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Surface-water-quality assessment of the Yakima River basin in Washington: Chemical analyses of major, minor, and trace elements in fine-grained streambed sediment

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CONVERSION FACTORS

For the convenience of readers who may prefer to use inch-pound units rather than the metric (International System) units used in this report, values may be converted by using the following factors:

Multiply metric units	By	To obtain inch-pound units
millimeter (mm)	3.94×10^{-2}	inch (in)
centimeter (cm)	0.394	inch
meter (m)	3.28	foot (ft)
kilometer (km)	0.621	mile (mi)
square kilometer (km^2)	0.386	square mile (mi^2)
gram (g)	3.52×10^{-2}	ounce (oz)
kilogram (kg)	2.205	pound (lb)
liter (L)	1.057	quart (qt)

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ABSTRACT

In 1986, the U.S. Geological Survey implemented a pilot program to test and refine concepts for a National Water Quality Assessment (NAWQA) program. Based on water use and a variety of known water-quality problems, the Yakima River basin, Washington, was selected as one of four surface-water pilot studies.

One of the topics of the NAWQA program is the occurrence and distribution of major, minor, and trace elements in streambed sediment of the Yakima River basin. Analytical results from a 1987 synoptic survey for 48 major, minor, and trace elements are presented for 430 streambed-sediment sites in the Yakima River basin. The samples were collected randomly from 269 lower-order streambed sites; in addition, 75 higher-order streambed sites (suspected of receiving point- and nonpoint-element contributions) were intentionally selected. The remaining sites represent storm water urban drains, soils, and analysis of variance sampling. This report contains tables showing analytical methods, types of samples, analytical results and summary statistics.

INTRODUCTION

Background

Beginning in 1986, Congress authorized the U.S. Geological Survey to implement a pilot program to test and refine concepts for a National Water Quality Assessment (NAWQA) Program (Hirsch and others, 1988). The Yakima River basin was one of four surface-water-study units selected to test NAWQA concepts (McKenzie and Rinella, 1987). The goals of the NAWQA program are to:

(1) provide a nationally consistent description of current water-quality conditions for a large part of the nation's water resources;
(2) define the trends (or lack of trends) in water quality that have occurred over recent decades and provide a baseline for evaluating future trends in water quality; and
(3) identify and describe the relations of both the status and the trends in water quality to the relevant natural factors and the history of land use and waste management practices (Hirsch and others, 1988).

The overall scope of the surface-water NAWQA program includes trace-organic and -inorganic analyses of sample media such as: water, sediment (suspended and streambed), and biota (vegetation, aquatic insects, benthic invertebrates, and fish). Data from the inorganic portion (major, minor, and trace elements) of this streambed-sediment report will be used to relate the occurrence and distribution of major and trace elements to geologic sources and land use activities. In addition, the streambed-chemical data have been used to aid in the selection of bioassessment sampling sites in the NAWQA program. The chemistry of streambed sediment is important because trace elements may bioaccumulate and move up the food chain (Forstner and Whittman, 1979). Elements associated with streambed sediment are important contributors to water-column chemistry and will aid in modeling source-fate investigations of river systems.

Purpose and Scope

This report includes descriptions of the sampling design, sample processing and analytical methodologies, summary statistics, and analytical data for the streambed-sediment portion of the Yakima River basin NAWQA study. The purpose of this report is to provide accessibility to the data which are categorized by map number, location (latitude and longitude), and sample type (including categories describing stream order[1] and analysis of variance [ANOVA] data.)

Description of the Study Area

The following description is abstracted from the project description report of McKenzie and Rinella (1987). The Yakima River basin is located in south-central Washington (fig. 1) and contains a diversity of landforms including the high, glaciated peaks and deep valleys of the Cascade Range to the west and Wenatchee Mountains to the north, the broad river valleys to the south and east, and the lowlands of the Columbia Plateau to the east. The altitude of the basin ranges from about 103 m at the Columbia River (Lake Wallula) up to an elevation of 2,680 m in the Cascade Range.

The Yakima River has a total drainage area of 15,940 km^2 (Columbia Basin Inter-agency Committee, 1964), is more than 344 km in length, flows southeasterly, and passes through three distinct sub-basins as it travels from the eastern slope of the Cascade Range to the Columbia River. The upper Yakima River begins at the outlet of Keechelus Lake, a glaciated lake enlarged and operated as a reservoir. The headwaters of the lake and other tributaries flow from glaciers and snowfields near the 1500 to 2100 m crest of the Cascade Range. Bordered on the west by the Cascades and on the north by the Wenatchee Mountains, the upper Yakima River flows through foothills into the Kittitas Valley. In this middle-basin

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[1]In this report, lower-order streams are defined as first- or second-order tributaries and higher-order streams are defined as third-order or larger tributaries--the largest being the main stem of the Yakima River. The smallest, unbranched, mapped (1:24,000 inch map scale) tributaries are first-order tributaries, streams receiving only first-order tributaries are second-order tributaries, larger streams receiving only first- and second-order tributaries are third order, and so on (Langbein and Iseri, 1960)

area, the major tributary is the Naches River. Major tributaries to the Naches River flow only from the south, a region characterized by ridges and peaks with areas above timberline that contain snowfields and a few glaciers. These tributaries are perennial and are fed by snow melt and glaciers. The Yakima River continues on through a gap in basalt ridges into the lower basin at Union Gap. This lower basin receives water from a large network of upstream storage reservoirs and includes valley lands that are intensively farmed.

Acknowledgments

The authors would like to thank Jim Walters, Debbie Aldesberger, and Debra Volturno (Geologic Division, Denver, CO) and Julija Laenen and Shirley Brown (Water Resourse Division [WRD], Portland, OR) and Luis Fuste (WRD, Tacoma, WA) for their assistance with sample collection, processing and digitizing, and Shelley Fluter (WRD, Portland, OR) for reviewing and verifying the data.

METHODS

Samples were classified according to "sample type" for the purpose of distinguishing samples collected from lower-order streams, higher-order streams, agriculture plots (soils), and sites where biological tissues were sampled. A description of the various sample classifications, including different types of ANOVA samples, is given in table 1.

Survey Design

Streambed sediment was collected at 269 lower-order stream sites using a random-sampling design so that summary statistics would not be biased by "polluted" or easy-access sites. The random-sampling design involves the random selection of a site from within a square-sample grid (7.6 km per side). The grid is placed over a 1:24,000 scale base map and successive coin tosses were made to randomly locate a map quadrant with a lower-order stream reach of no longer than 3.2 km and a drainage area no larger than 15.5 km^2. Higher-order stream sites were not randomly selected for streambed sampling; instead, 75 sites were chosen to represent locations along tributaries to the main stem, at the mouths of tributaries to the main stem, and along the main stem. In addition, urban storm water drains were sampled at six sites and soil samples were collected from former apple orchards at four sites. One of the four soil samples (map no. 224) was independently sampled at the soil surface and at a depth of 0.3 m.

A hierarchical sampling scheme was designed to study the statistical variations of the analytical constituents by ANOVA (Grundy and Miesch, 1987). Multiple samples were collected at various locations to determine:

1) analytical precision;
2) variability of element concentrations within the stream cross section;
3) variability of element concentrations within 100 meters of a sampling site;
4) variability of element concentrations within a square-sampling grid; and
5) variability of element concentrations as a result of sample collection and processing.

Results of standard geochemical reference samples GSD-6 and GXR-2, analyzed concurrent with the Yakima NAWQA samples, were reported by Sanzolone and Ryder (1989).

Analytical precision was determined by randomly splitting 30 of the lower-order streambed samples for duplicate analyses (sample type 4, table 1). Variability within the stream cross section was determined by analyzing 43 samples representing duplicate or triplicate sampling of 20 stream cross sections (sample type 8, table 1). The variability of element concentrations within a sampling grid was determined by collecting a second random sample within 30 randomly selected grids (sample type 2, table 1). Variability within the vicinity of a sampling site was determined by collecting a second sample 100 m upstream from the sample site from 30 randomly selected grids (sample type 3, table 1).

Sample collection and processing variability was determined by collecting replicate samples from 11 lower-order streams (sample types 5 and 6, table 1) and 13 higher-order streams (sample types 9 and 11, table 1). The lower-order stream replicate samples consisted of the regular dry-sieved sample and a second, independently collected, wet-sieved sample. The second replicate sample was collected a distance of no more than 100 m from the first sample. Conversely, the higher-order stream replicate samples consisted of the regular wet-sieved sample and a second, independently collected, dry-sieved sample. The second replicate sample was collected within the same stream cross section as the first sample. In an effort to achieve concentration levels that were above the minimum reporting level (table 2) for a majority of the elements, samples for types 5 and 6 were collected from lower-order sites known to be enriched based on data from Moen (1969). However, samples for types 9 and 11 were collected along depositional reaches of higher-order streams and had unknown degrees of enrichment at the time of sampling. An additional 17 lower-order stream samples were collected and dry sieved (sample type 5, table 1). However, due to sampling constraints in the field, no replicate samples were collected for determining sample collection and processing variability. Further details concerning the findings of both the ANOVA and sieving studies are in preparation (Fuhrer and others, in press).

Sample Collection and Preparation

Samples were collected during August and September of 1987. Sampling methods at lower- and higher-order streams were similar in using composite, surficial-sediment collections, but differed in sieving techniques. Dry sieving was performed on lower-order streams and wet sieving on higher-order streams.

Samples from lower-order flowing streams were collected from the active stream channel using a stainless-steel scoop. Five to seven representative subsamples were collected at each site. Care was taken to sample the oxidized portion of the bottom material (top 1-2 cm), and to restrict the loss of fine material while retaining as little water as possible. The subsamples were placed on a 2-mm stainless-steel screen which was positioned over a stainless-steel pan. The sample was worked through the screen by hand and then transferred to a 15x25-cm Hubco aerobic sample bag. The samples were air dried in the bags before submittal to the laboratory. In the laboratory, those samples requiring disaggregation were initially processed through a jaw crusher. All the samples were then placed in a ceramic "juicer" (Mechanical Nasco-Asplin Soil Grinder) for further disaggregation with minimal

particle disintegration. About 25 percent of the sample was then split off and archived. The remainder of the sample was dry sieved through a 63-micron stainless-steel sieve and the minus-63-micron fraction was submitted for analysis. The fraction less than 63-microns represents the silt- and clay-sized sediment, also called the fine-grained sediment.

Approximately 60 percent of the lower-order stream samples were collected from dry streams. Samples from dry streams were sieved to minus-63 microns at the collection site. A minimum of 50 g of material was collected at each site, which was then submitted for analysis without additional preparation.

Samples were collected from the streambeds of higher-order streams using stainless steel Ekman and ponar dredges at deep sites, and hand-held or pole mounted plastic scoops at shallow sites. Surface sediments (top 1-2 cm) were collected by subsampling the surface with grab samples brought up by the dredges or by using the scoops. Three to five subsamples from a cross-channel transect were composited in a plastic tub, then wet sieved using native water and a stainless-steel 63-micron mesh sieve. The sieved sediment/water slurry was poured into 2 L glass jars and allowed to stand overnight. After settling, water was siphoned off and the settled fines placed in polypropylene containers and air dried. The sampling procedure resulted in bulk samples ranging from 0.5 to 1.5 kg dry weight.

Chemical Analysis

All samples were submitted to the laboratories of the U.S. Geological Survey, Branch of Geochemistry in Lakewood, Colorado for analysis. The samples were analyzed for 48 constituents. Table 2 lists sample decomposition and detection methods along with the minimum reporting level for each constituent determined. The majority of elements were determined by inductively coupled plasma-atomic emission spectrometry (ICP-AES). Decompositions of the sediment samples for elements measured by atomic absorption spectroscopy (AAS) and ICP-AES are total digestions. Total sulfur and total carbon were determined by combustion techniques. The decompositions used for boron and uranium and carbonate (inorganic) carbon are partial techniques. Organic carbon was calculated by determining the difference between total carbon and inorganic carbon. Quality assurance was addressed by including standard reference materials, random sample splits, and analytical splits. Quality assessment procedures and results for analytical precision and accuracy for the four NAWQA surface water pilot studies are presented by Sanzolone and Ryder (1989). Protocols used for sample handling procedures, sample preparation, analytical methods, use of instrumentation and laboratory procedures and laboratory quality control are described by Arbogast, ed. (1990).

SUMMARY STATISTICS AND DATA

Tables 3a and 3b list the percentiles and minimum and maximum values for all 48 constituents. The samples used in calculating table 3a statistics are from lower-order streambeds and are comprised of sample types 1, 2 and 5 (table 1). The samples used in calculating table 3b are from higher-order streambeds and are comprised of sample types 7, 8, 11, and 13 (table 1).

Concentrations for 20 of the elements targeted by the NAWQA program are listed in table 4 for all streambed-sediment samples. Each sample is identified by latitude/longitude, sample type number, and a corresponding map number, which can be found in plate 1. Analytical results for 22 of the remaining constituents determined for the samples can be found in table 5. The precision of the ICP-AES technique and the AAS technique used for the determination of As permits the use of two significant figures. Because of the formatting used in the computer program that produced tables 4 and 5, some As values and values listed in the columns for elements reported as percent carry a nonsignificant digit to the right of the significant digits. No values were observed at or above the reported detection limit for Au, Ho, and Ta in any of the samples and the elements Ag, Bi, and Cd were detected in only one sample each. Consequently, the columns for these elements have been deleted from the tables. Map number 249 contained 3 μg/g Ag; map number 398 contained 10 μg/g Bi and map number 346 contained 2 μg/g Cd.

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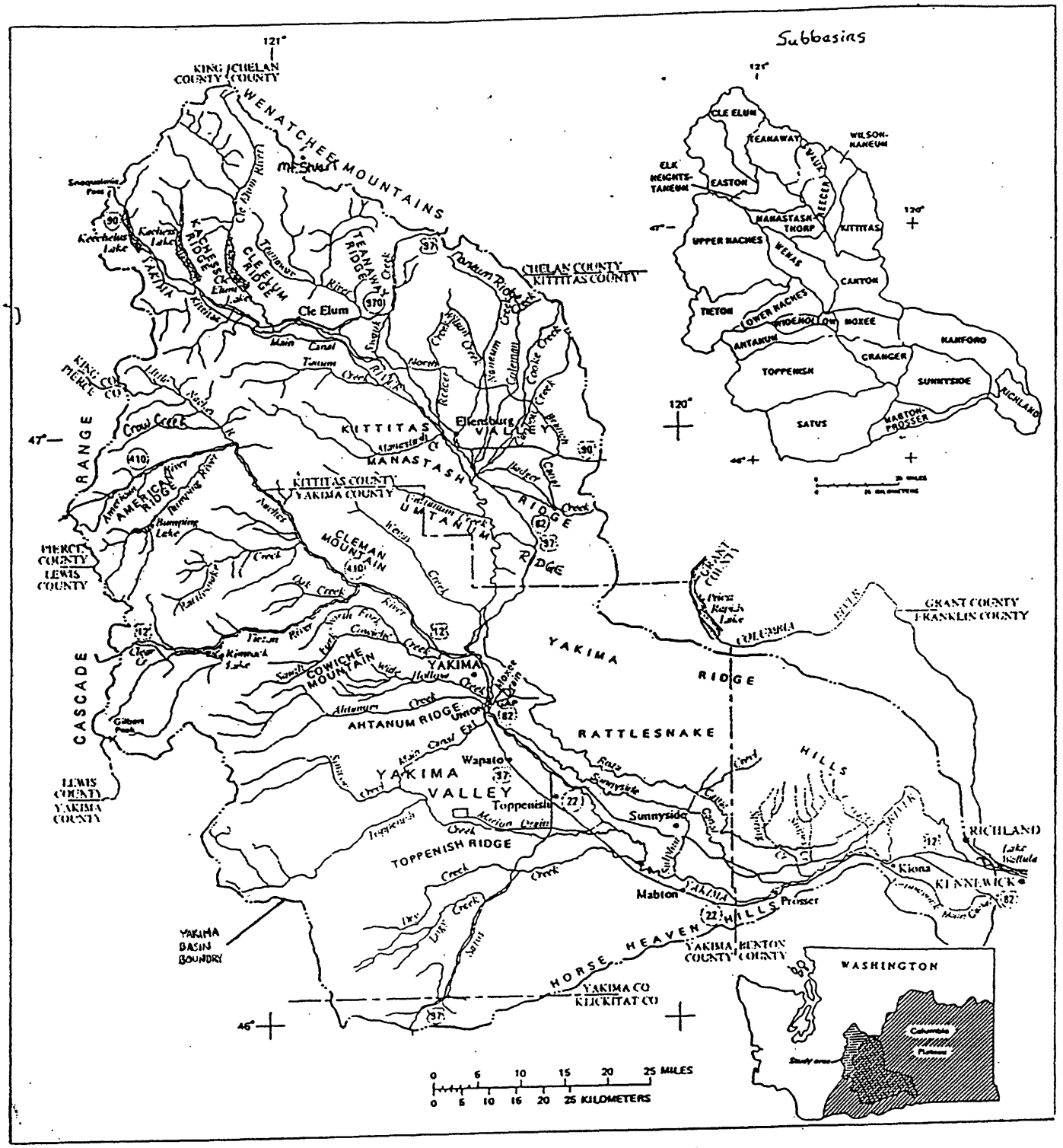

Figure 1.--The Yakima River basin, Washington.

Table 1. Explanation of types of streambed-sediment samples collected in Yakima River basin, 1987. (ANOVA = analysis of variance.)

Sample Type	Number of Samples	Description
1	270	Lower-order stream site, stream reach ≤ 3.2 km, drainage area ≤ 15.5 km^2, randomly selected site within a square-sample grid (7.6 km per side).
2	30	ANOVA sample; a second sample is randomly selected from a lower-order stream site within a sample grid to measure variability within a square-sample grid.
3	30	ANOVA sample; a second sampling site is located approximately 100 m upstream of the "type 2" sample to measure variability within close proximity to a randomly selected sample site.
4	30	ANOVA sample; split of sample "type 3" to measure analytical precision.
5	28	ANOVA sample; lower-order stream site known to be enriched based on data from Moen (1969); sample collected using dry sieving technique.
6	11	ANOVA sample; replicate sample of "type 5" collected to determine sample collection and processing variability; sample collected using wet sieving technique.
7a	5	Lower-order stream site known to be enriched based on data from Moen (1969).
7b	24	Higher-order stream site.
7c	6	Urban storm water drain site.
8	34	ANOVA sample; replicate and some triplicate samples were collected at higher-order stream sites to measure variability within the stream cross section.
9 & 11	13,13	ANOVA sample; replicate samples collected from higher-order streams to determine sample collection and processing variability. Type 9 samples were processed by dry sieving, type 11 samples were processed by wet sieving.
10	5	Soil sample sites located in former apple orchard.
13a	2	Lower-order stream site, corresponds to biological tissue sampling site in Yakima NAWQA bioassessment study.
13b	26	Higher-order stream site, corresponds to biological tissue sampling site in the Yakima NAWQA bioassessment study.

Table 2. Analytical methods and minimum reporting levels used for the streambed survey in the Yakima River basin, 1987. (All concentrations are in micrograms per gram unless otherwise noted.)

Element	Minimum Reporting Level	Analytical Method	Decomposition Method
Ag	2	ICP-AES[1]	($HCl/HNO_3/HClO_4/HF$)
Al	0.005%	do.	do.
As	0.1	Hydride-AAS[2]	($HCl/HNO_3/HClO_4$)
Au	8	ICP-AES	($HCl/HNO_3/HClO_4/HF$)
B	10	Hot water soluble	----------
Ba	1	ICP-AES	($HCl/HNO_3/HClO_4/HF$)
Be	1	do.	do.
C inorganic	0.01%	Titration	($HClO_4$)
C organic	---	By difference	----------
C Total	0.01%	Infrared	(Combustion)
Ca	0.005%	ICP-AES	($HCl/HNO_3/HClO_4/HF$)
Cd	2	do.	do.
Ce	4	do.	do.
Co	1	do.	do.
Cr	1	do.	do.
Cu	1	do.	do.
Eu	2	do.	do.
Fe	0.005%	do.	do.
Ga	4	do.	do.
Hg	0.02	Cold vapor-AAS	($HNO_3/NaCr_2O_7$)
Ho	4	ICP-AES	($HCl/HNO_3/HClO_4/HF$)
K	0.01%	do.	do.
La	2	do.	do.
Li	2	do.	do.
Mg	0.005%	do.	do.
Mn	4	do.	do.
Mo	2	do.	do.
Na	0.005%	do.	do.
Nb	4	do.	do.
Nd	4	do.	do.
Ni	2	do.	do.
P	0.005%	do.	do.
Pb	4	do.	do.
S	0.01%	Tritration	(Combustion)
Sb	0.1	Hydride-AAS	($HCl/HNO_3/HClO_4$)
Sc	2	ICP-AES	($HCl/HNO_3/HClO_4/HF$)
Se	0.1	Hydride-AAS	($HCl/HNO_3/HClO_4$)
Sn	10	ICP-AES	($HCl/HNO_3/HClO_4/HF$)
Sr	2	do.	do.
Ta	40	do.	do.
Th	4	do.	do.
Ti	0.005%	do.	do.
U	0.05	Fluorimetry	(Partial HNO_3)
V	2	ICP-AES	($HCl/HNO_3/HClO_4/HF$)
Y	2	do.	do.
Yb	1	do.	do.
Zn	2	do.	do.

[1] ICP-AES = Induction Coupled Plasma-Atomic Emission Spectrometry
[2] AAS = Atomic Absorption Spectrometry

Table 3a. Percentile distribution of element concentrations in fine-grained streambed-sediment samples from lower-order streams for sample types 1, 2, and 5 (see table 1) in the Yakima River basin, 1987. (N = Number of observations. All analytical values are in micrograms per gram unless otherwise noted.)

ELEMENT	N	MINIMUM	10%	25%	50%	75%	90%	95%	MAXIMUM
Ag	328	<2	<2	<2	<2	<2	<2	<2	<2
Al %	328	2.7	6.8	7.3	7.9	8.4	8.8	9.2	13
As	327	0.7	1.5	2.2	3.6	5.6	10	15	310
Au	327	<8	<8	<8	<8	<8	<8	<8	<8
B	314	<.4	0.4	0.5	0.7	1.2	2.1	2.5	8.3
Ba	328	55	370	440	510	570	610	690	930
Be	328	<1	1	1	1	2	2	2	4
Bi	328	<10	<10	<10	<10	<10	<10	<10	10
C % INO[1]	328	<.01	<.01	0.01	0.02	0.04	0.07	0.12	0.45
C % ORG[2]	328	0.11	0.54	0.9	1.69	2.75	4.33	5.67	12.8
C % TOTAL	328	0.23	0.57	0.93	1.72	2.76	4.36	5.71	12.9
Ca %	328	0.57	1.7	2.2	2.7	3.1	3.4	3.8	4.9
Cd	328	<2	<2	<2	<2	<2	<2	<2	<2
Ce	328	5	33	39	46	57	69	82	120
Co	328	10	14	16	20	24	31	35	140
Cr	328	14	31	42	52	70	110	160	1800
Cu	328	13	20	23	27	32	43	59	190
Eu	328	<2	<2	<2	<2	<2	2	2	4
Fe %	328	2.7	3.8	4.4	5.0	6.0	7.0	7.5	9.8
Ga	328	<4	17	18	19	21	23	25	35
Hg	327	<.02	<.02	<.02	<.02	0.04	0.10	0.16	3.1
Ho	328	<4	<4	<4	<4	<4	<4	<4	<4
K %	328	0.13	0.74	0.89	1.1	1.3	1.5	1.6	2.2
La	328	3	19	22	25	31	37	44	62
Li	328	12	18	20	23	28	38	43	110
Mg %	328	0.44	0.79	0.96	1.1	1.4	1.6	1.9	13
Mn	328	420	640	760	930	1100	1400	1500	2900
Mo	328	<2	<2	<2	<2	<2	<2	<2	8
Na %	328	0.36	1.5	1.7	1.9	2.1	2.3	2.6	3.8
Nb	328	<4	<4	6	8	11	13	14	35
Nd	328	4	19	22	26	32	38	46	66
Ni	328	4	13	16	20	29	48	87	1900
P %	328	0.02	0.07	0.08	0.10	0.11	0.13	0.15	0.27
Pb	328	<4	9	11	13	16	22	35	510
S % TOTAL	328	<.01	<.01	0.01	0.02	0.02	0.04	0.06	0.36
Sb	327	<.1	0.2	0.2	0.4	0.5	0.7	1.1	4.8
Sc	328	9	13	15	18	22	25	28	40
Se	60	<.1	<.1	0.2	0.4	0.6	1	1.2	1.3
Sn	328	<10	<10	<10	<10	<10	<10	<10	40
Sr	328	48	228	280	310	340	370	410	620
Ta	328	<40	<40	<40	<40	<40	<40	<40	<40
Th	328	<4	<4	5	6	8	10	12	19
Ti %	328	0.14	0.45	0.60	0.72	0.89	1.1	1.3	1.8
U	328	0.1	0.55	0.70	0.90	1.30	1.90	2.46	74
V	328	62	94	120	150	180	220	250	330
Y	328	6	17	19	22	25	31	37	61
Yb	328	<1	2	2	3	3	4	4	6
Zn	328	40	70	79	91	110	130	140	710

[1] Inorganic carbon
[2] Organic carbon

Table 3b. Percentile distribution of element concentrations in fine-grained streambed-sediment samples from higher-order streams for sample types 7b, 8, 11 and 13b (see table 1) in the Yakima River basin, 1987. (N = Number of observations. All analytical values are in micrograms per gram unless otherwise noted.)

ELEMENT	N =	MINIMUM	10 %	25 %	50 %	75 %	90 %	95 %	MAXIMUMM
Ag	78	<2	<2	<2	<2	<2	<2	<2	3
Al %	78	3.1	6.1	6.6	6.9	7.5	8.0	8.1	8.8
As	75	1.1	1.9	3.6	4.4	5.9	14	29	71
Au	78	<8	<8	<8	<8	<8	<8	<8	<8
B	64	<.3	0.4	0.5	0.9	1.5	2.3	2.7	4
Ba	78	67	360	420	480	530	550	570	1000
Be	78	<1	1	1	1	2	2	2	3
Bi	78	<10	<10	<10	<10	<10	<10	<10	<10
C % INO[1]	78	<.01	<.01	0.02	0.03	0.06	0.14	0.14	0.62
C % ORG[2]	73	0.30	0.73	1.61	2.22	3.49	5.14	6.79	16.0
C % TOTAL	78	0.42	0.84	1.74	2.46	3.61	5.27	6.77	16.2
Ca %	78	0.85	1.70	2.02	2.50	2.80	3.03	3.22	4.40
Cd	78	<2	<2	<2	<2	<2	<2	<2	2
Ce	78	7	33	38	43	52	68	86	110
Co	78	13	17	19	20	24	28	32	110
Cr	78	20	42	53	63	81	120	210	1600
Cu	78	15	21	26	31	39	48	62	130
Eu	78	<2	<2	<2	<2	<2	<2	<2	2
Fe %	78	2.7	4.5	4.8	5.1	5.6	6.2	6.4	7.3
Ga	78	7	15	16	18	19	20	21	23
Hg	78	<.02	0.02	0.04	0.10	0.17	0.24	0.27	0.56
Ho	78	<4	<4	<4	<4	<4	<4	<4	<4
K %	78	0.17	0.74	0.91	1.0	1.2	1.4	1.4	1.6
La	78	3	18	21	23	28	35	45	58
Li	78	13	19	21	24	27	32	34	51
Mg %	78	0.57	0.86	1.2	1.4	1.5	1.7	2.2	12
Mn	78	490	730	820	1000	1330	1700	1710	2700
Mo	78	<2	<2	<2	<2	<2	<2	<2	4
Na %	78	0.50	1.1	1.4	1.5	1.7	1.8	2.0	2.3
Nb	78	<4	<4	<4	6	9	10	13	15
Nd	78	4	19	22	24	29	37	44	60
Ni	78	8	16	21	28	42	78	160	1700
P %	78	0.05	0.08	0.10	0.11	0.13	0.14	0.16	0.21
Pb	78	<4	9	12	14	20	33	61	150
S % TOTAL	78	<.01	<.01	0.02	0.03	0.06	0.08	0.09	0.15
Sb	63	0.2	0.2	0.4	0.5	0.6	0.8	1.1	2.8
Sc	78	7	14	17	19	21	23	24	29
Se	38	<0.1	0.1	0.2	0.4	0.5	0.9	1	1.2
Sn	78	<10	<10	<10	<10	<10	<10	<10	40
Sr	78	55	200	230	250	290	320	350	510
Ta	78	<40	<40	<40	<40	<40	<40	<40	<40
Th	78	<4	<4	4	6	7	10	11	20
Ti %	78	0.19	0.48	0.58	0.66	0.74	0.94	1.0	1.1
U	74	0.25	0.65	0.80	1.1	1.5	2.3	3.5	74
V	78	62	110	130	140	170	200	220	240
Y	78	7	19	20	23	25	27	29	35
Yb	78	<1	2	3	3	3	3	4	4
Zn	78	32	78	91	100	110	170	220	310

[1] Inorganic carbon
[2] Organic carbon

Table 4. Analytical results for 20 elements in fine-grained streambed sediments from the Yakima River basin. (All analytical values are in micrograms per gram unless otherwise noted. See table 1 for explanation of type. B = insufficient sample for analysis, H = interference. Map no. 224a is a soil sample collected at the surface and map no. 224b is a soil sample collected at the same location but at a depth of one foot.)

