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LAKE SEDIMENT GEOCHEMICAL SURVEY

SLAVE PROVINCE, N.W.T.

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AN ACCOUNT OF A LAKE SEDIMENT
GEOCHEMICAL SURVEY CONDUCTED OVER
CERTAIN VOLCANIC BELTS WITHIN THE
SLAVE STRUCTURAL PROVINCE OF THE
NORTHWEST TERRITORIES DURING 1972

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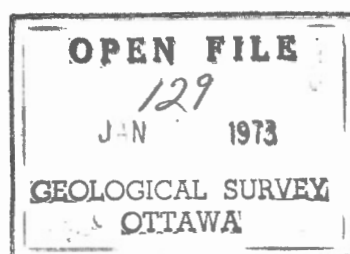
THE DEPARTMENT OF INDIAN AFFAIRS
AND NORTHERN DEVELOPMENT

By

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10th November, 1972.



PREFACE

Recent work by Dr. R.J. Allan and co-workers of the Geochemical Section of the Geological Survey of Canada has indicated that known major mineral deposits in the Bear and Slave Geological Provinces can be detected by sampling lake sediments in permafrost terrain and analysing these sediments for metal content. The program which is described in this report is a direct result of this success.

Much work has been done by a number of mining companies in recent years in the Indin, Beaulieu and Yellowknife greenstone belts in an attempt to develop a viable base metal property. In 1971, the Department of Indian Affairs and Northern Development decided to try the methods of Dr. Allan in these areas as an aid to future mineral exploration.

The type, extent and logistics of the program were greatly influenced by the opinions and experience of Dr. Allan, Dr. Cameron and Mr. J.J. Lynch of the Geological Survey of Canada. Their help in all phases is greatly appreciated by the Department of Indian Affairs and Northern Development.

Readers of this report are cautioned to note that all sediment samples analysed are not of the same type of sediment. Research is now underway at the Geological Survey of Canada and Queen's University to determine the ability of the various sediment types to retain trace metals. The results of these studies will make the figures obtained in this survey more meaningful.

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ABSTRACT

During the 1972 field season, a lake bottom sediment geochemical survey was conducted on behalf of the Department of Indian Affairs and Northern Development over some of the Archaean greenstone belts within the Mackenzie Mining District of the Northwest Territories. Approximately 1000 sites were sampled in total in the Indin Lake, Yellowknife and Cameron River - Beaulieu River areas at a density of about one site per square mile over those parts underlain by volcanic rocks.

The minus 250 mesh fraction of each sample was spectrographically analysed for the following eight elements:- copper, lead, zinc, silver, nickel, cobalt, manganese and iron and it is proposed that analyses of arsenic and antimony will be performed in the near future.

This report is primarily concerned with a description of the techniques and procedures developed for the carrying out of such a survey and the presentation of the data collected. Although certain conclusions are drawn and recommendations made, the main objective here is to allow the reader to make his own assessment of the raw data.

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MAPS

THERE ARE FOURTEEN MAPS ACCOMPANYING THIS
REPORT. CONSULT APPENDIX E FOR DETAILS.

I. INTRODUCTION AND OBJECTIVES

The prime objective of this particular project, which was in part designed to complement a similar program (but with lower sample site densities and a more regional approach) being conducted at the same time by the Geological Survey of Canada was to outline areas having high anomalous geochemical values in base metals. Such areas would then become logical exploration targets for prospectors and mining companies. For this reason the areas chosen for investigation were geologically favourable for the hosting of massive sulphide orebodies.

It was recognized that the program was largely experimental hence probably the most important objective was to demonstrate that such a survey could be economically carried out and that the results obtained would be both meaningful and useful.

Computer analysis of the data presented in this report is being carried out by the Geological Survey of Canada and Queen's University are conducting rock forming element analyses and other studies of the samples collected and it is hoped that on completion of the above a more comprehensive report might be published.

Helicopter supported techniques using widely spaced lake sediment samples were first shown to reflect bedrock variations in the Proterozoic Coppermine basalt area (Allan, 1971). By collection of the <250 mesh fraction and bedrock traverse samples, it was further established in Archean greenstone areas that the same exploration information could be obtained by detailed rock traverse sampling (Allan, Cameron and Durham, 1972). This less than 250 mesh fraction has subsequently been further studied at the Geological Survey of Canada (Allan and Crook, 1972).

The successful use of lake sediment geochemistry is related to two possibilities. The first is that there occurs in rocks which contain ore deposits, an elevated level of trace elements. It has been proposed that this elevated level is in the form of small sulphide masses (microdeposits) dispersed throughout favourable rock units (Cameron and Baragar, 1971; Allan, Cameron and Durham, 1972). Secondly, there must be sufficient dispersion from such rock units into lakes.

The means by which trace elements are dispersed into lakes has been described by Allan (Allan, 1971) and include transportation by ground and surface water, in sorbed form on clay surfaces or as included ions and complexes in the iron, manganese and organic coatings of fine particles. Also in the immediate vicinity of sulphide bodies, the sediment might contain metallic minerals in particulate form.

The Precambrian area of Northern Canada with its permafrost, absence of well defined streams and poorly developed soils does not lend itself readily to the more established means of geochemical prospecting but on account of its very many closely spaced lakes presents a most favourable environment for lake sediment geochemistry and it is hoped that the project herein reported upon has helped to prove the usefulness of this method as an exploratory tool.

II. AREAS INVESTIGATED

A. GENERAL GEOLOGY

All three of the areas investigated are to a certain extent similar in their geology and topography. Although local relief seldom exceeds two hundred feet or so, the country generally is quite rugged. Rock outcrop is common and tree cover comprises stunted spruce, jack-pine, birch

and poplar. They lie within the zone of discontinuous permafrost and are covered with a multitude of generally irregularly shaped lakes of all sizes.

Geologically, the areas were selected to cover Archaean greenstones and are located within the Slave structural province. The underlying rocks are those of the Yellowknife Group which McGlynn (1971) described as follows:

"The volcanic rocks of this Group are massive to pillowed andesites or basalts metamorphosed to greenstones or amphibolites with minor intercalated tuffs and breccias, pillow breccias and dacites. These rocks commonly contain irregularly shaped masses of fine grained metadiorite or metagabbro. At Yellowknife, the volcanic sequence is estimated to be about 22,000 feet thick. The volcanic rocks are commonly at the exposed base of the sequence but in some areas are underlain by sedimentary rocks. The lowermost volcanic or sedimentary rocks of the Group are in contact with granitic rocks which intrude them. Normally, the volcanic rocks grade up into the sediments through a zone of interbedded volcanic, sedimentary tuffaceous rocks with no recognized structural discordance or erosional interval. However, at Yellowknife an unconformity has been mapped between the volcanics and the sediments.

The overlying sediments are for the most part well bedded greywackes or subgreywackes and shales. Locally, limey rocks, quartzites and paraconglomerates occur in the sequence, the latter always near the base of the sediments. Graded bedding is abundant. Near granitic rocks these rocks are converted to quartz mica schists that contain metacrysts of andalusite, cordierite, staurolite, garnet and sillimanite in varying combinations depending on the grade of metamorphism and variation in original composition.

All these rocks are cut by granitic rocks of variable composition and texture

Micas from granitic rocks dated by the Potassium-Argon method are about 2400-2500 million years old

Rocks of the Yellowknife Group are complexly folded along axes that trend in two directions that vary throughout the area. The angular relation between the two directions remains nearly constant and the two systems probably formed at about the same time. Folding is roughly contemporaneous with metamorphism and the intrusion of granitic rocks. The later folding is commonly expressed in the sediments as steeply plunging cross-folds. The sediments are always more tightly folded than the volcanic rocks."

Towards the top of the Yellowknife volcanics in some areas acidic rhyolite and dacite flows and occasionally their pyroclastic equivalents are found. Shearing is quite common in the volcanics with shear zones being of considerable economic significance especially in the Yellowknife area. Quartz-feldspar porphyry dykes intrude the Yellowknife Group and later diabase dykes intrude both the Yellowknife rocks and the surrounding granites.

B. INDIN LAKE AREA

The Indin Lake region has the greatest relief of the three investigated and is drained by the Snare River system. There are no operating mines in the area and the only known mineral occurrences of any importance are small gold deposits in quartz veins, eg:- the Diversified and North Inca properties and a potential large low grade gold deposit occurring in a quartz-albite dyke to the West of Baton Lake. Minor pyrite, chalcopyrite, arsenopyrite, etc. accompanies the gold but although a considerable amount of prospecting has been done, no worthwhile base metal showings are known to have been found. Abundant acid volcanics exist in the northern section of this area.

C. YELLOWKNIFE AREA

The two operating gold mines within the Yellowknife area process ore from shear zones within the Yellowknife basaltic and andesitic volcanics. The quartz-rich orebodies are contained within sericite schist zones and the mineral assemblage is quite complex comprising: pyrite, arsenopyrite, minor chalcopyrite, sphalerite, stibnite, jamesonite and many other complex lead, antimony and arsenic bearing sulpho-salts. Other gold occurrences in both shear zones and quartz veins, some of which have been worked in the past, are also known. A small deposit of massive lead and zinc sulphides lies to the west of Homer Lake and quartz veins carrying molybdenite exist near the volcanic-granite contact between Ryan and Homer Lakes. To the east of Yellowknife Bay, a serpentized olivine gabbro sill carries low but consistent nickel values.

No samples were taken close to the operating mines or to the City of Yellowknife on account of possible contamination.

Both the Indin Lake and Yellowknife areas have been mapped by officers of the Geological Survey of Canada on a scale of one mile to the inch and enlarged copies of these maps accompany this report.

D. CAMERON RIVER - BEAULIEU RIVER AREA

In this area, a U-shaped belt of volcanics, the western arm of the U roughly coinciding with the Cameron River and the eastern arm with the Beaulieu River, was investigated from 63°25'N on the east side and 63°00'N on the west to 62°30'N at the south.

Several prominent gossan zones exist and most of these have been explored for base metals in the past. They have usually been found to be due to pyrite and pyrrhotite with only minor amounts of chalcopyrite and sphalerite. At the southeast end of Victory Lake galena, pyrite, chalcopyrite and sphalerite occur in a siliceous zone at the contact between rhyolite and sediments and at the north end of Turnback Lake on

the west side small deposits containing chalcopyrite, sphalerite and pyrrhotite with lesser pyrite, galena, arsenopyrite and molybdenite in amphibole gneiss with calcareous beds at the contact with granite are known (Lord 1951). Neither of these or a few other known base metal occurrences constitute ore at present. Native gold in quartz veins has been discovered in several locations in both sediments and volcanics to the north of Ross Lake and gold occurs with pyrite at Sunset Lake on the Beaulieu River.

Especially to the south, this area is one of low relief and to the northeast near Beniah Lake tree cover is very sparse and the terrain has many boulder fields.

III. SAMPLING TECHNIQUES AND PROCEDURES

A. SITE DENSITY

Sample site densities on various rock types were as nearly as possible as follows:

Volcanic Rocks	1 sample per 1 square mile
Sedimentary Rocks	1 sample per 2 square miles
Granitic Rocks	1 sample per 10 square miles.

B. SITE SELECTION

On larger lakes where several samples were to be taken from the same body of water, samples were taken from inflow bays or isolated bays rather than from outflow bays as would have been the case in a low density survey. The thinking here is that due to the homogenizing effect of the drainage system the sediment at the outflow would give metal values representative of the average over a large area whereas at the inflow, a more local effect would be in evidence. On smaller lakes, the outflow was sampled preferably.

In actual practice, it was very often necessary to take samples from wherever a suitable sediment presented itself regardless of the sites theoretical desirability.

C. SAMPLING TECHNIQUES

Samples were taken, usually about fifteen to twenty feet from the lake shore, by a collector wearing a soft rubber "wet suit" and hard rubber "moccasins" to protect his feet against sharp rocks standing in four to five feet of water. The sampling device consisted of a five foot length of two inch internal diameter polyvinylchloride pipe with a close fitting rubber bung at one end. The bung was secured to the pipe by a short length of cord to prevent its loss and the tube wall at the other end was filed down so that the pipe could be pushed more easily into the harder sediments. Once the tube had been pushed into the sediment to a depth of five or six inches, the bung was inserted and the tube withdrawn, bringing with it a sample of the sediment in the form of a cylinder two inches in diameter and about five inches long. The collector then released the bung and the weight of water in the tube forced out the sample. Occasionally, mild shaking was insufficient to release the sample in which case it was necessary to push it out with a pole. The top inch or so of the sample was discarded as a precaution against the possible non-representative metal content of the organic or iron hydroxide rich layer at the water-sediment interface before the remainder was placed in a heavy kraft paper sample envelope. The sampling tube was then washed out by vigorously shaking it in the water prior to taking the next sample.

When sampling in very shallow lakes, it was sometimes easier to collect the sample by hand and occasionally, when very hard sediment was encountered, it was necessary to extract it by the use of a garden trowel.

D. FIELD PROCEDURE

A Bell 47G-2 helicopter was used to carry the sampler from site to site. This machine was fitted with external boxes to carry the samples and a horizontal pole was tied along the top of the passenger side float. The sampling tube was fitted over the top of this pole in order to carry it safely during flight and it was also useful for unplugging the tube when

occasionally it became blocked up with sediment. The passenger side door was removed to provide quicker exit and entry for the sampler and a rope loop was attached to the float so that, by placing one foot in this loop, he could more easily hoist himself back into the aircraft.

During each helicopter trip, about fifteen to twenty samples were collected. Sample sites were pre-selected using air photographs and geological maps and plotted on to a map of suitable scale which was then used for navigation. At each site or as close to it as possible, a suitable patch of sediment was located from the air and the helicopter landed on the lake surface. The sampler then descended into the water and before the sediment was stirred up, took a twenty-four fluid ounce sample of water into a pre-numbered polyethylene bottle which had first been washed out three times in the water to be sampled. Care was taken to fill the bottles completely so as to leave no or very little air in them. These water samples, which were acidified with a few drops of high purity concentrated nitric acid shortly after collection, are to be analysed for their metal content but since the water sampling part of the project does not constitute part of this report, it will not be referred to herein again.

After taking the sediment sample and placing it in a pre-numbered envelope, the sampler re-entered the helicopter and while it was being flown to the next location, made a record of the following data:

- i. Sediment Type
- ii. Sediment Colour (when wet)
- iii. Depth Sample Taken From
- iv. Local Relief
- v. Type of Vegetation
- vi. Lake Type
- vii. Lake Surface Condition
- viii. Weather
- ix. Location (if different from that pre-selected)
- x. Remarks, eg:- possible contamination, presence of gossan, etc.

At a later time, the following information was recorded with respect to each sample:

- i. Military Grid Co-ordinates
- ii. Rock Types of Surrounding Area
- iii. Area of Lake Sampled.

Because of the number of organizations requiring part of each sample, about two to three pounds were taken from each location but for a similar survey designed solely for mineral exploration purposes a much smaller sample would suffice.

One thousand and twenty samples were collected in about one month during which only two days were lost on account of bad weather by a field crew of four persons as follows:

One Helicopter Pilot-Mechanic
Two Samplers
One General Worker.

IV. LAKE CHARACTERISTICS

The most important factors influencing the major characteristics of any particular lake were observed to be its elevation, size and position with respect to the overall drainage pattern. Local relief and rock type appear to have little effect.

Small lakes (less than 0.1 square miles), unless a major river system passed through them, were found to be of little use for sampling purposes. At high elevations, there is usually no sediment at all except for a little immature organic material in shallow bays, the lake floor being bedrock, and at low elevations they invariably have excessively organic sediments.

Most fair-sized lakes have rock covered floors, the rocks ranging in size from an inch or so to several feet. Sometimes, the rocks are well-rounded, of predominantly granitic material, and obviously have been transported a

considerable distance, most possibly by ice (eg:- south shore of Beniah Lake) but more often they are angular to sub-angular and composed of local material.

Sandy floored lakes (eg:- east side of Wijinnedi Lake) occur in the vicinity of old glacial features such as outwash plains or more locally where a lake abutts an esker.

Lakes where the predominant sediment is clay (eg:- Yellowknife Bay near the mouth of the Yellowknife River) are one of the least common types and such are most often found where a river enters a larger sized shallow lake.

Organic sediments are not restricted to small lakes and may be found in any low lying poorly drained bodies of water (eg:- Vee Lake).

Of the three areas investigated, Indin Lake had the most rocky and deeper lakes, Yellowknife had the most clay deposits and Cameron River-Beaulieu River the shallowest lakes.

Two phenomena most common in, but not restricted to, the Indin Lake area were that of shelving at the lake perimeter and the presence of clay "boils". Lake shelves were observed on lakes with rock strewn floors and are like "continental shelves" in miniature. They commonly extend from ten to one hundred feet from the shore at a gradient of about ten per cent and the lake bottom plunges steeply at the outer edge of the shelf. Subaqueous clay "boils" (which presumably are similar in origin to the "frost boils" found over much of the Tundra regions) are again found in lakes with rocky floor coverings and consist of roughly circular or polygonal areas of pure inorganic clay, from a few inches to several feet in diameter, "intruding" the more common rocky detritus. They frequently occur in groups and sometimes can be observed co-alescing to form large clay deposits.

Certain lakes both shallow and deep but usually of fair size and with either rocky, sandy or clay floors were observed to have a distinct blue colouration (although a sample of the water in a container could not be seen to be coloured).

Within the areas sampled only one or two lakes were so coloured but quite a number exist within a hundred and fifty mile radius of Yellowknife.

V. SEDIMENT TYPES

With some exceptions, it was found that sediments suitable for sampling only existed in isolated patches and searching for these small areas can be quite time consuming. Although clays were considered to be the best material for sampling (see Allan, Cameron and Durham, 1972) and were sampled whenever possible, at the site density used, clay deposits were not sufficiently widespread to allow for the sampling of this one material only. At a site density of one location per ten square miles, it probably would have been possible but at one site per square mile, organic sediment was the only material occurring which would have allowed the sampling solely of one sediment type.

Although clay, silt, sand and organic material with appreciable inorganic admixture (in the above order of preference) accounted for over 95% of the samples taken all the types encountered during the project are listed below.

A. CLAY

Nearly all clay samples were light grey with, in some cases, the top inch or so being discoloured brown by iron hydroxide. Four distinct clay types were recognized.

- i. Common Type - This is fairly soft.
- ii. Periodically Inundated and Exposed Type - At Indin Lake and certain others, the water level rises and falls several feet during the course of a year. Sampling was done at a time of high water and certain clay samples taken from a depth of up to six feet contained dry-land flora indicating that at some time they had been exposed to the atmosphere. Such clays are harder than the common subaqueous variety.
- iii. Hard "Flowing" Type - In certain locations most common in the Cameron River - Beaulieu River area,

a peculiar very light coloured clay was found. This was extremely hard to dig out but once a sample had been secured, it allowed to stand on its own, it would begin to flow such that in a few minutes a hand specimen would be entirely dissipated.

- iv. Calcareous Clay-Ooze - This type was restricted to certain areas of the Beaulieu River and lakes close by especially towards the southern end of the area sampled. Such material is very soft and sticky and has a high carbonate content.

B. SILT

The term "silt" herein is used to describe not only true silt but also other materials which do not readily fall into other categories. Three main types were recognized:

- i. True Silt.
- ii. Unsorted Detritus - Often the only available sediment was a mixture of unclassified material containing gravel and sand-sized particles, rock fragments and clay. Even on very rocky lakes, such material can often be found in the vicinity of certain species of aquatic plants.
- iii. Disintegrated Rock - In areas of soft easily weathered slates or schists, etc. the lake bottom sediment can be composed of material directly produced by the disintegration of local boulders or bedrock. Such material, although it may have a considerable fines fraction, is recognized by the presence of angular platy fragments of the parent rock and is of little use as a sampling medium because of its local origin.

C. SAND

Sands ranged in colour from brown to white and invariably were of glacial origin. In most sands, the grain size distribution was seen to be restricted within close limits, e.g.: a coarse sand would not contain much fine material and vice versa. On the basis of grain size two types are listed below:

- i. Fine Sand - Many samples had a grain size no greater than 0.25 mm.
- ii. Coarse Sand - Granular sediments occurred with grain sizes up to that of coarse gravel. If, when a sediment was stirred up with the foot, it did not cloud the water, then no sample was taken as it would not have contained any amount of minus 250 mesh material.

