



Ministry of Employment and Investment
Energy and Minerals Division
Geological Survey Branch

This document was produced
by scanning the original publication.

Ce document est le produit d'une
numérisation par balayage
de la publication originale.

TILL GEOCHEMISTRY OF THE MOUNT MILLIGAN AREA (PARTS OF 93N/1 AND 93O/4)

By S.J. Sibbick, R.G. Balma and C.E. Dunn

GSC OPEN FILE 3291



OPEN FILE 1996-22





BRITISH
COLUMBIA

Ministry of Employment and Investment
Energy and Minerals Division
Geological Survey Branch

TILL GEOCHEMISTRY OF THE MOUNT MILLIGAN AREA (PARTS OF 93N/1 AND 93O/4)

By S.J. Sibbick, R.G. Balma and C.E. Dunn

GSC OPEN FILE 3291

OPEN FILE 1996-22



Canadian Cataloguing in Publication Data

Sibbick, Steven John Norman, 1963-

Till geochemistry of the Mount Milligan area (parts of
93N/1, and 93O/4)

GSC open file ; 3291

Open file, ISSN 0835-3530 ; 1996-22

Issued by Geological Survey Branch and Geological
Survey of Canada.

Includes bibliographical references: p.

ISBN 0-7726-3108-5

1. Drift - British Columbia - Milligan, Mount, Region.
2. Geochemical prospecting- British Columbia - Milligan, Mount, Region. 3. Geochemistry - British Columbia - Milligan, Mount, Region. 4. Geology, Economic - British Columbia - Milligan, Mount, Region. I. Balma, R. G. II. Dunn, Colin E. III. British Columbia. Ministry of Employment and Investment. IV. British Columbia. Geological Survey Branch. V. Geological Survey of Canada. VI. Title. VII. Series: Open file (British Columbia. Geological Survey Branch) ; 1996-22, VIII. Open file (Geological Survey of Canada) ; 3291.

QE515.S52 1996

551.9'09711'82

C96-960399-1



VICTORIA
BRITISH COLUMBIA
CANADA
JANUARY 1997

TABLE OF CONTENTS

	<i>Page</i>		<i>Page</i>
INTRODUCTION		APPENDICES	
Introduction	1	Appendix A	Analytical Data
Description of the Study Area	1	Appendix B	Analytical Duplicate Data
Regional Geology and Mineralization	2	Appendix C	Summary Statistics
Surficial Geology	3	Appendix D	Element Maps
METHODS		TABLES	
Sample Collection	5	1. Analytical methods and detection limits for elements used in this study	5
Sample Preparation and Analysis	5	2. Analytical and total precision for ten selected elements	7
Map Production and Data Handling	5		
RESULTS AND DISCUSSION		FIGURES	
Data Quality	7	1. Location of the Mount Milligan study area	2
Concentration of Elements	7	2. Geology of the mount Milligan area. Modified from Nelson et.al.(1991) and Struik (1992). A more detailed map is provided in Appendix D.	2
Pathfinder Elements for Porphyry Copper-Gold Mineralization	7	3. Simplified surficial geology of the Mount Milligan area, from Kerr and Sibbick (1992)	3
Dispersal Length and Sampling Density	8		
CONCLUSIONS	11		
ACKNOWLEDGMENTS	11		
REFERENCES	13		

INTRODUCTION

This open file contains data from a geochemical survey conducted in the vicinity of the Mount Milligan porphyry copper-gold deposit. The survey was undertaken to provide critical data for the design and interpretation of regional till surveys for porphyry copper-gold exploration. Sibbick and Kerr (1995) reported the summary results and exploration recommendations of this survey. Some of the results presented here are derived from that work. Additionally, this open file reports detailed results of the survey including element distribution maps, data listings and summary statistics. This study was conducted in conjunction with a biogeochemical survey of the same region (Dunn *et al.*, 1996).

The successful design and interpretation of a regional drift-exploration survey requires information regarding the geochemical response of the drift to the type of mineral deposit being sought. Key factors to determine include: the elements which reliably indicate the deposit type (pathfinder elements); residence sites of the pathfinder elements; and their characteristic style(s) of dispersal and dispersion. These factors can then be used to develop guidelines for selecting the most appropriate size fraction for analysis, sampling density and analytical techniques. Moreover, this information is essential for interpreting existing data, including pathfinder elements, their anomalous thresholds, and characteristic spatial patterns and length of dispersal trains.

Till is the preferred sample medium for regional geochemical drift-exploration surveys. As the *first derivative* of bedrock (Shilts, 1993), till represents comminuted bedrock debris or older surficial sediments entrained, transported and deposited by active glacial ice. Till, of all glacial sediments, most commonly reflects the composition of its source area. Further, although it may have undergone more than one glacial episode, its source can often be inferred to interpreted ice-flow patterns and history.

Porphyry-style mineralization is particularly suited to regional-scale till surveys, given the large size of the mineralization-alteration

systems involved. The Interior Plateau of British Columbia has received considerable interest as an area of high mineral potential for porphyry-style mineralization. The Mount Milligan porphyry copper-gold deposit (MINFILE 093N 194) and surrounding region has attracted an array of geological, geochemical and geophysical studies by industry, government and university scientists. In addition to numerous industry exploration programs, these include bedrock mapping by Nelson *et al.* (1991) and Struik (1992), mineral deposit studies by DeLong *et al.* (1991), surficial geological mapping by Kerr (1991) and Plouffe (1991, 1992), geochemical studies by Gravel and Sibbick (1991) and Kerr and Sibbick (1992) and geophysical mapping by Shives and Holman (1992). Preliminary results of a regional till geochemical survey in the adjoining Manson River and Fort Fraser map areas (NTS 93K and 93N) were released by Plouffe and Ballantyne (1993).

DESCRIPTION OF THE STUDY AREA

The Mount Milligan study area, centered at latitude 55°07'N and longitude 124°00'W, is located approximately 150 kilometres northwest of Prince George in north-central British Columbia (Figure 1). The area is accessible by logging road from Fort St. James and from Windy Point on Highway 97. Access within the study area is limited. Exploration roads network the western third of the area near the Mount Milligan deposits, but access to the eastern two-thirds of the area is restricted to a few roads of limited extent.

Located on the Nechako Plateau, the study area is characterised by a relatively flat to hummocky plain at 1000 metres elevation, bounded on the west and east by north trending ridges of 1300 to 1500 metres elevation. Mount Milligan, 5 kilometres north of the Mount Milligan deposits, rises to an elevation of 1508 metres.



Figure 1. Location of the Mount Milligan study area.

REGIONAL GEOLOGY AND MINERALIZATION

Takla Group rocks of the Quesnel Terrane underlie the Mount Milligan area (Nelson *et al.*, 1991). The Quesnel Terrane is an early Mesozoic island-arc sequence bounded on the west by oceanic rocks of the Cache Creek Terrane and on the east by oceanic rocks of the Slide Mountain Terrane. Metamorphic rocks of the Wolverine Complex are also in contact with the eastern boundary of the Takla Group/Quesnel Terrane (Struik, 1992). Takla Group rocks consist of Upper Triassic volcanics, pyroclastics and epiclastic sediments. Numerous coeval plutons, up to early Jurassic age, intrude the Takla Group.

The Mount Milligan deposits (Figure 2) are centered on Early Jurassic crowded plagioclase-porphyritic monzonite intrusions known as the MBX and Southern Star stocks (Nelson *et al.*, 1991). These, and numerous smaller stocks, intrude Upper Triassic Takla Group augite (\pm plagioclase) porphyry agglomerate, trachyte breccias and flows, and bedded epiclastic sediments of the Witch Lake Formation. Directly east of the intrusions, a fault (known informally as the Great Eastern Fault) juxtaposes Takla Group rocks against Eocene continental sediments within an extensional basin (Nelson *et al.*, 1991). The eastern half of the study area is underlain by Witch Lake Formation, as well as basalt, diorite and locally limestone of the Philip Lakes succession (Struik, 1992).

Quartzofeldspathic gneiss, schist and granite pegmatite of the Wolverine Metamorphic Complex outcrop in the east and northeast (Struik, 1992).

Alteration associated with the deposit comprises a crudely zoned potassic core centered on the intrusions (DeLong *et al.*, 1991), and surrounded by an east-west elongate 3.0 by 4.5 kilometre propylitic alteration halo. Mineralization consists primarily of disseminated and fracture-filling chalcopyrite and pyrite. Lesser quantities of bornite are present within the potassic alteration zone. Approximately 70% of the mineralization is hosted by the Witch Lake volcanics with the remaining 30% in the monzonite intrusives. Gold is associated with chalcopyrite, pyrite and bornite as small grains up to 100 μm in diameter along sulphide grain boundaries and microfractures in pyrite (Faulkner *et al.*, 1990). Both gold and chalcopyrite are associated with the potassic alteration zone (DeLong *et al.*, 1991). Reserves of the deposit are estimated at 298.4 million tonnes grading 0.45 gram per tonne gold and 0.22% copper (Schroeter, 1995).

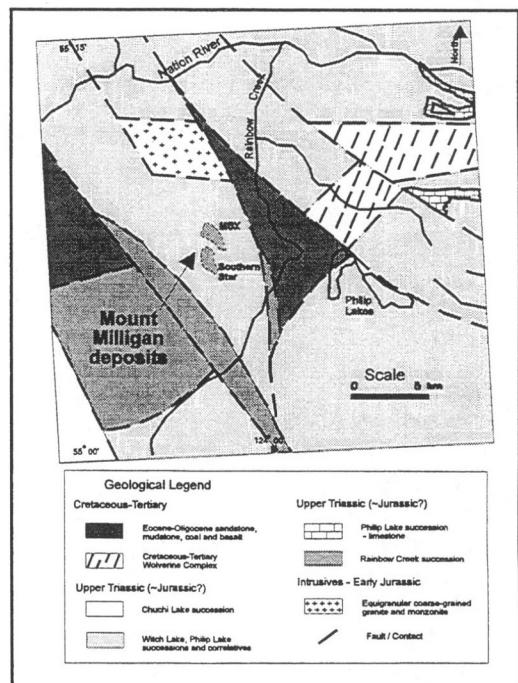


Figure 2. Geology of the Mount Milligan area. Modified from Nelson *et al.*, (1991) and Struik (1992). A more detailed map is provided in Appendix D, page D-2.

Subparallel polymetallic sulphide veins containing disseminated to massive pyrite and chalcopyrite, radiate outward from the MBX stock in the propylitic alteration zone. The best-developed veins are 0.3 to 3.0 metres thick and contain 3 to 100 grams per tonne gold, 0.2 to 10% copper, 1 to 3% sphalerite, and traces of arsenopyrite and galena (Faulkner *et al.*, 1990).

SURFICIAL GEOLOGY

The last glacial event in the Mount Milligan region occurred during the Late Wisconsinan (Fraser Glaciation) between $25\ 940 \pm 380$ years B.P. and $10\ 100 \pm 90$ years B.P. (Clague, 1981). Regional ice movement during this event was primarily to the northeast, as interpreted from ice-flow indicators such as well-developed striae scoured into bedrock and drumlinoid features developed in unconsolidated sediments. This observation of regional flow is in accordance with earlier studies by Armstrong (1949) to the north, west and south of the Milligan area, and more recently by Plouffe (1991, 1992) in the Stuart and Fraser lakes area to the southwest. In the McLeod Lake region to the southeast, Struik and Fuller (1988) mapped the extent of glacial lake deposits and noted the presence of mineralized clasts in morainal deposits.

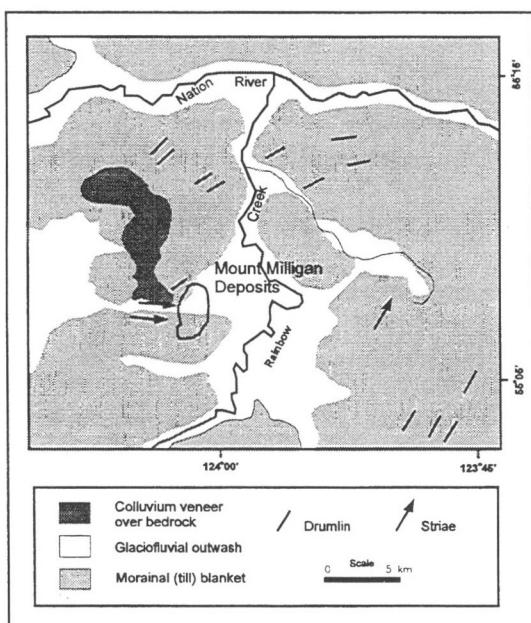


Figure 3. Simplified surficial geology of the Mount Milligan area, from Kerr and Sibbick (1992).

Surficial sediments of the study area include till, glaciofluvial and fluvial sand and gravel, glaciolacustrine sand, silt and clay, colluvium and organic materials (Kerr, 1991). Two surficial units predominate: an extensive morainal (till) blanket and large glaciofluvial outwash complexes (Figure 3). Till was deposited during the last glacial episode and is commonly hummocky and drumlinized. It consists of a dense matrix-supported diamictite composed of very poorly sorted, angular to well-rounded pebbles to cobbles in a sand-silt-clay matrix (Kerr and Sibbick, 1992). These sediments are more continuous in the east half of the map area, from south of Philip Lakes to north of Nation River. Flow was towards the northeast during full glacial conditions. South of Nation River, a gradual change in flow direction towards the east is indicated by drumlinoid features.

Glaciofluvial sand and gravel dominate the central part of the study area along the axis of Rainbow Creek, Nation River valley to the north and to the west of the Mount Milligan deposits (Kerr and Sibbick, 1992). These outwash-sediment complexes consist of sinuous esker ridges up to 10 kilometres long, kame deposits and a series of broad overlapping outwash fans deposited by glacial meltwater during ice retreat. They represent the end product of a long period of glacial and fluvial erosion, transportation and reworking of many types of surficial sediments. Within the narrow Nation River valley, glaciofluvial sediments are locally overlain by up to 20 metres of glaciolacustrine silt and clay. These sediments were deposited during ice retreat in a glacial lake with an elevation of approximately 850 metres (Kerr and Bobrowsky, 1991). Colluvial sediments derived from till and weathered bedrock form a veneer over steep hillsides and valley walls in the highlands north and south of the Mount Milligan deposit. Highlands to the northeast of the Philip Lakes are also mantled by colluvial sediment.

Drift thickness is highly variable, ranging from less than 1 metre on rocky highlands to over 80 metres in the Rainbow Creek area (Kerr and Sibbick, 1992). Thicknesses in excess of 100 metres are common directly east of the Mount Milligan deposits (Kerr and Bobrowsky, 1991). Ronning (1989) has reported overburden depths in excess of 200 metres in the Nation Lakes area to the west.

Humo-ferric podzols are the main soil type of the region. Modifications of the original till substrate by soil-forming processes extend to an average depth of approximately 0.5 metre. Oxidation of the parent materials generally extends to a depth of 2 metres.

METHODS

SAMPLE COLLECTION

Till samples were collected down-ice from the Mount Milligan deposits for a distance of 20 kilometres to the east-northeast (Figure 2). A total of 121 till samples, including field duplicates, were collected from 108 hand-dug pits within a 150 square kilometre area. Sample sites are shown on page D-2, Appendix D. Sampling was concentrated in two distinct areas where till is the predominant surficial sediment: in the vicinity of the deposits, and in the region east of Rainbow Creek. The intervening area, consisting of glaciofluvial outwash, was not sampled, in order to maintain media consistency. Samples were collected on a 1 kilometre grid spacing. Additional sites were sampled in the vicinity of the deposits where exposures of till are more prevalent. The oxidized C-horizon was preferentially sampled at depths of 0.5 to 1.5 metres. Field samples weighed from 2 to 5 kilograms. Samples were partially air dried in the field and sent to the British Columbia Geological Survey Branch Analytical Sciences Laboratory in Victoria for further processing.

SAMPLE PREPARATION AND ANALYSIS

At the laboratory, the samples were removed from their plastic bags and thoroughly air dried at room temperature. Each sample was coned and quartered to obtain a representative subsample which was then dry-sieved to obtain the silt-clay (-62.5 µm) fraction. This fraction was further split to acquire representative analytical subsamples. Instrumental neutron activation analysis (INAA) for thirty elements was performed on 4 to 7 gram subsamples, and 0.5 gram sub-samples were analysed for thirty elements by inductively coupled plasma emission spectroscopy (ICP-ES) on an aqua regia digestion. Table 1 lists the analytical methods and detection limits for the elements discussed in this study. Analytical values below the reported detection limits are quoted as a value equal to the detection limit.

TABLE 1
ANALYTICAL METHODS AND DETECTION
LIMITS FOR ELEMENTS USED IN THIS STUDY
(Detection limits in ppm unless noted)

Element	Method	D.L.
Aluminum	ICP	0.01%
Antimony	INAA	0.1
Arsenic	INAA	0.5
Barium	INAA	50
Calcium	ICP	0.01%
Cerium	INAA	3
Chromium	INAA	5
Cobalt	INAA	1
Copper	ICP	1
Europium	INAA	0.2
Gold	INAA	2 ppb
Iron	INAA	0.01%
Lanthanum	INAA	0.5
Lead	ICP	2
Lutetium	INAA	0.05
Magnesium	ICP	0.01%
Manganese	ICP	1
Neodymium	INAA	5
Nickel	ICP	1
Potassium	ICP	0.01%
Rubidium	INAA	5
Samarium	INAA	0.1
Sodium	ICP	0.01%
Thorium	INAA	0.2
Uranium	INAA	0.5
Vanadium	ICP	2
Ytterbium	INAA	0.2
Zinc	ICP	1

MAP PRODUCTION AND DATA HANDLING

The proportional dot maps for this open file are all plotted using the Universal Transverse Mercator projection (NAD27 datum), with a central meridian of 123° (Zone 10). The hydrography bases (NTS 93N and 93O) for the symbol maps were obtained in digital form from Surveys, Mapping and Remote Sensing Sector (SMRSS) of the Department of Natural Resources, Canada. The digital hydrography

base was produced by splicing together the two 1:250 000 digital bases and then clipping the appropriate sub-area. The index map was also obtained from SMRSS and is presented using a Lambert Conformal Conic projection, Clarke 1866 spheroid, central meridian 95°, and standard parallels of 49° and 77°.

The geological base map is a compilation of those published by Nelson *et al.* (1991) and Struik (1992). The base was manually digitized and then transformed into the appropriate projection. Spatial point-in-polygon operations were then used to extract rock unit information for the individual sample sites. The rock unit attribute data were used in preparing the statistical summaries.

Map and symbol plots in this open file were produced using Unix-based ESRI ARC/INFO software. Computations were performed on UNIX workstations, with output to a 600 dpi Hewlett-Packard Laserjet printer. Analytical values for a particular element greater than or equal to the 98th percentile were plotted at the maximum symbol size; values less than the 98th percentile were scaled according to the user defined exponent. Exponents for individual elements were chosen to provide the best view of the analytical data. Accordingly, care should be exercised when attempting to compare elements plotted with different exponents.

RESULTS AND DISCUSSION

DATA QUALITY

Data quality was determined using duplicate field samples (13 pairs) and analytical duplicates (6 pairs). Precision was determined by calculating the average precision of a group of duplicate pairs for each element and size fraction. However, the limited number of duplicate pairs reduces the reliability of the precision estimates. Table 2 shows the total and analytical precision of ten elements. These elements were selected as potential pathfinders and for mineralization and lithologic variation (Sibbick and Kerr, 1995). Total precision (the sum of field and analytical variation) for each element is reasonable, ranging from 21% for iron to 116% for gold. Expectedly, analytical precision is less than the total precision for most elements, varying from 5% (manganese) to 184% (gold). Not surprisingly, the %RSD for gold is high, due to the occurrence of gold within the sample matrix as rare, discrete grains, resulting in the 'nugget effect' (Harris, 1982). Gold particles up to 100 µm in diameter are reported from the Mount Milligan deposits (Faulkner *et al.*, 1990). To provide a representative analysis of a sample containing gold grains of this size, analytical subsample sizes weighing 100 to 1000 grams are required, depending on the concentration of gold in the sample and the size fraction analysed (Clifton *et al.*, 1969). Sample weights used for gold analysis in this study (4 to 7 gram) are not considered representative. Use of larger sample sizes or the analysis of heavy minerals from the two coarse fractions are possible methods of improving the reproducibility of the gold analyses. However, the presence of anomalous gold concentrations can be considered a reasonable indication of the presence of anomalous gold within the till. Background concentrations of gold, however, should not exclude the possibility that anomalous gold concentrations are present.

CONCENTRATION OF ELEMENTS

Twenty-eight elements were selected for study (Al, Sb, As, Ba, Ca, Ce, Cr, Co, Cu, Eu, Au, Fe,

La, Pb, Lu, Mg, Mn, Nd, Ni, K, Rb, Sm, Na, Th, U, V, Yb, and Zn). Elements excluded from this study had an excess of values at or below analytical detection limits. Summary statistics for the selected elements are listed in Appendix B.

TABLE 2
ANALYTICAL AND TOTAL PRECISION FOR
TEN SELECTED ELEMENTS
 (Precision estimated at 95% confidence level and expressed as percent relative standard deviation)

Element	Precision (%RSD)	
	Analytical	Total
Cu	11.8	42.1
Au	183.8	116.3
As	14.7	38.9
Sb	8.6	31.8
K	27.4	38.0
Fe	9.5	21.6
Mn	5.0	46.0
Ni	7.9	27.9
Co	13.3	24.3
Cr	9.3	30.1

PATHFINDER ELEMENTS FOR PORPHYRY COPPER-GOLD MINERALIZATION

Sibbick and Kerr (1995) utilized probability plots, proportional symbol maps and cluster analysis to determine which elements were pathfinders for porphyry copper-gold mineralization. Those elements not included as pathfinders showed either unimodal distributions or higher concentrations in the eastern half of the study area underlain by Wolverine Complex metamorphic rocks.

Elements found in anomalous concentrations in the vicinity of the Mount Milligan deposits included copper, gold, arsenic, antimony, potassium, cobalt, iron, manganese and chromium. Copper, arsenic, antimony and iron

are anomalous above the Southern Star zone. Anomalous potassium values are found overlying the MBX zone but not over the Southern Star zone. Anomalous chromium values are present along the southern edge of the Southern Star zone and above the MBX zone.

Further analysis of the data showed that copper, gold, arsenic, antimony and potassium are pathfinders for the Mount Milligan deposits (Sibbick and Kerr, 1995). The mineralogy of the deposit suggests that anomalous concentrations of copper and gold originate primarily from the porphyry deposit, whereas anomalous arsenic and antimony are probably derived from polymetallic veins, such as the Esker vein, peripheral to the porphyry mineralization. Anomalous iron concentrations are a product of both the porphyry/vein mineralization and the extensive pyrite halo surrounding the deposit. The remaining elements (cobalt, manganese and chromium) reflect secondary weathering processes or variations in source lithology. Weak, but significant associations between potassium and the pathfinder elements are apparent. DeLong *et al.* (1991) observed a direct correlation between bedrock concentrations of copper and gold and the intensity of potassic alteration in the deposit. The weak association of potassium with the other pathfinders reflects the difference in mineral phases hosting copper, gold, arsenic, antimony (sulphides) and potassium (silicates) and the analytical methods used. Aqua regia incompletely decomposes silicates (e.g. potassium feldspar), whereas sulphides are almost completely dissolved. Instrumental neutron activation analysis, used for the determination of gold, arsenic and antimony, provides total element concentrations. Therefore, potassium determinations are only partial concentrations, whereas copper, gold, arsenic and antimony values represent total concentrations. Clays, which contain significant amounts of potassium, are more readily decomposed by aqua regia than silicate phases such as feldspar. It is possible that the source of potassium anomalies associated with the deposit originates from potassic or propylitically altered bedrock weathered to produce clays more amenable to digestion by aqua regia.

DISPERSAL LENGTH AND SAMPLING DENSITY

Estimation of dispersal distances from the Mount Milligan deposits is complicated by the presence of a wide band of glaciofluvial sediment, 3 to 5 kilometres wide, infilling the valley of Rainbow Creek. A broad zone of anomalous multi-element concentrations centered over the Mount Milligan deposits is approximately 3 by 3 kilometres in size. A cluster of elevated and/or anomalous concentrations of arsenic and antimony occurs up to 15 kilometres northeast (down-ice) from the deposit. However, the patterns exhibited by these elements east of Rainbow Creek suggest that they reflect local lithological differences (e.g. Witch Lake versus Wolverine Complex) and not down-ice dispersal from Mount Milligan.

Northeast of Philip Lakes, anomalous and/or elevated concentrations of copper form an east-west elongate pattern perpendicular to ice-flow direction. Similar patterns, albeit less well defined, are also observed for arsenic and potassium. Elevated concentrations of gold and antimony are not evident except at a single site. Mineralized boulders and limited exposures of sheared, altered and weakly mineralized volcanic rocks have been reported along the north shore of Philip Lakes (Cooke, 1989; 1991). Struik (1992) has mapped a northwest-trending fault (Philip Fault) which parallels the north shore of Philip Lakes (Figure 2), to which the mineralization is probably related. It is likely that the east-west elongate pattern of elevated element concentrations results from the glacial dispersal of altered or mineralized bedrock localized along this fault. Background concentrations in till samples from adjacent to the eastern arm of Philip Lakes imply that these samples are up-ice of the fault zone (see map, page D-11, Appendix D). Using this as a limit to the up-ice extent of mineralization, a maximum dispersal distance of 2 to 4 kilometres can be estimated for this area, based on element distribution patterns.

Dispersal distances of up to 4 kilometres place constraints on the necessary sampling density required to detect the Mount Milligan deposits. Sinclair (1975) has demonstrated that to maximize the detection of elliptical anomalies (such as ribbon or fan-shaped anomalies in till) a

sampling density corresponding to $\sqrt{2}/2$ times the length and width of the anomaly is required. Assuming an anomaly width of 3 kilometres (the width of the Mount Milligan anomaly) and a dispersal length of 4 kilometres, till samples collected on a 2.8 by 1.4-kilometre grid (long axis parallel to ice-flow direction) should intersect dispersal trains from porphyry mineralization similar in surface expression to the Mount Milligan deposits. Changes in the alignment of the grid, resulting from variations in ice-flow direction, could be eliminated by reducing the grid spacing to 1.4 by 1.4 kilometres. Higher sampling densities would be required to ensure detection of dispersal trains from porphyry mineralization with a smaller surface (or subsurface) expression. Lower sampling densities could be employed, but the probability of detecting mineralization would decrease.

CONCLUSIONS

CONCLUSIONS

Based on the results of this orientation survey, the following conclusions regarding the till geochemistry of the Mount Milligan area and recommendations for regional till geochemical exploration surveys for porphyry copper-gold mineralization may be made:

- Pathfinder elements for the Mount Milligan deposits include copper, gold, arsenic, antimony and potassium. Iron may also be a suitable indicator of pyrite alteration halos often associated with mineral deposits of this type.
- Dispersal lengths of up to 4 kilometres from the deposits are observed. Longer dispersal distances, on the order of 10 to 15 kilometres, are not readily apparent.
- Sampling densities for regional till surveys of 1 sample per 2 square kilometres (1.4 by 1.4 kilometre grid spacing) are recommended for porphyry copper-gold exploration.

ACKNOWLEDGMENTS

Field support for this study was provided by Dan Kerr and Chris Smith. Sample preparation was performed by Joni Borges and Joanne Doris. Placer Dome Canada, Ltd. generously provided logistical and technical assistance. This project was funded by the BC Geological Survey, with support for data compilation and map production from the Canada-British Columbia Agreement on Mineral Development, 1991-1995 (MDA II).