Map No.	Lat.	Long.	TYPE	Al %	As	B	Ba	Be	TOTAL C%	Cr	Cu	Fe %
1	47 33 53	121 06 52	1	7.5	6.8	B	420	1	7.97	240	37	3.9
2	47 31 05	121 03 52	1	5.9	28.0	0.5	240	<1	2.45	1700	43	7.0
3	47 31 03	121 13 29	1	9.8	13.0	0.8	760	2	4.63	82	19	3.3
4	47 30 28	121 10 52	1	8.0	6.8	2.2	520	2	8.41	69	23	2.9
5	47 29 37	121 02 39	6	2.9	23.0	1.5	130	<1	2.91	1500	50	6.5
6	47 29 38	121 02 44	5	11.0	11.0	1.9	810	2	1.14	210	77	6.7
7	47 28 52	120 59 24	7a	3.1	16.0	1.0	67	<1	3.07	1600	32	6.2
8	47 28 07	121 02 34	1	5.0	31.0	0.9	200	<1	6.39	1400	40	5.0
9	47 26 35	120 56 22	1	2.7	5.9	1.0	55	<1	1.45	1200	47	7.9
10	47 26 04	121 01 26	5	8.1	220.0	2.8	340	2	6.54	32	87	4.6
11	47 25 54	121 10 45	1	8.9	11.0	<0.4	670	2	3.41	93	29	3.5
12	47 25 51	121 13 15	1	11.0	23.0	<0.4	750	2	2.57	170	92	6.5
13	47 25 14	121 09 34	5	9.5	9.1	1.8	590	2	2.74	150	75	5.1
14	47 25 13	121 09 37	6	7.9	17.0	0.4	630	2	5.11	100	31	3.5
15	47 25 13	121 05 15	13b	6.9	45.0	B	447	1	6.64	61	20	3.9
16	47 24 53	121 14 32	5	9.0	5.7	2.5	530	1	2.83	270	110	4.9
17	47 24 05	120 55 20	1	7.6	7.5	1.3	420	1	6.16	110	26	3.6
18	47 23 45	120 52 20	5	7.8	160.0	4.0	360	2	4.32	28	190	5.3
19	47 23 52	121 05 28	5	6.7	11.0	0.7	370	1	11.50	30	26	3.3
20	47 23 49	121 22 50	7a	7.9	67.0	2.0	310	1	4.04	43	130	4.7
21	47 23 37	121 06 16	1	7.4	61.0	1.2	560	2	5.93	100	31	3.4
22	47 23 33	121 16 30	1	9.8	2.4	<0.4	200	1	4.90	60	54	3.6
23	47 22 45	121 05 41	1	7.8	9.9	1.2	630	1	3.43	87	29	3.9
24	47 22 44	120 48 07	1	6.1	3.7	B	330	1	12.90	90	20	3.8
25	47 22 36	120 52 18	1	7.9	5.9	0.9	350	1	4.51	96	29	5.6
26	47 22 04	121 22 14	1	8.7	21.0	1.5	450	1	1.48	110	57	5.9
27	47 21 19	121 06 21	8	5.2	71.0	B	360	<1	3.42	600	43	5.2
27	47 21 19	121 06 21	8	5.2	81.0	B	360	1	3.60	620	48	5.4
28	47 20 49	120 53 37	6	7.4	5.4	1.6	410	1	5.66	57	30	5.8
29	47 20 48	120 53 38	5	8.8	13.0	0.6	380	2	3.17	31	74	3.4
30	47 20 30	120 51 59	13a	8.3	29.0	<0.4	564	1	1.61	93	36	6.0
31	47 20 22	121 24 23	1	8.1	15.0	1.1	540	2	5.08	25	20	4.0
32	47 20 11	120 51 29	7b	8.8	30.0	0.6	610	1	3.00	100	43	6.2
33	47 20 02	120 51 01	1	7.3	5.0	1.2	510	1	4.07	70	32	5.8
34	47 19 58	121 10 27	1	6.6	6.4	1.1	800	2	2.89	95	27	4.4
35	47 19 57	121 15 21	11	9.0	13.0	0.6	360	2	4.55	110	50	5.0
35	47 19 57	121 15 21	9	8.5	13.0	B	330	1	3.23	110	48	4.8
36	47 19 35	120 35 18	5	8.4	35.0	B	360	1	3.14	45	29	4.3
37	47 19 42	120 38 36	5	8.7	4.9	4.4	840	1	1.31	90	31	3.7
38	47 19 44	120 38 40	6	9.5	5.8	0.5	890	2	1.55	120	41	4.6
39	47 19 34	120 35 32	6	7.8	3.5	1.0	540	2	6.34	86	35	4.8
40	47 19 23	120 47 16	5	8.4	2.9	0.5	220	<1	0.42	280	97	6.5
41	47 18 43	120 31 49	1	8.9	4.2	1.0	650	1	1.86	81	25	4.4
42	47 18 25	120 57 33	1	6.6	11.0	1.7	450	1	4.01	28	31	7.9
43	47 18 21	121 23 22	1	8.7	4.7	0.7	690	2	5.02	29	28	4.2

Table 4. Continued

Map No.	Lat.	Long.	TYPE	Al %	As	B	Ba	Be	TOTAL C%	Cr	Cu	Fe %
44	47 18 12	120 37 47	1	8.4	6.9	0.8	790	2	2.13	86	35	4.2
45	47 18 09	120 43 26	1	8.0	3.9	3.8	630	1	1.76	66	20	2.7
46	47 18 08	121 05 58	1	7.1	5.9	2.9	340	1	5.56	170	31	6.1
47	47 17 56	121 02 53	2	7.9	4.2	1.0	420	2	2.50	24	39	8.7
47	47 17 58	121 02 55	3	8.0	2.7	2.6	480	1	4.01	40	31	6.4
47	47 17 58	121 02 55	4	8.4	2.9	B	520	1	3.36	38	33	6.2
48	47 17 25	120 41 44	5	8.0	3.5	1.7	390	1	5.14	59	35	3.3
49	47 17 17	121 11 57	2	8.7	7.1	0.6	550	2	1.55	95	40	6.5
49	47 17 19	121 11 53	3	8.4	4.4	B	520	2	3.87	79	35	4.6
49	47 17 19	121 11 53	4	10.0	10.0	0.5	670	2	2.42	92	46	6.7
50	47 17 19	121 16 51	1	8.3	3.2	B	460	2	5.75	130	29	3.9
51	47 16 07	120 36 47	6	7.4	3.5	1.7	500	2	2.88	57	25	5.4
52	47 16 05	120 38 36	1	7.8	7.2	2.5	640	1	3.05	76	27	3.4
53	47 16 03	120 36 50	5	7.9	2.5	B	600	1	2.62	84	25	4.7
54	47 15 45	120 41 53	5	8.8	4.2	2.4	790	1	0.94	84	25	2.7
55	47 15 45	120 41 59	6	7.4	5.9	1.3	540	1	5.93	80	34	4.6
56	47 15 27	120 52 44	7b	6.9	6.7	2.2	470	1	4.60	210	28	4.8
57	47 15 33	120 53 49	8	7.6	4.1	0.7	490	1	3.55	100	31	6.3
57	47 15 33	120 53 49	8	7.5	5.0	1.2	480	1	3.41	87	30	6.0
58	47 15 32	120 54 12	8	7.7	5.5	2.3	540	1	4.22	88	33	5.4
58	47 15 32	120 54 12	8	7.2	6.1	3.0	520	1	5.09	76	33	4.7
59	47 14 49	120 41 47	5	7.4	4.5	8.3	620	1	4.07	64	23	4.2
60	47 14 50	120 41 47	6	7.7	7.9	1.2	550	1	5.09	69	34	5.1
61	47 14 48	120 51 36	13b	7.7	4.4	B	506	1	2.58	212	32	5.6
62	47 14 25	120 26 54	1	8.2	2.9	2.6	600	1	2.66	68	21	5.0
63	47 14 26	120 49 10	1	8.5	2.5	B	730	2	2.71	87	30	4.0
64	47 14 34	121 13 24	1	9.0	3.3	<0.4	500	2	1.90	83	35	4.4
65	47 14 26	121 13 26	11	8.4	5.6	0.7	520	1	0.88	130	39	4.7
65	47 14 26	121 13 26	9	8.1	4.1	<0.4	490	1	0.70	130	37	4.6
66	47 13 54	121 19 36	1	8.5	5.2	1.6	440	2	2.94	33	34	4.6
67	47 13 44	120 34 53	1	8.5	1.5	<0.4	440	2	3.77	58	26	7.7
68	47 12 48	120 57 42	7a	8.0	B	1.3	750	1	6.71	77	36	2.7
69	47 12 50	121 10 20	1	8.4	2.8	1.8	530	2	2.84	140	37	4.9
70	47 12 30	120 41 56	8	6.7	3.9	1.8	450	1	5.04	67	31	4.9
70	47 12 30	120 41 56	8	6.9	2.7	2.6	490	1	4.67	72	32	5.0
71	47 12 26	120 42 05	1	7.4	1.8	2.2	420	1	3.13	62	35	6.9
72	47 12 26	121 01 54	1	7.9	7.0	0.9	450	1	4.55	180	28	3.9
73	47 12 22	120 55 53	1	9.7	11.0	0.6	820	2	0.93	110	31	3.9
74	47 12 08	120 57 21	5	8.6	3.9	0.8	630	1	4.74	83	33	3.4
75	47 11 42	121 13 02	2	8.8	3.8	1.8	570	2	1.98	100	30	3.7
75	47 11 35	121 13 09	3	9.4	3.6	B	610	1	0.96	100	27	3.6
75	47 11 35	121 13 09	4	8.9	4.2	B	570	1	0.98	110	27	3.7
76	47 11 35	120 56 55	7b,13b	7.5	7.9	0.6	480	1	3.66	210	43	5.1
77	47 10 32	120 35 11	1	7.5	1.3	2.8	500	1	4.08	47	16	6.1
78	47 10 29	121 16 05	1	7.8	2.7	2.0	480	1	4.26	87	24	3.9

Table 4. Continued

Map No.	Lat.	Long.	TYPE	Al %	As	B	Ba	Be	TOTAL C%	Cr	Cu	Fe %
79	47 10 19	120 24 00	1	6.2	7.1	<0.4	500	2	0.34	65	16	6.4
80	47 10 14	121 05 54	1	9.4	4.5	0.4	600	2	2.51	94	48	4.4
81	47 10 02	120 40 08	1	8.6	2.0	1.6	580	1	1.73	92	39	5.1
82	47 09 49	120 27 24	1	8.5	4.3	1.4	570	2	2.28	48	20	6.3
83	47 09 48	120 58 42	5	8.8	13.0	0.7	520	2	5.98	120	94	4.8
84	47 09 25	120 59 13	6	9.4	8.3	3.4	660	2	1.46	120	51	4.5
85	47 09 29	121 01 16	1	7.2	1.0	1.5	150	<1	3.82	130	13	5.7
86	47 09 17	120 57 28	1	8.5	4.4	0.6	520	1	1.11	83	25	4.5
87	47 09 22	120 51 35	1	7.1	3.5	0.6	440	1	4.89	52	25	3.9
88	47 09 17	120 42 58	1	7.9	2.1	<0.4	530	1	2.17	56	21	4.0
89	47 08 40	120 32 50	2	8.1	2.0	1.3	580	2	2.06	32	30	7.6
89	47 08 52	120 32 52	3	7.9	1.7	2.3	540	2	2.52	35	32	7.9
89	47 08 52	120 32 52	4	7.8	2.5	0.9	540	2	2.34	35	31	7.7
90	47 07 24	120 28 43	7b	6.7	1.8	0.4	490	1	7.32	56	24	5.6
91	47 07 00	120 48 41	1	8.6	2.0	<0.4	500	1	0.95	50	16	4.0
92	47 06 55	121 02 49	5	8.8	5.4	B	510	1	2.42	250	99	4.4
93	47 06 52	120 44 37	1	8.0	4.9	0.5	550	2	1.43	74	29	3.8
94	47 06 48	120 54 30	1	9.5	8.6	2.1	610	2	1.60	230	46	5.8
95	47 06 28	120 51 17	11	7.2	4.2	3.3	430	1	4.77	140	43	5.0
95	47 06 28	120 51 17	9	7.3	B	B	430	1	4.03	170	47	5.2
96	47 06 26	121 06 09	5	9.2	5.1	4.3	570	1	1.63	100	49	6.0
97	47 06 05	120 56 56	5	7.9	13.0	0.6	600	1	3.90	95	30	3.3
98	47 05 49	120 17 14	2	8.5	4.1	0.8	480	2	1.76	58	27	6.8
98	47 05 50	120 17 17	3	7.7	1.3	0.6	560	2	1.84	36	23	5.6
98	47 05 50	120 17 17	4	8.3	1.4	<0.4	600	2	1.83	35	26	5.4
99	47 05 34	120 18 16	1	7.9	2.0	0.6	530	1	1.89	31	24	5.2
100	47 05 21	120 27 49	1	7.0	2.1	1.7	480	1	2.72	38	24	4.7
101	47 05 17	120 30 50	1	8.1	2.2	<0.4	560	1	1.34	48	23	6.1
102	47 05 01	120 37 43	1	7.6	2.5	1.3	520	1	3.11	82	26	4.3
103	47 04 58	120 23 15	1	7.9	2.7	1.5	520	1	2.44	46	25	4.8
104	47 04 56	121 16 02	1	8.3	5.6	1.0	930	1	4.19	32	15	4.1
105	47 04 59	121 19 29	1	8.6	8.2	3.3	460	1	4.08	35	21	4.7
106	47 04 45	121 14 22	5	8.8	H	B	380	1	2.88	42	42	4.8
107	47 04 13	121 04 07	1	7.4	4.6	<0.4	520	1	2.03	130	55	4.8
108	47 04 05	121 10 13	1	9.6	3.4	1.4	700	2	2.67	110	38	4.4
109	47 03 28	121 17 24	1	8.5	4.4	B	350	1	2.57	30	26	7.7
110	47 03 19	120 20 59	1	7.6	2.3	0.5	560	2	2.24	47	24	5.5
111	47 03 18	121 00 15	1	8.8	2.0	2.3	390	1	3.53	35	24	4.4
112	47 03 15	121 15 44	7a	6.1	4.4	B	270	1	7.82	20	26	3.8
113	47 03 11	120 52 30	1	8.7	2.6	<0.4	520	2	1.71	59	29	6.5
114	47 02 36	120 34 11	1	7.5	2.7	<0.4	600	2	1.69	59	31	5.1
115	47 02 28	120 57 07	1	6.5	5.9	0.9	720	1	0.70	82	17	2.7
116	47 02 17	121 13 54	1	9.0	1.6	<0.4	250	<1	3.10	310	89	6.2
117	47 02 10	121 09 50	1	7.9	3.0	1.0	560	2	2.61	120	31	4.9
118	47 01 44	120 40 19	1	8.3	1.3	<0.4	440	1	1.57	73	27	4.2

Table 4. Continued

Map No.	Lat.	Long.	TYPE	Al %	As	B	Ba	Be	TOTAL C%	Cr	Cu	Fe %
119	47 01 43	121 09 12	7b	7.0	8.2	1.3	380	1	3.72	42	34	4.9
120	47 01 06	120 17 54	1	7.8	1.5	1.1	450	1	1.37	48	25	4.6
121	47 01 07	120 36 28	7b,13b	6.8	5.5	0.6	440	1	4.11	160	39	5.0
122	47 01 00	120 44 19	1	8.0	1.1	0.8	490	1	3.31	52	28	6.2
123	47 00 45	120 41 14	2	8.3	8.0	1.0	460	1	2.69	57	31	5.9
123	47 00 42	120 41 20	3	8.4	1.9	<0.4	460	2	1.86	71	37	6.1
123	47 00 42	120 41 20	4	8.1	1.3	<0.4	450	1	1.84	69	36	5.8
124	47 00 38	120 27 51	1	7.9	1.6	0.5	580	1	0.57	54	13	5.3
125	47 00 14	121 07 18	2	8.8	2.1	0.7	460	2	4.10	59	35	4.6
125	47 00 17	121 17 08	3	7.1	5.3	1.1	470	1	3.90	58	41	5.0
125	47 00 17	121 07 08	4	8.2	5.8	B	470	1	2.58	72	31	6.1
126	46 59 52	120 32 45	7c	8.1	17.0	0.6	610	2	1.84	110	65	5.1
127	46 59 29	121 05 59	8	7.7	5.2	B	400	1	3.11	44	32	5.3
127	46 59 29	121 05 59	8	7.6	5.4	B	400	1	2.61	44	28	5.4
128	46 59 06	120 55 23	1	7.9	2.5	2.8	380	1	2.55	42	25	7.8
129	46 58 57	120 49 52	1	8.0	1.8	0.8	480	1	3.18	40	26	6.4
130	46 58 44	120 15 06	1	8.2	2.0	<0.4	530	2	2.48	56	24	6.8
131	46 58 40	121 10 04	8	7.1	8.5	2.1	420	2	2.62	41	62	6.1
131	46 58 40	121 10 04	8	6.9	9.3	B	400	2	2.70	39	59	5.8
132	46 58 18	120 30 47	1	7.4	2.6	1.9	520	1	1.06	110	16	5.9
133	46 58 23	120 48 31	2	8.2	5.1	0.6	520	1	3.22	46	27	5.9
133	46 58 26	120 48 28	3	8.3	9.5	B	470	1	2.46	75	32	6.1
133	46 58 26	120 48 28	4	8.2	5.1	B	710	2	2.06	44	34	5.1
134	46 58 16	120 53 30	1	7.7	1.3	<0.4	500	2	5.04	40	27	7.4
135	46 58 02	120 40 47	1	8.1	1.6	1.1	440	1	2.20	45	26	5.7
136	46 58 02	120 41 03	11	7.2	1.9	0.6	430	1	4.39	110	30	5.8
136	46 58 02	120 41 03	9	7.3	1.8	3.9	440	1	3.40	100	29	5.8
137	46 57 50	120 26 59	1	7.1	2.4	0.5	520	1	1.87	48	24	4.6
138	46 57 39	121 04 10	1	8.2	1.5	0.6	410	<1	5.77	25	33	4.7
139	46 57 25	120 21 59	1	7.5	1.2	2.1	480	1	3.08	45	24	4.4
140	46 57 20	121 07 27	1	9.3	6.0	0.5	490	2	1.85	48	30	5.3
141	46 55 44	120 29 48	8,13b	7.0	2.6	0.8	500	1	1.46	54	22	4.2
141	46 55 44	120 29 48	8,13b	7.0	3.1	1.6	510	1	1.42	50	23	4.1
142	46 55 35	120 30 02	7b	7.1	2.0	1.3	500	1	2.27	84	25	4.8
143	46 55 39	121 08 53	1	8.7	1.8	0.6	370	1	4.70	29	29	3.4
144	46 55 27	121 12 49	8	7.1	B	B	410	1	4.85	53	41	4.6
144	46 55 27	121 12 49	8	8.7	33.0	0.6	600	1	3.02	100	43	6.2
145	46 55 25	121 16 24	1	8.9	1.6	1.6	290	1	1.05	29	39	7.0
146	46 55 22	121 13 14	1	8.5	1.7	0.5	320	1	2.44	32	26	3.7
147	46 54 47	120 14 02	1	7.9	3.0	1.5	490	1	1.19	49	33	4.9
148	46 54 53	120 48 39	2	8.7	1.7	0.6	480	1	1.48	45	31	7.2
148	46 54 55	120 48 36	3	9.0	1.5	2.4	490	1	1.43	44	31	7.3
148	46 54 55	120 48 36	4	9.0	1.6	3.8	500	1	1.26	42	31	7.0
149	46 54 48	120 50 55	1	8.8	.8	1.6	460	1	2.25	42	31	6.3
150	46 54 35	121 25 03	7a	5.5	24.0	0.4	310	1	16.20	23	31	4.8

Table 4. Continued

Map No.	Lat.	Long.	TYPE	Al %	As	B	Ba	Be	TOTAL C%	Cr	Cu	Fe %
151	46 54 28	120 22 02	1	7.5	2.7	0.6	610	2	1.12	62	24	5.3
152	46 54 18	120 38 48	2	8.4	1.1	0.5	460	1	1.79	44	29	6.0
152	46 54 22	120 38 44	3	9.0	2.0	1.1	510	1	1.75	47	31	6.5
152	46 54 22	120 38 44	4	8.3	2.0	1.3	450	1	1.75	43	28	5.8
153	46 54 18	120 49 03	1	8.7	1.3	0.5	470	1	1.72	40	30	6.0
154	46 54 02	121 00 38	1	8.4	2.9	2.2	380	1	2.69	67	43	6.1
155	46 53 55	120 38 53	1	8.0	1.9	<0.4	480	2	2.06	38	25	5.6
156	46 53 47	121 24 52	5	2.8	26.0	0.4	110	<1	2.62	1800	55	7.1
157	46 53 38	120 55 28	1	7.5	1.4	<0.4	320	1	2.76	35	45	5.8
158	46 53 23	121 29 32	1	7.9	310.0	1.5	340	1	2.34	44	53	6.0
159	46 53 04	120 28 28	1	9.4	2.3	0.5	510	2	0.93	48	47	5.9
160	46 53 02	121 19 47	1	8.2	2.1	<0.4	360	1	0.59	16	18	5.4
161	46 52 58	120 33 59	1	8.2	2.1	1.1	470	1	1.54	45	29	5.9
162	46 52 24	121 19 41	1	7.9	13.0	B	400	1	3.12	29	41	4.9
163	46 52 01	120 50 01	1	8.7	1.6	<0.4	450	1	1.93	42	34	5.5
164	46 51 46	120 28 44	7b,13b	5.9	2.8	1.1	470	1	4.06	64	28	4.3
165	46 51 42	121 09 28	1	9.0	6.4	2.0	370	1	3.15	40	27	5.3
166	46 51 32	121 26 37	1	7.3	4.3	1.2	580	2	0.29	50	19	3.5
167	46 51 27	120 29 46	13a	7.4	1.6	<0.4	478	1	2.22	50	30	6.7
168	46 51 17	120 28 01	1	7.8	2.5	1.7	450	1	1.55	67	31	5.0
169	46 51 19	120 29 02	7b	4.3	1.7	<0.4	320	1	5.31	32	22	4.8
170	46 51 18	120 28 59	7b	7.6	2.9	0.8	500	1	1.97	112	30	5.1
171	46 51 09	120 12 37	1	8.0	3.9	0.8	580	2	1.09	50	35	5.3
172	46 51 13	121 03 51	1	8.5	1.4	<0.4	400	1	0.81	39	29	5.3
173	46 50 47	121 21 45	1	8.5	2.1	0.5	450	1	2.01	120	72	5.7
174	46 50 25	120 21 02	1	7.6	1.9	0.8	450	1	1.41	45	29	4.2
175	46 50 24	120 45 59	1	8.8	2.0	0.9	480	1	1.53	48	27	6.7
176	46 50 08	121 17 53	6	7.9	65.0	0.7	360	1	5.04	28	68	3.7
177	46 50 06	121 17 57	1	8.2	55.0	0.6	360	1	3.99	33	61	4.2
178	46 50 10	121 22 08	7b	6.6	B	B	310	1	7.61	120	60	4.6
179	46 49 58	120 56 14	1	7.8	3.1	0.6	440	1	2.95	31	28	4.8
180	46 49 19	120 27 02	8	6.0	2.9	1.2	390	1	2.10	46	26	5.4
180	46 49 19	120 27 02	8	6.1	2.9	0.6	400	1	2.09	46	24	5.5
181	46 49 16	120 41 28	11	7.9	1.9	0.6	420	1	2.11	56	27	6.8
181	46 49 16	120 41 28	9	8.1	1.2	B	410	1	1.39	56	21	6.2
182	46 49 12	120 40 16	1	8.1	2.3	0.7	400	1	1.65	25	29	4.3
183	46 49 09	120 56 01	7b,13b	7.6	7.8	0.9	420	1	2.87	49	39	5.6
184	46 48 35	120 16 59	1	7.8	2.2	1.1	430	1	0.75	37	33	4.5
185	46 48 39	121 18 47	5	8.1	6.7	0.5	570	1	1.78	140	30	4.0
186	46 48 34	121 04 08	13b	7.8	9.5	B	433	1	3.32	62	43	5.2
187	46 48 24	120 31 15	1	7.4	2.4	0.6	560	1	1.78	36	27	6.3
188	46 47 28	121 21 20	5	4.7	3.1	1.5	250	<1	1.89	650	22	7.1
189	46 47 24	120 52 09	1	6.6	4.3	1.3	450	1	6.08	29	30	4.6
190	46 47 08	120 57 31	1	7.9	5.6	<0.4	590	2	2.62	27	38	5.6
191	46 47 08	121 20 14	6	8.0	7.8	0.5	410	2	5.21	40	41	3.4

Table 4. Continued

Map No.	Lat.	Long.	TYPE	Al %	As	B	Ba	Be	TOTAL C%	Cr	Cu	Fe %
192	46 46 59	120 17 41	1	7.7	2.5	1.7	520	1	0.58	49	24	5.0
193	46 46 37	120 21 04	1	7.3	2.3	0.5	480	2	0.88	45	31	6.7
194	46 46 39	120 27 04	1	6.9	2.6	1.1	480	2	0.55	30	37	9.0
195	46 46 44	121 04 42	1	7.5	6.6	0.9	470	1	0.81	14	22	5.3
196	46 46 32	121 18 05	5	4.0	9.0	1.6	220	<1	1.63	1300	24	7.4
197	46 46 24	121 06 32	1	8.8	49.0	1.9	430	1	1.80	29	27	5.3
198	46 46 10	120 25 19	2	7.5	1.9	1.1	430	1	1.79	35	29	5.2
198	46 46 14	120 25 17	3	7.8	1.8	3.1	390	1	1.59	20	32	3.5
198	46 46 14	120 25 17	4	7.6	4.0	1.4	400	1	1.46	23	30	3.5
199	46 46 00	121 21 00	5	8.0	2.9	0.7	620	1	2.73	89	28	5.0
200	46 45 16	120 40 01	1	8.3	2.0	4.6	390	1	0.55	76	25	8.3
201	46 45 04	120 27 51	8	7.0	4.0	3.1	480	1	2.85	100	36	4.9
201	46 45 04	120 27 51	8	7.0	2.0	1.1	520	1	3.03	95	36	4.8
202	46 44 47	120 47 14	7b	7.0	3.9	1.1	370	1	3.12	42	37	5.5
203	46 44 43	120 12 11	1	7.4	4.3	0.7	530	2	1.15	56	24	5.0
204	46 44 43	120 47 37	1	8.2	1.8	<0.4	460	1	0.89	51	32	5.9
205	46 44 33	121 12 24	1	7.8	130.0	3.1	320	1	6.43	29	150	3.8
206	46 44 19	120 34 39	1	8.1	25.0	<0.4	540	2	1.14	46	27	4.2
207	46 43 36	120 48 34	7b	7.7	5.4	1.3	470	1	2.24	64	41	5.3
208	46 43 10	121 07 56	1	8.8	2.2	1.1	390	1	3.11	52	34	4.7
209	46 42 55	120 41 56	1	7.8	3.9	0.8	490	1	3.15	43	41	4.8
210	46 42 46	120 24 43	1	8.1	2.1	<0.4	460	1	0.72	45	27	3.6
211	46 42 44	120 52 58	1	6.5	1.5	0.9	410	1	6.43	35	34	6.1
212	46 42 41	120 58 13	1	8.2	1.4	0.7	460	1	1.94	26	30	4.8
213	46 42 29	120 28 03	8	7.6	4.5	0.5	440	1	1.14	110	43	5.1
213	46 42 29	120 28 03	8	7.4	2.5	0.4	450	2	1.63	55	44	5.3
214	46 42 15	120 27 04	1	8.9	3.0	1.1	500	2	1.08	56	38	5.3
215	46 42 09	120 21 01	2	11.0	3.2	0.8	710	2	1.28	58	57	5.8
215	46 42 11	120 20 57	3	7.5	2.7	0.7	460	1	1.70	41	31	4.1
215	46 42 11	120 20 57	4	7.5	5.1	3.1	490	2	1.51	40	36	4.2
216	46 42 12	120 31 10	1	7.8	7.1	0.6	420	1	1.55	36	32	3.9
217	46 42 01	120 47 01	1	8.7	2.7	0.5	460	1	0.81	52	30	4.1
218	46 40 53	121 17 52	1	9.1	3.2	<0.4	410	1	1.26	130	110	6.7
219	46 40 35	121 12 25	5	8.0	2.5	1.0	710	1	3.34	77	20	4.2
220	46 40 27	121 02 25	1	8.2	4.3	0.7	400	2	1.10	24	33	3.5
221	46 40 23	120 13 35	1	7.5	2.7	0.5	530	2	0.58	40	22	5.3
222	46 40 23	121 10 02	2	8.2	4.3	1.0	560	2	1.10	26	36	5.4
222	46 40 25	121 10 04	3	8.2	3.2	B	530	1	1.46	29	38	5.3
222	46 40 25	121 10 04	4	8.2	3.7	B	520	1	1.53	27	40	5.4
223	46 39 58	121 22 20	1	8.2	3.0	<0.4	400	2	7.55	100	28	2.9
224a	46 39 33	120 35 57	10	7.6	57.0	2.3	460	1	2.09	58	32	4.0
224b	46 39 33	120 35 57	10	7.9	44.0	1.1	470	1	1.67	66	33	4.2
225	46 39 30	121 15 15	5	7.3	14.0	1.0	440	1	5.59	61	33	7.6
226	46 39 22	121 11 15	1	8.3	2.7	0.7	440	1	4.14	45	24	5.1
227	46 39 13	121 17 43	2	8.4	1.9	0.5	340	1	1.31	23	28	3.3

