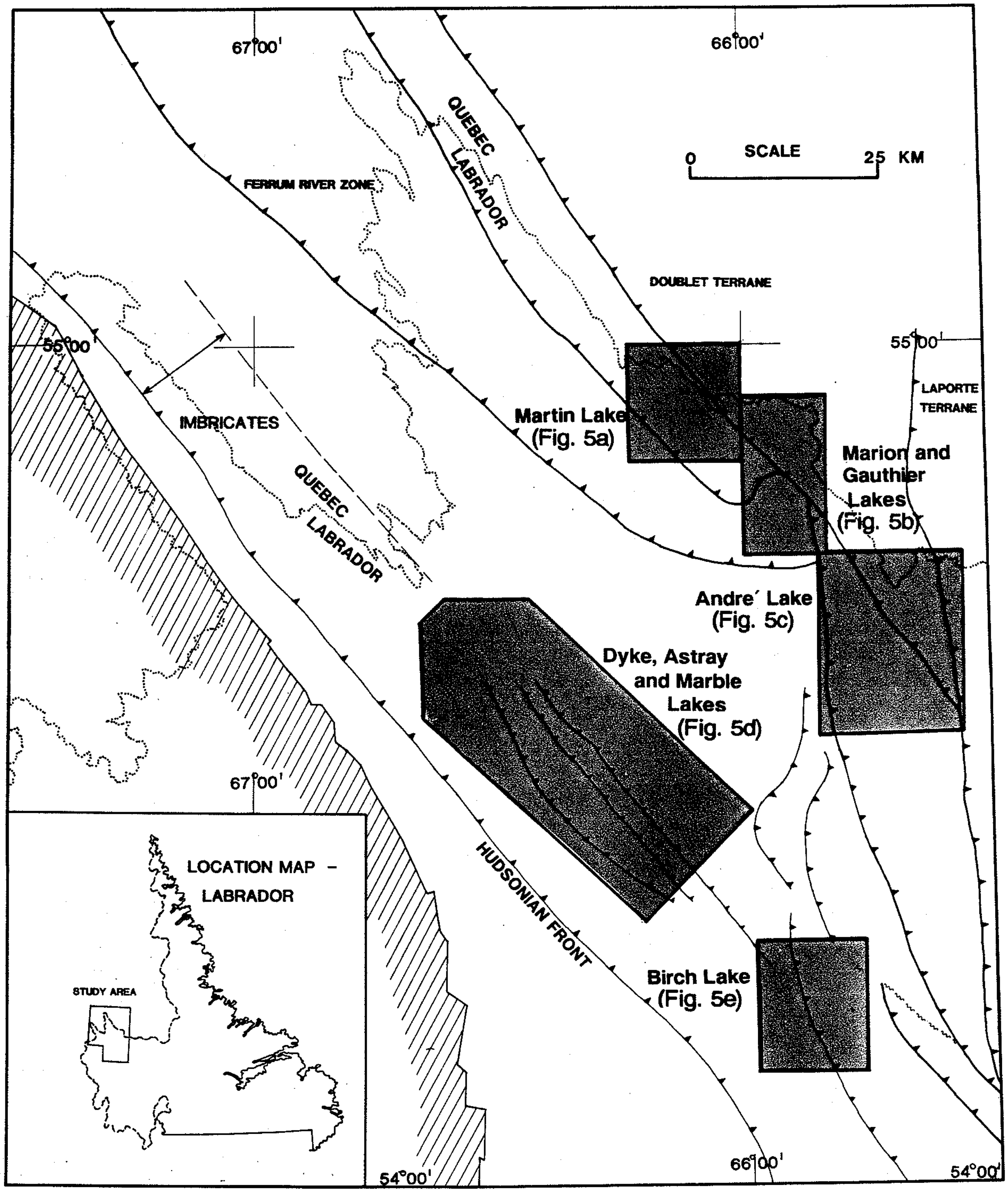


Figure 1 Location map of the study area including the detailed maps of Figure 5.

comparing these environments with other similar environments which are known to host mineral deposits. Significant similarities and differences with other geological environments lead to the mineral resource assessments which are assigned to the various units.

1.2 PRESENT STUDY

This study took the form of geological field investigations combined with archival research and laboratory analysis of rock samples. Although geological maps of the area were compiled by Wardle (1982), the scale of compilation at 1:100 000 and the lack of a chemical analytical database for the majority of the rock units prompted a series of field investigations of selected areas to strengthen the geological database for this study. The chemical data acquired during this program are included in Appendix A. In the course of field visits, the available geological maps were examined critically and in many cases modified on the basis of new observations. The location of the areas studied in the field are shown on the study-scale location map of Figure 1. Figures 5a to 5e, and 6a to 6c, provide the locations for the analyzed samples listed in Appendix A.

Concurrently with the evolution of the present project, understanding of the development of the rocks of the study area improved through large-scale compilations of Wardle *et al*. (*in press*). The recognition of major lateral displacements on some fault zones and ongoing difficulties with the development of a consistent stratigraphic model for the whole of the study area led to the sampling of appropriate rocks for age dating by the uranium-lead method on zircon. These results, summarized below, have facilitated a better understanding of the eastern part of the study area, and form the basis of a new terrane analysis for that region.

1.3 LEVEL OF CONFIDENCE IN THIS ASSESSMENT

The lack of a competitive mineral exploration environment in the study area over the years has resulted in a situation where little assessment information is available in the public domain. Although the field investigations of this study, combined with the analyses of till by Thompson *et al*. (1988), have contributed to an understanding of the overall potential of the area, substantial gaps still remain in the database. Consequently, the level of confidence in this report must therefore be considered as **PHASE 1 (PRELIMINARY)** (cf Scoates *et al*. 1986)

1.4 LOCATION AND ACCESS

Those areas studied are illustrated in Figure 1. Access to the region is by railway (Quebec North Shore and Labrador Railroad [QNS&L]) from Sept-Iles, or by aircraft to Schefferville. Within the immediate area of Schefferville, a good road network links all of the former iron mines, and extends a few kilometres beyond the productive deposits. In the uplands to the west, as in the broad area in the east of the study area, the only feasible access is by aircraft, with local travel by boat and on foot.

1.5 PREVIOUS WORK

The history of geological investigations in the area of Western Labrador has been reported by Gross (1968).

The rocks of the Kaniapiskau Supergroup, known as the Labrador Trough, have a relatively short history of exploration. Geologists prospecting for gold began to explore the area in the 1920's, and in 1937 were shown samples of hematite-rich iron formation from the Sawyer Lake area by local residents. The subsequent investigation for iron quickly focused on the major deposits in the Knob Lake area, which were mined from 1954 to 1983. Geological mapping by the mining companies active in the Schefferville area, the Geological Survey of Canada, the Newfoundland Department of Mines and Energy, and the Ministère de l'Energie et des Ressources du Québec have provided a broad geoscientific base for further studies. In particular, the reader is referred to the compilation map of Wardle (1982) which is intended as a companion to the present study.

Mineral exploration was continuous but of low intensity within western Labrador from the mid-1940's to the mid-1980's. Aside from the major deposits of iron in the Schefferville area, the results of exploration have been disappointing. The company most active in the area, Labrador Mining and Exploration (LME), investigated the Proterozoic rocks of the region in quest of a variety of commodities, in particular iron, copper, nickel, zinc, gold, and uranium. Airborne electrical and magnetic exploration tools, as well as geochemical surveys were utilised in conjunction with geological investigations in their exploration programs. At the time of writing, many of the results of the exploration activities of this company are not public, and only the general lack of encouraging results is known.

Public data concerning each mineral occurrence known in the study area are available through the Mineral Occurrence Data System of the Newfoundland Department of Mines and Energy. The information there is presented as a summary of basic geographical information, commodity data, historical development of knowledge of the occurrence, and a geological description.

2. <u>GEOLOGICAL SETTING</u>

2.1 GENERAL STATEMENT

The rocks of the study area formed on the rifted margin of the ancient North American continent. The sequence passes from early siliclastic sedimentary rocks with local large accumulations of mafic tholeiitic to mildly alkalic volcanic and intrusive rocks (the Seward Subgroup) through rocks of chemical sedimentary origin and shales, and in the area under study are completed by sedimentary rocks (Menihek shales and wackes). Local accumulations of volcanic and related intrusive rocks within the upper portions of the stratigraphy record the continental extension of magmatic activity possibly in a back-arc basin nearby, now exposed as major gabbroic sills in the Howse Terrane. In the extreme eastern extension of the study area, a small region is underlain by rocks of the Doublet Group, possibly formed in an oceanic environment. The disturbance known as the Hudsonian Orogeny has caused major lateral movement of the rocks near the surface towards the craton in the western part of the study area. The larger-scale setting of the rocks of the present study is that of one side of a symmetrical orogen centred on the granulitic rocks to the east of the study area (Wardle *et al. in press*).

2.2 STRATIGRAPHIC RELATIONS

The stratigraphic relations of the study area have been established through the contributions of many geologists. Local studies by geologists of the Iron Ore Company of Canada were supplemented by regional studies carried out by the Geological Survey of Canada and Le Ministère de L'Energie et des Ressources du Québec. A stratigraphic column for the study area is presented in Figure 2. This column is best established for the western portions of the area, but must be used in conjunction with the terrane map of Figure 3 in the eastern regions.

2.3 GEOCHRONOLOGY

Apart from a study by Fryer (1972), the absolute ages of events in the study area were unknown. When suitable samples were located in the areas of Jasper Mountain and Howse Lake, materials were obtained for U-Pb age dating of zircon. The data obtained through these analyses (Findlay *et al. in prep*) allow correlation in time of major igneous events between these two areas, and have contributed substantially to the terrane analysis presented below.

2.4 STRUCTURE AND TERRANE ANALYSIS

The sequences of the Labrador trough are long known to be thrust faulted southwestward towards the Archean craton (Harrison *et al.* 1972), but it was regional syntheses such as that of Wardle *et al.* (*in press*) which attempted terrane analysis in the area. Particularly with the radiometric ages on zircon reported by Findlay *et al.* (*in prep*), some of the outstanding problems have been addressed in a preliminary manner.

The large-scale structural features of the study area have been illustrated in Figure 3, which is modified from Wardle *et*

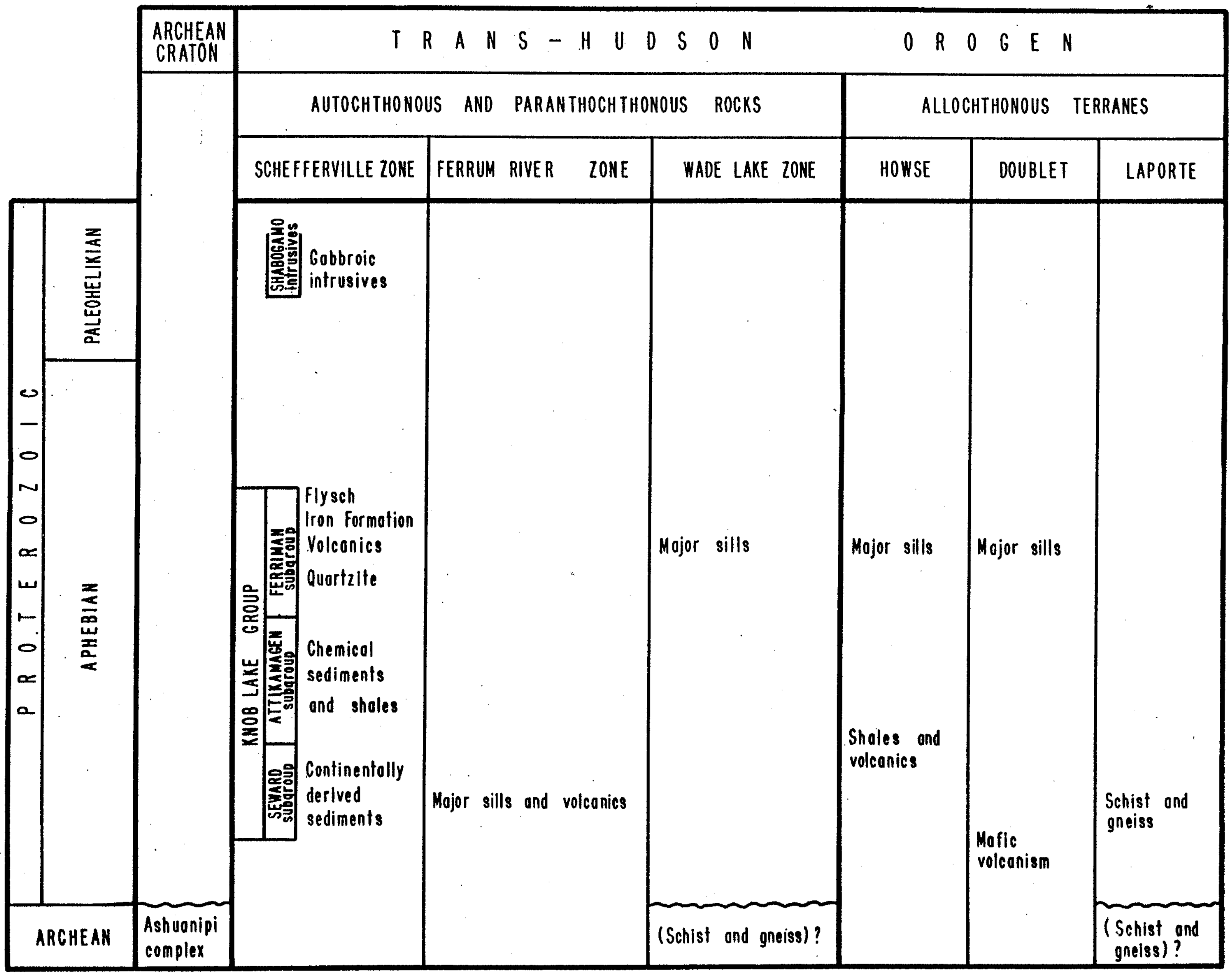


Figure 2 Schematic and simplified stratigraphic column of the study area, to be used in conjunction with the structural and terrane map of Figure 3.

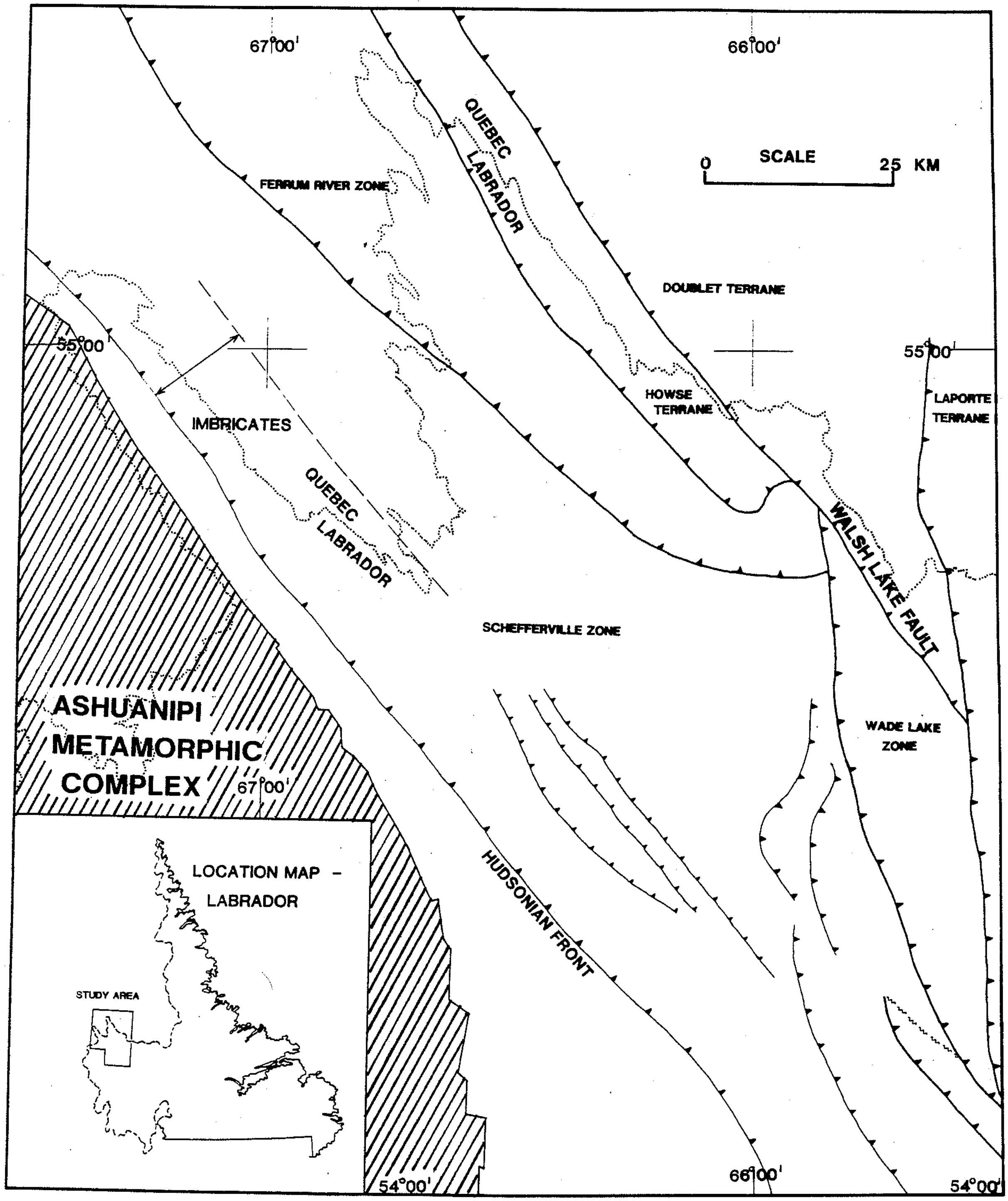


Figure 3 Map of the major structures and terranes of the study area and adjacent regions.

al. (*in press*). To the southwest of the Hudsonian Front, the strata of the Kaniapiskau Supergroup are flat-lying. Within the Hudsonian orogen, several zones and terranes have been defined. The largest geographic area, the Schefferville Zone, holds the strata of the well-known Labrador Trough sequence. The leading edge of the Zone, on the southwest, is distinguished by a zone of imbricate thrust faulting in the Schefferville area. This zone passes into a region to the southeast, in the Dyke Lake area, where deformation has been accommodated on a smaller number of thrust faults, because of the mechanical differences imposed by the abundant volcanic and mafic intrusive rocks of the area. To the east, further into the orogen but still within the Schefferville Zone, the relative importance of thrust faulting decreases and large-wavelength folds become the dominant structural element.

2.5 HISTORICAL GEOLOGY

The details of the development of the rocks of the study area are very poorly known. The Archean rocks had been metamorphosed to the amphibolite and granulite facies, and exhumed to near the present surface before deposition of the sediments which formed the rocks of the Kaniapiskau Supergroup. In the Seward Subgroup, thick-bedded feldspathic sandstones and associated quartzites, shales, and minor carbonates record the development of a fluviatile succession (Wardle 1979) which gave way laterally and temporally to marine rocks of the Attikamagen Formation.

Sedimentation in the study area was in shallow water through the rest of the sequence including the Denault, Fleming, Wishart and Sokoman formations. The common presence of stomatolites in the Denault, conglomerates and desiccation features in the Fleming, and oolites in the Sokoman indicate generally shallow conditions with local exposure. Zajac (1974) has documented the paleogeography of the area south of Schefferville with respect to the economically important Sokoman Formation, outlining islands and oolite banks.

From post-Denault through the end of Sokoman time, active volcanism affected the development of the area south of Schefferville. Volcanic detritus is locally present in the Fleming Formation, and, in the Dyke Lake region, Sokoman ironstones are interbedded with volcanic rocks. High-level intrusions of felsic, mafic, and ultramafic rocks (Watanabe, *in prep.*) were also emplaced in this time interval. Local uplift associated with the Nimish volcanic event allowed erosion of rocks in the lower portions of the stratigraphy. Evidence of this can be seen in a series of laharic rocks exposed on islands at the outlet of Astray Lake into Dyke Lake, where blocks of Wishart quartzite and Sokoman ironstone are included/have been deposited with volcanic rocks.

Following the deposition of the Sokoman Formation and temporally related volcanic rocks, tectonic activity to the east of the study area provided detritus which was deposited as flyschoid sediments of the Menihek Formation. The tectonic activity continued to become the Hudsonian Orogeny which produced the present distribution of the rocks.

3. MINERAL DEPOSITS AND OCCURRENCES

3.1 Mineral deposits of the Archean Rocks

Percival (1987) recently reported on the geology of the Archean rocks of the Ashuanipi Complex. Although mineral exploration activity in the Ashuanipi is presently concentrated on a series of gold occurrences (class 7b of Table 1) (Chevé *et al.* 1989), additional mineral potential resides in several small bodies of ultramafic rocks where scattered grains of chromite have been noted (Percival 1987). Potentially economic concentrations of chromium and of platinum group elements (class 12 of Table 1) have not been found. The regional-scale studies of gold potential in the Archean rocks of western Labrador have been discussed recently by Thomas and Butler (1987). Although mineral exploration is still active in the area, and results of most work not yet public, the area can already be judged to host, at least, a potential for economic mineral deposits. The sequences of supracrustal rocks within the Ashuanipi Complex, although poorly preserved and physically disrupted have only begun to receive grassroots exploration attention. The known gold occurrences are hosted in metamorphosed iron formations and associated with arsenopyrite (deposit class 7b of Table 1). Showings to date seem to lack the grades, size, and continuity required to proceed to development, but other deposit types and other occurrences of the same class remain to be explored. The supracrustal rocks of the Ashuanipi Complex represent deeply eroded remnants of Archean greenstone belts. As such there is a limited potential for the discovery of vein deposits of gold of the volcanic-associated type (class 11 of Table 1) and of metamorphosed volcanogenic massive sulphides (class 9.1 of Table 1). To date, no occurrences of such deposits are known to exist in the area.

3.2 Mineral Deposits of the Proterozoic Rocks

3.2.1 Sedimentary Mineral Deposits

The various sedimentary rocks of the Kaniapiskau Supergroup have the potential to host mineral deposits of sedimentary origin. The oldest post-Archean rocks of the study area are the sandstones and wackes of the Seward Subgroup. These rocks are the product of erosion of the Archean basement rocks, now exposed immediately to the west of the Labrador Trough. Although there are gold occurrences in the Archean rocks, no exploration has been carried out for paleoplacer gold or uranium in the rocks of the Seward Subgroup. The general environment is at best marginally favourable for deposits of this class, as the Lower Proterozoic sedimentary rocks in the area are generally poorly sorted. Recent age dating suggests that the Seward Subgroup may have been deposited later than the productive uranium paleoplacers (e.g. Elliot Lake, class 5 of Table 1) and thus may straddle or post-date the atmospheric "oxyversion" suggested by Roscoe (1969). Paleoplacers deposited under such conditions would not be expected to host synsedimentary uranium deposits.