REFERENCES

- Armstrong, J. (1949): Fort St. James Map Area, Cassiar and Coast Districts, British Columbia; *Geological Survey of Canada, Memoir 252*, 210 pages.
- Clague, J.J. (1981): Late Quaternary Geology and Geochronology of British Columbia - Part 1: Radiocarbon dates. *Geological Survey of Canada, Paper 80-13*.
- Clifton, H.E., Hunter, R.E., Swanson, F.J. and Phillips, R.L. (1969): Sample Size and Meaningful Gold Analysis; *United States Geological Survey, Professional Paper 625C*, 17 pages.
- Cooke, D.L. (1989): 1989 Preliminary Geochemical Survey, KC Mineral Claims, Mt. Milligan Area; *British Columbia Ministry of Energy, Mines and Petroleum Resources, Assessment Report 19 396*.
- Cooke, D.L. (1991): 1990 Reconnaissance Geology and Geochemistry of the Lac 1-4 Claims; *B.C. Ministry of Energy, Mines and Petroleum Resources, Assessment Report 20 992*
- DeLong, R.C., Godwin, C.I., Harris, M.K., Caira, N. and Rebagliati, C.M. (1991): Geology and Alteration at the Mount Milligan Property; *in Geological Fieldwork 1990*, Grant, B. and Newell, J.M., Editors, *B.C. Ministry of Energy, Mines and Petroleum Resources, Paper 1991-1*, pages 199-205.
- Dunn, C. E., Balma, R.G. and Sibbick, S.J. (1996): Biogeochemical Survey Using Lodgepole Pine Bark: Mount Milligan, Central British Columbia (Parts of NTS 93N/01 and 93O/04). *Geological Survey of Canada, Open File 3290* and *B.C. Ministry of Employment and Investment, Open File 1996-17*.
- Faulkner, E.L., Preto, V.A., Rebagliati, C.M. and Schroeter, T.G. (1990): Mount Milligan (93N 194); *in Exploration in British Columbia 1989, Part B, B.C. Ministry of Energy, Mines and Petroleum Resources*, pages 181-192.
- Gravel, J.L. and Sibbick, S.J. (1991): Geochemical Dispersion in Complex Glacial Drift at the Mount Milligan Copper-Gold Porphyry Deposit (93N/1E, 93O/4W); *in Exploration in British Columbia 1990, Part B, B.C. Ministry of Energy, Mines and Petroleum Resources*, pages 117-134.
- Harris, J.F. (1982): Sampling and Analytical Requirements for Effective Use of Geochemistry in Exploration for Gold; *in Precious Metals in the Northern Cordillera*, Levinson, A.A., Editor, *The Association of Exploration Geochemists*, pages 53-68.
- Kerr, D.E. (1991): Surficial Geology of the Mount Milligan Area, NTS 93N/1E, 93O/4W; *B.C. Ministry of Energy, Mines and Petroleum Resources, Open File 1991-7*.
- Kerr, D.E. and Bobrowsky, P.T. (1991): Quaternary Geology and Drift Exploration at Mount Milligan (93N/1E, 93O/4W) and Johnny Mountain (104B/6E, 7W, 10W, 11E), British Columbia; *in Exploration in British Columbia 1990, Part B, B.C. Ministry of Energy, Mines and Petroleum Resources*, pages 135-152.
- Kerr, D.E. and Sibbick, S.J. (1992): Preliminary Results of Drift Exploration Studies in the Quatsino (92L/12) and Mount Milligan (93N/1E, 93O/4W) Areas; *in Geological Fieldwork 1991*, Grant, B. and Newell, J.M., Editors, *B.C. Ministry of Energy, Mines and Petroleum Resources, Paper 1992-1*, pages 341-347.
- Nelson, J., Bellefontaine, K., Green, K. and MacLean, M. (1991): Regional Geological Mapping near the Mount Milligan Deposit (Wittschicha Creek, 93N/1 and Tezzeron Creek, 93K/16); *in Geological Fieldwork 1990*, Grant, B. and Newell, J.M., Editors, *B.C. Ministry of Energy, Mines and Petroleum Resources, Paper 1991-1*, pages 89-110.
- Plouffe, A. (1991): Preliminary Study of the Quaternary Geology of the Northern Interior of British Columbia; *in Current Research, Part A, Geological Survey of Canada, Paper 91-1A*, pages 7-13.
- Plouffe, A. (1992): Quaternary Stratigraphy and History of Central British Columbia; *in Current Research, Part A, Geological Survey of Canada, Paper 92-1A*, pages 189-193.
- Plouffe, A. and Ballantyne, S.B. (1993): Regional Till Geochemistry, Manson River and Fort Fraser Area, British Columbia (93K, 93N), Silt Plus Clay and Clay Size Fractions; *Geological Survey of Canada, Open File 2593*, 210 pages.
- Ronning, P. (1989): Pacific Sentinel Gold Corporation, Nation River Property, Report on Diamond Drilling (93N/1); *B.C. Ministry of Energy, Mines and Petroleum Resources, Assessment Report 19 296*.
- Schroeter, T.G. (1995): British Columbia Mining, Exploration and Development 1994 Highlights; *in Exploration in British Columbia 1994*, *B.C. Ministry of Energy, Mines and Petroleum Resources*, pages 1-24.
- Shilts, W.W. (1993): Geological Survey of Canada's Contributions to Understanding the Composition of Glacial Sediments; *Canadian Journal of Earth Sciences*, Volume 30, pages 333-353.
- Shives, R.B.K. and Holman, P.B. (1992): Airborne Gamma-ray Spectrometric Total Field Magnetic Survey, Mount Milligan Area, British Columbia (93O/4W, 93N/1, 93N/2E); *Geological Survey of Canada, Open File 2535*, 10 maps.

- Sibbick, S.J. and Kerr, D.E. (1995): Till Geochemistry of the Mount Milligan Area, North-central British Columbia; Recommendations for Drift Exploration for Porphyry Copper-Gold Mineralization; *in* Drift Exploration in the Canadian Cordillera, Bobrowsky, P.T., Sibbick, S.J., Newell, J.M. and Matysek, P.F., Editors, *B.C. Ministry of Energy, Mines and Petroleum Resources*, Paper 1995-2, pages 167-180.
- Sinclair, A.J. (1975): Some Considerations Regarding Grid Orientation and Sample Spacing; *in* Geochemical Exploration 1974, Proceedings of the Fifth International Geochemical Exploration Symposium, Elliot, I.L. and Fletcher, W.K., Editors, *Elsevier Scientific Publishing Co.*, pages 133-140.
- Struik, L.C. (1992): Further Reconnaissance Observations in the Pine Pass Southwest Map Area, British Columbia; *in* Current Research, Part A; *Geological Survey of Canada*, Paper 92-1A, pages 25-31.
- Struik, L.C. and Fuller, E. (1988): Preliminary Report on the Geology of McLeod Lake Area, British Columbia; *in* Current Research, Part E, *Geological Survey of Canada*, Paper 88-1E, pages 39-42.

Till Geochemistry of the Mount Milligan Area
(parts of NTS 93N/01 and 93O/04)

BCGS Open File 1996-22
GSC Open File 3291

Appendix A

Analytical Data

Notes:

- Elements listed in alphabetical order.
- “STA” refers to sample type: 1 - first field duplicate, 2- second field duplicate, blank space - normal sample, no duplicate.
- “Rock Type” abbreviations are explained in legend to map in Appendix D, page D-2.
- “Mass” refers to weight of sample analysed by INAA.

Analytical Data - Mount Milligan Survey

SITE	STA	UIM	UTM	UTM	Rock Type	Al	Sb	As	Ba	Ca	Ce	Cr	Co	Cu	Eu	Au	Fe	La	Pb	Lu	Mg	Mn	Nd	Ni	K	Rb	Sm	Na	Th	U	V	Yb	Zn	Mass
		ZONE	NORTH	EAST		ICP	INAA	ICP	INAA	ICP	INAA	ICP	INAA	ICP	INAA	ICP	INAA	ICP	INAA	ICP	INAA	ICP	INAA	ICP	INAA	ICP	INAA	ICP	INAA	ICP	INAA	ICP	INAA	ICP
2	10	6109250	433950	uTrWL	1.57	2.0	13.0	620	0.63	46	210	25	169	1.1	109	5.56	22	6	0.46	0.52	472	23	40	0.05	82	3.9	0.02	4.8	2.2	111	2.3	37	6.42	
3	10	6109550	434900	uTrWL	1.63	6.5	30.0	890	0.74	32	200	24	785	1.5	290	7.80	20	13	0.49	1.24	564	22	50	0.18	91	4.5	0.03	4.3	2.1	108	2.6	48	5.05	
4	1	10	6107900	434250	uTrWL	2.25	2.4	30.0	810	0.69	43	130	23	167	1.0	230	4.70	17	9	0.31	0.74	437	19	35	0.06	54	3.4	0.03	4.0	0.5	81	1.8	43	5.31
5	2	10	6107900	434250	uTrWL	2.39	6.4	61.0	830	0.96	37	180	32	431	1.3	220	7.79	20	18	0.44	1.48	783	24	45	0.11	62	4.1	0.03	4.7	2.3	112	2.4	85	4.02
7	10	6106850	433400	uTrWL	2.57	2.4	6.7	770	0.76	56	130	19	103	1.2	2	4.32	26	11	0.49	0.96	867	25	39	0.05	56	4.5	0.01	7.3	2.6	77	2.5	57	6.00	
8	10	6107150	433600	uTrWL	2.60	2.8	33.0	940	0.71	40	150	21	140	1.1	70	5.27	18	12	0.34	1.21	676	19	37	0.10	63	3.4	0.03	4.4	0.5	103	1.7	72	5.66	
9	10	6107850	433750	uTrWL	1.87	8.0	86.0	850	0.71	43	140	28	262	1.3	732	7.08	18	35	0.36	0.99	696	21	49	0.08	69	3.8	0.03	4.0	2.9	101	2.1	100	5.91	
10	10	6107550	435350	uTrWL	2.63	1.8	16.0	1000	1.07	27	260	34	268	1.1	59	6.75	16	15	0.41	2.03	640	16	71	0.71	100	3.5	0.04	3.6	2.1	138	2.3	64	5.20	
11	10	6107500	433950	uTrWL	1.49	2.4	13.0	980	0.65	34	150	22	154	1.0	79	4.91	17	5	0.32	0.81	397	11	30	0.08	92	3.2	0.03	3.7	0.5	88	2.0	30	6.81	
12	10	6110450	433100	uTrWL	1.69	1.5	14.0	1000	0.75	46	200	22	92	1.0	52	5.39	23	7	0.43	1.06	642	21	35	0.17	38	4.3	0.02	4.7	0.5	103	2.3	42	6.12	
13	10	6110000	434300	uTrWL	2.83	2.0	11.0	850	0.95	27	270	28	184	1.1	56	5.68	16	4	0.30	2.32	724	17	77	0.54	140	3.2	0.03	2.7	0.5	138	1.8	47	4.68	
14	10	6111150	433550	uTrWL	1.86	1.6	15.0	910	0.75	37	220	27	100	1.1	96	6.17	19	5	0.35	1.21	532	17	38	0.27	88	3.6	0.04	3.9	2.2	111	2.1	40	6.37	
15	1	10	6111600	433300	uTrWL	1.54	1.2	9.6	960	0.85	39	170	18	71	1.0	3	4.64	19	3	0.36	0.86	437	15	31	0.11	54	3.5	0.05	4.0	1.3	93	2.0	33	4.81
16	2	10	6111600	433300	uTrWL	1.22	1.1	6.6	1000	0.91	35	200	19	67	1.1	3	4.62	18	4	0.46	0.82	407	14	28	0.09	87	3.6	0.04	3.5	1.3	94	2.2	31	6.72
17	10	6111800	432750	uTrWL	2.07	1.2	13.0	720	0.63	45	160	22	50	1.2	18	4.97	24	6	0.37	0.83	477	18	37	0.12	65	4.1	0.03	5.1	0.5	85	2.5	50	4.55	
18	10	6112150	434550	uTrWL	1.62	1.5	12.0	850	0.91	39	170	20	52	1.1	18	4.70	19	4	0.35	0.74	469	14	32	0.13	56	3.6	0.05	3.8	0.5	111	2.0	34	6.99	
19	10	6111150	434750	uTrWL	1.76	2.0	12.0	1100	0.94	34	180	23	125	1.3	38	5.37	20	6	0.38	1.20	523	21	37	0.11	56	3.9	0.03	4.1	1.0	98	1.9	46	6.03	
20	10	6109350	430250	uTrWL	1.57	1.5	11.0	930	1.05	39	160	19	82	1.1	17	4.53	19	6	0.41	0.89	776	19	43	0.12	15	3.7	0.06	3.9	0.5	99	2.2	52	5.26	
22	10	6110200	429700	uTrWL	1.20	1.3	6.3	990	0.79	41	170	12	35	1.2	3	4.00	22	7	0.35	0.52	381	16	29	0.07	66	3.7	0.04	4.4	1.9	85	2.1	35	5.26	
23	10	6111700	430850	uTrWL	1.70	7.2	96.0	1200	0.94	42	150	20	74	1.2	3	5.47	21	8	0.47	0.67	575	23	32	0.14	58	4.1	0.05	4.5	1.0	90	2.5	64	4.59	
24	1	10	6111000	442350	KTWC	1.79	1.2	5.8	840	0.76	40	160	14	53	1.0	2	3.98	20	10	0.40	0.58	355	18	31	0.07	49	3.5	0.03	4.7	2.7	80	2.1	36	5.44
25	2	10	6111000	442350	KTWC	1.34	1.2	5.7	930	0.79	40	150	15	49	1.3	17	3.97	23	7	0.41	0.53	509	18	26	0.06	78	3.9	0.03	4.4	1.9	83	2.2	36	5.54
26	10	6114000	441000	uTrWL	1.28	1.3	3.8	910	0.86	33	130	12	25	1.0	15	3.29	18	4	0.34	0.56	277	11	20	0.06	15	3.1	0.04	3.6	2.2	68	1.8	29	5.70	
27	10	6111000	441000	KTWC	1.30	1.2	6.6	1000	0.59	54	160	13	30	1.3	3	3.39	31	5	0.44	0.37	264	29	20	0.05	42	4.8	0.03	6.1	2.2	60	2.7	35	5.28	
28	10	6114000	440000	uTrWL	1.87	0.9	4.7	1100	0.90	37	140	15	46	1.1	11	3.63	20	5	0.32	0.71	354	15	25	0.08	91	3.6	0.04	4.1	0.5	77	1.8	43	4.32	
29	10	6112000	441000	uTrWL	1.20	1.2	3.8	940	0.83	40	160	11	31	1.1	11	3.41	20	6	0.38	0.37	238	14	24	0.06	45	3.6	0.03	3.9	2.3	70	1.9	27	6.15	
30	10	6113000	440000	uTrWL	1.29	1.2	4.4	1000	0.73	37	140	11	20	0.9	4	2.99	20	7	0.32	0.48	257	15	18	0.06	57	3.4	0.03	4.0	0.5	62	1.8	30	5.75	
31	10	6111250	443550	KTWC	1.77	1.2	5.3	780	0.68	37	180	17	42	1.1	14	3.98	21	6	0.35	0.57	249	17	32	0.07	47	3.4	0.02	5.5	2.2	77	1.8	72	6.17	
32	10	6113000	441000	uTrWL	3.18	1.6	12.0	720	0.42	38	150	21	76	1.0	16	4.97	20	8	0.32	0.76	310	15	39	0.08	49	3.3	0.02	5.0	1.9	89	1.9	54	5.04	
33	10	6116750	441250	uTrWL	1.64	1.2	8.3	1100	0.81	40	150	14	45	1.0	3	3.80	20	8	0.34	0.76	382	17	30	0.11	48	3.4	0.03	5.1	0.5	78	2.0	42	4.87	
34	10	6117500	440150	uTrWL	1.76	1.0	4.1	900	0.56	43	160	15	34	1.0	24	3.79	22	5	0.44	0.56	253	14	29	0.07	51	3.7	0.03	5.0	0.5	63	1.9	38	5.41	
35	10	6116750	442400	uTrWL	1.52	1.8	5.8	1200	0.70	52	150	17	38	1.2	12	4.29	27	10	0.42	0.67	427	21	29	0.12	88	4.2	0.03	6.0	2.1	80	1.9	47	3.72	
36	10	6118450	440200	uTrWL	1.61	1.2	6.0	950	1.05	38	160	14	48	1.0	3	4.18	23	4	0.48	0.66	331	20	24	0.07	50	4.1	0.04	5.4	1.9	82	2.1	38	4.00	
37	10	6115800	442400	KTWC	2.09	1.4	6.9	1000	0.81	30	160	21	38	0.9	4	4.52	15	9	0.38	0.93	638	14	33	0.08	57	2.7	0.02	3.5	1.1	97	1.8	82	6.43	
38	10	6115400	440900	uTrWL	1.68	1.6	9.8	1000	0.61	57	220	20	47	1.3	31	5.01	25	6	0.46	0.63	583	16	38	0.09	63	4.3	0.02	5.6	0.5	97	2.4	43	7.26	
39	1	10	6107800	450000	uTrWL	2.12	1.6	11.0	890	0.61	46	160	19	59	1.1	3	4.41	21	7	0.41	0.84	448	14	33	0.07	64	3.8	0.02	4.5	0.5	89	2.3	49	6.45
40	2	10	6107800	450000	uTrWL	2.84	1.9	16.0	900	0.65	50	240	29	85	1.2	80	6.39	23	13	0.42	0.94	901	15	46	0.09	45	4.2	0.02	5.3	2.6	115	2.4	59	6.82
42	10	6114300	442000	uTrWL	2.27	1.4	11.0	900	0.90	45	190	23	76	1.4	6	5.34	23	9	0.53	0.97	916	22	42	0.23	73	4.5	0.02	4.5	2.1					

Analytical Data - Mount Milligan Survey

SITE	STA	UTM ZONE	UTM NORTH	UTM EAST	Rock Type	Al ICP %	Sb ppm	As	Ba	Ca	Ce	Cr	Co	Cu	Eu	Au	Fe	La	Pb	Lu	Mg	Mn	Nd	Ni	K	Rb	Sm	Na	Th	U	V	Yb	Zn	Mass
								ICP INAA ppm	ICP INAA ppb	ICP INAA %	ICP INAA ppm																							
50	2	10	6113800	443300	uTrWL	1.98	1.3	6.9	1000	0.59	37	170	15	41	0.9	3 4.16	20	7 0.34	0.53	279	15	33	0.07	57	3.2	0.02	5.3	2.4	85	1.9	33	6.58		
52		10	6115250	449450	KTWC	1.52	0.8	5.7	1100	0.51	76	110	10	20	1.3	69 2.72	41	10 0.60	0.70	275	29	26	0.06	77	6.0	0.01	9.8	3.7	47	3.2	69	5.51		
53		10	6116450	447600	uTrWL	1.80	6.4	22.0	960	0.65	71	120	15	55	1.5	19 3.78	37	8 0.55	0.99	576	31	43	0.07	71	5.8	0.01	7.1	2.3	83	3.2	125	6.46		
54		10	6114000	449000	KTWC	1.62	0.5	3.4	900	0.58	110	87	11	22	1.6	3 3.01	72	14 0.63	0.52	387	50	28	0.16	120	9.1	0.02	19.0	9.6	43	3.7	50	6.39		
55		10	6115250	447550	KTWC	2.36	1.8	14.0	950	0.39	61	170	13	44	1.3	5 4.66	32	10 0.52	1.00	298	30	44	0.08	71	4.9	0.01	7.8	1.7	65	2.4	75	4.53		
56		10	6113000	449000	KTWC	1.58	0.9	3.9	850	0.59	59	140	13	20	1.2	3 3.38	33	9 0.39	0.55	304	17	24	0.06	84	4.6	0.01	6.8	2.5	52	2.5	78	5.38		
57	1	10	6107100	444850	uTrWL	1.89	1.4	7.3	1000	0.66	39	150	17	52	1.1	2 4.13	19	7 0.35	0.64	395	16	27	0.08	30	3.4	0.02	4.2	2.2	75	2.0	33	5.35		
58	2	10	6107100	444850	uTrWL	2.17	1.6	8.7	1100	0.78	41	140	18	60	0.9	19 4.35	19	7 0.32	0.84	562	18	34	0.12	65	3.4	0.03	3.6	1.0	79	1.8	43	5.83		
59		10	6112700	447450	KTWC	1.62	2.3	12.0	1000	0.61	65	120	15	53	1.6	2 3.98	36	9 0.56	0.65	539	29	37	0.09	44	5.9	0.02	8.5	1.3	57	2.9	65	5.83		
60		10	6116000	450050	uTrWL	2.17	1.0	5.4	1100	0.44	63	100	11	48	1.2	8 3.42	33	10 0.47	0.73	264	20	28	0.05	61	4.9	0.01	7.6	3.4	50	2.8	55	4.80		
62		10	6119050	446950	uTrWL	3.07	1.3	11.0	790	0.83	36	91	15	71	1.0	5 4.67	19	2 0.39	0.70	537	15	29	0.05	58	3.3	0.01	4.2	0.5	75	2.0	133	5.75		
63		10	6113750	447500	KTWC	1.86	1.0	4.7	1100	0.38	71	110	10	27	1.2	3 3.23	39	11 0.43	0.57	271	30	27	0.07	68	5.4	0.02	11.0	3.3	56	2.3	49	5.70		
64		10	6120150	448000	uTrWL	3.00	3.6	12.0	790	0.42	31	96	20	40	0.8	9 5.73	17	4 0.40	0.78	500	13	31	0.09	94	2.6	0.01	4.0	2.8	94	2.0	191	4.50		
65		10	6117000	445000	uTrWL	1.45	2.5	14.0	1100	0.66	50	120	13	41	1.3	2 3.65	27	6 0.40	0.64	442	24	29	0.05	37	4.5	0.02	5.8	2.5	66	2.4	58	5.53		
66	1	10	6110600	445850	KTWC	1.46	1.8	13.0	970	0.71	48	190	24	89	1.2	12 5.21	25	4 0.43	0.65	607	22	31	0.11	50	4.3	0.02	5.4	1.7	81	2.4	45	7.31		
67	2	10	6110600	445850	KTWC	1.71	2.6	27.0	940	0.65	37	210	33	94	1.0	3 6.42	18	7 0.41	1.00	630	14	36	0.41	64	3.7	0.02	3.2	0.5	76	2.2	74	6.37		
68		10	6119000	449000	uTrWL	2.38	1.4	7.9	750	0.47	45	120	17	29	0.9	23 4.80	23	4 0.42	0.61	410	19	23	0.07	68	3.3	0.01	4.8	2.5	86	2.0	105	6.02		
69		10	6118000	444850	uTrWL	1.64	6.3	57.0	950	0.79	48	150	22	73	1.2	2 5.88	24	11 0.52	0.62	899	20	49	0.07	37	4.4	0.02	5.5	3.2	62	2.8	157	6.52		
70		10	6118000	449000	uTrWL	2.73	0.8	4.1	580	1.14	47	110	14	46	1.1	2 3.29	23	3 0.33	0.60	275	15	19	0.03	59	3.6	0.01	4.6	2.2	75	2.2	60	5.28		
71		10	6119100	444850	uTrWL	1.93	1.5	6.6	990	0.60	40	140	13	46	1.0	6 3.70	22	4 0.38	0.64	314	17	31	0.05	44	3.6	0.02	5.8	2.3	66	2.0	44	5.29		
72		10	6118100	448000	uTrWL	1.99	2.6	14.0	1400	0.39	46	92	12	52	1.0	11 3.59	23	7 0.43	0.72	319	21	31	0.07	57	3.9	0.01	5.0	1.6	53	2.2	83	4.05		
73	1	10	6107450	436300	uTrWL	2.18	3.8	24.0	1300	0.80	36	200	32	197	1.3	111 6.40	19	6 0.41	1.03	643	5	42	0.09	50	3.8	0.03	4.5	1.1	100	2.5	49	4.42		
74	2	10	6107450	436300	uTrWL	1.70	3.9	27.0	1200	0.93	39	180	30	199	1.3	180 6.04	19	8 0.44	1.00	571	18	37	0.09	110	4.1	0.04	3.8	0.5	95	2.3	43	4.17		
75		10	6119050	443850	uTrWL	1.77	2.2	14.0	1100	0.52	58	150	14	62	1.3	2 3.98	30	5 0.54	0.64	434	28	42	0.06	47	5.1	0.02	6.2	2.0	61	2.7	71	4.64		
76		10	6118150	446950	uTrWL	2.27	4.6	22.0	1300	0.42	49	130	15	90	1.1	23 4.33	26	6 0.49	0.85	692	20	53	0.14	75	4.1	0.02	6.1	2.3	67	2.7	140	5.24		
78		10	6112000	442900	KTWC	2.05	1.1	5.1	940	1.13	49	150	13	69	1.2	2 3.97	30	4 0.45	0.65	471	25	46	0.07	62	5.0	0.05	6.4	3.7	76	3.3	69	6.20		
79		10	6112600	442150	uTrWL	1.41	1.1	7.4	900	0.82	40	180	14	55	1.1	25 4.11	22	2 0.33	0.57	435	18	27	0.07	60	3.8	0.03	4.4	2.4	79	2.3	31	6.35		
80		10	6110050	442400	KTWC	1.34	1.5	8.7	860	0.91	38	170	14	56	1.1	12 4.31	22	4 0.30	0.57	483	18	30	0.06	8	3.5	0.03	4.7	2.8	87	2.4	40	5.98		
82	1	10	6103500	436350	uTrWL	1.92	2.2	13.0	980	0.84	34	180	17	125	1.1	28 4.77	19	4 0.25	0.74	590	16	35	0.10	66	3.9	0.03	3.8	2.0	87	2.3	42	5.55		
83	2	10	6103500	436350	uTrWL	1.64	1.5	8.0	630	0.74	31	150	13	80	0.9	32 3.55	17	2 0.24	0.55	305	14	26	0.05	36	3.1	0.02	3.4	0.5	70	1.8	25	6.82		
84		10	6119050	443000	uTrWL	1.62	2.3	9.5	1000	2.31	41	130	17	59	1.0	3 3.91	23	4 0.32	0.71	588	13	33	0.10	38	3.6	0.03	4.9	1.1	75	2.2	56	4.86		
85		10	6106650	450100	uTrWL	2.92	1.8	13.0	1100	0.71	35	130	21	112	1.1	12 5.11	18	2 0.35	0.98	863	15	42	0.10	42	3.7	0.02	4.4	1.1	97	2.5	79	5.44		
86		10	6107150	449350	uTrWL	2.27	2.1	13.0	910	0.87	46	160	19	90	1.3	3 4.98	25	2 0.36	0.93	721	18	36	0.10	59	4.4	0.03	4.5	1.7	94	2.6	52	4.90		
87		10	6107800	448250	uTrWL	3.24	2.9	21.0	1000	0.50	37	140	32	140	0.9	5 7.25	18	6 0.33	1.05	836	14	79	0.08	51	3.3	0.02	4.7	2.3	96	2.3	132	5.09		
88		10	6108200	447750	uTrWL	1.90	1.4	9.0	900	0.75	39	180	15	56	1.0	28 4.30	21	2 0.28	0.60	530	16	34	0.07	55	3.6	0.02	4.4	2.0	91	2.0	39	6.41		
89		10	6107650	446850	uTrWL	3.13	1.6	8.2	1100	1.15	33	110	26	159	0.9	8 5.41	17	2 0.31	1.25	931	15	42	0.09	67	3.4	0.03	3.9	1.7	111	2.3	83	5.12		
90	1	10	6106150	446150	uTrWL	1.81	1.3	7.3	890	0.79	42	140	15	57	1.0	3 4.00	22	2 0.26	0.65	443	19	26	0.13	30	3.6	0.03	4.9	0.5	83	1.8	41	5.10		
91	2	10	6106																															

Analytical Data - Mount Milligan Survey

SITE	STA	UTM ZONE	UTM NORTH	UTM EAST	Rock Type	Al %	Sb ppm	As ppm	Ba ppm	Ca ppm	Ce ppm	Cr ppm	Co ppm	Cu ppm	Eu ppm	Au ppb	Fe %	La ppm	Pb ppm	Lu ppm	Mg %	Mn ppm	Nd ppm	Ni ppm	K %	Rb ppm	Sm ppm	Na ppm	Th ppm	U ppm	V ppm	Yb ppm	Zn ppm	Mass	
100		10	6110200	436650	uTrWL	1.68	1.6	6.8	820	0.88	35	210	14	176	0.9	37	4.07	18	3	0.33	1.07	301	15	55	0.10	60	3.2	0.03	3.7	1.4	81	2.0	29	4.33	
102		10	6109450	436200	uTrWL	1.63	2.1	11.0	970	0.74	28	140	16	178	1.0	67	4.43	18	11	0.30	0.74	430	16	30	0.10	97	3.3	0.02	3.5	0.5	82	2.1	37	5.95	
103		10	6108500	436100	uTrWL	1.66	2.7	21.0	860	0.77	36	170	22	181	1.2	89	5.34	23	11	0.36	0.82	480	20	31	0.07	48	4.3	0.02	3.9	1.6	91	2.4	34	5.62	
105		10	6106850	435450	uTrWL	2.47	3.1	22.0	950	1.04	30	190	27	174	1.0	47	5.72	17	17	0.28	1.42	1016	15	48	0.13	76	3.3	0.02	4.1	0.5	99	2.2	74	5.78	
106		10	6106200	435800	uTrWL	2.23	2.8	10.0	1000	0.86	35	210	25	104	0.9	100	5.29	18	9	0.31	1.19	621	14	39	0.07	58	3.2	0.02	3.4	1.0	104	1.9	47	5.64	
107	1	10	6107400	433400	uTrWL	2.06	3.0	34.0	800	0.97	39	140	24	84	1.2	29	5.18	20	23	0.30	1.12	929	19	37	0.09	56	3.7	0.02	3.7	2.0	91	2.4	67	4.73	
108	2	10	6107400	433400	uTrWL	2.55	2.2	24.0	780	0.56	37	150	24	90	1.0	31	4.92	18	9	0.29	1.02	564	15	39	0.08	72	3.3	0.02	4.2	0.5	83	2.0	57	4.76	
109		10	6103100	435650	uTrWL	1.92	2.3	18.0	1000	0.73	37	170	20	136	1.2	60	5.21	21	8	0.28	0.86	563	20	34	0.09	37	3.8	0.02	3.7	2.1	84	2.3	41	4.60	
110		10	6104800	436350	uTrWL	1.67	2.2	13.0	810	0.80	30	230	21	132	1.0	32	4.89	17	7	0.30	0.92	587	14	36	0.10	15	3.4	0.02	3.6	0.5	93	2.1	41	7.10	
111		10	6107500	433950	uTrWL	2.27	3.4	26.0	910	0.66	47	150	24	162	1.2	97	5.60	27	15	0.40	1.04	762	22	36	0.10	15	4.6	0.02	6.4	1.5	85	2.8	73	5.85	
112		10	6112000	435800	uTrWL	1.36	1.7	7.1	1100	0.82	33	170	15	49	0.9	31	4.37	18	7	0.30	0.76	307	16	23	0.07	38	3.3	0.03	3.8	0.5	79	2.1	30	5.65	
113		10	6111550	435800	uTrWL	1.81	1.9	16.0	830	0.54	29	200	21	92	0.9	64	5.25	15	9	0.27	0.70	305	11	32	0.07	51	2.8	0.02	3.3	1.8	97	1.8	35	7.41	
114		10	6106450	434000	uTrWL	1.96	2.2	14.0	890	0.65	53	210	15	83	1.1	11	4.46	23	6	0.33	0.81	378	16	29	0.06	7	3.7	0.02	6.2	2.6	75	2.6	51	6.15	
115		10	6107550	434350	uTrWL	1.86	2.1	34.0	850	0.88	41	140	16	110	1.2	120	4.46	23	15	0.37	0.76	456	15	30	0.06	34	4.1	0.02	4.9	2.6	74	2.6	48	6.20	
116		10	6108600	435200	uTrWL	1.89	3.4	32.0	900	0.79	37	160	25	268	1.2	91	6.28	20	14	0.39	0.96	678	12	36	0.11	8	4.0	0.02	3.7	0.5	101	2.7	59	4.92	
117		10	6105700	434850	uTrWL	4.03	2.0	18.0	670	1.03	58	250	47	486	2.5	25	7.80	27	13	0.62	2.21	1178	21	69	0.36	30	7.4	0.05	4.5	1.4	106	4.8	73	5.15	
118		10	6111650	434000	uTrWL	2.00	1.2	14.0	880	0.53	36	150	19	121	0.9	9	4.51	16	6	0.25	0.80	298	11	31	0.11	36	3.0	0.02	4.5	0.5	81	2.0	33	6.94	
119	1	10	6108900	434950	uTrWL	2.79	3.1	21.0	750	0.93	28	270	33	403	1.1	26	6.64	14	20	0.33	2.07	997	10	66	0.20	67	3.2	0.02	3.2	0.5	111	2.4	87	5.30	
120	2	10	6108900	434950	uTrWL	1.79	3.2	16.0	800	0.80	34	200	29	1026	1.0	201	6.18	17	11	0.32	1.18	711	15	43	0.28	75	3.3	0.03	3.1	2.2	104	2.2	50	5.85	
122		10	6110800	433250	uTrWL	2.22	1.7	16.0	970	0.72	40	160	21	105	1.0	29	5.21	20	7	0.25	1.17	672	13	35	0.15	48	3.5	0.02	4.0	2.9	97	2.1	45	5.49	
123		10	6110750	434750	uTrWL	1.77	1.6	14.0	800	0.47	29	140	15	92	0.9	47	4.32	17	13	0.24	0.65	294	16	28	0.06	31	2.9	0.02	3.9	1.4	78	1.9	36	6.33	
124		10	6110450	434000	uTrWL	1.95	2.6	14.0	890	0.85	33	210	28	162	0.9	40	5.64	16	12	0.28	1.41	607	14	42	0.16	41	3.2	0.02	3.3	1.7	93	2.2	47	5.31	
126		10	6109200	434400	uTrWL	1.83	7.0	44.0	840	0.88	28	180	27	2182	1.3	188	7.67	18	17	0.38	1.26	566	15	50	0.26	32	3.8	0.02	3.5	0.5	105	2.5	63	5.76	
127		10	6107900	434750	uTrWL	2.08	3.7	33.0	860	0.90	37	150	23	235	1.1	93	5.63	20	15	0.33	1.11	701	12	35	0.09	49	3.9	0.02	3.9	0.5	91	2.4	72	5.16	
128	1	10	6108600	434300	uTrWL	1.13	3.2	36.0	850	0.88	35	130	24	304	1.0	83	5.46	19	11	0.36	0.74	804	16	26	0.07	45	3.7	0.02	4.1	2.0	96	2.5	46	6.30	
129	2	10	6108600	434300	uTrWL	1.60	3.2	26.0	930	2.85	34	120	20	243	1.0	96	5.14	18	11	0.32	1.20	700	15	30	0.10	57	3.3	0.03	3.8	1.8	88	2.3	64	5.21	
130		10	6108250	434300	uTrWL	1.48	4.8	44.0	940	0.80	36	140	27	477	1.3	160	8.24	19	10	0.38	0.92	719	19	37	0.11	84	4.1	0.03	4.6	0.5	93	2.7	79	5.20	
131		10	6109400	431650	uTrWL	1.28	2.7	27.0	890	0.67	36	190	36	183	1.4	34	6.45	22	8	0.36	0.92	702	15	43	0.07	45	4.3	0.02	4.4	1.9	99	2.6	28	6.35	
132		10	6108200	433750	uTrWL	1.90	2.5	23.0	840	0.81	31	120	21	214	1.0	66	5.03	17	6	0.29	0.84	509	13	26	0.07	40	3.1	0.03	3.6	1.6	91	1.9	40	5.80	
133		10	6108450	431400	uTrWL	2.32	1.7	11.0	810	0.54	35	170	26	109	0.9	45	5.12	18	9	0.30	0.86	434	16	35	0.07	51	3.2	0.02	4.1	1.0	86	1.9	34	6.23	
134		10	6109200	431200	uTrWL	1.85	5.4	13.0	980	0.63	45	130	14	359	0.9	43	4.66	18	11	0.30	0.68	384	13	29	0.09	59	2.9	0.02	4.1	1.7	84	2.0	39	6.55	

Till Geochemistry of the Mount Milligan Area
(parts of NTS 93N/01 and 93O/04)

BCGS Open File 1996-22
GSC Open File 3291

Appendix B

Analytical Duplicate Data

Notes:

- Elements listed in alphabetical order.
- “Mass” refers to weight of sample analysed by INAA.

