UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

GEOCHEMICAL DATA FOR SAMPLES OF ROCK, STREAM SEDIMENT, AND NONMAGNETIC HEAVY-MINERAL CONCENTRATE FROM THE SOUTH SIERRA WILDERNESS AND THE SOUTH SIERRA ROADLESS AREA, SOUTHERN SIERRA NEVADA, CALIFORNIA

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STUDIES RELATED TO WILDERNESS

The Wilderness Act (Public Law 88-577, September 3, 1964) and related acts require the U.S. Geological Survey and the U.S. Bureau of Mines to survey certain areas on Federal lands to determine the mineral values, if any, that may be present. Results must be made available to the public and be submitted to the President and the Congress. This report presents the results of a geochemical survey of the South Sierra Wilderness and the South Sierra Roadless Area, Inyo and Sequoia National Forests, Inyo and Tulare Counties, California. The South Sierra Wilderness was established as a Wilderness by Public Law (98-425, September 28, 1984). The South Sierra Roadless Area was classified as a further planning area during the Second Roadless Area Review and Evaluation (RARE II) by the Forest Service, January 1979.

INTRODUCTION

A reconnaissance geochemical survey of the South Sierra Wilderness and the South Sierra Roadless Area, Inyo and Tulare Counties, California was conducted by the U.S. Geological Survey in 1983 in order to provide information on the mineral resource potential of the area (Diggles 1986). This report contains analytical data and statistical summaries derived from geochemical analyses of 171 samples consisting of 44 rock samples (table 7), 59 stream-sediment samples (table 8), 56 nonmagnetic heavy-mineral concentrate samples (table 9), and 12 duplicate samples. All samples were analysed for 30 elements (Ag, As, Au, B, Ba, Be, Bi, Ca, Cd, Co, Cr, Cu, Fe, La, Mg, Mn, Mo, Nb, Ni, Pb, Sb, Sn, Sr, Th, Ti, V, W, Y, Zn, and Zr) by emission the spectrographic method. In addition, the rock and stream-sediment samples were analysed for arsenic, gold, and zinc by atomic-absorption spectrometry and for tungsten by colorimetry. The locations of the 61 sites from which the 171 samples were collected are shown on plate 1; geographic coordinates for each of these are given in tables 7 through 9. The locations of an additional 7 sampling sites, M0003, M0147, M0163, M0237, M0312, M0637, and M0814, are also shown on plate 1, from which modal and (or) major-element chemical analyses were made. These data are given by Diggles and others (1986). Statistical summaries for all detected elements are given in tables 4 through 6, and frequency tables and histograms for all rock, stream-sediment, and nonmagnetic heavy-mineral concentrate samples are given in tables 10 through 12.

LOCATION AND PHYSIOGRAPHY

The South Sierra Wilderness and the South Sierra Roadless Area are located along the crest of the Sierra Nevada in the area of Monache Mountain in the southern Sierra Nevada (fig. 1). The South Sierra Wilderness covers about 63,000 acres and the South Sierra Roadless Area covers about 45,000 acres. Road access to the area is by county road J41 from the south, from spurs off of U.S. Highway 395 from the east, and the Monache Jeep Trail from the west. Unpaved roads are subject to periodic washout during storms. Snow is common in winter, especially above 5,000 ft. The terrane is steep and rugged in most places with elevations ranging from about 4,500 ft along the range front to the east up to 12,183 ft at the summit of Olancha Peak in the

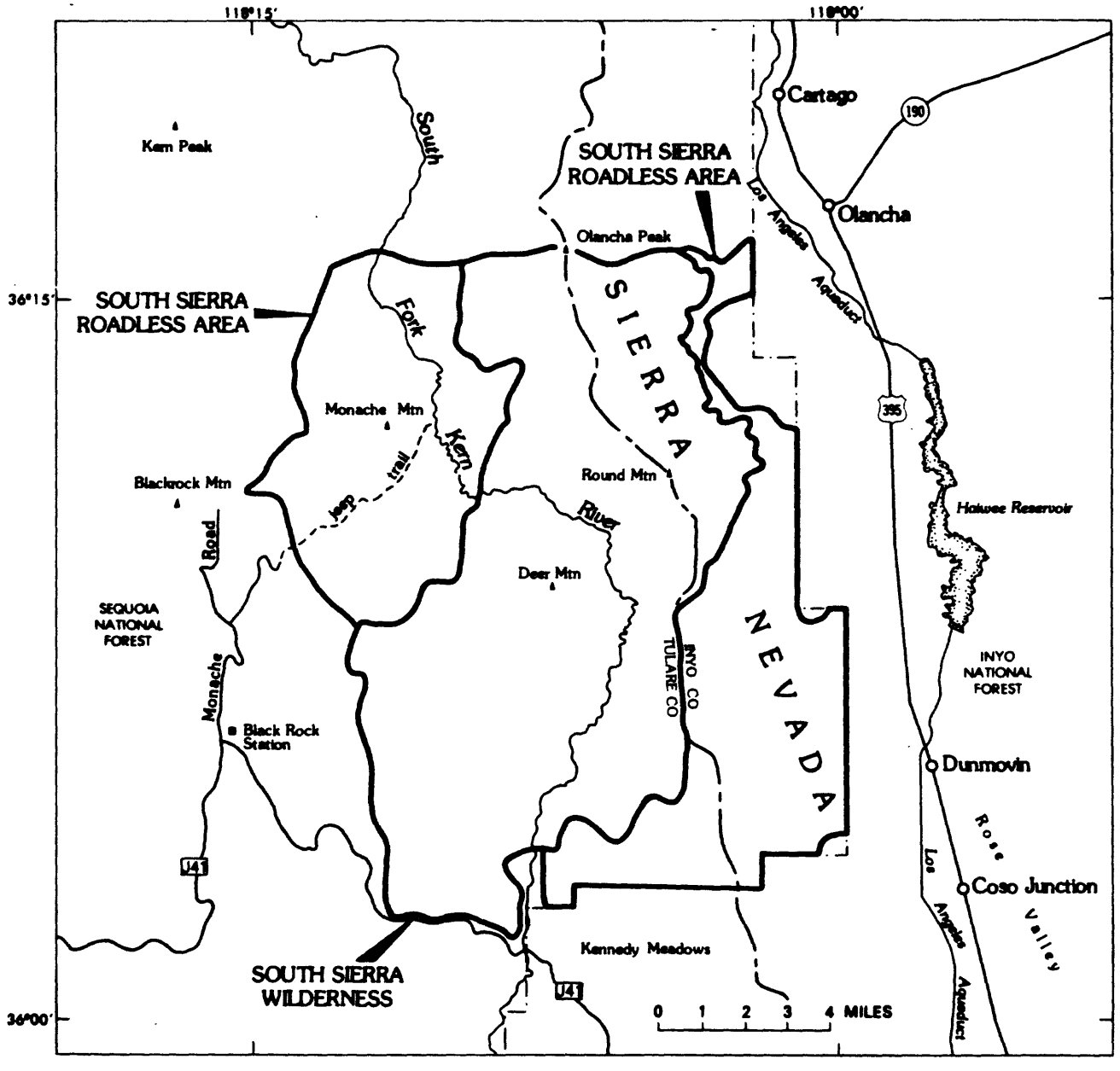

Figure 1.--Index map showing location of the South Sierra Wilderness and the South Sierra Roadless Area, southern Sierra Nevada, California

north. Vegetation in the foothills are in the Digger Pine-Chaparrel Belt (Storer and Usinger, 1963) and includes digger pine, live oak, ceanothus, manzanita, and chinquapin. Vegetation of the Yellow Pine Belt between 7,000 and 4,500 ft consists of pinon, juniper, incense cedar, black oak, and ceanothus. There are Jeffrey and sugar pine on the west side of the Sierra Nevada crest. The elevations between about 7,000 and 10,000 ft host the Lodgepole Pine-Red Fir Belt which also includes chinquapin, snowbrush, and manzanita. The higher elevations (Subalpine and Alpine Belt) in the Olancha Peak area host Lodgepole pine, hemlock, and alpine willow.

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GEOLOGIC SETTING

South Sierra Wilderness and the South Sierra Roadless Area are underlain mostly by granitic rocks of the Sierra Nevada batholith, that were emplaced during at least three major periods of intrusive activity (Evernden and Kistler, 1970). These consist of Cretaceous leucocratic, nonfoliated rocks of granitic to granodioritic composition; an older set of slightly more mafic granodioritic to tonalitic rocks of Jurassic age that often have stromatic to schlieric textures; and gabbroic to dioritic rocks with schistose to gneissic textures that are probably of Triassic and (or) Jurassic age. The granitic rocks intruded and metamorphosed Paleozoic to Mesozoic sedimentary and volcanic rocks to quartz-mica schist, quartzite, marble, and minor greenschist. Zones of garnet-epidote-wollastonite calc-silicate hornfels developed near contacts with granitic rocks. Monache Mountain, a Tertiary rhyolite volcanic cone was erupted in the northwestern part of the study area.

SAMPLE COLLECTION AND PREPARATION

Sampling stations were located at bedrock outcrops and first-order (unbranched) and second-order (below the junction of two first-order) streams as shown on 1:62,500-scale U.S. Geological Survey topographic maps. Availability permitting, at each sampling site, a rock sample, a stream-sediment sample, and a bulk stream-sediment sample to be used for panning were collected. When water was available, the bulk sample was pan-concentrated at the sampling site. At some sites only one or two of the three sample types were collected, depending upon their availability. Duplicate samples were collected at about 10 percent of the sites in order to control sampling and analytical variation. A total of 44 rock samples, 59 stream-sediment samples, and 56 nonmagnetic heavy-mineral-concentrate samples were analyzed. The analytical data for these samples are listed in tables 7 through 9. The approximate sampling density was 1 sample per 3.62 mi^2 for rocks, 1 sample per 2.70 mi^2 for stream sediments, and 1 sample per 2.85 mi^2 for nonmagnetic heavy-mineral concentrates.

Station and sample numbers

Sampling sites were assigned a station number composed of a two-letter prefix and a sample number. The prefix denotes the U.S. Geological Survey 15-minute quadrangle of the sampling site; HR for Haiwee Reservoir, MO for Monache Mountain, and OL for Olancha. The prefix is followed by a three digit sample number. Rocks that were not collected at stream sites have numbers in the series 001-099; samples collected in stream drainages have numbers in the series 901-999. Sample numbers used in tables 7 through 9 are composed of a station number to which a sample-type suffix has been added; A for rock samples, S for stream-sediment samples, and P for nonmagnetic heavy-mineral concentrate samples. For samples collected in duplicate, the letter suffix has a duplicate pair number (1 or 2) added. The station location map (pl. 1) shows the stations and station numbers of all sampling sites in the study area.

Rock samples

At most stations, rock samples were collected within 50 ft of the sediment sampling site. A small number of samples were collected from outcrops that were conspicuously iron stained suggesting possible mineralization. Conspicuously weathered material was avoided. Samples were crushed, split, and ground to minus-300 mesh in a pulverizer with ceramic plates; a split of this material was saved for analysis.

Stream-sediment samples

Stream-sediment samples were collected at first- and second-order streams. Organic-free sediment was collected whenever possible. The samples are composites of material collected at several places in the stream channel. Gravel-sized sediment was avoided. Areas with only fine-grained sediment often have natural concentrations of low-density quartzo-feldspathic minerals and would not be representative of all possible rock types located upstream. Fine-grained heavy minerals tend to occur with coarser grained quartzo-feldspathic minerals and rock fragments because of their similar behavior during deposition. Thus, poorly sorted coarse sand- to silt-size material was most desirable. All material was passed through an 8-mesh stainless-steel screen on site to remove pebbles before further processing. Wet samples were air dried; all samples were then sieved through a 60-mesh stainless-steel screen in an aluminum frame. The minus-60-mesh fraction was crushed to minus-300 mesh in a pulverizer with ceramic plates and a split of this material was saved for analysis.

Nonmagnetic heavy-mineral concentrate samples

The bulk material for the nonmagnetic heavy-mineral concentrate samples was collected as described for stream-sediment samples. Each bulk sample was passed through an 8-mesh stainless-steel screen to remove coarse material. The remaining sediment was wet panned to remove organic and clay-size material and to concentrate the heavy minerals. The remaining sample was air dried, sieved to minus-18-mesh, and separated into light and heavy fractions by

floatation in bromoform (sp. gr. 2.86). The denser fraction was saved and the less dense material discarded. Highly magnetic minerals, primarily magnetite and ilmenite, were removed with a hand magnet and the remaining fraction separated into magnetic and nonmagnetic portions with a Frantz Isodynamic Separator set at 0.6 amperes and 15 degree forward and 15 degree side angles. The resulting nonmagnetic sample was split into two fractions; one fraction was ground in an agate mortar for analysis and the other fraction and the magnetic fraction was saved for future mineralogical studies.

ANALYTICAL GEOCHEMICAL PROCEDURES

Emission spectrography

Laboratory preparation and analysis was performed by the Branch of Exploration Geochemistry of the U.S. Geological Survey. All samples were analyzed for 30 elements (Ca, Fe, Mg, Ti, Ag, As, Au, B, Ba, Be, Bi, Cd, Co, Cr, Cu, La, Mn, Mo, Nb, Ni, Pb, Sb, Sn, Sr, Th, V, W, Y, Zn, and Zr) using a six-step semiquantitative emission spectrographic method similar to that described by Myers and others (1961) and Grimes and Marranzino (1968). Spectrographic analysis of nonmagnetic heavy-mineral concentrates differs from that used for rocks and bulk stream sediments in order to limit interference caused by high concentrations of iron, calcium, titanium, manganese, and zirconium. One half of each sample was replaced with a mixture of graphite and silica. The spectral lines are recorded on film and compared against known standards; values were doubled to correct for the dilution with the graphite and silica mixture to produce the results in table 9. Values that did not fall into one of the standard six-step reporting intervals were reported as the next higher value. This procedure raises the upper and the lower limits of detection; detection limits for each sample type are given in table 1.

The spectrographic analytical values (tables 7 through 9) are reported as the approximate geometric midpoints of concentration ranges with six intervals in each order of magnitude. The reporting values and widths between range boundaries are evenly spaced on a logarithmic-normal scale, which is consistent with the expected distribution of most elements in geologic materials (Rose and others, 1979). Analyses are reported at one of the six-step values listed in table 2, or appropriate integral powers of ten of these values.

In general, precision of the spectrographic method is plus or minus one reporting value of the value determined approximately 83 percent of the time, and plus or minus two reporting values of the value determined 96 percent of the time (Motooka and Grimes, 1976). Because all of the samples for this report were analyzed by the same analyst using the same spectrographic instrument, our experience indicates that better precision can be expected. A standard reference sample was analyzed to monitor the quality of analyses of each batch of field samples. These values are omitted from tables 7 through 9. Because the analysis of nonmagnetic heavy-mineral concentrates by emission spectrography involves half of the amount of sample normally used in this type of analysis, and because of rounding errors on some values, the precision of these determinations is probably less than those of the other two sample types, particularly for values near the limits of detection (Diggles and others, 1982).

Atomic absorption and colorimetric analysis

In addition to the standard 30-element spectrographic analysis done for all samples, all stream-sediment and rock samples were also analysed for arsenic and zinc by a modification of the atomic-absorption method described by Ward and others (1969) and Viets (1978) and for gold by atomic-absorption methods described by Thompson and others (1968) and for tungsten by colorimetric analysis methods described by Welsch (1983).

The precision of a determination varies with the concentration of the element analyzed. The precision for each method tends to be lowest for those samples with elemental concentrations at or near the lower limit of determination.

The analytical data for the atomic-absorption and colorimetric analyses are presented in tables 7 and 8. In tables 10 and 11, however, these analyses are presented in terms of six-step intervals (see table 2) and thus allow statistical treatment consistent with that for the semiquantitative analyses.