The Le Fer Formation consists mainly of shales and siltstones. Locally, greywackes and volcanic rocks of mafic composition are present within this unit. As the first depositional unit indicative of a reducing sedimentary environment, and overlying a thick sequence of oxidized strata (the Seward Subgroup), the Le Fer Formation is considered prospective for sedimentary-exhalative (SEDEX) deposits of zinc and lead, with commonly associated barite and byproduct tin and silver. The Mineral Occurrence Data System of the Newfoundland Department of Mines and Energy lists more than fifty occurrences of sulphides in shales and siltstones along the eastern margin of the Labrador Trough. This density of sulphide occurrences may reflect the general nature of the sedimentation and diagenesis rather than the operation of an ore-forming system. In particular, reduction of organically produced sulphate to sulphide during diagenesis may be the source of the majority of the sulphide minerals. This observation does, however, lend encouragement in that there was enough sulphur in the local and regional geological environment to allow the formation of base-metal mineral deposits. The sulphide occurrences are ubiquitous throughout the stratigraphic section in this area, and consist typically of fine, stratabound to bedded disseminations of pyrrhotite and pyrite with trace amounts of chalcopyrite. Copper sulphide is more often reported where the shales are in close proximity to intrusive gabbroic rocks of the Wakuach suite. There are three evident causes for this observation, including: 1) the contact metamorphism associated with the emplacement and cooling of the gabbroic rocks has resulted in an increased grainsize in the nearby sedimentary rocks, and hence chalcopyrite is more easily recognized in such settings; 2) low-grade metamorphism of the phyllosilicates in the rocks may release copper which mineralogically reports to sulphides; and 3) the shales nearest the gabbros are the most metamorphosed of the area, and outcrop preferentially. Although copper may have been added to the shales from the gabbros, there is no statistical support to the hypothesis. The principal deposit type to be considered in this environment, the sedimentary-exhalative (SEDEX) class (9.2 of Table 1) is typically associated with thick sequences of rapidly accumulated sedimentary rocks, with growth faults which provided channelways for mineralizing fluids, and with horizontally extensive strata enriched in B, Mn, Fe and other trace elements typical of the deposits. In this regard, it is significant that the lake sediment geochemical anomalies reported by McConnell (1984) in the area of Martin Lake are spatially associated with poorly exposed black shales which are now correlated in time with the Le Fer Formation on the basis of recent age dating. These rocks have not received the mineral exploration attention which their setting and geochemical response suggest that they merit. The general lack of marker units, poor outcrop of the shales, structural complexity of the area and the complications resulting from the intrusion of large gabbro sills combine to make detailed models of stratigraphy of facies relations impossible with the present database.

Recently, Gebert (1986) and Gebert *et al.* (1987) described the Cu-Zn occurrences in Quebec at Frederickson Lake, adjacent to the Howse Lake area, and concluded that the mineralization was of sedimentary-exhalative origin and later modified by intrusion of the gabbros. The deposit is reported to contain 279,400 tonnes at 4.38% Zn, 0.77% Cu, 0.50% Pb, 42.16 g/t Ag and 0.69 g/t Au.

Overall, the area can be judged moderately favourable for economic deposits of the SEDEX class.

In addition to the SEDEX class considered above, the local presence of mafic volcanic rocks and their detritus within the Seward Subgroup leads to the consideration of the possible presence of sediment-hosted stratiform copper mineralization (class 6.3 of Table 1) in the reduced portions of the sedimentary sequence, either in the Seward or Le Fer strata. The overall setting is not particularly favourable for deposits of this class, since the necessary element of arid climate (Kirkham 1989) seems to be lacking in this environment. On the other hand, Schrijver *et al.* 1989) have suggested that copper mineralization further north within the Labrador Trough at Romanet Lake may have some features of sediment-hosted stratiform copper deposits.

The Denault Formation, composed of dolomite (with minor interbedded mafic volcanic rocks limited to the extreme east of the study area) has been examined as a possible host to deposits of the Mississippi Valley Type (MVT) (class 6.1 of Table 1), which elsewhere produce dominantly lead, zinc, barite, and fluorite. The Denault Formation generally outcrops well in the study area. Despite systematic examination, no new occurrences of base metals have been recognized in this unit. In addition, a common metallotect of MVT deposits, erosional surfaces of regional extent within or immediately overlying the unit, have not been recognized. Although the Denault Dolomite hosts many quartz veins, occurrences of sulphides are extremely rare within this unit and appear to be mere mineralogical curiosities.

The Fleming Formation of cherts and chert breccias has been examined to establish a theory of its origin (Birkett, *in press*). It is now interpreted as a direct silica precipitate, precursor to the Sokoman (iron) Formation. No occurrences of base or precious metals have been noted in the detailed study of this unit. Since a hydrothermal origin (postulated by Simonson, 1982) is rejected for the Fleming Formation, the potential for occurrences of metals formed contemporaneously with the rocks is judged to be low. The general lack of veins with associated minor mineralization in the areas studied suggests that the potential for epigenetic deposits within Fleming Formation rocks is not high.

Locally, the base of the Fleming Formation is enriched in phosphorous. Samples from the Elizabeth Lake area to the south of Schefferville, contain up to 19.8% P_2O_5. At this location, the phosphatic rocks are only one to two metres thick, and laterally discontinuous. The phosphatic rocks are siliceous chert breccias, and in terms of mineral processing present challenges for grinding and concentration of a marketable product. The overall potential for economic sedimentary phosphate deposits (class 4 of Table 1) in the area is extremely low.

The Wishart Formation of orthoquartzite with minor chert and conglomerate of local derivation is largely the product of reworking of sediments of the Fleming Formation, with an increased clastic input from the Archean hinterland to the Labrador Trough. This unit is characterized by a low abundance of dense detrital minerals, and the potential for paleoplacers is considered extremely low.

The Sokoman Formation is a banded iron formation of the Lake Superior type. The iron deposits, developed by deep weathering of this formation (class 3 of Table 1), have been described by Gross (1968). In addition, local strata extremely rich in iron (class 2.2 of Table 1) were deposited as a primary rock type. This type of deposit, although never worked commercially, was explored at Sawyer Lake in the 1950's. At this location, primary hematite-rich rock with an internal texture typical of slumping and soft-sediment deformation indicates the general origin of banded iron formation as a primary sediment. The iron formations have been extensively explored and systematically trenched in the Schefferville area. Occurrences of base metals have been reported during the exploration for iron but significant accumulations have not been noted in the Schefferville area. Much further north within the Labrador Trough, Barrett *et al.* (1988) have discussed the setting and origin of the Soucy #1 deposit, a sedimentary-exhalative type deposit hosted by iron formation. The setting of the iron formation (the Baby Formation) within a turbidite sequence suggests that it may not be correlative with the Sokoman Formation in the Schefferville area in terms of overall setting.

Concentrations of manganese have long been known to be associated with the soft iron ores of the Schefferville area. Occurrences have been studied by Kish (1985) who distinguished two deposit types. Manganiferous iron formation is locally present within the Labrador Trough. This rock types is relatively low in Mn, and has a generally rather unfavourable Fe/Mn ratio. Secondary Mn-bearing minerals have been locally deposited in weathered Wishart quartzite near iron formations.

These occurrences are dominantly in the form of veins. Modest tonnages (200,000 to 600,000 tonnes) at interesting grades (12 to 15 % Mn) have been reported by Kish (1985). These occurrences could support mining and mineral processing on a small scale and other occurrences are likely present.

3.2.2 Mineral Deposits of the Igneous Suites

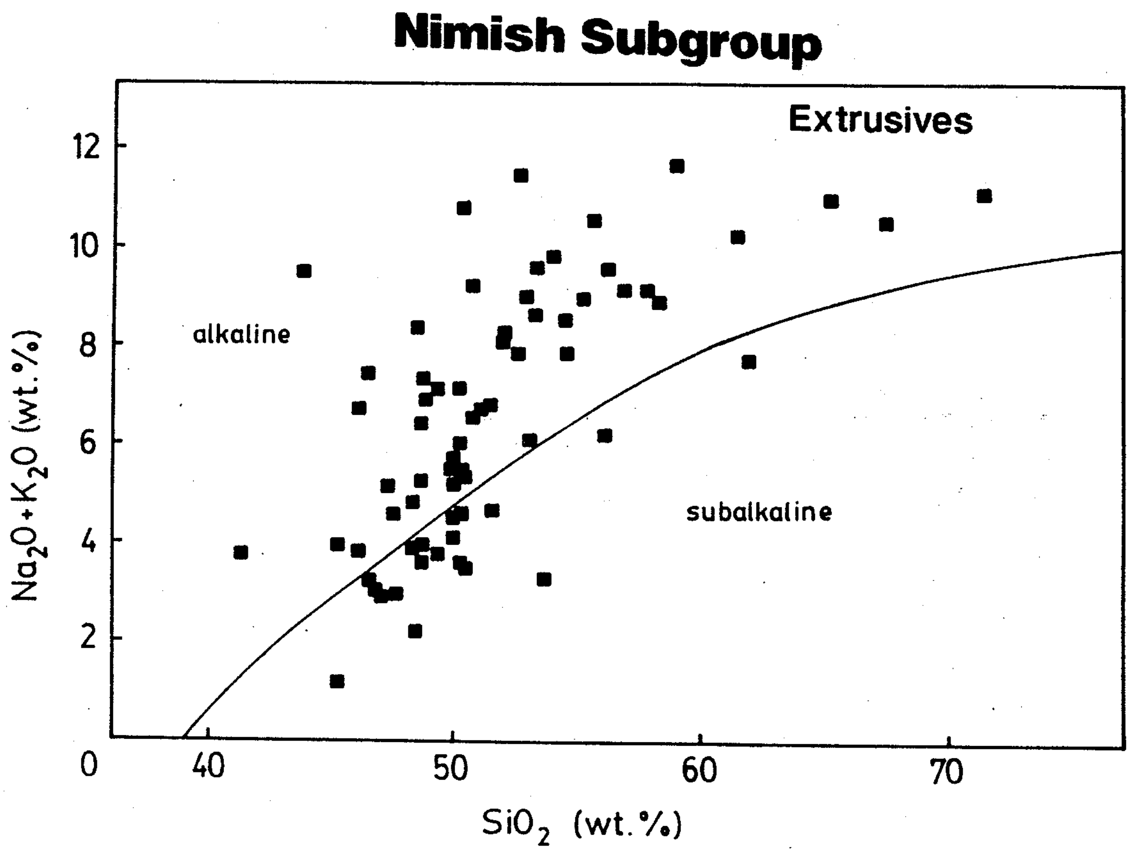
Several major igneous suites are present in the study area, and have been evaluated for a variety of commodities. The studies aimed at the resource evaluation of these rocks are those of Findlay (*in prep.*) and Watanabe (*in prep.*). Preliminary results of these ongoing studies are summarized here.

The Nimish Subgroup is an assemblage of volcanic and associated intrusive rocks spanning the range from ultramafic to syenitic compositions. The rocks show mildly alkaline chemical affinities. Systematic investigation by Evans (1978) and by Watanabe and co-workers has not resulted in the discovery of significant new mineral occurrences. The most significant mineral occurrence in the area, which is further described in section 3.2.3, consists of a small epigenetic Pb vein occurrence at Galena Lake. The chemical characteristics and tectonic affinities of the Nimish igneous rocks are illustrated by Figures 4a,b,c,d,and e.

The igneous rocks of the Howse Terrane are under study by Findlay (*in prep.*). The major sills of this area are well-known for the development of the glomeroporphyritic texture to which the name Leopard Rock has appropriately been applied. Studies of the mineral resource potential in these rocks have been directed toward deposits of Ni, Cu, and elements of the platinum group (class 12 of Table 1). A summary of the available data has been published recently by Findlay *et al.* (1990) and will be summarized briefly here. Sulphide accumulations in the gabbros are disseminated to semi-massive, dominated by pyrrhotite with minor pyrite and chalcopyrite commonly present. They may represent immiscible sulphide accumulations within the gabbroic liquid, and may have come about following the assimilation of sulphur from the shales which the sills intruded. An extensive database has been developed and published (Findlay *et al.* 1988a, 1988b, 1989), with the result that the area is considered of relatively low potential, although certain aspects of the geological environment are encouraging.

The Ferrum River Zone of Wardle *et al.* (*in press*) contains major accumulations of mafic rocks, both lavas and gabbros, in association with immature sedimentary rocks of continental derivation. The age relations of these igneous rocks with respect to other events in the area are not certain, nor are the stratigraphic relationships. The reader is referred to Dimroth (1971) for a discussion of the stratigraphic complexity of the Labrador Trough and the description of the mafic rocks of the Ferrum River Zone (Dimroth's 1971 ophiolite suite). The mafic

Figure 4a Chemical variation diagrams of selected elements for samples from the Nimish Subgroup of volcanic and intrusive rocks.



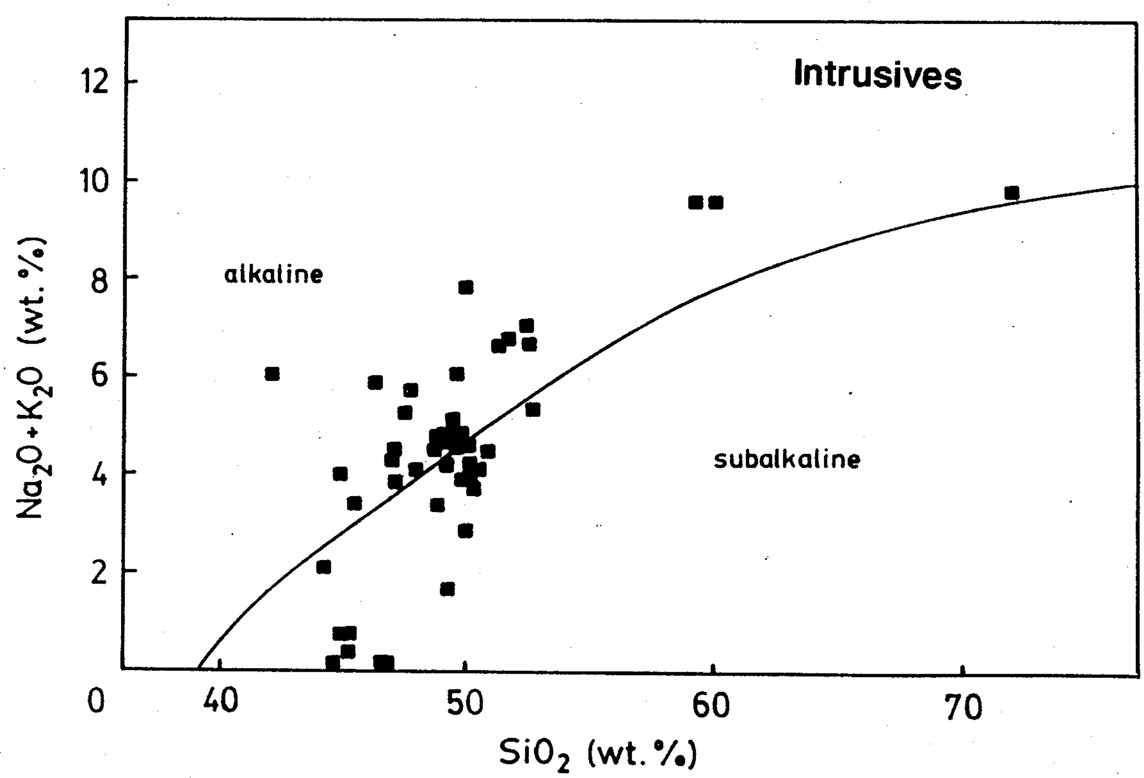
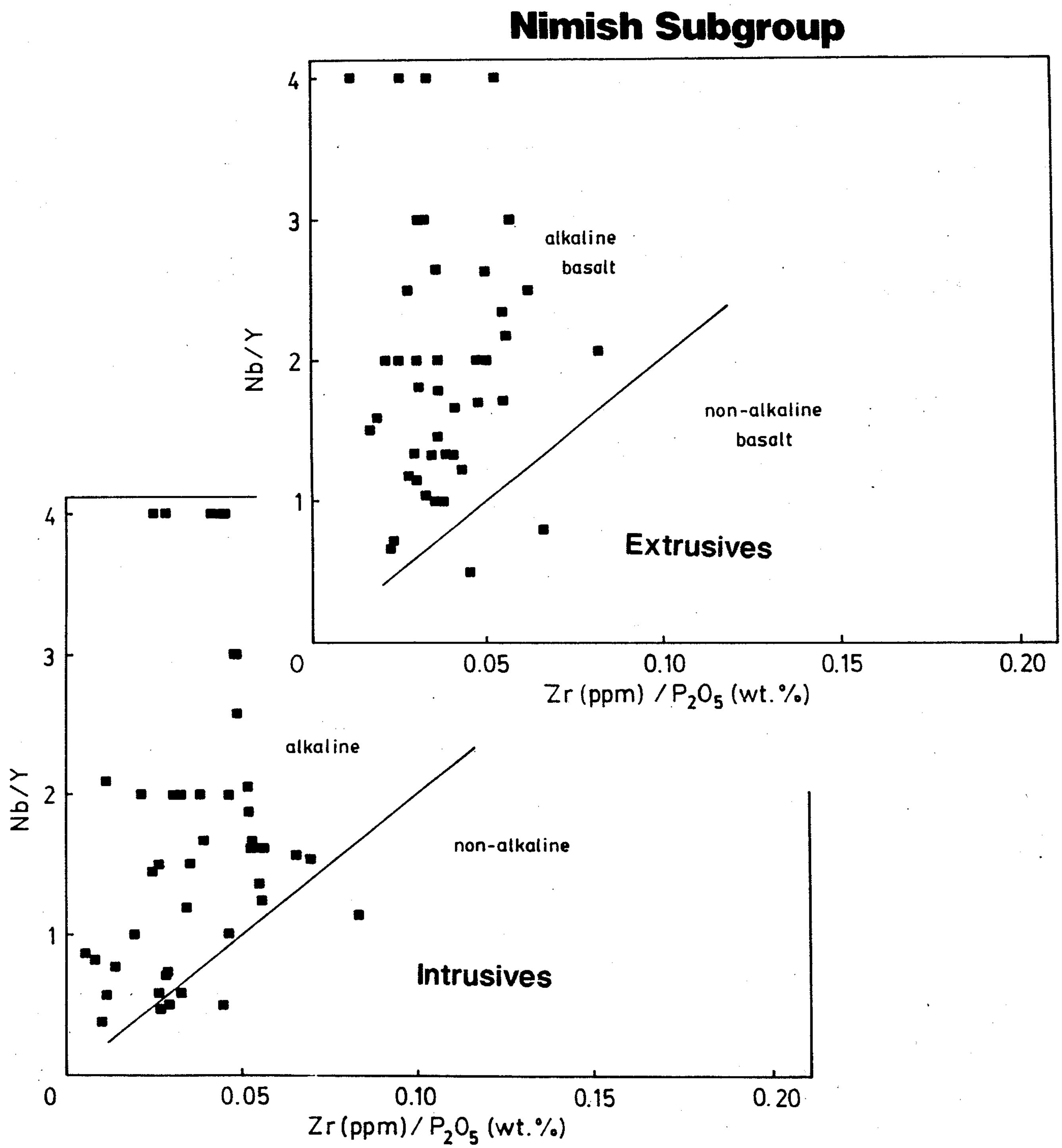


Figure 4b Chemical variation diagrams of selected elements for samples from the Nimish Subgroup of volcanic and intrusive rocks.



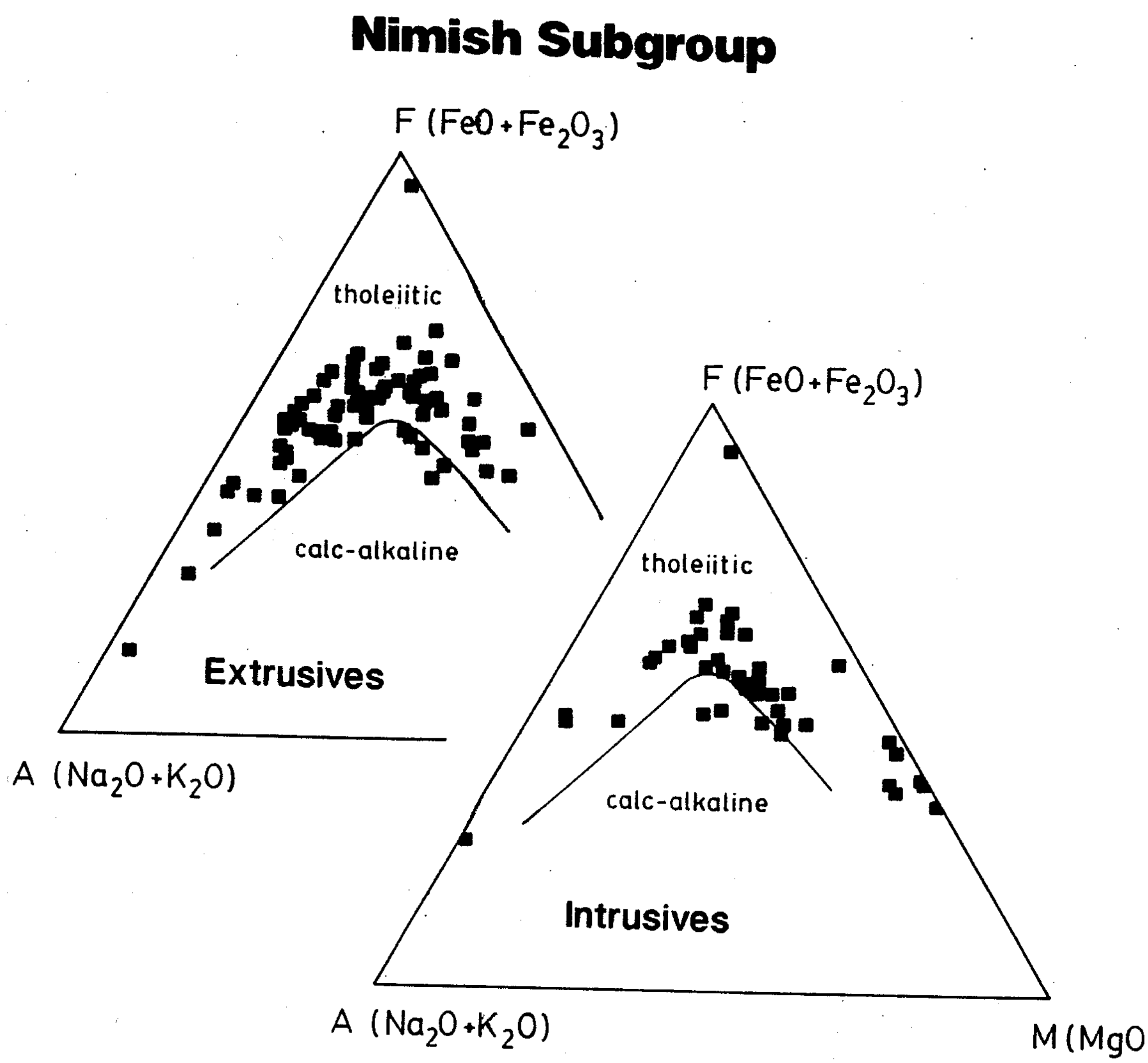


Figure 4c AFM ternary plots for samples from the Nimish Subgroup extrusives and intrusives.