Analytical Duplicate Data - Mount Milligan Survey

SITE	Al	Sb	As	Ba	Ca	Ce	Cr	Co	Cu	Eu	Au	Fe	La	Pb	Lu	Mg	Mn	Nd	Ni	K	Rb	Sm	Na	Th	U	V	Yb	Zn	Mass
	ICP	INAA	INAA	INAA	ICP	INAA	INAA	ICP	INAA	INAA	INAA	INAA	ICP	ICP	ICP	ICP	INAA	ICP	INAA	ICP	ICP	INAA	INAA	ICP	INAA	ICP	INAA	ICP	grams
	%	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppb	%	ppm	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	
1	1.53	1.4	6.9	720	0.77	41	130	14	53	1.1	15	3.78	21	4	0.30	0.70	428	13	24	0.10	49	3.6	0.03	4.2	2.6	85	1.9	40	6.24
90	1.81	1.3	7.3	890	0.79	42	140	15	57	1.0	3	4.00	22	2	0.26	0.65	443	19	26	0.13	30	3.6	0.03	4.9	0.5	83	1.8	41	5.10
41	1.60	1.2	9.4	820	0.80	33	150	17	75	1.0	18	4.19	18	6	0.35	0.72	404	18	30	0.14	50	3.2	0.04	4.3	1.6	92	1.8	32	5.64
15	1.54	1.2	9.6	960	0.85	39	170	18	71	1.0	3	4.64	19	3	0.36	0.86	437	15	31	0.11	54	3.5	0.05	4.0	1.3	93	2.0	33	4.81
61	1.92	2.5	38.0	860	0.90	49	170	18	99	1.1	155	5.10	27	10	0.52	0.72	463	17	32	0.07	41	4.7	0.02	5.3	2.1	74	2.7	49	6.29
115	1.86	2.1	34.0	850	0.88	41	140	16	110	1.2	120	4.46	23	15	0.37	0.76	456	15	30	0.06	34	4.1	0.02	4.9	2.6	74	2.6	48	6.20
91	1.70	2.1	13.0	1100	0.65	45	160	16	47	1.0	3	3.96	23	4	0.33	0.62	610	18	33	0.06	-8	3.8	0.02	5.1	1.7	75	2.3	52	5.13
45	1.61	2.2	15.0	1100	0.64	51	160	19	43	1.2	200	4.32	25	8	0.44	0.61	592	26	33	0.06	48	4.4	0.02	5.7	2.0	75	2.3	50	5.14
101	1.24	1.2	5.5	820	0.55	53	160	12	30	1.2	33	3.45	31	10	0.37	0.51	255	26	19	0.04	56	4.6	0.02	5.9	2.1	56	2.7	32	4.70
27	1.30	1.2	6.6	1000	0.59	54	160	13	30	1.3	3	3.39	31	5	0.44	0.37	264	29	20	0.05	42	4.8	0.03	6.1	2.2	60	2.7	35	5.28
121	1.20	1.4	7.8	830	0.88	38	170	15	67	1.1	46	4.28	22	6	0.34	0.61	474	15	27	0.08	40	3.6	0.02	5.0	1.7	87	2.3	38	6.61
80	1.34	1.5	8.7	860	0.91	38	170	14	56	1.1	12	4.31	22	4	0.30	0.57	483	18	30	0.06	8	3.5	0.03	4.7	2.8	87	2.4	40	5.98

Till Geochemistry of the Mount Milligan Area
(parts of NTS 93N/01 and 93O/04)

BCGS Open File 1996-22
GSC Open File 3291

Appendix C

Summary Statistics

Notes:

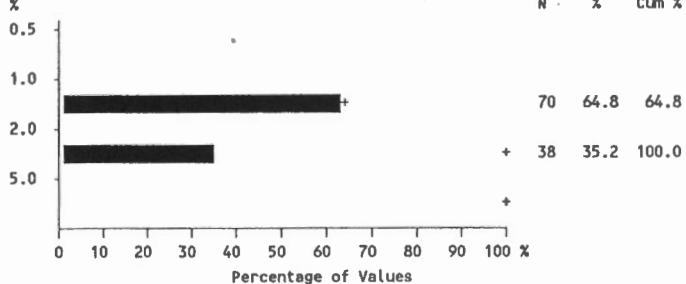
- Elements listed in alphabetical order.
- Abbreviations for rock types are given in legend to map on page D-2, Appendix D.

Mount Milligan Till Geochemistry : -63 micron fraction
 Statistics by Rock Type

Aluminum (ICP-ES)

Number of values - 108

Determination limit - 0.01 %



	All units	UTrWL	KTWC	KTS
Number of values	108	87	20	1
Number of values below d.l.	0	0	0	0
Number of missing values	0	0	0	0
Mean	1.976	2.017	1.824	1.410
Standard deviation	0.548	0.569	0.414	0.000
Skewness	1.316	1.210	1.522	-
Kurtosis	1.963	1.596	2.717	-
Geometric Mean	1.911	1.948	1.785	1.410
Percentiles				
Minimum value	1.130	1.130	1.300	1.410
25th	1.620	1.640	1.583	1.410
50th	1.860	1.890	1.780	1.410
75th	2.228	2.270	2.028	1.410
80th	2.280	2.416	2.082	1.410
90th	2.794	2.848	2.336	1.410
95th	3.141	3.160	3.110	1.410
98th	3.765	3.916	3.150	1.410
99th	4.017	4.030	3.150	1.410
Maximum value	4.030	4.030	3.150	1.410

Al

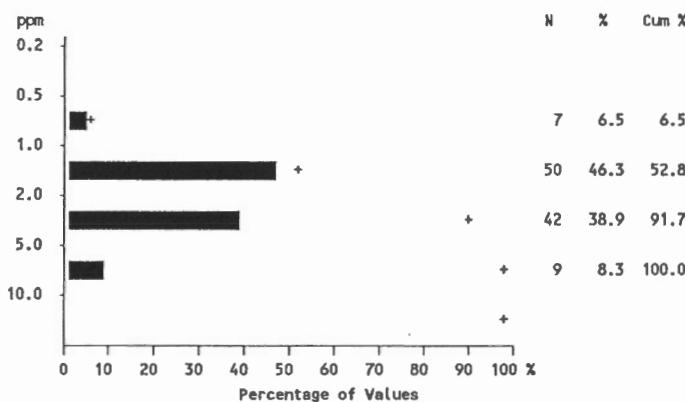
C-2

Mount Milligan Till Geochemistry : -63 micron fraction
 Statistics by Rock Type

Antimony (INAA)

Number of values - 108

Determination limit - 0.1 ppm



	All units	uTrWL	KTWC	KTS
Number of values	108	87	20	1
Number of values below d.l.	0	0	0	0
Number of missing values	0	0	0	0
Mean	2.300	2.514	1.410	1.500
Standard deviation	1.536	1.623	0.535	0.000
Skewness	1.911	1.693	0.351	-
Kurtosis	3.297	2.212	-1.101	-
Geometric Mean	1.953	2.146	1.311	1.500
Percentiles				
Minimum value	0.500	0.800	0.500	1.500
25th	1.300	1.400	1.000	1.500
50th	1.800	2.000	1.300	1.500
75th	2.600	2.900	1.800	1.500
80th	2.920	3.240	2.120	1.500
90th	4.620	5.240	2.290	1.500
95th	6.455	6.800	2.300	1.500
98th	7.164	7.392	2.300	1.500
99th	7.928	8.000	2.300	1.500
Maximum value	8.000	8.000	2.300	1.500

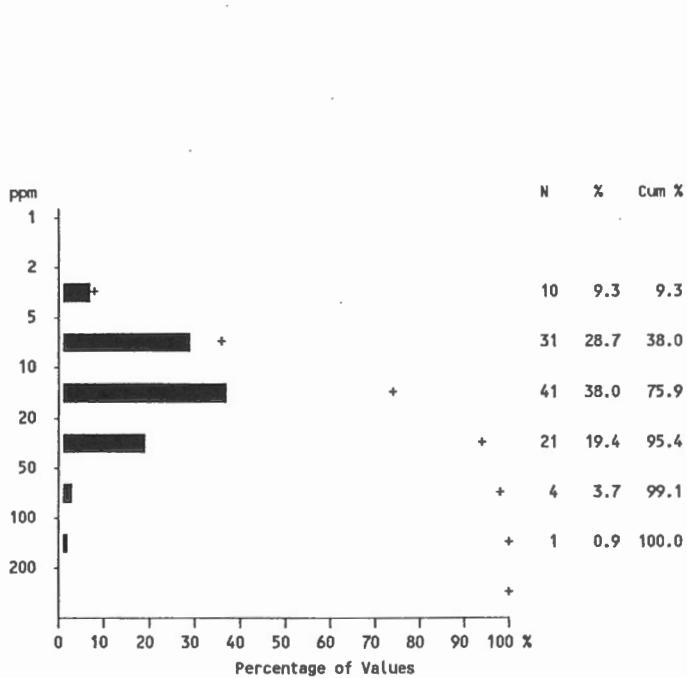
Sb

Mount Milligan Till Geochemistry : -63 micron fraction
 Statistics by Rock Type

Arsenic (INAA)

Number of values - 108

Determination limit - 0.5 ppm



	All units	uTrwl	KTWC	KTS
Number of values	108	87	20	1
Number of values below d.l.	0	0	0	0
Number of missing values	0	0	0	0
Mean	17.238	19.474	7.980	7.900
Standard deviation	20.215	21.899	3.601	0.000
Skewness	4.310	3.930	0.556	-
Kurtosis	23.758	19.438	-1.150	-
Geometric Mean	12.443	14.162	7.251	7.900
Percentiles				
Minimum value	3.400	3.800	3.400	7.900
25th	7.325	8.300	5.150	7.900
50th	12.000	13.000	6.800	7.900
75th	18.000	22.000	11.750	7.900
80th	22.000	26.400	12.000	7.900
90th	33.100	34.400	13.900	7.900
95th	48.950	55.400	14.950	7.900
98th	94.200	111.360	15.000	7.900
99th	154.240	160.000	15.000	7.900
Maximum value	160.000	160.000	15.000	7.900

As

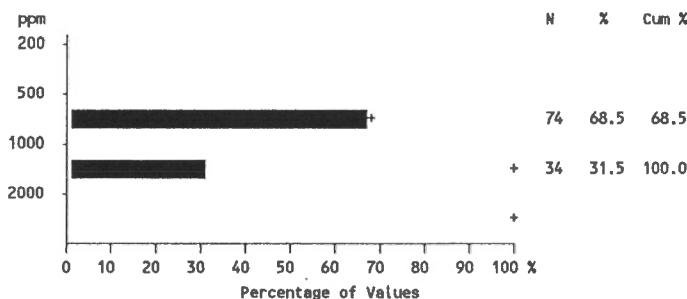
Mount Milligan Till Geochemistry : -63 micron fraction
Statistics by Rock Type

Barium (INAA)

Number of values - 108

Determination limit - 50 ppm

	All units	uTrWL	KTWC	KTS
Number of values	108	87	20	1
Number of values below d.l.	0	0	0	0
Number of missing values	0	0	0	0
Mean	933.426	936.092	918.500	1000.000
Standard deviation	139.720	141.079	139.105	0.000
Skewness	0.332	0.508	-0.442	-
Kurtosis	0.924	1.094	-0.715	-
Geometric Mean	923.028	925.723	907.756	1000.000
Percentiles				
Minimum value	580.000	580.000	620.000	1000.000
25th	850.000	850.000	842.500	1000.000
50th	930.000	910.000	935.000	1000.000
75th	1000.000	1000.000	1000.000	1000.000
80th	1000.000	1000.000	1080.000	1000.000
90th	1100.000	1100.000	1100.000	1000.000
95th	1155.000	1200.000	1100.000	1000.000
98th	1300.000	1324.000	1100.000	1000.000
99th	1391.000	1400.000	1100.000	1000.000
Maximum value	1400.000	1400.000	1100.000	1000.000



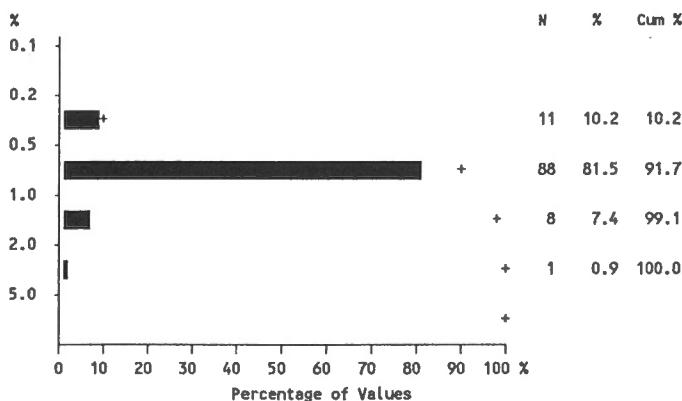
Ba

Mount Milligan Till Geochemistry : -63 micron fraction
Statistics by Rock Type

Calcium (ICP-ES)

Number of values - 108

Determination limit - 0.01 %



	All units	uTrWL	KTWC	KTS
Number of values	108	87	20	1
Number of values below d.l.	0	0	0	0
Number of missing values	0	0	0	0
Mean	0.755	0.768	0.700	0.730
Standard deviation	0.232	0.239	0.197	0.000
Skewness	2.705	2.949	0.274	-
Kurtosis	16.717	17.526	-0.686	-
Geometric Mean	0.726	0.739	0.673	0.730
Percentiles				
Minimum value	0.380	0.390	0.380	0.730
25th	0.630	0.650	0.583	0.730
50th	0.745	0.750	0.695	0.730
75th	0.860	0.870	0.840	0.730
80th	0.884	0.888	0.898	0.730
90th	0.961	0.982	0.959	0.730
95th	1.061	1.062	1.122	0.730
98th	1.148	1.428	1.130	0.730
99th	2.206	2.310	1.130	0.730
Maximum value	2.310	2.310	1.130	0.730

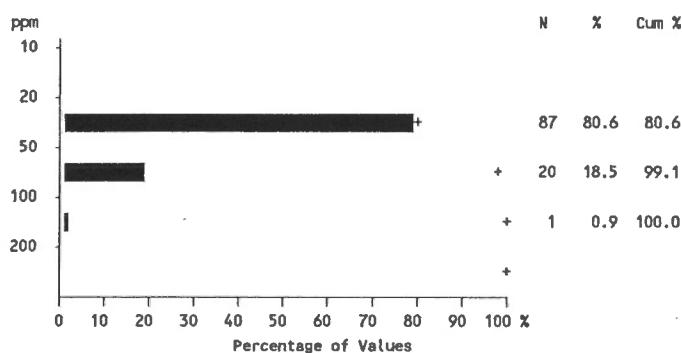
Ca

Mount Milligan Till Geochemistry : -63 micron fraction
Statistics by Rock Type

Cerium (INAA)

Number of values - 108

Determination limit - 3 ppm



	All units	uTrWL	KTWC	KTS
Number of values	108	87	20	1
Number of values below d.l.	0	0	0	0
Number of missing values	0	0	0	0
Mean	42.657	39.782	55.250	41.000
Standard deviation	12.486	8.328	18.948	0.000
Skewness	2.118	1.076	1.080	-
Kurtosis	7.191	1.572	1.172	-
Geometric Mean	41.222	38.995	52.501	41.000
Percentiles				
Minimum value	27.000	27.000	30.000	41.000
25th	35.000	34.000	42.000	41.000
50th	40.000	39.000	51.500	41.000
75th	47.000	45.000	64.000	41.000
80th	49.200	46.000	69.800	41.000
90th	58.000	50.400	80.500	41.000
95th	68.300	57.600	108.550	41.000
98th	80.100	64.920	110.000	41.000
99th	107.390	71.000	110.000	41.000
Maximum value	110.000	71.000	110.000	41.000

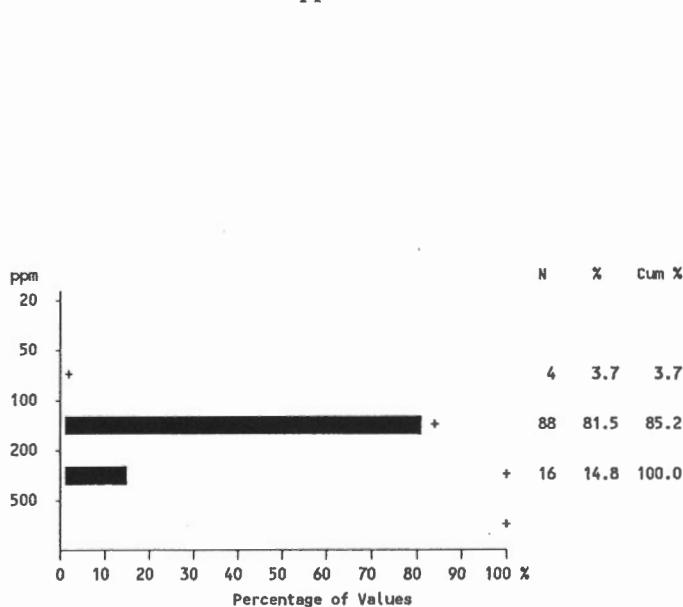
Ce

Mount Milligan Till Geochemistry : -63 micron fraction
Statistics by Rock Type

Chromium (INAA)

Number of values - 108

Determination limit - 5 ppm



	All units	uTrWL	KTWC	KTS
Number of values	108	87	20	1
Number of values below d.l.	0	0	0	0
Number of missing values	0	0	0	0
Mean	157.185	159.644	145.350	180.000
Standard deviation	36.971	38.575	27.565	0.000
Skewness	0.791	0.805	-0.276	-
Kurtosis	0.794	0.528	-0.966	-
Geometric Mean	153.102	155.313	142.684	180.000
Percentiles				
Minimum value	87.000	91.000	87.000	180.000
25th	130.000	130.000	122.500	180.000
50th	150.000	150.000	150.000	180.000
75th	180.000	180.000	167.500	180.000
80th	180.000	190.000	170.000	180.000
90th	210.000	210.000	180.000	180.000
95th	225.500	242.000	189.500	180.000
98th	268.200	270.000	190.000	180.000
99th	270.000	270.000	190.000	180.000
Maximum value	270.000	270.000	190.000	180.000

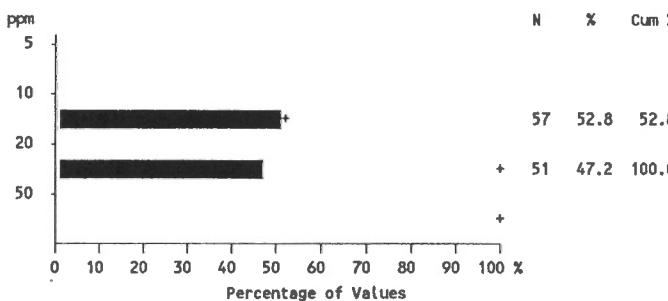
Cr

Mount Milligan Till Geochemistry : -63 micron fraction
Statistics by Rock Type

Cobalt (INAA)

Number of values - 108

Determination limit - 1 ppm



	All units	uTrWL	KTWC	KTS
Number of values	108	87	20	1
Number of values below d.l.	0	0	0	0
Number of missing values	0	0	0	0
Mean	19.898	20.839	16.000	16.000
Standard deviation	7.351	7.500	5.370	0.000
Skewness	1.364	1.350	0.934	-
Kurtosis	2.503	2.313	0.055	-
Geometric Mean	18.751	19.701	15.243	16.000
Percentiles				
Minimum value	10.000	11.000	10.000	16.000
25th	14.000	15.000	13.000	16.000
50th	19.000	20.000	14.000	16.000
75th	23.750	24.000	19.750	16.000
80th	25.000	26.000	20.800	16.000
90th	28.200	30.400	23.900	16.000
95th	33.550	35.200	29.700	16.000
98th	46.100	47.240	30.000	16.000
99th	47.910	48.000	30.000	16.000
Maximum value	48.000	48.000	30.000	16.000

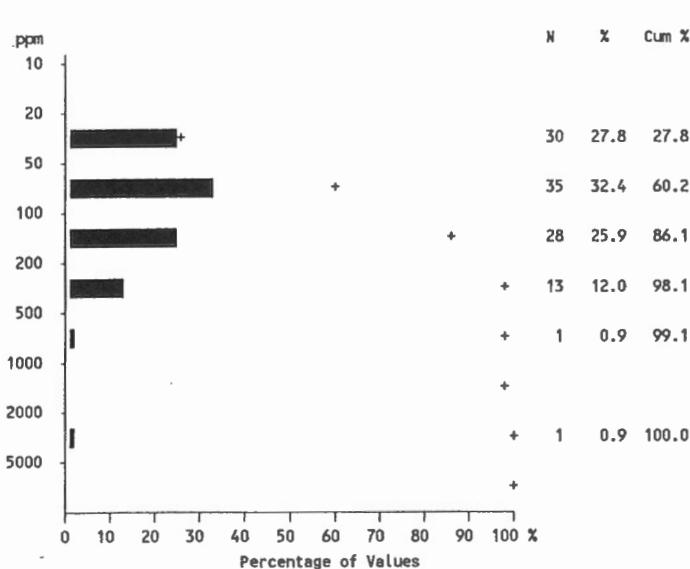
Co

Mount Milligan Till Geochemistry : -63 micron fraction
 Statistics by Rock Type

Copper (ICP-ES)

Number of values - 108

Determination limit - 1 ppm



	All units	uTrWL	KTWC	KTS
Number of values	108	87	20	1
Number of values below d.l.	0	0	0	0
Number of missing values	0	0	0	0
Mean	136.407	156.966	50.950	57.000
Standard deviation	229.776	251.464	34.055	0.000
Skewness	6.817	6.226	1.834	-
Kurtosis	55.899	45.891	3.441	-
Geometric Mean	86.507	101.885	43.351	57.000
Percentiles				
Minimum value	20.000	20.000	20.000	57.000
25th	47.250	52.000	26.250	57.000
50th	76.000	92.000	43.500	57.000
75th	161.250	174.000	57.500	57.000
80th	174.400	183.400	66.800	57.000
90th	268.700	296.000	94.400	57.000
95th	383.200	447.400	160.550	57.000
98th	731.180	1120.280	164.000	57.000
99th	2056.270	2182.000	164.000	57.000
Maximum value	2182.000	2182.000	164.000	57.000

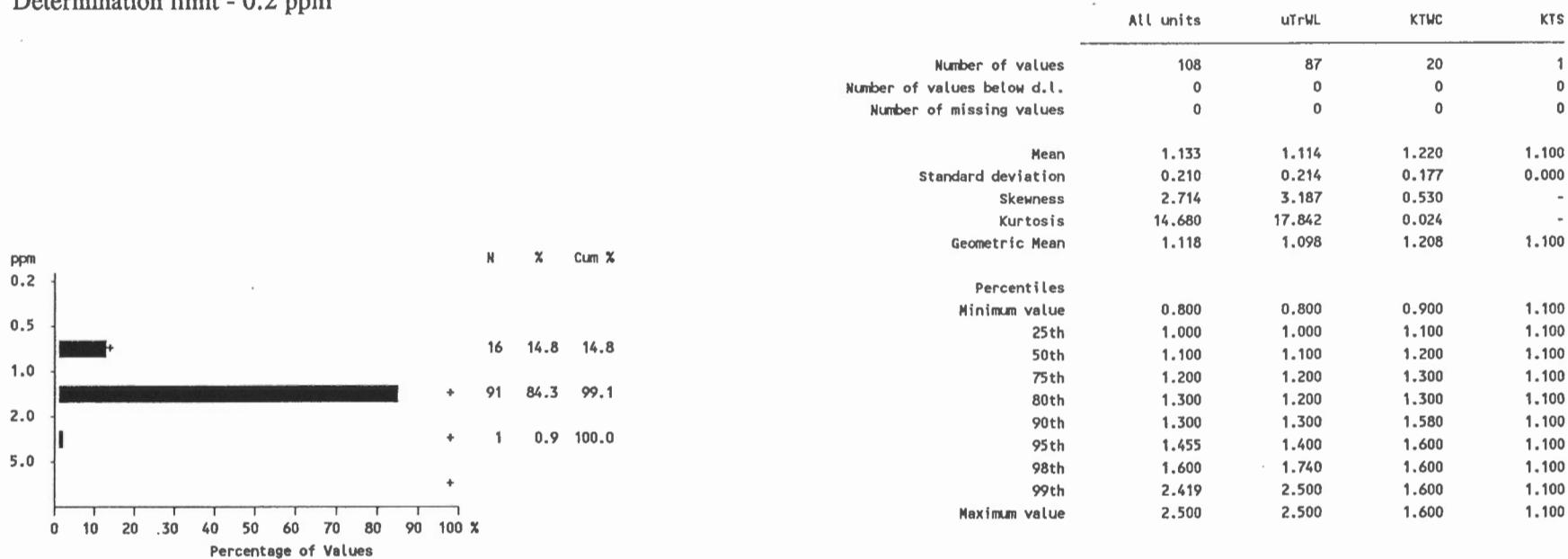
Cu

Mount Milligan Till Geochemistry : -63 micron fraction
 Statistics by Rock Type

Europium (INAA)

Number of values - 108

Determination limit - 0.2 ppm



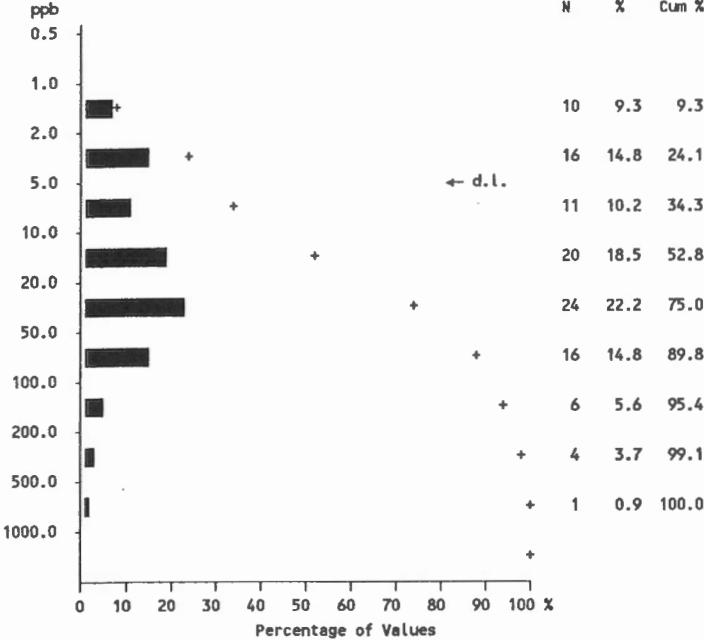
Eu

Mount Milligan Till Geochemistry : -63 micron fraction
Statistics by Rock Type

Gold (INAA)

