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GEOCHEMICAL REPORT NO. 22

Geology and Geochemistry of the Belt Creek-Libby River Area, Seward Peninsula, Alaska

By

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GEOLOGY AND GEOCHEMISTRY OF THE BELT CREEK-LIBBY RIVER AREA,

SEWARD PENINSULA, ALASKA

By

R. R. Asher

A B S T R A C T

The Belt Creek-Libby River area is in the Bendeleben A-5 quadrangle of Central Seward Peninsula, about 60 miles northeast of Nome, Alaska. Geological and geochemical work disclosed several anomalous zones that may contain important mineralization.

The principal lithologies are metamorphic rocks of Precambrian age and igneous rocks of Mesozoic age. The gneisses, schists, slates, and limestones that were mapped are tentatively assigned to units established by Sainsbury and others (1969).

Folding or doming and a north-south fault of regional extent are the main structural features. There are also faults of local extent. A thrust fault is probably present in the northeast part of the area, but evidence is inconclusive.

Irregular calc-silicate zones are developed as alteration halos at the margins of granitic plugs. Pegmatites, altered dikes, and quartz veins are also present. Analyses of rock samples from these features failed to reveal significant mineralization.

Colorimetric field tests for cold extractable heavy metals proved to be too insensitive to detect anomalous zones from stream sediment samples. Atomic absorption analyses and spectrographic analyses of stream sediment samples did reveal a number of anomalous areas. Most anomalies are related to local high background caused by variations in lithology, but four anomalies are considered significant. Silver, cobalt, molybdenum, copper, lead, and zinc are the anomalous elements.

INTRODUCTION

PURPOSE AND SCOPE

The area discussed in this report was studied for two reasons. First, the geology is not well known; second, according to Lu and others (1968), the potential of the region in regard to ore deposits is high.

A two man party spent six weeks in the area in June and July, 1969. During that time about 70 square miles were examined geologically and stream sediment geochemical samples were collected throughout an area of about 100 square miles. The geochemical samples were tested in the field by colorimetric methods for heavy metals before being sent to the laboratory in College for further analyses.

LOCATION, ACCESS, POPULATION

The center of the project area is about 12 miles east of Cottonwood, a highway maintenance station on the Kougarok road about 60 miles northeast of Nome (*fig 1*). Mapping and sampling were done between 65° 05' and 65° 12' North Latitude and 164° 05' and 164° 35' West Longitude. The principal drainages are the Libby River and Belt Creek. The major part of the project area is in the Bendeleben A-5 quadrangle; a small part is along the edge of the Bendeleben A-6 quadrangle.

Because there are no roads or trails in the region, access is best gained with a tracked vehicle or by helicopter. Near the south boundary of the project area it might be possible to land a light airplane on smooth, flat-topped ridges of slate.

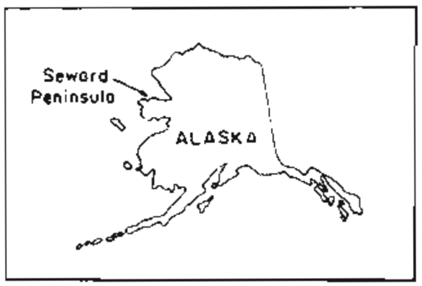
There are no residents in the area, nor are there any signs that the area has ever been occupied or prospected.

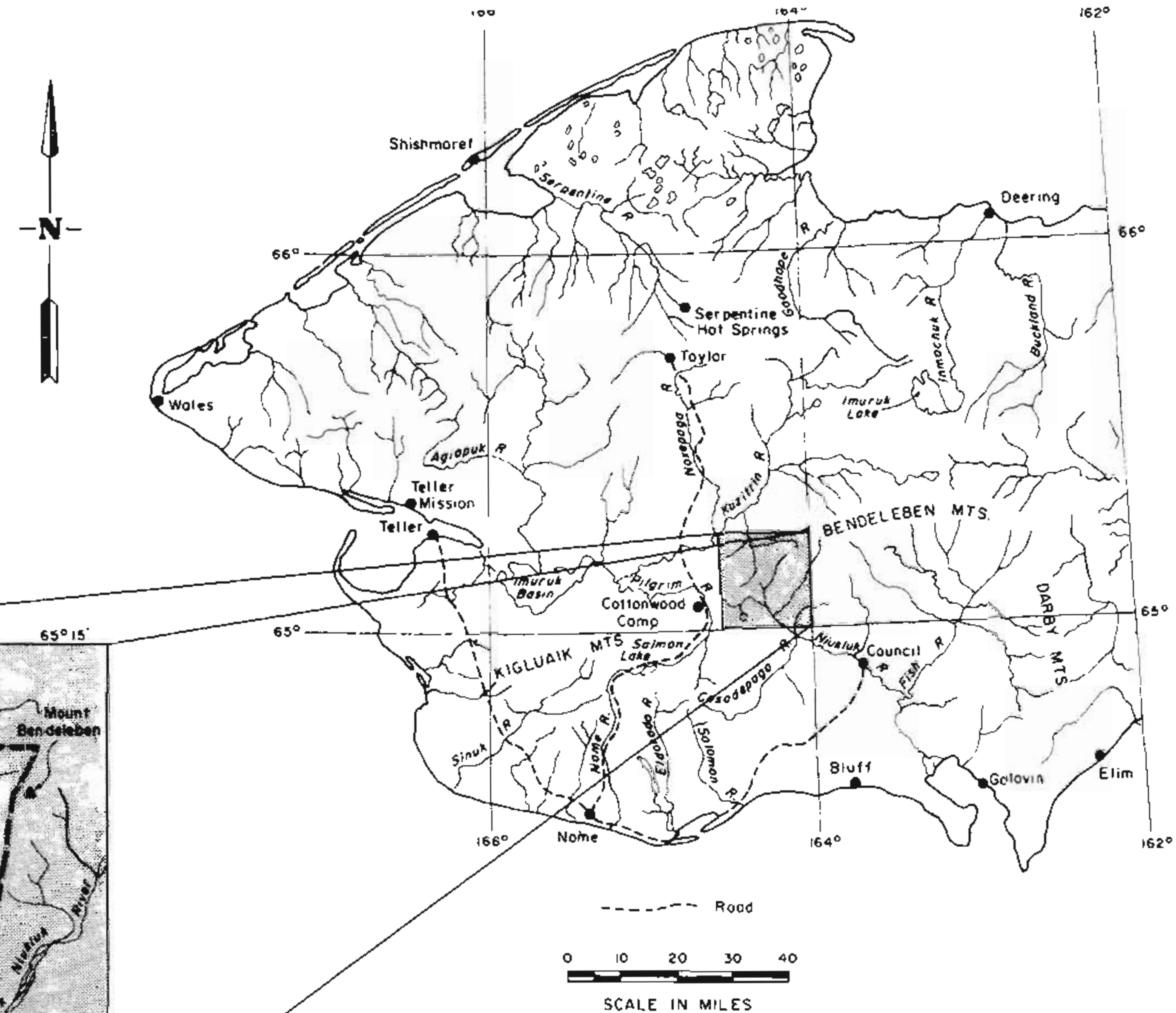
CLIMATE AND VEGETATION

The climate is typical of an arctic maritime environment. Wind, rain, and fog are common with a few warm, pleasant days during the summer. In the winter there are heavy snows, sub-zero temperatures and high winds. There is little vegetation other than grasses and moss that make up the ever-present tundra. Willows grow in patches along drainages, and there are a few dwarfed spruce trees sparsely distributed throughout the region.

TOPOGRAPHY AND DRAINAGE

A broad straight valley bisects the map area. The valley is occupied by a fork of Belt Creek that flows north and a fork of the Libby River that flows south. A low divide separates the forks of the two streams; the divide is occupied by several small lakes and marshes. The major segments of both Belt Creek and the Libby River head in the Bendeleben Mountains to the east. Belt Creek is tributary to the Kuzitrin River, and the Libby River flows into the Niukluk River (*fig 1*).





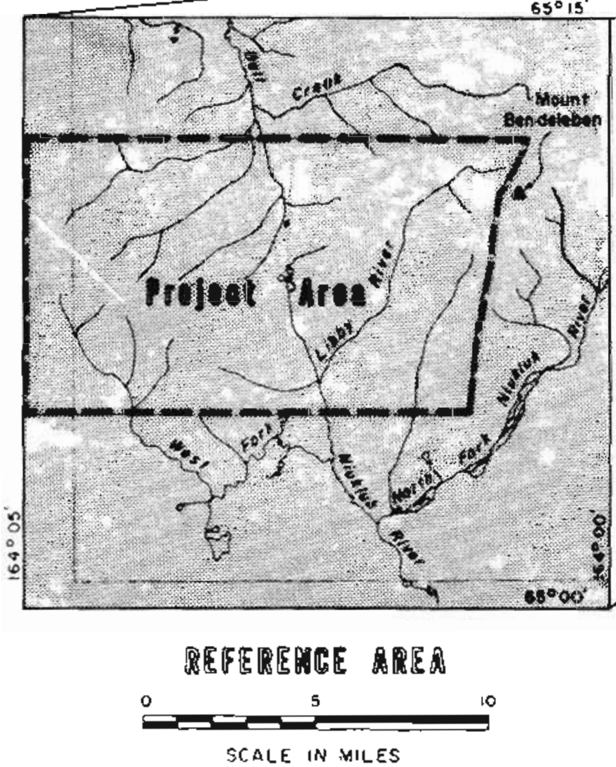


Figure 1

LOCATION MAP, BELT CREEK - LIBBY RIVER AREA
BENDELEBEN A-5 AND A-6 QUADRANGLES
SEWARD PENINSULA, ALASKA

The broad valley mentioned above cuts completely across the west end of the Bendeleben Mountains. Thus the east side of the project area is on the flanks of the Bendeleben Mountains, and the west side includes a group of isolated hills that separates the Belt Creek drainage from the Pilgrim River farther west. Both sides of the valley display the characteristics of a mature erosion surface, but the isolated hills on the west show a topography and drainage style that is distinctly different from that on the east side of the valley.

Stream patterns and topography indicate that about the upper two miles of the Libby River fork were once part of Belt Creek and flowed northward, but slight uplift in the vicinity of the divide diverted this headward portion of Belt Creek to the south and it became part of the Libby River. The drainage change may be related to transverse faulting. The valley that bisects the project area is remarkably straight. The linearity is probably the result of structural control.

On the east side of the valley stream density is low. The main tributaries to Belt Creek and the Libby River are relatively straight streams that flow west or southwest. Tributary streams are sparse. All of them flow northward and occupy north-facing slopes. The main drainages on the east side of the valley have no south-flowing tributaries (*fig 2*).

On the west side of the valley stream density is higher than on the east side, and there is a well integrated drainage system. Many of the tributaries turn northward and flow parallel to Belt Creek for as much as a mile before they join the main stream at an acute angle. This feature is well displayed by F Creek (*fig 2*).

On the east side of the valley, ridges are elongated southwest and slope away from Mount Bendeleben, the highest point in the region at an elevation of 3730 feet. Ridge summits are wide and gently convex; they are broken by step-like flats or altiplanation surfaces. The streams that define the ridges are assymetric in their headwater portions, north slopes are steeper than south slopes, but the streams occupy wide, mature valleys.

On the west side of the valley, ridges trend northeast to east. Ridges are rounded and slopes are uniform. Valleys are broad, symmetrical and mature.

Only Belt Creek and the Libby River are named on maps. For convenience of reference, tributary streams are designated by letters of the alphabet starting with A Creek in the southwest corner of the map area (*fig 2*).

ACKNOWLEDGEMENTS

Tom Bundtzen served as field assistant during the course of the field work. His work in collecting and analyzing geochemical samples in the field, as well as performing other duties, is gratefully acknowledged. The cooperation of the State Highway Department at Nome for furnishing and maintaining field vehicles is appreciated. Special thanks are extended to Bob Emmons and Teddy Reed at Cottonwood Road Camp for assistance of many kinds. C. L. Sainsbury of the U. S. Geological Survey aided through discussions of the geology of surrounding areas and also air dropped parts for a stranded field vehicle.

Lawrence E. Heiner of the University of Alaska supervised analyses of geochemical samples by spectrographic methods. In addition he devised computer techniques for statistical treatment and tabulation of sample data.

PREVIOUS WORK

There are no previous reports covering the project area. The Bendeleben Mountains are mentioned in several earlier reports, but only in a general way. Late in the 1969 field season Sainsbury and others released an open file report that deals with the Bendeleben A-6 quadrangle and other nearby quadrangles. This report contributes significantly to a better understanding of the stratigraphy and structure of the Central Seward Peninsula.

G E O L O G I C S E T T I N G

ROCKS OF THE CENTRAL SEWARD PENINSULA

In 1969 Sainsbury and others presented a unified stratigraphic picture of the Central Seward Peninsula. Their mapping did not extend into the Bendeleben Mountains. A discussion of the rock units they recognized is presented below.

Older Precambrian

Kigluaik Group

Bedrock in the Kigluaik Mountains (*fig 1*) is orthogneiss, paragneiss, crystalline marble with olivine or monticellite and thick biotite-garnet-andalusite schists.

Nome Group

Rocks of the Nome Group are exposed north of the Kigluaik and Bendeleben Mountains in the highlands north of the Kuzitrin River (*fig 1*). Nome Group rocks are also exposed at the east end of the Kigluaik Mountains and extend eastward to the Pilgrim River.

The Nome Group is made up of a thick sequence of greenish schists with intercalated schistose marbles and beds of chlorite-epidote-albite-actinolite-calcite schists. Locally the rocks in the Nome Group are highly deformed. They are involved in imbricate thrusting in places.

Late Precambrian

Slates of the York Region

A thick sequence of black, slaty, graphitic rocks is exposed north of the Bendeleben and Kigluaik Mountains in the highlands north of the Kuzitrin flats and at the east end of the Kigluaik Mountains. The slates overlie Nome Group rocks and they are referred to by Sainsbury and others (1969, p 4) as Slates of the York Region. Locally the slates are highly deformed with numerous contorted quartz veinlets.

Pre-Ordovician Dolomitic Limestone

Dolomitic limestone of probably Late Precambrian age overlies Slates of the York Region. The rocks are north of the Kuzitrin River and are exposed in imbricate thrust sheets.

Paleozoic Rocks

Carbonate rocks that range in age from Ordovician to Silurian are exposed north of the Kuzitrin River. Imbricate thrusting has displaced and deformed the rocks at several localities.

Mesozoic Rocks

Intrusive rocks that range in age from Mid- to Late Cretaceous are exposed at several places in the Central Seward Peninsula. Dikes of several compositions are present, but the largest intrusives are biotite granite stocks and plugs. There are two varieties of the granitic rocks. One type is very fine-grained; the other is coarsely porphyritic. In the quadrangles studied by Sainsbury and others (1969) the fine-grained variety is confined to the Kigluaik Mountains. The porphyritic variety is exposed as isolated stocks at several localities.

Cenozoic Rocks

Lignitic beds of Tertiary age are exposed on the Noxapaga and Kuzitrin River flats. Deposits of Quaternary age include the lava fields of Central Seward Peninsula, unconsolidated glacial deposits along the north front of the Kigluaik Mountains, high level gravels and loess deposits.

ROCKS IN THE BELT CREEK-LIBBY RIVER AREA

Rocks mapped in the Belt Creek-Libby River area are tentatively assigned to units established by Sainsbury and others (1969). Assignments are tentative because detailed petrographic work was not done and time was not available for visits to type localities. The units include rocks in the Kigluaik Group, the Nome Group, Slates of the York Region, limestone and intrusive rocks. The area is thus a Precambrian terrain with intruded rocks of Mesozoic age.

Outcrops in the region are sparse. Broad expanses of tundra mask large areas along valley slopes. Elsewhere, as along ridge tops, frost riven rubble and float are the principal indicators of bedrock. Consequently, locations of contacts are general and the structure must commonly be inferred.

Kigluaik Group

Coarse Biotite Gneiss

Coarse biotite gneiss lies on the west side of the Belt Creek-Libby River valley (*fig 2*). Float and sparse outcrops indicate that the gneiss is an important part of the bedrock in the northwest part of the map area that is characterized by tundra-covered hills. The gneiss is closely associated with gneissic granite, but exposures are too sparse to delimit contacts effectively.

Biotite, quartz, feldspar, and garnet can be identified in hand specimens of the coarse biotite gneiss. Quartz pods and lenses are common in the gneiss and large blocks of quartz float are abundant on hillslopes in places. The rocks are dark gray and weather dark gray to black. The rocks commonly develop a speckled black and white color. The texture is gneissic to layered.

Mafic Unit

In the northwest part of the map area there is a band of float made up of dark, mafic debris. It trends northeast and was traced by scattered debris for about 8000 feet. Because the mafic rocks do not crop out, the width of this unit was not determined.

In general the mafic debris is fine-grained, but some of the float fragments are coarse-grained. Biotite, pyroxene, and olivine altered to serpentine can be identified in hand specimen. The rocks probably represent a metamorphosed gabbro or diabase dike.

Fine Biotite Gneiss

On the east side of the Belt Creek-Libby River valley there is gneiss that is finer grained than that on the west side of the valley. Megascopic minerals include quartz, biotite, and feldspar. The rocks are calcareous in part with interbeds of thin re-crystallized limestones. Greenish, epidote-bearing calcareous rocks are irregularly developed as alteration halos near granitic contacts. These calc-silicate rocks may represent a type of propylitic alteration.

The fine-grained gneiss is dark colored on fresh surfaces and a speckled black and while on weathered surfaces. The rocks have a gneissic to schistose texture.

Much of the bedrock in the eastern part of the area is fine-grained gneiss (*fig 2*). On top of the ridge separating Belt Creek and the Libby River are isolated spires of coarser grained gneiss.

Nome Group

Fine-grained rocks that are dark gray to black on fresh surfaces and weather light reddish brown to dark gray are in the southwestern part of the map area (*fig 2*). These rocks were mapped as Nome Group schists.

Megascopic minerals in the schist include mainly quartz and biotite, but there is also feldspar and hornblende. Small garnets are present in some specimens, and actinolite was observed in one piece of float. The rocks are finely schistose.

Interbedded in the schists are beds of limestone that are recrystallized to fine, granular calcite. In one of these beds, there are numerous small disseminated grains of graphite. The bed is about 50 feet thick.

Near the margins of granitic intrusives irregular epidote-bearing, calc-silicate alteration zones are developed in the schist. Graphite is also a common constituent in these rocks.

Slates of the York Region

There are black, graphitic slates in the southwestern part of the map area. A small exposure of slate is also in the northeast part of the map area; the slate rests on fine-grained schist of the Kigluaik Group. It was probably thrust into its present position. Farther east, beyond the limits of the map area, black slates appear to be abundant.

Contorted quartz stringers and veinlets are abundant in the slate. These are discontinuous and do not follow a preferred orientation. Some of the veinlets are lined with crystalline quartz and the veins probably represent fracture fillings in shattered rocks.

Pre-Ordovician Dolomitic Limestone

In the northeast part of the map area a small isolated block of dolomitic limestone rests on rocks included in the Kigluaik Group. It may be the remnant of a thrust sheet. The limestone is probably part of the calcareous rocks of Late Precambrian age that overlies Slates of the York Region.

Intrusive Rocks

Gneissic Granite

In the northeast part of the map area low, rolling, tundra-covered hills are mantled by frost riven gneissic granite rubble and coarse biotite gneiss float of the Kigluaik Group. Isolated pinnacles of gneissic granite crop out at a few places.

Megascopic minerals in the gneissic granite include quartz, biotite, and feldspar. Coarse pegmatite dikes with tourmaline crystals are associated with the gneissic granite. The rocks are medium- to coarse-grained and have a gneissic texture.

Fine-grained Quartz Monzonite or Granite

There are two places where fine-grained granitic rocks are extensive. These are near the southwest and southeast limits of the area shown in figure 2. At some localities there are no dark minerals. The rocks are alaskite.

The fine-grained granitic rocks in the southeast part of the area intrude schists of the Nome Group; there is a halo of calc-silicate rocks bordering the contact. The contact zone is irregular in width. The actual width at any one place was not determined because the presence of the alteration halo was inferred mainly from float.

The granitic rocks in the southeast part of the area are at the base of the ridge that forms the main Belt Creek-Libby River divide (*fig 2*). Its presence was determined from debris that mantles the tundra. A calc-silicate zone was not observed. Smaller exposures of fine-grained granitic rocks are found throughout the area.

The fine-grained granitic rocks have an equigranular texture. Weathering yields light gray or white rocks. Quartz, feldspar and more or less biotite are visible in hand specimen. Small garnets are associated with the alaskite phases.

Miller and others (1966) studied a belt of plutons in West-Central Alaska. They concluded that two episodes of pluton emplacement took place during the Cretaceous period. The older plutons were emplaced in Middle Cretaceous about 100 million years ago and the younger ones were emplaced in Late Cretaceous about 81 million years ago. The older suite is composed chiefly of saturated monzonite and syenite and undersaturated feldspathoidal syenite. The younger suite is represented by quartz-bearing granodiorite and quartz monzonite.

It is not known if a similar sequence of events took place in the Belt Creek-Libby River area, but it is likely that two ages of intrusives are present.

Sainsbury and others (1969, p 23) in a discussion of the adjoining Bendeleben A-6 quadrangle discuss the presence of the gneissic granite and pegmatite. They point out that these rocks do not intrude the Slates of the York Region or rocks of the Nome Group, and suggest that they may be Precambrian in age.

Dikes

The metamorphic and granitic rocks of the region are cut by quartz diorite dikes, rhyolite dikes, propylitically altered dikes of unknown original composition, aplite dikes and pegmatites. Attitudes are diverse and no preferred orientation or pattern is discernible. None of the dikes can be projected with confidence because of inadequate outcrops.

At the southwest end of the area porphyritic quartz diorite dikes intrude the Slates of the York Region. The dikes trend near east-west and one of them appears to be about 6000 feet long and 75 to 100 feet wide. The presence of the dikes is marked by linear heaps of frost-riven rubble.

On the east side of the valley there are bodies of porphyritic quartz diorite that are irregular in outline. Heaps of rubble indicate their presence. These rocks are localized in fine-grained gneiss of the Kigluaik Group. Maximum dimensions are about 1500 feet by 3000 feet. They are elongated in a north-south direction.

The porphyritic quartz diorite contains megascopic quartz and feldspar in a dark glassy groundmass with locally abundant biotite. The rocks are fine-grained porphyries with granular texture. On fresh surfaces they are light gray and weather dark gray.

Near the head of P Creek on the east side of the Belt Creek-Libby River valley there is a rhyolite dike about 300 feet wide; it can be traced for about 4000 feet. The dike trends north-south. Farther north there is a similar dike in fine-grained schist and about a half mile west there is a smaller one in fine granite (*fig 2*).

The rhyolite dikes, particularly the one near the head of P Creek, are stained with limonite and boxwork structures are developed that resemble a leached pyrite capping. No fresh sulfides were observed. In hand specimen quartz phenocrysts in a fine glassy groundmass are visible, and the groundmass has a texture resembling flow banding. The rocks are light colored and weather light tan to buff.

At several places in the map area there are zones of altered rocks with linear trends. These rocks are most abundant near the west margin of the valley that bisects the area (*fig 2*). The rocks are propylitically altered; calcite, epidote, quartz, and biotite are visible in hand specimen. The original composition of these rocks is unknown.

These altered rocks have a light green cast and granular texture. Some show a distinct layering and the layers are complexly contorted in some outcrops. Because of their linear trends and granular texture these rocks are thought to be propylitically altered dikes. Locally the altered dikes are more resistant than the surrounding rocks and isolated remnants stand above the general land surface.

Pegmatite and aplite dikes are associated with granitic intrusives in the region, but at several places the pegmatite dikes have no obvious connection to a nearby intrusive. East of M Creek (*fig 2*) a large pegmatite dike cuts fine-grained gneiss. Evidence from float and intermittent outcrops suggest that the dike is about 500 feet wide and 6000 feet long.

The dike was mapped mainly by the distribution of float. Megascopic minerals include quartz, feldspar, and muscovite. The dike is medium-grained, with granular to graphic texture, and light colored.

In the southeast part of the area there is a pegmatite dike with large tourmaline crystals. Tourmaline is a common constituent of the pegmatites in the region, but at this locality the crystals are uncommonly abundant and larger than usual.

At a few places in the area float fragments of amphibolite and greenstone were observed. The location of the source of these fragments was uncertain and the occurrences were too small to show on the map (*fig 2*). Sparse pyrite and chalcopyrite are fairly common in the greenstone float fragments.

STRUCTURAL GEOLOGY

Rock exposures are sparse and the lack of attitudes makes structural interpretations difficult. The main structural features include doming or folding on the west side of the area and an inferred fault of regional proportions in the Belt Creek-Libby River valley.

The Kigluaik Group rocks on the east side of the valley dip east. The Nome Group schists on the west side of the valley also dip easterly up to the crest of the ridge that parallels the west margin of the Belt Creek-Libby River valley (*fig 2*). On the west side of that ridge the Nome Group schists dip to the west. Thus on the west side of the valley the schists form a broad anticlinal dome. The doming may be related to an unexposed intrusive which is suggested by the large amount of calc-silicate rocks at the north end of the schist outcrop area.

Because the Nome Group rocks are younger than the Kigluaik Group rocks and the Nome Group rocks dip under the Kigluaik Group rocks, a steep fault is inferred in the Belt Creek-Libby River valley. Extensive tundra in the valley prevents direct observation of the fault, but the linearity of the valley lends support to the inference. The west side of the valley represents the down-dropped block.

The limestone bed in Secs. 16 and 21, T4S, R28W, is bounded on the north by the D Creek fault and on the south by the C Creek fault. The D Creek fault plane is exposed in the bank of D Creek; it strikes N40E and dips 25S. The limestone on the hanging wall (south side) of the fault has been displaced about 1500 feet horizontally. Vertical movement is unknown.