ANALYTICAL RESULTS

The analytical results for iron, magnesium, calcium, and titanium are reported in percent; analytical values for all other elements are given in parts per million (ppm). The analytical results were entered into the U.S. Geological Survey Rock Analysis Storage System (RASS). A standard binary STATPAC (Statistical Package) file was generated from the RASS file using RASS program RETRIEVAL (b860). The format of a STATPAC data set is a two-dimensional data matrix with a data set identifier, row and column identifiers, row indices and a location for each row. Each row contains all analyses for a single sample; each column contains analyses of all samples for an element with a separate column for each analytical method used for an element. The data-set format has provisions for analytical-value qualification codes. The codes used are listed in table 3. A comprehensive description of the RASS-STATPAC system is given by VanTrump and Miesch (1976).

Tables 7 through 9 are listings of the analytical data for the samples of rock, minus-60-mesh stream sediment, and nonmagnetic heavy-mineral concentrate, respectively. In each of the tables, the first column contains the sample numbers; these are identical to those shown in plate 1. The sample identification information is followed by four columns containing geographic location data. The four columns contain north latitudes and west longitudes in degrees, minutes and seconds followed by the Universal Transverse Mercator (UTM) coordinates for easting and northing. Columns for elements are headed with the element symbol, reporting units, and type of analysis. Percent is denoted by "pct", parts per million by "ppm", emission spectrographic analysis by "s", atomic-absorption analysis by "aa", and colorimetric analysis by "cm". Because of the formatting used in the computer program that produced tables 7 through 9, some of the elements listed in these tables (Ca, Fe, Mg, Ti, Ag, and Be) carry one or more nonsignificant zeros to the right of the significant digits. The analyst did not determine these elements to the accuracy suggested by the extra zeros. Tables 7 through 9 were produced by formatting the data in the STATPAC file with the program PUBLST, written by J.B. Fife (written commun., 1980).

Several of the elements have lower limits of analytical detection that are usually above the normal concentrations for these elements in natural materials. We did not find any rock samples that contained antimony, arsenic,

bismuth, cadmium, gold, niobium, tin, thorium, tungsten, or zinc in concentrations detectable by emission spectrography nor arsenic or gold in atomic-absorption samples in concentrations as great as their lower limits of determination. These twelve categories are deleted from tables 4 and 10. Stream-sediment samples did not contain antimony, arsenic, bismuth, cadmium, tin, tungsten, or zinc in emission-spectrography samples in concentrations as great as their lower limits of detection. These 7 categories are deleted from tables 5 and 11. None of the nonmagnetic heavy-mineral concentrates contained antimony, arsenic, cadmium, gold, silver, or zinc in concentrations as high as their lower limits of determination nor titanium of zirconium in concentrations as low as their upper limits of determination. No nonmagnetic heavy-mineral concentrate samples were analysed by atomic absorption or colorimetry. These 11 categories are deleted from tables 6 and 12.

STATISTICAL SUMMARIES

Tables 4 through 6 give summary statistics based on data provided by computer programs in the U.S. Geological Survey RASS-STATPAC system (VanTrump and Miesch, 1976). Tables 10 through 12 are statistical summaries of the analytical data and were generated using the statistical program TOTS, written by R.D. Koch (written commun., 1981). The program was used to divide all data not already reported in six-step class intervals into the intervals listed in table 2. The program creates frequency tables and histograms based on these intervals and computes the arithmetic means, standard deviations, geometric means, and geometric deviations of the populations. Entries in tables 10 through 12 are identified on the page preceding table 10.

Values qualified with N, L, G, or H in tables 10 through 12 were not considered in the histograms; the resulting statistics are therefore biased. Many of the histograms show this bias by their truncated form.

The geometric mean of a set of analyses is the antilogarithm of the arithmetic mean of the logarithms of the analyses. This mean is an indication of central tendency and does not indicate geochemical abundance. Most elements are log-normally distributed in geologic materials (Ahrens, 1957; Siegel, 1974) and histograms based on logarithmic scales like those in tables 10 through 12 will be symmetrical for log-normal distributions. The geometric deviation of a set of analyses, the antilogarithm of the standard deviation of the logarithms of the analyses, is useful for noting the spread of a log-normally distributed population.

REFERENCES CITED

Ahrens, L.H., 1957, Lognormal-type distribution--III: Geochimica et Cosmochimica Acta, v. 11, no. 4, p. 205-212.

Diggles, M.F., 1986, Mineral resource potential map of the South Sierra Wilderness and the South Sierra Roadless Area, Inyo and Tulare Counties, California: U.S. Geological Survey Miscellaneous Field Studies Map MF-1913-A, scale 1:48,000.

Diggles, M.F., Dellinger, D.A., and Conrad, J.E., 1986, Geologic map of the Owens Peak and Little Lake Canyon Wilderness Study Areas, Inyo and Kern Counties, California: U.S. Geological Survey Miscellaneous Field Studies Map MF-1927-A, scale 1:48,000.

Diggles, M.F., Dellinger, D.A., Sutley, S.J., Fey, D.L., and Hill, R.H., 1982, Chemical data for samples of rock, stream sediment, and nonmagnetic dense-mineral concentrate in the White Mountains, Blanco Mountain, Birch Creek, and Black Canyon Roadless Areas, White Mountains, California and Nevada: U.S. Geological Survey Open-File Report 82-984, 188 p.

Evernden, J.F., and Kistler, R.W., 1970, Chronology of emplacement of Mesozoic batholithic complexes in California and western Nevada: U.S. Geological Survey Professional Paper 623, 42 p.

Grimes, D.J., and Marranzino, A.P., 1968, Direct-current arc and alternating-current spark emission spectrographic field methods for the semiquantitative analysis of geologic materials: U.S. Geological Survey Circular 591, 6 p.

Motooka, J.M., and Grimes, D.J., 1976, Analytical precision of one-sixth order semiquantitative spectrographic analysis: U.S. Geological Survey Circular 738, 25 p.

Myers, A.T., Havens, R.G., and Dunton, P.J., 1961, A spectrochemical method for the semiquantitative analysis of rocks, minerals, and ores: U.S. Geological Survey Bulletin 1084-I, p. 207-229.

Rose, A.W., Hawkes, H.E., and Webb, J.S., 1979, Geochemistry in mineral exploration: London, Academic Press, 657 p.

Siegel, F.R., 1974, Applied geochemistry: New York, John Wiley and Sons, 353 p.

Storer, T.I., and Usinger, R.L., 1963, Sierra Nevada natural history: Berkeley, University of California Press, 374 p.

Thompson, C.E., Nakagawa, H.M., and Van Sickle, G.H., 1968, Rapid analysis for gold in geologic material, in Geological Survey Research 1968: U.S. Geological Survey Professional Paper 600-B, p. B130-B132.

VanTrump, George, Jr., and Miesch, A.T., 1976, The U.S. Geological Survey RASS-STATPAC system for management and statistical reduction of geochemical data: Computers and Geosciences, v. 3, p. 475-488.

Viets, J.G., 1978, Determination of silver, bismuth, cadmium, copper, lead, and zinc in geological materials by atomic absorption spectrometry with tricaprylylmethylammonium chloride: Analytical Chemistry, v. 50, p. 1097-1101.

Ward, F.N., Nakagawa, H.M., Harms, T.F., and VanSickle, G.H., 1969, Atomic-absorption methods of analysis useful in geochemical exploration: U.S. Geological Survey Bulletin 1289, 45 p.

Welsch, E.P., 1983, A rapid geochemical spectrophotometric determination of tungsten with dithiol: Talanta, v. 30, p. 876-878.

Table 1.--Upper and lower limits of determination for samples of rock, stream sediment, and heavy-mineral concentrate

[All analyses by semiquantitative emission spectrography except as indicated; ppm, parts per million; aa, atomic absorption spectrometry; cm, colorimetry]

Elements and reporting units	Limits for rock and stream-sediment samples		Limits for heavy-mineral concentrate samples	
	Lower	Upper	Lower	Upper
Ca, percent	0.05	20	0.1	50
Fe, percent	.05	20	.1	50
Mg, percent	.02	10	.05	20
Ti, percent	.002	1	.005	2
Ag, ppm	.5	5,000	1	10,000
As, ppm	200	10,000	500	20,000
Au, ppm	10	500	20	1,000
B, ppm	10	2,000	20	5,000
Ba, ppm	20	5,000	50	10,000
Be, ppm	1	1,000	2	2,000
Bi, ppm	10	1,000	20	2,000
Cd, ppm	20	500	50	1,000
Co, ppm	5	2,000	10	50
Cr, ppm	10	5,000	20	10,000
Cu, ppm	5	20,000	10	50,000
La, ppm	20	1,000	50	2,000
Mn, ppm	10	5,000	20	10,000
Mo, ppm	5	2,000	10	5,000
Nb, ppm	20	2,000	50	5,000
Ni, ppm	5	5,000	10	10,000
Pb, ppm	10	20,000	20	50,000
Sb, ppm	100	10,000	200	20,000
Sn, ppm	10	1,000	20	2,000
Sr, ppm	100	5,000	200	10,000
Th, ppm	100	2,000	200	5,000
V, ppm	10	10,000	100	20,000
W, ppm	50	10,000	100	20,000
Y, ppm	10	2,000	20	5,000
Zn, ppm	200	10,000	500	20,000
Zr, ppm	10	1,000	20	2,000
As (aa), ppm	10	1/	2/	--
Au (aa), ppm	.002	1/	2/	--
Zn (aa), ppm	5	1/	2/	--
W, (cm), ppm	.5	1/	2/	--

1/Dilution during sample preparation eliminates any upper detection limit

2/Analysis not performed

Table 2.--Reporting values and ranges for six-step, semiquantitative spectrographic analyses

Reporting values (class interval midpoints)	Concentration ranges	Class interval widths
1.5	1.2 - 1.8	0.6
2.0	1.8 - 2.6	.8
3.0	2.6 - 3.8	1.2
5.0	3.8 - 5.6	1.8
7.0	5.6 - 8.3	2.7
10	8.3 - 12	3.7

Table 3.--Qualification codes used in tables 7 through 12
[n refers to value of upper or lower limit of determination]

Code in tables 7 through 9	Code in tables 10 through 12	Meaning
--	B	Blank; no analysis performed
N	N	Not detected by analysis at the lower limit of determination shown in parentheses
<n	L	Detected, but below the lower limit of determination shown
>n	G	Element present in an amount greater than the upper limit of determination shown

Table 4.—Summary statistics of analytical data for rock samples from the South Sierra Wilderness and the South Sierra Roadless Area

[All concentrations are in parts per million except those for Ca, Fe, Mg, and Ti, which are in percent. N, not detected at the lower limit of determination; L, detected, but below lower limit of determination; G, detected but above the upper limit of determination shown in parentheses. All analyses are by emission spectrographic except as noted; aa, atomic-absorption spectroscopy; cm, colorimetry. There were no unqualified values for As, Au, Bi, Cd, Nb, Sb, Sn, Th, W, or Zn; thus, meaningful statistical information could not be derived for those elements]

Element	Range of values	Geometric mean	Geometric deviation	Percentile				
				50	75	90	95	98
Ca	0.2-10	1.9	3	2	5	5	6	10
Fe	.07-20	3	2.8	5	5	7	10	15
Mg	.02-7	.88	3.4	1	2	2.5	4	6
Ti	.03-1	.42	2	.5	1	1	1	G(1)
Ag	.7-.7	.7	--	N(.5)	N(.5)	L(.5)	L(.5)	.6
B	10-20	12.	1.3	10	15	15	17	20
Ba	300-2000	91.	1.6	1,000	1,500	1,500	1,500	1,800
Be	L(1)-3	1.6	1.3	1.5	2	2	2	3
Co	N(5)-50	16	1.9	13	20	30	30	50
Cr	N(10)-100	18	2	L(10)	13	20	30	85
Cu	N(5)-150	34	2.6	30	50	100	100	150
La	N(20)-70	37	1.6	50	50	50	70	70
Mn	70-5,000	900	2	1,000	1,500	1,500	1,800	3,500
Mo	N(5)-30	14	1.6	7	15	20	20	30
Ni	N(5)-70	23	1.7	20	30	50	50	60
Pb	N(10)-50	19	1.6	20	20	30	40	50
Sr	N(100)-1,000	410	1.6	500	500	700	700	850
V	10-1,000	82	3	100	200	200	200	850
Y	N(10)-50	27	1.7	30	50	50	50	50
Zr	20-500	130	1.9	150	200	200	250	500
Zn (aa)	N(5)-85	42	1.8	50	60	70	77	85
W (cm)	N(.5)-6	.85	2.1	.5	.5	1	1.8	5.3

Table 5.—Summary statistics of analytical data for minus-60-mesh stream-sediment samples from the South Sierra Wilderness and and the South Sierra Roadless Area

[All concentrations are in parts per million except those for Ca, Fe, Mg, and Ti, which are in percent. N, not detected at the lower limit of determination; L, detected, but below lower limit of determination; G, detected but above the upper limit of determination shown in parentheses. All analyses are by emission spectrographic except as noted; aa, atomic-absorption spectroscopy; cm, colorimetry. There were no unqualified values for As, Bi, Cd, Sb, Sn, W, or Zn; thus, meaningful statistical information could not be derived for those elements]

Element	Range of values	Geometric mean	Geometric deviation	Percentile				
				50	75	90	95	98
Ca	7-15	2	1.8	2	2	4	10	15
Fe	2-G(20)	9.2	1.6	10	15	G(20)	G(20)	G(20)
Mg	.5-5	1.5	1.7	1.5	2	3	3	3
Ti	.3-G(1)	.78	1.4	1	G(1)	G(1)	G(1)	G(1)
Ag	N(.5)-5	1.4	2.4	N(.5)	N(.5)	L(.5)	.85	1
Au	N(10)-20	20	--	N(10)	N(10)	N(10)	N(10)	N(10)
B	10-50	14	1.5	15	20	25	30	30
Ba	300-1,500	690	1.4	700	1,000	1,000	1,000	1,000
Be	L(1)-3	1.4	1.3	1.5	1.5	2	2	2
Co	7-50	19	1.6	20	30	30	50	50
Cr	10-500	52	2.3	70	100	100	200	250
Cu	5-100	29	1.7	30	50	60	70	70
La	20-200	58	1.6	50	70	100	150	150
Mn	1,000-3,000	1,800	1.4	2,000	2,000	3,000	3,000	3,000
Mo	N(5)-20	9.7	1.5	N(5)	N(5)	8.5	13	15
Nb	N(20)-20	20	--	N(20)	N(20)	L(20)	L(20)	20
Ni	10-70	28	1.7	30	50	50	50	60
Pb	10-200	26	1.6	20	30	50	50	60
Sr	200-700	400	1.5	500	500	600	700	700
Th	N(100)-300	300	--	N(100)	N(100)	N(100)	N(100)	L(100)
V	70-1,500	230	2	200	300	700	1,000	1,000
Y	20-100	41	1.5	50	50	70	70	70
Zr	20-G(1,000)	330	3	700	1,000	G(1,000)	G(1,000)	G(1,000)
As (aa)	10-90	32	5	N(10)	N(10)	L(10)	L(10)	10
Au (aa)	8.3-10	10	1	10	10	10	10	10
Zn (aa)	25-100	60	1.3	60	70	80	90	98
W (cm)	.5-33	2	2.4	2	3.5	4.8	9.3	14

Table 6.--Summary statistics of analytical data for minus-18-mesh nonmagnetic-heavy-mineral concentrate samples from the South Sierra Wilderness and and the South Sierra Roadless Area

[All concentrations are in parts per million except those for Ca, Fe, Mg, and Ti, which are in percent. All analyses are by emission spectrographic. N, not detected at the lower limit of determination; L, detected, but below lower limit of determination; G, detected but above upper limit of determination shown in parentheses. There were no unqualified values for Ag, As, Au, Cd, Sb, Ti, Zn, or Zr; thus, meaningful statistical information could not be derived for those elements]