Number of values - 108

Determination limit - 3 ppb



	All units	uTrWL	KTWC	KTS
Number of values	108	87	20	1
Number of values below d.l.	10	7	3	0
Number of missing values	0	0	0	0
Mean	45.889	52.098	20.125	21.000
Standard deviation	88.347	95.216	44.858	0.000
Skewness	5.052	4.782	3.257	-
Kurtosis	32.790	28.573	10.009	-
Geometric Mean	16.739	20.287	7.170	21.000
Percentiles				
Minimum value	1.500	1.500	1.500	21.000
25th	5.000	8.000	3.000	21.000
50th	17.500	25.000	5.000	21.000
75th	50.750	60.000	15.500	21.000
80th	66.200	73.600	16.000	21.000
90th	100.900	109.400	63.800	21.000
95th	194.600	213.200	193.450	21.000
98th	333.460	436.360	200.000	21.000
99th	696.990	732.000	200.000	21.000
Maximum value	732.000	732.000	200.000	21.000

Au

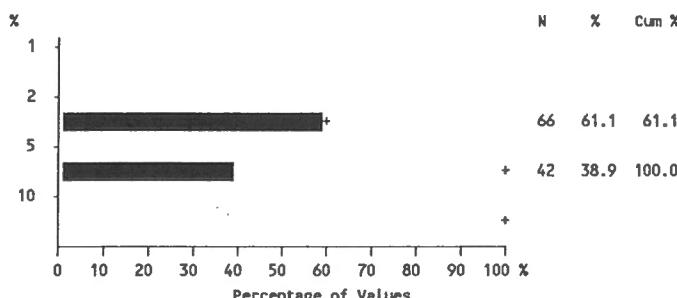
Mount Milligan Till Geochemistry : -63 micron fraction
 Statistics by Rock Type

Iron (INAA)

Number of values - 108

Determination limit - 0.01 %

	All_units	uTrWL	KTWC	KTS
Number of values	108	87	20	1
Number of values below d.l.	0	0	0	0
Number of missing values	0	0	0	0
Mean	4.850	5.039	4.054	4.350
Standard deviation	1.204	1.199	0.905	0.000
Skewness	0.818	0.780	0.958	-
Kurtosis	0.264	0.067	0.985	-
Geometric Mean	4.712	4.907	3.966	4.350
Percentiles				
Minimum value	2.720	2.990	2.720	4.350
25th	3.980	4.130	3.305	4.350
50th	4.660	4.910	3.980	4.350
75th	5.405	5.600	4.515	4.350
80th	5.632	5.724	4.632	4.350
90th	6.651	7.088	5.183	4.350
95th	7.666	7.718	6.568	4.350
98th	7.800	7.906	6.640	4.350
99th	8.200	8.240	6.640	4.350
Maximum value	8.240	8.240	6.640	4.350



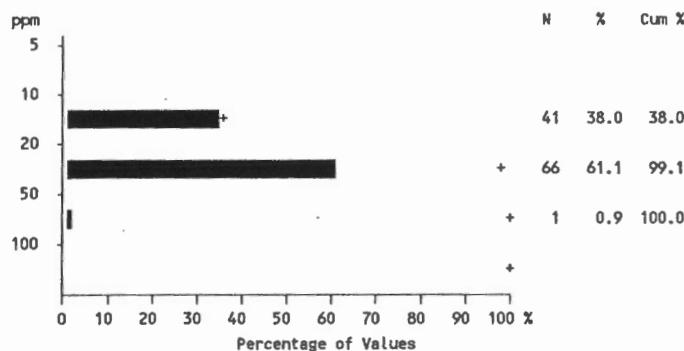
Fe

Mount Milligan Till Geochemistry : -63 micron fraction
 Statistics by Rock Type

Lanthanum (INAA)

Number of values - 108

Determination limit - 0.5 ppm



	All units	uTrWL	KTWC	KTS
Number of values	108	87	20	1
Number of values below d.l.	0	0	0	0
Number of missing values	0	0	0	0
Mean	22.537	20.667	30.600	24.000
Standard deviation	7.415	3.908	12.487	0.000
Skewness	3.353	1.332	1.707	-
Kurtosis	17.204	2.908	3.403	-
Geometric Mean	21.712	20.339	28.702	24.000
Percentiles				
Minimum value	14.000	14.000	15.000	24.000
25th	18.000	18.000	22.500	24.000
50th	21.000	20.000	29.000	24.000
75th	24.000	23.000	35.250	24.000
80th	25.000	23.000	38.400	24.000
90th	30.100	26.000	44.600	24.000
95th	36.550	27.000	70.650	24.000
98th	44.280	33.960	72.000	24.000
99th	69.570	37.000	72.000	24.000
Maximum value	72.000	37.000	72.000	24.000

La

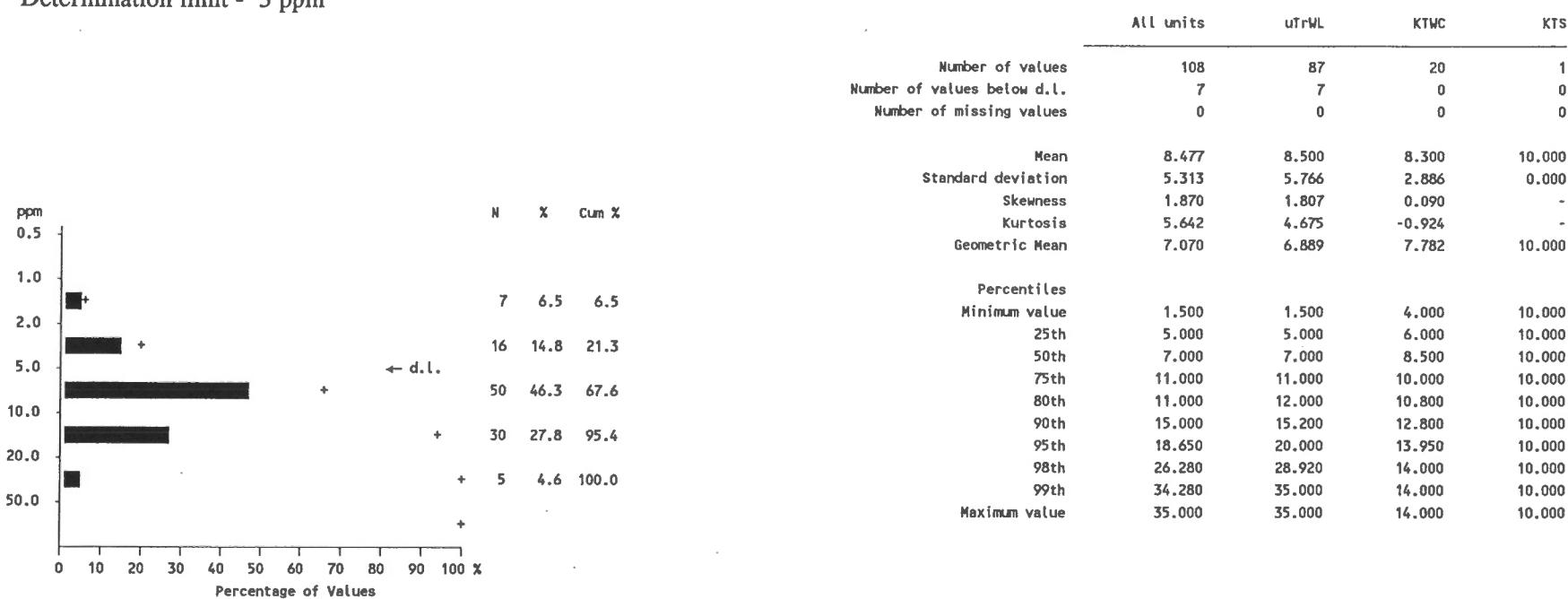
C-14

Mount Milligan Till Geochemistry : -63 micron fraction
Statistics by Rock Type

Lead (ICP-ES)

Number of values - 108

Determination limit - 3 ppm



Pb

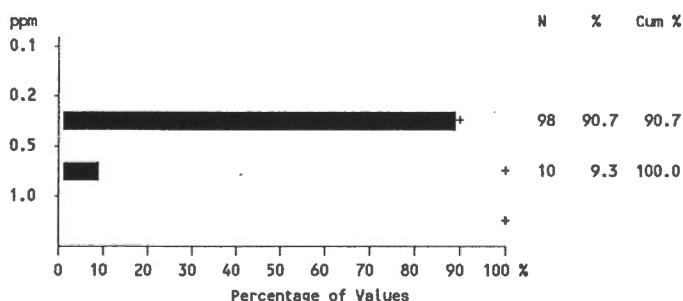
Mount Milligan Till Geochemistry : -63 micron fraction
 Statistics by Rock Type

Lutetium (INAA)

Number of values - 108

Determination limit - 0.05 ppm

	All units	uTrWL	KTWC	KTS
Number of values	108	87	20	1
Number of values below d.l.	0	0	0	0
Number of missing values	0	0	0	0
Mean	0.380	0.366	0.439	0.340
Standard deviation	0.084	0.077	0.091	0.000
Skewness	0.823	0.817	0.556	-
Kurtosis	0.321	0.357	-0.694	-
Geometric Mean	0.371	0.359	0.431	0.340
Percentiles				
Minimum value	0.240	0.240	0.300	0.340
25th	0.320	0.310	0.380	0.340
50th	0.360	0.350	0.430	0.340
75th	0.430	0.410	0.503	0.340
80th	0.440	0.430	0.552	0.340
90th	0.493	0.482	0.596	0.340
95th	0.556	0.526	0.628	0.340
98th	0.616	0.567	0.630	0.340
99th	0.629	0.620	0.630	0.340
Maximum value	0.630	0.620	0.630	0.340



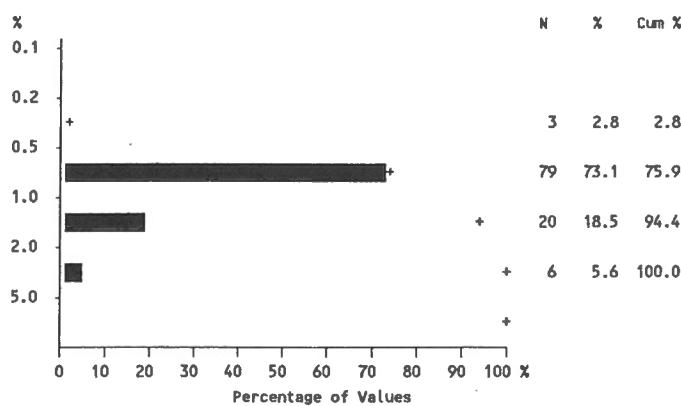
Lu

Mount Milligan Till Geochemistry : -63 micron fraction
 Statistics by Rock Type

Magnesium (ICP-ES)

Number of values - 108

Determination limit - 0.01 %



	All units	uTrWL	KTWC	KTS
Number of values	108	87	20	1
Number of values below d.l.	0	0	0	0
Number of missing values	0	0	0	0
Mean	0.882	0.916	0.744	0.660
Standard deviation	0.377	0.372	0.386	0.000
Skewness	2.067	1.952	2.867	-
Kurtosis	4.676	4.209	8.413	-
Geometric Mean	0.824	0.860	0.689	0.660
Percentiles				
Minimum value	0.370	0.370	0.370	0.660
25th	0.650	0.670	0.570	0.660
50th	0.760	0.820	0.650	0.660
75th	0.990	1.040	0.738	0.660
80th	1.052	1.104	0.894	0.660
90th	1.241	1.252	1.000	0.660
95th	2.021	2.022	2.178	0.660
98th	2.235	2.236	2.240	0.660
99th	2.313	2.320	2.240	0.660
Maximum value	2.320	2.320	2.240	0.660

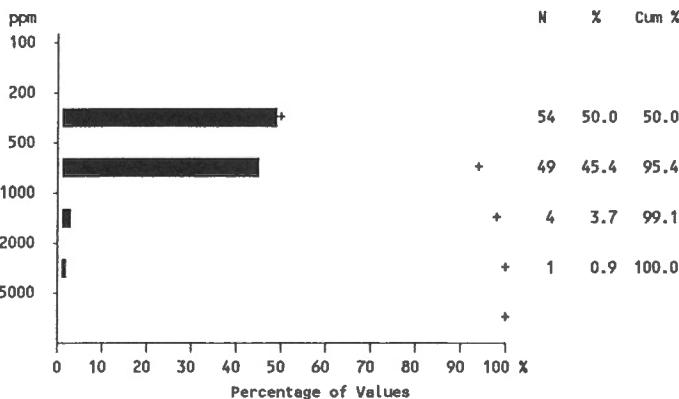
Mg

Mount Milligan Till Geochemistry : -63 micron fraction
Statistics by Rock Type

Manganese (ICP-ES)

Number of values - 108

Determination limit - 1 ppm



	All units	uTrWL	KTWC	KTS
Number of values	108	87	20	1
Number of values below d.l.	0	0	0	0
Number of missing values	0	0	0	0
Mean	557.741	576.678	481.350	438.000
Standard deviation	282.511	290.665	241.912	0.000
Skewness	2.477	2.540	1.614	-
Kurtosis	10.629	10.912	2.988	-
Geometric Mean	505.854	524.098	436.736	438.000
Percentiles				
Minimum value	238.000	238.000	249.000	438.000
25th	378.750	395.000	293.500	438.000
50th	491.500	523.000	429.000	438.000
75th	675.000	696.000	630.250	438.000
80th	701.200	722.200	639.600	438.000
90th	900.700	918.600	686.900	438.000
95th	1007.450	1008.400	1243.900	438.000
98th	1377.140	1602.800	1273.000	438.000
99th	2168.950	2245.000	1273.000	438.000
Maximum value	2245.000	2245.000	1273.000	438.000

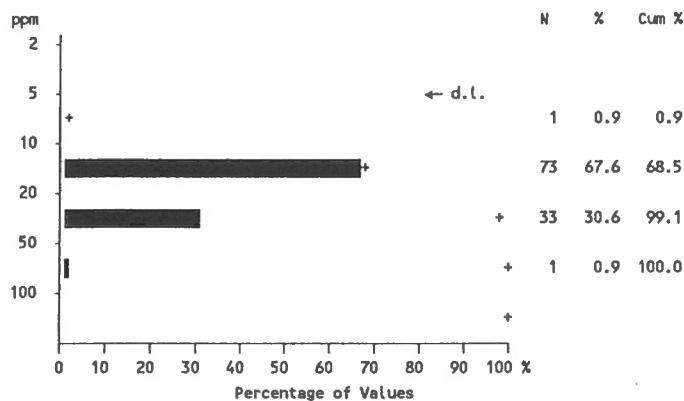
Mn

Mount Milligan Till Geochemistry : -63 micron fraction
Statistics by Rock Type

Neodymium (INAA)

Number of values - 108

Determination limit - 5 ppm



	All units	uTrWL	KTWC	KTS
Number of values	108	87	20	1
Number of values below d.l.	0	0	0	0
Number of missing values	0	0	0	0
Mean	18.241	16.874	24.150	19.000
Standard deviation	5.969	4.049	9.005	0.000
Skewness	1.943	0.541	1.100	-
Kurtosis	6.891	1.282	1.027	-
Geometric Mean	17.431	16.378	22.759	19.000
Percentiles				
Minimum value	5.000	5.000	13.000	19.000
25th	15.000	14.000	17.250	19.000
50th	17.000	16.000	23.000	19.000
75th	20.750	20.000	29.000	19.000
80th	21.200	20.000	29.800	19.000
90th	25.100	22.000	37.200	19.000
95th	29.550	23.600	49.400	19.000
98th	36.740	28.720	50.000	19.000
99th	48.920	31.000	50.000	19.000
Maximum value	50.000	31.000	50.000	19.000

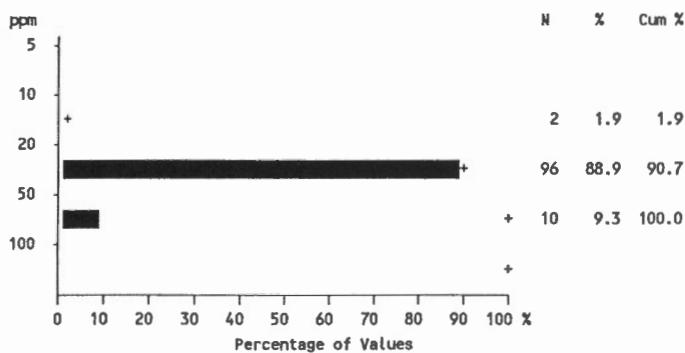
Nd

Mount Milligan Till Geochemistry : -63 micron fraction
Statistics by Rock Type

Nickel (ICP-ES)

Number of values - 108

Determination limit - 1 ppm



	All units	uTrWL	KTWC	KTS
Number of values	108	87	20	1
Number of values below d.l.	0	0	0	0
Number of missing values	0	0	0	0
Mean	35.472	36.540	31.250	27.000
Standard deviation	11.171	11.791	6.766	0.000
Skewness	1.703	1.601	0.476	-
Kurtosis	3.732	3.011	-0.530	-
Geometric Mean	34.042	34.986	30.574	27.000
Percentiles				
Minimum value	18.000	18.000	20.000	27.000
25th	29.000	29.000	26.000	27.000
50th	33.000	35.000	31.000	27.000
75th	39.000	42.000	36.500	27.000
80th	42.000	42.000	37.000	27.000
90th	49.100	50.000	43.300	27.000
95th	61.050	67.800	45.900	27.000
98th	75.920	77.480	46.000	27.000
99th	78.820	79.000	46.000	27.000
Maximum value	79.000	79.000	46.000	27.000

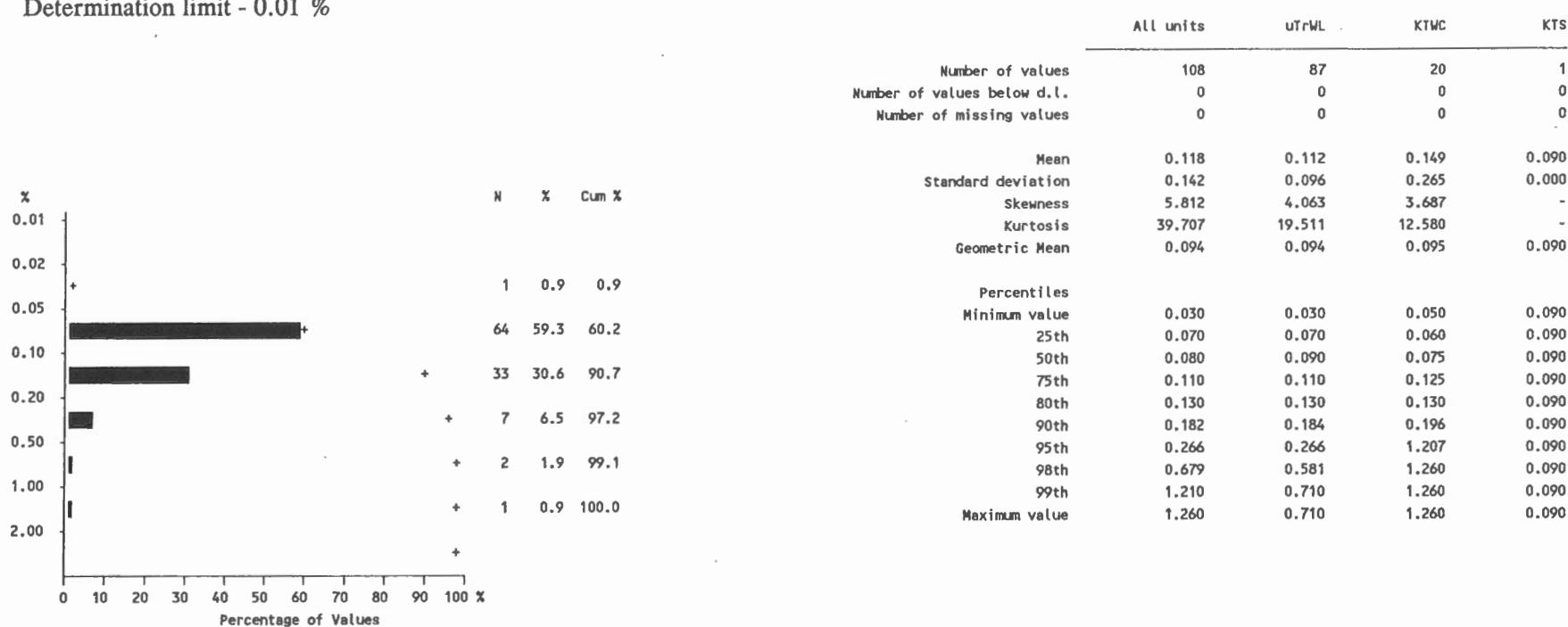
Ni

Mount Milligan Till Geochemistry : -63 micron fraction
Statistics by Rock Type

Potassium (ICP-ES)

Number of values - 108

Determination limit - 0.01 %



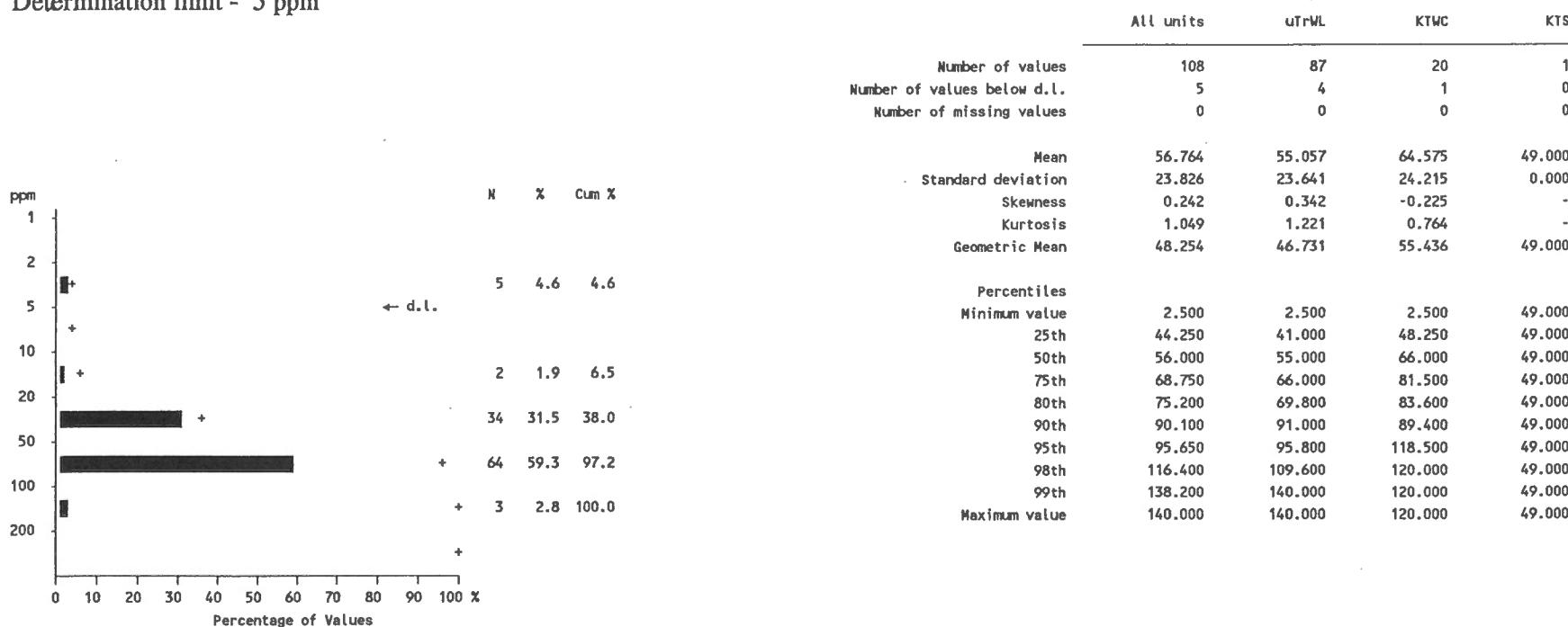
K

Mount Milligan Till Geochemistry : -63 micron fraction
Statistics by Rock Type

Rubidium (INAA)

Number of values - 108

Determination limit - 5 ppm



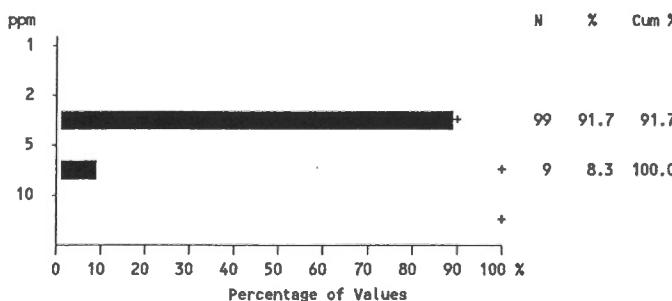
Rb

Mount Milligan Till Geochemistry : -63 micron fraction
Statistics by Rock Type

Samarium (INAA)

Number of values - 108

Determination limit - 0.1 ppm



	All units	uTrWL	KTWC	KTS
Number of values	108	87	20	1
Number of values below d.l.	0	0	0	0
Number of missing values	0	0	0	0
Mean	3.949	3.762	4.760	4.000
Standard deviation	0.916	0.667	1.363	0.000
Skewness	2.440	2.167	1.422	-
Kurtosis	9.443	9.017	2.662	-
Geometric Mean	3.865	3.712	4.601	4.000
Percentiles				
Minimum value	2.600	2.600	2.700	4.000
25th	3.400	3.300	3.975	4.000
50th	3.750	3.700	4.600	4.000
75th	4.300	4.100	5.300	4.000
80th	4.400	4.140	5.800	4.000
90th	4.900	4.500	6.180	4.000
95th	5.855	4.780	8.955	4.000
98th	7.184	6.184	9.100	4.000
99th	8.947	7.400	9.100	4.000
Maximum value	9.100	7.400	9.100	4.000

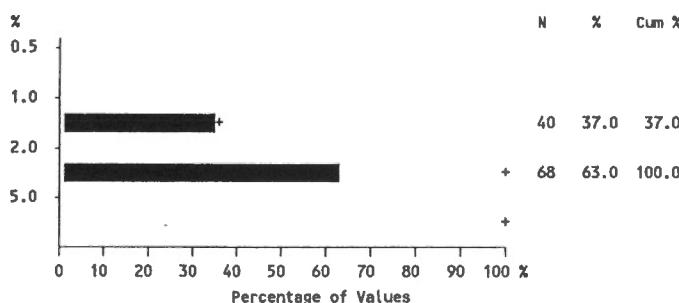
Sm

Mount Milligan Till Geochemistry : -63 micron fraction
Statistics by Rock Type

Sodium (ICP-ES)

Number of values - 108

Determination limit - 0.01 %



	All units	uTrWL	KTWC	KTS
Number of values	108	87	20	1
Number of values below d.l.	0	0	0	0
Number of missing values	0	0	0	0
Mean	2.025	2.037	1.957	2.310
Standard deviation	0.245	0.243	0.250	0.000
Skewness	-0.568	-0.551	-0.581	-
Kurtosis	0.305	0.411	-0.403	-
Geometric Mean	2.009	2.022	1.941	2.310
Percentiles				
Minimum value	1.350	1.370	1.350	2.310
25th	1.873	1.910	1.783	2.310
50th	2.065	2.080	1.990	2.310
75th	2.198	2.200	2.168	2.310
80th	2.220	2.220	2.180	2.310
90th	2.291	2.302	2.279	2.310
95th	2.380	2.386	2.290	2.310
98th	2.532	2.560	2.290	2.310
99th	2.586	2.590	2.290	2.310
Maximum value	2.590	2.590	2.290	2.310

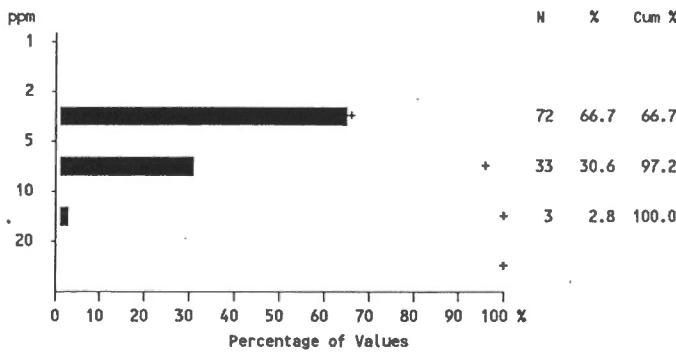
Na

Mount Milligan Till Geochemistry : -63 micron fraction
 Statistics by Rock Type

Thorium (INAA)

Number of values - 108

Determination limit - 0.2 ppm



	All units	uTrWL	KTWC	KTS
Number of values	108	87	20	1
Number of values below d.l.	0	0	0	0
Number of missing values	0	0	0	0
Mean	4.992	4.456	7.315	5.100
Standard deviation	2.045	0.940	3.544	0.000
Skewness	3.743	1.133	1.795	-
Kurtosis	19.923	1.455	3.306	-
Geometric Mean	4.736	4.367	6.714	5.100
Percentiles				
Minimum value	2.700	2.700	3.500	5.100
25th	3.900	3.900	5.425	5.100
50th	4.500	4.300	6.200	5.100
75th	5.475	4.900	8.325	5.100
80th	5.840	5.000	9.540	5.100
90th	6.830	5.840	11.900	5.100
95th	8.185	6.320	18.650	5.100
98th	11.820	7.372	19.000	5.100
99th	18.370	7.600	19.000	5.100
Maximum value	19.000	7.600	19.000	5.100