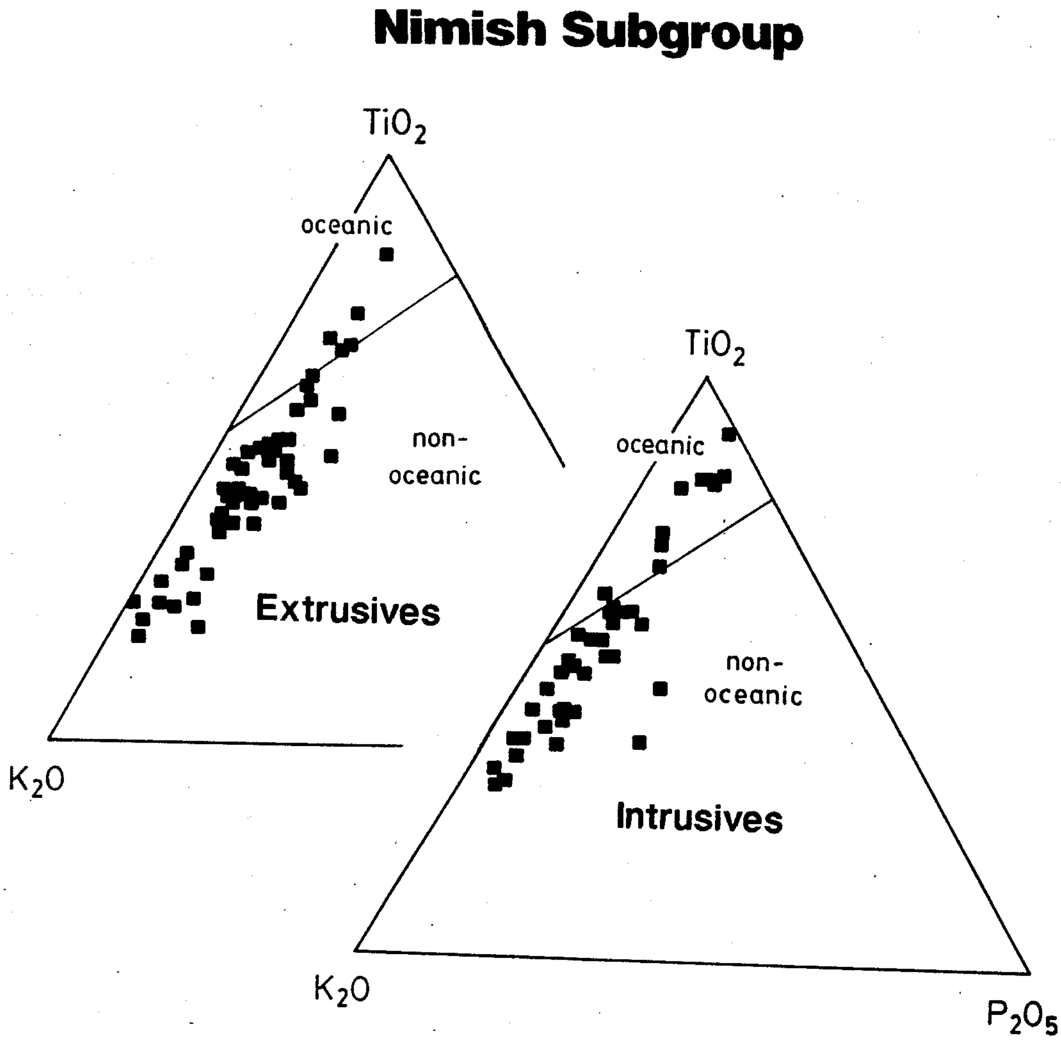


Figure 4d K_2O-TiO_2-P_2O_5 ternary plots for samples from the Nimish Subgroup.

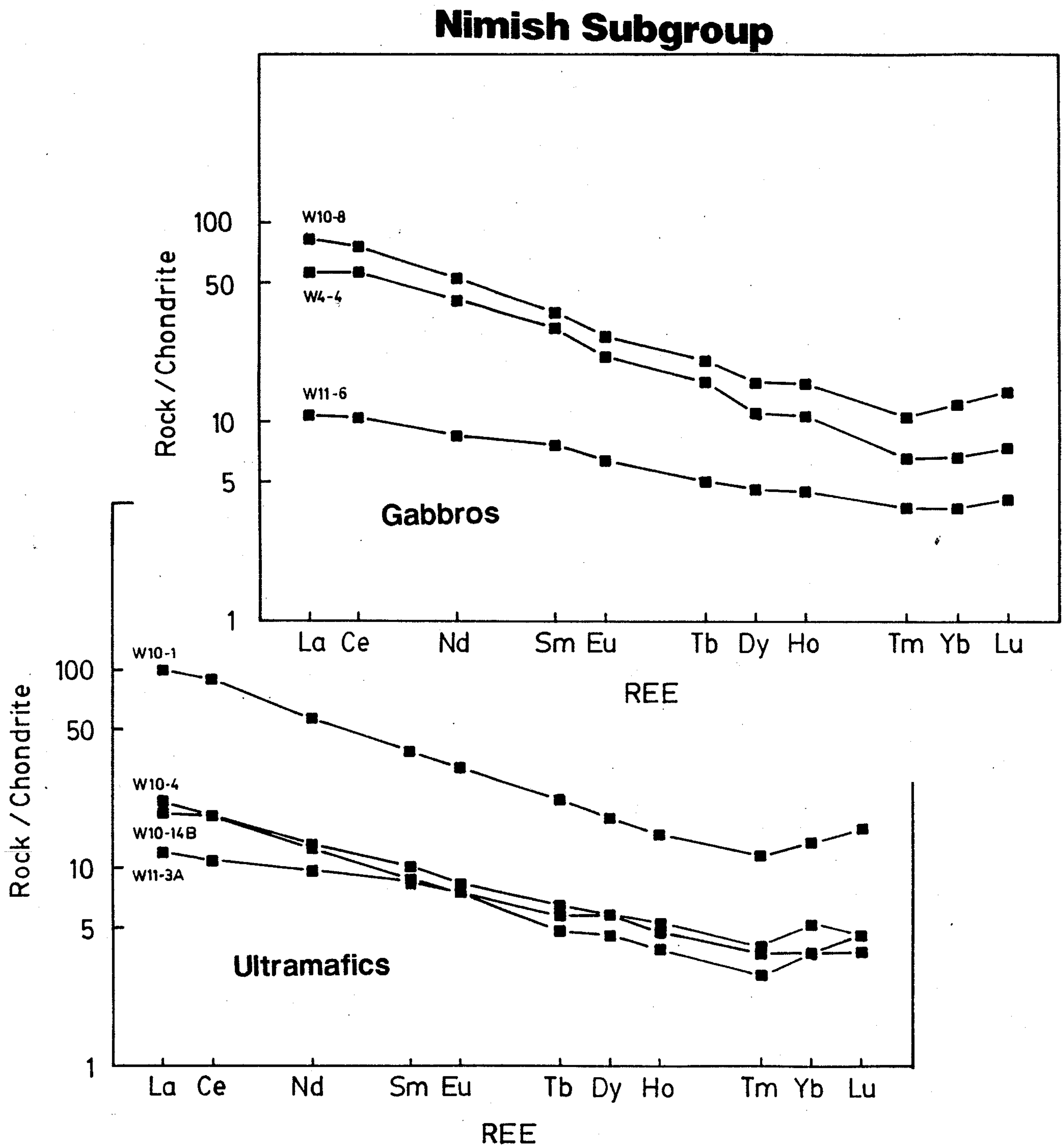


Figure 4e Chondrite-normalized plots of REE data from Nimish Subgroup gabbros and ultramafics.

rocks are tholeiitic, have not been observed to contain accumulations of sulphides in the study area, and cannot be reliably discussed in metallogenic terms on the limited data available.

The known deposits of the Doublet terrain in the regions bordering Labrador have recently been discussed by Beaudoin and Laurent (1987). Wardle (1987) has discussed the implications of recent platinum-group-element exploration in Quebec to the extensions of the geological units in Labrador. The Doublet Terrane has only limited geographical extent in Labrador, and although the igneous rocks of the area could host platinum-group-element deposits, the area to be explored is so small that the potential for a deposit must be considered low.

3.2.3 Epigenetic Mineral Deposits

The potential for epigenetic mineral deposits in the study area is considered under two headings: 1) small vein occurrences as at Galena Lake, and 2) potential deposits hosted by zones of deformation such as the Walsh Lake Fault.

The occurrence of galena and chalcopyrite at Galena Lake was recognized by geologists of the Labrador Mining and Exploration Company in 1936. The property was explored sporadically by the Labrador Mining and Exploration Company until at least 1981. The Mineral Occurrence Data System of the Newfoundland Department of Mines and Energy (file number 23I/05/Pb001) provides a complete description of the geology and exploration history of the area. The vein and breccia type mineralization, although of wide extent, is of limited intensity, lacks associated alteration in the host rocks, and is effectively devoid of precious metals. A grab sample which assayed 43.55% Pb and 4.22% Zn contained 0.848 oz/ton (29 g/t) Ag. This tenor is lower than typical Ag concentrations in vein deposits of this type (300 to 900 g/t Ag). A geological sketch map of one of the vein occurrences is presented in Figure 7. Although the mineral deposit type (class 25 of Table 1) suggests linking this deposit to intrusion-related veins, the importance of felsic intrusions in the mineral deposit model is uncertain, and consequently the occurrence is categorized as "intrusion related". The lack of precious metals leaves this example of little economic interest.

The major fault zones of the eastern portion of the study area (i.e Walsh Lake Fault) have received systematic investigation by the Labrador Mining and Exploration Company. Small occurrences of base metals have been located through prospecting and geophysical methods. Although most company reports are not public, the lack of follow-up after a first phase of diamond drilling in these areas is regarded as indicating a lack of encouraging results. The tectonic and terrane analysis presented here suggests that the major fault zones explored are dominantly strike-slip without the component of late high-angle reverse movement which is typical of areas hosting vein-type gold

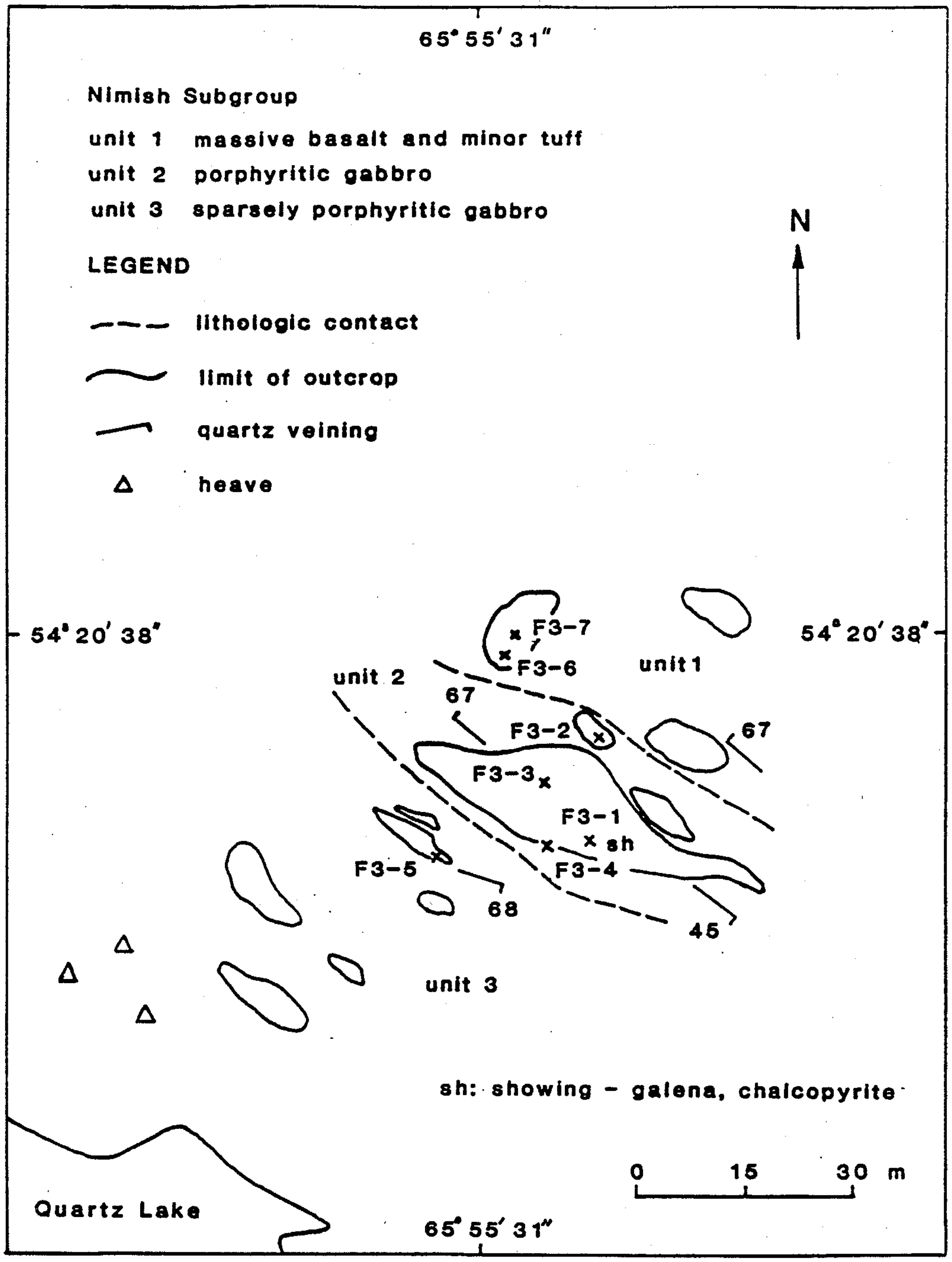


FIGURE 7 Geological map of the Galena Lake showing

deposits. Although the size of the structures is interpreted to indicate some potential for economic mineralization, the geological context overall is not particularly favourable. Recently, Swinden *et al.* (1990) reported that re-analysis of archived lake sediment samples detected the presence of Au-As anomalies in the area of the Walsh Lake Fault (Fig. 3). These results are interpreted to indicate hydrothermal activity similar to that associated with other vein gold deposits, where anomalous values of As are typically associated with the major and minor fault zones spatially correlative with the deposits. Although there is no suggestion yet of economic mineralization in the region, the gabboic rocks in or near the fault zone should be explored. Two factors support this recommendation: 1) the large ductility contrast between gabbro and the surrounding sedimentary rocks could have focused deformation and consequent hydrothermal activity into the gabbros, and 2) the gabbros, being iron-rich, may have provided a chemical trap for hydrothermal fluids. Reaction of the fluids with iron in the gabbros could have removed sulphur from the fluids, leading to a decreased ability to keep gold in solution and consequent precipitation of gold in the altered gabbros.

An environment which was not previously recognized as having mineral potential includes those regions surrounding intrusive rocks that crosscut the Kaniapiskau Supergroup stratigraphy, particularly mafic to intermediate intrusives within or near the Sokoman Formation. Such rocks occur at several localities, such as Marble Lake, and the north end of Dyke Lake. In these areas, the intrusives were either not previously recognized or their areal extent greatly underestimated. The margins and envelopes of these rocks are areas of modest potential for vein-type deposits of base and precious metals. The heat of the cooling intrusive rocks would, in this model, have been the driving force for the mineralizing event, although contrasts in mechanical response to deformation of the various rock types could have allowed the formation of vein systems.

3.2.4 Industrial Minerals

Deposits of industrial minerals in the study area do not seem to have been studied in the past. Since industrial minerals are, in general, substances of low unit value, several economic factors form the backdrop for a discussion of their potential in a relatively isolated area.

In addition to geology, other considerations governing the economic development of industrial minerals include the availability and cost of transport, infrastructure and workforce. Only in the immediate vicinity of Schefferville could these factors play in favour of the extraction of industrial minerals. The substances which could be considered are silica, dolomite, and dimension stone. In the area of Labrador City, the highly metamorphosed strata equivalent to the Kaniapiskau Supergroup in the study area host deposits of quartzite and dolomite (*e.g.*

Meyer and Dean 1987, 1988) and graphite (Meyer, 1990). In the case of graphite, high-grade regional metamorphism has produced a rock of coarse grainsize. In the low-grade metamorphic rocks of the Labrador Trough in the present study-area, concentrations of graphite, although likely present, can be expected to be too fine-grained to be of value. There are large units of Wishart quartzite, Denault dolomite, and Fleming chert-breccia readily accessible from Schefferville. These rocks have not been formally evaluated as possible sources of silica or dolomite, although Birkett (*in press*) discussed the economic potential of the Fleming chert-breccia. Compared to the known deposits in the area of Labrador City, any deposits found in the Schefferville area are likely to be less favourable because of their finer grainsize. The potential for dimension stone seems to reside in the Fleming Formation. The unique and locally spectacular textures of the breccias make this a possible specialty building material. Other factors which must be considered include the limited lateral continuity of textural varieties of chert breccias in the area, and the very hard nature of the rock. Overall, the economic extraction of dimension stone would require an important marketing effort, and detailed evaluation of the resource in terms of textural varieties and the location of workable deposits.

4. SUGGESTIONS CONCERNING FURTHER EXPLORATION

The mineral resource potential of the study area is summarized in Table 1. This presentation is based on the geological and mineral deposits observations of the present report, following the method and terminology of Scoates *et al.* (1986). The eastern margin of the Labrador Trough is judged the area most favourable for sulphide and gold mineralization, although the poorly exposed shales in the south of the present study area near the Hudsonian Front are also prospective for sedimentary-exhalative deposits. The overall potential for precious metals, particularly gold, seems rather poor in the central portions of the study area, but somewhat higher in the Archean rocks to the west and in the eastern margin of the Labrador Trough.

5. ACKNOWLEDGEMENTS

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TABLE 1 Mineral potential rating for the various units and mineral deposit classes considered, based on the approach of Scoates *et al.* (1986).

MATRIX OF UNITS AND MINERAL DEPOSIT CLASSES CONSIDERED WITH EVALUATION FOR EACH DEPOSIT CLASS

GEOLOGICAL UNITS	DEPOSIT CLASS 2.2	3	4	5	6.1	6.3	7b	9.1	9.2	11	12	25
ARCHEAN ROCKS	7	7	7	7	7	7	4	6	7	5	6	7
PROTEROZOIC ROCKS SCHEFFERVILLE ZONE												
[KNOB LAKE GROUP]												
SEWARD SUBGROUP	7	7	7	5	7	6	7	7	7	7	7	7
[ATTIKAMAGEN SUBGROUP]												
LE FER FORMATION	7	7	7	7	7	5	7	7	3	7	7	7
DENAULT FORMATION	7	7	7	7	6	7	7	7	7	7	7	7
FLEMING FORMATION	7	7	6	7	7	7	7	7	7	7	7	7
[FERRIMAN SUBGROUP]												
WISHART FORMATION	7	7	7	6	7	7	7	7	7	7	7	7
SOKOMAN FORMATION	1	1	7	7	7	7	7	7	7	7	7	7
NIMISH FORMATION	7	7	7	7	7	7	7	6	7	7	6	6
MENIHEK FORMATION	7	7	7	7	7	7	7	7	7	7	7	7
HOWSE TERRANE	7	7	7	7	7	7	7	7	4	6	4	7
DOUBLET TERRANE	7	7	7	7	7	7	7	6	7	6	4	7

MINERAL POTENTIAL RATING CATEGORIES

DEPOSIT CLASS (from Eckstrand, 1984)

- 2.2 IRON FORMATION (Lake Superior Type)
- 3 ENRICHED IRON FORMATION
- 4 STRATIFORM PHOSPHATE
- 5 PLACER URANIUM, GOLD
- 6.1 MISSISSIPPI VALLEY LEAD-ZINC
- 6.3 SEDIMENTARY COPPER
- 7b CHEMICAL-SEDIMENT-HOSTED GOLD (Arsenical sulphide-silicate iron formation)
- 9.1 VOLCANIC ASSOCIATED MASSIVE SULPHIDE
- 9.2 SEDIMENT-HOSTED SULPHIDE
- 11 VOLCANIC-ASSOCIATED VEIN AND SHEAR ZONE GOLD
- 12 MAGMATIC NICKEL, COPPER, PLATINUM GROUP ELEMENTS
- 25 FELSIC INTRUSION-ASSOCIATED SILVER-LEAD-ZINC VEINS

Explanation of mineral potential rating categories (after Scoates et al., 1986), based on the application of deposit[1] models to the geological setting.

SYMBOL	POTENTIAL	CRITERIA
1	Very High	- Geologic environment is very favorable. - Significant deposits[1] are known. - Presence of undiscovered deposits is very likely.
2	High	- Geological environment is very favorable. Occurrences[2] are present but deposits may not be known to be present. - Presence of undiscovered deposits likely.
3	Moderate to high	- Intermediate between moderate and high potential. - Reflects greater uncertainty[3].
4	Moderate	- Geologic environment is favorable, regardless of whether occurrences are known. - Presence of undiscovered deposits is possible.
5	Low to Moderate	- Intermediate between low and moderate potential. - Reflects greater uncertainty.
6	Low	- Some aspects of the geologic environment may be favorable but are limited in extent. - Few, if any, occurrences are known. - Low probability that undiscovered occurrences are present.
7	Very Low	- Geologic environment is unfavorable. - No occurrences are known. - Very low probability that undiscovered occurrences are present.

"Deposit[1]" - refers to a mineral resource of a size that is conceivably developable.
"Occurrence[2]" - refers to a mineral resource of a size that is noticeable; may or may not include part of a hidden deposit.
"Uncertainty[3]" - results from insufficient data

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APPENDIX A

CHEMICAL ANALYSES OF ROCK SAMPLES

The chemical analyses on which this study is based were supplied by commercial laboratories under contracts to the Geological Survey of Canada. The analytical contracts were administered by Mr. P. G. Bélanger of the GSC. Throughout the study, standard materials, provided by the Geological Survey of Canada, were inserted and analyzed with the samples to provide a control on the quality of the analyses. Major elements were determined by X-ray Fluorescence (XRF) methods, and ferrous iron, where reported, by titration. Trace elements were determined by various methods, including Direct Coupled Plasma (DCP) for elements such as Co, Ni, Cu, Zn, Ag, and Pb, and XRF for Cr, Rb, Sr, Y, Zr, Nb, Ba, La and Ce. The elements U and Th were determined by Neutron Activation (NAA), and Au by fire assay preconcentration with Atomic Absorption (AA) or NAA finish. Limits of detection are commonly listed as 0.1 weight % of the oxide for major elements, 10 ppm for the XRF method on trace elements, 1 ppm for DCP, 0.5 ppm for NAA, and 1 ppb for the gold analyses. Exceptions are detection limits of 0.5 ppm for Ag, 2 ppm for Cr and Pb and 0.5 ppm for Cu and Zn by DCP,

In the tables of analyses, elements which were not analyzed are left blank, and elements not detected are indicated by the symbol "ND".