D. ORGANIC SEDIMENTS

Organic sediment is the most common type. It ranges from dark brown to black and although in most lakes tested no bottom was found, it was observed resting both on bedrock and on top of clay. In the field, four types were distinguished:

- i. Clay-Organic Type - This comprises a mixture of inorganic and organic material and unlike true organic sediments, retains a substantial percentage (20 - 40%) of its weight when dry. Many samples were taken of this sediment type.
- ii. Immature Type - This type contains recognizable organic remains.
- iii. Mature Type - Mature material is black, does not contain recognizable plant fragments and has a very high water content (>95%). It is not advisable to try to sample such material by standing on the lake floor as there is no "bottom" and the sampler will sink right in.
- iv. Organic Gel - A rarely encountered material of organic origin was a clear light brown gel of low viscosity.

In a few smaller shallow lakes with clay or sand sediments, a dark red iron rich upper layer with a thickness up to about an inch developed. This upper layer appeared to consist almost entirely of iron minerals and the customary zone of iron hydroxide staining penetrated to a foot or more instead of the more usual inch or so. To a lesser extent, this phenomenon was observed with black, presumably manganese rich, material.

VI. METHOD OF ANALYSIS

Preliminary air drying of the samples was carried out in the field immediately after collection to prevent deterioration of the paper envelopes. At Yellowknife, they were thoroughly dried for three to four days at about 85°C prior to being shipped to Technical Service Laboratories in Toronto who report the following analytical procedure.

To 0.4 gram of minus 250 mesh sample in a 16 mm X 150 mm test-tube, 6 ml of acid mixture (250 ml of conc. nitric acid plus 25 ml of conc. hydrochloric acid added to 725 ml of distilled water) were added. Digestion was carried out in an air bath at 100°C for 1 1/2 hours, with shaking every 1/2 hour and at the end of digestion.

The mixture was then diluted to 20 ml, shaken and allowed to settle for 1 1/2 hours. Silver and lead were analysed the same day on which the solutions were prepared and other elements either the same day or the following day.

A Jarrell-Ash Maximum Versatility atomic absorption unit equipped with an air/hydrogen Hetco burner was used for the analysis and standards were prepared in the same acid mixture as that used for the digestion.

The wavelengths of the analytical lines were as follows:

Cu 3248	Ni 2320
Pb 2168	Co 2407
Zn 2139	Mn 2795
Ag 3280	Fe 3722

Detection limits were 0.2 ppm for silver, 1 ppm for copper, zinc and manganese and 2 ppm for lead, nickel and cobalt. Values were reported to the nearest 2 ppm for copper and zinc; the nearest 0.1 ppm for silver, the nearest 5 ppm for lead, nickel, cobalt and manganese and either the nearest 0.02% or 0.05% for iron.

VII. PRECISION OF ANALYSIS

The following procedure was recommended by Dr. E.M. Cameron and Mr. J.J. Lynch of the Geological Survey of Canada as a check on the precision of analysis:

- i. Early in the program two bulk samples should be collected from different areas. There should be sufficient to provide greater than 100 grams of minus 250 mesh material. The sieved material is to be known as the control samples.
- ii. Samples from the project should be analysed in batches of 100 and in each batch of sieved samples, there should be eight sieved repeat samples from the previous batch (in the case of the first batch, they can be repeats from the same batch) plus the two control samples.
- iii. The percentage deviation is then to be calculated as follows. Take for example Batch N. Ten samples will have been analysed both in Batch N and in Batch N-1. The deviation (DA) for element A in sample X in Batches N and N-1 will be:

$$D_A(\%) = \frac{A_{X(N-1)} - A_{XN}}{1/2 (A_{X(N-1)} + A_{XN})} \times 100$$

- iv. The following are to be considered acceptable deviations:

<u>Range (p.p.m.)</u>	<u>Acceptable Deviation</u>
.1 - 1	50%
1 - 10	30%
10 - 50	20%
+ 50	15%

For lead, 5% should be added to the above values.

If for any element in Batch N, more than two of the calculated deviations exceed the above limits, then the analyses of all the samples in this batch should be repeated.

The procedure was in general carried out, but due to circumstances, the various sample "splits" had to be taken from rather improperly homogenized unsieved material. For this reason the duplicate analyses were not really a fair test of the precision of analysis but as can be seen from the values presented in the Appendix to this report, most of the duplicate analyses were acceptable and nearly all of them had a percentage deviation less than twice Dr. Cameron's acceptable values which this author

believes to be a reasonable indication that the analyses were properly performed.

Also due to physical limitations of the equipment used, samples were ^{run} in batches of 22 while the duplicates had been arranged in batches of 100.

These are considerations which should be taken into account if such an analytical program is to be repeated.

Deviations were greatest for silver, the usual concentration levels of which approached the limits of detection. Also it appears that iron analyses might be somewhat in error when this element occurs in high concentrations.

For geochemical prospecting where anomalous values are several time background this somewhat crude check has shown the given values to be acceptably precise.

As distinct from precision, no checks were made on the accuracy of the results, except those normally carried out by commercial analysts.

VIII. REPEATABILITY TESTS

At one location in the Indin Lake area and ten locations in the Cameron River-Beaulieu River area, two separate samples were collected at distances between about ten to one hundred feet apart. With the exception of the iron and manganese values for one set of two samples, the analysis results were generally found to be comparable thus indicating a fair degree of repeatability is possible. The values obtained are shown in the Appendix to this report.

IX. DISCUSSION OF RESULTS

Since much of the data has not yet been processed and also because Queen's University are to report in depth on the interpretation of the results, the discussion here is to be confined to certain generalizations and to an assessment of the results obtained in a few instances which are to be taken as examples.

When referring to the relative concentrations of the various metals, the terms summarized below are to be used:

	<u>Low</u>	<u>Medium</u>	<u>High</u>	<u>Anomalous</u>
Copper	< 15	15 - 55	55 - 100	> 100
Lead	< 10	10 - 35	35 - 60	> 60
Zinc	< 20	20 - 70	70 - 125	> 125
Silver	< .4	.4 - 1.2	1.2 - 2.0	> 2.0
Nickel	< 10	10 - 45	45 - 75	> 75
Cobalt	< 10	10 - 35	35 - 50	> 50
Manganese	< 60	60 - 200	200 - 400	> 400
Iron	< .5	.5 - 1.5	1.5 - 4.0	> 4.0

(Values in parts per million except for iron, which is given as a percentage).

It is to be assumed that a major massive sulphide orebody close to the surface would have given rise to anomalous values in all or most of the samples taken from within a sizeable area. No such area was detected by the survey and most anomalous samples occurred either separately or in association with only one or two others. Areas of consistently high values were obtained and in some cases, it would seem they were most likely due (as were areas of consistently low values) to the underlying rock type. In other cases, they might be due to the presence of sulphide bodies.

A preliminary examination of the analysis results reveals that, in general, (as might be expected) the range of concentrations for any one element when plotted against its frequency of occurrence results in a normal distribution curve. Also, it was found in general that metal values tended to be least for clay and highest for organic sediment within any one geochemical province although notable exceptions were frequent.

In any sample (remote from influences which might cause otherwise), it appears that copper, lead and zinc values most often occur roughly in the same ratio as do those for nickel and cobalt while the ratio between manganese and iron remains approximately constant at about 1:100. Since, in the vicinity of orebodies, the elemental associations might be dissimilar

from those of the surrounding rock, the use of metal concentration ratios rather than their absolute values might be useful in detecting anomalous conditions when analyses of different types of sediment are to be compared.

The Yellowknife area provides some good examples of the type of information which can be deduced from the analysis results. To the extreme southwest of the area, metal concentrations are above average for all the elements with the exception of manganese. This is most likely a reflection of a higher metallic mineral content of the body of altered gabbro which has been mapped as bedrock at this location.

The geochemical survey was unsuccessful in delineating with any degree of confidence the known low grade nickeliferous gabbro sill to the east of Yellowknife Bay, although several samples were taken from its immediate vicinity. Somewhat unusual are the high nickel values of samples obtained from Walsh Lake. Since the rock here is sediments surrounded by acidic volcanic flows, the nickel concentrations are unlikely to be due to a high nickel content bedrock. Pyrrhotite does occur in the area and several gossans due to this mineral are to be observed close to Walsh Lake but heretofore it has not been known to carry nickel values.

The presence of very small massive sulphide occurrences between the south end of Homer Lake and the north end of Likely Lake again was not distinctly recognizable in the results but within an area of about four square miles underlain primarily by basic volcanics immediately to the southwest of Likely Lake consistently high base metal and manganese values were obtained. This is to be considered indicative of a favourable environment for base metal deposits existing within this particular area which has been isolated from possibly less favourable areas underlain by the same general geological formation with a reasonable degree of accuracy by means of the survey.

Within the Indin Lake area, the metal distribution patterns are more difficult to interpret and the values often appear to be quite erratic. A few of the more obvious

observations are as follows. The basic sill-like intrusion to the west of Baton Lake (not to be confused with the adjacent and parallel auriferous quartz-albite sill which might possibly be comagmatic) apparently has given rise to high nickel values in the vicinity. High silver concentrations occur within the area of metamorphosed basic volcanics between Indin and Hewitt Lakes and in general around the perimeter of the volcanic belt north of Indin Lake. Some metals, noticeably manganese, often occur in greater than average concentrations in samples taken from Indin Lake itself. This might be due to influences remote from the region sampled, the metals having been transported from sources further upstream on the Snare River system. In such cases as the exceptionally high values in certain metals in one sample collected from Peaks Lake particulate sulphides are to be suspected.

In the Cameron River-Beaulieu River area, the survey failed to detect the very small base metal occurrence at the south end of Victory Lake but an anomalous zinc concentration was in evidence from a sample taken a few thousand feet from the small zinc, copper, silver, lead and molybdenum deposit at the north end of Turnback Lake. Apart from the fact that sphalerite is the most common mineral in this deposit, the greater mobility of zinc probably accounts for the anomalous concentration of this metal in the sediment sample whereas copper and lead have not been concentrated to the same extent. In the area of Beaulieu River, high values in several adjacent samples occur in a number of places one of the more interesting of which lies between Spencer and Beniah Lakes in the same location where an airborne "INPUT" survey is believed recently to have located an E.M. anomaly.

The demonstrated fact that on a lake such as Indin or Turnback, sediment samples taken from the same lake at distances of less than one mile apart can display marked differences in metal content points out certain dangers which might be associated with very low density surveys (eg: one sample per ten square miles) unless the samples are taken from a location where it is known that a very thorough homogenization has taken place.

X. CONCLUSIONS AND RECOMMENDATIONS

The project demonstrated that such a survey could feasibly be carried out at reasonable cost and that certain areas of interest could be outlined using lake sediment geochemistry. The sampling method works well with an agile sampler and a skillful helicopter pilot and since more time is spent in searching for suitable sediment and in taking the samples than in moving from place to place the use of a small helicopter rather than a larger and faster machine is preferable. Instead of using plastic pipe for the sampling tube, it might be better to use light aluminum alloy with a reduced wall thickness so that harder sediments could be more easily penetrated.

The areas of anomalous base metal content outlined by the survey should be investigated using more conventional exploration techniques.

Although the survey revealed it is difficult to locate small base metal occurrences, lake sediment sampling at the density used should be able to determine the presence of large ore deposits and for this reason, it might be useful to perform such surveys over geologically favourable but less well-known areas of the Shield.

It would be helpful to develop a geochemical method suitable for the use of exploration organizations having large blocks of ground so that they might easily be able to determine the most favourable areas within their holdings. Such a sediment sampling survey would, of necessity, involve predominantly organic sediments and the site density would have to be about one sample per twenty-five to one hundred acres.

XI. ACKNOWLEDGEMENTS

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Mr. J. Hall, a graduate student of Queen's University, assisted in the sample collection and acted in the capacity of an inspector for the Department of Indian Affairs and Northern Development, who sponsored the survey and by whom the author had been engaged under contract for its carrying out.

Mr. F.M. Lafferty assisted in the field, Mr. H. Burki with the drafting and the manuscript was typed by Mrs. F. Southward.

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A P P E N D I X A

SUMMARY OF SAMPLES COLLECTED AND ANALYSED

SUMMARY OF SAMPLES COLLECTED AND ANALYSED

I.	<u>YELLOWKNIFE AREA</u>	NTS 85-J-8 & 9	
	Sample Location Numbers		140004 - 140129
	Number of Locations Sampled		126
	Number of Repeat Samples		0
	Total Number of Samples Collected		126
	Number of Samples Not Analysed		0
	Total Number of Samples Analysed		126
II.	<u>INDIN LAKE AREA</u>	NTS 85-0-14 86-B-3 & 4	
	Sample Location Numbers		140001 - 140003 140151 - 140559
	Number of Locations Sampled		411
	Number of Repeat Samples		1
	Total Number of Samples Collected		412
	Number of Samples Not Analysed		3 (no - 250 mesh)
	Total Number of Samples Analysed		409
III.	<u>CAMERON RIVER - BEAULIEU RIVER</u>	NTS 85-I-9, 10, 11, 14, 15 & 16 85-P-1, 2 & 8	
	Sample Location Numbers		140601 - 141083
	Number of Locations Sampled		473
	Number of Repeat Samples		10
	Total Number of Samples Collected		483
	Number of Samples Not Analysed		2 (lost in transit)
	Total Number of Samples Analysed		481
IV.	<u>TOTALS FOR THE WHOLE PROJECT</u>		
	Number of Locations Sampled		1010
	Number of Repeat Samples		11
	Total Number of Samples Collected		1021
	Number of Samples Not Analysed		5
	Total Number of Samples Analysed		1016
	Number of Check Analyses Performed		114
	Total Number of Analyses Performed		1130

A P P E N D I X B

ANALYSIS RESULTS

(And Military Grid Co-ordinates
of Sample Site Locations)

- i. Yellowknife Area
- ii. Indin Lake Area
- iii. Cameron River-Beaulieu River Area

Legend for Sediment Types

C	Clay
SL	Silt
SA	Sand
O	Organic

Loc'n #	Anal. #	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe(%)	As	Sb	East	North	Sed Type
140004	140004	24	25	64	.6	25	18	130	0.85			06333	69265	0
0005	0005	14	15	15	.6	15	5	85	0.12			310	253	0
0006	0006	8	15	22	.3	10	8	80	0.70					
	0008	8	15	20	.2	10	10	50	0.75					
	0106	8	20	24	.2	10	5	70	0.70					
	Mean	8	17	22	.2	10	8	70	0.72			295	245	0
0007	0007	22	30	64	.6	20	15	115	1.00			311	199	0
0008	0130	30	25	68	.7	35	22	235	2.80			316	191	0
0009	0009	50	35	74	.7	40	30	220	4.00			302	183	C/O
0010	0010	54	40	66	1.0	45	25	110	4.75			296	170	C/O
0011	0011	40	35	64	.6	25	18	150	3.40			295	160	C/O
0012	0012	36	30	65	1.0	35	22	170	3.75			308	166	C/O
0013	0131	42	25	66	1.0	35	20	190	4.30			330	181	SL
0014	0014	18	20	28	.5	25	15	165	2.05			333	236	SL
0015	0015	10	20	15	.3	10	10	70	0.90			379	346	C
0016	0016	10	20	12	.2	15	8	55	0.57					
	0096	14	20	22	.3	25	12	105	0.80					
	0115	12	10	24	.4	15	20	95	0.90					
	Mean	12	17	19	.3	18	13	85	0.76			401	336	C/O
0017	0017	14	25	28	.5	15	5	80	1.25			384	317	C
0018	0018	13	25	25	.5	25	15	75	0.80			357	349	0
0019	0019	28	25	30	.7	30	18	145	1.83			352	417	C
0020	0132	34	30	65	.8	30	18	220	3.00			345	233	C
0021	0021	19	20	30	.4	25	20	160	2.10			340	224	C
0022	0022	24	35	55	.5	20	22	215	2.20			330	298	SL
0023	0023	26	30	54	.7	35	25	190	4.30			316	181	0
0024	0024	28	35	40	.8	25	20	155	2.75			324	173	C
0025	0025	35	35	64	.8	40	18	160	4.00			340	192	C
0026	0026	21	30	50	1.0	20	18	185	1.12			346	210	0
0027	0027	30	35	38	.7	35	20	190	2.35					
	0065	26	25	40	.8	30	20	195	2.70					
	0123	30	30	35	.8	30	20	200	2.50					
	Mean	28	30	38	.8	32	20	195	2.52			358	217	C
0028	0028	28	30	28	.6	10	14	45	0.45			380	265	SL
0029	0029	12	15	12	.3	15	10	40	0.60			397	273	C/O
0030	0030	32	30	50	1.0	35	22	235	3.55			412	256	C
0031	0031	26	35	48	.9	30	20	440	3.50			428	267	C/O
0032	0032	25	30	40	.5	30	10	215	2.50			430	243	C
0033	0033	26	20	38	.8	30	12	165	2.35			442	241	C
0034	0133	22	20	55	.6	45	20	205	2.50			451	209	C/O
0035	0134	20	25	48	.5	30	25	275	1.75			460	183	C/O
0036	0036	36	30	76	.6	40	16	200	2.85			433	173	C
0037	0037	14	15	25	.3	20	8	85	1.85			433	196	SL
0038	0038	34	20	50	1.0	35	24	190	3.30			409	193	C
0039	0039	26	20	48	.8	30	18	130	2.50			414	198	C/O
0040	0040	14	20	30	.2	20	15	135	1.20			402	200	SL
0041	0041	28	35	46	.6	35	8	170	2.75			422	208	C
	0042	23	30	50	.7	30	15	225	3.50			419	222	C/O

Loc'n #	Anal. #	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe(%)	As	Sb	East	North	Sed Type
140043	140043	20	15	35	.6	25	12	135	1.95			06406	69237	SA
0044	0044	15	10	20	<.2	10	5	50	0.45			386	247	SA
0045	0045	23	30	35	.3	30	15	135	1.65			305	316	C
0046	0046	20	40	44	.8	30	18	165	4.00			302	349	SA
0047	0047	22	30	30	.6	25	15	115	1.80			334	340	C
0048	0048	25	40	110	1.0	30	30	600	4.40			345	315	SA
0049	0049	24	30	48	.8	30	25	185	2.65			387	333	C
0050	0135	8	5	30	.3	30	20	110	1.25			408	339	C
0051	0051	18	25	38	.6	25	10	225	2.20			402	339	C
0052	0052	28	30	52	.8	35	12	200	3.05			386	294	C
0053	0053	15	30	28	.3	15	10	205	1.80			418	315	C/O
0054	0054	28	35	60	.5	35	10	200	2.65					
	0013	30	25	58	.8	40	24	210	3.25					
	0177	25	20	52	.7	25	25	220	2.35					
	Mean	28	27	57	.7	33	20	210	2.75			444	308	C
0055	0055	12	10	18	<.2	10	10	45	0.43			337	380	C/O
0056	0056	10	35	8	2.5	40	48	235	0.25			452	340	C/O
0057	0144	5	10	30	.4	15	15	125	1.20					
	0297	5	10	28	.3	20	5	120	0.92					
	Mean	5	10	29	.4	17	10	123	1.06			446	375	C
0058	0058	13	10	6	.5	10	8	25	0.40			432	395	SA
0059	0059	20	25	44	.8	30	15	170	2.00			425	376	C
0060	0060	19	30	52	.5	25	20	140	3.20			400	355	C
0061	0061	26	30	45	.5	25	15	180	3.20			392	371	C
0062	0062	22	50	18	5.5	90	90	115	0.75			380	382	C/O
0063	0063	35	25	74	1.2	40	20	250	3.65			331	399	C
0064	0064	16	20	42	.4	25	15	210	1.65			317	433	C
0065	0137	12	5	50	1.2	25	20	245	1.40			308	451	C/O
0066	0066	20	30	50	.6	35	15	160	2.75			301	505	SA
0067	0067	15	20	48	.3	25	14	120	1.90			324	546	C/O
0068	0068	16	35	65	1.2	30	22	210	3.80			310	579	O
0069	0069	10	15	16	.6	20	10	60	0.65					
	0034	10	10	15	<.2	15	5	45	0.70					
	0193	5	5	17	<.2	5	15	45	0.50					
	Mean	8	10	16	.3	13	10	50	0.62			344	583	SL
0070	0070	6	20	15	<.2	10	8	50	0.85			348	556	SL
0071	0071	22	25	40	.6	30	12	135	2.35			365	528	C
0072	0072	10	35	650	.5	10	10	325	0.75			334	500	O
0073	0073	14	15	38	.5	15	5	90	1.00			361	488	SL
0074	0074	42	40	150	1.2	35	12	200	1.25			350	473	SA
0075	0075	12	25	140	.6	15	8	1000	0.75			342	475	O
0076	0076	30	35	100	.8	20	15	650	0.80			336	461	O
0077	0077	12	10	20	.3	15	8	60	0.85					
	0088	8	10	18	.3	15	15	65	0.75					
	0136	13	5	32	.2	25	10	115	0.90					
	Mean	12	8	23	.3	18	11	80	0.83			354	431	SL
0078	0078	26	20	60	.8	35	20	235	3.25			344	426	C/O
0079	0079	54	40	128	.7	20	12	165	1.60			350	457	O