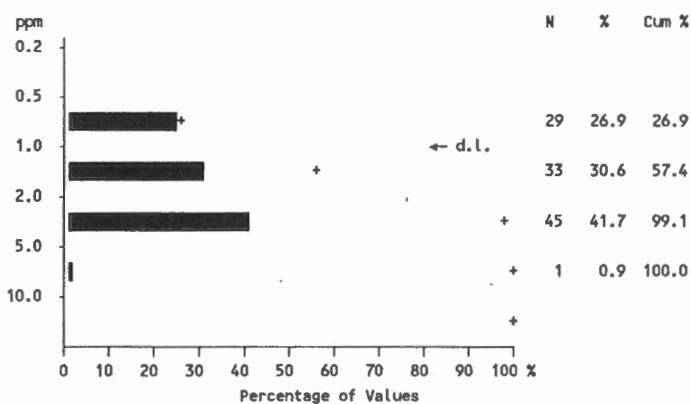
Th

Mount Milligan Till Geochemistry : -63 micron fraction
 Statistics by Rock Type

Uranium (INAA)

Number of values - 108

Determination limit - 1 ppm



	All units	uTrWL	KTWC	KTS
Number of values	108	87	20	1
Number of values below d.l.	29	28	1	0
Number of missing values	0	0	0	0
Mean	1.723	1.482	2.750	2.200
Standard deviation	1.192	0.828	1.872	0.000
Skewness	2.699	0.161	2.303	-
Kurtosis	15.461	-1.211	6.152	-
Geometric Mean	1.381	1.218	2.325	2.200
Percentiles				
Minimum value	0.500	0.500	0.500	2.200
25th	0.500	0.500	1.725	2.200
50th	1.700	1.600	2.350	2.200
75th	2.275	2.200	3.600	2.200
80th	2.420	2.240	3.700	2.200
90th	2.810	2.520	3.890	2.200
95th	3.565	2.860	9.315	2.200
98th	3.882	3.248	9.600	2.200
99th	9.087	3.400	9.600	2.200
Maximum value	9.600	3.400	9.600	2.200

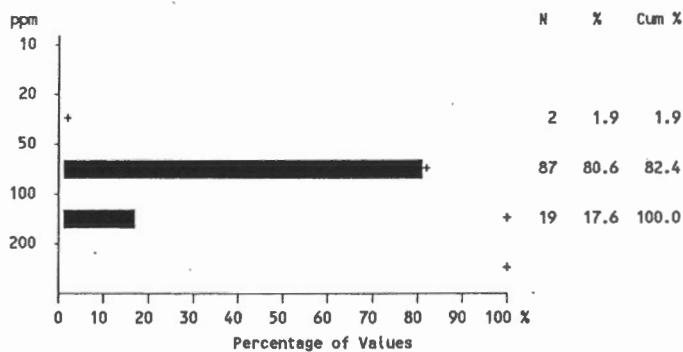
U

Mount Milligan Till Geochemistry : -63 micron fraction
 Statistics by Rock Type

Vanadium (ICP-ES)

Number of values - 108

Determination limit - 2 ppm



	All units	uTrWL	KTWC	KTS
Number of values	108	87	20	1
Number of values below d.l.	0	0	0	0
Number of missing values	0	0	0	0
Mean	84.787	87.954	71.250	80.000
Standard deviation	18.635	17.194	19.426	0.000
Skewness	0.379	0.606	0.637	-
Kurtosis	0.666	1.087	-0.111	-
Geometric Mean	82.730	86.328	68.859	80.000
Percentiles				
Minimum value	43.000	50.000	43.000	80.000
25th	75.000	77.000	55.250	80.000
50th	84.500	87.000	71.000	80.000
75th	97.000	98.000	84.750	80.000
80th	99.000	100.400	86.800	80.000
90th	106.200	108.600	96.300	80.000
95th	111.000	111.000	119.800	80.000
98th	138.000	139.200	121.000	80.000
99th	142.550	143.000	121.000	80.000
Maximum value	143.000	143.000	121.000	80.000

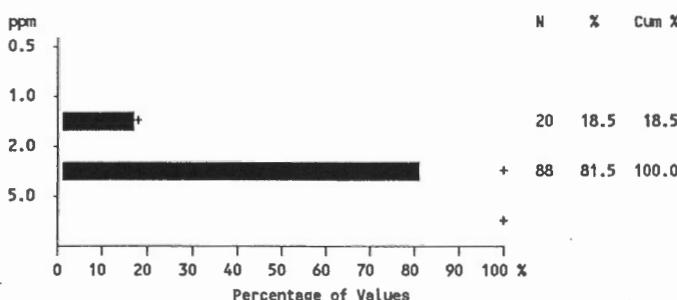
V

Mount Milligan Till Geochemistry : -63 micron fraction
Statistics by Rock Type

Ytterbium (INAA)

Number of values - 108

Determination limit - 0.2 ppm



	All units	uTrWL	KTWC	KTS
Number of values	108	87	20	1
Number of values below d.l.	0	0	0	0
Number of missing values	0	0	0	0
Mean	2.310	2.260	2.525	2.400
Standard deviation	0.440	0.422	0.477	0.000
Skewness	2.100	2.644	0.684	-
Kurtosis	8.450	13.054	0.032	-
Geometric Mean	2.275	2.228	2.484	2.400
Percentiles				
Minimum value	1.700	1.700	1.800	2.400
25th	2.000	2.000	2.225	2.400
50th	2.300	2.200	2.450	2.400
75th	2.500	2.500	2.700	2.400
80th	2.600	2.500	2.860	2.400
90th	2.710	2.700	3.290	2.400
95th	3.155	2.800	3.680	2.400
98th	3.628	3.584	3.700	2.400
99th	4.701	4.800	3.700	2.400
Maximum value	4.800	4.800	3.700	2.400

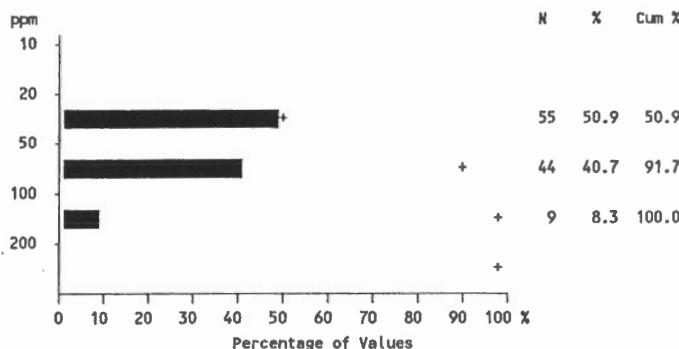
Yb

Mount Milligan Till Geochemistry : -63 micron fraction
 Statistics by Rock Type

Zinc (ICP-ES)

Number of values - 108

Determination limit - 1 ppm



	All units	uTrWL	KTWC	KTS
Number of values	108	87	20	1
Number of values below d.l.	0	0	0	0
Number of missing values	0	0	0	0
Mean	58.509	57.770	63.000	33.000
Standard deviation	28.757	30.379	20.540	0.000
Skewness	1.942	2.024	0.769	-
Kurtosis	4.645	4.591	0.564	-
Geometric Mean	53.356	52.224	59.999	33.000
Percentiles				
Minimum value	27.000	27.000	35.000	33.000
25th	39.250	39.000	46.000	33.000
50th	49.000	48.000	66.500	33.000
75th	72.000	71.000	75.750	33.000
80th	75.000	73.400	77.600	33.000
90th	87.000	89.600	82.000	33.000
95th	128.850	132.600	118.100	33.000
98th	153.940	165.160	120.000	33.000
99th	187.940	191.000	120.000	33.000
Maximum value	191.000	191.000	120.000	33.000

Zn

Till Geochemistry of the Mount Milligan Area
(parts of NTS 93N/01 and 93O/04)

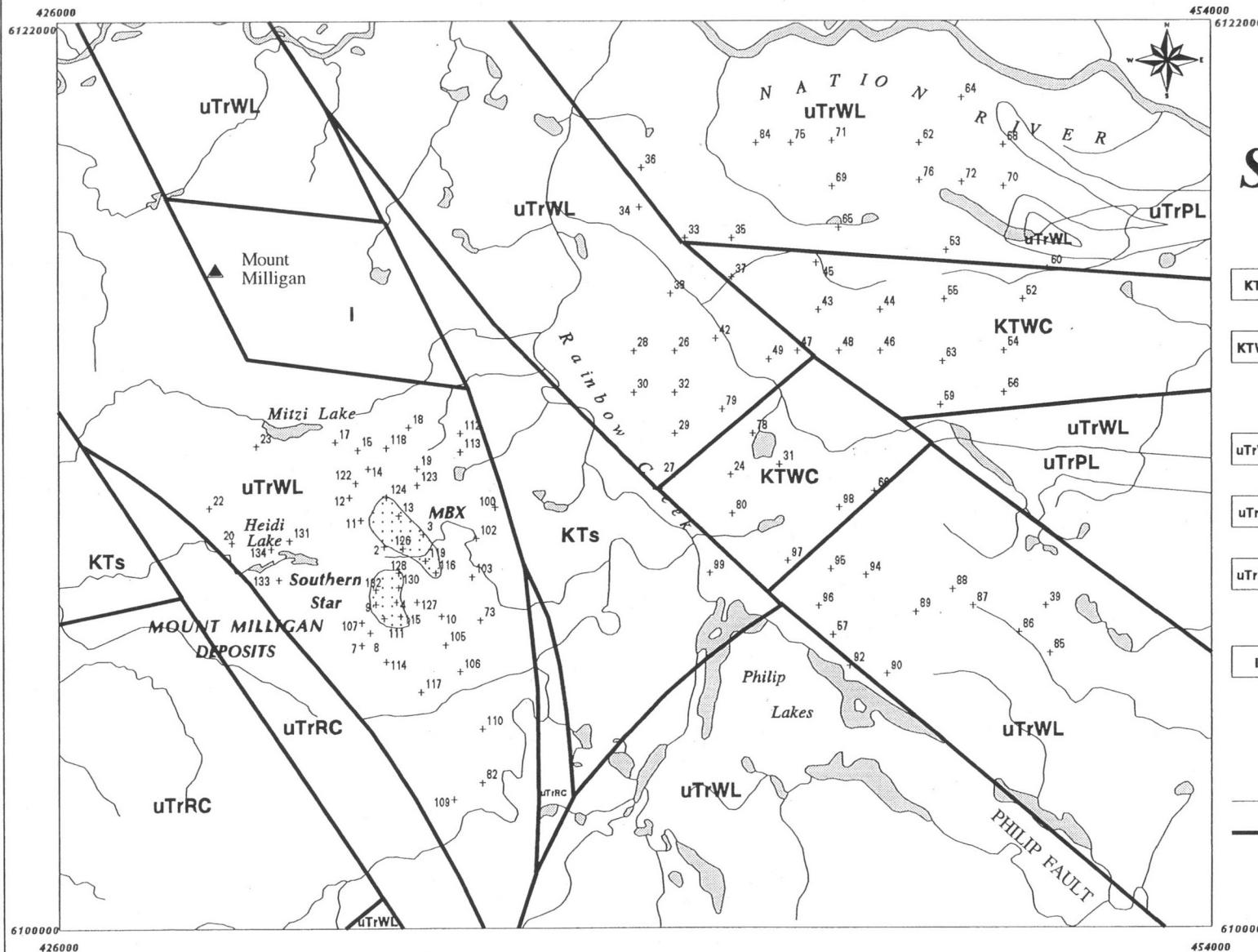
BCGS Open File 1996-22
GSC Open File 3291

Appendix D

Element Distribution Maps

Notes:

- Elements listed in alphabetical order.



Scale 1:150 000 - Échelle 1/150 000

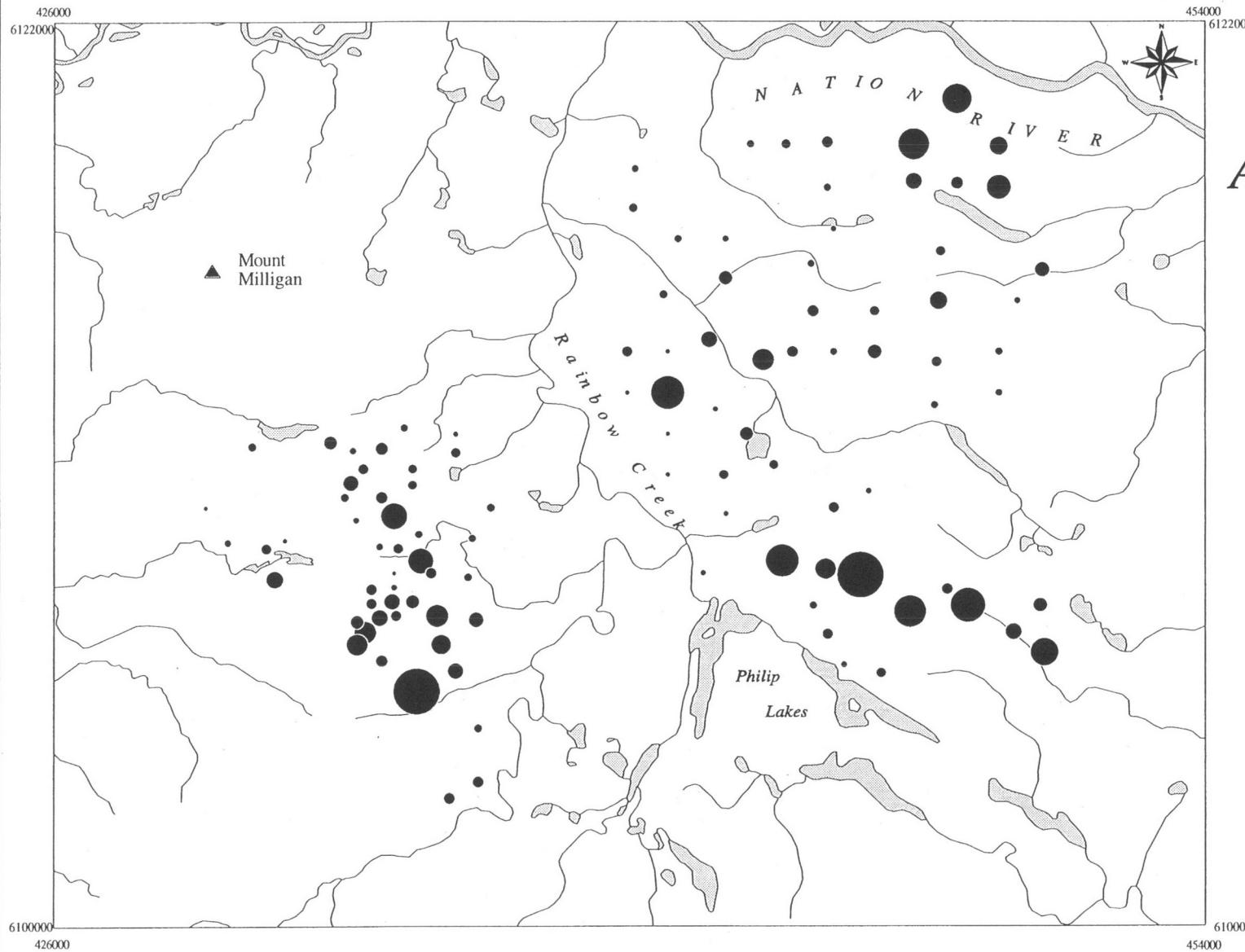
Kilometres 2 0 2 4 6 8 10 12 Kilomètres

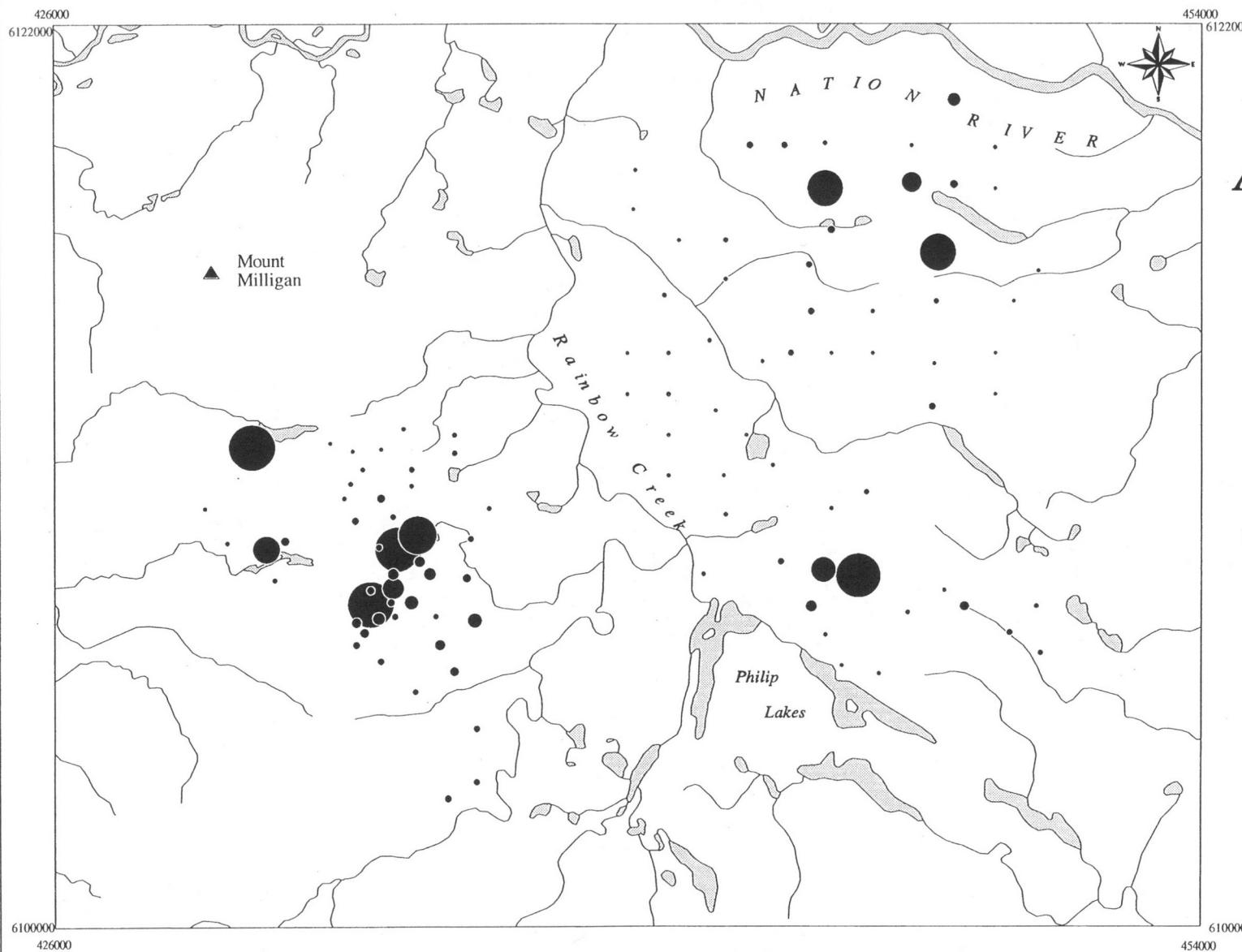
UTM Zone 10



Ministry of Employment and Investment
Energy and Minerals Division
Geological Survey Branch







ANTIMONY

in

Till

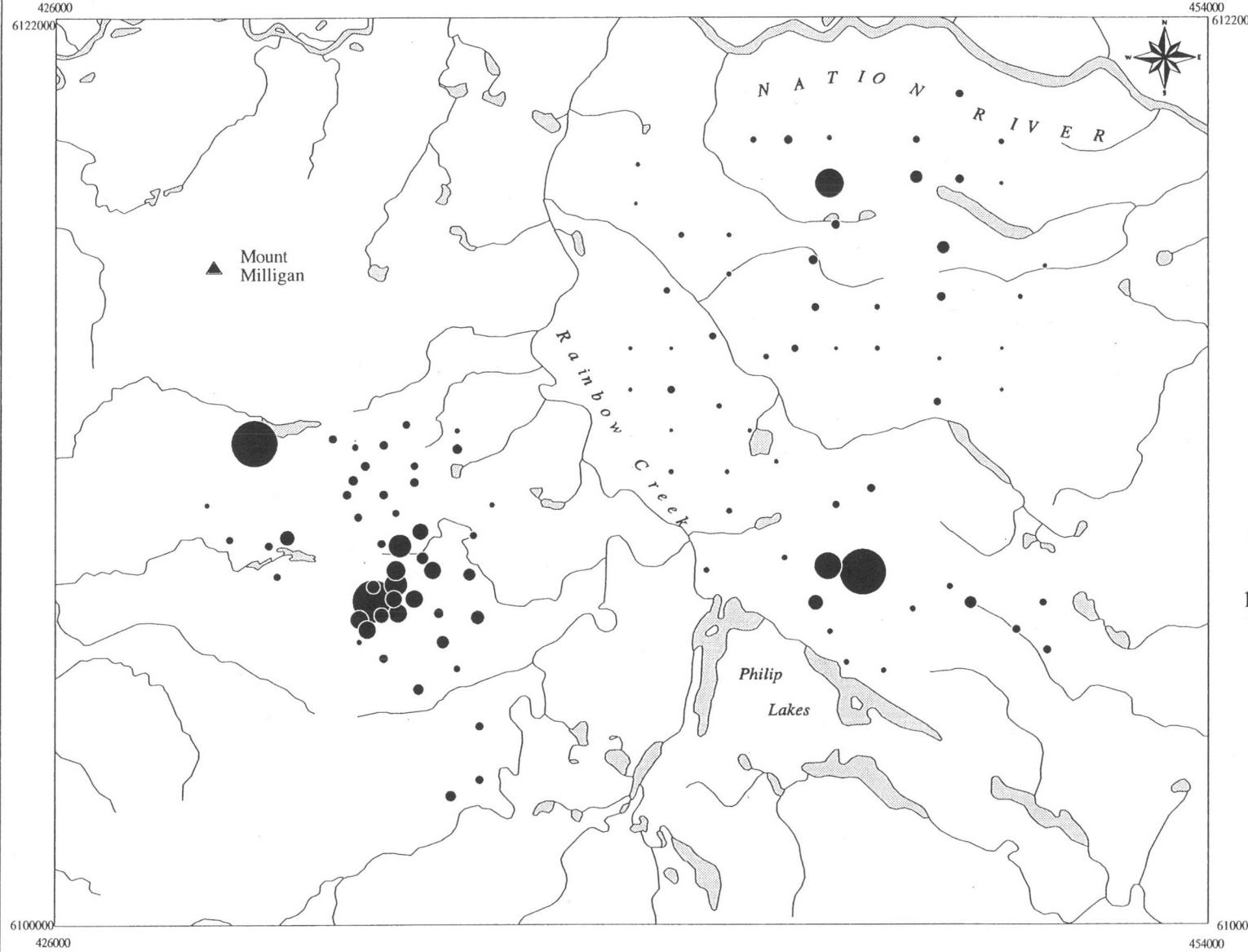
(-63 micron fraction)

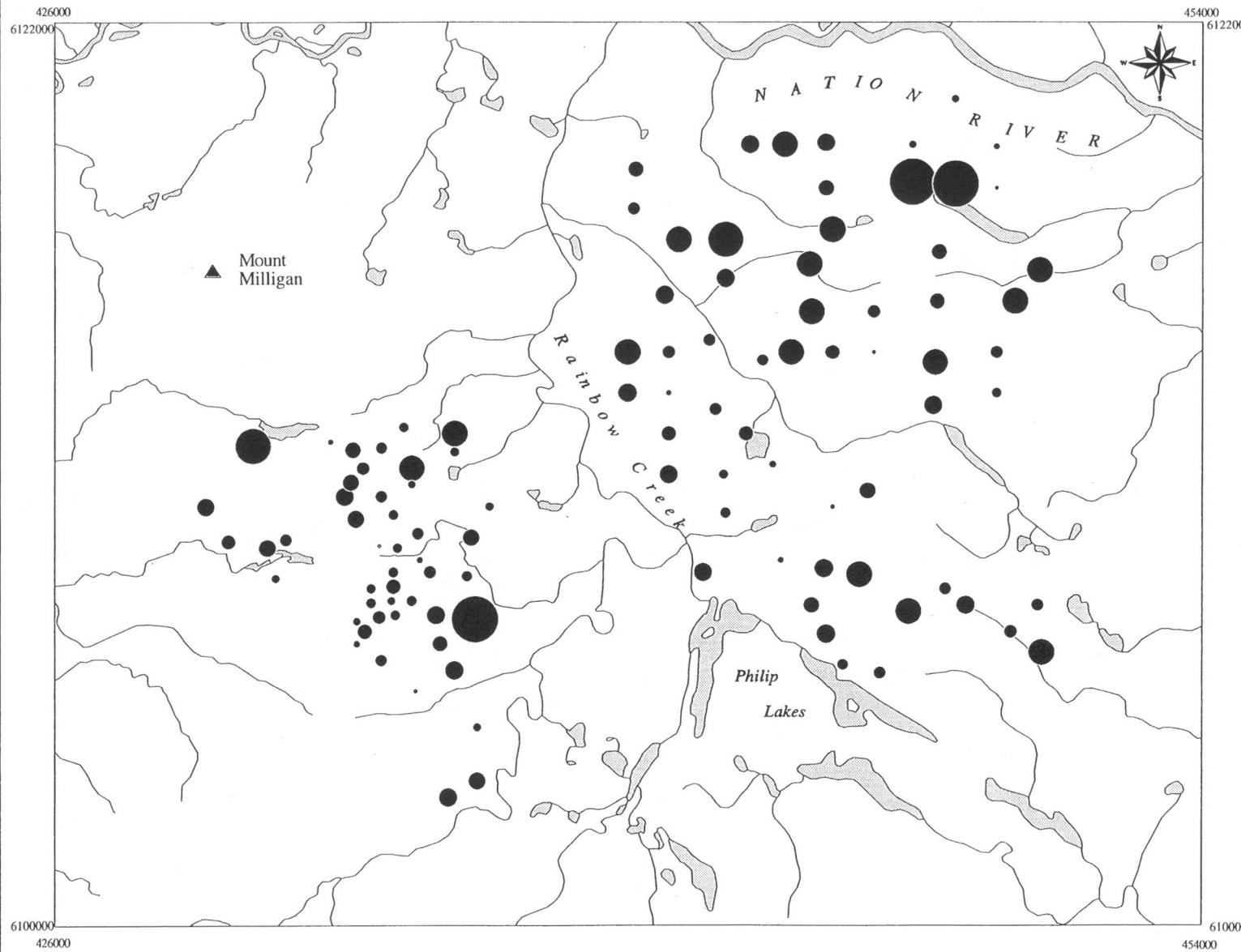
INAA

ppm Sb	Percentile
--------	------------

8.0	Maximum
7.2	98
6.5	95
4.6	90
2.6	75
1.8	50
0.5	Minimum

108 Samples
Exponent = 2





Scale 1:150 000 - Échelle 1/150 000

Kilometres 2 0 2 4 6 8 10 12 Kilomètres

UTM Zone 10



Ministry of Employment and Investment
Energy and Minerals Division
Geological Survey Branch



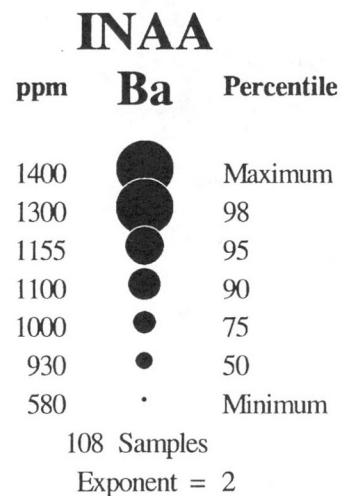
D-6

BARIUM

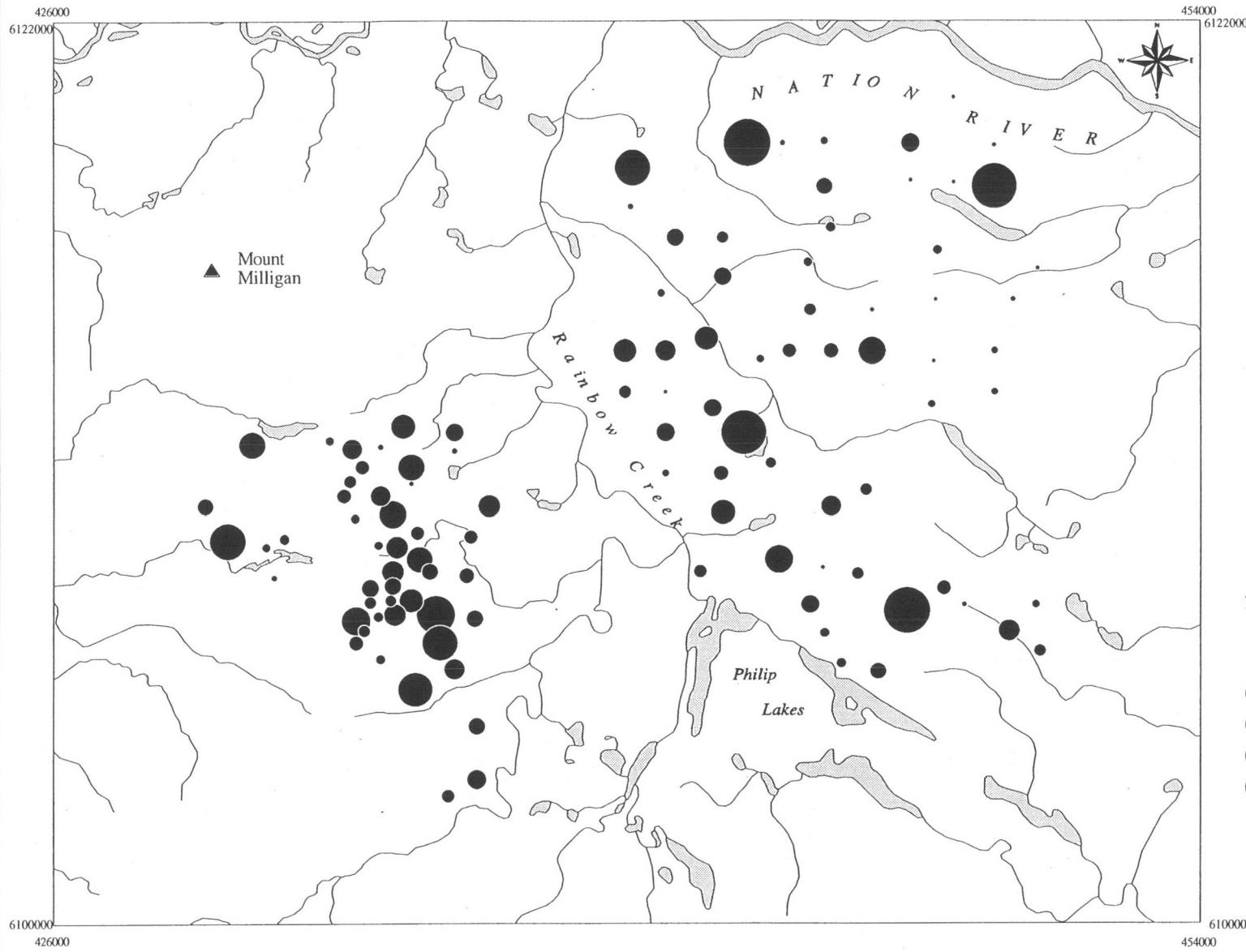
in

Till

(-63 micron fraction)