The C Creek fault is not exposed but the limestone bed has been displaced about 5000 feet. The north side of the fault moved southwest. Because of the sense of movement on the bounding faults, and drag at the margins, the recrystallized limestone between the two structures is bowed to the west (*fig 2*).

The granitic intrusive in the southwest part of the area is cut off by a fault that strikes N70E and dips 30S. The fault forms a fairly sharp contact between the granite and the schist (*fig 2*). The fault plane is marked by a two-inch seam of quartz with mixed biotite and muscovite in coarse plates.

The slates south of A Creek are highly crenulated, contorted and fractured. Microfolds are numerous and fractures are filled by quartz. The fracturing and folding are probably related to a fault paralleling A Creek.

The altered dike in Sec. 11, T4S, R28W, is cut off on the east by a fracture plane that strikes N80E and dips 70S. The dike is highly altered and sheeted by parallel joints that give the dike a layered appearance. The layers are folded and crumpled; the axial planes strike west, are vertical, and plunge 25E.

On the east side of the valley there is less evidence of faults or other structures. The rhyolite dike at the south end of the map area is offset slightly by a fault that strikes N75E and dips 68S. Slickensides in the fault plane plunge 15E. There is a quartz vein 18 inches wide in the hanging wall of the fault zone.

There are two small isolated blocks of limestone in the northeast corner of the map area, and one small patch of the Slate of the York Region. The distribution of these rocks is probably the result of thrust faulting. Thrusting is postulated because at other places on the Seward Peninsula, isolated blocks of limestone, such as these, are commonly related to thrusts (Sainsbury and others, 1969).

E C O N O M I C   G E O L O G Y

There are no surface exposures of ore minerals in the project area, but samples were taken of altered zones, gossans, pegmatites, and other rocks. Field tests of stream sediment samples revealed geochemical anomalies from several drainages. These streams were investigated for the sources of the anomalous samples, and samples taken as necessary.

Thirty-five selected rock samples were analyzed by emission spectrograph for 30 elements. The results of the analyses for 14 of these elements is shown in table 1. The locations of the 35 sample sites are shown on figure 2. In addition, 10 samples of recrystallized limestone, calc-silicate rocks and altered dike rocks were analyzed by atomic absorption for gold, silver, copper, lead, and zinc. The results of these analyses are not tabulated because the values obtained were very low: gold, 0.2 parts per million (ppm); silver, 0.1 ppm; copper, 5 ppm; lead, 15 to 60 ppm; zinc, 5 to 20 ppm.

Study of table 1 shows that none of the samples analyzed contain significant amounts of metallic minerals. There are variations according to lithology and relatively higher concentrations of metallic elements in some samples, but none of the samples indicate mineralization concentrated enought to be commercial. However geochemical samples indicate several anomalies that should be investigated.

In general the calc-silicate rocks and the altered dikes are enriched in iron, calcium, and titanium as compared to other rocks in the area. The mafic rocks, such as amphibolite and greenstone, are relatively rich in copper, zinc, chrome, cobalt, and nickel. Pegmatites show relatively higher concentrations of beryllium and tin. The black slates show higher than average concentrations of molybdenum and barium. All of these elements were detected in trace amounts only from samples that had been selected on the basis of probable mineralization. The above observations may aid in interpreting geochemical anomalies; but rock sampling alone is not a sensitive exploration technique.

Table 1 Emission Spectrograph Analyses, Rock Samples; Bendeleben A-5 and A-6 Quadrangles, Seward Peninsula, Alaska; Values in parts per million, unless indicated otherwise.

Sample Number	Copper	Lead	Zinc	Molybdenum	Cobalt	Chromium	Nickel	Manganese	Titanium	Iron %	Magnesium %	Barium	Beryllium	Tin	Remarks
3r	20	20	100	10	20	500	20	1000	5000	5	5	500	1	10	Calc-silicate rocks; biotite, epidote, graphite flakes; float.
28r	500	20	200	10	200	50	20	2000	NA (1)	2	5	100	2	10	Amphibolite; amphibole, olivine, minor pyrite.
47r	10	20	100	ND (2)	10	100	10	500	5000	2	1	500	2	ND	Calc-silicate rocks; calcity, granular quartz, graphite; float.
48r	50	10	200	10	100	1000	100	1000	10000	10	10	50	ND	ND	Amphibolite; olivine, amphibole, garnet, minor disseminated sulfide; float.
51r	20	50	100	5	20	200	20	500	5000	5	1	500	5	10	Pegmatite; orthoclase, quartz, biotite, tourmaline, quartz; float.
52r	50	20	100	5	50	200	20	500	10000	5	1	500	2	10	Calc-silicate with quartz lenses.
57r	100	10	200	5	100	200	50	1000	10000	20	10	200	ND	10	Altered dike with quartz, epidote, calcite, biotite.
67r(b)	5	50	100	5	ND	200	20	100	2000	1	ND	100	10	ND	Alaskite with phenocrysts of clear quartz; float.
67r(a)	20	50	100	5	20	100	20	500	3000	3	1	300	6	6	Alaskite to calc-silicate; composite chip sample from float fragments.
71r	10	20	100	5	20	100	20	1000	5000	5	2	200	2	20	Calc-silicate with quartz, epidote; float.
92r	10	20	100	ND	10	100	20	1000	5000	2	0.2	500	1	ND	Fine-grain granular greenish-brown rock with limonite, quartz, epidote.

Table 1 - continued

Sample #	Cu	Pb	Zn	Mo	Co	Cr	Ni	Mn	Ti	Fe	Mg	Ba	Be	Sn	Remarks
95r	10	20	100	5	20	100	20	1000	5000	5	2	200	2	ND	Fine schist and calc-silicate with stringers of monzonite.
97r	10	20	100	5	20	200	20	500	5000	5	2	200	2	ND	Calc-silicate float.
100r	100	10	100	10	100	1000	50	2000	5000	10	10	50	ND	ND	Fine schist with actinolite; float.
104r	10	20	100	5	20	200	20	2000	5000	5	5	100	1	ND	Altered biotite schist, minor calcite; float.
130r	20	10	100	5	10	100	10	500	2000	2	0.5	500	2	ND	Contact zone, monzonite-schist, minor tourmaline.
134r	100	10	200	10	100	500	50	2000	5000	10	10	20	ND	ND	Small patch greenstone debris; garnet, quartz, chlorite, sparse sulfide.
152r	10	ND	100	10	ND	100	20	200	500	1	0.2	1000	ND	ND	Graphitic black slate with many quartz veinlets; trace gold.
159r	20	ND	100	10	ND	100	10	100	200	1	ND	1000	ND	ND	Graphitic black slate with quartz veinlets.
162r	20	ND	100	10	10	200	50	200	ND	2	ND	100	ND	ND	Composite grab sample of quartz vein in black slate; trace gold.
164r(a)	5	50	ND	5	10	200	20	200	100	1	0.1	200	2	ND	Fine-grain schist; float.
164r(b)	20	50	200	5	ND	100	10	1000	100	2	ND	50	5	20	Pegmatite; quartz, orthoclase, tourmaline; float.
170r	20	20	100	5	50	500	50	1000	5000	5	5	500	2	ND	Greenstone debris; minor sulfides.
185r(b)	50	20	100	5	ND	100	10	100	5000	5	ND	100	1	ND	Rhyolite dike.
186r	50	50	100	5	ND	100	10	100	2000	10	ND	200	1	10	Brecciated quartz vein in rhyolite dike.

Table I - continued

Sample #	Cu	Pb	Zn	Mo	Co	Cr	Ni	Mn	Ti	Fe	Mg	Ba	Be	Sn	Remarks
185r(a)	100	20	100	5	ND	100	10	100	5000	5	ND	100	1	ND	Composite grab sample; rhyolite dike with limonite.
194r	20	10	100	5	ND	100	10	200	2000	2	0.1	200	5	ND	Brecciated rhyolite with limonite; float.
202r	2	20	100	ND	10	100	10	1000	2000	2	5	100	ND	ND	Altered dike; float.
204r	20	20	100	5	20	200	20	1000	2000	5	2	500	2	ND	Calc-silicate rocks; quartz, calcite, epidote; float.
212r	10	20	100	ND	10	100	20	500	2000	2	5	200	ND	ND	Calc-silicate rocks; float.
220r	5	50	100	5	10	200	20	1000	2000	2	0.5	1000	2	ND	Diorite rubble.
226r	100	50	200	20	20	500	50	1000	5000	5	5	5000	ND	ND	Black slate; siliceous, limonite along cleavages.
231r	50	10	200	50	10	100	100	500	2000	2	1	5000	ND	ND	Fine-grained gneiss.
234r	10	20	100	10	20	500	50	500	5000	5	1	500	2	ND	Calc-silicate float.
241r	10	20	100	5	10	200	20	500	5000	5	2	500	5	ND	Siliceous rock with calcite.

(1) NA -- Not analyzed

(2) ND -- Not detected

G E O C H E M I S T R Y

SAMPLING METHOD

Stream sediment samples were taken at one-quarter mile intervals from the active bed of each stream in the project area. There were 425 samples taken. Stream sediment sample locations are shown on figure 2.

A composite sample from an area 25 to 50 feet long on both sides of the stream was taken at each sample site. Samples of fine silt as free as possible from organic matter were collected in cloth bags. The cloth bag containing the sample was placed in a plastic bag to prevent contamination from other samples during transportation and shipment.

FIELD TESTS

Each sample was analyzed in camp for heavy metals by a dithizone colorimetric technique described by Hawkes (1963). After field analyses were completed the samples were sent to the Division laboratory in College for precise determinations of metal content. The field test results were recorded by the mililiters of dithizone required to reach an end point. Results of field tests as well as notes and remarks pertaining to the sample site are shown in appendix II.

A field test of six mililiters was considered significant. Values ranged from zero to 22, but only six samples had a value of six or more. These anomalous samples are listed below (*table 2*), and for comparison certain elements detected by atomic absorption and emission spectrograph are also listed.

Table 2 - Anomalous Stream Sediment Samples As Indicated By Cold Extractable Heavy Metals Test

Map Sample Number	Field Test in Mililiters of Dithizone	Atomic Absorption Data in Parts Per Million			Emission Spectrograph Data in Parts Per Million		
		Copper	Lead	Zinc	Lead	Molybdenum	Silver
3	7	15	15	50	--	--	2*
156	20	5	15	100	50*	10**	1*
359	22	20	15	200*	--	--	--
360	13	35	20	230*	--	5	--
371	14	30	20	140**	10	10**	--
403	7	20	15	140**	--	5	--

* Denotes anomalous concentration
** Denotes threshold concentration

Field data, including information about the sample site, the location and the field test were entered on a specially prepared form upon which could be entered information obtained later in the laboratory.

LABORATORY ANALYTICAL METHODS

All of the stream sediment samples collected were analyzed by atomic absorption for copper, lead, and zinc in the laboratory of the Division of Mines and Geology. Results of the analyses were entered on the forms that contained the field data. Because of logistics it was not possible to receive the analytical results in the field. Results of the atomic absorption analyses are shown in appendix II.

During the winter the samples were anlayzed by 30-element semiquantitative spectrographic methods. The elements looked for and the detection limits of the spectrograph are shown in appendix I. The spectrographic work was done by the Mineral Industry Research Laboratory of the University of Alaska under the direction of Lawrence E. Heiner. Larry Shafford and Jane Bryant performed the analytical work. The results of the spectrographic analyses were entered on forms containing the previously obtained information and the data were punched on IBM computer cards. The results of the emission spectrograph analyses are shown in appendex II.

DATA PROCESSING AND CALCULATION OF ANOMALIES

After all the accumulated data pertaining to each sample were punched on IBM cards the data were fed into the IBM 360 Computer at the University of Alaska. The computer program was written, managed, and supervised by Lawrence E. Heiner, Mineral Industry Research Laboratory, University of Alaska.

The computer print out tabulated the results of all analyses of each stream sediment sample plus remarks, sample number and other information pertaining to the sample (*appendix II*). The computer determined the average and standard deviation for each element based on the value for every sample. When the concentration of a given element was less than the detection limit of the spectrograph, the letters ND, for "none detected", were entered on the IBM card. To calculate averages and standard deviations a value equal to one half the value of the lower detection limit, or the crustal average for the element, whichever was less, was substituted for ND. The computer calculated a threshold and anomalous value for each element by using the average and standard deviation.

The threshold and anomalous values for each element were arrived at by methods described in Hawkes and Webb (1962, p 30). Threshold is taken as the mean plus twice the standard deviation; anomalous values are taken as the mean plus three standard deviations.

Threshold and anomalous values calculated by the above method are meaningful if the sample population is distributed normally. The further the data departs from normalcy the less reliable are the computed threshold and anomalous values. Because of this the computer calculated a second set of threshold and anomalous values, by treating the data for each element as if it were lognormally distributed. This second set of anomalous and threshold values was calculated as described above, except the numerical value of the analysis for each sample was replaced by the logarithm of the value.

Table 3 - Statistical Measures, Calculated Threshold and Anomalous Values, Stream Sediment Samples, Bendeleben A-5 and A-6 Quadrangles, Seward Peninsula, Alaska. (Values in parts per million unless indicated otherwise.)

	Normal Data				Logarithms of Data			
Element	Average	Standard Deviation	Threshold Value	Anomalous Value	Average	Standard Deviation	Threshold Value	Anomalous Value
Copper[1]	19.41	12.28	45	55	1.24	0.25	1.74	2.00
Lead[1]	16.03	6.20	26	35	1.20	0.15	1.51	1.66
Zinc[1]	71.29	36.61	130	160	1.81	0.20	2.21	2.41
Copper	18.59	50.67	100	200	1.15	0.27	1.70	1.98
Lead	14.93	9.88	20	50	1.14	0.24	1.61	1.84
Zinc	120.32	58.80	200	500	2.05	0.16	2.37	2.53
Molybdenum	3.54	3.68	10	20	0.59	0.22	1.03	1.26
Silver	0.15	0.29	1	1	0.05	0.08	0.21	0.29
Cobalt	21.23	11.68	50	50	1.30	0.20	1.70	1.90
Chromium	114.25	84.87	200	500	2.00	0.21	2.43	2.64
Nickel	25.97	16.50	50	100	1.38	0.20	1.78	1.98
Manganese	1483.29	1422.64	5000	5000	3.04	0.33	3.69	4.02
Titanium	5098.77	2250.12	10000	10000	3.66	0.22	4.09	4.31
Iron (%)	3.06	1.86	5	10	0.57	0.17	0.91	1.08
Magnesium (%)	1.26	0.68	2	5	0.34	0.12	0.57	0.69
Calcium (%)	1.30	0.75	2	5	0.34	0.12	0.59	0.72
Barium	620.64	309.08	1000	2000	2.75	0.18	3.12	3.30
Strontium	143.23	70.17	200	500	2.12	0.19	2.49	2.68
Boron	68.87	58.12	200	500	1.72	0.33	2.38	2.71
Beryllium	1.84	0.91	5	5	0.43	0.13	0.69	0.82
Tin	2.14	1.04	5	5	0.49	0.07	0.63	0.71
Tungsten	1.50	0.00	2	2	0.40	0.00	0.40	0.40
Zirconium	172.16	86.81	500	500	2.19	0.20	2.59	2.79
Lanthanum	47.31	62.05	200	500	1.56	0.30	2.16	2.45
Niobium	17.71	5.15	50	50	1.25	0.13	1.51	1.64
Scandium	15.84	7.28	50	50	1.19	0.70	1.53	1.71
Yttrium	35.42	27.14	100	200	1.49	0.24	1.96	2.20
Vanadium	84.72	38.46	200	200	1.90	0.17	2.25	2.42
Arsenic	1.80	0.02	0	0	0.45	0.00	0.45	0.45
Antimony	1.18	9.86	50	50	0.10	0.19	0.48	0.67
Bismuth	2.65	1.88	10	10	0.42	0.40	1.22	1.62
Cadmium	0.94	8.55	20	50	0.09	0.16	0.42	0.59
Gold	0.03	0.50	0	0	0.00	0.05	0.11	0.16

1 - Atomic absorption data; all others are emission spectrograph analyses.

To learn if the data are normally or lognoramlly distributed, and thus which value is the most reliable, the computer plotted histograms for copper, lead, and zinc as determined by atomic absorption. Histograms were also plotted using the logarithms of the data for the above elements. By comparing the two histograms for a given element the nature of the population distribution could be determined. The populations for copper, lead, and zinc are more nearly normally distributed than lognormally distributed. Therefore the anomalous and threshold values calculated directly from the data are used in this report. The various histograms are shown in appendix III. Histograms were not plotted for elements determined by emission spectrograph. The detection intervals increase geometrically and histograms are not useful. Element populations determined by emission spectrograph are assumed to be distributed normally. Threshold and anomalous values are taken as the mean plus two and three standard deviations respectively.

To verify the threshold and anomalous values for copper, lead, and zinc, cumulative frequency curves were plotted on semi-logarithmic paper. These curves are shown in appendix III. The values obtained are similar to those obtained by assuming the data is normally distributed.

Table 3 shows the threshold and anomalous values used in this report for the various elements. The logarithmic values, averages and standard deviations are also included in table 3.

DISCUSSION OF ANOMALIES

General Observations

A study of figure 2 and appendix II reveals that stream sediment samples from the east side of the valley contain more copper and zinc than stream sediment samples from the west side of the valley. Except for one sample from Lucky Dog Creek and one sample from the West Fork of the Libby River, none of the samples taken from the west side of the valley contain more than background amounts of copper or zinc, but lead is a fairly common anomalous or threshold element. On the east side of the valley, copper, lead, and zinc are all fairly common anomalous elements. This indicates that there are two distinct and separate populations in the region and if statistical treatment were carried further they should be treated as such.

On the west side of the valley calcium is concentrated in stream sediment samples to a much higher degree than on the east side of the valley. This probably reflects gross variations in lithology in the two parts of the area and again indicates two separate populations that should be treated separately.

Area North of F Creek

The northwest part of the project area is drained by I Creek, H Creek, G Creek, and tributaries of F Creek. The streams form a semi-radial drainage pattern surrounding a broad, east-trending ridge (*fig 2*). Sediment samples from the headwater portions of these streams are anomalous in silver, cobalt, lead, and molybdenum. Titanium, rare earth elements and several other elements are also concentrated in anomalous amounts in some of the samples from these streams.

Rock outcrops in the vicinity are sparse, but frost riven rubble that is probably near its original location is fairly abundant. No rock samples were taken in this part of the area because none appeared to be mineralized.

On the crest of the ridge separating H and I Creeks there is float derived from mafic rocks. Similar float occurs at the crest of the hill at the head of I Creek and at the head of a fork of F Creek. No samples of this rock were analyzed, but there is probably a relation between the mafic dike(?) and the anomalous cobalt, silver, molybdenum, and lead. The rare earths, titanium, and zircon probably reflect the pegmatite-granitic lithology of the area. This anomalous zone is important enough to warrant prospecting and sampling.

Head of E Creek

Near the headwaters of E Creek gneissic granite with pegmatite phases is bordered by a halo of calc-silicate rocks. Sediment samples from the headwaters of forks of E Creek are anomalous in lead, silver, molybdenum, and beryllium. These anomalies are related to beryllium associated with pegmatites and slight mineralization in the calc-silicate zone. Rock samples 51r (pegmatite) and 52r (calc-silicate) are from the vicinity and they show little of interest. This anomaly is probably of little significance.

Lucky Dog Creek

Stream sediment samples were taken from the upper forks of Lucky Dog Creek, a tributary to the Pilgrim River on the west. The sampled portions of the stream are on the west side of a gneissic granite ridge. Samples from the fork farthest north are anomalous in lead, silver, molybdenum, and cobalt. This association is similar to that north of F Creek. No mafic rocks were observed in the vicinity, but the crest of the ridge was the westward limit of mapping. There is a pegmatite dike near the head of the stream where the anomalous samples were collected, and some calc-silicate debris appears in the rubble that mantles the ridge.

This anomaly may be significant because the absence of a similar anomaly in the fork of Lucky Dog Creek just to the southeast indicates that the source of the anomalous sediments is not related to the general lithology of a local enrichment of bedrock. The northwest fork evidently cuts a vein or dike with anomalous amounts of lead, cobalt, molybdenum, and silver.

West Fork of Libby River

The West Fork of the Libby River heads in the southwest part of the area shown on figure 2 and joins the main drainage south of the map area. Two samples in the upper reaches of the creek are anomalous in molybdenum, chromium, and nickel. The source of the anomaly and its importance are not known. It is probably related to a local occurrence of mafic rocks.

A tributary from the north enters West Fork slightly southeast of the sample locations noted above. The stream flows from a gneissic granite ridge that is surrounded by a prominent calc-silicate halo. Two samples from this stream are anomalous in silver. The silver is probably related to the alteration halo and is of doubtful importânce.

Farther southeast a copper, lead, zinc anomaly and a silver anomaly are in two samples from another tributary. These are isolated anomalies; the surrounding area is covered by tundra, and the source of the anomalous samples and their importance are not known.

D Creek

Most of the samples from D Creek are anomalous in lead. There was probably weak lead mineralization introduced along the D Creek fault and these anomalous samples mark its trace. No mineralization was observed in the drainage. The anomalies may indicate a concealed mineralized structure, but their importance is questionable.

At the head of D Creek is a beryllium anomaly. It is probably related to a calc-silicate zone or a local pegmatite body.

C Creek

Lead anomalies are common in samples from C Creek, and the setting is similar to that on D Creek. The drainage is near a fault zone, it cuts a recrystallized limestone bed, and heads in a calc-silicate altered zone. As at D Creek, the meaning of the anomalous samples is uncertain.

In the lower part of C Creek titanium is anomalous in several samples. These samples were collected near an altered dike. The dike may be the source of the titanium.

B Creek

The upper part of B Creek follows a contact between Nome Group schist and a small plug of monzonite. A narrow calc-silicate alteration zone borders the intrusive. Anomalous titanium is common in samples from B Creek along with minor lead, cobalt, or silver. The titanium is probably derived from the calc-silicate zone. Rock samples show that the calc-silicate zones are enriched in titanium.

M Creek

The head of M Creek intersects a pegmatite body that is localized in fine-grained gneiss. Samples in the upper part of the creek are anomalous in cobalt, silver, and lead, and they show threshold values in copper and zinc. Prospecting the pegmatite and adjacent gneiss could be worthwhile, although no mineralization was observed when the area was examined.

Farther downstream on M Creek, below an altered dike that cuts gneiss, stream sediment samples contain anomalous concentrations of cobalt and lead. These samples are more likely related to the pegmatite dike farther upstream than to the altered dike.

The next stream to the east is a short tributary of L Creek that cuts the pegmatite gneiss contact. Samples from this stream are also anomalous in cobalt and lead. There are anomalous concentrations of silver and titanium in samples from near the mouth of this stream. They are probably related to an alteration halo associated with a small intrusive in the vicinity.

L Creek

In its upper reaches, L Creek branches into two short forks (*fig 2*). The west fork intersects a small exposure of the Slate of the York Region that is thought to be thrust into its present position. Below the slate, stream sediment samples are anomalous in copper, lead, zinc, and silver. A rock sample from the slate shows that it is slightly enriched in lead, zinc, molybdenum, nickel, and barite. This anomaly probably represents a local increase in background and is more related to lithology than to mineralization.

East Fork of Belt Creek-East Fork Libby River

The upper forks of Belt Creek near the northeast corner of the project area and the upper part of the Libby River are separated by a ridge on the west slope of Mount Bendeleben. Another ridge on the west slope of Mount Bendeleben separates the upper forks of the Libby River (*fig 2*).

Samples from the upper part of Belt Creek are anomalous in copper, lead, zinc, and cobalt. Samples from almost the entire length of the East Fork of the Libby River are anomalous in one element or another. Cobalt, copper, zinc, lead, and molybdenum are common anomalous elements in the drainage. The next stream to the east is a tributary to the Niukluk River. In its upper part the stream turns north and intersects the southeast side of the ridge that is drained by the upper forks of the Libby River. Samples from this upper part of the Niukluk Fork are anomalous in copper, lead, zinc, and molybdenum (*fig 2*).

Mapping did not extend into the area in question, but based on the distribution of anomalous samples, mineralization follows the ridge that separates the Fork of the Niukluk River and the Libby River, and crosses the ridge that separates Belt Creek and the Libby River (*fig 2*). This zone may also extend southwest to the mouth of A Creek. The probable trend of the mineralization is shown on figure 2.

Fork of Niukluk River

On the lower reaches of a fork of the Niukluk River on the east edge of the project area (*fig 2*), stream sediment samples are anomalous in molybdenum, cobalt, zinc, and silver. This part of the area was not mapped, therefore the anomaly cannot be evaluated. The distribution of the samples suggests that a zone of mineralization trends northwest across the ridge that forms the divide between the Niukluk Fork and the Libby River (*fig 2*).

Q Creek

At the head of Q Creek, stream sediment samples are anomalous in silver and cobalt. Samples farther downstream show threshold values in lead. These anomalies are probably associated with a small diorite mass at the head of the creek.

P Creek

Samples from the head of P Creek are anomalous in lead and one sample is enriched in tin. The source of the anomaly is unknown. The creek heads in fine-grained gneiss, but flows mostly through tundra with no rock exposures. It is possible that an extension of the D Creek fault is near P Creek and that the lead anomalies are associated with the fault.

S U M M A R Y

CONCLUSIONS

As a result of this study the following conclusions are reached:

1. The area is a Precambrian terrain intruded by igneous rocks of Mesozoic age.

2. Following the nomenclature set forth by Sainsbury and others (1969) the metamorphic rocks in the area are tentatively assigned to the Kigluaik Group, the Nome Group, Slates of the York Region and pre-Ordovician limestone. Gneisses, schists, slates, and limestones are the main rock types encountered.

3. There are probably two ages of intrusive granitic rocks in the area. The younger ones are fine-grained monzonite to granites. There is commonly an irregular halo of calc-silicate rocks at margins of these fine-grained intrusive rocks. The older intrusive rocks are porphyritic and have a gneissic texture.