CODES FOR ROCK TYPES (RXTYPE)

AGLM	- agglomerate
AMBS	- amygdaloidal basalt
BGCS	- biotite garnet schist
BSCS	- biotite schist
BSLT	- basalt
CGLM	- conglomerate
CHBR	- chert breccia
CHIR	- cherty iron formation
CHQR	- cherty quartzite
CHRT	- chert
CLPH	- chloritic phyllite
CSCS	- chlorite sericite schist
DLBR	- dolomite breccia
DLMT	- dolomite
DLSL	- dolomitic siltstone
DYKE	- dyke
GBBR	- gabbro
GBPP	- gabbro porphyry
GRCK	- greywacke
IRFM	- iron formation
LCGB	- leucogabbro
MAAG	- mafic agglomerate
MATU	- mafic tuff
MAVC	- mafic volcanic
MGBR	- metagabbro
OQRZ	- orthoquartzite
PLBS	- pillow basalt
PLLT	- phyllite
PRDT	- peridotite
PXNT	- pyroxenite
QBGN	- quartz biotite gneiss
QRTZ	- quartzite
QTVN	- quartz vein
RYAG	- rhyolite agglomerate
RYLT	- rhyolite
SBCS	- sericite biotite schist
SCORIA	- scoria
SHLE	- shale
SIVC	- siliceous volcanic
SLPD	- sulphides
SLSN	- siltstone
SLTE	- slate
SNDS	- sandstone
TRCT	- trachyte
TUFF	- tuff
ULTR	- ultramafic
VCCG	- volcanogenic clastic conglomerate
VCCL	- volcaniclastic
VCRY	- volcaniclastic rhyolite
VOLC	- volcanic

MARTIN LAKE AREA

SAMPLE	BAB85 10-10	BAB85 10-2	BAB85 10-3	BAB85 10-4	BAB85 10-5	BAB85 10-6	BAB85 10-7
RXTYPE	SLPD	RYLT	RYLT	RYLT	RYLT	RYLT	LCGB
SIO2		71.90	73.50	71.50	73.90	68.00	
TIO2		0.47	0.51	0.48	0.51	0.56	
AL2O3		12.30	12.70	12.40	12.00	14.00	
FE2O3		4.93	3.05	4.52	3.96	5.48	
FEO							
MNO		0.04	0.03	0.05	0.04	0.05	
MGO		0.38	0.52	0.60	0.78	1.14	
CAO		0.34	0.18	0.22	0.11	0.18	
NA2O		3.47	2.06	2.61	2.58	2.94	
K2O		4.94	6.57	5.86	5.03	5.37	
P2O5		0.07	0.08	0.07	0.08	0.08	
LOI		1.08	1.00	1.00	1.31	1.69	
H2O							
CO2							
S							
SUM		100.10	100.50	99.60	100.50	99.80	
LI(PPM)		3	5	8	8	14	
BE(PPM)		4	4	4	4	4	
CR(PPM)		10	10	10	10	10	
CO(PPM)	42						
NI(PPM)	91						
CU(PPM)	390	13	6	4.5	4	48	
ZN(PPM)	59	25	41	40	55.5	63	
RB(PPM)		220	260	220	220	230	
SR(PPM)		60	80	60	50	80	
Y(PPM)		40	50	50	70	80	
NB(PPM)		30	30	20	20	20	
ZR(PPM)		440	460	450	460	540	
BA(PPM)		1130	1660	1280	1140	1500	
LA(PPM)		89.6	94.4	117	121	107	
CE(PPM)		144	155	189	197	170	
PB(PPM)	16	6	8	4	4	4.4	
TH(PPM)		24	25	24	25	28	
U(PPM)		5.5	8.3	5.3	5.9	8.1	
AU(PPB)	19	3	2	ND	4	2	2
HG(PPB)	28						

MARTIN LAKE AREA

SAMPLE	BAB85 10-8	BAB85 10-9	BAB85 11-1	BAB85 11-2	BAB85 11-3	BAB85 11-4	BAB85 M-001
RXTYPE	SHLE/GBBR	GBBR	GBBR	GBBR	SLPD	GBBR	SHLE
SIO2				49.30		64.00	
TIO2				0.76		0.88	
AL2O3				16.10		12.00	
FE2O3				10.40		8.97	
FEO				8.00		5.50	
MNO				0.21		0.16	
MGO				5.98		3.78	
CAO				11.20		2.65	
NA2O				2.19		4.52	
K2O				0.66		0.14	
P2O5				0.07		0.04	
LOI				2.54		3.08	
H2O				2.60		1.40	
CO2				0.03		0.01	
S							
SUM				99.50		100.30	
LI(PPM)							
BE(PPM)							
CR(PPM)				40		110	
CO(PPM)	32	30			99		
NI(PPM)	21	38			3		
CU(PPM)	170	120			5000		
ZN(PPM)	100	160			3100		
RB(PPM)				17		20	
SR(PPM)				138		50	
Y(PPM)				16		10	
NB(PPM)				2		30	
ZR(PPM)				35		80	
BA(PPM)				197		100	
LA(PPM)				3			
CE(PPM)							
PB(PPM)	6	10			440		
TH(PPM)				0.15		0.9	
U(PPM)				ND		3.6	
AU(PPB)	19	17	ND	ND	280	6	ND
HG(PPB)	93	120			450		

MARTIN LAKE AREA

SAMPLE	BAB85 M-002	BAB85 M-003	BAB85 M-004A	BAB85 M-004B	BAB85 M-005A	BAB85 M-005B	BAB85 M-006
RXTYPE	SHLE	SHLE/SLTE	SLPD	SLPD	SLPD	SLPD	GBBR
SIO2							
TIO2							
AL2O3							
FE2O3							
FEO							
MNO							
MGO							
CAO							
NA2O							
K2O							
P2O5							
LOI							
H2O							
CO2							
S							
SUM							
LI(PPM)							
BE(PPM)							
CR(PPM)							
CO(PPM)		5	150	170	140	110	
NI(PPM)		38	0.5	0.5	0.5	0.5	
CU(PPM)		370	2900	3700	3400	3300	
ZN(PPM)		96	11	11	170	21	
RB(PPM)	26						50
SR(PPM)	4						179
Y(PPM)	15						14
NB(PPM)	5						2
ZR(PPM)	124						26
BA(PPM)	400						501
LA(PPM)	5						3
CE(PPM)							
PB(PPM)		1	1	1	1	1	
TH(PPM)							
U(PPM)							
AU(PPB)	1	4	10	ND	9	1	ND
HG(PPB)		250	190	150	250	270	

MARTIN LAKE AREA

SAMPLE	BAB85 M-007	BAB85 M-009	BAB85 M-009A	BAB85 M-009B	BAB85 M-010	BAB85 M-011	BAB85 M2-002
RXTYPE	GBBR	SLPD/GBBR	GBBR	SLPD/GBBR	GBBR	SHLE	GBBR
SIO2							47.10
TIO2							0.80
AL2O3							15.60
FE2O3							11.70
FEO							9.20
MNO							0.26
MGO							9.45
CAO							9.99
NA2O							1.48
K2O							0.72
P2O5							0.07
LOI							3.08
H2O							2.20
CO2							0.04
S							
SUM							100.30
LI(PPM)							
BE(PPM)							
CR(PPM)							140
CO(PPM)							
NI(PPM)							
CU(PPM)							
ZN(PPM)							
RB(PPM)			6	4			60
SR(PPM)			96	16			130
Y(PPM)			26	22			20
NB(PPM)			4	3			10
ZR(PPM)			76	54			40
BA(PPM)			26	12			90
LA(PPM)			5	4			
CE(PPM)							
PB(PPM)							
TH(PPM)							0.4
U(PPM)							ND
AU(PPB)	2	ND		ND	ND	8	2
HG(PPB)							

MARTIN LAKE AREA

SAMPLE	BAB85 M2-003	BAB85 M2-004	BAB85 M2-005	BAB85 M2-007	BAB85 M2-008	BAB85 M2-009	BAB85 M2-010
RXTYPE	GBBR	GBBR	GBBR	GBBR	GBBR	RYLT	RYLT
SIO2					51.00	70.80	71.50
TIO2					2.14	0.52	0.52
AL2O3					11.70	13.20	12.90
FE2O3					17.80	4.17	3.79
FEO					12.90		
MNO					0.24	0.08	0.06
MGO					4.30	0.99	0.71
CAO					6.74	0.54	0.48
NA2O					2.39	3.49	3.43
K2O					0.21	4.95	5.21
P2O5					0.29	0.08	0.08
LOI					2.77	1.47	1.16
H2O					0.70		
CO2					0.10		
S							
SUM					99.60	100.50	100.10
LI(PPM)						13	10
BE(PPM)						4	4
CR(PPM)					10	10	10
CO(PPM)							
NI(PPM)							
CU(PPM)						45	22
ZN(PPM)						43	39
RB(PPM)					20	210	230
SR(PPM)					120	90	90
Y(PPM)					60	50	60
NB(PPM)					30	20	30
ZR(PPM)					150	450	450
BA(PPM)					50	1220	1350
LA(PPM)						91.6	122
CE(PPM)						150	196
PB(PPM)						4	6
TH(PPM)					1	25	25
U(PPM)					ND	6.1	6.2
AU(PPB)	ND	ND	10	ND	3	3	ND
HG(PPB)	28						

MARTIN LAKE AREA

SAMPLE	BAB85 M2-011A	BAB85 M2-011B	BAB85 M2-013	BAB85 M2-014
RXTYPE	VCRY	VCRY	RYLT	RYLT
SIO2		71.00	70.90	71.50
TIO2		0.52	0.49	0.51
AL2O3		13.20	12.80	12.70
FE2O3		5.17	2.76	5.13
FEO				
MNO		0.04	0.07	0.03
MGO		0.46	0.95	0.43
CAO		0.12	0.82	0.11
NA2O		2.53	2.61	2.49
K2O		5.89	5.88	5.81
P2O5		0.07	0.07	0.07
LOI		1.00	2.23	1.23
H2O				
CO2				
S				
SUM		100.30	99.80	100.30
LI(PPM)		2	6	5
BE(PPM)		6	6	4
CR(PPM)		10	10	10
CO(PPM)				
NI(PPM)				
CU(PPM)		5.5	3.5	3
ZN(PPM)		24	27	22
RB(PPM)		250	260	270
SR(PPM)		60	70	40
Y(PPM)		40	50	60
NB(PPM)		30	20	20
ZR(PPM)		500	440	470
BA(PPM)		1270	1380	1340
LA(PPM)		106	113	118
CE(PPM)		173	186	188
PB(PPM)		4	6	4
TH(PPM)		26	24	24
U(PPM)		4.6	6	6.1
AU(PPB)	ND	3	ND	1
HG(PPB)	93	120		

MARION LAKE

SAMPLE	BAB85 MAR0-01	BAB85 MAR0-03	BAB85 MAR1-01	BAB85 MAR1-01B	BAB85 MAR1-02	BAB85 MAR1-03
RXTYPE	SLTE	QRTZ	CLPH	CLPH	MATU/MAAG	CLPL
CO(PPM)						
NI(PPM)						
CU(PPM)						
ZN(PPM)						
RB(PPM)						
SR(PPM)						
Y(PPM)						
NB(PPM)						
ZR(PPM)						
BA(PPM)						
LA(PPM)						
CE(PPM)						
HF(PPM)						
PB(PPM)						
AU(PPB)	4	7	3	ND	ND	10
HG(PPB)						

SAMPLE	BAB85 MAR1-04	BAB85 MAR1-05	BAB85 MAR1-06A	BAB85 MAR1-06B	BAB85 MAR1-06C	BAB85 MAR1-06D
RXTYPE	MATU	MATU	BSLT	BSLT	BSLT	BSLT
CO(PPM)						
NI(PPM)						
CU(PPM)						
ZN(PPM)						
RB(PPM)						
SR(PPM)						
Y(PPM)						
NB(PPM)						
ZR(PPM)						
BA(PPM)						
LA(PPM)						
CE(PPM)						
HF(PPM)						
PB(PPM)						
AU(PPB)	ND	ND	ND	ND	ND	ND
HG(PPB)						

MARION LAKE

SAMPLE	BAB85 MAR1-06E	BAB85 MAR1-06G	BAB85 MAR1-06F	BAB85 MAR2-01	BAB85 MAR2-02	BAB85 MAR2-03	BAB85 MAR2-04
RXTYPE	BSLT	BSLT	BSLT	BSLT	BSLT	GBBR	BSLT
CO(PPM)							
NI(PPM)							
CU(PPM)							
ZN(PPM)							
RB(PPM)	3	3	11				
SR(PPM)	156	43	192				
Y(PPM)	18	15	19				
NB(PPM)	3	2	3				
ZR(PPM)	27	30	26				
BA(PPM)	20	22	49				
LA(PPM)	3	3	3				
CE(PPM)							
HF(PPM)							
PB(PPM)							
AU(PPB)	ND	ND	ND	ND	ND	2	ND
HG(PPB)							

SAMPLE	BAB85 MAR2-05	BAB85 MAR3-01	BAB85 MAR3-10	BAB85 MAR3-11	BAB85 MAR3-12	BAB85 MAR3-2A
RXTYPE	BSLT	GBBR	SHLE	GBBR	GBPP	GBBR
CO(PPM)						
NI(PPM)						
CU(PPM)						
ZN(PPM)						
RB(PPM)						
SR(PPM)						
Y(PPM)						
NB(PPM)						
ZR(PPM)						
BA(PPM)						
LA(PPM)						
CE(PPM)						
HF(PPM)						
PB(PPM)						
AU(PPB)	ND	2	ND	1	ND	1
HG(PPB)						

MARION LAKE AREA

SAMPLE	BAB85 MAR3-2B	BAB85 MAR3-2C	BAB85 MAR3-2D	BAB85 MAR3-3	BAB85 MAR3-4	BAB85 MAR3-5
RXTYPE	GBBR	GBBR	LCGB	GBBR	GBBR	GBBR
CO(PPM)						
NI(PPM)						
CU(PPM)						
ZN(PPM)						
RB(PPM)						
SR(PPM)						
Y(PPM)						
NB(PPM)						
ZR(PPM)						
BA(PPM)						
LA(PPM)						
CE(PPM)						
HF(PPM)						
PB(PPM)						
AU(PPB)	ND	ND	ND	ND	ND	ND
HG(PPB)						

SAMPLE	BAB85 MAR3-6	BAB85 MAR3-7	BAB85 MAR3-8	BAB85 MAR3-9	BAB85 MAR4-11	BAB85 MAR4-2A	BAB85 MAR4-2B
RXTYPE	GBBR	BSLT	BSLT	GBBR	OQRZ	SNDS	SNDS/ORQZ
CO(PPM)		22				99	39
NI(PPM)		31				77	61
CU(PPM)		4500				540	62
ZN(PPM)		120				23	17
RB(PPM)							
SR(PPM)							
Y(PPM)							
NB(PPM)							
ZR(PPM)							
BA(PPM)							
LA(PPM)							
CE(PPM)							
HF(PPM)							
PB(PPM)		1				6	6
AU(PPB)	ND	1	ND	ND	6	1	ND
HG(PPB)		170				32	25

MARION LAKE AREA

SAMPLE	BAB85 MAR4-3A	BAB85 MAR4-3B	BAB85 MAR4-4
RXTYPE	SLSN/SLPD	SLSN/SLPD	GBBR
CO(PPM)			
NI(PPM)			
CU(PPM)			
ZN(PPM)			
RB(PPM)			
SR(PPM)			
Y(PPM)			
NB(PPM)			
ZR(PPM)			
BA(PPM)			
LA(PPM)			
CE(PPM)			
HF(PPM)			
PB(PPM)			
AU(PPB)	ND	1	ND
HG(PPB)			

GAUTHIER LAKE AREA

SAMPLE	BAB85 14-1A	BAB85 14-1B	BAB85 14-1D	BAB85 14-1E	BAB85 14-1F	BAB85 14-1G
RXTYPE	BSLT	BSLT	BSLT	BSLT	SLPD	SLPD
SIO2	48.80		49.10			38.80
TIO2	1.52		1.12			0.24
AL2O3	13.60		13.70			4.65
FE2O3	14.00		13.00			33.90
FEO			9.70			18.70
MNO	0.20		0.25			0.10
MGO	5.52		6.97			3.41
CAO	10.20		10.70			2.94
NA2O	1.84		1.88			0.01
K2O	0.31		0.27			0.03
P2O5	0.14		0.09			0.06
LOI	2.16		2.23			16.45
H2O			2.30			2.60
CO2			0.03			0.01
SUM	98.30		99.40			100.50
CR(PPM)	110		200		44	46
CO(PPM)	66				72	72
NI(PPM)	78				110	110
CU(PPM)	140				150	230
ZN(PPM)	130				2000	1100
RB(PPM)	9		10			ND
SR(PPM)	124		150			10
Y(PPM)	29		30			ND
NB(PPM)	5		20			30
ZR(PPM)	39		40			ND
AG(PPM)	1.5		ND		3	ND
BA(PPM)	50		80			140
LA(PPM)	6					
CE(PPM)	20					
PB(PPM)	1				48	62
TH(PPM)	ND		0.1			1.5
U(PPM)	8		ND			9
AU(PPB)	5	ND	2	ND	24	85
TA(PPM)	1					

GAUTHIER LAKE AREA

SAMPLE	BAB85 14-1H	BAB85 14-1I	BAB85 14-1J	BAB85 14-1K	BAB85 14-2	BAB85 14-3	BAB85 14-4
RXTYPE	SLPD	BSLT	GBBR	GBBR	PLBS	GBBR	PLBS
SIO2		48.50	48.30			48.60	
TIO2		1.07	1.03			1.50	
AL2O3		14.20	14.10			13.70	
FE2O3		13.20	12.60			14.60	
FEO						10.60	
MNO		0.33	0.31			0.21	
MGO		7.74	7.79			6.34	
CAO		5.76	5.07			10.10	
NA2O		1.77	2.13			1.78	
K2O		0.59	0.30			0.16	
P2O5		0.09	0.08			0.13	
LOI		7.08	7.47			2.39	
H2O						2.70	
CO2						0.02	
SUM		100.40	99.20			99.60	
CR(PPM)	94	180	190			110	
CO(PPM)	12		54				
NI(PPM)	8	46	140				
CU(PPM)	25	130	16				
ZN(PPM)	91	190	210				
RB(PPM)		ND	20			5	
SR(PPM)		40	30			120	
Y(PPM)		20	20			28	
NB(PPM)		10	10			5	
ZR(PPM)		40	40			33	
AG(PPM)	ND	ND	3			ND	
BA(PPM)		180	120			61	
LA(PPM)		3	12			5	
CE(PPM)		11					
PB(PPM)	8	4	1				
TH(PPM)		ND	ND			0.4	
U(PPM)		ND	ND			0.7	
AU(PPB)	6	11	8	ND	2	ND	ND
TA(PPM)		1	1				

GAUTHIER LAKE AREA

SAMPLE	BAB85 14-5	BAB85 14-6	BAB85 G-01	BAB85 G-02	BAB85 G-03	BAB85 G-04	BAB85 G-05
RXTYPE	PLBS	BSLT	BSLT	PLBS	PLBS	PLBS	BSLT
SIO2		51.00					
TIO2		1.49					
AL2O3		14.30					
FE2O3		12.40					
FEO		8.60					
MNO		0.18					
MGO		5.39					
CAO		9.85					
NA2O		2.98					
K2O		0.20					
P2O5		0.12					
LOI		100.10					
H2O		1.90					
CO2		0.25					
SUM							
CR(PPM)		220					
CO(PPM)							
NI(PPM)							
CU(PPM)							
ZN(PPM)							
RB(PPM)		6					
SR(PPM)		178					
Y(PPM)		28					
NB(PPM)		5					
ZR(PPM)		21					
AG(PPM)		ND					
BA(PPM)		55					
LA(PPM)		5					
CE(PPM)							
PB(PPM)							
TH(PPM)		0.7					
U(PPM)		ND					
AU(PPB)	ND	ND	ND	ND	ND	ND	ND
TA(PPM)							

GAUTHIER LAKE AREA

SAMPLE	BAB85 G-06	BAB85 G-07
RXTYPE	GBBR	BSLT
SIO2		
TIO2		
AL2O3		
FE2O3		
FEO		
MNO		
MGO		
CAO		
NA2O		
K2O		
P2O5		
LOI		
H2O		
CO2		
SUM		
CR(PPM)		
CO(PPM)		
NI(PPM)		
CU(PPM)		
ZN(PPM)		
RB(PPM)		
SR(PPM)		
Y(PPM)		
NB(PPM)		
ZR(PPM)		
AG(PPM)		
BA(PPM)		
LA(PPM)		
CE(PPM)		
PB(PPM)		
TH(PPM)		
U(PPM)		
AU(PPB)	ND	ND
TA(PPM)		

ANDRE LAKE AREA

	BAB85 15-1	BAB85 15-2A	BAB85 15-2B	BAB85 15-2C	BAB85 15-3	BAB85 15-4	BAB85 15-5
RXTYPE	GBBR	GBBR	GBBR	GBBR	GBBR	QRTZ	QRTZ
SIO2				58.50	50.00		
TIO2				0.29	0.69		
AL2O3				9.25	15.80		
FE2O3				6.10	10.30		
FEO				4.30	6.80		
MNO				0.14	0.15		
MGO				3.53	7.43		
CAO				10.30	11.40		
NA2O				2.26	1.93		
K2O				0.13	0.31		
P2O5				0.04	0.05		
LOI				8.47	2.23		
H2O				2.00	1.80		
CO2				4.23	0.05		
SUM				99.00	100.40		
BE(PPM)							
CR(PPM)				200	150		
CO(PPM)	10					95	10
NI(PPM)	9					55	23
CU(PPM)	170					6	4.5
ZN(PPM)	1300					5.5	11
AS(PPM)							
RB(PPM)				ND	13		
SR(PPM)				40	178		
Y(PPM)				5	12		
NB(PPM)				10	2		
ZR(PPM)				ND	17		
BA(PPM)				80	31		
LA(PPM)					2		
CE(PPM)							
PB(PPM)	92					1	1
TH(PPM)				0.1	0.15		
U(PPM)				ND	0.8		
AU(PPB)	1	7	ND	22	6	4	ND
HG(PPB)	18					7	5

ANDRE LAKE AREA

SAMPLE	BAB85 16-1	BAB85 16-10	BAB85 16-11	BAB85 16-2	BAB85 16-3	BAB85 17-10	BAB85 17-11
RXTYPE	DLSL	QRTZ	BSCS	SHLE	BGCS	DLMT	DLMT
SIO2				42.10		59.20	
TIO2				4.67		0.20	
AL2O3				13.10		3.77	
FE2O3				17.60		0.79	
FEO							
MNO				0.21		0.06	
MGO				5.59		7.91	
CAO				6.86		11.00	
NA2O				1.63		0.01	
K2O				2.90		1.23	
P2O5				0.44		0.04	
LOI				3.08		15.50	
H2O				1.10		0.30	
CO2				2.94		15.60	
SUM				98.40		99.70	
BE(PPM)				5		2	
CR(PPM)	34	130	180	190	92	8	26
CO(PPM)	6	27	15	97	13	6	4
NI(PPM)	12	58	20	110	24	9	8
CU(PPM)	1.5	540	9.5	160	68	2.5	1.5
ZN(PPM)	29	190	120	160	44	14	33
AS(PPM)	0.5	4	0.5		1		0.5
RB(PPM)				80		40	
SR(PPM)				120		20	
Y(PPM)				20		ND	
NB(PPM)				90		ND	
ZR(PPM)				400		60	
BA(PPM)				540		190	
LA(PPM)				55		6	
CE(PPM)				114		10	
PB(PPM)	6	6	2	1	2	4	1
TH(PPM)	7	4	7	4	9	3	ND
U(PPM)	ND	7	ND	ND	ND	ND	ND
AU(PPB)	ND	12	ND	ND	7	1	ND
HG(PPB)							

ANDRE LAKE AREA

SAMPLE	BAB85 17-12	BAB85 17-13	BAB85 17-14	BAB85 17-15	BAB85 17-16	BAB85 17-17	BAB85 17-18
RXTYPE	DLMT	MATU	GBBR	SHLE	MAVC	MAVC	MAVC
SIO2	3.34		29.50	27.10	28.40		
TIO2	0.05		5.26	4.71	5.28		
AL2O3	0.34		2.84	3.76	2.56		
FE2O3	0.96		22.20	12.90	24.50		
FEO							
MNO	0.18		0.33	0.15	0.34		
MGO	20.90		24.10	22.60	19.80		
CAO	29.50		6.56	12.60	9.67		
NA2O	0.01		0.01	0.01	0.01		
K2O	0.08		0.02	0.04	0.03		
P2O5	0.04		0.26	1.05	1.59		
LOI	45.10		7.85	13.10	7.08		
H2O	0.20		4.90	3.50	4.70		
CO2	45.10		1.53	12.00	2.30		
SUM	100.50		99.10	98.20	99.50		
BE(PPM)	1		6	4	8		
CR(PPM)	1	42	440	510	500	98	94
CO(PPM)	2	10	95	90	95	22	16
NI(PPM)	7	20	370	620	270	62	57
CU(PPM)	0.25	2.5	160	440	260	65	56
ZN(PPM)	380	270	130	44	90	49	91
AS(PPM)		0.5				14	2
RB(PPM)	ND		10	ND	ND		
SR(PPM)	140		20	450	180		
Y(PPM)	10		30	10	30		
NB(PPM)	10		150	150	180		
ZR(PPM)	ND		640	500	820		
BA(PPM)	ND		90	60	100		
LA(PPM)	7		134	129	187		
CE(PPM)	10		230	210	297		
PB(PPM)	8	6	1	4	1	1	1
TH(PPM)	ND	3	11	12	12	14	12
U(PPM)	ND	ND	ND	ND	ND	ND	ND
AU(PPB)	ND	ND	ND	1	2	1	1
HG(PPB)							