Ba



CALCIUM

in

Till

(-63 micron fraction)

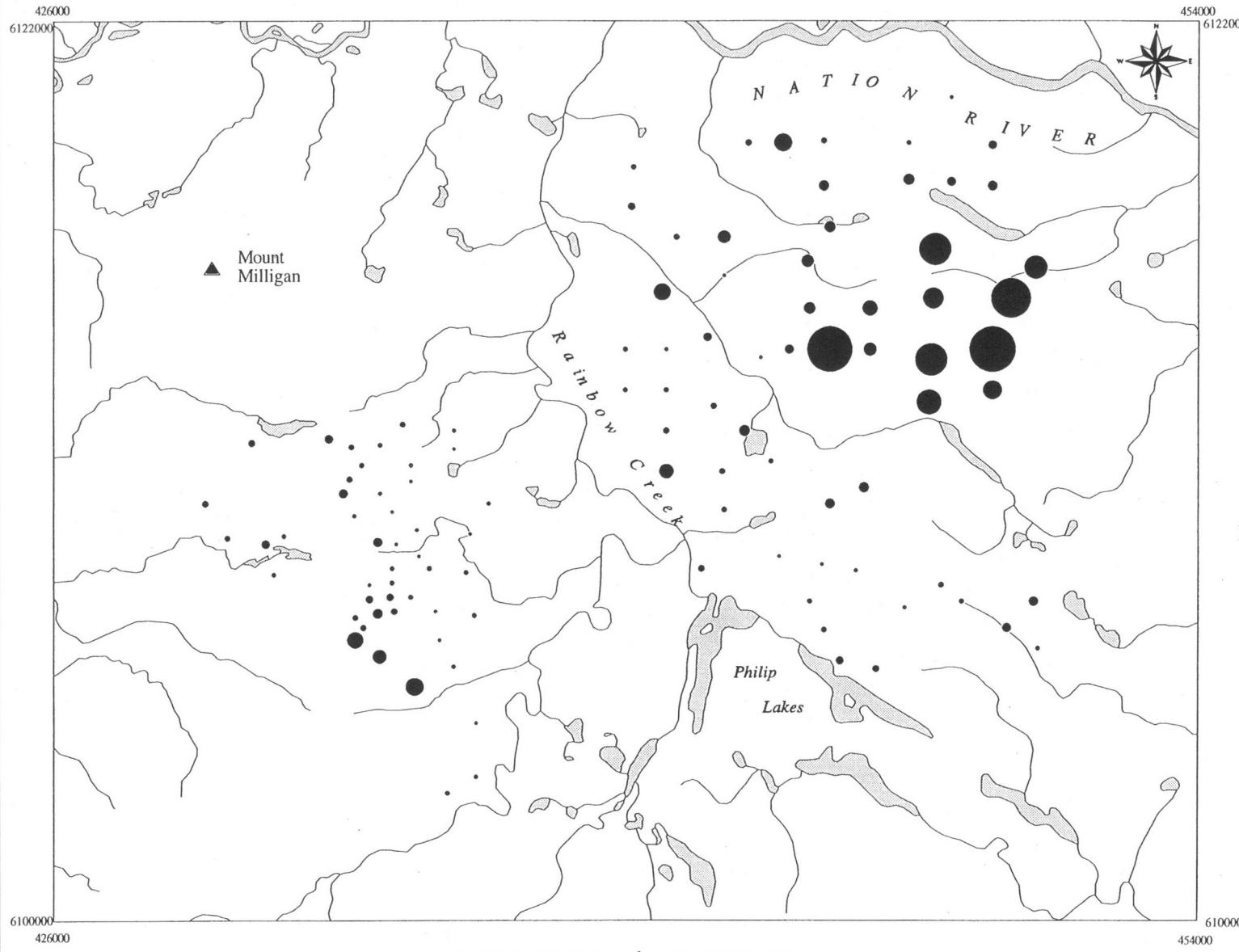
ICP-ES

A vertical scale with a top label "Maximum" and a bottom label "Minimum". The scale has tick marks at 0.38, 0.75, 0.86, 0.96, 1.06, 1.15, and 2.31. There are five solid black dots positioned vertically between the scale and the labels. The first dot is aligned with the value 0.75, the second with 0.86, the third with 0.96, the fourth with 1.06, and the fifth with 1.15.

Value	Dot Position
2.31	Top
1.15	Second dot from top
1.06	Third dot from top
0.96	Fourth dot from top
0.86	Fifth dot from top
0.75	Bottom
0.38	Bottom

108 Samples
Exponent = 2





BRITISH
COLUMBIA
Ministry of Employment and Investment
Energy and Minerals Division
Geological Survey Branch

Kilometres 2 0 2 4 6 8 10 12 Kilomètres

Scale 1:150 000 - Échelle 1/150 000

UTM Zone 10



D-8

Ce

CERIUM in Till (-63 micron fraction)

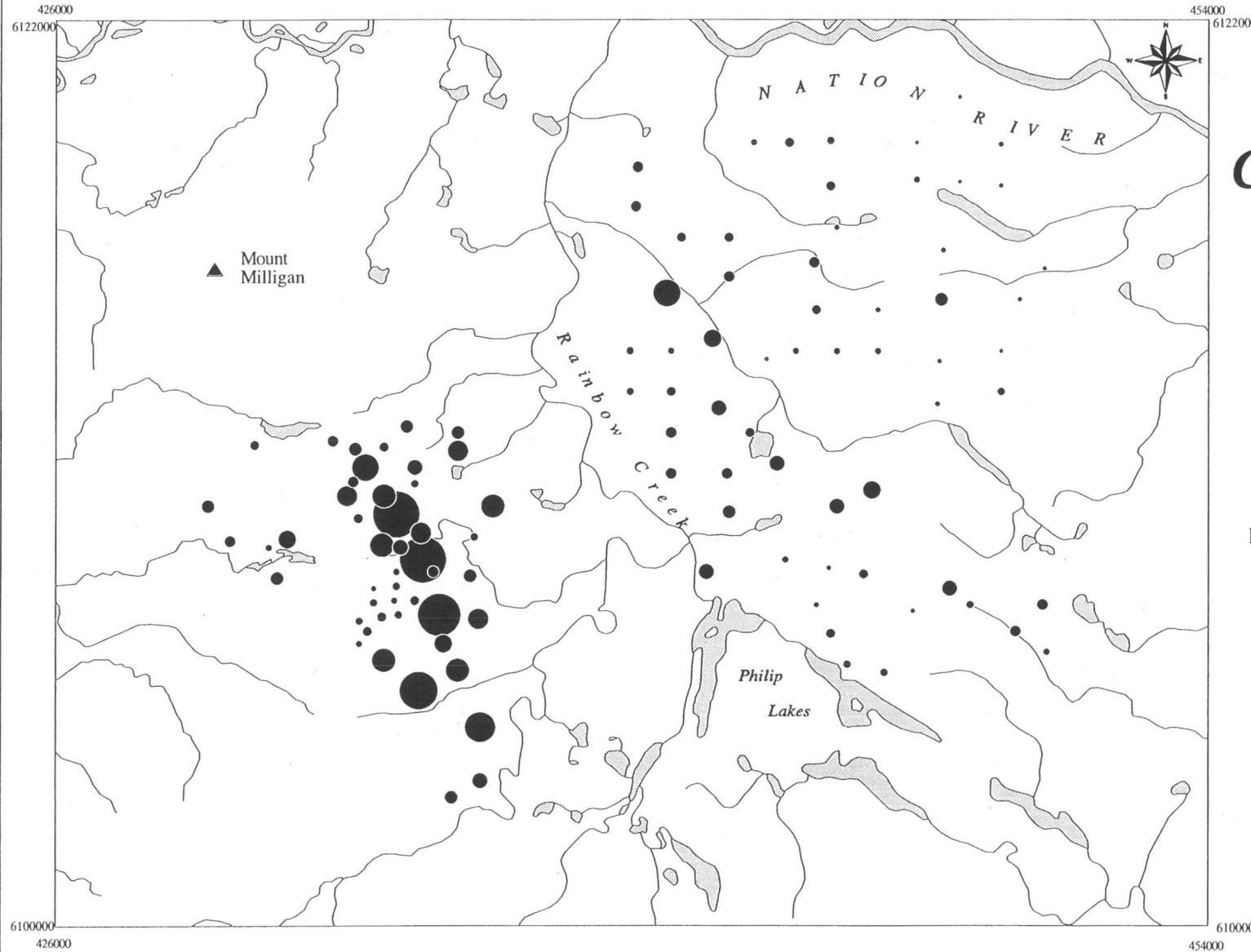
INAA

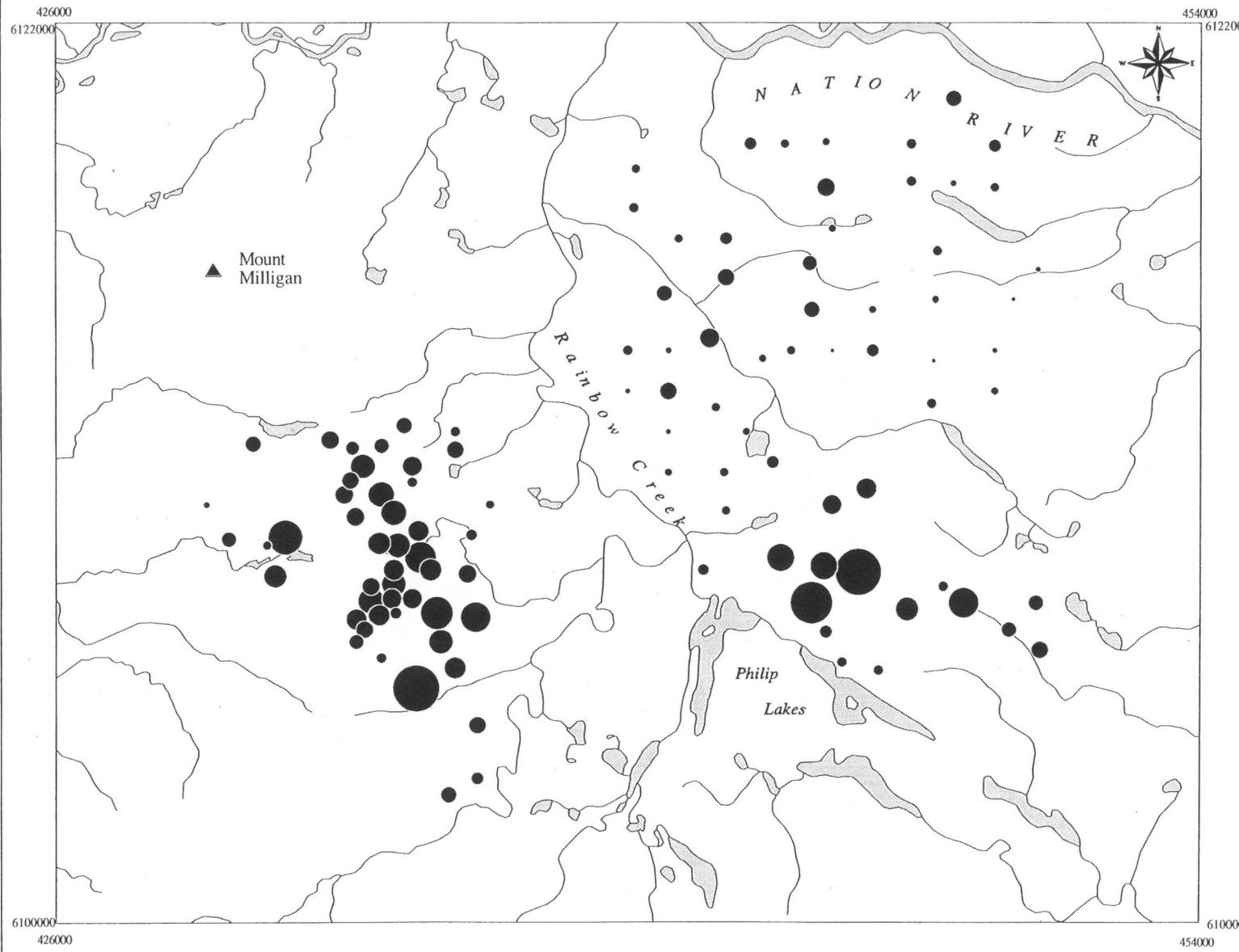
ppm Ce Percentile

110	Maximum
80	98
68	95
58	90
47	75
40	50
27	Minimum

108 Samples

Exponent = 2





Scale 1:150 000 - Échelle 1/150 000

Kilometres 2 0 2 4 6 8 10 12 Kilomètres

UTM Zone 10

COBALT

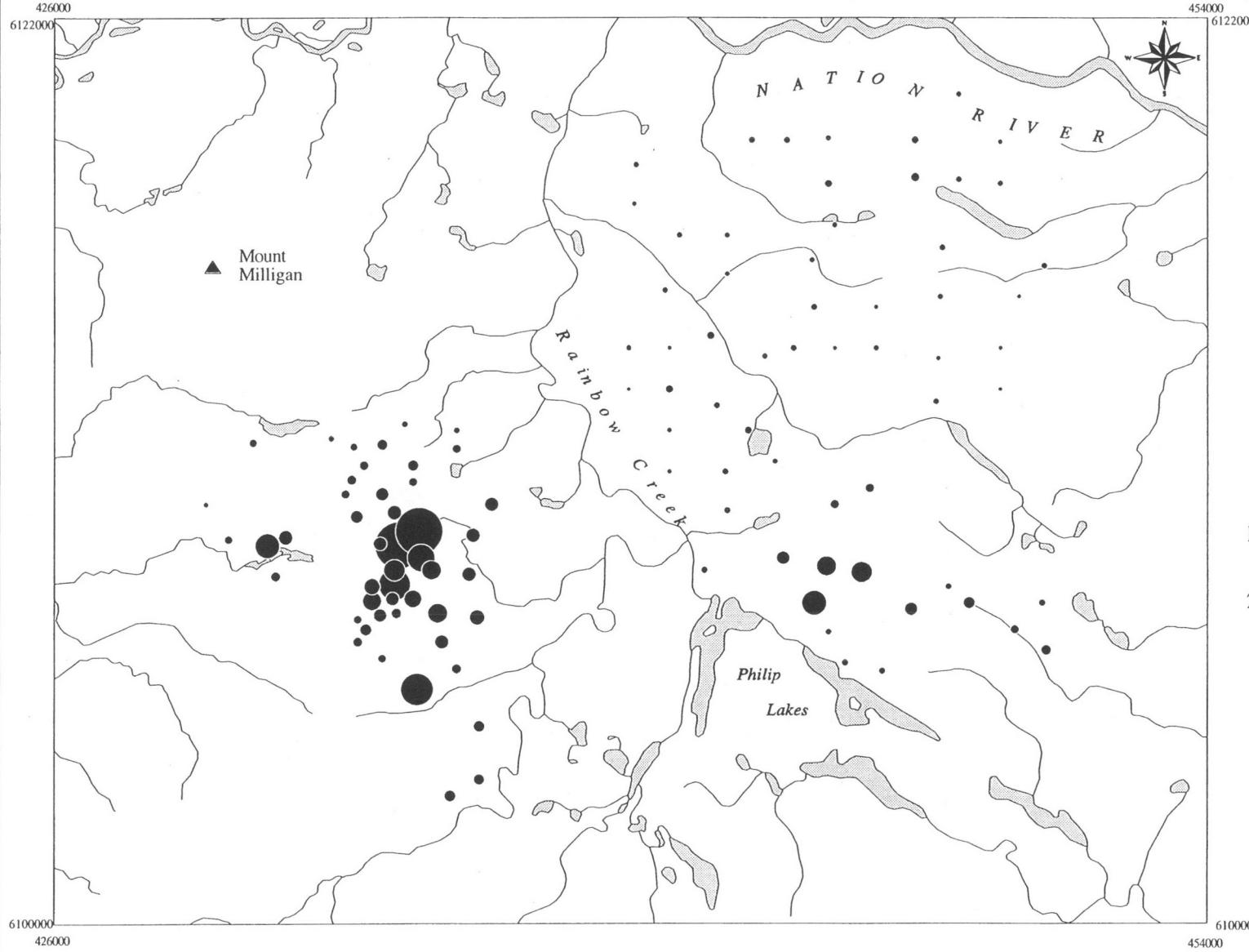
in

Till

(-63 micron fraction)

INAA

ppm Co Percentile



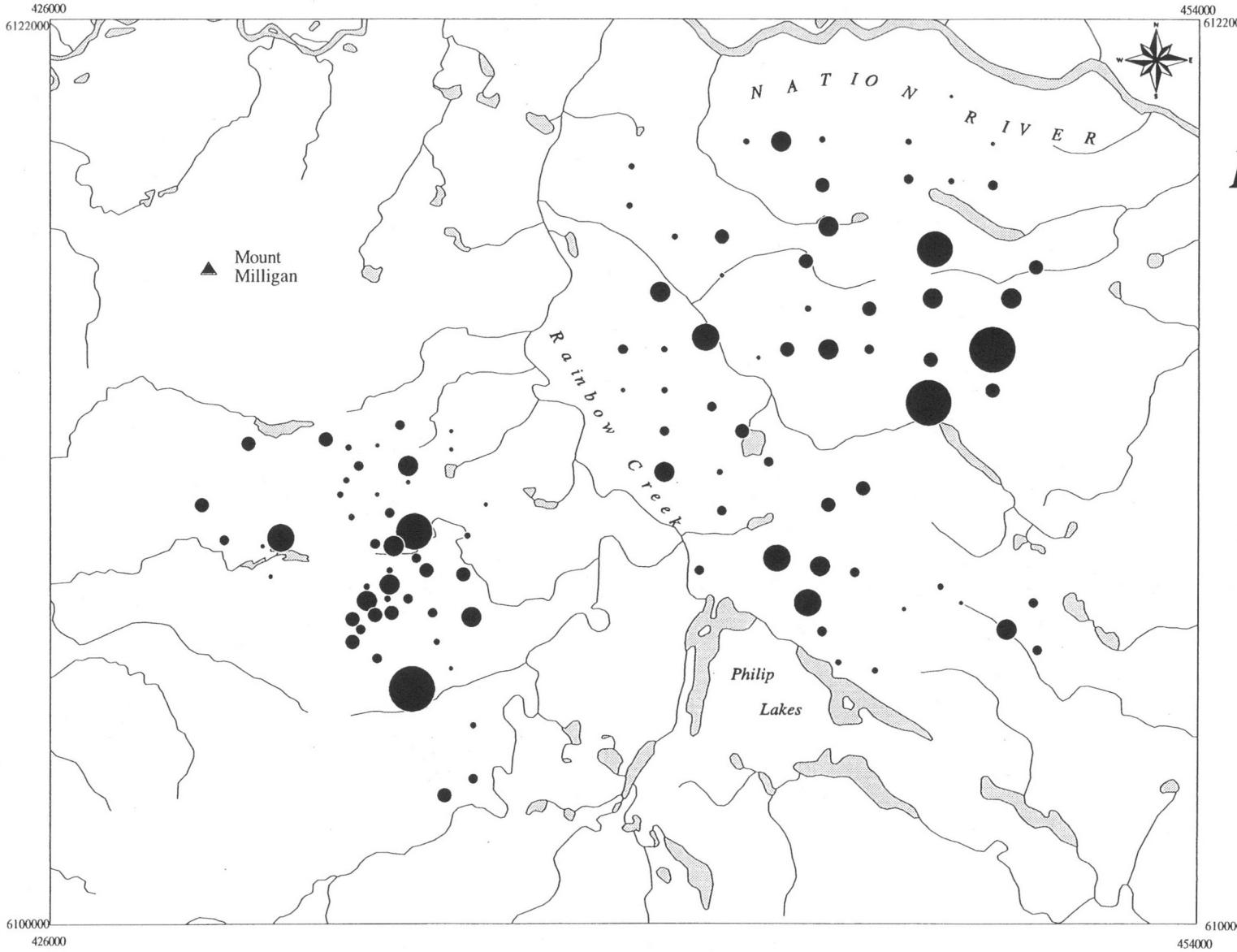
Ministry of Employment and Investment
Energy and Minerals Division
Geological Survey Branch

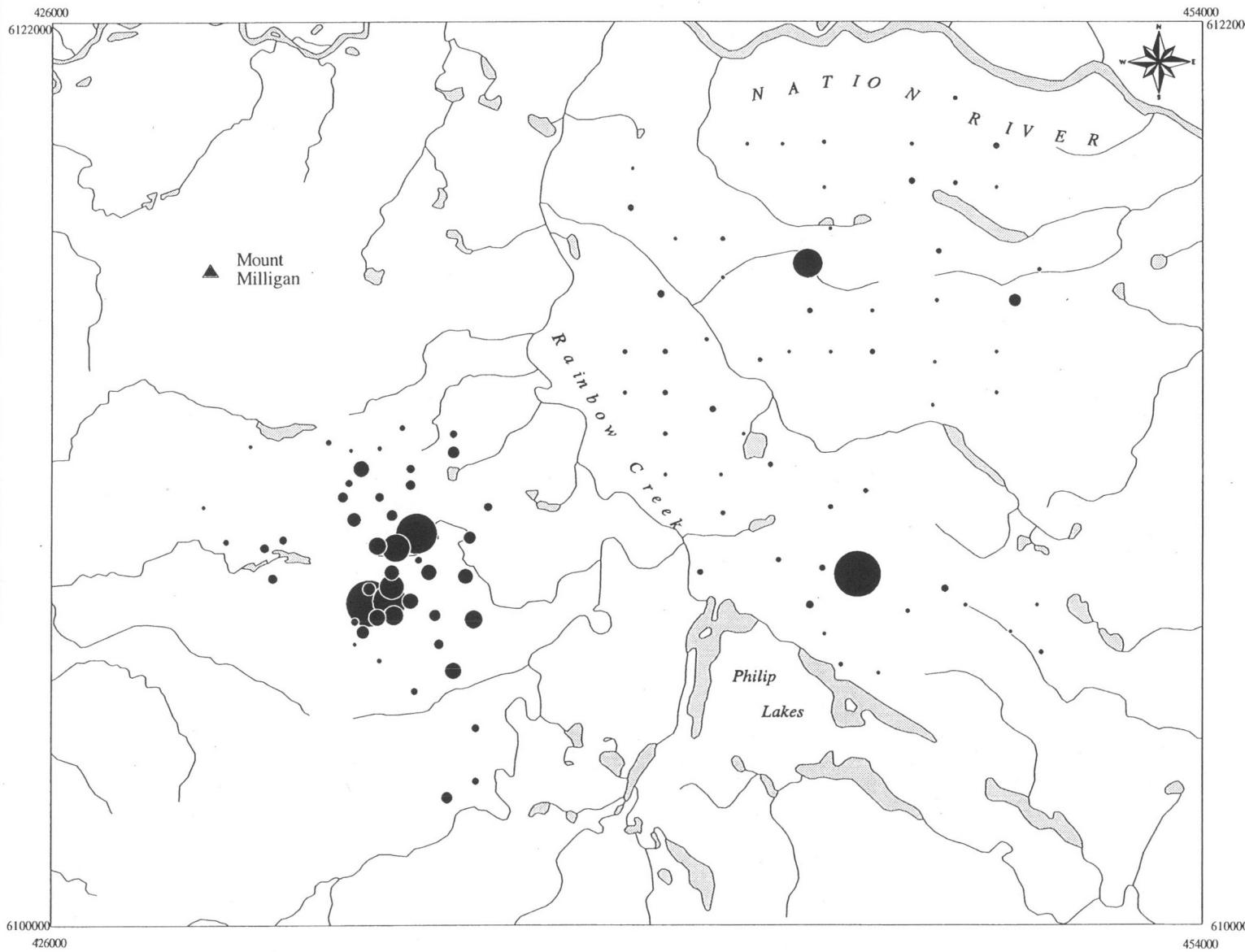


COPPER in Till (-63 micron fraction)

ICP-ES	ppm Cu	Percentile
	2182	Maximum
	731	98
	383	95
	269	90
	161	75
	76	50
	20	Minimum

108 Samples
Exponent = 1





Ministry of Employment and Investment
Energy and Minerals Division
Geological Survey Branch

Kilometres 2 0 2 4 6 8 10 12 Kilomètres

UTM Zone 10

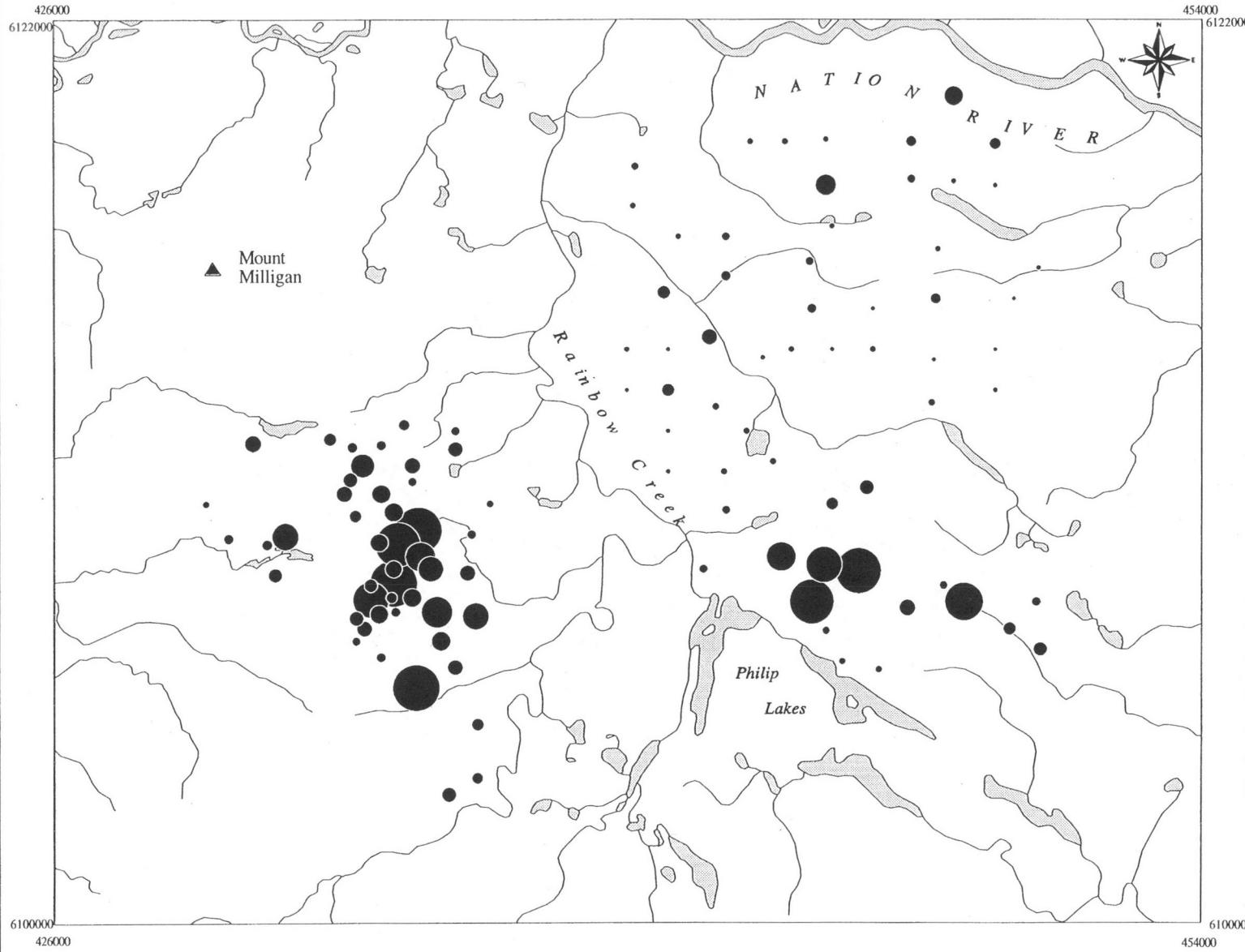


GOLD
in
Till
(-63 micron fraction)