4. There are dikes of various compositions and diverse attitudes throughout the project area.

5. Gross structural features include gentle anticlinal folding or doming on the west and a fault of regional proportions that bisects the area. There are other faults of local extent within the map area.

6. No sulfide minerals were observed. Analyses of rock samples did not reveal the presence of significant mineralization.

7. Because of extensive tundra cover and sparse outcrops, geochemistry is a more effective prospecting technique than visual inspection.

8. Colorimetric analyses for cold extractable heavy metals are not sufficiently sensitive to detect anomalous zones in stream sediment samples in the map area.

9. Anomalous zones that may be significant were detected on the ridge north of F Creek, on the ridge that forms the Belt Creek–Libby River divide, on a divide north of a fork of the Niukluk River, and on Lucky Dog Creek.

SUGGESTIONS TO PROSPECTORS

The following suggestions are put forth in regard to prospecting in the region:

1. Geochemical stream sediment sampling is a useful technique, but laboratory analyses are needed for the detection of subtle anomalies.

2. Follow-up work should be done on the significant anomalies described in this report. Soil samples and rock samples would be useful, and if results are favorable, trenching to bedrock should be undertaken.

R E F E R E N C E S

Hawkes, H. D., 1963, Dithizone Field Tests: in Econ. Geology, vol 58, p 579-586.

Hawkes, H. E. and Webb, J. S., 1962, Geochemistry in Mineral Exploration: Harper and Row, New York, 415 p.

Lu, F. C. J., Heiner, L. E., and DeVerle, P. H., 1968, Known and Potential Ore Reserves, Seward Peninsula, Alaska: Univ. of Alaska, Mineral Ind. Research Laboratory Report No. 18, 105 p.

Miller, T. P., Patton, W. W., and Lanphere, M. A., 1966, Preliminary Report on a Plutonic Belt in West-Central Alaska: U. S. Geol. Survey Prof. Paper 550-D, p 158-162.

Sainsbury, C. L., Kachadoorian, R., Hudson, T., Smith, T. E., Richards, T. R., and Todd, W. E., 1969, Reconnaissance Geologic Map and Sample Data, Teller A-1, A-2, A-3, B-1, B-2, B-3, C-1 and Bendeleben A-6, B-6, C-6, D-5, D-6 Quadrangles, Seward Peninsula, Alaska: U. S. Geol. Survey open file report, 49 p.

Appendix I

INTERVALS OF ESTIMATION AND DETECTION LIMITS

SEMIQUANTITATIVE SPECTROGRAPHIC ANALYSES

Copper ppm*	Lead ppm	Zinc ppm	Molybdenum ppm	Silver ppm	Cobalt ppm	Chromium ppm	Nickel ppm	Manganese ppm	Titanium ppm	Iron (%)	Magnesium (%)	Calcium (%)	Barium ppm	Strontium ppm
20,000	20,000	10,000	2,000	5,000	2,000	5,000	5,000	5,000	10,000	20	10	20	5,000	5,000
10,000	10,000	5,000	1,000	2,000	1,000	2,000	2,000	2,000	5,000	10	5	10	2,000	2,000
5,000	5,000	2,000	500	1,000	500	1,000	1,000	1,000	2,000	5	2	5	1,000	1,000
2,000	2,000	1,000	200	500	200	500	500	500	1,000	2	1	2	500	500
1,000	1,000	500	100	200	100	200	100	200	500	1	0.5	1	200	200
500	500	200	50	100	50	100	50	100	200	0.5	0.2	0.5	100	100
200	200	100	20	50	20	50	20	50	100	0.2	0.1	0.2	50	50
100	100	L	10	20	10	20	10	20	50	0.1	0.05	0.1	20	L
50	50		5	10	L	10	5	L	L	L	L	0.05	L	
20	20		L	5		5	L					L		
10	10			2		L								
5	L			1										
2				L										
L**														

Boron ppm	Beryllium ppm	Tin ppm	Tungsten ppm	Zirconium ppm	Lanthanum ppm	Niobium ppm	Scandium ppm	Yttrium ppm	Vanadium ppm	Gold ppm	Bismuth ppm	Cadmium ppm	Antimony ppm	Arsenic ppm
2,000	1,000	1,000	10,000	1,000	1,000	2,000	100	200	10,000	500	1,000	500	10,000	10,000
1,000	500	500	5,000	500	500	1,000	50	100	5,000	200	500	200	5,000	5,000
500	200	200	2,000	200	200	500	20	50	1,000	100	200	100	2,000	2,000
200	100	100	1,000	100	100	200	10	20	500	50	100	L	1,000	1,000
100	50	50	500	50	50	100	5	10	200	20	50		500	500
50	20	20	200	20	20	50	L	L	100	10	20		200	L
20	10	10	100	L	L	20			50	L	10		100	
10	5	L	50			10			20		5		50	
L	2		L			L			10		L		L	
	1								L					
	L													

*ppm indicates parts per million
**L = Lowest limit of detection

Appendix II - Analytical Results (1), Results of Cold Extractable Metals Test (2), and Field Data

Stream Sediment Samples, Bendeleben A-5 and A-6 Quadrangles, Alaska.

Map No.	Sample No.	Gold (3)	Copper (3)	Lead (3)	Zinc (3)	Copper	Lead	Zinc	Molybdenum	Silver	Cobalt	Chromium	Nickel	Manganese	Titanium	Iron (%)	Magnesium (%)	Calcium (%)	Barium	Strontium	Boron	Beryllium	Tin	Tungsten
1	9J399	NA(5)	10	15	50	5	10	100	5	ND(6)	20	100	20	5000	5000	5	0.5	1	200	100	100	1	ND	ND
2	9J400	NA	15	15	85	10	10	100	ND	ND	50	50	20	1000	5000	2	0.5	0.5	200	100	50	ND	ND	ND
3	9J401	NA	15	15	50	10	ND	ND	ND	2	20	100	20	1000	2000	2	0.5	1	500	100	50	ND	ND	ND
4	9J398	NA	10	15	50	5	10	100	2	ND	50	50	10	2000	2000	5	0.2	1	200	100	20	1	ND	ND
5	9J397	NA	10	15	60	5	ND	200	ND	ND	10	50	20	2000	5000	2	0.5	1	500	100	20	2	ND	ND
6	9J396	NA	10	15	50	10	20	100	5	1	20	100	20	5000	*1.0 (7)	5	2	1	500	100	50	2	ND	ND
7	9J395	NA	5	10	30	5	10	100	ND	ND	20	50	20	2000	5000	2	1	2	500	200	100	2	ND	ND
8	9J390	NA	5	20	25	2	50	200	20	1	50	20	10	2000	200	20	0.2	0.5	100	50	10	1	10	ND
9	9J391	NA	15	10	35	10	20	100	ND	ND	10	100	20	500	5000	2	1	1	500	100	20	2	ND	ND
10	9J392	NA	20	20	75	20	10	ND	2	ND	10	100	10	500	5000	2	1	0.5	500	100	50	1	ND	ND
11	9J393	NA	20	25	75	10	10	100	2	NA	20	50	20	200	2000	5	0.5	0.5	500	50	20	1	ND	ND
12	9J394	NA	25	20	85	20	50	100	5	ND	50	100	20	1000	5000	10	0.5	0.5	500	100	20	1	ND	ND
13	9J186	NA	15	10	50	10	10	100	ND	ND	20	50	20	2000	5000	2	1	2	500	200	100	2	ND	ND
14	9J187	NA	10	10	50	10	10	100	5	ND	20	200	20	1000	5000	5	2	2	1000	200	50	2	ND	ND
15	9J188	NA	15	10	50	10	20	100	ND	ND	20	100	20	2000	*1.0	5	2	2	500	200	100	2	ND	ND
16	9J70	NA	10	10	40	10	20	100	ND	ND	20	100	20	2000	5000	2	1	2	500	200	20	2	ND	ND
17	9J189	NA	10	15	55	10	20	100	ND	ND	20	100	20	2000	5000	2	1	2	500	200	50	2	ND	ND
18	9J374	NA	20	15	75	10	10	100	ND	ND	20	50	20	1000	5000	2	1	2	500	100	50	1	ND	ND
19	9J425	NA	5	10	50	10	10	100	ND	ND	10	100	20	500	5000	2	1	0.5	500	100	50	1	ND	ND
20	9J424	NA	15	10	45	10	20	100	ND	ND	20	100	20	500	5000	5	1	0.5	1000	100	50	1	ND	ND
21	9J423	NA	5	10	35	5	10	100	ND	ND	10	100	20	200	5000	2	0.5	1	500	200	50	2	ND	ND
22	9J373	NA	15	10	50	10	10	ND	ND	ND	20	50	20	500	2000	2	1	1	500	100	200	2	ND	ND
23	9J372	NA	20	15	80	20	10	100	5	ND	20	100	20	500	5000	2	1	1	1000	100	50	2	ND	ND
24	9J419	NA	15	10	55	20	ND	200	ND	ND	10	50	20	1000	5000	2	0.5	1	500	100	50	2	ND	ND
25	9J420	NA	10	5	40	5	10	100	ND	ND	10	50	10	500	5000	2	0.5	1	500	200	50	2	ND	ND
26	9J421	NA	NA	NA	NA	5	10	100	ND	ND	10	50	20	500	2000	2	0.5	0.5	500	100	20	1	ND	ND
27	9J422	NA	NA	NA	NA	5	10	ND	ND	ND	10	50	20	1000	5000	2	1	1	500	200	100	1	ND	ND
28	9J371	NA	25	15	95	20	20	100	5	ND	20	100	20	1000	5000	5	2	1	500	100	100	2	ND	ND
29	9J370	NA	20	15	75	20	20	200	5	ND	20	100	20	1000	5000	2	2	1	500	100	100	2	ND	ND
30	9J369	NA	10	10	80	10	ND	100	ND	ND	20	100	20	1000	5000	2	1	0.5	500	100	100	2	ND	ND
31	9J22	NA	20	25	120	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
32	9J21	NA	25	35	70	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
33	9J20	NA	25	15	95	10	20	200	ND	ND	50	200	50	2000	5000	2	2	1	500	100	100	2	ND	ND
34	9J19	NA	25	20	85	10	20	100	5	ND	50	200	20	2000	5000	5	2	2	500	200	20	1	ND	ND
35	9J18	NA	30	20	105	20	10	200	2	ND	20	200	50	1000	5000	5	2	1	500	200	50	1	ND	ND
36	9J17	NA	25	15	95	20	ND	100	2	ND	20	100	20	1000	2000	2	1	1	500	100	100	1	ND	ND
37	9J16	NA	45	20	135	20	ND	100	2	ND	20	50	20	500	2000	1	1	0.5	1000	50	50	2	ND	ND
38	9J15	NA	40	25	110	20	50	200	5	1	50	200	50	2000	*1.0	5	2	1	500	50	50	ND	ND	ND
39	9J12	NA	25	15	90	20	10	100	5	ND	20	50	20	500	5000	2	1	1	1000	100	200	1	ND	ND
40	9J14	NA	40	20	120	20	20	ND	5	ND	20	200	50	1000	2000	2	2	0.5	500	100	100	1	ND	ND
41	9J13	NA	35	15	110	20	20	100	5	ND	20	100	20	1000	5000	2	1	0.5	1000	100	50	1	ND	ND
42	9J368	NA	25	15	95	10	20	100	ND	ND	20	100	20	500	5000	2	1	0.5	500	50	100	2	ND	ND
43	9J367	NA	25	15	105	20	ND	100	5	ND	20	100	50	2000	*1.0	5	2	1	2000	50	200	2	ND	ND
44	9J364	NA	25	15	95	20	10	200	5	ND	20	100	20	1000	5000	5	2	1	1000	100	100	2	ND	ND
45	9J365	NA	20	15	85	10	ND	ND	ND	ND	20	100	20	1000	2000	2	0.5	0.5	500	100	50	1	ND	ND
46	9J366	NA	10	15	65	10	10	ND	5	ND	50	100	20	2000	*1.0	5	2	1	2000	100	200	ND	ND	ND
47	9J363	NA	25	15	105	20	20	ND	2	ND	20	100	50	500	5000	2	1	1	500	100	100	2	ND	ND
48	9J402	NA	15	15	90	20	10	100	2	ND	20	100	50	1000	*1.0	2	2	1	1000	100	200	2	ND	ND
49	9J403	NA	25	15	95	20	10	200	5	1	20	100	50	1000	5000	5	2	1	500	100	50	2	ND	ND
50	9J404	NA	35	25	120	20	20	200	ND	ND	50	200	50	1000	5000	5	2	1	500	100	100	2	ND	ND
51	9J405	NA	35	20	120	20	20	100	5	ND	50	100	20	1000	5000	5	2	1	500	100	50	2	ND	ND
52	9J406	NA	25	20	95	20	10	100	5	ND	50	100	20	1000	5000	2	1	0.5	500	100	20	2	ND	ND
53	9J407	NA	20	15	140	20	10	200	ND	ND	10	100	20	500	5000	2	1	0.5	1000	50	50	1	ND	ND
54	9J408	NA	30	20	120	20	ND	100	ND	ND	20	100	20	2000	5000	2	1	1	500	50	50	1	ND	ND
55	9J409	NA	25	20	80	20	20	100	5	ND	20	100	20	1000	5000	2	1	1	1000	100	50	1	ND	ND
56	9J410	NA	35	25	110	10	ND	100	5	ND	20	100	20	500	5000	2	1	1	500	100	50	ND	ND	ND
57	9J411	NA	30	20	110	20	10	200	2	ND	20	100	50	500	2000	2	1	1	500	100	50	1	ND	ND
58	9J412	NA	30	15	100	20	10	100	5	1	20	500	50	500	5000	2	2	1	1000	100	50	ND	ND	ND
59	9J413	NA	60	25	260	20	20	500	5	ND	20	50	20	500	2000	2	1	0.5	1000	100	100	1	ND	ND
60	9J414	NA	30	15	105	20	20	100	5	ND	20	100	20	1000	5000	2	2	1	1000	100	50	1	ND	ND
61	9J415	NA	15	15	90	20	10	ND	ND	ND	10	50	20	1000	5000	2	1	1	1000	100	100	1	ND	ND

Zirconium	Lanthanum	Niobium	Scandium	Yttrium	Vanadium	Arsenic	Antimony	Bismuth	Cadmium	Gold	Field Test	Stream Width	Location	Organic Content	Sediment Size	Bedrock (4)	Sediments in Stream Bed in Percent (4)	Map No.
200	100	20	20	50	100	ND	ND	5	ND	ND	2	2	B	HI	M		HEAVY ORGANIC SILT	1
200	20	10	10	20	100	ND	ND	5	ND	ND	3	2	B	HI	C		GRANITIC AND PEG SANDS	2
200	50	10	20	20	100	ND	ND	ND	ND	ND	7	2	B	MO	M		ORGANIC SEDS	3
100	20	10	10	100	50	ND	ND	5	ND	ND	0	2	B	HI	C		GRANITIC PEGMATITES	4
200	50	10	10	20	50	ND	ND	ND	ND	ND	1	2	B	MO	C		REMANANTSGRANITIC ROCKS QTZ	5
200	50	20	20	100	100	ND	ND	5	ND	ND	1	2	B	MO	M		ORGANIC MUDS	6
200	ND	20	20	20	100	ND	ND	ND	ND	ND	0	2	B	MO	M		GRANITIC ROCKS COMPOSE ALL VISIBLE FLOAT	7
20	20	20	10	10	50	ND	ND	10	ND	ND	2	2	B	HI	C		NO ROCKS FINE ORGANIC SEDS	8
200	20	20	10	20	50	ND	ND	ND	ND	ND	3	3	B	HI	C		GRANITIC SAND FINE SEDS PRESENT	9
100	50	20	10	20	50	ND	ND	ND	ND	ND	1	3	B	HI	C		FINE ORGANIC SEDS PRESENT	10
100	20	20	10	20	100	ND	ND	5	ND	ND	1	3	B	HI	C		FINE ORGANIC SEDS PRESENT	11
200	20	20	10	20	100	ND	ND	5	ND	ND	1	4	B	HI	C		FINE ORGANIC SEDS PRESENT	12
200	100	20	20	50	50	ND	ND	5	ND	ND	1	60	B	MO	M		QTZ 15 IGNEOUS 55 SCHIST 5 PEG 25	13
200	20	20	10	20	100	ND	ND	ND	ND	ND	2	60	B	MO	M		IGNEOUS 60 SCHIST 10 QTZ 10 PEG 20	14
200	100	20	20	50	100	ND	ND	5	ND	ND	0	45	B	MO	M		IGNEOUS 55 SCHIST 15 QTZ 15 PEG 15	15
200	50	20	20	20	50	ND	ND	ND	ND	ND	0	25	B	MO	M		SCHIST 35IGNEOUS 35 GREEN STONE 20 QTZ 10	16
200	100	10	20	20	50	ND	ND	ND	ND	ND	1	45	B	MO	M		SCHIST 60 IGNEOUS 40	17
200	50	20	10	50	50	ND	ND	ND	ND	ND	6	20	B	MO	M	LS	LIMESTONE50 QTZ 25 GRANITE 15 GNST10	18
200	50	10	10	20	100	ND	ND	ND	ND	ND	3	3	B	HI	C		FINE SEDS PRESENT	19
200	20	20	20	20	100	ND	ND	5	ND	ND	2	2	B	MO	C		FINE SEDSPRESENT	20
200	50	20	10	50	50	ND	ND	ND	ND	ND	1	2	B	MO	C		FINE SEDSPRESENT	21
200	50	20	20	50	50	ND	ND	ND	ND	ND	1	20	B	MO	F		LIMESTONE 30 QTZ 30 GRANITE 30 GNST 10	22
200	20	20	20	20	100	ND	ND	5	ND	ND	1	20	B	MO	F		LIMESTONE25 QTZ 25 GRIN9TS 5	23
200	50	20	10	20	50	ND	ND	ND	ND	ND	0	3	B	MO	F		QTZ 35 GRANITE 50 GNST 15	24
200	100	20	5	50	20	ND	ND	ND	ND	ND	1	5	B	LO	M		QTZ IK GRANITE-PEG 55 GNST 20 VERY SANDY	25
200	50	10	5	20	50	ND	ND	ND	ND	ND	3	4	B	HI	C		FINE SEDSONLY	26
100	50	20	10	20	50	ND	ND	5	ND	ND		2	B	MO	M		FINE SEDSONLY	27
200	50	20	20	20	100	ND	ND	5	ND	ND		20	B	LO	F	LS	LIMESTONE30 QTZ 30 GRANITE 30 GNST 10	28
200	20	20	10	50	100	ND	ND	5	ND	ND	0	20	B	MO	M		LIMESTONE35 QTZ 30 GRANITE 30 GNST 5	29
100	50	20	10	20	100	ND	ND	ND	ND	ND	1	14	C	MO	M		LIMESTONE50 QTZ 25 GRANITE 25	30
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1	6	B	LO	F		QTZ 20 SHALE 5 SHIST 25 IGNEOUS 30	31
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2	6	B	LO	F		QTZ 20 SHALE 5 SCHIST 25 IGNEOUS 25 PEGMATITE 5	32
100	20	20	20	50	100	ND	ND	ND	ND	ND	2	8	B	LO	F		QTZ 20 SHALE 20 SCHIST 20 IGNEOUS 20 PEGMATITE 5	33
100	50	20	20	50	100	ND	ND	5	ND	ND	2	9	B	LO	F		QTZ 30 SHALE 10 SCHIST 25 IGNEOUS 25 PEG 5	34
200	50	10	20	20	100	ND	ND	5	ND	ND	2	9	B	LO	F		QTZ 15 IGNEOUS 30 SLATE 15 SCHIST 30	35
100	50	20	20	20	50	ND	ND	ND	ND	ND	2	8	B	LO	F		QTZ 5 SCHIST 35 IGNEOUS 40	36
100	50	10	10	20	100	ND	ND	ND	ND	ND	12	10	B	LO	M		QTZ 20 IGNEOUS 40 SCHIST 30	37
100	100	20	20	20	100	ND	ND	5	ND	ND	2	9	B	LO	M		QTZ 30 IGNEOUS 20 SCHIST 20 GREENSTONE 10	38
200	20	20	20	20	100	ND	ND	ND	ND	ND	4	10	B	LO	M		QTZ 25 SCHIST 35 IGNEOUS 30 GREENSCHIST 10	39
100	20	20	20	20	100	ND	ND	5	ND	ND	2	9	B	LO	M		QTZ 30 SCHIST 30 GR STONE 10 IGNEOUS 20 PEG 10	40
200	20	20	20	20	100	ND	ND	5	ND	ND	3	10	B	LO	M		QTZ 25 SCHIST 25 IGNEOUS 25 PEGMATITE 15	41
100	50	20	10	20	100	ND	ND	ND	ND	ND	0	25	B	MO		LS	LIMESTONE50 QTZ 25 GRANITE 20 GNST5	42
200	50	20	20	20	100	ND	ND	ND	ND	ND	0	20	B	MO	F		QTZ AND IGNEOUS MIXTURES 75 LIMESTONE 25	43
200	50	20	10	50	100	ND	ND	5	ND	ND	1	30	B	MO	M		BASIC QTZAND GRANITE MIX 70 LIMESTONE 20 GNST 10	44
100	200	10	10	20	100	ND	ND	ND	ND	ND	2	4	B	MO	F		CALCITE 25 LIMESTONE 20 QTZ25 GRANITE 20 GNST 10	45
200	100	10	20	50	100	ND	ND	ND	ND	ND	2	4	B	MO	M		QTZ 40 GRANITE 30 LIMESTONE 30	46
200	20	10	20	20	100	ND	ND	5	ND	ND	0	30	B	MO	F		MIXED QTZGRANITE GNEISS 65 LIMESTONE 25 GNST 15	47
200	50	20	20	20	100	ND	ND	5	ND	ND	2	20	B	MO	M		QTZ 20 GRANITE-GNEISS 50 GNST 10 SCHIST-PEG 20	48
100	20	20	20	50	100	ND	ND	ND	ND	ND	2	4	B	MO	M		QTZ 15 GRANITE 40 GNST-SCHIST 35 PEG 10	49
100	20	20	20	20	100	ND	ND	5	ND	ND	2	4	B	MO	F		QTZ 25 GRANITE 50 PEG-GNST 25	50
100	20	20	20	20	100	ND	ND	5	ND	ND	4		B	MO	F		GRANITE AND QTZ MIXED 70 PEG 25 GNST 5	51
200	50	20	20	20	100	ND	ND	5	ND	ND	4	3	B	MO	F		GRANITIC PEG 75 GNST-QTZ 25 IRON STAIN	52
100	50	20	10	20	100	ND	ND	ND	ND	ND	3	14	B	MO	F		GRANITIC INTRUSIVE 60 QTZ 30 GNST 10	53
100	50	20	10	20	100	ND	ND	ND	ND	ND	2	12	B	MO	F		QTZ 30 GRANITE 30 SCHIST 30 GNST 10	54
200	20	20	20	20	100	ND	ND	5	ND	ND	2	12	B	MO	F		QTZ 25 GRANITE 25 SCHIST-SHALE 40 GNST 10	55
100	20	10	10	20	100	ND	ND	ND	ND	ND	2	8	B	MO	M		QTZ 20 GRANITE 30 SCHIST SHALE 50	56
100	50	20	20	20	100	ND	ND	ND	ND	ND	0	8	B	MO	F	SL	GRANITE-QTZ 50 SCHIST-SHALE 50	57
100	50	20	20	20	100	ND	100	ND	ND	ND	0	8	B	MO	F		QTZ 25 GRANITE 35 SCHIST-SHALE 45	58
100	20	20	10	20	100	ND	ND	ND	ND	ND	0	4	B	LO	F		QTZ 80 SCHIST-SHALE 20 APPARENTLY A QTZ SLIDE	59
200	20	20	10	20	100	ND	ND	ND	ND	ND	3	6	B		F	GR	QTZ 25 GNST 40 GRANITE 35	60
100	20	20	20	20	100	ND	ND	ND	ND	ND	3	4	B	MO	F		QTZ 20 SHALE SCHIST 40 GRANITE 20 LIMESTONE 20	61