Table 4. Continued

Map No.	Lat.	Long.	TYPE	Al %	As	B	Ba	Be	TOTAL C%	Cr	Cu	Fe %
227	46 39 15	121 17 43	3	8.4	1.8	1.1	340	1	0.72	19	27	3.1
227	46 39 15	121 17 43	4	7.4	6.2	0.9	510	1	2.04	47	27	4.6
228	46 39 02	120 28 50	1	7.8	4.4	0.5	480	1	0.36	100	26	5.0
229	46 38 55	120 31 30	7c	7.4	2.5	0.4	520	2	0.91	49	30	5.5
230	46 38 54	120 16 32	1	7.6	3.0	1.4	500	1	0.94	41	27	5.0
231	46 38 35	120 32 35	1	7.9	13.0	0.7	470	1	1.40	72	39	4.3
232	46 38 37	121 05 56	1	7.7	2.6	0.9	510	2	0.96	18	32	5.5
233	46 38 17	121 17 04	11	7.8	5.5	B	540	1	2.17	86	30	3.6
233	46 38 17	121 17 04	9	7.3	3.6	0.7	560	2	1.37	53	34	5.2
234	46 38 08	120 09 38	1	7.5	2.8	0.5	520	2	0.58	51	22	5.4
235	46 37 42	120 31 10	8,13b	6.6	4.9	3.4	390	1	3.38	51	41	4.7
235	46 37 42	120 31 10	8,13b	6.7	3.3	B	400	1	3.21	160	96	5.0
235	46 37 42	120 31 10	8,13b	6.8	4.3	B	410	1	2.91	59	46	5.0
236	46 37 40	120 34 36	11	7.2	4.4	4.1	440	1	2.61	44	39	5.7
236	46 37 40	120 34 36	9	7.6	2.7	B	440	1	1.99	49	29	5.7
237	46 37 32	121 07 54	11	8.2	5.4	0.8	530	2	0.90	84	47	5.1
237	46 37 32	121 07 54	9	7.5	7.0	1.4	570	1	1.04	88	47	4.7
238	46 37 17	120 53 32	1	8.1	2.0	0.5	480	1	2.35	33	29	6.0
239	46 37 22	121 16 57	1	7.6	3.5	0.9	370	1	4.10	62	30	3.4
240	46 37 08	120 55 45	1	13.0	3.8	<0.4	900	2	1.42	41	34	8.3
241	46 37 00	121 18 56	7b	8.1	11.0	1.6	350	1	1.11	110	38	5.7
242	46 36 23	120 24 34	1	8.0	4.0	<0.4	440	1	0.98	49	33	4.1
243	46 36 20	120 39 14	1	7.3	11.0	1.1	420	1	2.88	45	40	5.3
244	46 36 02	120 46 17	1	6.2	2.2	2.1	330	1	1.96	23	22	2.8
245	46 35 51	119 56 21	1	6.9	5.6	<0.4	550	2	0.57	57	21	5.0
246	46 35 44	121 07 59	1	8.0	4.1	B	430	1	1.14	220	48	6.0
247	46 35 23	121 20 59	1	7.4	13.0	B	350	1	7.93	59	26	3.7
248	46 35 07	120 27 44	7c	8.5	4.6	0.5	530	2	1.99	78	60	5.9
249	46 34 56	120 36 34	13b	5.8	4.6	0.6	383	1	5.26	42	93	4.6
250	46 34 24	120 20 01	1	7.6	2.8	1.5	570	2	1.17	47	31	4.9
251	46 34 13	119 48 23	1	6.8	4.5	0.9	570	2	0.32	61	22	4.6
252	46 34 00	120 28 16	7c	7.8	4.9	0.7	400	1	3.10	72	67	5.4
253	46 33 46	120 17 39	1	7.6	1.4	1.1	430	1	2.04	40	30	4.2
254	46 33 47	120 28 07	1	7.1	3.9	2.2	420	1	3.91	66	67	4.7
255	46 33 49	120 34 36	1	7.2	3.8	1.2	560	1	2.56	50	27	5.5
256	46 33 51	120 37 26	10	7.4	140.0	B	500	2	1.62	55	34	3.9
257	46 33 38	120 04 28	1	7.3	2.2	0.4	510	1	0.30	39	19	6.4
258	46 33 38	120 37 30	10	7.5	6.7	0.7	520	1	0.96	48	25	3.9
259	46 33 38	120 37 31	10	8.2	82.0	0.8	530	2	1.33	63	31	4.5
260	46 33 37	121 21 26	5	7.5	4.9	1.0	540	1	3.55	32	21	9.6
261	46 33 22	120 39 07	2	7.4	13.0	2.2	560	1	3.06	42	29	4.9
261	46 33 22	120 39 10	3	7.3	61.0	2.7	580	1	5.17	40	36	4.9
261	46 33 22	120 39 10	4	6.9	70.0	2.8	550	1	5.14	38	38	4.8
262	46 33 22	120 42 25	1	7.3	48.0	2.2	630	1	2.63	43	30	4.1
263	46 32 43	120 52 57	1	8.4	1.7	1.0	490	1	1.84	48	31	6.2

Table 4. Continued

Map No.	Lat.	Long.	TYPE	Al %	As	B	Ba	Be	TOTAL C%	Cr	Cu	Fe %
264	46 32 31	120 46 51	1	7.9	1.8	1.1	480	1	2.00	27	25	3.9
265	46 32 18	120 27 19	7b,13b	7.5	3.6	0.4	560	2	0.48	64	25	4.3
266	46 32 19	120 28 17	8,13b	6.6	5.4	2.5	430	1	3.03	55	42	4.8
266	46 32 19	120 28 17	8,13b	7.1	2.3	B	450	1	1.88	80	41	5.4
266	46 32 19	120 28 17	8,13b	6.9	3.6	4.0	450	1	2.05	66	43	5.3
267	46 32 24	120 59 07	1	8.1	.8	<0.4	500	2	1.82	26	29	7.0
268	46 32 21	121 15 38	1	8.3	2.1	<0.4	280	1	0.91	76	52	3.8
269	46 32 10	119 53 57	1	6.6	6.0	0.8	550	2	0.35	68	20	4.8
270	46 32 10	120 28 20	11,13b	7.1	2.3	0.5	490	1	2.14	56	25	5.7
270	46 32 10	120 28 20	9	7.4	2.1	2.3	530	1	1.40	60	21	5.7
271	46 32 07	121 00 49	1	8.3	.8	0.6	440	1	2.72	36	19	5.5
272	46 32 04	120 27 58	7b	7.2	3.8	0.9	470	1	2.07	90	36	5.1
273	46 31 49	121 07 46	2	8.0	3.0	0.7	440	1	2.58	46	25	7.7
273	46 31 50	121 07 48	3	8.1	1.8	1.7	410	1	2.16	48	25	7.8
273	46 31 50	121 07 48	4	8.0	1.6	<0.4	420	1	1.95	45	25	7.4
274	46 31 21	121 10 30	1	7.8	1.9	<0.4	510	2	2.34	46	30	6.0
275	46 31 13	119 59 40	1	7.2	3.9	0.8	600	2	0.71	61	24	4.4
276	46 31 14	120 13 40	1	7.3	5.1	0.8	540	2	0.82	61	26	4.5
277	46 31 05	121 00 57	1	8.8	1.4	0.9	540	1	1.40	29	28	6.7
278	46 31 14	121 10 31	2	8.0	3.9	<0.4	510	2	3.18	79	37	5.9
278	46 31 12	121 10 35	3	7.8	3.3	B	470	2	4.52	59	33	5.3
278	46 31 12	121 10 35	4	7.4	5.5	1.3	460	2	4.50	57	33	5.3
279	46 30 23	120 55 29	1	8.3	1.6	0.5	480	1	1.41	43	26	5.9
280	46 29 48	119 50 16	1	6.9	4.6	0.6	590	2	0.74	52	21	4.8
281	46 29 47	120 26 24	8,13b	6.8	4.4	1.5	480	1	1.96	63	29	4.5
281	46 29 47	120 26 24	8,13	7.1	3.9	1.0	500	1	1.87	66	29	4.6
282	46 29 33	121 17 58	1	7.2	6.8	0.6	360	2	5.64	54	30	3.6
283	46 29 13	119 37 35	1	6.5	4.7	<0.4	570	2	0.32	62	20	6.6
284	46 29 10	119 54 40	1	7.1	3.2	<0.4	580	2	0.45	48	16	3.8
285	46 29 02	121 19 44	1	8.5	3.3	B	420	2	2.63	55	27	4.5
286	46 28 58	119 39 10	1	7.1	6.0	0.5	610	2	0.61	46	23	5.2
287	46 28 49	120 37 45	1	7.7	3.4	0.6	470	1	0.52	55	25	4.2
288	46 28 40	120 32 03	1	7.1	3.6	0.6	530	2	1.10	52	21	4.6
289	46 28 00	120 44 46	1	7.8	5.5	0.6	470	2	0.99	49	25	4.9
290	46 27 57	120 24 27	1	7.5	3.6	1.5	480	1	2.17	73	31	5.1
291	46 27 43	120 05 04	1	7.3	4.3	0.6	610	2	0.93	75	25	5.4
292	46 27 28	120 16 14	1	7.5	3.6	0.7	560	2	0.79	47	24	4.1
293	46 27 27	120 53 03	1	8.5	.9	<0.4	430	1	0.97	44	30	6.8
294	46 27 18	119 57 21	1	6.8	3.3	<0.4	590	2	0.25	55	16	4.1
295	46 26 54	120 12 37	1	7.4	4.2	0.6	510	1	0.73	72	25	5.1
296	46 26 54	120 26 54	1	7.1	26.0	B	430	2	6.47	65	39	3.5
297	46 26 35	119 30 44	1	6.8	4.4	0.5	570	2	0.83	55	26	5.5
298	46 25 59	120 16 28	1	7.0	5.4	3.0	600	2	2.22	52	66	4.7
299	46 25 46	120 42 42	1	7.1	6.4	1.0	590	2	1.30	54	26	4.7
300	46 25 37	120 22 26	1	7.6	5.3	0.9	490	1	1.45	70	35	4.9

Table 4. Continued

Map No.	Lat.	Long.	TYPE	Al %	As	B	Ba	Be	TOTAL C%	Cr	Cu	Fe %
301	46 25 38	120 55 45	1	8.1	1.2	0.9	470	1	1.42	36	31	6.6
302	46 25 25	120 36 22	1	7.4	5.0	0.4	620	2	0.76	51	22	5.1
303	46 25 20	120 04 48	1	7.1	3.2	1.5	520	2	1.47	65	23	4.8
304	46 25 23	120 45 25	1	7.7	2.5	0.5	530	2	0.52	45	23	5.0
305	46 24 48	120 49 38	1	7.6	1.5	<0.4	500	2	2.01	38	22	7.4
306	46 24 34	119 45 54	1	6.6	3.7	<0.4	590	2	0.57	50	18	4.0
307	46 24 34	120 58 38	2	8.3	2.8	1.9	490	2	2.45	34	31	6.1
307	46 24 35	120 58 42	3	8.5	1.3	3.7	470	1	2.40	40	28	6.7
307	46 24 35	120 58 42	4	6.9	8.7	0.5	540	2	0.54	57	26	5.6
308	46 24 20	119 45 36	1	6.8	4.6	0.8	610	2	0.60	47	16	4.3
309	46 24 16	120 10 24	2	7.1	9.0	0.9	640	2	1.29	54	38	4.4
309	46 24 20	120 10 25	3	6.8	4.9	0.5	580	2	0.94	55	40	4.1
309	46 24 20	120 10 25	4	6.8	7.6	0.6	570	2	1.08	57	36	4.2
310	46 24 18	120 28 31	1	7.8	5.6	<0.4	480	1	1.21	68	33	5.3
311	46 24 07	120 16 54	8	6.6	3.1	0.8	420	1	3.05	72	32	4.9
311	46 24 07	120 16 54	8	6.9	3.7	1.6	450	1	2.86	89	43	5.2
311	46 24 07	120 16 54	8	6.8	3.8	B	440	1	3.20	75	41	5.0
312	46 23 43	121 01 55	1	8.1	.7	0.8	500	1	1.13	49	20	8.4
313	46 23 28	119 39 04	2	6.7	3.6	0.7	600	2	0.71	43	18	3.6
313	46 23 26	119 39 03	3	6.8	4.3	1.2	560	2	0.75	52	18	4.2
313	46 23 26	119 39 03	4	6.6	7.0	0.6	590	2	0.73	49	18	4.1
314	46 23 31	119 55 16	1	7.2	3.5	0.8	570	2	0.63	49	23	4.4
315	46 23 27	119 57 29	1	7.0	3.7	1.4	560	2	0.59	55	21	4.5
316	46 23 23	119 38 15	1	6.8	3.8	0.7	600	2	0.82	50	22	4.4
317	46 23 24	120 09 44	1	6.3	4.4	<0.4	560	2	0.36	65	17	5.7
318	46 22 03	120 15 00	8	7.5	4.4	1.5	490	2	1.75	69	37	5.1
318	46 22 03	120 15 00	8	7.4	12.0	1.3	480	1	1.68	68	35	5.1
319	46 21 39	120 20 19	1	8.0	3.1	1.0	480	1	0.90	75	33	5.0
320	46 21 39	120 26 53	1	7.6	11.0	0.9	520	1	1.38	70	34	5.6
321	46 21 39	120 27 26	2	7.6	4.6	1.0	520	1	1.51	68	31	5.5
321	46 21 37	120 27 26	3	7.5	3.6	1.1	510	1	0.95	66	28	5.0
321	46 21 37	120 27 26	4	7.4	2.7	1.6	510	1	1.02	67	27	5.0
322	46 21 38	120 34 58	1	7.3	3.8	<0.4	590	2	0.77	46	24	5.0
323	46 21 06	119 22 38	2	6.9	2.5	1.5	540	2	1.94	65	29	5.3
323	46 21 03	119 22 40	3	6.8	3.4	2.3	550	2	1.76	69	25	5.6
323	46 21 03	119 22 40	4	6.7	7.2	3.5	540	2	2.04	63	26	5.5
324	46 21 12	120 17 07	1	8.0	4.3	0.7	460	1	0.69	71	35	5.6
325	46 21 14	121 01 13	1	8.4	1.8	<0.4	420	2	2.07	40	29	5.1
326	46 20 46	120 01 44	2	7.5	6.6	0.5	650	2	0.49	67	31	6.4
326	46 20 51	120 01 43	3	6.4	4.2	<0.4	530	2	0.37	48	15	4.7
326	46 20 51	120 01 43	4	6.4	3.8	0.7	510	2	0.48	56	18	5.2
327	46 20 48	120 08 52	1	6.6	9.0	0.7	590	2	0.78	45	20	5.1
328	46 20 44	119 48 52	1	6.8	4.5	<0.4	550	2	0.43	54	20	4.7
329	46 20 16	120 11 47	7b	6.6	3.8	0.5	500	2	1.85	64	26	4.8
330	46 20 10	120 11 38	11,13b	6.6	5.4	0.4	540	2	0.42	60	21	5.5

Table 4. Continued

Map No.	Lat.	Long.	TYPE	Al %	As	B	Ba	Be	TOTAL C%	Cr	Cu	Fe %
330	46 20 10	120 11 38	9	6.6	4.8	0.6	550	2	0.46	59	19	5.4
331	46 20 11	120 13 47	7b	6.9	3.7	0.5	420	1	2.54	68	37	5.1
332	46 19 59	119 43 20	1	6.5	6.6	0.6	590	2	0.49	50	19	4.6
333	46 19 57	120 39 48	1	7.0	4.0	0.7	580	2	0.45	54	23	5.1
334	46 19 46	119 29 31	1	6.6	4.0	1.0	530	2	1.15	63	22	5.2
335	46 19 53	120 01 25	1	6.8	9.2	0.9	560	2	1.31	49	27	4.8
336	46 19 53	120 02 42	1	6.1	5.1	0.8	550	2	1.39	52	19	6.0
337	46 19 52	120 11 54	7b	6.5	5.1	2.1	440	1	2.19	69	33	4.9
338	46 19 39	119 22 06	1	7.1	2.5	1.0	590	1	2.07	63	27	4.9
339	46 19 42	119 55 29	1	6.8	6.0	<0.4	560	2	0.77	51	20	5.3
340	46 19 42	120 45 10	1	7.9	2.0	0.8	480	1	0.66	63	22	7.0
341	46 19 35	120 50 46	1	8.2	1.5	0.6	450	1	1.11	54	24	6.7
342	46 19 10	120 55 33	1	8.8	1.4	0.5	550	1	1.29	31	19	7.3
343	46 19 02	119 37 19	1	6.6	4.5	0.6	560	2	0.33	59	18	4.9
344	46 18 52	120 11 53	7b,13b	7.0	3.7	0.8	460	1	2.05	75	32	5.1
345	46 18 53	120 26 51	1	7.1	9.3	2.1	610	2	0.23	55	23	4.9
346	46 18 36	119 59 25	7c	6.6	4.3	0.4	560	2	0.44	75	21	6.1
347	46 18 42	120 47 13	11	7.3	1.0	0.4	440	1	3.14	44	22	7.4
347	46 18 42	120 47 13	9	7.4	1.0	0.5	460	1	2.82	48	20	7.3
348	46 18 33	120 19 52	7b	6.8	4.3	1.2	500	2	1.79	55	26	5.1
349	46 18 19	119 39 34	2	7.1	3.6	0.5	590	2	0.94	47	26	4.6
349	46 18 16	119 39 37	3	7.2	3.3	0.5	590	2	0.81	55	27	4.6
349	46 18 16	119 39 37	4	7.1	2.8	0.5	580	2	0.78	54	26	4.6
350	46 18 09	120 20 39	1	7.3	3.9	0.5	590	2	0.48	48	23	4.6
351	46 17 52	119 19 55	7b	6.6	3.8	0.7	510	2	2.52	69	27	5.1
352	46 17 50	119 58 36	1	6.6	8.3	0.6	590	2	1.51	53	24	5.2
353	46 17 37	119 18 49	1	7.5	3.8	1.1	550	1	1.80	70	29	4.9
354	46 17 40	119 34 27	1	6.7	5.3	0.5	580	2	0.59	43	18	4.2
355	46 17 28	120 01 05	8	6.3	2.2	1.3	520	2	0.62	52	15	4.8
355	46 17 28	120 01 05	8	6.4	5.3	1.6	540	2	0.56	50	18	4.5
356	46 16 46	119 32 17	7b	6.6	3.6	0.3	530	2	0.86	65	19	5.0
357	46 16 32	120 32 25	1	8.1	2.7	<0.4	550	2	0.49	55	23	5.5
358	46 16 23	119 30 26	1	6.2	7.6	0.8	520	2	1.04	54	23	5.4
359	46 16 24	119 55 59	1	7.1	8.2	0.6	600	2	0.56	91	18	7.2
360	46 16 24	120 03 40	1	7.6	4.1	0.6	630	2	0.76	59	32	4.9
361	46 16 26	120 08 32	11,13b	6.9	5.8	0.8	530	2	1.73	54	29	5.9
361	46 16 26	120 08 32	9	7.7	4.3	B	570	1	1.57	88	26	3.5
362	46 16 24	120 12 34	1	6.9	3.3	0.9	500	2	1.75	55	30	5.2
363	46 16 11	120 05 30	13b	6.8	3.7	B	504	2	2.36	64	31	4.9
364	46 16 10	120 14 03	1	7.1	2.4	1.6	680	2	1.13	54	20	4.7
365	46 16 04	120 53 24	1	8.3	1.8	<0.4	480	1	1.25	50	26	8.1
366	46 15 59	119 32 56	2	7.0	3.9	<0.4	650	2	0.67	50	24	5.3
366	46 15 55	119 32 58	3	6.7	4.0	0.9	550	2	1.33	49	23	4.8
366	46 15 55	119 32 58	4	8.1	5.7	4.7	570	2	2.09	42	33	5.1
367	46 15 58	119 35 19	7b	6.8	5.0	0.5	530	2	2.53	65	29	5.2

Table 4. Continued

Map No.	Lat.	Long.	TYPE	Al %	As	B	Ba	Be	TOTAL C%	Cr	Cu	Fe %
368	46 15 46	119 24 04	1	7.1	8.7	<0.4	630	2	0.97	49	32	5.4
369	46 15 54	121 00 26	1	9.2	1.5	<0.4	470	2	1.56	56	40	6.7
370	46 15 29	119 39 32	1	6.0	4.8	0.6	490	1	0.97	41	24	4.6
371	46 15 32	119 48 33	1	7.0	4.8	0.5	600	2	1.14	53	24	5.1
372	46 15 29	120 41 06	1	7.9	2.8	<0.4	490	1	0.98	46	26	7.0
373	46 15 26	120 55 37	1	9.0	5.0	0.4	450	2	0.92	73	34	7.1
374	46 15 08	119 17 00	8	6.6	5.8	4.0	520	2	2.46	63	27	5.1
374	46 15 08	119 17 00	8	6.4	B	B	490	2	1.48	81	21	5.5
375	46 15 13	119 28 37	7b,13b	6.8	5.4	2.3	530	2	2.06	61	29	5.1
376	46 15 06	120 05 44	8	7.0	4.9	1.4	530	2	1.80	63	33	5.4
376	46 15 06	120 05 44	8	6.9	4.6	1.2	520	2	1.45	63	31	5.3
377	46 15 00	120 22 40	11,13b	7.6	2.8	0.4	580	2	1.24	53	32	5.3
377	46 15 00	120 22 40	9	8.2	1.1	B	420	1	1.44	55	20	6.3
378	46 15 05	120 43 28	1	8.3	1.4	<0.4	520	2	1.78	36	25	7.2
379	46 15 03	120 12 28	1	7.4	7.7	0.8	600	2	0.85	54	26	4.8
380	46 14 39	119 57 29	1	6.4	5.1	<0.4	600	2	0.86	47	20	5.3
381	46 14 36	120 41 24	1	7.9	2.6	0.6	520	2	1.74	41	28	7.3
382	46 14 02	119 40 37	7b	6.8	4.1	0.3	560	2	0.57	54	26	4.4
383	46 14 32	119 53 35	1	7.2	7.1	0.5	600	2	0.36	51	32	5.8
384	46 14 27	120 25 04	1	6.7	3.8	3.9	550	2	0.50	61	22	4.8
385	46 14 17	120 16 33	2	7.2	4.0	0.5	600	2	0.39	54	21	4.1
385	46 14 16	120 16 35	3	7.2	3.2	<0.4	580	2	0.40	43	23	3.2
385	46 14 16	120 16 35	4	7.5	3.3	1.3	590	2	0.31	44	22	3.3
386	46 14 00	119 40 38	7b,13b	6.2	5.1	0.9	510	2	0.60	62	17	5.5
387	46 13 57	120 47 48	1	8.1	2.2	<0.4	490	1	0.77	50	21	4.5
388	46 13 53	119 59 54	7b	7.0	5.1	0.7	530	2	1.19	62	28	5.4
389	46 13 44	119 49 21	1	6.8	4.0	<0.4	560	2	0.73	59	19	5.7
390	46 13 25	119 43 46	7b	6.6	6.2	1.7	530	2	2.21	61	29	5.1
391	46 13 28	119 55 48	7b	6.5	7.4	2.7	550	2	1.40	61	23	5.6
392	46 13 29	120 55 56	2	7.7	1.9	0.6	580	1	2.35	37	23	5.9
392	46 13 26	120 55 58	3	8.4	1.1	0.8	430	2	5.28	59	22	6.1
392	46 13 26	120 55 58	4	8.3	1.7	3.3	430	2	4.66	58	20	6.1
393	46 13 25	121 00 33	1	9.2	1.4	0.5	500	2	3.66	120	40	6.7
394	46 13 15	120 58 53	1	10.0	1.0	1.8	460	2	2.04	140	47	9.8
395	46 13 01	119 55 00	8,13b	6.8	6.3	1.2	540	2	1.27	57	25	5.1
395	46 13 01	119 55 00	8,13b	6.9	6.8	0.9	550	2	1.31	55	29	5.0
396	46 13 03	120 01 07	7b	6.5	6.4	0.7	520	2	0.78	65	23	6.4
397	46 13 03	120 26 17	1	7.5	2.2	<0.4	520	1	0.93	56	27	4.5
398	46 12 56	120 50 32	1	8.1	1.5	<0.4	520	2	2.81	34	39	6.8
399	46 12 33	119 44 46	1	8.3	6.2	<0.4	700	2	0.44	74	22	6.6
400	46 12 21	120 18 36	1	7.4	10.0	0.4	560	2	0.56	53	22	4.1
401	46 11 57	120 36 37	1	7.5	3.6	<0.4	460	1	0.98	50	27	4.8
402	46 11 53	119 47 04	7c	6.5	4.0	1.8	1000	2	2.35	41	52	6.5
403	46 11 36	120 03 03	1	8.5	6.6	2.3	350	1	0.74	20	28	3.2
404	46 11 33	120 36 44	1	7.1	4.6	0.5	480	1	1.55	42	21	5.6

Table 4. Continued

Map No.	Lat.	Long.	TYPE	Al %	As	B	Ba	Be	TOTAL C%	Cr	Cu	Fe %
405	46 11 10	120 05 41	1	6.9	3.0	1.2	580	2	0.77	50	24	5.2
406	46 09 54	120 18 52	1	7.4	4.1	0.8	610	2	0.55	50	26	3.9
407	46 09 46	120 22 24	1	8.5	4.0	4.3	480	2	2.07	39	27	6.8
408	46 09 32	120 12 15	1	6.9	6.4	<0.4	570	2	0.38	55	20	4.3
409	46 09 14	120 50 09	1	8.3	.8	<0.4	410	2	2.07	41	23	4.9
410	46 08 58	120 42 23	1	8.3	1.7	<0.4	530	2	1.14	38	26	7.3
411	46 08 54	120 30 39	1	7.3	3.0	1.1	570	2	1.45	64	33	6.1
412	46 08 25	120 46 31	2	8.7	4.6	<0.4	470	3	1.54	33	21	6.0
412	46 08 24	120 46 33	3	8.6	1.3	1.4	440	2	1.43	35	23	5.9
412	46 08 24	120 46 33	4	9.4	1.1	<0.4	500	2	1.34	34	23	5.6
413	46 08 02	120 45 42	1	9.5	1.5	<0.4	420	2	2.44	99	31	5.7
414	46 07 57	120 42 35	2	7.5	8.5	1.3	430	1	2.37	38	29	4.1
414	46 07 58	120 42 40	3	8.3	3.4	B	450	2	1.72	46	26	5.5
414	46 07 58	120 42 40	4	8.4	4.2	B	450	2	1.68	48	27	5.8
415	46 07 06	120 49 29	1	8.4	1.1	0.5	410	2	3.75	28	23	4.7
416	46 06 43	120 39 20	1	8.6	2.5	<0.4	540	2	1.12	47	25	5.7
417	46 06 30	120 23 21	1	7.5	2.4	0.5	510	1	0.52	49	22	3.7
418	46 05 54	120 13 12	1	7.2	6.0	0.5	600	2	0.58	50	24	4.1
419	46 05 47	120 47 26	1	8.4	1.5	1.1	380	2	4.35	87	21	5.0
420	46 04 29	120 33 16	1	7.9	2.9	2.0	470	1	1.67	53	28	6.5
421	46 04 13	120 27 09	1	8.2	1.9	<0.4	550	1	1.13	75	31	5.5
422	46 01 43	120 36 48	1	8.0	1.5	<0.4	530	2	1.89	41	28	8.9
423	46 01 31	120 46 33	1	9.1	3.1	2.3	520	4	4.42	56	23	5.7
424	46 01 24	120 46 46	2	8.0	1.9	0.3	490	3	4.78	57	26	7.1
424	46 01 21	120 46 46	3	7.8	1.4	0.5	450	3	5.77	59	24	6.8
424	46 01 21	120 46 46	4	7.4	1.9	1.0	450	3	5.67	56	22	6.3
425	46 01 00	120 40 54	13b	6.7	1.3	B	380	3	5.92	53	25	7.3
426	46 00 28	120 30 47	1	7.7	2.2	<0.4	510	2	4.00	41	29	6.1
427	46 00 18	120 38 32	1	8.6	1.7	1.2	530	2	2.06	37	24	7.3
428	47 06 47	120 52 01	13b	8.0	2.3	B	450	1	4.66	170	47	5.0
429	46 58 18	120 48 32	13b	8.0	1.6	B	480	1	2.96	130	44	6.3
430	46 29 32	120 57 23	13b	7.5	1.1	B	500	1	5.23	33	29	6.9

Table 4. Continued

MAP No.	TYPE	Hg	Mn	Mo	Ni	Pb	Sb	Se	Sn	Th	V	Zn
1	1	0.08	750	<2	110	13	0.4	B	<10	8	100	62
2	1	<0.02	1000	<2	1900	12	1.0	B	<10	<4	95	60
3	1	0.10	870	<2	43	15	0.7	0.6	<10	9	100	86
4	1	0.16	1300	<2	36	20	0.7	B	<10	6	77	87
5	6	0.06	1400	<2	1700	20	0.8	B	<10	<4	62	43
6	5	0.08	1200	<2	85	20	0.4	0.7	<10	10	220	160
7	7a	0.08	1300	<2	1700	8	0.6	0.1	<10	<4	85	32
8	1	0.12	710	<2	960	17	4.8	B	<10	<4	99	64
9	1	0.02	1200	<2	1800	14	0.8	B	<10	<4	81	40
10	5	0.08	1100	8	11	22	2.6	0.3	<10	8	90	140
11	1	0.04	1100	<2	49	18	1.2	B	<10	7	92	100
12	1	0.10	1400	2	77	24	1.5	B	<10	10	220	180
13	5	0.12	870	<2	79	21	0.6	0.2	<10	13	160	150
14	6	0.06	950	<2	52	21	1.6	1.0	<10	8	95	110
15	13b	0.08	1380	<2	29	13	B	0.8	<10	4	84	77
16	5	0.30	980	<2	170	12	0.6	0.6	<10	7	160	87
17	1	0.10	1300	<2	76	14	0.5	B	<10	4	97	83
18	5	0.08	1000	2	11	17	1.9	0.6	<10	7	110	270
19	5	0.10	1200	<2	9	26	0.6	1.2	<10	4	71	140
20	7a	0.14	1700	2	19	35	0.8	B	<10	<4	110	180
21	1	0.04	820	<2	59	11	2.0	1.1	<10	6	94	130
22	1	0.06	970	<2	30	7	0.2	B	<10	<4	98	51
23	1	0.06	820	<2	43	12	1.0	B	<10	7	100	73
24	1	0.12	930	<2	49	10	0.7	B	<10	<4	100	79
25	1	0.02	1200	<2	66	10	0.4	B	<10	<4	140	99
26	1	<.02	950	<2	43	15	0.8	B	<10	<4	170	100
27	8	0.24	1300	<2	760	13	2.8	B	<10	<4	84	78
27	8	0.44	1300	<2	780	17	0.8	B	<10	<4	91	80
28	6	0.08	1200	<2	23	5	0.2	B	<10	<4	150	110
29	5	0.44	660	<2	12	18	0.5	0.5	<10	7	73	88
30	13a	0.56	910	<2	43	22	B	B	<10	6	138	151
31	1	0.14	1400	<2	10	18	1.1	B	<10	5	62	110
32	7b	0.20	1000	<2	46	27	1.3	0.7	<10	6	150	170
33	1	0.08	1400	<2	92	9	0.5	B	<10	<4	120	130
34	1	0.06	740	<2	39	19	0.5	0.7	<10	6	150	140
35	11	0.12	1300	<2	43	11	1.1	0.3	<10	<4	160	84
35	9	3.22	1100	<2	42	15	1.1	B	<10	5	160	87
36	5	0.10	2000	3	16	20	0.7	0.4	<10	6	89	130
37	5	0.06	930	<2	45	11	0.6	0.4	<10	8	110	83
38	6	0.08	940	<2	57	11	0.6	0.3	<10	6	140	100
39	6	0.08	1300	<2	40	12	0.4	1.0	<10	7	110	100
40	5	0.08	1200	<2	110	6	0.3	0.5	<10	<4	250	80
41	1	0.06	750	<2	37	13	0.3	0.3	<10	7	140	92
42	1	0.54	1600	<2	11	9	0.9	0.8	<10	7	140	130
43	1	<0.02	1300	<2	12	15	0.6	B	<10	6	80	97

