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Sample locality maps, analytical data, and statistical summary of analyses of rock samples from the Mount Katmai quadrangle and adjacent portions of the Naknek and Afognak quadrangles, Alaska

by

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INTRODUCTION

Evaluation of the mineral resources of Alaskan lands is required of the U.S. Geological Survey by the Alaskan National Interest Lands Conservation Act (ANILCA; Public Law 96-487, 1980). We report here some of the analytical results of such an evaluation of a part of the Alaska Peninsula between 58 and 59 degrees north latitude, the Mount Katmai area (see index on plate I). Geologic mapping and geochemical sampling of an east-west tier of quadrangles including the Mount Katmai quadrangle, the eastern portion of the Naknek quadrangle, and the western portion of the Afognak quadrangle was conducted during the summers of 1983-1986. The project is a part of the Alaska Mineral Resource Assessment Program (AMRAP).

The data presented in this report comprise the bedrock part of the Katmai geochemical data set; other reports and data releases focus on the stream-sediment data (Bailey and others, 1986; Bennett and Church, 1987; Church and Arbogast, 1989; Church and Bennett, 1989; Church and Motooka, 1989; Church and others, 1989; Goldfarb and others, 1988; Ehrlich and others, 1988). Description and discussion of the potential for mineralization in selected areas, and an overall assessment of the resource potential of the study area, are the subjects of future reports.

DESCRIPTION OF GEOLOGIC UNITS

A preliminary geologic map of the Katmai AMRAP area (Riehle and others, 1987) is the basis for the following abbreviated descriptions of the geologic units and is the geologic base for sample localities plotted on plates I and II. A final geologic map is in preparation. The unit symbols given below are those used on the preliminary map and also in the statistical tables near the end of this report. The descriptions here focus on the lithologic nature of the map units; geologic structures in the Katmai AMRAP area are discussed in Church and others (1989).

Overview

The Katmai AMRAP area is part of the Alaska Peninsula magmatic arc. Jurassic volcanic rocks intruded by Jurassic, Cretaceous, and Tertiary plutons comprise the Alaska-Aleutian Ranges batholith which occurs from south of the study area north to the vicinity of Mount Denali (formerly, Mount McKinley). The middle Tertiary Meshik volcanic arc extends from the southern Alaska Peninsula north at least to the Katmai region and perhaps into the Iliamna quadrangle where Tertiary plutons of the batholith may be the deep-seated equivalents of the Meshik volcanic rocks. Miocene

volcanic rocks located seaward of Quaternary vents in the Katmai region document the onset of the modern Aleutian arc.

The most extensive rock unit in the region is the Naknek Formation, a composite of upper Jurassic shallow marine, littoral, and fluvial deposits that document the unroofing and erosion of the Jurassic batholith. The main structural feature is the Bruin Bay fault, a high-angle reverse fault that in the Katmai region juxtaposes batholith and older rocks on the west against the Naknek Formation.

Paleozoic (?) and Mesozoic Rocks (unit JPk)

The oldest rocks in the Katmai area are schist, quartzite, greenstone, and amphibolite of probable greenschist facies, and garnet-bearing gneiss of possible amphibolite facies. Such metamorphic rocks crop out in a northeast-trending belt as roof pendants within the Alaska-Aleutian Ranges batholith. Although the majority of the rocks show only effects of contact metamorphism by the Jurassic intrusive rocks, gneiss on an island in the North Arm of Naknek Lake is suggestive of regional metamorphism that could predate intrusive activity. Rocks having such a metamorphic foliation (?), however, are known in only a single outcrop and so are discussed together with rocks showing effects of only contact metamorphism.

All metamorphic rocks in the study area are assigned to the Kakhonak Complex (JPk), defined by Detterman and Reed (1980) from exposures in the Iliamna quadrangle to the north. The unmetamorphosed protoliths of the Kakhonak Complex in the Katmai area include volcanic and sedimentary rocks of the Cottonwood Bay greenstone (TR c), the Kamishak Formation (TR k), and the Talkeetna Formation (Jt). The gneiss and quartzite have no known compositional equivalents among unmetamorphosed Mesozoic rocks in the area.

Mesozoic rocks (units TR c, TR k, Jt, Jqr, Jqd, Jqd, Jqb, Jn, Ks, Kh, Kp, and Kk)

The oldest rocks in the study area of relatively certain age are submarine lava flows, chert, and diabasic sills of the Cottonwood Bay greenstone (TR c), now mainly metamorphosed to greenshist facies. At the type locality in the Iliamna quadrangle (Detterman and Reed, 1980) it is inferred to be of late (?) Triassic age. In the Katmai area the unit occurs as pendants in the Alaska-Aleutian Ranges batholith. The greenstone occurs locally in sedimentary contact with recrystallized limestone which is provisionally correlated with the Kamishak Formation (TR k) of late Triassic age (Detterman and Reed, 1980).

The Talkeetna Formation (Jt) of early Jurassic age disconformably overlies Triassic strata in the Iliamna quadrangle (Detterman and Reed, 1980) but is conformable with them at Puale Bay, south of the Katmai area (R.L.

Detterman, written commun., 1989). The unit consists of volcanic tuffs, lahars, agglomerates, flows, and sills, locally interbedded with siltstone, sandstone, and volcanic-clast conglomerate.

The Talkeetna Formation and all older rocks are intruded by plutonic rocks of the Alaska-Aleutian Ranges batholith. The intrusive rocks are predominantly granodiorite, quartz diorite, or tonalite (Jgd and Jqd) but include gabbro, granite, and diorite (Jgr and Jgb). K-Ar ages of eleven Mesozoic samples range from 153 m.y. to 173 m.y. (Reed and Lanphere, 1972; M.A. Lanphere, written commun., 1988), that is, from middle to late Jurassic age.

Deposition of the Naknek Formation (Jn) in late Jurassic time followed the intrusive activity. The Naknek Formation includes fluvial, beach, and shallow marine deposits and is the most extensive formation of the Alaska Peninsula. The formation in the study area has been divided into four members, from oldest to youngest, a lower conglomerate, a sandstone, a siltstone, and an upper conglomerate (Detterman and Hartsock, 1966; R.L. Detterman, written commun., 1989). The siltstone member locally contains limestone concretions. Even the lower conglomerate includes clasts of plutonic rock, the oldest evidence for erosion of the batholith.

Siltstone and sandstone of the Staniukovich Formation (Ks) conformably overlie the Naknek Formation 12 km north-northeast of Mount Katmai. The Staniukovich Formation is in turn overlain by the Herendeen Limestone (Kh) (Atwood, 1911); the dominant lithology of the Herendeen Limestone is calcareous sandstone (R.L. Detterman, written commun., 1989). Both the Staniukovich Formation and the Herendeen Limestone are of early Cretaceous age. Fine- to medium-grained sandstone having carbonaceous debris and siltstone of early Cretaceous (Albian) age disconformably overlie the Herendeen Formation in the Katmai area. The Albian-age rocks are named the Pedmar Formation (Kp) (R.L. Detterman, written commun., 1989) for their type locality near Mount Pedmar.

Upper Cretaceous rocks of the Kaguyak Formation (Kk) unconformably overlie all older strata in the Katmai area. The unit consists of sandstone, siltstone, and thin limestone beds. In its upper part the unit has rip-up clasts and load casts indicative of turbidite deposition in a deep marine basin (Keller and Reiser, 1959; Detterman and Miller, 1985).

Tertiary rocks (units Tc, Th, Ts, Tgd, Tqd, Tgb, Tav, Tmb, Tma, Ti, Tiu, and d)

Tertiary strata in the Katmai region are preserved mainly along Shelikof Strait. The Paleocene (?) and Eocene Copper Lake Formation (Tc) is preserved near Cape Douglas, and the upper Oligocene (J.A. Wolfe, written commun., 1988) Hemlock Conglomerate (Th) occurs from near the Katmai River

to Cape Douglas. The Copper Lake Formation consists of indurated conglomerate, sandstone, and siltstone and contains altered volcanic clasts that were probably derived from the Talkeetna Formation. The Hemlock Conglomerate comprises poorly indurated shale, conglomerate, tuffaceous sandstone, and coal.

Undifferentiated sedimentary rocks of Tertiary age (Ts) occur west of the Aleutian Range crest and are moderately well indurated, fluvial sandstone, siltstone, conglomerate, and tuffaceous sandstone and siltstone. The undifferentiated Tertiary rocks may be equivalents of the Copper Lake Formation but their localized occurrence suggests sedimentation in small basins having no necessary temporal relations with one another.

Tertiary intrusive rocks of the Alaska-Aleutian Ranges batholith are chiefly granodiorite and quartz diorite (Tgd and Tqd) but include diorite and gabbro (Tgb). Radiometric ages of nine samples range from 25 to 37 m.y. (Reed and Lanphere, 1972; M.A. Lanphere, written commun., 1988). Two of these middle Tertiary plutons cross-cut the Bruin Bay fault near Kulik Lake. Contact metamorphic effects--induration, veining, and alteration--are prominent where Tertiary plutons have intruded Mesozoic sedimentary rocks east of the Bruin Bay fault. Hydrothermal alteration of the deep-seated plutons, however, is not intensive.

Tertiary volcanic and hypabyssal rocks comprise two main groups in the Katmai region: early to middle Tertiary lava flows, domes, and dikes west of the Aleutian Range crest (Tmb and Tma), and late Tertiary lava flows and sills at and east of the range crest (Tav). Extrusives of the western group are dominantly andesitic whereas the dikes and domes are basaltic; altered quartz-bearing domes and tuffs indicate magmas more siliceous than andesite. Three radiometric ages range from 38 to 41 m.y. (F.H. Wilson, written commun., 1987) and confirm assignment of the western group to the subduction-related Meshik arc (Wilson, 1985). The Meshik volcanics in the Katmai region commonly have incipient propylitic alteration but neither mineralization nor extensive alteration, probably owing to either a shallow level of erosion or to the absence of extensive regional intrusive activity.

Volcanic rocks east of the range crest comprise an early Aleutian volcanic arc that was active during Pliocene and Miocene time. Extrusive rocks are chiefly andesitic and dacitic lava flows which overlie and locally deform rocks of the late Oligocene Hemlock Conglomerate. Both volcanic and sedimentary rocks are intruded by small tonalitic or granodioritic plugs and plutons (Ti) that are associated with hydrothermal alteration and oxidized pyrite.

Sills, dikes, and plutons of altered tonalite or quartz diorite occur in the region between Yori Pass and the Rainbow River, northwest of the range crest (Tiu). These hypabyssal intrusives are locally associated with mineralization and (or) oxidation of iron in both the

intrusives and their sedimentary wallrocks. Owing to prevalent hydrothermal alteration, no radiometric ages are yet available.

Dikes (d) occur throughout the area east of the Bruin Bay fault but are especially prevalent in the vicinity of Tertiary hypabyssal intrusives and (or) east of the range crest. Most have a northwest trend and are moderately to highly propylitically altered. Dikes occur in rocks as old as the Naknek Formation and as young as the late Tertiary Aleutian volcanic rocks.

Quaternary deposits and Quaternary or Tertiary rocks (units Qs, Qls, Qac, Qad, Qap, QTac, and QTap)

Quaternary and (or) uppermost Tertiary deposits of the Katmai region are chiefly volcanic rocks and deposits of the active Aleutian volcanic arc, and glacial deposits. Although the entire study area has been extensively glaciated several times, extensive deposits of drift are found only west of the Aleutian Range in the Bristol Bay lowlands. The glacial deposits and history of the area are the subject of a separate geologic map (Riehle and Detterman, in press).

Volcanic deposits of the Aleutian volcanic arc are found chiefly near the active stratocones along the range crest. The lava flows are mainly of andesitic or dacitic composition and the domes of dacitic and rhyolitic composition. Dacitic and rhyolitic ash-flow tuffs occur at the south margin of the study area, in the Valley of Ten Thousand Smokes and at Kaguyak Crater. Pumiceous air-fall deposits of the 1912 Novarupta (Katmai) eruption are more than 1 m thick in the area from the head of the Valley of Ten Thousand Smokes east to Shelikof Strait.

ANALYTICAL METHODS

Rock samples were crushed and pulverized to <0.15 mm using ceramic plates. All samples were analyzed for 31 elements by the semiquantitative, direct-current arc emission spectrographic method of Grimes and Marranzino (1968). The elements analyzed and their limits of determination are listed in Table 1. Spectrographic results were obtained by visual comparison of spectra derived from each sample against spectra obtained from standards made from pure oxides and carbonates. Values for iron, magnesium, calcium, and titanium are reported in weight percent; values for all other elements are reported in parts per million (micrograms/gram). Spectrographic results are reported in six steps per order of magnitude as follows: 1.0, 1.5, 2.0, 3.0, 5.0, and 7.0 (and powers of 10 of these numbers). These values are the approximate geometric midpoints of the class intervals shown below.

Reported value	Class interval limits
1.0	0.83 - 1.2
1.5	1.2 - 1.8
2.0	1.8 - 2.6
3.0	2.6 - 3.8
5.0	3.8 - 5.6
7.0	5.6 - 8.3

The precision of the semiquantitative spectrographic method is approximately plus or minus one reporting interval at the 83 percent confidence level and plus or minus two reporting intervals at the 96 percent confidence level (Motooka and Grimes, 1976).

Selected rock samples were analyzed for certain elements using more sensitive and precise analytic techniques. The techniques used for each element, the lower limit of determination, and a reference describing each technique are summarized in Table 2.

ANALYTICAL RESULTS

(Tables 4 through 15)

Table 3 lists abbreviations used in tables 4 and 5. Tables 4 and 5 contain analyses of rock samples collected during the course of stream-sediment sampling. Table 4 (289 samples) has cobble samples collected from active stream channels, and Table 5 (401 samples) has analyses of rock samples collected from outcrops near stream-sediment sample localities. Although samples in Tables 4 and 5 were selected in part for being altered or having indications of mineralization, the samples are not uniformly "mineralized". Map numbers correspond to localities shown on plate I, in which cobble samples are indicated by a solid circle (dot) and outcrop samples are indicated by a solid triangle.

Tables 7 through 15 contain analyses of bedrock samples collected during geologic mapping (1,205 samples), grouped by lithologic unit. Such bedrock samples include altered or visibly mineralized rocks, as well as rocks intended to be representative of nonaltered parts of each of the map units. Localities of samples listed in tables 7 through 15 are plotted on Plate II. Table 6 lists sample numbers arranged by increasing map number, that is, locality. A particular locality on plate II is found in table 6 and the lithologic unit is identified. Analytical results for the sample can then be located in the particular data table (tables 7 through 15) appropriate to that lithologic unit.

For tables 4, 5, and 7 through 15, columns that have "S" to the right of the element-symbol heading are emission-spectrographic analyses; "AA" indicates atomic-absorption analyses; "INST" indicates instrumental analyses; and "SI" indicates specific-ion analyses. "N" means that a given

element was sought but not detected at the lower limit of determination shown for that element in table 1. If an element was detected but was below the lowest reporting value, a "<" symbol is entered in front of the lower limit of determination. If an element was detected but was above the highest reporting value, a ">" symbol is entered in front of the upper limit of determination. If an element was not sought, two dashes (--) are entered.

Because of the formatting by the computer program that produced tables 4, 5, and 7 through 15, some elements (Fe, Mg, Ca, Ti, Ag, and Be) in places carry one or more nonsignificant digits to the right of the significant places. Analysts did not measure these elements to the accuracy suggested by the extra zeroes. If determinations for a particular element in tables 4, 5, and 7 through 15 were below the lower limit for all samples in the table, the column for that element is deleted from that table.

All data in Tables 4, 5, and 7 through 15 were checked against original sources prior to printing. In addition, about 2 percent of the entries were selected at random and checked for errors in locations and analytical results after printing; none were found in the random sample.

STATISTICAL SUMMARIES

(Tables 16 through 26)

The median (value of the fiftieth percentile), geometric mean (the nth root of the product of n observations), and geometric deviation (a measure of the degree of scatter of the data about the mean) are presented for each element in Tables 16 through 26. Additionally, the values of the 90th, 95th, and 98th percentiles are given as an indication of the skewness of the analytical distributions. Because semi-quantitative spectrographic data are reported in geometrically spaced classes, the Chi-square test for normalcy or log-normalcy of distribution is not used because the test is valid only for continuously distributed data. Moreover, several of the element distributions are censored by the lower detection limit. Cohen's (1959) method of estimating the geometric mean and deviation has been used for those censored distributions having no more than 50 percent censored observations.

The statistical summaries are presented for several groups of lithologic (map) units. Tables 16 and 17 summarize the results of Tables 4 and 5 for stream cobbles and bedrock samples collected during stream-sediment sampling, respectively. Tables 18 through 26 summarize the results in Tables 7 through 15 according to lithologic groups having similar element distributions. Lithologic (map) units that are grouped together in the statistical tables have similar means and element distributions as

determined by inspection of frequency histograms (not reproduced here).

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Table 1. Limits of determination using the semiquantitative spectrographic method on a 10-mg sample

Element	Lower limit of determination	Upper limit of determination
	Percent	
Iron (Fe)	0.05	20
Magnesium (Mg)	0.02	10
Calcium (Ca)	0.05	20
Titanium (Ti)	0.002	1
	Parts per million	
Manganese (Mn)	10	5,000
Silver	0.5	5,000
Arsenic (As)	200	10,000
Gold (Au)	10	500
Boron (B)	10	2,000
Barium (Ba)	20	5,000
Beryllium (Be)	1	1,000
Bismuth (Bi)	10	1,000
Cadmium (Cd)	20	500
Cobalt (Co)	5	2,000
Chromium (Cr)	10	5,000
Copper (Cu)	5	20,000
Lanthanum (La)	20	1,000
Molybdenum (Mo)	5	2,000
Niobium (Nb)	20	2,000
Nickel (Ni)	5	5,000
Lead (Pb)	10	20,000
Antimony (Sb)	100	10,000
Scandium (Sc)	5	100
Tin (Sn)	10	1,000
Strontium (Sr)	100	5,000
Vanadium (V)	10	10,000
Tungsten (W)	50	10,000
Yttrium (Y)	10	2,000
Zinc (Zn)	200	10,000
Zirconium (Zr)	10	1,000
Thorium (Th)	100	2,000

Table 2. Elements analyzed by methods other than semiquantitative spectrographic analysis

Element analyzed	Method used	Lower limit of determination	Reference
Gold (Au)	AA	0.05	Thompson and others, 1968
Mercury (Hg)	I	0.02	Modification of McNerney and others, 1972, and Vaughn and McCarthy, 1964
Arsenic (As)	AA	10	Modification of Viets, 1978
Antimony (Sb)	AA	2	do.
Zinc (Zn)	AA	5	do.
Bismuth (Bi)	AA	1	do.
Cadmium (Cd)	AA	0.1	do.
Fluorine (F)	SI	100	Hopkins, 1977
Tellurium (Te)	AA	0.1	Chao and others, 1978

Table 3. Abbreviations used in Tables 4 and 5

Rock Type

sed.	sedimentary rock
congl.	conglomerate
sandst.	sandstone
siltst.	siltstone
lime/dolo.	limestone or dolomite
qtzite	quartzite
fels. ign.	felsic igneous rock
int. ign.	intermediate igneous rock
maf. ign.	mafic igneous rock
ultramafic	ultramafic igneous rock
chert/jas.	chert or jasperoid
other	not one of the above rock types

Alteratn (Alteration)

prop.	propylitic
arg.	argillic
sil.	siliceous
ser.	sericitic
feldsp.	feldspathic
zeo.	zeolitic
Fe/Mn	iron/manganese

Mindepfm (Mineral deposit form)

replac.	replacement
dissem.	disseminated
mag. seg.	magmatic segregation
cont. met.	contact metamorphic
porph.	porphyry/stockworl
hot sp.	hot springs

Table 4. Geochemical analyses of stream cobble samples from the Mount Katmai study area, Alaska

[Map No. refers to localities shown on plate I. "N" = not detected; "--" not analyzed for; "S" = spectrographic analyses; "AA" = atomic absorption analyses; "INST" = instrumental analyses; "SI" = specific ion analyses. Statistical summary of data from this table reported in table 16.]

Sample	LATITUDE	LONGTUDE	MAP NO.	ROCKTYPE	ALTERATN	MINDEPFM	FE%-S	MG%-S	CA%-S	TI%-S	MN-S	AG-S
K3384RA	58 47 26	155 5 30	1	int. ign.	--	--	5.00	2.00	2.00	.500	2,000	N
K3384RB	58 47 26	155 5 30	2	int. ign.	--	--	1.00	.70	7.00	.150	1,500	N
K4106RA	58 52 0	155 5 10	3	int. ign.	prop.	--	2.00	3.00	2.00	.300	1,000	N
K4197RA	58 58 29	154 58 48	4	fels. ign.	prop.	--	3.00	1.00	1.00	.500	1,000	<.5
K4197RB	58 58 29	154 58 48	5	fels. ign.	prop.	--	5.00	1.50	1.00	.700	1,500	N
K3393RA	58 53 25	154 58 45	6	fels. ign.	--	--	3.00	.70	.50	.100	200	N
K3393RB	58 53 25	154 58 45	7	fels. ign.	--	--	10.00	.50	.10	.100	150	N
K4597RJ	58 50 32	154 58 16	8	other	--	vein	10.00	1.00	.50	.200	1,000	5.0
K4597RC	58 50 32	154 58 16	9	fels. ign.	--	--	5.00	2.00	1.00	.150	1,000	N
K4597RB	58 50 32	154 58 16	10	int. ign.	--	--	10.00	7.00	5.00	.500	2,000	N
K4597RD	58 50 32	154 58 16	11	fels. ign.	ser.	--	1.00	.20	<.05	.070	50	N
K4597RH	58 50 32	154 58 16	12	--	--	vein	20.00	.70	.10	.050	300	<.5
K4597RI	58 50 32	154 58 16	13	other	--	vein	20.00	1.00	.10	.500	500	5.0
K4597RF	58 50 32	154 58 16	14	int. ign.	--	dissem.	3.00	.50	1.50	.200	1,000	<.5
K4597RE	58 50 32	154 58 16	15	fels. ign.	ser.	dissem.	3.00	.50	1.00	.050	150	200.0
K3609RB	58 50 28	154 58 15	16	--	prop.	vein	15.00	1.50	.10	.300	300	.5
K4159RA	58 45 50	154 58 11	17	int. ign.	--	--	1.50	1.50	3.00	.300	700	N
K3394RA	58 53 29	154 57 48	18	fels. ign.	arg.	porph.	.70	.10	<.05	.200	10	<.5
K3394RB	58 53 29	154 57 48	19	fels. ign.	arg.	porph.	2.00	.20	.20	.100	100	<.5
K3394RC	58 53 29	154 57 48	20	fels. ign.	arg.	porph.	5.00	.10	<.05	.100	10	<.5
K3394RD	58 53 29	154 57 48	21	fels. ign.	prop.	porph.	1.00	1.50	.70	.200	300	<.5
K3394RE	58 53 29	154 57 48	22	fels. ign.	arg.	porph.	1.00	.50	<.05	.200	20	<.5
K4202RC	58 54 18	154 54 47	23	int. ign.	prop.	--	7.00	3.00	5.00	.700	5,000	2.0
K4202RD	58 54 18	154 54 47	24	fels. ign.	prop.	dissem.	5.00	2.00	2.00	.300	500	N
K4202RB	58 54 18	154 54 47	25	qtzite	--	--	5.00	3.00	5.00	.500	1,500	N
K4202RA	58 54 18	154 54 47	26	int. ign.	prop.	--	10.00	3.00	3.00	.700	2,000	N
K3610RA	58 49 10	154 53 35	27	metamorph.	prop.	vein	15.00	1.50	5.00	.200	2,000	N
K3610RB	58 49 10	154 53 30	28	metamorph.	prop.	dissem.	15.00	1.50	3.00	.200	1,000	N
K3610RC	58 49 9	154 53 25	29	metamorph.	prop.	dissem.	7.00	2.00	5.00	.500	1,500	N
K3610RD	58 49 9	154 53 20	30	metamorph.	--	vein	7.00	.10	.20	.100	>5,000	10.0
K3607SS	58 54 15	154 53 8	31	other	--	--	10.00	1.00	.20	.500	500	.5
K4155RB	58 49 58	154 50 45	32	fels. ign.	ser.	--	5.00	1.50	.30	.500	1,500	<.5
K4155RA	58 49 58	154 50 45	33	fels. ign.	--	--	.70	.30	<.05	.020	500	1.0
K4573RA	58 57 36	154 45 55	34	int. ign.	--	porph.	5.00	.30	<.05	.200	50	<.5
K4573RB	58 57 36	154 45 55	35	int. ign.	--	porph.	5.00	2.00	<.05	.500	50	N
K4573RC	58 57 36	154 45 55	36	int. ign.	--	porph.	20.00	.50	.70	.200	300	N
K4573RD	58 57 36	154 45 55	37	int. ign.	--	porph.	20.00	.70	.70	.200	300	3.0
K4574RB	58 56 32	154 45 50	38	int. ign.	--	porph.	5.00	.70	.30	.500	200	<.5
K4574RA	58 56 32	154 45 50	39	maf. ign.	--	porph.	20.00	2.00	.70	.500	5,000	<.5
K4596RA	58 53 22	154 39 14	40	fels. ign.	sil.	dissem.	5.00	.15	<.05	.200	30	<.5
K4194RA	58 54 8	154 36 30	41	fels. ign.	--	--	2.00	.70	1.00	.150	500	<.5
K4186RA	58 50 0	154 32 10	42	int. ign.	--	--	3.00	1.50	5.00	.200	1,000	N
K4185RA	58 49 10	154 26 50	43	other	--	--	5.00	2.00	10.00	.050	2,000	N
K3358RA	58 46 53	154 13 36	44	sandst.	--	--	5.00	1.00	1.50	.300	1,500	N
K4171RA	58 50 41	154 0 59	45	other	--	--	10.00	1.00	1.00	1.000	2,000	N

Table 4. Analyses of stream cobble samples from the Mount Katmai study area, Alaska (continued)

Sample	AS-S	B-S	BA-S	BE-S	BI-S	CD-S	CO-S	CR-S	CU-S	LA-S	MO-S	NB-S	NI-S	PB-S	SB-S	SC-S	SN-S	SR-S
K3384RA	N	<10	500	<1.0	N	N	50	N	70	N	N	N	N	10	N	30	N	500
K3384RB	N	>2,000	300	<1.0	N	N	7	50	70	N	N	N	30	N	N	10	N	100
K4106RA	N	50	700	<1.0	N	N	50	100	50	N	<5	N	30	<10	N	20	N	700
K4197RA	N	500	700	1.0	N	N	10	30	20	N	<5	N	7	20	N	15	N	500
K4197RB	N	>2,000	1,500	1.0	N	N	50	30	7	N	20	N	20	10	N	30	N	500
K3393RA	N	10	1,000	1.0	N	N	7	10	50	N	N	N	7	<10	N	5	N	300
K3393RB	N	10	500	1.0	N	N	70	<10	70	N	<5	N	10	<10	N	5	N	150
K4597RJ	N	1,000	200	<1.0	N	N	100	50	15,000	N	20	N	30	10	N	20	N	150
K4597RC	N	50	70	1.5	N	N	30	10	100	N	N	N	20	15	N	20	N	200
K4597RB	N	<10	200	N	N	N	70	700	30	N	N	N	100	<10	N	30	N	200
K4597RD	N	200	1,000	<1.0	N	N	N	N	15	N	70	N	N	N	N	<5	<10	N
K4597RH	N	1,000	150	<1.0	N	N	700	10	100	N	<5	N	50	10	N	7	N	<100
K4597RI	N	200	100	N	N	N	700	50	2,000	100	<5	N	100	30	N	20	N	<100
K4597RF	N	<10	150	1.0	N	N	7	N	20	N	N	N	10	<10	N	7	N	500
K4597RE	N	100	200	<1.0	150	N	N	N	20,000	N	N	N	15	100	N	5	N	300
K3609RB	N	70	500	N	N	N	<5	20	100	N	<5	N	5	<10	N	50	N	N
K4159RA	N	<10	300	1.5	N	N	7	10	100	N	<5	N	10	<10	N	10	N	1,000
K3394RA	N	50	500	1.5	N	N	15	20	10	N	100	N	N	15	N	<5	<10	<100
K3394RB	N	20	1,000	1.0	N	N	20	20	50	N	<5	N	7	<10	N	5	N	N
K3394RC	N	15	500	<1.0	N	N	70	10	20	N	500	N	5	10	N	<5	N	N
K3394RD	N	15	500	1.5	N	N	20	15	1,500	N	N	N	20	10	N	7	N	300
K3394RE	N	20	500	1.0	N	N	100	15	50	50	N	N	7	<10	N	7	<10	N
K4202RC	N	20	100	N	N	N	70	30	500	50	15	N	30	200	N	30	N	700
K4202RD	N	<10	200	1.0	N	N	10	N	10	N	N	N	N	20	N	7	N	700
K4202RB	N	10	500	N	N	N	20	70	70	N	N	N	20	10	N	20	N	1,000
K4202RA	N	10	300	N	N	N	50	N	70	N	N	N	N	<10	N	30	N	500
K3610RA	N	<10	50	N	N	N	20	30	200	N	N	N	10	N	N	20	N	200
K3610RB	N	20	50	N	N	N	100	100	200	N	N	N	100	<10	N	30	N	300
K3610RC	N	20	700	1.0	N	N	20	100	100	<20	N	N	30	N	N	50	N	200
K3610RD	7,000	50	200	1.0	N	30	5	<10	20	<20	N	N	20	300	200	10	N	N
K3607SS	N	200	1,000	<1.0	N	N	10	20	100	N	<5	N	5	100	N	30	N	<100
K4155RB	N	10	500	1.0	N	N	15	50	200	N	N	N	20	20	N	15	N	200
K4155RA	N	50	700	1.5	N	N	N	N	20	N	N	N	N	20	N	5	N	N
K4573RA	N	50	700	1.0	N	N	10	<10	15	N	N	N	7	N	N	7	N	N
K4573RB	N	200	500	<1.0	N	N	15	70	200	N	10	N	30	20	N	20	N	N
K4573RC	N	20	300	<1.0	N	N	5	70	200	N	N	N	15	10	N	10	N	200
K4573RD	N	10	300	<1.0	N	N	150	70	2,000	N	<5	N	100	10	N	15	N	300
K4574RB	N	20	1,000	N	N	N	15	150	200	N	<5	N	20	70	N	20	N	100
K4574RA	N	20	2,000	N	N	N	70	100	100	20	5	N	20	300	N	20	N	N
K4596RA	N	500	1,000	<1.0	N	N	20	10	50	N	20	N	<5	<10	N	7	20	N
K4194RA	N	10	1,000	<1.0	N	N	<5	N	100	N	10	N	N	<10	N	10	N	<100
K4186RA	N	<10	300	<1.0	N	N	50	70	100	N	N	N	30	<10	N	15	N	700
K4185RA	N	100	70	1.0	N	N	<5	<10	10	N	N	N	N	10	N	10	N	150
K3358RA	N	10	500	<1.0	N	N	15	50	20	N	<5	N	30	<10	N	15	N	<100
K4171RA	N	100	700	1.5	N	N	70	30	300	20	<5	N	20	15	N	20	N	200

Table 4. Analyses of stream cobble samples from the Mount Katmai study area, Alaska (continued)

Sample	V-S	W-S	Y-S	ZN-S	ZR-S	AU-AA	HG-INST	TL-AA	AS-AA	BI-AA	CD-AA	SB-AA	ZN-AA	F-SI
K3384RA	200	N	30	200	70	N	--	--	N	N	N	N	50	--
K3384RB	100	N	30	N	15	N	--	--	20	N	.4	N	10	--
K4106RA	200	N	15	N	70	N	--	--	10	N	N	N	40	--
K4197RA	150	N	20	N	100	N	--	--	N	N	N	N	50	--
K4197RB	150	N	30	200	100	N	--	--	N	N	N	N	90	--
K3393RA	50	N	<10	N	70	.05	--	--	N	N	N	N	20	--
K3393RB	70	N	N	N	70	.15	--	--	N	N	N	N	15	--
K4597RJ	150	N	20	N	30	.45	--	--	N	2	N	N	60	--
K4597RC	200	N	30	N	70	N	--	--	N	N	N	N	50	--
K4597RB	200	N	20	N	30	N	--	--	N	N	N	N	20	--
K4597RD	50	N	<10	N	100	N	--	--	N	3	N	N	N	--
K4597RH	70	N	N	200	<10	.15	--	--	N	7	N	N	20	--
K4597RI	100	N	10	N	30	.35	--	--	N	11	N	2	35	--
K4597RF	70	N	20	N	200	N	--	--	N	N	N	N	25	--
K4597RE	50	N	20	N	70	4.40	--	--	N	80	N	N	15	--
K3609RB	300	50	<10	200	150	.05	--	--	N	6	N	N	10	--
K4159RA	150	N	10	N	50	N	--	--	N	N	N	N	20	--
K3394RA	30	<50	<10	N	100	<.05	--	--	N	N	N	N	5	--
K3394RB	70	N	10	N	70	N	--	--	N	N	N	N	10	--
K3394RC	50	N	<10	N	50	.05	--	--	N	N	.1	N	40	--
K3394RD	70	N	15	N	70	.05	--	--	N	N	N	N	80	--
K3394RE	70	<50	<10	N	70	.10	--	--	N	N	N	N	N	--
K4202RC	150	N	30	700	50	N	--	--	10	2	3.6	N	660	--
K4202RD	70	N	20	N	70	.10	--	--	N	N	N	N	70	--
K4202RB	200	N	20	<200	100	N	--	--	10	N	.3	N	110	--
K4202RA	300	N	20	<200	20	N	--	--	N	N	N	N	35	--
K3610RA	100	N	50	200	70	N	--	--	N	N	N	N	20	--
K3610RB	100	N	50	200	100	N	--	--	N	N	N	N	45	--
K3610RC	200	N	50	<200	200	N	--	--	N	N	.2	N	20	--
K3610RD	70	N	100	5,000	30	.05	--	--	>2,000	N	31.0	48	>2,000	--
K3607SS	200	N	50	200	200	--	--	--	--	--	--	--	--	--
K4155RB	150	N	15	<200	70	N	--	--	N	N	N	N	65	--
K4155RA	N	N	50	700	50	N	--	--	N	N	2.4	N	500	--
K4573RA	100	N	10	N	70	.05	--	--	N	3	N	N	N	--
K4573RB	200	<50	<10	N	100	N	--	--	N	N	N	N	5	--
K4573RC	150	N	10	N	50	N	--	--	N	N	N	N	10	--
K4573RD	100	N	<10	N	50	.20	--	--	N	N	N	N	20	--
K4574RB	200	N	20	N	100	N	--	--	N	N	N	N	40	--
K4574RA	200	N	20	700	50	N	--	--	N	10	.1	N	360	--
K4596RA	70	<50	<10	N	100	N	--	--	N	N	N	N	N	--
K4194RA	50	N	20	N	70	N	--	--	N	N	N	N	15	--
K4186RA	200	N	<10	N	50	.05	--	--	60	N	N	N	15	--
K4185RA	50	N	50	N	20	N	--	--	N	N	.1	N	55	--
K3358RA	100	N	15	N	30	N	--	--	10	N	N	N	40	--
K4171RA	200	N	50	<200	150	N	--	--	10	N	N	N	25	--

Table 4. Analyses of stream cobble samples from the Mount Katmai study area, Alaska (continued)

Sample	LATITUDE	LONGTUDE	MAP NO.	ROCKTYPE	ALTERATN	MINDEPFM	FE%-S	MG%-S	CA%-S	TI%-S	MN-S	AG-S
K4145RA	58 52 5	153 58 38	46	int. ign.	--	--	7.00	1.50	2.00	.500	2,000	N
K4165RA	58 59 37	153 53 57	47	other	--	--	20.00	.50	.70	.100	500	N
K3334RA	58 49 1	153 51 43	48	int. ign.	--	--	3.00	.70	1.50	.150	150	N
K3334RB	58 49 1	153 51 43	49	int. ign.	--	--	2.00	1.00	1.00	.300	300	N
K3334RC	58 49 1	153 51 43	50	int. ign.	prop.	--	5.00	.70	1.50	.300	500	N
K4148RA	58 49 49	153 50 47	51	fels. ign.	ser.	--	3.00	2.00	5.00	.150	1,000	<.5
K4537RA	58 47 20	153 48 20	52	igneous	other	dissem.	1.00	<.02	<.05	.500	20	<.5
K3336RA	58 50 47	153 46 50	53	other	sil.	--	3.00	.15	.05	.200	70	3.0
K4146RA	58 47 44	153 45 55	54	int. ign.	arg.	--	5.00	1.50	2.00	.300	500	<.5
K4528RA	58 56 2	153 36 54	55	other	--	--	7.00	5.00	.50	.200	1,000	<.5
K3321RA	58 56 25	153 32 48	56	sedim.	--	vein	5.00	2.00	5.00	.200	1,500	1.0
K4527RA	58 57 26	153 30 17	57	other	arg.	vein	5.00	<.02	<.05	.500	10	N
K4527RB	58 57 26	153 30 17	58	other	sil.	dissem.	5.00	<.02	<.05	.500	<10	N
K4519RA	58 48 50	153 26 50	59	igneous	arg.	dissem.	.50	.10	<.05	.200	100	N
K4132RA	58 48 57	153 23 15	60	int. ign.	ser.	--	2.00	<.02	.10	.300	10	N
K4131RA	58 51 50	153 22 13	61	int. ign.	ser.	--	2.00	.10	<.05	.200	70	1.0
K4037RA	58 30 12	155 25 20	62	igneous	--	dissem.	3.00	1.50	.70	.200	300	<.5
K4037RB	58 30 12	155 25 20	63	igneous	ser.	dissem.	5.00	2.00	3.00	.300	700	.5
K4036RA	58 33 22	155 24 5	64	igneous	--	--	.15	<.02	.10	.020	70	N
K4011RA	58 30 28	155 4 38	65	int. ign.	--	vein	3.00	1.50	2.00	.300	200	.5
K4011RB	58 30 28	155 4 38	66	int. ign.	prop.	--	1.50	1.00	.70	.200	300	N
K2119RC	58 43 5	155 4 7	67	int. ign.	prop.	--	2.00	.70	3.00	.200	500	N
K2119RA	58 43 5	155 4 7	68	int. ign.	--	dissem.	5.00	1.00	1.00	.200	500	N
K2679RA	58 38 17	155 2 9	69	int. ign.	--	dissem.	3.00	1.50	1.50	.200	500	N
K3405RB	58 41 14	155 1 15	70	int. ign.	prop.	dissem.	10.00	5.00	5.00	.500	2,000	N
K3405RA	58 41 14	155 1 15	71	int. ign.	prop.	dissem.	3.00	.70	2.00	.150	1,000	N
K3406RA	58 40 47	155 1 10	72	metamorph.	--	dissem.	2.00	.70	.50	.100	200	N
K3406RB	58 40 40	155 1 5	73	fels. ign.	--	dissem.	5.00	1.50	2.00	.500	1,000	<.5
K3406RD	58 40 45	155 0 58	74	fels. ign.	--	--	10.00	5.00	7.00	.300	1,000	N
K3406RC	58 40 42	155 0 57	75	fels. ign.	--	dissem.	5.00	1.00	5.00	.200	2,000	N
K3303RB	58 43 56	154 41 0	76	other	--	other	2.00	1.00	3.00	.150	1,500	N
K3303RC	58 43 56	154 41 0	77	qtzite	--	--	1.00	.15	.15	.100	200	N
K3303RA	58 43 56	154 41 0	78	qtzite	--	--	3.00	2.00	7.00	.200	1,500	N
K2613RA	58 36 20	154 37 20	79	igneous	sil.	dissem.	2.00	.70	.70	.200	500	<.5
K4009RA	58 31 40	154 35 10	80	int. ign.	--	vein	3.00	1.50	1.00	.200	300	<.5
K4508RC	58 44 30	154 34 55	81	maf. ign.	--	dissem.	7.00	2.00	2.00	.700	1,500	N
K4508RD	58 44 30	154 34 55	82	other	prop.	--	5.00	.50	.50	.100	1,000	<.5
K3305RA	58 43 0	154 32 30	83	int. ign.	--	--	20.00	<.02	<.05	.100	200	N
K3404RF	58 33 42	154 31 45	84	siltst.	--	--	3.00	1.50	1.50	.300	1,000	<.5
K3404RA	58 33 42	154 31 45	85	sedim.	--	--	2.00	1.50	20.00	.100	5,000	N
K3404RE	58 33 42	154 31 45	86	int. ign.	--	--	5.00	1.50	2.00	.300	1,000	N
K3404RD	58 33 42	154 31 45	87	other	--	--	20.00	.30	1.00	.200	300	N
K3404RC	58 33 42	154 31 45	88	siltst.	--	--	5.00	1.50	1.50	.300	700	N
K3404RB	58 33 42	154 31 45	89	sandst.	--	--	5.00	.07	1.00	.200	200	N
K3403RA	58 37 17	154 27 14	90	other	--	--	>20.00	.50	1.00	.150	200	N

Table 4. Analyses of stream cobble samples from the Mount Katmai study area, Alaska (continued)

Sample	AS-S	B-S	BA-S	BE-S	BI-S	CD-S	CO-S	CR-S	CU-S	LA-S	MO-S	NB-S	NI-S	PB-S	SB-S	SC-S	SN-S	SR-S
K4145RA	N	<10	500	1.0	N	N	70	100	300	N	N	N	20	15	N	20	N	500
K4165RA	1,000	N	300	<1.0	N	N	7	10	15	N	50	N	50	10	N	10	N	200
K3334RA	N	50	1,000	1.5	N	N	7	10	100	N	N	N	15	<10	N	5	N	700
K3334RB	N	<10	1,000	1.0	N	N	20	<10	20	N	<5	N	15	<10	N	15	N	300
K3334RC	N	10	200	1.5	N	N	20	20	50	N	N	N	20	<10	N	10	N	500
K4148RA	N	200	300	1.0	N	N	5	20	100	N	5	N	7	<10	N	7	N	200
K4537RA	N	100	50	N	<10	N	10	N	50	N	<5	N	10	N	N	7	N	N
K3336RA	<200	100	700	<1.0	N	N	10	30	10	N	5	N	10	<10	N	10	N	N
K4146RA	N	<10	300	<1.0	N	N	20	100	100	N	N	N	30	10	N	20	N	300
K4528RA	N	<10	200	<1.0	<10	N	100	500	200	N	N	N	100	10	N	20	N	200
K3321RA	N	10	1,500	1.5	N	N	50	10	150	20	N	N	50	500	N	15	N	700
K4527RA	N	<10	700	N	N	N	<5	<10	15	N	N	N	N	10	N	10	N	200
K4527RB	N	<10	500	N	N	N	20	20	100	N	200	N	20	<10	N	7	N	500
K4519RA	<200	200	500	1.5	N	N	<5	N	10	N	N	N	N	10	N	5	N	<100
K4132RA	N	100	300	N	N	N	7	20	100	N	<5	N	5	10	N	10	N	200
K4131RA	<200	70	700	1.0	N	50	10	N	20	N	5	N	N	50	10,000	7	N	N
K4037RA	N	<10	300	N	N	N	20	50	150	N	N	N	20	<10	N	15	N	150
K4037RB	N	<10	300	N	N	N	15	50	200	N	N	N	20	<10	N	20	N	700
K4036RA	N	N	N	N	N	N	N	<10	N	N	N	N	N	<10	N	N	N	N
K4011RA	N	15	200	N	N	N	20	70	70	N	30	N	30	15	N	20	N	1,000
K4011RB	N	20	30	N	N	N	10	30	70	N	N	N	20	<10	N	10	N	500
K2119RC	N	10	<20	N	N	N	10	100	30	N	N	N	20	<10	N	20	N	N
K2119RA	N	15	500	N	N	N	15	30	10	N	N	N	10	<10	N	15	N	700
K2679RA	N	<10	200	N	N	N	15	<10	50	N	N	N	7	N	N	15	N	500
K3405RB	N	10	70	N	N	N	70	100	50	N	N	N	30	<10	N	30	N	1,000
K3405RA	N	<10	500	<1.0	N	N	50	15	500	N	N	N	20	<10	N	7	N	200
K3406RA	N	<10	70	<1.0	N	N	5	<10	15	N	N	N	7	N	N	5	N	<100
K3406RB	N	<10	100	<1.0	N	N	7	100	300	N	N	N	10	N	N	20	N	200
K3406RD	N	<10	50	N	N	N	70	150	5	N	N	N	50	<10	N	20	N	1,500
K3406RC	N	10	70	<1.0	N	N	10	50	20	N	N	N	30	N	N	10	N	200
K3303RB	N	10	100	1.0	N	N	10	10	20	N	N	N	10	<10	N	10	N	<100
K3303RC	N	<10	700	1.0	N	N	7	N	15	N	<5	N	N	N	N	5	N	N
K3303RA	N	20	50	<1.0	N	N	15	15	20	N	N	N	15	<10	N	10	N	200
K2613RA	N	<10	700	N	N	N	10	<10	20	N	<5	N	5	<10	N	10	N	300
K4009RA	N	20	300	N	N	N	15	50	50	N	N	N	10	10	N	20	N	300
K4508RC	N	<10	50	N	N	N	50	N	100	N	N	N	20	<10	N	30	N	<100
K4508RD	N	10	1,000	<1.0	<10	N	30	N	100	N	20	N	10	15	N	<5	100	N
K3305RA	<200	N	150	<1.0	N	N	N	10	20	N	<5	N	N	10	N	5	N	N
K3404RF	N	150	700	1.0	N	N	20	100	100	N	N	N	30	15	N	20	N	300
K3404RA	N	100	500	1.0	N	N	10	70	20	N	N	N	20	15	N	30	N	300
K3404RE	N	10	500	N	N	N	50	50	50	N	N	N	15	10	N	20	N	200
K3404RD	N	20	500	N	N	N	5	50	15	N	20	N	20	10	N	10	N	150
K3404RC	N	20	1,000	<1.0	N	N	30	70	150	N	N	N	30	10	N	20	N	300
K3404RB	N	<10	500	<1.0	N	N	<5	30	20	N	<5	N	N	<10	N	15	N	300
K3403RA	<200	N	500	<1.0	N	N	10	20	20	N	20	N	20	15	N	15	N	<100

Table 4. Analyses of stream cobble samples from the Mount Katmai study area, Alaska (continued)

Sample	V-S	W-S	Y-S	ZN-S	ZR-S	AU-AA	HG-INST	TL-AA	AS-AA	BI-AA	CD-AA	SB-AA	ZN-AA	F-SI
K4145RA	200	N	20	N	100	N	--	--	10	N	N	N	95	--
K4165RA	50	N	<10	200	10	N	--	--	300	N	N	4	10	--
K3334RA	70	N	<10	N	50	N	--	--	N	N	N	N	25	--
K3334RB	100	N	20	N	150	N	--	--	N	N	N	N	50	--
K3334RC	100	N	20	N	100	N	--	--	N	N	N	N	60	--
K4148RA	100	N	10	N	100	<.05	--	--	N	N	.6	12	200	--
K4537RA	20	N	<10	N	150	N	--	--	N	N	N	2	N	--
K3336RA	100	N	10	N	70	.10	--	--	120	N	N	N	5	--
K4146RA	200	N	15	N	70	N	--	--	N	N	N	2	30	--
K4528RA	200	N	10	N	50	N	--	--	10	1	N	4	55	--
K3321RA	50	N	200	500	500	N	--	--	10	N	1.3	N	730	--
K4527RA	100	N	<10	N	150	N	--	--	N	1	N	2	5	--
K4527RB	100	N	10	N	150	N	--	--	N	N	N	2	N	--
K4519RA	20	N	50	N	300	N	--	--	180	N	N	2	45	--
K4132RA	150	N	<10	N	70	N	--	--	N	1	N	6	N	--
K4131RA	30	N	50	N	200	.50	--	--	60	N	.7	>1,000	250	--
K4037RA	100	N	20	N	70	--	--	--	--	--	--	--	--	--
K4037RB	150	N	20	N	30	--	--	--	--	--	--	--	--	--
K4036RA	20	N	N	N	10	--	--	--	--	--	--	--	--	--
K4011RA	100	N	20	N	100	--	--	--	--	--	--	--	--	--
K4011RB	100	N	<10	N	20	--	--	--	--	--	--	--	--	--
K2119RC	100	N	30	N	70	--	--	--	--	--	--	--	--	--
K2119RA	100	N	20	N	100	--	--	--	--	--	--	--	--	--
K2679RA	150	N	10	N	30	--	--	--	--	--	--	--	--	--
K3405RB	300	N	<10	N	<10	<.05	--	--	N	N	N	N	20	--
K3405RA	70	N	10	N	50	.05	--	--	N	N	N	N	5	--
K3406RA	30	N	50	N	150	.05	--	--	N	N	N	N	10	--
K3406RB	200	N	50	N	70	.05	--	--	N	N	N	N	10	--
K3406RD	300	N	<10	N	N	.45	--	--	N	N	N	N	20	--
K3406RC	100	N	20	N	50	.25	--	--	N	N	N	N	15	--
K3303RB	150	N	20	N	30	N	--	--	N	N	.1	N	100	--
K3303RC	10	N	15	N	100	N	--	--	20	N	N	N	10	--
K3303RA	150	N	10	N	30	N	--	--	10	N	N	N	65	--
K2613RA	70	N	20	N	100	--	--	--	--	--	--	--	--	--
K4009RA	150	N	20	N	100	--	--	--	--	--	--	--	--	--
K4508RC	300	N	100	300	50	N	--	--	N	N	.5	N	205	--
K4508RD	20	N	15	N	50	N	--	--	30	1	.1	2	35	--
K3305RA	100	N	<10	200	20	N	--	--	280	N	N	N	45	--
K3404RF	200	N	30	<200	70	N	--	--	N	N	.1	N	150	--
K3404RA	100	N	50	N	30	.20	--	--	20	N	N	N	50	--
K3404RE	100	N	20	N	100	N	--	--	N	N	N	N	30	--
K3404RD	70	N	10	<200	100	.10	--	--	N	N	N	N	25	--
K3404RC	200	N	20	N	70	.05	--	--	N	N	N	N	90	--
K3404RB	300	N	15	N	100	.55	--	--	50	N	N	N	10	--
K3403RA	100	N	10	200	50	N	--	--	40	N	N	N	25	--

Table 4. Analyses of stream cobble samples from the Mount Katmai study area, Alaska (continued)

Sample	LATITUDE	LONGTUDE	MAP NO.	ROCKTYPE	ALTERATN	MINDEPFM	FE%-S	MG%-S	CA%-S	TI%-S	MN-S	AG-S
K3403RD	58 37 17	154 27 14	91	sedim.	--	--	5.00	.70	2.00	.500	1,000	N
K3403RC	58 37 17	154 27 14	92	carbonate	--	--	1.00	2.00	20.00	.050	1,500	N
K3403RB	58 37 17	154 27 14	93	int. ign.	--	--	3.00	2.00	2.00	.500	1,000	N
K3403RF	58 37 22	154 27 12	94	sandst.	--	--	3.00	1.00	7.00	.300	1,500	N
K3403RE	58 37 22	154 27 12	95	siltst.	--	--	3.00	.70	5.00	.300	1,000	.7
K3403RG	58 37 22	154 27 12	96	sandst.	--	--	2.00	.50	5.00	.200	1,500	N
K4572RA	58 41 29	154 23 47	97	carbonate	--	--	.10	.02	>20.00	.005	3,000	N
K3402RI	58 36 57	154 19 25	98	sedim.	--	--	3.00	1.50	1.00	.300	1,000	N
K3402RA	58 36 57	154 19 25	99	carbonate	--	vein	2.00	.50	>20.00	.020	2,000	N
K3402RB	58 36 57	154 19 25	100	sedim.	--	--	5.00	.10	.10	.200	2,000	N
K3402RC	58 36 57	154 19 25	101	carbonate	--	vein	2.00	5.00	>20.00	.010	1,500	N
K3402RD	58 36 57	154 19 25	102	int. ign.	zeo.	--	7.00	2.00	5.00	.500	2,000	N
K3402RH	58 36 57	154 19 25	104	chert/jas.	--	--	10.00	5.00	20.00	.020	1,500	N
K0166RA	58 35 32	154 15 7	105	other	--	--	2.00	1.50	5.00	.150	1,000	N
K0166RB	58 35 32	154 15 7	106	other	--	--	2.00	1.50	2.00	.100	500	N
K0175RA	58 37 32	154 6 51	108	other	--	--	5.00	1.50	1.00	.300	1,000	N
K4511RA	58 41 52	154 2 43	110	lime/dolo	--	vein	2.00	1.50	10.00	.200	1,000	N
K4562RA	58 44 35	153 58 42	111	other	--	--	7.00	2.00	.05	.150	2,000	2.0
K4123RA	58 38 49	153 56 30	112	int. ign.	prop.	dissem.	7.00	2.00	2.00	.300	1,500	<.5
K4168RA	58 44 0	153 52 54	113	int. ign.	sil.	--	3.00	2.00	2.00	.300	1,000	N
K3352RA	58 44 1	153 52 38	114	int. ign.	--	--	7.00	1.50	3.00	.500	500	N
K3309RA	58 40 50	153 52 20	115	int. ign.	prop.	--	3.00	2.00	2.00	.300	1,000	N
K0157RB	58 44 20	153 46 43	116	other	--	--	5.00	<.02	.05	1.000	10	N
K0157RC	58 44 20	153 46 43	117	other	--	--	.70	<.02	<.05	.500	<10	N
K0157RA	58 44 20	153 46 43	118	other	--	--	5.00	.02	<.05	.500	15	N
K4514RC	58 39 54	153 46 25	119	sedim.	--	dissem.	3.00	1.00	1.00	.500	200	N
K4514RB	58 39 54	153 46 25	120	int. ign.	--	dissem.	20.00	1.00	.30	.300	1,500	.5
K0163RB	58 42 22	153 45 42	121	other	--	--	3.00	2.00	1.50	.300	700	N
K0163RA	58 42 22	153 45 42	122	other	--	--	3.00	1.00	1.00	.300	1,000	N
K0160RB	58 42 50	153 45 40	123	other	--	--	10.00	1.50	.70	.500	700	N
K0162RC	58 42 22	153 44 21	125	other	--	--	1.00	<.02	<.05	.700	10	N
K0162RB	58 42 22	153 44 15	126	other	--	--	7.00	5.00	.05	.500	500	N
K0162RA	58 42 22	153 44 15	127	other	--	--	7.00	1.50	.20	.700	100	N
K4126RA	58 40 22	153 39 40	128	metamorph.	--	vein	>20.00	.70	<.05	.070	2,000	5.0
K3313RA	58 42 43	153 39 3	129	int. ign.	prop.	--	7.00	2.00	5.00	.500	3,000	N
K3313RB	58 42 43	153 39 3	130	other	arg.	--	<.05	<.02	<.05	.200	<10	N
K4515RA	58 42 45	153 39 0	131	other	--	vein	.30	.20	.10	.050	300	<.5
K4515RB	58 42 45	153 39 0	132	other	sil.	--	2.00	<.02	.05	.200	<10	N
K4515RC	58 42 45	153 39 0	133	other	--	vein	1.00	.50	15.00	.050	5,000	N
K4128RA	58 43 34	153 35 45	134	chert/jas.	sil.	vein	2.00	<.02	<.05	.150	10	N
K4518RA	58 43 50	153 30 53	135	sedim.	--	dissem.	20.00	2.00	.10	.200	1,500	.5
K1076RA	58 15 41	156 0 27	136	int. ign.	prop.	dissem.	3.00	1.50	.70	.300	1,500	N
K2654RA	58 16 23	155 48 45	137	metamorph.	--	dissem.	3.00	1.50	1.00	.300	1,000	<.5
K1071RA	58 16 20	155 45 50	138	int. ign.	sil.	replac.	1.00	.20	.50	.100	200	N
K3076RA	58 19 57	155 44 10	139	fels. ign.	--	--	1.00	.50	.70	.150	300	N

Table 4. Analyses of stream cobble samples from the Mount Katmai study area, Alaska (continued)

Sample	AS-S	B-S	BA-S	BE-S	BI-S	CD-S	CO-S	CR-S	CU-S	LA-S	MO-S	NB-S	NI-S	PB-S	SB-S	SC-S	SN-S	SR-S
K3403RD	N	50	500	<1.0	N	N	30	150	15	N	N	N	30	<10	N	20	N	<100
K3403RC	N	20	70	1.0	N	N	10	20	7	N	N	N	15	10	N	5	N	300
K3403RB	N	<10	700	<1.0	N	N	50	200	50	N	<5	N	50	10	N	20	N	500
K3403RF	N	70	500	<1.0	N	N	15	100	15	N	N	N	20	<10	N	20	N	200
K3403RE	N	150	500	1.0	N	N	15	100	70	N	N	N	30	10	N	15	N	500
K3403RG	N	70	700	<1.0	N	N	15	50	10	N	N	N	20	<10	N	15	N	150
K4572RA	N	100	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
K3402RI	N	20	700	<1.0	N	N	15	30	10	N	N	N	10	<10	N	10	N	150
K3402RA	N	20	<20	<1.0	N	N	7	<10	<5	N	N	N	10	<10	N	5	N	100
K3402RB	N	50	500	<1.0	N	N	20	20	5	N	N	N	20	<10	N	10	N	<100
K3402RC	N	N	30	<1.0	N	N	N	N	5	N	N	N	<5	<10	N	<5	N	300
K3402RD	N	10	100	N	N	N	70	<10	70	N	N	N	20	<10	N	30	N	500
K3402RH	N	20	100	1.0	N	N	10	N	<5	20	15	N	20	10	N	5	N	700
K0166RA	N	10	30	N	N	N	15	50	15	N	N	N	20	10	N	7	N	100
K0166RB	N	15	100	N	N	N	15	50	7	N	50	N	20	<10	N	10	N	N
K0175RA	N	10	300	N	N	N	15	100	10	N	15	N	15	<10	N	20	N	500
K4511RA	N	100	300	1.0	N	N	10	30	50	N	N	N	15	10	N	10	N	300
K4562RA	N	15	500	1.0	N	N	7	N	300	N	N	N	N	500	N	10	N	N
K4123RA	N	10	300	<1.0	N	N	50	20	70	N	N	N	20	<10	N	15	N	700
K4168RA	N	20	200	1.0	N	N	20	150	15	N	<5	N	50	10	N	15	N	500
K3352RA	N	10	100	<1.0	N	N	50	300	20	N	N	N	70	<10	N	20	N	700
K3309RA	N	<10	150	1.0	N	N	10	20	20	N	N	N	20	<10	N	15	N	500
K0157RB	N	<10	200	N	N	N	N	50	30	N	15	N	N	10	N	20	N	500
K0157RC	N	<10	500	N	N	N	N	70	7	N	20	N	<5	<10	N	15	N	700
K0157RA	N	20	50	N	N	N	50	100	70	N	5	N	70	<10	N	20	N	100
K4514RC	N	500	2,000	1.0	N	N	10	30	20	N	N	N	7	20	N	20	N	500
K4514RB	N	1,000	500	1.0	N	N	50	70	300	N	N	N	20	20	N	20	N	100
K0163RB	N	10	150	N	N	N	20	70	30	N	N	N	20	<10	N	20	N	200
K0163RA	N	100	1,000	<1.0	N	N	10	15	30	N	15	N	10	70	N	20	N	300
K0160RB	N	50	1,000	1.0	N	N	10	50	200	N	10	N	10	70	N	20	N	300
K0162RC	N	<10	<20	N	N	N	N	15	20	N	20	N	N	N	N	10	N	150
K0162RB	N	100	500	N	N	N	50	70	5	N	N	N	30	10	N	30	N	N
K0162RA	N	2,000	500	<1.0	10	N	50	100	70	N	<5	N	50	<10	N	50	N	1,000
K4126RA	<200	N	<20	N	20	N	150	<10	1,000	N	100	N	30	10	N	7	N	N
K3313RA	N	150	30	N	N	N	20	50	<5	N	<5	N	30	30	N	20	N	1,000
K3313RB	N	10	150	N	<10	N	N	50	<5	N	N	N	N	50	N	10	N	200
K4515RA	N	<10	70	<1.0	N	N	<5	N	<5	N	50	N	N	N	N	N	N	N
K4515RB	N	<10	700	<1.0	N	N	10	<10	20	N	N	N	5	10	N	7	N	500
K4515RC	N	<10	20	<1.0	N	N	5	10	50	N	100	N	5	15	N	5	N	<100
K4128RA	N	<10	700	N	N	N	N	20	20	N	N	N	N	100	N	5	N	700
K4518RA	N	20	500	<1.0	N	N	70	50	1,000	50	N	N	100	<10	N	20	N	N
K1076RA	N	N	700	N	N	N	7	10	20	N	N	N	5	<10	N	30	N	200
K2654RA	N	<10	150	N	N	N	20	20	20	N	N	N	15	150	N	30	N	200
K1071RA	N	<10	1,000	N	N	N	<5	N	5	N	N	N	5	15	N	5	N	N
K3076RA	N	N	500	N	N	N	7	<10	10	N	N	N	5	10	N	10	N	200

Table 4. Analyses of stream cobble samples from the Mount Katmai study area, Alaska (continued)

Sample	V-S	W-S	Y-S	ZN-S	ZR-S	AU-AA	HG-INST	TL-AA	AS-AA	BI-AA	CD-AA	SB-AA	ZN-AA	F-SI
K3403RD	150	N	20	N	150	N	--	--	N	N	N	N	55	--
K3403RC	50	N	15	N	15	N	--	--	10	N	N	N	50	--
K3403RB	200	N	20	N	100	.20	--	--	N	N	N	N	75	--
K3403RF	150	N	20	N	70	N	--	--	N	N	N	N	55	--
K3403RE	200	N	20	N	70	N	--	--	20	N	.2	N	130	--
K3403RG	100	N	15	N	70	1.20	--	--	N	N	N	N	55	--
K4572RA	N	N	15	N	<10	N	--	--	N	N	N	N	N	--
K3402RI	150	N	20	N	70	N	--	--	N	N	N	N	50	--
K3402RA	20	N	15	N	<10	.05	--	--	N	N	N	N	85	--
K3402RB	100	N	20	<200	30	N	--	--	10	N	N	N	150	--
K3402RC	10	N	15	N	<10	N	--	--	N	N	N	N	110	--
K3402RD	200	N	20	N	30	<.05	--	--	N	N	N	N	60	--
K3402RH	50	N	50	N	<10	<.05	--	--	50	N	N	2	65	--
K0166RA	100	N	15	N	15	N	.02	--	20	1	.2	N	70	--
K0166RB	70	N	15	N	20	N	N	--	10	N	<.1	N	40	--
K0175RA	100	N	30	N	100	N	N	--	10	1	N	N	45	--
K4511RA	100	N	20	N	70	N	--	--	20	N	N	10	100	--
K4562RA	100	N	<10	5,000	50	N	--	--	80	3	N	6	>2,000	--
K4123RA	200	N	15	N	50	N	--	--	N	N	N	2	65	--
K4168RA	100	N	10	N	50	N	--	--	10	N	N	N	45	--
K3352RA	150	N	15	N	50	N	--	--	N	N	N	N	25	--
K3309RA	150	N	10	N	50	.10	--	--	N	N	N	2	20	--
K0157RB	70	N	<10	N	100	N	.54	--	80	8	N	8	<5	--
K0157RC	150	N	<10	N	70	N	.04	--	30	2	N	4	5	--
K0157RA	300	N	10	<200	100	N	.08	--	<10	N	N	N	<5	--
K4514RC	200	N	20	N	150	N	--	--	10	2	N	2	70	--
K4514RB	200	N	50	500	100	N	--	--	N	N	.1	4	215	--
K0163RB	100	N	20	N	50	N	N	--	10	1	.1	N	85	--
K0163RA	100	N	70	N	200	N	N	--	10	N	N	N	30	--
K0160RB	150	N	50	N	300	N	N	--	10	N	N	N	25	--
K0162RC	50	N	20	N	150	N	.12	--	<10	2	N	<2	N	--
K0162RB	200	N	30	<200	100	N	N	--	<10	N	N	N	<5	--
K0162RA	300	N	100	<200	300	N	.02	--	10	4	N	N	<5	--
K4126RA	70	N	50	<200	70	.10	--	--	40	6	N	2	145	--
K3313RA	200	N	30	300	70	N	--	--	10	N	N	2	205	--
K3313RB	200	N	<10	N	50	N	--	--	10	4	N	N	N	--
K4515RA	10	N	<10	N	<10	<.05	--	--	20	N	N	2	5	--
K4515RB	150	N	10	N	200	<.05	--	--	N	N	N	2	N	--
K4515RC	50	N	20	N	10	N	--	--	20	N	N	N	15	--
K4128RA	200	N	<10	N	50	N	--	--	10	1	N	N	N	--
K4518RA	150	N	50	500	100	N	--	--	10	2	N	N	165	--
K1076RA	100	N	30	N	70	--	--	--	--	--	--	--	--	--
K2654RA	150	N	20	<200	50	--	--	--	--	--	--	--	--	--
K1071RA	15	N	20	N	100	--	--	--	--	--	--	--	--	--
K3076RA	70	N	10	N	100	--	--	--	--	--	--	--	--	--

Table 4. Analyses of stream cobble samples from the Mount Katmai study area, Alaska (continued)

Sample	LATITUDE	LONGTUDE	MAP NO.	ROCKTYPE	ALTERATN	MINDEPFM	FE%-S	MG%-S	CA%-S	TI%-S	MN-S	AG-S
K1068RA	58 17 17	155 44 10	140	int. ign.	sil.	replac.	.70	.30	.50	.150	150	N
K4050RA	58 21 12	155 41 28	141	congl.	--	--	3.00	1.00	1.00	.300	700	N
K1031RA	58 20 35	155 38 40	142	int. ign.	--	--	2.00	2.00	1.00	.300	1,000	N
K1031RB	58 20 35	155 38 40	143	fels. ign.	--	dissem.	.70	.50	.20	.070	150	N
K1028RA	58 19 46	155 37 5	144	sandst.	--	--	1.00	.30	.05	.150	500	N
K3418RA	58 25 36	155 27 55	145	other	--	--	3.00	2.00	.30	.500	500	N
K3418RB	58 25 36	155 27 55	146	int. ign.	--	--	3.00	1.50	2.00	.300	700	N
K3418RC	58 25 36	155 27 55	147	int. ign.	--	--	3.00	2.00	2.00	.300	1,000	N
K3418RD	58 25 36	155 27 55	148	int. ign.	arg.	--	3.00	1.00	1.50	.200	500	<.5
K3418RE	58 25 36	155 27 55	149	int. ign.	--	--	3.00	1.50	1.00	.500	500	N
K1023RB	58 17 13	155 27 55	150	igneous	arg.	--	1.50	.20	.15	.150	10	.7
K1023RA	58 17 13	155 27 55	151	igneous	arg.	--	1.50	1.50	1.00	.150	100	<.5
K3420RD	58 28 11	155 27 16	152	int. ign.	prop.	dissem.	20.00	2.00	2.00	.200	1,500	1.5
K3420RF	58 28 11	155 27 16	153	sedim.	--	--	5.00	2.00	3.00	.500	1,500	N
K3420RC	58 28 11	155 27 16	154	sedim.	--	--	5.00	2.00	2.00	.500	1,000	N
K3420RB	58 28 11	155 27 16	155	int. ign.	--	vein	5.00	3.00	3.00	.500	1,000	N
K3420RA	58 28 11	155 27 16	156	sedim.	prop.	vein	5.00	1.50	3.00	.200	1,000	<.5
K1034RA	58 28 55	155 26 40	157	fels. ign.	felds.	dissem.	3.00	1.50	5.00	.150	1,000	N
K3414RK	58 16 13	155 26 27	158	sedim.	prop.	dissem.	5.00	2.00	1.00	.500	500	N
K3414RD	58 16 13	155 26 27	159	sedim.	prop.	porph.	>20.00	3.00	.50	.050	1,000	10.0
K3414RH	58 16 13	155 26 27	160	sedim.	ser.	dissem.	1.00	3.00	7.00	.100	500	<.5
K3414RA	58 16 13	155 26 27	161	int. ign.	prop.	porph.	2.00	1.00	1.00	.200	150	N
K3414RB	58 16 13	155 26 27	162	int. ign.	ser.	porph.	2.00	1.00	.15	.200	100	N
K3414RJ	58 16 13	155 26 27	163	sedim.	prop.	dissem.	7.00	.50	.50	.150	100	N
K3414RL	58 16 10	155 26 20	164	sedim.	prop.	--	2.00	2.00	1.50	.200	200	<.5
K3413RA	58 16 18	155 26 22	165	fels. ign.	ser.	--	2.00	1.00	.30	.200	100	<.5
K3413RB	58 16 18	155 26 22	166	int. ign.	--	--	3.00	2.00	2.00	.300	200	N
K3413RC	58 16 18	155 26 22	167	other	--	dissem.	7.00	.30	5.00	.050	200	.5
K1020RA	58 18 50	155 23 12	168	sandst.	--	--	5.00	2.00	1.00	.500	1,000	<.5
K1018RA	58 17 8	155 22 50	169	siltst.	--	cont.met.	2.00	1.50	1.50	.200	300	7.0
K1017RB	58 17 1	155 22 45	170	fels. ign.	--	dissem.	3.00	1.50	1.00	.200	100	.7
K1017RC	58 17 1	155 22 45	171	metamorph.	--	dissem.	3.00	2.00	1.50	.300	300	<.5
K1017RD	58 17 1	155 22 45	172	metamorph.	--	dissem.	5.00	1.50	1.00	.300	300	<.5
K1017RE	58 17 1	155 22 45	173	fels. ign.	--	dissem.	1.50	1.00	1.00	.200	100	N
K1017RF	58 17 1	155 22 45	174	fels. ign.	--	dissem.	1.50	1.00	1.00	.200	200	<.5
K1017RA	58 17 1	155 22 45	175	int. ign.	sil.	dissem.	2.00	1.00	1.00	.100	100	5.0
K1005RA	58 20 28	155 20 51	176	sandst.	--	--	5.00	2.00	1.00	.500	1,000	N
K1008RA	58 15 12	155 19 31	177	igneous	--	dissem.	3.00	1.50	.50	.300	1,000	.7
K1008RB	58 15 12	155 19 31	178	int. ign.	--	dissem.	2.00	1.50	1.00	.200	1,000	.5
K1014RA	58 18 7	155 19 19	179	sandst.	--	dissem.	5.00	2.00	1.00	.500	700	N
K3030RA	58 22 50	155 0 57	180	sandst.	--	vein	1.50	1.50	15.00	.050	1,500	N
K2531RA	58 19 36	154 59 22	181	siltst.	--	vein	7.00	3.00	1.00	.500	1,000	N
K3031RC	58 21 11	154 59 13	182	sandst.	prop.	--	7.00	2.00	3.00	.500	1,000	N
K1041RA	58 23 52	154 56 35	183	igneous	sil.	dissem.	3.00	1.50	.20	.500	50	<.5
K1040RA	58 24 58	154 56 28	184	fels. ign.	sil.	dissem.	1.00	1.50	1.00	.200	100	<.5

Table 4. Analyses of stream cobble samples from the Mount Katmai study area, Alaska (continued)

Sample	AS-S	B-S	BA-S	BE-S	BI-S	CD-S	CO-S	CR-S	CU-S	LA-S	MO-S	NB-S	NI-S	PB-S	SB-S	SC-S	SN-S	SR-S
K1068RA	N	<10	1,000	N	N	N	N	N	N	N	N	N	<5	N	N	10	N	150
K4050RA	N	<10	200	N	N	N	10	50	20	N	N	N	7	<10	N	20	N	200
K1031RA	N	20	1,500	N	N	N	20	100	20	N	N	N	50	20	N	15	N	700
K1031RB	<200	30	500	1.0	N	N	N	N	<5	N	N	N	<5	N	N	5	N	150
K1028RA	N	100	700	<1.0	N	N	5	N	N	N	N	N	<5	20	N	<5	N	200
K3418RA	N	10	500	<1.0	N	N	<5	100	10	N	N	N	15	<10	N	20	N	700
K3418RB	N	<10	700	<1.0	N	N	10	20	15	N	N	N	10	15	N	15	N	700
K3418RC	N	<10	500	<1.0	N	N	30	50	20	N	N	N	20	<10	N	15	N	700
K3418RD	N	10	300	1.0	N	N	7	N	7	N	N	N	N	10	N	7	N	500
K3418RE	N	10	300	<1.0	N	N	5	100	15	N	N	N	20	<10	N	20	N	500
K1023RB	N	20	100	N	N	N	N	20	150	N	7	N	5	<10	N	10	N	300
K1023RA	N	<10	500	N	N	N	15	30	500	N	N	N	20	<10	N	10	N	500
K3420RD	N	20	1,000	<1.0	N	N	150	70	500	N	N	N	70	<10	N	20	N	200
K3420RF	N	<10	500	<1.0	N	N	20	70	50	N	N	N	30	<10	N	20	N	300
K3420RC	N	<10	300	<1.0	N	N	20	100	100	N	N	N	30	<10	N	20	N	200
K3420RB	N	<10	300	N	N	N	70	30	200	N	N	N	20	<10	N	30	N	500
K3420RA	N	10	300	<1.0	N	N	20	30	200	N	<5	N	20	<10	N	15	N	500
K1034RA	N	30	N	N	N	N	15	20	5	N	N	N	10	<10	N	10	N	100
K3414RK	N	10	700	N	N	N	20	100	150	N	15	N	30	10	N	20	N	300
K3414RD	N	N	20	N	N	N	150	50	10,000	N	N	N	70	<10	N	30	N	N
K3414RH	N	15	1,500	1.0	N	N	<5	10	300	N	100	N	N	10	N	5	N	200
K3414RA	N	<10	500	1.0	N	N	15	20	100	N	N	N	20	N	N	7	N	500
K3414RB	N	10	700	1.0	N	N	10	10	70	N	N	N	7	15	N	10	N	200
K3414RJ	<200	10	500	1.0	N	N	<5	10	500	N	15	N	7	<10	N	7	N	200
K3414RL	N	<10	300	<1.0	N	N	50	10	700	N	20	N	20	10	N	7	N	700
K3413RA	N	20	300	1.0	N	N	10	15	100	N	20	N	5	<10	N	7	N	300
K3413RB	N	<10	500	<1.0	N	N	20	20	300	N	5	N	20	<10	N	10	N	500
K3413RC	N	10	50	1.0	N	N	<5	N	150	N	<5	N	7	<10	N	7	N	1,000
K1020RA	700	10	500	N	N	N	50	100	100	N	N	N	30	70	N	20	N	500
K1018RA	N	10	20	N	N	N	10	70	30	N	N	N	20	<10	N	20	N	500
K1017RB	N	10	200	N	N	N	10	50	200	N	N	N	50	10	N	15	N	700
K1017RC	N	<10	300	N	N	N	15	150	150	N	7	N	30	<10	N	20	N	500
K1017RD	N	<10	3,000	<1.0	N	N	20	150	100	N	N	N	15	<10	N	20	N	200
K1017RE	N	10	500	<1.0	N	N	15	20	20	N	N	N	15	10	N	10	N	300
K1017RF	N	<10	500	<1.0	N	N	15	20	30	N	N	N	15	10	N	10	N	700
K1017RA	N	<10	200	<1.0	N	N	7	30	70	N	N	N	30	10	N	10	N	300
K1005RA	N	50	1,000	N	N	N	30	100	100	N	N	N	50	50	N	30	N	500
K1008RA	N	50	300	N	N	N	15	100	30	N	N	N	30	70	N	15	N	200
K1008RB	N	15	150	N	N	N	20	70	7	N	<5	N	20	30	N	15	N	300
K1014RA	N	50	1,000	N	N	N	20	150	70	N	<5	N	20	50	N	30	N	500
K3030RA	N	N	50	<1.0	N	N	<5	20	5	N	N	N	<5	<10	N	5	N	500
K2531RA	N	200	500	<1.0	N	N	50	100	70	N	N	N	50	50	N	30	N	700
K3031RC	N	50	<20	N	N	N	20	100	70	N	10	N	100	30	N	15	N	1,500
K1041RA	N	10	300	N	N	N	10	100	30	N	<5	N	20	<10	N	20	N	300
K1040RA	N	20	200	N	N	N	15	70	5	N	N	N	20	<10	N	20	N	1,000

Table 4. Analyses of stream cobble samples from the Mount Katmai study area, Alaska (continued)

Sample	V-S	W-S	Y-S	ZN-S	ZR-S	AU-AA	HG-INST	TL-AA	AS-AA	BI-AA	CD-AA	SB-AA	ZN-AA	F-SI
K1068RA	20	N	20	N	100	--	--	--	--	--	--	--	--	--
K4050RA	150	N	50	N	100	--	--	--	--	--	--	--	--	--
K1031RA	100	N	20	N	100	--	--	--	--	--	--	--	--	--
K1031RB	10	N	10	N	50	--	--	--	--	--	--	--	--	--
K1028RA	10	N	10	N	150	--	--	--	--	--	--	--	--	--
K3418RA	200	N	<10	<200	50	N	--	--	N	N	N	N	25	--
K3418RB	100	N	15	N	50	N	--	--	N	N	N	N	55	--
K3418RC	150	N	15	N	50	N	--	--	N	N	N	N	45	--
K3418RD	100	N	<10	N	50	N	--	--	N	N	N	N	20	--
K3418RE	150	N	<10	N	70	N	--	--	N	N	N	N	30	--
K1023RB	100	N	10	N	50	--	--	--	--	--	--	--	--	--
K1023RA	100	N	15	N	70	--	--	--	--	--	--	--	--	--
K3420RD	100	N	20	<200	50	.05	--	--	50	2	N	N	25	--
K3420RF	200	N	30	N	70	N	--	--	N	N	N	N	25	--
K3420RC	150	N	20	N	70	<.05	--	--	N	N	N	N	30	--
K3420RB	200	N	15	N	50	N	--	--	N	N	N	N	20	--
K3420RA	100	N	15	N	50	N	--	--	N	N	.4	N	140	--
K1034RA	100	N	10	N	<10	--	--	--	--	--	--	--	--	--
K3414RK	200	N	20	N	70	N	--	--	N	N	N	N	30	--
K3414RD	150	N	30	300	<10	.70	--	--	N	2	.2	N	70	--
K3414RH	50	N	<10	N	50	N	--	--	20	N	N	N	10	--
K3414RA	100	N	10	N	100	.15	--	--	N	N	N	N	10	--
K3414RB	100	N	<10	N	70	N	--	--	N	N	N	N	N	--
K3414RJ	50	N	<10	N	100	N	--	--	N	N	N	N	15	--
K3414RL	100	N	<10	N	50	<.05	--	--	N	N	N	N	15	--
K3413RA	100	N	<10	N	50	.15	--	--	40	3	N	4	15	--
K3413RB	100	N	10	N	70	.15	--	--	N	N	N	N	20	--
K3413RC	150	N	<10	N	N	.05	--	--	N	N	.1	N	5	--
K1020RA	200	N	50	N	100	--	--	--	--	--	--	--	--	--
K1018RA	150	N	20	N	70	N	--	--	--	--	--	--	--	--
K1017RB	100	N	N	N	30	--	--	--	--	--	--	--	--	--
K1017RC	100	N	20	N	50	--	--	--	--	--	--	--	--	--
K1017RD	100	N	20	N	50	--	--	--	--	--	--	--	--	--
K1017RE	70	N	10	N	70	--	--	--	--	--	--	--	--	--
K1017RF	70	N	10	N	50	--	--	--	--	--	--	--	--	--
K1017RA	50	N	10	N	30	N	--	--	--	--	--	--	--	--
K1005RA	200	N	50	N	150	--	--	--	--	--	--	--	--	--
K1008RA	100	N	20	N	100	--	--	--	--	--	--	--	--	--
K1008RB	100	N	20	N	70	--	--	--	--	--	--	--	--	--
K1014RA	200	N	50	N	150	--	--	--	--	--	--	--	--	--
K3030RA	20	N	10	N	10	--	--	--	--	--	--	--	--	--
K2531RA	200	N	30	<200	150	--	--	--	--	--	--	--	--	--
K3031RC	150	N	15	<200	200	--	--	--	--	--	--	--	--	--
K1041RA	150	N	20	N	70	--	--	--	--	--	--	--	--	--
K1040RA	100	N	15	N	50	--	--	--	--	--	--	--	--	--

Table 4. Analyses of stream cobble samples from the Mount Katmai study area, Alaska (continued)