Appendix II, continued

Map No.	Sample No.	Gold (3)	Copper (3)	Lead (3)	Zinc (3)	Copper	Lead	Zinc	Molybdenum	Silver	Cobalt	Chromium	Nickel	Manganese	Titanium	Iron (%)	Magnesium (%)	Calcium (%)	Barium	Strontium	Boron	Beryllium	Tin	Tungsten
62	9J416	NA	40	25	100	20	10	100	5	ND	20	50	20	2000	5000	2	1	1	500	100	20	1	ND	ND
63	9J417	NA	10	25	85	20	ND	100	ND	ND	10	50	20	500	2000	2	1	1	500	100	20	1	ND	ND
64	9J418	NA	25	15	70	10	20	200	5	ND	20	100	20	500	5000	2	2	1	500	50	50	2	ND	ND
65	9J362	NA	20	10	75	10	10	100	5	NA	20	100	20	1000	2000	5	1	1	1000	100	100	1	ND	ND
66	9J360	NA	10	15	115	20	20	200	5	ND	20	100	50	1000	5000	5	2	1	1000	100	100	2	ND	ND
67	9J361	NA	10	15	75	10	10	100	2	ND	20	100	20	1000	5000	2	1	0.5	500	100	100	1	ND	ND
68	9J359	NA	15	15	115	20	10	100	5	ND	10	50	20	500	5000	2	2	1	500	100	50	1	ND	ND
69	9J358	NA	10	15	50	10	10	100	5	ND	20	100	20	2000	5000	5	1	1	1000	100	20	1	ND	ND
70	9J357	NA	30	20	115	20	10	200	5	ND	20	100	50	1000	5000	2	2	1	500	100	100	2	ND	ND
71	9J356	NA	30	20	110	20	10	500	5	ND	20	100	20	1000	5000	5	2	1	1000	100	200	2	ND	ND
72	9J355	NA	35	20	135	20	10	200	5	ND	20	100	50	1000	5000	5	2	1	1000	100	200	2	ND	ND
73	9J354	NA	30	15	100	20	20	200	5	ND	20	100	20	500	5000	2	1	1	500	100	100	2	ND	ND
74	9J353	NA	35	15	120	20	10	200	5	ND	20	100	20	500	5000	2	1	0.5	1000	100	50	2	ND	ND
75	9J352	NA	20	20	85	50	10	100	5	1	20	100	20	1000	*1.0	5	2	1	500	100	100	ND	ND	ND
76	9J351	NA	25	25	145	20	20	200	5	ND	20	200	50	1000	5000	5	2	0.5	1000	100	50	1	ND	ND
77	9J350	NA	35	20	100	10	ND	200	ND	ND	20	100	20	500	5000	2	1	1	500	100	100	2	ND	ND
78	9J331	NA	25	15	125	20	10	100	ND	ND	10	100	20	500	5000	2	2	1	500	100	100	ND	ND	ND
79	9J332	NA	40	25	55	20	20	100	5	ND	20	200	20	500	5000	2	1	0.5	500	100	50	2	ND	ND
80	9J333	NA	30	10	130	50	10	100	2	ND	20	100	50	500	5000	5	5	1	500	100	50	1	ND	ND
81	9J334	NA	70	20	160	20	ND	200	ND	ND	20	50	20	500	5000	5	2	1	500	100	100	2	ND	ND
82	9J335	NA	35	20	80	20	10	ND	2	NA	20	50	20	500	2000	2	1	0.5	500	200	50	1	ND	ND
83	9J336	NA	40	20	90	20	20	100	2	NA	50	200	50	500	2000	5	5	1	1000	200	50	1	ND	ND
84	9J337	NA	40	20	55	50	20	ND	2	NA	20	100	50	500	2000	5	2	1	500	100	50	1	ND	ND
85	9J338	NA	55	25	105	20	ND	200	ND	ND	20	100	50	500	5000	5	2	1	500	50	20	2	ND	ND
86	9J339	NA	45	25	50	20	20	100	2	ND	20	100	50	500	*1.0	5	2	0.5	500	100	50	1	ND	ND
87	9J341	NA	25	20	115	20	10	ND	2	ND	20	200	50	1000	*1.0	5	5	1	1000	100	100	ND	ND	ND
88	9J340	NA	40	20	70	20	20	ND	ND	ND	20	100	20	500	5000	5	1	0.5	500	100	50	2	ND	ND
89	9J342	NA	40	25	115	10	ND	200	ND	ND	10	50	20	500	2000	2	1	0.5	500	100	50	1	ND	ND
90	9J343	NA	20	15	105	10	10	200	ND	ND	20	50	20	500	5000	2	1	1	500	100	100	1	ND	ND
91	9J344	NA	35	25	120	20	10	100	ND	ND	20	100	20	500	5000	2	2	0.5	500	100	50	1	ND	ND
92	9J345	NA	15	15	85	10	20	200	5	ND	20	100	50	1000	*1.0	5	2	0.5	1000	100	200	5	ND	ND
93	9J346	NA	20	10	140	20	10	200	ND	ND	20	50	20	500	2000	2	1	0.2	500	100	200	2	ND	ND
94	9J349	NA	35	25	110	10	10	100	ND	ND	10	50	20	500	5000	2	1	0.5	500	100	50	2	ND	ND
95	9J348	NA	40	25	50	20	20	100	2	ND	20	100	20	1000	5000	5	2	0.5	500	100	50	2	ND	ND
96	9J347	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
97	9J379	NA	10	15	45	5	ND	200	ND	ND	10	100	10	500	5000	2	0.5	1	500	100	20	2	ND	ND
98	9J378	NA	10	15	50	10	20	100	2	ND	20	100	20	2000	5000	[illegible]	2	2	1000	500	20	1	ND	ND
99	9J377	NA	15	15	70	10	ND	100	ND	ND	10	50	20	2000	5000	2	0.5	1	500	100	50	1	ND	ND
100	9J376	NA	15	15	55	10	20	100	5	ND	20	200	20	5000	5000	5	2	2	500	200	50	1	ND	ND
101	9J375	NA	15	10	50	10	20	100	5	ND	20	100	20	5000	5000	5	2	2	500	200	50	2	ND	ND
102	9J50	NA	15	10	60	10	ND	100	ND	ND	10	100	20	1000	2000	2	0.5	2	500	200	20	1	ND	ND
103	9J49	NA	15	15	65	10	10	100	ND	ND	20	100	20	5000	5000	5	2	2	500	500	50	1	ND	ND
104	9J388	NA	5	10	45	5	20	200	2	ND	20	100	20	1000	5000	5	1	1	500	200	20	1	ND	ND
105	9J389	NA	5	10	45	20	10	200	5	ND	20	100	20	5000	*1.0	5	1	2	200	100	50	5	ND	ND
106	9J48	NA	10	10	55	10	20	100	5	ND	20	200	20	2000	5000	2	1	2	500	200	50	2	ND	ND
107	9J47	NA	5	5	25	5	20	100	ND	ND	20	100	10	2000	5000	2	1	2	500	200	100	2	ND	ND
108	9J43	NA	10	15	40	10	10	100	ND	ND	20	50	20	1000	5000	2	1	1	1000	200	50	1	ND	ND
109	9J44	NA	10	35	45	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
110	9J45	NA	15	20	70	5	10	100	5	ND	20	100	20	5000	5000	5	1	1	500	200	50	ND	ND	ND
111	9J46	NA	10	15	55	10	20	100	ND	ND	10	100	20	1000	5000	2	1	1	500	100	50	2	ND	ND
112	9J42	NA	10	15	55	10	20	100	5	ND	20	100	20	2000	5000	5	1	2	500	200	20	1	ND	ND
113	9J41	NA	10	25	50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
114	9J38	NA	15	15	60	20	20	ND	5	ND	20	200	50	2000	5000	10	1	1	500	100	20	1	ND	ND
115	9J39	NA	10	15	45	10	10	100	5	ND	10	200	20	2000	5000	2	1	1	500	100	20	2	ND	ND
116	9J40	NA	20	20	65	10	ND	ND	2	ND	20	100	50	1000	2000	2	0.5	1	200	100	50	1	ND	ND
117	9J31	NA	10	10	40	10	10	[illegible]	ND	ND	0	100	20	2000	*1.0	2	NA	2	500	200	50	1	ND	ND
118	9J3[illegible]	NA	15	15	65	20	20	ND	5	ND	20	100	50	2000	5000	5	1	1	1000	200	50	ND	ND	ND
119	9J33	NA	20	25	70	20	50	100	5	ND	50	100	20	5000	*1.0	5	2	2	1000	200	100	2	ND	ND
120	9J34	NA	20	20	55	50	20	ND	5	ND	50	200	50	5000	*1.0	5	2	2	1000	200	200	1	ND	ND
121	9J35	NA	15	20	35	20	20	ND	10	ND	10	200	50	5000	5000	5	2	1	500	200	100	ND	ND	ND
122	9J32	NA	10	10	45	5	20	ND	ND	ND	20	100	20	1000	5000	2	1	2	500	200	50	ND	ND	ND
123	9J[illegible]1	NA	10	10	50	5	ND	ND	ND	ND	10	100	20	2000	5000	2	1	1	200	100	100	1	ND	ND
124	9J30	NA	10	15	45	10	20	100	5	ND	10	100	20	5000	5000	5	1	2	200	100	100	2	ND	ND
125	9J29	NA	10	10	40	10	10	ND	2	ND	20	100	20	5000	5000	2	1	2	500	200	50	2	ND	ND
126	9J28	NA	10	15	45	10	20	100	5	ND	20	200	20	5000	5000	5	2	2	500	200	50	2	ND	ND
127	9J27	NA	15	15	70	10	10	ND	2	ND	20	200	20	1000	5000	2	1	1	500	200	20	2	ND	ND

Zirconium	Lanthanum	Niobium	Scandium	Yttrium	Vanadium	Arsenic	Antimony	Bismuth	Cadmium	Gold	Field Test	Stream Width	Location	Organic Content	Sediment Size	Bedrock (4)	Sediments in Stream Bed in Percent (4)	Map No.
100	50	20	10	20	100	ND	ND	ND	ND	ND	3	4	B	MD	F		QTZ 20 GRANITE 50 LIMESTONE 20	62
100	50	20	10	20	50	ND	ND	ND	ND	ND	0	10	B	MD		GR	GNEISS 20 GRANITE 30 GNST 15 QTZ 5 SCHIST 30	63
200	50	20	20	20	100	ND	ND	ND	ND	ND	0	6	B	MD	F		QTZ 25 GNST 25 LIMESTONE 20 GRANITE 30	64
200	20	20	10	50	100	ND	ND	5	ND	ND	0	20	B	MD	F		MIXED QTZ GRANITE-GNEISS 75 LIMESTONE 15 GNST 10	65
100	50	20	20	20	100	ND	ND	5	ND	ND	1	30	B	MD	F		QTZ AND GRANITE 60 LIMESTONE 30 GNST 10	66
500	100	20	20	50	100	ND	ND	ND	ND	ND	5	4	B	MD	F		MIXED QTZ AND GRANITE 55 LIMESTONE 35 GNST 10	67
100	50	20	10	50	100	ND	ND	ND	ND	ND	0	30	B	LO	F		MIXED QTZ AND IGNEOUS COMBINATIONS	68
100	50	10	10	20	100	ND	ND	5	ND	ND	5	4	B	MD	F		MIXED QTZ AND GRANITE GNST	69
200	50	20	20	20	100	ND	ND	5	ND	ND	0	40	B	LO	F	QTZ	QTZ 35 GNST 30 GRANITE 25 PEG 10	70
200	20	20	20	20	100	ND	ND	5	ND	ND	1	40	B	LO	F	GNSC	QTZ 15 GRANITE 35 GNSC 50	71
200	50	20	10	50	100	ND	ND	5	ND	ND	2	20	B	MD	F	GNSC	QTZ 25 GRANITE 30 FE STAINED GNSC 45	72
200	100	20	20	50	100	ND	ND	55	ND	ND	0	20	B	MD	F	QTZ	QTZ 35 GRANITE 40 FE STAINED GNST 25	73
200	50	20	10	20	100	ND	ND	5	ND	ND	0	20	B	MD	F	GNSC	QTZ 20 GRANITE 25 GNST 60	74
200	20	20	20	50	100	ND	ND	5	ND	ND	0	10	B	MD	F		GRANITE 60 QTZ 25 OTHER 15	75
100	20	20	20	20	100	ND	ND	5	ND	ND	0	10	B	MD	F	GR	GRANITE AND QTZ BASICS SOME GNST	76
100	50	10	10	20	50	ND	ND	ND	ND	ND	0	12	B	MD	M	GR	GRANITE AND QTZ BASICS 70 GNST 15 GNEISS 15	77
100	100	10	10	20	100	ND	ND	ND	ND	ND	0	14	B	LO	F	GR	QTZ 25 GRANITE 65 GNST 10	78
200	50	20	20	20	100	ND	ND	5	ND	ND	1	4	B	LO	F	GR	QTZ 20 GRANITIC 75 SOME RECOGNIZABLE GNST	79
200	20	20	10	20	100	ND	ND	5	ND	ND	1	8	B	LO	F		GNST 40 QTZ 20 GRANITE 40	80
200	50	20	10	20	100	ND	ND	5	ND	ND	2	6	B	LO	F		QTZ 25 GRANITE 45 GNST 30	81
200	50	10	20	20	100	ND	ND	ND	ND	ND	0	12	B	LO	F	GR	QTZ 20 GRANITE 70 CALCITE 10	82
200	50	20	20	[illegible]	100	ND	ND	5	ND	ND	2	6	B	LO	M		QTZ 25 GRANITE 75	83
200	50	20	10	20	100	ND	ND	5	ND	ND	1	6	B	LO	F		QTZ 25 GRANITE 55 SCHIST 20	84
200	20	20	20	50	100	ND	ND	ND	ND	ND	0	6	B	LO	F	PEG	QTZ 30 GRANITE 45 PEG 15 GNST 10	85
200	20	10	10	20	100	ND	ND	5	ND	ND	2	4	B	LO	F	GR	QTZ 35 GRANITE 40 GNST 25	86
100	50	10	20	50	200	ND	ND	5	ND	ND	0	4	B	LO	F	GR	GNST 25 QTZ 25 GRANITE 50	87
200	20	10	10	50	100	ND	ND	5	ND	ND	2	4	B	LO	F		QTZ 35 GRANITE 65	88
100	50	10	10	50	100	ND	ND	ND	ND	ND	2	4	B	LO	F		GNST 25 QTZ 20 FE STAINED ROCK 20 GRANITE 25	89
100	50	20	20	50	100	ND	ND	ND	ND	ND	2	12	B	LO	F		QTZ 20 GRANITE 60 CALCITE 20	90
100	50	10	20	20	100	ND	ND	ND	ND	ND	1	14	B	LO	F		QTZ 30 GRANITE 40 CALCITE 30	91
100	20	20	20	20	100	ND	ND	5	ND	ND	1	6	B	LO	F	LS	FE STAIN SCHIST 30 QTZ 20 GRANITE 40 CALCITE 10	92
100	50	10	20	20	50	ND	ND	ND	ND	ND	1	6	B	LO	F		QTZ 5 FE-STAINED SCHIST 70 GRANITE-25	93
200	50	20	20	20	100	ND	ND	5	ND	ND	2	4	B	LO	C		QTZ 25 GRANITE 50 FE STAINED SCHIST 25	94
200	100	20	20	50	100	ND	ND	5	ND	ND	1	4	B	LO	C		QTZ 20 GRANITE 50 SCHIST 20 VERY LITTLE SEDS	95
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1	4	B	LO	C		SAMPLE LOST	96
100	50	10	10	20	50	ND	ND	ND	ND	ND	2	2	B	MD	F		QTZ 25 GRANITE PEG 50 SCHIST 15 GNST 5 SEDS 5	97
200	100	20	20	50	100	ND	ND	ND	ND	ND	2	6	B	LO	F		QTZ 15 GRANITE AND GNEISS 65 GNST 10 PEG 10	98
100	100	10	10	50	50	ND	ND	ND	ND	ND	3	10	B	LO	F	GR	GRANITE AND GNEISS 80 QTZ 10 PEG 10	99
200	50	20	20	50	100	ND	ND	5	ND	ND	0	10	B	LO	F	GR	GRANITE AND GNEISS 85 PEG 10 QTZ 5	100
200	50	20	20	50	100	ND	ND	5	ND	ND	0	8	B	LO	F		QTZ 10 GRANITE 60 GNEISS 20 OTHER 10	101
50	50	10	10	20	50	ND	ND	ND	ND	ND	3	15	B	MD			IGNEOUS 40 SCHIST 35 QTZ 10 GNSCHIST 15	102
200	20	20	20	50	100	ND	ND	5	ND	ND	3	8	B	MD	M		QTZ 10 PEG 20 IGNEOUS 40 SCHIST 30	103
200	1000	20	20	200	50	ND	ND	ND	ND	ND	1	3	B	HI	M		QTZ 10 GRANITE 85 SEDS 5 VERY SANDY SOIL	104
500	500	50	20	200	100	ND	ND	10	100	ND	2	3	B	HI	M		GRANITIC PEG 90 QTZ 10 VERY SANDY SOIL	105
100	50	20	20	20	100	ND	ND	ND	ND	ND	1	8	B	MD	M		QTZ 10 PEG 10 IGNEOUS 45 SCHIST 30	106
100	100	20	20	50	50	ND	ND	ND	ND	ND	1	10	B	MD	M		QTZ 2 GREENSTONE 30 IGNEOUS 60	107
100	50	20	10	20	100	ND	ND	5	ND	ND	3	10	B	MD	M		SCHIST 60 IGNEOUS 25 PEG 10	108
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2	6	B	MD	M		QTZ 5 PEG 15 IGNEOUS 40 SCHIST 35	109
100	ND	20	20	50	100	ND	ND	5	ND	ND	3	4	B	LO	M		QTZ 10 IGNEOUS 40 SCHIST 40	110
200	50	20	10	20	100	ND	ND	ND	ND	ND	5	4	B	HI	M		QTZ 10 PEG 25 IGNEOUS 40 SCHIST 25	111
100	20	20	10	20	100	ND	ND	5	ND	ND	3	10	B	MD	M		QTZ 5 PEG 15 GREEN STONE 10 SCHIST 30 IGNEOUS 40	112
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1	10	B	MD	M		QTZ 15 PEG 15 IGNEOUS 40 SCHIST 20 GREENSTONE 10	113
500	20	10	20	20	100	ND	ND	5	ND	ND	2	6	B	HI	M		QTZ 5 PEG 25 IGNEOUS 30 SCHIST 40	114
200	50	20	20	50	100	ND	ND	ND	ND	ND	1	6	B	HI			QTZ 5 MOSTLY FINE SEDS	115
100	20	10	10	20	100	ND	ND	ND	ND	ND	2	3	B	HI	M		FINE SEDS ONLY	116
200	50	20	20	50	50	ND	ND	5	ND	ND	2	11	B	MD	M		QTZ 10 PEG25 IGNEOUS 55 SCHIST 10	117
200	50	20	20	50	100	ND	ND	10	ND	ND	2	12	B	MD	M		QTZ 10 SCHIST 30 PEG 15 IGNEOUS 45	118
100	200	20	50	200	100	ND	ND	5	ND	ND	0	12	B	MD	M		QTZ 5 PEG 15 SCHIST 50 IGNEOUS 30	119
500	50	20	20	50	200	ND	ND	10	ND	ND	2	12	B	ML	M		QTZ 5 PEG 20 SCHIST 30 IGNEOUS 40	120
200	100	20	20	200	100	ND	ND	5	ND	ND	0	12	B	MD	M		QTZ 5 SCHIST 30 PEG 20 IGNEOUS 45	121
200	50	10	10	20	100	ND	ND	5	ND	10	2	12	B	MD	M		QTZ 10 IGNEOUS 30 PEG 20 SCHIST 30 GREEN STONE 10	122
200	100	10	10	20	100	ND	ND	ND	ND	ND	2	14	B	MD	M		QTZ 10 IGNEOUS 45 PEG 10 SCHIST 30	123
200	200	20	20	100	50	ND	ND	5	ND	ND	1	16	B	MD	M		QTZ 5 SCHIST 20 PEG 10 IGNEOUS 65	124
200	100	20	20	50	100	ND	ND	ND	ND	ND	1	16	B	LO	M		QTZ 15 IGNEOUS 50 SCHIST 20 PEG 10	125
200	100	20	20	50	50	ND	ND	ND	ND	ND	2	18	B	LO	M		QTZ 10 IGNEOUS 45 PEG 15 SCHIST 20	126
100	100	20	10	20	100	ND	ND	ND	ND	ND	1	18	B	MD	M		QTZ 20 SCHIST 30 PEG 15 IGNEOUS 35	127

Appendix II, continued

Map No.	Sample No.	Gold (3)	Copper (3)	Lead (3)	Zinc (3)	Copper	Lead	Zinc	Molybdenum	Silver	Cobalt	Chromium	Nickel	Manganese	Titanium	Iron (%)	Magnesium (%)	Calcium (%)	Barium	Strontium	Boron	Beryllium	Tin	Tungsten
128	9J26	NA	15	15	55	10	20	100	2	ND	20	100	20	2000	5000	5	2	2	500	200	50	2	ND	ND
129	9J25	NA	10	10	40	10	20	ND	ND	ND	20	100	20	2000	5000	5	1	2	500	200	50	2	ND	ND
130	9J24	NA	15	10	45	10	20	100	ND	ND	20	100	20	2000	5000	2	1	2	500	200	20	1	ND	ND
131	9J23	NA	10	10	45	5	10	200	ND	ND	20	50	20	2000	5000	1	0.5	1	500	200	20	1	ND	ND
132	9J72	NA	10	10	40	10	20	ND	ND	ND	20	50	10	2000	5000	2	1	2	500	200	50	2	ND	ND
133	9J71	NA	10	10	55	10	20	ND	ND	ND	20	50	20	1000	5000	2	1	2	500	200	50	2	ND	ND
134	9J73	NA	10	10	45	5	20	100	ND	ND	10	100	20	1000	5000	2	1	2	500	200	50	1	ND	ND
135	9J74	NA	15	15	45	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
136	9J75	NA	10	10	30	5	10	100	ND	ND	10	100	20	2000	2000	2	1	2	500	200	50	1	ND	ND
137	9J76	NA	10	10	35	10	20	100	ND	ND	10	200	20	1000	5000	2	1	2	500	200	50	2	ND	ND
138	9J77	NA	5	10	45	10	10	100	ND	ND	10	50	10	2000	5000	2	1	5	1000	200	50	2	ND	ND
139	9J78	NA	15	15	45	10	20	100	ND	ND	10	50	10	500	2000	2	1	2	500	200	50	2	ND	ND
140	9J79	NA	10	15	45	10	50	100	ND	ND	20	100	20	2000	5000	5	1	2	500	200	50	2	ND	ND
141	9J80	NA	10	10	40	5	20	100	ND	ND	20	100	20	1000	5000	2	1	2	1000	200	50	2	ND	ND
142	9J81	NA	10	10	35	5	10	ND	ND	ND	10	50	10	1000	5000	1	1	2	1000	200	20	1	ND	ND
143	9J82	NA	10	10	35	5	20	100	ND	ND	10	100	20	1000	5000	1	1	2	1000	200	50	1	ND	ND
144	9J83	NA	10	10	50	10	20	NA	ND	ND	0	100	0	1000	5000	2	–	2	500	00	20	2	ND	ND
145	9J51	NA	5	10	30	5	10	100	ND	ND	10	100	20	2000	5000	1	1	2	500	200	50	1	ND	ND
146	9J52	NA	5	10	25	5	20	100	ND	ND	10	100	20	1000	5000	2	2	2	500	200	20	1	ND	ND
147	9J53	NA	5	10	25	5	20	00	ND	ND	10	50	10	1000	2000	2	1	5	500	200	10	1	ND	ND
148	9J54	NA	10	10	25	5	10	100	ND	ND	10	100	20	500	5000	1	1	2	500	200	50	2	ND	ND
149	9J55	NA	5	10	35	5	10	ND	2	ND	20	100	20	500	2000	2	1	2	500	200	50	2	ND	ND
150	9J56	NA	5	10	40	10	ND	NA	ND	ND	10	100	10	1000	5000	2	2	2	500	200	20	2	ND	ND
151	9J57	NA	5	10	40	10	20	100	ND	ND	20	50	10	1000	5000	2	1	2	500	500	20	2	ND	ND
152	9J58	NA	5	5	25	5	10	100	2	ND	20	100	10	500	2000	2	1	5	500	200	10	2	ND	ND
153	9J59	NA	5	10	45	10	20	100	ND	ND	20	100	10	1000	5000	2	1	2	500	200	20	2	ND	ND
154	9J60	NA	5	15	45	10	20	100	ND	ND	20	100	20	1000	5000	2	2	2	500	500	20	2	ND	ND
155	9J61	NA	10	15	65	10	10	NA	ND	ND	0	100	0	2000	2000	5	0.5	1	200	200	10	2	ND	ND
156	9J62	NA	5	15	100	10	50	200	10	1	50	200	50	5000	2000	10	0.2	1	500	100	50	2	ND	ND
157	9J63	NA	10	15	40	10	20	100	ND	ND	20	100	20	1000	5000	5	1	2	500	200	10	5	ND	ND
158	9J64	NA	5	10	35	5	20	200	ND	ND	20	100	20	500	5000	1	1	2	1000	200	10	2	ND	ND
159	9J65	NA	5	10	35	10	20	100	ND	1	20	50	10	1000	5000	2	2	2	500	500	10	5	ND	ND
160	9J69	NA	15	15	75	10	10	100	ND	ND	10	100	20	1000	5000	2	1	1	500	100	20	2	ND	ND
161	9J68	NA	10	15	35	5	20	ND	ND	ND	10	50	10	500	2000	2	0.5	1	500	200	20	2	ND	ND
162	9J67	NA	10	10	35	5	ND	100	ND	ND	10	50	10	500	5000	2	1	2	500	200	50	2	ND	ND
163	9J66	NA	10	15	40	5	20	100	ND	ND	10	100	10	500	5000	2	0.5	1	500	200	50	2	ND	ND
164	9J101	NA	15	25	65	10	10	100	2	ND	10	100	20	500	5000	2	1	2	500	200	50	5	ND	ND
165	9J100	NA	15	20	80	10	20	100	5	ND	20	100	20	500	*1.0	5	1	2	500	200	50	2	ND	ND
166	9J99	NA	10	20	60	10	10	100	5	ND	20	100	20	1000	5000	2	1	2	500	200	20	2	ND	ND
167	9J98	NA	15	30	50	5	20	100	ND	ND	10	50	10	1000	2000	2	2	2	1000	500	50	1	ND	ND
168	9J97	NA	10	20	40	5	10	ND	ND	ND	20	100	20	500	5000	1	1	2	500	200	50	2	ND	ND
169	9J96	NA	10	15	35	10	20	200	ND	ND	20	100	20	1000	*1.0	2	1	2	500	200	100	1	ND	ND
170	9J95	NA	10	25	45	20	20	100	5	1	20	100	20	1000	*1.0	2	2	5	1000	200	100	2	ND	ND
171	9J94	NA	10	15	75	10	50	100	ND	ND	20	100	20	1000	*1.0	2	1	2	1000	200	100	2	ND	ND
172	9J93	NA	10	20	60	10	20	100	ND	ND	20	100	20	1000	5000	2	1	2	500	200	50	1	ND	ND
173	9J92	NA	10	20	60	10	50	200	5	ND	20	100	20	1000	*1.0	2	2	2	500	200	100	2	ND	ND
174	9J91	NA	10	20	50	10	10	100	ND	ND	10	100	20	500	5000	2	2	2	1000	200	20	1	ND	ND
175	9J90	NA	20	35	60	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
176	9J89	NA	10	30	60	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
177	9J88	NA	10	15	55	5	20	100	ND	ND	20	100	20	500	5000	1	2	2	500	200	100	2	ND	ND
178	9J87	NA	5	10	35	5	20	100	ND	ND	10	50	10	1000	*1.0	5	2	5	500	200	100	2	ND	ND
179	9J86	NA	5	10	30	5	0	NA	ND	ND	20	100	0	1000	*1.0	5	2	2	5 0	200	100	2	ND	ND
180	9J85	NA	5	15	35	5	20	ND	ND	ND	10	100	10	1000	5000	5	2	2	500	200	50	2	ND	ND
181	9J84	NA	5	10	40	5	20	100	ND	ND	20	100	10	1000	*1.0	2	2	2	500	200	100	2	ND	ND
182	9J200	NA	10	15	55	10	20	ND	ND	NA	20	100	20	1000	2000	2	1	2	500	100	50	1	ND	ND
183	9J199	NA	10	15	60	5	20	ND	ND	NA	20	100	50	500	2000	2	1	2	500	100	50	2	ND	ND
184	9J198	NA	10	15	60	10	20	100	5	ND	20	100	20	1000	5000	2	1	2	500	200	100	2	ND	ND
185	9J197	NA	10	15	55	10	ND	ND	2	1	20	100	20	1000	2000	2	2	2	1000	200	50	2	ND	ND
186	9J196	NA	10	10	45	10	20	100	ND	NA	10	50	10	1000	2000	2	1	2	500	200	50	2	ND	ND
187	9J195	NA	10	15	55	5	10	100	ND	ND	10	100	20	1000	5000	2	1	2	500	200	100	2	ND	ND
188	9J194	NA	10	10	55	10	10	ND	5	ND	10	100	20	500	5000	2	1	2	500	200	50	2	ND	ND
189	9J193	NA	10	15	75	5	ND	100	ND	ND	ND	50	10	500	2000	2	0.5	1	200	100	20	2	ND	ND
190	9J192	NA	10	10	50	5	10	ND	ND	ND	20	100	20	1000	5000	2	2	2	1000	200	50	2	ND	ND
191	9J191	NA	15	15	65	10	10	100	2	ND	20	100	20	1000	5000	2	1	2	500	200	20	1	ND	ND
192	9J190	NA	10	10	40	10	20	100	ND	ND	20	100	20	1000	5000	2	1	2	1000	200	50	1	10	ND
193	9J102	NA	10	15	45	10	20	ND	ND	ND	20	100	20	2000	*1.0	2	1	2	1000	200	200	1	ND	ND