Loc'n #	Anal. #	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe(%)	As	Sb	East	North	Sed Type
140080	140080	22	20	38	.6	15	12	150	1.25			06368	69460	SA
0081	0081	18	25	52	.6	20	15	150	0.80			371	392	C/O
0082	0082	50	40	70	1.0	35	10	245	5.10			376	475	SL
0083	0083	34	30	60	.9	40	20	205	3.00			379	501	C
0084	0084	10	10	24	.6	15	10	70	0.88			375	394	C
0085	0085	8	15	20	.5	20	12	105	1.08			374	533	C
0086	0086	18	20	25	.6	20	28	900	0.45			371	433	C/O
0087	0087	12	15	40	.5	30	8	115	1.85					
	0057	16	30	42	.4	30	18	105	1.75					
	0170	22	25	46	.8	35	25	95	1.38					
	Mean	17	23	43	.6	32	17	105	1.66			385	569	C
0088	0138	26	25	62	1.0	55	25	395	5.65			374	577	C
0089	0089	18	30	46	1.0	40	20	300	3.75			380	581	C
0090	0090	15	25	36	.8	25	15	1150	3.00			375	597	SL
0091	0091	14	25	42	.6	25	20	130	1.90			390	600	SL
0092	0092	11	15	25	.8	15	15	70	0.75					
	0050	12	20	26	.5	25	10	85	1.00					
	0154	8	10	32	.4	15	15	105	0.85					
	Mean	11	15	28	.6	18	13	87	0.87			414	594	SL
0093	0093	16	20	24	.4	20	20	85	1.25			426	568	SL
0094	0094	24	30	38	.6	40	15	205	2.25			396	566	C
0095	0095	20	10	15	.4	20	10	70	1.12			374	444	C/O
0096	0139	12	10	34	.4	30	25	140	1.85			414	525	C
0097	0097	14	20	30	.5	25	12	110	1.40			411	486	SL
0098	0098	42	35	78	.6	20	15	115	0.40			357	453	O
0099	0099	35	30	65	.5	15	15	75	0.75			369	451	O
0100	0100	28	35	48	.7	35	35	170	2.70			389	464	C
0101	0101	18	20	22	.4	15	5	80	1.10			386	482	SL
0102	0102	24	20	25	.3	20	10	135	0.83			386	502	SL
0103	0103	22	20	32	.6	30	10	125	1.50			390	517	C
0104	0104	30	25	40	1.0	35	12	215	2.45			387	533	SA
0105	0105	22	25	45	.9	30	15	130	2.50			396	494	C/O
0106	0141	6	10	28	.2	20	15	125	0.95					
	0226	14	10	36	.5	20	20	170	2.00					
	Mean	10	10	32	.3	20	17	147	1.47			421	505	SL
0107	0107	9	20	28	.3	10	8	70	0.95			435	489	C
0108	0108	8	15	22	.4	15	5	115	0.75					
	0203	4	5	20	.3	5	15	130	0.70					
	Mean	6	10	21	.3	10	10	122	0.73			445	479	SL
0109	0109	25	40	54	.7	35	22	210	2.40			447	450	SL
0110	0110	14	25	45	.6	30	16	335	1.80			450	425	C
0111	0111	30	20	50	.5	40	25	235	4.00			430	420	C
0112	0112	23	25	40	.8	25	20	110	2.00			385	387	C
0113	0113	18	30	26	2.0	45	55	115	0.85			389	400	C
0114	0114	25	25	34	.5	30	22	110	1.60			384	406	C
0115	0142	35	20	58	1.0	60	30	210	2.70			398	421	C
0116	0116	32	30	60	.9	35	25	160	3.25			395	430	C
0117	0117	36	30	64	.6	40	28	185	2.50			400	441	C

INDIN LAKE #1

SAMPLE Nos. 0151 - 0192

Loc'n #	Anal. #	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe(%)	As	Sb	East	North	Sed Type
140151	140151	44	5	38	.6	30	15	105	1.35			05823	71345	SL
0152	0152	30	10	75	.4	25	15	210	0.45			729	339	C/O
0153	0153	9	5	23	<.2	10	10	60	0.48			734	378	C
0154	0145	6	5	23	.5	20	10	80	0.75			762	411	SL
0155	0155	55	5	50	.5	35	20	185	1.35			737	438	SL
0156	0156	11	10	44	.6	25	15	120	1.10			733	460	C
0157	0157	10	10	30	.3	20	10	75	0.75			732	508	SL
0158	0158	32	25	82	1.6	75	35	410	4.85			766	526	O
0159	0159	10	5	12	.3	10	10	40	0.90			814	534	SL
0160	0160	60	10	26	1.0	25	20	135	1.00			811	495	O
0161	0161	28	10	36	.4	25	15	110	1.35			805	340	SA
0162	0162	4	5	24	.5	15	10	75	0.75			789	467	SL
0163	0163	40	15	74	.6	35	20	200	1.50			742	426	SL
0164	0164	5	5	16	<.2	5	10	45	0.45			759	414	SL
0165	0165	85	15	180	.8	40	25	120	1.55			780	417	SL
0166	0166	60	50	310	.6	75	40	170	2.00			794	402	SL
0167	0167	38	15	110	.6	50	20	260	2.25			770	390	SL
0168	0168	25	15	56	.8	30	15	155	1.25			771	363	SL
0169	0169	38	5	34	1.0	35	15	125	1.40			779	275	SL
0170	0170	22	25	46	.8	35	25	95	1.38					
	0244	35	10	48	.4	30	15	80	1.00					
	MEAN	28	17	47	.6	32	20	87	1.19			749	313	SL
0171	0171	25	10	47	.5	35	10	125	1.45			764	308	SL
0172	0172	40	20	48	1.0	40	20	115	1.65			792	321	SL
0173	0173	36	15	40	.6	35	15	110	1.45					
	0217	35	5	36	.4	25	20	120	1.48					
	MEAN	35	10	38	.5	30	17	115	1.46			831	336	SL
0174	0174	24	20	50	.6	35	20	200	2.35			812	321	C
0175	0175	10	10	44	.4	25	15	95	1.12			803	311	C
0176	0176	118	25	105	1.2	50	25	240	2.65			797	301	SL
0177	0147	85	15	52	1.2	45	25	130	1.65			784	294	SL
0178	0178	30	5	40	1.0	20	15	105	1.42			774	300	SL
0179	0179	50	10	72	.6	40	20	210	2.50			807	297	SL
0180	0180	48	10	110	1.0	45	20	140	1.75			743	287	C
0181	0181	40	5	43	.5	20	15	90	1.00			744	276	C
0182	0182	52	10	44	1.0	45	25	150	2.50			743	261	C
0183	0183	32	25	120	.8	40	20	120	2.05			755	269	C
0184	0184	90	5	50	.6	45	20	155	2.18			771	277	C
0185	0185	74	15	58	1.2	60	25	215	4.85			775	268	C
0186	0186	30	10	44	.9	40	25	210	3.00			785	267	C
0187	0187	55	5	56	1.0	35	25	200	2.33			823	294	SL
0188	0188	58	10	45	1.5	15	15	95	0.38			831	306	O
0189	0189	70	10	65	1.3	30	20	135	1.05			842	317	C/O
0190	0190	5	5	30	.4	10	10	45	0.68			844	337	C/O
0191	0191	56	10	46	1.2	30	20	180	1.90			845	356	C
0192	0192	54	10	28	1.5	20	15	190	2.00			830	357	C/O

Loc'n #	Anal. #	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe(%)	As	Sb	East	North	Sed Type
140193	140148	18	10	38	.3	20	15	85	0.85					
	0238	15	5	33	.3	20	15	80	0.75					
	MEAN	17	7	35	.3	20	15	82	0.80			05809	71366	SL
0194	0194	50	10	175	.7	20	15	170	0.48			812	392	C
0195	0195	35	5	40	.8	15	10	80	0.34			807	444	O
0196	0196	42	10	65	.6	15	20	155	1.15			823	472	SA
0197	0197	70	10	34	.3	10	15	45	0.15			832	509	O
0198	0198	5	5	18	.2	5	10	40	0.14			836	523	O
0199	0199	19	10	85	.5	15	15	900	0.90			844	535	C/O
0200	0200	20	20	45	1.3	35	25	255	3.50			855	533	SA
0201	0201	16	10	66	.5	10	10	135	0.68			846	520	C
0202	0202	10	5	50	.2	10	15	70	0.44			839	500	C
0203	0149	30	5	72	.6	20	10	135	0.95					
	0255	35	5	65	1.3	30	20	170	1.05					
	MEAN	32	5	68	1.0	25	15	152	1.00			845	485	C
0204	0204	26	5	40	1.2	20	25	75	1.15			832	460	SA
0205	0205	48	10	170	.6	15	10	10	0.35			839	374	C/O
0206	0206	112	25	75	1.8	65	30	170	2.35			823	370	SL
0207	0207	110	15	85	1.5	45	40	260	2.50			844	395	SL/O
0208	0208	60	20	160	.8	40	25	235	2.18			845	410	SL
0209	0209	38	15	45	1.0	20	20	170	1.00			836	409	SL
0210	0210	10	10	78	.6	15	15	55	0.45			826	421	C/O
0211	0211	20	20	44	.5	10	15	70	0.80			843	430	SL
0212	0212	30	15	45	.8	25	20	160	1.82			841	441	C
0213	0213	115	15	46	1.5	55	35	400	4.85			853	445	SL/O
0214	0214	52	10	68	1.4	20	25	130	0.88			852	458	C
0215	0215	34	10	125	.6	15	15	145	0.65			849	468	O
0216	0216	50	15	64	.8	25	15	220	0.50			860	491	C/O
0217	0560	32	40	98	.5	35	30	1300	1.35					
	0694	34	20	48	.2	25	10	510	1.24					
	MEAN	33	30	73	.3	30	20	905	1.30			857	511	SA
0218	0218	16	10	38	.4	15	15	130	1.90					
	0342	10	5	28	.2	15	5	90	0.80					
	MEAN	13	7	33	.3	15	10	110	1.35			866	537	SA
0219	0219	35	10	56	.5	5	15	145	0.70			878	533	C/O
0220	0220	40	15	48	1.0	25	25	205	2.25			869	525	C/O
0221	0221	25	10	70	.3	15	20	170	0.32			881	515	C/O
0222	0222	28	30	76	1.5	35	25	400	2.35			875	507	C/O
0223	0223	40	10	60	.7	25	20	210	2.10			871	500	SL
0224	0224	40	5	32	.8	15	15	130	1.35					
	0304	36	10	42	.3	25	10	120	1.00					
	MEAN	38	7	37	.5	20	12	125	1.17			866	481	C
0225	0225	20	10	30	.6	20	25	110	1.15			881	282	C
0226	0562	24	25	30	.3	35	15	80	0.78			913	301	SL
0227	0227	42	15	46	.7	55	35	140	2.75			777	257	C
0228	0228	10	15	30	.4	10	15	115	1.28			950	297	SL
0229	0229	20	20	44	.8	25	25	275	2.42			756	240	C
0230	0230	60	15	60	.6	35	20	170	2.00			750	255	C

Loc'n #	Anal. #	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe(%)	As	Sb	East	North	Sed Type
140231	140231	28	35	1000	3.0	115	50	20	4.80			05962	71319	O
0232	0232	64	15	60	1.3	85	30	175	3.10					
	0329	78	40	60	.3	80	25	135	2.45					
	MEAN	71	27	60	.8	82	27	155	2.77			964	338	SL
0233	0233	90	20	55	1.6	75	35	224	4.68			955	331	O
0234	0234	10	15	36	.5	20	15	120	1.30			942	323	SL
0235	0235	6	10	34	.4	20	20	75	0.85			937	338	SL
0236	0236	12	5	66	.5	25	20	130	1.20			949	339	SL
0237	0237	20	15	42	1.2	35	20	220	1.85			944	357	SL
0238	0563	5	15	20	.2	15	20	35	0.32			746	175	SA
0239	0239	14	5	42	.5	20	10	105	0.98			952	376	SL
0240	0240	90	40	255	1.0	85	30	285	4.80			942	386	SL
0241	0241	6	5	18	.2	5	10	45	0.40			947	396	SL
0242	0242	32	15	86	.8	35	25	550	3.00			954	397	SL
0243	0243	80	15	45	.4	35	20	180	1.85			943	407	SL
0244	0565	45	30	63	.4	35	25	160	1.65			944	418	O
0245	0245	34	20	52	.5	45	25	175	2.00			736	153	C
0246	0246	32	10	145	1.4	45	20	135	1.60			955	450	SA
0247	0247	20	20	110	1.2	85	30	180	2.10			959	467	SL
0248	0248	5	5	18	.2	15	15	55	0.55					
	0389	7	5	14	.2	10	5	45	0.45					
	MEAN	6	5	16	.2	12	10	50	0.50			738	112	C
0249	0249	12	10	42	.8	25	15	50	0.85			953	518	SL
0250	0250	10	5	25	.5	25	15	110	1.05			744	057	C
0251	0251	26	15	30	1.0	35	15	224	1.65					
	0333	22	15	28	.3	25	10	165	1.20					
	MEAN	24	15	29	.7	30	12	195	1.42			931	532	O
0252	0252	10	10	14	.6	15	10	45	0.60			923	538	SL
0253	0253	10	5	35	.2	25	10	120	1.25			900	538	O
0254	0254	182	40	350	2.3	70	40	300	8.40			890	534	O
0255	0566	10	25	22	.2	20	30	40	0.38			895	517	SL
0256	0256	33	10	68	.8	50	25	2400	2.55			907	526	O
0257	0257	40	20	65	1.0	60	20	300	3.45			922	523	O
0258	0258	20	15	40	.5	60	25	275	2.35			912	507	SL
0259	0259	5	5	18	<.2	5	10	60	0.65			914	498	SL
0260	0260	20	15	35	.3	30	20	115	0.95			920	489	SL
0261	0261	100	15	20	.4	15	15	50	0.42			935	500	SL
0262	0262	5	5	28	1.3	20	15	100	0.92			741	031	C
0263	0567	20	35	48	.2	35	25	115	1.05			744	005	SA
0264	0264	3	5	8	<.2	5	10	40	0.38			748	70969	C
0265	0265	82	50	140	.8	20	10	240	0.65			930	71404	C/O
0266	0266	35	20	46	.4	25	15	170	2.10			934	397	C
0267	0267	14	10	24	.3	20	10	85	0.78					
	0312	12	10	18	.3	20	5	70	0.45					
	MEAN	13	10	21	.3	20	7	77	0.61			927	383	C
0268	0268	4	5	18	.2	15	5	105	0.38			931	359	C
0269	0269	23	20	45	.6	40	15	195	2.25			919	340	C
0270	0270	7	10	30	.2	20	10	65	0.60			927	322	C

Loc'n #	Anal. #	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe(%)	As	Sb	East	North	Sed Type
140271	140271	30	30	55	.5	35	15	130	0.48			05927	71319	C/O
0272	0272	148	90	120	.6	110	35	340	2.55			911	307	SL
0273	0273	14	30	48	.3	40	15	155	2.35			901	319	SL
0274	0274	34	25	46	.4	55	20	150	2.15			883	304	C
0275	0275	14	5	30	.5	25	10	55	0.80			851	283	C
0276	0568	45	50	70	.5	65	35	350	2.85			830	274	C
0277	0277	56	40	88	.6	80	25	315	4.35			820	270	C
0278	0278	34	15	45	.5	40	15	170	1.75			804	270	C
0279	0279	16	10	43	.4	10	10	85	0.82			828	283	O
0280	0280	40	30	47	.5	35	10	190	0.98			856	307	SL
0281	0281	94	35	75	.5	10	10	235	0.42			854	333	O
0282	0282	30	20	48	.4	20	15	120	1.95			862	340	SA
0283	0283	42	30	66	.5	35	15	160	1.75			865	286	C
0284	0284	40	45	68	.3	25	20	175	2.00			852	367	O
0285	0285	26	10	48	.3	20	20	140	1.55					
	0368	26	20	42	.4	30	15	140	1.80					
	MEAN	26	15	46	.3	25	17	140	1.67			857	385	SA
0286	0286	10	5	23	.2	10	10	70	0.58			855	400	SL
0287	0569	25	30	34	.3	30	25	135	0.90					
	0607	25	30	30	.8	35	25	105	1.00					
	MEAN	25	30	32	.5	32	25	120	0.95			851	417	SL
0288	0288	13	15	28	.4	10	10	75	0.78			860	427	SA
0289	0289	20	10	32	.5	20	15	140	0.95			865	432	SL
0290	0290	18	15	43	.5	25	15	750	1.10			866	419	O
0291	0291	13	10	22	.4	15	5	60	0.55			869	403	C
0292	0292	22	15	30	.3	20	5	85	0.80					
	0356	30	15	40	.4	20	10	105	1.25					
	MEAN	26	15	35	.3	20	7	95	1.02			866	388	SA
0293	0293	40	15	40	.6	25	15	90	0.85			866	369	SA
0294	0294	42	20	65	.6	30	15	160	1.42			883	324	C
0295	0295	No - 250 mesh fraction										903	337	SL
0296	0296	44	35	85	.4	25	15	185	1.35			910	347	C/O
0297	0571	23	30	43	.4	35	25	105	0.75			900	355	SL
0298	0298	28	20	82	.5	25	20	240	3.00			901	363	SL/O
0299	0299	36	25	195	.5	40	10	950	0.68			902	376	O
0300	0300	40	15	98	.4	35	15	150	2.00			912	365	C
0301	0301	60	35	100	.8	30	10	240	1.50			916	384	C/O
0302	0302	62	20	76	.3	55	15	175	1.90			917	405	C
0303	0303	100	45	148	1.0	30	35	325	4.75			932	420	C
0304	0572	52	45	50	.4	85	30	200	2.26			923	423	C
0305	0305	4	5	13	.2	10	5	50	0.34			928	439	SL
0306	0306	10	5	27	.3	15	10	85	0.65					
	0422	15	30	40	.3	15	10	80	0.85					
	MEAN	12	17	33	.3	15	10	82	0.75			930	459	C
0307	0307	38	35	92	.6	35	10	170	1.35			917	472	SL
0308	0308	25	20	60	.5	30	15	150	1.48			928	481	SL
0309	0309	16	20	37	.2	15	5	75	0.50			933	485	SL
0310	0310	45	25	35	.4	15	10	100	0.45			937	474	C/O

Loc'n #	Anal. #	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe(%)	As	Sb	East	North	Sed. Type
140311	140311	36	20	46	.4	40	15	175	1.50			05941	71457	SL
0312	0573	25	30	54	.3	40	25	95	0.85			948	447	C
0313	0313	40	20	98	.3	25	10	105	0.75			942	436	C/O
0314	0314	60	40	115	.6	80	25	210	2.50					
	0431	82	45	95	1.2	70	35	200	3.25					
	MEAN	71	42	105	.9	75	30	205	2.87			872	368	SL
0315	0315	60	30	44	.4	5	20	155	2.10			877	387	SL
0316	0316	6	5	15	<.2	10	5	45	0.32			890	424	SL
0317	0317	6	5	17	.2	15	5	55	0.48			867	446	SA
0318	0318	5	5	14	.2	15	5	35	0.38					
	0447	10	15	28	<.2	10	10	65	0.60					
	MEAN	7	10	21	.2	12	7	50	0.49			869	462	SA
0319	0319	22	10	22	.2	10	5	65	0.85			878	487	SA
0320	0320	2	2	16	.2	5	5	20	0.25			889	507	SL
0321	0321	18	10	28	.3	20	15	85	0.85			891	494	SL
0322	0322	4	5	10	.2	10	5	30	0.35			893	484	C
0323	0323	22	10	42	.3	30	10	70	1.10			899	480	SL
0324	0324	26	20	68	.4	20	10	95	0.84			908	478	SL
0325	0325	24	20	30	.3	25	5	60	1.10			901	462	SL
0326	0326	32	10	38	.4	35	5	85	0.96			892	469	SL
0327	0327	38	25	28	.4	40	15	80	2.10			882	476	C
0328	0328	24	15	32	.2	25	10	100	1.15					
	0462	22	10	47	.4	30	15	150	1.50					
	MEAN	23	12	39	.3	27	12	125	1.32			887	463	SL
0329	0574	48	45	70	.4	45	30	185	1.70			898	451	SL
0330	0330	58	45	70	.4	55	20	160	2.50			915	452	O
0331	0331	11	10	16	.3	10	5	25	0.35			914	438	C
0332	0332	5	5	11	.2	10	5	40	0.38			909	418	C
0333	0575	25	30	34	.4	30	15	85	0.65					
	0612	24	30	32	.3	30	15	70	0.68					
	MEAN	24	30	33	.3	30	15	80	0.66			901	409	C
0334	0334	8	5	12	<.2	15	5	30	0.42			749	70946	SA
0335	0335	10	10	12	.3	10	5	35	0.48			747	937	SA
0336	0336	30	10	35	.3	30	15	85	2.15			738	930	C/O
0337	0337	30	15	45	.2	35	15	120	2.00			745	915	SL/O
0338	0338	15	20	65	.4	40	20	190	1.75					
	0477	26	15	98	.6	40	25	235	2.45					
	MEAN	20	17	82	.5	40	22	212	2.10			748	904	SL/O
0339	0339	6	5	16	<.2	10	5	35	0.38			740	883	C/O
0340	0340	24	20	78	.2	15	10	165	1.05			739	867	C
0341	0341	12	10	74	.2	10	5	120	0.32			757	848	C/O
0342	0576	65	55	68	.5	45	40	230	2.65			756	861	SL
0343	0343	10	20	66	.3	10	5	100	0.36			753	880	C/O
0344	0344	17	15	120	.2	15	10	180	0.65			763	887	C/O
0345	0345	28	20	100	.4	5	10	240	0.55			763	897	C/O
0346	0346	18	5	40	.3	25	15	150	0.95			783	898	C/O
0347	0347	10	10	44	.2	10	5	75	0.54			785	904	C
0348	0348	8	5	48	.2	20	10	110	0.75			778	912	C