Sample	LATITUDE	LONGTUDE	MAP NO.	ROCKTYPE	ALTERATN	MINDEPFM	FE%-S	MG%-S	CA%-S	TI%-S	MN-S	AG-S
K1040RD	58 24 58	154 56 28	185	siltst.	--	cont.met.	3.00	1.50	1.00	.200	150	N
K1040RC	58 24 58	154 56 28	186	igneous	sil.	--	.70	.07	<.05	.020	50	2.0
K1040RB	58 24 58	154 56 28	187	sedim.	--	dissem.	3.00	2.00	1.50	.500	200	N
K1038RA	58 29 43	154 55 0	188	int. ign.	--	dissem.	5.00	2.00	1.50	.300	700	N
K2554RB	58 25 0	154 52 10	189	fels. ign.	sil.	vein	1.50	1.00	.10	.200	70	.5
K2554RA	58 25 0	154 52 10	190	int. ign.	--	--	3.00	2.00	2.00	.300	1,000	N
K1045RA	58 24 9	154 48 37	191	siltst.	sil.	vein	3.00	2.00	.70	.300	1,500	1.0
K3422RA	58 26 40	154 48 32	192	fels. ign.	--	--	1.50	1.00	.05	.200	150	N
K3422RB	58 26 40	154 48 32	193	int. ign.	--	--	3.00	2.00	.50	.500	100	<.5
K3422RC	58 26 40	154 48 32	194	other	--	--	3.00	1.50	.15	.300	500	N
K3422RD	58 26 40	154 48 32	195	int. ign.	--	--	5.00	1.50	1.50	.500	1,000	.5
K3422RE	58 26 40	154 48 32	196	other	--	--	.50	.05	.07	.050	70	2.0
K3422RF	58 26 40	154 48 32	197	other	--	--	7.00	3.00	7.00	.200	2,000	N
K4003RB	58 24 13	154 40 40	199	int. ign.	sil.	dissem.	1.00	.05	<.05	.150	<10	<.5
K4003RA	58 24 13	154 40 40	200	int. ign.	prop.	dissem.	3.00	1.50	.70	.200	500	.7
K1051RA	58 24 1	154 39 12	201	fels. ign.	arg.	other	.70	.02	<.05	.200	10	N
K4004RC	58 26 11	154 36 50	202	fels. ign.	arg.	dissem.	.70	.20	.05	.070	100	<.5
K4004RB	58 26 11	154 36 50	203	siltst.	--	vein	2.00	1.50	.70	.200	200	N
K4004RA	58 26 11	154 36 50	204	int. ign.	--	dissem.	3.00	2.00	.70	.200	500	N
K4004RA	58 26 11	154 36 50	205	other	--	dissem.	2.00	.50	.70	.200	50	<.5
K4005RA	58 24 50	154 35 5	206	igneous	sil.	dissem.	2.00	1.50	1.50	.200	200	N
K4005RB	58 24 50	154 35 5	207	other	--	hot.sp.	7.00	<.02	<.05	<.002	50	<.5
K3155RG	58 24 53	154 33 27	208	int. ign.	prop.	hot.sp.	3.00	1.00	1.50	.300	200	N
K3155RA	58 24 53	154 33 27	209	int. ign.	prop.	hot.sp.	1.00	<.02	.20	.200	N	N
K3155RB	58 24 53	154 33 27	210	int. ign.	prop.	hot.sp.	2.00	1.00	1.00	.300	300	N
K3155RC	58 24 53	154 33 27	211	int. ign.	prop.	hot.sp.	.50	<.02	.05	.200	N	N
K3155RD	58 24 53	154 33 27	212	int. ign.	prop.	hot.sp.	1.00	<.02	<.05	.200	10	N
K3155RE	58 24 53	154 33 27	213	int. ign.	prop.	hot.sp.	5.00	.02	<.05	.200	10	N
K3155RF	58 24 53	154 33 27	214	int. ign.	arg.	hot.sp.	.10	.02	<.05	.200	<10	N
K0181RA	58 16 11	154 31 55	215	other	--	--	5.00	3.00	.20	.700	500	<.5
K0178RB	58 18 7	154 30 33	216	other	--	--	1.00	.30	.10	.300	100	1.0
K0178RA	58 18 7	154 30 33	217	other	--	--	3.00	1.50	.20	.500	500	.7
K4524RB	58 17 7	154 30 30	218	other	sil.	vein	.15	.05	<.05	.050	50	5.0
K4524RA	58 17 7	154 30 30	219	other	sil.	vein	2.00	.02	.05	.300	100	20.0
K4524RC	58 17 7	154 30 30	220	other	arg.	--	.15	<.02	<.05	.300	N	<.5
K4134RD	58 16 45	154 30 15	221	int. ign.	--	dissem.	3.00	1.00	2.00	.500	1,000	<.5
K0136RA	58 19 45	154 27 11	222	igneous	--	--	7.00	3.00	5.00	.700	1,000	N
K0182RA	58 17 7	154 26 42	223	other	--	--	5.00	3.00	2.00	.300	1,000	N
K0139RA	58 20 50	154 23 57	224	other	--	--	3.00	2.00	.50	.700	300	N
K0139RB	58 20 50	154 23 57	225	igneous	--	--	2.00	2.00	2.00	.500	700	N
K0139RC	58 20 50	154 23 57	226	igneous	--	--	3.00	1.50	3.00	.700	700	N
K0135RA	58 19 7	154 22 32	227	other	--	--	3.00	1.00	10.00	.300	2,000	1.0
K0021RA	58 19 57	154 22 16	228	other	--	--	5.00	3.00	10.00	.150	2,000	<.5
K0190RA	58 20 52	154 15 26	229	other	--	--	3.00	1.50	1.50	.500	500	N
K0190RB	58 20 52	154 15 26	230	other	--	--	5.00	.20	.10	.700	1,000	N

Table 4. Analyses of stream cobble samples from the Mount Katmai study area, Alaska (continued)

Sample	AS-S	B-S	BA-S	BE-S	BI-S	CD-S	CO-S	CR-S	CU-S	LA-S	MO-S	NB-S	NI-S	PB-S	SB-S	SC-S	SN-S	SR-S
K1040RD	N	10	150	N	N	N	20	100	50	N	N	N	50	<10	N	20	N	300
K1040RC	N	10	50	N	N	N	N	15	30	N	N	N	<5	200	N	<5	N	N
K1040RB	N	10	200	N	N	N	20	100	10	N	N	N	50	N	N	30	N	500
K1038RA	N	10	700	N	N	N	30	100	70	N	N	N	50	20	N	20	N	1,000
K2554RB	N	300	100	<1.0	N	N	7	70	20	N	10	N	15	<10	N	15	N	300
K2554RA	N	10	700	<1.0	N	N	20	70	50	N	N	N	30	20	N	20	N	1,000
K1045RA	N	<10	300	N	N	N	20	200	150	N	N	N	50	300	N	30	N	300
K3422RA	N	10	700	1.0	N	N	<5	10	15	N	N	N	N	N	N	7	N	N
K3422RB	N	20	500	<1.0	N	N	20	20	5	50	N	N	20	<10	N	15	N	500
K3422RC	N	>2,000	500	<1.0	N	N	7	10	10	N	N	N	20	<10	N	10	<10	150
K3422RD	N	20	150	N	N	N	50	100	20	N	<5	N	20	10	N	20	N	200
K3422RE	200	<10	100	1.0	N	N	<5	<10	15	N	50	N	N	N	N	5	N	<100
K3422RF	N	100	N	1.0	N	N	5	50	<5	N	<5	N	15	10	N	20	N	1,000
K4003RB	N	10	100	N	N	N	5	30	100	N	5	N	<5	<10	N	15	N	200
K4003RA	N	<10	50	N	N	N	20	50	150	N	10	N	30	20	N	20	20	500
K1051RA	N	15	200	N	<10	N	N	50	20	N	15	N	<5	100	N	10	N	500
K4004RC	N	10	500	N	N	N	N	N	5	N	N	N	<5	N	N	<5	N	N
K4004RB	N	15	700	N	N	N	15	150	50	N	10	N	30	<10	N	20	N	300
K4004RA	N	<10	200	N	N	N	20	70	20	N	N	N	30	<10	N	20	N	200
K4004RA	N	10	300	N	N	N	10	50	30	N	<5	N	7	10	N	20	N	300
K4005RA	N	<10	100	N	N	N	20	50	30	N	N	N	20	10	N	20	N	300
K4005RB	<200	<10	<20	N	N	N	N	N	20	N	5	N	5	<10	N	<5	N	N
K3155RG	N	10	300	<1.0	N	N	20	70	30	N	<5	N	20	<10	N	20	N	200
K3155RA	N	<10	<20	N	N	N	7	50	30	N	N	N	7	N	N	15	N	N
K3155RB	N	<10	200	<1.0	N	N	15	30	20	N	<5	N	15	<10	N	20	N	200
K3155RC	N	30	200	N	N	N	N	50	<5	N	N	N	N	10	N	15	N	300
K3155RD	<200	15	100	<1.0	N	N	<5	20	20	N	N	N	<5	N	N	10	N	150
K3155RE	N	10	300	N	N	N	<5	50	20	N	N	N	<5	N	N	15	N	500
K3155RF	N	<10	150	N	N	N	N	50	<5	N	N	N	N	20	N	10	N	200
K0181RA	N	100	1,000	<1.0	15	N	10	100	100	N	N	N	15	50	N	20	N	100
K0178RB	N	70	700	<1.0	N	N	<5	10	<5	N	<5	N	5	N	N	10	N	N
K0178RA	N	10	300	N	N	N	15	20	15	N	10	N	20	10	N	15	N	100
K4524RB	N	<10	100	1.5	10	N	<5	<10	500	N	N	N	N	70	N	N	N	<100
K4524RA	200	<10	150	<1.0	15	N	15	<10	500	N	20	N	20	<10	N	5	N	N
K4524RC	N	<10	300	N	N	N	N	70	10	N	<5	N	N	20	N	10	N	300
K4134RD	N	50	700	1.0	N	N	20	30	100	N	<5	N	15	10	N	20	N	300
K0136RA	N	<10	150	<1.0	N	N	30	50	100	N	N	N	20	10	N	30	N	500
K0182RA	N	20	200	<1.0	N	N	20	<10	50	N	N	N	10	10	N	20	N	700
K0139RA	N	500	500	1.0	N	N	30	200	15	N	N	N	50	15	N	20	N	200
K0139RB	N	20	300	<1.0	N	N	20	50	30	N	10	N	20	20	N	20	N	300
K0139RC	500	10	100	1.5	N	N	30	50	20	N	10	N	20	20	N	30	N	200
K0135RA	N	10	1,000	N	N	N	20	<10	10	N	N	N	10	<10	N	15	N	150
K0021RA	N	15	100	N	N	N	10	15	<5	N	N	N	30	15	N	15	N	300
K0190RA	N	50	150	N	N	N	15	30	30	N	N	N	15	<10	N	20	N	100
K0190RB	N	100	700	1.0	N	N	7	<10	<5	N	10	N	5	20	N	20	N	200

Table 4. Analyses of stream cobble samples from the Mount Katmai study area, Alaska (continued)

Sample	V-S	W-S	Y-S	ZN-S	ZR-S	AU-AA	HG-INST	TL-AA	AS-AA	BI-AA	CD-AA	SB-AA	ZN-AA	F-SI
K1040RD	150	N	20	N	50	--	--	--	--	--	--	--	--	--
K1040RC	50	N	N	N	<10	.10	--	--	--	--	--	--	--	--
K1040RB	150	N	30	N	100	--	--	--	--	--	--	--	--	--
K1038RA	100	N	20	N	100	--	--	--	--	--	--	--	--	--
K2554RB	100	N	20	N	70	--	--	--	--	--	--	--	--	--
K2554RA	100	N	20	N	100	--	--	--	--	--	--	--	--	--
K1045RA	100	N	15	300	70	N	--	--	--	--	--	--	--	--
K3422RA	50	N	<10	N	100	.05	--	--	N	N	N	N	10	--
K3422RB	150	N	15	N	100	N	--	--	N	N	N	N	10	--
K3422RC	200	N	<10	N	70	N	--	--	N	N	N	N	50	--
K3422RD	150	N	15	N	70	N	--	--	20	N	N	N	25	--
K3422RE	20	N	30	N	15	.15	--	--	230	N	N	24	15	--
K3422RF	150	N	50	N	50	N	--	--	N	N	N	N	N	--
K4003RB	150	N	<10	N	100	--	--	--	--	--	--	--	--	--
K4003RA	100	N	20	N	100	--	--	--	--	--	--	--	--	--
K1051RA	70	N	<10	N	70	--	--	--	--	--	--	--	--	--
K4004RC	10	N	20	N	100	--	--	--	--	--	--	--	--	--
K4004RB	100	N	20	N	100	--	--	--	--	--	--	--	--	--
K4004RA	100	N	20	N	70	--	--	--	--	--	--	--	--	--
K4004RA	150	N	20	N	150	--	--	--	--	--	--	--	--	--
K4005RA	100	N	30	N	70	--	--	--	--	--	--	--	--	--
K4005RB	20	N	N	N	10	--	--	--	--	--	--	--	--	--
K3155RG	100	N	20	N	100	--	--	--	--	--	--	--	--	--
K3155RA	150	N	20	N	150	--	--	--	--	--	--	--	--	--
K3155RB	100	N	30	N	100	--	--	--	--	--	--	--	--	--
K3155RC	200	N	N	N	100	--	--	--	--	--	--	--	--	--
K3155RD	50	N	10	N	70	--	--	--	--	--	--	--	--	--
K3155RE	100	N	10	N	70	--	--	--	--	--	--	--	--	--
K3155RF	150	N	<10	N	100	--	--	--	--	--	--	--	--	--
K0181RA	200	N	50	<200	200	N	N	--	20	4	<.1	N	30	--
K0178RB	70	N	10	N	100	<.05	.02	--	20	N	N	N	5	--
K0178RA	100	N	N	N	100	N	N	--	20	1	N	N	65	--
K4524RB	15	N	<10	N	15	1.30	--	--	20	6	N	36	10	--
K4524RA	20	N	<10	N	70	1.90	--	--	120	10	N	82	10	--
K4524RC	200	N	<10	N	70	N	--	--	10	N	N	2	N	--
K4134RD	200	N	15	N	100	N	--	--	N	N	N	2	5	--
K0136RA	300	N	50	N	100	N	.02	--	10	N	<.1	N	40	--
K0182RA	150	N	30	N	200	N	N	--	<10	N	N	N	20	--
K0139RA	300	N	30	N	200	N	N	--	30	N	N	N	35	--
K0139RB	200	N	50	N	300	N	N	--	40	N	.1	4	35	--
K0139RC	200	N	100	N	70	N	N	--	400	N	N	N	15	--
K0135RA	200	N	15	N	50	N	.16	--	10	N	N	N	35	--
K0021RA	100	N	30	N	50	N	.45	--	20	N	.1	N	20	--
K0190RA	100	N	N	N	70	N	.15	--	20	1	<.1	2	80	--
K0190RB	50	N	70	N	300	N	.20	--	10	N	<.1	N	70	--

Table 4. Analyses of stream cobble samples from the Mount Katmai study area, Alaska (continued)

Sample	LATITUDE	LONGTUDE	MAP NO.	ROCKTYPE	ALTERATN	MINDEPFM	FE%-S	MG%-S	CA%-S	TI%-S	MN-S	AG-S
K4135RA	58 29 20	154 13 40	231	igneous	ser.	--	2.00	.20	.70	.200	100	N
K4135RB	58 29 20	154 13 40	232	int. ign.	--	--	10.00	5.00	5.00	.300	2,000	<.5
K4135RC	58 29 20	154 13 40	233	int. ign.	ser.	--	10.00	.50	<.05	.200	200	N
K0196RA	58 26 28	154 11 9	234	other	--	--	2.00	1.50	>20.00	.100	700	.5
K3011RA	58 1 0	156 14 50	235	fels. ign.	arg.	dissem.	.50	.30	.50	.100	500	N
K0225RD	58 0 5	155 39 22	237	other	--	--	3.00	1.00	1.00	.300	1,500	N
K0225RC	58 0 5	155 39 22	238	other	--	--	2.00	1.50	.70	.500	1,000	N
K0225RB	58 0 5	155 39 22	239	other	--	--	3.00	.70	1.00	.300	500	N
K0225RA	58 0 5	155 39 22	240	other	--	--	5.00	1.50	1.00	.300	300	<.5
K4059RB	58 4 45	155 37 59	241	int. ign.	--	vein	5.00	.05	<.05	.200	100	N
K0219RA	58 2 34	155 36 2	242	other	--	--	5.00	1.50	1.00	.500	2,000	N
K0219RB	58 2 34	155 36 2	243	other	--	--	10.00	1.00	.05	.500	100	N
K0219RC	58 2 34	155 36 2	244	other	--	--	5.00	2.00	.15	.500	150	N
K0219RD	58 2 34	155 36 2	245	other	--	--	.70	.03	.10	.300	15	N
K0218RA	58 1 31	155 30 36	246	other	--	--	.70	.10	.05	.300	30	N
K0218RB	58 1 31	155 30 36	247	other	--	--	3.00	.30	.70	.300	200	N
K2066RC	58 8 43	155 30 27	248	int. ign.	--	dissem.	2.00	1.50	1.00	.300	200	N
K2066RB	58 8 43	155 30 27	249	int. ign.	sil.	dissem.	3.00	1.00	.50	.300	100	N
K2066RA	58 8 43	155 30 27	250	int. ign.	arg.	dissem.	3.00	.50	.10	.200	150	N
K0239RC	58 6 48	155 27 39	251	other	--	--	2.00	1.00	20.00	.070	5,000	N
K0239RA	58 6 48	155 27 39	252	other	--	--	2.00	1.50	1.00	.300	300	N
K0239RB	58 6 48	155 27 39	253	other	--	--	2.00	1.50	2.00	.300	700	N
K0243RA	58 6 13	155 24 24	254	other	--	--	5.00	5.00	3.00	.500	1,500	N
K0244RA	58 6 15	155 24 14	255	other	--	--	5.00	2.00	1.50	.500	300	N
K2058RB	58 14 3	155 22 15	256	sedim.	--	dissem.	3.00	1.50	.70	.300	500	<.5
K2058RA	58 14 3	155 22 15	257	int. ign.	--	dissem.	3.00	1.00	.70	.200	200	<.5
K0198RA	58 8 17	155 18 40	258	other	--	--	5.00	3.00	.20	.500	1,000	N
K0198RB	58 8 17	155 18 40	259	other	--	--	1.00	.05	.05	.200	50	N
K0198RC	58 8 17	155 18 40	260	other	--	--	5.00	2.00	2.00	.300	1,000	N
K0282RB	58 8 14	155 15 25	262	igneous	--	--	3.00	.15	.70	.300	100	<.5
K0282RE	58 8 14	155 15 25	263	igneous	--	--	2.00	.30	.30	.300	100	N
K0282RD	58 8 14	155 15 25	267	igneous	--	--	.05	<.02	N	.150	<10	N
K0282RA	58 8 14	155 15 25	268	igneous	--	--	2.00	.02	<.05	.200	10	N
K2616RA	58 14 25	155 15 15	269	int. ign.	--	--	.70	<.02	<.05	.150	10	N
K2616RB	58 14 25	155 15 15	270	int. ign.	sil.	--	5.00	.02	<.05	.200	15	N
K2616RC	58 14 25	155 15 15	271	int. ign.	arg.	--	.20	.02	<.05	.200	10	N
K0090RA	58 10 58	155 1 0	273	other	--	--	5.00	2.00	2.00	.500	1,000	N
K0269RB	58 11 32	154 57 41	274	igneous	--	--	.70	.20	3.00	.070	200	N
K0269RA	58 11 32	154 57 41	275	igneous	--	--	.50	.15	3.00	.050	150	N
K0105RA	58 10 15	154 51 19	276	siltst.	--	--	1.50	.15	1.50	.300	500	N
K0254RA	58 13 9	154 46 57	279	igneous	--	--	2.00	.50	.50	.300	200	.7
K0104RA	58 10 17	154 45 58	280	other	--	--	5.00	.50	.07	.500	70	<.5
K0103RA	58 10 28	154 45 39	281	other	--	--	1.00	.70	.15	.300	200	N
K0103RB	58 10 28	154 45 39	282	other	--	--	1.50	1.00	1.50	.500	300	N
K0250RC	58 13 46	154 43 21	283	igneous	--	--	1.00	.50	<.05	.200	100	1.0

Table 4. Analyses of stream cobble samples from the Mount Katmai study area, Alaska (continued)

Sample	AS-S	B-S	BA-S	BE-S	BI-S	CD-S	CO-S	CR-S	CU-S	LA-S	MO-S	NB-S	NI-S	PB-S	SB-S	SC-S	SN-S	SR-S
K4135RA	N	10	300	1.0	N	N	5	N	<5	N	<5	N	N	<10	N	5	N	100
K4135RB	N	<10	100	N	N	N	70	200	150	N	N	N	50	20	N	50	N	300
K4135RC	N	<10	700	1.0	N	N	<5	N	10	N	N	N	N	<10	N	10	N	N
K0196RA	N	20	200	N	N	N	15	50	15	N	N	N	20	<10	N	7	N	500
K3011RA	N	50	200	1.0	N	N	N	<10	<5	N	N	20	N	<10	N	7	N	N
K0225RD	N	15	100	<1.0	N	N	15	N	20	N	N	N	<5	10	N	20	N	200
K0225RC	N	700	700	<1.0	N	N	10	15	50	N	N	N	5	70	N	20	N	500
K0225RB	N	10	300	N	N	N	10	N	20	N	<5	N	<5	15	N	20	N	300
K0225RA	N	10	200	N	N	N	30	<10	30	N	<5	N	5	10	N	20	N	200
K4059RB	300	10	300	N	N	N	N	30	7	N	10	N	<5	10	N	20	N	700
K0219RA	N	50	500	<1.0	N	N	20	<10	100	N	N	N	5	10	N	20	N	700
K0219RB	N	2,000	200	<1.0	N	N	<5	30	150	N	20	N	<5	20	N	30	20	N
K0219RC	N	700	500	N	N	N	<5	50	100	N	100	N	<5	70	N	20	<10	100
K0219RD	N	15	150	N	N	N	N	15	7	N	N	N	N	10	N	15	N	300
K0218RA	N	70	300	<1.0	N	N	N	N	<5	N	<5	N	<5	<10	N	15	N	200
K0218RB	N	15	300	<1.0	N	N	10	10	30	N	N	N	5	10	N	15	N	200
K2066RC	N	15	200	N	N	N	30	<10	20	N	N	N	7	<10	N	20	N	300
K2066RB	N	20	700	N	N	N	10	70	20	N	15	N	15	20	N	30	N	200
K2066RA	N	50	200	N	N	N	10	N	30	N	N	N	5	<10	N	20	N	200
K0239RC	N	10	300	N	N	N	7	50	7	N	N	N	15	30	N	7	N	1,000
K0239RA	N	10	300	N	N	N	10	70	15	N	N	N	20	<10	N	15	N	200
K0239RB	N	10	300	N	N	N	20	100	20	N	N	N	30	<10	N	20	N	300
K0243RA	N	10	500	<1.0	N	N	30	50	50	N	N	N	50	<10	N	50	N	1,000
K0244RA	N	<10	200	N	N	N	20	20	50	N	N	N	15	<10	N	20	N	300
K2058RB	N	10	500	N	N	N	15	100	100	N	N	N	30	<10	N	20	N	100
K2058RA	N	10	700	N	N	N	10	20	50	N	7	N	10	20	N	20	N	100
K0198RA	N	100	2,000	<1.0	N	N	50	70	50	N	N	N	20	30	N	30	N	300
K0198RB	N	15	200	N	N	N	N	15	20	N	N	N	<5	10	N	15	N	200
K0198RC	N	50	1,500	<1.0	N	N	20	20	50	N	<5	N	10	50	N	30	N	500
K0282RB	N	10	200	<1.0	N	N	5	70	20	N	N	N	7	10	N	20	N	200
K0282RE	N	20	200	N	N	N	<5	30	20	N	5	N	5	10	N	20	N	200
K0282RD	N	<10	200	N	N	N	N	100	5	N	15	N	N	50	N	7	10	300
K0282RA	N	10	200	N	10	N	<5	20	20	N	N	N	<5	15	N	15	N	100
K2616RA	N	10	100	N	N	N	N	20	7	N	N	N	<5	<10	N	10	N	150
K2616RB	N	10	500	N	N	N	N	30	5	N	N	N	N	50	N	15	N	100
K2616RC	N	10	500	N	N	N	N	20	7	N	N	N	<5	N	N	7	N	<100
K0090RA	N	10	300	N	N	N	30	100	15	N	N	N	15	10	N	50	N	500
K0269RB	N	<10	500	N	N	N	N	30	<5	N	N	N	10	N	N	<5	N	150
K0269RA	N	<10	200	<1.0	N	N	N	15	<5	N	N	N	N	<10	N	5	N	100
K0105RA	N	15	1,000	1.0	N	N	N	N	7	N	50	N	7	10	N	10	N	N
K0254RA	<200	<10	300	<1.0	N	N	5	20	15	N	<5	N	10	15	N	15	N	200
K0104RA	N	15	500	N	N	N	N	150	20	N	<5	N	7	15	N	30	N	100
K0103RA	N	<10	300	<1.0	N	N	N	N	<5	N	15	N	5	15	N	10	N	200
K0103RB	<200	<10	500	1.5	N	N	<5	N	10	N	15	N	<5	15	N	15	N	1,000
K0250RC	200	<10	150	N	N	N	7	20	10	N	70	N	20	<10	N	10	N	N

Table 4. Analyses of stream cobble samples from the Mount Katmai study area, Alaska (continued)

Sample	V-S	W-S	Y-S	ZN-S	ZR-S	AU-AA	HG-INST	TL-AA	AS-AA	BI-AA	CD-AA	SB-AA	ZN-AA	F-SI
K4135RA	50	N	10	N	200	N	--	--	N	N	N	2	N	--
K4135RB	200	N	15	<200	30	N	--	--	10	N	.5	N	120	--
K4135RC	70	N	20	N	100	<.05	--	--	N	N	N	N	5	--
K0196RA	100	N	20	N	20	N	N	--	10	<1	<.1	N	40	--
K3011RA	20	N	20	N	200	--	--	--	--	--	--	--	--	--
K0225RD	100	N	30	N	100	N	.16	--	<10	1	.1	N	75	--
K0225RC	100	N	50	N	150	N	N	--	<10	N	N	N	10	--
K0225RB	100	N	30	N	100	N	.06	--	<10	N	<.1	N	55	--
K0225RA	100	N	30	N	70	N	N	--	<10	<1	<.1	N	45	--
K4059RB	150	N	10	N	70	--	--	--	--	--	--	--	--	--
K0219RA	150	N	50	N	100	N	N	--	10	N	.2	4	35	--
K0219RB	200	N	15	200	100	N	N	--	20	N	N	N	10	--
K0219RC	200	N	10	<200	150	N	N	--	20	N	N	N	5	--
K0219RD	100	N	10	N	100	N	.08	--	10	1	N	N	<5	--
K0218RA	20	N	30	N	150	N	.38	--	10	<1	N	N	<5	--
K0218RB	100	N	20	N	70	N	.06	--	10	1	N	N	160	--
K2066RC	150	N	20	N	100	--	--	--	--	--	--	--	--	--
K2066RB	100	N	20	N	100	--	--	--	--	--	--	--	--	--
K2066RA	100	N	20	N	70	--	--	--	--	--	--	--	--	--
K0239RC	50	N	20	N	10	N	N	--	<10	N	N	N	10	--
K0239RA	150	N	15	N	70	N	.10	--	<10	1	N	N	25	--
K0239RB	150	N	30	N	70	N	N	--	10	1	N	N	20	--
K0243RA	200	N	50	<200	100	N	N	--	<10	N	N	N	20	--
K0244RA	150	N	30	N	100	N	N	--	<10	1	N	N	20	--
K2058RB	150	N	20	N	100	--	--	--	--	--	--	--	--	--
K2058RA	100	N	50	N	100	--	--	--	--	--	--	--	--	--
K0198RA	200	N	30	200	150	N	N	--	<10	N	.5	N	160	--
K0198RB	100	N	10	N	100	N	N	--	20	<1	N	N	<5	--
K0198RC	200	N	50	N	200	N	N	--	<10	N	N	N	5	--
K0282RB	150	N	10	N	100	N	.12	.3	10	1	N	N	15	300
K0282RE	150	N	20	N	100	N	.20	.9	20	2	N	N	20	1,300
K0282RD	100	N	N	N	70	N	.30	.1	<10	1	N	N	N	2,300
K0282RA	200	N	10	N	70	N	.02	.5	10	9	N	N	<5	2,900
K2616RA	100	N	N	N	50	--	--	--	--	--	--	--	--	--
K2616RB	70	N	<10	N	150	--	--	--	--	--	--	--	--	--
K2616RC	100	N	N	N	100	--	--	--	--	--	--	--	--	--
K0090RA	200	N	30	N	100	N	N	--	<10	N	.7	N	10	--
K0269RB	30	N	<10	N	20	N	.02	.1	<10	N	<.1	N	20	100
K0269RA	50	N	<10	N	50	N	N	.1	<10	N	N	N	10	<100
K0105RA	100	N	50	N	200	N	N	--	<10	N	N	N	20	--
K0254RA	70	N	20	N	150	.05	N	.4	210	N	<.1	<2	35	150
K0104RA	200	N	<10	N	150	N	N	--	10	N	N	N	15	--
K0103RA	70	N	50	N	200	N	N	--	40	N	N	N	25	--
K0103RB	100	N	50	N	200	N	.10	--	100	N	.2	2	45	--
K0250RC	100	N	10	N	70	.05	.04	.8	250	<1	<.1	6	25	150

Table 4. Analyses of stream cobble samples from the Mount Katmai study area, Alaska (continued)

Sample	LATITUDE	LONGTUDE	MAP NO.	ROCKTYPE	ALTERATN	MINDEPFM	FE%-S	MG%-S	CA%-S	TI%-S	MN-S	AG-S
K0250RB	58 13 46	154 43 21	284	igneous	--	--	2.00	1.50	.10	.300	200	2.0
K0250RA	58 13 46	154 43 21	285	igneous	--	--	1.00	.30	<.05	.200	150	2.0
K0251RA	58 13 42	154 43 17	286	igneous	--	--	3.00	2.00	1.00	.300	500	N
K3621RE	58 4 48	154 43 15	287	igneous	prop.	dissem.	10.00	2.00	3.00	.700	500	N
K3621RD	58 4 48	154 43 15	288	metamorph.	--	vein	10.00	1.50	.50	.700	1,000	N
K3621RC	58 4 48	154 43 15	289	igneous	--	dissem.	10.00	3.00	5.00	.500	500	N
K3621RB	58 4 48	154 43 15	290	metamorph.	--	--	7.00	1.50	2.00	.700	1,000	N
K3621RA	58 4 48	154 43 15	291	metamorph.	--	dissem.	10.00	2.00	3.00	.500	500	N
K0073RA	58 9 37	154 41 40	292	other	--	--	2.00	.10	2.00	.700	1,000	<.5
K0113RA	58 7 12	154 40 52	293	other	--	--	5.00	1.50	2.00	.500	1,000	N
K0069RA	58 11 21	154 38 39	294	other	--	--	.10	.07	.05	.100	30	N
K0094RA	58 3 38	154 38 27	295	igneous	--	--	2.00	1.50	.30	.200	500	.5
K0051RB	58 11 15	154 37 54	296	other	--	--	5.00	2.00	5.00	.500	1,000	N
K0051RA	58 11 15	154 37 54	297	other	--	--	.50	.10	<.05	.300	50	.7
K0149RA	58 14 36	154 33 46	298	other	--	--	7.00	.30	<.05	.300	70	N
K0108RA	58 12 35	154 32 16	302	other	--	--	2.00	.20	.50	.500	200	N
K0153RA	58 14 14	154 27 18	303	other	--	--	2.00	1.50	1.50	.500	700	.5
K0122RA	58 11 58	154 20 37	304	igneous	--	--	3.00	1.50	2.00	.500	700	N
K0122RB	58 11 58	154 20 37	305	other	--	--	2.00	.15	.07	.100	200	7.0

Table 4. Analyses of stream cobble samples from the Mount Katmai study area, Alaska (continued)

Sample	AS-S	B-S	BA-S	BE-S	BI-S	CD-S	CO-S	CR-S	CU-S	LA-S	MO-S	NB-S	NI-S	PB-S	SB-S	SC-S	SN-S	SR-S
K0250RB	<200	10	300	<1.0	N	N	15	100	15	N	100	N	50	<10	N	15	N	N
K0250RA	200	<10	100	N	N	N	5	20	7	N	70	N	15	10	N	10	N	N
K0251RA	N	<10	200	N	N	N	50	300	20	N	N	N	100	10	N	15	N	300
K3621RE	N	20	700	N	N	N	50	10	15	N	N	N	20	<10	N	20	N	200
K3621RD	N	1,500	700	<1.0	N	N	15	100	100	<20	N	N	70	10	N	15	N	<100
K3621RC	N	<10	100	N	N	N	20	50	150	N	N	N	10	<10	N	20	N	100
K3621RB	N	50	70	N	N	N	5	N	50	N	5	N	<5	20	N	20	N	200
K3621RA	N	200	500	1.0	N	N	15	200	100	<20	10	N	100	30	N	20	N	300
K0073RA	N	<10	500	1.0	N	N	<5	N	7	N	7	N	7	15	N	20	N	200
K0113RA	N	20	700	1.0	N	N	30	100	70	N	<5	N	50	15	N	30	N	500
K0069RA	N	<10	N	N	N	N	N	<10	<5	N	20	N	<5	<10	N	7	N	N
K0094RA	N	50	150	<1.0	N	N	20	20	10	N	N	N	15	10	N	15	N	500
K0051RB	N	<10	30	<1.0	N	N	50	150	70	N	10	N	100	10	N	30	N	100
K0051RA	N	10	50	<1.0	N	N	N	20	7	N	15	N	5	15	N	20	N	N
K0149RA	N	300	300	<1.0	N	N	N	70	20	N	N	N	N	<10	N	15	N	100
K0108RA	N	<10	1,000	<1.0	N	N	5	N	<5	N	N	N	<5	20	N	20	N	300
K0153RA	N	10	1,500	N	N	N	15	50	7	N	10	N	20	15	N	20	N	300
K0122RA	N	<10	500	<1.0	N	N	20	20	20	N	N	N	15	15	N	20	N	500
K0122RB	200	10	100	N	N	N	N	<10	300	N	150	N	5	300	<100	5	N	N

Table 4. Analyses of stream cobble samples from the Mount Katmai study area, Alaska (continued)

Sample	V-S	W-S	Y-S	ZN-S	ZR-S	AU-AA	HG-INST	TL-AA	AS-AA	BI-AA	CD-AA	SB-AA	ZN-AA	F-SI
K0250RB	100	N	15	N	70	.05	.02	1.0	120	1	<.1	2	40	200
K0250RA	70	N	10	N	70	.05	.04	.9	300	<1	<.1	6	20	200
K0251RA	100	N	15	N	100	N	N	.1	<10	N	<.1	N	40	150
K3621RE	300	N	15	<200	100	N	--	--	<10	N	N	N	15	--
K3621RD	200	N	15	<200	100	N	--	--	N	N	.2	N	90	--
K3621RC	200	N	10	<200	50	N	--	--	N	N	N	N	60	--
K3621RB	150	N	20	<200	70	N	--	--	50	N	N	2	25	--
K3621RA	200	N	20	<200	200	N	--	--	N	N	.3	N	40	--
K0073RA	200	N	50	N	200	N	N	--	50	N	N	N	50	--
K0113RA	200	N	50	N	100	N	N	--	50	N	.2	N	60	--
K0069RA	70	N	10	N	50	.25	N	--	10	N	<.1	6	5	--
K0094RA	100	N	20	N	70	N	N	--	10	N	.1	N	25	--
K0051RB	200	N	70	N	100	N	.18	--	30	N	.2	N	40	--
K0051RA	200	N	15	N	70	.80	.02	--	10	N	N	N	<5	--
K0149RA	200	N	50	N	150	N	.02	--	40	N	N	N	10	--
K0108RA	100	N	50	N	150	N	N	--	10	N	N	N	10	--
K0153RA	150	N	20	N	100	N	.16	--	10	N	.1	N	50	--
K0122RA	150	N	50	N	150	N	N	--	<10	N	.2	N	35	--
K0122RB	100	N	30	N	70	N	N	--	75	2	.2	30	45	--

Table 5. Geochemical analyses of bedrock samples collected from stream drainages in the Mount Katmai study area, Alaska

["Map No." refers to localities shown on plate I. "N" = not detected; "--" = not analyzed for; "S" = spectrographic analyses; "AA" = atomic absorption analyses; "INST" = instrumental analyses; "SI" = specific ion analyses. For statistical summary of data in this table see table 17.]

Sample	LATITUDE	LONGTUDE	MAP NO.	ROCKTYPE	ALTERATN	MINDEPFM	FE%-S	MG%-S	CA%-S	TI%-S	MN-S	AG-S
K3402RE	58 36 57	154 19 25	103	carbonate	--	vein	3.0	5.00	20.00	.020	2,000	N
K0171RA	58 36 48	154 11 13	107	other	--	--	5.0	1.00	1.00	.500	1,000	N
K0174RA	58 37 2	154 6 41	109	other	--	--	5.0	2.00	1.50	.300	500	N
K0160RA	58 42 50	153 45 40	124	other	--	--	5.0	2.00	1.00	.500	1,000	<.5
K3050RA	58 25 36	154 47 16	198	siltst.	--	--	3.0	2.00	1.00	.500	500	N
K2600RA	58 0 40	155 50 58	236	int. ign.	arg.	dissem.	5.0	.70	.70	.500	100	N
K0282RC	58 8 14	155 15 25	261	igneous	--	--	1.0	.30	.07	.300	70	N
K0282RF	58 8 14	155 15 25	264	igneous	--	--	1.0	.02	1.00	.200	15	N
K0282RG	58 8 14	155 15 25	265	igneous	--	--	5.0	.50	1.50	.500	100	<.5
K0282RH	58 8 14	155 15 25	266	igneous	--	--	5.0	1.00	1.00	.300	300	N
K0278RA	58 9 59	155 10 0	272	igneous	--	--	5.0	1.00	1.00	.200	300	<.5
K0258RA	58 13 21	154 48 59	277	igneous	--	--	2.0	1.00	1.00	.200	500	<.5
K0255RA	58 13 17	154 47 57	278	igneous	--	--	3.0	1.00	2.00	.300	500	<.5
K0149RB	58 14 36	154 33 46	299	other	--	--	1.0	<.02	<.05	.700	20	N
K0149RC	58 14 36	154 33 46	300	other	--	--	2.0	.02	<.05	.700	50	N
K0149RD	58 14 36	154 33 46	301	other	--	--	.1	N	N	.700	15	N
K0147RA	58 11 31	154 11 27	306	other	--	--	7.0	1.00	1.50	.150	5,000	N
K2139RA	58 58 0	156 6 56	307	int. ign.	--	--	1.0	.10	.30	.200	200	N
K2647RA	58 45 20	155 24 50	308	sedim.	--	--	5.0	2.00	.50	.200	500	N
K2147RA	58 52 39	155 17 11	309	other	--	--	5.0	2.00	1.00	.300	700	N
K3615RA	58 45 0	155 1 42	310	metamorph.	--	dissem.	7.0	1.50	5.00	.500	1,000	N
K3502RA	58 53 16	154 58 42	311	fels. ign.	--	--	3.0	2.00	2.00	.500	500	N
K3503RA	58 53 19	154 58 40	312	fels. ign.	prop.	porph.	5.0	2.00	2.00	.700	500	N
K3504RA	58 53 20	154 58 36	313	fels. ign.	sil.	porph.	1.0	.50	<.05	.200	<10	<.5
K3505RA	58 53 20	154 58 30	314	other	--	--	10.0	.70	.20	.200	150	N
K3505RB	58 53 23	154 58 25	315	int. ign.	prop.	dissem.	3.0	1.50	.70	.200	200	<.5
K3505RC	58 53 23	154 58 25	316	fels. ign.	sil.	vein	3.0	.10	<.05	.150	10	N
K3505RD	58 53 26	154 58 22	317	fels. ign.	sil.	vein	2.0	.50	.10	.200	70	1.0
K3505RE	58 53 25	154 58 20	318	fels. ign.	prop.	dissem.	10.0	5.00	5.00	.500	2,000	.5
K3505RH	58 53 30	154 58 0	319	fels. ign.	prop.	dissem.	2.0	.70	.50	.150	150	N
K3505RF	58 53 30	154 57 53	320	fels. ign.	prop.	dissem.	2.0	1.00	.70	.200	200	<.5
K4597RA	58 50 32	154 58 16	321	fels. ign.	sil.	vein	.5	.15	<.05	.100	50	.5
K4597RG	58 50 32	154 58 16	322	metamorph.	ser.	--	10.0	1.50	.50	.300	1,000	<.5
K3609RA	58 50 28	154 58 15	323	int. ign.	prop.	vein	10.0	2.00	1.00	.500	500	.7
K3614RD	58 51 3	154 55 10	324	metamorph.	--	--	5.0	.20	.10	.150	150	N
K3614RC	58 51 2	154 55 10	325	metamorph.	--	--	3.0	.10	.10	.200	150	N
K3614RB	58 51 1	154 55 10	326	metamorph.	--	dissem.	7.0	1.00	2.00	.700	500	N
K3614RA	58 51 0	154 55 10	327	metamorph.	--	dissem.	5.0	.70	.70	.300	500	N
K3608RA	58 54 21	154 54 12	328	--	prop.	vein	10.0	5.00	10.00	.050	5,000	2.0
K3608RB	58 54 21	154 54 12	329	metamorph.	prop.	vein	15.0	2.00	5.00	.100	3,000	3.0
K3613RC	58 51 20	154 53 56	330	metamorph.	--	dissem.	20.0	1.00	.50	.200	1,000	<.5
K3613RB	58 51 20	154 53 55	331	int. ign.	--	dissem.	10.0	1.50	2.00	.300	500	N
K3613RA	58 51 20	154 53 54	332	int. ign.	ser.	mag. seg.	15.0	2.00	5.00	1.000	1,500	1.0
K3612RB	58 49 17	154 53 56	333	other	--	cont.met.	15.0	1.00	10.00	.050	>5,000	1.0
K3612RA	58 49 16	154 53 56	334	other	prop.	cont.met.	20.0	1.50	1.00	.500	2,000	3.0

Table 5. Analyses of bedrock samples from stream drainages in the Mount Katmai study area, Alaska (continued)

Sample	AS-S	B-S	BA-S	BE-S	BI-S	CD-S	CO-S	CR-S	CU-S	LA-S	MO-S	NB-S	NI-S	PB-S	SB-S	SC-S	SN-S
K3402RE	N	10	50	<1.0	N	N	7	10	10	N	N	N	7	15	N	5	N
K0171RA	N	200	200	<1.0	N	N	20	20	70	N	N	N	20	20	N	30	N
K0174RA	N	20	500	N	N	N	20	10	20	N	<5	N	5	20	N	20	N
K0160RA	N	20	1,000	N	N	N	20	20	70	N	N	N	15	50	N	20	N
K3050RA	N	150	700	N	N	N	20	100	70	N	<5	N	20	<10	N	20	N
K2600RA	N	100	300	N	N	N	10	<10	30	N	N	N	5	30	N	20	N
K0282RC	N	10	300	N	N	N	N	30	30	N	5	N	<5	10	N	15	N
K0282RF	N	20	300	N	N	N	<5	20	20	N	N	N	<5	15	N	7	N
K0282RG	N	15	500	N	N	N	30	150	150	N	5	N	50	10	N	30	N
K0282RH	N	10	300	<1.0	N	N	10	20	20	N	N	N	7	10	N	20	N
K0278RA	N	10	300	<1.0	N	N	20	30	30	N	N	N	15	20	N	20	N
K0258RA	N	<10	200	N	N	N	7	150	20	N	N	N	30	15	N	15	N
K0255RA	N	10	500	N	N	N	10	15	20	N	N	N	7	10	N	15	N
K0149RB	N	<10	500	N	N	N	N	200	15	N	<5	N	10	15	N	50	N
K0149RC	N	10	500	N	N	N	30	200	20	N	5	N	70	15	N	30	N
K0149RD	N	<10	N	N	N	N	N	<10	N	N	N	N	10	N	N	<5	N
K0147RA	N	150	700	1.0	N	N	20	50	7	N	N	N	30	10	N	10	N
K2139RA	N	<10	1,000	<1.0	N	N	N	N	10	50	N	N	N	20	N	10	N
K2647RA	N	50	500	N	N	N	20	15	10	N	N	N	10	<10	N	15	N
K2147RA	N	<10	500	N	N	N	20	70	30	N	N	N	15	10	N	20	N
K3615RA	N	20	700	1.0	N	N	15	50	20	N	N	N	15	N	N	30	N
K3502RA	N	15	500	1.0	N	N	7	30	100	N	<5	N	20	<10	N	15	N
K3503RA	N	<10	500	N	N	N	20	50	50	N	N	N	50	<10	N	30	N
K3504RA	N	100	1,000	1.0	N	N	15	15	1,000	N	N	N	5	10	N	7	N
K3505RA	N	20	500	<1.0	N	N	5	20	500	N	10	N	10	10	N	7	N
K3505RB	N	20	700	1.0	N	N	10	20	1,000	N	N	N	20	10	N	7	N
K3505RC	N	10	300	1.0	N	N	70	10	20	N	50	N	20	<10	N	5	N
K3505RD	N	500	700	1.5	N	N	10	10	1,000	N	70	N	5	30	N	5	<10
K3505RE	N	<10	100	N	N	N	100	300	2,000	N	N	N	100	<10	N	30	N
K3505RH	N	10	700	<1.0	N	N	7	<10	70	N	N	N	7	<10	N	5	N
K3505RF	N	10	700	1.0	N	N	50	15	500	N	70	N	20	<10	N	7	N
K4597RA	N	100	1,000	<1.0	<10	N	N	30	<5	N	<5	N	N	20	N	7	10
K4597RG	N	2,000	300	N	N	N	200	100	300	N	70	N	30	10	N	15	N
K3609RA	N	100	300	N	N	N	10	30	200	N	5	N	10	70	N	50	N
K3614RD	N	150	1,000	1.0	N	N	N	<10	15	N	5	N	<5	20	N	10	N
K3614RC	N	100	2,000	1.0	N	N	N	<10	10	N	10	N	5	30	N	7	N
K3614RB	N	70	1,000	<1.0	N	N	10	N	50	N	N	N	5	15	N	30	N
K3614RA	N	100	1,500	1.5	N	N	<5	<10	200	N	N	N	5	<10	N	10	N
K3608RA	N	10	<20	<1.0	N	N	200	20	500	N	N	N	100	50	N	7	N
K3608RB	N	50	20	<1.0	70	N	10	70	100	20	5	N	20	300	N	20	N
K3613RC	N	10	<20	N	N	N	100	50	700	N	N	N	15	20	N	20	N
K3613RB	N	50	1,000	1.0	N	N	5	<10	100	N	N	N	5	10	N	15	N
K3613RA	N	20	500	N	N	N	150	70	300	N	<5	N	20	10	N	50	N
K3612RB	N	10	70	N	N	N	150	70	20,000	N	N	N	50	N	N	10	N
K3612RA	N	10	300	N	N	70	10	50	1,000	N	<5	N	50	N	N	20	N

Table 5. Analyses of bedrock samples from stream drainages in the Mount Katmai study area, Alaska (continued)

Sample	SR-S	V-S	W-S	Y-S	ZN-S	ZR-S	AU-AA	HG-INST	TL-AA	AS-AA	BI-AA	CD-AA	SB-AA	ZN-AA	F-SI
K3402RE	150	50	N	20	N	20	N	--	--	10	N	.1	N	120	--
K0171RA	<100	300	N	70	N	150	N	4.60	--	10	N	<.1	2	50	--
K0174RA	500	200	N	50	N	100	N	N	--	<10	N	N	N	<5	--
K0160RA	500	100	N	50	N	200	N	N	--	<10	N	N	N	20	--
K3050RA	500	150	N	50	N	100	--	--	--	--	--	--	--	--	--
K2600RA	500	150	N	20	N	70	--	--	--	--	--	--	--	--	--
K0282RC	150	50	N	30	N	100	N	.36	.2	<10	<1	N	N	<5	200
K0282RF	200	150	N	10	N	70	N	.32	.5	10	1	N	N	5	2,000
K0282RG	300	100	N	30	N	100	N	.44	.3	10	1	<.1	N	20	250
K0282RH	200	100	N	20	N	100	N	.04	.3	<10	1	N	N	30	200
K0278RA	200	100	N	50	N	100	N	.08	.1	10	N	<.1	N	10	250
K0258RA	<100	100	N	15	N	70	N	.24	.1	10	<1	.1	<2	55	150
K0255RA	500	100	N	30	N	70	N	N	.2	10	1	N	N	50	250
K0149RB	3,000	500	N	10	N	150	N	.76	--	20	N	<.1	4	5	--
K0149RC	1,000	200	N	30	N	150	N	.28	--	20	N	<.1	N	<5	--
K0149RD	N	20	N	N	N	150	N	.02	--	<10	N	N	N	5	--
K0147RA	150	150	N	20	N	50	.05	.02	--	N	N	.3	N	45	--
K2139RA	150	10	N	50	N	150	--	--	--	--	--	--	--	--	--
K2647RA	200	100	N	10	N	100	--	--	--	--	--	--	--	--	--
K2147RA	500	200	N	30	N	70	--	--	--	--	--	--	--	--	--
K3615RA	500	200	N	50	<200	500	N	--	--	N	<1	.2	N	N	--
K3502RA	700	100	N	20	N	150	N	--	--	N	N	N	N	20	--
K3503RA	700	200	N	20	N	70	N	--	--	N	N	N	N	25	--
K3504RA	N	70	N	10	N	70	.05	--	--	N	2	N	N	5	--
K3505RA	100	70	N	<10	N	70	.20	--	--	N	N	N	N	15	--
K3505RB	500	100	N	15	N	70	.10	--	--	N	N	.1	N	30	--
K3505RC	N	70	N	<10	N	100	.55	--	--	N	N	.2	N	55	--
K3505RD	500	50	N	<10	N	100	.20	--	--	N	N	.1	N	25	--
K3505RE	300	200	N	50	N	50	.20	--	--	N	N	N	N	15	--
K3505RH	300	50	N	<10	N	70	.10	--	--	N	N	N	N	15	--
K3505RF	300	70	N	15	N	100	.15	--	--	N	N	N	N	20	--
K4597RA	N	100	N	<10	N	100	.50	--	--	N	4	N	N	15	--
K4597RG	150	150	N	20	N	50	.10	--	--	N	N	N	N	30	--
K3609RA	200	200	<50	30	200	100	N	--	--	N	2	.1	N	50	--
K3614RD	N	50	N	20	<200	150	N	--	--	N	1	.1	N	5	--
K3614RC	N	50	N	20	<200	150	N	--	--	N	N	.1	N	60	--
K3614RB	200	200	N	30	<200	150	N	--	--	N	N	.1	N	25	--
K3614RA	100	100	N	20	<200	150	N	--	--	N	N	.1	N	50	--
K3608RA	N	30	N	10	>10,000	10	.05	--	--	<10	8	16.0	N	>2,000	--
K3608RB	300	100	N	70	500	150	N	--	--	N	38	.2	N	230	--
K3613RC	N	200	N	20	200	100	N	--	--	20	1	<.1	<2	20	--
K3613RB	300	200	N	20	<200	150	N	--	--	N	N	<.1	<2	80	--
K3613RA	150	300	N	20	200	70	.10	--	--	40	1	.2	N	50	--
K3612RB	<100	100	N	70	700	20	.50	--	--	N	6	6.1	N	720	--
K3612RA	<100	200	N	30	>10,000	100	N	--	--	N	7	>100.0	2	>2,000	--

Table 5. Analyses of bedrock samples from stream drainages in the Mount Katmai study area, Alaska (continued)

Sample	LATITUDE	LONGTUDE	MAP NO.	ROCKTYPE	ALTERATN	MINDEPFM	FE%-S	MG%-S	CA%-S	TI%-S	MN-S	AG-S
K3607SS	58 54 16	154 53 40	335	other	--	--	10.0	1.00	.20	.500	500	.5
K3607RG	58 54 17	154 53 37	336	metamorph.	--	dissem.	1.0	.50	1.00	.200	200	N
K3607RF	58 54 20	154 53 35	337	--	prop.	dissem.	10.0	5.00	5.00	.300	1,000	N
K3607RB	58 54 12	154 53 20	338	--	ser.	vein	2.0	1.00	.05	.500	150	5.0
K3607RC	58 54 8	154 53 16	339	int. ign.	--	dissem.	7.0	2.00	2.00	.500	1,000	<.5
K3607RA	58 54 16	154 53 15	340	--	ser.	vein	10.0	1.00	<.05	.300	300	5.0
K3607RE	58 54 11	154 53 10	341	--	--	dissem.	5.0	1.50	.70	.500	500	<.5
K3607RD	58 54 10	154 53 10	342	int. ign.	--	dissem.	10.0	2.00	1.00	.500	700	.5
K3611RC	58 49 1	154 53 25	343	int. ign.	--	dissem.	7.0	3.00	7.00	.500	1,500	N
K3611RB	58 49 3	154 53 22	344	int. ign.	--	dissem.	7.0	2.00	3.00	.500	1,500	N
K3611RA	58 49 5	154 53 18	345	metamorph.	--	dissem.	7.0	2.00	5.00	.300	1,500	N
K4549RA	58 50 34	154 51 30	346	int. ign.	prop.	dissem.	2.0	.70	<.05	.200	100	5.0
K4179RA	58 56 42	154 45 42	347	fels. ign.	--	20	10.0	2.00	1.50	.500	1,000	<.5
K2077RA	58 40 58	155 22 0	348	igneous	--	--	7.0	3.00	2.00	.500	1,000	N
K3121RA	58 43 34	155 8 40	349	metamorph.	--	--	2.0	1.50	1.50	.200	500	N
K3121RB	58 43 34	155 8 40	350	other	--	--	2.0	1.50	1.00	.200	500	N
K3121RC	58 43 34	155 8 40	351	int. ign.	--	--	3.0	1.50	1.00	.200	500	N
K3092RA	58 39 42	155 5 24	352	sedim.	--	--	5.0	2.00	1.00	.300	1,000	N
K3090RA	58 39 57	155 5 15	353	sedim.	--	--	5.0	2.00	1.00	.500	1,000	N
K3091RA	58 39 45	155 5 15	354	sedim.	--	--	5.0	2.00	1.00	.500	1,000	N
K3089RA	58 39 56	155 5 5	355	sedim.	--	--	5.0	2.00	1.00	.500	1,000	N
K3088RA	58 39 55	155 4 55	356	sedim.	--	--	5.0	2.00	1.00	.500	1,000	N
K3087RA	58 39 55	155 4 48	357	sedim.	--	--	5.0	2.00	1.00	.500	1,000	N
K3086RA	58 39 53	155 4 37	358	sedim.	--	--	5.0	2.00	1.00	.500	700	.5
K3085RA	58 39 51	155 4 21	359	sedim.	--	--	5.0	2.00	.70	.500	700	N
K3084RA	58 39 55	155 4 11	360	sedim.	--	--	1.5	.20	<.05	.030	200	N
K3084RB	58 39 55	155 4 11	361	sedim.	--	--	3.0	1.50	1.00	.300	700	N
K3093RA	58 39 42	155 3 12	362	int. ign.	--	--	5.0	3.00	2.00	.300	1,000	N
K3094RA	58 39 40	155 2 52	363	int. ign.	--	--	5.0	5.00	2.00	.300	1,000	N
K3098RA	58 39 11	155 1 52	364	congl.	Fe/Mn	dissem.	2.0	1.50	1.00	.300	1,000	N
K4011RC	58 30 28	155 4 38	365	other	--	vein	7.0	1.00	1.00	.150	500	1.0
K3617RA	58 43 58	155 1 57	366	igneous	--	--	7.0	1.50	5.00	.500	700	N
K3617RB	58 43 57	155 1 56	367	igneous	--	--	7.0	2.00	3.00	.300	700	N
K3617RE	58 44 1	155 1 50	368	igneous	prop.	cont.met.	5.0	1.50	7.00	.300	2,000	N
K3617RD	58 43 59	155 1 50	369	igneous	prop.	cont.met.	10.0	1.00	3.00	.200	500	<.5
K3617RC	58 43 56	155 1 50	370	metamorph.	prop.	cont.met.	10.0	1.50	10.00	.300	2,000	N
K3615RA	58 45 0	155 1 42	371	metamorph.	--	dissem.	7.0	1.50	5.00	.500	1,000	N
K3406RF	58 40 21	155 1 21	372	fels. ign.	--	dissem.	5.0	2.00	5.00	.500	1,000	N
K3406RE	58 40 20	155 1 20	373	fels. ign.	prop.	dissem.	3.0	1.50	2.00	.200	2,000	N
K3616RD	58 44 59	155 0 43	374	metamorph.	prop.	dissem.	15.0	.20	.50	1.000	500	N
K3616RC	58 44 59	155 0 42	375	metamorph.	prop.	dissem.	10.0	1.00	2.00	1.000	500	N
K3616RB	58 44 59	155 0 41	376	metamorph.	prop.	dissem.	10.0	2.00	5.00	1.000	1,500	N
K3616RA	58 44 59	155 0 40	377	metamorph.	--	dissem.	10.0	2.00	2.00	1.000	1,500	N
K2608RA	58 36 4	154 24 39	378	igneous	ser.	replac.	1.0	.50	15.00	.050	500	N
K4572RB	58 41 29	154 23 47	379	sedim.	Fe/Mn	--	5.0	.20	1.50	.500	200	N

Table 5. Analyses of bedrock samples from stream drainages in the Mount Katmai study area, Alaska (continued)

Sample	AS-S	B-S	BA-S	BE-S	BI-S	CD-S	CO-S	CR-S	CU-S	LA-S	MO-S	NB-S	NI-S	PB-S	SB-S	SC-S	SN-S
K3607SS	N	200	1,000	<1.0	N	N	10	20	100	N	<5	N	5	100	N	30	N
K3607RG	N	30	2,000	<1.0	N	N	N	<10	10	N	N	N	5	20	N	7	N
K3607RF	N	30	500	N	N	N	50	50	100	N	N	N	20	10	N	30	N
K3607RB	N	100	2,000	N	N	N	N	50	200	N	N	N	10	200	N	50	N
K3607RC	N	30	500	N	N	N	50	30	150	N	N	N	20	20	N	30	N
K3607RA	N	100	2,000	N	N	N	15	100	500	N	N	N	50	300	N	50	N
K3607RE	N	70	500	N	N	N	<5	30	30	N	N	N	7	20	N	30	N
K3607RD	N	100	500	N	N	N	20	20	50	N	N	N	20	30	N	20	N
K3611RC	N	20	500	<1.0	N	N	30	30	20	N	N	N	20	N	N	30	N
K3611RB	N	20	500	<1.0	N	N	20	100	100	N	<5	N	50	N	N	30	N
K3611RA	N	20	1,000	1.0	N	N	20	100	50	N	N	N	30	<10	N	20	N
K4549RA	N	10	300	1.0	N	N	7	N	500	N	10	N	N	10	N	5	N
K4179RA	N	10	700	<1.0	N	N	70	70	300	N	7	N	50	100	N	20	N
K2077RA	N	50	700	N	N	N	50	20	100	N	N	N	15	20	N	50	N
K3121RA	N	<10	300	N	N	N	10	50	15	N	<5	N	20	<10	N	15	N
K3121RB	N	10	500	N	N	N	15	20	10	N	N	N	10	10	N	20	N
K3121RC	N	15	500	N	N	N	15	15	10	N	N	N	15	<10	N	20	N
K3092RA	N	50	1,000	<1.0	N	N	20	70	100	N	N	N	20	20	N	20	N
K3090RA	N	50	1,000	<1.0	N	N	20	100	50	N	N	N	30	20	N	20	N
K3091RA	N	50	700	N	N	N	30	100	100	N	N	N	30	20	N	20	N
K3089RA	N	50	1,000	N	N	N	30	150	70	N	N	N	20	20	N	20	N
K3088RA	N	20	700	N	N	N	20	100	70	N	N	N	50	10	N	20	N
K3087RA	N	50	1,000	N	N	N	20	100	50	N	N	N	20	20	N	30	N
K3086RA	N	50	1,000	N	N	N	20	70	20	N	N	N	20	10	N	20	N
K3085RA	N	20	700	N	N	N	20	70	20	N	N	N	20	<10	N	20	N
K3084RA	N	10	<20	N	N	N	N	<10	20	N	N	N	7	N	N	N	N
K3084RB	N	<10	300	N	N	N	15	50	20	N	N	N	20	<10	N	20	N
K3093RA	N	50	700	N	N	N	30	150	100	N	N	N	20	N	N	30	N
K3094RA	N	50	700	N	N	N	50	150	100	N	N	N	50	<10	N	30	N
K3098RA	N	<10	300	N	N	N	10	70	100	N	5	N	20	<10	N	20	N
K4011RC	N	<10	500	N	N	N	70	50	500	N	N	N	50	10	N	15	N
K3617RA	N	20	1,000	N	N	N	10	30	30	N	5	N	20	<10	N	10	N
K3617RB	N	20	1,000	N	N	N	20	50	10	N	N	N	50	10	N	15	N
K3617RE	N	100	700	<1.0	N	N	10	20	20	N	N	N	15	<10	N	20	N
K3617RD	N	<10	150	<1.0	N	N	50	20	1,000	N	N	N	50	N	N	10	N
K3617RC	N	<10	500	<1.0	N	N	20	20	15	N	N	N	20	N	N	15	N
K3615RA	N	20	700	1.0	N	N	15	50	20	N	N	N	15	N	N	30	N
K3406RF	N	<10	200	N	N	N	50	30	100	N	N	N	30	<10	N	20	N
K3406RE	N	<10	200	1.0	N	N	15	30	200	N	N	N	<5	N	N	15	N
K3616RD	N	2,000	500	1.0	N	N	<5	10	20	N	N	N	10	<10	N	50	N
K3616RC	N	200	1,500	1.0	N	N	20	20	15	N	N	N	15	20	N	50	N
K3616RB	N	20	100	N	N	N	30	70	100	N	N	N	30	N	N	30	N
K3616RA	N	200	500	N	N	N	50	70	200	N	N	N	30	<10	N	50	N
K2608RA	N	<10	100	N	N	N	5	30	10	N	50	N	10	<10	N	10	N
K4572RB	N	200	300	<1.0	N	N	10	100	30	N	N	N	N	<10	N	20	N

Table 5. Analyses of bedrock samples from stream drainages in the Mount Katmai study area, Alaska (continued)

Sample	SR-S	V-S	W-S	Y-S	ZN-S	ZR-S	AU-AA	HG-INST	TL-AA	AS-AA	BI-AA	CD-AA	SB-AA	ZN-AA	F-SI
K3607SS	<100	200	N	50	200	200	--	--	--	--	--	--	--	--	--
K3607RG	200	70	N	20	<200	100	N	--	--	N	N	N	N	10	--
K3607RF	700	200	N	15	200	50	N	--	--	N	N	N	N	25	--
K3607RB	N	300	N	20	200	100	<.05	--	--	<10	2	N	6	15	--
K3607RC	200	200	N	30	200	100	N	--	--	<10	N	.2	N	95	--
K3607RA	N	500	N	10	200	30	N	--	--	140	2	.2	34	70	--
K3607RE	100	200	N	20	200	100	N	--	--	N	N	N	N	35	--
K3607RD	200	200	N	20	200	200	N	--	--	N	N	.2	N	50	--
K3611RC	500	200	N	50	<200	100	N	--	--	N	1	.1	N	30	--
K3611RB	300	200	N	30	<200	150	N	--	--	N	N	.1	N	30	--
K3611RA	500	150	N	30	<200	200	N	--	--	N	N	.2	N	35	--
K4549RA	N	70	N	<10	N	50	N	--	--	N	N	N	N	N	--
K4179RA	500	150	N	20	<200	70	N	--	--	N	N	.1	N	70	--
K2077RA	500	300	N	70	<200	100	--	--	--	--	--	--	--	--	--
K3121RA	300	100	N	20	N	70	--	--	--	--	--	--	--	--	--
K3121RB	200	100	N	20	N	100	--	--	--	--	--	--	--	--	--
K3121RC	300	100	N	30	N	70	--	--	--	--	--	--	--	--	--
K3092RA	300	200	N	50	<200	200	--	--	--	--	--	--	--	--	--
K3090RA	300	150	N	50	<200	150	--	--	--	--	--	--	--	--	--
K3091RA	300	200	N	50	<200	150	--	--	--	--	--	--	--	--	--
K3089RA	300	150	N	50	<200	150	--	--	--	--	--	--	--	--	--
K3088RA	500	200	N	50	N	200	--	--	--	--	--	--	--	--	--
K3087RA	500	200	N	50	<200	150	--	--	--	--	--	--	--	--	--
K3086RA	200	200	N	50	<200	150	--	--	--	--	--	--	--	--	--
K3085RA	200	200	N	50	<200	200	--	--	--	--	--	--	--	--	--
K3084RA	N	50	N	<10	N	<10	--	--	--	--	--	--	--	--	--
K3084RB	200	150	N	20	N	150	--	--	--	--	--	--	--	--	--
K3093RA	500	200	N	20	<200	100	--	--	--	--	--	--	--	--	--
K3094RA	1,000	200	N	30	<200	100	--	--	--	--	--	--	--	--	--
K3098RA	200	150	N	20	N	100	--	--	--	--	--	--	--	--	--
K4011RC	150	100	N	<10	N	20	--	--	--	--	--	--	--	--	--
K3617RA	100	150	N	20	<200	100	N	--	--	N	N	N	N	5	--
K3617RB	300	150	N	15	<200	70	N	--	--	10	N	.2	N	40	--
K3617RE	200	100	N	20	<200	50	N	--	--	N	N	N	N	5	--
K3617RD	<100	100	N	10	<200	70	N	--	--	N	2	.1	N	20	--
K3617RC	200	100	N	20	200	70	N	--	--	N	N	N	N	15	--
K3615RA	500	200	N	50	<200	500	N	--	--	N	<1	.2	N	N	--
K3406RF	1,000	200	N	15	N	50	N	--	--	N	N	N	N	20	--
K3406RE	150	100	N	20	N	100	<.05	--	--	N	N	N	N	10	--
K3616RD	200	300	N	50	200	150	N	--	--	N	N	.1	2	15	--
K3616RC	300	200	N	30	200	100	N	--	--	N	N	.1	N	115	--
K3616RB	500	300	N	30	200	100	N	--	--	N	N	.3	2	130	--
K3616RA	300	300	N	30	200	100	N	--	--	N	<1	.2	2	15	--
K2608RA	200	50	N	20	N	10	--	--	--	--	--	--	--	--	--
K4572RB	500	200	N	15	N	50	N	--	--	100	N	.1	N	60	--

Table 5. Analyses of bedrock samples from stream drainages in the Mount Katmai study area, Alaska (continued)

Sample	LATITUDE	LONGTUDE	MAP NO.	ROCKTYPE	ALTERATN	MINDEPFM	FE%-S	MG%-S	CA%-S	TI%-S	MN-S	AG-S
K3401RD	58 37 17	154 21 0	380	other	--	--	5.0	2.00	3.00	.500	1,000	N
K3401RA	58 37 17	154 21 0	381	carbonate	--	--	3.0	7.00	15.00	.070	1,500	N
K3401RC	58 37 17	154 21 0	382	carbonate	--	--	.5	2.00	20.00	.030	1,000	N
K3401RB	58 37 17	154 21 0	383	siltst.	--	--	5.0	5.00	10.00	.100	1,500	<.5
K2607RA	58 35 2	154 20 49	384	igneous	prop.	replac.	5.0	3.00	10.00	.030	1,500	N
K3601RH	58 43 18	154 1 10	385	igneous	ser.	dissem.	15.0	1.50	.50	.200	500	N
K3601RD	58 43 17	154 1 4	386	metamorph.	prop.	dissem.	7.0	1.50	2.00	.200	500	N
K3601RC	58 43 17	154 1 3	387	igneous	ser.	dissem.	5.0	1.50	1.00	.150	200	N
K3601RB	58 43 17	154 1 2	388	igneous	ser.	vein	7.0	1.00	.50	.150	200	N
K3601RA	58 43 17	154 0 55	389	igneous	prop.	dissem.	5.0	1.50	3.00	.200	2,000	N
K3600RF	58 42 57	154 0 45	390	igneous	prop.	dissem.	7.0	2.00	3.00	.300	2,000	N
K3600RH	58 42 52	154 0 42	391	igneous	prop.	dissem.	5.0	2.00	5.00	.200	1,500	N
K3600RE	58 43 0	154 0 37	392	igneous	prop.	dissem.	7.0	5.00	3.00	.200	2,000	N
K3600RI	58 42 57	154 0 37	393	metamorph.	--	--	5.0	1.50	20.00	.100	5,000	N
K3600RG	58 42 56	154 0 37	394	metamorph.	prop.	dissem.	10.0	1.50	10.00	.200	3,000	N
K3600RJ	58 42 56	154 0 36	395	metamorph.	prop.	dissem.	5.0	3.00	5.00	.150	1,000	N
K3600RD	58 43 16	154 0 32	396	metamorph.	prop.	dissem.	10.0	1.50	10.00	.150	3,000	N
K3600RA	58 43 17	154 0 25	397	other	Fe/Mn	vein	10.0	.15	3.00	.500	500	1.0
K3600RB	58 43 17	154 0 24	398	metamorph.	--	--	7.0	2.00	.50	.500	700	N
K3600RC	58 43 14	154 0 22	399	igneous	prop.	dissem.	5.0	1.50	1.00	.200	500	N
K3603RA	58 42 5	153 55 40	400	metamorph.	--	--	5.0	2.00	2.00	.300	500	N
K3603RB	58 42 5	153 55 38	401	metamorph.	--	--	10.0	1.50	1.00	.200	500	1.0
K3604RA	58 40 55	153 52 16	402	igneous	prop.	dissem.	5.0	1.50	3.00	.150	500	N
K3604RB	58 40 55	153 52 15	403	igneous	prop.	vein	10.0	1.00	5.00	.100	5,000	200.0
K3604RC	58 40 55	153 52 14	404	igneous	prop.	vein	20.0	.30	1.00	.100	1,000	20.0
K3605RE	58 43 15	153 45 56	405	igneous	ser.	--	20.0	<.02	<.05	.200	<10	<.5
K3605RD	58 43 15	153 45 55	406	igneous	15	--	.5	.02	.20	.150	100	N
K3605RC	58 43 11	153 45 52	407	igneous	prop.	dissem.	5.0	1.50	1.00	.300	700	N
K3605RB	58 43 11	153 45 51	408	igneous	ser.	dissem.	.7	.02	.50	.300	50	.5
K3605RA	58 43 11	153 45 50	409	igneous	arg.	dissem.	5.0	.02	.20	.300	50	1.0
K3312RD	58 39 36	153 41 50	410	--	--	--	3.0	1.00	2.00	.300	1,000	N
K3158RC	58 15 20	155 51 28	411	sedim.	prop.	dissem.	5.0	1.50	1.00	.300	1,000	N
K3158RB	58 15 18	155 51 27	412	sedim.	prop.	dissem.	5.0	1.50	1.00	.500	1,000	N
K3158RA	58 15 40	155 51 26	413	sedim.	prop.	dissem.	5.0	1.50	1.00	.300	700	N
K3158RD	58 15 24	155 51 25	414	sedim.	prop.	dissem.	5.0	1.50	1.00	.200	700	<.5
K3158RE	58 15 27	155 51 21	415	sedim.	prop.	dissem.	5.0	1.50	1.00	.500	1,000	N
K3158RL	58 15 40	155 51 19	416	sedim.	ser.	dissem.	2.0	.30	.70	.200	700	N
K3158RF	58 15 29	155 51 18	417	sedim.	prop.	dissem.	5.0	1.50	.50	.500	500	N
K3158RH	58 15 30	155 51 17	418	sedim.	arg.	dissem.	2.0	.50	<.05	.300	200	<.5
K3158RG	58 15 30	155 51 17	419	sedim.	prop.	dissem.	5.0	1.00	1.00	.500	1,000	N
K3158RK	58 15 37	155 51 15	420	sedim.	arg.	replac.	7.0	2.00	1.00	.500	1,000	N
K3158RJ	58 15 37	155 51 13	421	sedim.	prop.	dissem.	1.0	.20	.50	.150	700	.5
K3158RI	58 15 33	155 51 11	422	sedim.	prop.	dissem.	5.0	1.50	1.00	.500	700	N
K1075RA	58 16 39	155 50 21	423	int. ign.	ser.	replac.	5.0	.20	<.05	.500	70	1.0
K1074RA	58 15 15	155 48 31	424	int. ign.	--	--	2.0	1.00	1.00	.200	500	N

Table 5. Analyses of bedrock samples from stream drainages in the Mount Katmai study area, Alaska (continued)

Sample	AS-S	B-S	BA-S	BE-S	BI-S	CD-S	CO-S	CR-S	CU-S	LA-S	MO-S	NB-S	NI-S	PB-S	SB-S	SC-S	SN-S
K3401RD	N	100	500	N	N	N	50	300	100	N	N	N	30	10	N	30	N
K3401RA	N	20	50	2.0	N	N	30	20	15	N	N	N	20	20	N	5	N
K3401RC	N	20	20	<1.0	N	N	<5	<10	5	N	N	N	7	<10	N	<5	N
K3401RB	N	20	300	1.0	N	N	20	50	20	N	10	N	50	10	N	7	N
K2607RA	N	<10	150	N	N	N	10	20	5	N	30	N	30	<10	N	10	N
K3601RH	N	20	700	1.0	N	N	100	30	70	N	N	N	30	<10	N	20	N
K3601RD	N	20	200	<1.0	N	N	20	100	200	N	15	N	30	N	N	20	N
K3601RC	N	70	200	<1.0	N	N	15	15	50	N	N	N	10	<10	N	20	N
K3601RB	N	50	500	<1.0	N	N	20	30	20	N	15	N	10	<10	N	7	N
K3601RA	N	50	300	<1.0	N	N	20	20	15	N	N	N	10	20	N	10	N
K3600RF	N	30	200	<1.0	N	N	15	30	15	N	N	N	20	<10	N	20	N
K3600RH	N	20	200	N	N	N	20	10	30	N	N	N	10	<10	N	15	N
K3600RE	N	20	200	N	N	N	30	500	10	N	N	N	30	10	N	50	N
K3600RI	N	<10	20	<1.0	N	N	15	70	10	N	N	N	20	10	N	10	N
K3600RG	N	20	100	N	N	N	10	100	15	N	N	N	20	<10	N	15	N
K3600RJ	N	30	200	N	N	N	20	50	50	N	N	N	15	<10	N	20	N
K3600RD	N	<10	<20	N	N	N	15	50	20	N	N	N	20	<10	N	10	N
K3600RA	N	30	50	<1.0	N	N	N	20	200	N	N	N	<5	20	N	20	100
K3600RB	N	30	700	<1.0	N	N	15	150	70	N	N	N	50	<10	N	30	N
K3600RC	N	20	200	<1.0	N	N	10	20	200	N	N	N	10	10	N	10	N
K3603RA	N	20	500	<1.0	N	N	7	300	100	N	N	N	50	<10	N	30	N
K3603RB	N	50	1,000	<1.0	N	N	70	70	500	150	N	N	50	N	N	20	N
K3604RA	N	30	150	<1.0	N	N	70	50	100	N	N	N	30	N	N	15	N
K3604RB	500	10	<20	N	N	N	150	20	>20,000	N	50	N	20	200	N	15	N
K3604RC	500	10	300	N	N	N	200	<10	2,000	<20	100	N	50	100	N	15	N
K3605RE	N	<10	150	N	N	N	20	100	100	N	N	N	50	N	N	<5	N
K3605RD	N	100	300	N	N	N	N	70	15	<20	N	N	5	50	N	10	N
K3605RC	N	50	1,000	<1.0	N	N	15	50	20	<20	5	N	30	10	N	20	N
K3605RB	N	100	200	N	N	N	<5	100	50	<20	N	N	10	10	N	30	N
K3605RA	N	100	700	N	N	N	10	20	150	N	N	N	20	<10	N	20	N
K3312RD	N	20	500	1.0	N	N	10	50	50	N	N	N	20	<10	N	20	N
K3158RC	N	10	500	<1.0	N	N	20	<10	20	N	N	N	5	10	N	20	N
K3158RB	N	<10	300	<1.0	N	N	15	20	10	N	N	N	10	<10	N	30	N
K3158RA	N	<10	150	<1.0	N	N	20	20	30	N	N	N	7	<10	N	20	N
K3158RD	N	<10	200	N	N	N	20	30	100	N	N	N	10	<10	N	20	N
K3158RE	N	<10	300	<1.0	N	N	15	20	20	N	N	N	10	<10	N	30	N
K3158RL	N	10	500	<1.0	N	N	<5	<10	10	N	N	N	5	10	N	15	N
K3158RF	N	10	300	<1.0	N	N	7	20	20	N	N	N	5	<10	N	20	N
K3158RH	N	20	300	<1.0	N	N	N	20	5	N	<5	N	<5	10	N	30	N
K3158RG	N	<10	700	<1.0	N	N	10	10	10	N	N	N	<5	10	N	30	N
K3158RK	N	10	500	N	N	N	20	20	30	N	N	N	15	10	N	30	N
K3158RJ	N	15	700	<1.0	N	N	N	N	100	N	7	N	5	20	N	7	N
K3158RI	N	10	200	N	N	N	15	30	20	N	N	N	7	10	N	30	N
K1075RA	N	15	1,500	N	N	N	<5	10	20	N	7	N	N	20	N	30	N
K1074RA	N	10	700	N	N	N	10	10	7	N	N	N	5	<10	N	20	N

Table 5. Analyses of bedrock samples from stream drainages in the Mount Katmai study area, Alaska (continued)

Sample	SR-S	V-S	W-S	Y-S	ZN-S	ZR-S	AU-AA	HG-INST	TL-AA	AS-AA	BI-AA	CD-AA	SB-AA	ZN-AA	F-SI
K3401RD	200	200	N	20	N	70	N	--	--	N	N	N	N	75	--
K3401RA	200	20	N	<10	N	15	N	--	--	N	N	.3	N	190	--
K3401RC	100	20	N	15	N	<10	N	--	--	N	N	N	N	35	--
K3401RB	500	70	N	70	N	30	N	--	--	10	N	N	N	100	--
K2607RA	1,000	100	N	30	N	10	--	--	--	--	--	--	--	--	--
K3601RH	200	150	N	20	200	50	<.05	--	--	<10	N	N	N	40	--
K3601RD	300	150	N	30	<200	100	N	--	--	N	N	.1	N	30	--
K3601RC	300	100	N	20	<200	100	N	--	--	N	N	N	N	<5	--
K3601RB	200	70	N	10	<200	100	N	--	--	N	N	N	N	10	--
K3601RA	500	100	N	20	<200	100	N	--	--	N	N	.1	N	80	--
K3600RF	500	150	N	20	<200	150	.30	--	--	<10	N	N	N	50	--
K3600RH	500	150	N	15	<200	100	N	--	--	N	N	.4	N	90	--
K3600RE	500	200	N	20	<200	50	N	--	--	10	N	N	N	50	--
K3600RI	300	100	N	20	<200	70	N	--	--	<10	N	N	N	40	--
K3600RG	N	150	N	20	<200	100	N	--	--	<10	N	N	N	55	--
K3600RJ	500	200	N	15	<200	70	N	--	--	N	N	N	N	15	--
K3600RD	200	100	N	15	<200	70	N	--	--	N	N	N	N	15	--
K3600RA	200	200	N	30	200	150	N	--	--	10	3	N	4	<5	--
K3600RB	200	200	N	20	<200	150	N	--	--	N	N	N	N	25	--
K3600RC	500	100	N	20	<200	100	.30	--	--	N	N	.1	N	35	--
K3603RA	300	150	N	30	<200	200	N	--	--	N	N	.1	N	25	--
K3603RB	200	150	N	50	<200	150	.10	--	--	10	N	.1	N	35	--
K3604RA	500	150	N	20	<200	100	N	--	--	N	N	N	N	15	--
K3604RB	700	100	N	30	2,000	N	1.10	--	--	10	2	6.4	N	2,000	--
K3604RC	N	50	N	30	300	50	.40	--	--	60	2	1.5	8	200	--
K3605RE	<100	100	N	<10	500	70	<.05	--	--	30	N	.1	N	5	--
K3605RD	100	100	N	10	200	100	N	--	--	N	N	.1	N	15	--
K3605RC	100	150	N	50	<200	200	N	--	--	N	N	N	N	10	--
K3605RB	300	200	N	<10	<200	150	N	--	--	N	N	N	N	<5	--
K3605RA	500	200	N	10	<200	200	N	--	--	N	N	N	N	5	--
K3312RD	150	150	N	15	N	70	<.05	--	--	N	N	.2	N	45	--
K3158RC	200	100	N	30	N	70	--	--	--	--	--	--	--	--	--
K3158RB	300	150	N	20	N	30	--	--	--	--	--	--	--	--	--
K3158RA	150	100	N	20	N	50	--	--	--	--	--	--	--	--	--
K3158RD	200	150	N	30	N	30	--	--	--	--	--	--	--	--	--
K3158RE	200	100	N	30	N	50	--	--	--	--	--	--	--	--	--
K3158RL	200	30	N	50	N	100	--	--	--	--	--	--	--	--	--
K3158RF	300	100	N	30	N	70	--	--	--	--	--	--	--	--	--
K3158RH	150	100	N	30	N	100	--	--	--	--	--	--	--	--	--
K3158RG	500	100	N	20	N	70	--	--	--	--	--	--	--	--	--
K3158RK	1,000	200	N	20	N	50	--	--	--	--	--	--	--	--	--
K3158RJ	<100	50	N	20	200	70	--	--	--	--	--	--	--	--	--
K3158RI	200	100	N	50	N	50	--	--	--	--	--	--	--	--	--
K1075RA	N	100	N	30	N	100	--	--	--	--	--	--	--	--	--
K1074RA	200	70	N	50	N	70	--	--	--	--	--	--	--	--	--

Table 5. Analyses of bedrock samples from stream drainages in the Mount Katmai study area, Alaska (continued)