Zirconium	Lanthanum	Niobium	Scandium	Yttrium	Vanadium	Arsenic	Antimony	Bismuch	Cadmium	Gold	Field Test	Stream Width	Location	Organic Content	Sediment Size	Bedrock (4)	Sediments in Stream Bed in Percent (4)	Map No.
200	100	20	20	50	100	ND	ND	5	ND	ND	1	18	P	MD	M		QTZ 15 SCHIST 20 PEG 15 IGNEOUS 50	128
200	20	20	10	20	50	ND	ND	5	ND	ND	3	18	B	MD	M		QTZ 1 PEG 10 SCHIST 35 IGNEOUS 40 GREENSTONE 10	129
100	20	10	20	20	50	ND	ND	ND	ND	ND		20	P	MD	M		QTZ 5 SCHIST 50 IGNEOUS 35 GREEN STONE 10	130
200	100	10	20	20	50	ND	ND	5	ND	ND	1	20	B	MD	M		QTZ 10 SCHIST 40 [illegible] 20 GREENSTONE 20	131
200	20	20	10	20	50	ND	ND	5	ND	ND	1	20	B	MD	M		SCHIST 50 IGNEOUS 50	132
200	100	10	10	20	50	ND	ND	ND	ND	ND	1	25	B	MD	M		SCHIST 35 QTZ 5 IGNEOUS 50	133
200	20	20	10	20	50	ND	ND	ND	ND	ND	1	20	B	MD	M		QTZ 10 SCHIST 45 GREENSTONE 35	134
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	20	B	MD	M		QTZ 10 IGNEOUS 60 SCHIST 30	135
100	ND	20	10	20	50	ND	ND	ND	ND	ND	1	20	B	MD	M		QTZ 10 SCHIST 50 IGNEOUS 40	136
200	20	20	10	20	50	ND	ND	ND	ND	ND	1	20	B	MD	F		QTZ 10 IGNEOUS 50 SCHIST 35 GREENSTONE 5	137
200	20	10	10	50	50	ND	ND	ND	ND	ND	0	20	B	MD	M		PEG 10 QTZ 5 SCHIST 40 IGNEOUS 30	138
200	ND	10	10	10	50	ND	ND	ND	ND	ND	0	18	B	MD	M		PEG 10 SCHIST 40 IGNEOUS 40 QTZ 10	139
200	50	20	10	50	50	ND	ND	5	ND	ND	2	18	B	MD	M		SCHIST 40 IGNEOUS 30 GREEN STONE 20	140
100	100	20	10	20	50	ND	ND	ND	ND	ND	0	14	P	MD	M		PEG 15 QTZ 15 GREENSTONE 20 IGNEOUS 20 SCHIST 30	141
100	20	10	5	10	50	ND	ND	ND	ND	ND	2	14	B	MD	M		SCHIST 20 IGNEOUS 50 QTZ 15 GREEN STONE 10	142
100	ND	20	10	50	50	ND	ND	ND	ND	ND	1	12	B	MD	M		QTZ 15 SCHIST 15 IGNEOUS 65 PEG 5	143
200	NA	20	NA	50	50	ND	ND	5	ND	NA	1	20	P	MD	M		PEG 25 SCHIST 30 IGNEOUS 25 QTZ 5	144
200	20	20	10	50	50	ND	ND	ND	ND	ND	2	14	B	MD	M		QTZ 15 IGNEOUS 40 PEG 10 SCHIST 35	145
200	ND	10	10	50	100	ND	ND	ND	ND	ND	2	14	P	MD	M		QTZ 20 PEG 20 SCHIST 30 IGNEOUS 30	146
100	NA	10	10	50	50	ND	ND	ND	ND	ND	1	12	B	MD	M		QTZ 25 PEG 25 SCHIST 20 IGNEOUS 30	147
200	200	20	10	200	50	ND	ND	ND	ND	ND	2	12	B	MD	M		QTZ 20 PEG 20 SCHIST 20 GREEN STONE 10 IGNEOUS 30	148
200	50	20	10	50	50	ND	ND	ND	ND	ND	1	12	B	MD	M		QTZ 20 PEG 15 IGNEOUS 25 SCHIST 30 GREENSTONE 15	149
200	NA	20	0	50	50	ND	ND	ND	ND	ND	1	12	B	MD	M	PEG	QTZ 25 PEG 35 IGNEOUS 20 SCHIST 10 GREEN STONE 10	150
200	ND	20	10	20	50	ND	ND	[illegible]	ND	ND	2	12	B	MD	M	PEG	QTZ 20 PEG 25 IGNEOUS 30 SCHIST 20 GREEN STONE 5	151
200	ND	20	10	20	50	ND	ND	ND	ND	ND	1	8	B	MD	M		IGNEOUS 40 SCHIST 40 QTZ 10 GREEN STONE 10	152
100	50	20	10	20	50	ND	ND	ND	ND	ND	3	8	B	MD	M		SCHIST 30 QTZ 5 IGNEOUS 60 GREENSTONES	153
500	20	20	10	20	100	ND	ND	5	ND	ND	6	4	P	MD	M		SCHIST 35 IGNEOUS 50 GREENSTONE 15	154
100	NA	20	NA	20	50	ND	ND	5	ND	ND	7	4	P	FI	M		SCHIST 30 IGNEOUS 50 GRANITE 10 GREENSTONE 10	155
200	20	20	20	20	50	ND	ND	5	ND	ND	20	2	B	FI			IGNEOUS 50 SCHIST 50	156
200	50	20	20	50	50	ND	ND	ND	ND	ND	2	8	B	MD	M		SCHIST 35 IGNEOUS 35 GRANITE 20 GREENSTONE 15	157
100	20	20	20	50	50	ND	ND	ND	ND	ND	2	7	B	MD	M		SCHIST 30 IGNEOUS 40 GRANITE 25 QTZ 5	156
200	20	20	10	20	50	ND	ND	ND	ND	ND	1	6	P	MD	M		SCHIST 25 IGNEOUS 25 GREEN STONE 40 QTZ 10	159
200	100	20	10	20	50	ND	ND	5	ND	ND	2	7	B	MD	M		SCHIST 15 IGNEOUS 30 GRANITE 35 GREENSTONE 20	160
200	50	10	10	20	50	ND	ND	ND	ND	ND	2	7	B	MD	M		SCHIST 25 IGNEOUS 60 GREEN STONE 10 QTZ 5	161
200	50	10	10	20	50	ND	ND	ND	ND	ND	2	7	B	MD	M		SCHIST 30 IGNEOUS 60 QTZ 10	162
500	50	10	10	50	50	ND	ND	ND	ND	ND	0	6	B	MD	M	PEG	SCHIST 20 GREEN STONE 30 IGNEOUS 30 QTZ 5	163
200	20	20	10	50	50	ND	ND	ND	ND	ND	1	7	P	MD	M		QTZ 20 IGNEOUS 40 SCHIST 30 GREEN STONE 10	164
500	50	20	10	20	50	ND	ND	5	ND	ND	4	4	B	FI	M		QTZ 30 PEG 15 GRANITE 30 IGNEOUS 30	165
200	100	20	10	50	50	ND	ND	ND	ND	ND	1	5	B	MD	M		QTZ 15 PEG 15 IGNEOUS 35 SCHIST 25 GREENSTONE 10	166
100	20	10	10	20	50	ND	ND	ND	ND	ND	0	5	B	MD	M		QTZ 20 SCHIST 35 IGNEOUS 30 GREEN STONE 10	167
200	20	10	10	20	50	ND	ND	ND	ND	ND	1	5	B	LD	M		QTZ 25 SCHIST 40 PEG 5 IGNEOUS 25	168
200	20	20	20	50	100	ND	ND	5	ND	ND	2	6	B	MD	M		QTZ 25 PEG 25 IGNEOUS 10 SCHIST 35	169
200	70	50	10	50	50	ND	ND	ND	ND	ND	1	6	B	MD	M		QTZ 20 PEG 5	170
500	20	20	20	50	100	ND	ND	ND	ND	ND	1	7	B	MD	M		QTZ 20 PEG 30	171
200	50	20	10	50	50	ND	ND	5	ND	ND	1	7	B	MD	M		QTZ 20 IGNEOUS 25 PEG 20 SCHIST 15	172
200	50	20	70	50	100	ND	ND	ND	ND	ND	3	7	B	MD	M		QTZ 25 IGNEOUS 35 SCHIST 35	173
500	100	20	10	50	50	ND	ND	ND	ND	ND	2	7	B	MD	M		PEG 25 QTZ 10 SCHIST 25 IGNEOUS 35	174
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	7	B	MD	M		QTZ 20 PEG 15 IGNEOUS 35 SCHIST 25	175
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	7	B	MD	M		QTZ 20 GRANITE 20 PEG 10 SCHIST 25	176
200	ND	20	10	50	50	ND	ND	ND	ND	ND	1	6	P	MD	M		SCHIST 20 IGNEOUS 50 QTZ 10 PEG 20	177
100	50	20	10	50	50	ND	ND	ND	ND	ND	1	7	B	MD	M		QTZ 15 PEG 15 SCHIST 30 IGNEOUS 40	178
20	NA	20	NA	50	100	ND	ND	5	ND	ND	0	8	B	MD	M		SCHIST 25 IGNEOUS 30 QTZ 15 PEG 15 GREEN STOSE	179
10	ND	20	10	20	50	ND	ND	ND	ND	ND	0	8	B	MD	M		SCHIST 30 IGNEOUS 45 PEG 25	180
20	20	20	20	50	50	ND	ND	ND	ND	ND	0	8	B	MD	M		SCHIST 45 IGNEOUS 40 PEG 0 QTZ 5	181
500	20	20	20	20	50	ND	ND	5	ND	ND	2	20	P	MD	M		SCHIST 20 IGNEOUS 75	182
500	50	20	10	20	50	ND	ND	5	ND	ND	1	20	B	MD	M		SCHIST 20 IGNEOUS 65 QTZ 15	183
20	50	20	20	50	100	ND	ND	5	ND	ND	1	20	B	MD	M		SCHIST 25 IGNEOUS 35 QTZ 30 PEG 10	184
20	20	10	10	20	100	ND	ND	ND	ND	ND	1	20	B	MD	M		SCHIST 20 IGNEOUS 40 QTZ 10 PEG 30	185
0	20	20	10	50	50	ND	ND	ND	ND	ND	0	20	B	MD	M		SCHIST 20 IGNEOUS 45 QTZ 25 PEG 10	186
100	20	20	10	20	50	ND	ND	ND	ND	ND	2	20	B	MD	M		SCHIST 15 IGNEOUS 40 QTZ 25 PEG 20	187
200	20	20	10	20	50	ND	ND	ND	ND	ND	1	25	P	MD	M		SCHIST 15 IGNEOUS 50 QTZ 20 PEG 15	188
10	50	10	10	20	50	ND	ND	ND	ND	ND	1	25	B	MD	M		SCHIST 20 IGNEOUS 50 QTZ 15 PEG 15	189
20	50	20	10	50	100	ND	ND	ND	ND	ND	2	25	B	MD	M		SCHIST 20 IGNEOUS 60 QTZ 10 PEG 10	190
200	20	10	20	50	50	ND	ND	ND	ND	ND	1	35	B	MD	M		SCHIST 15 IGNEOUS 60 QTZ 15 PEG 10	191
100	20	20	20	50	50	ND	ND	ND	ND	ND	1	40	B	MD	M		IGNEOUS 50 SCHIST 25 QTZ 25	192
200	20	-	20	50	100	ND	ND	ND	ND	ND	0	20	B	MD	M		IGNEOUS 25 SCHIST 35 PEG 10 QTZ 22	193

Appendix II, continued

Map No.	Sample No.	Gold (3)	Copper (3)	Lead (3)	Zinc (3)	Copper	Lead	Zinc	Molybdenum	Silver	Cobalt	Chromium	Nickel	Manganese	Titanium	Iron (%)	Magnesium (%)	Calcium (%)	Barium	Strontium	Boron	Beryllium	Tin	Tungsten
194	9J103	NA	10	20	60	10	10	100	ND	ND	20	100	20	2000	5000	5	1	2	500	200	50	2	ND	ND
195	9J104	NA	10	15	55	10	20	100	ND	ND	20	100	20	1000	5000	2	1	2	500	200	100	1	ND	ND
196	9J1	NA	10	10	35	100	50	ND	2	ND	20	100	20	2000	5000	2	1	2	1000	100	100	ND	ND	ND
197	9J2	NA	15	35	50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
198	9J3	NA	10	20	40	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
199	9J4	NA	15	15	50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
200	9J5	NA	NA	NA	NA	5	10	100	ND	ND	20	50	20	1000	2000	2	1	1	500	200	200	2	ND	ND
201	9J6	NA	20	20	55	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
202	9J7	NA	20	30	75	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
203	9J8	NA	10	15	45	5	10	ND	ND	ND	10	50	20	1000	2000	2	1	1	500	200	50	1	ND	ND
204	9J9	NA	15	20	75	20	20	200	5	ND	20	100	20	2000	*1.0	2	2	1	500	100	100	ND	10	ND
205	9J10	NA	20	25	90	20	50	100	ND	ND	20	100	20	2000	5000	5	5	2	500	100	100	2	ND	ND
206	9J71	NA	20	50	85	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
207	9J105	NA	10	15	50	5	20	ND	2	NA	20	200	20	500	2000	5	1	2	500	100	50	ND	ND	ND
208	9J106	NA	10	15	50	10	20	100	ND	1	20	100	20	1000	*1.0	5	1	2	500	200	50	2	ND	ND
209	9J107	NA	5	10	30	5	10	100	ND	ND	10	100	20	500	5000	2	0.5	2	500	200	100	2	ND	ND
210	9J108	NA	15	15	65	20	20	100	ND	ND	20	100	20	1000	*1.0	2	1	2	500	200	50	2	ND	ND
211	9J109	NA	10	15	45	10	10	200	5	ND	20	100	20	2000	*1.0	5	1	2	500	200	100	2	ND	ND
212	9J110	NA	20	40	55	20	50	100	ND	ND	20	100	50	1000	*1.0	5	2	2	500	200	200	1	ND	ND
213	9J111	NA	10	15	40	10	10	100	ND	ND	10	100	20	1000	*1.0	2	1	2	500	200	200	2	ND	ND
214	9J112	NA	10	15	30	5	10	100	ND	ND	20	100	10	1000	*1.0	2	2	2	500	200	200	ND	ND	ND
215	9J113	NA	20	25	75	20	ND	200	5	ND	20	200	50	1000	5000	2	1	2	500	100	20	1	ND	ND
216	9J114	NA	15	20	60	10	20	100	5	ND	50	200	20	1000	5000	1	1	1	500	200	50	2	ND	ND
217	9J115	NA	15	25	60	10	ND	100	ND	ND	10	100	20	500	5000	1	1	1	500	100	20	ND	ND	ND
218	9J116	NA	20	20	75	20	10	100	5	ND	20	100	20	1000	5000	2	2	2	500	100	100	ND	ND	ND
219	9J117	NA	25	15	100	20	20	100	2	ND	20	200	20	500	2000	2	2	2	500	100	50	1	ND	ND
220	9J118	NA	15	20	60	10	ND	ND	ND	ND	20	100	20	500	2000	2	1	1	200	100	50	1	ND	ND
221	9J119	NA	15	15	65	20	50	100	5	ND	20	200	20	2000	*1.0	2	2	2	500	200	50	2	ND	ND
222	9J120	NA	15	25	75	20	10	ND	2	ND	20	100	20	500	5000	5	2	1	1000	100	20	1	ND	ND
223	9J387	NA	30	50	130	10	ND	200	5	ND	50	50	20	2000	5000	1	0.2	0.2	500	100	10	1	ND	ND
224	9J386	NA	20	15	95	10	10	100	5	ND	20	100	20	2000	5000	1	0.5	0.5	500	100	20	2	ND	ND
225	9J385	NA	20	15	65	20	10	100	10	1	20	200	20	5000	*1.0	5	1	1	500	200	50	ND	ND	ND
226	9J384	NA	20	15	80	20	20	100	5	ND	50	200	20	2000	5000	5	1	1	500	200	50	1	ND	ND
227	9J383	NA	10	10	55	10	10	100	ND	ND	20	100	20	2000	5000	2	1	2	500	200	50	1	ND	ND
228	9J382	NA	15	15	65	10	20	100	ND	ND	20	100	20	2000	5000	5	2	1	500	200	20	2	ND	ND
229	9J381	NA	10	10	40	10	ND	100	ND	ND	20	100	20	1000	5000	2	1	2	500	200	20	2	ND	ND
230	9J380	NA	10	10	30	5	20	100	ND	ND	20	100	20	2000	5000	5	2	2	500	200	50	2	ND	ND
231	9J293	NA	10	15	60	10	ND	100	ND	ND	20	50	20	500	2000	2	0.5	1	500	100	10	1	ND	ND
232	9J292	NA	10	10	50	5	ND	200	ND	ND	10	20	10	500	2000	2	0.5	1	500	100	20	2	ND	ND
233	9J291	NA	5	10	30	5	ND	ND	ND	ND	10	100	20	200	2000	0.5	0.5	2	200	200	10	1	ND	ND
234	9J290	NA	10	10	30	10	20	100	5	ND	20	100	20	1000	5000	2	1	2	500	200	50	2	ND	ND
235	9J289	NA	10	15	35	10	20	100	20	ND	20	1000	50	1000	2000	1	0.5	1	500	200	10	2	ND	ND
236	9J288	NA	5	5	40	10	10	100	5	ND	20	200	20	2000	5000	5	0.5	2	500	200	20	1	ND	ND
237	9J287	NA	10	15	35	10	20	100	20	ND	20	500	200	1000	5000	5	1	1	500	200	20	1	ND	ND
238	9J286	NA	10	15	40	5	ND	100	ND	ND	10	100	10	500	2000	2	0.5	1	200	100	20	2	ND	ND
239	9J294	NA	10	10	35	5	ND	100	ND	ND	10	100	20	1000	5000	2	1	2	200	200	50	1	ND	ND
240	9J295	NA	10	10	40	5	ND	200	ND	ND	ND	20	10	200	2000	1	0.2	1	200	100	50	2	ND	ND
241	9J296	NA	10	15	55	10	10	ND	2	2	10	100	20	500	2000	2	1	2	500	200	50	2	ND	ND
242	9J297	NA	5	10	40	10	20	ND	ND	NA	20	200	50	1000	2000	5	1	2	500	200	50	ND	ND	ND
243	9J298	NA	5	10	25	5	20	100	ND	ND	10	100	10	500	5000	2	1	2	500	200	20	2	ND	ND
244	9J299	NA	10	15	45	10	20	100	2	1	20	100	20	1000	5000	5	1	2	1000	200	20	2	ND	ND
245	9J285	NA	5	15	35	10	10	100	5	ND	20	200	20	1000	5000	2	1	2	500	200	20	2	ND	ND
246	9J284	NA	5	10	30	5	ND	100	ND	ND	10	50	10	200	2000	1	0.5	1	200	200	10	2	ND	ND
247	9J283	NA	10	15	40	5	ND	100	ND	ND	10	100	20	200	2000	2	0.5	1	200	100	10	1	ND	ND
248	9J282	NA	10	10	25	5	10	ND	ND	ND	ND	50	20	500	2000	2	0.5	1	500	200	20	2	ND	ND
249	9J281	NA	10	10	30	10	20	ND	2	NA	20	200	20	1000	5000	5	1	2	500	200	100	1	ND	ND
250	9J280	NA	10	10	40	10	10	ND	2	NA	20	100	20	1000	2000	2	1	2	500	200	20	1	ND	ND
251	9J279	NA	10	5	45	10	20	ND	ND	ND	10	100	20	1000	5000	2	1	2	500	200	50	1	ND	ND
252	9J270	NA	10	10	70	10	10	100	ND	ND	10	100	20	500	5000	2	0.5	1	500	100	20	2	ND	ND
253	9J271	NA	5	10	50	10	10	100	ND	ND	20	100	20	500	5000	2	1	2	500	100	20	2	ND	ND
254	9J272	NA	10	10	35	10	10	100	5	ND	20	100	20	500	5000	2	1	1	500	200	20	2	ND	ND
255	9J273	NA	5	10	75	5	20	100	ND	ND	ND	50	10	500	5000	2	0.5	1	500	200	50	2	ND	ND
256	9J274	NA	5	10	25	5	10	ND	ND	ND	20	50	10	500	1000	2	0.5	1	500	100	100	2	ND	ND
257	9J275	NA	10	10	35	5	10	100	-	ND	10	50	10	500	5000	2	1	1	500	100	20	2	ND	ND
258	9J276	NA	10	15	40	10	ND	100	ND	ND	20	50	20	2000	5000	2	1	1	500	100	50	2	ND	ND
259	9J277	NA	20	10	20	10	10	100	ND	ND	50	1000	50	1000	5000	5	5	5	500	100	20	ND	ND	ND