ANDRE LAKE AREA

SAMPLE	BAB85 17-19	BAB85 17-1A	BAB85 17-1E	BAB85 17-2A	BAB85 17-2B	BAB85 17-3	BAB85 17-4
RXTYPE	MAVC	SHLE	SHLE	QTVN	DLMT	DLMT	DLMT
SIO2							
TIO2							
AL2O3							
FE2O3							
FEO							
MNO							
MGO							
CAO							
NA2O							
K2O							
P2O5							
LOI							
H2O							
CO2							
SUM							
BE(PPM)							
CR(PPM)	44	100	110	4	26	24	20
CO(PPM)	11	32	6	0.5	3	4	3
NI(PPM)	32	57	20	3	6	9	7
CU(PPM)	32	24	16	2	3.5	4	1.5
ZN(PPM)	120	9	6.5	16	31	17	11
AS(PPM)	14	82	2	0.5	0.5	0.5	0.5
RB(PPM)							
SR(PPM)							
Y(PPM)							
NB(PPM)							
ZR(PPM)							
BA(PPM)							
LA(PPM)							
CE(PPM)							
PB(PPM)	2	2	2	6	8	1	1
TH(PPM)	6	9	10	ND	ND	2	ND
U(PPM)	ND	6	5	ND	ND	ND	ND
AU(PPB)	2	ND	ND	ND	1	1	1
HG(PPB)							

ANDRE LAKE AREA

SAMPLE	BAB85 17-5	BAB85 17-6	BAB85 17-7A	BAB85 17-7B	BAB85 17-7C	BAB85 17-8	BAB85 17-9A
RXTYPE	BSCS	MGBR	QRTZ	CHQR/TUFF	CHQR/TUFF	SHLE	DLMT
SIO2		49.10	72.30				
TIO2		1.02	0.58				
AL2O3		14.30	8.50				
FE2O3		12.40	12.20				
FEO							
MNO		0.15	0.07				
MGO		7.77	1.03				
CAO		10.70	0.20				
NA2O		2.76	0.01				
K2O		0.27	3.26				
P2O5		0.07	0.16				
LOI		0.70	1.47				
H2O		0.70	1.50				
CO2		0.17	0.01				
SUM		99.30	100.00				
BE(PPM)		2	6				
CR(PPM)	84	210	120				32
CO(PPM)	12	55					7
NI(PPM)	24	120					15
CU(PPM)	7	53					3.5
ZN(PPM)	69	53					40
AS(PPM)	2						0.5
RB(PPM)		ND	130				
SR(PPM)		110	60				
Y(PPM)		20	20				
NB(PPM)		10	50				
ZR(PPM)		40	320				
BA(PPM)		50	1290				
LA(PPM)		3	45				
CE(PPM)		14	76				
PB(PPM)	12	1					1
TH(PPM)	15	ND					3
U(PPM)	ND	ND					ND
AU(PPB)	1	1	ND	ND	ND	ND	1
HG(PPB)							

ANDRE LAKE AREA

SAMPLE	BAB85 17-9B	BAB85 18-1A	BAB85 18-1B	BAB85 18-1C	BAB85 18-2	BAB85 A1-1A	BAB85 A1-1B
RXTYPE	DLMT	DLSL	DLMT	DLMT	SHLE	DLMT	DLMT
SIO2			48.50		50.20		
TIO2			0.93		0.86		
AL2O3			14.50		15.00		
FE2O3			10.30		11.30		
FEO							
MNO			0.03		0.04		
MGO			8.25		8.48		
CAO			3.45		4.21		
NA2O			2.72		4.58		
K2O			2.60		2.31		
P2O5			0.08		0.07		
LOI			4.85		2.31		
H2O			0.90		2.00		
CO2			4.90		0.73		
SUM			99.30		99.40		
BE(PPM)			2		3		
CR(PPM)	28	14	270	200	520		
CO(PPM)	7	1500	46	110	52	21	
NI(PPM)	12	1500	140	200	280	40	
CU(PPM)	2.5	25	6.5	5.5	260	5.5	
ZN(PPM)	40	0.25	14	10	92	9.5	
AS(PPM)	0.5	760		17			
RB(PPM)			70		90		
SR(PPM)			20		20		
Y(PPM)			20		10		
NB(PPM)			10		30		
ZR(PPM)			40		20		
BA(PPM)			90		150		
LA(PPM)			0.5		2		
CE(PPM)			2.5		6		
PB(PPM)	1	1	1	1	1	1	
TH(PPM)	2	ND	ND	2	ND		
U(PPM)	ND	ND	ND	ND	ND		
AU(PPB)	1	16	ND	ND	1	ND	ND
HG(PPB)						11	

ANDRE LAKE AREA

SAMPLE	BAB85 A1-2	BAB85 A1-3	BAB85 A1-4	BAB85 A1-5	BAB85 A1-6	BAB85 A1-7	BAB85 A1-8A
RXTYPE	SBCS	CSCS	GBBR	GBBR	SHLE/SLPD	QBCC	SLPD
SIO2							
TIO2							
AL2O3							
FE2O3							
FEO							
MNO							
MGO							
CAO							
NA2O							
K2O							
P2O5							
LOI							
H2O							
CO2							
SUM							
BE(PPM)							
CR(PPM)							
CO(PPM)					37		80
NI(PPM)					54		200
CU(PPM)					120		190
ZN(PPM)					80		1400
AS(PPM)							
RB(PPM)							
SR(PPM)							
Y(PPM)							
NB(PPM)							
ZR(PPM)							
BA(PPM)							
LA(PPM)							
CE(PPM)							
PB(PPM)					8		10
TH(PPM)							
U(PPM)							
AU(PPB)	4	ND	ND	ND	16	ND	16
HG(PPB)					5		390

ANDRE LAKE AREA

ANDRE LAKE AREA

SAMPLE	BAB85 A2-2	BAB85 A2-3	BAB85 A2-4
RXTYPE	DLMT/CLPL	PLLT	OQRZ
SIO2			
TIO2			
AL2O3			
FE2O3			
FEO			
MNO			
MGO			
CAO			
NA2O			
K2O			
P2O5			
LOI			
H2O			
CO2			
SUM			
BE(PPM)			
CR(PPM)			
CO(PPM)			
NI(PPM)			
CU(PPM)			
ZN(PPM)			
AS(PPM)			
RB(PPM)			
SR(PPM)			
Y(PPM)			
NB(PPM)			
ZR(PPM)			
BA(PPM)			
LA(PPM)			
CE(PPM)			
PB(PPM)			
TH(PPM)			
U(PPM)			
AU(PPB)	ND	2	ND
HG(PPB)			

ANDRE LAKE AREA

SAMPLE	BAB85	BAB85	BAB85	BAB85	BAB85	BAB85	BAB85	BAB85
	A2-5	A2-6	KM1	KM2	KM3	KM4	KM5	KM6
RXTYPE	QBGN	OQRZ	CHQR	CHQR	GBBR	GBBR	GBBR	GBBR
SIO2								
TIO2								
AL2O3								
FE2O3								
FEO								
MNO								
MGO								
CAO								
NA2O								
K2O								
P2O5								
LOI								
H2O								
CO2								
SUM								
BE(PPM)								
CR(PPM)								
CO(PPM)				22	150			
NI(PPM)				69	490			
CU(PPM)				25	13000			
ZN(PPM)				4.5	31			
AS(PPM)								
RB(PPM)								
SR(PPM)								
Y(PPM)								
NB(PPM)								
ZR(PPM)								
BA(PPM)								
LA(PPM)								
CE(PPM)								
PB(PPM)				2	1			
TH(PPM)								
U(PPM)								
AU(PPB)	ND	1	3	4	130	ND	3	9
HG(PPB)				21	710			

MARBLE LAKE AREA

SAMPLE	BAB85 26-1	BAB85 27-1	BAB85 27-2	BAB85 27-3	BAB85 28-10	BAB85 28-11	BAB85 28-12
RXTYPE	GBBR	CHBR	CHBR	CHBR	CHBR	GBBR	GBBR
SIO2	49.90	96.40	96.40	96.20	94.10	48.20	46.50
TIO2	1.72	0.05	0.06	0.09	0.17	1.16	1.11
AL2O3	15.40	0.71	1.44	1.59	3.08	12.00	12.50
FE2O3	12.20	0.75	0.10	0.08	0.65	10.50	11.10
MNO	0.18	0.01	0.02	0.01	0.01	0.18	0.18
MGO	4.55	0.01	0.01	0.01	0.04	8.81	11.20
CAO	7.70	0.12	0.02	0.01	0.02	13.50	9.51
NA2O	2.65	0.01	0.01	0.01	0.01	2.66	2.22
K2O	3.01	0.19	0.42	0.46	0.78	0.12	0.93
P2O5	0.37	0.10	0.02	0.22	0.03	0.12	0.12
LOI	2.08	1.31	0.70	1.08	0.85	2.54	3.54
H2O	2.40	0.30	0.30	0.30	0.60	2.50	3.40
CO2	0.08	0.01	0.01	0.01	0.01	0.37	0.26
S		0.36	0.00	0.00	0.00		
SUM	100.00	99.70	99.20	99.60	99.70	99.90	99.20
LI(PPM)		5	4	0.5	3		
BE(PPM)	3	1	2	2	0.5	2	3
CR(PPM)	12	30	40	30	30	380	1300
CO(PPM)	61					57	76
NI(PPM)	42					110	260
CU(PPM)	41					280	130
ZN(PPM)	120					89	85
RB(PPM)	60	10	20	20	20	10	20
SR(PPM)	560	10	ND	ND	ND	190	410
Y(PPM)	20	ND	ND	10	ND	10	30
NB(PPM)	40	10	10	10	10	20	30
ZR(PPM)	140	20	40	ND	30	40	50
BA(PPM)	1220	100	90	70	60	60	870
LA(PPM)	33	4	12	5	17	13	12
CE(PPM)	63	7	23	9	24	25	26
PB(PPM)	2					1	1
TH(PPM)	1	2	4.2	1.6	3.7	1	1
U(PPM)	ND	0.9	0.9	0.8	1.5	ND	ND
AU(PPB)	ND	ND	ND	1	ND	ND	ND

MARBLE LAKE AREA

SAMPLE	BAB85 28-2	BAB85 28-3	BAB85 28-3a	BAB85 28-3b	BAB85 28-4	BAB85 28-8	BAB85 28-9
RXTYPE	CHBR	GBBR	CHBR	CHBR	CHBR	QRTZ	QRTZ
SIO2	95.20	47.40	89.90		96.20	94.70	95.20
TIO2	0.10	1.36	0.19		0.05	0.08	0.14
AL2O3	2.01	15.20	5.52		0.82	1.71	2.09
FE2O3	0.68	12.10	0.73		0.27	0.85	0.65
MNO	0.01	0.19	0.01		0.01	1.01	0.01
MGO	0.05	7.49	0.13		0.02	0.04	0.06
CAO	0.04	7.85	0.28		0.05	0.44	0.06
NA2O	0.01	2.39	0.01		0.01	0.01	0.01
K2O	0.46	2.09	1.49		0.21	0.40	0.52
P2O5	0.04	0.17	0.17		0.04	0.33	0.06
LOI	0.85	3.08	1.23		0.93	1.16	0.77
H2O	0.50	3.10	0.80		0.30	0.40	0.50
CO2	0.01	0.03	0.01		0.01	0.01	0.05
S	0.00	0.00	0.00		0.00	0.00	0.00
SUM	99.50	99.50	99.70		98.60	99.70	99.60
LI(PPM)	7	76	1		1	4	3
BE(PPM)	2	3	2		2	0.5	0.5
CR(PPM)	30	280	40		30	30	30
CO(PPM)							
NI(PPM)							
CU(PPM)							
ZN(PPM)							
RB(PPM)	30	28	40		20	10	20
SR(PPM)	ND	375	ND		ND	ND	ND
Y(PPM)	ND	17	30		ND	10	ND
NB(PPM)	30	11	10		20	20	10
ZR(PPM)	10	79	60		ND	ND	20
BA(PPM)	80	398	180		40	100	90
LA(PPM)	12	13	35		5	9	10
CE(PPM)	17	31	43		6	11	14
PB(PPM)							
TH(PPM)	2.3		3.4	0.7			
U(PPM)	0.9		2.3	0.6			
AU(PPB)	ND	ND	1		ND	3	ND

MARBLE LAKE AREA

SAMPLE	BAB85 29-1	BAB85 29-1b	BAB85 29-2b	BAB85 29-4	BAB85 29-4b	BAB85 29-5	BAB85 29-5b
RXTYPE	IRFM/GRCK	IRFM/GRCK	MAVC	DLMT	CHBR	DLBR	CHBR
SIO2			56.20	95.40	38.80	89.00	72.90
TIO2			0.97	0.03	0.01	0.03	0.02
AL2O3			9.90	0.29	0.06	0.10	0.22
FE2O3			21.70	0.15	0.47	0.29	0.22
MNO			0.20	0.02	0.05	0.04	0.03
MGO			2.95	0.80	13.30	2.03	5.62
CAO			0.36	1.38	19.20	3.35	8.55
NA2O			1.10	0.01	0.01	0.01	0.01
K2O			4.29	0.11	0.05	0.06	0.09
P2O5			0.14	0.02	0.03	0.06	0.11
LOI			2.31	2.16	28.30	4.70	12.50
H2O			2.50	0.10	0.10	0.10	0.10
CO2			0.02	1.89	27.90	4.52	11.80
S				0.04	0.00	0.01	0.00
SUM			100.20	100.40	100.30	99.70	100.20
LI(PPM)				0.5	1	0.5	2
BE(PPM)			4	0.5	0.5	0.5	0.5
CR(PPM)	10	12	170	30	5	20	20
CO(PPM)	2	3	48				
NI(PPM)	0.5	0.5	120				
CU(PPM)	0.25	0.25	7.5				
ZN(PPM)	15	13	60				
RB(PPM)			120	10	ND	ND	10
SR(PPM)			30	ND	ND	ND	ND
Y(PPM)			ND	ND	10	ND	10
NB(PPM)			30	10	ND	10	10
ZR(PPM)			30	ND	ND	ND	ND
BA(PPM)			390	60	ND	70	30
LA(PPM)			10	1	ND	ND	2
CE(PPM)			19	ND	ND	ND	ND
PB(PPM)	1	1	1				
TH(PPM)	ND	ND	ND		ND		ND
U(PPM)	ND	ND	ND		0.6		0.7
AU(PPB)	ND	ND	1	1	1	1	ND

MARBLE LAKE AREA

SAMPLE	BAB85 29-6	BAB85 29-7	BAB85 29-8
RXTYPE	CHBR	CHBR	CHBR
SIO2	85.20	87.00	97.20
TIO2	0.02	0.02	0.02
AL2O3	0.08	0.18	0.33
FE2O3	0.14	0.14	0.09
MNO	0.02	0.02	0.01
MGO	2.87	2.70	0.27
CAO	4.40	4.17	0.47
NA2O	0.01	0.01	0.01
K2O	0.05	0.08	0.14
P2O5	0.03	0.05	0.03
LOI	6.93	6.00	1.00
H2O	0.10	0.10	0.10
CO2	6.21	5.72	0.61
S	0.00	0.00	0.00
SUM	99.70	100.40	99.60
LI(PPM)	0.5	0.5	0.5
BE(PPM)	0.5	0.5	0.5
CR(PPM)	20	20	20
CO(PPM)			
NI(PPM)			
CU(PPM)			
ZN(PPM)			
RB(PPM)	ND	10	10
SR(PPM)	ND	ND	ND
Y(PPM)	10	ND	ND
NB(PPM)	ND	10	10
ZR(PPM)	ND	ND	ND
BA(PPM)	70	50	50
LA(PPM)	ND	1	ND
CE(PPM)	ND	ND	ND
PB(PPM)			
TH(PPM)	ND	ND	
U(PPM)	0.6	0.6	
AU(PPB)	5	2	3

DYKE LAKE AREA

SAMPLE	BAB85 21-10	BAB85 22-10	BAB85 22-10A	BAB85 22-13	BAB85 22-13A	BAB85 22-13B	BAB85 22-13C
RXTYPE	MAVC	SHLE	SIVC	CHRT	QTVN	SHLE	DYKE
SIO2	48.30		41.10	89.70			41.60
TIO2	2.74		1.49	0.05			4.10
AL2O3	16.30		14.70	1.17			13.30
FE2O3	15.10		11.20	2.15			11.20
FEO							
MNO	0.22		0.22	0.03			0.15
MGO	3.29		5.81	1.06			5.72
CAO	2.30		7.68	1.51			9.16
NA2O	4.58		0.94	0.01			1.27
K2O	1.98		2.94	0.18			1.39
P2O5	0.90		0.21	0.02			0.33
LOI	3.08		13.80	2.39			10.40
H2O			3.00	0.50			
CO2			11.10	1.76			
S				0.64			
SUM	99.00		100.20	98.30			98.70
CR(PPM)	60	110	160	30	4	84	130
CO(PPM)	54	22	58		3	7	71
NI(PPM)	26	50	110		7	130	100
CU(PPM)	46	46	50		4.5	47	92
ZN(PPM)	160	93	110		17	200	150
AS(PPM)		23	2		ND	8	
RB(PPM)	50		110	ND			60
SR(PPM)	150		270	ND			320
Y(PPM)	30		5	ND			20
NB(PPM)	60		40	10			50
ZR(PPM)	360		80	10			230
BA(PPM)	830		390	120			230
LA(PPM)			17	4			38
CE(PPM)			35	6			79
PB(PPM)	6	16	1		1	12	2
TH(PPM)		16	1	1.3	ND	11	3
U(PPM)		ND	ND	2.2	ND	9	ND
AU(PPB)	ND	ND	ND	ND	ND	6	ND
TA(PPM)							2

DYKE LAKE AREA

SAMPLE	BAB85 22-2	BAB85 22-3	BAB85 22-4	BAB85 22-4A	BAB85 22-4B	BAB85 22-5A	BAB85 22-5Ai
RXTYPE	IRFM	IRFM	MAVC	BSLT	AGLM	MAVC	IRFM
SIO2	89.20		60.40		62.10	54.20	
TIO2	0.08		0.89		1.07	2.02	
AL2O3	0.38		15.80		14.70	16.60	
FE2O3	8.87		8391.00		9.39	9.54	
FEO							
MNO	0.02		0.04		0.03	0.16	
MGO	0.39		1.11		1.17	1.17	
CAO	0.26		0.01		0.14	3.70	
NA2O	0.01		1.73		1.36	4.60	
K2O	0.09		8.39		7.47	2.86	
P2O5	0.08		0.08		0.08	0.60	
LOI	0.54		1.77		1.77	3.16	
H2O	0.40		2.20				
CO2	0.22		0.02				
S							
SUM	99.90		99.40		99.50	98.80	
CR(PPM)	1	1	1		6	10	54
CO(PPM)	2	4	19		18	39	16
NI(PPM)	0.5	1	5		8	15	28
CU(PPM)	2	7.5	2.5		20	33	16
ZN(PPM)	3.5	9.5	82		110	230	34
AS(PPM)		10					ND
RB(PPM)	10		160	109	160	76	
SR(PPM)	ND		20	32	30	292	
Y(PPM)	ND		100	68	60	29	
NB(PPM)	ND		110	69	90	32	
ZR(PPM)	ND		670	445	620	277	
BA(PPM)	110		960	495	890	967	
LA(PPM)	0.5		110	93	129	44	
CE(PPM)	2.5		172			98	
PB(PPM)	1	1	6		8	10	12
TH(PPM)	ND	ND	15		13	4	9
U(PPM)	ND	ND	ND		ND	ND	ND
AU(PPB)	ND	ND	ND	ND	ND	9	ND
TA(PPM)					2	1	

DYKE LAKE AREA

SAMPLE	BAB85 22-5B	BAB85 22-5C	BAB85 22-6	BAB85 22-7	BAB85 22-8	BAB85 22-9	BAB85 23-1
RXTYPE	MAVC	MAVC	IRFM	AGLM	MAVC	MAVC	QRTZ/SHLE
SIO2	50.50	61.20		63.90	48.50	43.80	
TIO2	0.76	0.94		0.82	1.60	1.50	
AL2O3	16.40	16.10		14.80	16.00	12.10	
FE2O3	18.00	9.09		7.92	12.40	12.80	
FEO							
MNO	0.10	0.04		0.05	0.20	0.26	
MGO	2.15	1.15		0.95	5.43	11.90	
CAO	0.14	0.19		0.31	7.49	9.16	
NA2O	0.14	1.72		2.84	2.80	1.27	
K2O	8.27	8.18		6.25	2.27	1.55	
P2O5	0.12	0.08		0.17	0.26	0.16	
LOI	3.39	1.62		1.70	2.77	4.77	
H2O	4.20	2.00		2.00	2.70	4.20	
CO2	0.02	0.02		0.01	0.11	0.89	
S							
SUM	100.20	100.60		100.00	99.90	99.50	
CR(PPM)	1	1	4	4	32	520	14
CO(PPM)	13	15	1	16	70	76	10
NI(PPM)	3	4	0.5	9	61	250	15
CU(PPM)	1	2	0.25	2.5	46	89	12
ZN(PPM)	120	120	5.5	100	97	94	21
AS(PPM)			64				2
RB(PPM)	150	160		170	130	70	
SR(PPM)	30	30		40	340	160	
Y(PPM)	70	70		80	10	10	
NB(PPM)	70	110		110	30	40	
ZR(PPM)	610	690		770	90	90	
BA(PPM)	1220	950		860	580	510	
LA(PPM)	73	114		149	22	14	
CE(PPM)	122	185		245	48	31	
PB(PPM)	1	6	1	10	1	1	24
TH(PPM)	8	9	ND	16	1	1	7
U(PPM)	ND	ND	ND	ND	ND	ND	ND
AU(PPB)	2	ND	ND	ND	ND	1	10
TA(PPM)							

DYKE LAKE AREA

SAMPLE	BAB85 23-10	BAB85 23-11	BAB85 23-13A	BAB85 23-13B	BAB85 23-14A	BAB85 23-14B	BAB85 23-14C
RXTYPE	TRCT	MAVC	BSLT	BSLT	AGLM	AGLM	BSLT
SIO2		49.40				37.80	47.20
TIO2		3.03				2.18	2.49
AL2O3		13.60				12.10	14.00
FE2O3		13.40				15.40	15.00
FEO							
MNO		0.16				0.35	0.31
MGO		3.00				4.04	5.05
CAO		4.74				12.50	9.40
NA2O		2.27				3.33	2.57
K2O		3.38				0.23	0.88
P2O5		0.98				0.23	0.25
LOI		5.00				10.90	2.85
H2O		3.10				3.60	
CO2		2.66				8.25	
S							
SUM		99.20				99.10	100.10
CR(PPM)	4	1	2	1	1700	6	14
CO(PPM)	7	65	9	7	76	67	75
NI(PPM)	4	11	5	4	470	39	50
CU(PPM)	8	32	15	24	98	89	140
ZN(PPM)	240	97	190	170	120	120	130
AS(PPM)	2		ND	3	1		
RB(PPM)		100				20	22
SR(PPM)		320				90	418
Y(PPM)		30				10	31
NB(PPM)		100				60	40
ZR(PPM)		330				130	156
BA(PPM)		1050				160	591
LA(PPM)		85				30	30
CE(PPM)		144				55	61
PB(PPM)	10	4	4	6	2	1	4
TH(PPM)	16	6	26	26	ND	3	3
U(PPM)	ND	ND	ND	6	ND	ND	ND
AU(PPB)	11	ND	3	ND	12	ND	ND
TA(PPM)							3