Loc'n #	Anal. #	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe(%)	As	Sb	East	North	Sed Type
140349	140349	20	15	88	.3	10	10	135	0.43			05762	70906	C/O
0350	0350	4	5	15	<.2	15	5	40	0.50			761	924	SL
0351	0351	22	15	26	.4	30	15	150	1.55			782	933	SL
0352	0352	13	10	45	.2	35	10	115	1.10			770	947	SA
0353	0353	12	25	30	.5	35	15	110	1.10			779	959	SL
0354	0354	9	25	60	.4	30	15	145	1.15					
	0484	28	10	64	.4	35	15	130	1.50					
	MEAN	18	17	62	.4	32	15	137	1.32			797	948	SA
0355	0355	18	10	32	.6	10	5	875	0.25			812	928	C/O
0356	0577	18	25	36	.4	25	20	85	0.88			804	914	SL
0357	0357	22	10	25	.4	25	10	85	1.10			811	902	SL
0358	0358	52	20	35	.3	30	15	150	1.48			794	900	SL
0359	0359	24	20	66	.4	10	10	45	0.18			792	889	C/O
0360	0360	18	25	36	.3	25	15	130	1.50			780	865	SA
0361	0361	6	10	23	.2	15	10	95	1.28			817	845	C
0362	0362	28	10	36	.3	25	15	110	1.50			794	869	C/O
0363	0363	2	5	32	.3	10	10	75	0.58			813	874	SL
0364	0364	1550	285	38	3.5	20	20	110	1.04			839	868	C/O
0365	0365	22	30	36	.4	15	10	135	1.85			839	882	SL
0366	0366	11	15	36	.3	10	10	95	0.95			827	889	C/O
0367	0367	10	5	20	.2	10	10	50	0.48			836	898	C/O
0368	0579	45	35	42	.6	30	30	195	1.05			824	904	SA
0369	0369	20	20	27	.3	15	10	130	0.95			832	914	SL
0370	0370	18	15	32	.5	15	10	155	0.80			828	920	C/O
0371	0371	15	15	35	.4	45	25	145	2.00			831	935	SL
0372	0372	12	10	36	.6	20	10	135	1.00			825	939	C/O
0373	0373	40	30	24	.5	30	5	40	0.36			767	967	C/O
0374	0374	5	5	36	.3	20	10	65	0.75			753	985	C
0375	0580	15	20	28	.3	25	20	85	0.48			755	71015	C/O
0376	0376	5	2	14	.2	10	5	50	0.40			749	027	C
0377	0377	12	5	35	.4	10	10	90	0.38			750	041	C/O
0378	0378	8	5	18	.3	10	5	400	0.28			760	044	O
0379	0379	28	15	32	.4	30	15	95	1.70			766	081	SL
0380	0380	56	25	150	.4	35	15	225	1.75			769	149	C/O
0381	0381	26	20	52	.3	35	15	140	2.45			762	191	C
0382	0382	38	20	35	.2	30	15	75	1.35			779	206	C/O
0383	0383	32	30	36	.8	50	20	110	2.00			777	226	C
0384	0384	28	25	45	.6	60	25	190	4.25			860	297	C
0385	0385	15	15	35	.4	40	20	140	1.80			868	310	C
0386	0386	25	15	37	.5	30	15	135	0.90					
	0418	35	15	48	.5	30	10	110	1.35					
	MEAN	30	15	42	.5	30	12	122	1.12			872	335	C/O
0387	0387	25	10	44	.6	25	15	175	1.45			889	344	O
0388	0388	32	20	54	.4	35	20	170	1.60			889	358	C
0389	0582	30	30	38	.4	45	30	135	0.92			886	381	SL
0390	0390	52	30	82	.5	45	20	200	2.25			891	397	C
0391	0391	35	25	44	.4	40	20	170	2.25			910	396	SL
0392	0392	52	40	58	.6	60	25	175	2.40			915	412	C

Loc'n #	Anal. #	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe(%)	As	Sb	East	North	Sed. Type
140393	140393	30	30	40	.5	45	20	130	1.88			05816	71254	C
0394	0394	56	30	62	.4	75	20	120	1.95			809	225	C
0395	0583	36	45	62	.5	60	40	285	2.42			794	207	C
0396	0396	95	45	72	.4	150	40	175	2.75			809	188	SL
0397	0397	40	30	55	.8	45	20	170	2.00			801	176	SL
0398	0398	22	10	38	.6	30	15	105	1.25			789	164	SL
0399	0399	54	40	90	1.2	50	20	170	2.35					
	0498	58	25	92	1.0	60	35	225	2.60					
	MEAN	56	32	91	1.1	55	27	198	2.47			835	214	C
0400	0400	48	45	92	.4	50	25	150	1.60			807	134	SL
0401	0401	25	30	46	.6	35	20	130	1.65			800	120	SL
0402	0402	24	20	32	.5	25	10	95	1.00			801	110	O
0403	0403	40	35	76	1.0	35	20	126	0.95			792	100	O
0404	0404	26	35	68	.8	50	30	190	3.10			800	089	C
0405	0405	60	40	250	1.0	55	35	165	2.20			787	078	C
0406	0406	35	35	275	.4	45	25	110	2.30			808	070	C
0407	0407	8	10	22	.2	15	15	55	0.40			788	051	C
0408	0584	24	30	28	.3	40	30	85	1.28			800	045	C
0409	0409	25	35	60	1.2	45	30	220	3.25			805	028	C
0410	0410	15	30	58	.4	35	15	125	1.95			794	006	C
0411	0411	24	20	44	.3	25	15	70	1.40			778	71016	SL
0412	0412	18	30	75	.6	35	20	165	2.25			769	70999	C
0413	0413	10	25	56	.3	25	15	95	1.35			804	963	SL
0414	0414	22	30	64	.8	50	30	300	3.75			817	957	C
0415	0415	20	25	80	.6	30	25	160	2.30			815	946	C
0416	0416	20	20	82	.4	35	30	150	2.30			830	948	C
0417	0417	12	5	27	.3	15	5	75	0.85					
	0599	15	30	34	.3	25	25	55	0.60					
	MEAN	13	17	30	.3	20	15	65	0.67			844	935	SL
0418	0585	5	20	13	.2	15	15	40	0.30			841	912	SA
0419	0419	10	20	42	.3	15	10	65	0.60			848	897	O
0420	0420	8	15	36	.5	20	15	105	1.05			862	876	C
0421	0421	100	55	60	1.8	70	35	190	2.50			863	862	O
0422	0586	40	40	72	.4	50	30	165	1.85					
	0678	42	35	75	.5	55	30	140	2.10					
	MEAN	41	37	73	.4	52	30	152	1.97			870	830	C
0423	0423	15	35	54	.5	30	15	130	1.60			916	850	C
0424	0423	8	5	32	.2	10	5	30	0.42			952	880	SA
0425	0425	4	5	10	<.2	5	10	45	0.60			958	908	SL
0426	0426	12	10	26	<.2	10	10	65	0.70			952	919	SA
0427	0427	20	30	50	.6	25	20	110	1.50			966	930	SA
0428	0428	25	30	58	.5	40	25	190	2.00			829	71222	C
0429	0429	10	10	40	.4	20	15	80	1.00			883	70959	SL
0430	0430	28	35	75	1.3	55	35	225	3.50			864	978	C
0431	0587	12	30	38	.4	40	25	140	1.18			841	953	C
0432	0432	16	10	45	.6	25	20	150	1.85			852	71262	C
0433	0433	46	50	72	.4	60	30	180	2.25			831	241	C
	0434	30	15	60	.5	35	25	115	1.60			822	200	SL

AREA & SHEET No. INDIN LAKE #8SAMPLE Nos. 0435 -0473

Lcc'n #	Anal. #	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe(%)	As	Sb	East	North	Sed Type
140435	140435	35	5	95	.6	45	30	185	2.00			05814	71192	SA
0436	0436	26	30	46	.4	30	25	80	1.55					
	0564	40	40	65	.3	60	25	140	2.15					
	MEAN	33	35	56	.3	45	25	110	1.86			809	137	C
0437	0437	28	30	80	1.0	45	20	160	2.08			821	172	C
0438	0438	22	25	50	.6	40	20	120	2.10			816	164	C
0439	0439	No - 250 mesh fraction										833	152	SA
0440	0440	26	20	65	.4	45	25	130	2.25			824	132	C
0441	0441	35	45	32	.4	45	20	95	1.85			819	106	C
0442	0442	22	30	48	.3	30	30	105	1.45			829	067	C
0443	0443	8	5	26	.2	15	15	70	0.80					
	0570	6	25	32	.3	35	20	130	1.28					
	MEAN	7	15	29	.2	25	17	100	1.04			837	040	C
0444	0444	35	20	47	.4	45	15	85	0.45			852	012	SA
0445	0445	20	10	46	.3	20	10	105	0.80			837	70998	C
0446	0446	38	25	48	.8	25	15	145	0.50			809	995	C/O
0447	0589	8	15	24	.2	25	20	30	0.38			854	943	SA
0448	0448	16	5	30	.2	15	10	80	0.72			864	930	C
0449	0449	4	5	38	.3	5	5	50	0.42			855	911	C
0450	0450	20	15	49	.6	15	15	95	0.95			872	905	C
0451	0451	10	10	26	<.2	15	10	60	0.78			870	889	C
0452	0452	18	35	48	.7	15	15	75	1.35					
	0578	22	30	40	.4	30	35	80	0.62					
	MEAN	20	32	44	.5	22	25	77	0.98			875	880	C
0453	0453	25	15	56	.5	25	15	160	1.70			880	858	C
0454	0454	20	10	30	.3	10	10	90	0.60			885	865	C/O
0455	0455	55	20	40	.8	35	10	170	0.50			888	880	C/O
0456	0590	20	25	44	.5	25	25	225	0.38			881	886	C/O
0457	0457	28	15	32	.6	15	10	50	0.35			893	894	C/O
0458	0458	18	10	85	.5	10	10	140	0.48			881	912	C/O
0459	0459	8	5	22	.3	5	10	35	0.40			897	904	O
0460	0460	20	10	86	.7	15	15	120	0.40			918	897	C/O
0461	0461	36	15	22	.6	15	15	40	0.28			923	908	SA
0462	0591	18	25	50	.3	20	20	50	0.18			916	932	O
0463	0463	6	5	44	.3	15	15	70	1.00			888	945	SA
0464	0464	5	5	32	<.2	10	10	40	0.55			886	924	SA
0465	0465	No - 250 mesh fraction										873	923	SA
0466	0466	22	10	45	.4	30	15	200	2.45			878	71002	C
0467	0467	4	5	22	.2	10	5	40	0.42					
	0511	4	15	27	.2	15	15	45	0.45					
	MEAN	4	10	25	.2	12	10	42	0.43			865	028	C
0468	0468	94	45	100	1.2	335	75	165	2.48			881	047	C/O
0469	0469	12	5	65	.4	30	15	110	1.48			865	059	C
0470	0470	14	5	45	.4	25	20	170	2.10			851	056	C
0471	0471	34	30	60	.5	55	30	220	0.45			859	079	C/O
0472	0472	36	25	44	.3	40	20	115	1.35			862	110	SL
0473	0473	32	15	72	.8	55	35	185	2.45			841	095	C

AREA & SHEET No.

INDIN. LAKE #9

SAMPLE Nos. 0474 - 0511

Loc'n #	Anal. #	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe(%)	As	Sb	East	North	Sed Type
140474	140474	5	5	22	.3	10	15	55	1.68					
	0597	8	20	20	.3	20	20	40	0.45					
	MEAN	6	12	21	.3	15	17	47	1.06			05841	71119	C
0475	0475	20	10	45	.5	40	20	115	2.15			841	157	C
0476	0476	26	10	68	.8	45	30	260	2.35			843	185	C
0477	0592	32	35	66	.4	45	35	135	2.10			855	193	C
0478	0478	66	35	75	1.5	50	20	130	2.00			842	229	SL
0479	0479	26	20	58	.5	45	20	110	2.05			853	243	SL
0480	0480	110	40	62	1.2	90	45	340	4.05			867	266	C
0481	0481	145	60	140	1.8	165	45	155	2.50			861	229	C
0482	0482	52	25	68	.6	50	25	145	2.32			868	188	C
0483	0483	30	20	58	.5	45	25	130	1.98			871	179	C
0484	0593	175	65	100	.8	110	35	200	2.35					
	0682	185	70	94	1.0	115	30	170	2.25					
	MEAN	180	67	97	0.9	112	32	185	2.30			903	273	C
0485	0485	10	10	26	.8	20	15	100	1.38			862	150	C
0486	0486	90	25	44	1.8	25	15	145	1.45			876	139	C
0487	0487	92	40	58	1.0	50	25	215	2.24			876	122	SL
0488	0488	6	5	24	.2	20	15	65	0.85					
	0588	10	25	32	.3	35	25	100	1.90					
	MEAN	8	15	28	.2	27	20	82	1.37			871	105	SL
0489	0489	30	15	36	.4	40	10	80	1.78			885	091	C
0490	0490	22	15	55	.5	35	25	145	2.15			885	080	SL
0491	0491	10	10	20	.3	15	15	50	0.48			900	064	SL
0492	0492	20	10	41	.4	35	20	95	1.36			903	043	SA
0493	0493	18	5	48	.6	30	20	180	2.28			919	028	C
0494	0494	15	5	48	.5	35	20	145	1.95			943	034	C
0495	0495	14	5	34	.3	25	20	105	1.42			940	017	C
0496	0496	10	10	22	.3	10	10	30	0.42					
	0502	20	25	18	.3	20	20	30	0.35					
	MEAN	15	17	20	.3	15	15	30	0.38			930	70996	SA
0497	0497	13	5	18	.5	15	15	35	0.55			916	998	SL
0498	0594	15	30	54	.3	45	20	145	1.50			918	71280	C
0499	0499	4	5	15	.2	10	15	40	0.55			918	70967	SL
0500	0500	14	5	36	.4	20	20	85	0.90			929	965	SL
0501	0501	16	30	26	.2	20	20	60	0.60			957	973	SL
0502	0595	12	30	34	.4	30	20	95	1.18			952	994	SL
0503	0503	24	30	42	.4	25	25	95	1.15			972	71006	SL
0504	0504	14	25	50	.2	30	25	110	1.00			968	029	C
0505	0505	18	30	52	.4	40	25	135	1.84			961	060	C
0506	0506	23	30	84	.3	40	25	140	1.92					
	0646	22	25	80	.8	40	30	140	1.90					
	MEAN	22	27	82	.5	40	27	140	1.91			916	266	C
0507	0507	6	10	18	.2	15	15	30	0.40			935	049	SL
0508	0508	20	25	66	.5	35	25	135	1.68			918	043	C
0509	0509	24	30	54	.4	45	25	120	1.65			929	275	C
0510	0510	14	25	44	.3	20	20	60	0.58			909	079	SL
	0598	18	25	46	.4	40	30	115	1.48			908	082	C

Loc'n #	Anal. #	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe(%)	As	Sb	East	North	Sed Type
140512	140512	10	25	43	.3	30	30	90	1.00			05900	71108	C
0513	0513	36	40	45	.4	30	25	195	1.48			889	112	SL
0514	0514	22	35	70	.5	40	30	165	2.10			888	129	C
0515	0515	20	30	36	.4	35	25	70	1.00			900	138	SL
0516	0516	5	15	18	.2	15	20	30	0.35			892	151	SL
0517	0517	145	65	140	.6	100	35	200	1.48			931	295	C
0518	0518	20	30	38	.3	30	25	65	1.10					
	0668	38	20	38	.4	40	15	105	1.75					
	MEAN	29	25	38	.3	35	20	85	1.42			944	275	C
0519	0519	10	25	45	.4	35	30	115	1.58			963	276	SA
0520	0520	20	25	40	.3	25	25	80	0.85			958	264	C
0521	0521	52	35	68	.6	35	25	75	1.80			952	252	SL
0522	0522	18	30	55	.3	45	25	155	1.85			963	236	C
0523	0523	10	20	25	.4	30	30	110	0.85			957	216	SA
0524	0524	5	25	28	.3	25	25	70	0.72			968	186	C
0525	0525	90	50	85	.4	65	35	185	1.65			960	168	C
0526	0526	18	20	38	.3	25	25	60	0.68			953	147	C
0527	0527	10	20	22	.2	20	15	30	0.35			960	111	C
0528	0528	13	25	48	.3	30	25	100	1.00			967	091	C
0529	0529	22	35	75	.5	45	25	145	1.70			946	087	C
0530	0530	10	20	35	.3	30	20	50	0.80			942	176	SA
0531	0531	18	25	74	.6	40	30	185	1.32			949	105	C
0532	0532	24	30	72	.4	40	20	165	1.18			935	123	C
0533	0533	25	30	65	.5	50	30	160	1.80			919	118	C
0534	0534	11	25	42	.4	40	20	50	0.90			915	144	C
0535	0535	10	30	48	.5	35	25	150	1.46			931	151	C
0536	0536	70	50	74	.5	65	35	165	1.56			878	262	C
0537	0537	68	45	95	.8	55	30	300	1.54			878	250	C
0538	0538	100	55	84	.8	70	40	325	3.25			884	222	C
0539	0539	15	25	38	.5	45	25	120	1.86			886	199	SA
0540	0540	25	30	36	.4	40	25	95	1.50					
	0627	32	45	40	1.4	55	45	210	2.50					
	MEAN	28	37	38	.9	47	35	152	2.00			886	185	SA
0541	0541	25	30	42	.3	55	30	170	2.45			883	169	C
0542	0542	15	35	44	.5	40	25	150	2.15			901	178	C/O
0543	0543	22	25	34	.5	50	20	85	1.18			913	166	C
0544	0544	26	30	35	.4	65	30	150	2.16			927	182	C
0545	0545	32	35	84	.5	25	25	300	0.50			911	192	C/O
0546	0546	16	25	26	.3	15	20	85	0.50			927	203	C
0547	0547	15	25	48	.3	40	25	215	1.82			947	199	C
0548	0548	68	40	88	.4	40	30	110	0.68			945	213	C/O
0549	0549	22	30	32	.3	30	20	140	0.78			949	229	SL
0550	0550	45	35	56	.3	40	30	145	0.85			931	228	C/O
0551	0551	36	40	80	.4	45	25	190	2.00			939	235	SL
0552	0552	480	140	1700	.8	115	50	175	0.80			939	254	C/O
0553	0553	15	25	44	.3	30	25	70	0.75			931	259	C
0554	0554	18	20	40	.4	30	20	110	1.10			920	239	C
	0555	2	30	48	.4	40	35	240	1.62			917	225	C

SAMPLE Nos. 0556 - 0559
0001 - 0003

[illegible]