Sample	LATITUDE	LONGTUDE	MAP NO.	ROCKTYPE	ALTERATN	MINDEPFM	FE%-S	MG%-S	CA%-S	TI%-S	MN-S	AG-S
K3159RA	58 18 47	155 47 35	425	int. ign.	prop.	dissem.	1.5	.50	1.00	.200	50	N
K3159RB	58 18 44	155 47 32	426	igneous	prop.	dissem.	1.0	.50	.70	.150	20	N
K3159RC	58 18 42	155 47 32	427	igneous	prop.	dissem.	2.0	.30	.50	.300	100	N
K3159RD	58 18 38	155 47 30	428	sedim.	prop.	dissem.	1.0	.20	.10	.200	50	N
K3160RC	58 19 34	155 45 54	429	sedim.	prop.	dissem.	5.0	1.50	1.00	.300	1,000	N
K3160RB	58 19 33	155 45 51	430	sedim.	prop.	dissem.	5.0	1.00	.50	.300	500	N
K3160RD	58 19 33	155 45 8	431	sedim.	prop.	dissem.	7.0	2.00	1.00	.500	1,000	N
K3075RA	58 20 15	155 44 0	432	int. ign.	--	--	10.0	3.00	2.00	.500	1,000	N
K3416RE	58 16 34	155 29 10	433	int. ign.	--	--	.5	.70	2.00	.100	500	<.5
K3416RD	58 16 34	155 29 10	434	fels. ign.	--	--	.7	.70	1.00	.150	500	<.5
K3416RC	58 16 34	155 29 10	435	int. ign.	--	--	3.0	2.00	2.00	.300	1,000	N
K3416RB	58 16 34	155 29 10	436	int. ign.	--	--	5.0	2.00	3.00	.500	1,500	N
K3416RA	58 16 34	155 29 10	437	int. ign.	--	--	3.0	1.00	1.00	.300	200	N
K3419RC	58 25 3	155 28 2	438	igneous	--	--	10.0	3.00	3.00	.300	1,500	N
K3419RB	58 25 3	155 28 2	439	other	--	--	5.0	1.50	2.00	.300	1,000	N
K3420RE	58 28 11	155 27 16	440	int. ign.	--	dissem.	3.0	2.00	2.00	.300	500	<.5
K3415RB	58 16 2	155 26 28	441	sandst.	prop.	dissem.	5.0	2.00	2.00	.200	1,500	3.0
K3415RC	58 16 2	155 26 28	442	int. ign.	prop.	dissem.	7.0	1.50	2.00	.300	500	<.5
K3415RD	58 16 2	155 26 28	443	int. ign.	prop.	dissem.	7.0	3.00	3.00	.500	1,000	N
K3415RA	58 16 2	155 26 28	444	sandst.	prop.	dissem.	10.0	5.00	5.00	.300	2,000	N
K3414RC	58 16 10	155 26 20	445	int. ign.	prop.	dissem.	5.0	3.00	2.00	.500	1,000	N
K3414RN	58 16 8	155 26 12	446	other	--	porph.	20.0	5.00	5.00	.150	1,000	5.0
K3414RE	58 16 7	155 26 9	447	int. ign.	prop.	porph.	1.5	1.50	2.00	.200	200	<.5
K3414RF	58 16 8	155 25 58	448	int. ign.	prop.	porph.	1.0	1.50	1.50	.200	150	<.5
K3414RI	58 16 4	155 25 48	449	int. ign.	sil.	porph.	.7	.15	.50	.150	50	<.5
K3414RG	58 16 4	155 25 48	450	int. ign.	prop.	porph.	2.0	1.50	1.50	.300	150	3.0
K3417RA	58 16 2	155 25 12	451	int. ign.	--	dissem.	5.0	3.00	3.00	.500	1,000	N
K3019RA	58 26 1	155 23 49	452	int. ign.	--	--	3.0	2.00	1.50	.300	1,000	N
K3058RC	58 15 10	155 20 28	453	siltst.	--	dissem.	3.0	1.50	1.50	.200	500	N
K3058RB	58 15 10	155 20 28	454	siltst.	--	--	5.0	2.00	1.00	.500	1,000	N
K3058RA	58 15 10	155 20 28	455	maf. ign.	--	dissem.	2.0	1.00	1.00	.200	300	N
K1002RA	58 17 37	155 20 1	456	sandst.	--	--	5.0	2.00	1.00	.500	1,000	N
K3059RA	58 16 0	155 9 38	457	fels. ign.	ser.	hot sp.	7.0	1.00	.70	.500	500	N
K3059RB	58 16 0	155 9 38	458	fels. ign.	ser.	hot sp.	7.0	1.50	1.00	.700	700	N
K3059RC	58 16 0	155 9 38	459	fels. ign.	ser.	hot sp.	7.0	1.00	.50	.500	700	N
K3059RD	58 16 0	155 9 38	460	fels. ign.	ser.	hot sp.	3.0	1.50	1.00	.700	700	N
K3060RD	58 16 3	155 9 35	461	fels. ign.	ser.	hot sp.	7.0	.50	.10	.300	300	N
K3060RI	58 16 3	155 9 35	462	fels. ign.	ser.	hot sp.	.2	.05	.05	>1.000	50	N
K3060RG	58 16 3	155 9 35	463	fels. ign.	ser.	hot sp.	5.0	1.50	1.00	.700	1,000	N
K3060RF	58 16 3	155 9 35	464	fels. ign.	ser.	hot sp.	7.0	1.00	.50	.500	500	N
K3060RE	58 16 3	155 9 35	465	fels. ign.	ser.	hot sp.	7.0	2.00	1.00	.500	1,000	N
K3060RC	58 16 3	155 9 35	466	fels. ign.	ser.	hot sp.	7.0	2.00	1.50	.500	1,000	N
K3060RB	58 16 3	155 9 35	467	fels. ign.	ser.	hot sp.	5.0	1.00	.50	.500	500	N
K3060RA	58 16 3	155 9 35	468	fels. ign.	ser.	hot sp.	10.0	2.00	1.50	.500	1,000	N
K3061RC	58 16 3	155 9 31	469	fels. ign.	ser.	hot sp.	5.0	.50	.50	.500	500	N

Table 5. Analyses of bedrock samples from stream drainages in the Mount Katmai study area, Alaska (continued)

Sample	AS-S	B-S	BA-S	BE-S	BI-S	CD-S	CO-S	CR-S	CU-S	LA-S	MO-S	NB-S	NI-S	PB-S	SB-S	SC-S	SN-S
K3159RA	N	10	700	<1.0	N	N	<5	10	<5	N	10	N	<5	<10	N	10	N
K3159RB	N	10	300	<1.0	N	N	<5	<10	5	N	N	N	<5	N	N	10	N
K3159RC	N	10	200	<1.0	N	N	N	N	5	N	5	N	<5	<10	N	15	N
K3159RD	<200	10	300	<1.0	N	N	N	N	<5	N	<5	N	<5	<10	N	10	N
K3160RC	N	<10	50	N	N	N	15	30	5	N	N	N	10	<10	N	20	N
K3160RB	N	<10	100	<1.0	N	N	N	10	10	N	N	N	<5	15	N	20	N
K3160RD	N	10	300	N	N	N	20	50	30	N	N	N	5	15	N	30	N
K3075RA	N	20	500	N	N	N	70	100	150	N	N	N	30	20	N	50	N
K3416RE	N	20	200	1.0	N	N	5	N	<5	N	N	N	N	N	N	5	N
K3416RD	N	50	150	1.0	N	N	5	N	20	N	N	N	N	30	N	5	N
K3416RC	N	<10	2,000	<1.0	N	N	15	50	100	N	5	N	20	10	N	15	N
K3416RB	N	<10	700	<1.0	N	N	50	70	500	N	<5	N	30	<10	N	20	N
K3416RA	N	30	200	<1.0	N	N	7	N	20	N	N	N	5	<10	N	7	N
K3419RC	N	20	500	N	N	N	50	70	100	N	N	N	20	10	N	20	N
K3419RB	N	20	500	1.0	N	N	15	15	20	N	N	N	7	<10	N	10	N
K3420RE	N	10	500	<1.0	N	N	15	30	300	N	N	N	20	<10	N	10	N
K3415RB	N	10	200	<1.0	N	N	70	30	700	N	N	N	30	10	N	10	N
K3415RC	N	<10	500	<1.0	N	N	15	20	70	N	N	N	20	10	N	15	N
K3415RD	N	10	300	N	N	N	15	100	70	N	<5	N	15	N	N	30	N
K3415RA	N	<10	100	N	N	N	50	100	20	>1,000	N	N	20	<10	N	50	N
K3414RC	N	<10	150	N	N	N	70	200	300	N	N	N	100	<10	N	20	N
K3414RN	N	10	70	N	N	N	100	100	5,000	N	15	N	70	<10	N	50	N
K3414RE	N	<10	500	1.0	N	N	15	20	500	N	<5	N	30	<10	N	10	N
K3414RF	N	<10	500	<1.0	N	N	10	20	200	N	20	N	20	<10	N	7	N
K3414RI	N	20	500	<1.0	N	N	7	10	300	N	>2,000	N	7	<10	N	10	100
K3414RG	N	10	500	1.0	N	N	30	30	10,000	N	N	N	50	<10	N	15	N
K3417RA	N	10	200	1.0	N	N	20	200	15	N	N	N	50	<10	N	20	N
K3019RA	N	500	300	N	N	N	30	70	10	N	N	N	15	10	N	20	N
K3058RC	N	10	200	N	N	N	20	50	20	N	N	N	10	10	N	20	N
K3058RB	N	70	1,500	N	N	N	30	150	100	N	N	N	50	50	N	20	N
K3058RA	N	<10	300	N	N	N	15	30	20	N	N	N	7	10	N	15	N
K1002RA	N	20	700	N	N	N	20	100	70	N	N	N	20	20	N	30	N
K3059RA	N	50	1,000	N	500	N	50	50	100	N	N	N	20	70	N	30	N
K3059RB	N	50	1,500	<1.0	100	N	10	50	10	N	5	N	5	50	N	30	N
K3059RC	200	100	1,000	1.0	200	N	20	50	100	N	15	N	10	1,500	N	20	20
K3059RD	N	50	1,000	1.0	<10	N	10	10	5	N	<5	N	5	50	N	20	N
K3060RD	N	200	1,000	<1.0	50	N	7	30	10	N	10	N	<5	50	N	20	N
K3060RI	N	50	1,500	N	<10	N	5	<10	10	N	7	N	<5	N	N	5	N
K3060RG	N	100	1,500	1.0	N	N	20	20	10	N	5	N	5	50	N	20	N
K3060RF	500	500	1,000	N	20	N	7	30	10	N	100	N	<5	50	N	20	N
K3060RE	N	50	1,000	<1.0	20	N	20	30	10	N	N	N	5	100	N	20	10
K3060RC	N	70	700	N	100	N	20	70	10	N	N	N	5	30	N	30	N
K3060RB	N	200	700	<1.0	50	N	20	50	5	N	N	N	5	50	N	20	N
K3060RA	N	50	1,000	<1.0	N	N	20	50	10	N	N	N	5	30	N	30	N
K3061RC	700	200	500	N	50	N	10	20	20	N	<5	N	5	70	N	20	N

Table 5. Analyses of bedrock samples from stream drainages in the Mount Katmai study area, Alaska (continued)

Sample	SR-S	V-S	W-S	Y-S	ZN-S	ZR-S	AU-AA	HG-INST	TL-AA	AS-AA	BI-AA	CD-AA	SB-AA	ZN-AA	F-SI
K3159RA	500	70	N	30	N	100	--	--	--	--	--	--	--	--	--
K3159RB	200	50	N	15	N	70	--	--	--	--	--	--	--	--	--
K3159RC	200	70	N	20	N	100	--	--	--	--	--	--	--	--	--
K3159RD	100	50	N	20	N	100	--	--	--	--	--	--	--	--	--
K3160RC	300	150	N	30	N	70	--	--	--	--	--	--	--	--	--
K3160RB	200	100	N	20	N	50	--	--	--	--	--	--	--	--	--
K3160RD	500	100	N	30	N	70	--	--	--	--	--	--	--	--	--
K3075RA	300	300	N	50	<200	100	--	--	--	--	--	--	--	--	--
K3416RE	700	50	N	<10	N	70	N	--	--	N	N	N	N	10	--
K3416RD	700	30	N	<10	300	70	N	--	--	N	N	.6	N	250	--
K3416RC	500	150	N	15	N	70	.15	--	--	N	N	N	N	30	--
K3416RB	500	200	N	20	N	50	.10	--	--	N	N	N	N	10	--
K3416RA	700	100	N	10	N	70	N	--	--	10	N	N	N	15	--
K3419RC	700	200	N	15	N	50	<.05	--	--	N	N	N	N	65	--
K3419RB	700	150	N	15	N	70	N	--	--	N	N	N	N	50	--
K3420RE	700	150	N	<10	N	50	N	--	--	N	N	N	N	25	--
K3415RB	300	100	N	15	N	20	N	--	--	20	3	N	N	35	--
K3415RC	1,000	150	N	10	N	70	.10	--	--	N	N	N	N	20	--
K3415RD	1,000	200	N	20	N	70	N	--	--	N	N	N	N	10	--
K3415RA	300	200	N	50	N	70	N	--	--	N	N	N	N	10	--
K3414RC	700	150	N	15	N	70	N	--	--	N	N	N	N	60	--
K3414RN	N	300	N	150	200	50	N	--	--	N	2	.3	N	50	--
K3414RE	700	100	N	10	N	50	.10	--	--	N	N	N	N	10	--
K3414RF	700	100	N	<10	N	30	<.05	--	--	N	N	N	N	10	--
K3414RI	200	100	N	10	N	N	.10	--	--	N	N	N	N	5	--
K3414RG	500	150	N	10	N	20	.40	--	--	10	N	N	N	15	--
K3417RA	500	150	N	10	N	50	.05	--	--	20	N	N	N	25	--
K3019RA	1,000	150	N	20	N	50	--	--	--	--	--	--	--	--	--
K3058RC	500	100	N	20	N	70	--	--	--	--	--	--	--	--	--
K3058RB	500	200	N	50	<200	100	--	--	--	--	--	--	--	--	--
K3058RA	500	100	N	20	N	70	--	--	--	--	--	--	--	--	--
K1002RA	500	200	N	50	N	150	--	--	--	--	--	--	--	--	--
K3059RA	500	200	N	100	N	150	--	--	--	--	--	--	--	--	--
K3059RB	300	200	N	50	N	200	--	--	--	--	--	--	--	--	--
K3059RC	1,000	300	N	70	<200	200	--	--	--	--	--	--	--	--	--
K3059RD	300	70	N	70	N	300	--	--	--	--	--	--	--	--	--
K3060RD	500	200	N	20	<200	150	--	--	--	--	--	--	--	--	--
K3060RI	N	50	N	<10	<200	100	--	--	--	--	--	--	--	--	--
K3060RG	500	200	N	100	<200	300	--	--	--	--	--	--	--	--	--
K3060RF	200	200	N	50	<200	200	--	--	--	--	--	--	--	--	--
K3060RE	500	200	N	50	<200	200	--	--	--	--	--	--	--	--	--
K3060RC	500	500	N	50	<200	150	--	--	--	--	--	--	--	--	--
K3060RB	300	200	N	50	N	200	--	--	--	--	--	--	--	--	--
K3060RA	500	300	N	50	<200	200	--	--	--	--	--	--	--	--	--
K3061RC	200	300	N	20	N	150	--	--	--	--	--	--	--	--	--

Table 5. Analyses of bedrock samples from stream drainages in the Mount Katmai study area, Alaska (continued)

Sample	LATITUDE	LONGTUDE	MAP NO.	ROCKTYPE	ALTERATN	MINDEPFM	FE%-S	MG%-S	CA%-S	TI%-S	MN-S	AG-S
K3061RB	58 16 3	155 9 31	470	fels. ign.	ser.	hot sp.	7.0	2.00	2.00	.700	1,000	N
K3061RD	58 16 3	155 9 31	471	fels. ign.	ser.	hot sp.	5.0	1.00	1.00	.500	500	N
K3061RA	58 16 3	155 9 31	472	fels. ign.	ser.	hot sp.	.7	.50	.50	.200	700	N
K4032RA	58 16 5	155 9 30	473	fels. ign.	ser.	hot sp.	5.0	2.00	3.00	.700	1,000	N
K4033RA	58 16 0	155 9 25	474	igneous	--	--	2.0	.50	.50	.200	700	N
K3146RB	58 20 11	155 2 26	475	int. ign.	--	--	2.0	1.50	1.00	.200	700	N
K3146RA	58 20 11	155 2 25	476	int. ign.	--	--	2.0	1.00	1.00	.150	500	N
K3147RL	58 18 54	155 1 34	477	int. ign.	arg.	dissem.	2.0	1.50	.20	.300	700	N
K3147RK	58 18 54	155 1 33	478	sedim.	prop.	dissem.	3.0	1.50	.50	.200	300	<.5
K3147RJ	58 18 54	155 1 32	479	sedim.	prop.	dissem.	5.0	1.50	.07	.300	300	<.5
K3147RI	58 18 55	155 1 30	480	sedim.	prop.	dissem.	3.0	1.50	.10	.500	150	<.5
K3147RH	58 18 55	155 1 28	481	sedim.	prop.	dissem.	3.0	1.50	<.05	.200	200	<.5
K3147RG	58 18 55	155 1 26	482	sedim.	prop.	dissem.	5.0	1.00	.70	.200	200	<.5
K3147RF	58 18 55	155 1 24	483	sedim.	prop.	dissem.	3.0	1.50	.50	.300	500	N
K3147RE	58 18 56	155 1 22	484	int. ign.	prop.	dissem.	2.0	1.50	2.00	.200	700	N
K3147RD	58 18 56	155 1 20	485	int. ign.	prop.	dissem.	3.0	1.50	1.00	.200	300	N
K3147RC	58 18 56	155 1 18	486	int. ign.	prop.	dissem.	3.0	1.50	.70	.500	500	N
K3147RB	58 18 57	155 1 16	487	int. ign.	prop.	dissem.	2.0	1.50	.20	.200	150	N
K3147RA	58 18 57	155 1 15	488	sedim.	prop.	dissem.	5.0	1.50	1.00	.500	200	<.5
K3408RU	58 19 24	155 0 25	489	other	--	vein	7.0	.20	3.00	.050	1,500	3.0
K3408RN	58 19 23	155 0 10	490	int. ign.	prop.	dissem.	3.0	1.50	2.00	.300	200	N
K3408RM	58 19 21	155 0 10	491	other	prop.	porph.	>20.0	.70	.20	.100	1,500	N
K3408RL	58 19 21	155 0 10	492	igneous	ser.	vein	2.0	<.02	.15	.007	200	15.0
K3408RG	58 19 11	155 0 10	493	sedim.	prop.	dissem.	20.0	.20	2.00	.200	1,000	.5
K3408RK	58 19 11	155 0 10	494	sedim.	prop.	vein	10.0	.10	.10	.300	500	10.0
K3408RJ	58 19 11	155 0 10	495	other	prop.	dissem.	20.0	.15	.20	.300	100	N
K3408RI	58 19 11	155 0 10	496	sedim.	prop.	dissem.	1.0	2.00	.70	.300	200	N
K3408RP	58 19 21	155 0 5	497	other	16	porph.	20.0	.02	.05	.070	200	150.0
K3408RF	58 19 11	155 0 5	498	sedim.	prop.	dissem.	5.0	.15	5.00	.200	1,000	N
K3408RE	58 19 11	155 0 5	499	sedim.	sil.	--	1.5	.20	20.00	.300	150	N
K3408RD	58 19 11	155 0 5	500	igneous	--	vein	5.0	.02	1.00	.005	200	15.0
K3408RC	58 19 11	155 0 5	501	igneous	prop.	dissem.	.7	.70	1.50	.200	500	N
K3408RB	58 19 17	154 59 58	502	sedim.	prop.	dissem.	2.0	1.50	.30	.300	200	<.5
K3408RA	58 19 17	154 59 58	503	sedim.	sil.	dissem.	.5	.10	.20	.300	20	N
K3408RT	58 19 21	154 59 56	504	metamorph.	prop.	dissem.	20.0	1.00	5.00	.100	2,000	2.0
K3408RS	58 19 21	154 59 55	505	other	--	vein	5.0	.20	10.00	.050	>5,000	100.0
K3410RE	58 20 18	155 0 3	506	int. ign.	prop.	porph.	2.0	1.50	2.00	.200	1,500	<.5
K3410RD	58 20 18	155 0 3	507	other	sil.	porph.	.7	1.00	15.00	.050	1,000	<.5
K3410RC	58 20 18	155 0 3	508	other	sil.	porph.	20.0	2.00	2.00	.150	2,000	200.0
K3410RB	58 20 18	155 0 3	509	int. ign.	--	vein	5.0	5.00	3.00	.300	2,000	N
K3410RK	58 20 18	155 0 0	510	sedim.	prop.	dissem.	20.0	2.00	3.00	.200	2,000	<.5
K3410RI	58 20 18	155 0 0	511	sedim.	--	--	20.0	1.00	.20	.300	100	<.5
K3410RJ	58 20 18	154 59 55	512	sedim.	prop.	replac.	10.0	3.00	3.00	.500	5,000	.5
K3410RH	58 20 17	154 59 55	513	sedim.	prop.	dissem.	7.0	.15	7.00	.200	1,500	.5
K3410RG	58 20 17	154 59 55	514	sedim.	prop.	porph.	5.0	1.00	.30	.700	1,500	<.5

Table 5. Analyses of bedrock samples from stream drainages in the Mount Katmai study area, Alaska (continued)

Sample	AS-S	B-S	BA-S	BE-S	BI-S	CD-S	CO-S	CR-S	CU-S	LA-S	MO-S	NB-S	NI-S	PB-S	SB-S	SC-S	SN-S
K3061RB	N	200	1,000	N	N	N	20	30	10	N	N	N	10	50	N	30	N
K3061RD	300	1,000	700	<1.0	20	N	10	30	20	N	<5	N	<5	50	N	20	N
K3061RA	<200	200	700	<1.0	<10	N	5	10	5	N	N	N	<5	<10	N	10	N
K4032RA	N	20	1,000	<1.0	N	N	20	20	10	N	N	N	5	50	N	30	N
K4033RA	N	50	1,500	<1.0	N	N	7	10	5	N	10	N	<5	50	N	15	N
K3146RB	N	10	300	N	N	N	15	15	15	N	N	N	10	<10	N	20	N
K3146RA	N	<10	300	N	N	N	10	20	10	N	N	N	7	10	N	15	N
K3147RL	N	20	300	<1.0	N	N	5	100	20	N	<5	N	30	<10	N	20	N
K3147RK	N	30	500	N	N	N	10	150	70	N	N	N	20	10	N	20	N
K3147RJ	N	100	500	<1.0	<10	N	10	150	150	N	20	N	20	15	N	20	N
K3147RI	N	300	500	N	N	N	7	150	70	N	N	N	30	30	N	20	N
K3147RH	N	50	500	N	N	N	<5	100	100	N	15	N	30	15	N	15	N
K3147RG	N	20	300	N	N	N	20	100	150	50	<5	N	30	15	N	20	N
K3147RF	N	1,000	300	N	N	N	20	100	70	N	N	N	30	15	N	20	N
K3147RE	N	10	50	N	N	N	15	150	70	N	N	N	50	10	N	20	N
K3147RD	N	20	150	N	N	N	15	150	50	N	15	N	30	10	N	15	N
K3147RC	N	200	200	N	N	N	15	70	70	N	N	N	30	<10	N	30	N
K3147RB	N	1,000	150	<1.0	N	N	10	100	20	N	5	N	30	<10	N	20	N
K3147RA	N	200	200	N	N	N	20	200	150	N	10	N	50	20	N	20	N
K3408RU	N	50	20	<1.0	<10	70	15	10	1,000	N	N	N	7	150	N	5	N
K3408RN	N	<10	300	1.0	N	N	15	50	10	N	N	N	20	<10	N	10	N
K3408RM	N	N	150	<1.0	N	N	200	N	2,000	N	N	N	50	10	N	5	N
K3408RL	N	<10	500	<1.0	15	<20	N	N	50	N	15	N	N	5,000	N	N	N
K3408RG	N	N	70	1.0	N	N	100	20	1,000	70	N	N	50	20	N	15	N
K3408RK	N	500	5,000	1.0	N	20	50	50	50	N	N	N	30	700	N	20	N
K3408RJ	N	N	100	N	N	N	N	10	100	N	10	N	N	<10	N	7	N
K3408RI	N	10	150	1.0	N	N	7	20	50	N	N	N	15	N	N	20	N
K3408RP	N	<10	5,000	<1.0	50	300	20	10	100	N	10	N	20	500	N	5	N
K3408RF	N	10	<20	<1.0	N	N	7	10	20	N	7	N	N	N	N	5	N
K3408RE	N	70	5,000	<1.0	N	N	7	50	50	N	7	N	N	N	N	10	N
K3408RD	N	10	<20	<1.0	20	N	7	N	100	N	<5	N	<5	700	N	N	N
K3408RC	N	10	20	1.0	N	N	N	20	10	N	N	N	<5	<10	N	7	N
K3408RB	N	10	500	1.0	N	N	15	50	100	N	10	N	20	<10	N	20	N
K3408RA	N	500	200	N	N	N	N	50	5	N	N	N	N	N	N	7	N
K3408RT	N	10	200	<1.0	N	N	100	20	1,500	N	N	N	30	500	N	10	N
K3408RS	N	20	<20	<1.0	15	300	20	<10	2,000	20	<5	N	10	>20,000	N	5	N
K3410RE	N	<10	200	1.0	N	N	15	30	500	N	N	N	20	<10	N	10	N
K3410RD	N	<10	30	1.0	N	N	50	30	2,000	N	N	N	20	<10	N	5	N
K3410RC	N	N	20	<1.0	100	N	100	100	>20,000	N	N	N	50	70	N	10	N
K3410RB	N	10	200	1.0	N	N	15	200	300	N	N	N	100	50	N	20	N
K3410RK	N	N	<20	1.0	N	N	150	70	500	N	N	N	70	10	N	30	N
K3410RI	<200	<10	1,000	<1.0	N	N	200	50	1,000	N	N	N	150	10	N	15	N
K3410RJ	N	<10	<20	N	N	N	70	100	10,000	50	500	N	150	15	N	50	N
K3410RH	N	50	300	<1.0	N	N	<5	50	20	N	N	N	7	<10	N	15	N
K3410RG	N	150	500	1.5	N	N	15	100	200	N	N	N	30	20	N	20	N

Table 5. Analyses of bedrock samples from stream drainages in the Mount Katmai study area, Alaska (continued)

Sample	SR-S	V-S	W-S	Y-S	ZN-S	ZR-S	AU-AA	HG-INST	TL-AA	AS-AA	BI-AA	CD-AA	SB-AA	ZN-AA	F-SI
K3061RB	500	200	N	70	<200	200	--	--	--	--	--	--	--	--	--
K3061RD	500	200	N	30	<200	150	--	--	--	--	--	--	--	--	--
K3061RA	N	20	N	10	N	50	--	--	--	--	--	--	--	--	--
K4032RA	500	200	N	100	<200	200	--	--	--	--	--	--	--	--	--
K4033RA	100	50	N	50	N	200	--	--	--	--	--	--	--	--	--
K3146RB	300	100	N	30	N	100	--	--	--	--	--	--	--	--	--
K3146RA	200	70	N	20	N	70	--	--	--	--	--	--	--	--	--
K3147RL	100	150	N	15	N	100	--	--	--	--	--	--	--	--	--
K3147RK	200	100	N	15	N	70	--	--	--	--	--	--	--	--	--
K3147RJ	100	150	N	20	N	100	--	--	--	--	--	--	--	--	--
K3147RI	N	200	N	20	N	100	--	--	--	--	--	--	--	--	--
K3147RH	N	100	N	10	N	70	--	--	--	--	--	--	--	--	--
K3147RG	200	150	N	50	N	70	--	--	--	--	--	--	--	--	--
K3147RF	150	150	N	20	N	70	--	--	--	--	--	--	--	--	--
K3147RE	300	100	N	15	N	70	--	--	--	--	--	--	--	--	--
K3147RD	500	100	N	10	N	70	--	--	--	--	--	--	--	--	--
K3147RC	200	150	N	30	N	100	--	--	--	--	--	--	--	--	--
K3147RB	150	150	N	15	N	100	--	--	--	--	--	--	--	--	--
K3147RA	500	150	N	50	N	100	--	--	--	--	--	--	--	--	--
K3408RU	100	100	N	15	>10,000	N	.05	--	--	20	5	54.0	N	>2,000	--
K3408RN	700	150	N	10	N	70	N	--	--	N	N	N	N	30	--
K3408RM	N	20	N	N	N	10	.05	--	--	N	5	N	N	35	--
K3408RL	N	10	N	<10	5,000	N	.25	--	--	120	31	13.0	4	>2,000	--
K3408RG	500	100	N	50	200	70	.05	--	--	N	N	.5	N	85	--
K3408RK	<100	150	N	10	5,000	70	.10	--	--	50	5	11.0	2	>2,000	--
K3408RJ	<100	100	N	30	N	20	N	--	--	N	N	N	N	10	--
K3408RI	500	200	N	10	N	70	N	--	--	N	N	N	N	10	--
K3408RP	N	50	N	<10	10,000	20	.35	--	--	N	42	>100.0	8	>2,000	--
K3408RF	1,000	30	N	<10	N	20	N	--	--	N	N	N	N	10	--
K3408RE	150	70	N	<10	N	100	.05	--	--	N	N	N	N	10	--
K3408RD	<100	10	N	N	500	N	.20	--	--	N	36	.4	N	460	--
K3408RC	700	70	N	<10	N	20	.05	--	--	N	N	N	N	45	--
K3408RB	500	100	N	10	N	70	.05	--	--	N	N	N	N	15	--
K3408RA	300	70	N	N	N	70	N	--	--	N	N	N	N	N	--
K3408RT	N	100	N	20	2,000	50	N	--	--	N	3	1.5	N	260	--
K3408RS	N	50	N	100	>10,000	10	.70	--	--	30	10	>100.0	2	>2,000	--
K3410RE	1,000	100	N	10	N	70	N	--	--	50	N	N	N	5	--
K3410RD	200	30	N	10	N	15	N	--	--	N	N	N	N	45	--
K3410RC	1,500	150	N	<10	500	20	.15	--	--	10	130	1.6	6	35	--
K3410RB	1,000	200	N	20	N	70	N	--	--	10	N	N	N	120	--
K3410RK	2,000	150	N	15	<200	30	<.05	--	--	N	5	N	N	95	--
K3410RI	N	100	N	<10	N	30	N	--	--	10	N	N	N	30	--
K3410RJ	500	200	N	100	N	50	N	--	--	20	N	N	N	200	--
K3410RH	700	100	N	20	N	100	N	--	--	10	N	N	4	10	--
K3410RG	200	200	N	15	200	100	N	--	--	N	N	.4	N	210	--

Table 5. Analyses of bedrock samples from stream drainages in the Mount Katmai study area, Alaska (continued)

Sample	LATITUDE	LONGTUDE	MAP NO.	ROCKTYPE	ALTERATN	MINDEPFM	FE%-S	MG%-S	CA%-S	TI%-S	MN-S	AG-S
K3410RF	58 20 17	154 59 55	515	other	prop.	porph.	20.0	.70	1.50	.070	2,000	100.0
K3410RA	58 20 17	154 59 55	516	sedim.	prop.	--	5.0	.50	5.00	.300	3,000	N
K3410RM	58 20 19	154 59 48	517	int. ign.	--	--	2.0	1.50	2.00	.200	1,000	N
K3409RA	58 19 58	154 59 42	518	metamorph.	--	cont.met.	2.0	1.00	5.00	.200	3,000	2.0
K3409RE	58 19 58	154 59 42	519	fels. ign.	--	--	2.0	1.00	3.00	.200	500	N
K3409RD	58 19 58	154 59 42	520	metamorph.	sil.	--	2.0	.20	5.00	.100	1,000	N
K3409RC	58 19 58	154 59 42	521	fels. ign.	--	--	2.0	1.50	1.00	.200	500	N
K3409RB	58 19 58	154 59 42	522	other	--	--	10.0	.10	1.50	.100	1,000	50.0
K3412RB	58 19 30	154 59 10	523	int. ign.	prop.	dissem.	2.0	1.00	2.00	.200	1,000	<.5
K3412RA	58 19 30	154 59 10	524	siltst.	--	dissem.	5.0	1.50	2.00	.500	500	<.5
K3412RC	58 19 30	154 59 10	525	siltst.	--	dissem.	7.0	1.50	1.50	.500	150	<.5
K3148RA	58 22 37	154 58 50	526	sedim.	prop.	dissem.	3.0	1.00	2.00	.300	500	N
K3148RB	58 22 36	154 58 50	527	int. ign.	ser.	replac.	2.0	1.50	1.50	.300	300	N
K3411RD	58 22 27	154 57 40	528	other	prop.	dissem.	5.0	1.50	5.00	.500	3,000	N
K3411RC	58 22 30	154 57 25	529	int. ign.	prop.	dissem.	5.0	1.50	1.50	.500	500	N
K3411RB	58 22 35	154 57 10	530	qtzite	--	dissem.	5.0	.10	.50	.150	50	<.5
K3411RA	58 22 38	154 56 52	531	qtzite	--	dissem.	5.0	1.50	1.00	.500	150	N
K3149RA	58 24 56	154 55 28	532	sedim.	ser.	replac.	2.0	.20	.05	.150	20	<.5
K3149RB	58 24 56	154 55 27	533	sedim.	prop.	dissem.	1.0	.50	.50	.100	50	N
K3149RC	58 24 55	154 55 27	534	sedim.	prop.	dissem.	3.0	.70	.70	.200	50	N
K3149RD	58 24 55	154 55 26	535	sedim.	prop.	dissem.	1.0	.15	1.00	.100	100	N
K3149RF	58 24 53	154 55 24	536	int. ign.	--	--	3.0	2.00	1.00	.200	200	N
K3149RE	58 24 53	154 55 23	537	other	arg.	dissem.	15.0	.50	.20	.100	150	<.5
K3149RG	58 24 52	154 55 23	538	sedim.	prop.	dissem.	2.0	.15	.15	.100	10	N
K3149RH	58 24 52	154 55 22	539	sedim.	prop.	dissem.	2.0	.20	.20	.150	20	N
K3149RI	58 24 51	154 55 20	540	sedim.	prop.	dissem.	2.0	.50	2.00	.300	300	N
K3150RJ	58 24 36	154 52 26	541	sedim.	ser.	replac.	.1	.15	.70	.050	50	<.5
K3150RK	58 24 35	154 52 26	542	sedim.	ser.	replac.	.3	.30	.15	.100	70	<.5
K3150RI	58 24 35	154 52 25	543	sedim.	prop.	dissem.	1.0	.70	.10	.150	70	<.5
K3150RF	58 24 34	154 52 24	544	sedim.	ser.	replac.	3.0	.05	2.00	.150	150	<.5
K3150RG	58 24 34	154 52 24	545	sedim.	prop.	dissem.	1.5	.50	.30	.150	70	N
K3150RH	58 24 34	154 52 24	546	int. ign.	--	--	3.0	1.50	1.50	.200	700	<.5
K3150RE	58 24 32	154 52 23	547	sedim.	prop.	dissem.	2.0	.30	1.50	.200	200	.5
K3150RD	58 24 31	154 52 22	548	sedim.	prop.	dissem.	7.0	1.50	.70	.200	300	.5
K3150RC	58 24 30	154 52 21	549	sedim.	prop.	replac.	5.0	.70	5.00	.200	700	1.0
K3150RB	58 24 29	154 52 21	550	int. ign.	--	--	3.0	2.00	1.50	.300	700	N
K3150RA	58 24 29	154 52 20	551	metamorph.	prop.	cont.met.	2.0	1.00	.50	.200	200	1.0
K3151RI	58 24 38	154 52 15	552	sedim.	ser.	replac.	.5	1.00	.05	.200	30	N
K3151RH	58 24 37	154 52 15	553	int. ign.	prop.	dissem.	1.5	1.50	.50	.300	100	N
K3151RG	58 24 37	154 52 14	554	sedim.	prop.	dissem.	.5	1.00	<.05	.150	50	<.5
K3151RF	58 24 36	154 52 14	555	sedim.	prop.	dissem.	1.0	1.00	.70	.200	70	N
K3151RE	58 24 35	154 52 13	556	--	--	--	5.0	.30	<.05	.300	100	2.0
K3151RD	58 24 35	154 52 12	557	sedim.	prop.	dissem.	3.0	1.50	.70	.200	500	1.5
K3151RC	58 24 34	154 52 12	558	sedim.	prop.	dissem.	7.0	2.00	7.00	.200	500	N
K3151RB	58 24 33	154 52 11	559	sedim.	prop.	dissem.	5.0	1.00	.70	.300	200	<.5

Table 5. Analyses of bedrock samples from stream drainages in the Mount Katmai study area, Alaska (continued)

Sample	AS-S	B-S	BA-S	BE-S	BI-S	CD-S	CO-S	CR-S	CU-S	LA-S	MO-S	NB-S	NI-S	PB-S	SB-S	SC-S	SN-S
K3410RF	N	N	70	N	N	N	20	N	>20,000	N	N	N	20	15	N	5	N
K3410RA	N	10	100	<1.0	10	N	<5	50	10	N	N	N	<5	10	N	15	20
K3410RM	N	<10	700	1.0	N	N	10	15	10	N	N	N	15	<10	N	10	N
K3409RA	N	10	150	1.5	N	<20	10	30	10,000	N	N	N	15	100	N	15	N
K3409RE	N	<10	300	1.0	N	N	15	20	70	N	N	N	20	<10	N	10	N
K3409RD	N	30	200	<1.0	N	<20	<5	10	500	N	N	N	<5	50	N	5	N
K3409RC	N	<10	50	1.0	N	N	50	20	20	N	15	N	15	<10	N	15	N
K3409RB	200	10	2,000	<1.0	150	N	<5	10	300	N	N	N	N	200	N	5	N
K3412RB	N	<10	70	<1.0	N	N	5	30	20	N	N	N	15	50	N	7	N
K3412RA	N	<10	1,000	1.0	N	N	20	70	100	N	N	N	30	10	N	20	N
K3412RC	N	10	100	<1.0	N	N	50	70	300	N	N	N	30	<10	N	20	N
K3148RA	N	10	200	N	N	N	15	100	20	N	N	N	30	N	N	20	N
K3148RB	N	10	200	N	N	N	15	100	10	N	N	N	20	<10	N	20	N
K3411RD	N	20	50	N	N	N	10	100	30	N	N	N	30	<10	N	20	N
K3411RC	N	<10	500	1.0	N	N	10	50	100	N	N	N	20	<10	N	15	N
K3411RB	N	1,000	150	1.0	N	N	N	30	15	N	N	N	N	15	N	10	N
K3411RA	N	200	200	<1.0	N	N	10	100	50	N	N	N	20	<10	N	20	N
K3149RA	N	700	20	N	N	N	N	20	5	N	N	N	5	N	N	10	N
K3149RB	N	150	700	N	N	N	N	30	<5	N	N	N	<5	N	N	10	N
K3149RC	N	200	500	<1.0	N	N	5	70	10	N	N	N	10	<10	N	15	N
K3149RD	N	<10	500	N	N	N	N	30	<5	N	N	N	5	N	N	7	N
K3149RF	N	10	500	<1.0	N	N	15	70	7	N	N	N	30	<10	N	20	N
K3149RE	N	150	700	N	N	N	10	30	30	N	N	N	5	10	N	10	N
K3149RG	N	150	700	N	N	N	7	20	5	N	N	N	10	N	N	7	N
K3149RH	N	70	1,000	N	N	N	<5	50	5	N	N	N	7	<10	N	7	N
K3149RI	N	500	<20	N	N	N	N	70	<5	N	N	N	15	<10	N	15	N
K3150RJ	N	10	<20	N	N	N	N	10	50	N	10	N	<5	N	N	<5	N
K3150RK	N	<10	100	<1.0	N	N	5	30	300	N	10	N	7	N	N	7	N
K3150RI	N	10	70	N	N	N	N	30	20	N	10	N	10	30	N	10	N
K3150RF	N	10	700	N	N	N	N	50	5	N	N	N	<5	<10	N	10	N
K3150RG	N	10	1,000	N	N	N	N	50	7	N	N	N	5	N	N	10	N
K3150RH	N	10	500	N	N	N	15	50	50	N	<5	N	30	50	N	15	N
K3150RE	N	<10	50	N	N	N	N	50	<5	N	N	N	7	<10	N	15	N
K3150RD	N	10	300	N	N	N	50	70	5	70	N	N	50	10	N	15	N
K3150RC	N	<10	<20	N	N	N	7	100	5	N	N	N	20	<10	N	20	N
K3150RB	N	<10	700	N	N	N	30	300	N	50	N	N	100	N	N	20	N
K3150RA	N	20	300	N	N	N	15	100	30	N	N	N	30	<10	N	15	N
K3151RI	N	150	50	N	N	N	N	30	10	N	N	N	5	N	N	7	N
K3151RH	N	10	100	N	N	N	5	10	50	N	N	N	10	N	N	15	N
K3151RG	N	200	100	N	N	N	N	50	5	N	5	N	5	<10	N	10	N
K3151RF	N	10	30	N	N	N	5	50	20	N	10	N	15	N	N	15	N
K3151RE	N	30	300	N	N	N	10	150	100	N	50	N	15	15	N	20	N
K3151RD	N	<10	200	N	N	N	15	150	300	100	<5	N	30	70	N	15	<10
K3151RC	N	10	N	N	N	N	10	100	<5	N	N	N	50	<10	N	20	N
K3151RB	N	20	700	N	N	N	15	100	10	50	N	N	30	<10	N	20	N

Table 5. Analyses of bedrock samples from stream drainages in the Mount Katmai study area, Alaska (continued)

Sample	SR-S	V-S	W-S	Y-S	ZN-S	ZR-S	AU-AA	HG-INST	TL-AA	AS-AA	BI-AA	CD-AA	SB-AA	ZN-AA	F-SI
K3410RF	700	100	N	<10	500	20	.05	--	--	N	N	.9	2	85	--
K3410RA	1,500	150	N	<10	N	70	N	--	--	140	6	N	N	25	--
K3410RM	700	100	N	10	N	70	<.05	--	--	N	N	N	N	25	--
K3409RA	1,000	150	N	20	2,000	50	<.05	--	--	10	N	7.0	N	1,500	--
K3409RE	700	100	N	10	N	100	N	--	--	10	N	.1	N	20	--
K3409RD	700	50	N	<10	3,000	70	N	--	--	N	N	3.2	N	830	--
K3409RC	700	100	N	10	N	50	N	--	--	N	N	N	N	25	--
K3409RB	700	50	N	<10	N	30	.10	--	--	300	330	2.0	8	310	--
K3412RB	500	100	N	10	<200	30	.05	--	--	N	N	.6	N	260	--
K3412RA	700	200	N	15	N	70	.05	--	--	N	N	N	N	40	--
K3412RC	700	200	N	15	N	100	.05	--	--	N	N	N	N	15	--
K3148RA	300	150	N	20	N	70	--	--	--	--	--	--	--	--	--
K3148RB	200	150	N	20	N	100	--	--	--	--	--	--	--	--	--
K3411RD	700	200	N	20	N	70	.10	--	--	10	N	N	N	100	--
K3411RC	700	200	N	20	N	70	.05	--	--	N	N	N	N	45	--
K3411RB	500	50	N	<10	N	30	<.05	--	--	10	N	N	N	15	--
K3411RA	500	200	N	20	N	100	.05	--	--	N	N	.2	N	40	--
K3149RA	100	50	N	N	N	50	--	--	--	--	--	--	--	--	--
K3149RB	300	70	N	N	N	30	--	--	--	--	--	--	--	--	--
K3149RC	500	100	N	N	N	100	--	--	--	--	--	--	--	--	--
K3149RD	300	70	N	<10	N	50	--	--	--	--	--	--	--	--	--
K3149RF	500	100	N	20	N	100	--	--	--	--	--	--	--	--	--
K3149RE	200	100	N	N	N	100	--	--	--	--	--	--	--	--	--
K3149RG	200	50	N	N	N	20	--	--	--	--	--	--	--	--	--
K3149RH	500	30	N	N	N	50	--	--	--	--	--	--	--	--	--
K3149RI	500	150	N	20	N	100	--	--	--	--	--	--	--	--	--
K3150RJ	N	20	N	N	N	20	--	--	--	--	--	--	--	--	--
K3150RK	200	50	N	<10	N	30	--	--	--	--	--	--	--	--	--
K3150RI	150	100	N	N	N	30	--	--	--	--	--	--	--	--	--
K3150RF	300	100	N	15	N	50	--	--	--	--	--	--	--	--	--
K3150RG	200	70	N	10	N	50	--	--	--	--	--	--	--	--	--
K3150RH	500	70	N	20	<200	100	--	--	--	--	--	--	--	--	--
K3150RE	300	100	N	15	N	150	--	--	--	--	--	--	--	--	--
K3150RD	300	100	N	15	N	70	--	--	--	--	--	--	--	--	--
K3150RC	700	150	N	20	N	50	--	--	--	--	--	--	--	--	--
K3150RB	500	100	N	20	N	100	--	--	--	--	--	--	--	--	--
K3150RA	200	150	N	15	N	50	--	--	--	--	--	--	--	--	--
K3151RI	N	70	N	10	N	50	--	--	--	--	--	--	--	--	--
K3151RH	300	100	N	20	N	100	--	--	--	--	--	--	--	--	--
K3151RG	N	100	N	<10	N	100	--	--	--	--	--	--	--	--	--
K3151RF	500	100	N	10	N	50	--	--	--	--	--	--	--	--	--
K3151RE	N	150	N	N	N	100	--	--	--	--	--	--	--	--	--
K3151RD	700	100	N	10	N	50	--	--	--	--	--	--	--	--	--
K3151RC	500	100	N	20	N	70	--	--	--	--	--	--	--	--	--
K3151RB	500	150	N	30	N	70	--	--	--	--	--	--	--	--	--

Table 5. Analyses of bedrock samples from stream drainages in the Mount Katmai study area, Alaska (continued)

Sample	LATITUDE	LONGTUDE	MAP NO.	ROCKTYPE	ALTERATN	MINDEPFM	FE%-S	MG%-S	CA%-S	TI%-S	MN-S	AG-S
K3151RA	58 24 33	154 52 10	560	sedim.	prop.	dissem.	2.0	1.00	3.00	.100	300	<.5
K3422RG	58 26 40	154 48 32	561	fels. ign.	--	--	5.0	2.00	2.00	.500	1,000	N
K3423RE	58 26 54	154 47 13	562	int. ign.	prop.	dissem.	7.0	2.00	5.00	.700	1,000	N
K3423RI	58 26 54	154 47 13	563	fels. ign.	--	--	7.0	3.00	3.00	.700	1,500	N
K3423RJ	58 26 54	154 47 13	564	other	--	--	3.0	2.00	3.00	.500	1,500	1.0
K3423RK	58 26 54	154 47 13	565	siltst.	--	--	5.0	2.00	1.50	.500	1,500	N
K3423RD	58 26 54	154 47 13	566	int. ign.	prop.	--	5.0	2.00	1.00	.300	300	N
K3423RC	58 26 54	154 47 13	567	other	--	--	3.0	2.00	3.00	.500	1,000	N
K3423RB	58 26 54	154 47 13	568	int. ign.	prop.	dissem.	2.0	1.50	2.00	.300	500	N
K3423RA	58 26 54	154 47 13	569	siltst.	--	--	10.0	2.00	3.00	.500	1,000	N
K1049RH	58 22 28	154 42 5	570	other	Fe/Mn	hot sp.	20.0	.02	N	.100	50	N
K1049RF	58 22 29	154 42 4	571	int. ign.	arg.	hot sp.	2.0	.20	<.05	.200	100	N
K1049RE	58 22 28	154 42 3	572	other	ser.	hot sp.	3.0	.05	N	.050	50	N
K1049RD	58 22 27	154 42 2	573	int. ign.	arg.	hot sp.	5.0	1.50	.70	.300	500	N
K1049RC	58 22 26	154 42 1	574	other	Fe/Mn	hot sp.	10.0	<.02	N	.002	<10	N
K1049RI	58 22 22	154 41 55	575	other	Fe/Mn	hot sp.	10.0	<.02	<.05	.100	<10	N
K1049RJ	58 22 22	154 41 52	576	other	Fe/Mn	hot sp.	10.0	.02	<.05	.100	20	N
K1049RA	58 22 30	154 41 50	577	igneous	ser.	hot sp.	7.0	<.02	<.05	.050	10	N
K1049RA	58 22 30	154 41 50	578	int. ign.	--	dissem.	3.0	2.00	1.00	.300	700	N
K1049RK	58 22 22	154 41 50	579	other	--	--	15.0	.70	.30	.500	500	N
K3152RA	58 23 50	154 37 40	580	other	--	--	3.0	1.50	1.00	.200	500	N
K3500RA	58 17 36	154 37 39	581	igneous	--	dissem.	5.0	.70	.15	.200	500	10.0
K3153RE	58 23 55	154 37 38	582	int. ign.	prop.	dissem.	.5	.02	<.05	.300	10	N
K3153RD	58 23 55	154 37 38	583	int. ign.	prop.	dissem.	3.0	1.00	1.00	.200	300	N
K3153RC	58 23 55	154 37 38	584	int. ign.	prop.	dissem.	1.5	.70	.20	.150	150	<.5
K3153RB	58 23 55	154 37 38	585	int. ign.	prop.	dissem.	1.5	.70	.15	.100	150	N
K3153RA	58 23 55	154 37 38	586	sedim.	prop.	dissem.	2.0	1.00	1.50	.300	300	N
K3157RB	58 14 21	155 55 44	587	igneous	--	--	1.5	.70	1.00	.200	500	N
K3157RA	58 14 21	155 55 44	588	sedim.	prop.	dissem.	3.0	1.00	1.00	.200	200	N
K2095RA	58 13 21	155 54 20	589	metamorph.	ser.	dissem.	2.0	1.00	1.00	.200	700	N
K3156RB	58 14 25	155 52 20	590	sedim.	prop.	dissem.	5.0	1.50	1.50	.500	700	N
K3156RA	58 14 25	155 52 20	591	sedim.	prop.	dissem.	5.0	1.50	1.00	.200	500	N
K3156RC	58 14 25	155 52 20	592	sedim.	prop.	dissem.	2.0	.05	<.05	.150	50	N
K3083RA	58 0 52	155 46 18	593	igneous	--	--	3.0	2.00	2.00	.300	700	N
K3083RC	58 0 52	155 46 18	594	other	prop.	vein	3.0	1.00	1.00	.200	200	N
K3083RB	58 0 52	155 46 18	595	igneous	--	--	5.0	2.00	2.00	.500	700	N
K3625RA	58 0 22	155 39 15	596	igneous	ser.	dissem.	3.0	.50	2.00	.300	100	N
K3625RC	58 0 22	155 39 15	597	metamorph.	prop.	dissem.	10.0	2.00	5.00	.300	3,000	N
K3625RD	58 0 22	155 39 15	598	igneous	prop.	dissem.	10.0	3.00	2.00	.300	500	N
K3625RB	58 0 22	155 39 15	599	igneous	ser.	dissem.	5.0	.10	.20	.200	700	N
K3625RF	58 0 22	155 39 15	600	igneous	--	--	10.0	1.50	3.00	.300	1,000	N
K3625RG	58 0 22	155 39 15	601	metamorph.	prop.	dissem.	10.0	1.00	3.00	.200	5,000	N
K3625RE	58 0 22	155 39 15	602	igneous	prop.	dissem.	7.0	1.50	2.00	.300	700	N
K4059RA	58 5 24	155 37 59	603	igneous	ser.	dissem.	2.0	1.00	.70	.200	500	<.5
K2060RA	58 12 2	155 25 30	604	igneous	ser.	replac.	2.0	.10	<.05	.200	50	<.5

Table 5. Analyses of bedrock samples from stream drainages in the Mount Katmai study area, Alaska (continued)

Sample	AS-S	B-S	BA-S	BE-S	BI-S	CD-S	CO-S	CR-S	CU-S	LA-S	MO-S	NB-S	NI-S	PB-S	SB-S	SC-S	SN-S
K3151RA	N	<10	50	N	N	N	N	50	10	N	N	N	7	15	N	15	N
K3422RG	N	<10	500	1.0	N	N	20	30	15	N	N	N	20	<10	N	20	N
K3423RE	N	<10	300	<1.0	N	N	50	30	10	N	N	N	30	<10	N	20	N
K3423RI	N	<10	500	<1.0	N	N	50	150	70	N	N	N	50	<10	N	30	N
K3423RJ	N	10	100	<1.0	N	N	50	100	500	N	N	N	20	20	N	20	20
K3423RK	N	<10	700	<1.0	N	N	30	100	100	N	N	N	50	<10	N	20	N
K3423RD	N	<10	300	<1.0	N	N	7	50	10	N	N	N	50	<10	N	15	N
K3423RC	N	10	200	1.0	N	N	15	100	100	N	<5	N	30	<10	N	20	N
K3423RB	N	<10	500	1.0	N	N	7	20	<5	N	N	N	30	<10	N	10	N
K3423RA	N	10	300	<1.0	N	N	30	150	100	N	N	N	50	10	N	20	N
K1049RH	300	N	20	N	N	N	N	50	20	N	N	N	N	10	N	5	N
K1049RF	N	10	200	N	N	N	7	50	30	N	N	N	10	10	N	10	N
K1049RE	N	20	100	N	N	N	7	50	50	N	N	N	15	<10	N	10	N
K1049RD	N	<10	200	<1.0	N	N	10	<10	10	N	N	N	N	<10	N	20	N
K1049RC	500	<10	N	N	N	N	N	10	10	N	N	N	N	<10	N	<5	N
K1049RI	500	<10	1,000	N	N	N	N	30	5	70	5	N	N	50	N	5	N
K1049RJ	300	N	150	N	N	N	N	20	15	N	N	N	N	100	N	7	N
K1049RA	1,000	N	300	N	N	N	N	20	20	N	N	N	N	10	N	7	N
K1049RA	N	10	500	N	N	N	20	70	50	N	N	N	15	20	N	20	N
K1049RK	N	20	300	N	N	N	10	100	30	N	N	N	10	<10	N	20	N
K3152RA	N	10	300	N	N	N	20	10	10	N	N	N	7	<10	N	20	N
K3500RA	200	<10	300	<1.0	N	N	7	70	50	N	<5	N	15	<10	N	10	N
K3153RE	N	10	50	N	N	N	N	20	7	N	N	N	<5	N	N	5	10
K3153RD	N	10	500	N	N	N	20	70	30	N	10	N	30	15	N	15	N
K3153RC	N	10	150	N	N	N	10	70	10	N	N	N	20	20	N	10	N
K3153RB	N	N	<20	N	N	N	10	<10	20	N	N	N	N	<10	N	10	N
K3153RA	N	<10	300	N	N	N	20	20	20	N	5	N	20	<10	N	15	N
K3157RB	N	10	70	N	N	N	<5	15	5	N	N	N	5	N	N	15	N
K3157RA	N	10	300	N	N	N	10	50	30	N	15	N	20	<10	N	20	N
K2095RA	N	<10	700	<1.0	N	N	15	30	20	20	5	N	15	<10	N	20	N
K3156RB	N	<10	300	N	N	N	20	30	<5	N	N	N	15	10	N	30	N
K3156RA	N	10	100	N	N	N	15	50	20	N	N	N	10	<10	N	20	N
K3156RC	200	10	200	N	N	N	<5	30	20	N	N	N	5	10	N	10	N
K3083RA	N	10	150	N	N	N	20	20	20	N	N	N	20	<10	N	20	N
K3083RC	N	50	50	N	N	N	<5	15	20	N	N	N	7	<10	N	20	N
K3083RB	N	<10	70	N	N	N	30	N	30	N	N	N	10	<10	N	20	N
K3625RA	N	100	700	2.0	N	N	7	<10	70	N	N	N	5	<10	N	15	N
K3625RC	N	20	1,500	N	N	N	50	<10	50	N	N	N	5	N	N	30	N
K3625RD	N	100	500	<1.0	N	N	50	150	100	N	N	N	50	10	N	20	N
K3625RB	N	150	1,000	2.0	N	N	7	<10	20	<20	10	N	5	<10	N	15	N
K3625RF	N	100	500	1.0	N	N	20	<10	30	N	N	N	5	10	N	20	N
K3625RG	N	20	2,000	<1.0	N	N	20	<10	300	N	N	N	5	N	N	20	N
K3625RE	N	200	500	1.0	N	N	20	<10	50	N	N	N	5	N	N	20	N
K4059RA	N	50	500	<1.0	N	N	10	N	30	N	N	N	<5	10	N	20	N
K2060RA	N	100	100	N	N	N	10	15	50	N	<5	N	20	30	N	20	N

Table 5. Analyses of bedrock samples from stream drainages in the Mount Katmai study area, Alaska (continued)

Sample	SR-S	V-S	W-S	Y-S	ZN-S	ZR-S	AU-AA	HG-INST	TL-AA	AS-AA	BI-AA	CD-AA	SB-AA	ZN-AA	F-SI
K3151RA	500	100	N	15	N	20	--	--	--	--	--	--	--	--	--
K3422RG	500	100	N	20	N	100	N	--	--	N	N	N	N	25	--
K3423RE	1,000	200	N	15	N	70	N	--	--	10	N	N	N	25	--
K3423RI	700	150	N	20	N	70	.05	--	--	N	N	N	N	40	--
K3423RJ	500	150	N	20	N	70	N	--	--	N	N	N	N	25	--
K3423RK	300	150	N	20	<200	70	N	--	--	N	N	N	N	100	--
K3423RD	700	150	N	<10	N	50	.15	--	--	N	4	N	N	45	--
K3423RC	500	150	N	20	N	70	N	--	--	N	N	N	N	10	--
K3423RB	700	100	N	15	N	100	N	--	--	N	N	N	N	25	--
K3423RA	300	200	N	20	N	70	N	--	--	10	N	N	N	35	--
K1049RH	N	300	N	N	300	50	--	--	--	--	--	--	--	--	--
K1049RF	N	150	N	<10	N	100	--	--	--	--	--	--	--	--	--
K1049RE	N	100	N	<10	N	20	--	--	--	--	--	--	--	--	--
K1049RD	500	100	N	30	N	70	--	--	--	--	--	--	--	--	--
K1049RC	N	150	N	N	N	10	--	--	--	--	--	--	--	--	--
K1049RI	500	150	N	N	N	50	--	--	--	--	--	--	--	--	--
K1049RJ	200	200	N	N	N	30	--	--	--	--	--	--	--	--	--
K1049RA	200	200	N	N	N	20	N	--	--	--	--	--	--	--	--
K1049RA	200	100	N	50	N	150	--	--	--	--	--	--	--	--	--
K1049RK	<100	300	N	10	N	100	--	--	--	--	--	--	--	--	--
K3152RA	300	150	N	30	N	70	--	--	--	--	--	--	--	--	--
K3500RA	<100	200	N	<10	N	70	.15	--	--	310	N	N	8	25	--
K3153RE	<100	50	N	<10	N	100	--	--	--	--	--	--	--	--	--
K3153RD	200	100	N	20	N	100	--	--	--	--	--	--	--	--	--
K3153RC	N	100	N	15	N	70	--	--	--	--	--	--	--	--	--
K3153RB	N	70	N	10	N	10	--	--	--	--	--	--	--	--	--
K3153RA	1,000	150	N	20	N	100	--	--	--	--	--	--	--	--	--
K3157RB	300	50	N	15	N	20	--	--	--	--	--	--	--	--	--
K3157RA	300	100	N	50	N	70	--	--	--	--	--	--	--	--	--
K2095RA	200	100	N	50	N	100	--	--	--	--	--	--	--	--	--
K3156RB	300	200	N	30	N	70	--	--	--	--	--	--	--	--	--
K3156RA	300	150	N	30	N	50	--	--	--	--	--	--	--	--	--
K3156RC	100	150	N	<10	N	50	--	--	--	--	--	--	--	--	--
K3083RA	500	150	N	20	N	70	--	--	--	--	--	--	--	--	--
K3083RC	200	150	N	15	N	50	--	--	--	--	--	--	--	--	--
K3083RB	300	100	N	20	N	50	--	--	--	--	--	--	--	--	--
K3625RA	200	100	N	50	<200	150	N	--	--	N	N	.2	N	30	--
K3625RC	300	200	N	30	500	100	N	--	--	N	N	2.7	N	150	--
K3625RD	200	200	N	50	200	100	N	--	--	N	N	.8	N	40	--
K3625RB	100	10	N	100	<200	300	N	--	--	N	N	.2	N	45	--
K3625RF	300	150	N	70	300	200	N	--	--	N	N	.2	N	150	--
K3625RG	300	100	N	50	200	100	N	--	--	N	N	2.1	N	85	--
K3625RE	100	100	N	70	200	200	N	--	--	N	N	.2	N	50	--
K4059RA	200	100	N	20	N	100	--	--	--	--	--	--	--	--	--
K2060RA	200	150	N	20	N	100	--	--	--	--	--	--	--	--	--

Table 5. Analyses of bedrock samples from stream drainages in the Mount Katmai study area, Alaska (continued)

Sample	LATITUDE	LONGTUDE	MAP NO.	ROCKTYPE	ALTERATN	MINDEPFM	FE%-S	MG%-S	CA%-S	TI%-S	MN-S	AG-S
K3624RA	58 6 3	155 21 10	605	metamorph.	--	vein	10.0	2.00	5.00	.300	2,000	N
K4028RA	58 14 22	155 19 25	606	ultramafic	--	--	5.0	1.50	1.00	.500	1,500	N
K4027RA	58 14 22	155 19 25	607	igneous	ser.	replac.	2.0	.70	.70	.500	1,000	N
K4026RA	58 14 22	155 19 25	608	igneous	--	--	2.0	1.00	1.00	.200	1,000	N
K4025RB	58 14 22	155 19 25	609	sedim.	--	--	5.0	3.00	.70	.500	1,000	.5
K4025RA	58 14 22	155 19 25	610	sedim.	--	--	5.0	2.00	1.00	.500	1,000	.5
K4024RA	58 14 22	155 19 25	611	sedim.	--	--	5.0	3.00	.70	.500	1,000	<.5
K4023RA	58 14 22	155 19 25	612	siltst.	--	--	5.0	2.00	1.00	.500	1,000	<.5
K4022RA	58 14 22	155 19 25	613	sedim.	--	--	5.0	2.00	.70	.500	1,000	<.5
K4021RB	58 14 22	155 19 25	614	sedim.	--	dissem.	1.5	1.00	5.00	.200	2,000	N
K4019RA	58 14 22	155 19 25	615	sedim.	--	replac.	5.0	1.50	1.00	.300	700	<.5
K4019RB	58 14 22	155 19 25	616	sedim.	--	--	3.0	1.00	5.00	.300	1,500	N
K4020RA	58 14 22	155 19 25	617	sedim.	--	dissem.	3.0	1.50	1.00	.300	700	<.5
K4020RB	58 14 22	155 19 25	618	sedim.	--	dissem.	5.0	.70	.70	.200	700	1.5
K4029RA	58 14 22	155 19 25	619	igneous	--	--	5.0	1.00	1.00	.500	>5,000	N
K4021RA	58 14 22	155 19 25	620	sedim.	--	--	5.0	2.00	.70	.500	1,000	<.5
K4031RA	58 14 22	155 19 25	621	sedim.	--	--	5.0	2.00	.70	.500	1,000	.5
K4030RA	58 14 22	155 19 25	622	igneous	--	--	5.0	2.00	1.00	.500	1,000	N
K2009RC	58 14 28	155 19 0	623	igneous	arg.	dissem.	2.0	1.00	1.00	.300	200	.5
K2009RD	58 14 28	155 19 0	624	siltst.	prop.	dissem.	5.0	1.50	1.00	.200	1,000	.5
K2009RE	58 14 28	155 19 0	625	siltst.	prop.	vein	3.0	1.50	.20	.300	200	1.5
K2009RF	58 14 28	155 19 0	626	igneous	ser.	vein	7.0	1.50	1.50	.200	500	<.5
K2009RG	58 14 28	155 19 0	627	int. ign.	prop.	--	2.0	1.00	.70	.200	500	1.0
K2009RB	58 14 28	155 19 0	628	int. ign.	--	--	3.0	1.00	2.00	.200	700	N
K2009RA	58 14 28	155 19 0	629	igneous	ser.	vein	10.0	.30	20.00	.002	1,500	N
K3057RA	58 14 19	155 18 51	630	fels. ign.	--	dissem.	2.0	1.00	1.00	.200	700	.5
K3057RB	58 14 19	155 18 35	631	siltst.	--	dissem.	5.0	2.00	1.00	.500	1,000	<.5
K3056RA	58 14 2	155 18 35	632	fels. ign.	--	dissem.	2.0	1.00	1.00	.200	700	<.5
K3056RB	58 14 2	155 18 35	633	siltst.	prop.	dissem.	3.0	2.00	1.00	.200	700	<.5
K3056RC	58 14 2	155 18 35	634	fels. ign.	--	--	1.0	.30	2.00	.070	1,500	N
K3056RD	58 14 2	155 18 35	635	int. ign.	--	--	3.0	1.50	1.50	.200	1,000	.5
K3056RE	58 14 2	155 18 35	636	int. ign.	prop.	dissem.	1.0	.70	.70	.150	700	.7
K3626RA	58 13 50	155 17 47	637	fels. ign.	prop.	dissem.	7.0	2.00	3.00	.300	1,000	N
K3626RB	58 13 50	155 17 46	638	metamorph.	prop.	dissem.	15.0	1.50	5.00	.300	1,000	<.5
K3626RC	58 13 50	155 17 45	639	metamorph.	ser.	dissem.	1.5	.50	.50	.070	500	N
K3626RD	58 13 50	155 17 44	640	metamorph.	ser.	dissem.	2.0	.30	.20	.100	500	N
K3626RE	58 13 50	155 17 40	641	metamorph.	prop.	vein	7.0	3.00	3.00	.700	2,000	N
K2056RA	58 13 36	155 17 39	642	int. ign.	arg.	dissem.	2.0	1.00	.70	.200	500	N
K3623RC	58 6 7	155 17 11	643	igneous	--	--	7.0	3.00	5.00	.700	1,500	N
K3623RB	58 6 7	155 17 11	644	sedim.	--	--	2.0	2.00	>20.00	.100	2,000	N
K3623RA	58 6 7	155 17 11	645	sedim.	--	--	10.0	1.50	2.00	.500	1,000	N
K3623RE	58 6 7	155 17 11	646	metamorph.	prop.	dissem.	5.0	1.50	3.00	.200	2,000	N
K3623RF	58 6 7	155 17 11	647	igneous	ser.	vein	7.0	.03	.05	.500	50	N
K3623RG	58 6 7	155 17 11	648	metamorph.	prop.	dissem.	7.0	2.00	.20	.500	1,000	N
K3623RH	58 6 7	155 17 11	649	igneous	ser.	vein	1.0	.02	.05	.200	10	N

Table 5. Analyses of bedrock samples from stream drainages in the Mount Katmai study area, Alaska (continued)

Sample	AS-S	B-S	BA-S	BE-S	BI-S	CD-S	CO-S	CR-S	CU-S	LA-S	MO-S	NB-S	NI-S	PB-S	SB-S	SC-S	SN-S
K3624RA	N	100	1,000	<1.0	N	N	30	200	10	N	N	N	50	<10	N	20	N
K4028RA	N	50	2,000	N	N	N	20	50	70	N	N	N	15	10	N	20	N
K4027RA	N	20	3,000	<1.0	N	N	10	<10	10	<20	5	N	70	30	N	15	N
K4026RA	N	10	1,000	<1.0	N	N	5	100	5	N	<5	N	<5	30	N	15	N
K4025RB	N	100	1,500	<1.0	N	N	30	100	100	N	10	N	20	50	N	30	N
K4025RA	N	100	1,000	<1.0	N	N	20	100	100	N	N	N	30	30	N	30	N
K4024RA	N	100	1,500	N	N	N	30	150	100	N	10	N	70	100	N	20	N
K4023RA	N	70	1,500	N	N	N	30	150	100	N	<5	N	70	50	N	20	N
K4022RA	N	50	1,000	N	N	N	20	150	100	N	<5	N	50	50	N	20	N
K4021RB	N	100	1,500	N	N	N	20	50	20	N	N	N	20	10	N	20	N
K4019RA	N	20	700	N	N	N	20	100	70	N	N	N	50	10	N	20	N
K4019RB	N	200	1,500	N	N	N	20	50	30	N	N	N	30	10	N	20	N
K4020RA	N	15	700	<1.0	N	N	15	100	50	N	N	N	30	10	N	20	N
K4020RB	N	100	1,500	<1.0	N	20	20	30	200	N	15	N	20	200	N	15	N
K4029RA	N	50	2,000	<1.0	N	N	10	30	50	<20	<5	N	10	10	N	15	N
K4021RA	N	50	1,000	N	N	N	30	200	100	N	N	N	10	50	N	30	N
K4031RA	N	50	1,500	<1.0	N	N	20	100	150	N	<5	N	20	50	N	30	N
K4030RA	N	20	500	N	N	N	30	10	100	N	N	N	10	<10	N	20	N
K2009RC	N	10	300	<1.0	N	N	N	N	30	N	20	N	N	10	N	20	N
K2009RD	N	<10	500	N	N	N	50	100	100	N	<5	N	50	20	N	20	N
K2009RE	N	>2,000	700	<1.0	N	N	7	100	20	N	N	N	50	20	N	30	10
K2009RF	N	15	50	N	N	N	5	100	50	N	N	N	7	700	N	20	<10
K2009RG	N	1,000	200	N	N	N	N	20	10	N	N	N	7	15	N	10	N
K2009RB	N	20	200	N	N	N	N	N	30	N	N	N	<5	30	N	15	N
K2009RA	N	N	700	N	N	N	N	N	10	N	N	N	N	<10	N	N	N
K3057RA	N	<10	500	N	N	N	5	N	<5	50	N	N	<5	50	N	15	N
K3057RB	N	100	1,000	<1.0	N	N	30	150	100	N	N	N	50	50	N	20	N
K3056RA	N	10	300	<1.0	N	N	7	N	20	N	N	N	<5	30	N	10	N
K3056RB	N	15	500	N	N	N	10	100	30	N	N	N	20	50	N	20	N
K3056RC	N	200	500	1.5	N	N	N	N	<5	N	N	N	<5	100	N	<5	N
K3056RD	N	<10	500	N	N	N	15	10	10	N	N	N	7	10	N	20	N
K3056RE	N	150	500	<1.0	N	N	N	N	N	N	N	N	<5	15	N	7	N
K3626RA	N	30	300	1.0	N	N	15	<10	20	N	N	N	10	N	N	15	N
K3626RB	N	20	500	1.0	N	N	100	100	200	N	N	N	50	<10	N	20	N
K3626RC	N	50	1,000	3.0	N	N	<5	<10	20	<20	N	N	7	N	N	<5	N
K3626RD	N	50	700	3.0	N	N	<5	<10	10	<20	<5	N	5	N	N	<5	N
K3626RE	N	20	1,000	<1.0	N	N	30	100	150	N	N	N	50	<10	N	30	N
K2056RA	N	15	200	<1.0	N	N	<5	N	15	N	<5	N	<5	15	N	10	N
K3623RC	N	50	500	1.0	N	N	50	30	70	<20	N	N	20	<10	N	30	N
K3623RB	N	10	500	<1.0	N	N	10	30	30	N	N	N	10	<10	N	10	N
K3623RA	N	100	1,000	2.0	N	N	20	100	100	N	20	N	50	10	N	20	N
K3623RE	N	50	500	1.0	N	N	20	50	20	50	N	N	20	N	N	20	N
K3623RF	N	30	100	N	10	N	<5	30	10	N	50	N	5	<10	N	10	N
K3623RG	N	500	500	1.0	N	N	20	10	30	N	N	N	20	<10	N	30	N
K3623RH	N	<10	300	N	N	N	<5	100	15	N	N	N	7	10	N	10	N

Table 5. Analyses of bedrock samples from stream drainages in the Mount Katmai study area, Alaska (continued)

Sample	SR-S	V-S	W-S	Y-S	ZN-S	ZR-S	AU-AA	HG-INST	TL-AA	AS-AA	BI-AA	CD-AA	SB-AA	ZN-AA	F-SI
K3624RA	300	200	N	50	200	70	.25	--	--	N	N	.2	N	65	--
K4028RA	500	150	N	70	<200	200	--	--	--	--	--	--	--	--	--
K4027RA	700	70	N	50	500	200	--	--	--	--	--	--	--	--	--
K4026RA	700	50	N	50	N	200	--	--	--	--	--	--	--	--	--
K4025RB	500	200	N	50	N	150	--	--	--	--	--	--	--	--	--
K4025RA	500	200	N	70	<200	150	--	--	--	--	--	--	--	--	--
K4024RA	500	200	N	30	<200	150	--	--	--	--	--	--	--	--	--
K4023RA	500	200	N	50	<200	100	--	--	--	--	--	--	--	--	--
K4022RA	500	200	N	50	<200	150	--	--	--	--	--	--	--	--	--
K4021RB	500	100	N	30	N	50	--	--	--	--	--	--	--	--	--
K4019RA	500	200	N	30	N	70	--	--	--	--	--	--	--	--	--
K4019RB	500	100	N	50	N	150	--	--	--	--	--	--	--	--	--
K4020RA	500	200	N	30	N	70	--	--	--	--	--	--	--	--	--
K4020RB	300	100	N	20	1,500	50	--	--	--	--	--	--	--	--	--
K4029RA	700	100	N	50	<200	200	--	--	--	--	--	--	--	--	--
K4021RA	500	200	N	50	<200	100	--	--	--	--	--	--	--	--	--
K4031RA	300	200	N	50	<200	150	--	--	--	--	--	--	--	--	--
K4030RA	1,000	200	N	50	<200	150	--	--	--	--	--	--	--	--	--
K2009RC	500	50	N	50	N	150	--	--	--	--	--	--	--	--	--
K2009RD	300	150	N	50	N	50	--	--	--	--	--	--	--	--	--
K2009RE	100	150	N	50	N	100	N	--	--	--	--	--	--	--	--
K2009RF	<100	150	N	20	300	100	--	--	--	--	--	--	--	--	--
K2009RG	200	100	N	20	N	100	--	--	--	--	--	--	--	--	--
K2009RB	300	100	N	20	N	100	--	--	--	--	--	--	--	--	--
K2009RA	1,000	N	N	N	N	N	--	--	--	--	--	--	--	--	--
K3057RA	500	70	N	50	N	100	--	--	--	--	--	--	--	--	--
K3057RB	500	200	N	50	500	100	--	--	--	--	--	--	--	--	--
K3056RA	500	70	N	20	N	70	--	--	--	--	--	--	--	--	--
K3056RB	200	150	N	20	N	100	--	--	--	--	--	--	--	--	--
K3056RC	300	10	N	20	N	100	--	--	--	--	--	--	--	--	--
K3056RD	300	100	N	30	300	100	--	--	--	--	--	--	--	--	--
K3056RE	500	30	N	20	N	100	--	--	--	--	--	--	--	--	--
K3626RA	700	100	N	50	200	100	N	--	--	N	N	.2	N	55	--
K3626RB	700	200	N	30	200	100	N	--	--	N	N	.3	N	85	--
K3626RC	300	10	N	15	<200	100	N	--	--	N	N	.1	N	10	--
K3626RD	100	10	N	20	<200	150	N	--	--	N	N	.2	N	15	--
K3626RE	300	200	N	30	<200	70	N	--	--	N	N	.3	N	100	--
K2056RA	300	100	N	15	N	100	--	--	--	--	--	--	--	--	--
K3623RC	300	200	N	70	200	200	N	--	--	N	N	1.3	N	140	--
K3623RB	300	70	N	20	<200	70	N	--	--	N	N	.1	N	10	--
K3623RA	500	200	N	50	200	150	N	--	--	<10	N	.2	N	120	--
K3623RE	100	100	N	20	<200	150	N	--	--	30	N	.1	<2	25	--
K3623RF	500	150	N	<10	<200	150	N	--	--	N	18	.1	<2	N	--
K3623RG	150	150	N	30	200	200	N	--	--	N	N	.2	N	55	--
K3623RH	500	150	N	<10	<200	100	N	--	--	<10	N	.1	N	N	--

Table 5. Analyses of bedrock samples from stream drainages in the Mount Katmai study area, Alaska (continued)

Sample	LATITUDE	LONGTUDE	MAP NO.	ROCKTYPE	ALTERATN	MINDEPFM	FE%-S	MG%-S	CA%-S	TI%-S	MN-S	AG-S
K3623RD	58 6 7	155 17 11	650	metamorph.	ser.	dissem.	5.0	.05	.10	.200	20	N
K2055RC	58 14 17	155 17 9	651	siltst.	--	dissem.	3.0	.70	.70	.300	1,000	N
K2055RB	58 14 17	155 17 9	652	sedim.	ser.	--	1.0	.30	1.00	.150	200	N
K2055RA	58 14 17	155 17 9	653	int. ign.	prop.	dissem.	3.0	1.50	1.00	.200	1,000	N
K3628RF	58 9 20	154 51 5	654	igneous	prop.	dissem.	10.0	2.00	5.00	1.000	700	N
K3618RA	58 9 20	154 51 5	655	igneous	prop.	dissem.	7.0	2.00	5.00	.500	1,000	N
K3618RI	58 9 20	154 51 5	656	igneous	prop.	dissem.	20.0	1.00	.50	.500	500	N
K3618RK	58 9 20	154 51 5	657	other	prop.	dissem.	10.0	3.00	.50	.500	700	N
K3618RL	58 9 20	154 51 5	658	igneous	prop.	vein	7.0	1.00	5.00	.070	1,000	N
K3618RM	58 9 20	154 51 5	659	igneous	prop.	vein	5.0	.50	.10	.500	500	<.5
K3618RN	58 9 20	154 51 5	660	igneous	prop.	dissem.	10.0	2.00	3.00	.500	1,000	N
K3618RG	58 9 20	154 51 5	661	int. ign.	prop.	--	10.0	3.00	10.00	1.000	3,000	N
K3618RB	58 9 20	154 51 5	662	igneous	prop.	dissem.	10.0	2.00	5.00	.700	2,000	N
K3618RE	58 9 20	154 51 5	663	igneous	prop.	dissem.	10.0	2.00	5.00	.700	700	N
K3618RH	58 9 20	154 51 5	664	igneous	prop.	dissem.	10.0	1.00	3.00	1.000	500	N
K3618RC	58 9 20	154 51 5	665	igneous	prop.	dissem.	15.0	2.00	1.00	.700	1,000	N
K3618RD	58 9 20	154 51 5	666	igneous	prop.	dissem.	10.0	2.00	5.00	.700	700	N
K3618RF	58 13 42	154 43 19	667	igneous	prop.	dissem.	7.0	2.00	1.00	.700	1,500	N
K3622RC	58 4 33	154 44 10	668	metamorph.	--	dissem.	10.0	1.50	5.00	.500	1,000	N
K3622RD	58 4 33	154 44 10	669	igneous	prop.	dissem.	10.0	2.00	1.50	.500	700	N
K3622RE	58 4 33	154 44 10	670	igneous	prop.	dissem.	10.0	1.00	3.00	.300	700	N
K3622RF	58 4 33	154 44 10	671	metamorph.	prop.	dissem.	10.0	1.00	3.00	.500	700	N
K3622RB	58 4 32	154 44 10	672	igneous	prop.	dissem.	10.0	2.00	2.00	.500	700	N
K3622RA	58 4 32	154 44 10	673	metamorph.	ser.	dissem.	10.0	1.50	2.00	.700	1,000	N
K3622RI	58 4 33	154 44 9	674	igneous	prop.	dissem.	10.0	1.50	2.00	.500	1,000	N
K3622RH	58 4 33	154 44 9	675	metamorph.	prop.	dissem.	10.0	1.00	5.00	.500	700	N
K3622RG	58 4 33	154 44 9	676	metamorph.	prop.	dissem.	10.0	1.50	5.00	.500	1,000	N
K3620RB	58 13 51	154 43 21	677	other	ser.	vein	3.0	1.00	.05	.200	200	5.0
K3620RA	58 13 50	154 43 20	678	other	ser.	vein	5.0	.50	.05	.500	100	5.0
K3619RL	58 13 42	154 43 19	679	other	ser.	vein	2.0	.20	.10	.200	200	1.0
K3619RA	58 13 42	154 43 19	680	igneous	prop.	dissem.	7.0	.50	1.00	.300	100	5.0
K3619RB	58 13 42	154 43 19	681	igneous	prop.	vein	7.0	.50	.20	.300	150	1.0
K3619RC	58 13 42	154 43 19	682	igneous	prop.	vein	7.0	2.00	3.00	.500	700	N
K3619RD	58 13 42	154 43 19	683	other	ser.	vein	2.0	2.00	.10	.100	50	3.0
K3619RE	58 13 42	154 43 19	684	other	ser.	vein	5.0	1.50	.10	.300	200	<.5
K3619RG	58 13 42	154 43 19	685	other	ser.	dissem.	5.0	1.00	.10	.500	500	.5
K3619RH	58 13 42	154 43 19	686	igneous	prop.	dissem.	7.0	1.00	.15	.700	1,000	N
K3619RI	58 13 42	154 43 19	687	other	ser.	vein	2.0	.50	.10	.150	500	.5
K0109RA	58 12 20	154 33 57	688	sedim.	--	--	3.0	2.00	1.00	.700	1,500	N
K0155RA	58 13 46	154 24 41	689	other	--	--	.5	<.02	N	.500	10	N
K0119RA	58 9 10	154 18 50	690	siltst.	--	--	3.0	2.00	.50	.700	700	<.5