DYKE LAKE AREA

SAMPLE	BAB85 23-2	BAB85 23-5	BAB85 23-6A	BAB85 23-6B	BAB85 23-6C	BAB85 23-6D	BAB85 23-6F
RXTYPE	MAVC	SLSN/QRTZ	GBBR	DLMT	TUFF	RYLT	QRTZ
SIO2	53.70		49.10	15.00		83.20	
TIO2	0.55		1.51	0.09		0.22	
AL2O3	15.90		14.00	2.05		3.07	
FE2O3	7.26		8.17	8.23		1.44	
FEO							
MNO	0.29		0.34	0.44		0.05	
MGO	1.38		5.01	13.70		1.37	
CAO	5.76		6.22	24.90		3.22	
NA2O	5.30		2.35	0.04		0.48	
K2O	3.19		3.43	0.52		1.45	
P2O5	0.16		0.28	0.03		0.28	
LOI	6.54		9.47	34.60		4.23	
H2O	2.00		3.00	0.70		0.40	
CO2	4.37		7.01	36.20		3.77	
S							
SUM	100.50		100.10	99.70		99.10	
CR(PPM)	1	14	470	1	2600	46	46
CO(PPM)	14	12	63	8	42	10	8
NI(PPM)	5	20	100	15	750	11	23
CU(PPM)	3.5	18	150	5	120	2	6.5
ZN(PPM)	100	37	54	14	65	7.5	12
AS(PPM)		1			ND		4
RB(PPM)	100		90	10		40	
SR(PPM)	400		150	280		60	
Y(PPM)	160		20	10		30	
NB(PPM)	450		50	5		10	
ZR(PPM)	1910		150	20		50	
BA(PPM)	680		710	90		340	
LA(PPM)	53		30	10		15	
CE(PPM)	58		58	18		19	
PB(PPM)	10	20	1	2	2	10	14
TH(PPM)	8	7	2	2	1	3	3
U(PPM)	ND	ND	ND	ND	ND	ND	ND
AU(PPB)	ND	9	ND	ND	17	1	ND
TA(PPM)							

DYKE LAKE AREA

SAMPLE	BAB85 23-7	BAB85 23-9	BAB85 24-1	BAB85 24-11	BAB85 24-14A	BAB85 24-15	BAB85 24-2
RXTYPE	TUFF	MAVC	GBBR	GBBR	GBBR	QRTZ	MAVC
SIO2	45.10	49.00			51.30		67.40
TIO2	1.42	1.29			1.65		0.54
AL2O3	13.10	16.50			16.70		16.10
FE2O3	11.20	10.90			10.60		4.53
FEO							
MNO	0.16	0.19			0.33		0.02
MGO	9.25	5.19			2.01		1.75
CAO	6.60	8.06			4.71		0.25
NA2O	1.44	2.57			5.25		1.39
K2O	1.65	1.86			3.83		4.00
P2O5	0.29	0.29			0.53		0.06
LOI	9.31	3.54			1.77		3.54
H2O	4.90	2.60			1.70		2.50
CO2	5.03	1.37			0.53		0.15
S							
SUM	99.80	99.60			99.20		99.70
CR(PPM)	920	58	200	140	1	10	70
CO(PPM)	59	58	65	69	36	6	16
NI(PPM)	260	64	160	110	8	10	33
CU(PPM)	73	53	67	79	8	24	30
ZN(PPM)	110	92	130	150	250	30	53
AS(PPM)			ND	ND		ND	
RB(PPM)	30	50			161		180
SR(PPM)	390	550			280		50
Y(PPM)	20	30			129		20
NB(PPM)	50	20			307		20
ZR(PPM)	180	70			1290		300
BA(PPM)	780	650			2320		600
LA(PPM)	31	27			206		46
CE(PPM)	58	57			51		74
PB(PPM)	1	1	6	2	16	1	12
TH(PPM)	2	1	ND	2	5	ND	14
U(PPM)	ND	ND	ND	ND	ND	ND	ND
AU(PPB)	1	ND	ND		ND	ND	ND
TA(PPM)							

DYKE LAKE AREA

SAMPLE	BAB85 24-4B	BAB85 24-5	BAB85 25-2	BAB85 25-3	BAB85 25-5	BAB85 7-1	BAB85 7-2
RXTYPE	GBBR	QRTZ	MAVC	SNDS	GBBR	MAVC	MAVC
SIO2	46.20	95.90	48.00		48.10	41.70	45.90
TIO2	0.69	0.02	1.12		1.10	1.13	1.03
AL2O3	9.87	0.21	16.30		15.20	13.30	12.10
FE2O3	10.20	0.12	11.80		10.30	14.20	7.21
FEO							
MNO	0.18	0.01	0.20		0.14	0.24	0.34
MGO	16.50	0.57	6.12		5.66	9.53	4.32
CAO	9.32	0.93	8.76		6.66	5.07	9.72
NA2O	1.11	0.01	2.70		0.71	0.50	0.44
K2O	0.37	0.10	1.35		2.59	4.75	7.12
P2O5	0.10	0.02	0.25		0.24	0.21	0.18
LOI	4.54	1.47	2.85		8.70	8.00	9.77
H2O	4.30	0.10	2.80		4.20		
CO2	0.06	1.20	0.07		4.99		
S		0.01					
SUM	99.50	99.40	99.60		99.50	98.80	98.30
CR(PPM)	2400	20	58	66	170	200	210
CO(PPM)	64		66	15	61	51	35
NI(PPM)	470		84	26	130	140	94
CU(PPM)	86		44	12	60	28	33
ZN(PPM)	91		97	38	110	100	66
AS(PPM)				2			
RB(PPM)	8	ND	40		101	130	100
SR(PPM)	148	ND	660		292	70	120
Y(PPM)	11	10	10		24	12	ND
NB(PPM)	5	ND	20		8	11	20
ZR(PPM)	49	ND	80		84	85	60
BA(PPM)	496	50	690		512	499	600
LA(PPM)	10	0.5	26		22	32	30
CE(PPM)	27	2.5	48		44	54	46
PB(PPM)	6		2	4	2	4	4
TH(PPM)	ND		1	11	ND	1	1
U(PPM)	ND		ND	ND	ND	ND	ND
AU(PPB)	2	ND	1	ND	ND	ND	1
TA(PPM)							

DYKE LAKE AREA

SAMPLE	BAB85 7-3	BAB85 D1-10	BAB85 D1-10B	BAB85 D1-1A	BAB85 D1-1B	BAB85 D1-1C	BAB85 D1-1E
RXTYPE	MAVC	SLSN	SHLE	BSLT	MAVC	AGLM	GBBR
SIO2	41.40	46.90			47.60	62.00	43.70
TIO2	1.53	1.23			1.56	0.75	2.71
AL2O3	14.70	16.20			16.60	7.22	16.40
FE2O3	22.60	9.56			12.00	20.90	15.30
FEO							
MNO	0.15	0.21			0.19	0.07	0.20
MGO	7.95	2.86			6.58	2.10	5.90
CAO	2.29	6.58			6.49	1.41	3.76
NA2O	0.60	3.48			2.95	0.12	3.05
K2O	2.53	4.56			1.96	2.13	1.96
P2O5	0.20	0.22			0.25	0.08	0.45
LOI	6.16	6.54			3.00	2.31	5.47
H2O					3.20		
CO2					0.12		
S							
SUM	100.20	98.50			99.30	99.20	99.10
CR(PPM)	170	38	570	1600	52	470	2
CO(PPM)	45	54	30	69	62	28	66
NI(PPM)	160	100	160	530	84	69	30
CU(PPM)	46	53	34	210	20	17	110
ZN(PPM)	110	72	62	89	110	53	130
AS(PPM)		2	9	ND			
RB(PPM)	54	110			70	130	51
SR(PPM)	15	200			560	60	240
Y(PPM)	13	10			20	5	27
NB(PPM)	12	20			40	20	61
ZR(PPM)	122	50			80	20	276
BA(PPM)	198	910			440	340	698
LA(PPM)	21	17			19	13	44
CE(PPM)	42	38			38	24	77
PB(PPM)	1	20	2	1	1	1	1
TH(PPM)	1	5	1	ND	1	1	4
U(PPM)	ND	ND	ND	ND	ND	ND	ND
AU(PPB)	ND	ND	ND	5	ND	ND	ND
TA(PPM)							

DYKE LAKE AREA

SAMPLE	BAB85 D1-1F	BAB85 D1-2	BAB85 D1-3	BAB85 D1-5	BAB85 D1-7	BAB85 D1-9	BAB85 D2-10
RXTYPE	MAVC	BSLT	GBBR	MAVC	MAVC	SLSN	QRTZ
SIO2	62.20		47.20	68.30	49.30		
TIO2	0.89		1.59	1.15	1.57		
AL2O3	9.18		15.90	7.31	15.80		
FE2O3	16.80		12.80	14.10	11.10		
FEO							
MNO	0.11		0.20	0.05	0.18		
MGO	3.39		6.86	1.91	5.84		
CAO	0.99		7.26	1.41	6.21		
NA2O	0.27		2.33	0.01	2.33		
K2O	3.57		1.40	2.78	3.13		
P2O5	0.06		0.28	0.38	0.28		
LOI	2.47		2.85	1.85	3.00		
H2O	2.50		3.50	1.50	2.70		
CO2	0.10		0.04	0.07	0.36		
S							
SUM	100.10		98.80	99.30	98.90		
CR(PPM)	470	44	18	44	18	34	46
CO(PPM)	36	76	60	26	63	11	19
NI(PPM)	53	70	73	39	75	16	40
CU(PPM)	28	110	28	4.5	49	9.5	11
ZN(PPM)	100	140	150	46	91	29	42
AS(PPM)		4				2	6
RB(PPM)	110		40	180	103		
SR(PPM)	80		510	20	378		
Y(PPM)	10		20	20	23		
NB(PPM)	30		30	40	17		
ZR(PPM)	60		80	100	115		
BA(PPM)	690		380	270	744		
LA(PPM)	16		22	37	22		
CE(PPM)	27		46	61	42		
PB(PPM)	1	2	1	1	1	16	18
TH(PPM)	1	3	1	2	1	5	8
U(PPM)	ND	ND	ND	ND	ND	ND	ND
AU(PPB)	ND	ND	ND	ND	ND	ND	ND
TA(PPM)							

DYKE LAKE AREA

SAMPLE	BAB85 D2-1A	BAB85 D2-1B	BAB85 D2-3	BAB85 D2-5	BAB85 D2-9	BAB85 D3-1	BAB85 D3-10
RXTYPE	SHLE	SHLE	RYAG	IRFM/CHBR	QRTZ	IRFM	CGLM
SIO2		50.70			82.70		
TIO2		0.58			0.13		
AL2O3		16.80			7.86		
FE2O3		2.86			1.59		
FEO							
MNO		0.50			0.10		
MGO		1.65			0.57		
CAO		8.09			0.35		
NA2O		1.67			3.13		
K2O		6.57			1.36		
P2O5		0.13			0.04		
LOI		8.93			1.47		
H2O					0.70		
CO2					0.29		
S							
SUM		98.80			99.40		
CR(PPM)	120	10	78	6	14	6	240
CO(PPM)	20	19	15	0.5	9	2	50
NI(PPM)	59	22	21	0.5	9	0.5	50
CU(PPM)	99	29	5	0.25	3	0.25	15
ZN(PPM)	63	38	31	2.5	14	0.25	140
AS(PPM)	11		6	2		13	2
RB(PPM)		190			50		
SR(PPM)		380			90		
Y(PPM)		30			10		
NB(PPM)		300			20		
ZR(PPM)		4100			210		
BA(PPM)		1540			310		
LA(PPM)		80			17		
CE(PPM)		114			30		
PB(PPM)	6	18	6	1	8	1	1
TH(PPM)	14	19	5	ND	7	ND	6
U(PPM)	ND	ND	ND	ND	ND	ND	ND
AU(PPB)	ND	ND	ND	ND	1	ND	ND
TA(PPM)							

DYKE LAKE AREA

SAMPLE	BAB85 D3-11	BAB85 D3-2	BAB85 D3-3	BAB85 D3-4	BAB85 D3-5A	BAB85 D3-5B	BAB85 D3-5D
RXTYPE	IRFM	QTVN/BSLT	SHLE	AGLM	IRFM	IRFM	CHIR
SIO2	49.70	45.70	67.20	39.10			
TIO2	0.10	1.77	0.64	1.36			
AL2O3	1.03	13.50	13.40	13.30			
FE2O3	38.70	13.80	5.07	19.10			
FEO							
MNO	1.97	0.22	0.13	0.26			
MGO	2.17	7.21	2.27	9.85			
CAO	0.29	10.80	1.50	5.70			
NA2O	0.01	0.01	2.83	0.01			
K2O	0.09	2.05	2.66	1.98			
P2O5	0.09	0.33	0.17	0.20			
LOI	6.00	3.70	3.70	9.31			
H2O	0.70		2.20	6.40			
CO2	6.98		0.83	3.80			
S							
SUM	100.20	99.30	99.70	100.30			
CR(PPM)	1	24	100	200	1	8	4
CO(PPM)	20	52	21	82	3	1	2
NI(PPM)	2	71	53	140	0.5	0.5	0.5
CU(PPM)	0.5	50	42	87	3.5	0.25	0.25
ZN(PPM)	19	110	130	120	9	6.5	3
AS(PPM)					3	14	5
RB(PPM)	ND	50	120	30			
SR(PPM)	ND	800	160	80			
Y(PPM)	ND	10	20	ND			
NB(PPM)	40	20	20	40			
ZR(PPM)	ND	90	190	60			
BA(PPM)	160	400	670	220			
LA(PPM)	9	29	46	17			
CE(PPM)	24	56	72	32			
PB(PPM)	1	4	16	1	1	1	1
TH(PPM)	ND	1	13	1	ND	ND	ND
U(PPM)	ND	ND	ND	ND	ND	ND	ND
AU(PPB)	ND	4	ND	ND	1	1	ND
TA(PPM)							

DYKE LAKE AREA

SAMPLE	BAB85 D3-5E	BAB85 D3-6A	BAB85 D3-6B	BAB85 D3-6D	BAB85 D3-7	BAB85 D3-8	BAB85 D4-1
RXTYPE	QTVN	IRFM/CGLM	MAVC	CGLM	MAVC	RYLT/AGLM	AGLM
SIO2			41.80	47.70	41.70		59.30
TIO2			2.80	2.21	3.28		1.72
AL2O3			19.10	16.10	14.10		11.10
FE2O3			21.00	19.00	15.60		13.30
FEO							
MNO			0.17	0.13	0.40		0.17
MGO			2.75	2.09	5.94		2.08
CAO			0.17	0.19	5.70		2.97
NA2O			0.01	1.21	1.50		1.56
K2O			9.03	8.69	3.95		2.80
P2O5			0.12	0.08	0.61		0.41
LOI			3.08	1.70	6.08		3.31
H2O			3.30	2.30	3.60		
CO2			0.02	0.09	3.03		
S							
SUM			100.30	99.40	99.40		98.90
CR(PPM)	4	26	22	26	18	32	19
CO(PPM)	1	65	77	67	91	38	50
NI(PPM)	1	51	46	40	50	19	26
CU(PPM)	5.5	7	9.5	24	85	11	48
ZN(PPM)	8.5	76	72	110	100	61	170
AS(PPM)	1	33				3	
RB(PPM)			560	240	120		50
SR(PPM)			70	180	290		120
Y(PPM)			10	50	10		30
NB(PPM)			40	50	60		40
ZR(PPM)			150	240	130		240
BA(PPM)			1640	1610	3790		770
LA(PPM)			29	48	34		50
CE(PPM)			66	92	61		94
PB(PPM)	1	1	1	1	1	2	26
TH(PPM)	ND	7	3	6	3	17	5
U(PPM)	ND	ND	ND	ND	ND	ND	ND
AU(PPB)	4	1	ND	ND	ND	8	2
TA(PPM)	1	1				1	2

DYKE LAKE AREA

SAMPLE	BAB85 D4-2	BAB85 D4-3	BAB85 D4-4	BAB85 D4-5	BAB85 D4-7	BAB86 B10-4	BAB86 B11-20
RXTYPE	MAVC	MAVC	MAAG	SHLE	IRFM	MAVC	
SIO2	45.00	56.50				45.60	
TIO2	2.91	0.89				2.36	
AL2O3	15.10	16.90				12.60	
FE2O3	15.00	12.30				15.50	
FEO							
MNO	0.38	0.15				0.20	
MGO	2.78	1.59				3.53	
CAO	5.79	0.69				6.61	
NA2O	3.27	3.33				2.11	
K2O	2.65	5.28				2.83	
P2O5	0.76	0.19				0.54	
LOI	5.23	2.08				6.16	
H2O	3.40	2.90					
CO2	2.54	0.09					
S							
SUM	99.10	100.10				98.40	
CR(PPM)	8	1	6	110	1	60	
CO(PPM)	79	22	19	34	4	54	
NI(PPM)	20	9	5	69	0.5	25	
CU(PPM)	27	2	35	76	0.25	100	
ZN(PPM)	200	140	120	170	8	170	
AS(PPM)			ND	16	12		
RB(PPM)	50	100				100	
SR(PPM)	220	130				310	
Y(PPM)	20	40				30	
NB(PPM)	50	50				40	
ZR(PPM)	230	260				230	
BA(PPM)	1060	1350				780	
LA(PPM)	55	61					
CE(PPM)	90	106					
PB(PPM)	8	2	6	14	1	6	
TH(PPM)	3	6	9	14	ND		
U(PPM)	ND	ND	ND	ND	ND		
AU(PPB)	ND	ND	2	ND	ND	ND	ND
TA(PPM)							

DYKE LAKE AREA

SAMPLE	BAB86 B11-2A	BAB86 B11-2D	BAB86 B11-2E	BAB86 B12-3	BAB86 B12-5	BAB86 B13-8	BAB86 B14-5B
RXTYPE	MAVC	MAVC	MAVC	GRCK	MAVC	GBBR	IRFM
SIO2	49.00	45.80	51.80	41.20	48.10	47.40	45.70
TIO2	2.43	2.46	2.26	1.92	1.44	1.62	0.06
AL2O3	14.00	14.00	12.80	14.20	14.90	15.70	0.87
FE2O3	13.30	15.80	13.60	16.60	13.70	13.50	32.20
FEO							
MNO	0.32	0.44	0.45	0.24	0.21	0.20	1.98
MGO	2.01	2.88	1.65	8.53	6.43	6.41	2.95
CAO	1.70	1.53	1.18	4.82	9.59	7.85	0.65
NA2O	0.05	1.53	0.08	0.20	1.84	2.64	0.01
K2O	10.60	8.15	9.73	3.86	0.70	1.86	0.03
P2O5	0.59	0.72	0.59	0.34	0.25	0.31	0.05
LOI	5.47	6.16	5.16	7.00	3.00	2.85	15.50
H2O							
CO2							
S							
SUM	99.70	99.70	99.50	99.00	100.30	100.50	100.00
CR(PPM)	60	70	60	70	130	50	50
CO(PPM)	51	42	44	63	59	61	10
NI(PPM)	18	19	16	66	83	62	5
CU(PPM)	34	50	75	38	93	44	2.5
ZN(PPM)	88	82	180	92	120	100	10
AS(PPM)							
RB(PPM)	200	220	200	100	20	70	ND
SR(PPM)	60	80	40	40	350	520	ND
Y(PPM)	30	30	50	20	20	10	ND
NB(PPM)	40	50	30	40	30	20	10
ZR(PPM)	220	220	200	130	100	70	50
BA(PPM)	1440	1670	1400	400	310	800	170
LA(PPM)							
CE(PPM)							
PB(PPM)	1	1	12	1	16	1	1
TH(PPM)							
U(PPM)							
AU(PPB)	2	ND	1	ND	ND	ND	ND
TA(PPM)		2					

DYKE LAKE AREA

SAMPLE	BAB86 B18-9A	BAB86 B19-1A	BAB86 B19-1B	BAB86 B19-5	BAB86 B20-11	BAB86 B20-13	BAB86 B20-14
RXTYPE	MAVC	GBBR	GBBR	GBBR	QRTZ	DLMT	GBBR
SIO2	49.50	48.60	45.60	49.40	63.20	46.20	44.80
TIO2	2.96	2.37	2.74	1.22	0.73	0.11	3.23
AL2O3	17.30	13.50	13.80	15.30	18.40	0.76	13.30
FE2O3	14.40	3.90	2.90	2.10	5.11	4.83	3.10
FEO		12.10	14.00	9.60			13.20
MNO	0.14	0.36	0.25	0.21	0.03	0.45	0.28
MGO	3.15	2.01	5.42	6.72	1.92	2.99	5.64
CAO	0.78	7.97	8.38	8.90	0.21	22.80	10.10
NA2O	1.18	5.23	3.61	2.36	1.52	0.01	3.05
K2O	6.47	0.70	0.54	1.61	5.77	0.04	1.18
P2O5	0.48	0.80	0.37	0.31	0.11	0.36	0.37
LOI	3.23				3.16	20.40	
H2O		2.70	3.70	3.20			3.30
CO2		0.10	0.10	0.10			0.01
S		0.69	0.18	0.01			0.14
SUM	99.80	101.00	101.80	101.20	100.30	99.00	101.90
CR(PPM)	30	19	28	82	130	20	24
CO(PPM)	82	24	50	40	24	4	47
NI(PPM)	59	11	79	95	35	7	78
CU(PPM)	49	27	220	38	21	1.5	220
ZN(PPM)	120	160	120	86	43	120	120
AS(PPM)							
RB(PPM)	170				290	20	
SR(PPM)	160				110	270	
Y(PPM)	20				30	40	
NB(PPM)	70				20	10	
ZR(PPM)	280				150	5	
BA(PPM)	1080	150	400	750	650	40	300
LA(PPM)		61	26	16			20
CE(PPM)							
PB(PPM)	2	10	8	1	4	22	4
TH(PPM)							
U(PPM)							
AU(PPB)	ND				ND	1	
TA(PPM)		2					