Loc'n #	Anal. #	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe(%)	As	Sb	East	North	Sed type
140601	140601	5	5	5	.5	20	15	20	0.34			04152	69479	SA
0602	0602	18	25	26	.8	40	20	120	1.22			151	463	SL
0603	0603	10	15	18	.4	25	20	50	0.58			182	452	SL
0604	0604	10	25	26	.3	20	20	60	0.55			201	449	SL
0605	0605	5	10	6	.2	15	15	20	0.25					
	0755	8	10	7	.2	10	5	115	0.30					
	Mean	6	10	6	.2	12	10	67	0.27			220	444	SL
0606	0606	12	30	38	.3	30	20	95	0.86			211	443	SL
0607	1085	8	15	28	.8	10	15	120	0.70			210	433	C
0608	0608	12	20	18	.2	25	10	60	0.58			195	439	SL
0609	0609	8	5	12	.4	25	15	45	0.40			175	447	O
0610	0610	32	25	25	.8	55	20	110	1.12			154	439	SL
0611	0611	36	35	42	.6	40	40	115	0.98			142	435	O
0612	1086	24	30	32	.3	30	15	70	0.68			131	419	C
0613	0613	16	20	15	.4	25	25	55	0.45			114	412	SL
0614	0614	34	40	44	1.2	25	25	60	0.90			108	422	O
0615	0615	5	5	10	.3	20	20	25	0.30			096	403	SL
0616	0616	6	10	10	.2	20	15	30	0.32			085	404	SL
0617	0617	12	10	25	.5	20	10	40	0.45					
	0769	10	20	15	.4	15	10	40	0.38					
	Mean	11	15	20	.4	17	10	40	0.41			075	406	SL
0618	0618	10	15	22	.4	20	15	30	0.38			062	405	SL
0619	0619	20	30	36	.6	25	15	75	0.68			050	406	SA
0620	0620	18	20	27	.5	30	10	85	0.95			040	426	SL
0621	0621	13	10	19	.3	20	15	65	0.55			031	413	SL
0622	0622	8	5	12	.2	15	15	30	0.36			035	399	SL
0623	0623	8	5	12	.3	20	15	25	0.30			206	499	SL
0624	0624	32	45	46	.6	35	15	150	2.38			073	379	SA
0625	0625	6	10	20	.4	15	15	40	0.38			076	392	SA
0626	0626	6	15	16	.3	20	15	45	0.45			091	386	SL
0627	1087	6	10	15	.4	5	5	35	0.25					
	1125	8	10	16	.4	5	20	30	0.36					
	Mean	7	10	15	.4	5	12	32	0.30			090	372	SL
0628	0628	12	25	18	.3	20	20	45	0.50					
	0736	21	20	20	.2	15	15	40	0.78					
	Mean	16	22	19	.2	17	17	42	0.64			108	373	SL
0629	0629	22	20	48	.6	30	25	100	0.85			128	380	SL
0630	0630	12	20	36	.5	20	10	75	0.60			138	386	O
0631	0631	22	25	48	.8	45	30	70	1.42			151	394	SL
0632	0632	16	25	40	.2	35	25	110	1.20			135	405	SL
0633	1088	20	25	32	.6	15	20	110	0.85			120	437	SL
0634	0634	5	10	35	.2	15	10	30	0.35			123	458	SL
0635	0635	6	5	15	.2	20	10	35	0.38			116	466	SL
0636	0636	5	5	14	.2	15	15	30	0.35					
	0713	6	10	10	.2	15	15	20	0.35					
	Mean	5	7	12	.2	15	15	25	0.35			130	475	SL
0637	0637	56	40	58	.5	30	35	50	0.66			137	490	O
	0638	5	5	9	.2	10	20	30	0.32			152	490	SL

Loc'n #	Anal. #	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe(%)	As	Sb	East	North	Sed Type
140639	140639	30	40	46	.8	45	35	160	2.25			04181	69492	SL
0640	0640	12	10	24	.2	20	20	70	0.58			197	487	SL
0641	0641	12	15	47	.8	30	30	300	1.48			134	520	C
0642	0642	10	10	14	.2	15	20	25	0.32			124	509	SL
0643	0643	6	5	16	.3	15	30	50	0.45			116	495	C
0644	0644	8	5	30	.3	15	20	70	0.52			106	478	C
0645	0645	10	5	18	.2	20	20	30	0.42			092	458	SL
0646	1089	20	25	50	.8	15	15	225	0.45			105	458	C/O
0647	0647	10	15	35	.5	30	30	250	1.34			103	446	C
0648	0648	5	5	18	.2	15	15	100	0.45			109	439	C
0649	0649	13	20	36	.6	30	15	150	1.68			097	427	C
0650	0650	4	5	25	.2	15	10	110	0.45					
	0722	6	10	18	.2	10	15	95	0.55					
	Mean	5	7	21	.2	12	12	102	0.50			095	416	SA
0651	0651	10	10	40	.3	30	15	210	2.24			084	435	C
0652	0652	8	15	150	.2	15	10	45	0.40			077	420	SL
0653	1090	18	20	25	.4	15	10	45	0.40			023	389	SL
0654	0654	10	5	23	.3	15	10	40	0.35			038	375	SL
0655	0655	5	5	10	.2	15	10	20	0.40			035	362	C
0656	0656	6	5	11	.3	15	25	30	0.68			017	347	C
0657	0657	8	10	25	.3	15	20	35	0.52			041	336	SL
0658	0658	18	25	32	.4	30	25	95	1.25			051	331	SL
0659	0659	22	30	38	.6	35	30	115	1.45			045	347	C
0660	0660	8	10	16	.3	15	15	45	0.48			060	347	C
0661	0661	15	20	53	.3	25	20	80	1.95			072	338	SL
0662	0662	20	15	32	.6	15	10	75	0.40			099	336	C/O
0663	0663	10	10	20	.4	20	35	40	0.60			113	341	SL
0664	0664	15	10	22	.3	25	15	40	0.65			131	323	C
0665	0665	6	10	18	.2	20	20	80	0.50			125	352	SL
0666	0666	14	20	40	.3	25	10	200	0.92			135	365	SL
0667	0667	15	10	48	.5	20	25	300	0.40			127	365	C/O
0668	1092	3	5	15	.4	5	5	45	0.25			134	497	C
0669	0669	20	30	30	.4	25	15	105	0.75					
	0747	18	30	26	1.2	20	15	75	0.70					
	Mean	19	30	28	.8	22	15	90	0.72			107	347	C
0670	0670	10	25	25	.2	15	10	60	0.38			087	343	SL
0671	0671	18	20	24	.3	20	15	45	0.40			081	352	SL
0672	0672	8	10	38	.2	15	20	70	0.42			089	358	SL
0673	0673	24	15	44	.6	35	15	115	1.88			085	363	SL
0674	0674	12	50	72	1.5	40	50	235	0.60			077	366	C/O
0675	0675	24	25	125	.8	25	25	130	1.00			058	357	SL
0676	0676	3	10	20	.2	10	15	20	0.25					
	0786	6	15	20	.2	15	10	20	0.28					
	Mean	4	12	20	.2	12	12	20	0.26			048	370	SA
0677	0677	18	20	84	.4	30	30	285	1.30			025	425	C/O
0678	0600	12	25	35	.4	30	25	75	0.68			019	412	SL
0679	0679	14	10	38	.3	20	25	130	0.45			010	400	C/O
	0680	5	5	15	.2	15	20	35	0.35			03920	333	C

Loc'n #	Anal. #	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe(%)	As	Sb	East	North	Sed Type
140681	140681	22	45	100	1.2	45	40	190	2.75			03984	69417	C
0682	0598	16	35	56	.5	40	30	365	1.36			998	415	SL
0683	0683	16	95	70	6.0	60	105	255	0.32			04006	427	SL
0684	0684	35	30	50	.5	35	45	250	1.68			03986	425	C
0685	0685	145	65	240	1.2	45	30	220	2.35			976	433	SL
0686	0686	20	30	45	2.2	40	35	750	0.55			987	437	C/O
0687	0687	10	10	14	.2	15	10	25	0.35			977	451	C
0688	0688	4	5	7	<.2	10	10	15	0.28			976	464	C
0689	0689	10	5	18	<.2	20	20	50	0.55			993	451	C
0690	0690	8	5	28	.3	20	5	45	0.62			04002	441	C
0691	0691	10	5	18	.2	15	20	30	0.45			018	437	SA
0692	0692	15	15	22	.2	20	30	80	0.72			032	438	SL
0693	0693	14	15	70	.3	15	20	825	0.44			041	434	C/O
0694	1093	10	15	32	.6	10	20	110	0.30			039	450	C/O
0695	0695	15	10	32	.5	25	30	90	0.85			071	460	C
0696	0696	10	5	15	.3	10	20	30	0.45			070	483	C
0697	0697	12	10	38	.4	25	25	135	1.35					
	0773	18	20	38	.4	25	15	185	1.40					
	Mean	15	15	38	.4	25	20	160	1.37			103	521	SL
0698	0698	10	5	20	.3	15	15	40	0.40			029	447	O
0699	0699	5	5	10	<.2	10	25	15	0.30			019	457	SL
0700	0700	6	5	12	.2	15	20	20	0.38			011	466	SL
0701	0701	4	10	12	.2	20	10	35	0.30			001	479	C
0702	0702	5	15	30	.3	10	15	25	0.34			03955	487	SL
0703	0703	12	20	24	.4	20	15	75	0.75					
	0839	12	15	36	.3	20	10	65	0.82					
	Mean	12	17	30	.3	20	12	70	0.78			950	491	SL
0704	0704	28	15	11	.2	15	15	25	0.32			945	513	SA
0705	0705	12	10	25	<.2	15	10	95	0.55			949	543	C
0706	0706	16	15	35	.3	25	15	80	1.00			932	539	C
0707	0707	38	20	25	.4	20	10	75	0.83			913	570	SL
0708	0708	20	25	40	.6	30	20	100	1.15			901	587	SL
0709	1094	14	20	48	.6	20	20	120	1.32			907	563	C
0710	0710	15	30	36	.4	30	20	115	1.25			916	551	C
0711	0711	12	20	32	.6	30	15	90	0.82			914	526	C
0712	0712	12	25	23	.2	20	20	55	0.64			916	508	C
0713	1095	8	15	28	.4	10	15	65	0.58			926	494	SL
0714	0714	14	15	22	.3	25	15	70	0.75			956	470	C
0715	0715	30	30	125	.4	30	10	105	0.78			967	426	O
0716	0716	13	20	35	.3	15	15	85	0.84			952	446	C
0717	0717	26	15	22	.4	25	15	80	1.55			894	648	SL
0718	0718	45	30	175	.5	40	20	180	1.35			967	426	O
0719	0719	38	40	145	.6	45	15	210	1.15			955	434	C
0720	0720	15	25	28	.4	25	10	95	0.98			952	446	C
0721	0721	26	30	36	.4	30	10	600	2.25			931	460	C
0722	1096	20	25	50	.5	25	25	155	1.56			958	461	C
0723	0723	15	10	26	.4	20	10	60	1.00					
	0841	12	10	30	.6	20	10	70	1.20			942	455	SL

Loc'n	Anal. #	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe(%)	As	Sb	East	North	Sed Type
140724	140724	18	15	20	.3	15	15	60	0.78			03937	69456	SL
0725	0725	26	25	27	.5	30	10	150	1.25			931	460	C
0726	0726	20	20	30	.4	20	10	130	0.80			934	475	C
0727	0727	10	15	7	.2	10	10	20	0.25			903	479	SL
0728	0728	10	15	20	.2	15	5	45	0.58			893	517	SL
0729	0729	20	30	33	.4	30	20	180	1.42			895	543	C
0730	0730	18	30	42	.4	40	25	155	2.45			886	557	C
0731	0731	16	25	36	.3	25	25	110	1.25			890	582	C
0732	0732	26	30	125	.4	30	15	170	1.35			890	603	SA
0733	0733	27	20	36	.8	25	15	155	1.28					
	0824	20	15	46	.6	35	15	135	0.98					
	Mean	23	17	41	.7	30	15	145	1.13			888	618	SL
0734	0734	24	20	42	.3	35	20	165	2.15			857	618	C
0735	0735	20	30	85	.4	20	15	125	1.15			875	629	SA
0736	1097	6	10	12	.2	5	10	25	0.20			892	631	SL
0737	0737	15	10	10	.2	20	10	45	0.94			917	639	O
0738	0738	105	35	24	.9	30	20	115	0.90			875	649	SL
0739	0739	15	20	34	.6	20	10	85	0.85			866	642	SL
0740	0740	28	40	43	.5	45	20	250	2.15			851	646	C
0741	0741	12	30	60	.2	20	15	120	1.25			869	666	C
0742	0742	128	55	155	.2	30	25	105	1.85			885	669	C
0743	0743	10	15	12	.2	15	10	45	0.32			900	662	SL
0744	0744	14	20	18	.4	20	25	135	0.42					
	0895	8	10	20	1.2	30	20	130	0.38					
	Mean	11	15	19	.8	25	22	132	0.40			899	682	SL
0745	0745	18	30	10	.7	10	15	95	0.22			888	683	O
0746	0746	16	35	62	.3	20	20	165	0.85			873	677	C
0747	1098	8	15	38	.6	10	15	110	0.82			881	698	C
0748	0748	15	35	22	.3	15	5	55	0.42			900	699	SL
0749	0749	55	25	18	.2	20	10	60	0.40			914	697	C
0750	0750	22	30	25	.6	15	10	85	0.75			938	722	SL
0751	0751	8	20	24	.8	15	15	70	0.30			936	706	SL
0752	0752	16	30	65	1.0	15	10	140	0.45			923	718	C/O
0753	0753	20	25	72	.8	25	15	95	1.30			901	723	C
0754	0754	15	30	85	.6	30	25	115	1.60					
	0812	12	10	68	.3	25	20	120	0.96					
	Mean	13	20	76	.4	27	22	117	1.28			893	711	C
0755	1100	6	10	38	.6	15	15	150	0.84			876	716	C
0756	0756	12	15	32	.6	30	10	155	0.90			915	732	C
0757	0757	25	14	24	.5	25	20	80	0.84			928	735	SL
0758	0758	22	35	50	.6	25	10	120	0.58			944	740	SL
0759	0759	10	30	38	.4	15	20	105	0.65			929	751	C
0760	0760	16	30	42	.2	20	10	85	1.20			944	759	C
0761	0761	11	25	34	.5	20	25	245	0.83			936	776	C
0762	0762	45	35	170	.8	25	20	180	1.33			953	779	SL
0763	0763	10	10	16	.4	15	10	65	0.50			957	795	SL
0764	0764	6	15	26	.5	10	15	55	0.75			985	815	C
	0765	6	15	1	.4	10	15	35	0.20			97	822	C

Loc'n #	Anal. #	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe(%)	As	Sb	East	North	Sed Type
140766	140766	10	25	46	.5	15	20	85	0.88			03965	69788	C
0767	0767	8	15	13	.3	15	15	55	0.56					
	0877	6	5	24	.6	20	15	50	0.58					
	Mean	7	10	18	.4	17	15	52	0.57			983	753	C
0768	0768	28	20	14	.5	20	10	175	2.15			956	764	C/O
0769	1101	28	20	20	.6	15	10	75	0.42			365	757	C
0770	0770	12	20	16	.4	20	15	75	0.63			983	753	C
0771	0771	12	20	18	.5	15	5	70	0.60			965	750	C
0772	0772	5	15	10	.2	10	10	25	0.25			954	740	C
0773	1102	25	25	43	.6	15	10	85	0.68			992	773	SL
0774	0774	16	15	12	.2	15	10	30	0.32			997	785	SL
0775	0775	92	75	46	1.8	145	35	120	3.95			989	799	SL
0776	0776	22	30	42	.6	15	10	115	0.40			04010	800	SL
0777	0777	125	45	12	1.2	25	15	100	0.35			020	808	C/O
0778	0778	16	15	68	.5	10	10	60	0.75					
	0805	8	10	52	.4	25	.5	55	0.35					
	Mean	12	12	60	.4	17	7	57	0.55			006	840	C
0779	0779	15	20	50	.4	15	10	50	0.45			03999	828	C
0780	0780	14	20	32	.6	20	10	60	0.82			04006	840	C
0781	0781	12	20	24	.4	25	15	80	0.65			005	860	C
0782	0782	12	25	22	.3	15	10	70	0.60			022	848	SL
0783	0783	15	25	70	.2	10	10	75	0.72					
	0888	14	15	70	.4	30	10	80	0.76					
	Mean	14	20	70	.3	20	10	77	0.74			034	859	SL
0784	0784	28	30	26	.5	15	10	55	0.60			040	848	SL
0785	0785	68	35	72	.6	20	10	110	0.58			054	862	C/O
0786	1103	14	5	35	.5	15	10	80	0.62			070	845	SL
0787	0787	15	20	30	.3	15	10	45	0.56			065	831	SA
0788	0788	45	35	48	.6	25	15	90	0.60			051	828	SL
0789	0789	62	35	36	.3	30	15	105	1.15			042	831	SL
0790	0790	28	30	36	.6	15	10	90	0.92			026	830	SL
0791	0791	26	35	40	.5	20	10	125	1.35			034	820	SA
0792	0792	24	35	38	.4	15	15	110	0.68			053	812	SL
0793	0793	15	20	40	.6	25	10	70	0.84			03866	642	C
0794	0794	12	20	20	.2	10	10	60	0.75			04298	723	SA
0795	0795	20	25	35	.2	20	10	90	0.92			310	730	SL
0796	0796	30	30	24	.5	10	15	100	0.78			325	731	SL
0797	0797	26	20	18	.3	15	10	50	0.40			349	731	SA
0798	1104	4	5	16	.2	10	5	30	0.34			340	753	SL
0799	0799	24	30	18	.3	25	15	145	1.35			297	784	SL
0800	0800	10	25	14	.2	20	10	35	0.38			328	769	SL
0801	0801	16	10	20	.2	10	5	40	0.35			329	791	SL
0802	0802	34	15	76	.6	15	30	140	0.84			317	816	SA
0803	0803	48	20	130	1.2	10	20	95	0.45			318	833	SA
0804	0804	4	5	12	.2	5	15	35	0.24			314	847	C
0805	1105	12	15	40	.8	25	20	235	1.40			241	580	SL
0806	0806	5	5	12	.3	10	10	15	0.18			295	813	SL

Loc'n #	Anal. #	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe(%)	As	Sb	East	North	Sed Type
140807	140807	5	5	18	.4	15	5	20	0.20					
	0996	6	10	15	.2	5	5	30	0.22					
	Mean	5	7	16	.3	10	5	25	0.21			04309	69803	C
0808	0808	10	10	55	.3	15	5	70	0.55			317	797	C
0809	0809	6	5	14	.2	10	5	20	0.18			306	781	SA
0810	0810	34	20	28	.6	35	15	95	1.65			297	784	SL
0811	0811	7	5	15	.2	5	10	75	0.38			295	771	SL
0812	1107	20	25	22	1.0	10	20	50	0.40			316	773	SL
0813	0813	18	20	90	.3	10	15	70	0.55			302	738	SL
0814	0814	15	25	76	.4	25	20	140	1.35			307	701	SL
0815	0815	12	10	70	.5	5	5	55	0.28					
	0958	12	30	40	.4	10	10	60	0.23					
	Mean	12	20	55	.4	7	7	57	0.25			323	713	SL
0816	0816	84	15	42	.3	20	10	245	0.62			335	710	O
0817	0817	35	35	70	.6	15	20	90	0.58			345	716	SL
0818	0818	44	40	135	1.5	25	40	210	3.00			347	707	SA
0819	0819	100	50	72	.8	60	45	285	3.85			360	693	SL
0820	0820	88	40	150	1.2	25	15	135	0.75			342	699	O
0821	0821	10	10	25	.4	10	15	40	0.45			343	684	SL
0822	0822	12	20	30	.3	20	5	40	0.48			360	675	SL
0823	0823	22	10	60	.4	30	20	80	0.88			357	648	SL
0824	1108	5	10	35	.4	10	15	60	0.35			332	667	SL
0825	0825	5	5	25	.2	20	20	25	0.35			330	640	SL
0826	0826	25	20	180	.8	25	20	145	0.72			320	650	SL
0827	0827	5	10	17	.6	10	5	20	0.28			302	640	SL
0828	0828	32	25	135	.5	35	10	165	1.62			310	632	SL
0829	0829	42	20	105	.5	35	10	170	0.92			303	621	SL
0830	0830	6	5	34	.2	5	5	35	0.35			300	589	SA
0831	0831	34	25	38	1.0	70	10	75	1.38			282	596	SL
0832	0832	75	25	46	1.1	55	10	50	0.68			266	595	SL
0833	0833	13	15	54	.3	30	10	100	0.85			237	564	C
0834	0834	12	5	43	.3	30	15	150	1.25			275	70048	SA
0835	0835	6	5	16	.2	15	25	20	0.28					
	0909	10	10	8	.3	10	15	30	0.32					
	Mean	8	7	12	.2	12	20	25	0.30			276	065	C
0836	0836	36	35	33	.3	35	25	90	0.85			270	093	SA
0837	0837	12	20	42	.4	20	15	45	0.62			267	111	SA
0838	0838	15	15	44	.3	15	15	30	0.38			255	124	C
0839	1109	46	40	155	1.5	25	25	135	2.05			271	136	SL
0840	0840	10	10	32	.5	15	10	30	0.40			285	123	C
0841	1110	8	20	26	.5	20	15	55	1.85			286	114	C
0842	0842	34	10	24	.3	25	10	40	0.58			293	133	SL
0843	0843	36	20	36	.6	30	15	70	0.80					
	0931	42	30	30	.4	25	20	140	1.23					
	Mean	39	25	33	.5	27	17	105	1.10			304	124	SL
0844	0844	7	5	15	.2	10	5	25	0.30			319	136	C
0845	0845	37	15	25	.3	30	20	100	0.62			327	130	C/O
0846	0846	48	25	42	.5	25	25	100	0.90			316	117	SL