Zirconium	Lanthanum	Niobium	Scandium	Yttrium	Vanadium	Arsenic	Antimony	Bismuth	Cadmium	Gold	Field Test	Stream Width	Location	Organic Content	Sediment Size	Bedrock (4)	Sediments in Stream Bed in Percent (4)	Map No.
100	20	20	10	50	100	ND	ND	5	ND	ND	1	20	B	MD	M		SCHIST 20 IGNEOUS 35 GR STONE 25 QTZ 10 CALCITE 10	194
200	20	20	20	20	100	ND	ND	5	ND	ND	2	12	P	MD	M		SCHIST 30 IGNEOUS 50 GR STONE 15 QTZ 5	195
200	20	20	20	50	100	ND	ND	ND	ND	ND	2	6	B	LO	M		QTZ 10 SCHIST 40 IGNEOUS 30 SCHIST 5	196
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	6	B	LO	M		QTZ 30 SHIST 50 IGNEOUS 20	197
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2	6	B	LO	M		QTZ 30 IGNEOUS 20 SCHIST 30	198
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1	6	B	LO	M		QTZ 40 SCHIST 30 IGNEOUS 20	199
100	ND	10	20	20	50	ND	ND	ND	ND	ND	2	7	B	LO	M		QTZ 30 SCHIST 50 IGNEOUS 20	200
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1	5	B	LO	M		QTZ 20 SCHIST 40 IGNEOUS 40	201
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1	7	P	MD	M		QTZ 20 SCHIST 30 IGNEOUS 40	202
200	20	10	10	20	50	ND	ND	ND	ND	ND	0	5	B	LO	M		QTZ 15 SCHIST 30 IGNEOUS 50	203
200	20	20	20	20	50	ND	ND	5	ND	ND	2	5	B	LO	F		QTZ 10 SCHIST 40 IGNEOUS 30 PEGMATITE 10	204
100	20	20	20	20	100	ND	ND	5	ND	ND	2	5	P	LO	F		QTZ 10 SCHIST 40 IGNEOUS 20 PEGMATITE 10 SHALE 10	205
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1	4	P	LO	S		QTZ 10 SCHIST 40 IGNEOUS 40 PEGMATITE 10	206
200	20	20	20	20	50	ND	ND	5	ND	ND	2	10	P	HI	M		NO ROCKS FINE SEDS ONLY	207
200	20	20	20	50	100	ND	ND	10	ND	ND	4	8	B	HI	M		NO ROCKS FINE SEDS ONLY	208
200	50	10	10	20	50	ND	ND	ND	ND	ND	1	2	B	HI	M		NO ROCKS FINE SEDS ONLY	209
200	20	20	20	20	50	ND	ND	5	ND	ND	2	4	B	HI	M		IGNEOUS100	210
500	20	20	20	100	100	ND	ND	5	ND	ND	2	4	P	HI	M		NO ROCKS FINE SEDS ONLY	211
200	20	20	20	50	100	ND	ND	5	ND	ND	3	6	P	MD	M		IGNEOUS 45 SCHIST 20 GR STONE 15	212
200	20	20	20	50	100	ND	ND	ND	ND	ND	1	6	B	HI	M		QTZ 10 GRSTONE 20 IGNEOUS 35 SCHIST 20	213
200	20	20	20	50	100	ND	ND	5	ND	ND	1	6	P	LO	M		SCHIST 20 IGNEOUS 40 QTZ 10 FECLC GR STONE 20	214
200	50	20	20	20	100	ND	ND	ND	ND	ND	0	6	P	HI	M		SCHIST 20 IGNEOUS 25 GRSTONE 35 QTZ 5	215
200	ND	10	20	20	50	ND	ND	5	ND	ND	1	6	B	LO	M		SCHIST 15 QTZ 10 IGNEOUS 40 GR STONE 30	216
100	20	20	10	20	50	ND	ND	ND	ND	ND	0	6	E	HI	M		FINE SEDS ONLY	217
100	200	10	10	20	100	ND	ND	ND	ND	ND	2	6	P	HI	M		SCHIST 10 IGNEOUS 15 PEG 15 QTZ 30 GR STONE 20	218
100	20	20	20	50	50	ND	ND	ND	ND	ND	2	6	E	HI	M		IGNEOUS 50 QTZ 15 SCHIST 35	219
100	50	20	10	50	50	ND	ND	ND	ND	ND	1	6	P	HI	M		SCHIST 25 IGNEOUS 55 QTZ 20	220
200	50	20	20	50	100	ND	ND	5	ND	ND	3	6	P	HI	F		SCHIST 20 IGNEOUS 60 QTZ 20	221
200	50	20	20	50	100	ND	ND	ND	ND	ND	3	4	B	HI	M		SCHIST 30 IGNEOUS 50 QTZ 20	222
100	50	10	10	10	50	ND	ND	ND	ND	ND	2	1	E	HI	M		NO ROCK EXPOSURES FINE SEDS	223
200	100	20	20	50	50	ND	ND	5	ND	ND	0	3	B	HI	S		QTZ 20 GRANITIC GNEISS 50 GNST 10 PEG 20	224
200	200	20	20	200	100	ND	ND	5	ND	ND	1	3	E	HI	M		QTZ 20 GRANITIC GNEISS 60 PEG 20	225
100	50	20	20	50	100	ND	ND	ND	ND	ND	0	3	B	HI	M		QTZ 20 GRANITIC GNEISS 65 PEG 15	226
500	50	20	20	50	100	ND	ND	5	ND	ND	1	6	E	MD	M		QTZ 5 GRANITIC TORMALINE 45 SEDS 20 GNST 30	227
200	20	20	20	50	100	ND	ND	5	ND	ND	0	7	E	LO	M		QTZ 25 GRANITE TORMALINE 40 SEDS 25 GNST 10	228
200	20	20	20	50	100	ND	ND	ND	ND	ND	1	4	P	MD	M		QTZ 20 GRANITE 40 PEG 15 GNST 15 SCHISTIC	229
200	20	10	20	20	100	ND	ND	ND	ND	ND	0	2	P	MD	S		NO ROCKS VISIBLE FINE SEDS ONLY	230
200	50	10	10	20	50	ND	ND	ND	ND	ND	3	4	E	MD	M		QTZ 30 MIXED IGNEOUS AND GRANITE 70	231
200	50	10	5	20	20	ND	ND	ND	ND	ND	2	4	E	MD	M		QTZ 20 GRANITE AND RELATED NO [illegible] CREEK ROCKY	232
100	20	10	5	20	50	ND	ND	ND	ND	ND	2	4	B	MD	M		QTZ 20 GRANITE AND RELATED 75 SEDS 5	233
100	50	20	10	20	50	ND	ND	ND	ND	ND	1	4	P	MD	M		QTZ 20 GRANITE 60 SEDS 20	234
200	20	10	10	20	50	ND	100	5	ND	ND	2	4	P	MD	M		QTZ 30 GRANITE 50 SEDS 20	235
200	50	20	5	50	50	ND	ND	5	ND	ND	2	4	P	HI	M		QTZ 35 GRANITE 45 SEDS 20	236
200	50	10	10	20	100	ND	100	ND	ND	ND	3	4	B	MD	M		QTZ 35 GRANITE 50 SEDS 15 GRANITE 15 PRIMARY ROCK	237
100	20	10	10	20	50	ND	ND	ND	ND	ND	2	8	P	MD	M		QTZ 30 MIXED IGNEOUS 60 SCHIST 10	238
100	50	10	10	20	50	ND	ND	ND	ND	ND	1	6	P	HI	F		QTZ 35 GRANITE 65 DIFFICULT TO OBTAIN SAMPLE	239
200	50	10	5	20	50	ND	ND	ND	ND	ND	2	6	P	HI	F		QTZ 35 GRANITIC INTRUSIONS 65 POOR SEDS	240
200	50	20	10	50	50	ND	ND	5	ND	ND	1	6	P	HI	F		QTZ 25 GRANITE AND RELATED 75	241
500	50	10	20	50	50	ND	ND	ND	ND	ND	2	5	B	MD	M		QTZ 35 GRANITE AND RELATED 65	242
200	20	20	10	20	50	ND	ND	ND	ND	ND	2	4	P	MD	M		QTZ 30 GRANITE 50 GNST 20	243
200	100	20	10	50	50	ND	ND	5	ND	ND	2	4	P	MD	M		QTZ 20 GRANITE 50 GNST 20 SCHIST 10	244
200	50	20	10	50	50	ND	ND	5	ND	ND	4	6	B	MD	M		QTZ 35 GRANITE 30 SEDS 35 QTZ RUNS THROUGH SEDS	245
100	20	10	5	20	20	ND	ND	ND	ND	ND	3	6	P	MD	M		QTZ 25 GRANITE 45 SEDS 20 SCHIST 10	246
100	50	10	10	50	50	ND	ND	ND	ND	ND	0	10	P	MD	F		QTZ 25 GRANITE 50 SEDS 25 SEDS AND QTZ MIXED	247
100	20	10	10	10	50	ND	ND	ND	ND	ND	1	10	B	MD	M		QTZ 20 GRANITE 35 SEDS 30 IRON STAINED AREA	248
500	50	20	20	50	100	ND	ND	5	ND	ND	2	10	B	MD	M		QTZ 35 GRANITE 40 SEDS 25 VERY SANDY SOIL	249
200	20	20	10	50	50	ND	ND	ND	ND	ND	2	10	P	MD	M		QTZ 30 MIXED IGNEOUS 35 SEDIMENTARY 35	250
200	50	20	10	50	50	ND	ND	5	ND	ND	1	10	B	MD	M		QTZ 30 MIXED IGNEOUS 25 SEDIMENTARY 45	251
200	50	20	10	20	50	ND	ND	ND	ND	ND	2	8	P	MD	M		QTZ 25 GRANITE 40 BASIC SED ROCKS 30	252
200	20	20	20	50	50	ND	ND	5	ND	ND	0	6	B	MD	M		QTZ 30 GRANITE AND OTHER IGNEOUS 65 SEDS 5	253
200	50	10	10	50	50	ND	ND	ND	ND	ND	0	6	B	MD	M		QTZ 35 GRANITE 35 BLACK SCHIST 25 BL SAND 5	254
200	20	20	10	20	50	ND	ND	ND	ND	ND	2	6	P	MD	M		QTZ 30 WITH GRANITE 40 AND BL SCHIST 30	255
200	20	20	10	20	50	ND	ND	ND	ND	ND	1	6	B	MD	M		QTZ 40 GRANITE 40 BLACK SCHIST 20	256
200	20	20	10	20	50	ND	ND	ND	ND	ND	1	6	B	MD	M		QTZ 40 GRANITE 40 BLACK SCHIST 20	257
200	50	20	10	20	50	ND	ND	ND	ND	ND	1	4	P	MD	M		QTZ 35 GRANITE 35 GNST 20 BLACK SCHIST 10	258
100	ND	20	50	10	200	ND	ND	5	ND	ND	0	4	B	MD	M		QTZ 30 GRANITE 60 GNST 10	259

Appendix II, continued

Map No.	Sample No.	Gold (3)	Copper (3)	Lead (3)	Zinc (3)	Copper	Lead	Zinc	Molybdenum	Silver	Cobalt	Chromium	Nickel	Manganese	Titanium	Iron (%)	Magnesium (%)	Calcium (%)	Barium	Strontium	Boron	Beryllium	Tin	Tungsten
260	9J278	NA	20	20	60	10	10	100	ND	NA	20	200	20	500	2000	2	1	1	500	200	20	1	ND	ND
261	9J269	NA	10	10	35	10	10	100	5	ND	10	100	20	1000	5000	[illegible]	1	2	500	200	50	1	ND	ND
262	9J268	NA	15	10	40	20	20	100	5	ND	20	100	20	1000	5000	2	1	1	1000	200	50	2	ND	ND
263	9J267	NA	5	5	15	10	10	100	ND	ND	20	100	20	2000	5000	2	2	2	500	200	100	2	ND	ND
264	9J266	NA	10	10	70	20	10	100	5	ND	20	100	20	1000	5000	2	1	1	500	200	50	1	ND	ND
265	9J265	NA	10	15	75	1000	50	500	5	ND	20	100	20	500	5000	2	1	2	500	100	50	1	ND	ND
266	9J264	NA	10	10	50	10	20	100	5	1	20	100	20	1000	5000	2	1	2	500	200	50	2	ND	ND
267	9J263	NA	20	20	60	10	10	100	ND	ND	20	100	20	1000	5000	2	1	1	500	100	20	1	ND	ND
268	9J262	NA	20	15	55	10	ND	100	5	ND	20	100	20	1000	5000	2	0.5	0.5	500	100	20	2	ND	ND
269	9J261	NA	15	15	55	5	10	100	ND	ND	10	100	20	500	2000	2	0.5	0.5	200	100	20	1	ND	ND
270	9J257	NA	15	20	60	20	ND	100	ND	ND	20	50	20	500	2000	2	0.5	1	500	100	20	2	ND	ND
271	9J258	NA	20	15	85	10	ND	100	ND	ND	10	50	20	500	2000	2	0.5	0.5	1000	100	10	1	ND	ND
272	9J259	NA	15	10	60	10	20	100	ND	ND	20	100	20	500	5000	2	1	1	500	100	10	1	ND	ND
273	9J260	NA	10	10	55	10	10	100	ND	ND	10	50	20	700	5000	2	1	1	500	200	20	1	ND	ND
274	9J256	NA	20	20	60	20	10	100	ND	ND	20	100	20	1000	5000	2	1	1	500	200	20	1	ND	ND
275	9J255	NA	15	10	65	10	20	100	5	ND	10	100	20	1000	5000	5	1	1	500	200	10	1	ND	ND
276	9J185	NA	15	20	65	50	10	200	5	1	50	50	20	5000	2000	5	0.2	1	500	100	20	1	ND	ND
277	9J184	NA	15	25	70	20	20	100	5	ND	20	100	50	1000	5000	2	1	1	500	100	20	1	ND	ND
278	9J183	NA	25	30	50	20	10	100	2	ND	20	100	20	500	2000	2	1	1	500	100	20	1	ND	ND
279	9J182	NA	15	20	60	10	10	100	2	ND	20	100	20	500	2000	2	1	1	500	100	20	2	ND	ND
280	9J181	NA	10	20	45	5	10	ND	ND	ND	10	50	10	2000	5000	2	1	2	500	100	10	1	ND	ND
281	9J180	NA	15	25	70	20	50	100	ND	1	20	100	20	500	5000	2	1	2	1000	200	20	ND	ND	ND
282	9J179	NA	15	25	75	10	20	100	ND	ND	20	100	20	1000	5000	2	1	1	500	100	50	1	ND	ND
283	9J178	NA	5	10	25	5	10	100	ND	ND	10	20	20	200	1000	1	0.2	1	500	100	50	1	ND	ND
284	9J177	NA	15	20	50	10	ND	100	ND	ND	10	100	20	700	5000	2	0.5	0.5	500	100	20	ND	ND	ND
285	9J176	NA	15	20	80	10	10	100	5	ND	20	200	20	500	5000	2	1	1	500	100	50	2	ND	ND
286	9J137	NA	10	15	50	10	10	200	5	ND	70	200	20	500	5000	2	1	1	500	100	50	2	ND	ND
287	9J136	NA	20	20	55	10	10	100	ND	ND	10	100	20	500	5000	2	1	1	500	100	50	1	ND	ND
288	9J135	NA	15	15	50	20	10	100	ND	ND	20	100	20	1000	*1.0	5	2	1	500	100	100	2	10	ND
289	9J134	NA	30	70	85	20	ND	ND	ND	ND	20	100	20	1000	2000	2	1	1	200	100	20	2	ND	ND
290	9J133	NA	15	15	55	20	20	ND	ND	ND	10	50	20	1000	5000	2	1	1	500	200	10	2	ND	ND
291	9J132	NA	15	15	50	10	20	100	5	ND	20	100	20	500	5000	1	1	1	500	200	20	1	ND	ND
292	9J131	NA	20	15	65	10	ND	100	ND	ND	20	100	20	1000	5000	2	1	2	500	200	50	2	ND	ND
293	9J130	NA	15	10	40	10	10	100	ND	ND	20	100	20	1000	*1.0	2	2	2	500	200	100	1	ND	ND
294	9J129	NA	20	25	90	20	20	100	5	ND	50	100	20	2000	5000	5	2	1	500	200	20	2	ND	ND
295	9J128	NA	15	15	55	10	20	100	ND	ND	70	100	20	1000	5000	2	2	2	500	100	50	ND	ND	ND
296	9J127	NA	10	10	45	10	10	ND	ND	ND	10	50	10	500	5000	2	1	2	500	200	20	1	ND	ND
297	9J126	NA	15	15	50	10	10	100	ND	ND	20	50	20	1000	*1.0	2	1	2	500	500	20	2	ND	ND
298	9J125	NA	10	15	35	10	20	200	ND	ND	20	100	20	1000	*1.0	2	2	2	500	200	200	2	ND	ND
299	9J124	NA	5	10	40	10	20	ND	ND	2	20	100	20	1000	5000	2	1	2	500	200	100	2	ND	ND
300	9J123	NA	5	10	50	10	10	100	ND	ND	20	100	20	500	5000	2	2	2	500	200	20	ND	ND	ND
301	9J175	NA	10	20	80	10	ND	ND	2	ND	20	100	50	1000	5000	2	0.5	1	500	100	50	1	ND	ND
302	9J173	NA	15	20	55	10	10	100	5	ND	20	100	20	2000	5000	5	1	1	500	100	50	1	ND	ND
303	9J17[illegible]	NA	10	15	40	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
304	9J17[illegible]	NA	20	30	85	10	10	100	ND	ND	20	50	20	1000	5000	2	0.5	1	500	100	50	1	ND	ND
305	9J170	NA	20	25	70	10	10	ND	2	ND	20	50	20	500	2000	2	1	1	200	100	50	1	ND	ND
306	9J169	NA	15	25	65	20	10	100	5	ND	20	100	20	1000	5000	5	1	1	500	100	50	1	ND	ND
307	9J174	NA	15	30	90	10	10	100	ND	ND	20	100	20	1000	5000	2	0.5	1	500	100	50	ND	ND	ND
308	9J122	NA	5	15	40	10	10	100	ND	ND	20	100	20	500	5000	2	1	2	500	200	100	2	ND	ND
309	9J168	NA	15	25	70	10	ND	200	5	ND	10	100	20	1000	5000	1	0.2	0.5	500	100	20	1	ND	ND
310	9J167	NA	15	25	50	10	20	100	ND	ND	20	100	20	2000	5000	2	1	2	500	200	50	1	ND	ND
311	9J121	NA	5	10	35	10	20	100	ND	ND	20	100	20	500	5000	2	1	2	500	200	100	1	ND	ND
312	9J166	NA	10	20	40	10	10	100	ND	ND	20	100	20	500	5000	2	1	2	500	200	50	1	ND	ND
313	9J159	NA	10	10	45	20	20	100	ND	ND	20	100	20	1000	5000	5	1	2	1000	200	100	ND	ND	ND
314	9J160	NA	15	10	50	20	ND	100	ND	ND	10	200	20	200	2000	2	0.5	0.5	500	100	20	ND	ND	ND
315	9J161	NA	15	10	45	10	10	100	5	ND	20	100	20	500	5000	5	1	1	500	100	50	1	ND	ND
316	9J162	NA	15	15	60	10	ND	100	5	ND	20	100	20	500	5000	5	1	1	500	100	50	ND	ND	ND
317	9J163	NA	15	15	55	10	20	100	10	ND	10	100	20	500	5000	2	0.5	0.5	500	50	20	1	ND	ND
318	9J164	NA	15	15	60	10	10	200	ND	ND	20	100	20	200	5000	2	1	1	500	100	20	1	ND	ND
319	9J165	NA	15	20	50	10	ND	200	ND	ND	ND	20	10	500	5000	2	0.5	0.5	500	50	10	1	ND	ND
320	9J156	NA	10	15	45	10	10	100	10	ND	10	100	20	1000	5000	2	1	1	500	200	50	1	ND	ND
321	9J157	NA	5	10	30	5	10	100	ND	ND	20	100	20	500	5000	2	1	2	500	200	100	2	ND	ND
322	9J156	NA	NA	NA	NA	5	10	100	ND	ND	10	50	10	500	5000	2	1	1	500	200	50	1	ND	ND
323	9J155	NA	20	15	50	20	10	100	5	ND	20	200	50	1000	5000	2	1	1	500	100	50	2	ND	ND
324	9J154	NA	10	15	50	10	10	100	ND	ND	10	100	20	1000	5000	2	1	2	500	200	50	1	ND	ND
325	9J153	NA	10	10	40	5	10	100	ND	ND	ND	50	10	1000	5000	2	1	2	500	200	50	2	ND	ND

Zirconium	Lanthanum	Niobium	Scandium	Yttrium	Vanadium	Arsenic	Antimony	Bismuth	Cadmium	Gold	Field Test	Stream Width	Location	Organic Content	Sediment Size	Bedrock (4)	Sediments in Stream Bed in Percent (4)	Map No.
200	50	20	10	50	100	ND	ND	5	ND	ND	2	4	B	MO	M		QTZ 30 GRANITE 40 BLACK SCHIST 25 CAST 5	260
200	20	20	10	50	100	ND	ND	5	ND	ND	1	10	P	LO	M		QTZ GRANITIC MIXTURES TOURMALINE	261
100	ND	20	20	50	100	ND	ND	5	ND	ND	2	10	P	LO	M		QTZ 20 GRANITE WITH TOURMALINE 50 BLACK SCHIST 50	262
200	20	20	10	50	50	ND	ND	ND	ND	ND	0	12	B	LO	M		QTZ 30 GRANITIC 50 OTHER SEDS AND SCHIST 20	263
100	20	20	10	20	50	ND	ND	ND	ND	ND	1	14	B	MO	M		QTZ 25 GRANITIC 50 SCHIST AND SEDS 25	264
200	20	20	20	20	50	ND	ND	5	ND	ND	1	10	B	MO	M		QTZ 10 SCHIST 35 GRANITE 50 OTHER 5	265
100	20	20	10	20	50	ND	ND	ND	ND	ND	0	8	B	MO	M		QTZ 35 GRANITE 45 SEDS AND SCHIST 20	266
100	50	20	20	20	100	ND	ND	ND	ND	ND	1	8	B	MO	F		QTZ 30 GRANITE 40 SCHIST AND SEDS 15 OTHER 15	267
100	50	10	10	20	100	ND	ND	ND	ND	ND	1	6	B	MO	F		QTZ 30 GRANITE 50 OTHER SEDS AND SCHIST 20	268
100	50	20	10	20	50	ND	ND	ND	ND	ND	1	6	B	MO	C		QTZ 25 GRANITE 40 SCHIST 25 OTHER 10	269
100	50	10	10	20	50	ND	ND	ND	ND	ND	1	4	B	MO	M		QTZ 25 GRANITE AND IGNEOUS COMBINATIONS 75	270
200	50	10	10	20	50	ND	ND	ND	ND	ND	1	3	B	MO	M		QTZ 25 GRANITE 50 OTHER SEDS AND SCHIST 25	271
200	20	10	10	20	100	ND	ND	ND	ND	ND	0	2	B	MO	M		QTZ 40 GRANITE WITH TOURMALINE 55	272
500	ND	10	10	10	50	ND	ND	ND	ND	ND	0	2	B	MO			QTZ 20 GRANITE 70 OTHER SEDS AND SCHIST 10	273
100	20	20	10	20	100	ND	ND	ND	ND	ND	0	2	B	MO	C		QTZ 25 GRANITE 50 VOLS SEDS SCHIST 25	274
200	20	20	20	50	100	ND	ND	5	ND	ND	1	DR	B	MO	M		QTZ 35 GRANITE 40 SCHIST AND SEDS 25	275
50	50	20	10	50	50	ND	ND	5	ND	ND	1	2	B	HI	M		SCHIST 10IGNEOUS 30 QTZ 20 PEG 30	276
100	50	20	20	20	100	ND	ND	5	ND	ND	1	4	B	MO	M		SCHIST 10IGNEOUS 40 PEG 30 QTZ 20	277
100	50	20	20	20	50	ND	ND	5	ND	ND	2	4	B	MO	M		SCHIST 30 IGNEOUS 20 QTZ 20 PEG 30	278
100	50	10	10	20	50	ND	ND	ND	ND	ND	3	4	B	MO	M		SCHIST 10 IGNEOUS 35 QTZ 25 PEG 30	279
100	ND	20	10	20	50	ND	ND	ND	ND	ND	3	4	B	LO	M		SCHIST 10IGNEOUS 40 PEG 25 QTZ 25	280
200	50	20	20	50	100	ND	ND	5	ND	ND	2	4	B	MO	M		SCHIST 20 IGNEOUS 6 QTZ 60 PEG 20	281
100	50	10	20	50	50	ND	ND	ND	ND	ND	4	6	B	MO	M		NO ROCKS FINE SEDS	282
100	20	10	ND	ND	20	ND	ND	ND	ND	ND	2	6	B	MO	M		NO ROCKS FINE SEDS	283
100	50	10	10	20	100	ND	ND	ND	ND	ND	3	10	B	HI	M		NO ROCKS FINE SEDS	284
200	50	20	10	50	100	ND	ND	5	ND	ND	3	10	B	HI	M		NO ROCKS FINE SEDS	285
200	50	20	20	20	100	ND	ND	ND	ND	ND	0	2	B	MO	M		NO ROCKS FINE SEDS ONLY	286
200	100	20	10	100	50	ND	ND	ND	ND	ND	0	2	B	HI	M		SCHIST 25IGNEOUS 65 QTZ 15	287
200	20	20	20	20	100	ND	ND	5	ND	ND	1	2	B	MO	M		SCHIST25 IGNEOUS 70 QTZ 5	288
200	20	20	10	20	100	ND	ND	ND	ND	ND	1	4	B	HI	M		SCHIST 40 PEG 35 IGNEOUS 20 QTZ 5	289
100	100	20	10	20	50	ND	ND	5	ND	ND	1	6	P	HI	M		SCHIST 20IGNEOUS 40 PEG 30 QTZ 10	290
200	20	10	10	10	50	ND	ND	5	ND	ND	1	6	B	MO	M		SCHIST 50 PEG 20 QTZ 10 IGNEOUS 20	291
100	50	20	10	50	100	ND	ND	ND	ND	ND	1	6	B	HI	M		SCHIST 35RED STONE 20 QTZ 20 IGNEOUS 35	292
200	50	20	20	50	100	ND	ND	5	ND	ND	1	8	B	HI	M		SCHIST 10RED STONE 20 GR STONE 20 QTZ 20IGNEOUS35	293
200	50	20	20	20	50	ND	ND	5	ND	ND	2	8	B	HI	M		SCHIST 20IGNEOUS 20 PEG 40 QTZ 20	294
200	20	20	10	50	50	ND	ND	5	ND	ND	3	8	B	HI	M		SCHIST 15IGNEOUS 25 QTZ 20 PEG 30 GR STONE 10	295
200	ND	20	10	50	50	ND	ND	ND	ND	ND	2	10	B	LO	F		PEG J/ QTZ 10 SCHIST 25 IGNEOUS 25	296
100	20	20	20	20	50	ND	ND	ND	ND	ND	2	10	B	MO	M		SCHIST 30IGNEOUS 40 PEG 20 QTZ 10	297
200	20	10	20	50	100	ND	ND	ND	ND	ND	2	10	B	MO	M		SCHIST 30IGNEOUS 55 QTZ 10 PEG 5	298
200	20	20	20	50	50	ND	ND	5	ND	ND	0	10	B	MO	M		SCHIST 30QTZ 20 IGNEOUS 40 GRANITE 10	299
200	20	20	10	20	50	ND	ND	ND	ND	ND	2	11	B	MO	M		SCHIST 40 IGNEOUS 40 GRANITE PEG 20	300
200	50	10	10	20	100	ND	ND	ND	ND	ND	3	10	P	HI	M		NO ROCKS FINE SEDS	301
200	50	20	10	50	100	ND	ND	ND	ND	ND	2	4	B	HI	M		SCHIST 30IGNEOUS 30 QTZ 30 PEG 10	302
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2	2	B	MO	M		SCHIST 20 IGNEOUS 35 QTZ 35 PEG 10	303
200	50	20	20	20	100	ND	ND	ND	ND	ND	1	2	P	MO	M		SCHIST 20IGNEOUS 40 QTZ 30 PEG 10	304
200	50	20	10	20	100	ND	ND	5	ND	ND	0	10	B	MO	M		SCHIST 20 QTZ 30 IGNEOUS 40 PEG 10	305
200	20	20	20	20	100	ND	ND	ND	ND	ND	0	2	B	MO	M		SCHIST 5 QTZ 20 PEG 20 IGNEOUS 50	306
200	50	20	10	50	100	ND	ND	ND	ND	ND	1	4	B	HI	M		NO ROCKS FINE SEDS	307
500	20	20	10	20	100	ND	ND	5	ND	ND	0	12	B	MO	M		SCHIST 20IGNEOUS 65 QTZ 10 GRANITE 5	308
200	50	10	10	20	50	ND	ND	ND	ND	ND	0	10	P	HI	M		SCHIST 5 PEG 20 QTZ 25 IGNEOUS 30	309
200	50	20	20	50	100	ND	ND	5	ND	ND	1	10	B	HI	M		SCHIST 10IGNEOUS 65 QTZ 10 PEG 15	310
200	20	20	10	20	100	ND	ND	5	ND	ND	0	12	B	MO	M		SCHIST 25IGNEOUS 65 PEG 5 QTZ 5	311
200	50	20	10	50	50	ND	ND	ND	ND	ND	1	10	B	MO	M		SCHIST 10IGNEOUS 50 PEG 15 QTZ 25	312
200	50	20	10	20	100	ND	ND	ND	ND	ND	1	10	B	MO	M		SCHIST 20 IGNEOUS 50 QTZ 20 PEG 10	313
200	50	20	10	50	100	ND	ND	ND	ND	ND	2	2	B	HI	M		NO ROCKS FINE SEDS ONLY	314
200	50	20	10	20	100	ND	ND	5	ND	ND	2	2	B	HI	M		NO ROCKS FINE SEDS ONLY	315
200	50	20	20	50	100	ND	ND	5	ND	ND	1	2	B	HI	M		NO ROCKS FINE SEDS ONLY	316
200	50	20	20	20	50	ND	ND	10	ND	ND	2	2	B	HI	M		NO ROCKS FINE SEDS ONLY	317
200	50	20	20	20	100	ND	ND	ND	ND	ND	0	2	B	HI	M		NO ROCKS FINE SEDS ONLY	318
100	50	10	10	20	50	ND	ND	ND	ND	ND	1	2	B	MO	M		SCHIST 10IGNEOUS 50 GRANITE 40	319
200	100	20	10	50	50	ND	ND	5	ND	ND	0	10	B	MO	M		SCHIST 20IGNEOUS 35 QTZ 25 PEG 20	320
200	ND	20	10	20	50	ND	ND	ND	ND	ND	1	12	B	MO	M		SCHIST 20IGNEOUS 40 QTZ 20 PEG 20	321
200	20	20	10	10	50	ND	ND	ND	ND	ND	0	12	B	MO	M		FINE SEDSONLY	322
200	50	20	20	50	100	ND	ND	ND	ND	ND	0	15	B	MO	M		SCHIST 25IGNEOUS 50 QTZ 15	323
200	20	20	10	100	50	ND	ND	5	ND	ND	0	15	B	MO	M		SCHIST 10IGNEOUS 30 QTZ 15 PEG 30 GR STONE 15	324
200	50	20	10	50	50	ND	ND	5	ND	ND	1	20	B	MO	M		SCHIST 30IGNEOUS 50 QTZ 20	325