Table 5. Analyses of bedrock samples from stream drainages in the Mount Katmai study area, Alaska (continued)

Sample	AS-S	B-S	BA-S	BE-S	BI-S	CD-S	CO-S	CR-S	CU-S	LA-S	MO-S	NB-S	NI-S	PB-S	SB-S	SC-S	SN-S
K3623RD	N	70	500	<1.0	N	N	5	30	50	20	N	N	5	10	N	20	N
K2055RC	N	10	700	<1.0	N	N	10	N	20	N	N	N	<5	<10	N	15	N
K2055RB	N	10	1,500	<1.0	N	N	N	N	10	N	N	N	5	50	N	5	N
K2055RA	N	15	500	<1.0	N	N	15	15	10	N	N	N	10	15	N	15	N
K3628RF	N	10	300	<1.0	N	N	20	50	30	N	N	N	30	<10	N	20	N
K3618RA	N	20	200	N	N	N	20	100	30	N	N	N	50	<10	N	10	N
K3618RI	N	10	200	N	N	N	20	<10	50	N	N	N	5	10	N	10	N
K3618RK	<200	50	700	<1.0	N	N	20	100	15	N	N	N	50	<10	N	15	N
K3618RL	N	50	50	N	N	N	10	10	70	N	N	N	30	N	N	7	N
K3618RM	N	70	500	N	N	N	5	10	<5	N	30	N	10	<10	N	10	N
K3618RN	N	20	300	N	N	N	15	100	10	N	5	N	70	10	N	20	N
K3618RG	N	10	200	<1.0	N	N	20	30	<5	N	N	N	20	10	N	30	N
K3618RB	N	20	<20	N	N	N	50	50	15	N	N	N	30	10	N	20	N
K3618RE	N	15	200	N	N	N	15	70	100	N	N	N	50	<10	N	20	N
K3618RH	N	10	100	N	N	N	15	N	10	N	<5	N	5	<10	N	15	N
K3618RC	N	20	500	N	N	N	30	50	15	N	20	N	30	<10	N	30	N
K3618RD	N	20	50	<1.0	N	N	50	300	500	N	N	N	100	<10	N	20	N
K3618RF	N	20	700	<1.0	N	N	15	50	50	<20	N	N	30	30	N	20	N
K3622RC	N	50	200	N	N	N	15	<10	100	N	N	N	<5	100	N	15	N
K3622RD	N	10	200	N	N	N	20	50	100	N	N	N	50	30	N	10	N
K3622RE	N	200	200	<1.0	N	N	50	200	100	N	N	N	100	10	N	15	N
K3622RF	N	50	100	N	N	N	20	N	200	N	N	N	20	20	N	15	N
K3622RB	N	<10	200	N	N	N	50	50	150	N	N	N	50	20	N	15	N
K3622RA	N	200	200	N	N	N	10	N	50	N	N	N	10	15	N	20	N
K3622RI	N	50	300	N	N	N	30	100	50	N	N	N	50	15	N	15	N
K3622RH	N	100	150	N	N	N	20	<10	70	N	<5	N	15	<10	N	15	N
K3622RG	N	500	500	N	N	N	15	<10	50	N	N	N	10	<10	N	15	N
K3620RB	N	20	50	N	N	N	10	10	10	N	1,000	N	10	N	N	5	N
K3620RA	200	20	100	N	N	N	10	30	20	N	700	N	15	<10	N	7	N
K3619RL	N	20	300	<1.0	N	N	<5	<10	20	N	100	N	5	<10	N	5	N
K3619RA	500	20	200	N	N	N	5	20	30	N	N	N	10	10	N	<5	N
K3619RB	700	20	20	<1.0	N	N	15	15	15	N	100	N	20	N	N	7	N
K3619RC	N	15	200	N	N	N	20	150	50	N	10	N	50	10	N	10	N
K3619RD	200	30	70	N	N	N	5	<10	100	N	100	N	10	N	N	<5	N
K3619RE	N	10	200	N	N	N	10	50	20	N	N	N	30	10	N	10	N
K3619RG	N	20	300	N	N	N	5	10	50	N	20	N	10	10	N	7	N
K3619RH	N	20	700	<1.0	N	N	10	<10	50	N	5	N	5	10	N	10	N
K3619RI	N	15	300	N	N	N	<5	<10	20	N	15	N	7	N	N	5	N
K0109RA	N	10	1,000	1.0	N	N	15	N	20	N	N	N	N	15	N	30	N
K0155RA	N	<10	300	N	N	N	N	20	50	N	5	N	7	<10	N	10	N
K0119RA	N	150	2,000	1.5	N	N	30	200	30	50	5	<20	70	20	N	50	N

Table 5. Analyses of bedrock samples from stream drainages in the Mount Katmai study area, Alaska (continued)

Sample	SR-S	V-S	W-S	Y-S	ZN-S	ZR-S	AU-AA	HG-INST	TL-AA	AS-AA	BI-AA	CD-AA	SB-AA	ZN-AA	F-SI
K3623RD	500	200	N	<10	<200	200	N	--	--	<10	N	.2	N	10	--
K2055RC	300	70	N	50	N	100	--	--	--	--	--	--	--	--	--
K2055RB	700	50	N	20	N	100	--	--	--	--	--	--	--	--	--
K2055RA	500	100	N	20	N	100	--	--	--	--	--	--	--	--	--
K3628RF	500	200	N	20	200	70	N	--	--	80	N	N	N	45	--
K3618RA	200	150	N	20	200	100	N	--	--	N	N	N	N	90	--
K3618RI	N	200	N	<10	200	50	N	--	--	40	3	N	N	85	--
K3618RK	<100	200	N	15	<200	150	N	--	--	130	N	N	N	15	--
K3618RL	200	200	N	<10	<200	15	N	--	--	N	N	N	N	N	--
K3618RM	N	150	N	N	<200	100	N	--	--	<10	N	N	N	55	--
K3618RN	200	200	N	15	<200	100	N	--	--	10	N	N	N	55	--
K3618RG	500	200	N	20	200	100	N	--	--	<10	N	N	N	45	--
K3618RB	<100	200	N	10	200	70	N	--	--	30	N	N	N	85	--
K3618RE	<100	200	N	15	<200	70	N	--	--	10	N	N	N	25	--
K3618RH	<100	200	N	15	<200	100	N	--	--	20	N	N	N	25	--
K3618RC	N	300	N	20	200	70	N	--	--	50	N	N	N	30	--
K3618RD	500	200	N	15	200	100	N	--	--	40	N	N	N	25	--
K3618RF	<100	200	N	50	<200	300	N	--	--	10	N	N	N	55	--
K3622RC	150	100	N	20	300	50	N	--	--	N	N	.4	2	180	--
K3622RD	<100	100	N	10	200	50	N	--	--	10	N	1.2	N	370	--
K3622RE	200	150	N	20	<200	150	N	--	--	30	N	N	N	40	--
K3622RF	300	200	N	20	<200	70	N	--	--	10	N	.1	N	35	--
K3622RB	<100	200	N	10	<200	70	N	--	--	N	N	N	N	55	--
K3622RA	300	150	N	15	<200	70	N	--	--	<10	N	N	N	35	--
K3622RI	200	200	N	20	<200	100	N	--	--	10	N	.2	N	90	--
K3622RH	500	200	N	20	<200	70	N	--	--	10	N	.1	2	35	--
K3622RG	700	200	N	20	<200	70	N	--	--	20	N	N	N	35	--
K3620RB	N	100	N	<10	<200	50	N	--	--	110	N	.1	2	25	--
K3620RA	N	200	N	N	<200	100	.15	--	--	600	N	.1	2	20	--
K3619RL	N	70	N	10	<200	150	.45	--	--	90	N	.1	N	15	--
K3619RA	N	700	N	<10	<200	30	2.00	--	--	800	N	.3	16	20	--
K3619RB	N	100	N	<10	<200	70	.35	--	--	500	N	N	2	15	--
K3619RC	<100	100	N	10	<200	100	N	--	--	10	N	N	N	45	--
K3619RD	N	100	N	N	<200	50	.35	--	--	800	N	N	36	10	--
K3619RE	N	70	N	10	<200	100	.05	--	--	70	N	N	N	40	--
K3619RG	N	100	N	20	<200	200	.20	--	--	170	N	N	4	45	--
K3619RH	N	100	N	50	<200	500	.10	--	--	120	N	.1	N	40	--
K3619RI	N	30	N	<10	<200	100	.15	--	--	80	N	N	N	20	--
K0109RA	300	150	N	50	N	150	N	N	--	<5	N	<.1	N	140	--
K0155RA	N	200	N	10	N	150	N	.02	--	<10	N	<.1	N	<5	--
K0119RA	200	300	N	70	N	150	N	.02	--	10	N	.2	N	70	--

Table 6. Listing of bedrock sample numbers and lithologic (map) units by ascending map numbers, Mount Katmai study area

[Map Unit: A = Quaternary or late Tertiary volcanic rocks; B = Tertiary volcanic and hypabyssal rocks; C = Tertiary sedimentary rocks; D = Kaguyak Formation; E = Staniukovich or Herendeen Formation; F = Naknek Formation; G = Jurassic and Tertiary plutonic rocks; H = slightly to intensively metamorphosed rocks having pre-middle-Jurassic protolith ages; I = dikes]

SAMPLE	MAP NO.	MAP UNIT	SAMPLE	MAP NO.	MAP UNIT	SAMPLE	MAP NO.	MAP UNIT	SAMPLE	MAP NO.	MAP UNIT
83RJ238	1	B	83RJ224	44	H	85RJ088	88	B	85RJ107E	122	H
83RJ237	2	B	86DT283	45	H	85YB254	89	B	85RJ107I	122	H
83RJ234	3	B	84YB093	46	H	85DT226	90	C	85RJ107A	122	H
83RJ235A	4	I	84YB092	47	H	85YB253	91	B	86RJ111	123	H
83RJ235B	4	B	86JM228	48	H	85RJ087	92	B	86RJ109B	124	H
83RJ232	5	B	86RJ090	49	H	85YB252	93	G	85YB257	125	G
83RJ233	6	B	83RJ213	50	H	85YB251	94	B	86RJ112	126	G
83RJ236A	7	B	84YB089	51	H	85RJ085	95	B	85YB244	127	G
83RJ236B	7	B	84RJ180B	52	H	85YB256	96	G	85RJ077	128	G
83RJ236C	8	I	84RJ184B	53	H	85RJ086	97	G	86RJ057A	129	F
83RJ236D	9	B	85RJ161	54	G	85RJ200A	98	H	86RJ057B	129	F
83RJ239	10	B	83AR009	55	G	85RJ200B	98	G	86RJ058	130	I
84YB099	11	B	85RJ160	56	G	86YB315B	99	H	86YB318	131	G
84YB100	12	B	84EM087C	57	F	86RJ067	100	H	86RJ064	132	G
84YB101	13	B	84EM088B	58	F	83RJ218	101	G	86YB316	133	G
84YB098	14	B	84RJ175B	59	G	85RJ104	102	G	86RJ066B	134	G
84YB102	15	B	83AR011	60	G	85YB258	103	H	86RJ066A	134	F
84YB103	16	B	83AR014	61	G	85RJ090B	104	C	84DT155	135	F
84EM080C	17	B	84YB090	62	G	85RJ090A	104	C	84DT156	136	F
84EM079C	18	B	86RJ098	63	H	85RJ090D	104	B	84DT157	137	F
84EM081C	19	B	86RJ101	64	G	85RJ105D	105	H	84DT158	138	F
84EM082C	20	B	84YB091	65	B	85RJ105C	105	H	84JM130	139	F
84EM083C	21	B	84RJ169C	66	B	85YB231	106	H	84JM131	140	I
84EM085C	22	B	84RJ168C	67	G	85RJ075	107	H	84JM128	141	F
83RJ242	23	B	85RJ083	68	H	85YB242	108	H	84JM129	142	F
83RJ240	24	B	85RJ197	69	B	85YB230	109	H	85JM180	143	F
83RJ241	25	B	84RJ171B	70	H	85RJ074C	110	H	85JM179	144	F
85YB246	26	B	85RJ082	71	B	85RJ074B	110	H	85DT217	145	F
85RJ079	27	B	84RJ055B	72	H	85RJ074D	110	H	85DT216	146	F
84EM089B	28	B	85YB248	73	H	85RJ064	111	H	86JM203	147	F
85RJ208	29	B	85RJ084	74	G	85YB226	112	H	86JM201	148	F
85RJ209	30	B	85YB249	75	B	85RJ065	113	H	86JM200	149	F
85RJ210	31	B	85YB250	76	B	86RJ068A	114	H	86JM199	150	F
85RJ207	32	B	85RJ081	77	B	86RJ068B	114	H	86JM195	151	F
84RJ053C	33	B	85RJ080	78	B	83RJ216A	115	G	86JM196	152	F
84RJ052C	34	B	85YB247	79	B	83RJ216B	115	H	86JM197	153	F
84RJ051D	35	B	85RJ089	80	B	85YB227	116	H	85YB243	154	F
84RJ050C	36	B	85YB255	81	B	85RJ066	117	H	86RJ081	155	H
85RJ165A	37	B	85RJ078	82	B	86RJ082	118A	H	85RJ181	156	B
84YB096	38	B	85YB245	83	B	85RJ068	118B	H	85YB240	157	G
									83AR020	158	G
84YB088	39	G	85YB233	84	B	85YB229	119	G	85YB228	159	G
84RJ172C	40	H	85YB232	85	B	85RJ067	120	G	83AR019	160	G
86RJ094	41	H	85RJ091	86	B	86RJ080	121	H	86YB340	161	G
83RJ212	42	H	85YB259	87	B	85RJ107C	122	H	86YB339	162	G
83RJ223	43	H	85YB259B	87	B	85RJ107D	122	H	86YB338	163	G

Table 6. Bedrock sample numbers arranged by ascending map number, continued

SAMPLE	MAP NO.	MAP UNIT	SAMPLE	MAP NO.	MAP UNIT	SAMPLE	MAP NO.	MAP UNIT	SAMPLE	MAP NO.	MAP UNIT
86YB344	164	G	86DT255	206	D	85JM165	254	C	84DT092	292B	B
86RJ089	165	G	86JM184	207	F	85JM164A	255	B	84DT091	292A	A
86YB341	166	G	86JM185	208	F	85JM164B	255	I	84DT090	293	C
86DT282	167A	G	86JM186	209	F	85DT199	256	A	84JM071	294	C
86RJ088	167B	G	86JM187	210	F	85JM160	257	C	84JM071B	294	C
85YB238	168	G	86DT245	211	B	85JM159A	258	B	84JM071C	294	I
85YB239	169	G	86DT244	212	B	85JM159B	258	C	84JM070	295	I
85YB234	170	G	86DT243	213	F	85DT198	259	C	84JM069	296	C
85RJ071	171	G	86DT241	214	F	85DT197	260	A	84JM068	297	B
85YB224	172	E	86DT242	215	E	86RJ042	261	B	84JM068B	297	C
85RJ062	173	H	86DT240	216	D	86RJ044B	262	C	86RJ087A	298	C
85RJ063	174	G	86DT238	218	D	86RJ044A	262	B	86RJ087B	298	C
85YB237A	175	G	86DT237	219	A	86RJ043A	263	B	84DT140	299	C
85YB237B	175	F	86RJ055A	220	B	86RJ043B	263	B	86JM181	300	C
85RJ072C	176	G	86RJ055B	220	E	86RJ046	264	B	86RJ052C	301	H
85RJ072B	176	G	86RJ103A	221	B	86RJ047	265	B	86RJ052D	301	C
85RJ072A	176	G	86JM204	222	F	84RJ147C	266	C	86RJ052A	301	C
85JM158	177	F	86JM206	223	F	84RJ147D	266	B	86RJ052B	301	B
85YB225	178	G	86JM208	224	I	84RJ148C	267A	B	84RJ141D	302	B
85DT209H	179B	F	86JM211	225	F	85JM163	267C	C	84RJ141E	302	C
85DT209	179B	F	86JM210	226	F	84RJ154D	267C	C	84EM061C	303	B
85DT210G	179A	F	86JM209	227	F	85JM162	267D	I	84EM059C	304	B
85DT208	180	F	84DT104	228	F	85JM161	267B	B	84EM060B	305	C
85DT205	181	F	84DT105	229	F	84JM115	268	C	84EM057C	306	B
85DT204	182	F	84DT106	230	F	84JM114	269	C	84EM057E	306	C
86YB319	183	F	84DT106A	231	B	84JM113	270	C	84YB073	307	B
86DT257	184	F	84DT107	232	F	84JM112	271	C	84EM058C	308	B
86DT259	185	F	84YB087A	233	E	84YB080A	272	C	86YB300B	309	B
86DT263	186	F	84YB086	234	I	84YB080C	272	B	86YB300	309	B
86DT262	187	F	84YB085	235	E	84YB080B	272	B	86YB301	310	B
85JM171	188	F	86RJ106B	236	B	84YB078	273	B	86YB302	311	B
85JM172	189	F	86RJ106A	236	E	84EM064E	274	C	86JM182B	312A	I
85JM170	190	F	84EM063C	237	B	84EM064C	274	B	86JM182A	312A	B
85JM169	191	F	84EM063E	237	B	84YB079	275	B	86JM183	312B	D
85JM173	192	F	85YB241B	238	F	84YB081	276	B	86JM182C	312A	B
85JM174	193	F	86JM188	239	D	84JM111	277	A	86RJ053	313	B
86JM194	194B	D	86JM189	240	D	84DT139	278	B	84RJ144C	314	I
86DT256	194A	F	86JM190	241	D	86RJ049A	279	B	84RJ144E	314	C
86YB313	195	I	86JM191	242	D	86RJ049B	279	B	86YB306	315	B
85DT214	196	F	86YB309	243	E	84DT138	280	C	86RJ054	316	H
85DT213	197	F	86DT250	244	D	84DT137	281	B	84RJ143C	317	B
85DT212	198	D	86DT251	245	D	84DT136	282	B	84YB077	318	B
85JM178	199	E	86DT252A	246	E	86RJ048	283	B	84YB076	319	B
85JM177	200	E	85JM168	247	B	84JM072	284	B	84EM062B	320	C
85JM176	201	D	85JM167	248	C	84DT142	285	C	84RJ145A	321	C
85JM175	202	D	85JM166	249	C	83PB067	286	B	84RJ145E	321	B
86DT254	203	F	85DT203	250	B	84DT095	287	A	84RJ146B	322	B
86JM193B	204	F	85DT202	251	B	84DT094	288	A	84YB074	323	I
86JM193	204	D	85DT201	252	C	84DT093	289	C	84YB075	324	D
86JM192	205	F	85DT200	253	C	84RJ142D	291	A	84YB075B	324	G

Table 6. Bedrock sample numbers arranged by ascending map number, continued

SAMPLE	MAP NO.	MAP UNIT	SAMPLE	MAP NO.	MAP UNIT	SAMPLE	MAP NO.	MAP UNIT	SAMPLE	MAP NO.	MAP UNIT
84RJ086A	325	C	84YB032	370	F	83RJ144C	411	B	83RJ141B	451	B
84RJ084C	326	B	83YB002	371	B	83RJ144B	411	B	83RJ142	452	B
84RJ083B	327	C	83JM048	372	F	83RJ144A	411	F	84RJ100A	453	B
83PB066	328	B	83JM046	373	F	83PB049	412	B	84RJ100C	453	B
84EM018C	329	B	83DT002B	374	F	83PB048A	413	A	84RJ099B	454	B
84YB030	330	D	83JM047A	375	F	83PB048B	413	H	84RJ099D	454	B
84YB029	331	D	83JM047B	375	F	84DT100	414	F	84RJ101C	455	B
84YB028	332	D	84YB018B	376	I	84DT101	415	F	84RJ101B	455	B
84YB027	333	B	84RJ070E	377	B	84DT102	416	F	84RJ102D	456	I
84YB026	334	B	84RJ070B	377	F	84DT103	417	F	84EM065C	457	B
84YB025	335	B	84RJ067B	378	F	83PB047	418	B	84EM019C	458	B
84JM067	336	E	84DT073	379	F	84RJ088C	419	B	84EM020F	459	C
84DT088	337	D	84DT074	380	F	84RJ089A	420	F	84EM020D	459	C
84YB024	338	B	84DT075	381	B	84DT096	421	F	84EM020C	459	B
84DT087	339	E	84DT076	382	F	84DT097	422	F	84EM021C	460	B
83PB068	340	D	84DT081	383	F	84DT098	423	A	84EM022C	461	B
84DT085	341	E	84DT080	384	F	86YB326	424	A	83JM055	462	D
83PB065	342	B	84DT079	385	F	84JM077	425	B	83JM051	463	D
84JM066	343	F	84DT078	386	F	84JM076	426	F	84DT109	464	D
84DT086	344	B	84JM079	387	F	84JM075	427	F	83YB005	465	B
84JM064	345	F	84DT077	388	F	84JM074	428	F	83RJ046A	466	C
83YB001	346	B	84JM078	388	F	84JM073	429	F	83RJ046B	466	C
83AL002B	347	F	83RJ145A	389	F	86YB328	430	A	84EM024F	467	B
84JM065B	348	F	83RJ145B	389	F	84YB017	431	A	84EM024I	467	C
84JM065	349	F	83RJ145C	389	F	84YB016	432	A	84EM024C	467	B
84DT143	350	C	83RJ146	390	F	84YB015	433	A	84EM025C	468	B
83DT070A	351	B	83PB053	391	F	84DT108	434	A	83RJ047	469	D
83DT069A	352	F	84RJ072B	392	B	84JM085	435	F	84EM026B	470	I
84JM062	353	F	83PB052	393	B	84JM086	436	F	84EM026C	470	I
84JM061	354	F	83YB012	394	B	84YB039	437	B	84EM026A	470	D
84JM061A	354	F	83RJ051	395	A	83YB011	438	D	84RJ064F	471D	B
84JM060	355	F	83RJ053	396	B	83JM050A	439	F	83PB007	471B	C
84JM059	356	F	83RJ149	397	B	83JM050B	439	F	83YB010	471A	D
84JM058A	357	F	83PB054B	398	A	83JM049	440	F	84RJ064B	471D	C
84JM058	358	F	83PB054A	398	B	83PB009	441	C	84RJ065C	471C	B
84DT089	359	C	83RJ148A	399	B	83PB009B	441	E	83PB059	472	B
84RJ069B	360	F	83RJ148B	399	B	83RJ050	442	F	83RJ153	473	B
84RJ068D	361	B	83PB010	400	A	83RJ049	443	A	84RJ076C	474	B
84RJ068B	361	I	83PB011B	401	B	83JM044A	444B	C	84EM009C	475	H
84JM082	362	F	83RJ147A	402	B	83YB003	444A	B	84RJ066B	476	C
84JM083	363	F	83RJ143	403	A	83DT004C	445	B	84EM034B	477	B
83DT063A	364A	F	84YB021B	404	B	83DT003C	446	C	84EM066B	478	B
84JM084A	364A	F	84YB020	405	A	83DT003A	447	C	84EM066A	478	B
84JM084	364B	F	84YB019	406	A	83RJ028D	448	B	84EM035B	479	B
84JM081	365	F	83PB051	407	B	83RJ138A	449	B	84EM014C	480	B
84JM080	366	F	84RJ091B	408	B	83RJ138B	449	B	84RJ081D	481	B
84YB034	367	F	84RJ091A	408	F	83RJ138D	449	B	84RJ081C	481	B
84YB033A	368	F	83PB050	409	B	83RJ138C	449	B	83RJ151	482	B
84YB033B	368	F	84YB023B	410	B	83RJ140	450	B	83RJ151	482	B
84YB031	369	F	84YB023C	410	B	83RJ141A	451	B	83RJ152	483	B

Table 6. Bedrock sample numbers arranged by ascending map number, continued

SAMPLE	MAP NO.	MAP UNIT	SAMPLE	MAP NO.	MAP UNIT	SAMPLE	MAP NO.	MAP UNIT	SAMPLE	MAP NO.	MAP UNIT
83PB058B	484	B	84EM067F	523	B	84EM046C	562	B	83DT026A	607	B
83PB058A	484	B	84EM067B	523	B	83RJ101	563	B	83DT025A	608	C
83RJ150	485	B	84EM067D	523	B	84EM047E	564	B	83JM015A	609	C
83RJ045	487	B	83RJ102A	524	B	84EM047B	564	B	83JM014A	610	C
83RJ039	488	B	83RJ102B	524	B	83RJ103A	565	B	83RJ089A	611	B
83RJ038	489	B	84RJ151C	525	B	84EM048C	566	B	83JM024B	612	D
83PB002	490	B	84RJ150C	526	B	83AL038B	567	B	83JM024A	612	D
84RJ062B	491	B	83RJ174	527	B	83AL039A	568	C	83RJ056	613	B
84RJ063C	492	B	83RJ173A	528	B	84DT084	569	C	83RJ055	614	C
84EM003C	493	B	83RJ173B	528	B	84DT083	570	B	83RJ054	615	B
83RJ161	494	B	83PB064A	529	G	84DT082	571	C	83PB046B	616	H
83YB006	495	B	83PB064B	529	G	83AL040B	572	B	83PB046	616	B
83RJ031	496	B	83PB064C	529	B	83RJ105B	573	B	83RJ088	617	C
83YB007	497	B	83RJ060B	530	B	83RJ105A	573	B	83RJ135	618	B
83YB009	498	B	83RJ060A	530	B	83RJ095	574	C	83PB030	619	B
83RJ162B	499	B	83RJ061	531	B	83RJ094	575	B	83RJ137	620	B
83RJ162A	499	B	83RJ170	532	B	83RJ104B	576	C	83PB045	621	B
83PB004	500	B	83RJ169	533	B	83RJ104A	576	C	83RJ136	622	B
83RJ033	501	B	83RJ171	534	B	84EM049C	577	B	83RJ099	623	B
83RJ042	502	B	83RJ167A	535	B	84YB056	578	B	83RJ134A	624	C
83RJ160	503B	B	83RJ167B	535	B	83RJ064B	579	B	83RJ134B	624	B
83RJ159	503A	B	84RJ097D	536	B	83RJ064	579	B	83RJ098B	625	B
83RJ043	504	B	84EM012G	537	I	84YB057	580	B	83PB044	626	B
83PB005	505	B	84EM012C	537	B	84YB059	581	B	83RJ131	627	B
83RJ157D	506	B	84RJ078C	538	B	84YB060	582	B	83PB043B	628	C
83RJ157A	506	B	84RJ079C	539	B	84YB061	583	C	83PB043A	628	C
83RJ157C	506	B	84EM011B	540	B	84YB042A	584	B	86RJ122A	629	B
83RJ032E	507	B	84EM013C	541	B	84YB042B	584	B	86RJ122B	629	B
83RJ032F	507	B	84RJ093B	542	B	83RJ117	585	B	83DT015A	630	B
83RJ044B	508	B	84RJ094C	543	B	83RJ116	586	B	83DT014A	631	F
83RJ165	509	C	84RJ095C	544	B	83RJ115	587	B	83JM041A	632D	F
84RJ073D	510	C	86RJ076	545	B	83RJ114	588	B	83DT018	632A	D
84RJ073E	510	C	84YB082	546	A	83PB035B	589	B	83DT018A	632A	D
84RJ073F	510	C	84RJ096B	547	B	83PB035A	589	B	83JM042A	632C	F
84RJ073G	510	C	83PB013	548	B	83RJ074	590	B	83JM043A	632B	D
84RJ073A	510	C	83RJ057	549	B	83RJ073	591	B	83DT021	633	D
84RJ073B	510	C	83PB014A	550	I	83RJ072	592	B	84JM090	634	E
84RJ073C	510	C	83PB014B	550	B	84YB040	593	B	83AL025C	635	F
83RJ163	511	C	83PB060	551	B	84YB041	594	B	83AL016D	636	F
83AL043B	512	B	83PB061	552	B	83RJ083	595	B	83AL016C	636	F
									83AL011C	637	F
84RJ074C	513	B	83RJ168	553	B	83RJ071	596	B	84DT111	638	F
83RJ164	514	B	83RJ058A	554	B	83PB024	597	C	84JM089	639	F
83AL042D	515	B	83RJ058	554	B	83PB023B	598	I	84JM087	640	F
83AL042B	516	B	83PB063	555	G	83PB025	599	C	84JM088	641	F
83RJ156	517	B	83RJ172	556	B	84EM028B	600	D	84DT110	642	F
83RJ155	518	B	83PB062	557	G	83PB026	601	G	83AL010C	643	F
83RJ154	519	B	83RJ100B	559	B	83RJ086	602	C	83AL009C	644	F
83AL041B	520	B	83RJ100A	559	B	83DT036A	603	C	83JM013A	645	I
83RJ176	521	B	83RJ063	560	B	83DT038A	604	C	83JM012A	646	F
83RJ175	522	B	84YB083	561	B	84RJ116G	606	B	84JM091	647	F

Table 6. Bedrock sample numbers arranged by ascending map number, continued

SAMPLE	MAP NO.	MAP UNIT	SAMPLE	MAP NO.	MAP UNIT	SAMPLE	MAP NO.	MAP UNIT	SAMPLE	MAP NO.	MAP UNIT
83JM011A	648	F	84EM039C	687	B	83JM032A	709	D	86JM214B	749	B
83JM009A	649	F	84EM040C	688	B	83JM030B	710	D	86JM214C	750	E
83DT051A	650	B	84RJ120D	689	B	83PB042	711	B	86JM215	751	B
83DT051B	650	D	84RJ120E	689	B	84JM092	712	D	86JM216	752	B
83DT051C	650	B	84RJ120B	689	B	83DT010A	713	B	86RJ078	753A	B
83DT048	651	B	83PB038A	690	B	84JM093	714	D	87RJ045	753B	B
83JM008A	652	F	83PB038C	690	B	84JM094	715	D	86JM217	754	B
83DT011A	653	F	83PB038D	690	B	84JM095	716	D	84JM122	756	F
83RJ132	654	B	83RJ122A	691	B	84JM096	717	E	84JM123	757	F
84EM052C	655	B	83RJ122B	691	B	84JM098	718	F	86JM212	758	F
84EM053C	656	B	83RJ121	692	B	84JM097A	719	E	86JM213	759	F
84EM054C	657	C	84RJ135T	693	B	84JM097	719	E	84JM118	760	F
83DT044A	658	C	84RJ135S	693	B	83JM037A	720	D	84JM118B	761	F
84EM050A	659	B	84RJ135R	693	B	83JM038A	721	D	84JM119	762	F
84EM050B	659	B	84RJ135Q	693	B	83RJ107A	722	B	84JM120	763	F
83PB027	660	B	84RJ135P	693	B	83RJ107D	722	F	84JM121	764	F
83RJ076	661	B	84RJ135O	693	B	83RJ107B	722	F	84JM117	765	F
83PB018	662	B	84RJ135A	693	B	83RJ107C	722	F	84JM116	766	F
83PB028	663	B	84RJ135B	693	B	84DT115	723	D	84JM135	767	F
83PB020A	664	B	84RJ135C	693	B	84DT114	724	C	84JM136	768	F
83RJ077	665	B	84RJ135D	693	B	84EM042B	725	F	84JM134	769	F
83RJ078A	666	B	84RJ135E	693	B	84DT116	726	B	84JM133	770	F
83RJ078B	666	B	84RJ135F	693	B	84DT117	727	F	84JM132	771	F
83RJ079	667	B	84RJ135G	693	B	84DT118	728	F	86DT266	772	F
83PB019B	668	B	84RJ135H	693	B	83RJ109	729	F	86JM220	773	F
83PB022B	669	B	84RJ135I	693	B	83PB033	730	B	86JM218	775	F
83PB021	670	B	84RJ135K	693	B	84DT113	731	F	86DT269	776	E
83RJ080	671	B	84RJ135L	693	B	84DT119	732	B	85RJ191B	777	H
83RJ096A	672	B	84RJ135M	693	B	83RJ110	733	I	85RJ191C	777	H
83RJ096B	672	B	84RJ135N	693	B	84YB055	734	A	86DT264	777	D
83RJ120	673	B	83RJ097A	695	B	84YB054	735	A	86RJ125A	778	F
83PB037A	674	B	83RJ097B	695	B	84YB053	736	A	86RJ125C	778	B
83PB037B	674	B	83RJ097C	695	B	84YB052	737	A	86RJ125E	778	B
83RJ119	675	B	83RJ097G	695	B	83RJ130A	738	B	86RJ125F	778	B
83RJ118A	676	B	84EM051B	696	B	83RJ130B	738	E	86RJ125B	778	F
83RJ118B	676	B	84EM051A	696	B	83RJ128	739	B	86RJ125G	778	B
86RJ121A	677	B	84RJ137C	697	B	84RJ124E	740	B	86RJ126A	779	B
86RJ121B	677	B	84RJ137D	697	B	83PB041A	741	B	86RJ126B	779	F
84EM036C	678	B	83PB040	698	B	83PB041B	741	H	86RJ126C	779	F
84EM037C	679	B	83PB039	699	B	84EM041B	742	F	85RJ183	780A	A
84EM038C	680	B	83RJ127	700	B	84EM041E	742	A	86RJ060	780B	B
84EM030B	681	A	83RJ126	701	B	84RJ121A	743	F	87RJ039	780C	B
84EM030A	681	A	83RJ124	702	B	84RJ121B	743	F	85DT229	780D	B
84RJ117B	682	B	83RJ123	703	B	84YB063	744	F	85DT228	780E	F
84EM033A	683	B	83JM039A	704	B	83PB017	745	A	86RJ063	780F	B
84EM033B	683	B	83JM039B	704	I	83PB016A	746	A	87RJ038	780G	B
84RJ119C	684	A	83DT057A	705	D	84YB064B	747	A	84EM091B	781B	A
84EM032B	685	B	83JM036A	706	D	84YB064A	747	16	83RJ092	781A	A
84EM032A	685	B	83JM035A	707	D	86YB333	748	A	84YB050	782	A
84EM031C	686	B	83JM034A	708	D	86JM214A	749	E	84EM090B	783B	A

Table 6. Bedrock sample numbers arranged by ascending map number, continued

SAMPLE	MAP NO.	MAP UNIT	SAMPLE	MAP NO.	MAP UNIT	SAMPLE	MAP NO.	MAP UNIT	SAMPLE	MAP NO.	MAP UNIT
84YB049	783A	A	85RJ174A	828	F	84JM105	862	F	85JM156	910	F
84YB051	784	A	85RJ174B	828	B	84JM104	863	F	85RJ056	911	A
84EM043B	785	A	85RJ174C	828	F	84DT122	864	F	86JM221	912	F
84EM043D	785	F	85RJ174E	828	B	84DT123	865	F	85YB207	913	F
83PB032	786	A	85RJ174G	828	F	84DT121	866	F	85YB208	914	F
84EM044C	787	F	85RJ175A	829	F	84RJ129B	867	F	85YB211	915	G
83RJ091	788	A	85RJ175B	829	F	84DT120	868	F	85YB210	916	H
83RJ093	789	A	86RJ124E	830	F	84JM099	869	F	85YB209	917	H
83RJ111	790	A	86RJ124E	830	B	84JM100	870	F	83RJ221C	918	H
83JM018A	791	F	86RJ124E	830	B	84JM101	871	F	83RJ221A	918	H
83JM020A	792	F	86RJ124A	830	B	84JM102	872	F	83RJ221D	918	G
83JM019A	793	F	86RJ124D	830	B	84JM103	873	F	84EM071C	919	H
84DT125	794B	C	86RJ124A	830	B	83DT029A	874	F	84EM070C	920	B
83JM023A	794A	F	86RJ124A	830	C	83DT031	875	F	84EM072B	921	B
84DT124	794C	F	86RJ124A	830	B	83JM026A	876	F	84EM073C	922	G
85YB222	795	A	86RJ124D	830	B	83JM025B	877	F	84RJ163C	923	G
84YB066	796	A	85JM148	831	F	84DT134	878	F	84RJ163D	923	G
85YB217	797	A	85JM147	832	F	84DT133	879	F	84RJ160C	924	B
86RJ128C	798	F	85JM146	833	F	84DT132	880	F	83RJ222	925	H
86RJ128B	798	B	85JM145	834	F	84DT131	881	F	83RJ220	926	G
86RJ128A	798	F	85JM144	835	F	84DT130	882	A	85RJ041	927	G
85YB219	799	A	85JM143	836	F	84YB071	883	A	85RJ040	928	H
85YB218	800	A	85JM143B	836	I	84JM110	884	F	85RJ168A	929	G
84DT159	801	F	85DT171	837	F	84JM109	885	F	85RJ169A	930	H
84DT160	802	F	85DT169	838	A	84JM108	886	F	83RJ219	931	H
84DT161	803	F	85DT168	839	F	84JM107	887	F	84RJ056B	932	G
84DT162	804	F	85DT180	840	A	84YB070	887	A	85RJ049	933B	G
84DT163	805	F	85YB216	841	A	84YB045	888	A	85RJ045	933A	G
85DT223	806	F	85DT189A	842	F	84YB067	889	A	85RJ042	934	G
84DT154	807	F	85DT189	842	A	85DT173	890	F	85RJ037	935	G
86JM227	808	F	85JM155	843	F	85JM150	891	F	85RJ036	936	H
84DT146	809	F	85JM154	844	F	85JM149	892	F	85RJ035	937	H
84DT145	810	F	85JM153	845	F	84YB069	893	A	85RJ034	938	H
84DT144	811	F	85JM152	846	F	85JM138	894	F	85RJ038D	939	H
84DT147	812	F	85JM151	847	F	85JM138B	894	A	85RJ038B	939	H
84DT148	813	F	85JM157	848	F	85JM139	895	F	85RJ039	940	H
84DT149	814	F	85DT184	849	F	85JM140	896	I	85RJ033	941	H
84DT150	815	F	84RJ133E	850	F	85JM141	897	F	85RJ032	942	H
86JM226	816	F	84RJ133C	850	B	85JM142	898	F	84RJ058B	943	G
86JM225	817	F	84DT128	850	F	85YB220	899	A	85RJ030	944	G
86JM224	818	B	84RJ128C	851	B	85YB221	900	A	85RJ031A	945	H
85RJ204	819	B	84YB065	852	A	85YB204	901	A	85RJ031B	945	H
86DT278	820	B	84DT126	853	F	85YB214	902	A	85RJ031C	945	H
85DT219	821	B	84DT127	854	F	85YB213	903	A	84RJ059B	946	H
85DT219B	822	B	84YB047	855	F	84JM124	904	B	85DT193	947	F
85DT220	823	B	84YB048	856	F	85JM137	905	A	85RJ054C	948	H
85RJ203	824	B	84DT129	857	F	85JM137B	906	A	85RJ055	949	G
85DT178A	825	I	84RJ132	859	F	84JM125	907	B	85YB201	950	G
85DT177	826	F	84JM106	860	F	84JM126	908	B	85YB200	951	G
85DT176	827	F	84JM105B	861	F	84JM127	909	B	85YB205	952	A

Table 6. Bedrock sample numbers arranged by ascending map number, continued

SAMPLE	MAP NO.	MAP UNIT
85RJ053	953	G
85RJ022	954	G
85RJ023	955	G
85DT191	956B	G
85DT194	956A	G
85DT165	957B	H
85RJ058	957A	G
85RJ158B	958	G
85RJ158A	958	G
85RJ060	959	H
85RJ059	960	H
85DT190	961	H
85RJ052	962	H
85RJ051	963	H
84YB094	964	G
85RJ021	965	H
83RJ228	966	H
84YB095	967	H
85RJ029	969	H
83RJ229	970	H
83RJ210C	972	G
83RJ210A	972	H
85RJ150	973	B

Table 7. Geochemical analyses of metamorphosed rocks from the Mount Katmai study area

["Map.No." refers to localities on Plate II. "N" = not detected; "--" = not analyzed for; "S" = spectrographic; "%" = results in weight percent, otherwise in parts per million; "AA" = atomic absorption; "INST" = instrumental. As, Au, Cd, Sb, Sn, W, and Th were not detected by spectrographic analysis and are deleted from table 7. For statistical summary of data in this table see table 18.]

SAMPLE	LATITUDE	LONGITUDE	MAP NO.	ALTERED?	Fe%-S	Mg%-S	Ca%-S	Ti%-S	Mn-S	Ag-S	B-S	Ba-S	Be-S	Bi-S	Co-S	Cr-S	Cu-S
84RJ172C	58 36 31	155 58 49	40	no	5.00	2.00	1.00	0.500	700	N	70	1,500	1	N	20	10	100
86RJ094	58 38 54	155 53 51	41	no	10.00	2.00	3.00	0.500	1,000	N	20	300	N	N	50	50	20
83RJ212	58 35 16	155 56 3	42	no	5.00	1.50	1.50	0.500	1,500	<0.5	20	500	<1	N	20	10	70
83RJ223	58 31 33	155 58 45	43	no	7.00	5.00	1.50	0.500	1,000	N	10	700	N	N	100	200	70
83RJ224	58 31 26	155 59 5	44	no	7.00	3.00	1.50	0.500	1,000	N	<10	500	<1	N	50	150	70
86DT283	58 30 4	155 59 57	45	no	5.00	1.00	2.00	0.150	1,000	N	20	1,000	<1	N	7	N	10
84YB093	58 35 32	155 50 33	46	no	7.00	3.00	2.00	0.500	1,000	N	50	2,000	<1	N	50	150	5
84YB092	58 35 25	155 50 49	47	no	7.00	1.50	2.00	0.500	500	N	30	2,000	<1	N	20	100	N
86JM228	58 37 37	155 48 30	48	no	15.00	5.00	2.00	0.500	1,000	N	20	1,500	N	N	50	100	100
86RJ090	58 34 25	155 37 31	49	no	15.00	7.00	5.00	0.500	1,000	N	10	100	N	N	50	500	70
83RJ213	58 37 2	155 39 50	50	no	5.00	2.00	1.50	0.500	1,000	N	<10	700	<1	N	20	50	50
84YB089	58 37 7	155 39 50	51	no	5.00	5.00	3.00	0.500	1,000	N	50	1,500	N	N	30	30	70
84RJ180B	58 37 27	155 34 27	52	no	5.00	1.50	1.00	0.500	1,500	N	50	1,500	2	N	10	10	10
84RJ184B	58 39 18	155 28 52	53	no	10.00	5.00	2.00	0.500	1,500	N	10	500	N	N	50	30	70
86RJ098	58 43 51	155 34 0	63	no	7.00	2.00	2.00	0.200	500	N	10	500	N	N	30	50	30
85RJ083	58 45 3	155 20 31	68	no	7.00	2.00	3.00	0.500	700	N	10	150	N	N	30	20	50
84RJ171B	58 45 42	155 20 32	70	no	7.00	2.00	2.00	0.700	1,000	N	10	1,500	N	N	50	20	100
84RJ055B	58 43 28	155 19 29	72	no	7.00	5.00	2.00	0.500	1,000	N	50	500	N	N	50	100	150
85YB248	58 44 15	155 18 30	73	no	5.00	1.50	2.00	0.500	1,500	N	<10	500	<1	N	15	N	10
85RJ200A	58 50 40	155 3 34	98	no	5.00	3.00	5.00	0.500	1,000	N	30	1,000	N	N	30	50	70
86YB315B	58 49 18	155 2 56	99	no	.70	10.00	20.00	0.005	3,000	N	20	N	N	N	<5	<10	5
86RJ067	58 49 19	155 2 51	100	yes	15.00	3.00	7.00	0.300	2,000	N	<10	70	<1	N	50	50	15
85YB258	58 53 18	155 2 39	103	no	5.00	2.00	2.00	0.300	1,500	N	20	700	<1	N	20	100	<5
85RJ105D	58 56 41	155 4 12	105	yes	7.00	5.00	5.00	0.300	1,500	N	10	150	N	N	30	700	50
85RJ105C	58 56 41	155 4 12	105	no	5.00	2.00	3.00	0.500	500	N	20	150	N	N	30	200	30
85YB231	58 58 4	155 2 44	106	no	7.00	3.00	2.00	0.300	1,500	N	20	500	<1	N	70	500	50
85RJ075	58 57 34	155 0 53	107	no	7.00	2.00	2.00	0.500	1,500	2.0	20	500	1	N	70	150	1,000
85YB242	58 57 35	155 0 40	108	no	5.00	1.50	2.00	0.500	1,000	N	<10	500	<1	N	20	50	20
85YB230	58 57 57	155 0 10	109	no	7.00	2.00	2.00	0.500	2,000	N	50	200	1	N	30	10	<5
85RJ074B	58 56 50	155 0 29	110	no	5.00	1.00	1.00	0.700	2,000	<0.5	150	1,000	1	N	20	20	30
85RJ074D	58 56 50	155 0 29	110	no	2.00	.15	1.00	0.500	1,000	0.5	<10	300	<1	N	10	N	<5
85RJ074C	58 56 50	155 0 29	110	no	3.00	.20	.30	0.500	700	<0.5	100	500	<1	N	10	20	50
85RJ064	58 59 1	155 0 49	111	no	2.00	.50	.50	0.150	1,000	N	50	500	<1	N	<5	N	<5
85YB226	58 58 48	155 0 29	112	no	7.00	1.00	3.00	0.500	1,500	N	50	300	1	N	20	<10	30
85RJ065	58 58 42	155 0 3	113	no	5.00	1.00	1.50	0.300	1,500	N	100	500	1	N	50	30	15
86RJ068B	58 59 18	154 58 49	114	no	15.00	2.00	2.00	0.700	1,000	N	>2,000	100	N	N	50	50	20
86RJ068A	58 59 18	154 58 49	114	no	15.00	3.00	5.00	0.700	2,000	N	20	300	N	N	100	50	200
83RJ216B	58 58 56	154 59 8	115	no	5.00	.20	.50	0.500	200	N	100	1,000	2	N	15	20	5
85YB227	58 58 26	154 59 13	116	no	1.50	.70	1.00	0.500	300	N	150	2,000	1	N	5	30	<5
85RJ066	58 58 16	154 58 12	117	no	7.00	2.00	2.00	0.500	3,000	N	20	150	<1	N	30	70	<5
86RJ082	58 57 35	154 58 50	118A	no	10.00	2.00	5.00	1.000	2,000	N	20	500	N	N	50	50	15
85RJ068	58 57 43	154 59 12	118B	no	5.00	2.00	2.00	0.300	2,000	N	10	200	<1	N	30	30	20
86RJ080	58 56 57	154 53 31	121	yes	5.00	1.00	1.00	0.200	200	N	500	700	N	N	10	10	10
85RJ107A	58 54 34	154 53 35	122	yes	.05	.02	<.05	0.500	10	N	30	150	N	N	N	30	7
85RJ107D	58 54 34	154 53 35	122	yes	2.00	1.50	.50	0.300	300	N	<10	100	N	N	5	20	10

Table 7. Metamorphosed rocks, continued

SAMPLE	La-S	Mo-S	Nb-S	Ni-S	Pb-S	Sc-S	Sr-S	V-S	Y-S	Zn-S	Zr-S	Au-AA	Hg-INST	As-AA	Zn-AA	Cd-AA	Bi-AA	Sb-AA
84RJ172C	N	N	N	5	50	20	500	100	70	<200	200	--	N	N	40	N	N	N
86RJ094	N	N	N	50	<10	20	500	300	20	200	100	--	<0.02	N	85	N	N	N
83RJ212	N	N	N	10	30	20	1,000	200	20	N	100	N	--	N	70	N	N	N
83RJ223	N	N	N	50	10	50	300	200	20	<200	100	--	N	N	70	N	N	N
83RJ224	N	N	N	20	30	50	500	200	30	<200	100	--	N	N	55	N	N	N
86DT283	N	N	N	5	10	5	300	50	10	<200	100	--	0.06	<10	85	0.1	N	N
84YB093	<20	N	N	50	30	30	500	200	50	<200	200	--	N	<10	35	N	N	N
84YB092	N	N	N	10	20	30	700	200	70	<200	100	--	N	<10	40	N	N	N
86JM228	N	N	N	20	N	30	100	500	20	200	70	--	N	N	85	N	N	N
86RJ090	N	N	N	100	N	20	100	300	15	<200	70	--	N	N	55	N	N	N
83RJ213	N	20	N	20	<10	20	1,000	200	20	N	150	N	--	N	60	N	N	N
84YB089	N	N	N	20	30	20	1,000	200	50	<200	150	--	N	<10	50	N	N	N
84RJ180B	<20	10	N	5	50	20	500	100	100	N	200	N	N	20	45	N	N	N
84RJ184B	N	N	N	5	10	50	500	300	50	200	50	--	N	N	25	N	N	N
86RJ098	N	N	N	20	10	15	500	200	10	<200	70	--	0.02	20	45	0.1	N	N
85RJ083	N	N	N	15	N	20	500	150	20	N	30	--	--	N	50	N	N	N
84RJ171B	N	N	N	20	70	30	500	300	70	200	200	N	N	<10	60	N	N	N
84RJ055B	N	N	N	20	<10	50	300	200	30	<200	30	0.05	N	10	10	N	N	N
85YB248	N	<5	N	5	<10	20	300	150	20	N	70	--	0.24	N	40	N	N	N
85RJ200A	N	N	N	15	N	30	200	200	20	N	30	--	--	N	40	N	N	N
86YB315B	N	N	N	<5	N	N	N	10	10	N	N	--	0.22	80	15	<0.1	N	N
86RJ067	N	N	N	30	N	15	N	200	20	<200	20	--	1.10	<10	20	N	N	N
85YB258	N	N	N	15	15	20	500	200	20	N	70	--	0.11	30	50	N	N	N
85RJ105D	N	N	N	100	N	30	300	200	15	N	20	--	--	N	50	0.1	N	N
85RJ105C	N	N	N	50	<10	20	500	200	15	N	50	--	--	N	50	N	N	N
85YB231	N	N	N	70	<10	30	200	150	20	N	50	--	--	N	65	N	N	N
85RJ075	N	N	N	30	<10	30	500	150	20	<200	100	--	0.05	10	120	0.2	N	N
85YB242	N	N	N	10	<10	20	500	150	20	N	100	--	0.08	<10	80	N	N	N
85YB230	N	N	N	5	10	20	500	200	20	<200	50	--	--	N	80	N	N	N
85RJ074B	N	N	N	10	20	30	200	200	30	N	150	--	0.06	20	65	N	N	N
85RJ074D	N	N	N	5	15	15	300	50	20	N	200	--	0.16	10	35	N	N	N
85RJ074C	N	<5	N	5	50	15	100	150	15	300	200	--	0.32	30	340	0.8	N	8
85RJ064	N	N	N	<5	<10	7	100	50	10	N	100	--	--	N	60	N	N	N
85YB226	N	N	N	5	15	20	700	150	20	N	70	--	--	N	80	N	N	N
85RJ065	N	N	N	10	10	20	500	100	20	N	100	--	--	30	70	N	1.	N
86RJ068B	N	N	N	30	10	30	200	300	50	200	100	--	0.02	<10	40	N	N	N
86RJ068A	N	N	N	20	10	50	500	500	30	200	100	--	0.10	<10	30	N	N	N
83RJ216B	100	N	20	10	20	20	300	200	100	N	200	N	--	N	20	N	N	N
85YB227	N	N	N	10	<10	20	200	150	20	N	100	--	--	N	25	N	N	N
85RJ066	N	N	N	20	<10	30	700	150	20	N	70	--	--	N	10	N	N	N
86RJ082	N	N	N	10	<10	30	500	200	30	200	100	--	N	<10	50	N	N	N
85RJ068	N	N	N	10	<10	20	500	300	20	N	50	--	--	N	5	N	N	N
86RJ080	N	N	N	20	20	5	200	70	<10	<200	70	--	N	N	10	N	N	N
85RJ107A	N	N	N	<5	10	<5	700	100	N	N	150	--	--	N	N	N	N	N
85RJ107D	N	7	N	5	N	15	200	100	<10	N	70	--	--	N	70	N	N	N

Table 7. Metamorphosed rocks, continued

SAMPLE	LATITUDE	LONGITUDE	MAP NO.	ALTERED?	Fe%-S	Mg%-S	Ca%-S	Ti%-S	Mn-S	Ag-S	B-S	Ba-S	Be-S	Bi-S	Co-S	Cr-S	Cu-S
85RJ107I	58 54 34	154 53 35	122	no	5.00	1.50	10.00	0.300	5,000	N	15	150	N	N	20	30	50
85RJ107E	58 54 34	154 53 35	122	yes	3.00	1.50	0.10	0.300	200	N	15	200	N	N	10	20	20
85RJ107C	58 54 34	154 53 35	122	yes	3.00	1.50	0.15	0.300	500	N	10	200	N	N	5	30	10
86RJ111	58 54 28	154 53 40	123	no	10.00	1.00	10.00	0.150	>5,000	1.0	20	<20	<1	20	10	30	300
86RJ109B	58 53 29	154 57 43	124	no	5.00	1.50	0.20	0.200	500	N	50	500	<1	N	5	20	200
86RJ081	58 50 9	154 49 51	155	yes	7.00	1.00	<.05	0.300	1,000	N	20	500	N	N	10	<10	50
85RJ062	58 55 29	154 34 42	173	yes	10.00	5.00	1.00	0.500	>5,000	N	N	70	<1	N	30	100	70
86RJ052C	58 41 15	153 42 9	301	no	10.00	1.50	<.05	0.150	3,000	N	20	200	N	N	15	20	70
86RJ054	58 42 35	153 52 6	316	no	10.00	2.00	1.00	0.500	500	N	15	150	N	N	15	150	10
83PB048B	58 29 56	154 19 14	413	no	5.00	2.00	2.00	0.500	700	N	15	500	<1	N	30	100	30
84EM009C	58 20 54	154 25 0	475	no	10.00	2.00	0.50	0.500	700	N	100	700	1	N	30	200	70
83PB046B	58 5 11	154 39 49	616	no	5.00	2.00	3.00	0.700	700	N	10	200	1	N	30	10	30
83PB041B	58 13 32	154 55 2	741	no	2.00	1.50	2.00	0.500	700	N	15	500	<1	N	15	50	<5
85RJ191B	58 21 9	154 56 22	777	no	5.00	1.50	3.00	0.300	1,000	N	10	70	N	N	15	50	20
85RJ191C	58 21 9	154 56 22	777	no	5.00	1.50	2.00	0.500	200	N	50	200	N	N	30	150	100
85YB210	58 20 14	155 40 21	916	no	5.00	2.00	2.00	0.300	1,000	N	<10	300	N	N	20	30	70
85YB209	58 20 26	155 40 59	917	no	3.00	0.70	1.00	0.300	1,500	N	<10	700	<1	N	15	10	<5
83RJ221C	58 22 0	155 40 43	918	yes	5.00	0.50	0.50	0.500	300	N	50	700	1	N	5	<10	5
83RJ221A	58 22 0	155 40 43	918	yes	5.00	1.50	1.50	0.500	1,000	N	20	700	<1	N	15	20	5
84EM071C	58 22 57	155 40 31	919	yes	5.00	1.50	1.00	0.500	500	N	50	1,500	<1	N	20	70	5
83RJ222	58 26 35	155 44 11	925	no	5.00	2.00	2.00	0.500	1,000	N	20	700	<1	N	20	50	10
85RJ040	58 20 48	155 43 7	928	no	5.00	1.50	2.00	0.500	1,500	<0.5	<10	300	<1	N	20	15	20
85RJ169A	58 20 45	155 48 30	930	no	2.00	1.00	1.00	0.150	300	N	15	200	N	N	15	20	30
83RJ219	58 19 53	155 47 5	931	no	7.00	1.50	1.00	0.700	1,500	N	20	100	<1	N	50	<10	10
85RJ036	58 17 10	155 50 35	936	no	3.00	1.00	1.00	0.500	1,500	N	<10	700	<1	N	10	10	15
85RJ035	58 16 52	155 50 30	937	no	2.00	0.50	1.00	0.200	1,000	N	<10	100	<1	N	7	N	<5
85RJ034	58 17 12	155 51 47	938	no	1.00	0.20	1.00	0.200	500	N	<10	1,000	1	N	N	N	N
85RJ038D	58 17 30	155 53 1	939	no	3.00	1.00	1.50	0.300	2,000	N	<10	300	<1	N	10	N	N
85RJ038B	58 17 30	155 53 1	939	no	2.00	0.50	1.50	0.200	1,500	0.5	<10	500	<1	N	5	N	<5
85RJ039	58 16 45	155 54 32	940	no	2.00	0.30	0.70	0.200	700	0.5	<10	700	<1	N	N	N	N
85RJ033	58 15 19	155 51 28	941	no	10.00	1.50	2.00	0.500	1,500	N	<10	200	N	N	70	15	100
85RJ032	58 14 29	155 52 19	942	no	7.00	2.00	2.00	0.500	1,500	N	<10	100	N	N	50	50	50
85RJ031C	58 14 31	155 55 25	945	no	2.00	0.50	1.00	0.300	700	N	10	500	<1	N	10	10	15
85RJ031B	58 14 31	155 55 25	945	no	3.00	1.00	1.50	0.500	2,000	N	10	500	<1	N	7	10	20
85RJ031A	58 14 31	155 55 25	945	no	2.00	0.70	1.50	0.300	1,500	N	10	300	<1	N	10	10	5
84RJ059B	58 14 21	155 58 25	946	no	3.00	1.00	1.00	0.200	700	N	20	1,000	1	N	20	<10	20
85RJ054C	58 9 53	156 1 38	948	no	3.00	1.00	2.00	0.200	1,000	N	<10	500	<1	N	20	20	15
85DT165	58 9 10	156 8 9	957B	no	0.15	1.50	20.00	0.020	50	N	N	N	N	N	N	10	<5
85RJ060	58 10 17	156 7 10	959	no	5.00	2.00	2.00	0.500	1,000	N	<10	300	N	N	50	30	50
85RJ059	58 11 9	156 8 10	960	no	10.00	2.00	3.00	1.000	2,000	N	<10	300	<1	N	70	150	100
85DT190	58 11 38	156 6 13	961	no	1.50	0.50	1.00	0.100	500	N	<10	700	<1	N	5	N	10
85RJ052	58 11 57	156 6 5	962	no	1.00	0.50	0.20	0.100	2,000	N	15	500	<1	N	20	20	20
85RJ051	58 12 51	156 7 8	963	no	5.00	2.00	5.00	0.300	2,000	N	<10	200	<1	N	50	100	10
85RJ021	58 3 3	156 19 30	965	no	5.00	2.00	5.00	0.500	1,500	N	10	70	N	N	70	200	15
83RJ228	58 2 42	156 20 22	966	no	7.00	3.00	2.00	0.500	700	N	<10	100	N	N	100	200	150
84YB095	58 2 5	156 22 10	967	no	10.00	5.00	3.00	0.700	1,000	1.0	10	300	N	N	100	200	70
85RJ029	58 1 38	156 23 41	969	yes	7.00	2.00	2.00	0.700	1,000	N	<10	500	N	N	70	200	200
83RJ229	58 3 8	156 22 43	970	no	7.00	5.00	3.00	0.300	1,000	N	10	100	N	N	100	1,000	70
83RJ210A	58 22 43	156 16 16	972	no	5.00	1.50	1.00	0.500	1,000	N	20	2,000	<1	N	30	20	20

Table 7. Metamorphosed rocks, continued

SAMPLE	La-S	Mo-S	Nb-S	Ni-S	Pb-S	Sb-S	Sc-S	Sr-S	V-S	Y-S	Zn-S	Zr-S	Au-AA	INST-HG	As-AA	Zn-AA	Cd-AA	Bi-AA	Sb-AA
85RJ107I	N	N	N	30	10	20	200	200	50	200	50	--	--	20	210	0.8	N	N	N
85RJ107E	N	N	N	5	N	15	100	150	15	N	20	--	--	N	30	N	N	N	N
85RJ107C	N	N	N	5	<10	20	150	100	20	N	50	--	--	N	45	N	N	N	N
86RJ111	N	5	N	15	50	10	<100	200	50	200	50	--	N	20	55	<0.1	23	N	N
86RJ109B	N	<5	N	10	<10	<5	N	70	<10	<200	100	--	0.0	N	30	<0.1	N	N	N
86RJ081	N	N	N	5	N	N	15	N	100	50	<200	100	--	0.02	N	60	N	N	N
85RJ062	N	N	N	20	<10	N	50	100	500	15	300	20	--	--	N	35	N	N	N
86RJ052C	N	N	N	20	<10	N	7	N	100	N	200	50	--	0.04	30	210	N	N	N
86RJ054	N	N	N	50	<10	N	20	N	200	15	<200	100	--	0.10	10	25	N	N	N
83PB048B	N	N	N	50	10	N	20	300	200	30	N	100	--	--	N	90	0.1	N	N
84EM009C	50	N	N	70	20	N	30	100	300	30	200	150	N	0.04	20	110	0.1	N	N
83PB046B	N	N	N	20	10	N	30	1,000	200	30	N	100	--	--	N	30	0.1	N	N
83PB041B	N	N	N	20	<10	N	20	500	200	30	N	100	--	--	N	10	N	N	2
85RJ191B	N	N	N	20	<10	N	15	500	150	20	N	50	--	--	N	45	N	N	N
85RJ191C	N	N	N	50	N	N	20	500	150	20	N	50	--	--	N	40	N	N	N
85YB210	N	N	N	15	<10	N	30	300	150	20	N	30	--	N	N	30	N	N	N
85YB209	N	N	N	5	<10	N	20	200	70	30	N	100	--	N	N	85	<0.1	N	N
83RJ221C	N	N	N	5	20	N	20	300	100	50	N	200	N	--	N	20	N	N	N
83RJ221A	N	N	N	10	50	N	30	300	200	50	N	100	--	N	N	65	N	N	N
84EM071C	N	N	N	15	30	N	20	500	150	70	N	200	--	N	N	20	N	N	N
83RJ222	N	N	N	10	20	N	20	500	200	30	<200	150	--	N	N	90	N	N	N
85RJ040	N	N	N	5	<10	N	30	200	150	30	N	70	--	N	N	25	N	N	N
85RJ169A	N	N	N	10	N	N	10	100	100	15	N	15	--	--	N	15	N	N	N
83RJ219	N	N	N	5	50	N	50	500	100	50	<200	100	--	N	N	25	N	N	N
85RJ036	N	N	N	N	N	N	30	300	100	30	N	100	--	N	N	40	N	N	N
85RJ035	N	N	N	N	N	N	15	150	70	20	N	70	--	N	N	25	N	N	N
85RJ034	N	N	N	N	<10	N	10	200	20	30	N	100	--	N	N	10	N	N	N
85RJ038D	N	N	N	N	N	N	20	300	70	30	N	100	--	N	N	30	0.1	N	N
85RJ038B	N	N	N	N	<10	N	15	300	50	30	N	100	--	N	N	50	N	N	N
85RJ039	N	<5	N	N	N	N	15	150	20	50	N	150	--	N	N	25	N	N	N
85RJ033	N	N	N	20	<10	N	50	200	200	30	N	50	--	N	N	50	N	N	N
85RJ032	N	N	N	20	<10	N	30	500	150	20	<200	50	--	N	N	65	0.2	N	N
85RJ031C	N	N	N	7	N	N	15	300	50	30	N	100	--	N	N	35	<0.1	N	N
85RJ031B	N	N	N	N	<10	N	20	200	70	20	N	50	--	N	N	30	N	N	N
85RJ031A	N	N	N	5	<10	N	20	200	100	20	N	70	--	N	N	55	N	N	N
84RJ059B	N	N	N	5	<10	N	20	200	70	70	N	200	--	N	10	35	<0.1	N	N
85RJ054C	N	N	N	15	<10	N	20	300	100	20	N	100	--	N	N	30	N	N	N
85DT165	N	N	N	N	N	N	N	1,500	10	N	N	10	--	<0.02	N	N	N	N	N
85RJ060	N	<5	N	20	<10	N	20	500	150	15	N	50	--	N	N	40	N	N	N
85RJ059	N	N	N	50	N	N	30	300	200	30	N	100	--	N	N	15	N	N	N
85DT190	N	N	N	5	N	N	7	<100	50	20	N	70	--	N	N	25	0.1	N	N
85RJ052	N	N	N	30	N	N	7	N	50	20	N	50	--	0.02	N	35	N	N	N
85RJ051	N	N	N	30	<10	N	30	300	200	20	<200	50	--	0.02	N	40	N	N	N
85RJ021	N	N	N	100	<10	N	50	100	200	20	N	50	--	<0.02	N	10	0.3	N	N
83RJ228	N	N	N	100	10	N	50	<100	300	30	<200	50	N	--	N	10	N	N	N
84YB095	N	N	N	100	10	N	50	200	300	70	<200	100	N	N	N	10	N	N	N
85RJ029	N	N	N	100	N	N	30	100	200	20	N	50	--	0.08	N	20	N	N	N
83RJ229	N	N	N	500	<10	N	50	200	200	20	N	50	--	N	N	5	N	N	N
83RJ210A	N	N	N	15	20	N	20	500	200	50	N	200	--	N	N	25	N	N	N

Table 8. Geochemical analyses of Mesozoic and Tertiary plutonic rocks, Mount Katmai study area

[For explanation see heading for table 7. As, Au, Cd, Nb, Sn, Th, W (by S), Bi, and Sb (by S and AA) were not detected and are deleted from table 8. For statistical summary of data in this table see table 19.]

SAMPLE	LATITUDE	LONGITUDE	MAP NO.	ALTERED?	Fe%-S	Mg%-S	Ca%-S	Ti%-S	Mn-S	Ag-S	B-S	Ba-S	Be-S	Co-S	Cr-S	Cu-S	La-S
84YB088	58 36 36	155 59 26	39	no	5.0	5.00	2.0	0.50	1,000	N	20	1,000	<1.0	50	100	100	N
85RJ161	58 40 0	155 30 12	54	no	2.0	0.30	2.0	0.20	500	N	10	1,000	N	10	N	50	N
83AR009	58 34 30	155 27 6	55	no	5.0	2.00	1.0	0.50	1,000	N	50	1,000	<1.0	30	10	10	N
85RJ160	58 40 1	155 24 40	56	yes	7.0	2.00	3.0	0.50	700	N	10	150	N	50	N	50	N
84RJ175B	58 39 45	155 14 2	59	yes	3.0	2.00	1.0	0.50	700	N	20	1,000	<1.0	N	10	50	N
83AR011	58 39 48	155 14 26	60	yes	3.0	1.00	1.0	0.30	1,000	N	20	700	<1.0	15	<10	<5	N
83AR014	58 40 31	155 20 28	61	no	5.0	1.50	1.0	0.50	1,000	N	10	1,000	<1.0	20	10	50	N
84YB090	58 42 7	155 21 58	62	no	5.0	3.00	3.0	0.50	1,000	N	50	1,000	N	30	30	100	N
86RJ101	58 44 18	155 32 17	64	no	5.0	1.00	2.0	0.15	1,000	N	10	500	N	10	<10	10	N
84RJ168C	58 44 51	155 21 11	67	no	5.0	3.00	2.0	0.30	1,000	N	20	500	N	30	20	50	N
85RJ084	58 45 27	155 15 50	74	yes	5.0	3.00	3.0	0.30	700	N	<10	150	N	20	70	50	N
85YB252	58 49 31	155 8 23	93	no	2.0	0.70	0.5	0.20	1,000	N	20	1,000	1.5	5	N	50	N
85YB256	58 48 18	155 7 29	96	no	5.0	1.00	2.0	0.50	1,500	N	10	500	1.0	15	N	20	N
85RJ086	58 48 33	155 6 0	97	no	1.5	0.50	1.0	0.20	300	N	10	500	<1.0	5	<10	5	N
85RJ200B	58 50 40	155 3 34	98	no	0.5	0.02	0.1	0.02	100	N	10	1,000	<1.0	N	N	<5	N
83RJ218	58 47 54	155 0 59	101	no	7.0	5.00	1.0	0.20	1,000	N	<10	100	N	100	100	20	N
85RJ104	58 51 19	155 2 31	102	no	0.5	0.10	0.7	0.05	200	N	15	2,000	1.0	N	N	<5	N
83RJ216A	58 58 56	154 59 8	115	no	5.0	5.00	2.0	0.30	1,000	N	20	300	N	50	200	100	N
85YB229	58 57 28	154 58 8	119	no	3.0	0.70	1.5	0.15	700	N	20	700	<1.0	10	30	<5	N
85RJ067	58 56 48	154 47 28	120	no	3.0	1.50	1.5	0.30	1,000	N	10	500	<1.0	20	30	30	N
85YB257	58 53 18	154 59 32	125	no	3.0	1.50	2.0	0.20	1,000	N	10	700	1.0	20	30	70	N
86RJ112	58 50 36	154 58 14	126	no	10.0	5.00	5.0	0.50	2,000	N	10	70	N	50	200	150	N
85YB244	58 49 10	154 54 6	127	no	3.0	1.50	2.0	0.20	1,000	N	<10	500	1.0	15	<10	10	N
85RJ077	58 47 56	154 56 28	128	no	5.0	2.00	2.0	0.50	1,500	N	50	500	1.0	30	15	50	N
86YB318	58 45 22	155 0 6	131	no	10.0	2.00	3.0	0.50	700	N	20	2,000	N	15	50	200	N
86RJ064	58 44 32	155 1 16	132	no	7.0	1.50	2.0	0.20	500	N	10	300	N	15	30	100	N
86YB316	58 44 6	155 3 40	133	no	15.0	2.00	2.0	0.50	1,000	N	30	100	N	30	20	100	N
86RJ066B	58 43 56	154 58 21	134	no	10.0	2.00	3.0	0.50	700	N	20	500	N	20	200	50	N
85YB240	58 50 53	154 47 57	157	no	3.0	1.50	1.5	0.30	1,000	N	<10	500	1.0	20	30	20	N
83AR020	58 51 29	154 47 44	158	no	5.0	2.00	1.0	0.50	500	N	10	1,000	N	20	100	7	N
85YB228	58 53 45	154 48 51	159	no	3.0	1.00	1.0	0.20	3,000	<0.5	20	500	<1.0	10	20	70	N
83AR019	58 57 2	154 48 53	160	no	5.0	2.00	1.0	0.50	700	N	20	1,000	<1.0	20	70	20	N
86YB340	58 56 17	154 48 20	161	no	5.0	1.00	1.0	0.15	200	N	10	500	N	10	20	5	N
86YB339	58 56 17	154 48 13	162	no	2.0	0.70	1.0	0.10	150	N	20	700	N	10	10	10	N
86YB338	58 56 23	154 47 48	163	no	10.0	2.00	5.0	0.30	500	N	20	1,000	<1.0	20	100	5	N
86YB344	58 53 8	154 43 50	164	no	7.0	1.50	2.0	0.20	300	N	10	300	N	15	30	100	N
86RJ089	58 54 29	154 42 50	165	no	7.0	2.00	2.0	0.30	700	N	20	300	N	20	50	70	N
86YB341	58 55 16	154 42 18	166	no	7.0	2.00	2.0	0.50	500	N	20	300	N	20	50	100	N
86RJ088	58 57 2	154 38 31	167B	no	10.0	2.00	2.0	0.50	1,000	<0.5	200	200	N	20	<10	500	N
86DT282	58 58 26	154 40 55	167A	no	5.0	0.70	0.7	0.10	500	N	50	50	N	10	<10	<5	N
85YB238	58 50 40	154 41 30	168	no	3.0	2.00	1.0	0.70	700	N	<10	700	1.0	30	50	10	N
85YB239	58 54 40	154 35 38	169	no	3.0	3.00	2.0	0.20	500	N	20	1,000	<1.0	30	100	20	50
85YB234	58 54 39	154 35 37	170	no	3.0	1.00	1.5	0.30	1,000	N	30	500	1.0	20	30	20	N
85RJ071	58 54 54	154 35 59	171	no	2.0	1.00	1.5	0.20	500	N	10	500	1.0	10	20	5	N
85RJ063	58 55 32	154 34 49	174	no	5.0	2.00	1.5	0.30	2,000	N	10	500	1.0	20	30	70	N
85YB237A	58 59 15	154 28 28	175	no	2.0	0.70	1.5	0.30	1,500	N	20	500	<1.0	<5	N	<5	N
85RJ072C	58 59 58	154 26 59	176	yes	3.0	3.00	7.0	0.20	1,000	N	150	<20	N	50	100	30	N
85RJ072A	58 59 58	154 26 59	176	yes	10.0	5.00	2.0	0.10	1,500	N	10	150	N	100	150	50	N
85RJ072B	58 59 58	154 26 59	176	yes	3.0	2.00	5.0	0.20	1,000	N	10	50	N	50	10	20	N
85YB225	58 53 35	154 32 54	178	no	2.0	1.00	1.5	0.20	500	N	10	500	1.0	10	20	20	N

Table 8. Plutonic rocks, continued

SAMPLE	Mo-S	Ni-S	Pb-S	Sc-S	Sr-S	V-S	Y-S	Zn-S	Zr-S	Au-AA	Hg-INST	As-AA	Zn-AA	Cd-AA
84YB088	N	30	10	50	700	200	50	<200	150	N	N	<10	40	<0.1
85RJ161	N	N	<10	10	200	20	30	N	100	--	--	N	40	N
83AR009	N	10	20	15	500	200	50	N	200	N	--	N	40	N
85RJ160	N	7	N	30	300	150	50	N	20	--	--	<10	50	N
84RJ175B	N	5	15	20	500	100	50	<200	150	--	N	N	35	N
83AR011	N	<5	<10	15	300	100	50	N	200	--	N	N	25	N
83AR014	N	10	10	30	300	100	100	<200	100	--	N	N	35	N
84YB090	N	10	30	30	500	200	50	N	150	N	N	<10	30	N
86RJ101	N	5	<10	7	500	70	10	<200	70	--	0.02	N	55	0.1
84RJ168C	N	15	20	20	700	200	30	N	100	--	N	<10	20	N
85RJ084	N	30	<10	20	300	150	15	N	30	--	--	N	45	N
85YB252	<5	N	N	10	<100	50	30	N	200	--	0.09	10	40	N
85YB256	N	N	<10	20	200	150	20	N	70	--	0.06	N	50	N
85RJ086	N	N	N	7	200	50	20	N	70	--	--	N	25	N
85RJ200B	N	5	N	<5	N	<10	30	N	50	--	--	N	5	N
83RJ218	N	50	<10	50	200	300	10	<200	20	--	N	N	15	N
85RJ104	N	<5	N	5	300	<10	50	N	100	--	--	N	5	N
83RJ216A	N	70	10	30	1,000	200	20	N	100	--	N	10	35	N
85YB229	N	15	<10	10	500	100	15	N	70	--	--	N	15	N
85RJ067	N	30	<10	10	500	100	15	N	100	--	--	N	30	N
85YB257	<5	30	10	10	700	100	15	N	70	--	0.06	10	25	N
86RJ112	<5	50	<10	50	300	500	20	200	20	--	N	N	40	N
85YB244	N	5	<10	10	500	100	10	<200	30	--	0.06	<10	20	N
85RJ077	N	15	<10	20	1,000	150	15	N	20	--	0.05	<10	35	N
86YB318	N	20	N	15	200	200	10	<200	100	--	0.20	N	15	<0.1
86RJ064	N	10	<10	10	100	100	<10	<200	<10	--	<0.02	N	15	N
86YB316	N	20	<10	20	N	300	15	<200	20	--	0.04	20	60	N
86RJ066B	N	30	N	20	300	200	20	<200	70	--	0.08	<10	15	N
85YB240	N	30	20	15	500	100	20	N	70	--	0.08	<10	55	0.2
83AR020	N	50	10	15	500	150	50	N	150	--	N	N	20	N
85YB228	N	20	50	10	300	100	15	200	150	--	--	N	165	N
83AR019	N	50	20	15	500	100	30	N	100	--	N	N	20	N
86YB340	N	20	<10	5	300	70	10	<200	70	--	0.02	N	5	N
86YB339	N	20	<10	5	150	50	N	N	50	--	N	N	15	N
86YB338	N	50	15	15	500	100	15	<200	100	--	0.04	N	10	N
86YB344	N	30	<10	10	300	150	10	<200	100	--	<0.02	N	20	N
86RJ089	N	30	<10	10	<100	150	10	<200	70	--	N	N	55	0.3
86YB341	N	30	<10	15	200	150	20	200	100	--	N	N	25	N
86RJ088	N	<5	<10	20	N	300	20	<200	50	--	0.08	20	20	N
86DT282	N	<5	N	7	<100	70	15	<200	1,000	--	N	N	35	0.2
85YB238	N	30	<10	10	300	150	10	N	100	--	N	N	20	N
85YB239	N	20	10	15	1,000	70	15	N	100	--	0.12	N	15	N
85YB234	N	20	10	10	500	100	15	N	100	--	0.02	N	30	N
85RJ071	<5	20	10	10	700	70	15	N	70	--	N	N	30	N
85RJ063	N	20	<10	30	150	150	30	N	100	--	--	N	20	N
85YB237A	N	N	<10	15	100	50	30	N	100	--	0.02	N	50	N
85RJ072C	N	20	<10	30	N	200	<10	N	10	--	0.02	N	25	N
85RJ072A	<5	50	15	30	100	70	10	200	10	--	N	N	150	0.6
85RJ072B	N	15	<10	10	300	70	<10	N	30	--	0.04	N	20	0.1
85YB225	N	15	<10	10	500	100	15	N	100	--	--	N	15	N

Table 8. Plutonic rocks, continued

SAMPLE	LATITUDE	LONGITUDE	MAP NO.	ALTERED?	Fe%-S	Mg%-S	Ca%-S	Ti%-S	Mn-S	Ag-S	B-S	Ba-S	Be-S	Co-S	Cr-S	Cu-S	La-S
84YB075B	58 38 53	153 53 0	324	no	5.0	2.00	2.0	0.50	700	N	<10	200	N	30	150	50	N
83PB064B	58 13 25	154 26 19	529	no	3.0	1.00	1.0	0.50	700	N	<10	200	<1.0	20	10	30	N
83PB064A	58 13 25	154 26 19	529	no	3.0	1.00	2.0	0.50	700	N	<10	150	N	20	15	20	N
83PB063	58 12 51	154 31 33	555	no	3.0	1.50	2.0	0.50	500	N	<10	150	<1.0	20	30	30	N
83PB062	58 12 38	154 12 38	557	no	5.0	1.50	2.0	0.50	500	N	10	100	<1.0	20	50	20	N
83PB026	58 7 16	154 36 32	601	no	1.5	1.00	1.0	0.20	500	N	<10	300	N	10	10	<5	N
85YB211	58 20 8	155 39 47	915	no	3.0	1.00	2.0	0.20	700	<0.5	<10	700	<1.0	15	10	70	N
83RJ221D	58 22 0	155 40 43	918	no	7.0	3.00	2.0	0.50	1,000	N	<10	100	N	100	100	100	N
84EM073C	58 23 18	155 41 49	922	no	7.0	3.00	3.0	0.50	1,500	N	70	700	N	100	100	150	N
84RJ163D	58 23 52	155 41 51	923	no	7.0	3.00	3.0	0.50	1,000	N	20	700	N	30	30	500	N
84RJ163C	58 23 52	155 41 51	923	no	5.0	3.00	3.0	0.30	1,000	N	20	700	N	30	20	200	N
83RJ220	58 22 50	155 45 41	926	no	7.0	3.00	2.0	0.30	1,000	N	10	200	N	50	100	150	N
85RJ041	58 21 41	155 44 18	927	no	5.0	2.00	2.0	0.30	1,000	<0.5	50	500	<1.0	30	50	70	N
85RJ168A	58 21 9	155 48 5	929	no	1.5	0.50	0.5	0.15	200	N	10	500	N	5	10	5	N
84RJ056B	58 17 6	155 45 12	932	no	2.0	0.50	0.7	0.20	500	N	20	1,500	1.5	5	<10	<5	N
85RJ049	58 15 7	155 47 6	933B	yes	1.0	0.50	1.0	0.15	500	N	10	700	<1.0	5	N	10	N
85RJ045	58 15 53	155 46 49	933A	no	2.0	0.70	1.0	0.20	1,000	N	10	700	<1.0	7	N	7	N
85RJ042	58 18 45	155 49 17	934	no	2.0	0.50	1.0	0.20	700	<0.5	<10	1,000	<1.0	<5	N	<5	N
85RJ037	58 17 49	155 51 23	935	no	2.0	0.50	1.0	0.20	500	N	10	700	<1.0	5	N	N	N
84RJ058B	58 13 15	155 53 33	943	yes	3.0	1.00	0.7	0.30	700	N	30	1,500	<1.0	15	<10	20	N
85RJ030	58 15 16	155 54 39	944	no	2.0	0.70	1.5	0.20	1,000	N	10	500	<1.0	10	<10	50	N
85RJ055	58 10 13	156 2 11	949	no	3.0	1.00	2.0	0.20	1,000	N	<10	700	<1.0	20	N	10	N
85YB201	58 3 29	156 4 30	950	no	3.0	1.50	1.5	0.20	700	N	15	500	N	20	10	20	N
85YB200	58 4 3	156 6 43	951	no	1.0	0.30	1.0	0.15	500	N	<10	700	<1.0	<5	N	N	N
85RJ053	58 5 13	156 7 43	953	no	5.0	3.00	3.0	0.50	1,500	N	<10	200	<1.0	70	300	30	N
85RJ022	58 6 56	156 8 42	954	no	5.0	1.50	2.0	0.50	2,000	N	<10	100	<1.0	50	50	20	N
85RJ023	58 6 54	156 8 50	955	no	1.0	0.20	0.7	0.10	500	N	<10	1,000	<1.0	N	N	<5	N
85DT194	58 7 58	156 11 42	956A	no	2.0	0.70	2.0	0.20	700	N	10	700	<1.0	15	30	15	N
85DT191	58 8 8	156 8 32	956B	no	5.0	2.00	10.0	0.30	1,000	N	10	100	<1.0	50	100	30	N
85RJ058	58 9 20	156 12 22	957A	no	3.0	1.00	2.0	0.30	1,000	N	<10	700	<1.0	30	50	15	N
85RJ158B	58 10 6	156 9 41	958	no	2.0	1.00	2.0	0.20	700	N	10	500	N	15	15	15	N
85RJ158A	58 10 6	156 9 41	958	no	2.0	1.00	2.0	0.20	500	N	<10	300	N	10	20	7	N
84YB094	58 0 55	156 15 54	964	no	2.0	1.00	1.0	0.20	500	N	30	1,500	<1.0	10	<10	5,000	20
83RJ210C	58 22 43	156 16 16	972	no	5.0	2.00	1.5	0.50	1,000	N	10	700	N	30	30	100	N

Table 8. Plutonic rocks, continued

SAMPLE	Mo-S	Ni-S	Pb-S	Sc-S	Sr-S	V-S	Y-S	Zn-S	Zr-S	Au-AA	Hg-INST	As-AA	Zn-AA	Cd-AA
84YB075B	N	50	<10	20	300	150	20	N	70	--	N	N	30	N
83PB064B	N	10	N	20	300	150	30	N	100	--	--	N	60	0.1
83PB064A	N	15	N	20	300	200	30	N	150	--	--	N	30	0.1
83PB063	N	30	N	20	300	200	30	N	150	--	--	N	25	<0.1
83PB062	N	30	<10	20	300	200	30	N	100	--	--	N	20	0.1
83PB026	N	5	15	10	200	100	15	N	70	--	--	N	35	N
85YB211	N	7	<10	20	300	100	30	N	50	--	N	N	35	N
83RJ221D	N	20	10	50	200	300	30	<200	20	--	N	N	15	N
84EM073C	N	20	30	50	700	300	50	200	30	N	N	<10	45	<0.1
84RJ163D	N	10	30	30	700	200	50	N	200	N	N	<10	20	N
84RJ163C	N	10	20	30	700	150	30	N	200	N	N	<10	20	N
83RJ220	N	50	50	50	300	300	30	N	50	N	--	N	30	0.2
85RJ041	N	20	<10	30	300	150	30	N	200	--	N	N	20	N
85RJ168A	N	<5	10	7	<100	50	20	N	50	--	--	N	20	N
84RJ056B	N	5	15	10	300	50	50	N	100	--	N	<10	25	N
85RJ049	N	<5	<10	7	100	70	20	N	50	--	N	N	30	N
85RJ045	N	<5	<10	10	200	70	20	N	70	--	N	N	30	N
85RJ042	N	<5	<10	10	200	50	20	<200	100	--	N	N	130	0.2
85RJ037	N	N	N	10	200	50	20	N	150	--	N	N	30	N
84RJ058B	N	5	20	20	200	100	70	N	200	--	N	<10	15	N
85RJ030	N	<5	<10	10	200	70	20	N	150	--	N	N	30	<0.1
85RJ055	N	15	<10	20	300	100	30	N	70	--	0.02	N	35	N
85YB201	N	10	10	20	300	100	20	N	70	--	0.28	N	25	N
85YB200	N	N	10	7	150	50	20	N	50	--	<0.02	N	20	N
85RJ053	N	50	N	50	700	150	20	N	70	--	N	N	15	N
85RJ022	N	15	<10	50	300	200	20	<200	30	--	0.04	N	15	N
85RJ023	N	N	<10	7	150	15	20	N	100	--	<0.02	N	25	N
85DT194	N	20	<10	15	200	100	20	N	100	--	N	N	45	N
85DT191	N	50	<10	20	500	150	20	N	50	--	0.02	N	15	0.1
85RJ058	<5	20	<10	20	500	100	30	N	100	--	N	N	40	N
85RJ158B	<5	5	<10	15	300	100	30	N	70	--	--	N	30	N
85RJ158A	N	<5	<10	10	200	70	20	N	50	--	--	N	25	N
84YB094	N	5	30	10	300	50	50	N	20	N	N	N	15	N
83RJ210C	N	20	20	20	1,000	200	20	N	100	--	N	N	35	0.2

Table 9. Geochemical analyses of samples of the Naknek Formation, Mount Katmai study area

[For explanation see heading for table 7 . Au, Cd, Nb, Sb, Sn, Th, and W (by S) were not detected and are deleted from table 9. Statistical summary of data in this table is given in table 20 and included in table 21.]