DYKE LAKE AREA

SAMPLE	BAB86 B20-2	BAB86 B20-3	BAB86 B20-4	BAB86 B21-8A	BAB86 B26-12	BAB86 B27-2A	BAB86 B27-2B
RXTYPE	GBBR	GBBR	GBBR	GBBR	GBBR	GBBR	SLPD
SIO2	46.90	47.60	44.90	45.00	46.90	45.80	16.40
TIO2	3.07	1.76	2.73	2.19	1.50	1.69	0.18
AL2O3	11.90	13.50	13.50	14.30	14.20	15.80	2.11
FE2O3	3.20	2.20	16.50	12.30	11.50	12.20	5.03
FEO	13.50	9.60					
MNO	0.29	0.22	0.25	0.35	0.19	0.32	1.08
MGO	4.59	6.55	5.44	8.62	7.16	7.19	1.01
CAO	8.45	11.90	8.67	5.64	11.90	4.07	40.40
NA2O	4.31	2.94	2.82	1.47	2.85	3.07	0.01
K2O	0.19	0.89	1.49	2.37	0.40	1.69	0.06
P2O5	0.42	0.23	0.29	0.21	0.15	0.30	0.05
LOI			2.77	7.08	2.31	6.77	33.30
H2O	3.10	3.30					
CO2	0.20	0.30					
S	0.91	0.03					
SUM	101.10	101.20	99.50	99.70	99.20	99.00	99.70
CR(PPM)	15	23	70	210	40	60	5
CO(PPM)	52	39	73	60	55	59	6
NI(PPM)	26	77	65	76	83	69	9
CU(PPM)	69	80	160	82	100	51	5
ZN(PPM)	140	87	130	97	84	110	18
AS(PPM)							
RB(PPM)			40	60	40	70	10
SR(PPM)			300	120	370	100	160
Y(PPM)			10	10	40	20	10
NB(PPM)			60	40	10	30	20
ZR(PPM)			160	110	80	120	50
BA(PPM)	220	930	790	860	350	330	30
LA(PPM)	23	15					
CE(PPM)							
PB(PPM)	3	5	1	1	1	1	6
TH(PPM)							
U(PPM)							
AU(PPB)			2	3	ND	ND	ND
TA(PPM)							2

DYKE LAKE AREA

SAMPLE	BAB86 B27-2D	BAB86 B7-1	BAB86 B7-2	BAB86 B7-3A	BAB86 B9-10	BAB86 B9-3F	BAB86 B9-8
RXTYPE	GBBR	MAVC	IRFM	IRFM	GBBR	TUFF	MAVC
SIO2	42.50	46.60	45.60	74.90	50.00	46.60	47.80
TIO2	3.44	1.43	3.02	0.04	2.14	2.83	2.74
AL2O3	12.80	15.10	15.40	0.12	15.30	16.50	14.00
FE2O3	18.00	11.10	14.60	22.70	12.80	16.10	15.00
FEO							
MNO	0.30	0.21	0.23	0.42	0.18	0.23	0.23
MGO	5.46	7.77	5.39	0.80	2.79	4.25	4.35
CAO	9.49	6.21	7.92	0.26	5.83	3.05	5.92
NA2O	1.96	2.57	2.57	0.01	3.61	3.23	2.59
K2O	1.82	2.76	1.82	0.05	3.08	3.33	3.11
P2O5	0.25	0.18	0.46	0.03	0.62	0.45	0.67
LOI	2.54	4.93	2.62	0.93	2.31	2.93	3.00
H2O							
CO2							
S							
SUM	98.80	99.00	99.80	100.30	98.90	99.70	99.60
CR(PPM)	40	130	70	40	30	30	40
CO(PPM)	82	76	68	6	47	59	59
NI(PPM)	72	140	64	0.5	14	20	18
CU(PPM)	240	150	100	2.5	11	83	20
ZN(PPM)	150	120	120	4.5	130	100	140
AS(PPM)							
RB(PPM)	70	100	110	20	90	100	90
SR(PPM)	350	270	490	ND	470	340	510
Y(PPM)	20	ND	20	ND	20	30	40
NB(PPM)	40	20	60	10	40	90	30
ZR(PPM)	140	50	170	ND	250	270	200
BA(PPM)	960	550	830	130	1090	1060	1020
LA(PPM)							
CE(PPM)							
PB(PPM)	1	1	8	1	2	10	12
TH(PPM)							
U(PPM)							
AU(PPB)	1	ND	2	ND	ND	ND	ND
TA(PPM)							

DYKE LAKE AREA

SAMPLE	BAB86 BCHL-1	BAB86 BCHL-2	BAB86 F6-3	BAB86 F6-4	BAB86 F6-5	BAB86 F8-11	BAB86 F8-13
RXTYPE	GBBR	GBBR					
SIO2	49.50	45.10	48.30	60.00	64.20	47.70	50.10
TIO2	1.47	1.49	2.64	0.04	0.62	1.20	1.40
AL2O3	14.00	13.20	14.80	0.17	15.10	16.40	14.10
FE2O3	2.40	2.10	15.80	38.50	6.85	12.00	12.10
FEO	8.60	8.50					
MNO	0.24	0.28	0.14	0.02	0.03	0.18	0.21
MGO	8.15	6.85	2.29	1.51	0.93	6.20	5.19
CAO	7.42	9.29	2.35	0.20	0.35	8.79	7.78
NA2O	4.64	4.73	0.57	0.01	0.20	2.99	2.33
K2O	0.36	0.25	9.76	0.05	10.60	1.40	0.72
P2O5	0.18	0.17	0.45	0.02	0.08	0.24	0.31
LOI			2.00	-0.07	1.47	2.62	5.77
H2O	3.50	4.10					
CO2	0.60	4.80					
S	0.01	0.11					
SUM	101.30	101.00	99.40	100.50	100.60	100.00	100.10
CR(PPM)	290	250	60	50	20	90	120
CO(PPM)	41	40	80	3	8	56	53
NI(PPM)	120	99	37	0.5	2	83	72
CU(PPM)	110	98	180	0.25	10	48	51
ZN(PPM)	79	110	92	5.5	62	91	110
AS(PPM)							
RB(PPM)			270	ND	280	40	30
SR(PPM)			80	ND	ND	850	340
Y(PPM)			20	ND	70	30	10
NB(PPM)			30	40	80	20	20
ZR(PPM)			80	ND	440	50	90
BA(PPM)	1200	340	2110	140	680	1010	490
LA(PPM)	9	10					
CE(PPM)							
PB(PPM)	1	23	6	1	4	6	2
TH(PPM)							
U(PPM)							
AU(PPB)			1	ND	ND	7	ND
TA(PPM)							

DYKE LAKE AREA

SAMPLE	BAB86 F8-3B	BAB86 F8-4	BAB86 F8-7	BAB86 F8-9	BAB86 R3-12	BAB86 W10-11	BAB86 W13-5
RXTYPE					GBBR		BSLT
SIO2	39.40	45.10	42.60	47.80	42.40	44.00	51.06
TIO2	2.16	2.12	3.36	1.58	2.07	2.17	2.25
AL2O3	16.10	18.00	15.30	15.50	14.20	15.20	14.94
FE2O3	22.70	13.60	12.50	12.20	13.50	13.80	2.09
FEO							10.67
MNO	0.21	0.19	0.28	0.19	0.20	0.22	0.24
MGO	5.18	5.02	1.68	6.30	8.82	8.02	2.91
CAO	3.68	5.83	8.94	8.07	9.54	8.86	5.27
NA2O	2.32	3.93	3.68	3.59	1.97	2.36	2.40
K2O	3.30	1.45	3.10	0.81	1.24	0.69	4.74
P2O5	0.32	0.31	1.17	0.27	0.28	0.34	1.01
LOI	4.70	3.47	7.47	3.00	3.93	3.85	1.29
H2O							
CO2							
S							0.05
SUM	100.30	99.20	100.30	99.50	98.40	99.70	98.92
CR(PPM)	30	20	30	70	230	120	1
CO(PPM)	66	67	53	56	69	62	
NI(PPM)	54	53	10	83	180	110	
CU(PPM)	71	89	33	39	110	55	
ZN(PPM)	470	91	86	120	100	100	300
AS(PPM)							
RB(PPM)	390	60	120	40	70	20	102
SR(PPM)	350	680	280	540	520	610	530
Y(PPM)	10	20	60	ND	10	ND	40
NB(PPM)	40	60	70	20	70	70	30
ZR(PPM)	150	160	360	80	150	170	226
BA(PPM)	730	940	670	560	1020	670	1503
LA(PPM)							
CE(PPM)							
PB(PPM)	6	1	1	10	1	2	
TH(PPM)							
U(PPM)							
AU(PPB)	ND	1	3	1	ND	ND	
TA(PPM)							

DYKE LAKE AREA

SAMPLE	BAB86 W13-9	BAB86 W17-3	BAB86 W18-4	BAB86 W18-5	BAB86 W18-6	BAB86 W19-3A	BAB86 W19-4
RXTYPE		BSLT	BSLT	BSLT	BSLT		
SIO2	58.90	48.98	47.69	46.37	45.83	43.00	48.00
TIO2	1.07	1.38	2.45	2.13	2.20	2.51	2.11
AL2O3	15.10	15.86	17.24	15.55	14.78	13.90	15.00
FE2O3	8.45	1.51	5.75	2.23	5.27	14.90	13.50
FEO		8.80	12.83	12.85	10.84		
MNO	0.18	0.16	0.15	0.13	0.24	0.45	0.21
MGO	0.75	7.45	2.71	6.97	6.74	7.48	5.14
CAO	1.89	8.53	0.57	3.57	7.08	6.25	8.31
NA2O	4.24	3.03	0.42	2.44	2.07	2.11	3.15
K2O	5.56	1.42	6.97	2.84	2.08	1.80	1.51
P2O5	0.30	0.10	0.40	0.19	0.25	0.30	0.43
LOI	1.93	2.33	2.46	4.68	2.85	6.00	2.16
H2O							
CO2							
S		0.01	0.01	0.01	0.02		
SUM	98.70	99.55	99.64	99.95	100.25	98.90	99.70
CR(PPM)	30	175	33	42	33	40	70
CO(PPM)	14					61	59
NI(PPM)	4	92	35	58	45	49	49
CU(PPM)	6.5					140	38
ZN(PPM)	140	21720	115	122	144	120	120
AS(PPM)							
RB(PPM)	150	265	153	107	28	60	50
SR(PPM)	220	483	75	182	289	210	610
Y(PPM)	40	21	46	28	38	20	10
NB(PPM)	60	10	34	28	41	60	30
ZR(PPM)	590	86	131	113	154	160	140
BA(PPM)	1960	650	478	556	1045	970	790
LA(PPM)							
CE(PPM)							
PB(PPM)	8					1	8
TH(PPM)							
U(PPM)							
AU(PPB)	ND	ND		1	1	1	ND
TA(PPM)							

DYKE LAKE AREA

SAMPLE	BAB86 W19-5	BAB86 W20-1	BAB86 W21-6	BAB86 W21-7	BAB86 W3-4B	BAB86 W3-6	BAB86 W4-11
RXTYPE		BSLT					
SIO2	47.30	43.00	47.20	43.30	53.00	48.20	45.80
TIO2	1.55	3.36	2.70	2.86	2.35	2.62	1.12
AL2O3	15.50	15.17	15.10	15.10	15.80	15.40	16.70
FE2O3	12.80	3.68	15.10	14.90	13.30	18.50	10.70
FEO		11.84					
MNO	0.18	0.50	0.26	0.23	0.17	0.08	0.17
MGO	6.68	6.95	3.51	4.09	1.63	3.03	8.58
CAO	8.37	5.11	5.77	8.26	1.31	1.87	9.23
NA2O	3.05	2.73	3.96	2.83	1.43	2.78	2.45
K2O	1.11	1.68	2.63	2.69	7.12	3.40	1.42
P2O5	0.26	0.67	0.58	0.28	0.84	0.42	0.12
LOI	2.77	5.36	2.23	3.54	3.08	2.70	3.62
H2O							
CO2							
S		0.01					
SUM	99.70	100.06	99.30	98.30	100.30	99.20	100.10
CR(PPM)	70	38	60	30	40	60	160
CO(PPM)	59		64	62	44	54	55
NI(PPM)	86	22	35	22	18	28	130
CU(PPM)	40		42	84	43	44	58
ZN(PPM)	110	98	160	130	100	97	69
AS(PPM)							
RB(PPM)	50	33	90	120	160	140	80
SR(PPM)	570	195	270	660	110	260	530
Y(PPM)	10	25	30	20	40	10	10
NB(PPM)	20	39	40	70	60	70	20
ZR(PPM)	80	128	220	160	370	260	60
BA(PPM)	580	799	1070	720	1110	950	360
LA(PPM)							
CE(PPM)							
PB(PPM)	1		4	1	8	1	1
TH(PPM)							
U(PPM)							
AU(PPB)	2	ND	4	ND	ND	ND	2
TA(PPM)							

DYKE LAKE AREA

SAMPLE	BAB86 W4-13	BAB86 W4-16	BAB86 W4-2B	BAB86 W4-4	BAB86 W4-5	BAB86 W5-1	BAB86 W5-2B
RXTYPE	BSLT			GBBR	GBBR		
SIO2	43.46	46.50	41.80	47.63	62.60	44.30	44.90
TIO2	1.85	1.21	4.00	3.40	0.62	1.56	2.40
AL2O3	15.25	16.50	14.20	14.48	13.49	15.40	15.40
FE2O3	2.07	10.80	16.10	1.73	5.57	12.90	16.20
FEO	11.01			9.66	3.41		
MNO	0.20	0.16	0.25	0.20	0.24	0.21	0.41
MGO	9.15	7.62	12.30	6.55	0.25	8.88	5.78
CAO	9.40	9.19	3.41	6.25	2.29	9.00	5.99
NA2O	2.05	2.42	0.67	3.34	4.43	1.99	3.65
K2O	1.69	1.91	0.41	2.49	5.33	0.75	1.23
P2O5	0.17	0.13	0.39	0.26	0.06	0.19	0.29
LOI	3.53	3.47	6.62	3.40	1.63	4.00	2.85
H2O							
CO2							
S	0.01			0.03	0.01		
SUM	99.83	100.10	100.20	99.42	99.93	99.30	99.20
CR(PPM)	275	230	170	326		290	80
CO(PPM)		55	53			62	97
NI(PPM)	183	89	62	86	12	140	59
CU(PPM)		73	33			53	110
ZN(PPM)	317	81	150	114	182	99	160
AS(PPM)							
RB(PPM)	81	70	20	41	96	40	60
SR(PPM)	508	470	ND	375	70	220	180
Y(PPM)	19	ND	20	27	50	20	30
NB(PPM)	35	20	50	29	51	10	50
ZR(PPM)	143	50	260	176	288	90	140
BA(PPM)	537	710	140	692	266	420	600
LA(PPM)							
CE(PPM)							
PB(PPM)		1	16			1	4
TH(PPM)							
U(PPM)							
AU(PPB)	1	ND	ND	ND		3	1
TA(PPM)							

DYKE LAKE AREA

SAMPLE	BAB86 W5-2A	BAB86 W5-3	BAB86 W5-4	BAB86 W6-1	BAB86 W6-4B	BAB86 W6-6	BAB86 W7-7
RXTYPE					TRCT		
SIO2	43.70	59.30	48.10	46.50	57.40	45.80	48.40
TIO2	2.42	1.37	2.54	2.09	0.81	2.42	2.33
AL2O3	11.70	12.60	14.70	21.50	18.13	16.90	15.50
FE2O3	19.50	13.20	14.60	8.76	0.99	14.10	14.50
FEO					5.59		
MNO	0.22	0.17	0.21	0.19	0.04	0.19	0.20
MGO	6.68	1.47	3.11	2.32	0.85	4.73	4.10
CAO	9.91	2.39	7.55	4.78	0.24	7.75	3.72
NA2O	1.62	2.00	2.28	3.68	0.01	3.08	4.20
K2O	0.37	4.08	2.34	3.59	13.32	0.59	2.15
P2O5	0.06	0.32	0.59	0.35	0.19	0.30	0.73
LOI	3.16	2.23	2.54	4.31	1.23	2.70	3.77
H2O							
CO2							
S					0.01		
SUM	99.40	99.50	98.80	98.40	98.79	98.80	99.80
CR(PPM)	50	50	50	50		30	30
CO(PPM)	99	22	58	51		66	42
NI(PPM)	86	10	23	41	5	32	7
CU(PPM)	270	9.5	36	73		30	11
ZN(PPM)	89	110	150	63	120	93	160
AS(PPM)							
RB(PPM)	30	60	70	200	262	30	90
SR(PPM)	40	170	470	630	19	580	440
Y(PPM)	ND	40	10	30	73	ND	10
NB(PPM)	20	70	40	50	59	50	70
ZR(PPM)	20	600	200	150	540	170	290
BA(PPM)	110	1870	920	1630	1379	1060	830
LA(PPM)							
CE(PPM)							
PB(PPM)	1	2	1	1		8	4
TH(PPM)							
U(PPM)							
AU(PPB)	ND	ND	1	ND		ND	ND
TA(PPM)							

DYKE LAKE AREA

SAMPLE	BAB86 W7-8A	BAB86 W7-8B	BAB86 W8-1	BAB86 W8-3	BAB86 W8-5	BAB86 W9-2B	BAB86 W9-3A
RXTYPE							
SIO2	47.50	49.70	57.70	49.50	51.70	51.90	47.10
TIO2	2.46	2.26	0.88	2.11	2.25	2.49	2.48
AL2O3	16.60	15.30	17.50	17.50	15.20	16.80	18.30
FE2O3	14.70	15.00	9.34	11.50	13.20	15.30	9.65
FEO							
MNO	0.22	0.20	0.12	0.18	0.11	0.08	0.21
MGO	3.71	3.32	0.79	3.87	3.36	2.06	2.65
CAO	2.99	2.20	0.67	5.09	1.29	0.41	4.39
NA2O	4.03	1.78	1.93	3.68	1.30	0.54	2.16
K2O	2.71	6.05	9.48	2.86	6.77	6.83	6.38
P2O5	0.78	0.82	0.06	0.65	0.79	0.28	0.27
LOI	3.31	3.08	1.54	3.00	3.31	3.31	4.93
H2O							
CO2							
S							
SUM	99.30	100.00	100.30	100.20	99.60	100.20	98.80
CR(PPM)	30	20	20	50	20	60	50
CO(PPM)	49	37	12	45	42	64	130
NI(PPM)	7	8	6	22	6	42	60
CU(PPM)	15	7.5	4	16	15	77	92
ZN(PPM)	160	140	110	120	84	100	120
AS(PPM)							
RB(PPM)	90	150	250	100	130	240	190
SR(PPM)	350	210	60	350	100	20	100
Y(PPM)	30	20	30	30	40	30	30
NB(PPM)	80	80	60	50	50	50	60
ZR(PPM)	300	290	260	280	310	140	140
BA(PPM)	1220	1560	1390	990	1810	840	1900
LA(PPM)							
CE(PPM)							
PB(PPM)	1	1	1	1	1	1	2
TH(PPM)							
U(PPM)							
AU(PPB)	ND	ND	ND	ND	2	ND	ND
TA(PPM)							

DYKE LAKE AREA

SAMPLE	BAB86 W9-3B	BAB86 W9-4	BAB86 W9-7	BAB86 W9-8A	BAB86 W9-9A
RXTYPE					
SIO2	42.00	46.40	49.30	41.60	38.00
TIO2	2.23	2.28	2.09	1.41	2.40
AL2O3	15.70	14.90	13.10	9.20	15.70
FE2O3	13.60	22.80	12.10	27.30	26.10
FEO					
MNO	0.34	0.17	0.28	0.37	0.09
MGO	4.86	4.30	5.94	3.55	7.24
CAO	7.92	0.44	6.56	1.50	0.70
NA2O	3.12	0.16	1.91	1.00	0.52
K2O	1.76	4.61	4.56	2.98	2.92
P2O5	0.24	0.33	0.39	0.07	0.25
LOI	8.16	4.16	2.70	11.10	5.93
H2O					
CO2					
S					
SUM	100.00	100.30	99.20	100.20	100.00
CR(PPM)	50	60	120	430	70
CO(PPM)	71	67	52	40	89
NI(PPM)	48	66	41	39	45
CU(PPM)	110	7	44	20	90
ZN(PPM)	130	200	90	100	160
AS(PPM)					
RB(PPM)	50	ND	100	ND	70
SR(PPM)	130	10	380	50	10
Y(PPM)	10	ND	20	10	10
NB(PPM)	40	70	20	60	60
ZR(PPM)	120	190	160	210	140
BA(PPM)	620	490	1270	400	830
LA(PPM)					
CE(PPM)					
PB(PPM)	6	1	1	4	1
TH(PPM)					
U(PPM)					
AU(PPB)	ND	ND	1	ND	ND
TA(PPM)					

DYKE LAKE AREA (1987)

SAMPLE	BAB87 B5-1A	BAB87 B5-1B	BAB87 B6-1	BAB87 B7-3A	BAB87 B7-3B	BAB87 B9-1	BAB87 R1-1
RXTYPE	GBBR	GBBR	GBBR	GBBR	GBBR	GBBR	PLBS
SIO2	45.30	48.70	44.10	46.50	44.70	43.10	44.10
TIO2	2.46	2.18	2.24	1.47	1.80	1.38	2.19
AL2O3	14.20	14.10	14.50	15.60	15.30	13.70	13.80
FE2O3*	15.50	16.00	12.20	11.20	13.60	13.40	19.00
FEO							
MGO	4.90	2.84	8.46	7.04	9.46	13.00	7.15
MNO	0.25	0.34	0.31	0.16	0.19	0.20	0.22
CAO	10.10	6.46	5.77	11.60	4.32	8.12	4.08
NA2O	2.87	3.79	1.74	2.66	1.56	1.95	1.21
K20	1.05	2.31	2.24	0.70	1.17	0.13	1.53
P2O5	0.32	0.50	0.23	0.14	0.16	0.15	0.78
LOI	2.39	2.47	6.77	3.23	6.31	4.70	5.77
TOTAL	99.50	99.90	98.80	100.40	98.70	100.00	100.10
H2O+	2.90	2.50	4.80	3.10	5.20	4.90	5.80
CO2	0.09	0.22	2.77	0.12	2.10	0.04	0.82
RB(PPM)	28	46	47	22	49	5	64
SR(PPM)	407	260	262	335	168	237	271
Y(PPM)	17	63	18	22	29	15	33
ZR(PPM)	161	400	113	50	70	50	162
NB(PPM)	67	127	34	16	14	21	52
BA(PPM)	427	675	955	260	327	179	1340
LA(PPM)							
CR(PPM)	54	14	187	294	297	828	47
CO(PPM)	45	27	38	39	53	78	32
NI(PPM)	62	3	68	79	92	380	24
CU(PPM)	170	55	100	97	130	64	29
PB(PPM)	6	1	1	1	1	1	1
ZN(PPM)	150	170	100	86	100	110	130
AG(PPM)	0.5	nd	nd	nd	nd	nd	nd
AS(PPM)	0.5	0.7	1.1	6.7	40	0.1	1.5
MO(PPM)	5	5	4	3	3	3	4
AU(PPB)	nd	nd	nd	nd	nd	nd	nd

DYKE LAKE AREA (1987)