AREA & SHEET No. CAMERON - BEAULIEU # 7 SAMPLE Nos. 0847 - 0888

Loc'n #	Anal. #	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe(%)	As	Sb	East	North	Sed Type
140847	140847	16	5	25	.4	10	10	50	0.35			04330	70101	SL
0848	0848	120	30	23	.3	20	10	55	0.64			305	108	SL
0849	0849	9	50	28	.4	10	15	40	0.38			308	095	SL
0850	0850	44	35	44	.8	30	5	125	0.88			292	099	SL
0851	0851	16	10	25	.6	20	15	50	0.45			293	085	C
0852	0852	18	15	46	.6	15	5	65	0.56			309	080	SL
0853	0853	16	20	38	1.2	20	20	75	0.80			325	080	SL
0854	0854	8	10	15	.5	10	5	30	0.28			326	065	C
0855	0855	62	30	66	1.8	45	35	110	3.00					
	0942	70	55	72	1.0	35	35	175	6.05					
	Mean	66	42	69	1.4	40	35	142	4.52			304	064	SL
0856	0856	46	15	100	1.2	35	35	130	0.78			291	065	SL
0857	1111	10	10	20	.5	10	15	50	0.66			291	050	SL
0858	0858	35	15	62	1.5	25	35	130	1.78			309	045	SL
0859	0859	22	20	36	.8	15	35	85	0.70			325	050	SL
0860	0860	12	10	32	.6	10	20	35	0.40			321	036	SL
0861	0861	22	5	18	.2	15	15	25	0.30			311	022	SL
0862	1112	22	15	18	.4	40	15	40	0.90			315	010	C
0863	0863	16	15	30	.2	15	20	55	0.65					
	0975	22	25	25	.6	15	5	75	0.85					
	Mean	19	20	27	.4	15	12	65	0.75			342	69998	SL
0864	0864	34	10	34	.6	35	25	60	0.68			335	993	SL
0865	0865	30	15	82	1.2	35	35	100	0.62			343	979	SL
0866	0866	30	15	70	1.0	55	45	140	2.35			348	963	SL
0867	0867	4	5	16	.2	10	5	20	0.28			355	946	SL
0868	0868	5	5	15	.3	15	5	20	0.16			357	928	SL
0869	0869	11	5	34	.8	20	10	40	0.40			355	918	SL
0870	0870	3	5	16	.2	10	5	20	0.28			349	936	C
0871	0871	6	5	16	.3	10	10	20	0.18			346	946	SL
0872	0872	23	15	42	.8	20	10	75	0.94			337	954	SL
0873	0873	6	5	25	.3	10	10	25	0.20			294	70009	C
0874	0874	36	15	50	.6	50	20	155	1.88			318	69989	SL
0875	0875	255	115	135	3.2	95	85	255	5.00			303	70001	SL
0876	0876	5	5	23	.2	10	5	20	0.16			294	009	C
0877	1114	75	40	46	.8	30	20	70	0.46			292	022	SL
0878	0878	82	25	70	1.0	65	35	275	2.60			297	035	SL
0879	0879	18	10	14	.8	15	10	20	0.16			279	024	C/O
0880	0880	35	30	55	.6	50	20	150	1.45			276	009	SL
0881	0881	42	30	65	1.5	35	40	205	1.80			271	69997	SL
0882	0882	22	5	28	.4	20	20	65	0.85			281	985	SL
0883	0883	22	5	30	.6	25	5	55	0.90			290	983	C
0884	0884	15	5	32	.3	20	10	45	0.38			304	986	SL
0885	0885	11	5	28	.3	20	10	70	0.58			307	967	SL
0886	0886	34	10	40	.7	25	15	145	1.25					
	0915	54	45	44	.8	30	30	255	2.75					
	Mean	44	27	42	.7	27	22	200	2.00			305	940	C
0887	0887	6	10	30	.5	15	10	155	0.55			324	917	SL
0888	1115	100	65	115	2.0	45	35	250	1.86			307	894	SL

Loc'n #	Anal. #	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe(%)	As	Sb	East	North	Sed Type
140889	140889	21	5	50	.4	5	5	70	0.50			04311	69879	SL
0890	0890	24	30	78	.6	20	20	250	2.65			311	864	SA
0891	0891	46	25	98	1.6	45	20	150	1.80			291	866	SL
0892	0892	40	10	24	.8	45	10	30	0.55			274	877	C
0893	0893	30	20	42	.8	20	25	90	1.65			291	885	SL
0894	0894	15	5	75	.6	35	10	250	1.22			295	901	SL
0895	1116	40	30	35	1.0	60	20	95	2.50			296	917	SL
0896	0896	24	10	47	.6	40	35	5000	4.68			292	930	C/O
0897	0897	42	15	82	.4	45	30	365	1.72			293	945	SL
0898	0898	46	20	48	.8	45	35	95	1.70			289	959	SL
0899	0899	16	5	32	.5	20	15	100	0.70					
	0969	20	25	28	.8	20	15	145	1.10					
	Mean	18	15	30	.6	20	15	122	0.90			289	973	SL
0900	0900	43	20	35	1.0	50	20	90	1.18			290	740	SL
0901	0901	32	40	80	.6	25	15	200	1.68			296	754	SA
0902	0902	60	50	64	.5	30	35	455	3.25			286	764	O
0903	0903	110	50	42	1.2	40	30	325	3.65			285	776	SL
0904	0904	20	25	12	.3	10	10	90	1.08			283	795	SL
0905	0905	98	45	24	.8	20	20	85	1.34			283	808	SL
0906	0906	30	30	28	.2	15	10	135	0.92			285	824	SL
0907	0907	112	90	105	1.0	55	45	305	5.75			285	839	SL
0908	0908	42	35	92	.6	35	35	280	2.40					
	1084	34	45	92	1.0	25	20	210	1.60					
	Mean	38	40	92	.8	30	27	245	2.00			288	856	SL
0909	1117	8	10	12	.2	5	5	25	1.48			272	837	SL
0910	0910	44	25	15	.4	15	25	95	0.95			274	823	SL
0911	0911	10	10	5	.2	5	5	20	0.24			261	798	SL
0912	0912	10	10	6	.2	5	10	20	0.22			261	798	SL
0913	0913	12	15	10	.4	10	5	35	0.40			243	785	SL
0914	0914	5	15	5	.2	5	10	20	0.18			255	776	SL
0915	1119	15	15	20	.4	15	10	110	1.32			272	774	SL
0916	0916	30	30	17	.6	20	10	180	0.84			265	761	SL
0917	0917	5	10	5	.2	5	5	20	0.15			251	766	SL
0918	0918	38	35	36	.4	25	25	35	1.98			263	746	SL
0919	0919	14	20	16	.3	10	5	55	0.48			275	743	SL
0920	0920	28	25	40	.5	15	10	210	0.90			285	715	O
0921	0921	30	30	34	.4	15	15	95	0.88			272	708	SL
0922	0922	10	20	23	.3	10	15	40	0.44			299	700	SA
0923	0923	36	45	45	.6	20	20	110	1.05			320	695	SL
0924	0924	12	10	35	.3	10	10	80	0.60			318	677	SL
0925	0925	54	55	120	.7	45	35	200	3.50			313	663	O
0926	1120	5	15	22	.5	5	15	30	0.52			306	674	SL
0927	0927	28	35	100	.4	25	15	115	1.30			301	688	SL
0928	0928	35	45	74	.6	45	35	230	2.38			286	688	SL
0929	0929	40	40	35	.3	20	15	175	1.26			294	666	SL
0930	0930	22	35	28	.5	20	30	145	1.95					
	1042	18	25	35	.4	15	20	135	1.50					
	Mean	20	30	31	.4	17	25	140	1.72			300	655	SL

Loc'n #	Anal. #	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe(%)	As	Sb	East	North	Sed Type
140931	141121	56	40	60	1.4	35	30	1250	0.30			04286	69645	SL
0932	0932	44	45	70	.7	30	30	300	2.36			274	661	SL
0933	0933	25	25	30	.6	25	20	220	1.82			266	652	SL
0934	0934	14	15	26	.4	15	10	110	0.85			271	640	SL
0935	0935	10	10	10	.2	10	5	40	0.28			259	628	SL
0936	0936	15	15	15	.3	10	5	60	0.32			285	627	SL
0937	0937	8	10	8	.3	10	5	25	0.22			279	610	SL
0938	0938	22	15	18	.2	15	10	30	0.38			268	609	SL
0939	0939	110	80	125	1.3	45	45	45	3.72					
	1091	110	65	105	2.5	40	30	155	3.25					
	Mean	110	72	115	1.9	42	37	100	3.48			245	606	C
0940	0940	10	20	26	.3	10	10	65	0.58			258	558	C
0941	0941	32	35	70	.6	30	30	280	0.70					
	1065	28	35	70	.7	15	15	350	1.35					
	Mean	30	35	70	.6	22	22	315	1.02			271	568	SL
0942	1122	32	45	94	1.2	35	20	185	3.50			290	572	SL
0943	0943	20	35	82	.6	25	20	485	2.65			305	582	C
0944	0944	6	15	16	.2	10	10	30	0.28			315	557	C
0945	0945	16	10	28	.2	10	5	40	0.58			339	572	SL
0946	0946	40	50	90	.8	40	30	300	3.75			332	537	C
0947	0947	6	10	7	.2	5	10	25	0.20			323	486	C
0948	0948	34	30	50	.4	40	20	120	1.90			297	485	C
0949	0949	20	25	26	.3	20	20	65	0.80			291	512	C
0950	0950	6	5	8	.2	10	10	20	0.28			266	496	SL
0951	0951	8	10	10	.2	10	15	25	0.18			266	520	SL
0952	0952	5	10	10	.2	5	10	30	0.26			284	549	C
0953	0953	12	25	43	.3	15	20	85	1.05			250	537	C
0954	0954	15	40	28	1.2	15	35	70	0.28			202	594	C/O
0955	0955	105	40	30	.8	20	15	55	0.82			215	604	SA
0956	0956	7	15	32	.3	15	40	110	0.94			225	605	SA
0957	0957	14	20	16	.4	10	10	80	0.55			226	626	SL
0958	1123	20	20	50	.6	10	10	50	0.65			222	649	SA
0959	0959	15	20	46	.3	15	10	45	0.68			225	664	C
0960	0960	46	50	135	.8	35	35	255	2.58			242	663	SL
0961	0961	Sample lost in Transit										232	680	SA
0962	0962	15	20	12	.4	5	5	25	0.24			242	681	SL
0963	0963	18	20	14	.5	10	15	55	0.52			244	696	C
0964	0964	20	30	23	.3	10	10	50	0.60					
	1057	24	20	27	.6	5	10	45	0.38					
	Mean	22	25	25	.4	7	10	47	0.49			227	695	SL
0965	0965	34	35	48	.6	20	20	190	0.72			232	709	SL
0966	0966	60	50	90	.7	25	30	195	1.14			241	718	SL
0967	0967	25	20	20	.6	15	5	45	0.46			234	726	SL
0968	0968	22	20	46	.5	15	10	160	0.65			245	735	SA
0969	1124	16	10	28	.4	10	15	55	0.90			249	748	SA
0970	0970	10	10	14	.4	5	5	35	0.38			239	740	C
0971	0971	5	10	5	.3	5	5	25	0.18			232	763	C
0972	0972	10	15	25	.3	10	10	65	0.36			231	755	C

Loc'n #	Anal. #	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe(%)	As	Sb	East	North	Sed Type
140973	140973	16	15	18	.2	10	10	45	0.32			04225	69739	SL
0974	0974	6	15	12	.2	5	5	30	0.22			219	737	C
0975	1126	30	35	90	.5	20	15	55	1.05			216	720	C/O
0976	0976	15	30	43	.4	15	15	90	1.10			208	707	SA
0977	0977	15	20	26	.2	10	10	45	0.36			204	690	C
0978	0978	50	40	70	.5	25	10	170	0.68			196	672	C
0979	0979	40	35	48	.4	20	15	95	0.90					
	1037	32	25	42	.8	10	10	85	0.78					
	Mean	36	30	45	.6	15	12	90	0.84			192	659	SL
0980	0980	35	25	28	.3	20	15	40	0.46			213	665	SL
0981	0981	30	20	36	.6	25	20	110	1.18			207	641	SL
0982	0982	25	30	55	.6	15	10	110	0.68			205	626	C
0983	1127	8	25	62	.5	10	15	70	1.88			189	617	SA
0984	0984	5	5	5	.2	5	5	15	0.15			175	595	C
0985	0985	26	15	36	.4	15	15	85	0.90			167	603	SL
0986	0986	14	5	10	.2	5	5	35	0.36			157	594	SL
0987	0987	14	10	48	.4	15	10	155	1.05			162	552	C
0988	0988	58	10	200	1.0	15	15	160	0.86			165	559	C
0989	0989	16	25	35	.2	25	25	135	0.96			158	558	C
0990	0990	18	15	16	.2	10	5	50	0.42					
	1079	10	5	16	.4	10	10	45	0.34					
	Mean	14	10	16	.3	10	7	47	0.38			146	580	C
0991	0991	6	10	5	.2	5	5	25	0.20			159	583	C
0992	0992	6	15	15	.2	10	10	80	0.35			174	568	C
0993	0993	14	20	15	.2	10	10	110	0.43			210	583	SA
0994	0994	12	15	14	.2	10	5	45	0.32			216	583	SL
0995	0995	15	10	18	.4	15	10	80	0.65			222	557	SL
0996	1128	6	20	42	.4	10	20	50	0.58			225	532	SL
0997	0997	26	40	60	.5	30	5	135	1.20			229	520	C
0998	0998	14	15	15	.3	15	20	35	0.38					
	1099	8	10	16	.5	10	5	30	0.25					
	Mean	11	12	15	.4	12	12	32	0.31			213	512	SL
0999	0999	9	15	18	.4	10	20	50	0.40			206	527	C
1000	1000	14	20	30	.5	20	15	90	0.78			187	519	C
1001	1001	10	10	30	.4	10	15	85	0.60			176	526	C
1002	1002	6	15	33	.3	10	10	300	0.78			164	529	C
1003	1003	10	20	37	.4	15	20	85	0.85			156	514	C
1004	1004	10	20	42	.3	10	10	70	0.58			140	515	SL
1005	1005	5	5	16	.2	10	10	60	0.40			144	534	C
1006	1006	10	15	32	.3	15	10	70	0.70			152	529	SL
1007	1007	6	5	14	<.2	5	10	25	0.22			163	543	SL
1008	1008	12	10	30	.3	10	20	25	0.88			177	550	C
1009	1135	22	30	43	.8	30	25	150	1.85			274	70150	SL
1010	1010	150	60	72	1.2	20	55	450	0.52			266	175	C/O
1011	1011	90	45	165	1.5	25	15	900	0.75			262	189	C/O
1012	1012	55	35	44	.8	15	10	280	0.55			263	201	C/O
1013	1013	12	5	15	.5	10	5	50	0.35			264	211	SL
	1014	20	20	50	.3	10	10	60	0.38			255	226	C

AREA & SHEET No. CAMERON- BEAULIEU # 11 SAMPLE Nos. 1015 - 1060

Loc'n #	Anal. #	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe(%)	As	Sb	East	North	Sed Type
141015	141015	8	10	10	.2	5	10	25	0.25			04251	70258	C
1016	1016	25	20	24	.3	15	10	75	0.64			266	251	SL
1017	1017	38	25	40	.8	20	10	160	1.18			276	257	SL
1018	1018	13	10	30	.3	15	5	100	0.68					
	1113	8	20	25	.7	15	15	80	0.50					
	Mean	10	15	27	.5	15	10	90	0.59			289	253	SA
1019	1019	50	35	66	.8	20	10	125	1.30			303	248	SA
1020	1020	10	5	18	.2	10	5	55	0.40			313	258	C
1021	1021	55	35	88	.8	25	10	65	0.63			327	267	C/O
1022	1022	50	30	52	.6	25	10	85	1.28			340	265	SL
1023	1023	14	10	18	.5	10	5	55	0.35			352	274	C
1024	1024	15	15	32	.4	5	10	45	0.25			372	271	SL
1025	1025	8	15	28	.3	5	10	50	0.60			371	249	SL
1026	1026	16	15	40	.4	20	5	110	0.70			355	248	C
1027	1027	52	25	26	.5	10	10	365	0.25			346	236	C/O
1028	1028	12	15	44	.3	15	10	70	0.78			345	229	C/O
1029	1134	6	20	25	.4	10	15	40	0.64			363	219	SA
1030	1030	5	5	28	.3	10	5	55	0.78			357	209	SA
1031	1031	7	10	20	.5	10	10	85	0.58			341	198	C
1032	1032	20	15	34	.6	10	10	45	0.18			335	180	SA
1033	1033	16	15	42	.6	10	10	90	0.29			338	147	O
1034	1034	28	20	40	.5	15	15	155	0.30			324	150	C
1035	1035	14	10	22	.4	10	5	60	0.60			322	163	SA
1036	1036	16	15	13	.2	10	10	30	0.42			304	147	C
1037	1133	30	30	86	1.2	35	25	200	3.35			286	160	SL
1038	1038	105	65	180	2.5	60	60	70	5.10			287	173	C
1039	1039	95	50	72	2.0	25	35	180	2.10			290	189	SL
1040	1040	15	25	43	1.2	15	20	45	1.18			291	196	SA
1041	1041	3	5	8	.2	5	5	25	0.16			279	208	C
1042	1132	12	25	35	1.0	15	20	90	0.80			275	220	SL
1043	1043	10	20	40	.5	15	10	170	0.48			271	231	SL
1044	1044	15	20	24	.6	10	10	85	0.38			271	243	C
1045	1045	22	15	24	.6	15	20	45	0.50			288	236	SL
1046	1046	55	40	82	.8	30	25	95	0.82			300	240	SL
1047	1047	36	30	35	1.2	10	15	80	0.28			315	249	C/O
1048	1048	15	20	30	.5	15	20	45	0.46			331	249	SL
1049	1049	26	25	38	.8	20	20	80	0.70			327	237	SL
1050	1050	Sample lost in Transit										311	233	SL
1051	1051	20	20	20	1.0	10	10	45	0.68			300	225	SL
1052	1052	38	20	24	.8	10	15	75	0.55			291	215	SL
1053	1053	26	15	23	.6	10	20	45	0.48			301	208	SL
1054	1054	14	20	52	.6	15	15	110	0.85			312	221	C
1055	1055	30	35	50	1.2	25	35	325	2.45			325	224	C
1056	1056	10	10	18	.3	10	15	35	0.28			337	220	C
1057	1131	20	15	24	.8	15	15	70	0.72			343	212	SL
1058	1058	60	35	34	1.4	15	15	140	0.72			328	213	SL
1059	1059	38	30	46	1.5	15	15	120	0.92			316	200	C
1060	1060	20	25	35	.6	10	15	70	0.20			307	207	C/O

AREA & SHEET No. CAMERON-BEAULIEU # 12 SAMPLE Nos. 1061 - 1083

[illegible]