Table 4. Continued

MAP No.	TYPE	Hg	Mn	Mo	Ni	Pb	Sb	Se	Sn	Th	V	Zn
44	1	0.08	1000	<2	38	12	0.8	B	<10	7	130	98
45	1	0.04	430	<2	34	8	0.5	B	<10	4	76	72
46	1	0.14	1300	<2	100	10	1.1	B	<10	<4	130	100
47	2	0.70	1500	<2	9	12	0.4	B	<10	4	120	120
47	3	0.34	1200	<2	18	12	0.4	0.5	<10	6	110	130
47	4	0.42	1100	<2	17	11	0.4	0.3	<10	7	110	110
48	5	0.10	910	<2	22	11	0.4	0.8	<10	5	85	73
49	2	0.18	1300	<2	34	13	0.6	B	<10	5	140	110
49	3	0.28	1100	<2	27	19	0.5	B	10	6	110	99
49	4	0.16	1500	<2	34	22	0.6	B	<10	7	140	130
50	1	0.08	1100	<2	58	17	0.3	0.6	<10	6	120	76
51	6	0.06	800	<2	23	9	0.2	B	<10	7	130	110
52	1	0.14	790	<2	37	10	0.6	B	<10	5	94	86
53	5	0.04	880	<2	28	10	0.4	0.6	<10	7	140	100
54	5	0.04	420	<2	30	11	0.5	0.4	<10	7	88	72
55	6	0.40	1100	<2	35	12	0.6	0.7	<10	5	120	93
56	7b	0.16	1500	<2	340	13	0.5	B	<10	4	110	81
57	8	0.14	1100	<2	43	10	0.4	1.2	<10	<4	160	110
57	8	0.28	890	<2	40	6	0.5	B	<10	<4	140	100
58	8	0.26	1000	<2	36	11	0.6	B	<10	<4	130	93
58	8	0.14	1200	<2	32	12	0.1	B	<10	6	120	88
59	5	0.16	840	<2	25	15	0.7	0.4	<10	6	98	95
60	6	0.88	1600	<2	32	11	1.0	B	<10	6	100	250
61	13b	0.20	1100	<2	262	12	B	0.4	<10	6	131	99
62	1	0.04	1100	<2	23	14	0.4	B	<10	6	150	99
63	1	0.06	570	<2	37	30	0.5	B	<10	4	110	110
64	1	0.06	950	<2	34	14	0.4	B	<10	5	130	85
65	11	0.04	780	<2	55	7	0.4	B	<10	6	150	85
65	9	3.12	760	<2	51	10	0.4	B	<10	6	150	92
66	1	0.06	1200	<2	12	10	0.3	0.5	<10	9	110	110
67	1	0.06	1400	<2	20	9	0.1	B	<10	6	290	130
68	7a	0.24	490	<2	37	14	B	B	<10	5	81	76
69	1	0.02	970	<2	48	10	0.4	B	<10	6	160	98
70	8	0.18	740	<2	28	13	0.5	B	<10	5	120	100
70	8	0.28	1100	<2	31	15	0.6	B	<10	4	120	100
71	1	0.12	1400	<2	26	6	0.3	B	<10	6	140	110
72	1	<0.02	1300	<2	140	16	0.4	B	<10	<4	79	110
73	1	<0.02	840	<2	46	18	0.8	B	<10	8	110	94
74	5	0.08	750	<2	39	13	0.5	0.9	<10	7	97	90
75	2	0.10	710	<2	40	16	0.5	B	<10	7	120	79
75	3	0.04	660	<2	38	10	0.5	<0.1	<10	8	120	75
75	4	0.04	690	<2	39	9	0.5	B	<10	6	120	77
76	7b,13b	0.12	1100	<2	150	16	0.5	0.5	<10	<4	140	89
77	1	0.02	990	<2	19	12	0.2	0.5	<10	7	240	110
78	1	0.08	970	<2	31	12	0.5	B	<10	4	110	120

Table 4. Continued

MAP No.	TYPE	Hg	Mn	Mo	Ni	Pb	Sb	Se	Sn	Th	V	Zn
79	1	0.04	990	<2	20	13	0.6	B	<10	16	250	87
80	1	0.04	850	<2	50	14	0.2	0.3	<10	8	130	110
81	1	0.06	910	<2	34	14	0.2	B	<10	6	180	90
82	1	<0.02	1000	<2	17	11	0.3	B	<10	5	240	110
83	5	0.08	900	2	44	22	0.6	1.0	<10	6	150	200
84	6	0.04	790	<2	59	17	0.4	B	<10	7	140	130
85	1	<0.02	1000	<2	35	9	0.3	B	<10	<4	230	59
86	1	0.06	860	<2	32	11	0.5	B	<10	6	140	78
87	1	0.02	1100	<2	22	14	0.2	B	<10	<4	100	71
88	1	<0.02	640	<2	22	12	0.3	B	<10	6	130	71
89	2	<0.02	1300	<2	18	14	0.2	B	<10	7	270	100
89	3	<0.02	1500	<2	19	16	0.2	B	<10	6	290	110
89	4	0.04	1500	<2	18	12	0.2	B	<10	7	270	97
90	7b	0.04	1500	<2	19	15	0.3	0.4	<10	4	180	92
91	1	<0.02	750	<2	18	10	0.3	B	<10	5	140	56
92	5	0.24	890	<2	150	11	0.4	0.6	<10	8	150	80
93	1	<0.02	930	<2	30	11	0.5	B	<10	5	110	69
94	1	0.04	920	<2	89	14	0.5	B	<10	6	180	110
95	11	0.18	1200	<2	68	12	0.5	B	<10	<4	150	92
95	9	0.18	1300	<2	66	16	B	B	40	6	180	95
96	5	0.04	970	<2	42	16	0.5	0.4	<10	8	220	120
97	5	0.06	770	<2	53	18	1.2	0.6	<10	6	93	88
98	2	0.02	1300	<2	29	13	0.3	B	<10	6	180	93
98	3	<0.02	960	<2	14	11	0.2	B	<10	5	160	91
98	4	0.02	910	<2	13	12	0.2	<0.1	<10	7	170	86
99	1	<0.02	890	<2	15	9	0.3	B	<10	6	160	85
100	1	<0.02	1600	<2	18	12	0.2	B	<10	5	160	80
101	1	<0.02	1400	<2	21	9	0.4	B	<10	6	210	82
102	1	<0.02	820	<2	44	12	0.3	B	<10	5	120	99
103	1	0.02	920	<2	17	15	0.3	B	<10	5	140	96
104	1	0.06	1300	<2	10	11	0.3	B	<10	5	82	110
105	1	0.06	1200	<2	13	11	0.5	B	<10	5	110	110
106	5	0.14	930	<2	17	10	H	<0.1	<10	6	110	94
107	1	<0.02	1000	<2	58	10	0.2	B	<10	6	150	94
108	1	0.06	820	<2	48	10	0.4	0.6	<10	6	140	100
109	1	0.10	2000	<2	10	9	0.2	B	<10	5	120	99
110	1	0.04	710	<2	19	9	0.2	B	<10	6	180	80
111	1	0.02	960	<2	13	11	0.2	B	<10	<4	100	82
112	7a	0.10	1400	<2	8	6	0.2	B	<10	<4	86	94
113	1	0.04	1100	<2	20	10	0.3	B	<10	6	190	110
114	1	0.02	2900	<2	27	16	0.4	B	<10	7	140	96
115	1	<0.02	530	<2	26	12	0.4	B	<10	16	87	58
116	1	<0.02	990	<2	200	9	0.2	B	<10	<4	140	98
117	1	0.20	910	<2	31	12	0.5	B	<10	5	150	93
118	1	<0.02	600	<2	25	10	0.2	B	<10	5	130	77

Table 4. Continued

MAP No.	TYPE	Hg	Mn	Mo	Ni	Pb	Sb	Se	Sn	Th	V	Zn
119	7b	0.12	1200	<2	18	8	0.6	B	<10	<4	120	86
120	1	<0.02	790	<2	19	10	0.2	B	<10	6	130	74
121	7b,13b	0.20	1300	<2	120	12	0.5	0.6	<10	6	130	100
122	1	<0.02	1000	<2	17	11	0.1	0.2	<10	6	180	100
123	2	0.15	1000	<2	21	11	0.3	B	<10	6	170	88
123	3	0.04	950	<2	24	11	0.2	<0.1	<10	6	180	88
123	4	0.02	930	<2	23	11	0.2	B	<10	4	170	86
124	1	<0.02	920	<2	18	8	0.2	B	<10	8	190	74
125	2	0.04	660	<2	19	4L	0.3	B	<10	<4	130	80
125	3	0.10	680	<2	37	83	0.5	B	<10	5	130	120
125	4	0.16	2400	<2	23	11	0.2	B	<10	6	150	110
126	7c	0.16	770	<2	65	130	1.1	0.1	10	6	150	190
127	8	0.36	1100	<2	16	7	0.4	B	<10	<4	130	97
127	8	0.54	1100	<2	15	9	0.4	B	<10	<4	130	97
128	1	<0.02	1200	<2	15	13	0.2	B	<10	6	220	110
129	1	<0.02	1200	<2	15	9	0.2	B	<10	5	180	110
130	1	0.04	1400	<2	18	12	0.2	B	<10	6	230	260
131	8	0.10	1200	<2	24	13	0.3	B	<10	5	130	150
131	8	0.14	1100	<2	23	15	0.2	B	<10	7	130	140
132	1	<0.02	930	<2	31	11	0.3	B	<10	8	190	86
133	2	<0.02	1300	<2	15	10	0.3	B	<10	6	180	89
133	3	0.04	2400	<2	24	11	0.3	B	<10	5	160	110
133	4	<0.02	910	<2	18	15	0.3	B	<10	7	130	94
134	1	<0.02	1500	<2	14	7	0.2	B	<10	<4	220	120
135	1	<0.02	1000	<2	18	17	0.2	B	<10	4	190	93
136	11	0.04	1100	<2	43	13	0.3	0.3	<10	<4	200	88
136	9	0.18	1200	<2	40	12	0.3	B	60	5	200	90
137	1	<0.02	880	<2	20	13	0.3	B	<10	5	120	83
138	1	0.04	2000	<2	11	7	0.1	0.4	<10	6	130	72
139	1	<0.02	870	<2	18	13	0.3	B	<10	5	140	91
140	1	<0.02	1200	<2	18	12	0.2	B	<10	6	150	88
141	8,13b	0.04	830	<2	21	11	0.3	B	<10	5	130	77
141	8,13b	0.04	830	<2	21	10	0.3	B	<10	5	120	76
142	7b	0.04	1700	<2	32	14	0.3	0.4	<10	8	150	110
143	1	<0.02	480	<2	13	15	0.3	B	<10	5	84	71
144	8	0.20	2000	2	26	19	B	B	<10	4	100	110
144	8	0.50	1100	<2	45	27	1.1	B	<10	<4	150	160
145	1	<0.02	1300	<2	6	8	0.1	B	<10	4	190	100
146	1	<0.02	720	<2	16	10	0.2	B	<10	4	97	68
147	1	<0.02	730	<2	20	24	0.4	B	<10	8	150	93
148	2	<0.02	1300	<2	16	9	0.2	B	<10	<4	260	110
148	3	<0.02	1300	<2	14	7	0.2	B	<10	5	250	100
148	4	<0.02	1200	<2	13	6	0.2	B	<10	<4	230	100
149	1	<0.02	1000	<2	15	11	<0.1	B	<10	5	200	110
150	7a	0.12	2700	<2	9	33	0.7	0.9	<10	<4	62	150

Table 4. Continued

MAP No.	TYPE	Hg	Mn	Mo	Ni	Pb	Sb	Se	Sn	Th	V	Zn
151	1	<0.02	1300	<2	23	15	0.4	B	<10	7	180	97
152	2	<0.02	940	<2	15	11	0.2	B	<10	4	190	96
152	3	<0.02	990	<2	15	10	0.1	B	<10	6	190	98
152	4	<0.02	890	<2	14	9	0.2	B	<10	4	180	87
153	1	<0.02	1000	<2	15	11	0.1	B	<10	<4	170	95
154	1	0.04	1200	<2	24	51	0.4	B	<10	5	210	110
155	1	0.04	730	<2	13	11	0.3	B	<10	5	180	83
156	5	0.06	1300	<2	1900	16	1.2	0.4	<10	<4	65	40
157	1	0.02	850	<2	14	7	0.2	B	<10	<4	130	79
158	1	<0.02	1300	<2	17	60	3.0	B	<10	5	170	180
159	1	0.02	910	<2	23	23	0.3	B	<10	4	150	91
160	1	0.02	1400	<2	4	8	0.2	B	<10	5	110	110
161	1	<0.02	960	<2	16	12	0.2	B	<10	6	170	90
162	1	0.06	1100	<2	11	13	0.4	B	<10	5	100	100
163	1	0.08	840	<2	15	10	0.2	B	<10	5	150	85
164	7b,13b	0.06	1700	<2	48	13	0.4	0.5	<10	<4	110	93
165	1	0.02	1000	<2	14	12	0.3	B	<10	6	160	86
166	1	<0.02	540	<2	20	12	0.4	B	<10	7	95	56
167	13a	0.02	1110	<2	19	10	B	B	<10	5	226	104
168	1	<0.02	850	<2	28	19	0.3	B	<10	4	150	80
169	7b	0.14	820	<2	14	7	0.2	B	<10	<4	160	67
170	7b	0.10	899	<2	78	13	B	B	<10	5	150	95
171	1	<0.02	960	<2	20	12	0.4	B	<10	6	170	86
172	1	<0.02	1000	<2	16	12	0.2	B	<10	<4	140	81
173	1	0.06	920	<2	43	13	0.5	B	20	6	170	96
174	1	<0.02	700	<2	19	14	0.2	B	<10	5	120	77
175	1	<0.02	1200	<2	16	10	0.2	B	<10	4	220	95
176	6	2.78	700	4	14	51	2.2	B	<10	7	79	89
177	1	3.10	780	3	16	41	1.6	B	<10	10	100	89
178	7b	0.34	1600	4	54	16	B	B	<10	5	140	110
179	1	<0.02	540	<2	13	26	0.2	B	<10	4	180	80
180	8	0.04	550	<2	20	8	0.2	B	<10	7	170	76
180	8	0.10	620	<2	20	8	0.3	B	<10	5	160	76
181	11	0.04	890	<2	16	9	0.3	0.1	<10	<4	220	97
181	9	0.14	910	<2	17	8	0.2	B	<10	6	220	93
182	1	<0.02	700	<2	11	19	0.3	B	<10	<4	120	89
183	7b,13b	0.24	1000	<2	16	12	0.7	0.9	<10	7	170	110
184	1	0.02	780	<2	16	12	0.2	B	<10	6	130	76
185	5	0.12	780	<2	99	11	0.5	0.6	<10	6	110	79
186	13b	0.14	1210	<2	27	13	B	1.0	<10	6	126	108
187	1	0.16	2500	<2	14	12	0.3	B	<10	6	200	82
188	5	0.94	1300	<2	1300	10	0.5	0.5	<10	5	94	73
189	1	0.04	1500	<2	12	13	0.4	B	<10	5	150	76
190	1	<0.02	910	<2	13	11	0.4	B	<10	5	160	79
191	6	0.08	860	<2	17	14	0.5	0.6	<10	12	79	76

Table 4. Continued

MAP No.	TYPE	Hg	Mn	Mo	Ni	Pb	Sb	Se	Sn	Th	V	Zn
192	1	<0.02	810	<2	22	10	0.4	<0.1	<10	8	160	80
193	1	0.02	1100	<2	20	12	0.3	B	<10	5	200	92
194	1	<0.02	1800	<2	19	11	0.2	B	<10	7	200	92
195	1	<0.02	1500	<2	6	7	0.3	B	<10	6	120	99
196	5	0.16	1200	<2	1600	12	0.5	0.4	<10	5	74	65
197	1	0.08	1300	<2	10	8	1.4	B	<10	6	130	91
198	2	<0.02	800	<2	16	13	0.1	0.2	<10	6	150	81
198	3	<0.02	620	<2	12	14	0.2	B	<10	4	87	64
198	4	<0.02	630	<2	11	12	0.1	B	<10	<4	81	62
199	5	0.02	990	<2	31	12	0.4	0.6	<10	6	140	110
200	1	<0.02	1100	<2	23	12	0.2	B	<10	5	310	130
201	8	0.06	700	<2	79	9	0.5	B	<10	4	130	94
201	8	0.10	720	<2	75	14	0.4	B	<10	4	120	94
202	7b	0.08	820	<2	13	15	0.5	0.4	<10	5	170	110
203	1	<0.02	700	<2	22	11	0.4	B	<10	9	150	76
204	1	<0.02	990	<2	17	12	0.3	B	<10	5	180	90
205	1	0.10	630	3	10	14	1.3	B	<10	5	84	200
206	1	0.04	1200	4	15	21	2.3	B	<10	10	86	94
207	7b	0.20	1500	<2	24	14	0.5	0.4	<10	6	170	93
208	1	<0.02	980	<2	20	12	0.2	B	<10	5	130	93
209	1	0.04	850	<2	18	44	0.4	B	<10	<4	130	110
210	1	<0.02	650	<2	17	11	0.3	B	<10	6	99	81
211	1	0.04	1400	<2	13	11	0.2	B	<10	4	200	88
212	1	<0.02	990	<2	12	50	0.2	B	<10	<4	110	84
213	8	0.14	810	<2	69	26	0.5	0.1	<10	<4	130	240
213	8	0.02	780	<2	30	18	0.4	B	<10	6	140	89
214	1	<0.02	910	<2	22	21	0.4	B	<10	5	150	89
215	2	<0.02	980	<2	27	25	0.4	B	<10	7	140	110
215	3	<0.02	660	<2	19	19	0.3	B	<10	6	110	90
215	4	<0.02	670	<2	18	20	0.4	B	<10	<4	110	79
216	1	<0.02	560	<2	17	45	0.4	B	<10	5	97	85
217	1	<0.02	660	<2	17	9	0.2	B	<10	5	120	70
218	1	1.78	1400	<2	48	9	0.5	B	<10	<4	210	120
219	5	0.04	940	<2	32	10	0.3	0.7	<10	7	130	120
220	1	<0.02	630	<2	13	24	0.4	B	<10	<4	79	110
221	1	<0.02	810	<2	16	11	0.3	B	<10	4	170	80
222	2	B	950	<2	9	9	0.3	B	<10	6	130	93
222	3	0.06	960	<2	9	8	0.4	B	<10	7	120	92
222	4	<0.02	950	<2	9	10	0.3	B	<10	5	130	100
223	1	0.10	580	<2	30	13	0.2	B	<10	<4	92	75
224a	10	0.10	730	<2	22	490	2.9	B	<10	6	100	120
224b	10	<0.02	800	<2	23	360	0.8	<0.1	<10	4	110	110
225	5	0.28	1300	<2	25	13	1.9	1.4	<10	5	150	130
226	1	0.02	1600	<2	15	11	0.3	B	<10	5	140	82
227	2	<0.02	570	<2	14	20	0.1	B	<10	<4	76	63

Table 4. Continued

MAP No.	TYPE	Hg	Mn	Mo	Ni	Pb	Sb	Se	Sn	Th	V	Zn
227	3	<0.02	520	<2	12	8	0.2	B	<10	<4	69	48
227	4	0.04	780	<2	18	28	0.4	B	<10	8	140	84
228	1	<0.02	730	<2	29	13	0.4	B	<10	9	150	78
229	7c	<0.02	910	<2	21	12	0.4	0.1	<10	6	170	82
230	1	<0.02	800	<2	17	16	0.3	B	<10	6	150	81
231	1	0.02	710	<2	29	78	0.4	<0.1	<10	8	130	130
232	1	0.02	1300	<2	7	8	0.4	0.2	<10	7	92	98
233	11	0.26	660	<2	33	13	0.4	B	<10	5	120	74
233	9	<0.02	840	<2	23	13	0.4	B	<10	8	130	86
234	1	<0.02	970	<2	19	13	0.3	B	<10	8	190	84
235	8,13b	0.18	960	<2	21	22	0.7	B	<10	<4	140	100
235	8,13b	0.30	1300	2	83	36	1.4	B	<10	4	140	120
235	8,13b	0.24	990	<2	25	18	0.4	B	<10	4	150	110
236	11	0.10	1000	<2	17	25	1.1	B	<10	<4	180	110
236	9	0.10	900	<2	17	30	0.3	B	<10	5	190	110
237	11	0.30	840	<2	36	12	0.5	1.1	<10	6	140	98
237	9	0.10	710	<2	39	11	0.6	B	40	6	140	97
238	1	<0.02	1100	<2	13	13	0.3	B	<10	4	190	98
239	1	0.04	610	<2	23	9	0.4	B	<10	4	110	74
240	1	<0.02	1400	<2	18	25	0.3	B	<10	11	330	150
241	7b	0.06	1000	<2	28	9	0.4	0.5	<10	4	170	78
242	1	<0.02	710	<2	20	130	1.1	B	<10	5	120	78
243	1	0.08	740	<2	20	220	0.5	B	<10	5	150	180
244	1	<0.02	450	<2	11	13	0.2	B	<10	4	74	53
245	1	<0.02	850	<2	20	14	0.4	B	<10	12	150	73
246	1	0.06	1100	<2	90	10	0.5	B	<10	6	180	97
247	1	0.14	1200	<2	21	8	0.6	B	<10	<4	93	58
248	7c	0.20	810	<2	55	81	1.0	0.2	<10	6	150	220
249	13b	0.12	550	<2	19	63	B	B	<10	4	136	174
250	1	<0.02	1400	<2	23	16	0.4	B	<10	6	140	89
251	1	<0.02	770	<2	22	14	0.5	B	<10	15	150	71
252	7c	0.20	660	<2	22	150	0.8	0.4	40	5	160	310
253	1	<0.02	720	<2	17	15	0.3	B	<10	4	120	80
254	1	0.20	580	<2	27	170	0.6	B	40	4	140	350
255	1	<0.02	560	<2	17	30	0.3	B	<10	5	190	150
256	10	<0.02	730	<2	24	890	1.7	B	<10	6	99	150
257	1	<0.02	1100	<2	19	9	0.2	<0.1	<10	7	190	86
258	10	<0.02	710	<2	18	22	0.4	<0.1	<10	5	110	73
259	10	0.02	730	<2	24	350	1.3	<0.1	<10	7	120	150
260	5	0.50	1600	<2	9	9	1.0	1.3	<10	5	220	150
261	2	<0.02	1200	<2	19	57	0.3	B	<10	6	150	97
261	3	0.04	590	<2	19	170	1.1	0.3	<10	7	140	140
261	4	<0.02	560	<2	18	170	1.0	B	<10	7	140	130
262	1	<0.02	1600	<2	18	510	1.1	B	<10	6	110	140
263	1	<0.02	1100	<2	17	17	0.2	B	<10	5	210	100

Table 4. Continued

MAP No.	TYPE	Hg	Mn	Mo	Ni	Pb	Sb	Se	Sn	Th	V	Zn
264	1	<0.02	630	<2	12	11	0.3	B	<10	<4	100	89
265	7b,13b	0.02	740	<2	22	14	0.4	0.2	<10	10	130	94
266	8,13b	0.20	760	<2	25	56	0.6	B	<10	4	140	240
266	8,13b	0.28	790	<2	33	42	0.5	B	<10	5	200	
266	8,13b	0.30	750	<2	27	47	0.6	B	<10	4	200	
267	1	<0.02	1000	<2	12	17	0.1	B	<10	5	220	110
268	1	<0.02	720	<2	38	7	0.3	B	<10	<4	95	56
269	1	<0.02	760	<2	20	14	0.4	B	<10	18	150	70
270	11,13b	0.04	960	<2	19	18	0.3	0.3	<10	5	210	98
270	9	0.06	960	<2	20	15	0.3	B	<10	5	200	98
271	1	<0.02	850	<2	13	7	0.1	B	<10	6	200	98
272	7b	0.08	810	<2	44	16	0.5	0.5	<10	8	150	110
273	2	<0.02	1400	<2	17	20	<0.1	B	<10	6	270	110
273	3	<0.02	1300	<2	17	17	0.1	B	<10	5	290	120
273	4	0.10	1300	<2	16	17	0.2	B	<10	5	270	110
274	1	<0.02	1100	<2	27	12	0.3	B	<10	4	200	95
275	1	<0.02	730	<2	23	25	0.4	B	<10	13	140	68
276	1	<0.02	810	<2	25	12	0.4	B	<10	8	130	70
277	1	<0.02	1100	<2	15	18	0.1	B	<10	6	250	120
278	2	0.04	1200	<2	39	22	0.3	B	<10	6	200	100
278	3	0.10	1200	<2	30	25	0.3	0.5	<10	5	190	91
278	4	0.13	1200	<2	30	27	0.4	B	<10	<4	180	94
279	1	0.04	1100	<2	18	10	0.3	B	<10	6	200	87
280	1	<0.02	760	<2	19	13	0.5	B	<10	9	140	78
281	8,13b	0.26	780	<2	36	17	0.6	B	<10	5	120	100
281	8,13	0.16	780	<2	37	16	0.4	B	<10	6	120	100
282	1	0.04	860	<2	19	10	0.4	B	<10	5	96	70
283	1	<0.02	980	<2	20	12	0.5	B	<10	19	220	88
284	1	<0.02	620	<2	18	13	0.3	<0.1	<10	9	110	70
285	1	0.16	900	<2	20	10	0.5	B	<10	5	86	110
286	1	<0.02	890	<2	20	22	0.6	B	<10	13	170	76
287	1	<0.02	690	<2	21	16	0.2	B	<10	6	110	71
288	1	<0.02	750	<2	21	15	0.4	B	<10	6	140	80
289	1	<0.02	860	<2	18	15	0.3	B	<10	<4	150	83
290	1	0.04	890	<2	44	17	0.4	B	<10	<4	150	120
291	1	<0.02	980	<2	28	13	0.4	B	<10	9	160	79
292	1	<0.02	620	<2	22	17	0.3	<0.1	<10	11	110	77
293	1	<0.02	1100	<2	15	7	0.2	B	<10	5	220	110
294	1	<0.02	670	<2	19	14	0.4	B	<10	7	120	66
295	1	<0.02	1000	<2	27	14	0.5	B	<10	11	160	77
296	1	0.12	970	<2	34	25	2.8	B	<10	<4	94	160
297	1	0.02	920	<2	21	18	0.6	B	<10	12	170	86
298	1	<0.02	790	<2	22	43	0.7	B	<10	9	140	710
299	1	<0.02	640	<2	22	16	0.4	B	<10	10	120	88
300	1	<0.02	870	<2	40	14	0.4	B	<10	<4	140	91

Table 4. Continued

MAP No.	TYPE	Hg	Mn	Mo	Ni	Pb	Sb	Se	Sn	Th	V	Zn
301	1	<0.02	1100	<2	15	12	0.2	B	<10	5	210	97
302	1	<0.02	870	<2	23	15	0.5	0.2	<10	10	160	92
303	1	<0.02	830	<2	25	14	0.4	B	<10	12	150	85
304	1	<0.02	780	<2	19	15	0.3	B	<10	5	140	72
305	1	<0.02	1400	<2	13	11	0.2	B	<10	6	250	110
306	1	<0.02	700	<2	18	13	0.4	B	<10	9	120	67
307	2	<0.02	1000	<2	14	13	0.2	B	<10	<4	200	100
307	3	<0.02	1200	<2	16	14	0.1	B	<10	5	240	110
307	4	<0.02	910	<2	24	14	0.5	B	<10	10	180	79
308	1	<0.02	690	<2	16	11	0.6	B	<10	6	130	69
309	2	0.02	780	<2	22	19	0.6	B	<10	10	140	130
309	3	0.06	730	<2	21	17	0.4	B	<10	6	140	100
309	4	<0.02	730	<2	22	15	0.6	B	<10	9	150	100
310	1	<0.02	560	<2	33	17	0.3	B	<10	6	130	100
311	8	0.06	980	<2	35	16	0.4	0.4	<10	7	140	110
311	8	0.14	1300	<2	45	21	0.4	B	<10	4	180	110
311	8	0.16	1300	<2	41	20	0.4	B	<10	5	150	110
312	1	0.04	1500	<2	14	9	0.1	B	<10	8	320	110
313	2	<0.02	610	<2	16	14	0.4	<0.1	<10	8	100	66
313	3	<0.02	700	<2	18	14	0.4	B	<10	11	130	70
313	4	<0.02	690	<2	16	12	0.5	B	<10	11	110	66
314	1	<0.02	710	<2	20	15	0.4	B	<10	9	130	74
315	1	<0.02	720	<2	20	15	0.4	B	<10	11	140	76
316	1	<0.02	720	<2	20	15	0.3	B	<10	8	120	71
317	1	<0.02	1100	<2	21	17	0.5	B	<10	12	200	91
318	8	0.12	660	<2	41	20	0.3	B	<10	6	140	120
318	8	0.12	660	<2	41	22	0.3	B	<10	6	140	120
319	1	<0.02	620	<2	41	13	0.4	B	<10	5	150	91
320	1	<0.02	840	<2	35	13	0.6	B	<10	6	160	100
321	2	<0.02	760	<2	36	14	0.4	B	<10	8	160	100
321	3	0.30	780	<2	31	17	0.4	B	<10	7	160	95
321	4	<0.02	790	<2	31	16	0.3	B	<10	7	160	97
322	1	<0.02	740	<2	20	15	0.5	B	<10	7	160	95
323	2	0.04	670	<2	30	19	0.3	0.7	<10	10	180	110
323	3	0.04	820	<2	30	15	0.4	0.5	<10	11	180	100
323	4	0.06	800	<2	30	16	0.5	B	<10	9	170	100
324	1	<0.02	1100	<2	48	10	0.4	B	<10	6	150	88
325	1	0.04	790	<2	13	11	0.2	B	<10	<4	150	110
326	2	<0.02	1100	<2	22	19	0.6	B	<10	13	230	100
326	3	<0.02	940	<2	18	10	0.4	<0.1	<10	10	160	73
326	4	0.02	1000	<2	19	12	0.4	B	<10	10	200	84
327	1	<0.02	1000	<2	20	21	0.6	B	<10	8	160	90
328	1	<0.02	760	<2	20	15	0.5	B	<10	11	150	73
329	7b	0.08	820	<2	29	20	0.4	0.3	<10	7	150	90
330	11,13b	<0.02	1000	<2	20	16	0.4	<0.1	<10	11	200	87