Appendix II, continued

Map No.	Sample No.	Gold (3)	Copper (3)	Lead (3)	Zinc (3)	Copper	Lead	Zinc	Molybdenum	Silver	Cobalt	Chromium	Nickel	Manganese	Titanium	Iron (%)	Magnesium (%)	Calcium (%)	Barium	Strontium	Boron	Beryllium	Tin	Tungsten
326	9J138	NA	10	15	45	10	20	200	ND	ND	20	100	20	1000	5000	2	1	2	500	200	100	2	ND	ND
327	9J139	NA	15	25	50	10	50	100	5	1	50	100	20	2000	5000	5	1	1	1000	100	100	2	ND	ND
328	9J140	NA	20	20	50	10	50	100	5	ND	20	50	10	2000	5000	10	1	1	500	100	100	1	ND	ND
329	9J141	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
330	9J142	NA	15	15	50	10	10	100	5	ND	20	100	20	2000	5000	2	1	1	500	100	100	ND	ND	ND
331	9J143	NA	15	15	55	10	20	ND	2	ND	20	100	20	1000	5000	2	1	1	1000	100	20	ND	ND	ND
332	9J144	NA	15	15	55	10	10	100	ND	ND	20	100	20	1000	2000	1	1	2	500	100	100	1	ND	ND
333	9J145	NA	15	20	50	10	ND	100	ND	ND	20	100	20	1000	5000	5	1	1	500	100	100	1	ND	ND
334	9J146	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
335	9J147	NA	20	20	60	20	20	100	5	ND	20	200	20	2000	5000	5	2	1	1000	100	100	1	ND	ND
336	9J148	NA	25	20	85	10	10	100	5	ND	10	100	20	1000	5000	5	1	1	500	100	50	1	ND	ND
337	9J149	NA	30	20	90	20	20	200	5	ND	50	200	20	1000	*1.0	5	2	1	500	100	20	1	ND	ND
338	9J150	NA	20	15	60	20	10	ND	ND	ND	20	100	20	500	2000	2	1	1	500	100	20	1	ND	ND
339	9J151	NA	15	10	45	10	10	100	ND	ND	20	50	20	500	5000	2	1	1	500	100	20	1	ND	ND
340	9J152	NA	30	15	80	20	20	200	5	ND	20	100	20	5000	5000	5	2	1	500	100	100	ND	ND	ND
341	9J254	NA	20	10	70	20	20	100	5	ND	20	100	20	5000	*1.0	5	2	1	500	100	100	ND	ND	ND
342	9J253	NA	30	15	85	20	20	100	5	ND	50	200	50	5000	*1.0	5	2	1	500	100	100	1	ND	ND
343	9J300	NA	15	10	45	20	20	100	5	ND	20	200	50	2000	*1.0	5	2	1	1000	100	100	ND	ND	ND
344	9J301	NA	15	15	50	20	ND	ND	2	ND	10	200	50	500	5000	2	1	0.5	500	100	50	ND	ND	ND
345	9J302	NA	25	15	50	20	20	200	5	ND	20	200	20	1000	*1.0	5	2	1	500	100	100	1	ND	ND
346	9J303	NA	25	10	50	10	ND	100	2	ND	20	100	20	500	5000	2	1	0.5	500	100	50	ND	ND	ND
347	9J252	NA	20	15	75	50	20	200	5	ND	50	200	50	5000	*1.0	10	2	1	1000	100	100	1	ND	ND
348	9J251	NA	40	15	100	50	20	200	5	ND	50	200	50	5000	5000	5	2	1	1000	100	50	2	ND	ND
349	9J250	NA	30	10	85	20	10	100	5	ND	50	200	50	5000	5000	2	2	1	1000	100	100	ND	ND	ND
350	9J249	NA	30	20	85	20	10	100	10	ND	50	100	50	5000	5000	5	1	1	500	100	200	2	ND	ND
351	9J248	NA	15	10	85	20	20	200	5	ND	20	200	20	*1.0	*1.0	5	2	1	500	100	200	2	ND	ND
352	9J247	NA	30	10	75	20	20	200	10	ND	50	100	20	5000	5000	2	1	1	500	100	100	1	10	ND
353	9J246	NA	35	20	55	20	20	100	5	ND	20	200	50	5000	5000	5	2	1	500	100	100	ND	ND	ND
354	9J245	NA	30	10	75	20	10	200	5	ND	50	200	50	5000	*1.0	5	1	1	1000	100	200	ND	ND	ND
355	9J243	NA	25	15	85	20	20	200	5	ND	50	200	50	5000	5000	5	2	1	500	100	50	ND	ND	ND
356	9J244	NA	30	15	80	10	ND	200	ND	ND	10	50	20	1000	5000	2	0.5	0.5	500	100	100	ND	ND	ND
357	9J242	NA	30	15	105	50	20	200	10	1	50	200	50	2000	5000	5	2	1	1000	100	50	2	ND	ND
358	9J239	NA	35	5	85	20	20	200	5	1	50	200	50	2000	5000	5	2	1	1000	200	100	2	ND	ND
359	9J240	NA	20	15	200	20	ND	100	ND	ND	20	100	20	1000	5000	2	1	1	1000	100	100	1	ND	ND
360	9J241	NA	35	20	230	10	ND	200	5	ND	10	100	20	1000	5000	2	1	1	500	50	50	1	ND	ND
361	9J238	NA	20	10	75	20	10	100	5	ND	50	100	20	5000	5000	5	1	1	500	100	200	2	ND	ND
362	9J237	NA	30	10	65	20	20	200	5	1	50	200	50	5000	*1.0	5	2	1	1000	100	200	ND	10	ND
363	9J233	NA	25	10	75	20	20	100	ND	ND	50	100	50	5000	5000	5	1	1	500	100	100	1	ND	ND
364	9J234	NA	15	15	80	20	20	200	10	ND	20	100	20	2000	5000	5	1	0.5	2000	100	100	1	ND	ND
365	9J235	NA	40	15	125	20	ND	200	10	ND	20	200	50	1000	5000	2	1	0.5	500	100	100	2	ND	ND
366	9J236	NA	35	20	105	20	ND	100	5	ND	10	100	20	1000	5000	2	0.5	0.5	1000	50	100	2	ND	ND
367	9J232	NA	25	10	80	100	50	100	5	ND	50	200	50	5000	*1.0	2	2	1	1000	200	100	ND	ND	ND
368	9J228	NA	40	10	75	50	20	100	5	ND	50	200	50	5000	*1.0	5	2	1	500	200	100	1	ND	ND
369	9J229	NA	40	20	110	50	20	ND	10	ND	50	500	100	1000	*1.0	5	2	1	2000	200	50	ND	ND	ND
370	9J230	NA	20	20	150	20	ND	100	5	ND	20	100	50	2000	5000	2	1	0.5	1000	100	100	1	ND	ND
371	9J231	NA	30	20	140	50	10	ND	10	ND	20	200	50	1000	5000	5	1	0.5	2000	200	100	1	ND	ND
372	9J227	NA	30	15	80	50	20	100	2	ND	50	100	50	2000	5000	5	1	1	500	100	100	ND	ND	ND
373	9J226	NA	25	15	95	20	20	100	2	NA	20	100	20	2000	2000	5	2	1	500	100	100	1	ND	ND
374	9J221	NA	20	10	90	20	10	100	5	ND	20	200	50	5000	5000	2	2	0.5	1000	100	200	ND	ND	ND
375	9J222	NA	30	15	145	20	ND	100	2	ND	20	100	50	5000	5000	2	2	0.5	500	100	100	ND	ND	ND
376	9J223	NA	40	15	120	50	20	100	5	ND	50	200	100	*1.0	5000	5	2	0.5	500	100	500	ND	ND	ND
377	9J224	NA	50	20	135	50	20	100	5	ND	20	200	50	5000	5000	5	2	1	500	100	200	1	ND	ND
378	9J225	NA	35	20	160	50	20	200	5	ND	50	200	50	5000	*1.0	5	2	1	500	100	200	1	ND	ND
379	9J220	NA	35	15	85	20	10	200	5	1	50	100	20	2000	5000	1	1	1	500	100	50	1	ND	ND
380	9J219	NA	30	20	90	50	50	200	5	ND	20	200	20	2000	5000	5	2	1	500	100	100	ND	ND	ND
381	9J218	NA	35	15	80	20	20	200	5	ND	20	200	50	5000	5000	5	1	1	500	50	100	1	ND	ND
382	9J217	NA	25	15	95	20	20	100	5	ND	20	100	20	2000	5000	5	2	1	1000	100	200	2	ND	ND
383	9J216	NA	55	15	100	50	10	200	5	ND	50	100	50	5000	5000	5	2	1	500	100	100	1	ND	ND
384	9J201	NA	35	20	95	20	ND	100	ND	ND	20	100	50	1000	5000	2	1	1	1000	50	100	1	ND	ND
385	9J215	NA	20	10	60	20	50	200	5	1	20	200	50	5000	5000	5	2	1	500	100	200	2	ND	ND
386	9J241	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
387	9J213	NA	50	20	125	20	ND	100	ND	ND	20	100	20	500	5000	2	1	0.5	500	100	50	2	ND	ND
388	9J212	NA	40	20	135	50	20	200	10	ND	20	100	50	1000	5000	5	2	1	1000	100	100	2	ND	ND
389	9J211	NA	50	30	150	10	20	200	5	ND	20	100	50	2000	5000	2	1	1	1000	100	500	5	ND	ND
390	9J210	NA	50	20	60	50	10	100	5	1	20	100	50	1000	*1.0	5	1	0.5	500	100	100	2	ND	ND
391	9J202	NA	25	20	95	50	ND	100	ND	ND	10	100	20	1000	5000	2	1	1	1000	50	50	ND	ND	ND

Zirconium	Lanthanum	Niobium	Scandium	Yttrium	Vanadium	Arsenic	Antimony	Bismuth	Cadmium	Gold	Field Test	Stream Width	Location	Organic Content	Sediment Size	Bedrock (4)	Sediments in Stream Bed in Percent (4)	Map No.
200	20	10	20	20	100	ND	ND	ND	ND	ND	1	8	B	LO	M		SCHIST 20IGNEOUS 45 QTZ 15 PEG 20	326
100	20	20	20	20	100	ND	ND	5	ND	ND	0	8	B	LO	M		SCHIST 10IGNEOUS 40 PEG 25 QTZ 25	327
100	ND	20	20	20	100	ND	ND	5	ND	ND	1	8	P	MD	M		SCHIST 35IGNEOUS 40 PEG 25	328
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	8	B	LO	M		SCHIST 10 IGNEOUS 30 PEG 25 QTZ 10 GRAN 25*LOST	329
100	20	20	20	20	100	ND	ND	ND	ND	ND	0	6	P	MD	M		SCHIST 20PEG 30 IGNEOUS 30 QTZ 10 GR STONE 10	330
100	50	20	20	20	100	ND	ND	5	ND	ND	1	6	P	MD	M		SCHIST 10 PEG 30 QTZ 20 IGNEOUS 40	331
200	50	10	10	20	50	ND	ND	ND	ND	ND	1	6	P	MD	M		SCHIST 20 PEG 30 QTZ 20 IGNEOUS 30	332
200	50	20	20	50	50	ND	ND	ND	ND	ND	1	6	B	MD	M		SCHIST 10IGNEOUS 30 PEG 30 QTZ 30	333
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1	6	B	MD	M		SCHIST 15 PEG 20 IGNEOUS 40 QTZ 25*SAMPLE LOST	334
100	20	20	20	20	100	ND	ND	5	ND	ND	1	6	P	MD	M		SCHIST 25IGNEOUS 30 PEG 20 QTZ 25	335
200	20	20	20	50	100	ND	ND	5	ND	ND	2	6	P	MD	M		SCHIST 10IGNEOUS 40 PEG 25 QTZ 25	336
200	20	20	20	20	100	ND	ND	5	ND	ND	1	6	P	MD	M		SCHIST 10IGNEOUS 40 QTZ 25 PEG 25	337
200	20	20	20	20	50	ND	ND	ND	ND	ND	1	4	P	MD	F		SCHIST 20 IGNEOUS 40 QTZ 20 PEG 20	338
200	20	20	10	10	100	ND	ND	ND	ND	ND	1	4	P	MD	F		SCHIST 30PEG 20 QTZ 10 IGNEOUS 40	339
100	20	20	20	50	100	ND	ND	5	ND	ND	0	20	B	LO	M		SCHIST 20PEG 20 QTZ 20 IGNEOUS 40	340
100	50	20	20	100	100	ND	ND	5	ND	ND	0	20	P	MD	M		FINE SEDS ONLY	341
100	50	20	20	50	100	ND	ND	5	ND	ND	2	20	P	MD	M		QTZ 40 MIXED IGNEOUS 40 SCHIST AND SEDS 20	342
200	100	20	50	50	100	ND	ND	5	ND	ND	2	4	P	MD	M		QTZ 35 MIXED IGNEOUS 50 SCHIST AND SEDS 15	343
200	50	10	20	20	100	ND	ND	ND	ND	ND	2	4	P	MD	M		QTZ 25 MIXED IGNEOUS 50 PEG 15 GNST 10	344
100	100	20	20	20	100	ND	ND	5	ND	ND	3	4	B	MD	M		QTZ 35 MIXED IGNEOUS 40 PEG 15 SEDS 10	345
100	20	20	10	20	100	ND	ND	ND	ND	ND	2	LR	P	MD	M		QTZ 30 PEG 25 MIXED IGNEOUS 40 GNST 5	346
100	ND	20	50	20	100	ND	ND	5	ND	ND	2	35	B	MD	M		QTZ 0/ MIXED IGNEOUS 30 SCHIST AND SEDS 40	347
100	20	20	20	20	200	ND	ND	5	ND	ND	1	25	B	MD	M		QTZ 40 MIXED IGNEOUS 40 SCHIST AND SEDS 20	348
100	50	20	20	100	100	ND	ND	5	ND	ND	0	18	B	MD	M		QTZ 35 MIXED IGNEOUS 30 SCHIST AND SEDS 35	349
100	ND	20	20	20	100	ND	ND	5	ND	ND	0	18	B	MD	M		QTZ 20 MIXED IGNEOUS 70 SCHIST AND SEDS 10	350
200	100	20	50	50	100	ND	ND	5	ND	ND	0	20	P	MD	M		QTZ 20 MIXED IGNEOUS 60 SCHIST AND SEDS 20	351
200	20	50	20	50	100	ND	ND	5	ND	ND	0	20	P	MD			QTZ 30 MIXED IGNEOUS 50 SCHIST AND SEDS 20	352
200	50	20	20	50	100	ND	ND	5	ND	ND	0	25	P	MD	M		QTZ 30 MIXED IGNEOUS 45 SCHIST SEDS GNST 25	353
100	20	20	50	20	100	ND	ND	5	ND	ND	0	40	P	MD	M		QTZ 20 MIXED IGNEOUS 40 SCHIST AND SEDS 40	354
200	20	20	20	50	100	ND	ND	5	ND	ND	1	30	B	MD	F		QTZ 20 MIXED IGNEOUS 65 OTHER 15	355
100	100	20	20	100	100	ND	ND	ND	ND	ND 1	3	3	B	MD	M		QTZ 25 MIXED IGNEOUS 75	356
200	20	20	20	20	200	ND	ND	5	ND	ND	1	35	B	MD	M		QTZ 20 SCHIST 25 IGNEOUS MIXTURE 40 SEDS 15	357
100	100	20	20	50	100	ND	ND	5	ND	ND	1	35	P	MD	M		QTZ 20 MIXED IGNEOUS 40 GNST 30 SCHIST 10	358
100	50	10	10	20	100	ND	ND	ND	ND	ND	22	4	B	MD	M		QTZ 20 MIXED IGNEOUS 35 GNST 35 SCHIST 10	359
50	200	10	10	20	100	ND	ND	ND	ND	ND	13	4	P	MD	C		QTZ 25 MIXED IGNEOUS 40 GNST 30 SCHIST 5	360
100	20	20	20	20	100	ND	ND	5	ND	ND	0	25	B	MD	M		QTZ 25 MIXED IGNEOUS 25 SCHIST 15 GNST 35	361
200	20	20	50	50	100	ND	ND	5	ND	ND	1	35	B	MD	M		QTZ 30 MIXED IGNEOUS 30 GNST 20 SCHIST 20	362
100	20	10	20	20	100	ND	ND	5	ND	ND	2	35	B	MD	M		QTZ 35 MIXED IGNEOUS 35 SCHIST 15 SEDS5 GNST 10	363
100	50	20	20	20	100	ND	ND	5	ND	ND	2	30	P	MD	M		QTZ 25 MIXED IGNEOUS 35 SCHIST 15 SEDS5 GNST 20	364
100	20	20	10	20	100	ND	ND	ND	ND	ND	2	3	B	MD	M		QTZ 35 MIXED IGNEOUS 25 SCHIST 30 SEDS 10	365
100	100	20	10	20	100	ND	ND	ND	ND	ND	2	3	B	MD	M		QTZ 20 MIXED IGNEOUS 30 SCHIST 40 GNST 10	366
100	50	20	20	50	200	ND	100	10	ND	ND	0	40	P	MD	M		QTZ 25 MIXED IGNEOUS 25 SCHIST 20 SEDS 20 GNST5	367
200	100	20	50	50	100	ND	ND	5	100	ND	1	40	B	MD	F		QTZ 50 MIXED IGNEOUS 40 SCHIST, SEDS,10	368
200	20	10	20	20	200	ND	ND	10	ND	ND	1	6	B	HI	M		QTZ 30 MIXED IGNEOUS 40 SCHIST,SEDS,GNST,20	369
100	100	10	20	50	200	ND	ND	ND	ND	ND	1	6	B	MD	M		QTZ 30 MIXED IGNEOUS 30 GNST 25 SCHIST,SEDS 15	370
100	20	10	20	50	200	ND	ND	5	ND	ND	14	4	B	HI	M		QTZ 20 MIXED IGNEOUS 30 GNST 35 SCHIST 15	371
200	20	20	20	20	100	ND	ND	5	ND	ND	0	20	P	MD	F		QTZ 35 MIXED IGNEOUS 25 GNST 20 SCHIST 20	372
200	20	20	20	50	100	ND	ND	5	ND	ND	0	20	B	MD	F		QTZ 30 MIXED IGNEOUS 40 SCHIST 20 VOLS,SEDS,10	373
100	ND	20	20	20	100	ND	ND	5	ND	ND	1	20	P	MD	M		QTZ 30 SCHIST 25 SEDS 15 MIXED IGNEOUS 30	374
200	20	20	20	50	100	ND	ND	ND	ND	ND	2	6	P	MD	M		QTZ 20 MIXED IGNEOUS 60 SEDS 10 SCHIST 10	375
100	50	20	20	50	200	ND	ND	ND	ND	ND	2	5	B	MD	M		QTZ 25 MIXED IGNEOUS 50 SEDS 10 SCHIST 15	376
200	50	20	20	20	100	ND	ND	5	ND	ND	1	4	B	MD	M		QTZ 30 MIXED IGNEOUS 40 SEDS 15 SCHIST 15	377
100	50	20	20	20	100	ND	ND	5	ND	ND	3	4	B	MD	M		QTZ 35 MIXED IGNEOUS 35 SCHIST 10 SEDS 10 GNST5	378
100	20	10	20	20	100	ND	ND	5	ND	ND	0	18	B	MD	F		QTZ 20 IGNEOUS 35 SEDS 20 GRST 10 SCHIST 15	379
200	100	20	20	50	100	ND	ND	5	ND	ND	0	18	B	MD	F		QTZ 15 IGNEOUS(GRANITE)50 SCHIST 15 CRST 15	380
100	20	20	20	50	100	ND	ND	5	ND	ND	0	16			F		QTZ 20 SCHIST 10 CRST 60 GRANITE 10	381
200	20	20	20	20	100	ND	ND	5	ND	ND	2	14	B	MD	C		TZ 20 CALCITE 20 GRANITE 30 SCHIST 10 CRST 20	382
100	ND	10	10	20	100	ND	ND	5	ND	ND	0	14	P	MD	F		QTZ 20 CALCITE 10 GRANITE 35 CRST 20 SCHIST 15	383
200	100	10	20	50	200	ND	ND	ND	ND	ND	1	10	B	MD	F		QTZ 30 SCHIST 25 GRANITE 40 GREEN STONE 5	384
200	50	20	50	50	100	ND	ND	10	ND	ND	1	10	P	MD	M		QTZ 30 GRANITE 30 SCHIST 10 CRSTLC SEDS 10	385
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		3	B	MD	T	20	Z 25 GRANITE 35 SCHIST 5 GRNSTONE 5 SAMPLE LOST	386
100	50	20	10	20	50	ND	ND	ND	ND	ND	0	8	B	MD	M		QTZ 25 GRANITE 45 SCHIST 20 CRST 10	387
200	50	20	20	50	100	ND	ND	5	ND	ND	2	8	B	MD	F		QTZ 30 GRANITE 30 SCHIST 20 CRST 10 SEDS 10	388
100	50	20	20	20	100	ND	ND	ND	ND	ND	0	8	B	MD	F		QTZ 40 GRANITE 30 CRST 15 SCHIST 5	389
200	100	20	20	50	100	ND	ND	5	ND	ND	1	2	B	MD	C		QTZ 40 GRANITE 40 GRST 20	390
200	50	10	20	20	100	ND	ND	ND	ND	ND	1	10	B	HI	F		CALCITE 35 QTZ 15 GRANITE 40 GREEN STONE 10	391