SAMPLE	LATITUDE	LONGITUDE	MAP NO.	ALTERED?	Fe%-S	Mg%-S	Ca%-S	Ti%-S	Mn-S	Ag-S	As-S	B-S	Ba-S	Be-S	Bi-S	Co-S	Cr-S	Cu-S
84EM087C	58 37 58	155 15 51	57	yes	3.0	1.00	1.00	0.30	1,000	N	N	50	1,500	1.0	N	10	10	7
84EM088B	58 39 43	155 13 0	58	no	5.0	2.00	1.50	0.50	1,000	N	N	50	700	<1.0	N	20	100	70
86RJ057A	58 46 35	154 56 6	129	no	15.0	2.00	2.00	0.70	1,000	N	N	20	700	N	N	70	30	200
86RJ057B	58 46 35	154 56 6	129	no	10.0	2.00	3.00	0.50	1,000	N	N	20	500	<1.0	N	20	15	15
86RJ066A	58 43 56	154 58 21	134	yes	10.0	2.00	3.00	0.50	1,000	N	N	15	300	N	N	20	100	30
84DT155	58 40 29	155 4 19	135	no	5.0	2.00	1.00	0.50	1,000	N	N	20	300	N	N	20	100	70
84DT156	58 40 0	155 5 0	136	no	5.0	3.00	1.50	0.50	1,000	N	N	50	1,500	<1.0	N	20	50	70
84DT157	58 39 58	155 4 40	137	no	5.0	2.00	1.00	0.50	1,000	N	N	20	500	<1.0	N	20	100	50
84DT158	58 39 43	155 5 12	138	no	5.0	3.00	1.00	0.50	1,000	N	N	50	1,000	N	N	30	100	100
84JM130	58 38 13	154 59 15	139	no	5.0	2.00	1.00	0.50	700	N	N	50	1,000	<1.0	N	30	100	20
84JM128	58 37 10	155 0 35	141	no	5.0	3.00	1.00	0.50	1,000	N	N	20	700	N	N	30	100	100
84JM129	58 36 55	155 0 15	142	no	5.0	2.00	1.50	0.50	1,000	N	N	100	1,000	<1.0	N	30	50	50
85JM180	58 37 3	154 41 13	143	no	3.0	1.50	0.70	0.30	300	N	N	10	500	N	N	20	70	30
85JM179	58 37 3	154 42 9	144	no	2.0	1.00	0.50	0.30	300	N	N	15	500	N	N	20	50	20
85DT217	58 35 51	154 47 14	145	no	3.0	1.50	1.00	0.20	500	N	N	10	300	<1.0	N	15	30	20
85DT216	58 36 38	154 47 10	146	no	2.0	1.00	0.50	0.30	300	N	N	10	200	N	N	20	30	20
86JM203	58 38 43	154 46 2	147	no	10.0	1.50	2.00	0.30	1,000	N	N	50	300	N	N	20	100	50
86JM201	58 39 13	154 44 5	148	no	10.0	2.00	3.00	0.50	1,000	N	N	50	500	<1.0	N	30	100	70
86JM200	58 39 40	154 43 40	149	no	15.0	3.00	3.00	0.50	1,000	N	N	50	700	N	N	30	100	100
86JM199	58 40 20	154 43 30	150	no	10.0	2.00	2.00	0.50	1,000	N	N	20	500	N	N	20	70	50
86JM195	58 41 39	154 43 5	151	no	10.0	2.00	2.00	0.50	1,000	N	N	20	300	N	N	15	150	50
86JM196	58 41 48	154 43 21	152	no	10.0	2.00	2.00	0.50	1,500	N	N	50	700	<1.0	N	50	150	70
86JM197	58 42 16	154 42 30	153	no	10.0	1.50	2.00	0.30	1,000	N	N	30	300	N	N	20	100	30
85YB243	58 49 32	154 48 42	154	yes	10.0	2.00	<0.05	0.30	>5,000	N	N	20	300	<1.0	N	10	70	<5
85YB237B	58 59 17	154 28 26	175	no	7.0	5.00	1.50	0.30	2,000	N	N	N	300	<1.0	N	20	200	50
85JM158	58 55 25	154 28 35	177	no	5.0	2.00	1.00	0.50	2,000	N	N	15	300	<1.0	N	30	70	15
85DT210G	58 53 10	154 27 32	179A	no	7.0	2.00	1.50	0.50	150	N	N	10	500	<1.0	N	20	150	30
85DT209H	58 53 20	154 28 12	179B	no	7.0	2.00	1.50	0.30	1,500	N	N	10	500	<1.0	N	50	100	30
85DT209	58 53 20	154 28 10	179B	no	2.0	1.00	1.50	0.50	1,000	N	N	20	300	1.0	N	20	70	20
85DT208	58 50 50	154 26 59	180	no	10.0	2.00	1.50	0.50	1,500	N	N	20	300	<1.0	N	50	150	50
85DT205	58 49 21	154 30 22	181	no	3.0	1.00	1.00	0.30	1,000	N	N	10	300	1.0	N	20	50	30
85DT204	58 49 5	154 30 5	182	no	7.0	1.50	1.50	0.50	1,500	N	N	20	500	1.0	N	50	100	30
86YB319	58 44 2	154 32 25	183	no	7.0	1.00	1.00	0.20	700	N	N	10	200	N	N	15	20	15
86DT257	58 40 32	154 29 1	184	no	15.0	2.00	5.00	1.00	2,000	N	N	50	500	N	N	50	150	100
86DT259	58 41 8	154 28 42	185	no	10.0	2.00	5.00	0.50	1,000	N	N	100	500	N	N	50	200	100
86DT263	58 42 53	154 26 41	186	no	10.0	2.00	2.00	0.50	1,000	N	N	50	1,000	N	N	20	100	20
86DT262	58 43 14	154 26 50	187	no	10.0	2.00	3.00	0.50	1,000	N	N	50	500	N	N	30	150	70
85JM171	58 48 17	154 24 1	188	no	5.0	2.00	2.00	0.30	1,500	N	N	10	300	1.0	N	20	100	20
85JM172	58 48 51	154 23 56	189	no	5.0	2.00	2.00	0.30	1,500	<0.5	N	50	500	1.0	N	30	100	70
85JM170	58 48 42	154 22 50	190	no	5.0	2.00	1.50	0.30	1,500	N	N	15	500	1.0	N	20	100	50
85JM169	58 49 56	154 21 39	191	no	5.0	2.00	2.00	0.50	2,000	N	N	15	300	1.0	N	20	100	20
85JM173	58 51 30	154 19 35	192	no	5.0	2.00	2.00	0.30	1,000	N	N	20	500	1.0	N	20	100	50
85JM174	58 51 59	154 19 18	193	no	5.0	2.00	2.00	0.30	1,500	N	N	20	500	1.0	N	20	100	50
86DT256	59 0 15	153 58 36	194A	no	10.0	2.00	3.00	0.50	1,000	N	N	15	200	N	N	30	100	70
85DT214	58 52 40	154 5 15	196	no	5.0	2.00	1.50	0.30	1,500	N	N	30	500	<1.0	N	20	50	30
85DT213	58 52 39	154 3 51	197	no	3.0	1.50	1.00	0.50	1,000	N	N	20	500	<1.0	N	20	50	20
86DT254	58 57 8	153 51 55	203	no	10.0	2.00	2.00	0.70	1,000	N	N	100	500	N	N	50	150	100
86JM193B	58 57 30	153 48 20	204	no	5.0	1.50	10.00	0.20	3,000	N	N	50	200	N	N	15	50	50
86JM192	58 57 25	153 48 25	205	no	5.0	1.00	0.50	0.20	500	N	N	20	100	N	N	10	30	15
86JM184	58 45 29	154 12 29	207	no	10.0	3.00	1.00	0.30	1,000	N	N	30	300	N	N	50	150	70

Table 9. Naknek Formation, continued

SAMPLE	La-S	Mo-S	Ni-S	Pb-S	Sc-S	Sr-S	V-S	Y-S	Zn-S	Zr-S	Au-AA	Hg-INST	As-AA	Zn-AA	Ag-AA	Cd-AA	Bi-AA	Sb-AA
84EM087C	N	N	5	50	20	300	70	70	N	200	--	N	10	25	--	N	N	N
84EM088B	N	<5	50	20	30	200	200	50	<200	200	N	0.06	N	30	--	N	N	N
86RJ057A	N	<5	20	<10	50	N	500	50	200	70	--	6.00	N	75	--	<0.1	N	6
86RJ057B	N	N	7	<10	30	100	150	50	<200	100	--	0.14	N	85	--	N	N	4
86RJ066A	N	N	50	<10	20	300	200	20	<200	150	--	0.20	20	15	--	N	N	N
84DT155	N	N	20	<10	20	100	200	30	<200	100	--	N	N	45	--	N	N	N
84DT156	N	N	20	50	30	1,000	200	70	<200	150	--	N	N	55	--	N	N	N
84DT157	N	N	20	10	20	300	200	50	<200	100	--	N	N	45	--	N	N	N
84DT158	N	N	20	15	20	500	200	50	<200	100	--	N	N	65	--	N	N	N
84JM130	N	N	20	30	20	500	200	50	<200	100	--	N	N	60	--	N	N	N
84JM128	N	N	20	30	20	500	200	50	<200	100	--	N	N	65	--	N	N	N
84JM129	<20	N	15	50	20	700	200	50	<200	200	--	N	N	45	--	N	N	N
85JM180	N	N	30	N	15	300	100	20	N	50	--	--	N	60	--	0.1	N	N
85JM179	N	N	20	N	15	300	100	20	N	50	--	--	N	50	--	0.1	N	N
85DT217	N	N	20	<10	10	500	100	15	N	70	--	--	N	50	--	N	N	N
85DT216	N	N	20	N	15	100	100	30	N	50	--	--	N	40	--	N	N	N
86JM203	N	N	30	<10	20	<100	200	20	<200	150	--	0.02	<10	70	--	<0.1	N	N
86JM201	N	N	50	10	30	300	300	30	<200	100	--	0.10	<10	85	--	<0.1	N	N
86JM200	N	N	50	10	20	200	300	50	<200	150	--	0.08	<10	85	--	0.1	N	N
86JM199	N	N	30	<10	15	150	200	10	<200	50	--	0.02	<10	80	--	<0.1	N	N
86JM195	N	N	20	<10	20	N	200	20	<200	100	--	0.02	N	25	--	<0.1	N	N
86JM196	N	N	70	10	20	300	200	20	<200	100	--	0.50	N	55	--	0.1	N	N
86JM197	N	N	30	N	10	N	200	10	<200	70	--	0.16	N	40	--	<0.1	N	N
85YB243	N	N	15	10	15	N	100	20	500	70	--	0.08	10	370	--	N	N	N
85YB237B	N	N	50	10	30	100	200	10	N	30	--	0.06	10	80	--	N	N	N
85JM158	N	N	20	<10	20	100	200	20	N	50	--	--	N	65	--	N	N	N
85DT210G	N	N	20	<10	30	200	200	20	N	70	--	--	N	45	--	N	N	N
85DT209H	N	N	30	<10	20	200	200	20	N	70	--	--	N	45	--	N	N	N
85DT209	N	N	30	N	20	100	100	15	N	100	--	0.02	N	60	--	N	N	N
85DT208	N	N	30	<10	30	100	300	30	N	70	--	--	N	55	--	N	N	N
85DT205	N	N	20	<10	20	<100	150	20	N	70	--	--	N	45	--	N	N	N
85DT204	N	N	30	N	30	150	200	30	N	70	--	--	N	65	--	N	N	N
86YB319	N	N	20	N	10	N	150	10	N	100	--	0.02	N	35	--	N	N	N
86DT257	N	N	50	10	50	500	500	50	200	100	--	0.06	N	65	--	<0.1	N	N
86DT259	N	N	50	15	20	200	300	30	200	150	--	0.06	N	90	--	<0.1	N	N
86DT263	N	N	50	<10	20	300	200	20	<200	100	--	0.24	N	45	--	N	N	N
86DT262	N	N	50	10	20	200	200	20	<200	70	--	0.14	<10	85	--	N	N	N
85JM171	N	N	30	<10	20	150	200	20	N	70	--	0.07	N	45	--	N	N	N
85JM172	N	N	30	10	20	500	200	20	<200	100	--	0.08	N	100	--	0.2	N	N
85JM170	N	N	30	<10	20	200	200	20	N	70	--	0.09	N	50	--	N	N	N
85JM169	N	N	50	<10	30	100	200	20	N	100	--	0.07	10	40	--	N	N	N
85JM173	N	N	20	<10	20	500	200	20	N	70	--	0.12	N	65	--	N	N	N
85JM174	N	N	20	10	20	500	200	20	N	100	--	0.08	N	65	--	N	N	N
86DT256	N	N	50	<10	20	100	200	15	<200	50	--	1.40	<10	70	--	<0.1	N	2
85DT214	N	N	20	<10	20	700	100	20	N	70	--	0.46	N	30	--	0.2	N	N
85DT213	N	N	20	<10	20	200	150	15	N	50	--	0.38	N	30	--	N	N	N
86DT254	N	N	50	<10	30	500	300	30	<200	100	--	0.04	<10	85	--	<0.1	N	N
86JM193B	N	N	20	<10	15	<100	100	20	<200	50	--	0.30	N	70	--	<0.1	N	N
86JM192	N	N	10	N	7	N	70	N	<200	20	--	0.24	N	35	--	N	N	N
86JM184	N	N	50	10	20	200	200	15	200	100	--	0.02	<10	110	--	<0.1	N	N

Table 9. Naknek Formation, continued

SAMPLE	LATITUDE	LONGITUDE	MAP NO.	ALTERED?	Fe%-S	Mg%-S	Ca%-S	Ti%-S	Mn-S	Ag-S	As-S	B-S	Ba-S	Be-S	Bi-S	Co-S	Cr-S	Cu-S
86JM185	58 44 40	154 11 40	208	no	7.0	2.00	2.00	0.30	1,000	N	N	20	300	N	N	50	100	50
86JM186	58 44 37	154 10 5	209	no	7.0	2.00	1.00	0.20	500	N	N	20	200	N	N	30	150	30
86JM187	58 44 30	154 9 30	210	no	7.0	2.00	2.00	0.20	500	N	N	20	200	N	N	30	100	30
86DT243	58 45 18	154 5 29	213	no	10.0	2.00	2.00	0.30	1,000	N	N	50	300	N	N	50	100	50
86DT241	58 44 20	154 5 39	214	no	7.0	2.00	1.00	0.20	700	N	N	30	200	N	N	50	150	70
86JM204	58 40 0	154 15 20	222	no	7.0	1.50	7.00	0.20	5,000	N	N	30	300	N	N	15	100	50
86JM206	58 39 20	154 14 50	223	no	5.0	1.50	5.00	0.30	2,000	N	N	50	300	N	N	15	100	70
86JM211	58 38 39	154 14 41	225	no	7.0	1.50	1.00	0.50	500	N	N	20	1,000	N	N	20	50	30
86JM210	58 38 55	154 14 15	226	no	10.0	2.00	2.00	0.70	1,500	N	N	20	700	<1.0	N	50	200	30
86JM209	58 39 2	154 13 50	227	no	5.0	1.50	3.00	0.20	3,000	N	N	20	200	N	N	10	100	50
84DT104	58 38 16	154 8 19	228	no	5.0	2.00	1.00	0.50	500	N	N	70	700	N	N	30	150	70
84DT105	58 38 35	154 7 8	229	no	5.0	2.00	1.00	0.50	700	N	N	50	1,000	N	N	50	100	50
84DT106	58 38 45	154 6 3	230	no	5.0	2.00	1.00	0.30	700	N	N	20	1,000	N	N	30	150	20
84DT107	58 39 32	154 4 42	232	no	2.0	.50	0.50	0.10	500	N	N	50	1,000	<1.0	N	7	20	7
85YB241B	58 45 11	153 54 8	238	no	3.0	1.00	1.00	0.20	1,000	N	N	50	500	<1.0	N	10	30	15
84JM066	58 30 57	153 55 25	343	no	7.0	3.00	1.00	0.50	1,000	N	N	70	1,000	N	N	50	200	100
84JM064	58 29 35	153 56 48	345	no	5.0	2.00	1.00	0.50	700	0.5	N	100	2,000	<1.0	N	30	150	150
83AL002B	58 28 41	154 1 35	347	no	3.0	1.50	1.00	0.50	700	N	N	20	500	N	N	20	70	15
84JM065B	58 29 19	153 57 35	348	no	5.0	2.00	2.00	0.30	1,000	N	N	100	700	<1.0	N	20	50	20
84JM065	58 29 19	153 57 35	349	no	5.0	2.00	10.00	0.30	2,000	N	N	20	500	N	N	30	100	50
83DT069A	58 31 11	154 0 50	352	no	3.0	1.00	3.00	0.30	700	N	N	50	100	N	N	10	50	10
84JM062	58 32 22	153 59 20	353	no	3.0	2.00	1.00	0.50	1,000	N	N	50	700	N	N	20	70	50
84JM061A	58 32 31	153 59 12	354	no	7.0	3.00	1.00	0.50	1,000	<0.5	N	100	1,500	<1.0	N	30	100	100
84JM061	58 32 31	153 59 12	354	no	5.0	3.00	1.00	0.50	1,000	N	N	50	2,000	<1.0	N	20	100	50
84JM060	58 33 5	154 0 20	355	no	7.0	3.00	1.00	0.50	1,000	N	N	50	1,000	<1.0	N	30	100	50
84JM059	58 33 2	154 0 35	356	no	7.0	3.00	2.00	0.70	1,500	N	N	50	700	N	N	30	20	50
84JM058A	58 33 3	154 0 51	357	no	3.0	1.50	0.20	0.50	500	2.0	2,000	70	1,000	N	N	7	100	70
84JM058	58 33 5	154 1 15	358	no	5.0	2.00	1.00	0.50	1,000	N	N	50	1,500	N	N	30	100	50
84RJ069B	58 31 30	154 3 24	360	yes	5.0	2.00	2.00	0.50	1,000	N	N	20	500	<1.0	N	20	15	20
84JM082	58 32 30	154 4 5	362	no	3.0	1.00	1.00	0.30	700	N	N	50	1,000	N	N	20	100	15
84JM083	58 32 38	154 4 10	363	no	3.0	2.00	0.70	0.50	700	N	N	20	1,000	N	N	50	100	50
84JM084	58 32 54	154 4 10	364B	no	3.0	.70	1.50	0.20	300	N	N	10	200	N	N	20	100	10
84JM084A	58 32 54	154 4 10	364A	no	5.0	2.00	1.00	0.50	700	N	N	50	1,000	N	N	30	100	70
83DT063A	58 32 46	154 6 47	364A	no	5.0	1.00	1.50	0.50	700	N	N	10	300	<1.0	N	30	50	30
84JM081	58 33 24	154 4 30	365	no	5.0	2.00	1.00	0.50	500	N	N	70	1,000	N	N	20	70	50
84JM080	58 33 41	154 5 4	366	no	3.0	1.50	1.00	0.30	700	N	N	50	1,000	N	N	20	50	10
84YB034	58 35 17	154 9 33	367	yes	2.0	2.00	5.00	0.15	700	N	N	15	30	N	N	15	30	10
84YB033A	58 35 5	154 9 45	368	yes	5.0	1.50	1.00	0.30	500	N	N	N	300	N	N	10	70	<5
84YB033B	58 35 5	154 9 45	368	no	3.0	1.50	5.00	0.15	1,000	N	N	N	300	N	N	15	70	10
84YB031	58 35 6	154 10 7	369	no	3.0	1.50	1.50	0.30	1,000	N	N	N	300	N	N	15	70	20
84YB032	58 35 5	154 10 27	370	no	3.0	1.00	1.00	0.20	500	N	N	N	300	<1.0	N	15	50	20
83JM048	58 28 38	154 8 3	372	no	5.0	2.00	1.50	0.70	700	N	N	30	500	1.0	N	30	100	50
83JM046	58 28 55	154 8 6	373	no	3.0	2.00	2.00	0.30	1,000	N	N	10	1,000	<1.0	N	20	70	20
83JM047A	58 29 10	154 8 28	375	no	2.0	1.50	1.00	0.50	700	N	N	20	500	<1.0	N	15	50	20
83JM047B	58 29 10	154 8 28	375	no	1.5	1.00	2.00	0.30	700	N	N	20	700	1.0	N	15	15	10
84RJ070B	58 32 46	154 11 21	377	yes	5.0	3.00	1.00	0.50	1,000	N	N	20	2,000	<1.0	N	20	100	100
84RJ067B	58 31 9	154 10 49	378	yes	5.0	2.00	1.00	0.50	1,000	<0.5	N	20	500	<1.0	N	30	70	200
84DT073	58 32 55	154 12 31	379	no	5.0	2.00	0.70	0.50	1,000	N	N	50	1,000	<1.0	N	30	100	20
84DT074	58 32 39	154 12 49	380	no	5.0	3.00	1.00	0.50	1,000	<0.5	N	100	1,500	<1.0	N	50	100	100
84DT076	58 32 1	154 13 1	382	no	7.0	5.00	1.50	0.70	700	N	N	20	1,500	<1.0	N	50	100	70

Table 9. Naknek Formation, continued

SAMPLE	La-S	Mo-S	Ni-S	Pb-S	Sc-S	Sr-S	V-S	Y-S	Zn-S	Zr-S	Au-AA	Hg-INST	As-AA	Zn-AA	Ag-AA	Cd-AA	Bi-AA	Sb-AA
86JM185	N	N	50	<10	20	300	200	30	200	100	--	0.02	N	90	--	N	N	N
86JM186	N	N	50	<10	15	100	200	10	200	70	--	0 .02	<10	75	--	<0.1	N	N
86JM187	N	N	50	<10	20	150	200	20	<200	100	--	<0.02	N	80	--	<0.1	N	N
86DT243	N	N	50	10	20	300	200	20	200	50	--	0.02	N	95	--	<0.1	N	N
86DT241	N	N	50	<10	20	<100	200	10	<200	100	--	0.02	N	100	--	<0.1	N	N
86JM204	N	N	30	<10	10	N	150	15	<200	70	--	0.14	N	70	--	N	N	N
86JM206	N	N	20	<10	15	<100	70	20	<200	70	--	0.06	<10	80	--	0.1	N	N
86JM211	N	N	30	<10	20	<100	200	20	<200	100	--	N	N	50	--	<0.1	N	N
86JM210	N	N	50	<10	30	<100	300	50	200	200	--	0.02	<10	50	--	0.1	N	6
86JM209	N	N	20	<10	10	N	100	10	<200	30	--	0.02	N	85	--	<0.1	N	N
84DT104	N	N	30	30	20	300	200	20	N	150	--	N	N	110	--	<0.1	N	N
84DT105	N	N	30	20	20	700	200	50	N	100	--	N	N	50	--	<0.1	N	N
84DT106	N	N	20	10	20	500	200	50	N	100	--	N	N	50	--	<0.1	N	N
84DT107	N	N	10	20	7	100	50	<10	N	20	--	N	N	15	--	N	N	N
85YB241B	N	N	15	<10	10	300	100	15	N	50	--	0.10	10	50	--	N	N	N
84JM066	N	N	50	50	30	700	300	50	<200	150	--	--	<10	150	--	N	N	N
84JM064	20	N	70	50	20	700	200	70	<200	200	N	--	<10	140	--	<0.1	N	N
83AL002B	N	N	50	<10	30	150	200	20	N	70	--	--	N	55	--	0.1	N	N
84JM065B	N	N	10	<10	20	200	200	30	<200	100	--	--	<10	55	--	N	N	2
84JM065	N	N	50	10	10	300	200	20	N	50	--	--	N	160	--	N	N	N
83DT069A	N	N	20	N	20	200	150	20	N	100	--	--	N	45	--	0.1	N	N
84JM062	N	N	20	20	20	200	200	50	N	150	--	--	N	35	--	N	N	N
84JM061A	N	N	50	70	30	1,000	200	50	<200	200	N	--	10	120	--	0.1	N	N
84JM061	N	N	30	30	30	1,500	200	50	<200	100	--	--	N	50	--	N	N	N
84JM060	N	N	30	20	30	300	200	50	<200	100	--	--	N	45	--	N	N	N
84JM059	N	N	5	20	50	1,000	200	70	<200	200	--	--	10	70	--	N	N	N
84JM058A	N	N	10	50	30	300	200	30	N	200	N	--	1,600	30	--	N	N	42
84JM058	N	N	20	20	30	500	200	50	N	50	--	--	10	55	--	N	N	N
84RJ069B	N	N	5	30	20	500	150	50	N	200	--	--	10	20	--	N	N	N
84JM082	N	N	10	20	20	700	200	30	N	200	--	N	N	35	--	N	N	N
84JM083	N	N	20	20	30	500	200	30	N	100	--	N	N	80	--	<0.1	N	N
84JM084	N	N	20	10	20	500	100	20	N	100	--	N	20	65	--	N	N	N
84JM084A	N	N	20	30	20	500	200	30	<200	100	--	0.02	<10	75	--	<0.1	N	N
83DT063A	N	N	20	<10	30	200	200	50	N	100	--	--	N	85	--	0.2	N	N
84JM081	N	N	20	30	20	700	200	70	<200	100	--	0.02	N	75	--	N	N	N
84JM080	N	N	10	20	15	1,000	100	20	N	50	--	N	N	40	--	N	N	N
84YB034	N	N	20	15	7	300	150	20	N	20	--	--	N	70	--	N	N	N
84YB033A	N	7	15	<10	15	N	200	10	N	100	--	--	N	20	--	N	N	N
84YB033B	N	N	15	N	15	200	200	15	N	100	--	--	N	20	--	N	N	N
84YB031	N	N	20	N	20	<100	200	30	N	200	--	--	N	40	--	N	N	N
84YB032	N	N	20	N	15	N	150	20	N	70	--	--	N	50	--	N	N	N
83JM048	N	N	50	15	30	500	300	30	N	100	--	--	N	100	--	N	N	N
83JM046	N	N	30	<10	30	500	200	30	N	100	--	--	N	65	--	<0.1	N	N
83JM047A	N	N	20	<10	20	300	200	30	N	100	--	--	N	80	--	<0.1	N	N
83JM047B	N	N	15	<10	20	500	150	20	N	100	--	--	N	50	--	N	N	N
84RJ070B	N	5	20	50	20	500	200	50	N	200	--	--	N	45	--	N	N	N
84RJ067B	N	N	20	50	20	700	200	30	N	150	0.15	N	<10	130	--	N	<1	N
84DT073	N	N	20	30	20	300	150	30	N	150	--	--	N	55	--	N	N	N
84DT074	<20	N	50	70	30	500	200	50	<200	200	N	--	N	135	--	0.1	N	N
84DT076	N	N	100	<10	50	500	200	50	<200	200	--	--	N	20	--	N	N	N

Table 9. Naknek Formation, continued

SAMPLE	LATITUDE	LONGITUDE	MAP NO.	ALTERED?	Fe%-S	Mg%-S	Ca%-S	Ti%-S	Mn-S	Ag-S	As-S	B-S	Ba-S	Be-S	Bi-S	Co-S	Cr-S	Cu-S
84DT081	58 32 10	154 16 4	383	yes	2.0	0.10	0.50	0.20	500	N	N	50	1,500	1.0	N	N	N	<5
84DT080	58 32 17	154 17 11	384	no	7.0	2.00	1.50	0.50	1,000	N	N	20	700	N	N	30	100	30
84DT079	58 32 43	154 18 30	385	no	5.0	3.00	1.50	0.50	1,000	N	N	50	1,000	<1.0	N	30	100	70
84DT078	58 32 40	154 19 25	386	no	5.0	2.00	1.00	0.50	1,000	N	N	50	2,000	<1.0	N	20	50	70
84JM079	58 32 53	154 20 12	387	no	3.0	2.00	1.50	0.20	700	<0.5	N	N	700	N	N	15	50	20
84DT077	58 33 10	154 20 20	388	no	5.0	3.00	1.00	0.70	1,000	N	N	30	1,500	N	N	50	100	50
84JM078	58 33 8	154 20 21	388	no	3.0	1.50	>20.00	0.10	5,000	N	N	50	1,000	1.0	N	15	70	30
83RJ145A	58 31 57	154 18 15	389	no	1.0	0.70	0.70	0.15	300	N	N	50	1,000	<1.0	N	N	15	5
83RJ145B	58 31 57	154 18 15	389	no	7.0	3.00	1.00	0.70	1,000	<0.5	N	20	500	<1.0	N	20	200	100
83RJ145C	58 31 57	154 18 15	389	no	5.0	2.00	2.00	0.50	1,000	N	N	10	300	N	N	30	70	20
83RJ146	58 31 34	154 18 1	390	no	3.0	1.50	2.00	0.50	700	N	N	30	200	<1.0	N	20	50	20
83PB053	58 31 33	154 17 19	391	no	5.0	2.00	1.50	0.50	700	N	N	15	500	N	N	30	150	30
84RJ091A	58 30 41	154 16 8	408	yes	5.0	2.00	0.50	0.50	1,000	N	N	50	2,000	<1.0	N	30	100	<5
83RJ144A	58 30 28	154 17 35	411	yes	7.0	2.00	0.50	0.50	300	0.5	N	200	150	<1.0	N	20	150	20
84DT100	58 31 0	154 22 51	414	no	5.0	1.50	1.50	0.30	700	N	N	20	700	N	N	20	100	50
84DT101	58 31 8	154 23 41	415	no	3.0	2.00	2.00	0.50	700	N	N	20	500	N	N	20	100	20
84DT102	58 31 15	154 24 1	416	no	5.0	2.00	1.50	0.30	500	<0.5	N	70	500	N	N	20	150	100
84DT103	58 31 23	154 25 1	417	no	5.0	3.00	1.00	0.50	700	<0.5	N	30	500	N	N	30	150	70
84RJ089A	58 29 35	154 24 21	420	yes	5.0	2.00	1.00	0.50	1,000	N	N	50	1,000	<1.0	N	30	100	100
84DT096	58 30 4	154 25 2	421	no	7.0	2.00	1.50	0.30	300	N	N	30	500	N	N	20	100	50
84DT097	58 30 26	154 26 2	422	no	10.0	3.00	2.00	0.50	700	N	N	20	500	N	N	30	150	70
84JM076	58 31 33	154 32 13	426	no	7.0	2.00	1.00	0.50	700	N	N	20	500	N	N	20	150	70
84JM075	58 31 28	154 31 43	427	no	10.0	1.50	1.00	0.50	700	<0.5	N	20	300	N	N	15	100	50
84JM074	58 30 50	154 31 22	428	no	5.0	3.00	2.00	0.50	500	N	N	20	500	N	N	20	200	100
84JM073	58 30 27	154 31 20	429	no	7.0	2.00	1.50	0.30	500	N	N	20	300	N	N	20	150	70
84JM085	58 24 47	154 18 2	435	no	7.0	2.00	0.70	0.50	700	N	N	50	700	N	N	30	70	70
84JM086	58 25 43	154 15 52	436	no	7.0	3.00	1.50	0.50	1,000	0.5	N	100	1,500	N	N	50	70	100
83JM050B	58 26 20	154 12 31	439	no	15.0	1.00	2.00	0.50	1,000	N	N	10	20	1.0	N	70	500	20
83JM050A	58 26 20	154 12 31	439	no	5.0	1.00	0.50	0.50	500	N	N	30	500	<1.0	N	20	100	30
83JM049	58 26 49	154 12 40	440	no	3.0	2.00	1.00	0.50	700	N	N	15	300	1.0	N	20	100	20
83RJ050	58 27 15	154 12 8	442	no	3.0	1.50	2.00	0.30	700	N	N	30	700	N	N	20	70	15
83DT014A	58 4 2	154 45 6	631	no	3.0	1.50	0.50	0.50	300	N	N	70	1,000	1.0	N	30	50	30
83JM041A	58 10 17	154 46 29	632D	no	5.0	1.50	2.00	0.30	1,000	N	N	50	700	<1.0	N	20	50	20
83JM042A	58 10 10	154 46 20	632C	no	7.0	1.50	2.00	0.50	1,000	N	N	20	700	<1.0	N	30	50	20
83AL025C	58 0 4	154 47 51	635	yes	5.0	1.00	1.00	0.30	700	N	N	500	500	N	N	20	30	20
83AL016D	58 0 36	154 49 29	636	no	5.0	1.00	10.00	0.20	700	N	N	20	500	1.5	N	20	30	10
83AL016C	58 0 36	154 49 29	636	yes	20.0	0.70	1.00	0.10	200	N	500	N	300	N	N	20	20	15
83AL011C	58 0 59	154 49 23	637	yes	2.0	2.00	15.00	0.20	2,000	N	N	50	300	N	N	20	70	15
84DT111	58 1 41	154 48 14	638	no	3.0	2.00	1.00	0.50	1,000	N	N	70	1,500	N	N	20	70	10
84JM089	58 1 45	154 48 25	639	no	5.0	2.00	0.50	0.30	700	<0.5	N	50	1,000	<1.0	N	20	150	70
84JM087	58 2 0	154 48 58	640	no	3.0	2.00	0.50	0.50	700	N	N	50	500	N	N	20	100	10
84JM088	58 1 50	154 49 0	641	no	5.0	2.00	0.50	0.50	700	<0.5	N	50	1,000	N	N	30	150	50
84DT110	58 1 41	154 49 26	642	no	7.0	2.00	0.50	0.50	500	N	N	20	500	N	N	20	150	10
83AL010C	58 1 13	154 50 50	643	no	2.0	1.00	1.50	0.50	700	N	N	50	300	<1.0	N	20	50	20
83AL009C	58 1 40	154 52 2	644	no	5.0	1.50	2.00	0.50	1,000	N	N	50	500	<1.0	N	30	30	20
83JM012A	58 3 32	154 49 7	646	no	1.5	0.50	>20.00	0.15	5,000	N	N	20	100	N	N	5	50	7
84JM091	58 4 27	154 50 22	647	no	3.0	1.00	0.70	0.50	1,000	N	N	20	1,000	<1.0	N	5	<10	<5
83JM011A	58 3 39	154 49 12	648	no	5.0	1.00	3.00	0.70	500	N	N	30	500	1.0	N	30	70	30
83JM009A	58 4 14	154 49 6	649	no	3.0	1.50	2.00	0.50	1,500	N	N	20	700	N	N	30	50	30
83JM008A	58 4 57	154 47 39	652	no	3.0	1.50	0.50	0.50	500	N	N	50	300	1.0	N	30	30	15

Table 9. Naknek Formation, continued

SAMPLE	La-S	Mo-S	Ni-S	Pb-S	Sc-S	Sr-S	V-S	Y-S	Zn-S	Zr-S	Au-AA	Hg-INST	As-AA	Zn-AA	Ag-AA	Cd-AA	Bi-AA	Sb-AA
84DT081	N	10	<5	100	20	<100	10	50	N	200	N	--	N	55	--	N	N	N
84DT080	N	N	20	30	30	500	200	50	<200	150	--	--	N	40	--	0.1	N	N
84DT079	N	N	30	50	30	700	200	50	<200	150	--	--	10	75	--	N	N	N
84DT078	N	N	20	50	30	1,000	200	50	<200	200	--	--	N	60	--	N	N	N
84JM079	N	N	20	<10	20	500	200	15	N	100	N	0.08	N	60	--	N	N	N
84DT077	N	N	30	20	30	500	200	50	N	150	--	--	N	45	--	N	N	N
84JM078	N	N	50	15	20	700	150	20	N	70	--	--	N	40	--	N	N	N
83RJ145A	N	N	10	N	10	300	70	<10	N	30	--	--	N	30	--	0.2	N	N
83RJ145B	N	5	50	20	50	200	300	50	N	70	--	--	N	95	--	0.2	N	N
83RJ145C	N	N	20	10	30	200	200	50	N	100	--	--	N	50	--	0.3	N	N
83RJ146	N	N	30	<10	30	300	150	20	N	100	--	--	N	75	--	N	N	N
83PB053	N	N	50	10	30	300	200	20	N	70	N	N	N	110	--	0.3	N	N
84RJ091A	N	N	30	20	20	500	200	50	<200	200	N	0.14	10	45	--	N	N	N
83RJ144A	N	N	50	30	30	200	300	50	N	100	--	0.02	14	65	0.20	0.1	N	N
84DT100	N	N	50	10	30	500	300	30	N	100	--	--	N	80	--	<0.1	N	N
84DT101	N	N	30	<10	30	100	300	50	N	150	--	--	N	55	--	N	N	N
84DT102	N	N	50	20	20	500	200	30	N	100	N	0.08	N	120	--	0.1	N	N
84DT103	N	N	50	10	30	300	500	30	N	70	N	0.08	N	75	--	<0.1	N	N
84RJ089A	N	N	50	30	20	500	200	50	<200	150	--	0.10	N	100	--	N	N	N
84DT096	N	N	50	10	20	500	500	20	N	100	--	--	10	75	--	N	N	N
84DT097	N	N	50	15	30	300	300	50	N	100	--	--	N	85	--	<0.1	N	N
84JM076	N	N	30	15	30	100	300	30	N	70	--	--	N	95	--	<0.1	N	N
84JM075	N	N	30	15	20	200	200	20	N	70	N	0.08	10	90	--	N	N	N
84JM074	N	N	50	15	20	150	300	30	N	100	N	0.02	N	100	--	<0.1	N	N
84JM073	N	N	50	10	20	200	300	20	N	70	--	--	N	110	--	<0.1	N	N
84JM085	N	N	50	20	20	500	200	30	<200	150	--	N	N	50	--	N	N	N
84JM086	N	N	100	50	30	700	200	50	<200	100	N	N	N	120	--	0.1	N	N
83JM050B	30	N	100	20	20	100	700	70	300	70	N	N	70	280	--	N	N	N
83JM050A	N	N	50	20	20	300	200	15	N	100	N	0.04	30	85	--	<0.1	N	N
83JM049	N	N	30	15	20	300	200	20	N	70	--	--	N	65	--	<0.1	N	N
83RJ050	N	N	30	10	20	300	200	20	N	100	--	--	N	45	--	N	N	N
83DT014A	N	N	30	15	20	200	200	30	N	150	N	N	N	130	--	0.6	N	N
83JM041A	N	N	20	10	20	200	200	50	N	100	--	--	N	50	--	N	N	2
83JM042A	N	N	20	10	30	700	300	30	N	100	--	--	N	60	--	N	N	N
83AL025C	N	N	15	10	20	150	200	20	N	70	N	N	N	40	--	N	N	N
83AL016D	N	30	50	20	15	1,000	100	30	<200	100	N	0.12	20	120	--	<0.1	N	N
83AL016C	N	100	50	20	7	500	70	N	N	50	--	0.55	360	50	N	0.1	2	6
83AL011C	N	N	30	15	20	700	200	30	N	50	--	--	10	50	N	0.1	N	N
84DT111	N	N	20	20	20	500	100	50	N	200	--	0.04	N	45	--	N	N	N
84JM089	N	N	30	30	20	300	150	30	N	150	N	0.02	N	55	--	<0.1	N	N
84JM087	N	N	20	10	20	200	150	30	N	200	--	N	N	35	--	N	N	N
84JM088	N	N	30	30	20	500	100	30	N	100	N	0.04	10	85	--	N	N	N
84DT110	N	N	20	N	15	150	300	30	N	15	--	N	10	40	--	N	N	N
83AL010C	N	N	20	<10	30	500	200	20	N	100	--	--	N	90	--	<0.1	N	N
83AL009C	N	N	20	10	30	500	200	20	N	70	--	--	N	70	--	<0.1	N	N
83JM012A	20	N	15	<10	10	200	100	100	N	50	--	--	N	35	--	0.1	N	N
84JM091	N	N	5	20	20	300	20	70	N	200	--	N	N	90	--	0.2	N	N
83JM011A	N	N	50	10	30	500	200	30	N	100	--	--	N	75	--	0.1	N	N
83JM009A	N	N	50	20	30	300	200	30	N	100	--	--	N	70	--	0.1	N	N
83JM008A	N	N	15	10	20	200	200	20	N	100	--	--	N	80	--	0.1	N	N

Table 9. Naknek Formation, continued

SAMPLE	LATITUDE	LONGITUDE	MAP NO.	ALTERED?	Fe%-S	Mg%-S	Ca%-S	Ti%-S	Mn-S	Ag-S	As-S	B-S	Ba-S	Be-S	Bi-S	Co-S	Cr-S	Cu-S
83DT011A	58 5 0	154 46 48	653	no	2.0	0.70	0.10	0.30	300	N	N	70	500	1.0	N	10	50	10
84JM098	58 7 25	154 59 18	718	no	1.5	0.30	0.70	0.15	300	N	N	20	500	N	N	N	50	<5
83RJ107B	58 10 17	154 58 37	722	no	5.0	1.50	1.50	0.50	1,000	N	N	10	200	<1.0	N	30	100	20
83RJ107C	58 10 17	154 58 37	722	no	5.0	1.50	1.50	0.50	1,000	N	N	20	300	<1.0	N	30	70	30
83RJ107D	58 10 17	154 58 37	722	yes	1.0	0.70	>20.00	0.10	1,000	N	N	20	100	N	N	10	20	<5
84EM042B	58 11 14	154 56 40	725	no	3.0	1.00	0.70	0.20	500	N	N	100	500	<1.0	N	10	30	20
84DT117	58 11 8	154 57 34	727	no	0.7	0.15	0.30	0.10	200	N	N	15	300	<1.0	N	7	20	<5
84DT118	58 11 10	154 57 58	728	no	2.0	1.50	1.00	0.30	300	N	N	<10	300	N	N	10	100	7
83RJ109	58 11 15	154 58 0	729	yes	5.0	2.00	1.50	0.50	1,000	N	N	10	500	<1.0	N	20	70	10
84DT113	58 11 11	154 58 21	731	no	5.0	1.50	0.70	0.30	500	N	N	10	500	N	N	15	150	5
84EM041B	58 13 40	154 54 51	742	no	3.0	1.50	2.00	0.20	500	N	N	<10	500	N	N	15	150	<5
84RJ121B	58 14 8	154 53 10	743	no	3.0	1.50	1.00	0.50	700	0.5	N	20	700	N	N	20	150	50
84RJ121A	58 14 8	154 53 10	743	yes	2.0	0.70	1.00	0.15	500	N	N	10	200	1.0	N	10	50	10
84YB063	58 15 8	154 54 37	744	no	7.0	1.00	1.00	0.30	500	N	N	10	100	N	N	20	200	7
84JM122	58 29 9	154 49 50	756	no	5.0	3.00	1.00	0.50	1,000	N	N	50	1,000	N	N	20	100	50
84JM123	58 28 53	154 49 50	757	no	5.0	3.00	1.00	0.50	1,000	N	N	50	1,000	N	N	20	70	50
86JM212	58 27 8	154 52 15	758	no	10.0	2.00	3.00	0.50	1,000	N	N	10	300	N	N	20	100	20
86JM213	58 27 35	154 51 59	759	no	15.0	3.00	3.00	0.50	1,000	N	N	20	500	N	N	50	200	150
84JM118	58 29 45	154 58 20	760	no	7.0	2.00	2.00	0.50	1,000	N	N	50	1,000	<1.0	N	30	150	70
84JM118B	58 29 45	154 58 20	761	no	5.0	2.00	1.00	0.50	700	N	N	50	1,000	N	N	30	100	50
84JM119	58 30 7	154 59 30	762	no	5.0	3.00	1.50	0.50	1,000	N	N	50	2,000	N	N	20	50	50
84JM120	58 29 59	155 0 39	763	no	5.0	3.00	1.50	0.50	1,000	N	N	50	1,000	N	N	50	150	100
84JM121	58 29 55	155 1 9	764	no	5.0	2.00	0.70	0.50	500	N	N	50	1,000	N	N	20	70	50
84JM117	58 29 0	155 2 0	765	no	5.0	2.00	2.00	0.50	1,000	N	N	50	1,500	<1.0	N	30	100	70
84JM116	58 28 40	155 0 30	766	no	5.0	2.00	2.00	0.50	1,000	<0.5	N	50	1,000	<1.0	N	30	150	100
84JM135	58 25 25	155 0 20	767	no	7.0	3.00	1.00	0.50	1,000	<0.5	N	50	1,000	N	N	50	150	70
84JM136	58 25 15	155 0 40	768	no	7.0	3.00	2.00	0.50	1,000	N	N	50	700	<1.0	N	30	150	70
84JM134	58 25 18	155 0 2	769	no	7.0	5.00	2.00	0.50	1,000	N	N	70	1,500	<1.0	N	50	100	70
84JM133	58 25 11	154 59 32	770	no	7.0	5.00	1.50	0.50	1,000	N	N	50	1,000	<1.0	N	50	150	70
84JM132	58 24 55	154 59 15	771	no	5.0	2.00	2.00	0.30	1,000	N	N	50	200	<1.0	N	20	100	20
86RJ125A	58 20 16	154 59 31	778	yes	1.0	1.00	20.00	0.15	1,000	N	N	<10	100	1.0	N	100	30	2,000
86RJ125B	58 20 16	154 59 31	778	yes	7.0	0.70	3.00	0.20	500	1.0	N	<10	100	N	N	50	70	500
86RJ126C	58 19 22	155 0 18	779	yes	15.0	1.00	3.00	0.30	500	0.5	N	20	2,000	N	N	100	70	300
86RJ126B	58 19 22	155 0 18	779	yes	7.0	0.50	0.50	0.15	150	N	N	15	500	N	N	10	30	50
85DT228	58 24 38	155 15 2	780E	no	3.0	1.50	7.00	0.30	2,000	N	N	15	700	<1.0	N	20	70	30
84EM043D	58 12 28	155 3 50	785	no	3.0	1.50	1.00	0.30	500	N	N	20	500	N	N	20	70	30
84EM044C	58 11 4	155 4 1	787	no	3.0	1.50	1.00	0.50	700	N	N	30	700	<1.0	N	15	100	30
83JM018A	58 3 22	155 3 52	791	no	5.0	1.00	1.00	0.20	1,000	N	N	10	1,000	1.0	N	20	50	20
83JM020A	58 3 7	155 4 1	792	no	7.0	1.50	1.00	0.50	1,000	0.5	N	30	1,500	1.0	N	30	200	50
83JM019A	58 3 5	155 3 49	793	yes	2.0	0.20	0.70	0.20	500	N	N	20	1,500	<1.0	N	20	50	10
84DT124	58 0 0	155 1 32	794C	no	5.0	1.50	1.00	0.50	1,000	N	N	10	300	N	N	20	70	30
83JM023A	58 2 55	155 5 2	794A	no	7.0	2.00	1.00	0.50	1,000	N	N	10	700	<1.0	N	30	150	70
86RJ128A	58 13 52	155 17 30	798	yes	15.0	3.00	0.10	0.20	1,000	N	N	10	100	N	N	30	30	200
86RJ128C	58 13 52	155 17 30	798	yes	10.0	1.00	0.70	0.30	1,000	N	N	15	200	N	N	10	30	70
84DT159	58 18 31	155 16 45	801	no	7.0	3.00	1.50	0.50	1,000	N	N	50	700	N	N	50	100	100
84DT160	58 19 11	155 17 39	802	no	7.0	3.00	1.50	0.50	1,000	N	N	50	1,000	<1.0	N	30	100	100
84DT161	58 19 30	155 17 56	803	no	7.0	3.00	1.50	0.50	1,000	N	N	50	1,000	<1.0	N	30	100	70
84DT162	58 20 3	155 18 19	804	no	10.0	3.00	1.50	0.50	2,000	N	N	10	1,000	N	N	30	100	100
84DT163	58 20 19	155 18 31	805	no	7.0	3.00	1.50	0.50	1,000	N	N	50	1,000	<1.0	N	50	100	100
85DT223	58 22 26	155 25 17	806	no	5.0	1.50	2.00	0.30	700	N	N	20	500	N	N	20	50	70

Table 9. Naknek Formation, continued

SAMPLE	La-S	Mo-S	Ni-S	Pb-S	Sc-S	Sr-S	V-S	Y-S	Zn-S	Zr-S	Au-AA	Hg-INST	As-AA	Zn-AA	Ag-AA	Cd-AA	Bi-AA	Sb-AA
83DT011A	N	N	20	10	10	N	150	10	N	100	--	--	N	80	--	0.2	N	N
84JM098	N	N	10	N	10	200	70	N	N	50	--	N	N	10	--	N	N	N
83RJ107B	N	N	30	N	30	300	150	20	N	100	--	--	10	45	--	N	N	N
83RJ107C	N	N	30	10	30	500	200	30	N	100	--	--	10	50	--	N	N	2
83RJ107D	N	N	15	30	7	300	100	N	N	20	--	--	<10	40	N	0.1	N	N
84EM042B	N	N	10	20	15	300	100	20	N	70	N	N	N	100	--	N	N	N
84DT117	N	N	7	10	7	200	70	N	N	150	--	0.02	N	10	--	N	N	N
84DT118	N	N	20	<10	20	300	100	20	N	100	--	N	N	25	--	N	N	N
83RJ109	N	N	30	10	30	500	300	30	N	70	--	--	<10	50	N	N	N	N
84DT113	N	N	30	<10	20	300	100	20	N	100	--	N	N	60	--	N	N	N
84EM041B	N	N	20	N	20	200	150	20	N	70	--	N	N	10	--	N	N	N
84RJ121B	N	N	50	50	15	300	100	50	200	100	N	N	N	220	--	0.9	N	N
84RJ121A	N	N	30	20	20	500	150	20	N	70	--	N	N	60	--	N	N	N
84YB063	N	N	30	10	20	150	300	20	N	100	--	0.02	<10	150	--	<0.1	N	N
84JM122	N	N	20	20	20	300	200	50	N	150	--	0.02	<10	45	--	N	N	N
84JM123	N	N	20	10	20	300	200	50	N	200	--	N	<10	45	--	N	N	N
86JM212	N	N	30	N	20	700	200	30	<200	100	--	N	N	50	--	0.1	N	N
86JM213	N	N	70	<10	20	200	200	30	200	70	--	0.02	<10	80	--	<0.1	N	N
84JM118	N	N	50	20	30	700	200	70	<200	150	--	N	<10	55	--	<0.1	N	N
84JM118B	N	N	30	20	20	700	100	30	N	100	--	N	<10	45	--	<0.1	N	N
84JM119	N	N	20	20	20	1,000	100	50	<200	150	N	N	<10	40	--	N	N	N
84JM120	N	N	70	50	30	700	200	50	<200	150	--	N	<10	75	--	N	N	N
84JM121	N	N	20	30	20	500	200	50	N	150	--	N	<10	55	--	<0.1	N	N
84JM117	N	N	30	20	30	700	200	70	<200	150	--	N	<10	50	--	0.1	N	N
84JM116	N	N	30	50	30	1,000	200	70	<200	100	N	0.02	10	110	--	0.2	N	N
84JM135	N	N	50	70	30	500	200	50	<200	150	N	N	N	100	--	0.1	N	N
84JM136	N	N	50	20	30	300	200	50	<200	200	--	N	N	50	--	N	N	N
84JM134	<20	N	50	50	30	700	200	50	<200	200	--	N	N	60	--	N	N	N
84JM133	N	N	50	50	30	500	200	50	<200	150	--	N	N	100	--	N	N	N
84JM132	N	N	20	20	20	200	200	30	<200	200	--	N	N	45	--	N	N	N
86RJ125A	N	N	20	<10	10	200	50	20	N	50	--	N	N	45	--	0.2	N	N
86RJ125B	N	N	20	<10	10	300	100	<10	N	20	--	N	N	40	--	N	N	N
86RJ126C	N	<5	20	<10	15	500	150	10	<200	50	--	N	70	25	--	N	N	N
86RJ126B	N	N	20	N	7	N	70	<10	<200	20	--	N	10	15	--	N	N	N
85DT228	<50	N	20	20	15	300	150	20	N	50	--	--	--	--	--	--	--	--
84EM043D	N	N	30	<10	20	500	150	20	N	70	--	0.02	N	110	--	0.1	N	N
84EM044C	N	N	30	10	20	500	150	50	N	70	N	0.06	N	85	--	N	N	N
83JM018A	N	N	20	10	20	200	150	20	N	70	N	N	20	30	--	N	N	N
83JM020A	N	15	30	20	30	200	200	50	N	100	N	0.04	10	95	--	N	N	2
83JM019A	N	N	15	<10	15	200	100	10	N	50	--	--	N	45	--	N	N	N
84DT124	N	N	30	<10	20	150	100	20	N	70	--	0.02	N	100	--	N	N	N
83JM023A	N	N	50	15	30	500	200	30	N	70	--	--	10	85	--	N	N	N
86RJ128A	N	5	50	15	10	N	100	<10	<200	70	--	N	<10	80	--	N	N	N
86RJ128C	N	N	20	<10	15	<100	150	15	200	100	--	N	N	420	--	1.0	N	N
84DT159	N	N	70	30	50	700	200	50	<200	200	--	N	N	70	--	N	N	N
84DT160	N	N	50	50	50	1,000	200	50	<200	200	--	N	N	65	--	N	N	N
84DT161	N	N	50	30	50	1,000	200	50	<200	100	--	N	N	60	--	N	N	N
84DT162	N	N	30	30	30	500	500	50	<200	100	--	N	N	75	--	N	N	N
84DT163	N	N	50	50	30	700	200	50	<200	150	--	N	N	75	--	N	N	N
85DT223	N	N	50	<10	15	300	100	20	N	50	--	--	N	75	--	N	N	N

Table 9. Naknek Formation, continued

SAMPLE	LATITUDE	LONGITUDE	MAP NO.	ALTERED?	Fe%-S	Mg%-S	Ca%-S	Ti%-S	Mn-S	Ag-S	As-S	B-S	Ba-S	Be-S	Bi-S	Co-S	Cr-S	Cu-S
84DT154	58 40 30	155 20 12	807	no	5.0	3.00	1.00	0.50	1,000	N	N	30	1,000	<1.0	N	30	50	100
86JM227	58 27 25	155 22 59	808	no	10.0	2.00	2.00	0.50	700	N	N	15	300	N	N	20	100	50
84DT146	58 25 4	155 23 12	809	no	7.0	3.00	1.00	0.70	1,000	N	N	50	1,500	<1.0	N	50	100	100
84DT145	58 25 4	155 23 52	810	no	5.0	2.00	1.00	0.50	700	N	N	50	1,000	<1.0	N	30	50	70
84DT144	58 25 19	155 24 19	811	no	5.0	2.00	1.00	0.50	700	N	N	50	1,000	<1.0	N	30	100	30
84DT147	58 24 58	155 27 12	812	no	5.0	3.00	5.00	0.50	2,000	N	N	20	700	N	N	50	100	20
84DT148	58 25 0	155 27 30	813	no	7.0	3.00	2.00	0.50	1,000	N	N	50	700	N	N	20	10	7
84DT149	58 25 5	155 28 9	814	no	3.0	2.00	3.00	0.30	1,500	N	N	20	700	N	N	20	70	10
84DT150	58 25 19	155 28 52	815	no	3.0	3.00	1.50	0.30	700	N	N	50	1,000	N	N	20	30	50
86JM226	58 5 39	155 27 59	816	no	10.0	2.00	2.00	0.70	1,000	N	N	20	500	N	N	20	100	70
86JM225	58 5 1	155 28 25	817	no	10.0	1.50	2.00	0.50	700	N	N	15	200	N	N	20	100	30
85DT177	58 15 43	155 31 59	826	no	3.0	1.50	1.50	0.30	1,000	<0.5	N	10	500	<1.0	N	20	100	30
85DT176	58 16 3	155 31 10	827	no	3.0	1.50	1.00	0.30	700	N	N	10	500	<1.0	N	20	100	30
85RJ174G	58 16 17	155 29 0	828	yes	3.0	1.50	1.00	0.30	300	N	N	<10	200	N	N	20	70	30
85RJ174A	58 16 17	155 29 0	828	yes	3.0	1.50	2.00	0.20	200	N	N	<10	300	N	N	20	30	50
85RJ174C	58 16 17	155 29 0	828	yes	3.0	1.50	3.00	0.30	300	N	N	<10	150	N	N	20	100	50
85RJ175A	58 16 11	156 26 10	829	yes	2.0	2.00	0.70	0.20	300	0.5	N	<10	700	N	N	20	30	700
85RJ175B	58 16 11	156 26 10	829	yes	3.0	1.50	1.00	0.20	150	N	N	<10	700	N	N	7	50	50
86RJ124E	58 16 11	155 26 10	830	yes	7.0	2.00	1.00	0.50	200	0.5	N	10	700	<1.0	N	20	100	1,000
85JM148	58 10 30	155 37 55	831	no	2.0	1.00	1.00	0.30	1,000	N	N	10	700	<1.0	N	15	30	15
85JM147	58 10 45	155 37 39	832	no	3.0	1.00	1.00	0.20	1,000	N	N	15	500	<1.0	N	15	30	10
85JM146	58 10 50	155 37 0	833	no	2.0	1.00	1.00	0.20	1,000	N	N	10	700	<1.0	N	10	30	10
85JM145	58 10 40	155 37 42	834	no	2.0	1.00	7.00	0.10	1,000	N	N	10	500	<1.0	N	10	20	10
85JM144	58 11 1	155 35 30	835	no	3.0	1.00	1.50	0.30	700	N	N	10	500	<1.0	N	20	50	20
85JM143	58 10 42	155 34 41	836	no	3.0	1.00	2.00	0.30	700	N	N	10	500	<1.0	N	20	70	20
85DT171	58 10 18	155 34 40	837	no	2.0	1.00	2.00	0.20	1,000	N	N	20	1,000	<1.0	N	15	50	15
85DT168	58 10 30	155 32 10	839	no	3.0	1.50	2.00	0.30	1,000	<0.5	N	20	500	<1.0	N	30	100	50
85DT189A	58 8 21	155 32 12	842	yes	2.0	1.00	1.00	0.15	1,000	<0.5	N	30	1,000	<1.0	N	20	50	20
85JM155	58 6 7	155 34 35	843	no	3.0	1.50	1.00	0.50	700	N	N	20	500	<1.0	N	20	50	20
85JM154	58 5 45	155 33 31	844	no	3.0	1.00	1.50	0.30	700	N	N	10	500	<1.0	N	15	50	10
85JM153	58 5 34	155 33 10	845	no	2.0	1.00	10.00	0.10	3,000	N	N	30	500	<1.0	N	15	50	15
85JM152	58 5 18	155 32 30	846	no	3.0	1.00	1.00	0.20	1,000	N	N	10	700	<1.0	N	20	30	20
85JM151	58 5 10	155 31 51	847	no	5.0	1.00	1.50	0.50	1,000	<0.5	N	20	500	<1.0	N	50	100	30
85JM157	58 5 5	155 30 59	848	no	3.0	1.00	2.00	0.30	1,000	N	N	20	500	<1.0	N	30	100	30
85DT184	58 6 17	155 30 50	849	no	2.0	1.50	1.50	0.20	1,000	N	N	20	500	<1.0	N	20	50	30
84DT128	58 4 17	155 27 20	850	no	3.0	2.00	1.00	0.30	500	N	N	30	500	<1.0	N	20	100	30
84RJ133E	58 7 50	155 27 11	850	no	3.0	1.50	1.00	0.20	500	<0.5	N	20	500	<1.0	N	15	70	30
84DT126	58 5 35	155 27 11	853	no	3.0	1.50	1.50	0.30	700	N	N	20	500	<1.0	N	20	100	30
84DT127	58 5 4	155 27 40	854	no	3.0	1.50	1.50	0.20	500	N	N	20	500	<1.0	N	15	70	30
84YB047	58 4 10	154 29 17	855	no	2.0	0.70	1.00	0.20	700	N	N	10	700	<1.0	N	10	30	30
84YB048	58 3 19	154 29 2	856	no	2.0	0.70	1.00	0.20	700	N	N	10	500	<1.0	N	10	20	10
84DT129	58 3 41	155 26 45	857	no	3.0	1.50	1.00	0.30	500	N	N	15	500	<1.0	N	15	70	20
84RJ132	58 2 52	155 23 15	859	yes	2.0	0.70	0.70	0.15	700	N	N	15	500	N	N	7	20	10
84JM106	58 4 54	155 22 50	860	no	1.5	1.00	0.70	0.15	500	N	N	10	500	N	N	10	30	10
84JM105B	58 5 16	155 22 53	861	no	2.0	1.00	0.70	0.15	1,000	N	N	10	700	N	N	10	15	7
84JM105	58 5 30	155 22 54	862	no	1.5	0.70	5.00	0.10	1,500	N	N	10	700	N	N	7	20	15
84JM104	58 5 59	155 23 9	863	no	2.0	1.00	0.70	0.20	500	N	N	15	500	N	N	10	30	15
84DT122	58 6 43	155 20 11	864	no	3.0	1.00	1.00	0.50	700	N	N	15	700	<1.0	N	15	30	20
84DT123	58 6 54	155 19 47	865	no	5.0	1.50	1.00	0.50	700	N	N	15	700	N	N	20	50	20
84DT121	58 6 2	155 19 22	866	no	3.0	1.50	1.50	0.50	700	N	N	10	1,000	N	N	20	50	15

Table 9. Naknek Formation, continued

SAMPLE	La-S	Mo-S	Ni-S	Pb-S	Sc-S	Sr-S	V-S	Y-S	Zn-S	Zr-S	Au-AA	Hg-INST	As-AA	Zn-AA	Ag-AA	Cd-AA	Bi-AA	Sb-AA
84DT154	N	N	50	30	30	500	200	50	N	200	--	N	<10	80	--	0.1	N	N
86JM227	N	N	30	<10	15	N	200	20	<200	70	--	0.06	<10	50	--	N	N	N
84DT146	N	N	20	50	30	500	200	70	<200	200	N	N	10	75	--	<0.1	N	N
84DT145	N	N	20	20	20	300	200	30	N	100	--	N	20	55	--	N	N	N
84DT144	N	N	20	20	20	500	200	30	N	200	--	N	<10	30	--	N	N	N
84DT147	N	N	50	10	30	500	200	50	N	100	--	N	<10	35	--	<0.1	N	N
84DT148	N	N	5	20	20	1,000	200	30	N	70	--	0.02	<10	25	--	N	N	N
84DT149	N	N	20	10	20	500	100	30	N	100	--	N	<10	25	--	N	N	N
84DT150	N	N	15	20	20	500	100	30	N	100	--	N	<10	20	--	N	N	N
86JM226	N	N	30	<10	20	200	200	20	<200	100	--	<0.02	<10	65	--	N	N	N
86JM225	N	N	30	N	15	100	200	20	<200	100	--	N	<10	45	--	N	N	N
85DT177	N	N	30	<10	20	300	100	20	N	100	--	N	N	35	--	N	N	N
85DT176	N	N	30	10	20	200	100	20	N	100	--	N	N	50	--	N	N	N
85RJ174G	N	N	20	N	20	200	100	20	N	50	--	--	N	20	--	N	N	N
85RJ174A	N	N	20	N	20	200	100	20	N	70	--	--	N	15	--	N	N	N
85RJ174C	N	N	20	N	20	200	150	30	N	70	--	--	<10	10	--	N	N	N
85RJ175A	N	20	20	N	10	200	100	15	N	50	--	--	N	20	--	N	N	N
85RJ175B	N	10	20	N	10	200	100	15	N	50	--	--	N	15	--	N	N	N
86RJ124E	<20	<5	50	N	30	300	200	20	<200	100	--	<0.02	N	20	--	N	N	N
85JM148	N	N	15	<10	15	300	100	20	N	50	--	0.14	N	45	--	N	N	N
85JM147	N	N	15	<10	15	300	100	20	N	100	--	0.06	N	50	--	N	N	N
85JM146	N	N	15	<10	15	300	100	20	N	150	--	0.06	<10	40	--	N	N	N
85JM145	N	N	15	<10	10	200	70	15	N	50	--	0.42	N	30	--	N	N	N
85JM144	N	N	30	<10	20	300	150	20	N	100	--	0.04	10	70	--	N	N	N
85JM143	N	N	30	<10	20	700	150	20	N	70	--	0.02	N	75	--	N	N	N
85DT171	N	N	20	<10	15	500	100	20	N	70	--	N	N	35	--	N	N	N
85DT168	N	N	30	10	20	300	100	20	N	70	--	0.08	N	60	--	N	N	N
85DT189A	N	N	30	<10	15	500	100	20	N	150	--	0.06	10	70	--	<0.1	N	N
85JM155	N	N	30	<10	20	300	150	20	N	70	--	0.02	N	75	--	N	N	N
85JM154	N	N	20	<10	20	300	100	20	N	100	--	0.08	N	40	--	N	N	N
85JM153	N	N	20	<10	15	500	100	15	N	50	--	0.06	N	50	--	N	N	N
85JM152	50	N	20	<10	20	500	100	20	N	100	--	0.02	N	40	--	N	N	N
85JM151	N	<5	30	<10	20	700	150	20	N	100	--	N	N	85	--	N	N	N
85JM157	N	<5	50	<10	20	500	150	20	N	100	--	0.02	N	100	--	0.1	N	N
85DT184	N	N	30	<10	15	500	150	20	N	70	--	0.12	N	90	--	N	N	N
84DT128	N	<5	50	10	20	300	150	20	N	50	--	0.02	10	120	--	N	N	N
84RJ133E	N	N	30	10	15	300	100	30	N	70	N	0.04	10	110	--	N	N	N
84DT126	N	N	30	10	20	300	150	30	N	70	--	0.04	N	100	--	N	N	N
84DT127	N	N	30	10	20	300	150	20	N	50	--	N	10	100	--	N	N	N
84YB047	N	N	10	<10	15	300	70	20	N	150	--	N	N	45	--	N	N	N
84YB048	N	N	10	<10	15	<100	100	20	N	70	--	N	N	40	--	N	N	N
84DT129	N	N	30	10	20	300	150	20	N	70	--	N	N	100	--	N	N	N
84RJ132	N	N	10	<10	10	<100	100	20	N	100	N	0.14	N	40	--	N	N	N
84JM106	N	N	20	<10	15	500	70	10	N	50	--	N	N	50	--	N	N	N
84JM105B	N	N	10	<10	10	300	70	20	N	70	--	N	N	45	--	N	N	N
84JM105	N	N	10	<10	20	200	70	15	N	50	--	N	N	35	--	N	N	N
84JM104	N	N	15	<10	20	300	100	20	N	70	--	N	N	55	--	N	N	N
84DT122	N	N	20	10	20	500	100	20	N	50	--	N	N	40	--	N	N	N
84DT123	N	N	20	10	20	300	100	20	N	70	--	N	N	50	--	N	N	N
84DT121	N	N	30	<10	20	500	100	20	N	70	--	0.02	N	55	--	N	N	N

Table 9. Naknek Formation, continued

SAMPLE	LATITUDE	LONGITUDE	MAP NO.	ALTERED?	Fe%-S	Mg%-S	Ca%-S	Ti%-S	Mn-S	Ag-S	As-S	B-S	Ba-S	Be-S	Bi-S	Co-S	Cr-S	Cu-S
84RJ129B	58 5 28	155 20 10	867	no	2.0	1.00	1.00	0.15	500	N	N	10	500	N	N	7	30	50
84DT120	58 5 51	155 18 45	868	no	3.0	1.50	1.00	0.50	500	<0.5	N	50	500	N	N	20	100	50
84JM099	58 5 1	155 18 1	869	no	5.0	2.00	1.50	0.70	700	<0.5	N	20	700	<1.0	N	30	150	70
84JM100	58 4 2	155 17 41	870	no	1.5	1.00	3.00	0.15	1,000	N	N	10	500	<1.0	N	15	30	15
84JM101	58 4 11	155 17 0	871	no	3.0	1.50	0.70	0.30	700	N	N	10	500	N	N	15	50	15
84JM102	58 4 3	155 16 11	872	no	3.0	1.50	1.00	0.30	700	N	N	10	700	<1.0	N	15	70	15
84JM103	58 4 0	155 15 30	873	no	5.0	1.50	1.00	0.30	700	N	N	10	700	N	N	20	100	15
83DT029A	58 3 12	155 17 10	874	yes	3.0	1.00	1.00	0.30	700	N	N	10	700	N	N	15	70	10
83DT031	58 3 1	155 17 25	875	yes	7.0	2.00	1.00	0.50	1,000	N	N	70	1,000	<1.0	N	30	100	70
83JM026A	58 0 43	155 20 11	876	no	2.0	1.00	1.50	0.30	700	N	N	10	500	1.0	N	20	70	15
83JM025B	58 0 23	155 20 19	877	no	3.0	1.50	2.00	0.50	1,500	N	N	20	1,000	1.5	N	20	50	20
84DT134	58 0 9	155 30 10	878	no	2.0	1.00	2.00	0.15	700	N	N	15	300	N	N	15	70	20
84DT133	58 0 16	155 30 17	879	no	3.0	1.00	1.00	0.20	500	0.5	N	15	300	<1.0	N	15	100	30
84DT132	58 0 18	155 30 22	880	no	5.0	1.50	1.00	0.30	500	N	N	10	200	N	N	20	100	30
84DT131	58 0 23	155 30 32	881	no	3.0	1.00	1.00	0.20	500	N	N	<10	300	N	N	10	70	10
84JM110	58 0 7	155 33 30	884	no	3.0	1.50	1.00	0.30	700	N	N	10	300	N	N	20	70	20
84JM109	58 0 1	155 33 59	885	no	3.0	1.50	2.00	0.30	1,000	N	N	10	300	N	N	20	150	30
84JM108	58 0 13	155 34 19	886	no	3.0	1.50	1.00	0.30	500	N	N	15	300	N	N	20	100	20
84JM107	58 0 0	155 34 31	887	no	5.0	1.50	1.00	0.30	700	N	N	10	300	N	N	30	20	30
85DT173	58 4 5	155 38 45	890	no	3.0	1.50	5.00	0.20	2,000	N	N	20	300	<1.0	N	20	100	50
85JM150	58 4 23	155 40 10	891	no	2.0	1.00	2.00	0.30	1,500	N	N	20	500	<1.0	N	30	70	50
85JM149	58 4 25	155 40 20	892	no	2.0	0.70	1.50	0.15	1,000	N	N	<10	700	<1.0	N	10	20	7
85JM138	58 5 6	155 44 12	894	no	5.0	2.00	2.00	0.50	1,000	N	N	10	500	<1.0	N	50	150	50
85JM139	58 5 11	155 44 15	895	no	5.0	2.00	2.00	0.50	1,000	N	N	15	300	<1.0	N	50	100	30
85JM141	58 6 45	155 45 20	897	no	3.0	1.50	1.50	0.30	1,000	N	N	10	500	1.0	N	20	100	15
85JM142	58 6 57	155 45 55	898	no	5.0	2.00	1.00	0.50	1,000	N	N	15	700	<1.0	N	30	100	30
85JM156	58 6 51	155 49 38	910	no	3.0	1.00	2.00	0.30	700	N	N	10	500	<1.0	N	20	50	20
86JM221	58 6 3	155 34 42	912	no	10.0	2.00	3.00	0.50	1,000	N	N	30	500	N	N	20	100	20
85YB207	58 20 26	155 37 46	913	no	3.0	1.50	1.00	0.30	1,000	N	N	10	700	<1.0	N	30	100	20
85YB208	58 19 56	155 38 45	914	no	5.0	1.50	1.00	0.50	1,000	N	N	15	500	<1.0	N	30	150	30
85DT193	58 9 34	155 57 32	947	no	3.0	1.00	1.50	0.30	1,000	N	N	15	700	<1.0	N	20	50	20

Table 9. Naknek Formation, continued

SAMPLE	La-S	Mo-S	Ni-S	Pb-S	Sc-S	Sr-S	V-S	Y-S	Zn-S	Zr-S	Au-AA	Hg-INST	As-AA	Zn-AA	Ag-AA	Cd-AA	Bi-AA	Sb-AA
84RJ129B	N	N	10	<10	20	300	70	15	N	100	--	N	N	40	--	N	N	N
84DT120	N	N	30	15	20	300	150	20	N	70	N	0.06	N	130	--	0.1	N	N
84JM099	N	N	50	10	30	500	150	30	<200	70	N	0.02	N	130	--	N	N	N
84JM100	N	N	20	<10	15	300	100	20	N	50	N	0.04	N	40	--	N	N	N
84JM101	N	N	20	<10	20	200	150	20	N	100	--	N	N	45	--	N	N	N
84JM102	N	N	20	<10	20	300	150	30	N	70	--	N	N	50	--	N	N	N
84JM103	N	N	30	<10	20	300	150	20	N	100	--	N	N	45	--	N	N	N
83DT029A	N	N	20	N	20	200	150	20	N	150	--	--	N	30	--	N	N	N
83DT031	N	N	70	15	30	200	300	30	N	100	N	0.02	N	130	--	N	N	N
83JM026A	N	N	20	N	20	200	100	20	N	100	--	--	N	45	--	N	N	N
83JM025B	N	N	20	<10	20	200	150	30	N	150	--	--	N	35	--	N	N	N
84DT134	N	N	30	10	15	300	100	20	N	50	--	0.02	10	85	--	<0.1	N	N
84DT133	N	N	30	<10	20	300	150	30	N	70	N	0.02	10	90	--	0.1	N	N
84DT132	N	N	30	10	20	300	150	20	N	70	--	N	10	90	--	0.1	N	N
84DT131	N	N	30	<10	20	300	100	20	N	100	--	N	<10	30	--	N	N	N
84JM110	N	N	30	10	20	300	150	20	N	50	--	0.02	<10	70	--	<0.1	N	N
84JM109	N	N	50	<10	20	200	100	20	N	50	--	0.04	10	70	--	<0.1	N	N
84JM108	N	N	50	10	20	300	150	20	N	70	--	N	<10	75	--	0.1	N	N
84JM107	N	N	15	10	20	300	150	30	N	70	--	N	<10	25	--	N	N	N
85DT173	N	N	30	10	20	300	150	20	N	50	--	N	N	55	--	N	N	N
85JM150	N	N	30	<10	20	500	150	20	N	70	--	0.02	N	100	--	N	N	N
85JM149	30	N	10	<10	10	200	100	20	N	70	--	N	N	30	--	N	N	N
85JM138	N	N	30	10	30	300	150	20	N	100	--	N	N	65	--	N	N	N
85JM139	N	N	30	<10	30	200	100	20	N	100	--	N	N	45	--	N	N	N
85JM141	N	N	20	<10	20	300	100	20	N	100	--	N	N	40	--	N	N	N
85JM142	N	N	30	10	20	500	150	20	N	70	--	N	N	60	--	N	N	N
85JM156	N	N	30	<10	15	300	100	20	N	100	--	N	N	65	--	N	N	N
86JM221	N	N	30	<10	20	100	200	50	<200	100	--	0.08	N	25	--	N	N	N
85YB207	N	N	30	<10	20	300	100	20	N	70	--	N	N	65	--	<0.1	N	N
85YB208	N	N	50	<10	20	200	150	20	N	70	--	N	N	65	--	N	N	N
85DT193	N	N	30	<10	15	300	100	20	N	100	--	0.02	<10	95	--	<0.1	N	N

Table 10. Geochemical analyses of Mesozoic sedimentary rocks other than the Naknek and Kaguyak Formations, Mount Katmai study area

[For explanation see heading for table 7. As, Au, Bi, Cd, Sb, Sn, Th, and W (by S) were not detected and are deleted from table 10. Geochemical data given in this table are included in statistical summary for all Mesozoic sedimentary rocks in table 21.]