A P P E N D I X C

ANALYTICAL PRECISION CONTROL

- i. Control Sample Analyses
- ii. Duplicate Check Analyses

CONTROL SAMPLE ANALYSES

CONTROL NO. 1

Anal.#	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe(%)	As	Sb
140035	68	45	58	1.4	75	40	300	5.50		
0140	50	20	62	1.0	60	25	250	3.75		
0287	54	50	56	.6	45	20	180	2.50		
0395	70	40	50	.6	75	30	315	4.10		
0456	50	45	85	.6	55	25	205	3.50		
0561	65	50	68	.6	70	35	265	3.10		
0653	68	50	60	.5	60	30	200	2.35		
0798	75	50	92	.6	50	25	205	3.75		
0862	70	45	88	.8	70	35	90	3.35		
0926	78	65	90	.8	100	55	300	5.50		
1009	82	60	84	1.6	60	30	240	5.00		
1106	74	65	78	1.6	55	35	185	3.65		
MEAN	67	49	73	.9	65	32	230	3.84		

CONTROL NO. 2

Anal.#	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe(%)	As	Sb
140020	32	25	26	.4	20	20	105	1.60		
0150	25	15	30	.5	30	20	95	1.10		
0276	32	10	36	.3	30	15	95	1.15		
0375	22	10	28	.4	25	10	100	1.00		
0408	30	15	36	.2	35	15	105	1.15		
0581	36	30	42	.4	45	30	150	1.55		
0633	28	30	36	.4	40	30	110	1.30		
0709	42	20	38	.3	40	25	125	1.40		
0857	28	10	35	1.0	40	30	80	1.32		
0983	45	25	40	.5	40	20	130	1.26		
1029	28	25	40	.5	25	5	105	1.00		
1118	32	40	44	1.2	30	25	105	0.20		
MEAN	32	21	36	.5	33	20	110	1.17		

DUPLICATE CHECK ANALYSES

GROUP 2

GROUP 3

Anal. #	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe(%)	As	Sb
0108	8	15	22	.4	15	5	115	0.75		
0203	4	5	20	.3	5	15	130	0.70		
Dev. %	67	100	10	29	100	100	12	7		
0128	26	30	60	.9	40	26	170	2.90		
0263	24	20	50	1.0	45	25	250	2.50		
Dev. %	8	40	18	11	12	4	38	15		
0141	6	10	28	.2	20	15	125	0.95		
0226	14	10	36	.5	20	20	170	2.00		
Dev. %	80	0	25	86	0	29	30	71		
0144	5	10	30	.4	15	15	125	1.20		
0297	5	10	28	.3	20	5	120	0.92		
Dev. %	0	0	7	29	29	67	4	29		
0148	18	10	38	.3	20	15	85	0.85		
0238	15	5	33	.3	20	15	80	0.75		
Dev. %	18	67	14	0	0	0	6	13		
0149	30	5	72	.6	20	10	135	0.95		
0255	35	5	65	1.3	30	20	170	1.05		
Dev. %	15	0	10	74	40	67	34	10		
0170	22	25	46	.8	35	25	95	1.38		
0244	35	10	48	.4	30	15	80	1.00		
Dev. %	46	86	4	67	15	50	6	30		
0173	36	15	40	.6	35	15	110	1.45		
0217	35	5	36	.4	25	20	120	1.48		
Dev. %	3	100	11	40	33	29	9	2		
0218	16	10	38	.4	15	15	130	1.90		
0342	10	5	28	.2	15	5	90	0.80		
Dev. %	46	67	30	67	0	100	36	82		
0224	40	5	32	.8	15	15	130	1.35		
0304	36	10	42	.3	25	10	120	1.00		
Dev. %	11	67	27	91	50	40	8	30		
0232	64	15	60	1.3	85	30	175	3.10		
0329	78	40	60	.3	80	25	135	2.45		
Dev. %	20	91	0	125	6	15	26	23		
0248	5	5	18	.2	15	15	55	0.55		
0389	7	5	14	.2	10	5	45	0.45		
Dev. %	33	0	25	0	40	100	20	20		
0251	26	15	30	1.0	35	15	224	1.65		
0333	22	15	28	.3	25	10	165	1.20		
Dev. %	17	0	7	108	33	40	30	32		
0267	14	10	24	.3	20	10	85	0.78		
0312	12	10	18	.3	20	5	70	0.45		
Dev. %	15	0	29	0	0	67	6	54		
0285	26	10	48	.3	20	20	140	1.55		
0368	26	20	42	.4	30	15	140	1.80		
Dev. %	0	67	13	29	40	29	0	15		
0292	22	15	30	.3	20	5	85	0.80		
0356	30	15	40	.4	20	10	105	1.25		
Dev. %	31	0	29	29	0	67	21	44		

DUPLICATE CHECK ANALYSES.

Anal. #	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe(%)	As	Sb
0006	8	15	22	.3	10	8	80	0.70		
0008	8	15	20	.2	10	10	50	0.75		
Dev. %	0	0	10	40	0	22	46	14		
0016	10	20	12	.2	15	8	55	0.57		
0096	14	20	22	.3	25	12	105	0.80		
Dev. %	33	0	59	40	57	40	63	34		
0027	30	35	38	.7	35	20	190	2.35		
0065	26	25	40	.8	30	20	195	2.70		
Dev. %	14	33	5	13	15	0	3	14		
0054	28	35	60	.5	35	10	200	2.65		
0013	30	25	58	.8	40	24	210	3.25		
Dev. %	7	33	3	46	13	82	5	10		
0069	10	15	16	.6	20	10	60	0.65		
0034	10	10	15	<.2	15	5	45	0.70		
Dev. %	0	40	6	100	29	67	29	7		
0077	12	10	20	.3	15	8	60	0.85		
0088	8	10	18	.3	15	15	65	0.75		
Dev. %	40	0	11	0	0	61	8	13		
0087	12	15	40	.5	30	8	115	1.85		
0057	16	30	42	.4	30	18	105	1.75		
Dev. %	29	67	5	22	0	77	9	6		
0092	11	15	25	.8	15	15	70	0.75		
0050	12	20	26	.5	25	10	85	1.00		
Dev. %	9	29	4	5	50	40	19	29		
0006	8	15	22	.3	10	8	80	0.70		
0106	8	20	24	.2	10	5	70	0.70		
Dev. %	0	29	9	40	0	46	13	0		
0016	10	20	12	.2	15	8	55	0.57		
0115	12	10	24	.4	15	20	95	0.90		
Dev. %	18	67	67	67	0	86	53	22		
0027	30	35	38	.7	35	20	190	2.35		
0123	30	30	35	.8	30	20	200	2.50		
Dev. %	0	15	8	13	15	0	5	6		
0054	28	35	60	.5	35	10	200	2.65		
0177	25	20	52	.7	25	25	220	2.35		
Dev. %	11	55	14	33	33	86	10	12		
0069	10	15	16	.6	20	10	60	0.65		
0193	5	5	17	<.2	5	15	45	0.50		
Dev. %	67	100	6	100	120	40	29	26		
0077	12	10	20	.3	15	8	60	0.85		
0136	13	5	32	.2	25	10	115	0.90		
Dev. %	8	67	46	40	50	22	63	6		
0087	12	15	40	.5	30	8	115	1.85		
0170	22	25	46	.8	35	25	95	1.38		
Dev. %	59	50	14	46	15	103	19	29		
0092	11	15	25	.8	15	15	70	0.75		
0154	8	10	32	.4	15	15	105	0.85		
Dev. %	32	40	25	67	0	0	40	13		

Group 0

Group 1

DUPLICATE CHECK ANALYSES

GROUP 2

GROUP 3

Anal. #	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe(%)	As	Sb
0108	8	15	22	.4	15	5	115	0.75		
0203	4	5	20	.3	5	15	130	0.70		
Dev. %	67	100	10	29	100	100	12	7		
0128	26	30	60	.9	40	26	170	2.90		
0263	24	20	50	1.0	45	25	250	2.50		
Dev. %	8	40	18	11	12	4	38	15		
0141	6	10	28	.2	20	15	125	0.95		
0226	14	10	36	.5	20	20	170	2.00		
Dev. %	80	0	25	86	0	29	30	71		
0144	5	10	30	.4	15	15	125	1.20		
0297	5	10	28	.3	20	5	120	0.92		
Dev. %	0	0	7	29	29	67	4	29		
0148	18	10	38	.3	20	15	85	0.85		
0238	15	5	33	.3	20	15	80	0.75		
Dev. %	18	67	14	0	0	0	6	13		
0149	30	5	72	.6	20	10	135	0.95		
0255	35	5	65	1.3	30	20	170	1.05		
Dev. %	15	0	10	74	40	67	34	10		
0170	22	25	46	.8	35	25	95	1.38		
0244	35	10	48	.4	30	15	80	1.00		
Dev. %	46	86	4	67	15	50	6	30		
0173	36	15	40	.6	35	15	110	1.45		
0217	35	5	36	.4	25	20	120	1.48		
Dev. %	3	100	11	40	33	29	9	2		
0218	16	10	38	.4	15	15	130	1.90		
0342	10	5	28	.2	15	5	90	0.80		
Dev. %	46	67	30	67	0	100	36	82		
0224	40	5	32	.8	15	15	130	1.35		
0304	36	10	42	.3	25	10	120	1.00		
Dev. %	11	67	27	91	50	40	8	30		
0232	64	15	60	1.3	85	30	175	3.10		
0329	78	40	60	.3	80	25	135	2.45		
Dev. %	20	91	0	125	6	15	26	23		
0248	5	5	18	.2	15	15	55	0.55		
0389	7	5	14	.2	10	5	45	0.45		
Dev. %	33	0	25	0	40	100	20	20		
0251	26	15	30	1.0	35	15	224	1.65		
0333	22	15	28	.3	25	10	165	1.20		
Dev. %	17	0	7	108	33	40	30	32		
0267	14	10	24	.3	20	10	85	0.78		
0312	12	10	18	.3	20	.5	70	0.45		
Dev. %	15	0	29	0	0	67	6	54		
0285	26	10	48	.3	20	20	140	1.55		
0368	26	20	42	.4	30	15	140	1.80		
Dev. %	0	67	13	29	40	29	0	15		
0292	22	15	30	.3	20	5	85	0.80		
0356	30	15	40	.4	20	10	105	1.25		
Dev. %	31	0	29	29	0	67	21	44		

DUPLICATE CHECK ANALYSES

GROUP 4

GROUP 5

Anal. #	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe(%)	As	Sb
0306	10	5	27	.3	15	10	85	0.65		
0422	15	30	40	.3	15	10	80	0.85		
Dev. %	40	143	39	0	0	0	6	13		
0314	60	40	115	.6	80	25	210	2.50		
0431	82	45	95	1.2	70	35	200	3.25		
Dev. %	31	11	10	.67	13	33	10	26		
0318	5	5	14	.2	15	5	35	0.38		
0447	10	15	28	<.2	10	10	65	0.60		
Dev. %	67	100	67	0	40	67	60	37		
0328	24	15	32	.2	25	10	100	1.15		
0462	22	10	47	.4	30	15	150	1.50		
Dev. %	9	40	38	.67	15	40	40	26		
0338	15	20	65	.4	40	20	190	1.75		
0477	26	15	98	.6	40	25	235	2.45		
Dev. %	54	29	40	.40	0	22	21	33		
0354	9	25	60	.4	30	15	145	1.15		
0484	28	10	64	.3	35	15	130	1.50		
Dev. %	103	86	6	.29	15	0	11	26		
0386	25	15	37	.5	30	15	135	0.90		
0418	35	15	48	.5	30	10	110	1.35		
Dev. %	33	0	26	0	0	40	20	40		
0399	54	40	90	1.2	50	20	170	2.35		
0498	58	25	92	1.0	60	35	225	2.60		
Dev. %	7	46	2	.18	15	55	28	10		
0417	12	5	27	.3	15	5	75	0.85		
0599	15	30	34	.3	25	25	50	0.60		
Dev. %	22	143	23	0	50	133	40	34		
0436	26	30	46	.4	30	25	80	1.55		
0564	40	40	65	.3	60	25	140	2.15		
Dev. %	42	29	34	.29	67	0	55	32		
0443	8	5	26	.2	15	15	70	0.80		
0570	6	25	32	.3	35	20	130	1.28		
Dev. %	29	133	21	.40	80	29	60	46		
0452	18	35	48	.7	15	15	75	1.35		
0578	22	30	40	.4	30	35	80	0.62		
Dev. %	20	15	18	.55	67	33	6	74		
0467	4	5	22	.2	10	5	40	0.42		
0511	4	15	27	.2	15	15	45	0.45		
Dev. %	0	100	20	0	40	100	11	7		
0474	5	5	22	.3	10	15	55	1.68		
0597	8	20	20	.3	20	20	40	0.45		
Dev. %	46	120	10	0	67	29	32	115		
0488	6	5	24	.2	20	15	65	0.85		
0588	10	25	32	.3	35	25	100	1.90		
Dev. %	50	133	29	.40	33	50	42	76		
0496	10	10	22	.3	10	10	30	0.42		
0502	20	25	18	.3	20	20	30	0.35		
Dev. %	67	86	20	0	67	67	0	18		

DUPLICATE CHECK ANALYSES

Group 6

Group 7

Anal. #	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe(%)	As	Sb
0506	23	30	84	.3	40	25	140	1.92		
0646	22	25	80	.8	40	30	140	1.90		
Dev. %	4	15	5	91	0	15	0	1		
0518	20	30	38	.3	30	25	65	1.10		
0668	38	20	38	.4	40	15	105	1.75		
Dev. %	62	40	0	29	29	50	47	46		
0540	25	30	36	.4	40	25	95	1.50		
0627	32	45	40	1.4	55	45	210	2.50		
Dev. %	25	40	11	111	32	57	10	50		
0560	32	40	98	.5	35	30	1300	1.35		
0694	34	20	48	.2	25	10	510	1.24		
Dev. %	6	67	69	86	33	100	87	9		
0569	25	30	34	.3	30	25	135	0.90		
0607	25	30	30	.8	35	25	105	1.00		
Dev. %	0	0	13	91	15	0	25	11		
0575	25	30	34	.4	30	15	85	0.65		
0612	24	30	32	.3	30	15	70	0.68		
Dev. %	4	0	6	29	0	0	19	5		
0586	40	40	72	.4	50	30	165	1.85		
0678	42	35	75	.5	55	30	140	2.10		
Dev. %	5	13	4	22	10	0	16	13		
0593	175	65	100	.8	110	35	200	2.35		
0682	185	70	94	1.0	115	30	170	2.25		
Dev. %	6	7	6	22	4	15	16	4		
0605	5	10	6	.2	15	15	20	0.25		
0755	8	10	7	.2	10	5	115	0.30		
Dev. %	46	0	15	0	40	100	141	15		
0617	12	10	25	.5	20	10	40	0.45		
0769	10	20	15	.4	15	10	40	0.38		
Dev. %	18	67	50	22	29	0	0	33		
0628	12	25	18	.3	20	20	45	0.50		
0736	21	20	20	.2	15	15	40	0.78		
Dev. %	55	22	11	40	29	29	12	44		
0636	5	5	14	.2	15	15	30	0.35		
0713	6	10	10	.2	15	15	20	0.35		
Dev. %	15	67	33	0	0	0	40	0		
0650	4	5	25	<.2	15	10	110	0.45		
0722	6	10	18	.2	10	15	95	0.55		
Dev. %	40	67	33	0	40	40	15	20		
0669	20	30	30	.4	25	15	105	0.75		
0747	18	30	26	1.2	20	15	75	0.70		
Dev. %	11	0	14	100	22	0	33	7		
0676	3	10	20	.2	10	15	20	0.25		
0786	6	15	20	.2	15	10	20	0.28		
Dev. %	67	40	0	0	40	40	0	11		
0697	12	10	38	.4	25	25	135	1.35		
0773	18	20	38	.4	25	15	185	1.40		
Dev. %	40	67	0	0	0	50	31	3		

DUPLICATE CHECK ANALYSES

Anal. #	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe(%)	As	Sb
0703	12	20	24	.4	20	15	75	0.75		
0839	12	15	36	.3	20	10	65	0.82		
Dev. %	0	29	40	29	0	40	14	9		
0723	15	10	26	.4	20	10	60	1.00		
0841	12	10	30	.6	20	10	70	1.20		
Dev. %	22	0	14	40	0	0	15	15		
0733	27	20	36	.8	25	15	155	1.28		
0824	20	15	46	.6	35	15	135	0.98		
Dev. %	30	29	24	29	33	0	14	27		
0744	14	20	18	.4	20	25	135	0.42		
0895	8	10	20	1.2	30	20	130	0.38		
Dev. %	55	67	11	100	40	22	4	10		
0754	15	30	85	.6	30	25	115	1.60		
0812	12	10	68	.3	25	20	120	0.96		
Dev. %	22	100	22	67	15	22	4	50		
0767	8	15	13	.3	15	15	55	0.56		
0877	6	5	24	.6	20	15	50	0.58		
Dev. %	29	100	60	67	29	0	10	4		
0778	16	15	68	.5	10	10	60	0.75		
0805	8	10	52	.4	25	5	55	0.35		
Dev. %	67	40	27	22	86	67	9	73		
0783	15	25	70	.2	10	10	75	0.72		
0888	14	15	70	.4	30	10	80	0.76		
Dev. %	7	50	0	67	100	0	6	5		
0807	5	5	18	.4	15	5	20	0.20		
0996	6	10	15	.2	5	5	30	0.22		
Dev. %	15	67	15	67	100	0	40	10		
0815	12	10	70	.5	5	5	55	0.28		
0958	12	30	40	.4	10	10	60	0.23		
Dev. %	0	100	55	22	67	67	9	20		
0835	6	5	16	.2	15	25	20	0.28		
0909	10	10	8	.3	10	15	30	0.32		
Dev. %	86	67	67	40	40	50	40	13		
0843	36	20	36	.6	30	15	70	0.80		
0931	42	30	30	.4	25	20	140	1.23		
Dev. %	15	40	18	40	15	29	67	42		
0855	62	30	66	1.8	45	35	110	3.00		
0942	70	55	72	1.0	35	35	175	6.05		
Dev. %	12	59	9	57	25	0	46	68		
0863	16	15	30	.2	15	20	55	0.65		
0975	22	25	25	.6	15	5	75	0.85		
Dev. %	32	50	15	100	0	120	31	27		
0886	34	10	40	.7	25	15	145	1.25		
0915	54	45	44	.8	30	30	255	2.75		
Dev. %	45	127	10	13	15	67	56	39		
0899	16	5	32	.5	20	15	100	0.70		
0969	20	25	28	.8	20	15	145	1.10		
Dev. %	22	133	13	46	0	0	37	44		

Group 8

Group 9

DUPLICATE CHECK ANALYSES

[illegible]

APPENDIX D

REPEATABILITY TESTS

REPEATABILITY TESTS

Loc. #	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe(%)	As	Sb
140001	50	50	74	1.0	50	20	160	3.25		
0395	36	45	62	.5	60	40	285	2.42		
0715	30	30	125	.4	30	10	105	0.78		
0718	45	30	175	.5	40	20	180	1.35		
0716	13	20	35	.3	15	15	85	0.84		
0720	15	25	28	.4	25	10	95	0.98		
0721	26	30	36	.4	30	10	600	2.25		
0725	26	25	27	.5	30	10	150	1.25		
0739	15	20	34	.6	20	10	85	0.85		
0793	15	20	40	.6	25	10	70	0.84		
0767	7	10	18	.4	17	15	52	0.57		
0770	12	20	16	.4	20	15	75	0.63		
0778	12	12	60	.4	17	7	57	0.55		
0780	14	20	32	.6	20	10	60	0.82		
0799	24	30	18	.3	25	15	145	1.35		
0810	34	20	28	.6	35	15	95	1.65		
0873	6	5	25	.3	10	10	25	0.20		
0876	5	5	23	.2	10	5	20	0.16		
0911	10	10	5	.2	5	5	20	0.24		
0912	10	10	6	.2	5	10	20	0.22		
0918	38	35	36	.4	25	25	35	1.98		
0923	36	45	45	.6	20	20	110	1.05		

[N.B.] Each pair of samples were taken at approximately the same location at a distance of 10 to 100 feet apart.