Table 4. Continued

MAP No.	TYPE	Hg	Mn	Mo	Ni	Pb	Sb	Se	Sn	Th	V	Zn
330	9	<0.02	930	<2	20	15	0.4	B	<10	13	200	87
331	7b	0.04	1100	<2	43	12	0.4	0.2	<10	4	130	100
332	1	<0.02	750	<2	19	15	0.5	B	<10	10	140	68
333	1	0.02	840	<2	21	14	0.4	B	<10	10	150	82
334	1	<0.02	910	<2	23	35	0.5	0.1	<10	14	170	93
335	1	<0.02	790	<2	21	13	0.5	B	<10	9	130	75
336	1	<0.02	1000	<2	21	27	0.4	0.9	<10	12	230	92
337	7b	0.14	1800	<2	38	11	0.5	B	<10	5	130	100
338	1	0.06	680	<2	28	20	0.4	B	<10	8	170	86
339	1	<0.02	950	<2	20	17	0.5	B	<10	9	180	86
340	1	<0.02	1100	<2	21	15	0.2	B	<10	6	270	100
341	1	<0.02	1100	<2	19	8	<0.1	<0.1	<10	7	240	100
342	1	<0.02	1400	<2	14	12	0.2	<0.1	<10	7	270	110
343	1	<0.02	830	<2	20	12	0.4	B	<10	14	170	79
344	7b,13b	0.04	960	<2	31	13	0.4	0.5	<10	7	140	100
345	1	<0.02	770	<2	22	14	0.5	B	<10	9	140	76
346	7c	<0.02	880	<2	22	22	0.4	0.2	<10	14	220	100
347	11	0.04	1800	<2	14	9	0.2	0.1	<10	4	250	100
347	9	0.04	1300	<2	15	8	0.1	B	<10	6	270	110
348	7b	0.08	1700	<2	26	11	0.2	B	<10	6	150	81
349	2	<0.02	680	<2	25	16	0.4	0.1	<10	10	140	90
349	3	<0.02	590	<2	24	16	0.4	B	<10	10	140	91
349	4	<0.02	590	<2	24	16	0.4	B	<10	8	140	88
350	1	<0.02	770	<2	21	18	0.3	<0.1	<10	9	140	79
351	7b	0.04	1600	<2	32	20	0.5	0.5	<10	6	140	97
352	1	<0.02	660	<2	22	16	0.6	B	<10	8	170	99
353	1	0.04	1000	<2	38	41	0.4	B	<10	9	150	90
354	1	<0.02	590	<2	16	16	0.4	B	<10	9	120	70
355	8	0.04	770	<2	18	13	0.4	B	<10	10	160	81
355	8	0.10	730	<2	19	15	0.3	B	<10	9	160	81
356	7b	<0.02	750	<2	20	14	0.5	<0.1	<10	13	170	78
357	1	<0.02	790	<2	20	13	0.3	B	<10	7	160	87
358	1	<0.02	1100	<2	22	18	0.6	B	<10	11	190	90
359	1	0.02	1200	<2	31	17	0.5	B	<10	17	260	120
360	1	0.02	950	<2	38	12	0.5	B	<10	7	140	94
361	11,13b	0.16	1100	<2	25	12	0.7	B	<10	6	180	97
361	9	<0.02	620	<2	33	14	0.3	B	<10	6	120	72
362	1	0.04	610	<2	28	14	0.5	B	<10	8	150	95
363	13b	0.04	1030	<2	36	16	B	0.4	<10	7	140	106
364	1	0.04	850	<2	19	11	0.3	B	<10	8	140	85
365	1	<0.02	1400	<2	17	9	0.1	B	<10	5	310	120
366	2	<0.02	860	<2	20	10	0.4	B	<10	9	130	76
366	3	<0.02	780	<2	21	16	0.4	<0.1	<10	10	130	79
366	4	0.02	920	<2	19	13	0.3	B	<10	7	130	91
367	7b	0.08	1700	<2	31	21	0.5	0.5	<10	8	140	110

Table 4. Continued

MAP No.	TYPE	Hg	Mn	Mo	Ni	Pb	Sb	Se	Sn	Th	V	Zn
368	1	<0.02	890	<2	22	20	0.8	B	<10	10	160	94
369	1	<0.02	510	<2	19	10	0.2	B	<10	4	240	110
370	1	<0.02	830	<2	17	11	0.4	B	<10	9	150	75
371	1	<0.02	1000	<2	23	17	0.6	B	<10	10	160	94
372	1	<0.02	980	<2	16	10	0.1	B	<10	6	230	97
373	1	<0.02	990	<2	22	6	0.2	B	<10	<4	230	100
374	8	0.06	1600	<2	32	<4	0.4	B	<10	<4	150	100
374	8	0.06	1300	<2	29	17	B	B	<10	13	200	95
375	7b,13b	0.10	1500	<2	30	20	0.6	B	<10	8	140	100
376	8	0.10	1300	<2	33	15	0.5	B	<10	6	140	100
376	8	0.08	1200	<2	31	12	0.3	B	<10	7	160	97
377	11,13b	0.02	850	<2	25	13	0.2	<0.1	<10	6	130	82
377	9	0.02	910	<2	16	9	0.2	B	<10	5	220	93
378	1	<0.02	1300	<2	16	11	0.1	B	<10	6	250	110
379	1	<0.02	730	<2	24	18	0.5	B	<10	11	120	86
380	1	<0.02	930	<2	20	37	0.5	B	<10	9	180	85
381	1	<0.02	1200	<2	19	11	0.2	B	<10	7	250	100
382	7b	<0.02	710	<2	22	16	0.5	0.2	<10	11	140	82
383	1	<0.02	1100	<2	23	17	0.5	B	<10	11	170	93
384	1	<0.02	900	<2	21	15	0.4	B	<10	7	150	77
385	2	<0.02	650	<2	22	15	0.4	<0.1	<10	11	120	67
385	3	<0.02	510	<2	20	12	0.4	B	<10	5	81	58
385	4	<0.02	530	<2	22	13	0.4	B	<10	6	83	58
386	7b,13b	<0.02	930	<2	22	15	0.6	B	<10	15	200	88
387	1	<0.02	570	<2	17	11	0.2	B	<10	7	130	76
388	7b	0.04	820	<2	28	11	0.2	B	<10	6	170	92
389	1	<0.02	940	<2	23	19	0.3	0.2	<10	15	200	94
390	7b	0.14	2000	<2	30	18	0.5	B	<10	7	140	120
391	7b	0.04	970	<2	25	40	0.5	B	<10	11	190	110
392	2	0.04	1100	<2	14	12	0.2	B	<10	6	180	98
392	3	0.36	1000	<2	18	12	0.3	B	<10	6	230	96
392	4	0.12	1000	<2	18	13	0.2	B	<10	6	230	97
393	1	0.02	750	<2	55	9	0.2	0.2	<10	7	140	140
394	1	<0.02	1100	<2	62	8	0.1	B	<10	6	210	130
395	8,13b	0.14	1100	<2	27	20	0.5	B	<10	8	150	97
395	8,13b	0.08	1000	<2	27	24	0.2	B	<10	9	150	99
396	7b	0.14	1000	<2	24	20	0.6	B	<10	20	210	94
397	1	<0.02	760	<2	22	11	0.2	B	<10	7	130	71
398	1	<0.02	1500	2	15	23	0.2	B	<10	8	200	130
399	1	<0.02	1100	<2	26	19	0.5	B	<10	15	220	100
400	1	<0.02	690	<2	20	12	0.5	B	<10	7	110	66
401	1	<0.02	680	<2	19	10	0.3	B	<10	8	140	82
402	7c	0.24	1000	<2	25	61	1.3	B	<10	7	120	260
403	1	<0.02	540	<2	11	9	0.2	B	<10	<4	72	49
404	1	<0.02	980	<2	16	12	0.2	B	<10	6	170	87

Table 4. Continued

MAP No.	TYPE	Hg	Mn	Mo	Ni	Pb	Sb	Se	Sn	Th	V	Zn
405	1	<0.02	890	<2	19	13	0.4	B	<10	9	170	81
406	1	<0.02	600	<2	22	13	0.4	B	<10	6	96	69
407	1	<0.02	1200	<2	16	14	0.2	B	<10	6	230	110
408	1	<0.02	710	<2	21	17	0.4	B	<10	10	120	69
409	1	<0.02	670	<2	19	12	0.1	B	<10	5	110	110
410	1	<0.02	1100	<2	17	13	0.2	B	<10	11	270	100
411	1	<0.02	980	<2	24	45	0.3	B	<10	8	180	110
412	2	<0.02	950	<2	15	11	0.3	B	<10	6	140	99
412	3	<0.02	820	<2	15	11	0.2	B	<10	6	150	100
412	4	0.04	800	<2	14	8	0.2	<0.1	<10	10	140	93
413	1	0.10	820	<2	39	4L	0.2	B	<10	8	150	87
414	2	<0.02	710	<2	17	16	0.4	B	<10	7	100	81
414	3	<0.02	930	<2	24	14	0.3	B	<10	4	140	83
414	4	<0.02	940	<2	23	11	0.2	B	<10	7	140	86
415	1	0.02	930	<2	13	4	0.2	B	<10	5	100	140
416	1	0.02	860	<2	19	15	0.3	B	<10	12	160	92
417	1	<0.02	640	<2	18	13	0.3	B	<10	7	110	63
418	1	<0.02	550	<2	20	11	0.4	B	<10	8	100	73
419	1	<0.02	980	<2	25	10	0.1	B	<10	5	130	99
420	1	<0.02	930	<2	20	22	0.2	B	<10	6	210	110
421	1	<0.02	880	<2	26	8	0.2	B	<10	9	190	75
422	1	<0.02	1500	<2	17	17	0.2	B	<10	6	330	140
423	1	0.04	1100	<2	18	13	0.3	B	<10	7	140	140
424	2	0.76	1400	<2	23	14	0.3	0.3	<10	7	230	160
424	3	0.04	1400	<2	23	16	0.1	B	<10	6	250	170
424	4	0.02	1300	<2	21	16	0.2	0.3	<10	7	220	150
425	13b	0.06	1350	<2	23	9	B	0.2	<10	6	223	155
426	1	<0.02	1000	<2	18	11	0.1	B	<10	6	180	110
427	1	<0.02	1200	<2	15	35	0.2	B	<10	6	250	140
428	13b	0.40	820	<2	78	16	B	0.9	<10	5	160	110
429	13b	0.04	1100	<2	61	15	B	0.3	<10	7	200	110
430	13b	0.04	1500	<2	15	12	B	0.3	<10	6	240	120

Table 5. Analytical results for an additional 22 elements in fine-grained streambed sediments from the Yakima River basin. (All analytical values are in micrograms per gram unless otherwise noted. See table 1 for explanation of type. B = insufficient sample, H = interference.)

Map No.	Lat.	Long.	TYPE	INORG_C %	ORG_C %	Ca %	Ce	Co	Eu	Ga	K %	La	Li
1	47 33 53	121 06 52	1	0.10	7.87	2.60	30	19	<2	18	0.84	16	25
2	47 31 05	121 03 52	1	0.01	2.44	2.00	17	77	<2	10	0.49	11	21
3	47 31 03	121 13 29	1	0.05	4.58	1.30	57	16	<2	22	1.80	28	42
4	47 30 28	121 10 52	1	0.07	8.34	1.70	58	16	<2	17	1.00	27	43
5	47 29 37	121 02 39	6	0.02	2.89	0.96	8	120	<2	<4	0.34	4	14
6	47 29 38	121 02 44	5	0.02	1.12	1.20	47	33	<2	24	2.20	23	71
7	47 28 52	120 59 24	7a	0.14	2.93	1.60	7	110	<2	7	0.17	3	15
8	47 28 07	121 02 34	1	0.04	6.35	2.10	14	73	<2	10	0.65	8	30
9	47 26 35	120 56 22	1	0.03	1.42	1.80	5	140	<2	<4	0.13	3	12
10	47 26 04	121 01 26	5	0.04	6.50	2.50	38	14	<2	20	0.94	29	53
11	47 25 54	121 10 45	1	0.04	3.37	1.30	55	16	<2	22	1.40	29	49
12	47 25 51	121 13 15	1	0.09	2.48	1.10	69	29	2	26	2.20	33	110
13	47 25 14	121 09 34	5	0.02	2.72	1.30	99	23	3	20	1.60	42	85
14	47 25 13	121 09 37	6	0.02	5.09	1.40	51	16	<2	17	1.30	28	44
15	47 25 13	121 05 15	13b	<0.01	6.64	1.08	38	14	<2	16	1.02	23	51
16	47 24 53	121 14 32	5	0.02	2.81	2.50	45	26	<2	20	1.20	25	43
17	47 24 05	120 55 20	1	0.09	6.07	2.40	37	17	<2	18	0.92	19	64
18	47 23 45	120 52 20	5	<0.01	4.32	3.20	44	16	<2	20	1.10	25	37
19	47 23 52	121 05 28	5	0.08	11.40	3.00	34	10	<2	16	0.85	19	23
20	47 23 49	121 22 50	7a	0.06	3.98	2.10	40	21	<2	14	0.91	23	21
21	47 23 37	121 06 16	1	0.03	5.90	1.50	44	17	<2	17	0.93	23	28
22	47 23 33	121 16 30	1	0.09	4.81	3.00	38	16	<2	20	0.65	19	16
23	47 22 45	121 05 41	1	0.01	3.42	2.00	48	16	<2	19	1.40	26	36
24	47 22 44	120 48 07	1	0.14	12.80	3.00	29	15	<2	16	0.65	17	33
25	47 22 36	120 52 18	1	0.09	4.42	3.00	35	24	<2	20	0.80	18	42
26	47 22 04	121 22 14	1	0.02	1.46	2.40	51	26	<2	21	1.20	27	24
27	47 21 19	121 06 21	8	0.04	3.38	1.30	28	59	<2	12	0.80	16	31
27	47 21 19	121 06 21	8	0.02	3.58	1.30	30	60	<2	11	0.78	16	32
28	47 20 49	120 53 37	6	0.06	5.60	1.70	34	22	<2	18	0.81	19	31
29	47 20 48	120 53 38	5	0.03	3.14	2.10	46	12	<2	20	1.00	23	32
30	47 20 30	120 51 59	13a	0.04	1.57	0.85	43	23	<2	21	1.03	22	34
31	47 20 22	121 24 23	1	0.05	5.03	1.20	46	11	<2	20	1.40	22	39
32	47 20 11	120 51 29	7b	0.03	2.97	0.92	36	24	<2	22	1.10	19	37
33	47 20 02	120 51 01	1	0.02	4.05	1.50	44	22	<2	20	0.90	22	47
34	47 19 58	121 10 27	1	<0.01	2.89	0.57	41	18	<2	25	1.90	18	53
35	47 19 57	121 15 21	11	0.04	4.51	2.60	50	22	<2	21	1.10	27	34
35	47 19 57	121 15 21	9	0.04	3.19	3.10	45	22	<2	21	0.96	25	31
36	47 19 35	120 35 18	5	0.03	3.11	3.00	32	17	<2	20	0.92	21	29
37	47 19 42	120 38 36	5	<0.01	1.31	1.80	44	17	<2	18	1.30	24	37
38	47 19 44	120 38 40	6	0.01	1.54	1.50	47	18	<2	24	1.50	24	45
39	47 19 34	120 35 32	6	0.04	6.30	1.90	46	17	<2	19	0.97	26	53
40	47 19 23	120 47 16	5	<0.01	0.42	4.70	19	39	<2	16	0.67	11	22
41	47 18 43	120 31 49	1	<0.01	1.86	2.00	47	18	<2	20	1.10	24	37
42	47 18 25	120 57 33	1	0.04	3.97	1.00	44	26	2	21	0.79	20	40
43	47 18 21	121 23 22	1	0.06	4.96	1.20	53	11	<2	24	1.40	25	55

Table 5. Continued

Map No.	Lat.	Long.	TYPE	INORG_C %	ORG_C %	Ca %	Ce	Co	Eu	Ga	K %	La	Li
44	47 18 12	120 37 47	1	0.02	2.13	1.50	44	19	<2	19	1.30	23	36
45	47 18 09	120 43 26	1	0.02	1.74	1.60	46	10	<2	17	1.10	22	39
46	47 18 08	121 05 58	1	0.02	5.54	2.00	37	29	<2	18	0.70	19	41
47	47 17 56	121 02 53	2	0.03	2.47	1.90	49	25	2	25	0.73	20	60
47	47 17 58	121 02 55	3	0.03	3.98	1.70	44	20	<2	21	0.84	21	46
47	47 17 58	121 02 55	4	0.03	3.33	1.60	34	18	<2	23	0.98	22	53
48	47 17 25	120 41 44	5	0.02	5.12	3.00	34	15	<2	18	1.10	21	36
49	47 17 17	121 11 57	2	0.02	1.53	1.10	50	24	<2	24	1.40	24	40
49	47 17 19	121 11 53	3	0.04	3.83	1.10	55	20	<2	21	1.40	27	38
49	47 17 19	121 11 53	4	0.02	2.40	1.10	59	27	<2	29	1.70	30	47
50	47 17 19	121 16 51	1	0.04	5.71	2.40	49	20	<2	19	0.94	22	34
51	47 16 07	120 36 47	6	0.01	2.87	1.50	40	17	<2	18	1.10	23	27
52	47 16 05	120 38 36	1	0.02	3.03	1.70	42	15	<2	18	1.20	22	41
53	47 16 03	120 36 50	5	<0.01	2.62	2.10	46	20	<2	18	1.00	25	27
54	47 15 45	120 41 53	5	<0.01	0.94	1.10	51	12	<2	18	1.30	28	31
55	47 15 45	120 41 59	6	0.05	5.88	1.60	39	17	<2	20	0.96	21	37
56	47 15 27	120 52 44	7b	0.06	4.54	1.60	30	33	<2	17	0.93	16	29
57	47 15 33	120 53 49	8	0.02	3.53	2.30	38	25	<2	22	0.96	21	30
57	47 15 33	120 53 49	8	0.04	3.37	2.30	34	24	<2	20	0.94	19	32
58	47 15 32	120 54 12	8	0.05	4.17	1.90	38	22	<2	21	1.00	20	38
58	47 15 32	120 54 12	8	0.06	5.03	1.90	39	19	<2	20	0.96	20	34
59	47 14 49	120 41 47	5	<0.01	4.07	1.70	43	17	<2	16	1.10	22	32
60	47 14 50	120 41 47	6	0.05	5.04	1.70	44	20	<2	21	1.10	23	41
61	47 14 48	120 51 36	13b	<0.01	2.58	1.96	36	32	<2	20	1.02	20	32
62	47 14 25	120 26 54	1	0.03	2.63	3.00	44	20	<2	21	1.10	23	29
63	47 14 26	120 49 10	1	0.02	2.69	1.80	53	21	<2	19	1.00	26	28
64	47 14 34	121 13 24	1	0.03	1.87	1.50	57	18	<2	21	0.87	32	32
65	47 14 26	121 13 26	11	0.02	0.86	2.30	46	22	<2	20	1.00	24	27
65	47 14 26	121 13 26	9	0.02	0.68	2.40	43	22	<2	19	0.96	24	24
66	47 13 54	121 19 36	1	0.02	2.92	1.80	51	18	<2	19	0.95	26	32
67	47 13 44	120 34 53	1	0.02	3.75	3.00	45	33	2	24	0.54	25	22
68	47 12 48	120 57 42	7a	0.19	6.52	1.70	49	16	<2	18	1.10	26	27
69	47 12 50	121 10 20	1	0.04	2.80	2.30	47	22	<2	21	1.10	26	27
70	47 12 30	120 41 56	8	0.05	4.99	1.80	37	18	<2	18	0.90	20	32
70	47 12 30	120 41 56	8	0.05	4.62	1.80	39	19	<2	19	0.94	20	34
71	47 12 26	120 42 05	1	0.05	3.08	2.40	26	24	<2	21	0.88	19	26
72	47 12 26	121 01 54	1	0.04	4.51	1.90	36	18	<2	18	0.89	18	38
73	47 12 22	120 55 53	1	0.02	0.91	0.97	55	18	<2	25	1.30	28	37
74	47 12 08	120 57 21	5	0.03	4.71	2.10	48	14	<2	18	1.20	23	53
75	47 11 42	121 13 02	2	0.02	1.96	1.90	54	17	<2	23	1.10	29	28
75	47 11 35	121 13 09	3	0.02	0.94	1.80	52	16	<2	23	1.20	29	30
75	47 11 35	121 13 09	4	0.01	0.97	1.90	55	17	<2	21	1.10	29	27
76	47 11 35	120 56 55	7b,13b	0.02	3.64	1.90	40	28	<2	18	0.91	22	26
77	47 10 32	120 35 11	1	<0.01	4.08	3.30	39	27	<2	19	0.78	23	23
78	47 10 29	121 16 05	1	0.07	4.19	1.80	45	15	<2	19	0.98	23	35

Table 5. Continued

Map No.	Lat.	Long.	TYPE	INORG_C %	ORG_C %	Ca %	Ce	Co	Eu	Ga	K %	La	Li
79	47 10 19	120 24 00	1	0.13	0.21	3.40	110	22	2	16	1.30	54	19
80	47 10 14	121 05 54	1	0.02	2.49	1.80	58	21	<2	21	1.00	27	33
81	47 10 02	120 40 08	1	0.02	1.71	2.30	50	23	2	22	0.95	32	19
82	47 09 49	120 27 24	1	0.02	2.26	3.90	36	26	<2	23	0.95	22	24
83	47 09 48	120 58 42	5	0.03	5.95	1.40	45	20	<2	20	1.20	23	62
84	47 09 25	120 59 13	6	0.01	1.45	1.20	55	18	<2	19	1.60	28	58
85	47 09 29	121 01 16	1	0.03	3.79	4.90	18	25	<2	18	0.36	10	12
86	47 09 17	120 57 28	1	0.02	2.15	2.10	41	15	<2	19	0.90	27	19
87	47 09 22	120 51 35	1	0.03	4.86	2.20	39	18	<2	17	0.74	25	19
88	47 09 17	120 42 58	1	0.03	1.08	1.80	49	20	<2	19	1.00	25	28
89	47 08 40	120 32 50	2	0.03	2.03	3.40	50	35	2	23	0.87	28	28
89	47 08 52	120 32 52	3	0.03	2.49	3.30	50	37	2	23	0.86	27	25
89	47 08 52	120 32 52	4	0.02	2.32	3.10	47	35	<2	22	0.84	26	26
90	47 07 24	120 28 43	7b	0.04	7.28	2.40	42	25	<2	18	0.79	23	23
91	47 07 00	120 48 41	1	0.02	0.93	2.50	38	19	<2	19	0.92	24	19
92	47 06 55	121 02 49	5	0.01	2.41	2.40	48	24	<2	19	1.20	26	39
93	47 06 52	120 44 37	1	0.02	1.41	1.60	51	22	<2	18	1.00	25	24
94	47 06 48	120 54 30	1	0.03	1.57	2.90	41	27	<2	22	1.40	22	38
95	47 06 28	120 51 17	11	0.06	4.71	2.50	33	24	<2	18	0.91	18	31
95	47 06 28	120 51 17	9	0.03	4.00	3.20	36	26	<2	18	0.87	21	27
96	47 06 26	121 06 09	5	<0.01	1.63	2.60	44	28	<2	22	1.40	23	40
97	47 06 05	120 56 56	5	0.02	3.88	1.40	49	15	<2	17	1.20	27	39
98	47 05 49	120 17 14	2	0.02	1.74	2.10	59	31	<2	22	1.00	29	22
98	47 05 50	120 17 17	3	0.01	1.83	2.80	47	23	<2	20	1.10	24	18
98	47 05 50	120 17 17	4	0.02	1.81	2.60	44	22	<2	24	1.20	27	21
99	47 05 34	120 18 16	1	0.01	1.88	2.80	42	20	<2	20	1.10	22	19
100	47 05 21	120 27 49	1	0.03	2.69	2.30	40	22	<2	19	0.93	22	24
101	47 05 17	120 30 50	1	0.01	1.33	2.80	42	32	<2	21	0.81	23	19
102	47 05 01	120 37 43	1	0.02	3.09	2.20	40	19	<2	19	0.97	22	19
103	47 04 58	120 23 15	1	0.03	2.41	2.70	43	20	<2	21	1.10	24	20
104	47 04 56	121 16 02	1	0.04	4.15	2.50	45	13	<2	20	1.10	24	24
105	47 04 59	121 19 29	1	0.02	4.06	2.80	37	16	<2	21	0.78	19	25
106	47 04 45	121 14 22	5	0.01	2.87	2.90	42	19	<2	20	0.89	22	24
107	47 04 13	121 04 07	1	0.03	2.00	1.20	32	18	<2	17	1.10	15	28
108	47 04 05	121 10 13	1	0.01	2.66	2.00	57	20	<2	22	1.10	29	37
109	47 03 28	121 17 24	1	0.06	2.51	2.50	37	22	<2	22	0.58	18	23
110	47 03 19	120 20 59	1	0.02	2.22	2.90	55	30	<2	20	0.90	26	19
111	47 03 18	121 00 15	1	0.03	3.50	2.90	43	14	2	21	0.77	27	22
112	47 03 15	121 15 44	7a	0.04	7.78	1.80	29	13	<2	14	0.44	16	20
113	47 03 11	120 52 30	1	0.02	1.69	2.60	43	28	2	22	0.79	30	24
114	47 02 36	120 34 11	1	0.02	1.67	2.40	49	35	<2	21	1.10	25	22
115	47 02 28	120 57 07	1	0.01	0.69	1.00	100	11	<2	14	1.40	52	29
116	47 02 17	121 13 54	1	0.02	3.08	3.20	30	41	<2	19	0.48	16	18
117	47 02 10	121 09 50	1	0.02	2.59	3.00	52	20	<2	20	1.10	30	30
118	47 01 44	120 40 19	1	0.02	1.55	2.70	40	16	<2	19	0.88	22	21

Table 5. Continued

Map No.	Lat.	Long.	TYPE	INORG_C %	ORG_C %	Ca %	Ce	Co	Eu	Ga	K %	La	Li
119	47 01 43	121 09 12	7b	0.03	3.69	1.90	48	17	<2	17	0.75	24	28
120	47 01 06	120 17 54	1	<0.01	1.37	2.80	42	19	<2	20	1.00	25	19
121	47 01 07	120 36 28	7b,13b	0.03	4.08	1.90	33	25	<2	17	0.88	18	25
122	47 01 00	120 44 19	1	0.04	3.27	3.30	41	27	<2	20	0.77	23	19
123	47 00 45	120 41 14	2	0.02	2.67	2.80	40	24	<2	22	0.89	23	20
123	47 00 42	120 41 20	3	0.01	1.85	3.00	36	24	<2	21	0.83	23	19
123	47 00 42	120 41 20	4	<0.01	1.84	2.90	38	23	<2	20	0.85	22	19
124	47 00 38	120 27 51	1	<0.01	0.57	3.30	44	23	<2	19	1.10	27	19
125	47 00 14	121 07 18	2	0.03	4.07	2.30	43	15	2	19	0.85	31	32
125	47 00 17	121 17 08	3	0.04	3.86	2.30	41	20	<2	17	1.00	21	23
125	47 00 17	121 07 08	4	0.04	2.54	3.00	39	27	2	22	0.90	25	25
126	46 59 52	120 32 45	7c	0.04	1.80	2.40	54	25	<2	21	1.10	30	25
127	46 59 29	121 05 59	8	0.03	3.08	2.50	42	17	<2	20	0.82	22	27
127	46 59 29	121 05 59	8	0.03	2.58	2.50	42	17	<2	20	0.81	22	27
128	46 59 06	120 55 23	1	0.06	2.49	2.80	45	32	<2	22	0.55	24	23
129	46 58 57	120 49 52	1	0.03	3.15	3.10	42	31	<2	21	0.75	24	21
130	46 58 44	120 15 06	1	0.02	2.46	3.20	40	29	<2	22	0.83	24	27
131	46 58 40	121 10 04	8	0.03	2.59	2.10	51	22	<2	17	1.00	26	28
131	46 58 40	121 10 04	8	0.03	2.67	2.10	48	21	<2	17	0.98	25	26
132	46 58 18	120 30 47	1	0.01	1.05	2.80	55	24	<2	18	1.00	30	19
133	46 58 23	120 48 31	2	0.03	3.19	3.00	45	26	<2	22	0.99	24	24
133	46 58 26	120 48 28	3	0.03	2.43	3.10	41	28	2	22	0.91	25	26
133	46 58 26	120 48 28	4	0.02	2.04	2.50	48	20	<2	22	1.40	26	26
134	46 58 16	120 53 30	1	0.06	4.98	3.40	41	33	2	21	0.52	23	22
135	46 58 02	120 40 47	1	0.02	2.18	4.00	33	26	<2	21	0.94	20	16
136	46 58 02	120 41 03	11	0.02	4.37	2.80	40	26	<2	19	0.74	23	20
136	46 58 02	120 41 03	9	0.03	3.37	3.40	36	29	<2	20	0.75	21	19
137	46 57 50	120 26 59	1	0.18	1.69	3.00	39	18	<2	18	1.10	23	20
138	46 57 39	121 04 10	1	0.04	5.73	3.80	37	21	<2	18	0.72	20	13
139	46 57 25	120 21 59	1	0.02	3.06	3.00	45	18	<2	19	1.00	25	18
140	46 57 20	121 07 27	1	0.02	1.83	2.40	55	20	3	23	0.84	40	26
141	46 55 44	120 29 48	8,13b	0.11	1.35	2.80	42	17	<2	18	1.20	23	22
141	46 55 44	120 29 48	8,13b	0.13	1.29	2.70	44	17	<2	18	1.20	24	22
142	46 55 35	120 30 02	7b	<0.01	2.27	2.80	46	21	<2	18	1.00	25	20
143	46 55 39	121 08 53	1	0.02	4.68	2.70	36	12	<2	23	0.77	22	24
144	46 55 27	121 12 49	8	0.04	4.81	2.00	44	15	<2	19	1.00	24	34
144	46 55 27	121 12 49	8	0.02	3.00	0.92	41	24	<2	23	1.10	22	34
145	46 55 25	121 16 24	1	0.02	1.03	4.20	33	21	<2	23	0.69	17	18
146	46 55 22	121 13 14	1	0.02	2.42	3.30	30	13	<2	21	1.00	17	23
147	46 54 47	120 14 02	1	0.01	1.18	2.60	54	16	<2	19	1.20	32	22
148	46 54 53	120 48 39	2	0.02	1.46	4.00	38	33	2	24	0.68	23	14
148	46 54 55	120 48 36	3	0.01	1.42	3.90	38	29	2	24	0.74	22	16
148	46 54 55	120 48 36	4	0.01	1.25	3.60	35	29	2	23	0.72	21	16
149	46 54 48	120 50 55	1	0.02	2.23	3.30	35	26	<2	24	0.74	23	18
150	46 54 35	121 25 03	7a	0.17	16.00	2.90	31	14	<2	15	0.66	17	16