SAMPLE	LATITUDE	LONGITUDE	MAP NO.	ALTERED?	Fe%-S	Mg%-S	Ca%-S	Ti%-S	Mn-S	Ag-S	B-S	Ba-S	Be-S	Bi-S	Co-S	Cr-S	Cu-S
85YB224	58 55 21	154 33 57	172	no	5.0	1.0	0.2	0.50	1,500	N	<10	1,000	1	N	20	15	15
85JM178	58 49 32	154 3 32	199	no	5.0	1.0	7.0	0.20	300	N	10	200	<1	N	20	<10	10
85JM177	58 49 26	154 3 19	200	no	0.7	0.5	0.5	0.20	100	N	70	150	1	N	N	20	20
86DT242	58 44 31	154 5 39	215	no	5.0	1.5	10.0	0.15	1,000	N	50	200	N	N	15	70	30
86RJ055B	58 46 4	153 55 34	220	no	10.0	2.0	1.5	0.50	2,000	N	20	1,000	<1	N	70	200	100
84YB087A	58 41 2	153 58 21	233	no	3.0	1.5	3.0	0.20	500	N	30	300	<1	N	15	70	15
84YB085	58 41 25	153 57 52	235	no	3.0	1.5	10.0	0.10	1,000	N	20	200	N	N	10	70	10
86RJ106A	58 42 7	153 55 41	236	yes	10.0	2.0	2.0	0.30	500	N	20	200	<1	N	20	100	200
86YB309	58 51 53	153 41 2	243	no	5.0	1.5	10.0	0.20	500	N	30	100	N	N	10	50	30
86DT252A	58 52 33	153 43 0	246	no	1.0	1.0	15.0	0.10	1,500	N	<10	100	N	N	N	20	20
84JM067	58 37 52	153 53 38	336	no	7.0	3.0	0.7	0.50	1,000	N	150	2,000	1	N	30	200	50
84DT087	58 34 39	153 53 49	339	no	3.0	1.5	5.0	0.20	500	N	N	100	N	N	10	100	5
84DT085	58 33 45	153 53 40	341	no	5.0	1.5	10.0	0.30	500	N	20	200	N	N	15	150	100
83DT002B	58 29 6	154 8 43	374	no	3.0	1.0	3.0	0.30	1,500	N	30	500	<1	N	30	50	30
83PB009B	58 27 17	154 13 9	441	no	1.5	1.5	>20.0	0.20	1,000	0.5	200	150	N	N	7	50	20
84JM090	58 0 5	154 47 22	634	no	7.0	3.0	1.0	0.50	1,000	N	50	700	N	N	30	100	10
84JM096	58 7 24	154 55 51	717	no	2.0	1.0	10.0	0.07	300	N	20	50	N	N	5	30	15
84JM097A	58 7 31	154 59 12	719	no	3.0	1.0	7.0	0.20	500	N	20	500	N	N	10	70	5
84JM097	58 7 31	154 59 12	719	no	5.0	1.5	2.0	0.20	500	N	15	50	N	N	15	70	N
83RJ130B	58 12 19	154 56 49	738	yes	7.0	1.5	10.0	0.50	700	N	500	100	N	N	20	100	30
84YB064A	58 17 47	154 56 55	747	no	1.0	0.5	10.0	0.10	300	N	20	200	N	N	5	30	20
86JM214A	58 24 0	154 42 10	749	no	10.0	2.0	2.0	0.50	300	N	100	300	N	N	20	150	150
86JM214C	58 24 0	154 42 10	750	no	5.0	1.0	>20.0	0.10	1,500	N	10	200	N	N	7	50	30
86DT266	58 24 43	154 59 0	772	no	10.0	2.0	3.0	0.50	1,000	N	50	500	N	N	30	150	50
86JM220	58 24 8	154 58 23	773	no	7.0	2.0	2.0	0.50	1,000	N	10	1,000	N	N	15	100	<5
86JM218	58 23 45	154 57 58	775	no	3.0	1.5	0.5	0.20	500	N	50	1,000	N	N	15	50	20
86DT269	58 23 7	154 54 5	776	no	7.0	1.5	20.0	0.20	700	N	<10	100	N	N	10	100	20

Table 10. Mesozoic sedimentary rocks other than the Kaguyak and Naknek Formations, continued

SAMPLE	La-S	Mo-S	Nb-S	Ni-S	Pb-S	Sc-S	Sr-S	V-S	Y-S	Zn-S	Zr-S	Au-AA	Hg-INST	As-AA	Zn-AA	Ag-AA	Cd-AA
85YB224	N	N	N	10	<10	30	<100	100	20	<200	100	--	--	N	70	--	N
85JM178	N	N	N	20	10	15	1,000	100	10	N	20	--	0.08	N	70	--	N
85JM177	N	N	N	5	<10	7	<100	100	20	N	20	--	0.14	N	100	--	N
86DT242	N	N	N	30	<10	10	300	150	20	<200	50	--	0.02	N	65	--	0.1
86RJ055B	N	<5	N	70	30	15	150	200	20	200	100	--	0.06	90	60	--	<0.1
84YB087A	N	N	N	20	15	15	300	100	20	N	70	--	N	N	80	--	0.1
84YB085	N	N	N	20	10	10	300	70	15	N	30	--	N	10	55	--	0.2
86RJ106A	N	<5	N	50	<10	10	200	150	10	<200	100	--	N	N	35	--	<0.1
86YB309	N	N	N	20	N	7	300	150	10	N	50	--	0.06	<10	50	--	0.1
86DT252A	N	N	N	5	N	5	200	20	15	N	20	--	0.08	N	40	--	0.1
84JM067	20	N	<20	100	100	20	500	300	50	<200	200	N	--	20	95	--	0.1
84DT087	N	N	N	50	10	20	150	200	15	N	100	--	--	N	40	--	N
84DT085	N	N	N	20	10	20	200	500	20	N	200	N	0.04	N	45	--	N
83DT002B	N	N	N	20	20	30	500	150	50	N	100	0.05	0.04	20	100	--	0.1
83PB009B	N	N	N	20	10	15	700	100	30	N	50	--	--	<10	80	0.2	0.2
84JM090	N	N	N	20	30	30	500	200	30	<200	100	--	N	N	55	--	N
84JM096	N	N	N	20	10	7	300	70	15	N	20	--	0.04	N	35	--	N
84JM097A	N	N	N	30	<10	20	700	100	30	N	70	--	N	N	120	--	0.1
84JM097	N	N	N	30	<10	20	500	100	30	N	70	--	N	10	90	--	N
83RJ130B	N	N	N	50	10	30	500	200	30	N	70	N	N	10	80	--	0.1
84YB064A	N	N	N	15	10	7	500	50	10	N	20	--	N	<10	60	--	N
86JM214A	N	N	N	70	10	20	300	200	15	<200	100	--	N	30	95	--	0.2
86JM214C	N	N	N	20	N	7	300	50	15	N	30	--	<0.02	10	35	--	0.1
86DT266	N	N	N	50	10	30	200	200	30	200	100	--	0.08	N	70	--	0.1
86JM220	N	N	N	20	N	20	200	200	20	<200	100	--	0.04	N	25	--	0.1
86JM218	N	N	N	20	<10	7	<100	70	N	<200	30	--	<0.02	N	30	--	0.1
86DT269	N	N	N	30	N	10	500	100	20	N	50	--	N	N	45	--	<0.1

Table 11. Geochemical analyses of the Kaguyak Formation, Mount Katmai study area

[For explanation see heading for table 7. Au, As, Cd, Sb, Sn, Th, W (by S), and Bi (by S and AA) were not detected and are deleted from table 11. Statistical summary of data in this table is given in table 22 and included in table 21.]

SAMPLE	LATITUDE	LONGITUDE	MAP NO.	ALTERED?	Fe%-S	Mg%-S	Ca%-S	Ti%-S	Mn-S	Ag-S	B-S	Ba-S	Be-S	Co-S	Cr-S	Cu-S
86JM194	58 57 25	154 0 30	194B	no	10	2.0	1.50	0.50	1,000	N	100	700	N	20	200	50
85DT212	58 52 17	154 3 25	198	no	2	1.5	5.00	0.30	2,000	N	100	700	1.0	15	100	20
85JM176	58 49 18	154 2 50	201	no	5	2.0	1.00	0.50	1,000	N	100	500	1.0	30	100	20
85JM175	58 48 25	154 2 0	202	no	5	2.0	1.00	0.50	1,000	1.0	100	700	1.0	20	100	20
86JM193	58 57 30	153 48 20	204	no	7	1.5	10.00	0.30	5,000	N	20	200	N	15	100	20
86DT255	58 53 22	153 55 32	206	no	10	1.5	2.00	0.70	1,000	N	100	700	N	50	200	50
86DT240	58 46 50	154 1 0	216	no	7	2.0	1.00	0.20	700	N	100	700	<1.0	30	200	50
86DT238	58 46 12	153 58 19	218	no	7	2.0	0.70	0.30	500	N	100	500	N	50	200	50
86JM188	58 51 11	153 48 30	239	no	7	1.0	5.00	0.30	5,000	N	100	500	N	15	150	70
86JM189	58 51 34	153 48 41	240	no	15	2.0	0.20	0.50	700	N	100	700	N	30	300	100
86JM190	58 51 50	153 48 50	241	no	10	1.5	0.10	0.50	500	N	100	300	N	20	150	50
86JM191	58 56 41	153 49 15	242	no	10	2.0	0.70	0.70	1,000	N	100	700	N	30	200	70
86DT250	58 52 25	153 41 58	244	no	7	1.5	0.50	0.30	300	N	50	500	N	15	200	30
86DT251	58 52 51	153 41 58	245	no	10	2.0	0.50	0.50	700	N	70	500	<1.0	30	300	30
86JM183	58 43 20	153 51 0	312B	no	10	5.0	0.70	0.20	700	N	100	1,000	N	20	200	30
84YB075	58 38 53	153 53 0	324	no	5	2.0	0.70	0.50	700	<0.5	70	700	N	20	200	50
84YB030	58 36 54	153 50 27	330	no	5	1.5	0.70	0.50	500	N	100	1,500	<1.0	30	150	70
84YB029	58 36 56	153 50 28	331	no	5	2.0	2.00	0.50	5,000	N	200	1,500	2.0	30	150	70
84YB028	58 37 18	153 50 35	332	no	5	3.0	1.00	0.50	1,000	N	200	1,500	1.0	30	100	100
84DT088	58 37 49	153 53 21	337	yes	3	3.0	2.00	0.30	700	N	N	100	N	20	100	50
83PB068	58 34 27	153 52 38	340	no	5	2.0	1.00	0.50	700	N	70	1,000	1.0	30	100	20
83YB011	58 26 18	154 12 21	438	no	3	1.0	1.00	0.50	300	N	30	500	<1.0	20	100	20
83JM055	58 22 54	154 15 49	462	no	5	1.0	0.20	0.50	700	<0.5	70	500	1.0	30	100	30
83JM051	58 22 57	154 17 48	463	no	5	1.5	1.00	0.50	1,000	N	50	700	1.5	30	150	70
84DT109	58 23 37	154 18 0	464	no	7	2.0	0.50	0.50	700	N	100	1,000	N	20	200	70
83RJ047	58 22 15	154 19 5	469	no		1.0	0.20	0.30	300	N	50	500	<1.0	10	70	20
84EM026A	58 22 3	154 20 32	470	yes		2.0	0.20	0.50	700	<0.5	150	500	<1.0	50	200	100
83YB010	58 22 23	154 22 5	471A	no	5	1.5	1.00	0.50	500	N	70	500	N	20	100	7
84EM028B	58 7 3	154 35 12	600	yes	2	1.0	0.50	0.20	700	<0.5	10	500	N	15	70	20
83JM024A	58 3 20	154 38 30	612	yes	2	1.0	0.70	0.30	500	N	50	300	<1.0	15	50	20
83JM024B	58 3 20	154 38 30	612	yes	3	1.5	0.30	0.30	500	<0.5	200	500	2.0	20	150	30
83DT018	58 0 46	154 44 30	632A	no	3	1.0	2.00	0.30	700	N	50	150	N	30	50	15
83DT018A	58 0 46	154 44 30	632A	no	1	0.3	0.50	0.15	150	N	50	100	1.0	N	20	7
83JM043A	58 10 9	154 46 1	632B	no	7	2.0	2.00	0.50	1,000	N	20	700	<1.0	20	30	5
83DT021	58 0 10	154 46 38	633	no	5	1.0	0.70	0.30	300	N	50	300	<1.0	70	200	15
83DT051B	58 4 26	154 52 26	650	no	1	0.1	0.10	0.30	100	0.7	100	200	N	5	50	10
83DT057A	58 6 38	154 54 25	705	yes	3	1.0	1.50	0.50	500	N	10	1,000	1.0	10	50	7
83JM036A	58 6 17	154 56 21	706	no	2	0.7	0.20	0.30	500	N	70	500	1.5	15	70	30
83JM035A	58 6 25	154 56 30	707	no	3	1.0	0.30	0.50	500	N	70	700	1.0	20	150	30
83JM034A	58 6 32	154 56 35	708	no	3	1.0	1.50	0.30	1,500	N	50	500	<1.0	15	150	20
83JM032A	58 6 49	154 56 50	709	no	3	1.0	0.20	0.50	1,500	N	30	1,000	1.0	20	100	30
83JM030B	58 7 20	154 56 43	710	no	5	1.5	1.50	0.50	500	N	<10	1,000	1.0	30	100	10
84JM092	58 7 49	154 58 0	712	no	3	1.5	<0.05	0.50	700	N	20	500	<1.0	15	150	50
84JM093	58 7 39	154 58 35	714	no	3	1.5	0.05	0.30	500	N	70	500	1.0	15	150	30
84JM094	58 7 34	154 58 49	715	no	3	1.0	0.07	0.20	200	N	30	300	<1.0	15	50	20
84JM095	58 7 25	154 57 50	716	no	5	1.5	0.10	0.30	150	N	50	500	N	15	150	50
83JM037A	58 10 10	154 57 11	720	no	5	1.5	0.20	0.70	1,000	N	200	700	1.0	30	150	30
83JM038A	58 10 16	154 57 40	721	no	3	1.0	0.30	0.50	700	N	100	700	1.5	20	100	30
84DT115	58 10 43	154 57 0	723	no	3	1.5	0.20	0.20	300	N	30	700	<1.0	10	150	20
86DT264	58 22 33	154 52 51	777	no	20	1.5	0.50	0.70	500	N	30	200	N	20	300	20

Table 11. Kaguyak Formation, continued

SAMPLE	La-S	Mo-S	Nb-S	Ni-S	Pb-S	Sc-S	Sr-S	V-S	Y-S	Zn-S	Zr-S	Au-AA	Hg-INST	As-AA	Zn-AA	Ag-AA	Cd-AA	Sb-AA
86JM194	N	N	N	7	20	20	100	200	20	<200	100	--	0.04	10	110	--	<0.1	N
85DT212	N	N	N	30	10	15	500	100	20	N	100	--	0.07	10	80	--	0.1	N
85JM176	N	N	N	30	10	20	500	200	20	N	150	--	0.13	N	85	--	N	N
85JM175	N	N	N	30	15	20	500	150	20	N	150	--	0.04	<10	65	--	N	N
86JM193	N	N	N	20	<10	20	N	100	20	N	70	--	0.04	N	30	--	N	N
86DT255	N	<5	N	30	10	20	500	500	20	<200	100	--	0.90	20	90	--	0.2	2
86DT240	N	N	N	50	20	20	200	200	30	<200	150	--	0.06	<10	95	--	0.1	N
86DT238	N	N	N	50	20	20	100	200	30	<200	150	--	0.04	10	110	--	<0.1	N
86JM188	N	N	N	30	<10	10	<100	100	10	<200	100	--	0.06	<10	75	--	0.1	N
86JM189	N	N	N	70	30	15	<100	200	10	<200	70	--	0.14	10	190	--	0.1	N
86JM190	N	N	N	50	<10	15	N	200	15	<200	150	--	0.08	10	85	--	<0.1	N
86JM191	N	N	N	50	20	20	100	500	20	<200	100	--	0.36	<10	110	--	0.1	N
86DT250	N	N	N	50	10	10	100	100	10	<200	70	--	0.14	10	85	--	<0.1	6
86DT251	N	N	N	70	15	20	200	200	15	<200	150	--	0.90	10	100	--	0.1	2
86JM183	N	N	N	50	20	20	100	200	20	200	150	--	0.02	<10	110	--	0.1	N
84YB075	50	5	N	70	10	20	300	150	30	N	100	N	N	10	95	--	0.1	N
84YB030	N	N	N	50	50	20	300	200	50	N	200	--	--	N	75	--	N	N
84YB029	N	N	N	30	50	30	500	200	50	<200	200	--	--	N	75	--	0.1	N
84YB028	N	N	N	70	70	20	500	200	50	<200	200	--	--	N	75	--	0.1	N
84DT088	N	N	N	30	<10	20	300	300	15	N	50	--	--	N	35	--	N	N
83PB068	N	N	N	50	20	20	300	200	30	N	100	N	0.14	20	110	--	0.2	N
83YB011	N	N	N	30	15	30	300	200	20	N	200	--	--	10	100	--	0.2	2
83JM055	N	N	N	70	20	20	200	200	30	<200	100	N	0.10	20	140	--	0.5	N
83JM051	50	N	N	100	20	30	200	200	30	<200	100	N	N	20	170	--	0.5	N
84DT109	N	N	N	100	50	20	300	200	30	N	200	N	0.02	20	60	--	N	2
83RJ047	N	N	N	30	20	10	N	100	10	N	100	--	--	10	85	--	0.1	2
84EM026A	N	N	<20	100	100	15	<100	200	30	<200	200	N	N	20	180	--	0.3	N
83YB010	N	N	N	50	<10	20	300	200	20	N	100	--	--	N	50	--	N	2
84EM028B	N	N	N	50	15	15	500	100	20	N	70	N	N	N	85	--	0.1	N
83JM024A	N	N	N	20	<10	20	300	150	20	N	100	--	--	N	50	--	N	N
83JM024B	N	N	N	50	10	20	100	200	20	N	100	N	N	N	130	--	N	N
83DT018	N	N	N	30	15	30	200	200	20	N	70	--	--	10	75	--	N	N
83DT018A	N	N	N	15	<10	10	100	150	20	N	50	N	0.04	N	120	--	0.2	N
83JM043A	N	N	N	15	15	30	500	200	20	N	70	--	--	N	65	--	N	N
83DT021	N	N	N	50	20	20	300	200	20	N	100	N	0.02	<10	140	--	<0.1	N
83DT051B	N	N	N	15	10	10	N	200	<10	N	70	--	0.50	40	35	0.5	0.1	10
83DT057A	N	N	N	10	<10	30	500	200	30	N	100	--	--	N	30	--	N	2
83JM036A	N	N	N	50	15	15	<100	150	20	N	100	0.10	N	N	130	--	0.4	N
83JM035A	N	N	N	50	20	20	200	200	20	N	100	N	0.02	N	120	--	0.1	N
83JM034A	N	N	N	50	20	15	150	150	20	N	100	N	0.04	20	110	--	0.6	N
83JM032A	N	N	N	50	15	20	200	200	20	N	100	N	0.08	20	100	--	0.1	N
83JM030B	N	N	N	20	10	30	500	300	20	N	100	--	--	N	110	--	N	N
84JM092	N	N	N	50	<10	20	<100	200	30	N	100	--	N	N	75	--	0.1	N
84JM093	N	N	N	50	15	20	100	150	30	<200	100	N	0.06	N	120	--	0.2	N
84JM094	N	N	N	30	10	10	100	100	20	N	100	--	0.04	10	70	--	0.1	N
84JM095	N	N	N	50	20	20	150	200	20	N	100	N	.18	10	100	--	N	N
83JM037A	N	N	N	50	20	30	100	200	50	N	200	N	N	10	70	--	<0.1	2
83JM038A	N	N	N	70	10	20	<100	200	30	N	150	N	N	N	100	--	0.3	4
84DT115	N	N	N	30	10	20	200	150	20	N	100	--	N	N	100	--	0.1	N
86DT264	N	N	N	50	N	30	200	300	15	200	300	--	N	40	85	--	0.1	N

Table 12. Geochemical analyses of Tertiary volcanic and hypabyssal rocks, Mount Katmai study area

[For explanation see heading for table 7. Au, Cd, Sb, Th, and W (by S) were not detected and are deleted from table 12. For statistical summary of data given in this table see table 23.]

SAMPLE	LATITUDE	LONGITUDE	MAP NO.	ALTERED?	Fe%-S	Mg%-S	Ca%-S	Ti%-S	Mn-S	Ag-S	As-S	B-S	Ba-S	Be-S	Bi-S	Co-S	Cr-S	Cu-S
83RJ238	58 58 48	156 7 0	1	no	7.00	3.00	1.00	0.500	1,000	N	N	<10	300	N	N	50	300	50
83RJ237	58 57 41	156 7 10	2	no	2.00	0.20	0.50	0.500	500	N	N	30	2,000	2.0	N	N	10	<5
83RJ234	58 56 0	156 13 0	3	no	7.00	3.00	1.00	0.700	1,000	N	N	15	500	N	N	100	150	70
83RJ235B	58 51 51	156 10 32	4	no	5.00	1.00	0.70	0.500	1,000	N	N	20	1,500	1.0	N	10	20	<5
83RJ232	58 47 31	156 25 0	5	no	7.00	2.00	2.00	0.700	1,000	N	N	20	1,000	<1.0	N	50	50	20
83RJ233	58 50 0	156 20 55	6	no	5.00	2.00	1.50	0.500	700	N	N	10	1,000	N	N	50	200	20
83RJ236A	58 55 8	156 2 26	7	no	7.00	2.00	2.00	0.500	1,000	N	N	10	500	N	N	50	200	50
83RJ236B	58 55 8	153 2 26	7	no	5.00	3.00	2.00	0.500	1,000	N	N	20	700	N	N	50	50	50
83RJ236D	58 55 8	156 2 26	9	no	7.00	3.00	2.00	0.500	1,000	N	N	20	1,000	<1.0	N	50	200	50
83RJ239	58 55 23	155 54 46	10	no	5.00	1.50	1.00	0.500	1,000	N	N	20	1,000	<1.0	N	30	50	50
84YB099	58 53 43	155 57 7	11	no	7.00	5.00	2.00	0.500	1,000	N	N	10	1,000	N	N	50	200	70
84YB100	58 53 37	155 57 5	12	no	7.00	5.00	2.00	0.500	1,000	N	N	20	1,000	<1.0	N	50	200	70
84YB101	58 53 27	155 57 34	13	no	7.00	3.00	1.50	0.500	1,000	N	N	20	1,000	N	N	50	200	70
84YB098	58 53 37	155 56 44	14	no	5.00	5.00	2.00	0.500	1,000	N	N	10	1,000	N	N	50	150	70
84YB102	58 52 56	155 57 33	15	no	7.00	2.00	2.00	0.700	1,000	N	N	20	1,000	N	N	50	20	150
84YB103	58 52 2	155 58 10	16	no	7.00	5.00	2.00	0.500	1,000	N	N	10	700	N	N	50	300	100
84EM080C	58 53 59	155 51 52	17	no	5.00	1.50	1.50	0.500	1,000	N	N	50	1,500	1.0	N	15	<10	30
84EM079C	58 53 52	155 51 40	18	no	5.00	1.50	1.50	0.500	1,000	N	N	30	1,000	<1.0	N	10	<10	5
84EM081C	58 53 40	155 52 50	19	no	5.00	1.50	2.00	0.500	1,000	N	N	50	1,000	<1.0	N	30	<10	10
84EM082C	58 53 12	155 53 32	20	no	3.00	2.00	2.00	0.500	1,000	N	N	50	2,000	1.0	N	20	10	50
84EM083C	58 52 36	155 54 15	21	no	7.00	5.00	2.00	0.500	1,000	N	N	15	1,000	<1.0	N	50	150	100
84EM085C	58 51 42	155 54 48	22	no	7.00	7.00	2.00	0.700	1,000	N	N	<10	50	N	N	70	200	<5
83RJ242	58 54 38	155 46 56	23	yes	1.00	0.10	0.20	0.150	200	N	N	50	2,000	1.0	N	<5	<10	<5
83RJ240	58 50 58	155 45 56	24	no	3.00	1.50	1.00	0.300	1,000	N	N	10	1,000	<1.0	N	20	30	5
83RJ241	58 50 33	155 46 58	25	yes	3.00	1.50	0.70	0.500	1,000	N	N	20	1,500	<1.0	N	20	20	<5
85YB246	58 50 42	155 32 49	26	no	10.00	2.00	2.00	0.500	2,000	N	N	<10	300	1.0	N	30	10	7
85RJ079	58 50 38	155 32 15	27	no	5.00	2.00	1.50	0.300	500	N	N	10	300	N	N	30	100	30
84EM089B	58 40 30	156 21 42	28	no	5.00	2.00	2.00	0.500	1,000	N	N	50	1,500	<1.0	N	30	30	70
85RJ208	58 37 2	156 23 32	29	no	3.00	3.00	5.00	0.500	700	N	N	15	700	N	N	20	100	30
85RJ209	58 36 51	156 24 9	30	no	3.00	1.50	3.00	0.500	700	N	N	10	1,000	N	N	15	100	5
85RJ210	58 36 16	156 24 42	31	yes	3.00	2.00	2.00	0.500	700	N	N	15	1,000	<1.0	N	15	30	10
85RJ207	58 36 35	156 19 29	32	no	5.00	2.00	5.00	0.500	700	N	N	10	500	N	N	20	10	7
84RJ053C	58 45 23	156 0 58	33	no	7.00	3.00	2.00	0.700	1,000	N	N	50	1,500	<1.0	N	50	100	100
84RJ052C	58 45 3	156 0 48	34	no	7.00	5.00	2.00	0.500	1,000	N	N	10	500	N	N	70	1,000	100
84RJ051D	58 44 34	156 1 25	35	no	5.00	5.00	3.00	0.500	1,000	N	N	20	1,000	<1.0	N	50	150	100
84RJ050C	58 44 29	156 1 15	36	no	7.00	3.00	2.00	0.700	1,000	N	N	50	1,500	N	N	50	150	100
85RJ165A	58 42 13	155 57 18	37	no	5.00	2.00	3.00	0.300	700	N	N	10	500	N	N	30	50	30
84YB096	58 38 47	155 58 10	38	no	7.00	2.00	1.00	0.500	1,000	N	N	20	1,000	<1.0	N	50	10	70
84YB091	58 44 56	155 24 25	65	no	7.00	2.00	2.00	0.500	1,000	N	N	30	2,000	<1.0	N	50	100	100
84RJ169C	58 44 58	155 24 18	66	no	5.00	3.00	2.00	0.700	1,000	N	N	20	1,500	<1.0	N	30	50	100
85RJ197	58 45 25	155 20 34	69	no	3.00	2.00	3.00	0.300	500	N	N	30	150	N	N	20	30	10
85RJ082	58 46 51	155 20 38	71	no	7.00	1.50	3.00	0.700	700	N	N	<10	300	N	N	30	20	70
85YB249	58 45 33	155 16 31	75	no	7.00	2.00	2.00	0.500	1,500	N	N	10	500	<1.0	N	20	50	20
85YB250	58 45 51	155 16 7	76	no	7.00	2.00	3.00	0.500	1,500	N	N	10	300	<1.0	N	20	50	20
85RJ081	58 49 21	155 26 21	77	no	5.00	3.00	3.00	0.500	500	N	N	<10	200	N	N	30	50	50
85RJ080	58 49 29	155 26 9	78	no	3.00	1.50	2.00	0.300	500	N	N	10	300	N	N	20	20	10
85YB247	58 49 33	155 26 14	79	no	7.00	2.00	2.00	0.500	2,000	N	N	20	700	<1.0	N	30	<10	20
85RJ089	58 50 45	155 23 50	80	no	5.00	2.00	3.00	0.300	500	N	N	10	300	N	N	30	20	20
85YB255	58 53 35	155 22 52	81	no	10.00	3.00	5.00	0.500	1,500	N	N	20	500	<1.0	N	30	15	15
85RJ078	58 55 30	155 23 16	82	no	2.00	0.70	1.50	0.200	700	<0.5	N	15	700	2.0	N	<5	N	30

Table 12. Tertiary volcanic and hypabyssal rocks, continued

SAMPLE	La-S	Mo-S	Nb-S	Ni-s	Pb-S	Sc-S	Sn-S	Sr-S	V-S	Y-S	Zn-S	Zr-S	Au-AA	Hg-INST	As-AA	Zn-AA	Ag-AA	Cd-AA	Bi-AA	Sb-AA
83RJ238	N	N	N	100	<10	50	N	700	200	50	N	150	--	N	N	60	--	N	N	N
83RJ237	100	N	20	<5	50	15	N	300	20	100	<200	100	--	N	N	65	--	N	N	N
83RJ234	N	N	N	70	<10	50	N	500	300	50	<200	100	--	N	N	35	--	N	N	N
83RJ235B	20	<5	<20	<5	50	20	N	500	100	100	N	200	--	N	N	90	--	N	N	N
83RJ232	<20	<5	N	10	50	30	N	700	300	50	<200	200	--	N	N	55	--	N	N	N
83RJ233	N	5	N	50	30	20	N	500	200	30	N	200	--	N	N	30	--	N	N	N
83RJ236A	N	N	N	70	<10	20	N	1,000	200	20	<200	100	--	N	N	45	--	N	N	N
83RJ236B	N	N	N	50	10	30	N	1,000	300	30	<200	100	--	N	N	40	--	N	N	N
83RJ236D	<20	N	N	20	30	30	N	700	300	50	N	500	--	N	N	35	--	N	N	N
83RJ239	20	N	N	20	20	20	N	700	200	50	N	200	--	N	N	45	--	N	N	N
84YB099	N	N	N	100	50	30	N	500	200	50	<200	100	--	N	N	30	--	N	N	N
84YB100	N	N	N	100	30	30	N	700	200	50	<200	150	--	N	N	25	--	N	N	N
84YB101	N	N	N	50	100	30	N	500	200	50	<200	150	N	N	N	45	--	0.1	N	N
84YB098	N	N	N	70	50	30	N	500	200	50	<200	100	--	0.02	N	30	--	N	N	N
84YB102	N	N	N	20	70	30	N	1,000	300	100	200	200	--	N	N	55	--	N	N	N
84YB103	N	N	N	100	15	30	N	1,000	200	30	<200	150	--	N	N	45	--	N	N	N
84EM080C	N	N	N	<5	30	20	N	700	50	70	<200	200	--	N	N	80	--	N	N	N
84EM079C	N	N	N	<5	30	20	N	700	50	70	<200	150	--	N	N	40	--	N	N	N
84EM081C	N	N	N	<5	30	20	N	700	100	70	<200	150	--	N	N	35	--	N	N	N
84EM082C	<20	<5	N	5	50	20	N	700	200	70	<200	200	--	N	N	25	--	N	N	N
84EM083C	N	N	N	70	20	20	N	500	200	50	<200	100	--	N	N	25	--	N	N	N
84EM085C	N	N	N	100	<10	50	N	500	200	50	<200	100	--	N	N	50	--	N	N	N
83RJ242	70	15	N	<5	30	10	N	500	10	50	N	300	N	--	N	30	--	N	N	N
83RJ240	<20	5	N	10	20	15	N	700	150	30	N	200	--	N	N	40	--	N	N	N
83RJ241	50	N	N	10	30	15	N	N	150	50	N	200	--	N	N	40	--	N	N	N
85YB246	N	<5	N	5	<10	20	N	500	200	20	N	70	--	0.06	<10	45	--	N	N	N
85RJ079	N	N	N	20	<10	20	N	300	100	20	N	70	--	--	N	40	--	0.1	N	N
84EM089B	50	N	N	10	50	30	N	1,000	200	100	<200	200	--	N	N	65	--	N	N	N
85RJ208	N	N	N	30	<10	15	N	300	100	15	N	50	--	--	N	35	--	N	N	N
85RJ209	N	N	N	20	<10	15	N	500	100	20	N	70	--	--	N	40	--	0.1	N	N
85RJ210	N	N	N	20	<10	10	N	300	100	15	N	100	--	--	N	40	--	N	N	N
85RJ207	N	N	N	5	<10	15	N	500	150	20	N	70	--	--	N	25	--	N	N	N
84RJ053C	N	N	N	100	50	20	N	700	300	50	<200	200	--	N	<10	20	--	N	N	N
84RJ052C	N	N	N	200	20	30	N	500	200	30	<200	150	--	N	<10	10	--	N	N	N
84RJ051D	N	N	N	100	20	30	N	1,000	200	50	<200	100	--	N	<10	20	--	N	N	N
84RJ050C	N	N	N	70	50	20	N	700	300	50	<200	200	--	N	<10	20	--	N	N	N
85RJ165A	N	N	N	10	10	20	N	200	150	20	N	50	--	--	N	45	--	N	N	N
84YB096	N	N	N	10	20	30	N	500	200	70	<200	100	--	N	N	65	--	N	N	N
84YB091	N	N	N	20	50	30	N	1,000	200	50	200	200	--	N	<10	35	--	N	N	N
84RJ169C	N	N	N	20	50	20	N	700	300	70	<200	200	--	N	<10	30	--	N	N	N
85RJ197	N	N	N	15	N	10	N	500	100	10	N	30	--	--	N	10	--	N	N	N
85RJ082	N	N	N	20	<10	20	N	300	150	50	N	70	--	--	<10	80	--	N	N	N
85YB249	N	<5	N	15	<10	20	N	500	200	15	N	50	--	0.16	N	50	--	N	N	N
85YB250	N	<5	N	10	<10	30	N	300	200	15	N	50	--	0.08	N	50	--	0.3	N	N
85RJ081	N	N	N	20	<10	20	N	300	200	20	N	50	--	--	N	60	--	N	N	N
85RJ080	N	N	N	10	<10	20	N	500	100	30	N	50	--	--	N	60	--	N	N	N
85YB247	N	N	N	5	<10	20	N	500	150	20	<200	70	--	0.06	N	90	--	N	N	N
85RJ089	N	N	N	10	N	20	N	500	150	20	N	50	--	--	N	45	--	N	N	N
85YB255	N	N	N	10	<10	30	N	500	200	20	N	70	--	0.08	N	55	--	N	N	N
85RJ078	N	N	N	N	<10	5	N	500	20	20	N	150	--	0.04	N	70	--	N	N	N

Table 12. Tertiary volcanic and hypabyssal rocks, continued

SAMPLE	LATITUDE	LONGITUDE	MAP NO.	ALTERED?	Fe%-S	Mg%-S	Ca%-S	Ti%-S	Mn-S	Ag-S	As-S	B-S	Ba-S	Be-S	Bi-S	Co-S	Cr-S
85YB245	58 55 45	155 23 21	83	no	10.00	3.00	3.00	0.700	2,000	N	N	30	500	<1.0	N	50	20
85YB233	58 58 47	155 22 12	84	no	1.00	0.30	0.70	0.150	1,000	N	N	20	1,000	<1.0	N	<5	N
85YB232	58 58 24	155 16 29	85	no	7.00	2.00	2.00	0.500	1,500	N	N	10	300	<1.0	N	50	15
85RJ091	58 59 43	155 13 6	86	no	5.00	1.50	3.00	0.300	700	N	N	15	300	N	N	30	50
85YB259	58 59 4	155 11 23	87	no	5.00	2.00	3.00	0.500	1,500	N	N	20	500	1.0	N	30	100
85YB259B	58 59 2	155 11 24	87	no	0.20	0.10	0.20	0.050	70	0.5	N	150	300	<1.0	N	N	N
85RJ088	58 54 48	155 15 21	88	no	5.00	1.00	3.00	0.300	700	N	N	10	300	N	N	20	<10
85YB254	58 54 43	155 15 15	89	no	7.00	5.00	5.00	0.500	2,000	<0.5	N	10	500	<1.0	N	30	100
85YB253	58 52 3	155 12 32	91	no	2.00	0.50	0.50	0.200	1,000	N	N	20	1,000	1.5	N	5	N
85RJ087	58 50 45	155 10 19	92	no	5.00	2.00	2.00	0.300	700	N	N	10	300	N	N	30	50
85YB251	58 48 53	155 9 52	94	no	7.00	2.00	1.50	0.500	1,500	N	N	50	700	1.0	N	20	15
85RJ085	58 47 54	155 12 1	95	yes	1.50	0.05	0.05	0.200	200	N	N	30	30	N	N	10	20
85RJ090D	58 55 33	155 6 27	104	yes	0.70	0.20	2.00	0.150	150	N	N	<10	100	<1.0	N	5	10
85RJ181	58 50 49	154 48 41	156	no	2.00	1.50	1.50	0.300	200	N	N	10	700	N	N	15	30
86DT245	58 46 8	154 5 38	211	no	7.00	2.00	1.00	0.200	700	N	N	15	200	N	N	20	50
86DT244	58 45 33	154 5 20	212	no	7.00	1.50	2.00	0.200	1,000	N	N	15	200	<1.0	N	10	N
86RJ055A	58 46 4	153 55 34	220	yes	5.00	1.00	1.00	0.200	1,000	N	N	10	300	N	N	5	<10
86RJ103A	58 43 19	154 0 30	221	yes	5.00	5.00	7.00	0.300	700	N	N	<10	50	N	N	10	500
84DT106A	58 38 47	154 5 37	231	no	10.00	5.00	2.00	0.300	1,000	N	N	20	150	N	N	70	150
86RJ106B	58 42 7	153 55 41	236	no	7.00	2.00	2.00	0.200	700	N	N	20	100	N	N	15	10
84EM063C	58 42 13	153 54 58	237	yes	2.00	2.00	1.00	0.300	1,000	N	N	100	500	N	N	15	30
84EM063E	58 42 13	153 54 58	237	yes	5.00	5.00	1.00	0.500	700	N	N	15	2,000	1.0	N	30	100
85JM168	58 58 8	153 35 52	247	no	5.00	2.00	2.00	0.300	1,500	N	N	50	500	<1.0	N	30	20
85DT203	58 58 27	153 26 4	250	yes	10.00	1.50	0.07	0.300	1,000	0.5	200	>2,000	200	<1.0	N	70	20
85DT202	58 58 18	153 25 35	251	yes	5.00	0.70	0.05	0.500	300	N	N	150	1,500	1.5	N	10	150
85JM164A	58 56 8	153 22 19	255	no	5.00	1.50	1.50	0.300	1,500	N	N	10	200	1.0	N	15	N
85JM159A	58 52 25	153 19 30	258	no	5.00	1.50	1.50	0.200	1,500	N	N	<10	300	1.0	N	10	N
86RJ042	58 50 2	153 26 39	261	no	3.00	0.50	0.20	0.100	200	N	N	30	200	N	N	5	<10
86RJ044A	58 49 11	153 25 43	262	no	10.00	5.00	3.00	0.200	1,000	N	N	20	50	N	N	70	200
86RJ043B	58 49 12	153 26 50	263	yes	10.00	5.00	3.00	0.200	700	N	N	<10	70	N	N	20	100
86RJ043A	58 49 12	153 26 50	263	no	15.00	5.00	5.00	0.200	1,000	N	N	15	100	N	N	50	200
86RJ046	58 50 51	153 34 50	264	no	5.00	2.00	2.00	0.200	300	N	N	50	300	N	N	20	50
86RJ047	58 46 19	153 28 59	265	no	7.00	3.00	3.00	0.200	700	N	N	10	200	N	N	30	70
84RJ147D	58 45 3	153 28 47	266	no	5.00	2.00	1.00	0.200	200	N	N	<10	150	N	N	30	200
84RJ148C	58 44 48	153 28 32	267A	no	5.00	2.00	1.50	0.200	700	<0.5	N	10	300	N	N	20	100
85JM161	58 42 52	153 27 50	267B	no	5.00	3.00	1.50	0.300	1,000	N	N	20	300	<1.0	N	20	50
84YB080B	58 43 10	153 31 33	272	no	3.00	1.50	1.50	0.200	700	N	N	10	300	N	N	10	50
84YB080C	58 43 10	153 31 33	272	no	3.00	1.50	1.50	0.200	1,000	0.5	N	15	150	N	N	15	70
84YB078	58 43 45	153 31 42	273	no	3.00	1.50	1.00	0.300	500	N	N	15	300	N	N	10	50
84EM064C	58 43 59	153 31 41	274	yes	7.00	5.00	2.00	0.500	1,000	0.7	N	20	70	N	N	30	70
84YB079	58 44 53	153 32 17	275	no	5.00	2.00	1.00	0.500	500	1.0	N	>2,000	100	N	N	20	100
84YB081	58 44 6	153 32 49	276	no	5.00	2.00	1.50	0.500	700	N	N	10	300	N	N	20	100
84DT139	58 42 34	153 33 38	278	yes	3.00	1.50	1.50	0.200	200	0.7	N	20	100	<1.0	N	50	70
86RJ049A	58 42 45	153 33 30	279	yes	7.00	3.00	3.00	0.200	700	1.0	N	10	70	N	N	50	200
86RJ049B	58 42 45	153 33 30	279	yes	10.00	3.00	2.00	0.150	1,000	N	N	10	150	N	N	15	300
84DT137	58 42 55	153 34 29	281	no	2.00	1.50	1.00	0.200	300	N	N	10	50	N	N	10	50
84DT136	58 42 51	153 35 19	282	no	3.00	2.00	1.50	0.300	500	N	N	<10	70	N	N	20	70
86RJ048	58 44 0	153 37 29	283	no	10.00	3.00	2.00	0.700	1,000	N	N	20	100	N	N	20	100
84JM072	58 40 28	153 34 10	284	no	5.00	2.00	2.00	0.500	1,000	N	N	100	700	N	N	30	50
83PB067	58 36 14	153 33 47	286	no	5.00	2.00	2.00	0.500	1,000	N	N	<10	200	<1.0	N	30	150

Table 12. Tertiary volcanic and hypabyssal rocks, continued

SAMPLE	Cu-S	La-S	Mo-S	Nb-S	Ni-S	Pb-S	Sc-S	Sn-S	Sr-S	V-S	Y-S	Zn-S	Zr-S	Au-AA	Hg-INST	As-AA	Zn-AA	Ag-AA	Cd-AA	Bi-AA	Sb-AA
85YB245	30	N	<5	N	5	<10	50	N	300	300	30	<200	100	--	0.06	<10	30	--	N	N	N
85YB233	<5	N	N	N	N	10	5	N	150	10	20	N	200	--	--	N	15	--	N	N	N
85YB232	20	N	N	N	7	<10	30	N	500	200	30	N	50	--	--	N	40	--	N	N	N
85RJ091	30	N	N	N	20	<10	15	N	500	150	20	N	50	--	--	N	25	--	N	N	N
85YB259	50	N	<5	N	20	<10	30	N	500	200	20	N	100	--	0.04	10	20	--	N	N	N
85YB259B	100	N	N	N	N	N	N	N	<100	20	<10	N	10	--	0.04	<10	<5	--	N	N	N
85RJ088	30	N	N	N	7	N	15	N	500	70	20	N	50	--	--	N	70	--	N	N	N
85YB254	200	N	N	N	20	<10	30	N	700	200	20	<200	70	--	0.13	<10	35	--	0.2	N	N
85YB253	50	N	<5	N	N	<10	10	N	<100	50	30	N	150	--	0.12	10	45	--	N	N	N
85RJ087	50	N	N	N	50	<10	15	N	1,000	150	10	N	50	--	--	N	60	--	N	N	N
85YB251	30	N	N	N	20	<10	20	N	1,000	200	10	N	50	--	0.13	10	45	--	N	N	N
85RJ085	70	N	N	N	20	N	7	N	N	50	10	N	50	--	--	N	45	--	0.1	N	N
85RJ090D	5	N	N	N	5	<10	5	N	N	20	20	N	50	--	--	N	35	--	N	N	N
85RJ181	500	N	N	N	30	<10	10	N	500	100	20	N	50	--	--	N	25	--	N	N	N
86DT245	20	N	N	N	20	<10	10	N	<100	150	10	<200	50	--	0.04	N	75	--	<0.1	N	N
86DT244	5	N	N	N	5	<10	10	N	500	100	20	<200	150	--	0.02	N	60	--	<0.1	N	N
86RJ055A	10	N	<5	N	5	<10	7	N	<100	50	15	<200	50	--	0.02	N	25	--	N	N	N
86RJ103A	10	N	<5	N	30	<10	30	N	500	300	10	<200	30	--	N	N	15	--	N	N	N
84DT106A	100	N	N	N	20	<10	50	N	500	300	20	<200	30	--	N	N	25	--	N	N	N
86RJ106B	10	N	N	N	10	<10	10	N	200	150	10	<200	70	--	N	N	65	--	0.2	N	N
84EM063C	50	N	N	N	10	10	10	N	500	100	20	N	100	--	N	10	25	--	N	N	N
84EM063E	100	20	N	N	100	10	30	N	500	200	70	<200	200	--	N	<10	20	--	N	N	N
85JM168	50	N	N	N	20	<10	20	N	200	200	20	N	100	--	--	N	15	--	N	N	N
85DT203	500	N	5	N	20	30	30	N	<100	200	50	<200	100	--	--	120	100	--	N	N	N
85DT202	50	N	N	N	50	<10	20	N	<100	200	20	N	150	--	--	N	20	--	N	1	2
85JM164A	5	N	N	N	N	<10	10	N	300	100	20	N	100	--	--	N	75	--	N	N	N
85JM159A	15	N	N	N	N	<10	15	N	500	100	20	N	70	--	--	N	65	--	N	N	N
86RJ042	15	N	N	N	5	N	5	N	N	20	10	<200	70	--	0.02	10	45	--	<0.1	N	N
86RJ044A	20	N	N	N	50	<10	20	N	200	200	10	200	50	--	0.14	20	30	--	<0.1	N	N
86RJ043B	30	N	N	N	30	<10	20	N	100	150	10	<200	50	--	0.04	<10	25	--	N	N	N
86RJ043A	50	N	N	N	50	<10	20	N	100	200	15	<200	50	--	0.02	<10	50	--	<0.1	N	N
86RJ046	20	N	7	N	30	N	15	N	<100	150	20	<200	150	--	N	<10	20	--	N	N	N
86RJ047	20	N	N	N	30	<10	20	N	200	200	20	<200	50	--	N	<10	10	--	N	N	N
84RJ147D	20	N	N	N	70	10	20	N	200	100	20	N	70	--	N	20	30	--	N	N	N
84RJ148C	50	N	N	N	30	10	20	N	700	100	20	N	70	0.10	N	10	45	--	0.2	N	N
85JM161	20	N	N	N	20	<10	20	N	300	150	20	N	100	--	--	N	50	--	N	N	N
84YB080B	15	N	N	N	20	N	15	N	500	100	15	N	70	N	N	10	70	--	0.5	N	N
84YB080C	20	N	5	N	20	70	15	N	300	100	20	N	50	N	N	10	55	--	0.1	N	N
84YB078	30	N	N	N	20	10	15	N	200	100	30	N	150	--	N	N	35	--	N	N	N
84EM064C	100	N	N	N	30	50	20	N	500	200	50	<200	150	N	N	100	100	--	0.5	N	N
84YB079	20	N	N	N	50	10	20	N	300	150	50	N	150	N	N	N	70	--	N	N	N
84YB081	50	N	N	N	30	<10	30	N	300	100	50	N	70	--	N	N	20	--	N	N	N
84DT139	700	N	N	N	30	<10	20	N	300	150	20	N	100	0.60	N	40	10	--	<0.1	N	N
86RJ049A	200	N	N	N	30	<10	30	N	200	150	10	<200	70	--	0.04	70	20	--	<0.1	N	N
86RJ049B	50	N	N	N	30	<10	10	N	<100	100	<10	<200	50	--	<0.02	N	95	--	0.2	N	N
84DT137	10	N	N	N	30	<10	15	N	200	100	20	N	70	--	N	10	20	--	N	N	<2
84DT136	100	N	N	N	30	<10	20	N	300	150	20	N	20	N	N	<10	20	--	<0.1	N	N
86RJ048	200	N	<5	N	30	10	20	N	N	200	20	200	100	--	N	<10	25	--	N	N	N
84JM072	70	N	N	N	15	30	20	N	1,000	200	30	<200	150	--	--	<10	100	--	<0.1	N	N
83PB067	20	N	<5	N	50	<10	20	N	500	200	20	N	100	--	--	N	60	--	.1	N	N

Table 12. Tertiary volcanic and hypabyssal rocks, continued

SAMPLE	LATITUDE	LONGITUDE	MAP NO.	ALTERED?	Fe%-S	Mg%-S	Ca%-S	Ti%-S	Mn-S	Ag-S	As-S	B-S	Ba-S	Be-S	Bi-S	Co-S	Cr-S	Cu-S
84DT092	58 40 21	153 38 31	292B	no	5.00	3.00	2.00	0.500	1,000	N	N	50	300	N	N	50	30	70
84JM068	58 39 55	153 40 32	297	no	5.00	2.00	2.00	0.500	1,000	N	N	50	500	N	N	50	100	150
86RJ052B	58 41 15	153 42 9	301	yes	10.00	2.00	3.00	0.200	1,000	N	N	10	70	N	N	20	50	50
84RJ141D	58 40 13	153 43 31	302	no	3.00	1.50	1.50	0.200	700	N	N	10	200	N	N	20	15	10
84EM061C	58 40 12	153 43 42	303	no	3.00	1.50	1.00	0.200	1,000	<0.5	N	20	500	N	N	15	20	20
84EM059C	58 41 26	153 45 18	304	no	3.00	1.50	1.00	0.200	300	N	N	<10	150	N	N	15	30	15
84EM057C	58 40 58	153 47 8	306	no	2.00	1.00	1.00	0.300	300	N	N	<10	200	<1.0	N	15	50	10
84YB073	58 43 28	153 44 57	307	no	2.00	0.70	0.70	0.150	300	N	N	N	300	N	N	7	15	10
84EM058C	58 43 23	153 46 10	308	no	2.00	1.50	1.00	0.500	1,000	N	N	20	1,000	N	N	10	50	70
86YB300B	58 44 38	153 51 9	309	no	7.00	3.00	3.00	0.200	700	N	N	10	50	N	N	30	100	30
86YB300	58 44 38	153 51 9	309	no	15.00	3.00	3.00	0.700	500	N	N	10	200	N	N	50	100	70
86YB301	58 44 36	153 51 12	310	no	10.00	1.50	3.00	0.300	200	N	N	20	200	N	N	20	100	30
86YB302	58 44 28	153 51 7	311	no	10.00	2.00	3.00	0.300	700	N	N	10	70	N	N	20	50	50
86JM182A	58 43 18	153 50 50	312A	no	10.00	7.00	3.00	0.200	1,000	N	N	<10	30	N	N	50	100	50
86JM182C	58 43 18	153 50 50	312A	no	10.00	1.00	<0.05	0.200	500	N	N	100	200	N	N	15	100	15
86RJ053	58 42 24	153 48 48	313	no	10.00	2.00	1.00	0.200	700	N	N	10	200	N	N	20	50	100
86YB306	58 42 47	153 52 7	315	no	7.00	1.50	3.00	0.100	500	N	N	20	100	N	N	10	10	5
84RJ143C	58 42 5	153 51 8	317	yes	5.00	2.00	1.50	0.200	700	N	N	<10	100	N	N	20	20	20
84YB077	58 41 43	153 52 0	318	no	3.00	1.50	1.50	0.200	1,000	N	N	10	300	N	N	10	<10	<5
84YB076	58 41 46	153 52 29	319	no	5.00	1.50	1.00	0.200	700	N	N	<10	100	N	N	10	20	N
84RJ145E	58 40 4	153 53 22	321	no	3.00	2.00	1.50	0.200	700	N	N	<10	100	N	N	20	50	15
84RJ146B	58 40 2	153 54 19	322	no	3.00	1.00	1.50	0.200	500	N	N	15	200	N	N	20	50	10
84RJ084C	58 38 27	153 47 49	326	no	5.00	2.00	1.00	0.500	700	N	N	50	500	N	N	50	50	70
83PB066	58 34 26	153 42 46	328	no	3.00	2.00	2.00	0.300	700	N	N	<10	150	N	N	20	70	20
84EM018C	58 56 44	153 50 39	329	no	7.00	5.00	3.00	0.500	1,000	N	N	15	200	N	N	70	100	100
84YB027	58 37 28	153 50 23	333	no	5.00	3.00	1.00	0.500	700	N	N	50	500	N	N	30	30	50
84YB026	58 37 31	153 50 23	334	no	5.00	3.00	5.00	0.500	1,000	N	N	30	300	N	N	50	200	150
84YB025	58 37 36	153 50 48	335	no	5.00	5.00	3.00	0.500	1,000	N	N	20	500	N	N	50	200	100
84YB024	58 37 50	153 53 40	338	no	5.00	3.00	5.00	0.300	1,000	N	N	10	300	N	N	50	50	70
83PB065	58 30 45	153 54 37	342	no	5.00	1.50	2.00	0.700	1,000	N	N	<10	100	<1.0	N	20	70	30
84DT086	58 29 35	153 55 59	344	no	10.00	3.00	5.00	0.700	1,000	N	N	10	200	N	N	50	200	50
83YB001	58 27 25	154 0 22	346	no	7.00	3.00	3.00	0.700	700	N	N	10	100	<1.0	N	50	150	50
83DT070A	58 31 4	154 0 38	351	yes	7.00	2.00	5.00	0.500	1,000	N	N	<10	200	N	N	50	100	30
84RJ068D	58 31 32	154 4 6	361	yes	5.00	2.00	1.50	0.300	1,000	N	N	10	500	N	N	20	20	20
83YB002	58 26 4	154 5 0	371	no	3.00	2.00	2.00	0.500	500	N	N	150	300	N	N	30	200	5
84RJ070E	58 32 46	154 11 21	377	yes	5.00	2.00	1.50	0.300	1,500	N	N	20	1,000	<1.0	N	20	10	10
84DT075	58 32 25	154 12 44	381	no	7.00	3.00	3.00	0.700	2,000	N	N	20	700	N	N	50	50	5
84RJ072B	58 29 59	154 11 59	392	yes	5.00	2.00	1.50	0.500	1,000	N	N	20	700	<1.0	N	50	10	7
83PB052	58 29 47	154 12 6	393	no	5.00	1.00	2.00	0.500	1,000	N	N	10	300	N	N	30	N	20
83YB012	58 29 3	154 12 16	394	no	2.00	0.70	1.50	0.300	700	N	N	<10	500	<1.0	N	5	10	5
83RJ053	58 29 48	154 13 31	396	no	1.00	0.20	0.50	0.100	300	N	N	<10	500	N	N	N	N	N
83RJ149	58 29 20	154 13 39	397	yes	5.00	3.00	3.00	0.500	1,000	N	N	<10	100	N	N	30	100	30
83PB054A	58 29 22	154 13 42	398	no	1.00	1.00	0.05	0.300	1,500	N	N	15	500	<1.0	N	5	<10	<5
83RJ148A	58 29 23	154 13 59	399	yes	3.00	2.00	0.10	0.500	1,000	N	N	100	1,000	1.0	N	15	150	5
83RJ148B	58 29 23	154 13 59	399	yes	0.50	0.30	<0.05	0.150	150	N	N	<10	500	<1.0	N	N	N	<5
83PB011B	58 29 2	154 14 28	401	no	5.00	2.00	5.00	0.500	1,000	N	N	10	200	N	N	30	30	30
83RJ147A	58 29 21	154 14 54	402	yes	2.00	0.70	2.00	0.200	500	N	N	<10	300	1.0	N	7	N	10
84YB021B	58 30 4	154 14 19	404	no	1.50	0.50	1.00	0.300	700	N	N	20	1,000	1.0	N	<5	<10	5
83PB051	58 30 8	154 16 45	407	yes	5.00	3.00	3.00	0.500	1,000	N	N	<10	150	N	N	50	20	100
84RJ091B	58 30 41	154 16 8	408	yes	7.00	1.50	0.70	0.500	1,000	N	N	100	500	N	N	50	100	10

Table 12. Tertiary volcanic and hypabyssal rocks, continued

SAMPLE	La-S	Mo-S	Nb-S	Ni-S	Pb-S	Sc-S	Sn-S	Sr-S	V-S	Y-S	Zn-S	Zr-S	Au-AA	Hg-INST	As-AA	Zn-AA	Ag-AA	Cd-AA	Bi-AA	Sb-AA
84DT092	N	N	N	20	10	30	N	700	200	30	<200	50	--	--	<10	50	--	N	N	N
84JM068	N	N	N	30	20	20	N	700	200	50	<200	100	--	--	<10	40	--	N	N	N
86RJ052B	N	N	N	20	N	10	N	<100	150	10	<200	50	--	<0.02	N	35	--	<0.1	N	N
84RJ141D	N	N	N	15	10	15	N	500	100	20	N	50	--	N	N	15	--	N	N	N
84EM061C	N	N	N	10	10	15	N	500	70	15	N	50	N	N	N	65	--	0.1	N	N
84EM059C	N	N	N	20	<10	15	N	300	100	15	N	50	--	N	<10	45	--	N	N	N
84EM057C	N	N	N	20	<10	20	N	300	100	30	N	100	--	N	<10	30	--	N	N	N
84YB073	N	N	N	10	<10	7	N	100	70	20	N	70	--	N	N	35	--	N	N	N
84EM058C	N	7	N	10	50	20	N	300	200	70	N	300	--	N	<10	30	--	N	N	N
86YB300B	N	N	N	50	<10	15	N	150	100	15	<200	70	--	0.02	N	55	--	N	N	N
86YB300	N	N	N	30	<10	30	N	500	300	20	200	100	--	<0.02	20	25	--	N	N	N
86YB301	N	<5	N	20	N	30	N	500	200	20	200	100	--	0.02	N	25	--	N	N	N
86YB302	N	<5	N	20	N	15	N	300	200	20	200	100	--	<0.02	N	65	--	N	N	N
86JM182A	N	N	N	100	N	20	N	<100	150	<10	<200	20	--	0.02	N	40	--	N	N	N
86JM182C	N	5	N	50	20	15	N	N	200	10	300	150	--	<0.02	50	270	--	0.1	N	N
86RJ053	N	<5	N	20	<10	10	N	N	100	20	<200	150	--	0.04	<10	20	--	N	N	N
86YB306	N	N	N	15	N	10	N	200	100	10	<200	70	--	0.08	N	20	--	N	N	N
84RJ143C	N	N	N	10	<10	20	N	500	100	15	N	50	--	N	10	20	--	N	N	N
84YB077	N	N	N	5	<10	10	N	200	100	20	N	50	--	N	N	35	--	N	N	N
84YB076	N	N	N	10	<10	15	N	300	100	20	N	70	--	N	N	55	--	N	N	N
84RJ145E	N	N	N	20	10	20	N	500	150	20	N	70	--	N	N	75	--	0.2	N	N
84RJ146B	N	N	N	20	10	20	N	500	100	15	N	50	--	N	10	55	--	N	N	N
84RJ084C	N	N	N	15	<10	20	N	500	200	30	<200	100	--	--	<10	65	--	N	N	N
83PB066	N	N	N	20	N	20	N	300	200	20	N	70	--	--	N	50	--	0.1	N	N
84EM018C	N	N	N	50	<10	50	N	500	300	30	<200	50	--	--	N	35	--	N	N	N
84YB027	N	N	N	15	10	30	N	500	200	30	N	200	--	--	N	55	--	N	N	N
84YB026	N	N	N	70	<10	50	N	500	200	30	<200	100	--	--	N	65	--	N	N	N
84YB025	N	N	N	100	10	30	N	500	200	50	N	150	--	--	N	65	--	N	N	N
84YB024	N	N	N	15	<10	30	N	500	200	30	<200	100	--	--	N	20	--	N	N	N
83PB065	N	N	N	15	<10	30	N	500	300	20	N	70	--	--	N	70	--	0.1	N	N
84DT086	N	N	N	50	N	30	N	700	300	20	N	70	--	--	N	55	--	N	N	N
83YB001	N	N	N	50	N	50	N	700	300	30	N	100	--	--	N	65	--	N	N	N
83DT070A	N	N	N	20	<10	50	N	300	300	30	N	70	--	--	N	15	--	<0.1	N	N
84RJ068D	N	N	N	5	15	20	N	300	100	50	N	150	--	--	N	45	--	N	N	N
83YB002	N	N	N	100	N	30	N	700	150	20	N	50	--	--	10	55	--	N	N	2
84RJ070E	N	N	N	5	20	20	N	500	200	50	N	150	--	--	N	65	--	N	N	N
84DT075	N	N	N	10	30	50	N	500	200	50	200	200	N	--	N	120	--	0.4	N	N
84RJ072B	N	N	N	5	20	20	N	500	150	50	N	150	--	--	N	50	--	N	N	N
83PB052	N	N	N	10	N	20	N	200	200	20	N	100	--	--	N	25	--	<0.1	N	N
83YB012	N	N	N	10	10	15	N	150	70	30	N	150	--	--	N	55	--	0.2	N	2
83RJ053	N	N	N	<5	10	5	N	<100	30	10	N	100	--	--	N	30	--	N	N	N
83RJ149	N	N	N	20	10	30	N	300	200	20	N	50	--	--	N	65	--	0.1	N	N
83PB054A	N	N	N	<5	20	15	N	N	100	50	N	150	--	--	N	40	N	N	N	N
83RJ148A	N	N	N	50	30	20	N	N	300	30	N	150	--	0.02	20	55	N	N	N	N
83RJ148B	N	N	N	<5	N	5	N	N	50	15	N	150	--	--	N	10	--	N	N	N
83PB011B	N	N	N	30	10	20	N	300	200	50	N	70	--	--	N	40	N	0.1	N	N
83RJ147A	N	N	N	5	<10	10	N	300	100	20	N	150	--	--	N	35	--	0.1	N	N
84YB021B	N	N	N	5	20	15	N	200	50	100	N	200	--	--	N	45	--	<0.1	N	N
83PB051	N	N	N	15	N	30	N	500	300	20	N	50	--	--	N	20	--	<0.1	N	N
84RJ091B	N	N	N	50	30	20	N	200	200	30	<200	200	--	0.14	10	120	--	N	N	N

Table 12. Tertiary volcanic and hypabyssal rocks, continued

SAMPLE	LATITUDE	LONGITUDE	MAP NO.	ALTERED?	Fe%-S	Mg%-S	Ca%-S	Ti%-S	Mn-S	Ag-S	As-S	B-S	Ba-S	Be-S	Bi-S	Co-S	Cr-S
83PB050	58 30 33	154 16 42	409	yes	1.50	2.00	2.00	0.500	300	<0.5	N	10	200	N	N	15	50
84YB023C	58 30 25	154 16 43	410	yes	3.00	1.00	1.00	0.500	1,000	N	N	20	1,000	<1.0	N	10	<10
84YB023B	58 30 25	154 16 43	410	yes	5.00	2.00	1.00	0.500	500	<0.5	N	50	500	<1.0	N	20	10
83RJ144C	58 30 28	154 17 35	411	no	5.00	1.00	2.00	0.700	1,500	N	N	<10	300	1.0	N	N	N
83RJ144B	58 30 28	154 17 35	411	yes	5.00	3.00	2.00	0.300	700	N	N	10	300	N	N	30	200
83PB049	58 29 58	154 17 46	412	no	5.00	3.00	2.00	0.500	1,000	N	N	10	100	N	N	50	50
83PB047	58 29 11	154 24 27	418	yes	1.50	0.20	1.00	0.200	700	N	N	100	300	1.0	N	7	N
84RJ088C	58 29 30	154 24 20	419	no	2.00	0.50	0.50	0.200	700	N	N	100	1,000	1.0	N	5	<10
84JM077	58 31 57	154 31 32	425	no	10.00	5.00	5.00	0.300	1,000	N	N	<10	300	N	N	50	500
84YB039	58 25 26	154 12 54	437	no	5.00	2.00	1.00	0.300	700	N	N	30	700	N	N	30	100
83YB003	58 23 25	153 59 25	444A	no	2.00	1.00	1.00	0.300	500	N	N	<10	200	N	N	15	20
83DT004C	58 22 24	154 0 2	445	no	2.00	0.30	1.50	0.200	700	N	N	<10	100	<1.0	N	N	N
83RJ028D	58 21 25	154 4 55	448	yes	2.00	1.50	1.50	0.300	500	N	N	<10	100	N	N	20	30
83RJ138B	58 20 16	154 9 48	449	no	5.00	2.00	3.00	0.500	1,000	N	N	10	200	N	N	30	150
83RJ138D	58 20 16	154 9 48	449	yes	7.00	2.00	5.00	1.000	1,500	N	N	10	200	<1.0	N	30	20
83RJ138C	58 20 16	154 9 48	449	no	7.00	3.00	3.00	0.700	1,000	N	N	15	300	<1.0	N	50	100
83RJ138A	58 20 16	154 9 48	449	no	5.00	2.00	3.00	0.500	1,000	N	N	10	70	N	N	30	70
83RJ140	58 20 8	154 10 29	450	yes	5.00	2.00	3.00	0.500	1,000	N	N	10	100	N	N	30	200
83RJ141A	58 20 3	154 10 55	451	no	5.00	2.00	5.00	0.500	1,000	N	N	10	70	<1.0	N	30	100
83RJ141B	58 20 3	154 10 55	451	no	3.00	2.00	3.00	0.300	700	N	N	20	100	N	N	30	200
83RJ142	58 19 55	154 12 8	452	no	2.00	1.00	1.50	0.300	500	N	N	<10	200	N	N	20	30
84RJ100C	58 19 47	154 12 56	453	no	5.00	3.00	1.50	0.300	1,000	N	N	15	500	N	N	50	150
84RJ100A	58 19 47	154 12 56	453	yes	5.00	3.00	2.00	0.500	700	N	N	20	500	N	N	50	70
84RJ099B	58 19 51	154 13 37	454	yes	7.00	1.50	1.00	0.500	300	N	N	20	200	N	N	10	N
84RJ099D	58 19 51	154 13 37	454	yes	7.00	3.00	2.00	0.500	1,000	N	N	50	700	<1.0	N	50	20
84RJ101B	58 19 42	154 14 0	455	yes	10.00	3.00	2.00	0.500	1,000	N	N	20	300	<1.0	N	100	100
84RJ101C	58 19 42	154 14 0	455	yes	7.00	3.00	1.00	0.700	1,000	N	N	20	500	<1.0	N	20	70
84EM065C	58 19 45	154 17 16	457	no	5.00	2.00	3.00	0.300	500	N	N	<10	100	N	N	50	150
84EM019C	58 22 5	154 13 59	458	yes	7.00	1.50	2.00	0.500	500	N	N	N	500	N	N	20	70
84EM020C	58 22 12	153 14 31	459	yes	10.00	2.00	3.00	0.700	1,000	N	N	N	300	N	N	30	N
84EM021C	58 22 8	154 15 0	460	yes	7.00	3.00	3.00	0.300	700	N	N	N	300	N	N	30	200
84EM022C	58 22 12	154 15 43	461	yes	3.00	1.50	0.70	0.500	700	N	N	20	300	N	N	10	N
83YB005	58 21 59	154 16 38	465	no	1.50	0.50	0.70	0.200	500	N	N	20	300	1.5	N	N	N
84EM024F	58 21 32	154 18 19	467	yes	5.00	2.00	0.70	0.500	1,000	N	N	20	300	N	N	30	150
84EM024C	58 21 32	154 18 19	467	yes	5.00	2.00	1.00	0.500	1,000	N	N	20	700	N	N	30	50
84EM025C	58 12 37	154 18 8	468	no	5.00	3.00	2.00	0.500	1,000	N	N	20	200	N	N	50	150
84RJ065C	58 21 37	154 22 9	471C	no	5.00	5.00	2.00	0.500	1,000	N	N	20	300	N	N	30	100
84RJ064F	58 21 34	154 22 5	471D	yes	5.00	2.00	3.00	0.700	1,000	N	N	70	300	<1.0	N	20	20
83PB059	58 19 59	154 22 1	472	no	3.00	1.00	3.00	0.500	500	N	N	<10	150	<1.0	N	20	<10
83RJ153	58 20 40	154 24 9	473	no	3.00	2.00	2.00	0.500	1,000	N	N	15	500	N	N	30	100
84RJ076C	58 21 5	154 24 31	474	no	5.00	3.00	3.00	0.500	1,000	N	N	20	700	<1.0	N	30	70
84EM034B	58 21 2	154 33 39	477	yes	5.00	1.50	1.00	0.300	500	<0.5	N	10	500	N	N	15	50
84EM066A	58 21 3	154 33 39	478	yes	7.00	2.00	0.10	0.500	3,000	5.0	N	200	3,000	N	100	30	20
84EM066B	58 21 3	154 33 39	478	no	3.00	1.50	2.00	0.300	500	N	N	50	500	N	N	20	50
84EM035B	58 19 47	154 29 51	479	yes	3.00	1.50	1.00	0.200	700	N	N	10	300	N	N	15	50
84EM014C	58 19 21	154 30 56	480	yes	3.00	2.00	1.00	0.300	2,000	N	N	N	700	N	N	15	70
84RJ081C	58 18 51	154 30 19	481	yes	5.00	2.00	0.70	0.500	2,000	1.0	N	50	2,000	<1.0	N	15	50
84RJ081D	58 18 51	154 30 19	481	yes	5.00	1.50	0.70	0.300	2,000	10.0	N	50	2,000	N	15	15	50
83RJ151	58 19 43	154 26 39	482	yes	2.00	1.50	2.00	0.700	1,000	N	N	<10	300	1.0	N	15	N
83RJ151	58 19 43	154 26 39	482	yes	5.00	2.00	3.00	0.500	1,000	N	N	10	100	N	N	50	50

Table 12. Tertiary volcanic and hypabyssal rocks, continued

SAMPLE	Cu-S	La-S	Mo-S	Nb-S	Ni-S	Pb-S	Sc-S	Sn-S	Sr-S	V-S	Y-S	Zn-S	Zr-S	Au-AA	Hg-INST	As-AA	Zn-AA	Ag-AA	Cd-AA	Bi-AA	Sb-AA
83PB050	<5	N	N	N	10	30	20	N	300	200	30	N	100	--	N	20	25	N	<0.1	N	N
84YB023C	10	N	N	N	5	50	20	N	500	100	70	N	200	--	N	<10	55	--	<0.1	N	N
84YB023B	200	N	20	N	5	70	20	N	500	200	70	N	150	N	0.06	<10	45	--	0.4	N	N
83RJ144C	<5	N	N	N	5	<10	30	N	500	100	50	N	100	--	--	N	55	--	0.6	N	N
83RJ144B	20	N	N	N	70	<10	30	N	500	200	30	N	70	--	--	N	50	--	0.1	N	N
83PB049	20	N	N	N	15	N	30	N	200	300	30	N	70	--	--	N	45	--	0.1	N	N
83PB047	<5	N	N	N	5	15	7	N	200	70	30	N	100	--	--	10	30	N	N	N	N
84RJ088C	<5	20	N	N	<5	20	7	N	300	50	30	N	100	--	N	N	25	--	N	N	N
84JM077	100	30	N	N	30	<10	30	N	1,000	300	30	N	100	N	0.08	N	60	--	<0.1	N	N
84YB039	20	N	N	N	30	20	20	N	500	100	30	N	100	--	N	N	45	--	N	N	N
83YB003	20	N	5	N	15	10	15	N	300	150	20	N	100	--	--	<10	40	--	N	N	N
83DT004C	<5	N	N	N	<5	<10	5	N	200	15	20	N	100	--	--	N	85	--	0.1	N	N
83RJ028D	10	N	N	N	15	<10	20	N	300	100	20	N	70	--	--	N	40	--	N	N	2
83RJ138B	30	N	N	N	50	N	30	N	500	200	20	N	70	--	--	N	25	--	<0.1	N	N
83RJ138D	50	N	N	N	15	N	50	N	500	300	50	N	150	--	--	N	50	--	0.1	N	N
83RJ138C	150	N	N	N	50	N	30	N	700	200	30	N	100	--	--	N	80	--	0.2	N	N
83RJ138A	50	N	N	N	30	N	30	N	500	200	30	N	100	--	--	N	35	--	0.2	N	N
83RJ140	50	N	N	N	50	<10	30	N	500	200	30	N	70	--	--	10	30	--	0.1	N	N
83RJ141A	5	N	N	N	50	10	50	N	700	200	30	N	70	--	--	N	20	--	0.1	N	N
83RJ141B	<5	N	10	N	70	10	30	N	500	200	20	N	100	N	N	20	15	--	0.4	N	N
83RJ142	20	N	N	N	20	<10	15	N	200	150	20	N	200	--	--	N	30	--	0.1	N	N
84RJ100C	70	N	N	N	30	30	20	N	500	200	30	N	100	--	N	N	45	--	N	N	N
84RJ100A	100	N	50	N	50	50	30	N	700	200	30	<200	100	N	N	<10	25	--	N	N	N
84RJ099B	<5	N	N	N	<5	10	20	N	300	100	50	<200	150	--	N	<10	15	--	N	N	N
84RJ099D	200	N	N	N	15	<10	30	N	700	200	70	N	150	N	N	<10	35	--	N	N	N
84RJ101B	70	N	N	N	30	30	50	N	700	200	70	<200	200	N	N	10	30	--	N	N	N
84RJ101C	50	N	N	N	20	10	30	N	500	200	70	<200	200	--	N	<10	45	--	N	N	N
84EM065C	50	N	N	N	50	<10	20	N	300	150	20	N	70	--	N	N	35	--	N	N	N
84EM019C	30	N	N	N	50	10	20	N	700	300	50	N	150	--	--	N	55	--	N	N	N
84EM020C	100	N	N	N	5	<10	30	N	500	500	50	N	100	N	0.06	N	75	--	<0.1	N	N
84EM021C	50	N	N	N	70	10	20	N	500	300	30	N	100	--	--	N	45	--	N	N	N
84EM022C	10	N	N	N	5	N	30	N	300	100	20	N	150	N	0.04	N	350	--	N	N	N
83YB005	<5	N	N	N	<5	15	10	N	300	20	20	N	150	--	--	N	70	--	N	N	N
84EM024F	50	N	N	N	50	10	20	N	700	200	20	N	100	--	N	N	55	--	N	N	N
84EM024C	20	N	N	N	70	20	20	N	500	150	30	N	200	--	N	N	15	--	N	N	N
84EM025C	100	N	N	N	100	<10	20	N	700	150	30	N	100	--	N	N	45	--	N	N	N
84RJ065C	100	N	N	N	70	10	30	N	1,000	200	20	N	100	--	--	10	25	--	N	N	N
84RJ064F	<5	N	N	N	15	20	20	N	700	200	70	N	200	--	--	N	45	--	N	N	N
83PB059	30	N	N	N	20	10	30	N	500	200	30	N	100	--	--	N	45	--	0.1	N	N
83RJ153	5	N	N	N	70	15	20	N	700	200	20	N	100	--	--	N	50	--	0.1	N	N
84RJ076C	30	N	N	N	50	30	20	N	1,000	200	50	N	200	--	--	<10	50	--	N	N	N
84EM034B	10	N	N	N	20	10	20	N	300	100	50	N	100	N	N	10	20	--	N	N	N
84EM066A	70	N	<5	N	10	100	20	N	200	150	50	200	150	N	N	40	210	--	0.6	5	<2
84EM066B	30	N	N	N	20	50	20	N	500	150	50	N	150	--	N	N	50	--	0.1	N	N
84EM035B	5	N	N	N	30	15	20	N	500	100	20	N	70	--	N	N	85	--	N	N	N
84EM014C	70	N	N	N	20	100	20	N	200	150	30	1,000	150	N	0.04	N	1,150	--	7.7	N	N
84RJ081C	70	N	<5	N	15	100	20	N	300	150	70	200	200	N	--	20	160	--	0.2	N	N
84RJ081D	200	N	<5	N	10	200	20	N	300	150	50	1,000	100	N	--	80	580	--	2.3	2	2
83RJ151	15	N	<5	N	N	15	20	N	500	150	50	N	100	--	--	N	30	N	0.1	N	N
83RJ151	30	N	5	N	50	<10	30	N	500	200	30	N	70	--	--	N	40	--	0.2	N	N

Table 12. Tertiary volcanic and hypabyssal rocks, continued

SAMPLE	LATITUDE	LONGITUDE	MAP NO.	ALTERED?	Fe%-S	Mg%-S	Ca%-S	Ti%-S	Mn-S	Ag-S	As-S	B-S	Ba-S	Be-S	Bi-S	Co-S	Cr-S
83RJ152	58 19 39	154 26 44	483	no	2.00	1.00	2.00	0.500	700	N	N	10	200	N	N	20	30
83PB058A	58 19 22	154 25 8	484	no	2.00	0.50	0.50	0.500	300	N	N	15	300	1.0	N	<5	<10
83PB058B	58 19 22	154 25 8	484	no	5.00	2.00	2.00	0.700	500	N	N	10	100	<1.0	N	50	100
83RJ150	58 18 11	154 24 17	485	no	2.00	1.00	2.00	0.300	700	N	N	<10	200	N	N	30	70
83RJ045	58 17 12	154 19 50	487	no	3.00	1.50	2.00	0.500	700	N	N	<10	150	N	N	20	20
83RJ039	58 17 15	154 17 33	488	no	2.00	1.50	2.00	0.300	300	0.5	N	<10	200	<1.0	N	20	30
83RJ038	58 17 38	154 15 50	489	no	2.00	1.00	1.50	0.300	500	N	N	<10	300	1.0	N	20	50
83PB002	58 18 43	154 12 29	490	no	3.00	1.50	1.50	0.500	500	N	N	15	300	N	N	20	50
84RJ062B	58 18 0	154 13 10	491	yes	5.00	3.00	2.00	0.700	1,000	N	N	50	500	<1.0	N	50	150
84RJ063C	58 17 46	154 12 10	492	yes	5.00	5.00	3.00	0.700	1,500	N	N	20	500	<1.0	N	50	150
84EM003C	58 17 34	154 12 0	493	yes	5.00	5.00	2.00	0.500	2,000	N	N	100	500	<1.0	N	30	200
83RJ161	58 17 15	154 10 49	494	no	3.00	2.00	3.00	0.700	700	N	N	<10	150	<1.0	N	30	150
83YB006	58 17 28	154 8 4	495	no	3.00	2.00	2.00	0.500	500	N	N	10	150	N	N	30	200
83RJ031	58 16 1	154 8 20	496	no	5.00	1.50	2.00	0.700	500	N	N	N	100	N	N	30	70
83YB007	58 15 47	154 11 18	497	no	5.00	3.00	3.00	0.500	1,000	<0.5	N	15	150	1.0	N	50	200
83YB009	58 16 12	154 12 21	498	no	5.00	2.00	2.00	0.500	700	N	N	<10	100	<1.0	N	30	70
83RJ162A	58 16 32	154 12 42	499	yes	2.00	1.50	3.00	0.500	1,000	N	N	15	150	<1.0	N	30	50
83RJ162B	58 16 32	154 12 42	499	yes	5.00	3.00	3.00	0.700	3,000	N	N	10	150	<1.0	N	20	30
83PB004	58 16 30	154 13 17	500	no	5.00	2.00	3.00	0.700	1,500	N	N	10	100	1.0	N	50	100
83RJ033	58 15 58	154 15 42	501	yes	2.00	3.00	2.00	0.500	700	N	N	10	150	1.0	N	20	50
83RJ042	58 15 49	154 14 31	502	no	5.00	2.00	2.00	0.500	1,000	N	N	20	150	N	N	30	200
83RJ159	58 15 45	154 13 19	503A	no	3.00	2.00	3.00	0.700	700	N	N	10	100	N	N	30	50
83RJ160	58 15 42	154 13 26	503B	yes	3.00	3.00	3.00	0.700	1,000	N	N	10	200	<1.0	N	20	100
83RJ043	58 15 22	154 13 5	504	yes	3.00	2.00	1.00	0.500	500	N	N	20	500	1.0	N	20	50
83PB005	58 15 9	154 13 16	505	yes	3.00	2.00	2.00	0.500	500	N	N	15	500	1.0	N	20	50
83RJ157C	58 13 56	154 12 35	506	yes	5.00	1.50	2.00	0.500	500	N	N	<10	150	N	N	30	30
83RJ157A	58 13 56	154 12 35	506	no	5.00	1.00	3.00	0.700	700	N	N	<10	100	N	N	30	10
83RJ157D	58 13 56	154 12 35	506	yes	3.00	2.00	3.00	0.500	700	N	N	10	100	N	N	7	50
83RJ032F	58 13 38	154 9 10	507	no	5.00	3.00	3.00	0.500	1,000	N	N	150	200	N	N	50	300
83RJ032E	58 13 38	154 9 10	507	no	1.00	0.70	10.00	0.100	200	N	N	>2,000	N	N	N	N	150
83RJ044B	58 12 54	154 10 30	508	no	2.00	1.50	1.00	0.500	500	N	N	15	100	<1.0	N	20	20
83AL043B	58 11 58	154 13 46	512	no	7.00	2.00	1.50	0.500	1,500	N	N	50	500	N	N	50	70
84RJ074C	58 11 21	154 14 52	513	yes	7.00	2.00	3.00	0.200	1,500	N	N	1,000	300	N	N	50	30
83RJ164	58 12 5	154 14 21	514	no	3.00	1.00	3.00	0.700	1,000	0.5	N	50	700	1.0	N	50	150
83AL042D	58 12 5	154 16 32	515	no	1.00	0.30	0.50	0.200	200	N	N	10	700	1.0	N	<5	<10
83AL042B	58 12 6	154 16 48	516	no	5.00	1.50	2.00	0.500	1,000	N	N	10	300	N	N	30	50
83RJ156	58 13 4	154 17 5	517	no	5.00	1.50	2.00	0.500	700	N	N	10	500	<1.0	N	20	20
83RJ155	58 14 8	154 16 21	518	yes	3.00	3.00	0.10	0.700	500	N	N	200	500	1.5	N	<5	50
83RJ154	58 13 55	154 17 19	519	yes	3.00	1.50	1.00	0.300	1,000	N	N	<10	150	N	N	20	70
83AL041B	58 12 31	154 18 54	520	no	5.00	1.50	2.00	0.500	500	N	N	10	500	<1.0	N	30	30
83RJ176	58 13 9	154 20 36	521	no	5.00	2.00	2.00	0.500	1,000	N	N	<10	150	<1.0	N	20	70
83RJ175	58 13 4	154 20 44	522	no	3.00	1.50	1.50	0.500	700	N	N	N	150	N	N	20	50
84EM067B	58 12 28	154 21 40	523	yes	7.00	2.00	<0.05	0.500	200	N	N	20	700	<1.0	N	N	70
84EM067F	58 12 28	154 21 40	523	yes	7.00	5.00	3.00	0.500	2,000	N	N	20	300	N	N	20	70
84EM067D	58 12 28	154 21 40	523	yes	5.00	0.20	<0.05	0.500	70	N	N	50	500	N	N	N	70
83RJ102B	58 12 2	154 23 41	524	no	3.00	1.00	1.50	0.300	500	N	N	10	300	<1.0	N	20	100
83RJ102A	58 12 2	154 23 41	524	no	5.00	1.00	0.70	0.500	1,000	N	N	10	200	<1.0	N	30	70
84RJ151C	58 12 43	154 23 45	525	yes	3.00	1.00	1.00	0.300	300	N	N	<10	300	N	N	7	70
84RJ150C	58 12 52	154 23 47	526	no	5.00	1.50	1.50	0.300	700	N	N	10	500	N	N	30	50
83RJ174	58 13 29	154 24 55	527	no	2.00	1.00	1.00	0.300	700	N	N	<10	300	1.0	N	20	30