Element	Range of values	Geometric mean	Geometric deviation	Percentiles				
				50	75	90	95	98
Ca	3-20	6.7	1.6	7	10	10	15	15
Fe	.3-2	.88	1.7	1	1	2	2	2
Mg	.05-1	.19	1.8	.2	.3	.4	.5	.75
B	L(20)-1,000	29	2.4	20	30	50	200	450
Ba	70-1,000	350	2	500	700	700	850	1,000
Be	N(2)-2	2	1	N(2)	2	2	2	2
Bi	N(20)-100	21	84	N(20)	N(20)	N(20)	N(20)	45
Co	N(50)-15	11	1.2	N(10)	10	10	13	15
Cr	N(20)-50	24	1.3	L(20)	30	30	30	30
Cu	N(10)-20	11	1.3	N(10)	10	10	13	15
La	200-G(1,500)	550	1.8	500	1,300	1,300	1,500	1,500
Mn	500-2,000	1,000	1.5	1,000	1,500	1,500	1,800	2,000
Mo	N(10)-100	28	1.8	N(10)	40	40	50	60
Nb	L(50)-500	150	1.7	150	300	300	300	300
Ni	N(10)-20	12	1.8	10	15	15	18	20
Pb	N(20)-70	25	1.6	N(20)	20	20	50	60
Sn	N(20)-100	53	1.5	50	80	85	100	100
Sr	N(200)-1500	440	1.9	400	1,000	1,000	1,300	1,500
Th	N(200)-3,000	440	2.4	200	850	850	2,000	2,000
V	100-700	300	1.6	300	500	500	600	700
W	N(100)-200	130	1.4	N(100)	L(100)	L(100)	100	125
Y	200-2,000	700	1.8	700	1,500	1,500	1,500	1,800

Table 7. Data for rock samples

Sample No.	Latitude	Longitude	UTM Easting	UTM Northing	Ca-pct s	Fe-pct s	Mg-pct s	Ti-pct s	Ag-ppm s	As-ppm s	Au-ppm s	B-ppm s
MO129A	36 11 20	118 4 25	504,620.68	4,004,686.3	5.00	10.00	5.00	1.00	N	N	N	10
MO144A	36 10 23	118 12 14	492,897.09	4,002,938.9	5.00	10.00	1.50	.50	N	N	N	15
MO145A	36 5 25	118 3 38	505,804.07	3,993,757.5	2.00	3.00	.70	.30	N	N	N	10
MO149A	36 5 38	118 2 9	508,031.84	3,994,159.7	2.00	5.00	.70	.30	N	N	N	15
MO151A	36 5 25	118 0 46	510,094.74	3,993,760.3	<.05	.07	.02	.03	N	N	N	10
MO901A	36 9 1	118 14 2	490,213.38	4,000,419.3	5.00	5.00	1.50	.70	.7	N	N	20
MO903A	36 14 34	118 8 10	499,003.51	4,010,669.1	.70	2.00	.70	.30	N	N	N	10
MO904A	36 14 13	118 9 8	497,558.50	4,010,029.4	1.50	2.00	1.00	.50	N	N	N	10
MO905A	36 5 53	118 13 32	490,953.17	3,994,626.5	.50	1.00	.15	.10	<.5	N	N	10
MO906A	36 9 51	118 0 52	509,953.02	4,001,961.2	5.00	7.00	2.00	.70	N	N	N	10
MO908A	36 6 49	118 0 30	510,490.43	3,996,359.5	2.00	3.00	1.00	.50	N	N	N	15
MO910A	36 9 7	118 4 42	504,205.47	4,000,616.7	3.00	5.00	2.00	1.00	N	N	N	10
MO911A	36 10 11	118 4 55	503,878.95	4,002,568.6	.20	1.50	.70	.30	N	N	N	15
MO914A	36 11 0	118 5 48	502,543.84	4,004,094.3	3.00	5.00	1.50	.70	N	N	N	10
MO915A	36 11 23	118 14 2	490,217.43	4,004,800.4	.50	.70	.10	.20	<.5	N	N	10
MO916A	36 4 28	118 10 32	495,453.60	3,992,021.0	5.00	7.00	3.00	1.00	N	N	N	10
MO919A	36 3 31	118 9 29	497,021.66	3,990,263.5	5.00	5.00	2.00	1.00	N	N	N	10
MO920A	36 2 58	118 10 55	494,873.02	3,989,248.5	5.00	5.00	2.00	1.00	N	N	N	15
MO922A	36 3 42	118 5 0	503,761.78	3,990,598.7	1.00	1.50	.20	.30	N	N	N	10
MO924A	36 6 40	118 5 15	503,380.56	3,996,065.5	3.00	5.00	1.50	1.00	N	N	N	10
MO925A1	36 5 56	118 6 11	501,975.86	3,994,718.6	.20	.50	.05	.10	N	N	N	10
MO925A2	36 5 56	118 6 11	501,975.86	3,994,718.6	5.00	5.00	2.00	1.00	N	N	N	15
MO926A1	36 7 3	118 7 45	499,634.64	3,996,773.6	1.00	1.50	.30	.30	<.5	N	N	<10
MO926A2	36 7 3	118 7 45	499,634.64	3,996,773.6	.30	1.00	1.00	.10	N	N	N	10
MO927A	36 7 48	118 9 16	497,344.68	3,998,170.4	5.00	7.00	2.00	.50	N	N	N	15
MO928A	36 8 43	118 10 4	496,153.14	3,999,864.5	5.00	5.00	2.00	.70	N	N	N	10
MO929A	36 10 1	118 9 51	496,487.00	4,002,254.6	7.00	7.00	2.00	.70	N	N	N	15
MO930A	36 9 30	118 12 7	493,075.75	4,001,323.8	5.00	5.00	1.50	.70	N	N	N	10
MO931A	36 10 53	118 13 34	490,912.41	4,003,881.3	5.00	7.00	2.00	1.00	N	N	N	10
MO934A	36 12 30	118 9 14	497,402.11	4,006,861.7	2.00	3.00	.50	.30	N	N	N	20
MO935A	36 11 8	118 7 30	499,997.34	4,004,331.3	5.00	7.00	3.00	1.00	N	N	N	10
MO936A	36 7 50	118 4 49	504,032.08	3,998,219.7	10.00	10.00	5.00	>1.00	N	N	N	10
MO937A	36 6 1	118 11 48	493,541.41	3,994,863.8	10.00	20.00	7.00	>1.00	N	N	N	10
MO939A	36 14 29	118 3 30	505,992.43	4,010,514.7	.50	1.50	.15	.30	N	N	N	10
MO940A	36 12 58	118 2 59	506,776.27	4,007,732.4	3.00	5.00	1.50	1.00	<.5	N	N	<10
MO942A	36 8 42	118 0 30	510,488.92	3,999,835.6	.20	.50	.20	.15	N	N	N	10
MO946A	36 2 42	118 7 38	499,800.01	3,988,733.5	3.00	5.00	2.00	.70	N	N	N	<10
MO947A	36 4 19	118 12 59	491,781.28	3,991,716.4	1.50	3.00	1.00	.50	N	N	N	10
MO948A	36 5 53	118 14 17	489,814.50	3,994,640.0	1.00	3.00	1.00	.50	N	N	N	15
MO950A	36 7 8	118 14 31	489,474.31	3,996,948.5	1.00	2.00	.70	.20	N	N	N	10
MO951A	36 10 42	118 12 43	492,178.21	4,003,527.3	2.00	5.00	1.00	.30	N	N	N	20
MO952A	36 10 15	118 6 33	501,427.28	4,002,693.3	1.50	2.00	.70	.50	N	N	N	<10
MO953A	36 13 14	118 12 51	491,990.05	4,008,202.6	2.00	2.00	.50	.20	N	N	N	10
OL905A	36 15 42	118 3 6	506,590.90	4,012,777.9	.30	1.50	.20	.30	N	N	N	10

Table 7. Data for rock samples - (continued)

Sample No.	Ba-ppm s	Be-ppm s	Bi-ppm s	Cd-ppm s	Co-ppm s	Cr-ppm s	Cu-ppm s	La-ppm s	Mn-ppm s	Mo-ppm s	Nb-ppm s	Ni-ppm s	Pb-ppm s
MO129A	300	<1.0	N	N	30	20	100	<20	1,500	N	N	30	10
MO144A	1,500	1.5	N	N	20	<10	50	20	1,000	20	N	30	N
MO145A	1,500	2.0	N	N	10	N	7	50	1,000	10	N	20	20
MO149A	1,500	2.0	N	N	10	N	N	50	1,000	20	N	20	20
MO151A	500	<1.0	N	N	N	<10	N	N	70	N	N	15	N
MO901A	1,000	1.5	N	N	20	20	150	50	5,000	30	N	50	50
MO903A	700	1.5	N	N	5	N	10	50	1,000	15	N	20	50
MO904A	1,000	1.5	N	N	5	<10	5	20	1,000	15	N	30	10
MO905A	1,000	1.5	N	N	N	N	N	<20	500	15	N	20	20
MO906A	700	1.0	N	N	30	10	70	50	1,000	20	N	50	20
MO908A	1,500	1.0	N	N	10	<10	30	20	1,000	N	N	15	10
MO910A	1,500	1.5	N	N	30	70	50	70	1,000	15	<20	70	10
MO911A	500	1.5	N	N	5	10	7	50	500	N	N	15	30
MO914A	1,000	1.5	N	N	20	15	50	50	1,000	15	N	50	20
MO915A	500	2.0	N	N	N	<10	N	20	500	N	N	15	10
MO916A	500	<1.0	N	N	50	<10	100	20	2,000	20	N	30	10
MO919A	1,000	1.0	N	N	20	15	50	20	1,500	N	N	20	10
MO920A	1,000	1.0	N	N	20	10	50	20	1,500	15	N	30	10
MO922A	700	2.0	N	N	N	<10	N	70	700	N	N	20	20
MO924A	1,500	1.0	N	N	15	20	30	50	1,000	7	<20	30	20
MO925A1	700	2.0	N	N	N	N	N	20	500	N	N	20	20
MO925A2	300	1.0	N	N	30	20	50	50	1,500	7	N	30	20
MO926A1	1,500	1.5	N	N	N	<10	5	50	200	5	N	20	20
MO926A2	1,000	2.0	N	N	N	N	N	30	500	N	N	N	20
MO927A	1,000	1.5	N	N	30	<10	50	30	1,500	15	N	50	20
MO928A	1,000	1.5	N	N	20	<10	50	30	1,500	30	N	30	20
MO929A	1,000	1.5	N	N	20	10	50	50	1,500	15	N	15	15
MO930A	2,000	1.0	N	N	20	10	30	20	1,000	N	N	20	20
MO931A	1,500	1.5	N	N	20	<10	20	50	2,000	7	N	20	20
MO934A	1,000	2.0	N	N	10	N	30	50	700	15	N	20	30
MO935A	1,500	1.5	N	N	20	30	70	50	1,500	N	N	30	30
MO936A	300	<1.0	N	N	30	100	150	N	1,000	N	N	50	10
MO937A	700	<1.0	N	N	50	10	100	30	1,500	N	N	30	10
MO939A	1,500	<1.0	N	N	N	<10	N	20	1,000	N	N	15	50
MO940A	1,000	2.0	N	N	15	30	100	50	1,000	20	N	30	N
MO942A	700	1.5	N	N	N	N	N	50	150	10	N	20	N
MO946A	1,500	2.0	N	N	20	20	50	70	1,500	15	N	30	20
MO947A	700	3.0	N	N	15	<10	20	20	1,000	20	N	20	20
MO948A	500	2.0	N	N	10	10	10	50	1,000	N	<20	10	20
MO950A	1,000	3.0	N	N	5	<10	20	50	700	N	N	N	30
MO951A	1,500	2.0	N	N	10	<10	20	20	1,000	N	N	N	20
MO952A	1,000	2.0	N	N	5	10	30	50	500	N	N	5	20
MO953A	1,500	2.0	N	N	N	<10	N	30	700	N	N	5	20
OL905A	500	2.0	N	N	N	<10	N	70	1,000	10	<20	20	30

Table 7. Data for rock samples - (continued)

Sample No.	Sb-ppm s	Sn-ppm s	Sr-ppm s	Th-ppm s	V-ppm s	W-ppm s	Y-ppm s	Zn-ppm s	Zr-ppm s	As-ppm aa	Au-ppm aa	Zn-ppm aa	W-ppm cm
MO129A	N	N	500	N	200	N	20	N	20	N	N	60	.5
MO144A	N	N	500	N	150	N	50	N	150	N	N	60	N
MO145A	N	N	300	N	50	N	50	N	200	N	N	50	.5
MO149A	N	N	300	N	70	N	50	N	150	N	N	55	.5
MO151A	N	N	N	N	10	N	10	N	30	N	N	N	1.0
MO901A	N	N	300	N	200	N	50	N	100	N	N	70	1.0
MO903A	N	N	200	N	70	N	30	N	150	N	N	50	1.0
MO904A	N	N	700	N	70	N	20	N	200	N	N	50	N
MO905A	N	N	300	N	10	N	N	N	70	N	N	30	N
MO906A	N	N	1,000	N	200	N	30	N	100	N	N	45	.5
MO908A	N	N	500	N	150	N	15	N	100	N	N	60	.5
MO910A	N	N	500	N	200	N	50	N	200	N	N	75	N
MO911A	N	N	300	N	100	N	20	N	150	N	N	50	4.5
MO914A	N	N	700	N	150	N	20	N	100	N	N	70	1.0
MO915A	N	N	200	N	20	N	10	N	70	N	N	30	N
MO916A	N	N	700	N	200	N	50	N	50	N	N	45	N
MO919A	N	N	700	N	150	N	30	N	200	N	N	55	N
MO920A	N	N	500	N	150	N	30	N	100	N	N	55	N
MO922A	N	N	300	N	30	N	20	N	200	N	N	40	N
MO924A	N	N	500	N	100	N	30	N	70	N	N	30	.5
MO925A1	N	N	N	N	10	N	15	N	70	N	N	15	N
MO925A2	N	N	500	N	150	N	15	N	200	N	N	65	.5
MO926A1	N	N	300	N	20	N	20	N	150	N	N	10	N
MO926A2	N	N	100	N	15	N	10	N	100	N	N	10	N
MO927A	N	N	500	N	200	N	30	N	200	N	N	30	.5
MO928A	N	N	500	N	200	N	50	N	70	N	N	55	N
MO929A	N	N	500	N	200	N	50	N	70	N	N	60	N
MO930A	N	N	500	N	150	N	30	N	500	N	N	65	.5
MO931A	N	N	500	N	200	N	50	N	500	N	N	80	N
MO934A	N	N	300	N	50	N	30	N	150	N	N	50	1.0
MO935A	N	N	500	N	200	N	50	N	150	N	N	60	.5
MO936A	N	N	300	N	1,000	N	15	N	100	N	N	30	N
MO937A	N	N	500	N	700	N	50	N	50	N	N	30	N
MO939A	N	N	N	N	20	N	N	N	300	N	N	25	N
MO940A	N	N	700	N	150	N	20	N	200	N	N	85	1.0
MO942A	N	N	100	N	10	N	10	N	100	N	N	10	.5
MO946A	N	N	500	N	150	N	50	N	200	N	N	70	1.5
MO947A	N	N	500	N	100	N	30	N	150	N	N	85	6.0
MO948A	N	N	300	N	100	N	50	N	150	N	N	35	N
MO950A	N	N	300	N	50	N	15	N	100	N	N	25	.5
MO951A	N	N	700	N	70	N	30	N	200	N	N	45	N
MO952A	N	N	500	N	70	N	20	N	200	N	N	25	2.0
MO953A	N	N	700	N	30	N	15	N	100	N	N	35	N
OL905A	N	N	N	N	30	N	50	N	200	N	N	40	N