Appendix II, continued

Map No.	Sample No.	Gold (3)	Copper (3)	Lead (3)	Zinc (3)	Copper	Lead	Zinc	Molybdenum	Silver	Cobalt	Chromium	Nickel	Manganese	Titanium	Iron (%)	Magnesium (%)	Calcium (%)	Barium	Strontium	Boron	Beryllium	Tin	Tungsten
392	SJ203	NA	20	15	65	20	10	200	5	ND	20	100	20	1000	2000	1	1	1	500	100	20	1	ND	ND
393	SJ204	NA	40	20	105	20	50	200	5	ND	20	100	20	1000	5000	2	2	1	500	100	50	2	10	ND
394	SJ205	NA	45	20	145	50	10	100	5	ND	20	100	20	1000	5000	5	2	1	500	100	100	1	ND	ND
395	SJ206	NA	20	20	70	10	ND	100	ND	ND	10	50	10	500	5000	0.5	0.5	0.5	500	100	20	2	ND	ND
396	SJ207	NA	25	20	70	10	ND	200	ND	ND	10	50	20	1000	2000	2	0.5	0.5	200	50	20	2	ND	ND
397	SJ208	NA	40	20	120	20	20	100	2	ND	20	100	20	1000	5000	5	2	0.5	500	100	50	2	ND	ND
398	SJ209	NA	35	20	125	50	20	100	5	ND	20	100	50	1000	5000	2	2	1	1000	100	50	1	ND	ND
399	SJ304	NA	[illegible]	10	60	20	10	ND	5	ND	20	200	50	2000	5000	[illegible]	2	1	500	100	100	1	ND	ND
400	SJ305	NA	20	15	65	10	ND	100	ND	ND	ND	50	10	500	5000	2	0.5	0.5	500	100	50	1	ND	ND
401	SJ306	NA	35	15	60	20	20	ND	2	NA	20	100	20	1000	2000	5	2	1	500	100	50	1	ND	ND
402	SJ307	NA	35	15	75	20	ND	100	5	ND	20	100	20	1000	5000	2	1	0.5	500	100	50	2	ND	ND
403	SJ308	NA	20	15	140	10	ND	200	5	ND	50	50	20	1000	5000	2	1	0.5	500	50	50	1	ND	ND
404	SJ309	NA	35	20	140	20	20	ND	5	NA	50	100	20	2000	2000	2	1	0.2	1000	100	50	2	ND	ND
405	SJ310	NA	40	5	105	50	10	100	20	ND	50	200	50	2000	*1.0	5	1	0.2	2000	100	200	1	ND	ND
406	SJ311	NA	35	10	55	20	10	100	5	ND	20	100	20	2000	*1.0	5	1	1	500	100	200	2	ND	ND
407	SJ312	NA	40	15	40	50	20	100	5	ND	50	200	50	2000	5000	2	2	1	1000	200	100	ND	ND	ND
408	SJ313	NA	25	15	60	20	10	100	5	1	20	100	50	2000	5000	2	1	1	1000	100	200	ND	ND	ND
409	SJ314	NA	35	10	75	20	ND	100	5	ND	20	100	50	2000	5000	2	2	1	1000	100	100	ND	ND	ND
410	SJ315	NA	25	10	55	20	10	200	10	ND	20	100	20	5000	*1.0	5	2	1	1000	100	200	1	ND	ND
411	SJ316	NA	25	15	75	20	10	200	2	ND	20	100	50	2000	5000	2	1	1	500	100	200	ND	ND	ND
412	SJ317	NA	45	5	65	50	10	100	5	ND	20	100	20	1000	5000	2	1	0.5	500	100	20	1	ND	ND
413	SJ318	NA	40	15	120	50	ND	100	5	ND	20	100	50	500	2000	2	1	0.2	1000	100	50	1	ND	ND
414	SJ319	NA	50	15	100	20	ND	200	5	ND	20	100	50	1000	5000	5	1	0.5	500	100	100	2	ND	ND
415	SJ320	NA	45	20	80	20	10	100	5	ND	50	200	50	1000	*1.0	5	2	1	500	100	50	2	ND	ND
416	SJ321	NA	25	10	135	50	20	200	10	ND	20	200	50	2000	5000	5	2	1	2000	100	100	2	ND	ND
417	SJ322	NA	45	20	120	20	ND	100	5	ND	20	100	50	1000	5000	2	1	0.5	500	100	50	1	ND	ND
418	SJ323	NA	20	15	135	20	ND	200	ND	ND	10	50	20	1000	2000	2	0.5	0.5	1000	50	100	1	ND	ND
419	SJ324	NA	35	20	140	10	10	200	5	ND	20	100	20	1000	5000	2	1	0.5	1000	100	50	2	ND	ND
420	SJ325	NA	40	20	215	50	20	200	10	1	50	100	50	1000	5000	5	1	0.5	1000	100	200	2	ND	ND
421	SJ326	NA	50	20	125	20	10	ND	2	NA	20	50	20	1000	1000	2	0.5	0.2	500	50	50	1	ND	ND
422	SJ327	NA	35	15	200	20	10	200	10	1	20	100	20	1000	5000	2	1	0.5	2000	200	100	2	ND	ND
423	SJ328	NA	65	25	230	100	20	200	20	1	20	100	50	2000	5000	5	2	0.5	2000	100	200	2	ND	ND
424	SJ329	NA	40	35	270	100	20	500	50	ND	20	100	50	1000	5000	2	2	0.5	2000	100	50	1	ND	ND
425	SJ330	NA	75	30	240	20	10	200	10	ND	10	50	20	500	2000	2	1	0.5	1000	100	50	2	ND	ND

(1) Values are in parts per million unless indicated otherwise

(2) Field test values in milliliters of dye

(3) Atomic absorption results; values for remaining elements are emission spectrograph results

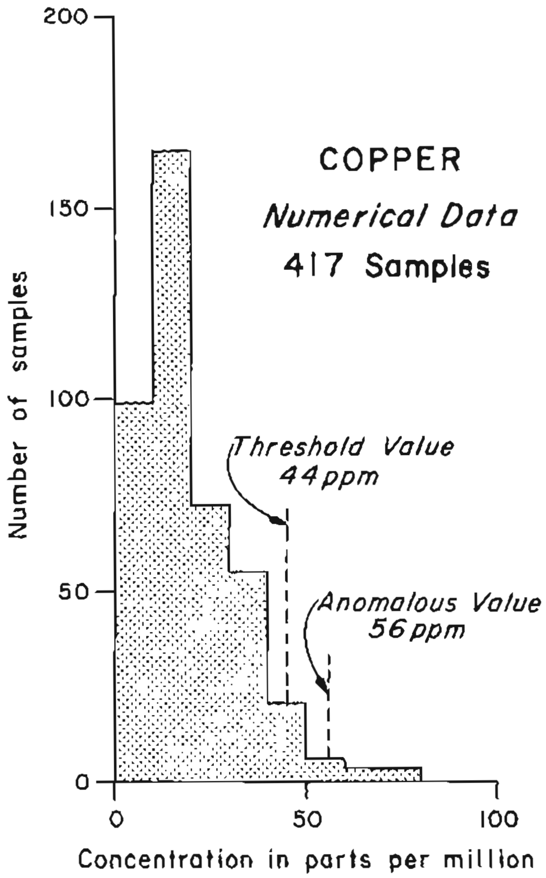
(4) Ls, limestone; Peg, pegmatite; Seds, sediments; Gnst, greenstone

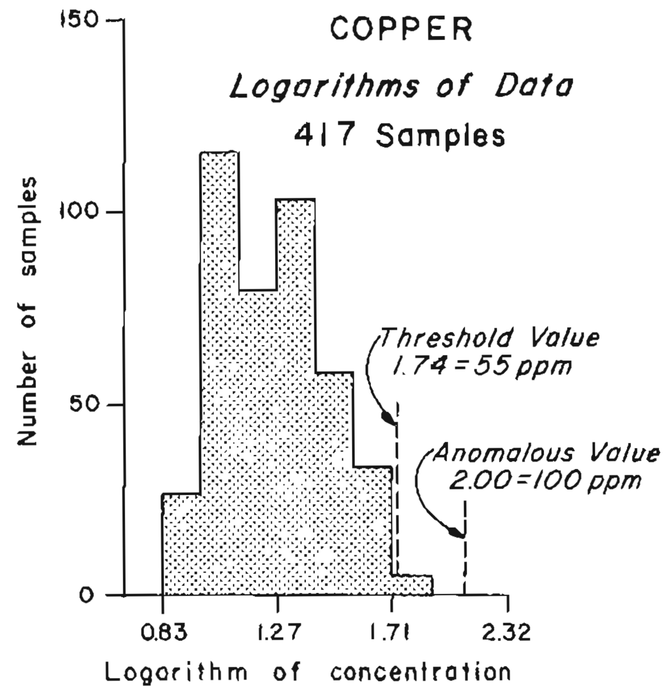
(5) NA indicates not analyzed

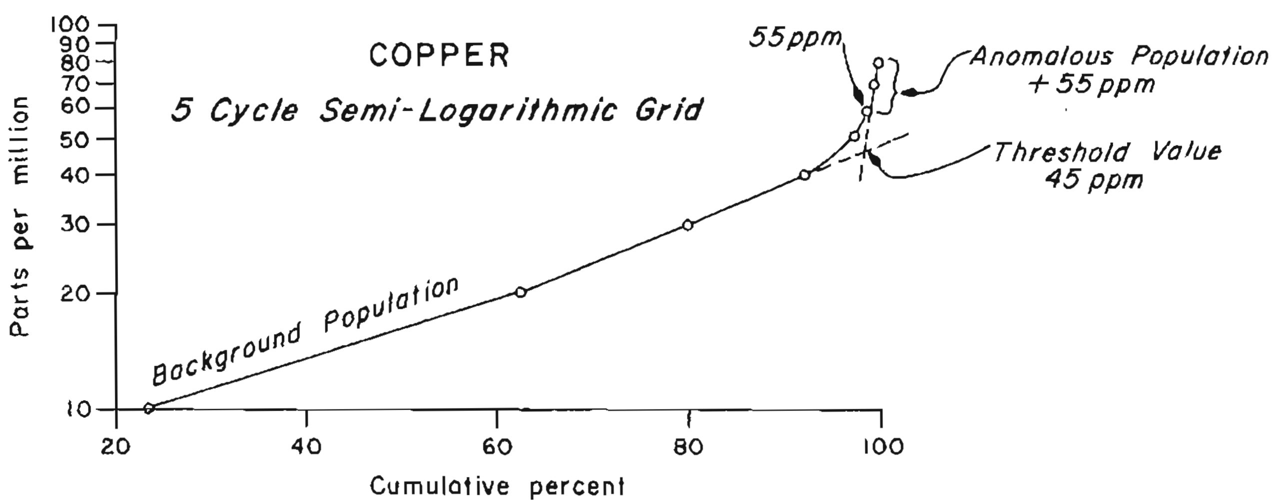
(6) ND indicates none detected

(7) *1.0 = 10,000 parts per million

Zirconium	Lanthanum	Niobium	Scandium	Yttrium	Vanadium	Arsenic	Antimony	Bismuth	Cadmium	Gold	Field Test	Stream Width	Location	Organic Content	Sediment Size	Bedrock (4)	Sediments in Stream Bed in Percent (4)	Map No.
100	20	10	20	20	100	ND	ND	ND	ND	ND	1	8	B	MD	C	LS	QTZ 20 CALCITE 50 GRANITE 20 GREEN STONE 10	392
200	20	20	20	20	50	ND	ND	5	ND	ND	2	6	B	MD	M	LS	CALCITE 50 QTZ 5 GRANITE 5 LIMESTONE 40	393
100	50	20	20	20	100	ND	ND	ND	ND	ND	1	DR	B	MD	M	GNST	QTZ 20 GREENSTONE 50 GRANITE 35	394
50	50	10	10	20	100	ND	ND	ND	ND	ND	1	DR	B	MD	M	LS	QTZ 20 LIMESTONE 40 GRANITE 30 GREEN STONE 10	395
50	ND	10	10	10	50	ND	ND	ND	ND	ND	2	3	B	HI	C	GR	QTZ 40 GRANITE INTRUSIVE 40 SCHIST AND GRST 20	396
200	50	20	20	50	100	ND	ND	ND	ND	ND	1	4	B	MD	C	GRST	GREENSTONE 45 QTZ 25 GRANITE 20 SCHIST 10	397
100	20	20	20	50	100	ND	ND	5	ND	ND	0	3	B	MD	F		CALCITE 40 IGNEOUS 40 QTZ 10 GRST 10	398
200	20	20	20	20	100	ND	ND	5	ND	ND	0	20	B	MD	M		QTZ 30 MIXED IGNEOUS 35 PEG 25 GNST 10	399
50	50	10	10	20	50	ND	ND	ND	ND	ND	0	DR	B	MD	C		BASIC QTZAND IGNEOUS COMBINATIONS NOT MANY ROCKS	400
200	ND	20	10	20	100	ND	ND	5	ND	ND	1	25	B	MD	M		QTZ 25 GRANITIC 40 GNST 20 PEG 15	401
100	50	20	10	20	100	ND	ND	ND	ND	ND	4	6	B	MD	F		QTZ 25 GRANITIC 40 GNST 30 PEG 5	402
100	50	20	20	20	100	ND	ND	ND	ND	ND	7	4	B	MD	M		QTZ 25 GRANITIC 40 GNST 25 PEG 10 BLACK IN QTZ	403
200	50	20	20	20	100	ND	ND	5	ND	ND	3	4	B	MD	F		QTZ 20 GRANITIC 40 GNST 25 BLACK SCHIST 15	404
200	50	20	20	50	200	ND	ND	ND	ND	ND	1	DR	B	MD	M		QTZ 20 GRANITIC 40 GNST 20 BLACK SCHIST 20	405
100	ND	20	20	50	100	ND	ND	5	ND	ND	2	20	B	MD	M		QTZ 25 GRANITE 40 PEG 20 GNST 15	406
100	20	20	20	50	100	ND	ND	5	ND	ND	2	20	B	MD	M		QTZ 20 GRANITIC 40 PEG 25 GNST 15	407
200	20	20	20	20	100	ND	ND	5	ND	ND	0	20	B	MD	M		QTZ 15 GRANITIC 50 GNST 20 PEG 15	408
100	50	20	20	50	100	ND	ND	5	ND	ND	0	20	B	MD	M		QTZ 25 GRANITIC 40 PEG 15 GNST 20	409
100	50	20	20	100	100	ND	ND	5	ND	ND	2	20	B	MD	M		QTZ 30 GRANITE 50 PEG 10 GNST 10	410
100	20	20	20	20	100	ND	ND	ND	ND	ND	1	25	B	MD	M		QTZ 30 GRANITE 60 GNST 10 SCHIST AND GNST ON SIDE	411
50	20	20	20	10	100	ND	ND	5	ND	ND	0	6	B	MD	M		QTZ 20 GRANITE AND GNEISS 80	412
100	50	20	10	20	100	ND	ND	ND	ND	ND	1	4	B	MD	F	GR	QTZ 30 GRANITE 50 BLACK SCHIST 20	413
200	50	20	20	20	100	ND	ND	5	100	ND	2	4	B	MD	F	GR	QTZ 30 GRANITE 50 BLACK SCHIST 20	414
100	50	10	20	20	100	ND	ND	ND	ND	ND	3	25	B	MD	M	SCH	QTZ 25 GRANITIC 40 SCHIST 35	415
100	50	20	20	50	100	ND	ND	5	ND	ND	1	18	B	MD	M		QTZ 30 GRANITIC 45 PEG 15 GNST 10	416
100	50	10	20	20	100	ND	ND	ND	ND	ND	1	14	B	MD	M		QTZ 35 GRANITIC 40 SCHIST 25	417
50	50	10	10	20	100	ND	ND	ND	ND	ND	2	15	B	MD	M		QTZ 25 GRANITIC 40 GNST 35	418
100	50	20	20	20	100	ND	ND	ND	ND	ND	1	14	B	MD	F		QTZ 20 GRANITIC 40 GNST 30 PEG 10	419
100	20	20	20	20	100	ND	ND	5	ND	ND	4	14	B	MD	M		QTZ 20 GRANITE 40 CALCITE 20 BLACK SCHIST 20	420
100	50	10	10	20	100	ND	ND	ND	ND	ND	1	12	B	MD	F	LS	QTZ 25 CALCITE 35 GRANITE 25 GNST 5 SCHIST 10	421
200	50	20	20	20	100	ND	ND	5	ND	ND	2	10	B	MD	F	SL	BLACK SCHIST 45 FE STAIN GNST 30 QTZ 10 GRANITE 15	422
100	20	20	20	20	200	ND	ND	5	ND	ND	4	8	B	MD	M	SL	BLACK SCHIST 25 CALCITE 15 QTZ 10 GNST 20 OTHER 30	423
50	20	20	10	20	50	ND	ND	ND	ND	ND	3	8	B	MD	M	SL	LIMONITE 25 BL SCHIST 25 QTZ 10 GNST 30 OTHER 10	424
100	20	10	10	50	100	ND	ND	ND	ND	ND	1	6	B	MD	M		QTZ 15 GRANITIC 40 BL SCHIST 15 GNST 30	425

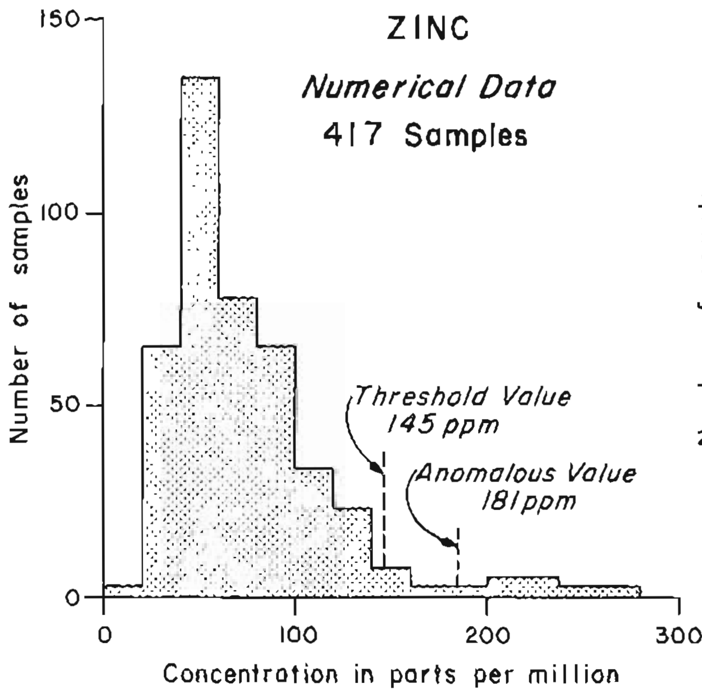


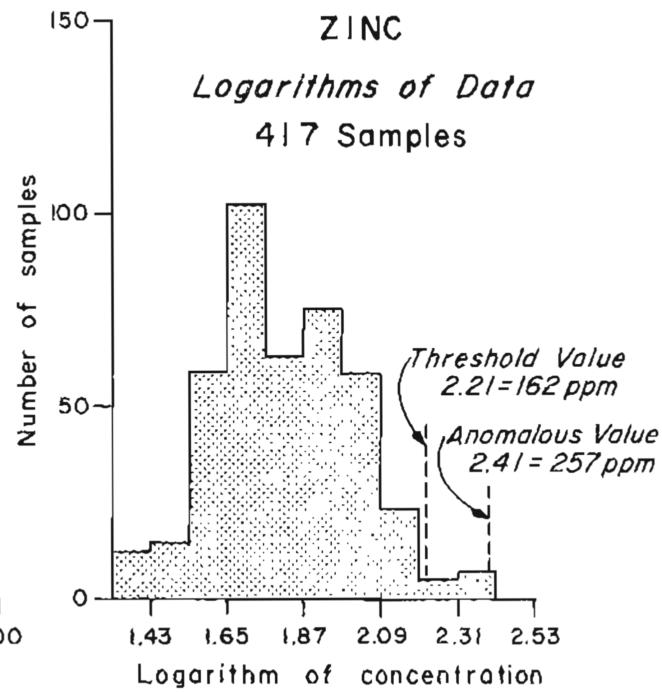


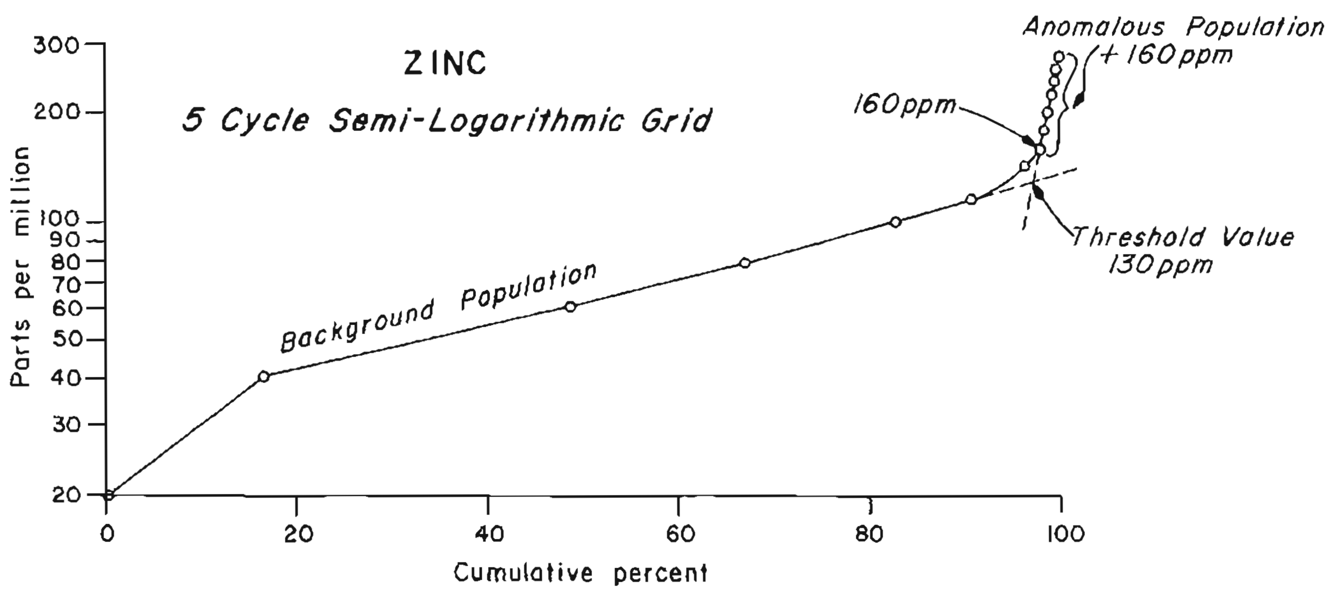


Appendix III

HISTOGRAMS & CUMULATIVE FREQUENCY CURVES
STREAM SEDIMENT SAMPLE ANALYSES BY ATOMIC ABSORPTION
SEWARD PENINSULA, ALASKA







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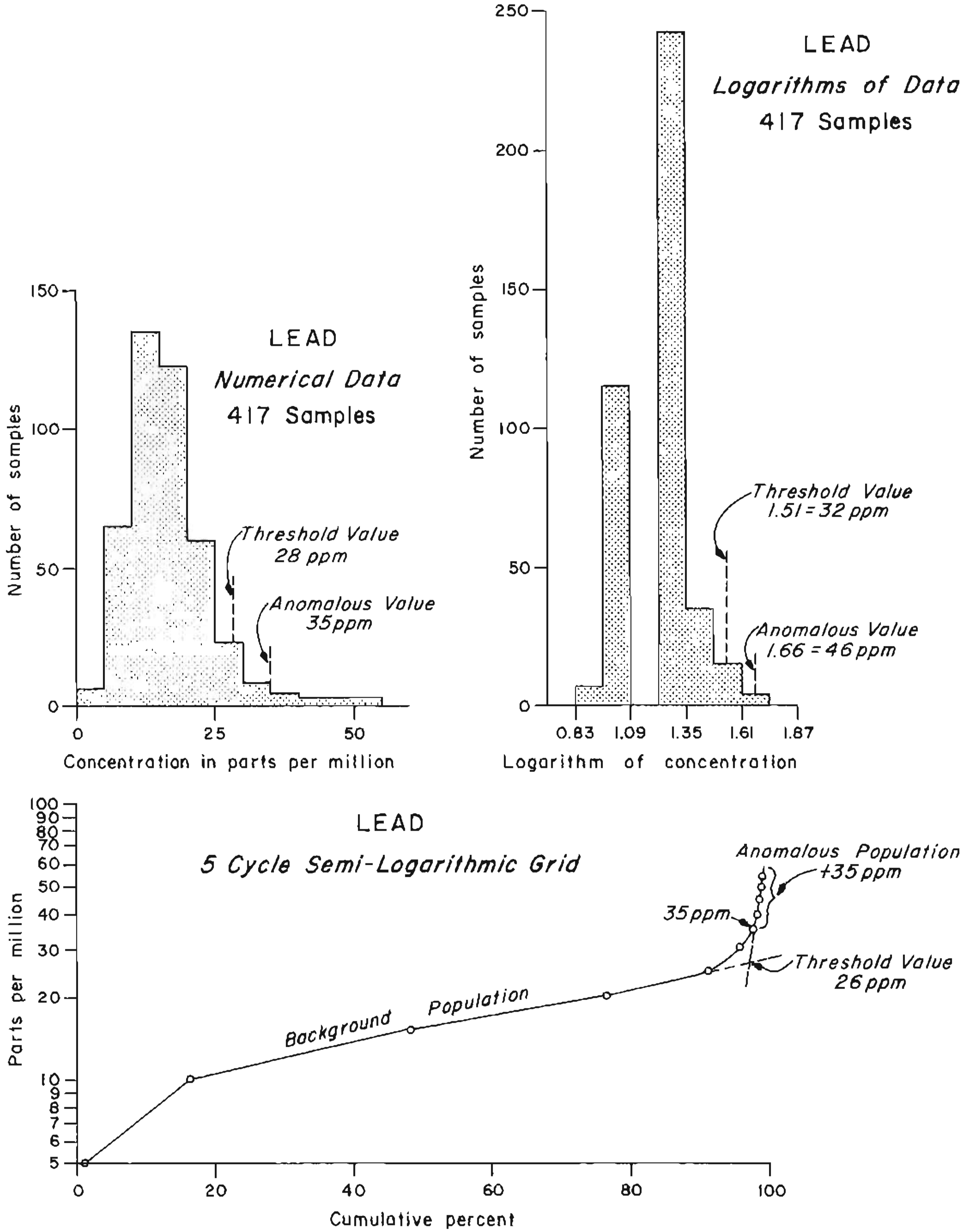

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