Table 12. Tertiary volcanic and hypabyssal rocks, continued

SAMPLE	Cu-S	La-S	Mo-S	Nb-S	Ni-S	Pb-S	Sc-S	Sn-S	Sr-S	V-S	Y-S	Zn-S	Zr-S	Au-AA	Hg-INST	As-AA	Zn-AA	Ag-AA	Cd-AA	Bi-AA	Sb-AA
83RJ152	20	N	N	N	20	<10	20	N	200	150	30	N	100	--	--	N	35	--	0.1	N	N
83PB058A	10	N	N	N	5	10	10	N	200	100	30	N	150	0.05	N	N	130	--	0.1	N	N
83PB058B	20	N	N	N	50	<10	50	N	500	200	50	N	150	--	--	N	80	--	0.1	N	N
83RJ150	7	N	N	N	30	10	15	N	200	150	30	N	150	--	--	N	45	--	0.1	N	N
83RJ045	15	N	N	N	20	10	20	N	300	200	20	N	100	--	--	N	40	--	N	N	N
83RJ039	50	N	N	N	20	10	15	N	300	150	20	N	150	N	N	N	30	--	N	N	N
83RJ038	20	N	7	N	30	10	15	N	300	150	30	N	200	--	--	N	20	--	<0.1	N	N
83PB002	20	N	N	N	50	10	20	N	300	200	50	N	200	--	--	N	25	--	<0.1	N	N
84RJ062B	100	N	7	N	70	30	20	N	500	200	50	<200	100	N	--	10	75	--	N	N	N
84RJ063C	100	N	N	N	100	50	30	N	1,000	200	50	<200	200	--	--	N	65	--	0.1	N	N
84EM003C	7	N	N	N	100	10	20	N	700	200	70	<200	200	--	--	N	65	--	N	N	N
83RJ161	30	N	N	N	50	<10	50	N	500	200	30	N	100	--	--	N	60	--	0.1	N	N
83YB006	20	N	N	N	50	15	30	N	300	200	30	N	100	--	--	N	50	--	<0.1	N	N
83RJ031	30	N	N	N	30	<10	30	N	300	200	30	N	70	--	--	N	40	--	0.1	N	N
83YB007	20	N	N	N	100	15	30	N	700	200	30	N	100	--	0.02	10	75	0.10	<0.1	N	N
83YB009	20	N	N	N	50	<10	30	N	700	150	20	N	70	--	--	N	50	--	<0.1	N	N
83RJ162A	30	N	N	N	70	15	20	N	1,000	200	30	N	100	--	--	<10	25	N	0.1	N	N
83RJ162B	30	N	N	N	15	<10	30	N	1,000	300	30	N	100	--	--	<10	75	N	0.1	N	N
83PB004	50	N	N	N	70	15	30	N	700	200	30	N	100	--	0.04	20	50	N	N	N	N
83RJ033	10	N	N	N	50	20	20	N	500	200	15	N	70	--	--	10	90	N	0.1	N	N
83RJ042	150	N	N	N	70	<10	20	N	500	200	20	N	100	--	--	N	55	--	0.1	N	N
83RJ159	70	N	N	N	30	10	50	N	300	200	30	N	30	--	--	N	65	--	0.2	N	N
83RJ160	15	N	N	N	50	20	30	N	700	300	30	N	100	--	--	N	30	N	<0.1	N	N
83RJ043	10	N	N	N	50	15	20	N	700	200	30	N	150	--	--	<10	20	N	<0.1	N	N
83PB005	15	N	N	N	50	30	20	N	700	200	30	N	150	--	--	10	20	N	N	N	N
83RJ157C	<5	N	N	N	15	N	20	N	500	200	30	N	100	--	--	N	30	--	0.2	N	N
83RJ157A	20	N	N	N	10	15	30	N	500	200	30	N	100	--	--	N	45	--	0.1	N	N
83RJ157D	20	N	N	N	10	10	30	N	300	200	20	N	100	--	--	<10	25	--	<0.1	N	N
83RJ032F	30	N	N	N	100	<10	50	N	500	200	20	N	50	--	--	N	60	--	0.1	N	N
83RJ032E	5	N	N	N	50	N	10	N	N	100	N	N	20	N	N	N	15	--	<0.1	N	N
83RJ044B	20	N	N	N	50	10	15	N	500	100	20	N	100	--	--	N	80	--	0.1	N	N
83AL043B	15	N	N	N	50	15	30	N	700	200	20	N	70	--	--	N	95	--	0.1	N	N
84RJ074C	50	N	N	N	20	30	15	N	200	100	50	<200	150	N	--	<10	25	--	N	N	N
83RJ164	70	N	N	N	50	10	50	N	1,000	200	30	N	100	N	N	N	70	--	<0.1	N	N
83AL042D	5	N	N	N	<5	<10	10	N	150	70	50	N	150	--	--	N	10	--	N	N	N
83AL042B	10	N	N	N	20	10	30	N	300	200	50	N	150	--	--	N	15	--	N	N	N
83RJ156	20	N	N	N	15	15	20	N	300	200	30	N	200	N	N	N	80	--	0.3	N	N
83RJ155	20	N	N	N	15	10	20	N	N	200	20	N	100	N	--	<10	30	N	<0.1	N	N
83RJ154	20	N	N	N	20	20	15	N	200	100	20	N	100	--	--	N	100	--	0.1	N	N
83AL041B	15	N	N	N	20	10	30	N	300	200	50	N	150	--	--	N	30	--	<0.1	N	N
83RJ176	15	N	<5	N	50	10	30	N	500	200	30	N	100	--	--	N	55	--	0.1	N	N
83RJ175	5	N	N	N	20	<10	30	N	300	200	30	N	150	--	--	N	25	--	<0.1	N	N
84EM067B	150	N	20	N	<5	70	30	N	300	200	70	<200	200	--	N	10	15	--	N	N	N
84EM067F	70	N	<5	N	20	10	30	N	500	200	50	<200	200	--	0.06	<10	<10	--	N	N	N
84EM067D	150	N	<5	N	5	30	20	N	300	200	50	<200	300	--	N	<10	65	--	N	N	N
83RJ102B	20	N	N	N	50	20	20	N	300	150	30	N	200	N	N	N	25	--	0.9	N	N
83RJ102A	50	N	N	N	50	20	20	N	150	150	20	<200	150	--	--	N	70	--	N	N	N
84RJ151C	20	N	N	N	20	10	20	N	500	100	30	N	150	--	N	N	65	--	N	N	N
84RJ150C	30	N	N	N	30	10	30	N	500	100	50	N	100	--	N	N	50	--	N	N	N
83RJ174	20	N	N	N	20	<10	20	N	500	150	30	N	150	--	--	N	75	--	0.1	N	N

Table 12. Tertiary volcanic and hypabyssal rocks, continued

SAMPLE	LATITUDE	LONGITUDE	MAP NO.	ALTERED?	Fe%-S	Mg%-S	Ca%-S	Ti%-S	Mn-S	Ag-S	As-S	B-S	Ba-S	Be-S	Bi-S	Co-S	Cr-S	Cu-S
83RJ173A	58 13 45	154 24 50	528	yes	1.50	<0.02	<0.05	0.500	N	N	N	<10	70	N	N	10	20	10
83RJ173B	58 13 45	154 24 50	528	yes	5.00	1.00	1.50	0.500	500	N	N	<10	500	<1.0	N	50	70	20
83PB064C	58 13 25	154 26 19	529	no	3.00	1.00	1.50	0.500	700	N	N	10	300	1.0	N	20	20	30
83RJ060A	58 13 25	154 26 50	530	yes	3.00	2.00	1.00	0.300	700	N	N	<10	300	N	N	20	50	30
83RJ060B	58 13 25	154 26 50	530	no	3.00	1.00	1.50	0.500	700	N	N	10	300	<1.0	N	20	15	20
83RJ061	58 13 38	154 27 13	531	no	5.00	2.00	2.00	0.500	700	N	N	<10	150	N	N	30	70	20
83RJ170	58 14 43	154 27 6	532	yes	1.50	0.50	1.00	0.500	500	N	N	20	200	1.0	N	<5	N	15
83RJ169	58 14 45	154 28 56	533	yes	5.00	1.50	3.00	0.500	700	N	N	<10	300	<1.0	N	30	70	20
83RJ171	58 14 36	154 29 42	534	yes	5.00	2.00	3.00	0.500	700	N	N	<10	150	<1.0	N	30	100	20
83RJ167A	58 15 29	154 32 16	535	no	5.00	2.00	2.00	0.500	700	N	N	15	150	N	N	30	30	20
83RJ167B	58 15 29	154 32 16	535	yes	3.00	2.00	2.00	0.500	1,000	N	N	<10	200	N	N	20	50	20
84RJ097D	58 16 9	154 31 49	536	no	5.00	1.50	1.00	0.500	700	N	N	50	1,500	N	N	20	50	<5
84EM012C	58 16 24	154 29 34	537	yes	2.00	2.00	2.00	0.200	700	N	N	N	300	1.0	N	20	100	20
84RJ078C	58 16 39	154 29 56	538	yes	7.00	2.00	2.00	0.500	1,000	N	N	50	1,000	<1.0	N	30	200	100
84RJ079C	58 16 45	154 29 55	539	no	3.00	2.00	2.00	0.500	1,000	N	N	50	1,500	<1.0	N	20	20	50
84EM011B	58 17 25	154 29 38	540	yes	7.00	2.00	5.00	0.500	700	N	N	20	300	<1.0	N	30	100	30
84EM013C	58 17 4	154 31 32	541	no	3.00	2.00	1.50	0.300	700	N	N	15	300	N	N	15	50	20
84RJ093B	58 18 21	154 34 48	542	no	5.00	1.50	1.00	0.500	700	N	N	20	1,000	N	N	30	100	50
84RJ094C	58 17 45	154 37 35	543	yes	3.00	0.20	0.20	0.100	1,500	N	N	50	100	<1.0	N	20	10	50
84RJ095C	58 18 8	154 38 12	544	yes	5.00	3.00	0.20	0.500	1,000	N	N	20	300	N	N	100	300	100
86RJ076	58 20 43	154 36 55	545	yes	7.00	1.00	0.50	0.700	300	N	N	70	500	N	N	5	30	30
84RJ096B	58 16 17	154 39 9	547	no	5.00	3.00	2.00	0.500	1,000	N	N	20	300	N	N	50	200	70
83PB013	58 14 31	154 37 19	548	no	5.00	1.50	2.00	0.500	1,000	N	N	<10	200	<1.0	N	30	10	20
83RJ057	58 13 50	154 36 50	549	no	3.00	2.00	2.00	0.500	700	N	N	<10	150	N	N	30	200	20
83PB014B	58 13 53	154 34 58	550	yes	1.00	<0.02	<0.05	0.500	N	N	N	N	100	N	N	N	15	5
83PB060	58 14 30	154 34 59	551	no	3.00	2.00	2.00	0.300	500	N	N	10	200	<1.0	N	20	70	20
83PB061	58 15 14	154 34 56	552	no	7.00	1.50	1.50	0.500	700	N	N	<10	150	<1.0	N	30	15	50
83RJ168	58 14 27	154 33 50	553	yes	10.00	0.02	<0.05	0.200	N	N	N	N	50	N	N	N	70	30
83RJ058A	58 13 44	154 32 42	554	no	5.00	3.00	7.00	0.500	1,500	N	N	<10	150	<1.0	N	50	150	30
83RJ058	58 13 45	154 32 45	554	no	5.00	2.00	3.00	0.700	1,000	N	N	<10	100	<1.0	N	50	100	30
83RJ172	58 13 10	154 29 40	556	no	5.00	3.00	3.00	0.500	700	N	N	<10	100	N	N	50	100	20
83RJ100B	58 12 12	154 28 41	559	no	3.00	1.00	2.00	0.300	1,000	N	N	<10	200	N	N	20	20	10
83RJ100A	58 12 12	154 28 41	559	no	5.00	2.00	2.00	0.300	700	N	N	<10	200	N	N	30	70	100
83RJ063	58 12 35	154 26 25	560	yes	1.50	0.02	0.05	0.500	100	<0.5	N	<10	20	N	N	N	15	15
84YB083	58 12 7	154 26 48	561	yes	5.00	0.10	0.05	0.500	20	N	N	50	700	N	N	20	100	70
84EM046C	58 11 8	154 28 53	562	no	5.00	1.00	3.00	0.200	700	N	N	500	30	N	N	10	50	N
83RJ101	58 11 0	154 26 50	563	no	2.00	0.70	0.70	0.200	300	N	N	<10	200	N	N	7	20	15
84EM047E	58 10 38	154 28 0	564	no	2.00	1.00	1.00	0.300	500	N	N	10	300	N	N	10	30	20
84EM047B	58 10 38	154 28 0	564	no	3.00	1.50	1.00	0.300	500	<0.5	N	10	200	<1.0	N	15	30	150
83RJ103A	58 10 15	154 25 55	565	no	5.00	1.50	1.00	0.300	500	N	N	<10	150	N	N	30	200	20
84EM048C	58 9 47	154 27 35	566	no	3.00	2.00	2.00	0.200	700	N	N	10	100	N	N	20	70	30
83AL038B	58 9 32	154 20 3	567	no	1.50	0.50	0.30	0.300	300	N	N	10	1,000	N	N	5	<10	15
84DT083	58 9 26	154 14 34	570	no	5.00	2.00	2.00	0.700	1,000	N	N	50	1,000	<1.0	N	30	50	50
83AL040B	58 7 51	154 15 35	572	no	5.00	1.50	2.00	0.500	700	N	N	20	700	<1.0	N	30	50	20
83RJ105A	58 5 50	154 20 35	573	yes	1.50	0.70	1.00	0.500	500	N	N	70	700	1.0	N	7	15	15
83RJ105B	58 5 50	154 20 35	573	no	5.00	1.50	2.00	0.300	700	N	N	15	300	1.0	N	20	50	20
83RJ094	58 8 0	154 24 50	575	no	5.00	5.00	2.00	0.500	1,000	N	N	10	200	N	N	50	300	30
84EM049C	58 8 47	154 27 31	577	no	3.00	2.00	2.00	0.300	700	N	N	<10	150	<1.0	N	20	100	30
84YB056	58 8 25	154 27 49	578	no	2.00	1.00	0.70	0.200	200	N	N	20	200	<1.0	N	10	30	5
83RJ064B	58 8 40	154 29 30	579	no	5.00	3.00	3.00	0.300	500	N	N	<10	70	N	N	30	200	<5

Table 12. Tertiary volcanic and hypabyssal rocks, continued

SAMPLE	La-S	Mo-S	Nb-S	Ni-S	Pb-S	Sc-S	Sn-S	Sr-S	V-S	Y-S	Zn-S	Zr-S	Au-AA	Hg-INST	As-AA	Zn-AA	Ag-AA	Cd-AA	Bi-AA	Sb-AA
83RJ173A	N	N	N	15	<10	20	N	N	200	30	N	200	--	--	N	10	--	N	N	N
83RJ173B	N	N	N	50	30	20	N	300	200	50	N	150	--	--	10	75	<0.05	0.1	N	N
83PB064C	N	N	N	20	20	20	N	300	150	30	N	100	N	N	40	55	--	0.1	N	N
83RJ060A	N	7	N	20	10	20	N	300	200	30	N	100	--	0.02	30	50	N	<0.1	N	N
83RJ060B	N	5	N	15	15	20	N	200	200	50	N	200	--	--	N	90	--	0.2	N	N
83RJ061	N	N	N	50	10	30	N	300	200	30	N	150	--	--	N	45	--	0.1	N	N
83RJ170	N	5	N	5	10	15	N	200	150	30	N	150	--	--	N	35	--	N	N	N
83RJ169	N	N	N	30	<10	30	N	500	150	30	N	150	--	--	N	55	--	<0.1	N	N
83RJ171	N	N	N	30	10	30	N	500	200	30	N	100	--	--	N	55	--	<0.1	N	N
83RJ167A	N	N	N	30	<10	30	N	300	200	20	N	70	--	--	N	85	--	0.1	N	N
83RJ167B	N	N	N	30	10	20	N	500	150	20	N	100	--	--	N	70	--	0.1	N	N
84RJ097D	N	N	N	15	20	20	N	500	100	50	N	150	--	N	N	10	--	N	N	N
84EM012C	N	N	N	50	<10	20	N	500	200	15	500	70	--	--	10	350	--	1.3	N	N
84RJ078C	N	N	N	100	50	30	N	700	200	70	<200	200	--	--	10	60	--	<0.1	N	N
84RJ079C	N	N	N	15	50	20	N	700	150	70	<200	200	--	--	<10	75	--	<0.1	N	N
84EM011B	N	N	N	50	N	30	N	500	300	30	N	150	--	--	N	25	--	N	N	N
84EM013C	N	N	N	20	<10	20	N	300	150	30	N	100	--	--	10	45	--	<0.1	N	N
84RJ093B	N	N	N	70	20	20	N	500	200	50	N	200	--	N	N	50	--	N	N	N
84RJ094C	N	7	N	15	N	15	N	N	2,000	20	<200	50	N	N	N	15	--	N	N	N
84RJ095C	N	N	N	200	10	20	N	200	200	30	<200	150	N	N	<10	80	--	<0.1	N	N
86RJ076	N	N	N	10	N	20	N	100	200	20	<200	200	--	N	20	15	--	N	N	N
84RJ096B	N	N	N	30	<10	50	N	500	200	50	<200	100	--	0.02	N	25	--	N	N	N
83PB013	N	N	N	15	10	30	N	1,000	200	30	N	100	--	--	N	80	--	N	N	N
83RJ057	N	N	N	50	10	30	N	300	200	30	N	100	--	--	N	30	--	0.1	N	N
83PB014B	N	N	N	5	<10	20	N	300	200	20	N	100	N	2.20	40	N	--	N	N	6
83PB060	N	N	N	50	<10	20	N	300	150	30	N	150	--	--	N	30	--	<0.1	N	N
83PB061	N	N	N	30	N	30	N	300	200	30	N	70	--	--	N	65	--	0.2	N	N
83RJ168	N	N	N	N	<10	10	N	300	150	10	N	50	N	0.68	90	15	--	N	2	2
83RJ058A	N	N	N	50	10	30	N	700	300	50	N	100	--	--	<10	50	N	0.2	N	N
83RJ058	N	N	N	50	10	30	N	500	200	30	N	150	--	--	N	60	--	0.1	N	N
83RJ172	N	N	N	20	<10	30	N	500	200	20	N	70	--	--	N	45	--	<0.1	N	N
83RJ100B	N	N	N	10	N	20	N	300	150	30	N	100	--	--	N	35	--	N	N	N
83RJ100A	N	N	N	20	<10	30	N	200	200	30	N	70	--	--	N	30	--	N	N	N
83RJ063	N	5	N	5	<10	7	N	N	30	N	N	70	N	0.08	20	5	--	N	10	N
84YB083	N	10	N	20	50	20	N	500	200	20	<200	200	N	N	300	45	--	N	N	2
84EM046C	N	N	N	20	10	15	N	500	150	20	N	50	N	N	10	10	--	N	N	N
83RJ101	N	N	N	10	<10	7	N	N	70	20	N	200	--	--	N	25	--	N	N	N
84EM047E	N	N	N	20	10	15	N	200	100	30	N	70	--	N	N	30	--	N	N	N
84EM047B	N	<5	N	20	<10	15	N	300	150	20	N	50	N	N	N	25	--	N	N	N
83RJ103A	N	N	N	70	10	15	N	200	100	10	N	50	--	--	N	35	--	N	N	N
84EM048C	N	N	N	30	<10	20	N	500	100	15	N	50	--	N	N	40	--	N	N	N
83AL038B	N	N	N	5	15	10	N	100	100	50	N	150	N	N	N	30	--	N	N	N
84DT083	N	N	N	20	30	20	N	500	200	70	<200	300	--	--	<10	50	--	N	N	N
83AL040B	N	N	N	30	15	20	N	500	200	50	N	200	--	--	N	35	--	0.1	N	N
83RJ105A	N	N	N	15	15	15	N	200	50	30	N	200	--	--	N	35	--	N	N	N
83RJ105B	N	N	N	30	<10	20	N	300	150	30	N	150	--	--	N	55	--	N	N	N
83RJ094	N	N	N	100	10	30	N	300	200	30	N	100	--	--	N	15	--	N	N	N
84EM049C	N	N	N	50	<10	30	N	500	150	15	N	70	N	0.06	N	15	--	N	N	N
84YB056	N	N	N	20	10	10	N	300	100	30	N	150	--	N	10	25	--	N	N	N
83RJ064B	N	N	N	100	15	30	N	500	200	15	N	50	--	--	N	30	--	<0.1	N	N

Table 12. Tertiary volcanic and hypabyssal rocks, continued

SAMPLE	LATITUDE	LONGITUDE	MAP NO.	ALTERED?	Fe%-S	Mg%-S	Ca%-S	Ti%-S	Mn-S	Ag-S	As-S	B-S	Ba-S	Be-S	Bi-S	Co-S	Cr-S	Cu-S
83RJ064	58 8 40	154 29 30	579	yes	3.00	1.50	1.00	0.500	1,500	N	N	<10	150	<1.0	N	20	30	30
84YB057	58 7 42	154 27 22	580	no	5.00	2.00	2.00	0.500	500	N	N	15	300	<1.0	N	20	200	30
84YB059	58 6 32	154 27 7	581	no	3.00	1.50	1.50	0.300	500	N	N	10	300	<1.0	N	15	50	20
84YB060	58 6 7	154 26 53	582	no	2.00	1.50	3.00	0.300	1,000	N	N	20	500	<1.0	N	15	50	15
84YB042B	58 4 46	154 26 4	584	no	3.00	1.50	1.50	0.500	700	N	N	20	500	N	N	20	70	10
84YB042A	58 4 46	154 26 4	584	no	2.00	2.00	1.00	0.300	700	N	N	10	500	<1.0	N	20	50	20
83RJ117	58 5 39	154 27 20	585	no	3.00	1.50	2.00	0.700	1,000	N	N	15	300	<1.0	N	30	100	50
83RJ116	58 5 44	154 27 40	586	no	3.00	0.70	0.30	0.500	500	<0.5	N	10	100	<1.0	N	30	<10	20
83RJ115	58 5 50	154 27 50	587	no	3.00	1.00	1.50	0.500	500	N	N	<10	200	N	N	20	<10	20
83RJ114	58 5 52	154 27 56	588	no	2.00	1.50	2.00	0.500	2,000	N	N	10	150	N	N	50	100	30
83PB035A	58 5 58	154 28 3	589	no	5.00	2.00	3.00	0.500	700	N	N	15	300	1.0	N	30	200	30
83PB035B	58 5 58	154 28 3	589	yes	3.00	2.00	2.00	0.500	700	N	N	10	150	<1.0	N	30	200	30
83RJ074	58 5 14	154 28 42	590	no	3.00	1.00	3.00	0.500	700	N	N	<10	300	N	N	20	50	20
83RJ073	58 5 18	154 29 41	591	no	3.00	1.00	2.00	0.300	500	N	N	<10	300	N	N	20	50	15
83RJ072	58 4 58	154 31 45	592	no	3.00	1.00	1.50	0.500	700	N	N	<10	300	N	N	20	50	20
84YB040	58 4 12	154 29 39	593	no	3.00	2.00	0.70	0.300	700	N	N	20	500	N	N	30	50	50
84YB041	58 3 52	154 27 37	594	no	3.00	2.00	1.00	0.500	700	N	N	20	500	<1.0	N	20	70	50
83RJ083	58 6 25	154 33 1	595	no	5.00	1.50	2.00	0.500	500	N	N	<10	200	N	N	20	70	15
83RJ071	58 5 10	154 33 25	596	no	5.00	1.50	2.00	0.500	700	N	N	10	200	<1.0	N	30	50	30
84RJ116G	58 2 24	154 33 25	606	no	3.00	1.00	1.00	0.200	700	N	N	10	300	N	N	7	N	<5
83DT026A	58 1 31	154 34 0	607	no	5.00	1.50	1.50	0.500	700	N	N	300	200	N	N	30	100	20
83RJ089A	58 1 59	154 38 21	611	no	2.00	0.70	1.00	0.200	700	N	N	<10	300	N	N	N	10	<5
83RJ056	58 3 37	154 35 35	613	yes	2.00	1.00	1.50	0.300	500	N	N	10	300	<1.0	N	15	10	10
83RJ054	58 5 6	154 37 19	615	no	3.00	1.50	1.50	0.300	1,000	N	N	20	70	N	N	20	15	15
83PB046	58 5 11	154 39 49	616	yes	5.00	1.50	2.00	0.500	700	N	N	10	200	<1.0	N	30	50	30
83RJ135	58 5 59	154 40 36	618	no	1.50	0.70	0.70	0.200	300	N	N	10	500	N	N	15	15	15
83PB030	58 6 35	154 41 0	619	no	2.00	1.00	1.00	0.200	500	N	N	30	500	N	N	15	15	30
83RJ137	58 6 2	154 41 20	620	no	2.00	0.70	1.00	0.300	300	N	N	15	700	<1.0	N	10	15	10
83PB045	58 5 33	154 41 41	621	yes	7.00	3.00	5.00	0.700	700	N	N	20	100	N	N	50	70	30
83RJ136	58 6 4	154 42 45	622	yes	2.00	1.00	1.00	0.300	500	N	N	15	500	<1.0	N	15	15	30
83RJ099	58 7 36	154 42 30	623	no	5.00	1.50	2.00	0.500	700	<0.5	N	10	300	<1.0	N	30	200	10
83RJ134B	58 6 30	154 42 49	624	yes	2.00	2.00	2.00	0.500	1,000	<0.5	N	500	200	1.0	N	15	100	30
83RJ098B	58 6 41	154 43 41	625	yes	5.00	1.00	1.00	0.500	500	N	N	10	500	<1.0	N	10	50	30
83PB044	58 6 1	154 44 3	626	yes	7.00	1.50	0.70	0.500	700	<0.5	N	70	1,000	1.0	N	100	200	50
83RJ131	58 5 48	154 44 55	627	no	5.00	1.50	2.00	0.500	1,000	N	N	<10	200	N	N	30	50	30
86RJ122A	58 4 33	154 44 9	629	no	7.00	1.50	1.00	0.200	500	N	N	<10	100	N	N	15	50	100
86RJ122B	58 4 33	154 44 9	629	yes	7.00	1.00	1.00	0.300	300	N	N	20	50	N	N	15	N	100
83DT015A	58 4 2	154 44 12	630	no	5.00	2.00	2.00	0.500	1,000	N	N	15	300	<1.0	N	30	70	20
83DT051C	58 4 26	154 52 26	650	no	0.70	0.10	0.07	0.100	200	N	N	100	150	N	N	N	10	5
83DT051A	58 4 25	154 52 25	650	no	0.50	0.10	0.10	0.050	20	N	N	30	150	N	N	N	10	<5
83DT048	58 4 38	154 50 25	651	no	3.00	1.50	2.00	0.500	700	N	N	<10	500	<1.0	N	20	20	10
83RJ132	58 5 32	154 46 29	654	no	5.00	1.50	3.00	0.500	1,000	N	N	10	300	<1.0	N	30	30	20
84EM052C	58 5 32	154 47 21	655	no	2.00	1.50	1.00	0.200	500	N	N	<10	300	N	N	15	50	20
84EM053C	58 5 42	154 47 32	656	no	3.00	1.50	2.00	0.200	500	N	N	<10	300	N	N	15	50	7
84EM050B	58 7 45	154 46 40	659	yes	3.00	1.50	1.00	0.300	500	N	N	<10	200	N	N	15	15	20
84EM050A	58 7 45	154 46 40	659	yes	2.00	1.50	1.00	0.300	500	0.5	N	<10	300	N	N	15	70	50
83PB027	58 8 31	154 38 20	660	no	5.00	2.00	1.00	0.500	700	N	N	<10	100	N	N	30	100	20
83RJ076	58 8 55	154 37 32	661	yes	2.00	0.50	1.00	0.500	300	N	N	15	100	1.0	N	5	10	15
83PB018	58 9 7	154 37 52	662	no	3.00	2.00	2.00	0.500	700	N	N	<10	200	N	N	20	100	30
83PB028	58 9 49	154 36 19	663	yes	5.00	2.00	3.00	0.500	1,500	N	N	<10	100	<1.0	N	30	10	30

Table 12. Tertiary volcanic and hypabyssal rocks, continued

SAMPLE	La-S	Mo-S	Nb-S	Ni-S	Pb-S	Sc-S	Sn-S	Sr-S	V-S	Y-S	Zn-S	Zr-S	Au-AA	Hg-INST	As-AA	Zn-AA	Ag-AA	Cd-AA	Bi-AA	Sb-AA
83RJ064	N	N	N	30	20	20	N	500	200	30	N	150	--	--	<10	85	<0.05	0.1	N	N
84YB057	N	N	N	70	10	20	N	500	150	30	N	150	--	N	N	50	--	N	N	N
84YB059	N	N	N	20	<10	20	N	500	150	30	N	100	--	0.04	N	55	--	N	N	N
84YB060	N	<5	N	50	<10	20	N	700	100	20	N	100	--	0.04	N	60	--	N	N	N
84YB042B	N	N	N	20	20	20	N	500	100	50	N	150	--	N	N	55	--	N	N	N
84YB042A	N	N	N	30	70	20	N	500	100	30	N	150	--	N	N	40	--	N	N	N
83RJ117	N	<5	N	70	<10	20	N	500	200	50	N	150	--	--	N	35	--	N	N	N
83RJ116	N	N	N	20	15	20	N	<100	150	20	<200	150	N	0.02	N	180	--	N	N	N
83RJ115	N	N	N	10	10	20	N	300	150	20	N	100	--	--	N	45	--	N	N	N
83RJ114	N	N	N	70	N	30	N	500	200	30	N	70	--	--	N	65	--	N	N	N
83PB035A	N	N	N	100	<10	30	N	500	150	50	N	150	--	--	N	40	--	N	N	N
83PB035B	N	N	N	100	<10	20	N	300	150	30	N	150	--	--	N	50	--	N	N	N
83RJ074	N	5	N	20	10	20	N	300	200	30	N	100	--	--	N	45	--	N	N	N
83RJ073	N	N	N	30	<10	20	N	300	150	30	N	100	--	--	N	25	--	N	N	N
83RJ072	N	7	N	20	<10	20	N	200	150	30	N	150	--	--	N	40	--	N	N	N
84YB040	N	N	N	50	20	20	N	300	100	50	N	150	--	N	N	40	--	N	N	N
84YB041	N	N	N	20	15	20	N	500	100	50	N	200	--	N	N	40	--	N	N	N
83RJ083	N	N	N	30	<10	20	N	300	200	20	N	100	--	--	N	30	--	N	N	N
83RJ071	N	N	N	30	10	20	N	500	200	30	N	100	--	--	N	40	--	N	N	N
84RJ116G	N	N	N	<5	<10	10	N	500	70	20	N	70	--	N	N	70	--	N	N	N
83DT026A	N	N	N	50	10	20	N	200	200	30	N	100	N	N	N	35	--	N	N	N
83RJ089A	N	N	N	10	15	5	N	300	50	10	N	100	--	--	N	45	--	N	N	N
83RJ056	N	N	N	15	N	15	N	500	100	15	N	100	--	--	N	30	--	N	N	N
83RJ054	N	N	N	20	15	20	N	500	200	20	N	70	N	N	N	130	--	0.3	N	N
83PB046	N	N	N	30	10	30	N	300	200	30	N	200	--	--	N	20	--	0.1	N	N
83RJ135	N	N	N	15	10	10	N	200	100	30	N	100	--	--	N	15	--	N	N	N
83PB030	N	N	N	15	20	15	N	200	100	20	N	200	--	--	N	25	--	<0.1	N	N
83RJ137	N	N	N	20	20	15	N	200	150	50	N	200	--	--	N	35	--	N	N	N
83PB045	N	N	N	70	<10	50	N	500	700	20	N	30	--	--	N	25	--	N	N	2
83RJ136	N	<5	N	15	15	15	N	200	100	50	N	150	N	N	20	15	--	<0.1	N	N
83RJ099	N	N	N	50	10	30	N	500	200	30	N	100	--	--	N	30	--	N	N	N
83RJ134B	N	<5	N	20	20	20	N	200	200	50	N	100	--	0.02	20	50	0.10	0.1	N	N
83RJ098B	N	N	N	15	15	20	N	500	200	50	N	200	--	--	N	30	--	N	N	N
83PB044	N	N	N	100	30	30	N	300	200	30	N	150	0.05	N	N	80	--	0.1	N	N
83RJ131	N	N	N	30	15	30	N	700	200	50	N	200	--	--	N	50	--	<0.1	N	N
86RJ122A	N	N	N	30	10	10	N	<100	150	10	<200	50	--	N	<10	45	--	0.2	N	N
86RJ122B	N	N	N	10	<10	10	N	100	150	10	<200	50	--	<0.02	10	40	--	0.2	N	4
83DT015A	N	N	N	30	<10	30	N	500	200	20	N	100	--	--	N	55	--	0.1	N	N
83DT051C	N	N	N	10	<10	N	N	N	70	N	N	70	--	--	10	35	N	0.1	N	N
83DT051A	N	N	N	<5	<10	N	N	N	30	N	N	30	--	--	<10	15	N	N	N	N
83DT048	N	N	N	10	<10	20	N	300	150	20	N	100	--	--	N	65	--	N	N	N
83RJ132	N	N	N	30	10	30	N	1,000	200	50	N	150	--	--	N	35	--	N	N	N
84EM052C	N	N	N	20	15	15	N	500	100	20	N	100	--	N	<10	40	--	0.1	N	N
84EM053C	N	N	N	20	<10	20	N	500	100	20	N	100	--	N	<10	35	--	N	N	N
84EM050B	N	N	N	10	<10	15	N	300	150	20	N	70	--	N	<10	45	--	<0.1	N	N
84EM050A	N	N	N	20	10	20	N	300	100	20	N	100	N	N	<10	50	--	<0.1	N	N
83PB027	N	N	N	50	<10	30	N	500	200	30	N	100	--	--	N	45	--	<0.1	N	N
83RJ076	N	N	N	10	10	10	N	200	150	20	N	200	--	--	N	30	--	0.1	N	N
83PB018	N	N	N	50	10	20	N	500	200	30	N	150	--	--	N	40	--	N	N	N
83PB028	N	N	N	10	15	30	N	500	300	20	N	100	--	--	<10	65	N	0.1	N	N

Table 12. Tertiary volcanic and hypabyssal rocks, continued

SAMPLE	LATITUDE	LONGITUDE	MAP NO.	ALTERED?	Fe%-S	Mg%-S	Ca%-S	Ti%-S	Mn-S	Ag-S	As-S	B-S	Ba-S	Be-S	Bi-S	Co-S	Cr-S
83PB020A	58 10 2	154 36 13	664	no	5.00	1.50	2.00	0.500	1,000	N	N	<10	300	1.0	N	30	10
83RJ077	58 10 43	154 34 14	665	yes	3.00	2.00	2.00	0.500	500	N	N	<10	70	N	N	20	70
83RJ078B	58 10 38	154 35 30	666	yes	1.50	0.50	0.30	0.200	300	N	N	20	700	N	N	N	N
83RJ078A	58 10 38	154 35 30	666	yes	2.00	2.00	2.00	0.500	300	N	N	10	200	<1.0	N	N	30
83RJ079	58 11 19	154 35 50	667	yes	5.00	2.00	2.00	0.700	700	N	N	20	200	1.0	N	30	70
83PB019B	58 10 8	154 37 9	668	no	7.00	2.00	2.00	0.500	700	N	N	10	N	N	N	30	150
83PB022B	58 10 13	154 38 47	669	yes	3.00	3.00	2.00	0.500	1,000	N	N	<10	200	N	N	30	30
83PB021	58 10 42	154 38 26	670	no	5.00	1.50	1.00	0.500	700	N	N	N	200	<1.0	N	20	50
83RJ080	58 10 55	154 39 38	671	yes	2.00	0.70	0.20	0.500	700	N	N	<10	500	<1.0	N	20	20
83RJ096B	58 11 48	154 40 40	672	yes	3.00	3.00	1.00	0.500	1,000	<0.5	N	10	150	N	N	30	100
83RJ096A	58 11 48	154 40 10	672	no	0.20	0.15	<0.05	0.150	50	1.0	N	N	50	<1.0	N	N	<10
83RJ120	58 12 0	154 41 0	673	yes	1.50	<0.02	0.10	0.300	50	N	N	10	1,500	<1.0	N	N	N
83PB037A	58 12 47	154 42 23	674	yes	3.00	1.50	2.00	0.500	1,000	N	N	10	150	1.0	N	20	100
83PB037B	58 12 47	154 42 23	674	no	1.00	0.20	1.50	0.100	150	<0.5	N	<10	<20	<1.0	N	N	<10
83RJ119	58 13 20	154 42 15	675	yes	5.00	1.00	1.50	0.500	700	N	N	<10	200	<1.0	N	20	50
83RJ118A	58 13 28	154 42 30	676	yes	3.00	1.50	1.50	0.500	700	N	N	<10	500	N	N	30	100
83RJ118B	58 13 28	154 42 30	676	yes	1.00	0.15	0.20	0.100	100	<0.5	N	N	50	N	N	N	<10
86RJ121B	58 13 50	154 43 22	677	yes	3.00	0.70	0.05	0.500	150	2.0	N	30	100	N	N	10	20
86RJ121A	58 13 50	154 43 22	677	no	0.50	0.20	0.05	0.020	20	1.0	N	30	20	<1.0	N	5	<10
84EM036C	58 13 27	154 43 59	678	yes	3.00	1.50	0.70	0.500	500	N	N	<10	200	N	N	20	50
84EM037C	58 13 31	154 44 35	679	yes	5.00	1.50	1.50	0.500	500	N	N	<10	300	N	N	20	15
84EM038C	58 13 54	154 45 3	680	yes	2.00	0.50	0.07	0.200	200	0.7	N	<10	200	N	N	7	<10
84RJ117B	58 16 19	154 44 41	682	yes	3.00	1.00	0.70	0.200	200	N	N	10	100	N	N	<5	50
84EM033A	58 17 42	154 45 12	683	yes	5.00	1.50	1.50	0.500	700	N	N	<10	300	N	N	15	10
84EM033B	58 17 42	154 45 12	683	no	2.00	1.00	1.00	0.200	700	N	N	10	500	N	N	15	30
84EM032A	58 17 56	154 47 18	685	yes	3.00	1.50	1.00	0.300	500	N	N	10	300	N	N	20	100
84EM032B	58 17 56	154 47 18	685	yes	5.00	2.00	1.50	0.500	700	N	N	<10	500	<1.0	N	20	150
84EM031C	58 16 8	154 48 37	686	yes	2.00	1.50	1.00	0.150	500	N	N	<10	300	N	N	10	150
84EM039C	58 14 57	154 48 48	687	yes	3.00	0.70	0.05	0.300	500	2.0	N	10	700	N	N	<5	20
84EM040C	58 14 42	154 48 55	688	yes	5.00	1.00	2.00	0.200	500	1.0	N	50	100	N	N	20	100
84RJ120E	58 13 20	154 48 59	689	yes	2.00	1.00	1.00	0.200	700	N	N	<10	100	N	N	7	150
84RJ120D	58 13 20	154 48 59	689	yes	2.00	0.50	0.07	0.300	100	<0.5	N	<10	500	N	N	N	10
84RJ120B	58 13 20	154 48 59	689	no	3.00	1.00	0.70	0.300	300	N	N	<10	500	<1.0	N	10	10
83PB038D	58 11 17	154 44 56	690	yes	1.50	1.00	1.00	0.200	300	N	N	<10	300	1.5	N	5	20
83PB038A	58 11 17	154 44 56	690	no	3.00	1.00	1.00	0.500	700	N	N	10	200	1.0	N	20	20
83PB038C	58 11 17	154 44 56	690	no	5.00	2.00	3.00	0.500	700	N	N	10	200	1.0	N	30	70
83RJ122A	58 10 19	154 45 37	691	yes	7.00	3.00	2.00	0.700	1,000	N	N	<10	300	<1.0	N	30	300
83RJ122B	58 10 19	154 45 37	691	no	5.00	0.50	2.00	0.500	500	N	N	10	200	<1.0	N	15	<10
83RJ121	58 10 21	154 45 42	692	yes	2.00	1.00	2.00	0.500	1,000	N	N	15	500	1.0	N	15	10
84RJ135N	58 10 0	154 33 30	693	yes	5.00	5.00	0.70	0.500	1,000	N	N	50	500	N	N	7	100
84RJ135O	58 10 0	154 33 30	693	yes	5.00	2.00	2.00	1.000	1,000	N	N	50	1,500	1.0	N	20	10
84RJ135P	58 10 0	154 33 30	693	yes	5.00	2.00	2.00	0.500	1,000	N	N	20	300	<1.0	N	50	200
84RJ135Q	58 10 0	154 33 30	693	yes	7.00	5.00	3.00	0.500	1,000	N	N	20	700	<1.0	N	50	70
84RJ135L	58 10 0	154 33 30	693	yes	2.00	1.50	1.00	0.200	300	N	N	<10	300	<1.0	N	15	100
84RJ135R	58 10 0	154 33 30	693	yes	10.00	3.00	2.00	1.000	1,000	N	1,000	20	500	<1.0	N	30	70
84RJ135S	58 10 0	154 33 30	693	yes	7.00	5.00	1.00	0.500	1,000	N	N	10	50	N	N	50	300
84RJ135T	58 10 0	154 33 30	693	yes	1.50	1.00	<0.05	0.200	500	0.5	N	50	70	N	N	5	30
84RJ135K	58 10 0	154 33 30	693	yes	2.00	2.00	0.05	0.200	300	N	N	100	70	N	N	10	70
84RJ135I	58 10 0	154 33 30	693	yes	3.00	1.50	0.70	0.300	200	N	300	100	100	N	N	10	50
84RJ135H	58 10 0	154 33 30	693	yes	2.00	1.00	0.50	0.200	500	<0.5	N	<10	150	<1.0	N	15	70

Table 12. Tertiary volcanic and hypabyssal rocks, continued

SAMPLE	Cu-S	La-S	Mo-S	Nb-S	Ni-S	Pb-S	Sc-S	Sn-S	Sr-S	V-S	Y-S	Zn-S	Zr-S	Au-AA	Hg-INST	As-AA	Zn-AA	Ag-AA	Cd-AA	Bi-AA	Sb-AA
83PB020A	20	N	N	N	20	10	20	N	300	150	50	N	150	--	--	N	30	--	N	N	N
83RJ077	10	N	N	N	20	10	20	N	200	200	30	N	100	--	--	N	25	--	<0.1	N	N
83RJ078B	N	N	N	N	<5	20	10	N	200	100	10	200	200	N	N	N	45	--	<0.1	N	N
83RJ078A	10	N	N	N	10	15	20	N	300	200	20	N	100	--	--	10	15	<0.05	<0.1	N	N
83RJ079	10	N	7	N	30	15	30	N	500	300	50	N	200	N	N	40	30	--	<0.1	N	N
83PB019B	20	N	N	N	50	10	30	N	300	200	30	N	100	N	N	20	35	--	N	N	N
83PB022B	30	N	N	N	20	10	20	N	700	300	20	N	70	--	N	20	80	N	0.2	N	N
83PB021	20	N	N	N	20	10	20	N	200	150	30	N	150	--	--	N	45	--	N	N	N
83RJ080	15	N	N	N	15	15	10	N	100	150	20	N	150	--	--	<10	55	--	0.2	N	N
83RJ096B	15	N	N	N	50	10	20	N	N	200	20	N	100	--	0.02	<10	50	0.10	0.1	N	N
83RJ096A	15	N	30	N	5	<10	7	N	N	100	N	N	50	N	N	40	N	--	N	N	N
83RJ120	10	N	15	N	5	15	15	N	500	150	20	N	200	--	0.04	30	<5	N	N	4	N
83PB037A	20	N	N	N	50	<10	20	N	500	200	30	N	150	--	--	N	50	--	N	N	N
83PB037B	<5	N	15	N	10	N	<5	N	N	150	N	N	30	--	--	N	5	--	N	N	N
83RJ119	20	N	N	N	30	15	20	N	300	150	50	N	200	--	--	N	40	--	N	N	N
83RJ118A	20	N	N	N	50	<10	20	N	300	200	30	N	200	--	--	N	40	--	N	N	2
83RJ118B	<5	N	<5	N	<5	N	N	N	N	70	N	N	50	--	--	50	10	--	N	N	N
86RJ121B	15	N	500	N	10	N	10	N	N	150	10	<200	100	--	0.02	160	20	--	0.1	N	2
86RJ121A	7	N	50	N	5	N	N	N	N	20	N	<200	10	--	N	30	<5	--	N	N	N
84EM036C	50	N	<5	N	30	<10	20	N	300	100	20	N	100	--	N	N	45	--	N	N	N
84EM037C	20	N	N	N	15	<10	30	N	500	100	30	N	100	--	N	N	40	--	N	N	N
84EM038C	10	N	50	N	5	<10	15	N	<100	100	10	N	70	0.10	0.14	210	25	--	N	N	2
84RJ117B	20	N	N	N	10	10	15	N	500	100	15	N	70	N	0.06	30	35	--	N	N	N
84EM033A	30	N	N	N	5	15	30	N	500	100	30	N	100	--	N	N	40	--	N	N	N
84EM033B	20	N	N	N	10	15	15	N	300	100	20	N	70	--	N	N	60	--	N	N	N
84EM032A	50	N	N	N	50	20	20	N	700	100	30	N	100	--	N	20	65	--	N	N	N
84EM032B	70	N	N	N	100	15	30	N	700	100	30	N	100	--	N	N	65	--	N	N	N
84EM031C	20	N	N	N	30	<10	15	N	500	100	20	N	100	--	N	N	35	--	N	N	N
84EM039C	30	N	20	N	5	15	15	N	100	100	15	N	100	N	N	70	30	--	N	N	N
84EM040C	70	N	N	N	70	10	15	N	500	100	15	N	70	N	N	20	35	--	N	N	N
84RJ120E	20	N	<5	N	30	<10	15	N	<100	100	15	N	100	N	0.26	30	25	--	N	N	N
84RJ120D	7	N	5	N	N	<10	15	N	N	150	20	N	150	N	0.42	10	10	--	N	N	6
84RJ120B	20	N	N	N	7	<10	15	N	300	100	30	N	100	--	N	10	55	--	N	N	N
83PB038D	20	N	N	N	15	10	15	N	200	100	30	N	150	--	--	N	25	--	N	N	N
83PB038A	20	N	N	N	20	N	20	N	300	100	20	N	150	--	--	N	25	--	N	N	N
83PB038C	30	N	N	N	50	10	30	N	700	200	30	N	150	--	--	N	25	--	N	N	N
83RJ122A	20	N	5	N	70	10	30	N	500	200	50	N	150	--	0.80	30	50	N	<0.1	N	N
83RJ122B	20	N	N	N	10	<10	15	N	500	200	15	N	100	--	--	N	80	--	N	N	2
83RJ121	10	N	N	N	5	15	20	N	300	150	70	N	200	--	N	20	50	N	0.1	N	N
84RJ135N	50	N	<5	N	10	30	50	N	700	300	20	N	100	N	0.08	10	50	--	N	N	N
84RJ135O	50	N	N	<20	5	50	30	N	700	200	100	<200	300	--	N	<10	60	--	N	N	N
84RJ135P	70	N	N	N	100	10	50	N	500	200	20	<200	100	N	0.10	<10	40	--	N	N	N
84RJ135Q	20	N	N	N	50	20	50	N	700	200	50	<200	100	--	N	<10	45	--	N	N	N
84RJ135L	20	N	N	N	50	<10	15	N	300	100	30	N	100	--	N	<10	45	--	<0.1	N	N
84RJ135R	100	N	<5	N	30	50	30	N	1,000	300	50	<200	200	N	0.02	800	65	--	N	N	<2
84RJ135S	100	N	N	N	100	<10	30	N	500	200	30	<200	50	--	N	30	35	--	N	N	N
84RJ135T	50	N	10	N	10	<10	10	N	N	50	<10	<200	100	N	N	<10	15	--	N	N	N
84RJ135K	20	N	N	N	10	N	20	N	<100	150	10	N	50	N	N	20	5	--	N	N	N
84RJ135I	30	N	N	N	15	<10	20	N	200	150	15	N	50	N	N	560	45	--	N	N	10
84RJ135H	20	N	N	N	30	70	15	N	200	100	15	N	50	N	N	10	100	--	0.7	N	N

Table 12. Tertiary volcanic and hypabyssal rocks, continued

SAMPLE	LATITUDE	LONGITUDE	MAP NO.	ALTERED?	Fe%-S	Mg%-S	Ca%-S	Ti%-S	Mn-S	Ag-S	As-S	B-S	Ba-S	Be-S	Bi-S	Co-S	Cr-S
84RJ135G	58 10 0	154 33 30	693	yes	0.05	0.05	0.20	0.007	50	N	N	<10	<20	N	N	N	N
84RJ135F	58 10 0	154 33 30	693	yes	3.00	2.00	1.50	0.300	500	N	N	10	100	N	N	20	100
84RJ135E	58 10 0	154 33 30	693	yes	3.00	2.00	1.00	0.200	500	N	N	15	70	N	N	20	70
84RJ135D	58 10 0	154 33 30	693	yes	7.00	5.00	5.00	0.500	1,500	N	N	10	300	<1.0	N	50	200
84RJ135C	58 10 0	154 33 30	693	yes	5.00	5.00	0.70	0.500	1,000	N	N	30	1,500	<1.0	N	30	500
84RJ135B	58 10 0	154 33 30	693	yes	5.00	2.00	2.00	0.500	1,500	<0.5	N	50	300	N	N	20	50
84RJ135A	58 10 0	154 33 30	693	yes	3.00	1.50	1.00	0.200	500	<0.5	N	<10	<20	N	N	10	30
84RJ135M	58 10 0	154 33 30	693	yes	5.00	3.00	0.10	0.200	700	N	N	100	100	N	N	N	100
83RJ097A	58 10 4	154 42 55	695	yes	1.00	2.00	2.00	0.300	500	N	N	10	700	N	N	N	20
83RJ097C	58 10 4	154 42 55	695	no	0.10	0.05	<0.05	0.005	15	10.0	N	<10	N	N	N	N	N
83RJ097G	58 10 4	154 42 55	695	yes	3.00	3.00	0.10	0.500	300	N	N	15	150	N	N	N	70
83RJ097B	58 10 4	154 42 55	695	yes	5.00	3.00	5.00	0.500	1,500	N	N	<10	150	N	N	50	100
84EM051B	58 9 55	154 48 30	696	yes	1.50	0.20	0.50	0.700	100	N	N	30	1,500	<1.0	N	5	<10
84EM051A	58 9 55	154 48 30	696	no	2.00	1.50	1.00	0.200	500	N	N	<10	300	N	N	15	150
84RJ137C	58 9 2	154 49 58	697	yes	3.00	1.50	1.00	0.200	300	N	N	20	70	N	N	20	100
84RJ137D	58 9 2	154 49 58	697	yes	2.00	1.50	1.00	0.200	300	N	N	10	50	N	N	20	30
83PB040	58 10 6	154 50 33	698	no	3.00	1.00	1.00	0.500	500	N	N	15	500	<1.0	N	20	30
83PB039	58 11 10	154 50 56	699	no	3.00	1.50	1.50	0.300	700	N	N	<10	300	1.0	N	20	50
83RJ127	58 10 21	154 52 4	700	no	2.00	0.50	0.50	0.500	500	N	N	N	200	<1.0	N	10	N
83RJ126	58 10 20	154 52 19	701	yes	2.00	0.70	0.70	0.500	500	N	N	15	300	<1.0	N	15	N
83RJ124	58 10 30	154 52 37	702	yes	3.00	1.50	2.00	0.500	700	N	N	<10	300	<1.0	N	30	100
83RJ123	58 10 48	154 53 0	703	no	3.00	1.50	2.00	0.300	500	N	N	<10	300	N	N	20	50
83JM039A	58 6 33	154 54 12	704	no	3.00	1.50	2.00	0.700	500	N	N	70	1,000	1.0	N	20	70
83PB042	58 7 24	154 56 14	711	no	2.00	2.00	1.50	0.500	500	0.7	N	10	200	1.0	N	30	70
83DT010A	58 7 54	154 58 20	713	no	3.00	1.50	1.00	0.200	500	N	N	10	150	N	N	15	10
83RJ107A	58 10 17	154 58 37	722	no	5.00	1.50	1.00	0.500	700	N	N	10	1,000	<1.0	N	30	70
84DT116	58 10 55	154 57 32	726	no	3.00	2.00	1.50	0.300	500	N	N	<10	500	N	N	20	200
83PB033	58 11 1	154 59 9	730	no	7.00	2.00	1.50	0.500	1,000	N	N	<10	300	<1.0	N	30	70
84DT119	58 11 11	154 58 21	732	yes	2.00	0.70	1.00	0.200	300	N	N	20	200	N	N	7	N
83RJ130A	58 12 19	154 56 49	738	no	3.00	1.50	2.00	0.500	700	N	N	10	500	<1.0	N	30	50
83RJ128	58 12 49	154 54 39	739	no	3.00	1.00	2.00	0.500	1,000	N	N	<10	300	<1.0	N	30	30
84RJ124E	58 12 56	154 55 21	740	no	3.00	1.50	1.00	0.200	300	<0.5	N	<10	500	N	N	15	150
83PB041A	58 13 32	154 55 2	741	no	5.00	1.50	2.00	0.500	1,000	N	N	<10	150	N	N	30	50
86JM214B	58 24 0	154 42 10	749	no	10.00	5.00	3.00	0.500	700	N	N	<10	50	N	N	50	500
86JM215	58 24 19	154 42 25	751	no	7.00	2.00	3.00	0.300	500	N	N	<10	300	N	N	15	30
86JM216	58 25 40	154 42 0	752	no	10.00	2.00	2.00	0.300	500	N	N	<10	300	N	N	20	100
86RJ078	58 21 56	154 45 30	753A	no	10.00	1.50	7.00	0.700	2,000	N	N	100	500	<1.0	N	30	100
87RJ045	58 21 57	154 47 32	753B	no	0.70	0.30	0.20	0.100	150	N	N	10	100	N	N	<10	<10
86JM217	58 22 39	154 45 31	754	no	10.00	2.00	3.00	0.500	1,000	N	N	15	300	N	N	20	50
86RJ125F	58 20 16	154 59 31	778	yes	2.00	0.15	10.00	0.100	700	5.0	N	N	N	N	N	20	20
86RJ125C	58 20 16	154 59 31	778	yes	7.00	1.00	7.00	0.150	2,000	5.0	N	20	<20	N	N	10	50
86RJ125E	58 20 16	154 59 31	778	no	7.00	1.50	3.00	0.200	700	N	N	10	200	N	N	20	20
86RJ125G	58 20 16	154 59 31	778	no	20.00	0.50	5.00	0.200	2,000	20.0	N	<10	<20	N	N	200	50
86RJ126A	58 19 22	155 0 18	779	yes	10.00	3.00	2.00	0.500	300	N	N	15	200	N	N	20	150
86RJ060	58 23 11	155 9 39	780B	yes	3.00	1.50	5.00	0.300	1,000	N	N	10	500	<1.0	N	20	30
87RJ039	58 23 49	155 10 21	780C	yes	3.00	1.50	3.00	0.300	700	N	N	10	700	<1.0	N	20	30
85DT229	58 24 25	155 15 1	780D	yes	7.00	3.00	10.00	0.500	1,000	N	N	N	150	N	N	50	300
86RJ063	58 27 30	155 13 8	780F	yes	3.00	2.00	5.00	0.300	1,000	N	N	10	700	<1.0	N	20	70
87RJ038	58 26 40	155 15 18	780G	yes	3.00	1.50	3.00	0.300	700	N	N	10	700	<1.0	N	20	70
86RJ128B	58 13 52	155 17 30	798	yes	10.00	2.00	2.00	0.500	2,000	<0.5	N	15	700	N	N	20	20

Table 12. Tertiary volcanic and hypabyssal rocks, continued

SAMPLE	Cu-S	La-S	Mo-S	Nb-S	Ni-S	Pb-S	Sc-S	Sn-S	Sr-S	V-S	Y-S	Zn-S	Zr-S	Au-AA	Hg-INST	As-AA	Zn-AA	Ag-AA	Cd-AA	Bi-AA	Sb-AA
84RJ135G	7	N	N	N	N	N	N	N	N	10	N	N	N	--	N	<10	<5	--	N	N	N
84RJ135F	7	N	N	N	50	<10	20	N	300	150	20	N	70	--	N	10	30	--	N	N	N
84RJ135E	20	N	N	N	20	<10	30	N	500	150	15	N	50	N	N	50	65	--	N	N	<2
84RJ135D	100	N	N	N	70	15	50	N	1,000	200	50	<200	100	--	N	<10	60	--	N	N	N
84RJ135C	100	N	N	N	50	10	50	N	1,000	200	20	N	100	N	0.10	<10	60	--	N	N	N
84RJ135B	100	N	N	N	20	20	30	N	500	200	30	<200	100	--	N	<10	55	--	N	N	N
84RJ135A	30	N	N	N	15	<10	20	N	100	150	15	N	70	0.05	0.04	10	25	--	N	N	N
84RJ135M	50	N	N	N	7	<10	20	N	N	150	10	N	50	0.20	N	10	15	--	N	N	N
83RJ097A	7	N	<5	N	10	N	15	15	300	200	20	N	150	--	--	<10	20	N	N	N	N
83RJ097C	100	N	N	N	N	10	N	N	N	30	N	N	N	5.00	0.15	N	N	--	N	N	N
83RJ097G	10	N	N	N	30	N	20	10	N	200	20	N	100	--	--	<10	10	N	N	N	N
83RJ097B	20	N	N	N	20	<10	50	N	1,000	300	20	N	50	--	--	<10	35	N	<0.1	N	N
84EM051B	<5	N	70	N	<5	20	20	N	300	70	50	N	300	N	N	20	10	--	N	N	N
84EM051A	30	N	N	N	30	<10	15	N	200	100	20	N	100	--	N	<10	40	--	<0.1	N	N
84RJ137C	20	N	N	N	30	<10	20	N	500	150	20	N	50	--	N	30	15	--	N	N	N
84RJ137D	15	N	N	N	30	<10	15	N	300	100	15	N	30	--	N	10	35	--	N	N	N
83PB040	10	N	N	N	20	<10	20	N	200	150	30	N	150	--	--	N	60	--	N	N	2
83PB039	15	N	N	N	20	15	20	N	300	150	30	N	200	--	--	N	55	--	0.2	N	2
83RJ127	20	N	N	N	<5	N	20	N	200	100	50	N	150	--	--	N	70	--	N	N	N
83RJ126	10	N	N	N	7	<10	20	N	200	150	30	N	100	N	N	N	45	--	N	N	4
83RJ124	15	N	N	N	70	<10	20	N	300	150	30	N	150	--	--	N	30	--	N	N	N
83RJ123	15	N	N	N	30	10	20	N	300	150	20	N	100	--	--	N	40	--	<0.1	N	2
83JM039A	5	N	N	N	10	15	50	N	1,000	300	70	N	150	--	--	N	35	--	N	N	2
83PB042	50	N	N	N	30	20	30	N	500	200	30	N	150	N	N	N	45	--	N	N	2
83DT010A	15	N	N	N	20	N	10	N	500	100	N	N	50	--	--	N	60	--	0.1	N	N
83RJ107A	50	N	N	N	30	N	20	N	500	100	20	N	100	--	--	N	75	--	N	N	N
84DT116	30	N	N	N	70	<10	20	N	500	100	20	N	100	--	N	N	35	--	N	N	N
83PB033	20	N	N	N	30	N	20	N	500	200	20	N	50	--	--	N	30	--	N	N	N
84DT119	10	N	N	N	<5	50	10	N	700	70	20	N	100	N	N	N	30	--	N	N	N
83RJ130A	20	N	N	N	50	10	30	N	500	150	50	N	150	--	--	N	40	--	<0.1	N	2
83RJ128	20	N	N	N	20	<10	20	N	300	200	30	N	150	--	--	N	40	--	N	N	N
84RJ124E	30	N	N	N	50	<10	15	N	300	100	30	N	100	N	N	N	15	--	N	N	N
83PB041A	20	N	N	N	10	N	50	N	300	300	30	N	70	--	--	N	20	--	N	N	N
86JM214B	70	N	N	N	100	N	20	N	200	200	10	<200	50	--	0.06	N	40	--	N	N	N
86JM215	15	N	N	N	50	N	7	N	200	100	<10	N	70	--	N	N	40	--	0.1	N	N
86JM216	70	N	N	N	70	<10	7	N	300	200	<10	<200	100	--	N	N	45	--	N	N	N
86RJ078	100	20	5	N	70	20	20	N	700	200	50	200	150	--	<0.02	10	30	--	0.2	N	N
87RJ045	150	N	N	N	7	<10	N	N	N	30	N	N	30	N	--	10	35	0.1	0.1	N	N
86JM217	15	N	N	N	30	<10	10	N	500	200	15	<200	100	--	0.08	N	20	--	N	N	N
86RJ125F	5,000	N	N	N	10	<10	<5	N	200	50	<10	N	<10	--	<0.02	10	15	--	0.2	N	N
86RJ125C	5,000	N	<5	N	20	20	10	N	1,000	100	10	<200	70	--	N	<10	50	--	<0.1	N	N
86RJ125E	100	N	5	N	30	10	10	N	500	100	10	<200	70	--	<0.02	N	60	--	N	N	N
86RJ125G	>20,000	N	<5	N	70	10	10	N	1,000	100	10	200	30	--	N	N	50	--	0.9	N	N
86RJ126A	300	N	15	N	30	N	20	N	300	200	10	<200	70	--	N	N	15	--	N	N	N
86RJ060	50	<50	N	N	30	20	15	N	700	150	15	N	70	--	--	--	--	--	--	--	--
87RJ039	30	<50	N	N	30	20	15	N	1,000	150	15	N	100	--	--	--	--	--	--	--	--
85DT229	70	N	N	N	50	20	30	N	500	200	20	N	70	--	--	--	--	--	--	--	--
86RJ063	30	<50	N	N	30	20	20	N	1,000	150	20	N	100	--	--	--	--	--	--	--	--
87RJ038	30	N	N	N	20	20	20	N	1,000	150	15	N	100	--	--	--	--	--	--	--	--
86RJ128B	100	N	<5	N	5	<10	15	N	300	200	20	500	100	--	<0.02	N	850	--	2.0	N	N

Table 12. Tertiary volcanic and hypabyssal rocks, continued

SAMPLE	LATITUDE	LONGITUDE	MAP NO.	ALTERED?	Fe%-S	Mg%-S	Ca%-S	Ti%-S	Mn-S	Ag-S	As-S	B-S	Ba-S	Be-S	Bi-S	Co-S	Cr-S
86JM224	58 4 54	155 28 42	818	no	7.00	1.50	2.00	0.200	500	N	N	15	300	N	N	15	20
85RJ204	58 20 0	155 30 32	819	no	3.00	2.00	3.00	0.300	500	N	N	10	500	N	N	15	20
86DT278	58 18 55	155 32 54	820	no	7.00	2.00	2.00	0.200	700	N	N	10	200	N	N	15	15
85RJ203	58 17 19	155 37 25	824	no	3.00	2.00	3.00	0.200	300	N	N	<10	200	N	N	15	50
85DT219	58 19 7	155 34 33	821	no	3.00	2.00	2.00	0.300	500	N	N	10	300	N	N	15	20
85RJ174E	58 16 17	155 29 0	828	no	2.00	1.00	2.00	0.200	200	N	N	<10	300	N	N	20	20
85DT219B	58 18 59	155 34 39	822	no	3.00	2.00	3.00	0.300	500	N	N	<10	200	N	N	20	30
85RJ174B	58 16 17	155 29 0	828	no	2.00	1.00	2.00	0.200	150	N	N	10	500	N	N	<5	N
85DT220	58 18 20	155 34 48	823	no	3.00	1.50	2.00	0.300	500	N	N	10	300	N	N	20	20
86RJ124E	58 16 11	155 26 10	830	no	20.00	0.70	<0.05	0.100	200	50.0	N	<10	20	N	N	200	50
86RJ124E	58 16 11	155 26 10	830	no	5.00	0.50	0.50	0.300	3,000	1.0	N	30	200	1.0	N	500	30
86RJ124D	58 16 11	155 26 10	830	no	1.00	2.00	0.10	0.150	200	N	N	20	500	<1.0	N	5	<10
86RJ124D	58 16 11	155 26 10	830	no	2.00	1.50	0.50	0.150	100	<0.5	N	15	200	N	N	20	10
86RJ124A	58 16 11	155 26 10	830	no	5.00	2.00	3.00	0.300	200	N	N	30	700	N	N	10	30
86RJ124A	58 16 11	155 26 10	830	yes	5.00	3.00	5.00	0.300	200	<0.5	N	20	500	<1.0	N	20	50
86RJ124A	58 16 11	155 26 10	830	no	1.00	1.50	0.50	0.200	70	N	N	20	300	<1.0	N	5	20
86RJ124A	58 16 11	155 26 10	830	no	10.00	1.00	3.00	0.200	200	N	N	20	500	N	N	15	20
84RJ133C	58 7 50	155 27 11	850	no	3.00	1.00	1.50	0.300	500	N	N	10	300	N	N	15	N
84RJ128C	58 7 15	155 22 50	851	yes	3.00	1.00	1.00	0.300	700	N	N	20	150	<1.0	N	15	N
84JM124	58 4 43	155 48 55	904	no	10.00	3.00	2.00	0.700	1,000	N	N	30	1,000	<1.0	N	50	N
84JM125	58 5 7	155 49 55	907	no	7.00	3.00	2.00	0.700	1,000	N	N	20	500	N	N	50	10
84JM126	58 5 25	155 50 40	908	no	7.00	3.00	2.00	0.700	1,000	N	N	20	500	N	N	50	<10
84JM127	58 5 28	155 51 12	909	no	7.00	2.00	2.00	0.700	1,000	N	N	20	500	N	N	50	<10
84EM070C	58 23 8	155 40 12	920	no	7.00	3.00	3.00	0.500	1,000	N	N	20	1,000	N	N	50	70
84EM072B	58 23 14	155 40 53	921	no	5.00	3.00	2.00	0.500	1,000	N	N	20	1,000	N	N	50	100
84RJ160C	58 26 24	155 44 19	924	no	7.00	5.00	3.00	0.500	1,000	N	N	10	500	N	N	50	150
85RJ150	58 23 51	156 15 18	973	no	2.00	3.00	3.00	0.200	700	N	N	10	200	N	N	15	30

Table 12. Tertiary volcanic and hypabyssal rocks, continued

SAMPLE	Cu-S	La-S	Mo-S	Nb-S	Ni-S	Pb-S	Sc-S	Sn-S	Sr-S	V-S	Y-S	Zn-S	Zr-S	Au-AA	Hg-INST	As-AA	Zn-AA	Ag-AA	Cd-AA	Bi-AA	Sb-AA
86JM224	20	N	N	N	30	<10	7	N	500	100	<10	<200	50	--	0.04	N	30	--	N	N	N
85RJ204	20	N	N	N	20	<10	10	N	300	100	10	N	70	--	--	N	30	--	0.1	N	N
86DT278	20	N	N	N	30	N	10	N	300	100	N	<200	50	--	N	N	35	--	N	N	N
85RJ203	20	N	N	N	20	N	10	N	500	100	10	N	50	--	--	N	50	--	N	N	N
85DT219	20	N	N	N	20	<10	10	N	500	70	15	N	50	--	--	N	40	--	N	N	N
85RJ174E	7	N	N	N	20	N	10	N	500	70	<10	N	50	--	--	N	20	--	N	N	N
85DT219B	20	N	N	N	20	<10	10	N	700	100	<10	N	30	--	--	N	40	--	N	N	N
85RJ174B	10	N	N	N	5	N	10	N	500	100	15	N	50	--	--	N	15	--	N	N	N
85DT220	20	N	N	N	30	<10	15	N	700	100	10	N	50	--	--	N	40	--	N	N	N
86RJ124E	20,000	N	5	N	200	N	20	N	N	100	30	300	10	--	<0.02	50	230	--	3.8	6	N
86RJ124E	10,000	<20	100	N	50	200	20	N	N	100	50	2,000	50	--	0.24	40	1,900	--	10.0	N	50
86RJ124D	50	N	150	N	5	N	5	N	<100	70	N	<200	100	--	N	N	10	--	N	N	N
86RJ124D	700	N	<5	N	20	N	7	N	200	70	10	<200	70	--	<0.02	N	15	--	0.2	N	N
86RJ124A	700	N	2,000	N	20	N	10	N	<100	100	<10	N	20	--	<0.02	N	20	--	N	N	N
86RJ124A	2,000	N	100	N	30	<10	15	N	700	150	<10	<200	70	--	N	N	10	--	N	N	N
86RJ124A	100	N	N	N	15	N	7	N	N	70	N	<200	20	--	N	N	<5	--	N	N	N
86RJ124A	1,000	N	20	N	30	N	10	N	<100	100	N	<200	50	--	0.02	N	5	--	N	N	N
84RJ133C	20	N	N	N	5	<10	15	N	500	100	30	N	100	--	N	N	70	--	N	N	N
84RJ128C	10	N	N	N	5	<10	20	N	300	100	30	N	70	--	N	N	90	--	N	N	N
84JM124	70	N	N	N	<5	30	30	N	500	200	100	200	300	--	N	<10	40	--	N	N	N
84JM125	100	N	N	N	15	10	30	N	500	300	70	200	200	--	N	<10	30	--	N	N	N
84JM126	150	N	N	N	15	<10	30	N	500	300	70	200	200	N	N	10	25	--	N	N	N
84JM127	100	N	N	N	15	10	30	N	500	300	70	200	200	--	N	<10	10	--	N	N	N
84EM070C	7	N	N	N	20	50	20	N	1,000	200	30	<200	100	--	N	10	65	--	0.2	N	N
84EM072B	50	N	N	N	50	20	30	N	700	200	50	<200	100	--	N	<10	20	--	N	N	N
84RJ160C	20	N	N	N	70	20	30	N	700	200	30	<200	50	--	N	<10	40	--	N	N	N
85RJ150	70	N	N	N	10	<10	10	N	500	100	15	N	30	--	--	N	45	--	N	N	N

Table 13. Geochemical analyses of Tertiary sedimentary rocks, Mount Katmai study area

[For explanation see heading for table 7. Au, Cd, Sn, Sb, Th, W (by S), and Bi (S and AA) were not detected and are deleted from table 13. For statistical summary of data given in this table see table 24.]