Table 8. Data for stream-sediment samples

Sample No.	Latitude	Longitude	UTM Easting	UTM Northing	Ca-pct s	Fe-pct s	Mg-pct s	Ti-pct s	Ag-ppm s	As-ppm s
HR901S	36 5 14	117 59 31	511,971.32	3,993,444.4	2.0	10	2.0	1.0	N	N
MO901S	36 9 1	118 14 2	490,213.38	4,000,419.3	2.0	3	1.0	.5	N	N
MO902S	36 8 37	118 14 54	488,901.82	3,999,693.3	2.0	5	1.0	.7	N	N
MO903S	36 14 34	118 8 10	499,003.51	4,010,669.1	1.5	10	1.0	>1.0	N	N
MO904S	36 14 13	118 9 8	497,558.50	4,010,029.4	.7	7	.5	.7	N	N
MO905S1	36 5 53	118 13 32	490,953.17	3,994,626.5	1.5	2	1.0	.3	N	N
MO905S2	36 5 53	118 13 32	490,953.17	3,994,626.5	2.0	10	2.0	>1.0	N	N
MO906S	36 9 51	118 0 52	509,953.02	4,001,961.2	5.0	10	3.0	>1.0	N	N
MO907S1	36 9 51	118 0 50	509,985.44	4,001,961.2	3.0	10	2.0	.7	N	N
MO907S2	36 9 51	118 0 50	509,985.44	4,001,961.2	5.0	15	2.0	1.0	N	N
MO908S	36 6 49	118 0 30	510,490.43	3,996,359.5	15.0	7	2.0	.5	N	N
MO909S1	36 6 49	118 0 29	510,521.93	3,996,359.5	2.0	5	1.5	.7	N	N
MO909S2	36 6 49	118 0 29	510,521.93	3,996,359.5	15.0	5	1.5	.5	N	N
MO910S	36 9 7	118 4 42	504,205.47	4,000,616.7	1.0	>20	.7	1.0	<.5	N
MO911S	36 10 11	118 4 55	503,878.95	4,002,568.6	1.5	10	1.5	1.0	N	N
MO912S	36 10 10	118 4 45	504,125.38	4,002,537.7	1.5	>20	1.0	>1.0	N	N
MO913S1	36 10 9	118 4 45	504,117.33	4,002,513.3	1.5	>20	1.0	>1.0	N	N
MO913S2	36 10 9	118 4 45	504,117.33	4,002,513.3	1.5	>20	1.0	>1.0	N	N
MO914S	36 11 0	118 5 48	502,543.84	4,004,094.3	2.0	10	1.5	1.0	N	N
MO915S	36 11 23	118 14 2	490,217.43	4,004,800.4	2.0	>20	2.0	>1.0	N	N
MO916S	36 4 28	118 10 32	495,453.60	3,992,021.0	2.0	10	2.0	>1.0	N	N
MO917S	36 4 28	118 10 18	495,796.66	3,992,014.2	2.0	10	3.0	1.0	1.0	N
MO918S	36 4 27	118 10 19	495,772.35	3,991,982.1	2.0	10	3.0	>1.0	N	N
MO919S	36 3 31	118 9 29	497,021.66	3,990,263.5	2.0	>20	2.0	>1.0	N	N
MO920S	36 2 58	118 10 55	494,873.02	3,989,248.5	3.0	10	2.0	>1.0	N	N
MO921S	36 4 48	118 7 43	499,682.20	3,992,606.6	3.0	20	2.0	>1.0	N	N
MO922S	36 3 42	118 5 0	503,761.78	3,990,598.7	2.0	10	1.5	.7	N	N
MO923S	36 5 55	118 5 3	503,664.65	3,994,685.8	3.0	15	2.0	>1.0	N	N
MO924S	36 6 40	118 5 15	503,380.56	3,996,065.5	2.0	10	2.0	.7	N	N
MO925S	36 5 56	118 6 11	501,975.86	3,994,718.6	2.0	10	2.0	1.0	1.0	N
MO926S	36 7 3	118 7 45	499,634.64	3,996,773.6	2.0	15	1.5	.7	5.0	N
MO927S	36 7 48	118 9 16	497,344.68	3,998,170.4	3.0	10	2.0	>1.0	N	N
MO928S	36 8 43	118 10 4	496,153.14	3,999,864.5	2.0	10	2.0	1.0	N	N
MO929S	36 10 1	118 9 51	496,487.00	4,002,254.6	3.0	5	1.0	.5	N	N
MO930S	36 9 30	118 12 7	493,075.75	4,001,323.8	1.5	10	1.0	1.0	N	N
MO931S	36 10 53	118 13 34	490,912.41	4,003,881.3	2.0	7	2.0	1.0	N	N
MO932S	36 13 50	118 9 41	496,718.07	4,009,312.1	1.0	10	.5	.7	N	N
MO933S1	36 13 48	118 9 42	496,694.65	4,009,272.2	1.0	15	.7	1.0	N	N
MO933S2	36 13 48	118 9 42	496,694.65	4,009,272.2	1.0	15	.5	.5	N	N
MO934S	36 12 30	118 9 14	497,402.11	4,006,861.7	1.5	10	1.0	1.0	N	N
MO935S	36 11 8	118 7 30	499,997.34	4,004,331.3	1.0	10	1.0	.7	N	N
MO936S	36 7 50	118 4 49	504,032.08	3,998,219.7	5.0	10	5.0	1.0	N	N
MO937S	36 6 1	118 11 48	493,541.41	3,994,863.8	2.0	10	2.0	1.0	N	N
MO938S	36 8 4	118 2 59	506,760.83	3,998,667.3	15.0	3	2.0	.3	N	N
MO939S	36 14 29	118 3 30	505,992.43	4,010,514.7	1.0	10	1.0	.7	<.5	N

Table 8. Data for stream-sediment samples - (continued)

Sample No.	Au-ppm s	B-ppm s	Ba-ppm s	Be-ppm s	Bi-ppm s	Cd-ppm s	Co-ppm s	Cr-ppm s	Cu-ppm s	La-ppm s
HR901S	N	30	700	1.5	N	N	30	100	30	70
MO901S	N	20	1,000	2.0	N	N	7	30	7	100
MO902S	N	30	1,000	2.0	N	N	10	30	20	30
MO903S	N	20	1,000	1.5	N	N	10	15	15	100
MO904S	N	10	700	2.0	N	N	7	10	10	150
MO905S1	N	10	700	2.0	N	N	10	10	5	20
MO905S2	N	10	1,000	1.5	N	N	15	70	30	100
MO906S	N	10	700	1.0	N	N	30	100	50	50
MO907S1	N	20	500	1.0	N	N	20	70	30	100
MO907S2	N	10	700	1.0	N	N	30	100	30	50
MO908S	N	30	700	1.0	N	N	10	70	30	50
MO909S1	N	20	1,000	1.5	N	N	15	70	20	50
MO909S2	N	30	500	1.0	N	N	10	70	20	30
MO910S	N	10	500	1.0	N	N	20	100	30	100
MO911S	N	15	700	2.0	N	N	30	70	50	50
MO912S	N	10	300	<1.0	N	N	50	300	50	50
MO913S1	N	10	300	<1.0	N	N	30	150	30	50
MO913S2	N	10	300	<1.0	N	N	30	100	50	50
MO914S	N	10	700	2.0	N	N	15	50	30	100
MO915S	N	10	500	<1.0	N	N	20	100	30	50
MO916S	N	20	1,000	1.0	N	N	30	15	70	50
MO917S	N	30	700	1.5	N	N	20	30	70	30
MO918S	N	10	700	1.0	N	N	30	30	50	50
MO919S	N	15	500	<1.0	N	N	50	100	50	50
MO920S	N	20	1,000	1.5	N	N	20	20	30	30
MO921S	N	10	500	<1.0	N	N	30	200	30	70
MO922S	N	20	700	1.5	N	N	15	50	20	70
MO923S	N	10	1,000	1.0	N	N	20	70	30	50
MO924S	N	15	700	1.0	N	N	20	100	50	50
MO925S	N	10	700	1.5	N	N	20	50	50	50
MO926S	20	10	500	1.0	N	N	20	100	20	100
MO927S	N	15	1,000	1.5	N	N	20	50	30	50
MO928S	N	15	700	1.5	N	N	20	30	70	50
MO929S	N	15	700	3.0	N	N	15	15	20	20
MO930S	N	15	700	1.0	N	N	20	20	30	50
MO931S	N	15	700	1.5	N	N	15	15	50	50
MO932S	N	10	700	1.5	N	N	10	20	20	200
MO933S1	N	10	700	1.5	N	N	10	20	20	150
MO933S2	N	15	700	2.0	N	N	7	20	15	50
MO934S	N	20	700	2.0	N	N	20	50	30	50
MO935S	N	15	700	2.0	N	N	20	30	30	70
MO936S	N	10	500	1.0	N	N	50	100	100	30
MO937S	N	15	1,000	2.0	N	N	20	20	70	50
MO938S	N	50	500	1.0	N	N	10	50	30	50
MO939S	N	10	1,000	1.5	N	N	10	50	30	50

Table 8. Data for stream-sediment samples - (continued)

Sample No.	Mn-ppm s	Mo-ppm s	Nb-ppm s	Ni-ppm s	Pb-ppm s	Sb-ppm s	Sn-ppm s	Sr-ppm s	Th-ppm s	V-ppm s
HR901S	2,000	N	<20	30	30	N	N	500	N	300
MO901S	2,000	N	N	10	30	N	N	700	N	70
MO902S	1,500	N	N	20	20	N	N	500	N	150
MO903S	3,000	N	20	20	30	N	N	200	N	100
MO904S	2,000	N	20	10	20	N	N	200	N	100
MO905S1	1,000	N	N	10	20	N	N	500	N	70
MO905S2	2,000	N	<20	30	200	N	N	300	N	200
MO906S	3,000	5	N	50	20	N	N	700	N	200
MO907S1	2,000	10	N	70	15	N	N	500	N	150
MO907S2	3,000	N	N	50	20	N	N	500	N	200
MO908S	1,500	10	N	30	50	N	N	500	N	100
MO909S1	1,000	N	N	20	20	N	N	500	N	100
MO909S2	1,000	20	N	50	50	N	N	500	N	150
MO910S	1,500	N	<20	50	20	N	N	200	N	500
MO911S	1,500	N	N	50	30	N	N	500	N	200
MO912S	2,000	N	N	30	20	N	N	200	N	1,500
MO913S1	1,000	N	N	30	15	N	N	200	N	1,000
MO913S2	3,000	10	N	50	20	N	N	300	N	1,000
MO914S	1,500	N	N	50	20	N	N	500	N	200
MO915S	2,000	N	N	20	20	N	N	300	N	1,000
MO916S	2,000	N	N	20	30	N	N	500	N	200
MO917S	2,000	<5	N	50	20	N	N	500	N	200
MO918S	2,000	N	N	30	30	N	N	500	N	200
MO919S	3,000	N	N	30	30	N	N	300	N	700
MO920S	2,000	7	N	30	20	N	N	500	N	200
MO921S	2,000	N	N	50	10	N	N	300	N	500
MO922S	1,500	N	N	20	20	N	N	500	N	150
MO923S	2,000	7	N	50	30	N	N	500	N	300
MO924S	2,000	N	N	30	50	N	N	500	N	300
MO925S	1,500	N	N	50	30	N	N	700	N	150
MO926S	2,000	N	N	30	20	N	N	500	N	300
MO927S	2,000	N	N	30	20	N	N	500	N	300
MO928S	1,500	N	N	10	20	N	N	300	N	200
MO929S	1,000	N	N	15	10	N	N	700	N	100
MO930S	2,000	7	N	10	20	N	N	500	N	200
MO931S	2,000	<5	N	20	20	N	N	300	N	200
MO932S	2,000	N	N	20	20	N	N	200	N	150
MO933S1	2,000	N	<20	10	20	N	N	300	N	200
MO933S2	1,000	N	<20	30	15	N	N	200	N	150
MO934S	3,000	N	N	15	30	N	N	500	N	200
MO935S	1,000	15	N	30	20	N	N	500	<100	150
MO936S	2,000	N	N	50	30	N	N	700	N	300
MO937S	2,000	N	N	20	20	N	N	500	N	200
MO938S	1,000	N	N	30	30	N	N	500	N	100
MO939S	2,000	N	N	20	50	N	N	200	N	150

Table 8. Data for stream-sediment samples - (continued)

Sample No.	W-ppm s	Y-ppm s	Zn-ppm s	Zr-ppm s	As-ppm aa	Au-ppm aa	Au-ppm aa	Zn-ppm aa	W-ppm cm
HR901S	N	50	N	1,000	N	N	10.00	50	2.5
MO901S	N	20	N	70	N	N	8.32	35	12.5
MO902S	N	30	N	500	N	N	10.00	95	4.5
MO903S	N	70	N	>1,000	N	N	10.00	80	2.5
MO904S	N	50	N	100	N	N	10.00	60	1.0
MO905S1	N	30	N	20	N	N	10.00	25	1.5
MO905S2	N	30	N	700	N	N	10.00	70	3.0
MO906S	N	30	N	100	N	N	10.00	50	6.0
MO907S1	N	20	N	70	<10	N	10.00	50	1.0
MO907S2	N	30	N	700	N	N	10.00	55	2.0
MO908S	N	30	N	100	<10	N	10.00	60	3.5
MO909S1	N	20	N	70	<10	N	10.00	60	3.5
MO909S2	N	20	N	200	N	N	10.00	50	2.0
MO910S	N	70	N	>1,000	N	N	10.00	60	1.5
MO911S	N	50	N	500	N	N	10.00	80	2.5
MO912S	N	50	N	>1,000	N	N	10.00	50	2.5
MO913S1	N	50	N	200	N	N	10.00	45	4.0
MO913S2	N	30	N	500	N	N	10.00	50	2.0
MO914S	N	50	N	>1,000	N	N	10.00	70	33.0
MO915S	N	70	N	>1,000	N	N	10.00	55	1.0
MO916S	N	50	N	1,000	N	N	10.00	55	.5
MO917S	N	30	N	700	<10	N	10.00	75	4.5
MO918S	N	50	N	1,000	N	N	10.00	85	.5
MO919S	N	50	N	1,000	N	N	10.00	50	.5
MO920S	N	50	N	1,000	N	N	10.00	65	.5
MO921S	N	70	N	1,000	N	N	10.00	50	.5
MO922S	N	50	N	300	N	N	10.00	70	2.5
MO923S	N	50	N	1,000	N	N	10.00	55	1.5
MO924S	N	50	N	>1,000	90	N	10.00	75	1.5
MO925S	N	50	N	300	N	N	10.00	80	1.5
MO926S	N	70	N	>1,000	N	N	10.00	40	4.0
MO927S	N	70	N	>1,000	N	N	10.00	55	.5
MO928S	N	30	N	70	N	N	10.00	85	2.5
MO929S	N	20	N	20	N	N	10.00	40	4.5
MO930S	N	30	N	300	N	N	10.00	80	2.5
MO931S	N	50	N	700	N	N	10.00	60	3.0
MO932S	N	70	N	700	N	N	10.00	60	2.5
MO933S1	N	70	N	>1,000	N	N	10.00	65	4.5
MO933S2	N	50	N	700	N	N	10.00	65	1.0
MO934S	N	50	N	500	N	N	10.00	80	1.5
MO935S	N	30	N	700	N	N	10.00	70	15.5
MO936S	N	30	N	70	N	N	10.00	55	2.0
MO937S	N	20	N	200	N	N	10.00	50	4.5
MO938S	N	20	N	150	<10	N	8.30	45	1.5
MO939S	N	30	N	500	N	N	10.00	100	5.0

Table 8. Data for stream-sediment samples - (continued)

Sample No.	Latitude	Longitude	UTM Easting	UTM Northing	Ca-pct s	Fe-pct s	Mg-pct s	Ti-pct s	Ag-ppm s	As-ppm s
MO940S	36 12 58	118 2 59	506,776.27	4,007,732.4	1.0	20	1.0	>1.0	N	N
MO941S	36 12 47	118 2 19	507,771.63	4,007,371.6	1.5	5	1.0	1.0	N	N
MO942S	36 8 42	118 0 30	510,488.92	3,999,835.6	2.0	10	3.0	>1.0	N	N
MO943S	36 7 59	118 0 45	510,121.63	3,998,500.8	2.0	>20	2.0	>1.0	N	N
MO944S	36 3 42	118 0 1	511,243.95	3,990,608.5	2.0	10	3.0	1.0	N	N
MO945S	36 4 0	118 3 36	505,847.20	3,991,131.1	2.0	10	3.0	1.0	N	N
MO946S	36 2 42	118 7 38	499,800.01	3,988,733.5	1.5	20	1.0	>1.0	N	N
MO947S	36 4 19	118 12 59	491,781.28	3,991,716.4	2.0	20	1.5	>1.0	N	N
MO948S	36 5 53	118 14 17	489,814.50	3,994,640.0	1.5	20	1.0	1.0	N	N
MO949S	36 11 35	118 0 37	510,303.65	4,005,169.3	1.5	7	1.0	1.0	<.5	N
MO950S	36 7 8	118 14 31	489,474.31	3,996,948.5	1.5	7	1.0	.7	N	N
MO951S	36 10 42	118 12 43	492,178.21	4,003,527.3	2.0	7	1.0	1.0	N	N
MO952S	36 10 15	118 6 33	501,427.28	4,002,693.3	2.0	7	3.0	1.0	.7	N
MO953S	36 13 14	118 12 51	491,990.05	4,008,202.6	2.0	15	3.0	>1.0	N	N