INAA

ppb Au	Percentile
732	Maximum
334	98
195	95
101	90
51	75
18	50
<3	Minimum

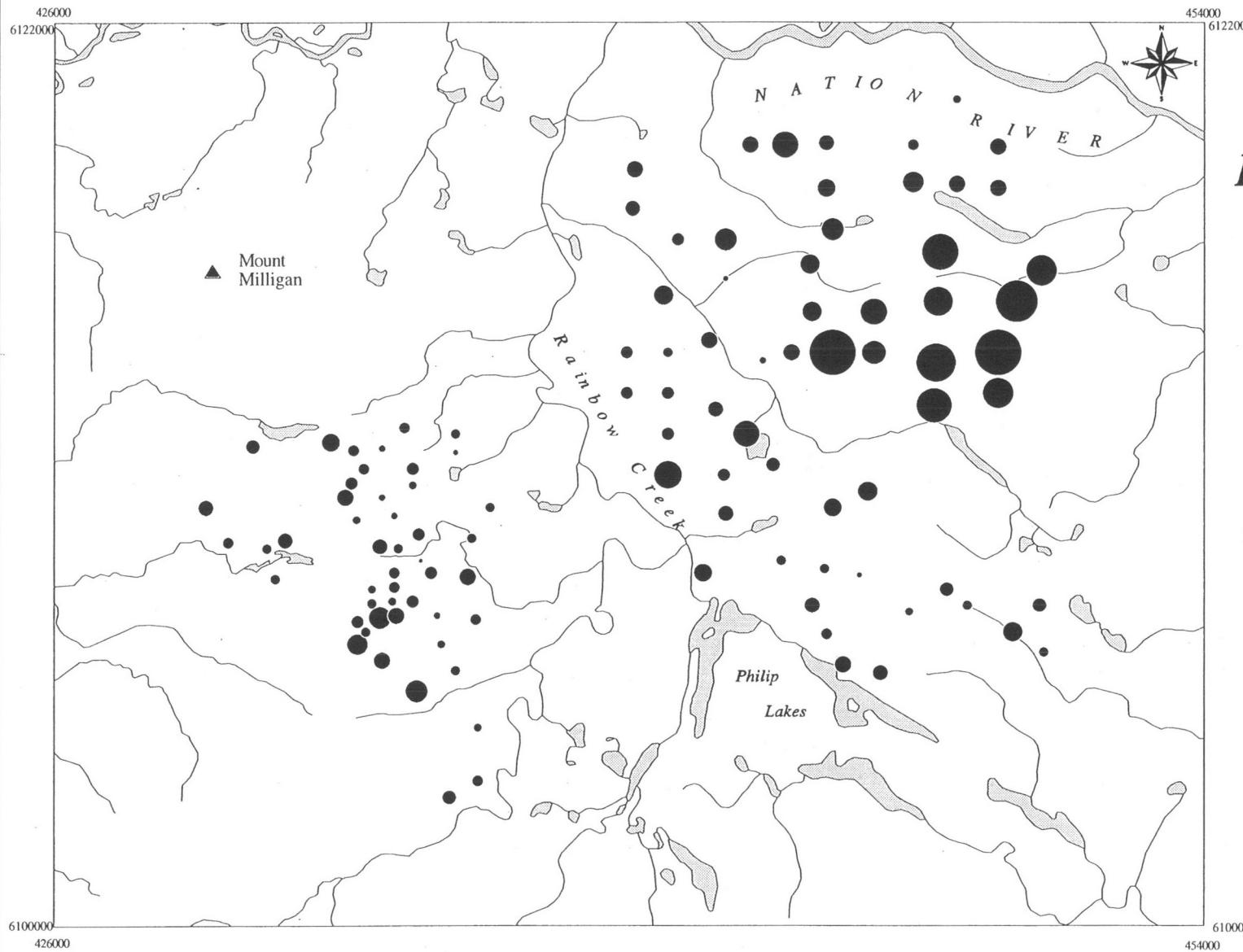
108 Samples
Exponent = 1



Scale 1:150 000 - Échelle 1/150 000

Kilometres 2 0 2 4 6 8 10 12 Kilomètres

UTM Zone 10





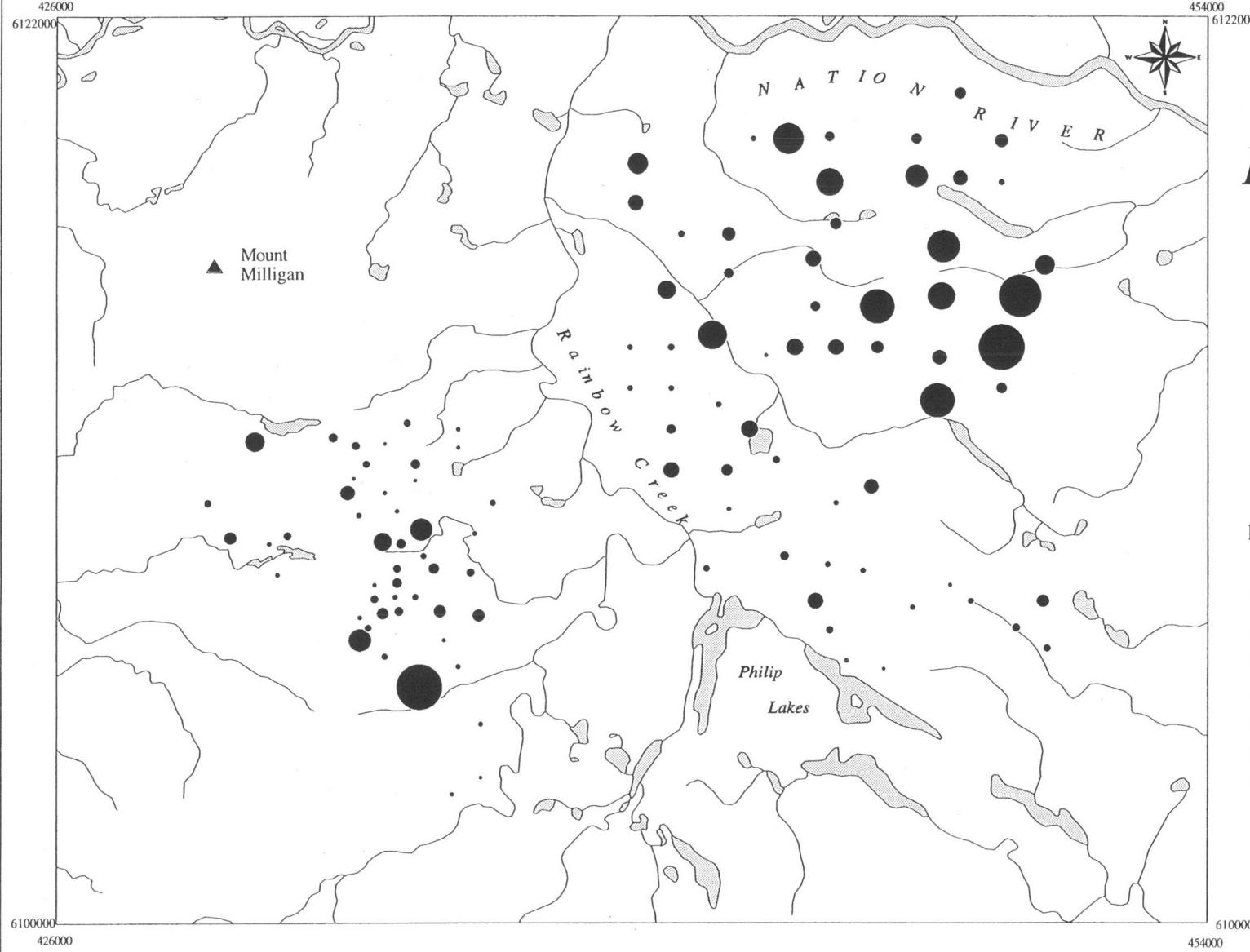
LEAD
in
Till
(-63 micron fraction)

ICP-ES

ppm Pb	Percentile
35	Maximum
26	98
19	95
15	90
11	75
7	50
<3	Minimum

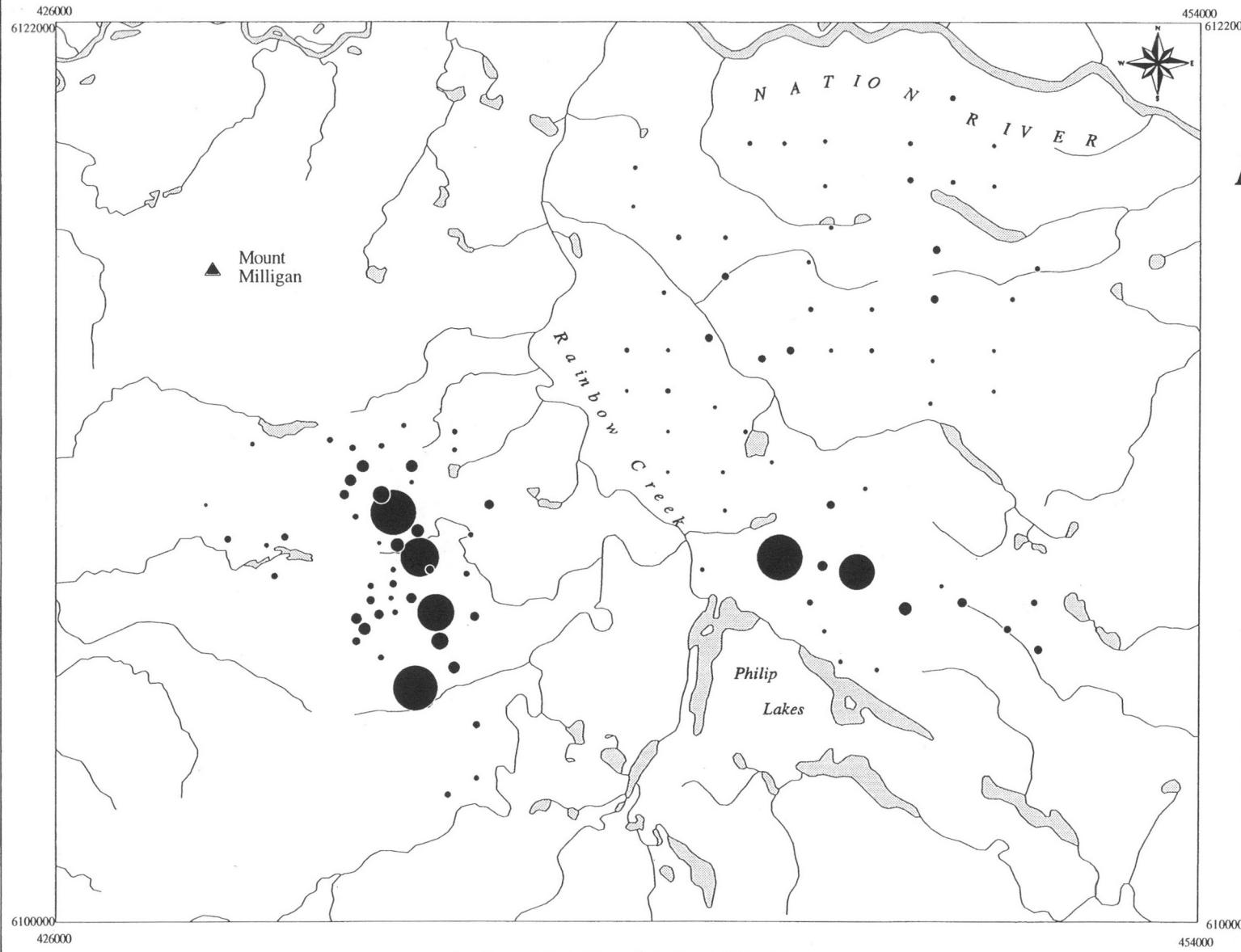
108 Samples
Exponent = 1

Pb



LUTETIUM
in
Till
(-63 micron fraction)

ppm Lu	Percentile
0.63	Maximum
0.62	98
0.56	95
0.49	90
0.43	75
0.36	50
0.24	Minimum



Scale 1:150 000 - Échelle 1/150 000

Kilometres 2 0 2 4 6 8 10 12 Kilomètres

UTM Zone 10



Ministry of Employment and Investment
Energy and Minerals Division
Geological Survey Branch



D-18

Mg

MAGNESIUM

in

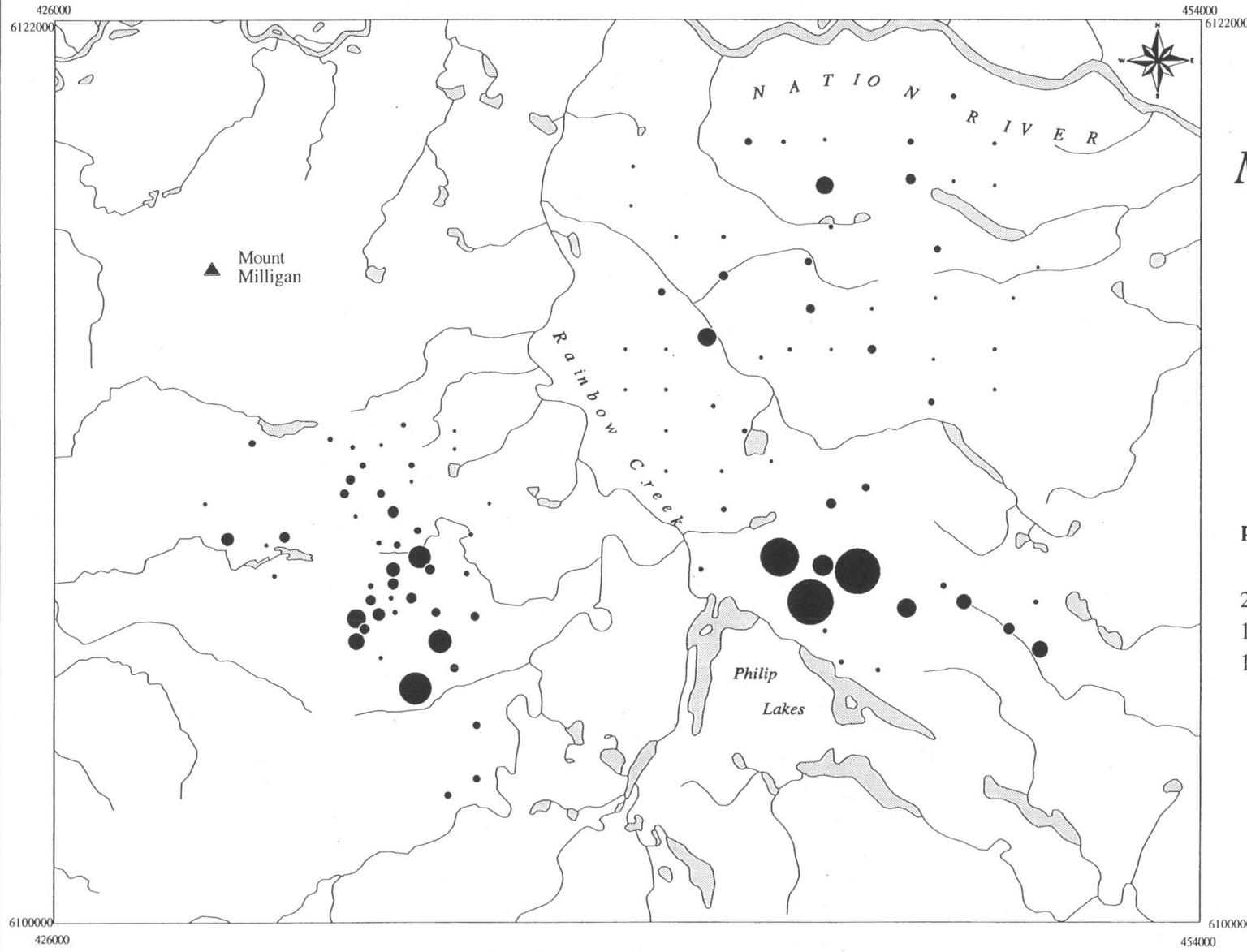
Till

(-63 micron fraction)

ICP-ES

pct Mg Percentile

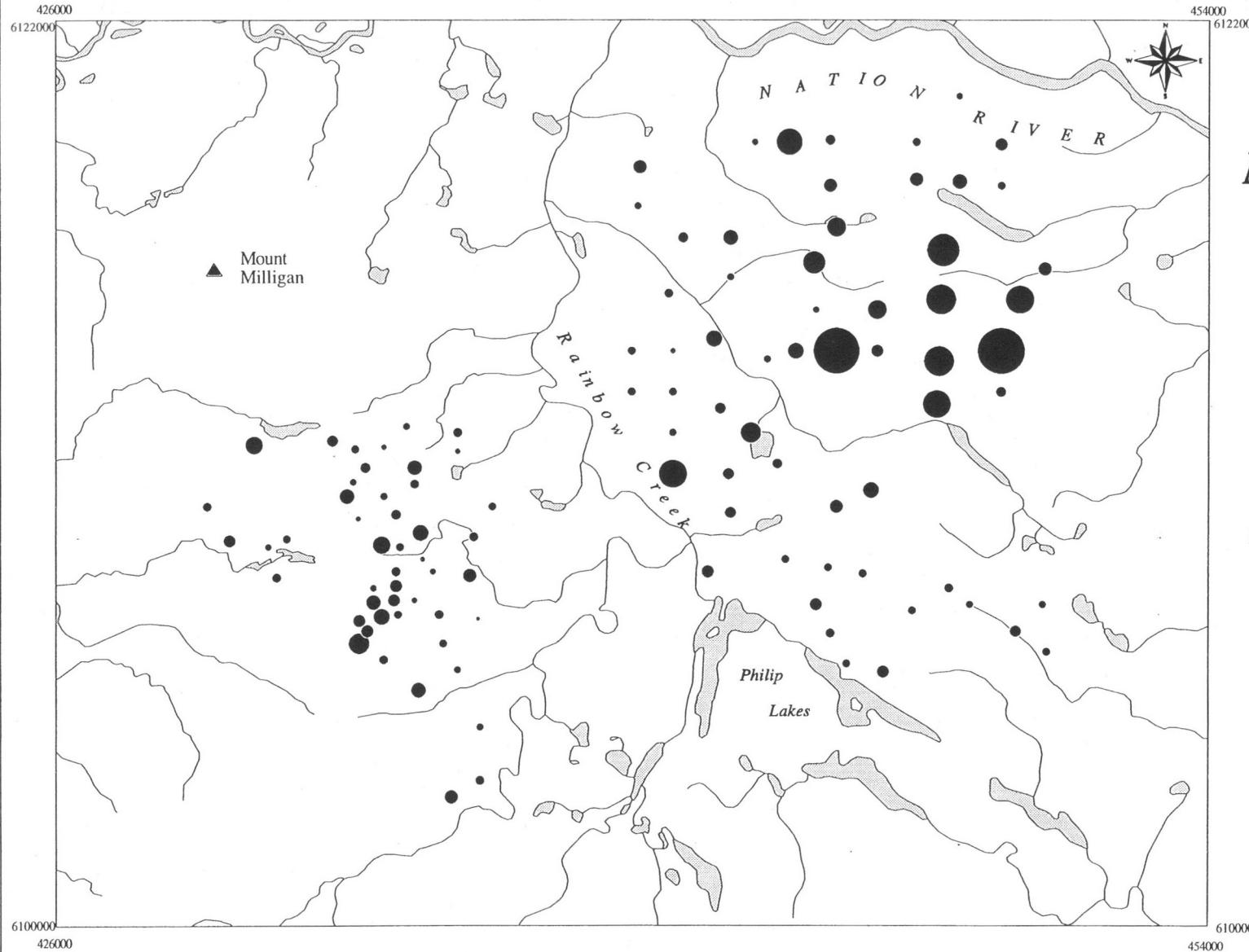
2.32	Maximum
2.24	98
2.02	95
1.24	90
0.99	75
0.76	50
0.37	Minimum



MANGANESE in Till (-63 micron fraction)

ICP-ES
Mn

ppm Mn	Percentile
2245	Maximum
1377	98
1008	95
901	90
675	75
492	50
238	Minimum

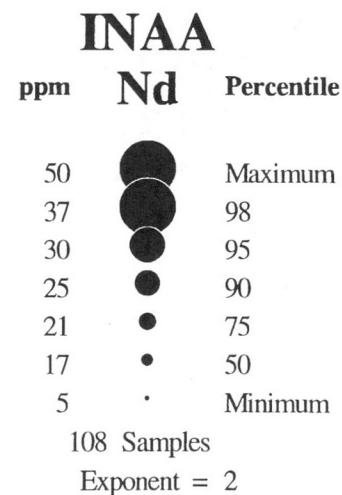


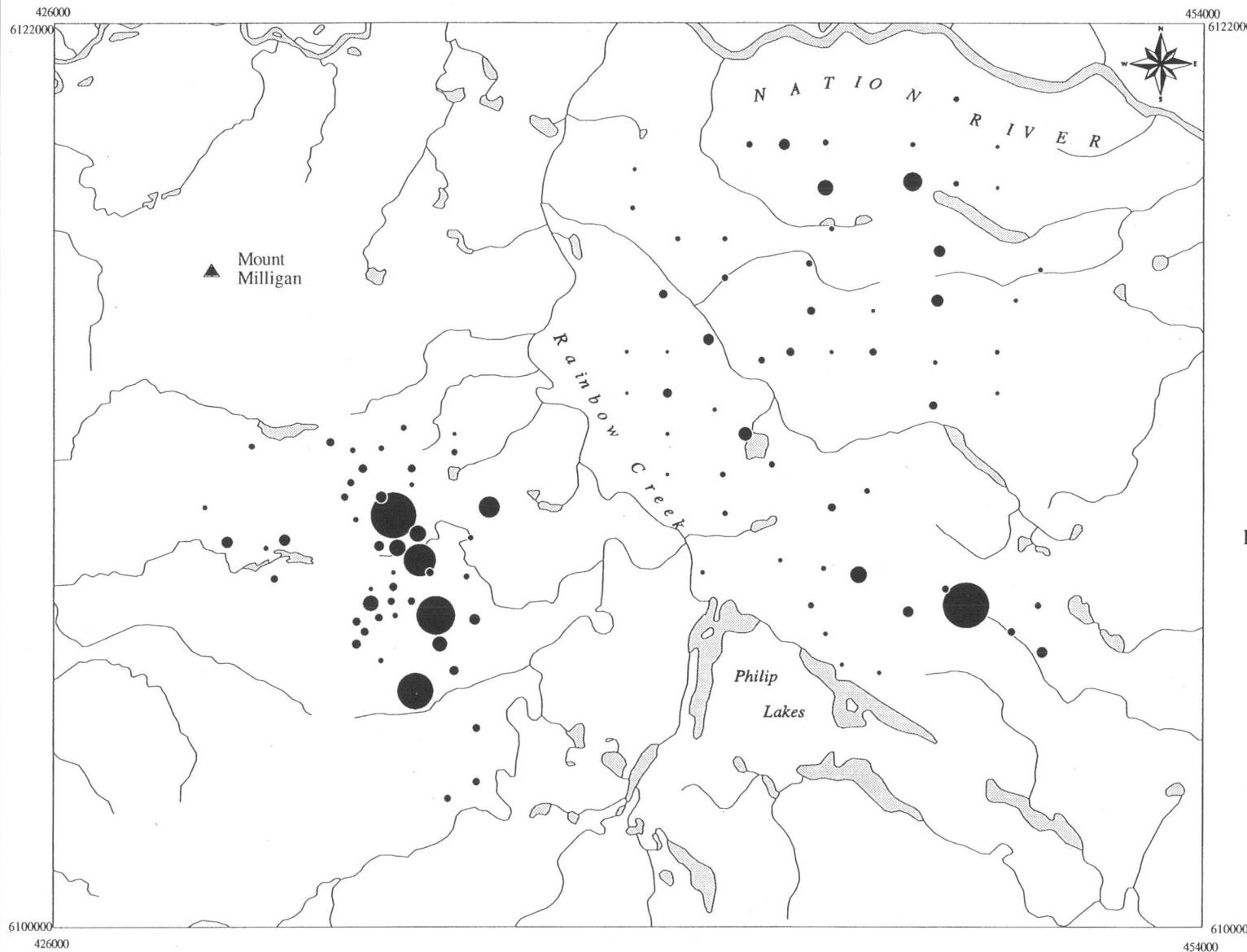
NEODYMIUM

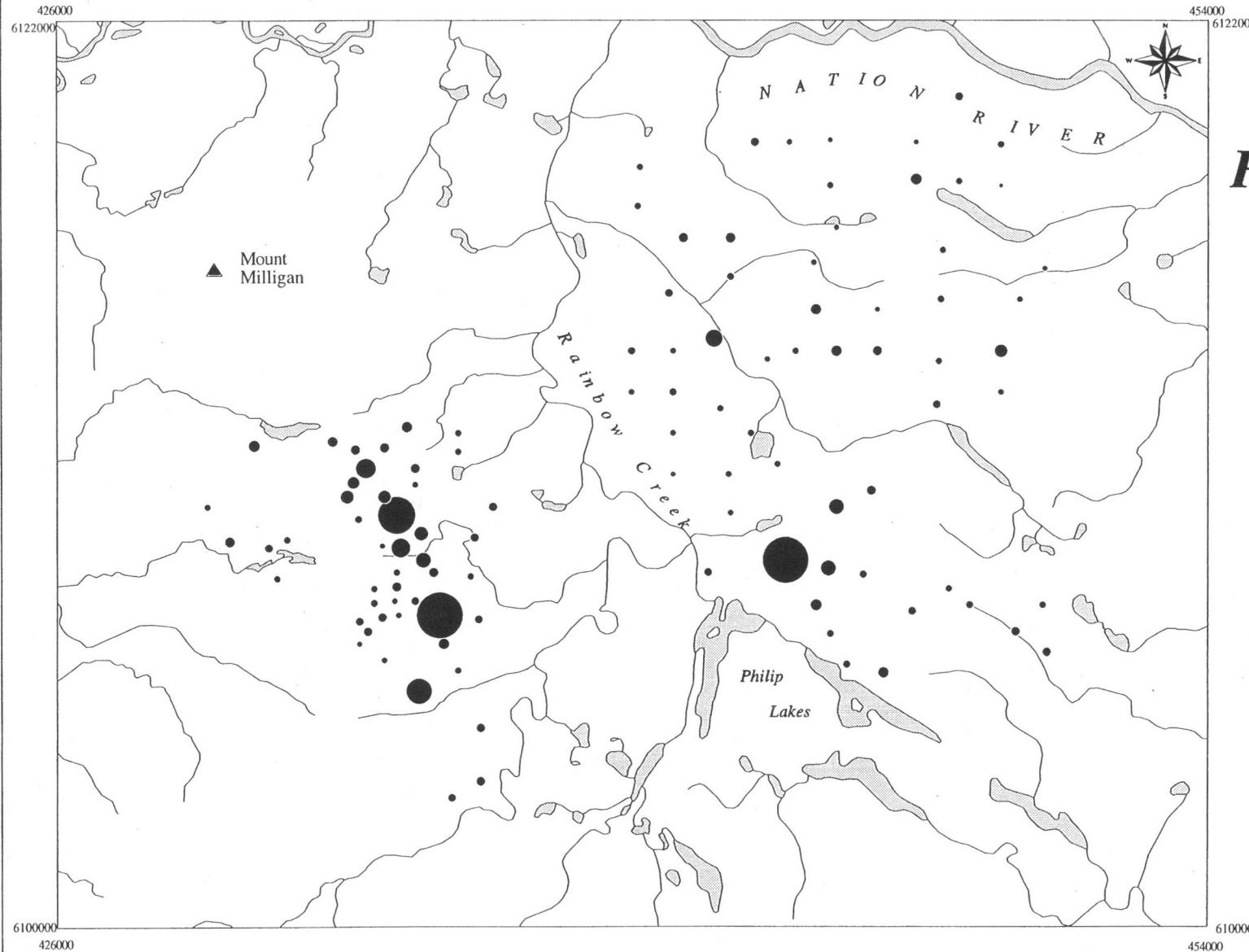
in

Till

(-63 micron fraction)







Scale 1:150 000 - Échelle 1/150 000

Kilometres 2 0 2 4 6 8 10 12 Kilomètres

UTM Zone 10

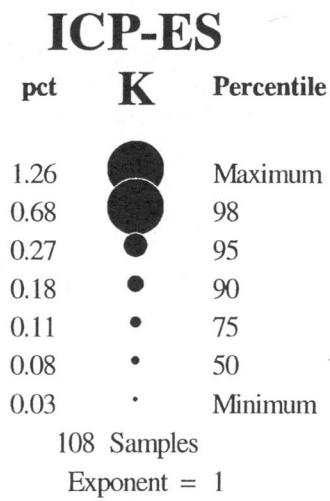

 Ministry of Employment and Investment
 Energy and Minerals Division
 Geological Survey Branch


POTASSIUM

in

Till

(-63 micron fraction)



K

Canada

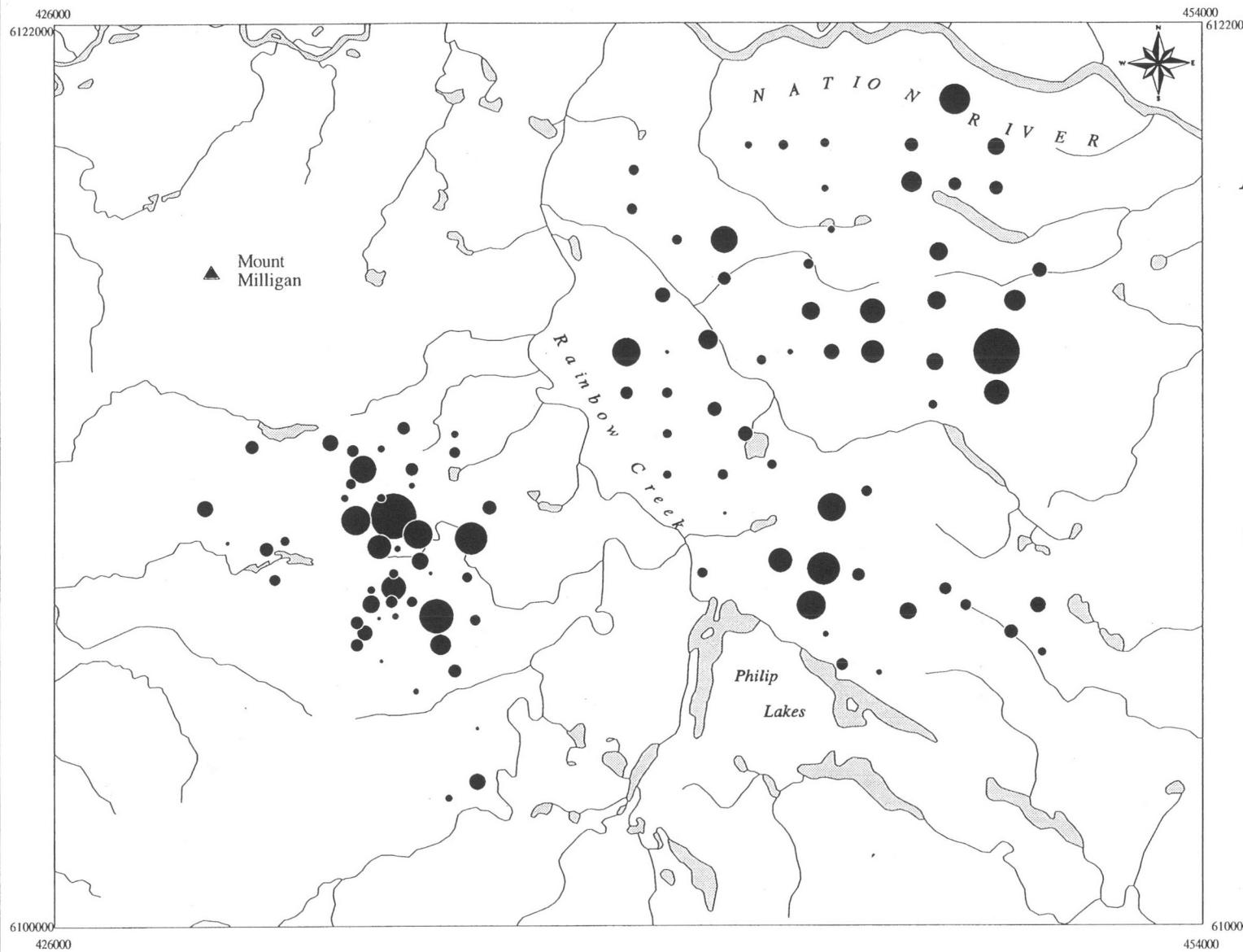
GEOLOGICAL SURVEY OF CANADA



COMMISSION GÉOLOGIQUE DU CANADA

Natural Resources
Canada

Ressources naturelles
Canada



BRITISH COLUMBIA
Ministry of Employment and Investment
Energy and Minerals Division
Geological Survey Branch