Table 5. Continued

Map No.	Lat.	Long.	TYPE	INORG_C %	ORG_C %	Ca %	Ce	Co	Eu	Ga	K %	La	Li
151	46 54 28	120 22 02	1	0.02	1.10	2.70	50	24	<2	20	1.10	25	21
152	46 54 18	120 38 48	2	0.01	1.78	3.60	35	25	<2	22	0.79	22	16
152	46 54 22	120 38 44	3	0.01	1.74	3.60	35	22	<2	24	0.87	22	19
152	46 54 22	120 38 44	4	<0.01	1.75	3.40	30	23	<2	21	0.77	20	18
153	46 54 18	120 49 03	1	<0.01	1.72	3.50	36	25	<2	22	0.76	22	17
154	46 54 02	121 00 38	1	0.03	2.66	4.30	37	27	<2	20	0.78	21	15
155	46 53 55	120 38 53	1	0.04	2.02	3.00	40	22	<2	21	0.89	24	21
156	46 53 47	121 24 52	5	0.03	2.59	1.10	7	120	<2	9	0.30	4	12
157	46 53 38	120 55 28	1	0.01	2.75	2.70	36	19	<2	19	0.68	23	20
158	46 53 23	121 29 32	1	0.03	2.31	3.60	43	26	<2	21	0.91	23	23
159	46 53 04	120 28 28	1	0.01	0.92	3.50	45	22	<2	26	1.30	22	24
160	46 53 02	121 19 47	1	0.01	0.58	3.20	44	14	<2	23	1.00	22	23
161	46 52 58	120 33 59	1	0.02	1.52	3.10	43	23	<2	20	0.88	24	19
162	46 52 24	121 19 41	1	0.03	3.09	2.40	43	14	<2	21	1.00	23	37
163	46 52 01	120 50 01	1	0.01	1.92	3.10	32	21	<2	22	0.79	23	21
164	46 51 46	120 28 44	7b,13b	0.02	4.04	1.70	36	18	<2	15	1.10	20	20
165	46 51 42	121 09 28	1	0.03	3.12	3.00	36	19	<2	21	0.79	19	29
166	46 51 32	121 26 37	1	0.01	0.28	2.20	56	12	<2	17	1.50	29	24
167	46 51 27	120 29 46	13a	0.01	2.22	3.01	44	29	<2	20	0.84	24	20
168	46 51 17	120 28 01	1	0.03	1.52	2.90	46	19	<2	19	1.00	25	21
169	46 51 19	120 29 02	7b	0.04	5.27	2.00	30	21	<2	13	0.56	16	13
170	46 51 18	120 28 59	7b	0.02	1.95	2.51	43	23	<2	19	0.98	23	25
171	46 51 09	120 12 37	1	0.01	1.08	2.90	64	21	<2	21	1.20	32	21
172	46 51 13	121 03 51	1	<0.01	0.81	3.30	39	22	<2	21	0.81	20	26
173	46 50 47	121 21 45	1	0.02	1.99	3.00	40	22	<2	21	0.90	23	20
174	46 50 25	120 21 02	1	0.01	1.40	2.70	42	16	<2	18	1.20	24	20
175	46 50 24	120 45 59	1	<0.01	1.53	3.70	35	29	<2	23	0.72	22	17
176	46 50 08	121 17 53	6	0.04	5.00	2.50	48	12	<2	19	1.10	26	31
177	46 50 06	121 17 57	1	0.04	3.95	2.70	49	15	<2	19	1.10	27	30
178	46 50 10	121 22 08	7b	0.08	7.53	2.40	37	24	<2	15	0.67	22	31
179	46 49 58	120 56 14	1	0.02	2.93	3.50	27	16	<2	18	0.90	18	19
180	46 49 19	120 27 02	8	0.04	2.06	2.30	46	17	<2	14	0.93	25	19
180	46 49 19	120 27 02	8	0.02	2.07	2.30	45	19	<2	17	0.99	22	19
181	46 49 16	120 41 28	11	<0.01	2.11	3.40	37	27	<2	22	0.70	23	18
181	46 49 16	120 41 28	9	0.01	1.38	4.30	36	29	<2	22	0.67	23	17
182	46 49 12	120 40 16	1	0.01	1.64	3.20	30	16	<2	20	1.10	17	19
183	46 49 09	120 56 01	7b,13b	0.02	2.85	2.60	42	20	<2	18	1.00	22	29
184	46 48 35	120 16 59	1	<0.01	0.75	2.90	46	17	<2	20	1.20	25	21
185	46 48 39	121 18 47	5	0.02	1.76	1.90	43	20	<2	17	1.00	23	39
186	46 48 34	121 04 08	13b	<0.01	3.32	1.91	45	19	<2	19	1.12	24	36
187	46 48 24	120 31 15	1	0.04	1.74	2.80	40	31	<2	21	0.98	22	19
188	46 47 28	121 21 20	5	0.05	1.84	1.60	21	88	<2	13	0.55	11	19
189	46 47 24	120 52 09	1	0.06	6.02	2.70	38	23	<2	18	0.89	19	19
190	46 47 08	120 57 31	1	0.02	2.60	3.00	44	20	<2	21	1.10	27	28
191	46 47 08	121 20 14	6	0.02	5.19	2.70	43	12	<2	19	1.20	27	32

Table 5. Continued

Map No.	Lat.	Long.	TYPE	INORG_C %	ORG_C %	Ca %	Ce	Co	Eu	Ga	K %	La	Li
192	46 46 59	120 17 41	1	0.04	0.54	3.30	53	19	<2	19	1.20	28	20
193	46 46 37	120 21 04	1	<0.01	0.88	3.00	47	24	<2	20	1.10	24	18
194	46 46 39	120 27 04	1	0.04	0.51	3.00	40	35	<2	21	1.10	21	15
195	46 46 44	121 04 42	1	0.02	0.79	3.10	51	16	<2	20	1.10	24	16
196	46 46 32	121 18 05	5	0.03	1.60	1.00	18	110	<2	11	0.45	9	15
197	46 46 24	121 06 32	1	0.03	1.77	2.20	38	18	<2	20	1.00	20	39
198	46 46 10	120 25 19	2	<0.01	1.79	2.80	42	19	<2	18	1.20	21	19
198	46 46 14	120 25 17	3	0.03	1.56	2.80	36	14	<2	18	1.30	20	22
198	46 46 14	120 25 17	4	0.02	1.44	2.70	32	12	<2	18	1.30	18	21
199	46 46 00	121 21 00	5	<0.01	2.73	2.20	46	22	<2	18	1.00	24	27
200	46 45 16	120 40 01	1	0.01	0.54	3.60	46	29	<2	24	0.85	25	20
201	46 45 04	120 27 51	8	0.02	2.83	2.00	42	20	<2	16	1.00	23	25
201	46 45 04	120 27 51	8	0.02	3.01	1.90	41	21	<2	19	1.10	22	26
202	46 44 47	120 47 14	7b	<0.01	3.12	2.70	38	19	<2	17	0.83	20	21
203	46 44 43	120 12 11	1	0.01	1.14	2.50	56	16	<2	19	1.30	33	21
204	46 44 43	120 47 37	1	<0.01	0.89	3.20	41	22	<2	20	1.00	22	20
205	46 44 33	121 12 24	1	0.04	6.39	3.30	42	13	<2	20	0.95	28	34
206	46 44 19	120 34 39	1	0.06	1.08	2.00	76	14	<2	20	1.60	36	53
207	46 43 36	120 48 34	7b	0.02	2.22	2.40	42	20	<2	20	1.10	23	24
208	46 43 10	121 07 56	1	0.03	3.08	2.40	37	17	<2	22	0.92	19	27
209	46 42 55	120 41 56	1	0.02	3.13	2.60	45	18	<2	18	1.10	23	25
210	46 42 46	120 24 43	1	0.01	0.71	2.40	48	13	<2	19	1.30	28	24
211	46 42 44	120 52 58	1	0.05	6.38	3.20	39	34	<2	19	0.67	21	16
212	46 42 41	120 58 13	1	<0.01	1.94	3.50	38	18	<2	18	1.10	20	18
213	46 42 29	120 28 03	8	0.14	1.00	2.90	41	22	<2	20	1.00	23	24
213	46 42 29	120 28 03	8	<0.01	1.63	2.50	49	20	<2	19	1.10	27	22
214	46 42 15	120 27 04	1	0.01	1.07	3.40	48	21	<2	22	1.30	25	23
215	46 42 09	120 21 01	2	0.02	1.26	3.30	61	22	<2	28	1.90	32	34
215	46 42 11	120 20 57	3	0.06	1.64	2.70	43	15	<2	18	1.20	25	21
215	46 42 11	120 20 57	4	0.04	1.47	2.70	39	15	<2	19	1.30	21	21
216	46 42 12	120 31 10	1	0.02	1.53	2.20	42	14	<2	18	1.10	23	22
217	46 42 01	120 47 01	1	0.01	0.80	2.70	40	15	<2	21	1.10	23	23
218	46 40 53	121 17 52	1	0.03	1.23	2.30	28	33	<2	20	1.10	14	42
219	46 40 35	121 12 25	5	<0.01	3.34	2.60	41	19	<2	17	1.10	23	27
220	46 40 27	121 02 25	1	0.03	1.07	3.00	32	13	<2	20	1.20	17	23
221	46 40 23	120 13 35	1	0.01	0.57	3.00	43	19	<2	19	1.30	24	18
222	46 40 23	121 10 02	2	0.02	1.08	2.10	46	15	<2	22	1.00	23	25
222	46 40 25	121 10 04	3	0.02	1.44	2.10	45	16	<2	21	1.00	23	25
222	46 40 25	121 10 04	4	0.03	1.50	2.10	46	16	<2	21	1.00	24	24
223	46 39 58	121 22 20	1	0.04	7.51	2.60	43	15	<2	20	1.00	24	36
224a	46 39 33	120 35 57	10										
224b	46 39 33	120 35 57	10	0.02	1.65	2.50	46	15	<2	19	1.40	26	23
225	46 39 30	121 15 15	5	0.04	5.55	1.60	33	27	<2	20	0.88	17	45
226	46 39 22	121 11 15	1	0.05	4.09	3.10	41	21	<2	19	1.10	24	23
227	46 39 13	121 17 43	2	0.01	1.30	3.40	29	13	<2	19	1.10	16	20

Table 5. Continued

Map No.	Lat.	Long.	TYPE	INORG_C %	ORG_C %	Ca %	Ce	Co	Eu	Ga	K %	La	Li
227	46 39 15	121 17 43	3	0.01	0.71	3.20	27	11	<2	19	1.20	15	21
227	46 39 15	121 17 43	4	0.01	2.03	2.50	49	17	<2	18	1.20	26	19
228	46 39 02	120 28 50	1	0.01	0.35	2.70	60	16	<2	19	1.20	34	22
229	46 38 55	120 31 30	7c	0.02	0.89	2.90	50	21	<2	20	1.20	28	19
230	46 38 54	120 16 32	1	0.02	0.92	2.80	51	18	<2	19	1.30	28	22
231	46 38 35	120 32 35	1	<0.01	1.40	2.70	48	17	<2	18	1.10	25	22
232	46 38 37	121 05 56	1	<0.01	0.96	2.20	45	17	<2	19	1.20	22	20
233	46 38 17	121 17 04	11	0.02	2.15	2.30	49	17	<2	18	1.30	25	39
233	46 38 17	121 17 04	9	0.01	1.36	2.60	51	21	<2	19	1.20	30	23
234	46 38 08	120 09 38	1	0.01	0.57	3.20	63	22	<2	20	1.20	35	19
235	46 37 42	120 31 10	8,13b	0.05	3.33	2.60	34	18	<2	17	0.90	19	20
235	46 37 42	120 31 10	8,13b	0.02	3.19	2.70	35	20	<2	17	0.92	19	21
235	46 37 42	120 31 10	8,13b	0.03	2.88	2.80	35	19	<2	18	0.93	19	21
236	46 37 40	120 34 36	11	0.02	2.59	2.80	41	24	<2	17	0.82	23	21
236	46 37 40	120 34 36	9	0.04	1.95	3.60	35	23	<2	20	0.82	21	19
237	46 37 32	121 07 54	11	0.09	0.81	1.80	47	21	<2	21	1.20	26	28
237	46 37 32	121 07 54	9	0.14	0.90	2.10	39	21	<2	18	1.30	22	29
238	46 37 17	120 53 32	1	0.01	2.34	3.10	37	25	<2	21	0.85	22	20
239	46 37 22	121 16 57	1	0.03	4.07	1.90	28	12	<2	17	1.10	17	37
240	46 37 08	120 55 45	1	0.02	1.40	4.50	52	36	3	35	1.40	37	26
241	46 37 00	121 18 56	7b	<0.01	1.11	3.40	44	24	<2	20	1.20	25	21
242	46 36 23	120 24 34	1	0.01	0.97	2.90	39	16	<2	18	1.20	22	21
243	46 36 20	120 39 14	1	0.04	2.84	2.50	45	21	<2	19	1.00	24	22
244	46 36 02	120 46 17	1	0.03	1.93	2.10	27	10	<2	15	0.86	17	16
245	46 35 51	119 56 21	1	0.02	0.55	2.40	73	17	<2	18	1.40	39	21
246	46 35 44	121 07 59	1	0.03	1.11	2.40	42	36	<2	20	1.20	22	38
247	46 35 23	121 20 59	1	0.05	7.88	3.30	31	17	<2	17	1.00	17	37
248	46 35 07	120 27 44	7c	0.02	1.97	2.60	50	25	<2	23	1.00	24	27
249	46 34 56	120 36 34	13b	0.01	5.25	2.04	38	18	<2	15	0.79	18	17
250	46 34 24	120 20 01	1	0.02	1.15	2.70	60	26	<2	20	1.30	29	22
251	46 34 13	119 48 23	1	0.07	0.25	2.50	110	16	<2	17	1.50	60	24
252	46 34 00	120 28 16	7c	0.01	3.09	2.90	38	19	<2	20	0.99	22	21
253	46 33 46	120 17 39	1	0.02	2.02	3.10	41	16	<2	18	1.30	22	20
254	46 33 47	120 28 07	1	0.04	3.87	2.70	36	18	<2	18	0.96	20	20
255	46 33 49	120 34 36	1	0.01	2.55	3.10	38	23	<2	20	0.91	22	18
256	46 33 51	120 37 26	10	0.01	1.61	2.10	48	15	<2	18	1.30	27	26
257	46 33 38	120 04 28	1	0.02	0.28	3.80	52	25	2	20	0.95	26	15
258	46 33 38	120 37 30	10	0.02	0.94	2.40	44	16	<2	19	1.20	26	20
259	46 33 38	120 37 31	10	<0.01	1.33	2.20	53	16	<2	21	1.30	30	25
260	46 33 37	121 21 26	5	0.04	3.51	1.70	29	39	<2	21	0.69	15	34
261	46 33 22	120 39 07	2	0.09	2.97	2.90	49	25	<2	19	1.10	27	22
261	46 33 22	120 39 10	3	0.01	5.16	2.10	43	23	<2	18	0.95	22	22
261	46 33 22	120 39 10	4	0.03	5.11	2.00	40	21	<2	17	0.90	21	21
262	46 33 22	120 42 25	1	0.03	2.60	2.20	48	21	<2	18	1.10	23	23
263	46 32 43	120 52 57	1	0.01	1.83	3.60	37	28	<2	23	0.81	20	17

Table 5. Continued

Map No.	Lat.	Long.	TYPE	INORG_C %	ORG_C %	Ca %	Ce	Co	Eu	Ga	K %	La	Li
264	46 32 31	120 46 51	1	0.03	1.97	2.60	35	14	<2	20	1.10	20	21
265	46 32 18	120 27 19	7b,13b	0.02	0.46	2.70	60	16	<2	18	1.40	32	23
266	46 32 19	120 28 17	8,13b	0.02	3.01	2.50	37	18	<2	17	0.97	20	21
266	46 32 19	120 28 17	8,13b	0.02	1.86	3.10	39	21	<2	18	0.99	21	20
266	46 32 19	120 28 17	8,13b	0.03	2.02	2.90	41	20	<2	18	0.99	21	20
267	46 32 24	120 59 07	1	0.02	1.80	3.20	43	29	<2	25	0.87	23	21
268	46 32 21	121 15 38	1	0.02	0.89	3.40	23	19	<2	19	0.97	13	20
269	46 32 10	119 53 57	1	0.01	0.34	2.40	120	15	2	16	1.50	62	21
270	46 32 10	120 28 20	11,13b	<0.01	2.14	2.90	38	23	<2	19	0.94	23	19
270	46 32 10	120 28 20	9	0.02	1.38	3.50	33	28	<2	21	0.90	21	17
271	46 32 07	121 00 49	1	0.02	2.70	3.90	27	21	<2	22	0.84	19	21
272	46 32 04	120 27 58	7b	<0.01	2.07	2.40	47	20	<2	17	1.10	25	24
273	46 31 49	121 07 46	2	0.02	2.56	3.50	34	31	<2	23	0.75	19	24
273	46 31 50	121 07 48	3	0.02	2.14	3.70	41	35	<2	23	0.72	22	23
273	46 31 50	121 07 48	4	0.02	1.93	3.60	34	31	<2	22	0.72	20	24
274	46 31 21	121 10 30	1	0.01	2.33	3.10	39	24	<2	21	0.97	20	31
275	46 31 13	119 59 40	1	0.08	0.63	2.50	90	15	<2	23	1.70	47	26
276	46 31 14	120 13 40	1	0.17	0.65	3.10	58	18	<2	18	1.40	31	24
277	46 31 05	121 00 57	1	0.02	1.38	3.40	41	28	2	24	0.79	25	18
278	46 31 14	121 10 31	2	0.02	3.16	2.30	36	23	<2	20	1.10	21	41
278	46 31 12	121 10 35	3	0.03	4.49	2.40	35	22	<2	19	1.00	20	37
278	46 31 12	121 10 35	4	0.05	4.45	2.40	38	23	<2	20	1.00	18	34
279	46 30 23	120 55 29	1	0.02	1.39	3.60	37	25	<2	21	0.91	22	18
280	46 29 48	119 50 16	1	0.01	0.73	2.30	60	16	<2	18	1.50	32	23
281	46 29 47	120 26 24	8,13b	0.02	1.94	2.30	44	17	<2	17	1.20	23	24
281	46 29 47	120 26 24	8,13	0.02	1.85	2.30	45	17	<2	18	1.20	24	25
282	46 29 33	121 17 58	1	0.04	5.60	2.80	37	15	<2	18	1.10	21	27
283	46 29 13	119 37 35	1	<0.01	0.32	2.90	110	22	2	18	1.40	58	21
284	46 29 10	119 54 40	1	<0.01	0.45	2.10	68	13	<2	16	1.50	35	22
285	46 29 02	121 19 44	1	0.04	2.59	2.80	44	17	<2	21	1.20	22	24
286	46 28 58	119 39 10	1	0.09	0.52	2.80	78	19	<2	21	1.70	44	26
287	46 28 49	120 37 45	1	<0.01	0.52	2.60	40	15	<2	19	1.20	23	21
288	46 28 40	120 32 03	1	0.01	1.09	2.50	52	17	<2	17	1.40	26	23
289	46 28 00	120 44 46	1	<0.01	0.99	3.10	45	20	<2	20	1.20	23	20
290	46 27 57	120 24 27	1	0.03	2.14	3.20	39	21	<2	18	1.30	20	23
291	46 27 43	120 05 04	1	0.02	0.91	2.90	68	22	<2	19	1.30	35	22
292	46 27 28	120 16 14	1	<0.01	0.79	2.20	64	14	<2	18	1.50	34	26
293	46 27 27	120 53 03	1	0.01	0.96	3.90	36	31	<2	23	0.71	21	15
294	46 27 18	119 57 21	1	<0.01	0.25	2.30	67	14	<2	16	1.50	35	22
295	46 26 54	120 12 37	1	0.01	0.72	2.90	74	23	<2	18	1.30	37	22
296	46 26 54	120 26 54	1	0.05	6.42	1.80	37	17	<2	17	1.10	21	47
297	46 26 35	119 30 44	1	0.02	0.81	2.70	78	19	<2	18	1.50	43	23
298	46 25 59	120 16 28	1	0.25	1.97	3.20	57	18	<2	19	1.80	32	27
299	46 25 46	120 42 42	1	0.05	1.25	2.10	69	18	<2	18	1.60	35	29
300	46 25 37	120 22 26	1	0.01	1.44	3.00	37	20	<2	20	1.20	20	22

Table 5. Continued

Map No.	Lat.	Long.	TYPE	INORG_C %	ORG_C %	Ca %	Ce	Co	Eu	Ga	K %	La	Li
301	46 25 38	120 55 45	1	0.01	1.41	3.20	44	31	<2	22	0.81	24	18
302	46 25 25	120 36 22	1	0.05	0.71	2.70	66	22	<2	18	1.50	32	26
303	46 25 20	120 04 48	1	0.02	1.45	2.60	81	18	<2	18	1.50	44	21
304	46 25 23	120 45 25	1	0.02	0.50	2.40	47	19	<2	19	1.20	25	22
305	46 24 48	120 49 38	1	0.02	1.99	3.50	41	34	<2	22	0.80	24	21
306	46 24 34	119 45 54	1	<0.01	0.57	2.20	67	14	<2	16	1.60	35	22
307	46 24 34	120 58 38	2	0.02	2.43	2.90	43	24	2	23	0.80	25	19
307	46 24 35	120 58 42	3	0.04	2.36	3.10	43	28	2	23	0.76	26	20
307	46 24 35	120 58 42	4	0.06	0.48	3.20	79	22	<2	19	1.40	38	21
308	46 24 20	119 45 36	1	<0.01	0.60	2.30	70	15	<2	18	1.60	36	22
309	46 24 16	120 10 24	2	0.03	1.26	2.10	67	16	<2	17	1.60	35	27
309	46 24 20	120 10 25	3	0.02	0.92	2.30	59	16	<2	16	1.50	30	23
309	46 24 20	120 10 25	4	0.02	1.06	2.30	68	15	<2	17	1.50	34	23
310	46 24 18	120 28 31	1	0.01	1.20	2.30	43	17	<2	19	1.20	22	24
311	46 24 07	120 16 54	8	0.01	3.04	2.40	40	19	<2	16	0.98	21	21
311	46 24 07	120 16 54	8	<0.01	2.86	2.50	41	19	<2	19	1.00	23	22
311	46 24 07	120 16 54	8	<0.01	3.20	2.40	41	21	<2	18	0.97	22	20
312	46 23 43	121 01 55	1	0.02	1.11	4.60	29	37	2	26	0.72	21	18
313	46 23 28	119 39 04	2	<0.01	0.71	2.10	59	13	<2	16	1.60	29	21
313	46 23 26	119 39 03	3	0.02	0.73	2.30	81	15	<2	17	1.60	45	21
313	46 23 26	119 39 03	4	0.01	0.72	2.10	73	13	<2	17	1.60	39	21
314	46 23 31	119 55 16	1	0.04	0.59	2.40	67	16	<2	18	1.50	37	23
315	46 23 27	119 57 29	1	0.01	0.58	2.50	74	16	<2	18	1.50	42	22
316	46 23 23	119 38 15	1	0.01	0.81	2.30	57	16	<2	17	1.50	30	23
317	46 23 24	120 09 44	1	0.01	0.35	2.80	98	23	<2	17	1.40	48	21
318	46 22 03	120 15 00	8	0.02	1.73	2.50	41	19	<2	16	1.10	24	25
318	46 22 03	120 15 00	8	0.01	1.67	2.60	41	20	<2	17	1.10	23	24
319	46 21 39	120 20 19	1	0.04	0.86	3.10	39	20	<2	19	1.10	22	23
320	46 21 39	120 26 53	1	0.02	1.36	2.40	50	21	<2	19	1.20	26	25
321	46 21 39	120 27 26	2	0.01	1.50	2.40	48	20	<2	19	1.20	25	24
321	46 21 37	120 27 26	3	0.02	0.93	2.70	58	20	<2	19	1.20	32	23
321	46 21 37	120 27 26	4	0.01	1.01	2.70	56	20	<2	18	1.20	31	22
322	46 21 38	120 34 58	1	0.01	0.76	2.70	55	19	<2	19	1.50	30	24
323	46 21 06	119 22 38	2	<0.01	1.94	2.60	63	21	<2	18	1.30	32	24
323	46 21 03	119 22 40	3	0.04	1.72	2.80	65	22	<2	17	1.30	35	23
323	46 21 03	119 22 40	4	0.04	2.00	2.70	67	21	<2	17	1.30	33	24
324	46 21 12	120 17 07	1	0.13	0.56	3.20	42	22	<2	20	0.96	23	24
325	46 21 14	121 01 13	1	0.02	2.05	2.80	39	19	<2	21	0.77	23	18
326	46 20 46	120 01 44	2	0.16	0.33	3.90	100	24	2	21	1.60	52	23
326	46 20 51	120 01 43	3	0.14	0.23	3.30	67	19	<2	16	1.40	36	19
326	46 20 51	120 01 43	4	0.16	0.32	3.50	85	20	2	18	1.30	46	18
327	46 20 48	120 08 52	1	0.11	0.67	3.00	59	21	<2	19	1.50	30	22
328	46 20 44	119 48 52	1	0.01	0.42	2.50	88	16	<2	18	1.40	49	22
329	46 20 16	120 11 47	7b	0.03	1.82	2.50	57	18	<2	18	1.30	30	21
330	46 20 10	120 11 38	11,13b	0.12	0.30	3.20	94	21	2	18	1.40	51	19

Table 5. Continued

Map No.	Lat.	Long.	TYPE	INORG_C %	ORG_C %	Ca %	Ce	Co	Eu	Ga	K %	La	Li
330	46 20 10	120 11 38	9	0.11	0.35	3.40	83	21	2	18	1.40	46	19
331	46 20 11	120 13 47	7b	0.62	1.92	4.40	40	21	<2	19	1.00	22	21
332	46 19 59	119 43 20	1	0.01	0.48	2.30	73	16	<2	17	1.60	37	22
333	46 19 57	120 39 48	1	0.02	0.43	2.20	69	19	<2	18	1.60	36	28
334	46 19 46	119 29 31	1	0.08	1.07	3.00	100	21	<2	17	1.40	50	21
335	46 19 53	120 01 25	1	0.07	1.24	2.60	68	17	<2	17	1.50	35	24
336	46 19 53	120 02 42	1	0.38	1.01	4.10	82	24	<2	17	1.30	40	19
337	46 19 52	120 11 54	7b	0.02	2.17	2.40	43	22	<2	17	1.10	22	21
338	46 19 39	119 22 06	1	0.02	2.05	2.60	52	19	<2	19	1.40	31	24
339	46 19 42	119 55 29	1	0.07	0.70	3.10	68	21	<2	18	1.40	35	22
340	46 19 42	120 45 10	1	0.03	0.63	3.40	48	27	<2	22	0.96	28	16
341	46 19 35	120 50 46	1	<0.01	1.11	3.20	43	27	<2	21	0.74	23	18
342	46 19 10	120 55 33	1	<0.01	1.29	3.50	46	33	2	24	0.79	25	17
343	46 19 02	119 37 19	1	0.02	0.31	2.60	96	18	<2	17	1.50	53	20
344	46 18 52	120 11 53	7b,13b	<0.01	2.05	2.50	45	19	<2	18	1.10	23	22
345	46 18 53	120 26 51	1	0.12	0.11	2.60	69	17	<2	18	1.70	37	25
346	46 18 36	119 59 25	7c	0.10	0.34	3.10	85	22	<2	17	1.40	45	21
347	46 18 42	120 47 13	11	0.02	3.12	3.60	37	34	<2	21	0.65	22	18
347	46 18 42	120 47 13	9	0.02	2.80	4.10	36	36	<2	22	0.68	22	18
348	46 18 33	120 19 52	7b	0.03	1.76	2.20	47	20	<2	17	1.00	25	23
349	46 18 19	119 39 34	2	<0.01	0.94	2.30	80	18	<2	17	1.50	38	24
349	46 18 16	119 39 37	3	0.01	0.80	2.20	68	17	<2	19	1.60	37	26
349	46 18 16	119 39 37	4	0.01	0.77	2.20	65	17	<2	17	1.60	35	26
350	46 18 09	120 20 39	1	<0.01	0.48	2.60	62	17	<2	17	1.40	31	22
351	46 17 52	119 19 55	7b	0.14	2.38	2.60	54	20	<2	18	1.30	29	23
352	46 17 50	119 58 36	1	0.24	1.27	3.30	54	20	<2	18	1.40	27	24
353	46 17 37	119 18 49	1	0.11	1.69	3.00	41	19	<2	17	1.30	26	24
354	46 17 40	119 34 27	1	0.02	0.57	2.30	60	14	<2	16	1.60	32	22
355	46 17 28	120 01 05	8	0.14	0.48	3.20	73	19	<2	16	1.40	38	19
355	46 17 28	120 01 05	8	0.15	0.41	3.10	65	17	<2	15	1.40	34	20
356	46 16 46	119 32 17	7b	0.04	0.82	2.70	91	19	<2	18	1.50	50	20
357	46 16 32	120 32 25	1	0.01	0.48	3.00	65	17	2	21	1.30	36	22
358	46 16 23	119 30 26	1	0.16	0.88	3.00	79	23	<2	17	1.30	42	22
359	46 16 24	119 55 59	1	0.14	0.42	3.80	110	24	2	19	1.50	55	22
360	46 16 24	120 03 40	1	0.07	0.69	2.50	48	23	<2	20	1.50	25	26
361	46 16 26	120 08 32	11,13b	0.02	1.71	2.90	48	22	<2	17	1.00	27	21
361	46 16 26	120 08 32	9	0.02	1.55	2.40	44	16	<2	18	1.30	26	35
362	46 16 24	120 12 34	1	0.01	1.74	2.30	50	19	<2	17	1.30	26	25
363	46 16 11	120 05 30	13b	<0.01	2.36	2.35	48	19	<2	17	1.37	27	25
364	46 16 10	120 14 03	1	0.04	1.09	2.80	49	18	<2	17	1.50	29	20
365	46 16 04	120 53 24	1	0.02	1.23	3.90	39	37	2	25	0.67	23	18
366	46 15 59	119 32 56	2	0.04	0.63	2.60	67	18	<2	18	1.30	32	23
366	46 15 55	119 32 58	3	0.06	1.27	2.50	72	18	<2	17	1.40	36	23
366	46 15 55	119 32 58	4	0.02	2.07	2.50	52	19	<2	22	1.40	26	26
367	46 15 58	119 35 19	7b	0.14	2.39	2.60	57	20	<2	19	1.40	31	25