Table 8. Data for stream-sediment samples - (continued)

Sample No.	Au-ppm s	B-ppm s	Ba-ppm s	Be-ppm s	Bi-ppm s	Cd-ppm s	Co-ppm s	Cr-ppm s	Cu-ppm s	La-ppm s
MO940S	N	15	700	1.0	N	N	20	200	15	50
MO941S	N	10	1,500	1.0	N	N	15	30	15	50
MO942S	N	10	700	1.0	N	N	30	100	50	50
MO943S	N	10	300	<1.0	N	N	50	500	30	50
MO944S	N	20	1,000	1.0	N	N	30	100	30	100
MO945S	N	20	500	1.0	N	N	30	100	70	70
MO946S	N	15	1,000	1.0	N	N	20	70	30	150
MO947S	N	10	300	2.0	N	N	30	70	20	30
MO948S	N	10	700	1.0	N	N	20	70	30	70
MO949S	N	20	1,000	1.5	N	N	20	70	20	50
MO950S	N	15	700	1.5	N	N	20	50	20	50
MO951S	N	15	1,000	1.5	N	N	20	10	30	100
MO952S	N	15	1,000	1.5	N	N	30	50	30	50
MO953S	N	15	700	1.5	N	N	30	70	30	70

Table 8. Data for stream-sediment samples - (continued)

Sample No.	Mn-ppm s	Mo-ppm s	Nb-ppm s	Ni-ppm s	Pb-ppm s	Sb-ppm s	Sn-ppm s	Sr-ppm s	Th-ppm s	V-ppm s
MO940S	2,000	N	<20	20	20	N	N	300	N	500
MO941S	1,500	N	N	10	70	N	N	300	N	70
MO942S	2,000	N	N	50	20	N	N	700	N	200
MO943S	2,000	N	N	70	20	N	N	300	N	1,000
MO944S	2,000	N	N	30	30	N	N	500	N	200
MO945S	2,000	N	N	50	30	N	N	500	N	300
MO946S	2,000	N	<20	20	50	N	N	300	N	300
MO947S	3,000	N	N	50	20	N	N	300	N	700
MO948S	1,500	N	<20	30	50	N	N	300	300	700
MO949S	1,000	15	N	30	50	N	N	300	N	150
MO950S	1,500	N	<20	20	30	N	N	500	N	200
MO951S	2,000	N	N	20	20	N	N	500	N	150
MO952S	1,500	N	N	30	30	N	N	500	N	100
MO953S	2,000	<5	N	50	50	N	N	300	N	300

Table 8. Data for stream-sediment samples - (continued)

Sample No.	W-ppm s	Y-ppm s	Zn-ppm s	Zr-ppm s	As-ppm aa	Au-ppm aa	Au-ppm aa	Zn-ppm aa	W-ppm cm
MO940S	N	100	N	1,000	N	N	10.00	50	2.0
MO941S	N	30	N	700	<10	N	10.00	70	2.0
MO942S	N	30	N	200	N	N	10.00	50	1.0
MO943S	N	50	N	1,000	<10	N	10.00	35	1.5
MO944S	N	50	N	1,000	<10	N	10.00	70	5.5
MO945S	N	30	N	700	<10	N	10.00	60	1.5
MO946S	N	70	N	>1,000	N	N	10.00	100	2.0
MO947S	N	30	N	>1,000	N	N	10.00	50	3.5
MO948S	N	70	N	>1,000	N	N	10.00	55	.5
MO949S	N	50	N	700	10	N	10.00	60	3.0
MO950S	N	50	N	1,000	N	N	10.00	40	1.0
MO951S	N	30	N	50	N	N	10.00	65	1.5
MO952S	N	30	N	500	N	N	10.00	70	3.0
MO953S	N	50	N	>1,000	<10	N	10.00	45	.5

Table 9. Data for nonmagnetic heavy-mineral-concentrate samples

Sample No.	Latitude	Longitude	UTM Easting	UTM Northing	Ca-pct s	Fe-pct s	Mg-pct s	Ti-pct s	Ag-ppm s	As-ppm s	Au-ppm s
HR901P	36 5 14	117 59 31	511,971.32	3,993,444.4	5	2.0	1.00	>2	N	N	N
MO901P	36 9 1	118 14 2	490,213.38	4,000,419.3	5	.3	.10	>2	N	N	N
MO902P	36 8 37	118 14 54	488,901.82	3,999,693.3	7	1.0	.50	>2	N	N	N
MO903P	36 14 34	118 8 10	499,003.51	4,010,669.1	3	.7	.20	>2	N	N	N
MO904P	36 14 13	118 9 8	497,558.50	4,010,029.4	3	.7	.15	>2	N	N	N
MO905P	36 5 53	118 13 32	490,953.17	3,994,626.5	10	.7	.10	>2	N	N	N
MO906P	36 9 51	118 0 52	509,953.02	4,001,961.2	20	1.0	.30	>2	N	N	N
MO907P	36 9 51	118 0 50	509,985.44	4,001,961.2	15	.7	.20	>2	N	N	N
MO908P	36 6 49	118 0 30	510,490.43	3,996,359.5	5	1.5	.20	>2	N	N	N
MO909P	36 6 49	118 0 29	510,521.93	3,996,359.5	5	2.0	.30	>2	N	N	N
MO910P	36 9 7	118 4 42	504,205.47	4,000,616.7	3	.5	<.05	>2	N	N	N
MO911P	36 10 11	118 4 55	503,878.95	4,002,568.6	5	.7	.15	>2	N	N	N
MO912P	36 10 10	118 4 45	504,125.38	4,002,537.7	5	1.5	1.00	>2	N	N	N
MO913P	36 10 9	118 4 45	504,117.33	4,002,513.3	5	.7	.20	>2	N	N	N
MO914P	36 11 0	118 5 48	502,543.84	4,004,094.3	7	2.0	.50	>2	N	N	N
MO915P	36 11 23	118 14 2	490,217.43	4,004,800.4	5	.7	.20	>2	N	N	N
MO916P	36 4 28	118 10 32	495,453.60	3,992,021.0	7	.5	.10	>2	N	N	N
MO917P	36 4 28	118 10 18	495,796.66	3,992,014.2	7	1.0	.15	>2	N	N	N
MO918P	36 4 27	118 10 19	495,772.35	3,991,982.1	5	.7	.20	>2	N	N	N
MO919P	36 3 31	118 9 29	497,021.66	3,990,263.5	5	.5	.10	>2	N	N	N
MO920P	36 2 58	118 10 55	494,873.02	3,989,248.5	15	.7	.10	>2	N	N	N
MO921P	36 4 48	118 7 43	499,682.20	3,992,606.6	7	.7	.15	>2	N	N	N
MO922P	36 3 42	118 5 0	503,761.78	3,990,598.7	7	1.0	<.05	>2	N	N	N
MO923P	36 5 55	118 5 3	503,664.65	3,994,685.8	10	.7	.15	>2	N	N	N
MO924P	36 6 40	118 5 15	503,380.56	3,996,065.5	5	.3	.05	>2	N	N	N
MO925P	36 5 56	118 6 11	501,975.86	3,994,718.6	15	1.0	.10	>2	N	N	N
MO926P	36 7 3	118 7 45	499,634.64	3,996,773.6	5	1.0	.20	>2	N	N	N
MO927P	36 7 48	118 9 16	497,344.68	3,998,170.4	10	.7	.10	>2	N	N	N
MO928P	36 8 43	118 10 4	496,153.14	3,999,864.5	7	1.0	.10	>2	N	N	N
MO929P	36 10 1	118 9 51	496,487.00	4,002,254.6	10	1.0	.20	>2	N	N	N
MO930P	36 9 30	118 12 7	493,075.75	4,001,323.8	5	.7	.10	>2	N	N	N
MO931P	36 10 53	118 13 34	490,912.41	4,003,881.3	5	.3	<.05	>2	N	N	N
MO932P	36 13 50	118 9 41	496,718.07	4,009,312.1	5	.7	.15	>2	N	N	N
MO933P	36 13 48	118 9 42	496,694.65	4,009,272.2	3	.5	.15	>2	N	N	N
MO934P	36 12 30	118 9 14	497,402.11	4,006,861.7	7	.5	.10	>2	N	N	N
MO935P	36 11 8	118 7 30	499,997.34	4,004,331.3	15	1.0	.20	>2	N	N	N
MO936P	36 7 50	118 4 49	504,032.08	3,998,219.7	10	1.5	.30	>2	N	N	N
MO937P	36 6 1	118 11 48	493,541.41	3,994,863.8	10	.5	.10	>2	N	N	N
MO938P	36 8 4	118 2 59	506,760.83	3,998,667.3	5	.7	.15	>2	N	N	N
MO939P	36 14 29	118 3 30	505,992.43	4,010,514.7	10	1.0	.20	>2	N	N	N
MO940P	36 12 58	118 2 59	506,776.27	4,007,732.4	7	2.0	.30	>2	N	N	N
MO941P	36 12 47	118 2 19	507,771.63	4,007,371.6	10	1.0	.10	>2	N	N	N
MO942P	36 8 42	118 0 30	510,488.92	3,999,835.6	7	1.0	.30	>2	N	N	N
MO943P	36 7 59	118 0 45	510,121.63	3,998,500.8	10	1.5	.30	>2	N	N	N
MO944P	36 3 42	118 0 1	511,243.95	3,990,608.5	3	.3	.10	>2	N	N	N

Table 9. Data for nonmagnetic heavy-mineral-concentrate samples - (continued)

Sample No.	B-ppm s	Ba-ppm s	Be-ppm s	Bi-ppm s	Cd-ppm s	Co-ppm s	Cr-ppm s	Cu-ppm s	La-ppm s	Mn-ppm s	Mo-ppm s	Nb-ppm s
HR901P	20	700	2	N	N	10	30	20	500	1,500	N	100
MO901P	1,000	150	N	N	N	N	30	N	500	700	20	300
MO902P	200	700	<2	N	N	N	20	N	700	1,000	20	300
MO903P	20	500	2	N	N	N	N	N	700	1,500	N	100
MO904P	20	700	2	N	N	N	<20	N	300	1,500	N	200
MO905P	<20	200	<2	N	N	N	30	<10	700	1,000	N	300
MO906P	20	700	<2	N	N	N	30	10	500	1,000	N	50
MO907P	20	700	2	N	N	N	20	10	300	1,000	N	70
MO908P	<20	700	2	N	N	N	<20	10	500	700	N	100
MO909P	30	1,000	2	N	N	N	20	10	700	1,000	N	100
MO910P	<20	150	<2	N	N	N	<20	N	500	500	N	<50
MO911P	20	300	<2	N	N	N	20	N	1,000	700	N	200
MO912P	20	500	2	N	N	15	<20	10	200	1,000	N	100
MO913P	20	500	<2	N	N	N	<20	N	300	500	N	100
MO914P	20	100	<2	70	N	10	30	<10	1,500	1,500	50	200
MO915P	20	300	<2	N	N	N	<20	N	500	1,000	N	200
MO916P	50	200	<2	N	N	N	20	N	200	500	N	70
MO917P	20	300	<2	N	N	N	<20	<10	500	1,000	30	100
MO918P	20	200	<2	N	N	N	<20	N	300	700	N	50
MO919P	20	200	<2	N	N	N	N	N	200	500	N	70
MO920P	20	500	N	N	N	N	<20	N	500	1,000	30	200
MO921P	20	200	<2	N	N	N	<20	<10	200	1,000	30	150
MO922P	20	100	<2	N	N	N	<20	N	1,500	1,500	15	200
MO923P	20	300	<2	N	N	N	<20	<10	700	1,000	20	150
MO924P	<20	200	<2	N	N	N	<20	10	700	700	<10	200
MO925P	20	150	<2	N	N	N	20	<10	1,000	1,000	70	300
MO926P	20	500	<2	N	N	N	<20	N	200	700	N	50
MO927P	20	300	<2	N	N	N	<20	N	500	1,000	20	150
MO928P	20	300	<2	N	N	N	<20	N	500	1,000	30	150
MO929P	30	300	2	N	N	N	20	N	1,000	1,500	50	300
MO930P	<20	100	<2	N	N	N	<20	N	700	1,000	N	200
MO931P	<20	100	N	N	N	N	N	N	1,000	1,000	10	300
MO932P	20	500	2	N	N	N	<20	N	700	1,500	N	200
MO933P	20	500	N	N	N	N	<20	N	500	700	N	100
MO934P	<20	100	<2	N	N	N	<20	N	1,500	1,000	10	200
MO935P	30	300	<2	100	N	10	20	<10	1,000	1,500	100	300
MO936P	30	500	2	N	N	N	<20	N	500	500	N	50
MO937P	50	500	<2	N	N	N	<20	<10	300	700	N	150
MO938P	30	500	2	N	N	15	20	<10	700	1,000	20	200
MO939P	20	1,000	<2	N	N	15	<20	15	1,000	2,000	30	200
MO940P	200	1,000	<2	N	N	N	30	N	1,000	1,500	20	200
MO941P	<20	300	<2	N	N	N	20	N	1,500	1,500	N	150
MO942P	30	500	2	N	N	N	20	<10	200	700	N	70
MO943P	30	700	<2	N	N	N	50	<10	500	700	N	100
MO944P	<20	200	<2	N	N	N	<20	N	500	500	N	150

Table 9. Data for nonmagnetic heavy-mineral-concentrate samples - (continued)

Sample No.	Ni-ppm s	Pb-ppm s	Sb-ppm s	Sn-ppm s	Sr-ppm s	Th-ppm s	V-ppm s	W-ppm s	Y-ppm s	Zn-ppm s	Zr-ppm s
HR901P	15	N	N	N	1,000	200	200	N	500	N	>2,000
MO901P	N	20	N	50	N	300	700	<100	700	N	>2,000
MO902P	N	20	N	50	500	500	500	N	1,000	N	>2,000
MO903P	N	N	N	50	200	N	150	N	500	N	>2,000
MO904P	10	N	N	70	200	<200	100	N	1,000	N	>2,000
MO905P	10	30	N	100	200	2,000	300	N	1,000	N	>2,000
MO906P	10	N	N	N	1,000	N	300	N	300	N	>2,000
MO907P	10	20	N	30	1,500	N	200	N	300	N	>2,000
MO908P	10	20	N	N	500	N	200	N	300	N	>2,000
MO909P	10	20	N	N	700	N	300	N	500	N	>2,000
MO910P	N	N	N	N	N	<200	200	N	700	N	>2,000
MO911P	15	20	N	20	200	200	300	N	700	N	>2,000
MO912P	15	N	N	N	500	500	200	N	500	N	>2,000
MO913P	15	N	N	N	500	200	150	N	300	N	>2,000
MO914P	10	20	N	50	200	300	700	150	1,500	N	>2,000
MO915P	10	N	N	50	200	<200	200	N	1,000	N	>2,000
MO916P	10	N	N	N	300	N	300	N	500	N	>2,000
MO917P	N	N	N	30	700	N	500	N	500	N	>2,000
MO918P	N	N	N	N	500	N	500	N	500	N	>2,000
MO919P	15	N	N	N	700	<200	300	N	300	N	>2,000
MO920P	N	20	N	70	300	N	700	N	1,000	N	>2,000
MO921P	20	N	N	30	500	200	300	N	1,000	N	>2,000
MO922P	N	N	N	70	N	300	500	N	2,000	N	>2,000
MO923P	N	N	N	50	500	700	300	N	700	N	>2,000
MO924P	N	N	N	30	N	1,000	300	N	700	N	>2,000
MO925P	10	N	N	70	300	200	500	N	1,000	N	>2,000
MO926P	10	N	N	30	500	200	200	N	700	N	>2,000
MO927P	N	N	N	50	500	N	500	N	1,000	N	>2,000
MO928P	10	N	N	70	300	N	500	N	500	N	>2,000
MO929P	N	N	N	100	200	<200	500	N	1,500	N	>2,000
MO930P	10	N	N	70	N	N	500	N	1,000	N	>2,000
MO931P	N	N	N	50	N	N	500	N	1,500	N	>2,000
MO932P	10	N	N	100	N	300	200	N	1,000	N	>2,000
MO933P	15	N	N	50	300	500	150	N	1,000	N	>2,000
MO934P	N	N	N	50	N	200	300	N	1,500	N	>2,000
MO935P	20	50	N	70	200	700	500	200	1,500	N	>2,000
MO936P	15	N	N	N	1,500	N	200	N	200	N	>2,000
MO937P	10	N	N	30	1,000	200	300	N	500	N	>2,000
MO938P	10	20	N	30	500	<200	300	N	500	N	>2,000
MO939P	10	50	N	100	N	3,000	200	N	1,000	N	>2,000
MO940P	10	20	N	70	500	200	300	<100	700	N	>2,000
MO941P	N	N	N	70	200	200	300	N	1,000	N	>2,000
MO942P	15	N	N	N	1,500	N	200	N	200	N	>2,000
MO943P	20	N	N	N	500	N	500	N	300	N	>2,000
MO944P	10	N	N	N	N	200	200	N	500	N	>2,000