SAMPLE	BAB87 R1-2	BAB87 R1-3	BAB87 R1-4	BAB87 R1-5	BAB87 W10-1	BAB87 W10-14B	BAB87 W10-4
RXTYPE	BSLT	AMBS	PLBS	PLBS	PXNT	ULTR	PXNT
SIO2	45.70	47.30	54.90	51.10	49.40	41.30	40.80
TIO2	2.80	2.56	2.58	1.81	2.66	0.92	0.75
AL2O3	15.20	16.40	17.10	13.00	14.20	9.07	7.89
FE2O3*	17.10	13.90	8.19	17.00	4.46	2.38	2.58
FEO					9.30	10.10	8.30
MGO	4.01	4.46	2.15	5.30	3.39	20.40	23.10
MNO	0.29	0.19	0.07	0.22	0.26	0.19	0.18
CAO	6.51	3.68	2.84	5.75	5.65	6.85	7.37
NA2O	2.25	4.31	5.01	0.86	3.48	0.14	0.12
K20	1.43	2.18	3.78	0.42	2.93	1.82	0.05
P2O5	0.74	0.42	0.49	0.32	0.64	0.11	0.10
LOI	3.54	3.70	1.93	3.85	2.39	5.39	7.31
TOTAL	99.80	99.40	99.30	99.80	99.06	99.08	99.28
H2O+	4.00	3.80	2.00	4.00	2.80	5.00	6.20
CO2	0.28	0.82	0.04	0.04	0.05	0.02	0.18
RB(PPM)	62	66	101	25	52	100	15
SR(PPM)	735	455	552	1080	288	19	30
Y(PPM)	32	20	25	25	34	7	9
ZR(PPM)	249	162	148	86	185	46	53
NB(PPM)	58	53	54	40	28	8	7
BA(PPM)	690	1480	1300	254	1760	23	16
LA(PPM)					47	8	11
CR(PPM)	33	50	45	58	10	2300	4660
CO(PPM)	36	51	46	55	34	83	81
NI(PPM)	19	35	29	44	10	740	1000
CU(PPM)	26	31	36	52	25	60	79
PB(PPM)	1	1	1	1	1	1	1
ZN(PPM)	180	130	94	130	170	95	71
AG(PPM)	nd	nd	nd	nd	0.5	nd	nd
AS(PPM)	2.1	13	1.1	1.7			
MO(PPM)	6	4	5	3	7	3	3
AU(PPB)	nd	2	nd	nd	nd	nd	nd

DYKE LAKE AREA (1987)

SAMPLE	BAB87 W10-8	BAB87 W11-3A	BAB87 W11-6
RXTYPE	GBBR	PRDT	GBBR
SIO2	47.40	44.00	44.20
TIO2	2.87	0.87	0.80
AL2O3	13.80	8.08	7.28
FE2O3*	4.39	2.02	2.06
FEO	10.00	8.80	8.40
MGO	3.71	18.70	19.10
MNO	0.28	0.21	0.18
CAO	8.96	11.40	12.30
NA2O	3.17	0.19	0.17
K20	1.49	0.01	0.01
P2O5	0.60	0.08	0.07
LOI	2.00	4.54	4.23
TOTAL	98.89	99.32	99.26
H2O+	2.20	4.40	3.70
CO2	0.04	0.05	0.02
RB(PPM)	32	9	6
SR(PPM)	486	21	18
Y(PPM)	30	7	8
ZR(PPM)	153	39	36
NB(PPM)	26	4	3
BA(PPM)	936	30	18
LA(PPM)	41	5	4
CR(PPM)	10	2580	2860
CO(PPM)	42	68	71
NI(PPM)	9	630	650
CU(PPM)	19	98	100
PB(PPM)	1	1	1
ZN(PPM)	170	85	74
AG(PPM)	nd	nd	nd
AS(PPM)			
MO(PPM)	7	2	3
AU(PPB)	nd	nd	nd

BIRCH LAKE AREA

SAMPLE	BAB85 19-1	BAB85 19-2A	BAB85 19-2B	BAB85 19-3A	BAB85 19-3B	BAB85 19-3C	BAB85 19-4
RXTYPE	SHLE	GBBR	GBBR	DLMT/TUFF	DLMT/TUFF	QRTZ	DMLT
SIO2		49.80	50.50			76.70	
TIO2		3.06	2.80			0.40	
AL2O3		13.70	14.00			11.10	
FE2O3		13.70	13.10			0.51	
MNO		0.20	0.30			0.01	
MGO		3.71	2.85			1.11	
CAO		5.01	5.54			0.29	
NA2O		2.96	3.42			0.76	
K2O		2.10	2.99			6.14	
P2O5		1.34	1.07			0.06	
LOI		3.08	2.16			1.62	
H2O		2.90	2.00			0.40	
CO2		0.83	0.02			0.20	
S						0.27	
SUM		98.90	99.00			98.80	
BE(PPM)		5	5			6	
CR(PPM)	94	280	1	32	26	90	1
CO(PPM)	9	57	43	5	5		0.5
NI(PPM)	36	120	4	15	13		4
CU(PPM)	45	26	0.25	8	6.5		30
ZN(PPM)	69	13	170	33	30		18
AS(PPM)	18			ND	1		1
RB(PPM)		30	90			100	
SR(PPM)		260	670			10	
Y(PPM)		50	40			ND	
NB(PPM)		90	80			20	
ZR(PPM)		420	370			60	
BA(PPM)		1240	1440			340	
LA(PPM)		90	83			26	
CE(PPM)		174	165			35	
PB(PPM)	10	1	8	1	1		2
TH(PPM)	14	5	4	1	1		1
U(PPM)	7	ND	ND	ND	ND		ND
AU(PPB)	1	ND	ND	ND	2	1	3

BIRCH LAKE AREA

SAMPLE	BAB85 19-5	BAB85 19-6	BAB85 19-9A	BAB85 19-9D	BAB85 20-1	BAB85 20-4A	BAB85 20-4C
RXTYPE	SHLE	SLSN	GBBR	GBBR	SHLE	SNDS	SNDS
SIO2			40.50	42.00			
TIO2			2.51	2.58			
AL2O3			6.93	7.92			
FE2O3			15.40	13.30			
MNO			0.22	0.18			
MGO			19.90	17.40			
CAO			6.95	10.10			
NA2O			0.48	0.44			
K2O			0.26	0.23			
P2O5			0.29	0.33			
LOI			5.08	3.93			
H2O			4.20	3.80			
CO2			0.70	0.01			
S							
SUM			99.90	98.90			
BE(PPM)			4	5			
CR(PPM)	82	150	3100	3300	86	46	38
CO(PPM)	12	19	100	100	12	12	13
NI(PPM)	18	66	930	880	35	31	16
CU(PPM)	10	26	110	190	47	2	4
ZN(PPM)	49	160	99	78	31	39	33
AS(PPM)	1	1			1	ND	ND
RB(PPM)			10	30			
SR(PPM)			200	220			
Y(PPM)			20	10			
NB(PPM)			40	40			
ZR(PPM)			150	160			
BA(PPM)			220	170			
LA(PPM)			26	26			
CE(PPM)			59	58			
PB(PPM)	8	2	1	1	1	1	1
TH(PPM)	18	13	1	2	5	7	8
U(PPM)	ND	ND	ND	ND	ND	ND	ND
AU(PPB)	ND	ND	ND	ND	ND	1	ND

BIRCH LAKE AREA

SAMPLE	BAB85 21-1A	BAB85 21-1B	BAB85 21-1C	BAB85 21-1D	BAB85 21-2A	BAB85 21-2B	BAB85 21-2C
RXTYPE	SHLE	SHLE	GBBR	SHLE	IRFM	QRTZ/SLPD	QRTZ
SIO2			40.80				
TIO2			5.53				
AL2O3			12.90				
FE2O3			13.00				
MNO			0.23				
MGO			4.97				
CAO			9.59				
NA2O			2.19				
K2O			0.69				
P2O5			0.54				
LOI			8.47				
H2O			3.40				
CO2			6.18				
S							
SUM			99.90				
BE(PPM)			5				
CR(PPM)	130	98	150	120	30	10	12
CO(PPM)	11	18	98	11	5	10	7
NI(PPM)	60	73	120	54	5	10	3
CU(PPM)	33	55	110	33	16	7.5	5.5
ZN(PPM)	74	55	130	80	14	21	15
AS(PPM)	3	14		ND	3	30	13
RB(PPM)			25				20
SR(PPM)			309				320
Y(PPM)			26				30
NB(PPM)			37				50
ZR(PPM)			224				240
BA(PPM)			299				300
LA(PPM)			39				
CE(PPM)			85				
PB(PPM)	1	4	1	4	4	10	1
TH(PPM)	18	15	3	15	7	2	2
U(PPM)	5	6	ND	ND	ND	ND	ND
AU(PPB)	ND	2	ND	ND	ND	ND	2

BIRCH LAKE AREA

SAMPLE	BAB85 21-3A	BAB85 21-3B	BAB85 21-3C	BAB85 21-3D	BAB85 21-3E	BAB85 21-3F	BAB85 21-3G
RXTYPE	MAVC	GBBR	MAVC	SCORIA/ SIVC	MAVC	MAVC	MAVC
SIO2	46.40	47.80	40.00	67.70	56.10	38.80	46.20
TIO2	3.47	1.94	3.56	0.97	1.78	3.77	3.39
AL2O3	15.70	20.10	14.90	5.97	10.70	16.40	15.20
FE2O3	14.00	9.17	21.20	10.50	18.30	22.40	15.30
MNO	0.28	0.13	0.20	0.13	1.04	0.22	0.25
MGO	4.06	2.83	6.24	2.37	2.88	5.29	4.56
CAO	7.09	7.28	4.03	5.45	1.15	2.58	6.73
NA2O	2.87	3.28	1.40	0.02	0.76	1.91	2.51
K2O	2.04	2.23	0.63	0.76	2.00	2.13	2.08
P2O5	0.55	0.34	0.44	0.12	0.20	0.55	0.52
LOI	1.93	4.47	5.77	5.39	5.77	4.77	2.08
H2O	2.40	2.70	6.00	2.70	4.30	5.90	2.70
CO2	0.10	2.23	0.64	3.90	0.06	0.10	0.09
S							
SUM	98.60	99.80	98.90	99.50	99.90	99.00	99.20
BE(PPM)	6	4	5	3	6	5	5
CR(PPM)	52	20	32	26	32	50	44
CO(PPM)	93	51	87	35	40	97	82
NI(PPM)	69	34	58	23	31	75	67
CU(PPM)	170	86	110	36	42	160	190
ZN(PPM)	140	110	100	48	52	130	160
AS(PPM)							
RB(PPM)	71	80	20	10	48	52	80
SR(PPM)	523	600	163	100	57	144	450
Y(PPM)	34	40	33	10	25	30	30
NB(PPM)	57	60	28	40	58	54	60
ZR(PPM)	239	180	174	130	263	217	200
BA(PPM)	1140	630	338	290	458	689	2000
LA(PPM)	53	50	42	31	48	48	53
CE(PPM)	103	89	80	50	82	94	101
PB(PPM)	1	4	1	10	10	1	1
TH(PPM)	4	4	5	3	6	4	3
U(PPM)	ND	ND	ND	ND	9	ND	ND
AU(PPB)	ND	ND	1	ND	ND	1	1

BIRCH LAKE AREA

SAMPLE	BAB85 21-3H	BAB85 21-3J	BAB85 B2-1	BAB85 B2-2	BAB85 B2-3
RXTYPE	MAVC	DYKE	MAVC	MAVC	MAVC
SIO2	49.10	45.30	44.50	45.60	42.60
TIO2	2.21	2.00	1.90	1.90	1.82
AL2O3	20.60	13.80	15.00	15.50	14.20
FE2O3	9.10	14.70	12.90	12.10	13.90
MNO	0.13	0.22	0.19	0.16	0.20
MGO	3.10	6.14	7.94	7.07	8.89
CAO	6.94	10.30	9.65	9.67	11.20
NA2O	3.42	2.16	1.89	1.93	1.39
K2O	2.08	0.55	1.11	11.80	0.59
P2O5	0.36	0.25	0.29	0.28	0.28
LOI	2.85	3.31	3.39	2.93	4.08
H2O	2.60		3.40	3.10	3.90
CO2	0.37		0.09	0.01	0.09
S					
SUM	100.10	98.80	98.90	98.50	99.30
BE(PPM)	4	3	4	3	4
CR(PPM)	26	14	150	150	140
CO(PPM)	56	69	68	68	78
NI(PPM)	38	63	170	170	180
CU(PPM)	99	170	91	95	80
ZN(PPM)	78	120	91	89	110
AS(PPM)					
RB(PPM)	80	10	40	10	20
SR(PPM)	810	230	420	510	330
Y(PPM)	30	10	20	30	10
NB(PPM)	40	40	50	50	50
ZR(PPM)	130	100	150	130	140
BA(PPM)	990	210	640	670	420
LA(PPM)	38	27	34	35	31
CE(PPM)	67	52	65	61	58
PB(PPM)	1	1	1	1	1
TH(PPM)	3	3	3	3	3
U(PPM)	ND	ND	ND	ND	ND
AU(PPB)	ND	ND	ND	ND	ND

BIRCH LAKE AREA

SAMPLE	BAB85 B2-5	BAB85 B2-6A	BAB85 B2-6B	BAB85 B2-7	BAB85 B2-8
RXTYPE	MAVC	MAVC	MAVC	MAVC	MAVC
SIO2	47.40	56.30	45.60	49.80	52.60
TIO2	0.91	0.60	0.64	0.60	1.23
AL2O3	13.50	10.90	13.00	12.30	13.00
FE2O3	12.10	16.20	11.40	10.90	12.00
MNO	0.22	0.10	0.22	0.17	0.19
MGO	10.20	2.28	10.40	9.14	5.64
CAO	6.50	10.70	10.10	8.48	6.86
NA2O	2.69	0.01	1.90	2.79	2.97
K2O	0.57	0.17	0.34	0.47	1.85
P2O5	0.15	0.05	0.10	0.10	0.38
LOI	4.62	2.47	5.54	4.16	2.16
H2O	4.30	1.30	3.40	2.80	2.10
CO2	0.72	0.70	1.72	1.35	0.35
S					
SUM	99.10	100.00	99.60	99.20	99.10
BE(PPM)	3	3	3	2	4
CR(PPM)	1200	730	1700	1500	250
CO(PPM)	65	42	73	65	57
NI(PPM)	240	230	320	270	100
CU(PPM)	92	67	76	15	42
ZN(PPM)	100	31	100	130	130
AS(PPM)					
RB(PPM)	20	5	5	40	50
SR(PPM)	180	1630	510	250	400
Y(PPM)	10	10	20	ND	30
NB(PPM)	10	10	10	30	20
ZR(PPM)	40	5	5	10	70
BA(PPM)	310	190	300	280	1150
LA(PPM)	13	8	8	8	28
CE(PPM)	25	20	18	20	55
PB(PPM)	1	2	1	1	8
TH(PPM)	ND	ND	ND	ND	1
U(PPM)	ND	ND	ND	ND	ND
AU(PPB)	2	1	2	1	ND

JASPER MOUNTIAN AREA

SAMPLE	BAB85 4-1	BAB85 4-10	BAB85 4-10B	BAB85 4-11	BAB85 4-12A	BAB85 4-14A	BAB85 4-2
RXTYPE	RYLT			RYLT	RYLT	VOLC	MAVC
SIO2	59.00			65.70	68.80	70.80	40.30
TIO2	0.92			0.03	0.70	0.55	1.44
AL2O3	15.80			0.05	11.40	9.66	14.40
FE2O3	7.96			32.70	9.89	11.40	12.90
FEO	5.00			1.40			9.80
MNO	0.17			0.04	0.07	0.09	0.26
MGO	2.02			0.38	1.24	1.33	6.08
CAO	3.48			0.07	0.47	0.31	10.10
NA2O	4.15			0.01	1.13	0.20	1.20
K2O	4.49			0.02	4.28	3.74	1.33
P2O5	0.20			0.03	0.09	0.09	0.26
LOI	1.81			1.16	2.00	2.08	11.80
H2O	1.40			0.70			6.00
CO2	0.01			0.01			7.52
SUM	100.20			100.20	100.20	100.40	100.10
LI(PPM)	8				10	8	
BE(PPM)	4				4	4	
CR(PPM)	10			20	40	20	40
CO(PPM)							
NI(PPM)							
CU(PPM)	22				8	6.5	
ZN(PPM)	110				95	169	
RB(PPM)	60			10	140	90	60
SR(PPM)	260			5	20	5	180
Y(PPM)	20			5	20	40	10
NB(PPM)	40			20	70	40	20
ZR(PPM)	180			5	420	230	60
BA(PPM)	1280			150	540	540	260
LA(PPM)	57.3				68.4	56.8	
CE(PPM)	97				107	93	
PB(PPM)	4				2	6.6	
TH(PPM)	6.4			0.1	9.7	0.6	1.2
U(PPM)	0.4			ND	1		0.5
AU(PPB)	ND	ND	ND	ND	ND	ND	1

JASPER MOUNTAIN AREA

SAMPLE	BAB85 4-3	BAB85 4-5	BAB85 4-7	BAB85 4-8	BAB85 4-9	BAB85 J-001	BAB85 J-002
RXTYPE	MAVC	MAVC		MAVC	MAVC	RYLT	VCCL
SIO2	53.70	52.40		46.00	45.50		
TIO2	2.17	2.17		2.44	2.65		
AL2O3	13.80	15.00		15.90	16.40		
FE2O3	13.60	16.70		16.50	15.50		
FEO	10.10	13.10		12.80	10.70		
MNO	0.12	0.08		0.31	0.20		
MGO	4.71	3.44		2.17	4.24		
CAO	1.93	1.15		1.81	7.25		
NA2O	0.51	1.16		0.01	3.69		
K2O	4.85	4.01		9.02	0.88		
P2O5	0.59	0.62		0.98	0.38		
LOI	3.70	3.39		5.23	3.23		
H2O	4.10	4.20		1.70	3.40		
CO2	0.09	0.03		3.49	0.07		
SUM	99.80	100.30		100.60	100.10		
LI(PPM)							
BE(PPM)							
CR(PPM)	30	10		5	10		
CO(PPM)							
NI(PPM)							
CU(PPM)							
ZN(PPM)							
RB(PPM)	110	110		180	23		
SR(PPM)	90	100		20	714		
Y(PPM)	20	20		30	22		
NB(PPM)	50	60		50	48		
ZR(PPM)	230	250		410	215		
BA(PPM)	900	830		940	457		
LA(PPM)					40		
CE(PPM)							
PB(PPM)							
TH(PPM)	2.7	3.7		7	4.2		
U(PPM)	1.6	0.8		2.2	1.1		
AU(PPB)	ND	ND	ND	ND	2	ND	ND

JASPER MOUNTAIN AREA

SAMPLE	BAB85 J-003	BAB85 J-004	BAB85 J-005	BAB85 J-006	BAB85 J-007	BAB85 J-008	BAB85 J-009
RXTYPE	SHLE/SLSN	VCCG	IRFM	CHIR	CHIR	VCCG	CHIR
SIO2							
TIO2							
AL2O3							
FE2O3							
FEO							
MNO							
MGO							
CAO							
NA2O							
K2O							
P2O5							
LOI							
H2O							
CO2							
SUM							
LI(PPM)							
BE(PPM)							
CR(PPM)							
CO(PPM)							
NI(PPM)							
CU(PPM)							
ZN(PPM)							
RB(PPM)							
SR(PPM)							
Y(PPM)							
NB(PPM)							
ZR(PPM)							
BA(PPM)							
LA(PPM)							
CE(PPM)							
PB(PPM)							
TH(PPM)							
U(PPM)							
AU(PPB)	ND	ND	ND	ND	ND	ND	ND

JASPER MOUNTAIN AREA

SAMPLE	BAB85 J-010	BAB85 J-011	BAB85 J-012	BAB86 B4-2	BAB86 F2-1	BAB86 F2-2	BAB86 F2-3
RXTYPE	CHIR	CHIR	VCCG	MAVC			
SIO2				47.80	50.00	52.60	56.50
TIO2				2.54	2.99	2.45	1.92
AL2O3				14.50	19.30	16.50	13.00
FE2O3				14.40	11.30	11.50	9.39
FEO							
MNO				0.25	0.14	0.11	0.10
MGO				4.10	2.60	2.79	0.66
CAO				7.56	1.83	2.78	15.40
NA2O				3.05	2.94	4.43	0.02
K2O				2.16	4.43	3.12	0.10
P2O5				0.60	0.48	0.99	0.62
LOI				1.93	3.16	2.47	1.85
H2O							
CO2							
SUM				99.10	99.40	99.90	99.80
LI(PPM)							
BE(PPM)							
CR(PPM)				50	30	30	30
CO(PPM)				58	68	42	20
NI(PPM)				25	27	10	8
CU(PPM)				24	110	38	5
ZN(PPM)				120	90	140	19
RB(PPM)				40	180	90	20
SR(PPM)				530	230	220	1240
Y(PPM)				30	30	50	5
NB(PPM)				50	70	70	40
ZR(PPM)				160	280	350	220
BA(PPM)				950	890	890	20
LA(PPM)							
CE(PPM)							
PB(PPM)				1	1	1	8
TH(PPM)							
U(PPM)							
AU(PPB)	ND	ND	ND	1	ND	ND	1

JASPER MOUNTAIN AREA

SAMPLE	BAB86 F2-4	BAB86 F2-6	BAB86 W11-3A	BAB86 W12-6	BAB86 W13-4	BAB86 W14-4C	BAB86 W15-2
RXTYPE							
SIO2	51.10	52.00	60.10	57.80	43.90	50.80	48.50
TIO2	2.11	2.20	1.45	1.28	2.95	2.33	1.41
AL2O3	15.60	16.50	17.80	15.10	12.80	17.70	15.50
FE2O3	12.60	13.70	8.34	9.51	16.60	13.10	12.00
FEO							
MNO	0.23	0.09	0.03	0.19	0.29	0.16	0.18
MGO	3.00	1.51	1.54	0.98	6.27	2.47	6.88
CAO	5.81	1.32	0.54	2.46	7.86	1.15	8.10
NA2O	3.28	2.84	2.69	4.42	3.11	3.52	3.12
K2O	3.12	6.64	4.75	4.82	0.46	5.08	0.80
P2O5	0.63	0.68	0.30	0.41	0.22	0.74	0.16
LOI	1.85	1.54	2.70	2.08	3.77	2.31	3.00
H2O							
CO2							
SUM	99.60	99.20	100.40	99.40	98.30	99.70	99.80
LI(PPM)							
BE(PPM)							
CR(PPM)	40	60	140	30	40	40	40
CO(PPM)	51	34	63	17	73	44	58
NI(PPM)	13	26	71	2	43	16	62
CU(PPM)	14	2.5	550	6	170	11	39
ZN(PPM)	140	80	92	120	120	120	91
RB(PPM)	70	180	250	130	30	140	50
SR(PPM)	550	140	100	190	160	150	450
Y(PPM)	30	30	10	50	20	50	20
NB(PPM)	40	40	20	50	40	40	30
ZR(PPM)	240	290	100	590	140	510	60
BA(PPM)	1080	950	780	1740	330	1560	300
LA(PPM)							
CE(PPM)							
PB(PPM)	2	4	2	10	1	10	2
TH(PPM)							
U(PPM)							
AU(PPB)	ND	ND	12	ND	ND	ND	ND

JASPER MOUNTAIN AREA

SAMPLE	BAB86	BAB86	BAB86
	W2-1	W3-8A	W7-3
RXTYPE			
SIO2	53.60	74.00	45.70
TIO2	1.95	0.50	2.41
AL2O3	12.90	13.10	15.80
FE2O3	16.40	0.95	14.00
FEO			
MNO	0.14	0.03	0.40
MGO	2.78	0.09	4.46
CAO	2.50	0.20	4.72
NA2O	1.39	2.52	3.79
K2O	4.51	7.52	3.03
P2O5	0.71	0.08	0.33
LOI	2.93	0.70	3.85
H2O			
CO2			
SUM	100.10	99.90	99.00
LI(PPM)			
BE(PPM)			
CR(PPM)	80	30	60
CO(PPM)	32	6	160
NI(PPM)	8	4	100
CU(PPM)	5	2	100
ZN(PPM)	100	53	150
RB(PPM)	90	170	120
SR(PPM)	30	20	240
Y(PPM)	40	50	20
NB(PPM)	50	70	60
ZR(PPM)	370	440	110
BA(PPM)	1470	1060	980
LA(PPM)			
CE(PPM)			
PB(PPM)	1	24	1
TH(PPM)			
U(PPM)			
AU(PPB)	3	1	ND