Table 5. Continued

Map No.	Lat.	Long.	TYPE	INORG_C %	ORG_C %	Ca %	Ce	Co	Eu	Ga	K %	La	Li
368	46 15 46	119 24 04	1	0.45	0.52	3.90	65	21	<2	20	1.70	36	29
369	46 15 54	121 00 26	1	0.01	1.55	2.60	61	32	3	24	0.61	29	22
370	46 15 29	119 39 32	1	0.29	0.68	3.30	67	19	<2	16	1.30	36	20
371	46 15 32	119 48 33	1	0.14	1.00	2.90	69	21	<2	19	1.50	37	27
372	46 15 29	120 41 06	1	0.02	0.96	2.80	46	22	<2	20	0.92	27	18
373	46 15 26	120 55 37	1	0.02	0.90	3.10	33	27	2	23	0.82	24	19
374	46 15 08	119 17 00	8	0.10	2.36	2.60	51	20	<2	10	1.20	29	24
374	46 15 08	119 17 00	8	0.06	1.46	3.00	75	21	<2	17	1.20	39	20
375	46 15 13	119 28 37	7b,13b	0.07	1.99	2.60	53	20	<2	19	1.40	28	26
376	46 15 06	120 05 44	8	0.05	1.75	2.50	53	20	<2	19	1.30	28	27
376	46 15 06	120 05 44	8	0.04	1.41	2.60	54	20	<2	17	1.20	29	24
377	46 15 00	120 22 40	11,13b	<0.01	1.24	2.50	56	21	<2	20	1.30	31	23
377	46 15 00	120 22 40	9	0.02	1.42	4.20	31	29	<2	22	0.68	21	17
378	46 15 05	120 43 28	1	0.02	1.76	3.30	52	30	2	24	0.88	27	19
379	46 15 03	120 12 28	1	0.04	0.81	2.10	64	17	<2	19	1.80	34	28
380	46 14 39	119 57 29	1	0.12	0.74	3.20	64	21	<2	17	1.30	31	22
381	46 14 36	120 41 24	1	0.02	1.72	3.10	46	27	2	22	0.92	26	18
382	46 14 02	119 40 37	7b	0.01	0.56	2.50	80	17	<2	16	1.50	41	22
383	46 14 32	119 53 35	1	0.02	0.34	2.40	73	20	<2	20	1.60	41	25
384	46 14 27	120 25 04	1	0.20	0.30	2.80	69	19	<2	17	1.70	35	30
385	46 14 17	120 16 33	2	0.16	0.23	2.70	76	16	<2	17	1.50	38	25
385	46 14 16	120 16 35	3	0.06	0.34	2.20	38	13	<2	17	1.50	23	24
385	46 14 16	120 16 35	4	0.07	0.24	2.20	41	13	<2	17	1.50	24	26
386	46 14 00	119 40 38	7b,13b	0.04	0.56	2.90	90	21	<2	15	1.30	46	20
387	46 13 57	120 47 48	1	0.01	0.76	2.30	53	14	<2	19	0.96	33	18
388	46 13 53	119 59 54	7b	0.03	1.16	2.80	56	21	<2	17	1.20	29	23
389	46 13 44	119 49 21	1	0.02	0.71	2.90	100	23	2	17	1.40	49	22
390	46 13 25	119 43 46	7b	0.07	2.14	2.40	55	20	<2	19	1.30	28	26
391	46 13 28	119 55 48	7b	0.10	1.30	3.20	82	22	<2	15	1.40	42	21
392	46 13 29	120 55 56	2	0.01	2.34	2.90	45	25	<2	21	1.10	24	18
392	46 13 26	120 55 58	3	0.05	5.23	2.30	48	26	2	22	0.79	30	26
392	46 13 26	120 55 58	4	0.05	4.61	2.30	48	24	2	21	0.82	29	26
393	46 13 25	121 00 33	1	<0.01	3.66	1.70	69	27	3	23	1.00	34	21
394	46 13 15	120 58 53	1	0.03	2.01	1.30	78	46	3	28	0.71	36	20
395	46 13 01	119 55 00	8,13b	0.05	1.22	2.70	56	20	<2	18	1.40	29	24
395	46 13 01	119 55 00	8,13b	0.06	1.25	2.60	59	19	<2	18	1.40	32	26
396	46 13 03	120 01 07	7b	0.09	0.69	3.00	110	26	2	19	1.40	58	23
397	46 13 03	120 26 17	1	0.04	0.89	3.00	52	19	<2	18	1.20	29	22
398	46 12 56	120 50 32	1	0.03	2.78	3.00	60	30	2	30	0.73	29	20
399	46 12 33	119 44 46	1	0.03	0.41	3.30	110	22	3	21	1.80	57	27
400	46 12 21	120 18 36	1	0.01	0.55	2.20	57	15	<2	19	1.40	30	23
401	46 11 57	120 36 37	1	<0.01	0.98	2.40	58	16	<2	19	1.10	33	20
402	46 11 53	119 47 04	7c	0.16	2.19	2.90	67	27	2	18	1.60	34	24
403	46 11 36	120 03 03	1	0.02	0.72	3.20	29	11	<2	19	1.20	16	22
404	46 11 33	120 36 44	1	0.04	1.51	2.90	50	20	<2	19	1.10	27	19

Map No.	Lat.	Long.	TYPE	INORG_C %	ORG_C %	Ca %	Ce	Co	Eu	Ga	K %	La	Li
405	46 11 10	120 05 41	1	0.06	0.71	3.00	68	20	<2	19	1.50	37	20
406	46 09 54	120 18 52	1	<0.01	0.55	1.90	46	14	<2	17	1.50	26	29
407	46 09 46	120 22 24	1	<0.01	2.07	3.10	39	26	2	23	0.80	25	20
408	46 09 32	120 12 15	1	0.01	0.37	2.20	69	15	<2	17	1.50	36	23
409	46 09 14	120 50 09	1	0.02	2.05	1.70	59	19	2	21	0.94	32	19
410	46 08 58	120 42 23	1	0.02	1.12	2.80	45	25	2	27	1.10	31	20
411	46 08 54	120 30 39	1	0.08	1.37	3.40	52	23	<2	19	1.20	29	18
412	46 08 25	120 46 31	2	0.01	1.53	1.90	70	21	3	23	1.30	39	24
412	46 08 24	120 46 33	3	0.03	1.40	2.10	65	20	3	23	1.30	40	23
412	46 08 24	120 46 33	4	0.02	1.32	2.00	52	17	3	25	1.50	40	26
413	46 08 02	120 45 42	1	0.03	2.41	1.80	54	20	4	22	1.10	45	27
414	46 07 57	120 42 35	2	0.02	2.35	2.50	40	15	<2	18	1.20	21	24
414	46 07 58	120 42 40	3	0.02	1.70	2.10	53	22	<2	20	1.00	27	21
414	46 07 58	120 42 40	4	0.02	1.66	2.20	54	22	2	21	1.00	30	21
415	46 07 06	120 49 29	1	0.03	3.72	1.80	54	20	<2	19	1.00	30	21
416	46 06 43	120 39 20	1	<0.01	1.12	2.10	56	19	2	26	1.20	38	24
417	46 06 30	120 23 21	1	0.02	0.50	2.50	59	15	<2	18	1.30	33	20
418	46 05 54	120 13 12	1	0.01	0.57	2.00	54	12	<2	18	1.50	31	25
419	46 05 47	120 47 26	1	0.04	4.31	2.30	57	22	<2	21	0.93	29	25
420	46 04 29	120 33 16	1	0.03	1.64	2.80	50	24	<2	22	0.98	27	22
421	46 04 13	120 27 09	1	0.01	1.12	3.00	44	23	<2	21	1.10	32	20
422	46 01 43	120 36 48	1	0.02	1.87	3.90	49	37	3	26	0.81	27	18
423	46 01 31	120 46 33	1	0.04	4.38	2.50	92	23	2	27	1.40	41	42
424	46 01 24	120 46 46	2	0.03	4.75	2.60	64	29	2	22	0.86	29	29
424	46 01 21	120 46 46	3	0.04	5.73	2.70	60	30	2	23	0.86	30	29
424	46 01 21	120 46 46	4	0.03	5.64	2.50	57	27	2	21	0.81	28	27
425	46 01 00	120 40 54	13b	<0.01	5.92	2.51	59	31	<2	20	0.93	33	26
426	46 00 28	120 30 47	1	0.02	3.98	2.10	51	20	2	21	0.88	29	21
427	46 00 18	120 38 32	1	0.05	2.01	2.30	55	29	2	25	0.91	31	23
428	47 06 47	120 52 01	13b	0.01	4.65	2.50	39	26	<2	16	0.97	21	34
429	46 58 18	120 48 32	13b	0.02	2.94	2.20	46	27	<2	19	0.84	27	28
430	46 29 32	120 57 23	13b	0.03	5.20	2.90	43	33	<2	19	0.70	24	24

Table 5. Continued

Map No.	TYPE	Mg %	Na %	Nb	Nd	P %	S %	Sc	Sr	Ti %	U	Y	Yb
1	1	2.10	1.70	5	18	0.14	0.02	15	280	0.44	7.80	18	2
2	1	9.00	1.50	<4	12	0.08	0.02	17	210	0.36	0.50	15	2
3	1	0.71	2.00	10	27	0.10	0.02	11	300	0.37	2.30	16	2
4	1	0.84	1.80	7	29	0.11	0.04	11	310	0.32	2.30	23	2
5	6	12.00	0.61	<4	<4	0.04	0.02	13	81	0.13	0.20	5	<1
6	5	2.20	1.70	6	28	0.16	0.02	24	160	0.36	1.00	16	2
7	7a	12.00	0.50	<4	4	0.05	<0.01	14	55	0.19	0.25	7	<1
8	1	7.90	1.20	<4	11	0.06	0.03	15	170	0.29	1.50	11	1
9	1	13.00	0.36	<4	<4	0.02	0.01	14	48	0.18	0.10	6	<1
10	5	0.82	2.00	9	32	0.17	0.05	11	310	0.52	74.00	37	3
11	1	1.10	2.20	7	24	0.10	0.02	13	310	0.40	1.10	17	2
12	1	1.60	1.70	6	41	0.19	0.02	27	170	0.38	0.40	19	2
13	5	1.50	2.10	6	66	0.16	0.02	17	250	0.36	0.70	18	2
14	6	1.20	1.80	7	28	0.10	0.05	13	300	0.39	2.30	19	2
15	13b	0.72	1.83	5	25	0.09	0.09	13	225	0.28	3.30	20	2
16	5	2.10	1.60	7	28	0.07	0.02	25	200	0.45	1.50	29	3
17	1	1.30	2.00	6	19	0.08	0.04	15	320	0.40	1.10	21	2
18	5	1.20	2.60	11	27	0.13	0.04	15	330	0.68	73.00	31	3
19	5	0.72	1.80	7	20	0.14	0.12	9	280	0.44	1.80	17	2
20	7a	1.10	1.90	6	20	0.11	0.01	14	210	0.57	1.20	20	2
21	1	1.30	1.70	8	24	0.09	0.03	12	300	0.42	3.30	18	2
22	1	1.10	1.50	12	21	0.13	<0.01	15	200	0.53	1.00	21	2
23	1	1.20	2.00	6	27	0.10	0.01	16	340	0.49	1.50	21	2
24	1	1.10	1.70	6	15	0.09	0.07	15	290	0.54	4.40	18	2
25	1	1.40	2.00	7	18	0.09	0.01	21	310	0.68	1.50	23	3
26	1	1.70	1.40	17	27	0.10	<0.01	24	220	1.00	0.60	26	3
27	8	6.30	1.30	<4	17	0.07	0.06	14	180	0.26	1.10	13	1
27	8	6.50	1.20	<4	15	0.08	0.02	15	170	0.29	1.30	13	2
28	6	0.75	1.00	<4	19	0.09	0.03	28	150	0.77	0.60	29	4
29	5	0.79	2.30	8	22	0.10	0.02	9	340	0.42	3.10	18	2
30	13a	0.82	1.06	9	25	0.11	<0.05	23	145	0.85	B	23	3
31	1	0.52	1.90	10	25	0.09	0.02	14	150	0.42	0.50	22	2
32	7b	0.84	0.85	8	24	0.11	<0.01	23	150	0.73	0.40	22	2
33	1	0.78	0.96	8	24	0.15	0.02	22	210	0.85	0.75	32	3
34	1	0.82	1.60	11	21	0.07	0.02	12	140	0.52	1.50	8	1
35	11	1.60	1.70	17	28	0.16	<0.01	19	230	0.85	0.60	23	2
35	9	1.60	1.80	15	28	0.13	0.03	19	240	0.84	0.60	25	3
36	5	1.20	2.50	9	18	0.07	0.04	11	420	0.59	13.00	15	2
37	5	1.00	2.00	8	22	0.08	<0.01	14	380	0.41	0.75	16	2
38	6	1.30	1.70	8	24	0.08	<0.01	17	340	0.51	0.75	17	2
39	6	0.98	1.30	7	28	0.10	<0.01	16	280	0.46	1.80	28	3
40	5	3.80	1.40	<4	14	0.08	0.04	37	230	0.48	0.20	18	2
41	1	1.10	2.00	9	25	0.08	<0.01	16	370	0.55	1.40	20	2
42	1	0.44	0.49	8	28	0.16	0.02	27	170	1.10	0.60	40	5
43	1	0.65	1.70	6	30	0.11	0.02	19	150	0.51	0.55	28	3

Table 5. Continued

Map No.	TYPE	Mg %	Na %	Nb	Nd	P %	S %	Sc	Sr	Ti %	U	Y	Yb
44	1	1.10	1.70	7	24	0.10	0.01	16	330	0.51	0.60	18	2
45	1	0.77	2.60	8	19	0.05	<0.01	11	410	0.46	1.30	18	2
46	1	1.20	1.40	7	21	0.10	<0.01	28	190	0.80	0.85	35	4
47	2	0.98	0.67	<4	28	0.11	<0.01	40	240	1.10	1.50	53	6
47	3	0.94	1.00	8	23	0.14	<0.01	24	240	0.91	1.50	36	4
47	4	0.94	1.30	7	22	0.12	0.02	26	250	0.97	0.75	35	4
48	5	1.10	2.40	9	21	0.11	0.05	10	420	0.44	3.30	18	2
49	2	0.88	0.95	9	26	0.10	<0.01	24	100	0.66	0.50	20	3
49	3	0.73	0.84	9	30	0.08	0.03	19	110	0.57	0.85	23	2
49	4	0.87	1.10	13	33	0.11	0.01	24	120	0.66	0.75	21	2
50	1	1.40	1.80	11	25	0.10	0.01	15	300	0.65	1.10	20	2
51	6	0.91	1.20	4	22	0.07	0.01	20	210	0.68	1.90	24	3
52	1	0.96	2.00	8	22	0.08	0.02	14	330	0.44	1.30	18	2
53	5	0.98	1.60	10	25	0.08	0.01	17	300	0.67	1.60	24	3
54	5	0.70	2.20	8	26	0.05	<0.01	12	400	0.44	0.50	15	2
55	6	0.99	1.20	7	21	0.10	<0.01	19	240	0.58	1.00	23	3
56	7b	2.60	1.10	<4	18	0.08	0.08	18	200	0.48	0.75	18	2
57	8	1.40	1.40	8	21	0.13	<0.01	27	240	0.87	0.90	29	3
57	8	1.30	1.50	<4	22	0.08	0.04	29	250	0.74	0.70	30	4
58	8	1.20	1.20	5	22	0.10	0.03	24	250	0.60	0.90	24	3
58	8	1.10	1.20	4	25	0.11	0.05	21	250	0.53	0.70	23	3
59	5	0.77	2.00	8	22	0.10	0.03	15	310	0.59	0.85	19	2
60	6	0.88	1.30	6	24	0.11	0.01	20	240	0.52	0.75	24	3
61	13b	2.65	1.43	6	20	0.09	<0.05	22	253	0.64	1.10	22	2
62	1	1.40	2.40	<4	24	0.08	0.02	18	410	0.76	0.85	18	2
63	1	0.69	1.90	6	26	0.08	0.03	15	340	0.60	0.70	19	2
64	1	0.97	1.80	13	31	0.11	0.01	15	250	0.70	1.00	24	3
65	11	1.80	2.00	7	28	0.11	0.02	20	270	0.75	0.50	21	3
65	9	1.70	2.10	11	28	0.12	0.02	19	280	0.75	0.55	22	3
66	1	0.80	0.96	13	28	0.10	0.01	18	160	0.65	1.10	32	4
67	1	1.20	1.40	11	29	0.14	0.02	30	250	1.10	1.90	39	4
68	7a	0.78	1.60	14	26	0.13	0.06	12	510	0.48	0.70	16	2
69	1	1.50	1.70	9	26	0.09	0.02	21	210	0.74	0.75	20	3
70	8	1.10	1.10	<4	20	0.10	0.07	22	220	0.58	0.75	25	3
70	8	1.10	1.20	<4	21	0.10	0.05	21	220	0.55	1.00	24	3
71	1	1.10	1.20	6	19	0.12	0.01	27	210	1.10	0.60	31	5
72	1	1.20	1.70	8	16	0.15	<0.01	14	260	0.53	0.50	16	2
73	1	1.00	1.80	9	32	0.08	<0.01	14	330	0.49	0.70	15	2
74	5	0.90	2.00	7	23	0.08	0.03	14	370	0.41	2.00	19	2
75	2	1.20	2.30	9	27	0.09	0.02	17	340	0.60	0.60	20	3
75	3	1.30	2.60	9	27	0.08	<0.01	17	370	0.63	0.55	18	3
75	4	1.20	2.30	11	29	0.08	<0.01	16	350	0.62	0.60	18	2
76	7b,13b	2.10	1.60	9	23	0.12	0.02	19	220	0.64	0.65	23	3
77	1	1.40	1.80	9	25	0.08	<0.01	23	310	1.00	1.50	26	3
78	1	1.10	1.90	12	23	0.09	0.02	14	270	0.65	0.55	19	2

Table 5. Continued

Map No.	TYPE	Mg %	Na %	Nb	Nd	P %	S %	Sc	Sr	Ti %	U	Y	Yb
79	1	1.70	1.70	14	50	0.13	0.01	23	310	1.30	0.80	28	4
80	1	1.20	1.70	11	27	0.17	0.02	16	270	0.57	1.50	21	2
81	1	0.65	1.90	10	31	0.08	0.01	22	340	0.87	1.30	31	3
82	1	1.70	2.50	8	23	0.08	0.02	24	430	1.20	1.30	19	3
83	5	1.10	1.30	10	24	0.12	0.01	17	180	0.56	1.30	17	2
84	6	1.20	2.10	5	31	0.12	0.01	18	260	0.38	0.75	15	2
85	1	2.80	2.00	<4	12	0.04	0.02	31	220	0.64	0.30	18	2
86	1	0.63	2.00	9	26	0.06	0.02	16	330	0.71	1.30	23	3
87	1	0.77	1.70	7	30	0.10	0.04	17	300	0.60	1.30	36	4
88	1	0.97	1.90	10	25	0.07	0.02	17	270	0.69	0.70	17	2
89	2	1.40	1.80	11	30	0.10	0.02	29	300	1.10	1.70	34	4
89	3	1.40	1.70	10	32	0.10	0.02	28	300	1.10	1.70	36	4
89	4	1.30	1.70	14	30	0.10	0.03	30	290	1.00	1.70	37	5
90	7b	1.00	1.40	9	23	0.14	0.03	20	250	0.71	1.10	25	3
91	1	0.71	2.40	11	19	0.04	<0.01	15	400	0.85	1.30	16	2
92	5	1.90	1.60	7	29	0.06	<0.01	24	210	0.43	1.30	27	3
93	1	0.67	2.00	6	27	0.06	0.02	14	300	0.56	1.00	18	2
94	1	2.40	1.90	7	25	0.11	0.02	23	260	0.62	0.55	18	2
95	11	1.70	1.30	5	20	0.11	0.09	21	210	0.49	0.75	21	3
95	9	2.00	1.60	5	22	0.11	0.06	21	240	0.66	0.70	20	2
96	5	1.70	1.90	6	27	0.11	0.02	24	250	0.63	1.00	20	3
97	5	1.20	2.10	9	25	0.09	0.04	12	330	0.41	2.10	17	2
98	2	0.91	1.80	23	33	0.12	<0.01	16	350	1.40	1.10	21	3
98	3	1.00	2.00	<4	25	0.06	0.02	20	340	0.72	0.90	25	3
98	4	1.00	2.20	9	24	0.08	0.02	21	360	0.83	1.10	23	3
99	1	0.98	2.10	7	22	0.08	0.05	18	360	0.74	0.60	21	3
100	1	0.93	1.60	7	21	0.08	0.03	18	270	0.62	2.70	20	2
101	1	0.94	1.70	7	25	0.07	0.01	25	320	0.87	1.10	24	3
102	1	0.78	1.80	8	22	0.15	0.05	15	310	0.62	0.85	17	2
103	1	0.91	1.90	9	22	0.11	0.02	19	320	0.70	0.65	20	2
104	1	0.77	1.60	<4	29	0.07	0.02	16	470	0.62	0.90	31	4
105	1	0.87	1.90	10	20	0.13	0.02	15	270	0.77	1.00	19	3
106	5	1.20	2.00	11	25	0.12	<0.01	15	350	0.69	0.65	20	2
107	1	1.50	1.20	8	18	0.08	<0.01	19	150	0.46	0.75	15	2
108	1	1.30	1.80	13	32	0.12	0.01	16	320	0.64	1.90	25	3
109	1	0.82	1.80	6	23	0.27	0.02	20	270	0.79	0.60	26	4
110	1	1.10	1.80	8	22	0.07	0.05	21	320	0.77	1.30	24	3
111	1	0.85	2.10	14	33	0.08	0.01	17	320	0.82	1.10	35	4
112	7a	0.57	1.10	<4	18	0.10	<0.01	14	170	0.50	1.50	24	3
113	1	1.10	1.70	6	35	0.09	0.01	28	290	0.96	1.30	43	5
114	1	1.00	1.90	<4	26	0.09	0.02	18	320	0.63	0.85	20	2
115	1	0.66	1.70	7	49	0.04	<0.01	11	210	0.44	0.70	21	2
116	1	3.40	1.20	6	19	0.15	0.01	16	180	0.58	0.20	22	3
117	1	1.60	1.70	<4	39	0.07	0.02	23	250	0.65	0.85	31	3
118	1	0.92	2.10	9	20	0.06	0.02	16	350	0.73	1.20	17	2

Table 5. Continued

Map No.	TYPE	Mg %	Na %	Nb	Nd	P %	S %	Sc	Sr	Ti %	U	Y	Yb
119	7b	0.98	1.10	<4	27	0.11	<0.01	21	220	0.58	1.20	35	4
120	1	0.95	2.00	8	22	0.08	0.02	16	350	0.69	0.80	19	2
121	7b,13b	1.70	1.40	6	19	0.14	0.04	18	210	0.58	0.50	20	2
122	1	1.20	1.60	8	24	0.08	0.03	25	310	0.86	1.60	28	3
123	2	0.95	1.70	9	26	0.09	<0.01	23	320	0.81	0.70	24	3
123	3	1.00	1.90	8	21	0.08	0.02	22	340	0.89	0.85	21	3
123	4	1.00	1.90	7	23	0.08	0.03	21	330	0.87	0.70	22	3
124	1	1.50	2.40	9	22	0.07	0.02	23	390	1.00	1.10	19	3
125	2	0.94	1.40	8	33	0.04	0.01	23	250	0.80	1.40	51	6
125	3	1.10	1.40	<4	22	0.10	0.06	19	240	0.57	4.50	24	3
125	4	1.30	1.70	11	32	0.10	0.02	25	270	0.92	0.75	38	5
126	7c	1.20	1.70	10	29	0.11	0.02	20	350	0.67	1.10	27	3
127	8	1.10	1.40	<4	27	0.09	0.02	24	250	0.69	0.85	33	4
127	8	1.10	1.40	4	24	0.10	0.04	23	250	0.72	0.75	31	4
128	1	1.60	1.00	10	25	0.10	<0.01	29	220	1.00	1.30	23	3
129	1	1.20	1.50	8	26	0.10	0.02	23	300	0.85	1.30	26	3
130	1	1.50	1.80	10	26	0.09	0.02	26	310	1.10	1.10	27	4
131	8	1.30	1.30	<4	28	0.13	0.01	21	210	0.59	1.70	27	4
131	8	1.20	1.30	<4	28	0.13	0.03	20	210	0.57	2.30	26	3
132	1	1.40	2.20	12	31	0.10	0.04	19	370	1.10	0.65	19	3
133	2	1.10	1.60	8	25	0.08	0.02	23	310	0.80	1.90	24	3
133	3	1.30	1.70	10	30	0.10	<0.01	25	280	0.92	1.00	38	5
133	4	1.00	2.00	<4	26	0.09	0.02	17	340	0.62	1.10	20	2
134	1	1.30	1.50	<4	26	0.13	0.02	27	280	0.93	0.80	35	4
135	1	1.50	2.20	8	21	0.10	0.03	22	360	0.75	0.75	20	3
136	11	1.50	1.40	6	23	0.10	<0.01	23	240	0.72	0.85	25	3
136	9	1.70	1.70	6	23	0.10	0.03	24	270	0.78	0.85	22	3
137	1	1.40	1.80	7	23	0.09	0.02	19	320	0.61	0.75	20	2
138	1	1.00	1.70	7	23	0.10	0.07	15	310	0.57	1.50	23	3
139	1	1.10	1.90	9	24	0.12	0.05	15	350	0.77	0.80	18	2
140	1	0.90	2.00	14	48	0.06	0.01	27	350	0.88	1.30	61	6
141	8,13b	1.20	2.00	<4	23	0.06	0.03	16	330	0.63	0.75	19	3
141	8,13b	1.20	2.00	<4	24	0.07	0.04	16	320	0.55	0.60	19	2
142	7b	1.30	1.80	7	24	0.11	0.04	18	320	0.76	0.70	19	2
143	1	0.87	2.20	6	25	0.06	0.03	12	450	0.52	1.10	21	2
144	8	0.86	1.70	<4	26	0.13	0.02	15	250	0.47	3.10	26	3
144	8	0.82	0.88	8	25	0.11	0.01	24	150	0.76	0.40	24	3
145	1	1.50	2.00	7	20	0.11	0.01	26	290	0.97	0.65	26	3
146	1	1.20	2.90	7	17	0.09	0.04	10	430	0.53	0.80	13	2
147	1	0.94	2.00	11	30	0.10	0.02	17	350	0.86	1.20	21	3
148	2	1.30	2.00	11	27	0.08	0.01	26	360	1.20	1.00	28	4
148	3	1.20	2.10	10	24	0.08	0.02	26	380	1.20	0.90	27	4
148	4	1.20	2.30	6	23	0.07	<0.01	25	390	1.10	1.00	27	4
149	1	0.92	2.00	9	24	0.09	0.01	24	350	0.94	1.40	26	3
150	7a	0.57	1.30	5	16	0.14	<0.01	7	240	0.31	0.45	13	1

Table 5. Continued

Map No.	TYPE	Mg %	Na %	Nb	Nd	P %	S %	Sc	Sr	Ti %	U	Y	Yb
151	1	1.00	2.10	<4	26	0.08	0.03	15	370	0.99	1.10	18	2
152	2	1.20	2.00	10	23	0.09	0.02	23	340	0.87	0.85	24	3
152	3	1.30	2.20	9	25	0.11	0.04	26	370	0.91	1.10	25	3
152	4	1.20	2.00	5	22	0.08	0.02	24	340	0.80	0.90	23	3
153	1	0.97	2.20	7	24	0.08	<0.01	23	380	0.91	0.80	28	3
154	1	1.90	1.90	8	21	0.11	0.02	23	330	0.78	1.00	22	3
155	1	0.98	2.00	7	21	0.06	0.02	22	330	0.84	2.00	27	4
156	5	12.00	0.60	<4	4	0.04	0.02	12	88	0.14	0.10	6	<1
157	1	0.91	1.60	7	29	0.07	0.02	28	280	0.61	1.70	48	6
158	1	1.70	2.40	9	25	0.11	0.04	22	350	0.75	0.55	24	3
159	1	1.40	3.10	<4	25	0.11	<0.01	19	430	0.75	0.65	21	3
160	1	0.98	2.30	9	25	0.11	<0.01	23	310	0.79	1.10	30	4
161	1	1.10	1.90	9	24	0.09	0.03	22	320	0.81	0.90	22	3
162	1	0.92	2.20	10	27	0.12	0.02	18	300	0.68	1.30	25	3
163	1	0.93	2.00	8	26	0.07	0.01	21	350	0.79	0.70	28	4
164	7b,13b	1.20	1.20	6	20	0.16	0.03	14	210	0.50	0.80	19	2
165	1	1.40	2.00	7	24	0.10	0.03	18	330	0.81	1.30	23	3
166	1	0.94	1.90	7	28	0.07	<0.01	13	320	0.48	0.50	18	2
167	13a	1.25	1.69	9	25	0.11	<0.05	24	289	1.00	B	26	3
168	1	1.20	2.00	9	22	0.08	0.03	18	320	0.72	0.80	19	2
169	7b	0.78	0.95	<4	17	0.14	0.12	16	170	0.54	0.90	19	2
170	7b	1.58	1.82	8	23	0.12	<0.05	20	282	0.74	B	22	3
171	1	1.10	2.20	11	31	0.12	0.02	17	380	0.97	0.75	22	3
172	1	1.40	2.20	<4	21	0.05	<0.01	18	410	0.63	0.70	17	2
173	1	0.97	2.00	10	25	0.08	0.03	21	350	0.81	0.70	21	3
174	1	0.85	2.20	8	24	0.10	0.04	14	330	0.65	0.45	18	2
175	1	1.30	2.10	6	24	0.08	0.02	25	360	0.97	0.80	24	3
176	6	0.91	2.30	8	29	0.14	0.07	10	320	0.44	19.00	26	3
177	1	1.10	2.50	5	27	0.12	0.05	12	350	0.55	12.00	24	2
178	7b	1.20	1.50	6	21	0.19	0.08	13	240	0.46	3.90	17	2
179	1	1.20	2.30	9	17	0.08	0.36	18	380	0.68	1.20	19	3
180	8	1.10	1.50	<4	24	0.09	0.02	17	250	0.74	1.40	20	3
180	8	1.10	1.50	<4	24	0.08	0.05	18	250	0.71	1.60	21	3
181	11	1.40	1.70	10	25	0.08	0.01	26	320	1.10	0.85	26	3
181	9	1.80	2.10	9	23	0.07	0.03	26	380	1.10	0.60	19	3
182	1	0.97	2.70	<4	18	0.09	0.08	14	380	0.59	0.30	15	2
183	7b,13b	1.20	1.50	8	25	0.12	<0.01	19	250	0.73	0.70	24	3
184	1	0.95	2.60	8	25	0.10	0.04	13	350	0.74	0.45	18	2
185	5	1.50	2.30	7	23	0.11	<0.01	15	370	0.54	1.00	18	2
186	13b	1.05	1.23	8	27	0.10	0.06	20	209	0.58	0.90	29	3
187	1	0.96	2.00	<4	23	0.13	0.02	18	320	0.75	0.65	21	3
188	5	9.00	1.10	<4	13	0.07	<0.01	15	170	0.34	0.85	11	1
189	1	0.83	1.70	<4	22	0.09	0.06	14	310	0.58	1.40	20	2
190	1	1.20	2.00	<4	35	0.08	0.02	21	330	0.69	2.30	48	5
191	6	0.96	2.50	6	23	0.12	0.04	8	390	0.41	12.00	18	2