Table 9. Data for nonmagnetic heavy-mineral-concentrate samples - (continued)

Sample No.	Latitude	Longitude	UTM Easting	UTM Northing	Ca-pct s	Fe-pct s	Mg-pct s	Ti-pct s	Ag-ppm s	As-ppm s	Au-ppm s
MO945P	36 4 0	118 3 36	505,847.20	3,991,131.1	10	1.0	.20	>2	N	N	N
MO946P	36 2 42	118 7 38	499,800.01	3,988,733.5	5	2.0	.30	>2	N	N	N
MO947P	36 4 19	118 12 59	491,781.28	3,991,716.4	7	1.0	.50	>2	N	N	N
MO948P	36 5 53	118 14 17	489,814.50	3,994,640.0	7	2.0	.50	>2	N	N	N
MO949P	36 11 35	118 0 37	510,303.65	4,005,169.3	10	2.0	.30	>2	N	N	N
MO950P	36 7 8	118 14 31	489,474.31	3,996,948.5	7	1.0	.20	>2	N	N	N
MO951P	36 10 42	118 12 43	492,178.21	4,003,527.3	7	1.5	.20	>2	N	N	N
MO952P	36 10 15	118 6 33	501,427.28	4,002,693.3	10	1.5	.30	>2	N	N	N
MO953P	36 13 14	118 12 51	491,990.05	4,008,202.6	3	1.0	.20	>2	N	N	N
OL901P	36 15 27	118 7 58	499,307.32	4,012,295.1	7	1.0	.10	>2	N	N	N
OL905P	36 15 42	118 3 6	506,590.90	4,012,777.9	10	.7	.20	>2	N	N	N

Table 9. Data for nonmagnetic heavy-mineral-concentrate samples - (continued)

Sample No.	B-ppm s	Ba-ppm s	Be-ppm s	Bi-ppm s	Cd-ppm s	Co-ppm s	Cr-ppm s	Cu-ppm s	La-ppm s	Mn-ppm s	Mo-ppm s	Nb-ppm s
MO945P	20	500	2	N	N	N	20	<10	500	1,000	N	150
MO946P	50	700	<2	N	N	10	30	<10	1,000	1,500	N	200
MO947P	700	70	2	N	N	N	<20	N	500	700	N	70
MO948P	20	500	2	N	N	10	<20	15	300	1,500	30	300
MO949P	20	500	<2	N	N	N	20	N	>2,000	2,000	50	300
MO950P	20	500	<2	N	N	10	20	10	700	1,500	50	500
MO951P	30	500	<2	N	N	N	<20	N	500	2,000	N	150
MO952P	20	700	2	N	N	N	20	10	500	1,500	N	100
MO953P	20	500	<2	N	N	N	<20	<10	200	700	N	100
OL901P	20	500	<2	N	N	N	<20	N	1,500	1,500	N	200
OL905P	20	700	<2	N	N	N	<20	<10	1,000	1,000	N	150

Table 9. Data for nonmagnetic heavy-mineral-concentrate samples - (continued)

Sample No.	Ni-ppm s	Pb-ppm s	Sb-ppm s	Sn-ppm s	Sr-ppm s	Th-ppm s	V-ppm s	W-ppm s	Y-ppm s	Zn-ppm s	Zr-ppm s
MO945P	15	N	N	50	500	500	300	N	700	N	>2,000
MO946P	10	N	N	N	200	2,000	200	N	1,000	N	>2,000
MO947P	N	20	N	N	1,000	700	200	100	500	N	>2,000
MO948P	10	70	N	50	500	2,000	300	N	1,500	N	>2,000
MO949P	10	20	N	100	N	200	300	100	1,500	N	>2,000
MO950P	N	70	N	100	200	2,000	300	N	2,000	N	>2,000
MO951P	N	20	N	70	500	N	500	N	700	N	>2,000
MO952P	10	20	N	50	700	N	200	N	500	N	>2,000
MO953P	10	20	N	30	700	<200	200	N	300	N	>2,000
OL901P	N	N	N	30	200	<200	300	N	1,000	N	>2,000
OL905P	N	N	N	N	700	N	200	N	700	N	>2,000

EXPLANATION OF TABLES 10 THROUGH 12

S = spectrographic analysis
AA = atomic absorption analysis
CM = colorimetric analysis
VALUE = the analytical value
NO. = number of occurrences of this value
% = NO. as percent of total number of data values (ANAL)
CUM = number of unqualified records at and below this value
CUM %
(col 1) = unqualified values at or below this value, as percent of ANAL
(col 2) = unqualified values above this value, as percent of ANAL
TOT CUM = number of values (N, L, + unqual.) at or below this value
TOT CUM %
(col 1) = values at or below this value, as percent of ANAL
(col 2) = values above this value, as percent of ANAL

N - value = number of values qualified with 'N' (= not detected)
- percent = percent of all values (ANAL)
L - value = number of values qualified with 'L' (= less than)
- percent = percent of all values (ANAL)
G - value = number of values qualified with 'G' (= greater than)
- percent = percent of all values (ANAL)
UNQUAL = number of unqualified data values
- percent = percent of values (ANAL)
ANAL = total number of valid data values (= unqualified = N, L, or G)
READ = number of samples read

MIN = minimum unqualified value
MAX = maximum unqualified value
AMEAN = arithmetic mean of unqualified values
SD = standard deviation of the unqualified values
GMEAN = geometric mean of unqualified values
GD = geometric deviation of unqualified values
VALUES = number of data values used to compute the above statistics.

Table 10. Frequency tables and histograms for rock samples

S-Ca %

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	0.200	3	6.82	3	6.8	90.9	4	9.1	90.9
2	0.300	2	4.55	5	11.4	86.4	6	13.6	86.4
3	0.500	3	6.82	8	18.2	79.5	9	20.5	79.5
4	0.700	1	2.27	9	20.5	77.3	10	22.7	77.3
5	1.000	4	9.09	13	29.5	68.2	14	31.8	68.2
6	1.500	3	6.82	16	36.4	61.4	17	38.6	61.4
7	2.000	6	13.64	22	50.0	47.7	23	52.3	47.7
8	3.000	5	11.36	27	61.4	36.4	28	63.6	36.4
9	5.000	13	29.55	40	90.9	6.8	41	93.2	6.8
10	7.000	1	2.27	41	93.2	4.5	42	95.5	4.5
11	10.000	2	4.55	43	97.7	0.0	44	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	0	1	0	0	43	44	44	VALUES
0.0	0.0	0.0	0.0	2.3	0.0	0.0	97.7			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
0.200	10.00	3.044	2.47	1.948	3.00	43

```
                          Percent of Values
       0.00               10.00               20.00               30.00
                 5.00               15.00               25.00
         +---------+---------+---------+---------+---------+---------+
  0.200  +XXXXXXXXXXXXX|
  0.300  +XXXXXXXX|
  0.500  +XXXXXXXXXXXXX|
  0.700  +XXXX|
  1.000  +XXXXXXXXXXXXXXXXX|
  1.500  +XXXXXXXXXXXXX|
  2.000  +XXXXXXXXXXXXXXXXXXXXXXXXXX|
  3.000  +XXXXXXXXXXXXXXXXXXXXXX|
  5.000  +XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX|
  7.000  +XXXX|
 10.000  +XXXXXXXX|
         +---------+---------+---------+---------+---------+---------+
       0.00               10.00               20.00               30.00
                 5.00               15.00               25.00

       Each increment (each X or | plotted) =      0.500 %
```

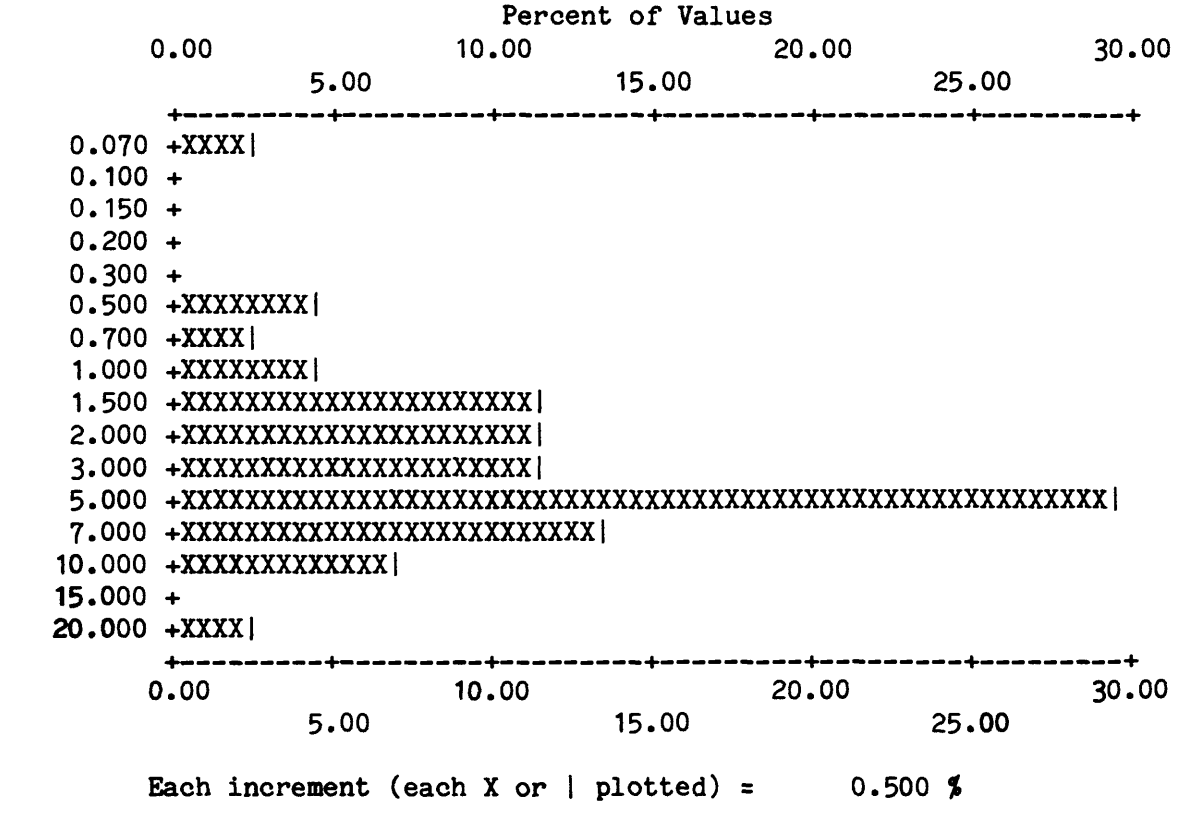
Table 10. Frequency tables and histograms for rock samples - (continued)

S-Fe %

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	0.070	1	2.27	1	2.3	97.7	1	2.3	97.7
2	0.500	2	4.55	3	6.8	93.2	3	6.8	93.2
3	0.700	1	2.27	4	9.1	90.9	4	9.1	90.9
4	1.000	2	4.55	6	13.6	86.4	6	13.6	86.4
5	1.500	5	11.36	11	25.0	75.0	11	25.0	75.0
6	2.000	5	11.36	16	36.4	63.6	16	36.4	63.6
7	3.000	5	11.36	21	47.7	52.3	21	47.7	52.3
8	5.000	13	29.55	34	77.3	22.7	34	77.3	22.7
9	7.000	6	13.64	40	90.9	9.1	40	90.9	9.1
10	10.000	3	6.82	43	97.7	2.3	43	97.7	2.3
11	20.000	1	2.27	44	100.0	0.0	44	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	0	0	0	0	44	44	44	VALUES
0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
0.070	20.00	4.392	3.57	3.051	2.75	44



Each increment (each X or | plotted) = 0.500 %

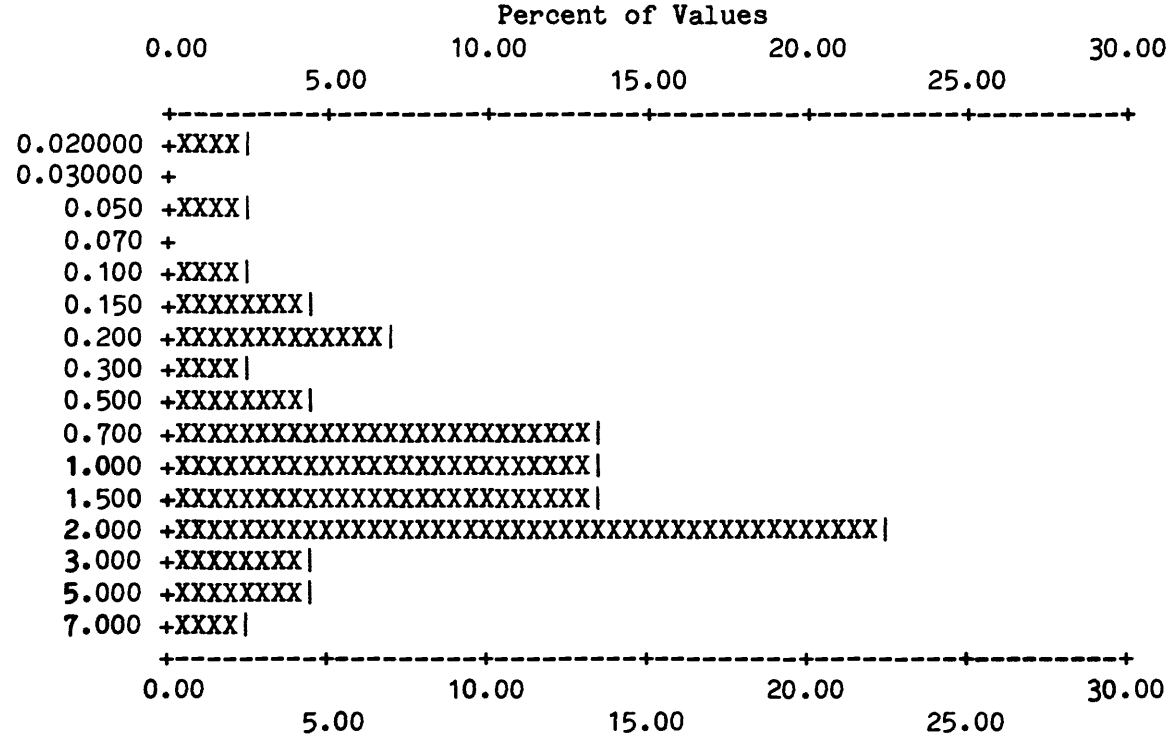
Table 10. Frequency tables and histograms for rock samples - (continued)