SAMPLE	LATITUDE	LONGITUDE	MAP NO.	ALTERED?	Fe%-S	Mg%-S	Ca%-S	Ti%-S	Mn-S	Ag-S	As-S	B-S	Ba-S	Be-S	Co-S	Cr-S	Cu-S
85DT226	58 52 10	155 17 38	90	no	3.0	1.50	3.00	0.30	700	N	N	10	500	N	20	20	10
85RJ090A	58 55 33	155 6 27	104	yes	2.0	1.00	2.00	0.30	200	N	N	10	300	N	7	20	10
85RJ090B	58 55 33	155 6 27	104	yes	5.0	1.50	2.00	0.50	700	N	N	10	500	N	30	20	50
85JM167	58 57 41	153 31 48	248	no	7.0	3.00	1.00	0.50	1,500	N	N	20	1,000	1.0	30	150	30
85JM166	58 59 59	153 29 10	249	no	5.0	1.50	5.00	0.30	5,000	N	N	50	1,000	1.0	20	100	20
85DT201	58 57 54	153 24 19	252	yes	5.0	0.70	1.50	0.30	2,000	N	N	100	3,000	<1.0	5	N	15
85DT200	58 57 9	153 23 53	253	no	3.0	0.70	0.05	0.50	500	N	N	200	1,000	1.0	15	150	70
85JM165	58 56 7	153 22 35	254	no	7.0	3.00	2.00	0.30	2,000	N	N	30	200	1.0	30	150	20
85JM160	58 52 25	153 19 19	257	no	3.0	2.00	1.00	0.50	1,500	N	N	<10	500	1.0	20	15	10
85JM159B	58 52 25	153 19 30	258	no	5.0	3.00	1.00	0.30	1,000	N	N	20	500	1.0	30	20	15
85DT198	58 52 2	153 20 21	259	no	2.0	0.70	0.50	0.20	1,000	N	N	70	500	1.0	10	20	20
86RJ044B	58 49 11	153 25 43	262	no	7.0	1.50	0.20	0.15	500	N	N	100	200	<1.0	50	30	50
84RJ147C	58 45 3	153 28 47	266	yes	1.5	0.70	0.20	0.30	200	N	N	100	500	N	15	70	<5
84RJ154D	58 43 37	153 28 41	267C	no	5.0	0.70	0.50	0.20	2,000	N	N	15	300	<1.0	15	30	7
85JM163	58 43 37	153 28 39	267C	no	5.0	0.70	0.10	0.50	2,000	N	N	100	500	1.0	20	50	7
84JM115	58 41 38	153 30 24	268	no	2.0	1.00	0.70	0.15	200	N	N	15	300	N	10	20	15
84JM114	58 41 57	153 30 42	269	no	5.0	1.00	0.70	0.15	200	N	N	50	150	N	20	20	20
84JM113	58 42 15	153 30 59	270	no	5.0	1.00	<0.05	0.30	500	N	N	50	500	<1.0	20	150	20
84JM112	58 42 37	153 31 9	271	no	2.0	0.70	<0.05	0.15	500	N	N	50	500	<1.0	10	50	10
84YB080A	58 43 10	153 31 33	272	no	2.0	0.30	0.10	0.20	150	N	N	50	300	N	7	50	7
84EM064E	58 44 0	153 41 52	274	yes	7.0	2.00	0.50	0.50	1,500	0.5	N	100	1,000	2.0	10	100	100
84DT138	58 42 49	153 33 59	280	no	2.0	0.50	1.00	0.30	300	N	N	10	300	<1.0	10	70	30
84DT142	58 41 20	153 37 38	285	no	5.0	1.00	1.00	0.30	300	<0.5	N	15	700	N	15	50	10
84DT093	58 39 4	153 36 50	289	no	5.0	3.00	7.00	0.30	1,000	N	N	20	1,000	<1.0	50	200	70
84DT090	58 40 30	153 38 24	293	no	2.0	1.00	0.10	0.50	1,000	N	N	70	1,000	<1.0	20	50	5
84JM071B	58 39 32	153 40 32	294	no	7.0	0.70	<0.05	0.50	1,000	N	N	200	1,500	1.0	30	200	10
84JM071	58 39 32	153 40 32	294	no	2.0	0.50	0.10	0.30	1,000	N	N	200	1,000	1.0	20	50	20
84JM069	58 39 51	153 40 35	296	no	5.0	0.50	0.50	0.50	1,000	N	N	100	1,500	1.0	20	30	30
84JM068B	58 39 55	153 40 32	297	no	7.0	2.00	0.50	0.70	1,000	0.5	N	50	300	N	50	150	150
86RJ087B	58 40 36	153 39 35	298	yes	10.0	2.00	0.20	0.50	2,000	N	N	200	1,000	<1.0	20	200	70
86RJ087A	58 40 36	153 39 35	298	yes	20.0	1.50	0.50	0.10	500	N	N	10	70	N	15	20	200
84DT140	58 41 39	153 39 21	299	no	5.0	1.00	1.00	0.15	500	<0.5	N	30	300	<1.0	20	70	30
86JM181	58 41 15	153 42 5	300	no	10.0	1.50	0.20	0.20	2,000	N	N	1,000	500	N	20	70	10
86RJ052A	58 41 15	153 42 9	301	no	10.0	2.00	0.50	0.20	1,000	N	N	500	200	N	20	150	50
86RJ052D	58 41 15	153 42 9	301	no	10.0	1.00	0.05	0.30	700	N	N	>2,000	200	N	10	30	500
84RJ141E	58 40 13	153 43 31	302	yes	3.0	1.50	1.50	0.15	1,000	<0.5	N	10	300	N	20	30	50
84EM060B	58 41 12	153 45 12	305	no	2.0	1.00	1.00	0.20	300	N	N	50	1,000	N	15	50	20
84EM057E	58 40 58	153 47 8	306	no	3.0	1.00	1.00	0.30	500	<0.5	N	10	70	N	20	70	100
84RJ144E	58 41 45	153 50 5	314	yes	5.0	1.00	1.00	0.20	300	0.5	N	30	700	N	15	30	30
84EM062B	58 41 4	153 51 10	320	yes	3.0	1.50	0.50	0.30	300	N	N	30	500	<1.0	20	100	15
84RJ145A	58 40 4	153 53 22	321	yes	5.0	1.50	0.70	0.20	500	N	N	15	700	N	30	150	30
84RJ086A	58 38 57	153 46 25	325	yes	7.0	1.50	0.70	0.70	1,000	N	N	100	1,500	1.0	30	50	50
84RJ083B	58 38 45	153 48 5	327	yes	3.0	1.00	0.50	0.50	500	N	N	700	1,000	1.0	20	50	20
84DT143	58 29 37	154 0 11	350	no	3.0	1.00	1.00	0.20	500	N	N	10	500	N	10	70	15
84DT089	58 29 26	154 3 29	359	no	5.0	2.00	2.00	0.30	700	N	N	15	500	N	15	70	30
83PB009	58 27 17	154 13 9	441	no	5.0	1.50	2.00	0.50	500	<0.5	N	10	300	1.0	20	70	50
83JM044A	58 23 17	154 1 37	444B	no	2.0	1.50	1.00	0.30	500	N	N	<10	300	N	20	70	15
83DT003C	58 21 32	154 2 31	446	no	1.5	0.70	0.70	0.30	200	N	N	<10	150	1.0	5	<10	5
83DT003A	58 21 28	154 2 30	447	no	2.0	0.15	<0.05	0.30	500	N	N	70	300	1.0	10	30	7
84EM020D	58 22 12	153 14 31	459	yes	15.0	2.00	1.50	0.20	1,000	N	N	10	100	<1.0	30	70	70

Table 13. Tertiary sedimentary rocks, continued

SAMPLE	La-S	Mo-S	Nb-S	Ni-S	Pb-S	Sc-S	Sr-S	V-S	Y-S	Zn-S	Zr-S	Au-AA	Hg-INST	As-AA	Zn-AA	Cd-AA	Sb-AA
85DT226	N	N	N	10	<10	15	500	100	20	N	50	--	--	N	60	N	N
85RJ090A	N	N	N	10	N	10	200	100	20	N	50	--	--	N	50	N	N
85RJ090B	N	N	N	15	<10	15	300	150	20	N	70	--	--	N	95	N	N
85JM167	N	N	N	50	10	20	500	200	20	N	100	--	--	10	85	N	N
85JM166	N	N	N	20	10	15	300	200	30	N	100	--	--	10	65	N	N
85DT201	N	N	N	5	<10	20	300	150	15	N	70	--	--	N	40	N	N
85DT200	N	N	N	30	<10	20	<100	200	20	N	100	--	--	N	30	N	N
85JM165	N	N	N	50	<10	30	300	200	20	<200	50	--	--	N	100	N	N
85JM160	N	N	N	5	<10	20	500	150	20	<200	50	--	--	N	85	N	N
85JM159B	N	N	N	10	20	20	500	200	20	200	70	--	--	N	60	N	N
85DT198	N	N	N	20	<10	15	N	150	20	N	50	--	--	N	35	N	N
86RJ044B	N	5	N	50	<10	10	N	100	30	<200	100	--	<0.02	40	70	N	N
84RJ147C	N	N	N	30	<10	15	200	100	20	N	70	N	N	10	15	N	N
84RJ154D	N	N	N	20	<10	10	100	100	15	300	50	N	N	N	400	1.7	N
85JM163	N	N	N	30	<10	10	N	150	20	200	100	--	--	N	90	0.2	N
84JM115	N	N	N	30	<10	10	1,000	70	<10	N	30	--	N	N	45	N	N
84JM114	N	N	N	30	20	10	300	70	<10	N	50	--	N	N	35	N	N
84JM113	30	N	N	50	20	20	N	100	50	200	200	N	0.04	N	230	0.3	N
84JM112	N	N	N	30	<10	10	N	100	10	N	70	--	N	N	35	0.1	N
84YB080A	N	N	N	20	N	10	N	100	15	N	50	N	N	20	10	N	2
84EM064E	<20	N	<20	20	100	20	200	200	50	200	200	N	N	30	180	0.7	6
84DT138	N	N	N	20	15	20	500	100	20	N	100	--	N	<10	50	0.2	N
84DT142	N	N	N	15	30	20	200	100	20	N	100	N	N	20	200	1.0	N
84DT093	N	N	N	100	10	30	500	200	30	<200	70	--	--	<10	60	N	N
84DT090	N	N	N	30	70	15	N	100	10	<200	100	--	--	<10	160	0.2	N
84JM071B	N	N	N	50	<10	20	N	200	20	<200	200	--	--	<10	60	N	N
84JM071	N	N	N	20	20	15	N	150	50	N	150	--	--	<10	40	N	N
84JM069	N	N	N	10	50	20	500	200	50	200	150	N	--	30	270	0.7	N
84JM068B	N	N	N	50	20	30	500	300	30	200	100	N	--	<10	420	0.8	N
86RJ087B	20	N	N	70	10	15	<100	200	30	<200	150	--	N	10	65	0.2	2
86RJ087A	N	<5	N	20	<10	5	N	50	<10	<200	50	--	N	N	40	N	4
84DT140	N	N	N	30	<10	10	200	70	20	N	70	N	N	10	30	<0.1	N
86JM181	N	N	N	50	<10	15	N	200	10	200	100	--	0.04	N	180	N	N
86RJ052A	N	N	N	30	<10	10	<100	150	<10	200	50	--	0.04	120	110	<0.1	4
86RJ052D	N	20	N	20	<10	15	N	100	20	200	100	--	<0.02	80	65	N	4
84RJ141E	N	N	N	20	15	15	700	100	20	<200	50	.05	N	N	25	0.1	N
84EM060B	N	N	N	20	<10	20	300	100	20	N	70	--	0.02	N	35	N	N
84EM057E	N	N	N	20	20	15	300	70	20	N	100	N	N	<10	85	0.3	N
84RJ144E	N	N	N	10	15	15	300	70	20	N	100	N	N	N	60	0.4	N
84EM062B	20	N	N	50	N	20	200	100	30	N	100	--	N	20	40	N	N
84RJ145A	50	N	N	70	10	20	200	150	30	N	100	--	N	N	90	N	N
84RJ086A	20	N	N	70	50	30	500	200	100	<200	200	--	--	<10	80	N	N
84RJ083B	N	N	N	30	50	15	100	150	30	<200	200	N	--	<10	40	<0.1	N
84DT143	N	N	N	15	<10	20	200	150	20	N	100	--	N	N	45	N	N
84DT089	N	N	N	20	10	30	200	200	30	N	200	--	--	N	50	<0.1	N
83PB009	N	N	N	50	20	20	200	200	30	<200	100	N	N	20	140	0.1	N
83JM044A	N	N	N	50	10	20	500	150	10	N	70	--	--	N	50	N	N
83DT003C	N	N	N	7	<10	7	300	70	20	N	200	--	--	N	45	0.1	N
83DT003A	N	N	N	30	10	10	N	150	20	N	70	--	--	N	65	0.2	2
84EM020D	N	N	N	50	15	20	200	150	30	N	100	N	0.06	N	75	<0.1	N

Table 13. Tertiary sedimentary rocks, continued

SAMPLE	LATITUDE	LONGITUDE	MAP NO.	ALTERED?	Fe%-S	Mg%-S	Ca%-S	Ti%-S	Mn-S	Ag-S	As-S	B-S	Ba-S	Be-S	Co-S	Cr-S	Cu-S
84EM020F	58 22 12	153 14 31	459	yes	5.0	2.00	2.00	0.30	300	N	N	N	300	N	30	100	30
83RJ046A	58 21 30	154 17 50	466	yes	5.0	1.50	2.00	0.50	500	N	N	<10	200	N	30	70	20
83RJ046B	58 21 30	154 17 50	466	yes	2.0	1.00	2.00	0.30	700	N	N	10	150	<1.0	20	30	15
84EM024I	58 21 32	154 18 19	467	yes	5.0	2.00	1.00	0.30	500	N	N	20	500	N	30	200	50
84RJ064B	58 21 34	154 22 5	471D	yes	10.0	0.70	0.10	0.50	500	N	N	200	200	N	50	50	200
83PB007	58 21 52	154 21 38	471B	no	3.0	1.00	0.70	0.30	500	N	N	30	500	1.5	30	70	100
84RJ066B	58 20 57	154 25 29	476	yes	7.0	1.50	0.10	0.50	1,000	N	N	200	1,000	1.0	15	200	70
83RJ165	58 11 34	154 11 20	509	no	2.0	1.00	1.00	0.20	1,500	<0.5	N	150	300	1.0	20	20	7
84RJ073G	58 11 34	154 11 11	510	no	10.0	1.00	0.70	0.30	2,000	N	N	50	500	1.0	50	20	<5
84RJ073F	58 11 34	154 11 11	510	no	2.0	1.00	1.50	0.50	1,000	N	N	200	1,000	1.0	20	50	<5
84RJ073E	58 11 34	154 11 11	510	no	3.0	1.00	1.00	0.30	500	N	N	300	1,000	1.0	20	50	<5
84RJ073D	58 11 34	154 11 11	510	no	5.0	1.50	0.50	0.70	700	N	N	500	2,000	1.0	20	100	5
84RJ073C	58 11 34	154 11 11	510	no	10.0	2.00	1.00	0.15	>5,000	N	N	200	1,000	3.0	100	30	70
84RJ073B	58 11 34	154 11 11	510	no	5.0	2.00	0.70	0.30	2,000	N	N	500	1,500	<1.0	20	200	<5
84RJ073A	58 11 34	154 11 11	510	no	7.0	2.00	0.70	0.50	2,000	N	N	300	1,000	<1.0	50	50	70
83RJ163	58 12 17	154 13 8	511	no	2.0	0.50	0.10	0.50	200	N	N	200	500	<1.0	20	100	15
83AL039A	58 9 10	154 18 50	568	yes	2.0	1.00	0.20	0.50	200	N	N	150	1,500	1.0	20	150	20
84DT084	58 9 40	154 15 10	569	no	5.0	2.00	1.00	0.50	700	N	N	150	2,000	<1.0	30	50	70
84DT082	58 9 2	154 14 19	571	no	3.0	0.70	0.10	0.50	500	N	N	150	700	1.0	30	100	20
83RJ095	58 7 26	154 23 12	574	no	1.5	0.30	0.50	0.20	500	N	N	100	500	<1.0	15	50	7
83RJ104B	58 8 45	154 25 37	576	yes	3.0	2.00	1.50	0.50	700	N	N	15	300	1.0	30	50	50
83RJ104A	58 8 45	154 25 37	576	yes	3.0	2.00	3.00	0.50	1,000	N	N	10	1,000	<1.0	20	50	15
84YB061	58 5 34	154 26 46	583	no	2.0	1.50	2.00	0.15	1,000	N	N	50	300	<1.0	7	50	10
83PB024	58 5 42	154 34 55	597	no	5.0	1.50	1.50	0.50	1,000	0.5	N	150	1,500	2.0	20	70	20
83PB025	58 6 51	154 33 56	599	no	7.0	2.00	1.00	0.70	300	N	200	300	200	N	50	100	70
83RJ086	58 6 43	154 36 35	602	no	1.0	0.50	0.15	0.70	300	N	N	300	1,000	2.0	30	150	<5
83DT036A	58 3 0	154 31 52	603	yes	1.5	1.00	0.70	0.20	500	N	N	10	500	N	15	20	10
83DT038A	58 2 36	154 33 19	604	yes	3.0	0.50	0.50	0.30	1,000	N	N	100	700	2.0	15	70	20
83DT025A	58 1 28	154 35 0	608	no	5.0	1.50	1.50	0.50	1,000	N	N	50	1,500	N	30	50	10
83JM015A	58 1 39	154 35 7	609	no	1.0	0.20	0.50	0.15	300	N	N	50	50	<1.0	N	<10	N
83JM014A	58 2 31	154 36 36	610	no	2.0	0.10	0.07	0.20	300	N	N	50	500	N	10	50	7
83RJ055	58 3 42	154 35 39	614	no	3.0	1.50	1.50	0.30	500	N	N	10	300	1.0	20	50	15
83RJ088	58 4 45	154 40 56	617	no	5.0	1.00	0.50	0.50	500	N	N	150	500	<1.0	30	150	20
83RJ134A	58 6 30	154 42 49	624	yes	7.0	1.50	0.50	0.50	300	N	N	100	1,000	<1.0	30	200	20
83PB043A	58 5 56	154 45 14	628	yes	7.0	2.00	1.50	1.00	1,500	N	N	10	1,000	<1.0	50	70	30
83PB043B	58 5 56	154 45 14	628	yes	2.0	1.00	0.20	0.30	200	N	N	15	500	1.0	20	N	7
84EM054C	58 5 40	154 47 42	657	no	1.0	1.00	1.00	0.15	50	N	N	30	700	<1.0	<5	10	20
83DT044A	58 5 44	154 48 1	658	no	5.0	0.50	1.50	0.70	1,000	N	N	100	500	1.5	30	30	20
84DT114	58 10 51	154 56 50	724	no	3.0	1.00	0.50	0.20	300	N	N	<10	500	N	10	100	15
84DT125	58 0 8	155 1 33	794B	no	1.0	0.50	0.70	0.20	200	N	N	15	1,500	<1.0	10	30	15

Table 13. Tertiary sedimentary rocks, continued

SAMPLE	La-S	Mo-S	Nb-S	Ni-S	Pb-S	Sc-S	Sr-S	V-S	Y-S	Zn-S	Zr-S	Au-AA	Hg-INST	As-AA	Zn-AA	Cd-AA	Sb-AA
84EM020F	N	N	N	70	10	20	300	200	20	N	100	--	--	N	65	N	N
83RJ046A	N	N	N	30	<10	30	500	200	20	N	70	--	--	N	70	N	N
83RJ046B	N	N	N	20	10	20	300	150	30	N	150	--	--	N	65	0.1	N
84EM024I	N	N	N	70	10	20	700	100	20	N	100	--	N	N	45	N	N
84RJ064B	N	5	N	15	50	20	N	200	30	200	200	N	--	N	90	N	N
83PB007	N	N	N	70	10	15	200	150	20	N	100	--	--	N	50	N	2
84RJ066B	<20	N	N	70	30	20	200	200	50	<200	200	N	--	N	110	N	N
83RJ165	N	N	N	30	15	10	200	100	N	N	30	--	--	N	70	0.2	N
84RJ073G	N	N	N	70	20	20	N	200	70	200	100	N	--	<10	170	0.3	N
84RJ073F	N	N	N	15	50	15	700	200	50	N	150	N	--	<10	45	<0.1	N
84RJ073E	N	N	N	15	50	20	500	200	20	N	100	N	--	N	35	N	N
84RJ073D	N	N	N	50	30	30	500	200	20	<200	200	0.05	--	N	40	N	N
84RJ073C	N	N	N	50	50	20	500	200	50	500	50	N	--	N	65	0.5	N
84RJ073B	N	N	N	30	20	20	500	200	20	N	150	N	--	N	35	N	N
84RJ073A	N	N	N	50	70	30	200	200	30	<200	150	0.05	--	N	80	0.1	N
83RJ163	N	N	N	50	10	20	100	150	10	N	150	N	0.04	N	95	<0.1	N
83AL039A	N	N	N	50	15	20	<100	200	20	N	200	--	--	N	60	0.1	N
84DT084	N	N	N	50	30	20	1,000	200	50	<200	200	--	--	<10	65	N	N
84DT082	N	N	<20	50	50	15	N	150	30	<200	150	--	--	<10	55	<0.1	N
83RJ095	N	N	N	30	20	10	N	150	10	N	70	--	--	N	50	N	N
83RJ104B	N	N	N	50	10	20	500	200	20	N	150	--	--	N	50	<0.1	N
83RJ104A	N	N	N	30	15	20	700	200	30	N	150	--	--	10	40	N	N
84YB061	N	N	N	20	15	10	300	50	20	N	50	N	0.34	N	45	N	N
83PB024	50	10	N	50	30	20	200	150	50	N	150	N	N	N	85	0.1	N
83PB025	N	N	N	50	20	20	300	200	10	N	70	N	N	160	30	N	N
83RJ086	N	<5	N	50	15	30	200	300	30	N	150	N	N	N	35	<0.1	N
83DT036A	N	N	N	30	<10	10	200	100	N	N	50	--	--	N	45	N	N
83DT038A	N	N	N	30	15	20	300	150	30	N	150	--	--	N	110	N	N
83DT025A	N	N	N	15	10	30	300	300	30	N	100	--	--	N	60	N	N
83JM015A	N	N	N	N	N	10	200	100	N	N	50	--	--	N	95	N	N
83JM014A	N	N	N	20	15	15	150	150	N	N	70	--	--	N	50	N	N
83RJ055	N	N	N	30	10	15	500	100	10	N	100	--	--	N	45	N	N
83RJ088	N	N	N	50	30	20	150	200	20	N	100	--	--	N	75	N	N
83RJ134A	N	N	N	70	20	20	200	200	20	N	100	--	--	10	90	0.1	2
83PB043A	N	N	N	30	15	50	1,000	500	50	N	150	N	0.02	N	90	0.1	N
83PB043B	N	<5	N	10	20	15	<100	100	30	N	150	--	--	N	35	<0.1	4
84EM054C	N	N	N	20	N	10	500	70	10	N	70	N	0.06	<10	35	N	N
83DT044A	N	N	N	15	N	20	200	200	30	N	150	--	--	N	70	N	N
84DT114	N	N	N	20	<10	15	200	100	20	N	100	--	N	N	55	N	N
84DT125	N	N	N	30	10	10	1,500	100	20	N	50	N	N	20	35	N	N

Table 14. Geochemical analyses of Tertiary dikes, Mount Katmai study area

[For explanation see heading for table 7. As, Au, Bi, Cd, Nb, Sb, Th, and W (by S) were not detected and are deleted from table 14. For statistical summary of data given in this table see table 25.]

SAMPLE	LATITUDE	LONGITUDE	MAP NO.	ALTERED?	Fe%-S	Mg%-S	Ca%-S	Ti%-S	Mn-S	Ag-S	B-S	Ba-S	Be-S	Co-S	Cr-S	Cu-S	La-S
83RJ235A	58 51 51	156 10 32	4	no	7.00	3.00	2.00	0.5	1,000	N	10	500	N	50	200	70	N
83RJ236C	58 55 8	156 2 26	8	no	5.00	3.00	2.00	0.5	1,000	N	20	700	<1	50	150	50	N
86RJ058	58 45 37	154 56 21	130	no	10.00	2.00	3.00	0.5	1,000	N	20	2,000	<1	20	30	7	N
84JM131	58 38 8	154 59 13	140	no	5.00	2.00	1.00	0.3	1,000	N	100	1,500	<1	30	<10	<5	N
86YB313	58 54 45	154 3 39	195	no	20.00	2.00	5.00	1.0	2,000	N	50	700	<1	50	10	200	N
86JM208	58 39 25	154 14 35	224	no	15.00	3.00	3.00	0.7	700	N	10	70	N	50	150	100	N
84YB086	58 41 19	153 58 13	234	no	5.00	1.50	2.00	0.3	1,000	N	10	200	N	20	50	15	N
85JM164B	58 56 8	153 22 19	255	no	3.00	1.50	1.50	0.2	1,500	N	20	1,000	1	10	15	15	N
85JM162	58 43 39	153 29 22	267D	no	5.00	3.00	2.00	0.3	1,500	N	10	300	<1	20	50	20	N
84JM071C	58 39 32	153 40 32	294	no	5.00	2.00	2.00	0.5	1,000	N	70	500	N	30	50	50	N
84JM070	58 39 38	153 40 33	295	no	3.00	2.00	1.00	0.5	1,000	N	50	700	<1	20	20	10	N
86JM182B	58 43 18	153 50 50	312A	no	10.00	5.00	3.00	0.2	1,500	N	15	500	N	50	100	50	N
84RJ144C	58 41 45	153 50 5	314	yes	7.00	2.00	3.00	0.5	1,500	N	50	2,000	N	20	20	50	N
84YB074	58 39 16	153 55 18	323	no	5.00	2.00	1.50	0.3	700	N	15	300	N	20	50	15	N
84RJ068B	58 31 32	154 4 6	361	no	5.00	1.00	0.50	0.5	1,000	5.0	50	2,000	N	15	30	100	N
84YB018B	58 31 2	154 10 35	376	yes	3.00	0.50	0.05	0.5	100	1.0	50	1,500	<1	5	30	20	N
84RJ102D	58 19 33	154 14 29	456	no	5.00	2.00	1.00	0.5	700	N	<10	500	N	30	100	70	N
84EM026C	58 22 3	154 20 32	470	no	7.00	3.00	1.50	0.5	1,500	N	10	500	N	50	100	100	N
84EM026B	58 22 3	154 20 32	470	yes	5.00	1.00	0.50	0.5	1,000	N	20	2,000	<1	10	<10	5	N
84EM012G	58 16 24	154 29 34	537	yes	5.00	5.00	3.00	0.3	1,000	N	20	150	<1	30	300	70	N
83PB014A	58 13 53	154 34 58	550	no	0.07	<0.02	<0.05	0.5	N	N	N	N	N	N	<10	<5	N
83PB023B	58 6 21	154 36 11	598	no	3.00	1.00	1.50	0.3	700	N	20	300	N	30	50	30	N
83JM013A	58 3 30	154 55 45	645	no	5.00	2.00	1.50	0.5	500	N	20	200	N	30	200	20	N
83JM039B	58 6 32	154 54 12	704	no	3.00	1.50	2.00	0.5	500	N	10	300	<1	20	100	5	N
83RJ110	58 11 28	154 57 55	733	yes	3.00	1.00	1.00	0.5	1,000	N	<10	300	<1	20	N	20	N
85DT178A	58 15 32	155 31 59	825	no	3.00	2.00	1.50	0.5	700	0.5	10	700	<1	50	100	50	N
85JM143B	58 10 42	155 34 41	836	no	5.00	2.00	2.00	0.5	1,000	N	<10	700	<1	50	20	100	50
85JM140	58 5 51	155 44 41	896	no	5.00	1.50	2.00	0.5	1,500	N	10	500	<1	30	N	30	N

Table 14. Tertiary dikes, continued

SAMPLE	Mo-S	Ni-S	Pb-S	Sc-S	Sn-S	Sr-S	V-S	Y-S	Zn-S	Zr-S	Au-AA	Hg-INST	As-AA	Zn-AA	Cd-AA	Bi-AA	Sb-AA
83RJ235A	N	50	<10	50	N	500	300	30	<200	100	N	--	N	55	N	N	N
83RJ236C	N	50	20	30	N	1,000	200	30	<200	150	--	N	N	50	N	N	N
86RJ058	N	20	100	20	N	1,000	300	10	200	50	--	1.40	20	70	0.1	N	10
84JM131	N	10	20	15	N	700	150	30	<200	100	--	N	N	45	N	N	N
86YB313	<5	15	10	50	N	500	500	70	200	150	--	0.90	N	70	N	N	N
86JM208	N	30	<10	30	N	<100	300	30	200	70	--	0.06	N	45	N	N	N
84YB086	N	20	<10	20	N	700	100	15	N	50	--	N	N	50	N	N	N
85JM164B	N	10	10	10	N	300	100	20	<200	70	--	--	N	75	N	N	N
85JM162	N	20	<10	20	N	500	200	20	N	70	--	--	N	40	N	N	N
84JM071C	N	30	10	20	N	500	200	30	<200	100	--	--	<10	70	N	N	N
84JM070	N	15	20	20	N	1,000	200	20	N	150	--	--	10	85	N	N	N
86JM182B	<5	30	<10	15	N	500	200	10	200	50	--	0.02	N	85	0.2	N	N
84RJ144C	<5	15	50	20	N	500	200	30	<200	150	--	N	<10	30	N	N	<2
84YB074	N	15	<10	20	N	700	150	20	N	70	N	0.14	N	55	N	N	N
84RJ068B	10	7	50	20	N	100	100	30	<200	100	0.10	N	<10	10	N	N	N
84YB018B	10	5	50	10	50	N	100	<10	N	150	0.05	N	10	40	N	3	N
84RJ102D	N	20	<10	20	N	500	200	30	N	100	--	N	N	60	0.1	N	N
84EM026C	N	100	<10	30	N	1,500	200	30	<200	100	--	N	N	50	N	N	N
84EM026B	N	<5	<10	15	N	700	50	50	N	200	--	N	N	25	N	N	N
84EM012G	N	70	20	30	N	500	500	20	N	70	N	0.04	N	110	0.4	N	N
83PB014A	N	5	N	15	N	N	20	N	N	150	--	--	N	5	N	N	N
83PB023B	N	20	30	20	N	300	150	15	N	70	--	--	N	30	N	N	N
83JM013A	N	100	<10	20	N	200	200	20	N	100	--	--	N	30	N	N	N
83JM039B	15	50	<10	20	N	300	200	50	N	150	--	--	N	15	N	N	N
83RJ110	N	7	<10	20	N	200	100	30	N	150	--	--	N	95	N	N	N
85DT178A	N	50	<10	20	N	1,000	150	20	N	100	--	N	N	65	N	N	N
85JM143B	N	30	10	20	N	1,000	200	20	N	100	--	0.04	N	70	N	N	N
85JM140	N	<5	N	20	N	500	100	20	N	70	--	N	N	20	N	N	N

Table 15. Geochemical analyses of Quaternary and late Tertiary volcanic rocks, Mount Katmai study area

[For explanation see heading for table 7. As, Au, Bi, Cd, Sb, Th, and W (by S) were not detected and are deleted. For statistical summary of data given in this table see table 26.]

SAMPLE	LATITUDE	LONGITUDE	MAP NO.	ALTERED?	Fe%-S	Mg%-S	Ca%-S	Ti%-S	Mn-S	Ag-S	B-S	Ba-S	Be-S	Co-S	Cr-S	Cu-S	La-S	Mo-S
86DT237	58 45 49	153 56 50	219	no	7.0	2.0	2.0	0.20	1,000	N	20	200	N	50	100	50	N	N
85DT199	58 55 31	153 19 40	256	yes	3.0	2.0	2.0	0.20	1,000	N	<10	150	<1.0	20	<10	70	N	N
85DT197	58 51 32	153 19 29	260	no	5.0	3.0	2.0	0.30	1,500	N	10	200	<1.0	20	50	20	N	N
84JM111	58 42 57	153 32 59	277	no	5.0	1.0	0.1	0.70	300	N	70	700	N	20	150	<5	N	N
84DT095	58 38 4	153 35 29	287	no	5.0	5.0	5.0	0.50	1,000	N	20	500	N	50	150	100	N	N
84DT094	58 38 45	153 36 26	288	no	5.0	3.0	2.0	0.50	1,000	N	30	1,000	<1.0	30	<10	70	N	N
84RJ142D	58 39 24	153 37 49	291	no	3.0	1.5	1.0	0.20	700	N	10	200	N	20	50	30	N	N
84DT091	58 39 54	153 38 10	292A	no	5.0	3.0	2.0	0.50	1,000	N	20	500	N	30	70	100	N	N
83RJ051	58 30 0	154 13 20	395	no	5.0	2.0	3.0	0.50	1,000	N	<10	200	N	30	50	30	N	N
83PB054B	58 29 22	154 13 42	398	yes	3.0	2.0	1.0	0.50	1,500	<0.5	<10	1,000	1.5	30	150	30	N	N
83PB010	58 29 3	154 14 41	400	no	3.0	1.0	2.0	0.50	700	N	10	300	<1.0	10	N	5	N	N
83RJ143	58 29 11	154 17 9	403	no	5.0	2.0	3.0	0.50	1,000	N	10	200	N	30	20	30	N	N
84YB020	58 30 3	154 14 32	405	no	7.0	3.0	5.0	0.50	1,000	N	20	700	N	50	70	100	N	N
84YB019	58 30 18	154 14 42	406	no	5.0	1.5	2.0	0.70	1,000	N	20	1,000	N	20	10	10	N	N
83PB048A	58 29 56	154 19 14	413	no	7.0	3.0	5.0	0.70	1,000	N	<10	150	N	50	50	30	N	N
84DT098	58 30 57	154 27 19	423	no	3.0	1.0	1.5	0.20	700	N	N	500	N	15	10	10	N	N
86YB326	58 34 48	154 32 46	424	no	15.0	7.0	7.0	0.50	1,000	N	10	150	N	50	300	100	N	N
86YB328	58 27 16	154 31 45	430	no	10.0	2.0	3.0	0.20	700	N	30	500	N	20	50	20	N	N
84YB017	58 23 33	154 27 12	431	no	3.0	2.0	1.0	0.50	700	N	30	1,000	N	30	50	100	N	N
84YB016	58 24 27	154 25 50	432	no	5.0	2.0	2.0	0.50	1,000	N	20	700	<1.0	50	100	100	N	N
84YB015	58 24 47	154 22 34	433	no	5.0	2.0	3.0	0.50	1,000	N	50	1,500	<1.0	20	50	70	N	<5
84DT108	58 24 55	154 18 26	434	no	5.0	2.0	2.0	0.50	1,500	N	20	700	N	15	50	50	N	N
83RJ049	58 27 47	154 11 38	443	no	7.0	2.0	2.0	0.50	700	N	20	300	N	30	50	30	N	N
84YB082	58 20 53	154 38 46	546	no	5.0	1.5	1.5	0.30	700	N	20	300	N	20	70	30	N	N
84EM030B	58 15 5	154 43 10	681	no	5.0	2.0	1.5	0.20	500	N	10	200	N	20	200	50	N	N
84EM030A	58 15 5	154 43 10	681	no	3.0	1.5	1.0	0.20	500	N	10	100	N	15	150	30	N	N
84RJ119C	58 19 9	154 45 41	684	yes	3.0	1.0	1.0	0.30	500	N	<10	300	N	15	50	20	N	N
84YB055	58 11 37	154 58 25	734	no	5.0	2.0	2.0	0.50	700	N	10	300	N	20	70	20	N	N
84YB054	58 12 10	154 57 54	735	no	5.0	2.0	2.0	0.50	700	N	10	300	N	30	100	30	N	N
84YB053	58 12 37	154 57 38	736	no	5.0	2.0	1.5	0.30	700	N	10	500	N	30	100	30	N	N
84YB052	58 12 52	154 57 54	737	no	5.0	2.0	1.5	0.50	700	N	<10	300	N	30	50	30	N	N
84EM041E	58 13 40	154 54 51	742	no	3.0	1.0	1.0	0.20	500	N	<10	500	N	10	20	15	N	N
83PB017	58 15 29	154 57 14	745	no	3.0	0.7	1.5	0.50	700	N	10	500	N	15	<10	15	N	N
83PB016A	58 15 33	155 0 4	746	no	5.0	1.0	2.0	0.50	1,000	N	10	500	N	20	10	10	N	<5
84YB064B	58 17 47	154 56 55	747	no	3.0	1.0	1.0	0.20	500	N	10	300	N	10	15	10	N	N
86YB333	58 22 15	154 41 30	748	no	10.0	2.0	3.0	0.50	700	1.0	50	500	N	20	100	50	N	N
85RJ183	58 22 13	155 7 1	780A	yes	5.0	2.0	5.0	0.50	1,000	N	10	500	<1.0	20	20	50	N	N
84EM091B	58 16 0	155 9 31	781B	no	1.5	0.2	0.5	0.20	700	N	100	1,500	1.5	<5	<10	<5	20	10
83RJ092	58 14 6	155 8 48	781A	no	2.0	1.0	1.5	0.30	700	N	10	300	N	15	10	7	N	N
84YB050	58 12 32	155 6 48	782	no	3.0	2.0	1.5	0.30	700	N	10	500	N	20	50	20	N	N
84YB049	58 12 23	155 6 48	783A	no	2.0	1.5	1.0	0.30	700	N	<10	500	<1.0	15	15	10	N	5
84EM090B	58 12 28	155 3 52	783B	no	7.0	2.0	1.5	0.50	1,000	N	50	1,000	<1.0	20	20	20	N	5
84YB051	58 12 13	155 5 39	784	no	7.0	3.0	2.0	0.50	700	N	<10	500	N	50	20	50	N	N
84EM043B	58 12 28	155 3 50	785	no	3.0	1.5	1.5	0.20	500	N	<10	200	N	20	50	20	N	N
83PB032	58 11 47	155 3 52	786	no	5.0	2.0	1.5	0.50	1,000	N	<10	500	N	30	150	20	N	N
83RJ091	58 11 57	155 8 49	788	no	3.0	1.5	1.5	0.30	700	N	10	500	N	20	50	10	N	N
83RJ093	58 11 46	155 9 38	789	no	3.0	1.5	1.5	0.50	1,000	N	15	500	N	20	20	10	N	<5
83RJ111	58 9 37	155 10 10	790	no	5.0	1.5	2.0	0.30	1,000	N	20	500	<1.0	30	70	15	N	N
85YB222	58 8 38	155 15 17	795	no	3.0	1.0	2.0	0.30	1,000	N	15	500	<1.0	30	20	20	N	5
84YB066	58 8 27	155 18 51	796	no	5.0	1.5	1.0	0.30	500	N	10	300	N	15	20	20	N	N

Table 15. Quaternary volcanic rocks, continued

SAMPLE	Nb-S	Ni-S	Pb-S	Sc-S	Sn-S	Sr-S	V-S	Y-S	Zn-S	Zr-S	Au-AA	Hg-INST	As-AA	Zn-AA	Ag-AA	Cd-AA	Sb-AA
86DT237	N	20	<10	20	N	500	200	20	<200	100	--	N	N	55	--	<0.1	N
85DT199	N	7	<10	15	N	300	150	20	N	100	--	--	N	10	--	N	N
85DT197	N	20	<10	20	N	300	200	15	N	70	--	--	N	55	--	N	N
84JM111	<20	30	10	30	N	300	100	30	N	150	N	N	N	35	--	0.1	N
84DT095	N	50	10	50	N	1,000	200	50	<200	100	--	--	N	50	--	N	N
84DT094	N	20	10	20	N	1,500	200	20	<200	150	--	--	<10	55	--	N	N
84RJ142D	N	20	<10	20	N	300	150	20	N	50	--	N	N	30	--	N	N
84DT091	N	15	20	30	N	500	200	50	<200	150	--	--	<10	40	--	N	N
83RJ051	N	20	<10	30	N	500	200	20	N	70	--	--	N	20	--	N	N
83PB054B	N	70	30	20	N	300	200	50	200	150	--	0.06	10	180	N	0.8	N
83PB010	N	5	10	20	N	200	100	50	N	100	--	--	N	30	--	N	2
83RJ143	N	15	<10	50	N	300	200	30	N	100	N	N	N	25	--	N	N
84YB020	N	20	10	50	N	1,000	300	70	<200	150	--	--	N	35	--	N	N
84YB019	N	<5	10	20	N	500	200	70	<200	200	--	--	N	45	--	N	N
83PB048A	N	15	<10	30	N	300	300	30	N	100	--	--	N	15	--	N	N
84DT098	N	7	N	10	N	300	200	30	N	150	--	--	N	45	--	N	N
86YB326	N	50	N	30	N	500	300	15	<200	50	--	N	N	25	--	N	N
86YB328	N	15	<10	10	N	100	100	20	<200	100	--	N	N	10	--	N	N
84YB017	N	20	50	20	N	500	100	70	<200	150	--	--	N	35	--	N	N
84YB016	N	20	20	30	N	500	200	70	<200	200	--	--	N	90	--	N	N
84YB015	N	15	50	30	N	500	200	70	N	200	--	--	N	20	--	N	N
84DT108	N	10	10	20	N	300	300	30	N	300	--	N	<10	10	--	N	N
83RJ049	N	20	<10	30	N	300	200	30	N	150	--	--	N	25	--	0.1	N
84YB082	N	30	<10	20	N	500	100	30	N	100	--	N	N	10	--	N	N
84EM030B	N	50	<10	30	N	300	100	20	N	50	--	N	N	15	--	N	N
84EM030A	N	30	<10	20	N	300	100	15	N	50	--	N	N	10	--	N	N
84RJ119C	N	30	<10	15	N	500	100	20	N	100	--	N	N	45	--	N	N
84YB055	N	15	10	20	N	500	100	20	N	70	--	N	N	15	--	N	N
84YB054	N	20	<10	30	N	500	100	20	N	70	--	N	N	20	--	N	N
84YB053	N	15	<10	20	N	500	100	20	N	70	--	N	N	20	--	N	N
84YB052	N	15	<10	20	N	300	150	20	N	70	--	N	N	30	--	N	N
84EM041E	N	5	10	20	N	200	100	30	N	100	--	N	N	20	--	N	N
83PB017	N	7	15	20	N	200	150	50	N	150	--	--	N	15	--	N	N
83PB016A	N	10	15	20	N	200	150	30	N	150	--	--	N	10	--	N	N
84YB064B	N	5	10	20	N	200	100	30	N	100	--	N	<10	25	--	N	N
86YB333	N	20	10	20	N	150	200	30	<200	150	--	0.04	<10	10	--	N	N
85RJ183	N	10	20	20	N	500	150	30	N	200	--	--	--	--	--	--	--
84EM091B	N	<5	70	15	N	<100	10	100	N	200	N	N	N	5	--	N	N
83RJ092	N	7	10	20	10	300	150	20	N	70	--	--	N	5	--	N	N
84YB050	N	15	10	20	N	300	100	20	N	70	--	N	N	25	--	N	N
84YB049	N	10	<10	15	N	200	100	30	N	100	--	N	N	20	--	N	N
84EM090B	N	5	50	30	N	500	200	100	<200	200	--	0.02	N	20	--	N	N
84YB051	N	20	N	20	N	700	100	20	N	70	--	N	N	10	--	N	N
84EM043B	N	15	<10	20	N	300	100	20	N	70	--	N	N	15	--	N	N
83PB032	N	30	<10	30	N	300	200	20	N	70	--	--	N	15	--	N	N
83RJ091	N	10	15	30	N	200	200	30	N	100	--	--	N	10	--	N	N
83RJ093	N	7	10	30	N	200	200	30	N	100	--	--	N	10	--	N	N
83RJ111	N	20	10	30	N	200	200	30	N	100	--	--	N	10	--	N	N
85YB222	N	20	<10	20	N	300	100	20	N	100	--	N	N	30	--	N	N
84YB066	N	10	<10	20	N	200	100	30	N	70	--	N	<10	20	--	N	N

Table 15. Quaternary volcanic rocks, continued

SAMPLE	LATITUDE	LONGITUDE	MAP NO.	ALTERED?	Fe%-S	Mg%-S	Ca%-S	Ti%-S	Mn-S	Ag-S	B-S	Ba-S	Be-S	Co-S	Cr-S	Cu-S	La-S	Mo-S
85YB217	58 11 56	155 19 51	797	no	3.0	2.0	2.0	0.30	1,000	N	10	200	<1.0	30	70	15	N	N
85YB219	58 14 28	155 19 49	799	no	2.0	0.7	1.5	0.20	1,500	N	<10	500	<1.0	10	N	<5	N	5
85YB218	58 12 56	155 24 31	800	no	2.0	1.0	2.0	0.20	1,000	N	20	300	<1.0	20	20	15	N	5
85DT169	58 10 34	155 32 50	838	no	3.0	1.5	2.0	0.30	1,500	N	10	300	<1.0	50	15	20	N	N
85DT180	58 11 2	155 29 17	840	no	3.0	1.0	1.5	0.30	700	<0.5	15	500	<1.0	20	15	20	N	<5
85YB216	58 9 28	155 31 16	841	no	5.0	2.0	1.5	0.30	1,500	N	<10	200	<1.0	50	15	30	N	N
85DT189	58 8 21	155 32 12	842	no	3.0	1.0	1.0	0.15	1,000	N	<10	500	<1.0	20	N	15	N	N
84YB065	58 6 13	155 25 9	852	no	3.0	1.5	1.5	0.30	700	N	10	500	N	10	20	20	N	N
84DT130	58 1 0	155 31 21	882	no	5.0	1.0	1.0	0.50	700	N	30	500	<1.0	10	N	15	50	7
84YB071	58 1 20	155 33 57	883	no	3.0	1.5	1.0	0.30	700	N	15	300	N	20	20	20	N	N
84YB070	57 59 58	155 34 30	887	no	5.0	2.0	1.5	0.30	500	N	10	300	N	30	30	50	N	N
84YB045	58 0 7	155 37 19	888	no	3.0	1.0	1.0	0.20	500	N	20	300	N	15	N	15	N	N
84YB067	58 3 7	155 37 4	889	no	5.0	1.5	1.5	0.30	700	N	15	300	N	30	30	30	N	N
84YB069	58 4 13	155 43 51	893	no	3.0	1.0	1.0	0.20	500	N	<10	200	N	15	<10	15	N	N
85JM138B	58 5 2	155 44 8	894	no	5.0	1.5	2.0	0.50	1,500	N	10	200	<1.0	50	<10	70	N	N
85YB220	58 0 4	155 47 22	899	no	3.0	1.5	3.0	0.30	1,500	N	<10	200	<1.0	30	20	100	N	N
85YB221	57 59 34	155 56 7	900	no	5.0	0.7	2.0	0.20	500	N	10	200	<1.0	10	N	20	N	<5
85YB204	58 2 2	155 49 33	901	no	7.0	2.0	2.0	0.50	1,500	N	10	300	N	50	50	100	N	N
85YB214	58 4 44	155 48 26	902	no	5.0	1.5	1.5	0.50	1,500	N	10	200	<1.0	30	N	70	N	5
85YB213	58 4 37	155 48 45	903	no	3.0	1.0	1.0	0.50	1,500	N	20	500	<1.0	20	N	20	N	5
85JM137	58 4 40	155 50 15	905	no	5.0	1.0	1.5	0.50	1,500	N	<10	200	<1.0	20	N	15	N	N
85JM137B	58 4 50	155 50 42	906	no	5.0	1.5	1.5	0.50	1,000	N	<10	100	N	50	20	50	N	N
85RJ056	58 4 56	155 55 55	911	no	5.0	1.5	2.0	0.50	1,500	N	10	300	<1.0	50	N	20	N	N
85YB205	58 2 6	156 8 40	952	no	5.0	2.0	3.0	0.50	1,500	N	<10	200	<1.0	50	200	70	N	N

Table 15. Quaternary volcanic rocks, continued

SAMPLE	Nb-S	Ni-S	Pb-S	Sc-S	Sn-S	Sr-S	V-S	Y-S	Zn-S	Zr-S	Au-AA	Hg-INST	As-AA	Zn-AA	Ag-AA	Cd-AA	Sb-AA
85YB217	N	30	N	20	N	500	150	20	N	100	--	N	N	35	--	N	N
85YB219	N	10	<10	10	N	500	50	30	N	150	--	N	<10	75	--	N	N
85YB218	N	15	<10	15	N	500	150	20	N	100	--	0.08	N	20	--	N	N
85DT169	N	20	<10	20	N	500	150	20	N	70	--	N	N	20	--	N	N
85DT180	N	10	<10	20	N	300	100	20	N	100	--	N	N	20	--	N	N
85YB216	N	20	N	20	N	500	150	20	N	70	--	0.06	N	35	--	N	N
85DT189	N	5	<10	15	N	300	100	50	N	100	--	N	N	50	--	N	N
84YB065	N	10	<10	20	N	300	100	30	N	100	--	N	<10	20	--	N	N
84DT130	N	N	10	20	N	200	30	50	N	150	--	N	<10	10	--	N	N
84YB071	N	15	<10	20	N	300	150	20	N	70	--	N	<10	10	--	N	N
84YB070	N	20	10	20	N	300	150	30	N	70	--	N	<10	30	--	N	N
84YB045	N	<5	10	20	N	300	100	30	N	70	--	N	N	25	--	N	N
84YB067	N	20	<10	20	N	500	150	20	N	70	--	N	<10	25	--	N	N
84YB069	N	5	<10	20	N	300	70	20	N	50	--	N	<10	25	--	N	N
85JM138B	N	10	<10	30	N	500	150	20	N	70	--	N	N	35	--	N	N
85YB220	N	20	<10	20	N	500	150	30	N	70	--	N	N	50	--	N	N
85YB221	N	15	<10	15	N	500	100	20	N	70	--	0.08	N	15	--	N	N
85YB204	N	20	N	30	N	300	150	30	N	100	--	N	N	35	--	N	N
85YB214	N	15	N	15	N	500	150	30	N	50	--	0.06	N	45	--	N	N
85YB213	N	5	<10	15	N	300	70	50	N	100	--	0.14	N	60	--	N	N
85JM137	N	N	<10	20	N	300	100	30	N	100	--	0.16	90	25	--	N	N
85JM137B	N	20	<10	30	N	300	100	15	N	50	--	<0.02	N	50	--	N	N
85RJ056	N	10	N	30	N	500	150	30	N	100	--	N	N	30	--	N	N
85YB205	N	50	N	30	N	500	150	15	N	70	--	N	N	10	--	N	N

TABLE 16. Statistical summary of geochemical data for stream cobble samples from the Mount Katmai study area, Alaska

[Method of analysis: semiquantitative emission spectrography; values are reported in ppm except for Mg, Ca, Fe, and Ti which are reported in percent. The elements Au, Cd, Sb, and Th were not detected by spectrographic analysis. Au*, Bi*, Zn*, Cd*, As*, and Sb* were determined using atomic absorption; Hg* was determined by cold vapor atomic absorption. Geometric deviation reported as log of the concentration. Leaders (--) indicate insufficient or no data, N indicates censored distribution below value given.]

Element	DR[1]	No. of values	L[2]	G[3]	Range	Median	Geometric mean	Geometric deviation	Percentiles 90th	95th	98th
Mg	0.935	274	19	0	0.02-7.0	1.0	0.63	5.05	2.0	3.0	5.0
Ca	0.850	249	38	5	0.05-20.0	1.0	0.58	7.40	5.0	10.0	20.0
Fe	0.986	289	1	3	0.05-20.0	3.0	2.89	2.80	10.0	15.0	20.0
Ti	0.997	292	1	0	0.005-1.0	0.3	0.23	2.35	0.5	0.7	0.7
B	0.676	198	81	3	10-2,000	10	0.14	5.60	100	500	1,000
Be	0.229	67	97	0	1-1.5	<1.0	--	--	1.0	1.0	1.5
Sr	0.785	230	18	0	100-1,500	200	208	2.65	700	1,000	1,000
Ba	0.956	280	8	0	20-3,000	300	299	2.61	1,000	1,000	1,500
La	0.031	9	4	0	20-100	20N	--	--	20N	20N	20
Y	0.802	235	46	0	10-200	20	17	2.19	50	50	70
Zr	0.959	281	10	0	10-500	70	66	2.27	150	200	300
Nb	0.003	1	0	0	20	20N	--	--	20N	20N	20N
Sc	0.952	279	10	0	5-50	15	13	1.84	30	30	50
Mn	0.962	282	7	1	10-5,000	500	320	5.14	1,500	2,000	3,000
V	0.993	291	0	0	10-300	100	100	2.09	200	200	300
Cr	0.768	225	28	0	10-700	30	24	3.63	100	150	200
Ni	0.778	228	27	0	5-100	15	11	3.19	50	70	100
Co	0.775	227	27	0	5-700	15	11	3.49	50	70	100
Cu	0.915	268	21	0	5-20,000	30	32	5.04	200	500	1,000
Mo	0.249	73	46	0	5-500	5N	--	--	20	50	100
Pb	0.526	154	112	0	10-500	10	8.0	3.60	50	70	200
Bi	0.024	7	5	0	10-150	10N	--	--	10N	10N	10
Bi*	0.211	46	6	0	1-80	1N	--	--	2.0	4.0	9.0
Ag	0.164	48	55	0	0.5-200	0.5N	--	--	0.7	2.0	7.0
Au*	0.216	48	11	0	0.05-4.4	0.05N	--	--	0.1	0.25	0.75
Zn	0.082	24	26	0	200-5,000	25	--	--	<200	200	500
Zn*	0.872	190	9	2	5-730	200N	25	3.67	110	185	430
Cd*	0.183	40	15	0	0.1-31	0.1N	--	--	0.2	0.4	0.7
As	0.038	11	13	1	200-7,000	200N	--	--	200N	<200	300
As*	0.440	40	22	2	10-1,500	<10	--	--	50	150	300
Sb*	0.202	44	2	1	2-82	2N	--	--	2.0	6.0	27.0
Hg*	0.435	30	0	0	0.02-0.54	0.02N	--	--	0.17	0.25	0.42
Sn	0.017	5	5	0	10-100	10N	--	--	10N	10N	<10
W	0.003	1	4	0	50	50N	--	--	50N	50N	<50

[1]Detection Ratio (DR) is the number of uncensored values divided by the number of samples analyzed (293 samples include all data reported in table 4 plus several from the Iliamna quadrangle just north of the study area); 69 samples were analyzed for Hg*, 222 samples were analyzed for Au*, and 218 samples were analyzed for Zn*, As*, Sb*, and Bi*.
[2]L is the number of samples in which the element was detected but the concentration was less than the reported minimum value.
[3]Elements noted in this column had one or more samples with concentrations greater than the upper limit of determination.

TABLE 17. Statistical summary of geochemical data for bedrock samples collected along stream drainages from the Mount Katmai study area, Alaska

[Method of analysis: semiquantitative emission spectrography; values are reported in ppm except for Mg, Ca, Fe, and Ti which are reported in percent. The elements As, Au, Cd, Sb, and Th were not detected by spectrographic analysis. Bi*, Au*, Zn*, Cd*, As*, and Sb* were determined using atomic absorption. Geometric deviation reported as log of the concentration. Leaders (--) indicate insufficient or no data, N indicates censored distribution below value given.]

Element	DR[1]	No. of values	L[2]	G[3]	Range	Median	Geometric mean	Geometric deviation	Percentiles 90th	95th	98th
Mg	0.978	401	8	0	0.02-7.0	1.5	0.84	3.61	2.0	3.0	5.0
Ca	0.927	380	24	1	0.05-20.0	1.0	0.85	4.82	5.0	7.0	10.0
Fe	0.995	408	0	2	0.1-20.0	5.0	4.07	2.40	10.0	15.0	20.0
Ti	0.998	409	0	1	0.002-1.0	0.3	0.26	2.34	0.5	0.7	0.7
B	0.763	313	85	1	10-2,000	20	20	4.60	150	200	500
Be	0.163	67	141	0	1.0-3.0	<1.0	--	--	1.0	1.0	1.5
Sr	0.807	331	26	0	100-3,000	300	241	2.62	700	700	1,000
Ba	0.956	392	15	0	20-5,000	300	304	3.44	1,000	1,500	2,000
La	0.041	17	11	1	20-150	20N	--	--	20N	<20	50
Y	0.824	338	50	0	10-150	20	19	2.21	50	50	70
Zr	0.973	399	2	0	10-500	70	75	2.11	150	200	200
Sc	0.959	393	12	0	5-50	20	15	1.87	30	30	50
Mn	0.983	403	4	3	10-5,000	700	467	3.75	1,500	2,000	5,000
V	0.998	409	0	0	10-700	150	117	1.97	200	300	300
Cr	0.822	337	39	0	10-500	30	29	3.31	100	150	200
Ni	0.841	345	37	1	5-1,000	15	13	3.18	50	50	100
Co	0.817	335	26	0	5-1,000	15	13	3.16	50	70	150
Cu	0.937	384	15	8	5-20,000	30	45	6.33	500	1,000	15,000
Mo	0.205	84	36	1	5-1,000	5N	--	--	10	20	70
Pb	0.544	223	136	1	10-5,000	10	8.6	5.20	50	100	500
Bi	0.054	22	7	0	10-500	10N	--	--	10N	10	70
Bi*	0.182	41	4	0	1-300	1N	--	--	3.0	7.5	40
Ag	0.193	79	68	0	0.5-700	0.5N	--	--	1.0	5.0	100
Au	0.002	1	0	0	15	10N	--	--	10N	10N	10N
Au*	0.275	65	12	0	0.05-2.0	0.05N	--	--	0.2	0.4	0.6
Zn	0.176	72	106	4	200-10,000	200N	--	--	200	500	2,500
Zn*	0.911	205	6	7	5-2,000	35	36	4.34	200	575	>2,000
Cd*	0.413	93	9	3	0.1-50	0.1N	--	--	0.85	3.1	15
As	0.049	20	5	1	200-5,000	200N	--	--	200N	200	500
As*	0.329	74	20	2	10-700	10N	--	--	50	135	600
Sb*	0.120	27	5	3	2-30	2N	--	--	2.0	5.0	25
Sn	0.024	10	3	0	10-100	10N	--	--	10N	10N	10
W	--	0	1	0	--	50N	--	--	50N	50N	50N

[1]Detection Ratio (DR) is the number of uncensored values divided by the number of samples analyzed (410 samples includes all data reported in table 5 plus several samples from the Iliamna quadrangle just north of the study area); 18 samples were analyzed for Hg*, 236 samples were analyzed for Au*, and 225 samples were analyzed for Zn*, Cd*, As*, Sb*, and Bi*.

[2]L is the number of samples in which the element was detected but the concentration was less than the reported minimum value.

[3]Elements noted in this column had one or more samples with concentrations greater than the upper limit of determination.

TABLE 18. Statistical summary of geochemical data for metamorphosed rock samples from the Mount Katmai study area, Alaska

[Method of analysis: semiquantitative emission spectrography; values are reported in ppm except for Mg, Ca, Fe, and Ti which are reported in percent. The elements As, Au, Cd, Sb, Sn, W, and Th were not detected by spectrographic analysis. Bi*, Au*, Zn*, Cd*, As*, and Sb* were determined using atomic absorption; Hg* was determined by cold vapor atomic absorption. Geometric deviation reported as log of the concentration. Leaders (--) indicate insufficient or no data, N indicates censored distribution below value given.]

Element	DR[1]	No. of values	L[2]	Range	Median	Geometric mean	Geometric deviation	Percentiles 90th	95th	98th
Mg	1.000	94	0	0.02-10.0	1.5	1.45	2.46	5.0	5.0	7.0
Ca	0.986	91	3	0.1-20.0	2.0	1.46	3.12	5.0	7.0	15.0
Fe	1.000	94	0	0.05-15.0	5.0	4.51	2.36	10.0	10.0	15.0
Ti	1.000	94	0	0.005-1.0	0.5	0.36	2.05	0.7	0.7	1.0
B[3]	0.713	66	25	10-500	15	24	2.33	50	100	300
Be	0.149	14	44	1.0-2.0	<1.0	--	--	1.0	1.0	1.5
Sr	0.894	84	3	100-1,500	300	262	2.25	500	700	1,000
Ba	0.968	91	1	70-2,000	500	386	2.42	1,000	1,500	2,000
La	0.021	2	2	50-100	20N	--	--	20N	20N	30
Y	0.936	88	5	10-100	20	24	1.85	50	70	70
Zr	0.989	93	0	10-200	100	75	1.97	200	200	200
Nb	0.011	1	0	20	20N	--	--	20N	20N	20N
Sc	0.957	90	2	5.0-50	20	20	1.90	50	50	50
Mn	0.979	92	0	10-5,000	1,000	952	2.46	2,000	3,000	>5,000
V	1.000	94	0	10-500	150	137	2.05	300	300	500
Cr	0.830	78	6	10-1,000	30	30	4.10	200	300	500
Ni	0.883	83	3	5.0-500	15	13	3.18	50	70	100
Co	0.936	88	2	5.0-100	20	20	2.63	70	70	100
Cu	0.840	79	11	5.0-1,000	20	20	4.39	100	150	200
Mo	0.043	4	5	5.0-20	5N	--	--	5N	<5	7
Pb	0.394	37	35	10.0-70	<10	--	--	30	50	50
Bi*	0.021	2	0	1.0-23	1N	--	--	1N	<1.0	1.5
Ag	0.064	6	4	0.5-2.0	0.5N	--	--	<0.5	0.5	1.0
Au*	0.100	1	0	0.05	0.05N	--	--	--	--	--
Zn*	0.979	92	1	5.0-340	40	36	2.27	85	100	210
Cd*	0.138	13	6	0.1-0.8	0.1N	--	--	0.1	0.15	0.5
As*	0.170	16	10	10-80	10N	--	--	20	25	30
Sb*	0.021	2	0	2.0-8.0	2N	--	--	2N	2N	2N
Hg*	0.323	21	3	0.02-1.1	0.02N	--	--	0.10	0.19	0.28

[1]Detection Ratio (DR) is the number of uncensored values divided by the number of samples analyzed from the units mapped as JPk, ŦK, Ŧc, and Jt (94 samples reported in table 7); 65 samples were analyzed for Hg* and 10 samples were analyzed for Au*.
[2]L is the number of samples in which the element was detected but the concentration was less than the reported minimum value.
[3]One sample had a B concentration that exceeded the reported maximum value.

TABLE 19. Statistical summary of geochemical data for Mesozoic and Tertiary plutonic rock samples from the Mount Katmai study area, Alaska

[Method of analysis: semiquantitative emission spectrography; values are reported in ppm except for Mg, Ca, Fe, and Ti which are reported in percent. The elements As, Au, Bi, Cd, Nb, Sb, Sn, W, and Th were not detected by spectrographic analysis. Zn*, Cd*, and As* were determined using atomic absorption; Hg* was determined by cold vapor atomic absorption. Geometric deviation reported as log of the concentration. Leaders (--) indicate insufficient or no data, N indicates censored distribution below value given.]

Element	DR[1]	No. of values	L[2]	Range	Median	Geometric mean	Geometric deviation	Percentiles 90th	95th	98th
Mg	1.000	84	0	0.02-5.0	1.5	1.29	2.38	3.0	3.0	5.0
Ca	1.000	84	0	0.1-10.0	2.0	1.60	1.88	3.0	3.0	5.0
Fe	1.000	84	0	0.5-15.0	3.0	3.54	1.93	7.0	10.0	10.0
Ti	1.000	84	0	0.02-0.70	0.3	0.27	1.81	0.5	0.5	0.5
B	0.762	64	20	10-200	10	13	2.28	30	50	100
Be	0.155	13	34	1.0-1.5	<1.0	--	--	1.0	1.0	1.5
Sr	0.905	76	4	100-1,000	300	277	2.09	700	700	1,000
Ba	0.988	83	1	50-2,000	500	431	2.51	1,000	1,500	2,000
La	0.024	2	0	20-50	20N	--	--	20N	20N	20
Y	0.952	80	3	10-100	20	22	1.78	50	50	70
Zr	0.988	83	1	10-1,000	70	73	2.20	150	200	200
Sc	0.988	83	1	5-50	15	16	1.86	30	50	50
Mn	1.000	84	0	100-3,000	700	739	1.77	1,500	1,500	2,000
V	0.976	82	2	15-500	100	100	2.10	200	300	300
Cr	0.714	60	10	10-300	20	19	3.95	100	150	200
Ni	0.786	66	10	5-70	15	11	3.05	50	50	50
Co	0.917	77	3	5-100	20	17	2.49	50	70	100
Cu	0.857	72	10	5-5,000	20	23	4.88	100	150	500
Pb	0.357	30	41	10-50	<10	--	--	20	30	50
Zn*	1.000	84	0	5-165	25	27	1.84	50	60	140
Cd*	0.165	13	5	0.1-0.6	0.1N	--	--	0.1	0.2	0.25
As*	0.060	5	13	10-20	10N	--	--	<10	10	15
Hg*	0.349	22	4	0.02-0.28	0.02N	--	--	0.07	0.09	0.16

[1]Detection Ratio (DR) is the number of uncensored values divided by the number of samples analyzed from the units mapped as Jgb, Jgd, Jqd, Jgr, Tgb, Tgd, and Tqd, (84 samples reported in table 8); 63 samples were analyzed for Hg* and 8 samples were analyzed for Au*.

[2]L is the number of samples in which the element was detected but the concentration was less than the reported minimum value.

TABLE 20. Statistical summary of geochemical data for rock samples from the Naknek Formation from the Mount Katmai study area, Alaska

[Method of analysis: semiquantitative emission spectrography; values are reported in ppm except for Mg, Ca, Fe, and Ti which are reported in percent. The elements Au, Bi, Cd, Nb, Sb, Sn, W, and Th were not detected by spectrographic analysis. Au*, Zn*, Cd*, As*, and Sb* were determined using atomic absorption; Hg* was determined by cold vapor atomic absorption. Geometric deviation reported as log of the concentration. Leaders (--) indicate insufficient or no data, N indicates censored distribution below value given.]

Element	DR[1]	No. of values	L[2]	Range	Median	Geometric mean	Geometric deviation	Percentiles 90th	95th	98th
Mg	1.000	280	0	0.1-5.0	1.5	1.59	1.65	3.0	3.0	3.0
Ca[3]	0.986	276	1	0.01-20.0	1.5	1.50	3.42	3.0	5.0	10.0
Fe	1.000	280	0	0.7-20.0	5.0	4.38	1.76	10.0	10.0	15.0
Ti	1.000	280	0	0.1-1.0	0.50	0.35	1.60	0.5	0.5	0.7
B	0.936	262	11	10-500	20	23	2.18	50	70	100
Be	0.100	28	114	1.0-1.5	<1.0	--	--	1.0	1.0	1.0
Sr	0.907	254	12	100-1,500	300	280	2.09	700	700	1,000
Ba	1.000	280	0	20-2,000	500	526	1.97	1,000	1,500	2,000
La	0.018	5	4	20-50	20N	--	--	20N	20N	<20
Y	0.964	270	5	10-100	20	26	1.71	50	50	70
Zr	1.000	280	0	15-200	100	89	1.63	200	200	200
Sc	1.000	280	0	7-50	20	20	1.44	30	30	50
Mn[3]	0.996	279	0	150-5,000	1,000	807	1.68	1,500	2,000	3,000
V	1.000	280	0	10-700	200	157	1.60	200	300	500
Cr	0.993	278	1	10-500	100	72	1.88	150	150	150
Ni	0.996	279	1	5.0-100	30	26	1.75	50	50	70
Co	0.989	277	0	5.0-100	20	22	1.71	50	50	50
Cu	0.986	271	9	5.0-2,000	30	31	2.66	100	100	200
Mo	0.036	10	7	5.0-100	5N	--	--	5N	<5.0	7.0
Pb	0.536	151	101	10.0-100	10	9.0	2.61	30	50	50
Bi*	0.004	1	1	2.0	1N	--	--	2N	2N	2N
Ag	0.039	11	20	0.5-2.0	0.5N	--	--	<0.5	<0.5	0.5
Au*	0.004	1	0	0.15	0.05N	--	--	0.05N	0.05N	0.1
Zn	0.046	13	75	200-500	200N	--	--	<200	<200	200
Zn*	1.000	280	0	10-500	55	58	1.77	100	125	150
Cd*	0.161	45	51	0.1-1.0	0.1N	--	--	0.1	0.15	0.2
As*	0.154	43	45	10-1,500	0.10N	--	--	10	10	20
Sb*	0.036	10	0	2.0-50	2N	--	--	2N	2N	2.0
Hg*	0.350	98	3	0.02-7.0	<0.02	--	--	0.12	0.22	0.48

[1]Detection Ratio (DR) is the number of uncensored values divided by the number of samples analyzed from the unit mapped as Jn (281 samples reported in table 9); 199 samples were analyzed for Hg* and 38 samples were analyzed for Au*.

[2]L is the number of samples in which the element was detected but the concentration was less than the reported minimum value.

[3]Three samples had Ca concentrations; one had a Mn concentration that exceeded the maximum recorded value.

TABLE 21. Statistical summary of geochemical data for Mesozoic sedimentary rock samples from the Mount Katmai study area, Alaska

[Method of analysis: semiquantitative emission spectrography; values are reported in ppm except for Mg, Ca, Fe, and Ti which are reported in percent. The elements Au, Bi, Cd, Nb, Sb, Sn, W, and Th were not detected by spectrographic analysis. Bi*, Au*, Zn*, Cd*, As*, and Sb* were determined using atomic absorption; Hg* was determined by cold vapor atomic absorption. Geometric deviation reported as log of the concentration. Leaders (--) indicate insufficient or no data, N indicates censored distribution below value given.]

Element	DR[1]	No. of values	L[2]	Range	Median	Geometric mean	Geometric deviation	Percentiles 90th	95th	98th
Mg	1.000	357	0	0.1-5.0	1.5	1.54	1.66	3.0	3.0	3.0
Ca[3]	0.980	348	2	0.05-20.0	1.0	1.46	4.41	5.0	10.0	15.0
Fe	1.000	357	0	0.7-20.0	5.0	4.37	1.80	10.0	10.0	15.0
Ti	1.000	357	0	0.07-1.0	0.3	0.34	1.62	0.5	0.5	0.7
B	0.933	333	15	10-500	30	26	2.43	70	100	150
Be	0.137	49	132	1.0-2.0	--	--	--	1.0	1.0	1.0
Sr	0.891	318	21	100-1,500	300	261	2.15	700	700	1,000
Ba	1.000	357	0	20-2,000	500	498	2.05	1,000	1,500	2,000
La	0.022	8	4	20-50	--	--	--	20N	20N	20
Y	0.966	345	6	10-100	20	24	1.69	50	50	70
Zr	1.000	357	0	15-300	100	89	1.67	200	200	200
Sc	1.000	357	0	5.0-50	20	19	1.48	30	30	50
Mn[3]	0.997	356	0	100-5,000	700	778	1.81	1,500	2,000	3,000
V	1.000	357	0	10-700	200	158	1.61	200	300	500
Cr	0.992	354	2	10-500	100	75	1.99	150	200	200
Ni	0.997	356	1	5.0-100	30	28	1.80	50	70	70
Co	0.983	351	0	5.0-100	20	21	1.76	50	50	50
Cu	0.969	346	10	5.0-2,000	30	30	2.60	100	100	200
Mo	0.031	11	10	5.0-100	5N	--	--	5N	<5	5
Pb	0.577	206	117	10-100	10	9.7	2.49	30	50	50
Bi*	0.003	1	1	2.0	1N	--	--	2N	2N	2N
Ag	0.039	14	25	0.5-2.0	0.5N	--	--	<0.5	<0.5	0.5
Au*	0.050	3	0	0.05-0.15	0.05N	--	--	0.05N	0.05	0.08
Zn	0.048	17	99	200-500	200N	--	--	<200	<200	200
Zn*	1.000	357	0	10-420	65	60	1.73	110	130	155
Cd*	0.252	90	207	0.1-1.0	0.1N	--	--	0.1	0.2	0.3
As*	0.210	75	54	10-1,600	10N	--	--	10	20	30
Sb*	0.064	23	0	2.0-42.0	2N	--	--	2N	2.0	3.0
Hg*	0.523	136	5	0.02-6.0	0.02	--	--	0.14	0.24	0.50

[1]Detection Ratio (DR) is the number of uncensored values divided by the number of samples analyzed from the units mapped as Jn, Ks, Kh, Kp, and Kk, (357 of the 358 samples reported in tables 9-11 were included in this summary); 60 samples were analyzed for Au* and 260 samples were analyzed for Hg*.

[2]L is the number of samples in which the element was detected but the concentration was less than the reported minimum value.

[3]Five samples had Ca concentrations and 1 had Mn concentrations that exceeded the maximum reported value.

TABLE 22. Statistical summary of geochemical data for rock samples from the Kaguyak Formation from the Mount Katmai study area, Alaska

[Method of analysis: semiquantitative emission spectrography; values are reported in ppm except for Mg, Ca, Fe, and Ti which are reported in percent. The elements As, Au, Bi, Cd, Nb, Sb, Sn, W, and Th were not detected by spectrographic analysis. Bi*, Au*, Zn*, Cd*, As*, and Sb* were determined using atomic absorption; Hg* was determined by cold vapor atomic absorption. Geometric deviation reported as log of the concentration. Leaders (--) indicate insufficient or no data, N indicates censored distribution below value given.]

Element	DR[1]	No. of values	L[2]	Range	Median	Geometric mean	Geometric deviation	Percentiles 90th	95th	98th
Mg	1.000	50	0	0.1-5.0	1.5	1.38	1.77	2.0	3.0	5.0
Ca	0.980	49	1	0.05-10.0	0.7	0.56	3.34	2.0	3.0	7.0
Fe	1.000	50	0	1.0-20.0	5.0	4.51	1.87	10.0	10	20.0
Ti	1.000	50	0	0.15-0.70	.5	.39	1.46	0.5	0.7	0.7
B	0.960	48	1	10-200	70	64	2.03	125	200	200
Be	0.360	18	13	1.0-2.0	<1.0	--	--	1.0	1.5	2.0
Sr	0.800	40	6	100-500	200	170	2.25	500	500	500
Ba	1.000	50	0	100-1,500	500	530	1.84	1,000	1,200	1,500
La	0.040	2	0	5.0-50	20N	--	--	20N	20N	50
Y	0.980	49	1	10-50	20	21.5	1.51	30	50	50
Zr	1.000	50	0	50-300	100	111	1.47	200	200	300
Sc	1.000	50	0	10-30	20	19	1.37	30	30	30
Mn	1.000	50	0	100-5,000	700	661	2.18	1,500	3,500	5,000
V	1.000	50	0	100-500	200	184	1.41	200	300	500
Cr	1.000	50	0	20-300	150	119	1.78	200	200	300
Ni	1.000	50	0	7.0-100	50	39	1.76	70	70	100
Co	0.980	49	1	5.0-70	20	20	1.70	30	50	70
Cu	1.000	50	0	5.0-100	30	29	2.07	70	70	100
Mo	0.020	1	1	5.0	5N	--	--	5N	5N	5.0
Pb	0.800	40	9	10-100	15	14	2.03	30	50	70
Ag	0.040	2	5	0.7-1.0	0.5N	--	--	<0.5	<0.5	1.0
Au*	0.056	1	0	0.1	0.05N	--	--	0.05N	0.075	0.075
Zn	0.040	2	16	200	200N	--	--	200N	200N	200
Zn*	1.000	50	0	30-190	92.5	87	1.51	135	150	185
Cd*	0.600	30	6	0.1-0.6	0.1	0.09	2.22	0.3	0.4	0.5
As*	0.480	24	6	10-40	<10	7.8	2.06	20	20	40
Sb*	0.220	11	0	2.0-10	2N	--	--	2.0	3.0	8.0
Hg*	0.711	27	0	0.02-0.90	0.04	0.04	4.47	0.27	0.70	0.90

[1]Detection Ratio (DR) is the number of uncensored values divided by the number of samples analyzed from the units mapped as Kk (50 samples reported in table 11); 38 samples were analyzed for Hg* and 18 samples were analyzed for Au*.
[2]L is the number of samples in which the element was detected but the concentration was less than the reported minimum value.

TABLE 23. Statistical summary of geochemical data for Tertiary volcanic and hypabyssal rock samples from the Mount Katmai study area, Alaska

[Method of analysis: semiquantitative emission spectrography; values are reported in ppm except for Mg, Ca, Fe, and Ti which are reported in percent. The elements As, Au, Cd, Sb, W, and Th were not detected by spectrographic analysis. Bi*, Au*, Zn*, Cd*, As*, and Sb* were determined using atomic absorption; Hg* was determined by cold vapor atomic absorption. Geometric deviation reported as log of the concentration. Leaders (--) indicate insufficient or no data, N indicates censored distribution below value given.]

Element	DR[1]	No. of values	L's[2]	Range	Median	Geometric mean	Geometric deviation	Percentiles 90th	95th	98th
Mg	0.944	471	3	0.02-7.0	2.0	1.46	2.45	3.0	5.0	5.0
Ca	0.977	463	11	0.05-10.0	2.0	1.29	2.95	3.0	5.0	5.0
Fe	1.000	474	0	0.05-20.0	5.0	3.78	1.95	7.0	10.0	10.0
Ti	1.000	474	0	0.005-1.0	0.5	0.36	1.78	0.7	0.7	0.7
B	0.696	330	126	10-1,000	10	12	3.04	50	100	150
Be	0.114	54	145	1.0-2.0	1N	--	--	1.0	1.0	1
Sr	0.886	420	19	100-1,000	500	326	2.17	700	1,000	1,000
Ba	0.981	465	5	20-3,000	300	267	2.63	1,000	1,000	1,500
La	0.021	10	5	20-100	20N	--	--	20N	20N	20
Y	0.939	445	14	10-100	30	25	1.86	50	70	70
Zr	0.994	471	1	10-500	100	96	1.83	200	200	200
Nb	0.002	1	2	20	20N	--	--			
Sc	0.979	464	2	5.0-50	20	19	1.71	30	50	50
Mn	0.994	471	0	15-3,000	700	623	2.20	1,000	1,500	2,000
V	0.998	473	1	10-2,000	150	143	1.80	200	300	300
Cr	0.863	409	29	10-1,000	50	39	3.38	200	200	300
Ni	0.922	437	24	5.0-200	20	20	2.74	70	100	100
Co	0.916	434	11	5.0-500	20	19	3.82	50	50	70
Cu[3]	0.930	441	28	5.0-20,000	20	26	3.15	100	150	700
Mo	0.095	45	38	5.0-2,000	5N	--	--	<5	7	25
Pb	0.517	245	167	10-200	10	8.4	2.73	30	50	70
Bi*	0.019	9	0	1.0-120	1N	5.5	3.95	2N	2N	2N
Ag	0.061	29	25	0.5-150	0.5N	--	--	<0.5	0.5	2
Au*	0.103	8	0	0.05-5.0	0.05N	--	--	0.05	0.10	0.40
Zn	0.051	24	105	200-2,000	200N	--	--	<200	<200	200
Zn*	0.981	465	6	5.0-1,900	40	38	2.13	75	90	170
Cd*	0.232	110	60	0.1-10.0	0.1N	--	--	0.1	0.2	0.6
As*	0.200	95	75	10-800	10N	--	--	20	30	70
Sb*	0.051	24	4	2.0-50	2N	--	--	2N	2	2
Hg*	0.262	67	13	0.02-2.2	0.02N	--	--	0.06	0.13	0.20
Sn	0.004	2	0	10-15	10N	--	--	10N	10N	10N

[1]Detection Ratio (DR) is the number of uncensored values divided by the number of samples analyzed from the units mapped as Tmb, Tma, Tav, Ti, and Tiu (474 of 480 samples reported in table 12 were included in this summary); 256 samples were analyzed for Hg* and 78 samples were analyzed for Au*. Three samples are included from a mineralized area in the Iliamna quadrangle, 4 km north of the north boundary of the Mount Katmai quadrangle; these sample localities are not plotted on plate II.

[2]L is the number of samples in which the element was detected but the concentration was less than the reported minimum value.

[3]One sample had a Cu concentration that exceeded the maximum reported value.

TABLE 24. Statistical summary of geochemical data for Tertiary sedimentary rock samples from the Mount Katmai study area, Alaska

[Method of analysis: semiquantitative emission spectrography; values are reported in ppm except for Mg, Ca, Fe, and Ti which are reported in percent. The elements Au, Bi, Cd, Nb, Sb, Sn, W, and Th were not detected by spectrographic analysis. Au*, Zn*, Cd*, As*, and Sb* were determined using atomic absorption; Hg* was determined by cold vapor atomic absorption. Geometric deviation reported as log of the concentration. Leaders (--) indicate insufficient or no data, N indicates censored distribution below value given.]

Element	DR[1]	No. of values	L[2]	Range	Median	Geometric mean	Geometric deviation	Percentiles 90th	95th	98th
Mg	1.000	90	0	0.1-3.0	1.0	1.08	1.88	2.0	2.0	3.0
Ca	0.956	86	4	0.05-7.0	0.70	0.56	3.42	2.0	3.0	5.0
Fe	1.000	90	0	1.0-20.0	5.0	3.77	1.90	7.0	10.0	15.0
Ti	1.000	90	0	0.1-1.0	0.3	0.32	1.63	0.5	0.7	0.7
B[3]	0.924	83	5	10-1,000	50	48	4.15	300	500	700
Be	0.378	34	26	1.0-3.0	<1.0	--	--	1.0	1.5	2.0
Sr	0.756	68	5	100-1,500	200	201	2.66	500	700	1,000
Ba	1.000	90	0	50-3,000	500	514	2.22	5,000	1,500	2,000
La	0.067	6	2	20-50	20N	--	--	20N	20N	30
Y	0.911	82	4	10-100	20	21	1.80	50	50	70
Zr	1.000	90	0	30-200	100	96	1.62	200	200	200
Sc	1.000	90	0	5-50	20	17	1.47	30	30	30
Mn[3]	0.989	89	0	50-5,000	500	636	2.25	2,000	2,000	3,000
V	1.000	90	0	50-500	150	143	1.52	200	200	300
Cr	0.956	86	2	10-200	50	53	2.35	150	200	200
Ni	0.989	89	0	5-100	30	28	1.97	70	70	70
Co	0.978	88	1	5-100	20	20	1.83	30	50	50
Cu	0.922	83	6	5-500	20	20	3.02	70	100	200
Mo	0.044	4	3	5-20	5N	--	--	5N	<5.0	7.0
Pb	0.656	59	25	10-100	10	12	2.48	50	50	70
Ag	0.044	4	6	0.5	0.5N	--	--	0.5N	<0.5	0.5
Au*	0.094	3	0	0.05	0.05N	--	--	0.05N	0.05N	0.05
Zn*	1.000	90	0	10-420	60	63	1.85	150	190	335
Cd*	0.289	26	11	0.1-1.7	0.1N	--	--	0.3	0.6	0.9
As*	0.200	18	14	10-160	10N	--	--	20	30	100
Sb*	0.111	10	0	2.0-6.0	2N	--	--	2.0	3.0	4.0
Hg*	0.250	9	2	0.02-0.34	0.02N	--	--	0.04	0.06	0.20

[1]Detection Ratio (DR) is the number of uncensored values divided by the number of samples analyzed from the unit mapped as Ts, Th, and Tc (90 samples reported in table 13); 36 samples were analyzed for Hg* and 32 samples were analyzed for Au*.
[2]L is the number of samples in which the element was detected but the concentration was less than the reported minimum value.
[3]One sample contained B and Mn concentrations which exceeded the reported maximum value.

TABLE 25. Statistical summary of geochemical data for rock samples from Tertiary dikes from the Mount Katmai study area, Alaska

[Method of analysis: semiquantitative emission spectrography; values are reported in ppm except for Mg, Ca, Fe, and Ti which are reported in percent. The elements As, Au, Bi, Cd, Nb, Sb, W, and Th were not detected by spectrographic analysis. Bi*, Au*, Zn*, Cd*, As*, and Sb* were determined using atomic absorption; Hg* was determined by cold vapor atomic absorption. Geometric deviation reported as log of the concentration. Leaders (--) indicate insufficient or no data, N indicates censored distribution below value given.]

Element	DR[1]	No. of values	L[2]	Range	Median	Geometric mean	Geometric deviation	Percentiles 90th	95th	98th
Mg	0.964	27	1	0.5-5.0	2.0	1.60	2.79	3.0	3.0	5.0
Ca	0.964	27	1	0.05-5.0	1.50	1.29	3.06	3.0	3.0	5.0
Fe	1.000	28	0	0.07-20.0	5.0	4.50	2.58	10.0	10.0	15.0
Ti	1.000	28	0	0.2-1.0	0.5	0.44	1.42	0.5	0.5	0.7
B	0.857	24	3	10-100	15	17	2.34	50	50	70
Be	0.036	1	14	1.0	--	--	--	--	--	1.0
Sr	0.893	25	1	100-1,500	500	410	2.46	1,000	1,000	1,500
Ba	0.964	27	0	70-2,000	500	481	2.98	2,000	2,000	2,000
La	0.036	1	0	50	20N	--	--	20N	20N	30
Y	0.929	26	1	10-70	20	22	1.73	30	50	70
Zr	1.000	28	0	50-200	100	98	1.48	150	150	200
Sc	1.000	28	0	10-50	20	21	1.44	30	30	50
Mn	0.964	27	0	100-2,000	1,000	770	2.90	1,500	1,500	2,000
V	1.000	28	0	20-500	200	162	1.91	300	300	500
Cr	0.821	23	3	10-300	50	36	3.76	150	200	200
Ni	0.929	26	2	5-100	20	19	2.70	50	70	100
Co	0.964	27	0	5-50	30	24	2.01	50	50	50
Cu	0.929	26	2	5-200	30	27	3.24	100	100	150
Mo	0.107	3	3	10-15	5N	--	--	7.0	10	15
Pb	0.464	13	13	10-100	<10	7.4	3.77	50	50	70
Bi*	0.036	1	0	3.0	1N	--	--	2N	2N	2.5
Ag	0.107	3	0	0.5-5.0	0.5N	--	--	0.5	0.7	3.0
Au*	0.400	2	0	0.05-0.1	0.05N	--	--	0.075	0.075	0.10
Zn*	1.000	28	0	5.0-110	50	43	2.02	85	90	100
Cd*	0.154	4	0	0.1-0.4	0.1N	--	--	0.1	0.15	0.3
As*	0.107	3	3	10-20	10N	--	--	10	10	15
Sb*	0.036	1	0	10	2N	--	--	2N	<2.0	6.0
Hg*	0.389	7	0	0.02-1.4	0.02N	--	--	0.5	1.1	1.15
Sn	0.036	1	0	50	10N	--	--	10N	10N	30

[1]Detection Ratio (DR) is the number of uncensored values divided by the number of samples analyzed from the unit mapped as Tertiary dikes (d, 28 samples reported in table 14); 18 samples were analyzed for Hg* and 5 samples were analyzed for Au*.
[2]L is the number of samples in which the element was detected but the concentration was less than the reported minimum value.

TABLE 26. Statistical summary of geochemical data for Quaternary and late Tertiary volcanic rock samples from the Mount Katmai study area, Alaska

[Method of analysis: semiquantitative emission spectrography; values are reported in ppm except for Mg, Ca, Fe, and Ti which are reported in percent. The elements As, Au, Bi, Cd, Nb, Sb, W, and Th were not detected by spectrographic analysis. Zn*, Cd*, As*, and Sb* were determined using atomic absorption; Hg* was determined by cold vapor atomic absorption. Geometric deviation reported as log of the concentration. Leaders (--) indicate insufficient or no data, N indicates censored distribution below value given.]

Element	DR[1]	No. of values	L[2]	Range	Median	Geometric mean	Geometric deviation	Percentiles 90th	95th	98th
Mg	1.000	73	0	0.2-7.0	1.5	1.56	1.63	2.0	3.0	5.0
Ca	1.000	73	0	0.1-7.0	1.5	1.65	1.75	3.0	3.0	5.0
Fe	1.000	73	0	1.5-15.0	5.0	4.17	1.51	7.0	7.0	10.0
Ti	1.000	73	0	0.15-0.7	0.3	0.35	1.50	0.5	0.5	0.7
B	0.726	53	19	10-100	10	12	2.08	30	50	70
Be	0.027	2	26	1.5	1N	--	--	<1.0	<1.0	1.0
Sr	0.986	72	1	100-1,500	300	346	1.63	500	700	1,000
Ba	1.000	73	0	100-1,500	300	362	1.81	700	1,000	1,500
La	0.027	2	0	20-50	20N	--	--	20N	20N	20
Y	1.000	73	0	15-100	30	28	1.59	50	70	100
Zr	1.000	73	0	50-300	100	96	1.50	150	200	200
Sc	1.000	73	0	10-50	20	22	1.38	30	30	50
Mn	1.000	73	0	300-1,500	1,000	852	1.46	1,500	1,500	1,500
V	1.000	73	0	10-300	150	132	1.67	200	200	300
Cr	0.781	57	6	10-300	20	20	3.56	100	150	200
Ni	0.932	46	3	5-70	15	14	2.09	30	50	50
Co	0.986	72	1	10-50	20	23	1.71	50	50	50
Cu	0.959	70	3	5-100	20	25	2.37	70	100	100
Mo	0.123	9	5	5-10	5N	--	--	5	5.0	7.0
Pb	0.384	28	36	10-70	<10	--	--	15	30	50
Ag	0.014	1	2	1.0	0.5N	--	--	0.5N	0.5N	<0.5
Zn*	1.000	73	0	5-180	25	23	1.96	50	60	80
Cd*	0.041	3	1	0.1-0.8	0.1N	--	--	0.1N	<0.1	0.1
As*	0.027	2	13	10-90	10N	--	--	<10	<10	10
Sb*	0.014	1	0	2.0	2N	--	--	2N	2N	2N
Hg*	0.176	9	1	0.02-0.16	0.02N	--	--	0.06	0.08	0.14
Sn	0.014	1	0	10	10N	--	--	10N	10N	10N

[1]Detection Ratio (DR) is the number of uncensored values divided by the number of samples analyzed from the unit mapped as Qac, Qap, Qad, QTac, and QTap (74 samples reported in table 15); 51 samples were analyzed for Hg* and 3 samples were analyzed for Au*.
[2]L is the number of samples in which the element was detected but the concentration was less than the reported minimum value.

[Riehle and others, 1989, Sample locality maps, analytical data, and statistical summary of analyses of rock samples from the Mount Katmai quadrangle and adjacent portions of the Naknek and Afognak quadrangles, Alaska: U.S. Geological Survey Open-File Report 89-0570]

ERRATA

Following are the correct latitudes and longitudes of those samples for which incorrect values are listed in the original version of the report.

Table	Sample No.	Map. No.	Latitude	Longitude
8	83PB062	557	58 12 45	154 28 59
9	84JM065B	348	58 29 20	154 01 30
	84JM065	349	58 29 30	154 00 25
	84DT154	807	58 25 30	155 20 12
	86JM226	816	58 20 40	155 27 59
	86JM225	817	58 20 03	155 28 25
	85RJ175B	829	58 16 11	155 26 10
	84YB047	855	58 04 10	155 29 17
	84YB048	856	58 03 19	155 29 02
	86JM221	912	58 21 02	155 34 42
12	83RJ236B	007	58 55 08	156 02 26
	84EM018C	329	58 36 44	153 50 39
	84EM020C	459	58 22 12	154 14 31
	84EM025C	468	58 21 37	154 18 08
	84EM066A,B	478	58 21 03	154 30 39
	84RJ135-	693	58 10 00	154 43 30
	86JM224	818	58 19 55	155 28 42
13	84EM020D	459	58 22 12	154 14 31