Table 5. Continued

Map No.	TYPE	Mg %	Na %	Nb	Nd	P %	S %	Sc	Sr	Ti %	U	Y	Yb
192	1	1.20	2.10	11	28	0.11	0.02	17	370	0.79	1.00	20	3
193	1	1.10	2.10	<4	25	0.06	0.01	18	340	0.87	0.70	22	3
194	1	1.10	2.10	9	20	0.17	0.02	26	320	0.81	0.80	24	3
195	1	0.88	1.40	8	29	0.10	<0.01	20	260	0.67	0.60	34	5
196	5	10.00	0.95	<4	10	0.04	<0.01	13	150	0.23	0.75	8	1
197	1	1.00	1.50	8	22	0.08	0.01	19	230	0.72	0.60	22	3
198	2	0.98	2.20	8	23	0.12	0.04	15	330	0.71	0.70	18	2
198	3	0.92	2.70	13	19	0.10	0.05	11	340	0.49	0.35	15	2
198	4	0.87	2.80	7	17	0.10	0.06	11	340	0.47	0.35	14	2
199	5	1.00	1.60	9	25	0.09	<0.01	17	310	0.68	1.60	25	3
200	1	1.50	2.30	13	27	0.10	0.01	20	420	1.60	0.50	19	3
201	8	1.50	1.50	<4	23	0.10	0.04	19	230	0.59	1.60	22	3
201	8	1.40	1.50	<4	24	0.09	0.03	19	240	0.55	1.10	22	3
202	7b	1.20	1.50	7	23	0.12	0.03	20	260	0.74	0.80	26	3
203	1	1.00	1.80	<4	32	0.08	0.02	18	330	0.72	0.75	24	3
204	1	1.10	2.20	5	23	0.06	0.02	20	360	0.83	0.80	20	3
205	1	0.92	2.60	9	29	0.10	0.08	13	350	0.62	55.00	30	3
206	1	0.80	2.20	10	36	0.08	0.03	17	220	0.51	3.00	29	3
207	7b	1.30	1.50	9	24	0.12	0.07	19	240	0.66	0.70	25	3
208	1	1.00	1.70	11	20	0.09	0.02	13	360	0.72	1.50	18	2
209	1	1.00	1.90	4	23	0.10	0.05	18	300	0.61	1.50	24	3
210	1	0.93	2.70	9	23	0.07	0.02	13	360	0.63	0.55	16	2
211	1	1.20	1.50	8	21	0.12	0.05	23	250	0.78	2.10	28	3
212	1	1.30	2.70	4	21	0.11	0.03	16	360	0.57	0.70	23	3
213	8	1.70	1.70	9	22	0.11	<0.01	19	300	0.66	1.00	21	2
213	8	1.40	1.50	10	27	0.14	0.01	17	280	0.73	1.00	23	3
214	1	1.30	2.80	<4	26	0.10	0.02	17	420	0.85	0.55	19	3
215	2	1.40	3.10	<4	36	0.14	0.03	20	450	0.83	0.60	26	3
215	3	1.00	1.80	8	23	0.11	0.01	15	310	0.62	0.70	18	2
215	4	1.00	1.90	<4	23	0.10	0.04	14	330	0.60	0.45	17	2
216	1	0.94	1.70	7	24	0.08	0.01	12	310	0.51	1.30	17	2
217	1	0.75	2.30	9	21	0.05	0.01	13	380	0.66	0.65	15	2
218	1	2.50	1.20	<4	18	0.10	0.13	29	210	0.53	0.25	20	2
219	5	1.20	2.00	8	22	0.08	0.02	15	460	0.55	1.50	19	2
220	1	1.00	3.10	4	18	0.10	0.02	11	370	0.43	0.65	15	2
221	1	0.98	2.30	<4	24	0.07	<0.01	17	370	0.80	0.65	21	2
222	2	0.76	1.40	7	28	0.04	<0.01	19	260	0.67	0.50	30	4
222	3	0.82	1.40	12	28	0.05	0.01	19	260	0.69	0.65	29	4
222	4	0.75	1.30	12	27	0.05	<0.01	19	250	0.70	0.55	32	4
223	1	1.20	2.20	9	21	0.15	0.03	13	380	0.58	2.20	14	2
224a	10												
224b	10	0.99	2.00	10	24	0.14	0.04	13	340	0.58	1.00	18	2
225	5	0.97	1.00	7	21	0.13	0.04	28	140	0.89	0.50	32	4
226	1	1.20	2.10	<4	25	0.07	0.04	17	320	0.89	0.65	23	3
227	2	1.10	3.10	6	17	0.11	0.04	10	420	0.44	0.10	13	2

Table 5. Continued

Map No.	TYPE	Mg %	Na %	Nb	Nd	P %	S %	Sc	Sr	Ti %	U	Y	Yb
227	3	1.10	3.30	6	16	0.11	0.02	9	420	0.42	0.15	13	2
227	4	0.89	1.90	<4	25	0.08	<0.01	16	340	0.73	0.45	18	3
228	1	1.10	2.20	13	34	0.09	0.01	16	360	0.89	0.65	20	3
229	7c	1.30	1.90	10	27	0.13	0.01	18	320	0.84	0.80	22	3
230	1	1.10	2.10	9	26	0.11	0.02	17	330	0.81	0.70	22	3
231	1	1.10	2.10	10	24	0.10	<0.01	15	340	0.64	0.80	18	2
232	1	0.75	1.20	13	25	0.07	0.01	20	280	0.76	1.20	35	4
233	11	1.30	2.10	6	23	0.12	<0.01	13	380	0.46	1.50	16	2
233	9	1.20	1.60	10	29	0.12	0.02	17	270	0.68	1.10	23	3
234	1	1.30	2.00	11	34	0.09	<0.01	19	350	0.89	0.70	22	3
235	8,13b	1.20	1.50	<4	20	0.10	0.08	19	240	0.57	2.10	23	3
235	8,13b	1.20	1.60	<4	22	0.10	0.06	20	250	0.58	2.00	24	3
235	8,13b	1.30	1.60	<4	20	0.09	0.06	20	250	0.62	1.90	23	3
236	11	1.20	1.70	<4	21	0.08	0.02	22	280	0.74	2.90	24	3
236	9	1.50	2.00	8	22	0.09	0.03	21	340	0.96	1.60	20	3
237	11	1.30	1.40	12	27	0.09	0.06	18	190	0.65	1.00	24	3
237	9	1.30	1.80	8	23	0.09	0.09	17	210	0.58	0.60	22	3
238	1	1.00	2.00	4	24	0.08	0.02	22	340	0.84	0.75	25	3
239	1	1.10	2.20	7	19	0.06	0.03	12	290	0.46	2.50	15	2
240	1	1.30	3.80	12	46	0.11	0.02	26	620	1.60	1.30	38	5
241	7b	1.90	2.30	14	23	0.12	0.03	18	380	0.82	0.65	19	2
242	1	1.10	2.40	5	23	0.09	0.04	14	370	0.65	0.35	17	2
243	1	1.10	1.60	10	24	0.11	0.03	18	270	0.70	1.90	21	3
244	1	0.63	1.70	7	16	0.07	0.03	10	270	0.41	0.70	13	2
245	1	1.10	1.90	11	38	0.11	0.01	16	320	0.81	0.70	22	3
246	1	2.60	1.50	16	24	0.07	0.02	24	260	0.93	1.00	28	4
247	1	1.10	2.40	7	17	0.11	0.06	10	400	0.45	1.00	13	2
248	7c	1.40	1.50	9	27	0.11	0.03	23	270	0.70	1.30	24	3
249	13b	0.92	1.25	6	19	0.16	0.15	16	213	0.61	B	19	2
250	1	1.10	2.00	10	28	0.11	0.01	17	310	0.78	0.60	22	3
251	1	1.30	1.70	13	51	0.10	0.01	15	300	0.76	0.70	25	3
252	7c	1.40	1.70	8	23	0.18	0.07	20	280	0.72	2.70	24	3
253	1	1.10	2.40	9	21	0.12	0.06	14	350	0.69	0.25	17	2
254	1	1.20	1.70	7	22	0.12	0.14	18	260	0.60	1.90	23	3
255	1	1.30	1.80	8	23	0.07	0.08	22	290	0.89	1.10	22	3
256	10	0.87	1.80	<4	25	0.07	<0.01	15	290	0.50	1.00	19	3
257	1	1.30	2.00	9	29	0.17	<0.01	20	350	0.98	0.60	25	3
258	10	0.87	2.00	10	26	0.07	<0.01	14	340	0.59	0.75	18	2
259	10	0.85	1.90	10	28	0.09	<0.01	15	320	0.62	1.10	20	2
260	5	0.62	0.88	7	17	0.09	0.03	35	240	0.98	0.85	27	4
261	2	1.10	1.70	10	25	0.14	0.09	17	320	0.67	1.10	21	3
261	3	0.83	1.60	8	21	0.12	0.21	15	290	0.56	3.00	19	2
261	4	0.76	1.50	8	23	0.11	0.20	15	270	0.55	4.10	19	2
262	1	0.78	1.70	5	23	0.11	0.05	14	310	0.56	1.40	18	2
263	1	1.30	2.20	4	23	0.09	0.02	22	370	0.95	0.90	21	3

Table 5. Continued

Map No.	TYPE	Mg %	Na %	Nb	Nd	P %	S %	Sc	Sr	Ti %	U	Y	Yb
264	1	0.78	2.40	4	18	0.11	0.02	13	360	0.62	0.60	15	2
265	7b,13b	1.20	2.00	9	30	0.11	<0.01	14	350	0.68	0.60	19	2
266	8,13b	1.20	1.60	<4	21	0.10	0.14	19	260	0.59	1.30	22	3
266	8,13b	1.50	1.90	<4	22	0.07	0.09	21	300	0.75	1.10	21	3
266	8,13b	1.40	1.80	<4	22	0.09	0.08	21	290	0.72	1.00	22	3
267	1	1.10	2.00	9	23	0.08	0.02	25	330	0.97	1.50	26	3
268	1	1.60	2.80	8	15	0.09	0.01	13	350	0.49	0.15	13	2
269	1	1.20	1.80	14	58	0.11	<0.01	17	320	0.86	0.70	24	3
270	11,13b	1.30	1.70	8	23	0.10	0.06	21	290	0.84	1.50	22	3
270	9	1.50	2.00	9	22	0.09	0.06	22	340	0.96	1.30	19	3
271	1	1.40	2.50	9	14	0.07	0.03	20	410	0.97	1.10	16	3
272	7b	1.40	1.60	9	26	0.12	0.05	18	270	0.73	1.30	21	3
273	2	1.80	1.90	10	21	0.11	0.02	28	310	1.10	1.00	20	3
273	3	1.80	1.80	10	22	0.11	0.02	28	300	1.10	1.30	21	3
273	4	1.80	1.90	6	22	0.10	0.02	29	310	1.10	1.10	20	3
274	1	1.50	2.30	<4	21	0.09	0.02	20	320	0.71	0.85	20	2
275	1	1.20	2.00	12	39	0.10	0.01	17	330	0.75	1.00	24	3
276	1	1.30	1.90	<4	30	0.07	0.02	16	330	0.62	0.55	21	3
277	1	1.20	2.30	14	27	0.08	0.01	22	380	1.10	1.10	26	3
278	2	1.50	1.80	5	16	0.10	0.03	21	240	0.71	1.10	19	3
278	3	1.40	2.00	7	16	0.11	0.02	20	270	0.69	0.70	19	3
278	4	1.40	1.90	4	19	0.12	0.04	19	260	0.67	0.80	20	2
279	1	1.30	2.30	9	25	0.09	0.02	22	370	0.94	0.80	24	3
280	1	1.10	1.70	<4	34	0.09	0.02	17	290	0.67	0.50	22	3
281	8,13b	1.20	1.60	<4	24	0.10	0.04	18	260	0.58	0.90	21	3
281	8,13	1.30	1.80	<4	24	0.09	0.03	17	280	0.57	1.30	21	3
282	1	1.00	2.10	5	20	0.09	0.02	12	300	0.54	6.30	20	3
283	1	1.50	1.70	15	47	0.13	0.01	22	290	1.20	1.30	28	4
284	1	0.91	1.90	10	31	0.10	0.01	12	330	0.56	0.55	18	2
285	1	1.10	2.40	8	24	0.11	0.02	14	330	0.61	1.00	23	3
286	1	1.50	1.90	12	39	0.11	0.02	20	310	0.88	1.50	24	3
287	1	1.00	2.20	9	23	0.09	0.02	14	350	0.66	0.75	17	2
288	1	1.20	1.90	<4	26	0.08	0.04	16	310	0.65	1.70	20	2
289	1	1.10	2.40	<4	22	0.05	0.02	17	370	0.73	0.45	18	2
290	1	1.50	2.00	5	21	0.13	0.03	21	310	0.69	0.75	23	3
291	1	1.40	1.80	7	35	0.10	0.02	18	310	0.84	0.75	23	3
292	1	1.10	1.80	9	33	0.09	0.02	14	320	0.55	1.00	19	2
293	1	1.40	2.10	9	22	0.08	0.02	27	350	1.00	0.80	22	3
294	1	1.00	2.00	<4	33	0.08	0.01	15	330	0.64	0.55	21	2
295	1	1.30	2.00	10	36	0.10	0.02	17	330	0.82	0.60	22	3
296	1	0.93	1.70	4	21	0.10	0.01	11	240	0.39	0.55	17	2
297	1	1.40	1.60	13	39	0.11	0.01	18	280	0.86	1.90	25	3
298	1	1.30	1.60	10	29	0.17	0.02	17	300	0.69	0.65	23	3
299	1	1.20	1.60	9	36	0.10	0.01	16	260	0.64	0.75	22	3
300	1	1.50	2.00	<4	22	0.10	0.02	20	320	0.65	0.80	22	3

Table 5. Continued

Map No.	TYPE	Mg %	Na %	Nb	Nd	P %	S %	Sc	Sr	Ti %	U	Y	Yb
301	1	1.10	1.90	9	26	0.10	0.01	23	320	0.97	0.70	24	3
302	1	1.40	1.70	11	34	0.12	0.02	17	310	0.76	1.00	22	3
303	1	1.20	1.80	14	41	0.12	0.02	15	310	0.80	0.50	22	3
304	1	0.95	1.90	<4	26	0.05	0.02	18	330	0.61	0.90	21	2
305	1	1.30	1.90	11	22	0.11	0.01	27	310	1.10	0.90	26	4
306	1	1.00	1.90	<4	33	0.07	<0.01	14	310	0.59	0.80	20	2
307	2	0.99	2.10	10	29	0.08	0.04	21	360	1.00	1.30	33	4
307	3	1.10	2.00	14	28	0.08	0.02	23	350	1.20	1.10	32	4
307	4	1.60	1.70	10	38	0.12	<0.01	20	290	0.89	1.70	25	3
308	1	1.10	1.90	<4	34	0.09	<0.01	15	320	0.68	0.85	21	2
309	2	1.10	1.70	10	35	0.10	0.02	16	290	0.63	1.40	21	3
309	3	1.10	1.90	<4	28	0.07	0.04	15	330	0.58	1.40	20	2
309	4	1.10	1.70	8	32	0.09	0.02	15	310	0.66	1.30	21	3
310	1	1.10	1.80	8	24	0.10	<0.01	20	280	0.67	1.30	22	3
311	8	1.30	1.40	<4	22	0.12	0.02	17	240	0.58	1.30	21	3
311	8	1.30	1.50	7	24	0.15	0.03	19	250	0.69	1.70	23	3
311	8	1.30	1.50	7	22	0.14	<0.01	18	250	0.65	3.40	22	3
312	1	2.20	2.20	10	22	0.09	0.01	37	340	1.30	1.30	25	4
313	2	0.92	1.80	8	29	0.08	<0.01	12	310	0.50	0.80	17	2
313	3	1.10	1.70	10	38	0.09	<0.01	15	300	0.68	0.65	22	3
313	4	1.00	1.80	11	38	0.10	<0.01	14	310	0.64	0.65	20	3
314	1	1.10	1.80	10	34	0.10	<0.01	15	300	0.70	0.90	23	3
315	1	1.10	1.80	13	39	0.09	0.01	15	310	0.72	0.70	22	3
316	1	1.20	1.80	<4	29	0.08	0.01	16	300	0.60	0.75	21	2
317	1	1.50	1.70	<4	47	0.06	<0.01	21	300	0.95	1.20	29	3
318	8	1.40	1.70	<4	24	0.08	<0.01	21	270	0.61	2.40	24	3
318	8	1.40	1.70	5	25	0.09	0.01	21	270	0.66	2.50	24	3
319	1	1.60	2.00	8	22	0.09	0.03	21	300	0.69	0.80	24	3
320	1	1.30	1.70	8	26	0.10	0.02	21	280	0.77	1.20	24	3
321	2	1.30	1.70	8	27	0.10	<0.01	21	280	0.78	1.10	24	3
321	3	1.40	1.80	8	31	0.10	0.01	19	300	0.75	1.20	23	3
321	4	1.30	1.80	9	30	0.10	0.01	19	300	0.76	1.10	24	3
322	1	1.30	1.80	10	29	0.12	0.01	19	300	0.78	0.80	23	3
323	2	1.40	1.60	10	34	0.12	0.04	19	270	0.80	3.90	24	3
323	3	1.50	1.60	9	28	0.12	0.07	21	270	0.88	1.90	24	3
323	4	1.50	1.50	<4	33	0.10	0.09	20	260	0.79	1.90	25	3
324	1	1.70	1.70	11	25	0.08	<0.01	23	290	0.72	0.50	28	4
325	1	0.84	2.10	<4	24	0.05	0.01	20	340	0.81	0.70	33	3
326	2	1.90	2.20	<4	55	0.13	0.01	24	380	1.20	0.90	30	4
326	3	1.40	1.80	9	30	0.11	0.01	18	320	0.77	0.85	22	3
326	4	1.60	1.70	13	44	0.12	<0.01	19	310	0.95	0.85	25	3
327	1	1.50	1.80	<4	33	0.09	0.02	18	310	0.68	0.70	23	3
328	1	1.20	1.70	13	44	0.10	<0.01	16	300	0.83	0.80	24	3
329	7b	1.40	1.60	9	30	0.14	0.02	17	270	0.70	1.50	22	3
330	11,13b	1.60	1.70	12	45	0.14	<0.01	20	310	1.00	0.75	25	3

Table 5. Continued

Map No.	TYPE	Mg %	Na %	Nb	Nd	P %	S %	Sc	Sr	Ti %	U	Y	Yb
330	9	1.60	1.80	11	42	0.13	0.02	20	320	0.97	1.20	25	3
331	7b	2.10	1.50	8	23	0.13	0.02	19	290	0.64	0.80	25	3
332	1	1.20	1.80	<4	37	0.09	<0.01	15	310	0.72	0.70	22	3
333	1	1.20	1.70	<4	36	0.07	0.01	17	280	0.74	0.80	24	3
334	1	1.50	1.60	12	47	0.12	0.01	17	300	0.84	0.65	24	3
335	1	1.30	1.50	9	34	0.10	0.02	17	260	0.69	0.70	24	3
336	1	1.60	1.50	13	40	0.14	0.07	20	310	1.10	3.30	24	3
337	7b	1.50	1.50	<4	24	0.10	0.05	19	250	0.58	1.50	22	3
338	1	1.50	1.90	9	26	0.11	0.06	21	290	0.85	1.70	22	3
339	1	1.50	1.70	<4	35	0.11	0.01	20	290	0.82	0.75	24	3
340	1	1.40	2.00	14	26	0.10	0.02	23	350	1.40	0.55	23	3
341	1	1.20	1.90	13	24	0.09	<0.01	22	340	1.20	1.10	20	3
342	1	1.10	2.10	12	28	0.10	<0.01	23	370	1.20	1.70	26	3
343	1	1.20	1.70	12	50	0.11	<0.01	16	300	0.90	0.80	25	3
344	7b,13b	1.40	1.60	8	24	0.12	0.04	18	270	0.67	1.10	22	3
345	1	1.30	2.10	10	35	0.12	<0.01	17	300	0.74	0.45	22	3
346	7c	1.50	1.70	13	44	0.12	0.02	18	320	1.10	1.50	23	3
347	11	1.50	1.70	11	24	0.11	0.02	27	300	1.10	0.85	27	3
347	9	1.80	1.90	9	24	0.10	0.03	30	320	1.20	1.10	25	3
348	7b	1.20	1.50	<4	25	0.08	0.03	20	240	0.65	1.30	23	3
349	2	1.20	1.70	10	37	0.10	0.02	15	290	0.64	1.00	22	3
349	3	1.20	1.70	10	34	0.10	0.02	17	280	0.67	0.90	23	3
349	4	1.20	1.60	11	33	0.10	<0.01	16	280	0.68	0.90	23	3
350	1	1.20	1.90	12	31	0.11	<0.01	16	320	0.67	0.75	20	3
351	7b	1.40	1.40	10	28	0.15	0.02	18	250	0.72	1.10	23	3
352	1	1.50	1.60	<4	31	0.10	0.11	18	300	0.69	6.60	22	3
353	1	1.50	2.00	6	25	0.10	0.04	21	310	0.75	1.10	23	3
354	1	1.10	1.80	8	32	0.10	<0.01	15	300	0.60	0.65	19	3
355	8	1.50	1.80	<4	38	0.08	0.02	19	310	0.73	0.55	23	3
355	8	1.40	1.80	<4	35	0.09	0.02	18	310	0.65	0.70	21	3
356	7b	1.30	1.70	13	44	0.11	0.02	17	300	0.90	1.10	24	3
357	1	1.10	2.10	12	35	0.15	0.01	18	350	0.92	0.70	26	3
358	1	1.60	1.50	12	38	0.12	0.02	19	260	0.87	1.60	25	3
359	1	1.90	1.90	17	57	0.16	0.04	25	340	1.40	1.30	29	4
360	1	1.20	1.80	8	26	0.09	0.06	19	280	0.65	2.00	25	3
361	11,13b	1.40	1.70	<4	28	0.11	0.04	22	270	0.80	0.90	25	3
361	9	1.40	2.20	6	22	0.11	0.02	12	400	0.47	1.40	15	2
362	1	1.40	1.50	8	23	0.10	0.05	19	250	0.67	2.40	23	3
363	13b	1.42	1.45	10	27	0.15	0.06	18	254	0.66	1.50	22	3
364	1	1.40	1.90	4	25	0.11	0.02	18	290	0.80	0.55	20	3
365	1	1.60	1.90	13	25	0.09	0.01	30	310	1.40	1.10	24	4
366	2	1.40	1.40	10	32	0.11	<0.01	18	270	0.75	0.70	22	3
366	3	1.20	1.40	11	36	0.11	0.01	15	260	0.68	1.10	22	3
366	4	1.00	1.80	9	26	0.09	0.02	17	330	0.63	0.90	21	3
367	7b	1.40	1.40	11	31	0.16	0.05	17	240	0.69	1.30	23	3

Table 5. Continued

Map No.	TYPE	Mg %	Na %	Nb	Nd	P %	S %	Sc	Sr	Ti %	U	Y	Yb
368	1	1.60	1.50	11	33	0.12	0.02	19	270	0.75	0.80	26	3
369	1	0.96	1.60	<4	37	0.03	<0.01	35	270	1.00	2.20	49	5
370	1	1.40	1.50	9	34	0.11	0.02	15	280	0.72	1.30	22	3
371	1	1.40	1.60	12	34	0.13	0.01	18	280	0.78	1.00	25	3
372	1	1.00	2.00	14	28	0.12	<0.01	22	340	1.40	1.00	23	3
373	1	1.40	2.10	14	28	0.07	<0.01	26	340	1.50	1.10	27	4
374	8	1.40	1.50	<4	22	0.12	0.02	18	250	0.66	1.50	22	3
374	8	1.60	1.70	4	41	0.09	B	21	280	0.92	0.80	24	3
375	7b,13b	1.40	1.60	<4	30	0.10	0.04	19	260	0.62	1.10	23	3
376	8	1.50	1.50	<4	29	0.10	0.08	20	250	0.66	1.10	25	3
376	8	1.50	1.60	4	28	0.09	0.04	20	260	0.68	1.70	24	3
377	11,13b	1.30	1.70	9	29	0.11	0.02	17	270	0.65	1.00	23	3
377	9	1.70	2.10	9	22	0.07	0.02	25	380	1.10	0.90	20	3
378	1	1.00	2.00	12	28	0.16	0.02	24	330	1.40	0.80	26	3
379	1	1.30	1.60	10	34	0.12	0.02	16	260	0.65	0.55	22	3
380	1	1.60	1.70	<4	32	0.08	0.06	20	300	0.73	2.40	24	3
381	1	1.00	1.90	12	28	0.16	0.02	22	330	1.30	1.00	27	4
382	7b	1.30	1.80	<4	38	0.05	0.02	15	320	0.51	0.85	21	3
383	1	1.40	1.50	11	41	0.11	<0.01	19	260	0.83	1.00	27	3
384	1	1.50	2.60	<4	34	0.06	0.02	15	330	0.75	0.45	22	3
385	2	1.20	1.80	12	35	0.09	<0.01	13	320	0.62	0.70	20	2
385	3	0.90	1.80	8	20	0.06	0.01	12	310	0.39	0.45	16	2
385	4	0.96	1.90	6	20	0.06	0.02	12	320	0.40	0.60	17	2
386	7b,13b	1.40	1.70	5	45	0.09	<0.01	19	290	0.93	1.50	24	3
387	1	0.67	1.90	12	32	0.06	<0.01	16	310	0.89	1.10	23	3
388	7b	1.40	1.70	<4	29	0.10	0.02	21	280	0.74	1.00	24	3
389	1	1.50	1.70	14	49	0.13	<0.01	19	300	1.00	1.20	27	3
390	7b	1.40	1.40	6	30	0.13	0.05	19	240	0.62	1.10	24	3
391	7b	1.50	1.70	<4	41	0.10	0.02	19	290	0.78	1.50	24	3
392	2	1.00	1.90	9	26	0.09	0.03	21	330	0.86	0.65	24	3
392	3	0.88	1.60	8	35	0.07	0.02	25	270	1.20	3.20	38	4
392	4	0.88	1.60	15	32	0.07	<0.01	24	270	1.30	2.40	37	4
393	1	0.82	1.60	29	38	0.20	0.02	17	300	1.30	1.40	30	4
394	1	1.10	1.00	35	43	0.14	0.01	28	200	1.80	1.30	39	5
395	8,13b	1.40	1.70	<4	30	0.10	0.03	19	280	0.66	1.10	23	3
395	8,13b	1.40	1.60	<4	33	0.10	0.02	18	270	0.64	1.40	22	3
396	7b	1.70	1.60	14	60	0.13	0.02	22	280	1.10	1.50	29	4
397	1	1.30	1.80	9	27	0.09	<0.01	17	300	0.63	0.70	20	2
398	1	1.10	1.80	11	38	0.09	<0.01	28	300	0.92	1.30	42	5
399	1	1.80	2.20	13	58	0.15	0.01	24	380	1.20	1.20	31	4
400	1	0.97	1.70	8	29	0.08	<0.01	15	300	0.62	0.90	20	3
401	1	0.85	1.80	13	34	0.09	<0.01	15	310	0.85	0.75	22	3
402	7c	1.40	1.60	4	37	0.21	0.12	18	230	0.71	0.75	30	4
403	1	1.10	3.30	5	17	0.10	0.03	9	430	0.42	0.20	13	2
404	1	1.10	2.00	<4	28	0.11	<0.01	16	320	0.92	0.65	21	3

Table 5. Continued

Map No.	TYPE	Mg %	Na %	Nb	Nd	P %	S %	Sc	Sr	Ti %	U	Y	Yb
405	1	1.40	1.80	10	38	0.13	<0.01	17	300	0.83	0.85	24	3
406	1	0.97	1.70	<4	25	0.06	<0.01	14	290	0.46	0.85	20	2
407	1	1.10	2.10	12	28	0.08	0.02	22	360	1.20	1.20	33	4
408	1	1.10	1.80	11	36	0.09	<0.01	15	300	0.68	0.70	21	3
409	1	0.54	1.70	24	31	0.10	0.01	14	290	1.20	1.50	24	3
410	1	1.10	2.20	15	32	0.15	0.02	24	340	1.50	1.10	24	4
411	1	1.40	1.90	9	25	0.14	0.02	21	310	0.94	0.70	22	3
412	2	0.70	2.10	24	48	0.10	<0.01	17	360	1.40	1.50	39	4
412	3	0.74	2.10	33	42	0.08	<0.01	16	350	1.50	1.20	37	4
412	4	0.73	2.60	30	43	0.08	<0.01	18	400	1.60	1.10	35	5
413	1	0.79	1.90	21	52	0.07	0.02	20	330	1.40	1.30	53	6
414	2	1.00	1.80	6	21	0.09	0.03	15	290	0.51	0.70	18	2
414	3	0.87	1.90	<4	31	0.05	0.02	14	350	0.97	0.85	22	3
414	4	0.86	2.00	22	33	0.10	<0.01	15	370	1.20	1.00	21	3
415	1	0.59	1.70	4	23	0.10	0.01	13	310	1.10	1.10	22	3
416	1	0.81	2.10	21	39	0.11	0.01	17	350	1.30	1.60	26	4
417	1	0.96	1.90	9	31	0.08	<0.01	14	320	0.61	0.80	19	2
418	1	0.92	1.70	<4	32	0.07	<0.01	15	300	0.57	1.50	22	2
419	1	0.79	1.80	19	29	0.11	0.01	14	340	1.10	1.30	23	3
420	1	1.10	1.80	14	26	0.13	0.02	22	310	1.20	1.00	22	3
421	1	1.70	2.10	11	30	0.08	0.02	25	290	1.10	0.70	20	3
422	1	1.40	1.90	13	30	0.17	0.02	30	320	1.60	0.80	31	4
423	1	0.83	2.20	<4	45	0.13	0.02	16	340	1.20	2.40	39	4
424	2	0.91	1.60	16	32	0.19	0.02	19	290	1.30	2.10	35	4
424	3	0.96	1.60	17	34	0.18	<0.01	20	290	1.50	1.20	36	4
424	4	0.85	1.60	16	32	0.18	0.02	18	290	1.30	1.90	34	4
425	13b	1.04	1.47	15	34	0.13	0.06	21	239	1.08	1.80	34	4
426	1	0.72	1.40	<4	34	0.13	<0.01	23	260	1.00	1.20	38	4
427	1	0.81	1.60	16	31	0.09	0.02	25	280	1.30	1.50	32	4
428	13b	1.90	1.40	6	24	0.12	0.07	21	220	0.54	<100	20	2
429	13b	1.40	1.20	8	29	0.10	<0.05	29	200	0.83	<100	27	3
430	13b	1.20	1.60	7	26	0.14	0.06	25	290	0.97	<100	27	3