S-Mg %

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	0.020	1	2.27	1	2.3	97.7	1	2.3	97.7
2	0.050	1	2.27	2	4.5	95.5	2	4.5	95.5
3	0.100	1	2.27	3	6.8	93.2	3	6.8	93.2
4	0.150	2	4.55	5	11.4	88.6	5	11.4	88.6
5	0.200	3	6.82	8	18.2	81.8	8	18.2	81.8
6	0.300	1	2.27	9	20.5	79.5	9	20.5	79.5
7	0.500	2	4.55	11	25.0	75.0	11	25.0	75.0
8	0.700	6	13.64	17	38.6	61.4	17	38.6	61.4
9	1.000	6	13.64	23	52.3	47.7	23	52.3	47.7
10	1.500	6	13.64	29	65.9	34.1	29	65.9	34.1
11	2.000	10	22.73	39	88.6	11.4	39	88.6	11.4
12	3.000	2	4.55	41	93.2	6.8	41	93.2	6.8
13	5.000	2	4.55	43	97.7	2.3	43	97.7	2.3
14	7.000	1	2.27	44	100.0	0.0	44	100.0	0.0

B N	T L	H G	OTHER		UNQUAL	ANAL	READ			
0	0	0	0	0	0	0	44	44	44	VALUES
0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
0.020	7.00	1.468	1.41	0.876	3.39	44



Each increment (each X or | plotted) = 0.500 %

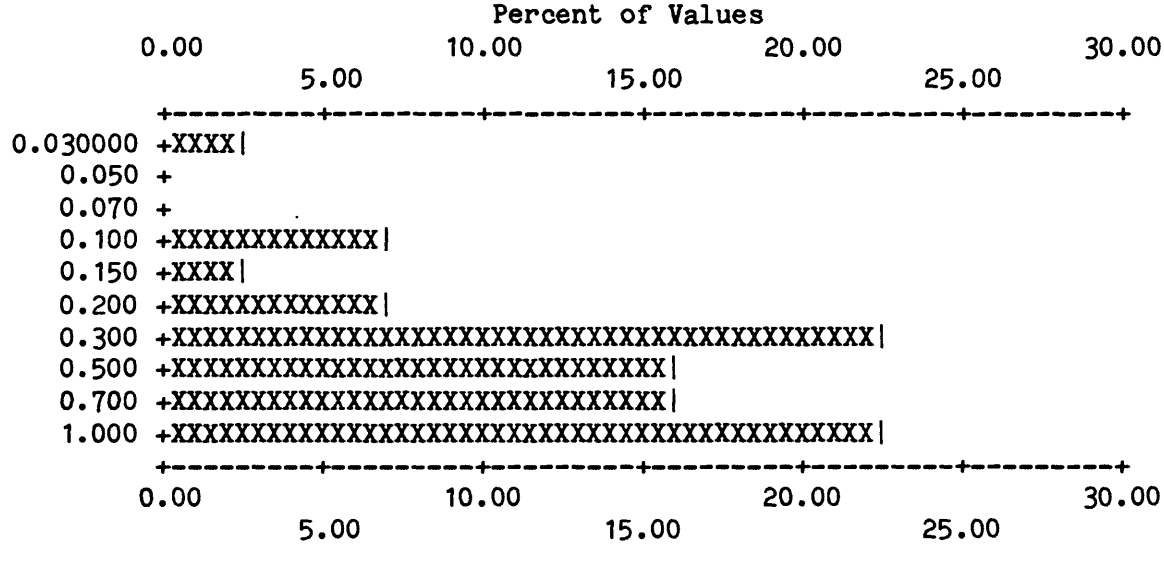
Table 10. Frequency tables and histograms for rock samples - (continued)

S-Ti %

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	0.030	1	2.27	1	2.3	93.2	1	2.3	97.7
2	0.100	3	6.82	4	9.1	86.4	4	9.1	90.9
3	0.150	1	2.27	5	11.4	84.1	5	11.4	88.6
4	0.200	3	6.82	8	18.2	77.3	8	18.2	81.8
5	0.300	10	22.73	18	40.9	54.5	18	40.9	59.1
6	0.500	7	15.91	25	56.8	38.6	25	56.8	43.2
7	0.700	7	15.91	32	72.7	22.7	32	72.7	27.3
8	1.000	10	22.73	42	95.5	0.0	42	95.5	4.5

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	0	0	2	0	42	44	44	VALUES
0.0	0.0	0.0	0.0	0.0	4.5	0.0	95.5			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
0.030	1.00	0.535	0.32	0.419	2.24	42



Each increment (each X or | plotted) = 0.500 %

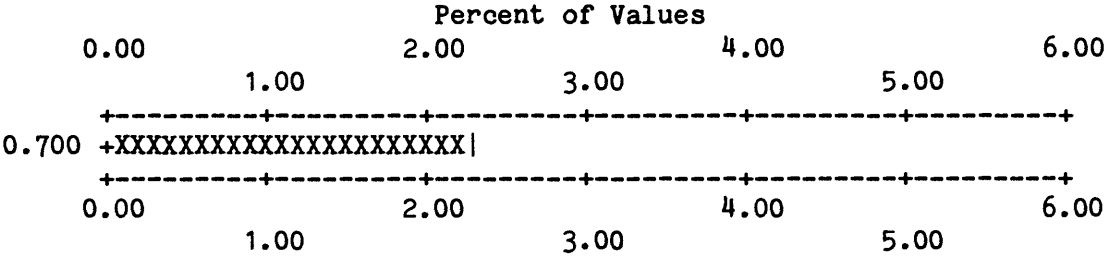
Table 10. Frequency tables and histograms for rock samples - (continued)

S-Ag

	VALUE	NO.	%	CUM.	CUM. %	TOT CUM	TOT CUM %
1	0.700	1	2.27	1	2.3	44	100.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	39	4	0	0	1	44	44	VALUES
0.0	0.0	0.0	88.6	9.1	0.0	0.0	2.3			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
0.700	0.70	0.700	0.00	0.700	********	1



Each increment (each X or | plotted) = 0.100 %

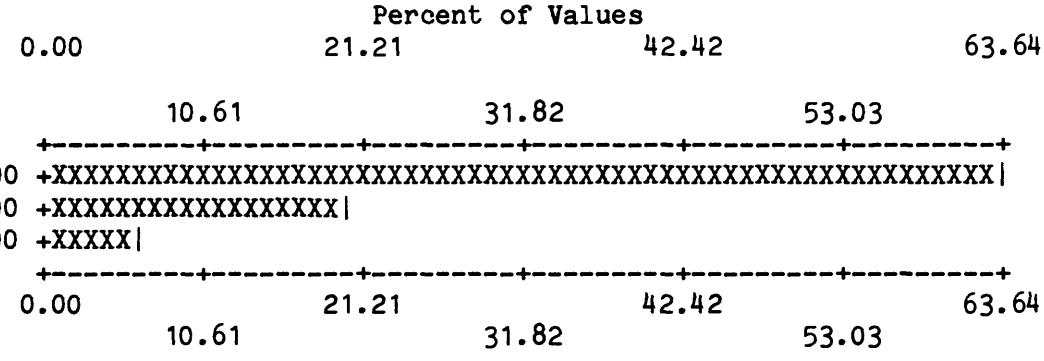
Table 10. Frequency tables and histograms for rock samples - (continued)

S-B

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	10.000	28	63.64	28	63.6	27.3	32	72.7	27.3
2	15.000	9	20.45	37	84.1	6.8	41	93.2	6.8
3	20.000	3	6.82	40	90.9	0.0	44	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	0	4	0	0	40	44	44	VALUES
0.0	0.0	0.0	0.0	9.1	0.0	0.0	90.9			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
10.000	20.00	11.875	3.14	11.540	1.26	40



Each increment (each X or | plotted) = 1.061 %

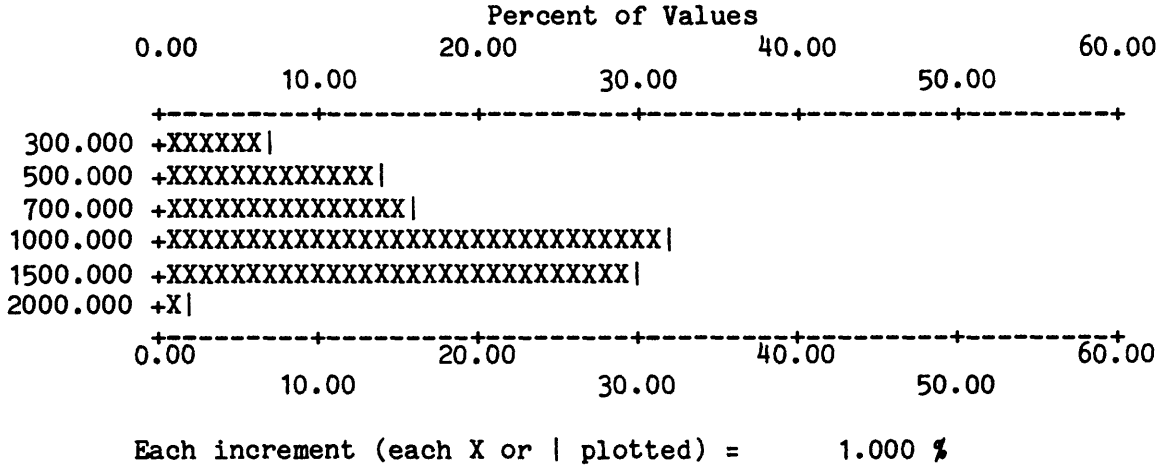
Table 10. Frequency tables and histograms for rock samples - (continued)

S-Ba

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	300.000	3	6.82	3	6.8	93.2	3	6.8	93.2
2	500.000	6	13.64	9	20.5	79.5	9	20.5	79.5
3	700.000	7	15.91	16	36.4	63.6	16	36.4	63.6
4	1000.000	14	31.82	30	68.2	31.8	30	68.2	31.8
5	1500.000	13	29.55	43	97.7	2.3	43	97.7	2.3
6	2000.000	1	2.27	44	100.0	0.0	44	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	0	0	0	0	44	44	44	VALUES
0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
300.000	2000.00	1006.818	427.21	906.828	1.63	44



Each increment (each X or | plotted) = 1.000 %

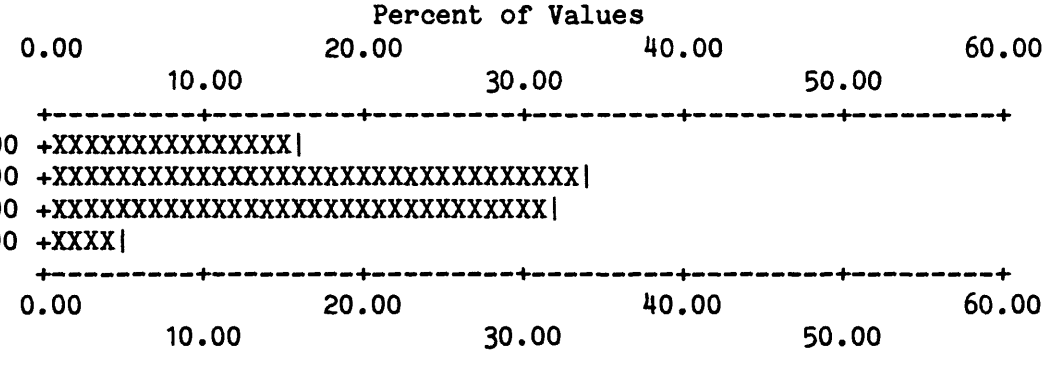
Table 10. Frequency tables and histograms for rock samples - (continued)

S-Be

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	1.000	7	15.91	7	15.9	70.5	13	29.5	70.5
2	1.500	15	34.09	22	50.0	36.4	28	63.6	36.4
3	2.000	14	31.82	36	81.8	4.5	42	95.5	4.5
4	3.000	2	4.55	38	86.4	0.0	44	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	0	6	0	0	38	44	44	VALUES
0.0	0.0	0.0	0.0	13.6	0.0	0.0	86.4			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
1.000	3.00	1.671	0.48	1.605	1.34	38



Each increment (each X or | plotted) = 1.000 %

Table 10. Frequency tables and histograms for rock samples - (continued)

S-Co

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	5.000	5	11.36	5	11.4	63.6	16	36.4	63.6
2	10.000	6	13.64	11	25.0	50.0	22	50.0	50.0
3	15.000	3	6.82	14	31.8	43.2	25	56.8	43.2
4	20.000	11	25.00	25	56.8	18.2	36	81.8	18.2
5	30.000	6	13.64	31	70.5	4.5	42	95.5	4.5
6	50.000	2	4.55	33	75.0	0.0	44	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	11	0	0	0	33	44	44	VALUES
0.0	0.0	0.0	25.0	0.0	0.0	0.0	75.0			PERCENT

MIN	MAX					
AMEAN	SD	GMEAN	GD	VALUES		
5.000	50.00	19.091	11.42	15.844	1.92	33

```
                                Percent of Values
          0.00                  10.00                 20.00                 30.00
                    5.00                  15.00                 25.00
           +---------+---------+---------+---------+---------+---------+
 5.000 +XXXXXXXXXXXXXXXXXXXXX|
 7.000 +
10.000 +XXXXXXXXXXXXXXXXXXXXXXXXX|
15.000 +XXXXXXXXXXXXX|
20.000 +XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX|
30.000 +XXXXXXXXXXXXXXXXXXXXXXXXX|
50.000 +XXXXXXXX|
           +---------+---------+---------+---------+---------+---------+
          0.00                  10.00                 20.00
               30.00
                    5.00                  15.00                 25.00

          Each increment (each X or | plotted) =      0.500 %
```

Table 10. Frequency tables and histograms for rock samples - (continued)

S-Cr

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	10.000	8	18.18	8	18.2	25.0	33	75.0	25.0
2	15.000	2	4.55	10	22.7	20.5	35	79.5	20.5
3	20.000	5	11.36	15	34.1	9.1	40	90.9	9.1
4	30.000	2	4.55	17	38.6	4.5	42	95.5	4.5
5	70.000	1	2.27	18	40.9	2.3	43	97.7	2.3
6	100.000	1	2.27	19	43.2	0.0	44	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	8	17	0	0	19	44	44	VALUES
0.0	0.0	0.0	18.2	38.6	0.0	0.0	43.2			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
10.000	100.00	23.158	23.29	17.583	1.96	19

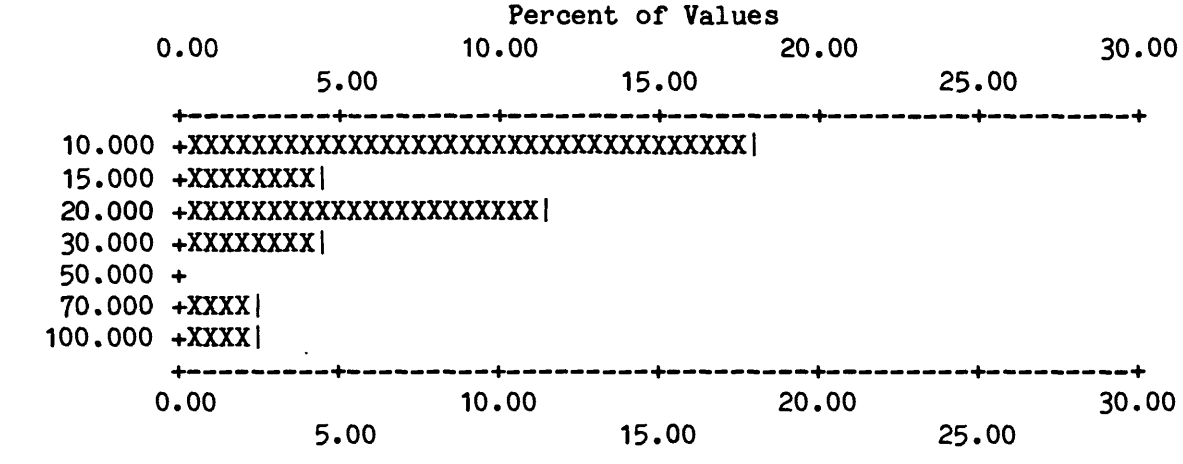


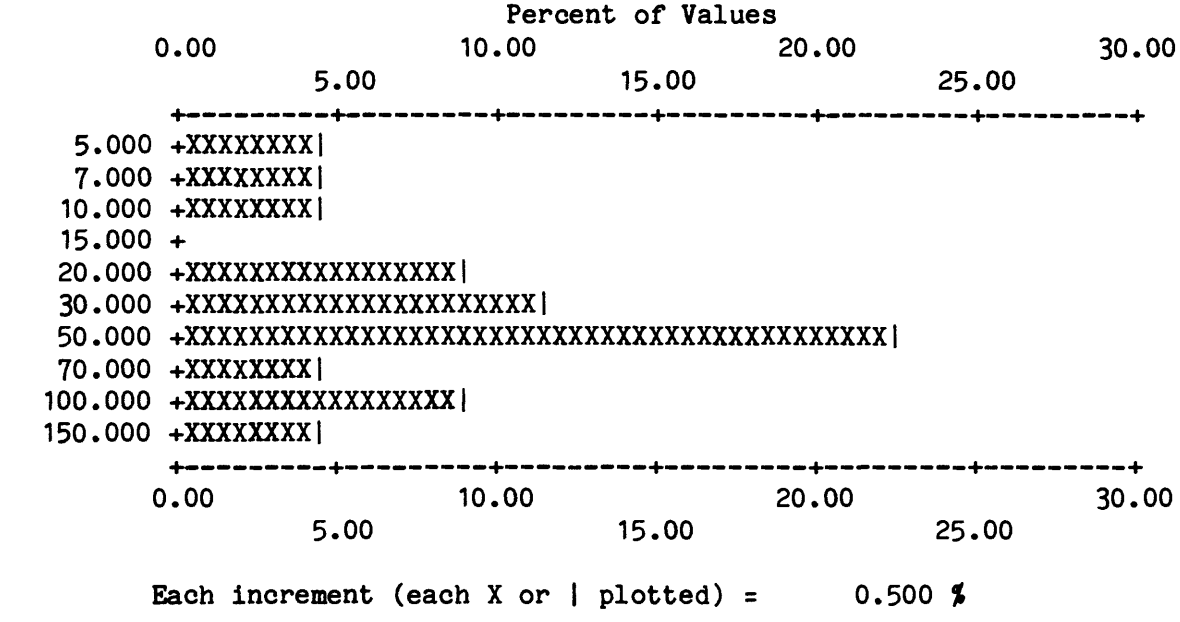
Table 10. Frequency tables and histograms for rock samples - (continued)