A P P E N D I X E

INFORMATION PERTAINING TO
ACCOMPANYING MAPS

- i. List of Maps
- ii. Index Map
- iii. Legends for Geological Maps

LIST OF MAPS

I. YELLOWKNIFE AREA

MAP Y1	Sample Location Map	Parts of 85-J-8 & 9
Y2	Geological Map	85-J-9
Y3	Geological Map	85-J-8

II. INDIN LAKE AREA

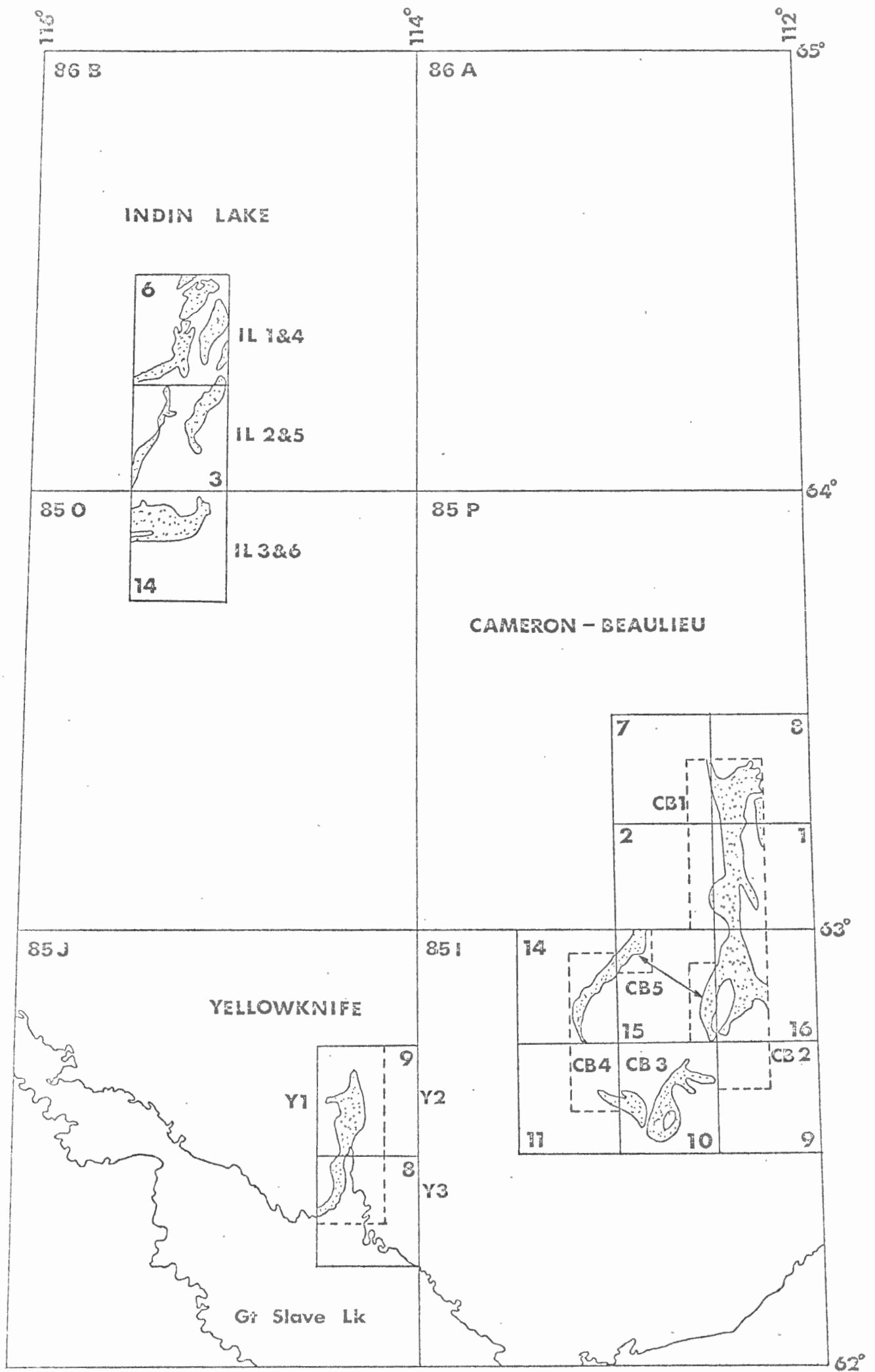
MAP 1L1	Sample Location Map	86-B-6
1L2	Sample Location Map	86-B-3
1L3	Sample Location Map	85-O-14
1L4	Geological Map	86-B-6
1L5	Geological Map	86-B-3
1L6	Geological Map	85-O-14

III. CAMERON RIVER-BEAULIEU RIVER AREA

MAP CB1	Sample Location & Geological Map	Parts of 85-P-1, 2, 7 & 8
CB2	Sample Location & Geological Map	Parts of 85-I-9 & 16
CB3	Sample Location & Geological Map	85-I-10
CB4	Sample Location & Geological Map	Parts of 85-I-11 & 14
CB5	Sample Location & Geological Map	Parts of 85-I-15

INDEX MAP

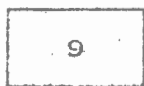
1 inch = 20 miles



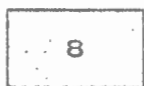
PROTEROZOIC



Diabase, gabbro; 10a, olivine-rich gabbro



Prosperous granite and pegmatite, A, with abundant biotite schist (6)

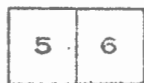


Granodiorite, granite, and allied rocks; 8a, biotite granodiorite, etc.; 8b, hornblende granodiorite, etc. (A, with biotite schist inclusions; B, with hornblende schist inclusions)



Altered gabbro and diorite

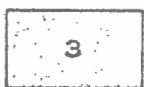
DIVISION C

5, greywacke, slate; minor quartz-mica schist and phyllite
6, nodular quartz-mica schist and hornfels, mainly derived from 5. (C, chiastolite-bearing; D, cordierite-bearing; E, sillimanite-bearing; G, garnet-bearing; S, staurolite-bearing)

DIVISION B



Argillite, siliceous argillite, grit, greywacke. (C, chiastolite-bearing)

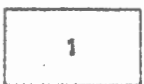


Trachyte, dacite, rhyolite; breccia; agglomerate, tuff; derived arkose and volcanic conglomerate; quartz porphyry, feldspar porphyry, in part part intrusive. (G, garnet-bearing)



Conglomerate, arkosic quartzite

DIVISION A



Andesite, basalt, dacite, rhyolite; porphyry; gabbro, diorite; 1a, mainly acid lavas; 1b, mainly altered basic intrusive rocks (may include some 7)

ARCHÆAN

YELLOWKNIFE GROUP

- Drift-covered area (only the larger areas are shown).....
- Vein (exposed, located by drilling).....
- Flow contact (commonly marked by chert, tuff, or breccia).....
- Fault (defined, inferred).....
- Glacial striæ.....
- Bedding.....
- Bedding (inclined, overturned, horizontal, dip unknown).....
- Bedding (inclined, vertical) upper side of bed unknown.....

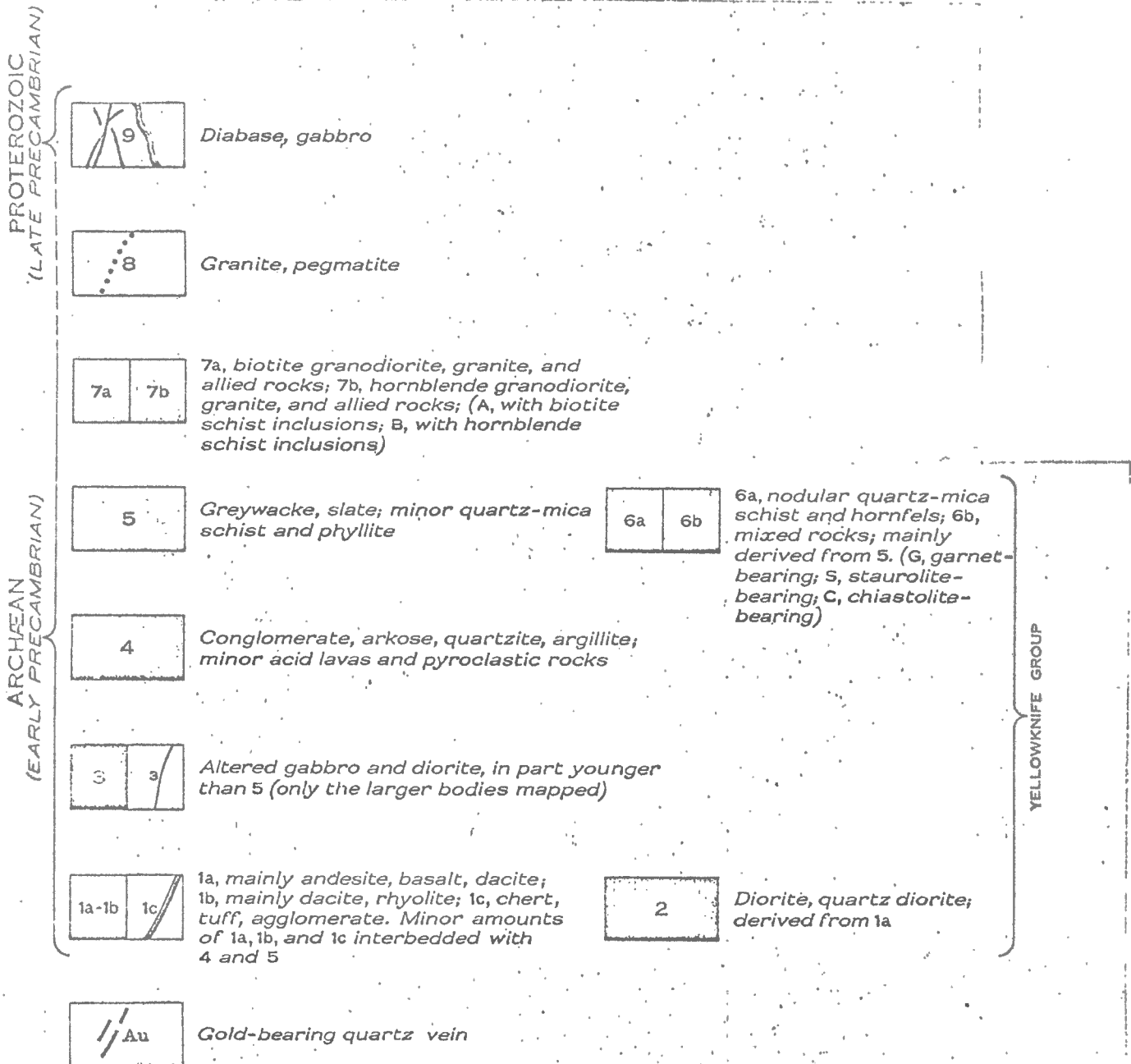
MINERAL OCCURRENCES

- Gold.....Au
- Lead.....Pb
- Zinc.....Zn
- Molybdenum.....Mo
- Tungsten.....W
- Tin.....Sn
- Nickel.....Ni
- Chromium.....Cr
- Vanadium.....V
- Lithium.....Li
- Tantalum-columbium.....Ta
- Beryllium.....Be
- Silver.....Ag
- Copper.....Cu

- Road.....
- Winter tractor road.....
- Trail or portage.....
- Building.....
- Shaft.....
- Power transmission line.....
- Stream (position approximate).....
- Fall and rapid.....
- Marsh.....
- Height in feet above mean sea-level based on datum
of 495 feet, Great Slave Lake.....

LEGEND MAP Y3

NTS 85-J-8



- Drift-covered area.....
- Flow contact.....
- Fault.....
- Glacial striæ.....
- Bedding.....
- Bedding (inclined, vertical, overturned, dip unknown).....
- Bedding (direction of dip known, upper side of bed unknown).....
- Note:- bedding symbols within areas of 2 and 7 indicate strike and dip of inclusions or of gneissic structures.
- Road and buildings.....
- Winter tractor road.....
- Trail or portage.....
- Post Office.....
- Power transmission line.....
- Reserve boundary.....
- Stream (position approximate).....
- Rapid.....
- Marsh.....
- Reef.....
- Height in feet above Mean sea-level, based on datum of 495 feet, Great Slave Lake..... 603'

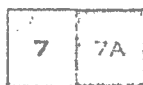
PROTEROZOIC



Gabbro, quartz gabbro; in part diabasic



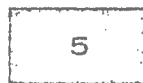
Quartz-albite rock



7. Granodiorite, quartz diorite, granite; 7a, biotite, biotite - muscovite, and muscovite granite; pegmatite; 7b, pegmatitic granite, pegmatite, minor granite; 7c, mixed granitic rock (with up to 50 per cent inclusions of older rocks); 7d, dioritic rocks
7A. Granite, granodiorite, with porphyritic rhyolite (may be older than 7)



Mixed rocks: injection gneisses (migmatites), paragneisses, schists (with more than 50 per cent of intruded rocks); derived from and grading into 4, 7, and 7a



Gabbro, diorite, quartz gabbro, quartz diorite

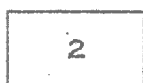


YELLOWKNIFE GROUP (1-4)

4. Nodular feldspar-quartz-biotite schist and paragneiss; minor hornfels; derived from 3 (A, andalusite-bearing; C, cordierite-bearing; G, garnet-bearing; Si, sillimanite-bearing); 4a, with much pegmatite and granite masses
4A. Feldspar-quartz-biotite schist and paragneiss, in part nodular (may be post-Yellowknife)



Greywacke, argillite, phyllite, slate, quartz-mica schist; minor arkose, quartzite, and graphite schist



Porphyritic (quartz and/or feldspar) rhyolite; in part intrusive; minor rhyolite, dacite, tuff, and breccia; 2a, rhyolite, rhyolite breccia, tuff, agglomerate; minor porphyritic rhyolite; 2b, carbonatized rhyolite, porphyritic rhyolite, and rhyolite breccia



Basalt, andesite, dacite; minor rhyolite, tuff, agglomerate, volcanic breccia, and spherulitic, amygdaloidal, and porphyritic andesite; undifferentiated basic intrusions; 1a, carbonatized basalt, andesite, dacite; chlorite-carbonate rock; minor rhyolite, tuff, and porphyritic rhyolite; 1b, hornblende schists, quartz-hornblende-feldspar gneisses, amphibolite; derived from 1; undifferentiated basic intrusions; 1c, andesite breccia, agglomerate

ARCHÆAN

NOTE: The age relations of 7 and 8 to each other, of 8 to 7A, of 5 and 8 to 4A, and of 5 to 3 and 4 are uncertain.

Isograd line of metamorphism	.....
Bedding (inclined, vertical, overturned)	.....
Bedding (direction of dip known, upper side of bed unknown)	.....
Bedding (upper side of bed faces as indicated, direction of dip unknown)	.....
Schistosity, foliation (inclined, vertical, dip unknown)	.....
Minor fold (probably drag-fold indicating direction and angle of plunge)	..... 80°
Fault	.....
Anticline	.....
Syncline	.....
Glacial striae	.....
Esker	.....
Prospect trench, diamond drill-hole	..... X
Shaft, adit	.....

MINERAL OCCURRENCES

Mineral occurrences known to carry gold are indicated by the symbol Au. Those for which definite information is not available or in which values are known to be negligible are indicated by symbols for the dominant minerals present. Q indicates an explored quartz vein or lens in which little or no metallic minerals were seen.

Gold..... Au
Pyrite..... Py
Pyrrhotite..... Pr

Galena..... Pb
Sphalerite..... Zn
Chalcopyrite..... Cu

LEGEND MAP 1L5

NTS 86-B-3

PROTEROZOIC



8. Gabbro, in part diabasic; amphibolitic rocks;
8a, olivine gabbro, in part diabasic
8A. Hornblendite, minor gabbro; may be older than 8



7. Granodiorite, quartz diorite, granite; in part gneissic;
minor pegmatite; 7a, quartz diorite; 7b, granodiorite,
minor granite; 7c, biotite and biotite-hornblende granite,
in part porphyritic (feldspar) and gneissic; 7d, pegmatite



6. Mixed rocks; paragneisses, injection gneisses (migmatites),
and schists; pegmatites; minor quartz diorite,
granodiorite, and granite



YELLOWKNIFE GROUP (1-5)
Nodular feldspar-quartz-biotite schist and paragneiss;
minor hornfels; (A, andalusite-bearing; C, cordierite-
bearing; G, garnet-bearing; S, staurolite-bearing; Si,
sillimanite-bearing)



3. Greywacke, argillite, phyllite, slate; minor, impure
sandstone and arkose
4. Spotted biotite phyllite, feldspar-quartz-mica
schist, greywacke



2. Rhyolite, rhyolite breccia, tuff, agglomerate; porphyritic
(quartz and/or feldspar) rhyolite, in part intrusive; minor
quartz-feldspar-mica gneisses; 2a, carbonatized rhyolite,
rhyolite breccia, tuff, agglomerate, and porphyritic rhyolite



1. Basalt, andesite, dacite; amygdaloidal and porphyritic
andesite; minor agglomerate, tuff, rhyolite, and volcanic
breccia; undifferentiated basic intrusions; 1a, carbonatized
basalt, andesite, and dacite; minor rhyolite and tuff; 1b, horn-
blende schist, hornblende-feldspar gneisses, amphibolite;
derived from 1; undifferentiated basic intrusions; 1c, banded
type of recrystallized and highly altered basic to inter-
mediate volcanic rocks; in part rhyolitic and tuffaceous;
agglomerate; 1d, porphyritic and amygdaloidal andesite,
in part hornblende-feldspar gneisses; minor agglomerate

ARCHEAN

- Isograd line of metamorphism
- Bedding (inclined, vertical, overturned, dip unknown)
- Bedding (direction of dip known, upper side of bed unknown)
- Bedding (upper side of bed faces as indicated, direction of dip unknown)
- Schistosity or foliation (inclined, vertical, dip unknown)
- Minor fold, drag fold (arrow indicates direction of plunge)
- Fault
- Anticline
- Syncline
- Glacial striæ
- Esker
- Prospect trench, diamond drill-hole

MINERAL OCCURRENCES

Gold Au
Galena Pb

Geology by L.P. Tremblay, G.M. Wright and M.L. Miller, 1947

Cartography by the Geological Cartography Division, 1952

- Building
- Portage
- Permanent survey monument
- Intermittent stream
- Fall and rapid
- Marsh
- Non-perennial lake
- Reef or small island
- Height in feet above mean sea-level (approximate)

LEGEND MAP 1L6

NTS 85-0-14

PROTEROZOIC



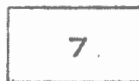
Gabbro, diabasic gabbro, porphyritic gabbro; minor meta-gabbro and amphibolitic rocks



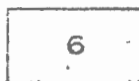
9a, coarse-grained gabbro; 9b, gabbro, hornblendite, and amphibolitic rocks; 9c, hornblendite, meta-pyroxenite. Age relationships to 8 unknown



Coarse-grained, porphyritic (microcline) biotite granite



Biotite granite and granodiorite, diorite, alaskite; largely gneissic and impure; in part pseudo-stratified; 7a, gneissic granodiorite; 7b, gneissic diorite; 7c, pegmatite (G, garnet-bearing)



Mixed rocks: gneissic granite, granodiorite, and diorite, with 25 to 75 per cent volcanic or sedimentary schist and gneiss; injection gneiss (migmatite), 'granitized' paragneiss and amphibolite, irregular inclusions in granitic rocks; 6a, granitic rocks, quartz-mica schist and paragneiss, 'granitized' paragneiss; 6b, granitic rocks, amphibolite, 'granitized' amphibolite (G, garnet-bearing)

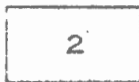


YELLOWKNIFE GROUP (1-5)
Nodular feldspar-quartz-biotite schist and paragneiss; minor hornfels (A, andalusite-bearing; C, cordierite-bearing; G, garnet-bearing; Si, sillimanite-bearing)

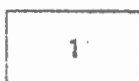
ARCHÆAN



3. Greywacke, argillite, phyllite, slate; minor, impure arkose and sandstone
4. Spotted biotite phyllite, greywacke, quartz-mica schist



Acidic volcanic rocks and derived schists; minor basic volcanic rocks; 2a, porphyritic (quartz and/or feldspar) rhyolite, in part intrusive; 2b, rhyolite and porphyritic (quartz) rhyolite; 2c, muscovite-feldspar-quartz schist



Intermediate to basic volcanic rocks and derived schists and gneisses; andesite, dacite, minor basalt; amygdaloidal in part; minor agglomerate, andesite breccia, and rhyolite; undifferentiated gabbroic and dioritic rocks; 1a, greenstone, chlorite and hornblende schist, and amphibolite schist derived from basalt, andesite, and dacite; 1b, well-banded amphibolite, and amphibolite schist and gneiss; 1c, volcanic schists of intermediate composition; 1d, acidic and basic volcanic schists and gneisses, micaceous quartz-plagioclase schists and granulites, granitic rocks (G, garnet-bearing)

- Isograd line of metamorphism.....
- Bedding (inclined, vertical, overturned, dip unknown).....
- Bedding (direction of dip known, upper side of bed unknown).....
- Bedding (upper side of bed faces as indicated, direction of dip unknown).....
- Schistosity, gneissosity, or foliation (inclined, vertical, dip unknown).....
- Fault.....
- Anticline.....
- Syncline.....
- Glacial striae.....
- Esker.....
- Mineral prospect or occurrence (gold).....