UTM Zone 10



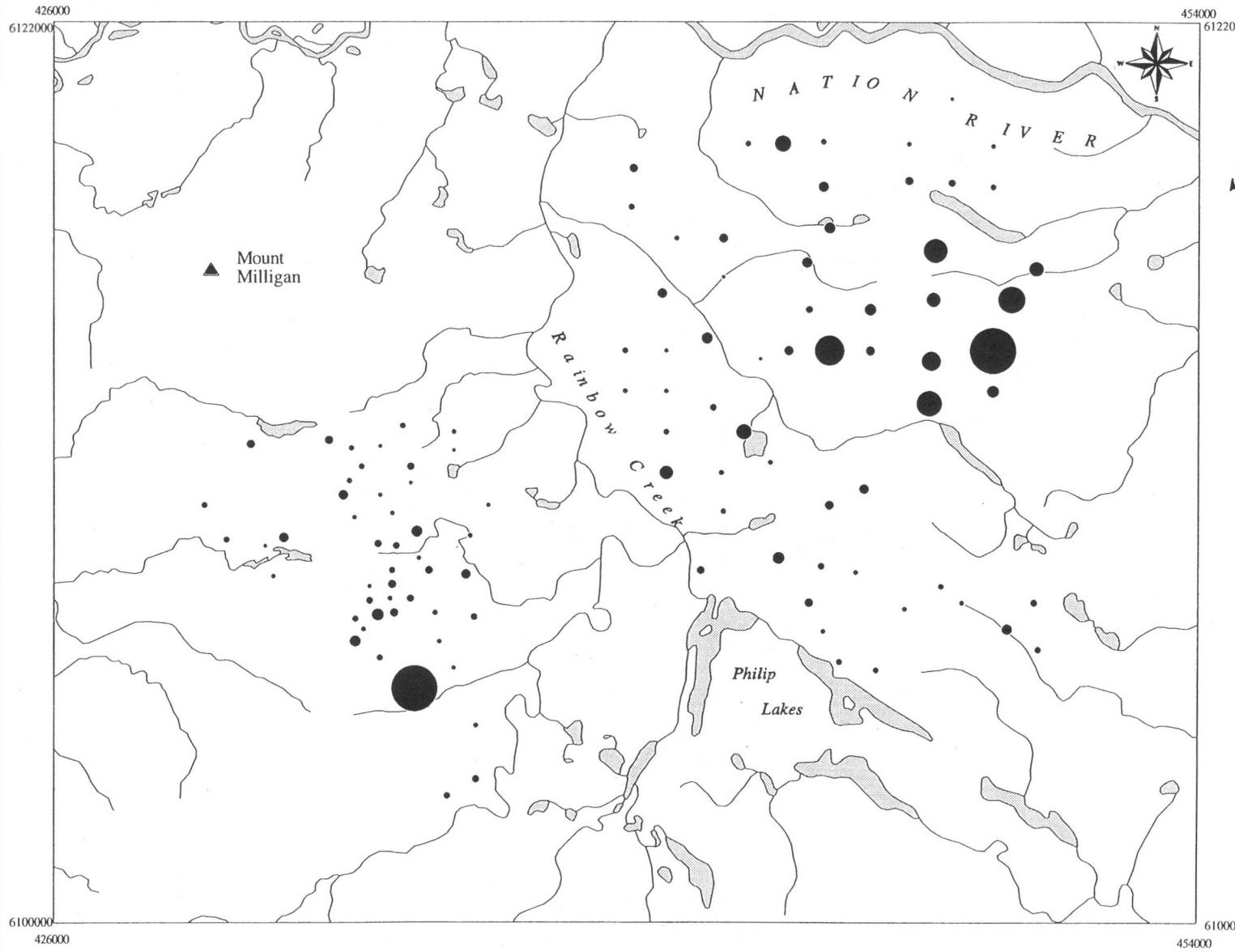
D-23

Rb

RUBIDIUM in Till (-63 micron fraction)

ppm Rb	Percentile
140	Maximum
116	98
96	95
90	90
69	75
56	50
5	Minimum

108 Samples
Exponent = 2



SAMARIUM

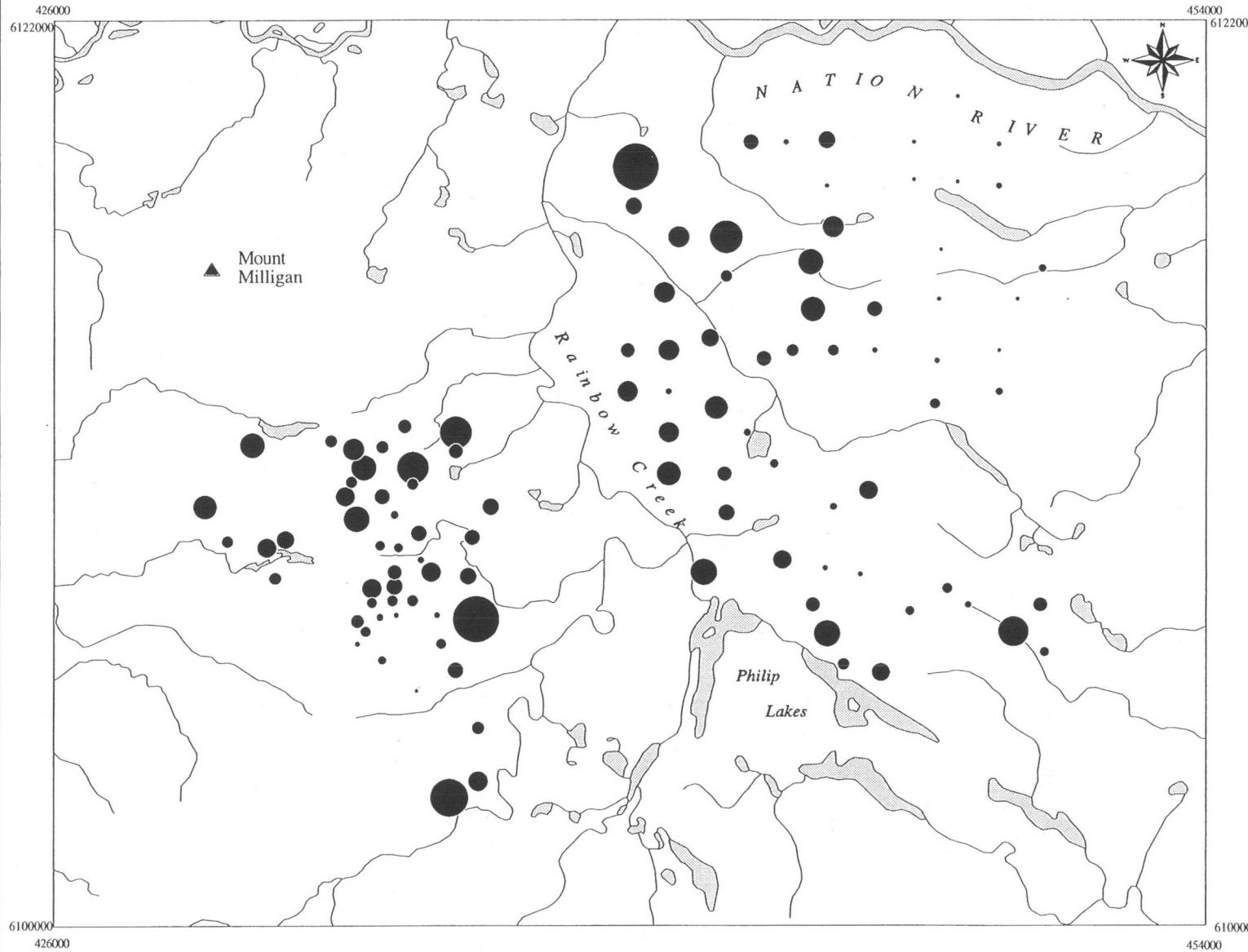
in

Till

(-63 micron fraction)

INAA

ppm Sm

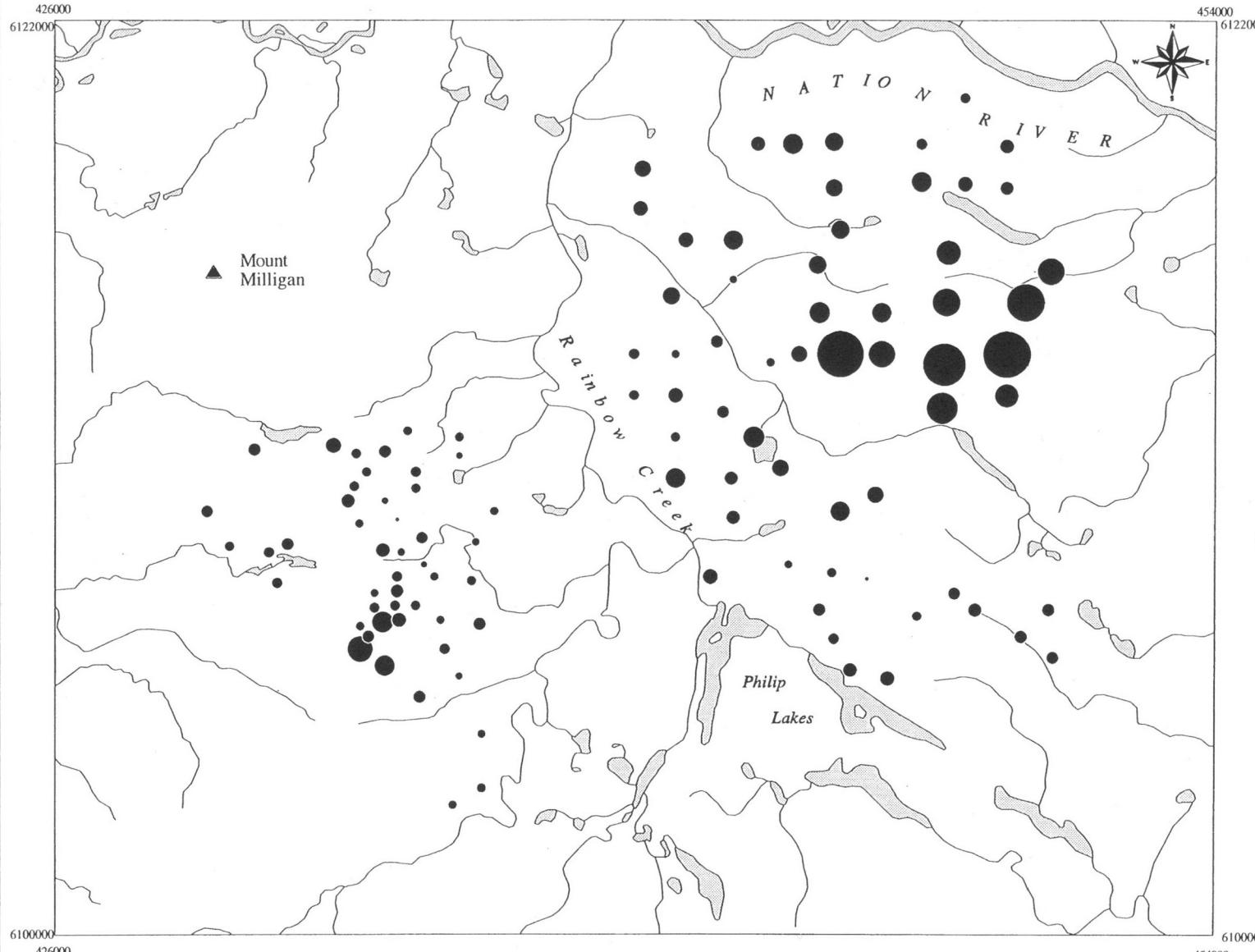


SODIUM in Till (-63 micron fraction)

pet Na	Percentile
2.59	Maximum
2.53	98
2.38	95
2.29	90
2.20	75
2.07	50
1.35	Minimum

108 Samples
Exponent = 3





Scale 1:150 000 - Échelle 1/150 000

Kilometres 2 0 2 4 6 8 10 12 Kilomètres

UTM Zone 10

THORIUM

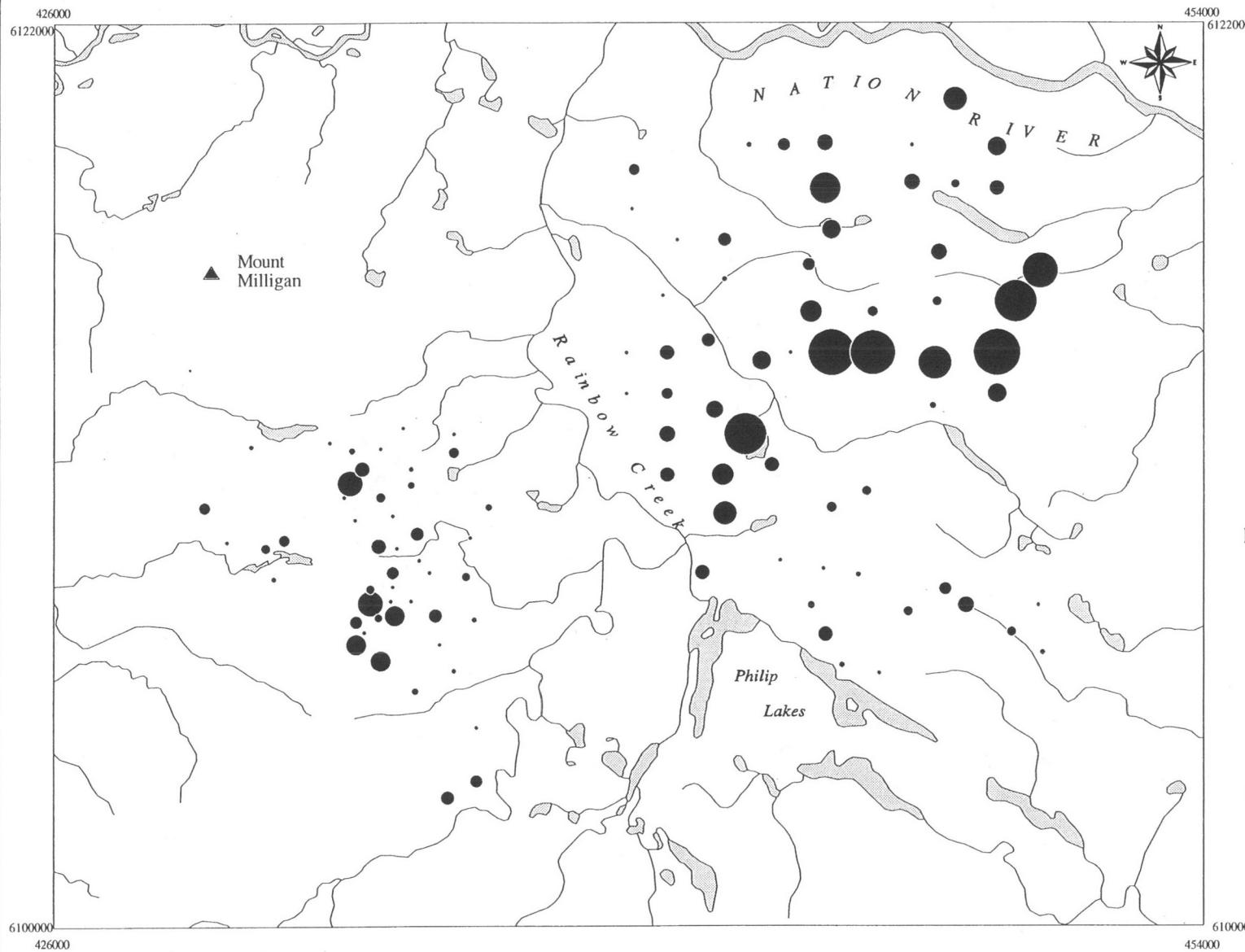
in

Till

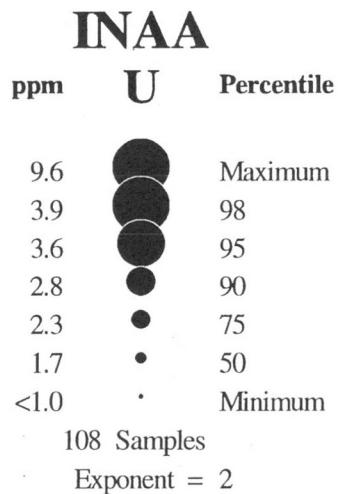
(-63 micron fraction)

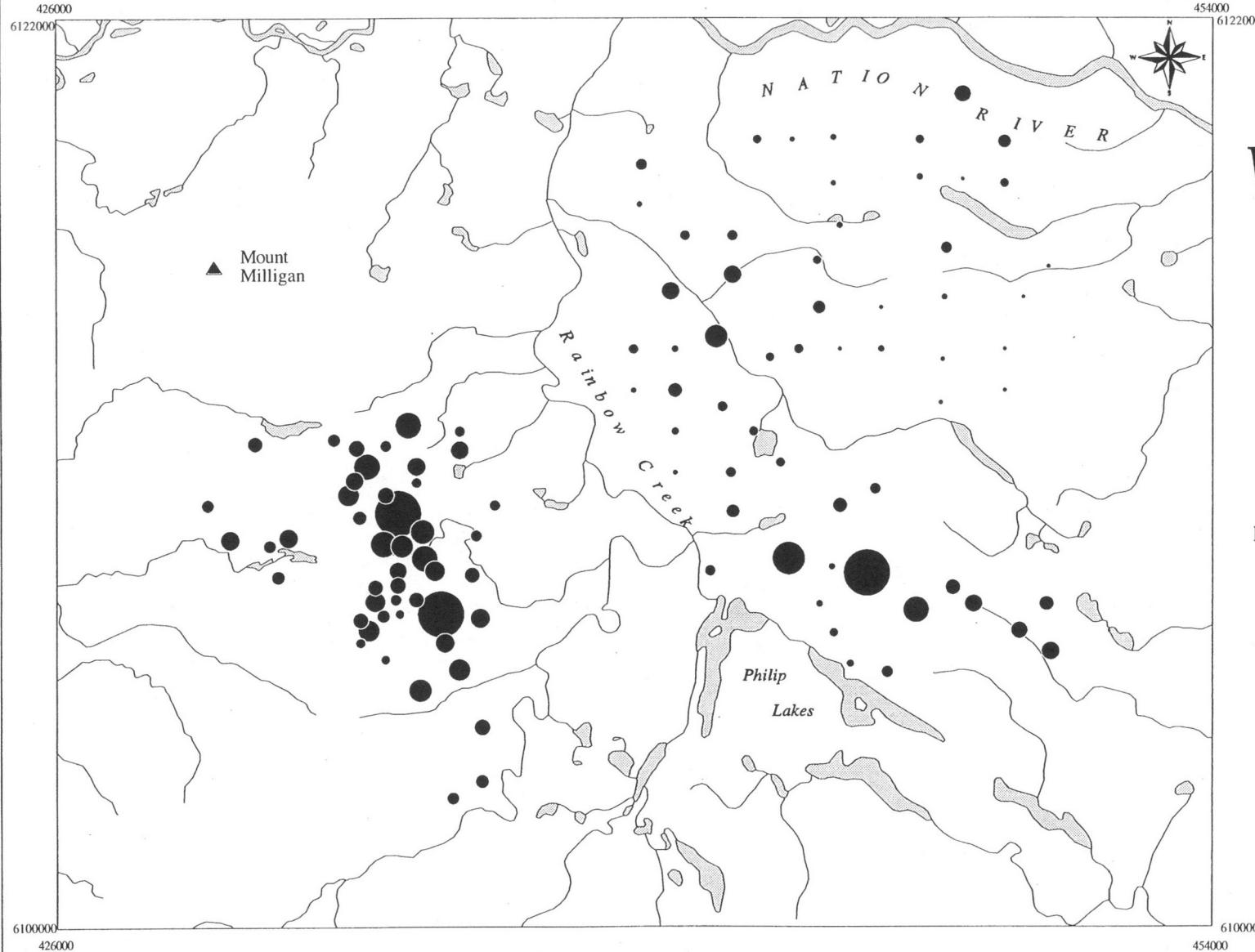
INAA	
ppm	Th
19.0	Maximum
11.8	98
8.2	95
6.8	90
5.5	75
4.5	50
2.7	Minimum

108 Samples
Exponent = 1



URANIUM in Till (-63 micron fraction)





Canada

GEOLOGICAL SURVEY OF CANADA

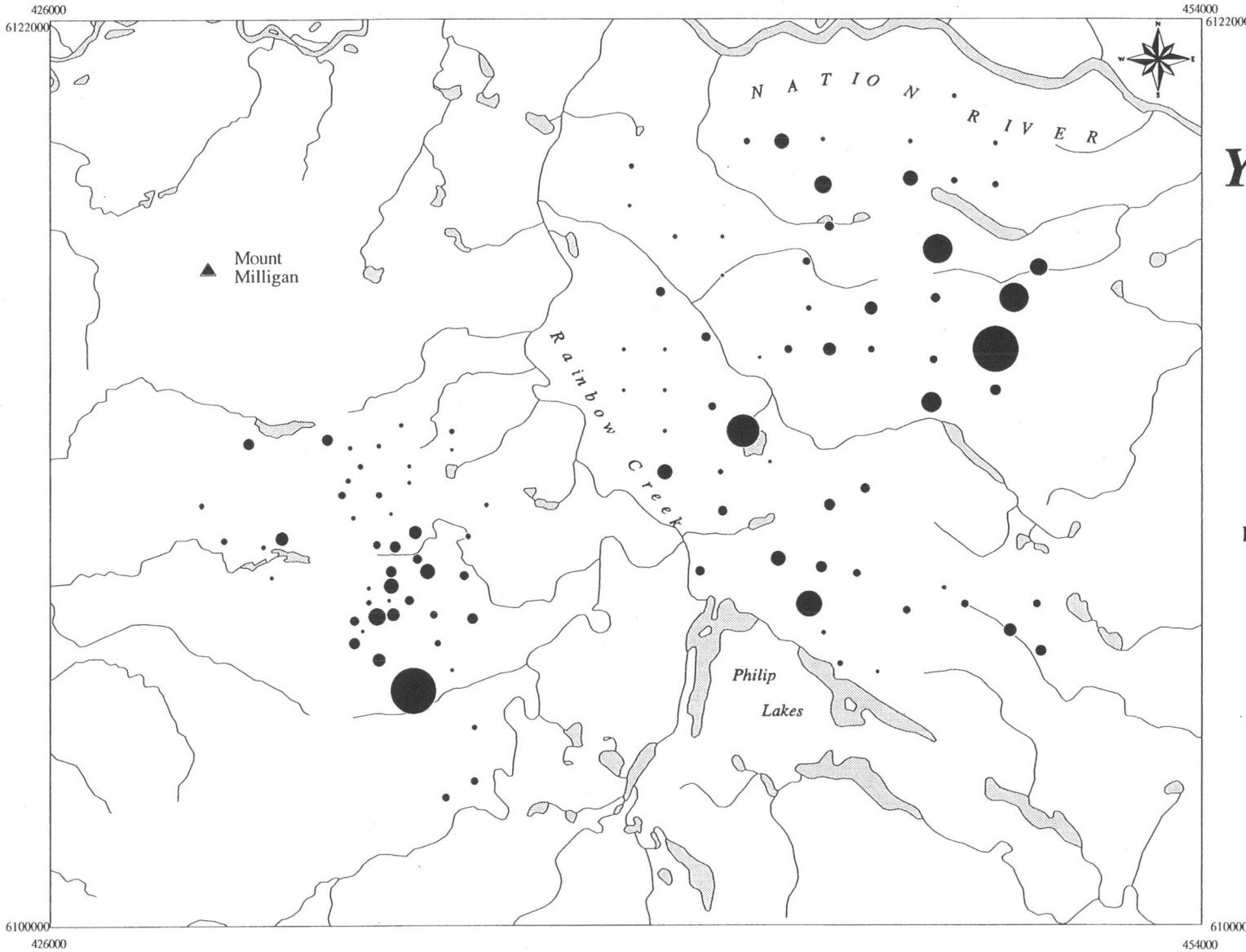


COMMISSION GÉOLOGIQUE DU CANADA



Natural Resources
Canada

Ressources naturelles
Canada



YTTERBIUM

in

Till

(-63 micron fraction)

INAA

ppm Yb Percentile

4.8	Maximum
3.6	98
3.2	95
2.7	90
2.5	75
2.3	50
1.7	Minimum

108 Samples

Exponent = 2

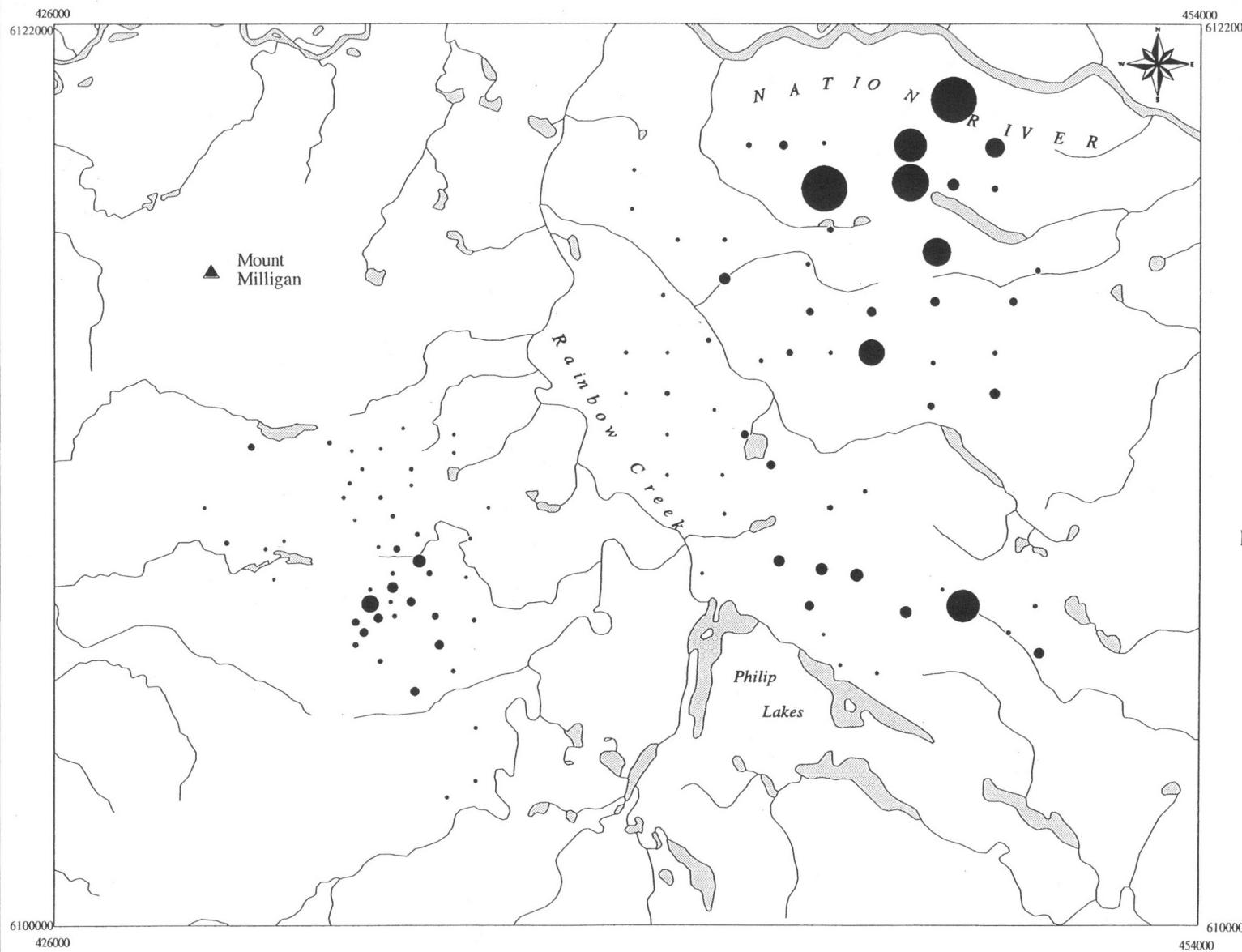


BRITISH
COLUMBIA

Ministry of Employment and Investment
Energy and Minerals Division
Geological Survey Branch

D-29

Yb



ZINC in Till (-63 micron fraction)