S-Cu

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	5.000	2	4.55	2	4.5	70.5	13	29.5	70.5
2	7.000	2	4.55	4	9.1	65.9	15	34.1	65.9
3	10.000	2	4.55	6	13.6	61.4	17	38.6	61.4
4	20.000	4	9.09	10	22.7	52.3	21	47.7	52.3
5	30.000	5	11.36	15	34.1	40.9	26	59.1	40.9
6	50.000	10	22.73	25	56.8	18.2	36	81.8	18.2
7	70.000	2	4.55	27	61.4	13.6	38	86.4	13.6
8	100.000	4	9.09	31	70.5	4.5	42	95.5	4.5
9	150.000	2	4.55	33	75.0	0.0	44	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	11	0	0	0	33	44	44	VALUES
0.0	0.0	0.0	25.0	0.0	0.0	0.0	75.0			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
5.000	150.00	48.909	38.45	34.408	2.55	33



Each increment (each X or | plotted) = 0.500 %

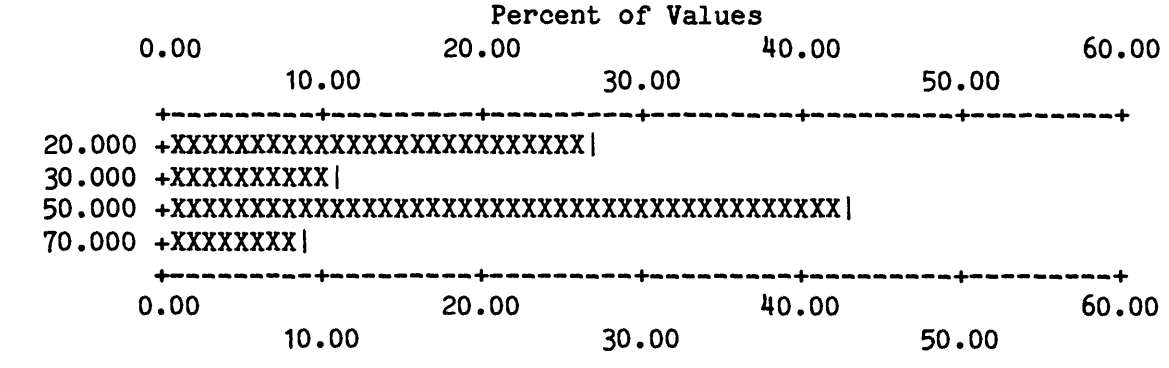
Table 10. Frequency tables and histograms for rock samples - (continued)

S-La

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	20.000	12	27.27	12	27.3	63.6	16	36.4	63.6
2	30.000	5	11.36	17	38.6	52.3	21	47.7	52.3
3	50.000	19	43.18	36	81.8	9.1	40	90.9	9.1
4	70.000	4	9.09	40	90.9	0.0	44	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	2	2	0	0	40	44	44	VALUES
0.0	0.0	0.0	4.5	4.5	0.0	0.0	90.9			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
20.000	70.00	40.500	16.63	36.853	1.58	40



Each increment (each X or | plotted) = 1.000 %

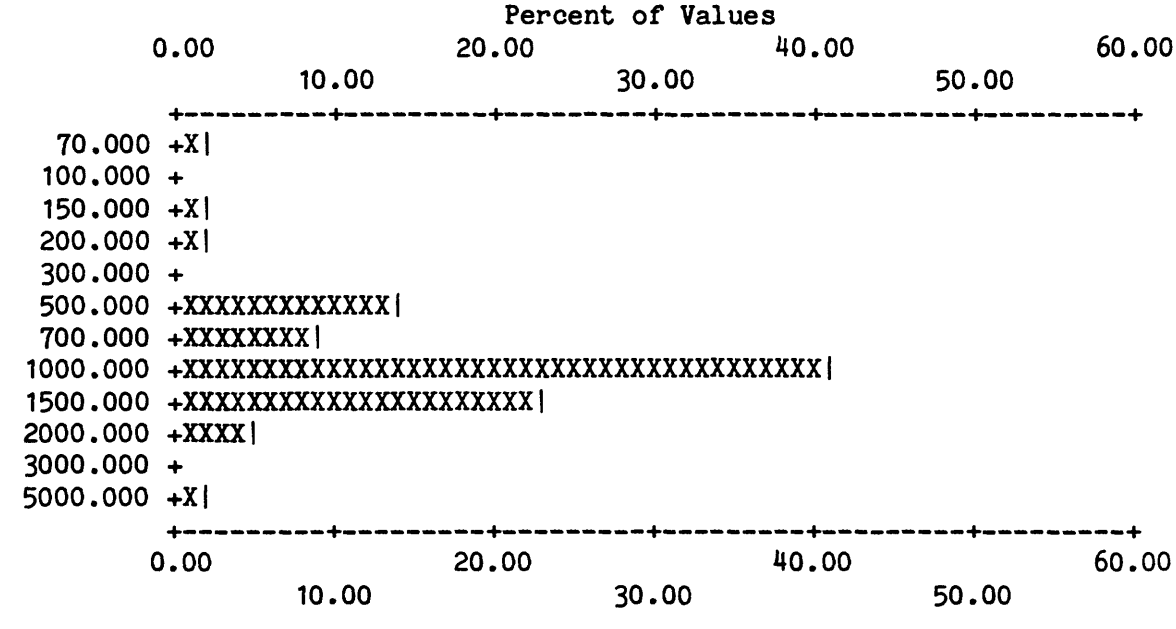
Table 10. Frequency tables and histograms for rock samples - (continued)

S-Mn

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	70.000	1	2.27	1	2.3	97.7	1	2.3	97.7
2	150.000	1	2.27	2	4.5	95.5	2	4.5	95.5
3	200.000	1	2.27	3	6.8	93.2	3	6.8	93.2
4	500.000	6	13.64	9	20.5	79.5	9	20.5	79.5
5	700.000	4	9.09	13	29.5	70.5	13	29.5	70.5
6	1000.000	18	40.91	31	70.5	29.5	31	70.5	29.5
7	1500.000	10	22.73	41	93.2	6.8	41	93.2	6.8
8	2000.000	2	4.55	43	97.7	2.3	43	97.7	2.3
9	5000.000	1	2.27	44	100.0	0.0	44	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	0	0	0	0	44	44	44	VALUES
0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
70.000	5000.00	1095.909	749.93	898.668	2.02	44



Each increment (each X or | plotted) = 1.000 %

Table 10. Frequency tables and histograms for rock samples - (continued)

S-Mo

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	5.000	1	2.27	1	2.3	54.5	20	45.5	54.5
2	7.000	3	6.82	4	9.1	47.7	23	52.3	47.7
3	10.000	3	6.82	7	15.9	40.9	26	59.1	40.9
4	15.000	10	22.73	17	38.6	18.2	36	81.8	18.2
5	20.000	6	13.64	23	52.3	4.5	42	95.5	4.5
6	30.000	2	4.55	25	56.8	0.0	44	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	19	0	0	0	25	44	44	VALUES
0.0	0.0	0.0	43.2	0.0	0.0	0.0	56.8			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
5.000	30.00	15.440	6.33	14.133	1.56	25

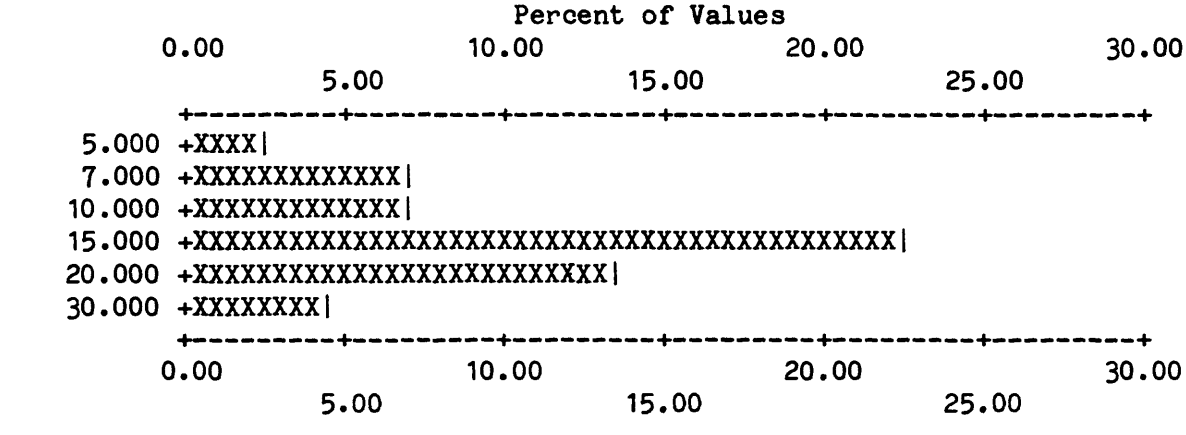


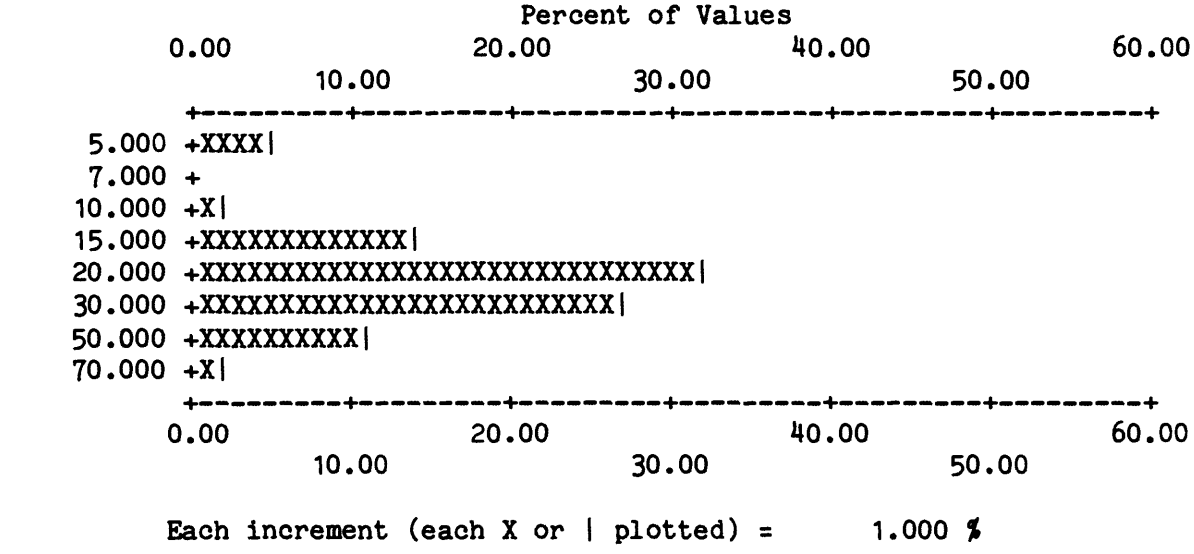
Table 10. Frequency tables and histograms for rock samples - (continued)

S-Ni

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	5.000	2	4.55	2	4.5	88.6	5	11.4	88.6
2	10.000	1	2.27	3	6.8	86.4	6	13.6	86.4
3	15.000	6	13.64	9	20.5	72.7	12	27.3	72.7
4	20.000	14	31.82	23	52.3	40.9	26	59.1	40.9
5	30.000	12	27.27	35	79.5	13.6	38	86.4	13.6
6	50.000	5	11.36	40	90.9	2.3	43	97.7	2.3
7	70.000	1	2.27	41	93.2	0.0	44	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	3	0	0	0	41	44	44	VALUES
0.0	0.0	0.0	6.8	0.0	0.0	0.0	93.2			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
5.000	70.00	26.098	13.58	22.876	1.72	41



Each increment (each X or | plotted) = 1.000 %

Table 10. Frequency tables and histograms for rock samples - (continued)

S-Pb

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	10.000	10	22.73	10	22.7	68.2	14	31.8	68.2
2	15.000	1	2.27	11	25.0	65.9	15	34.1	65.9
3	20.000	21	47.73	32	72.7	18.2	36	81.8	18.2
4	30.000	5	11.36	37	84.1	6.8	41	93.2	6.8
5	50.000	3	6.82	40	90.9	0.0	44	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	4	0	0	0	40	44	44	VALUES
0.0	0.0	0.0	9.1	0.0	0.0	0.0	90.9			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
10.000	50.00	20.875	10.37	18.815	1.58	40

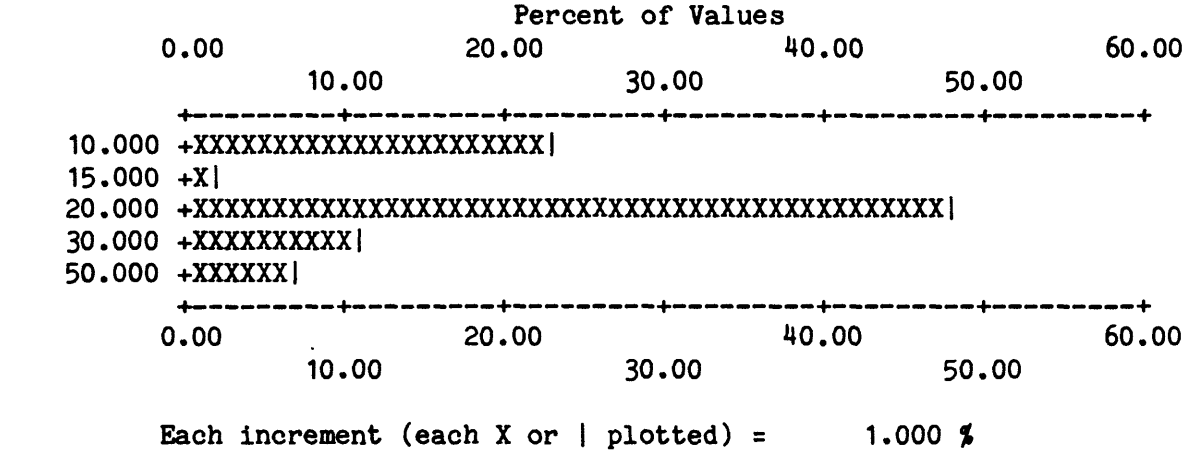


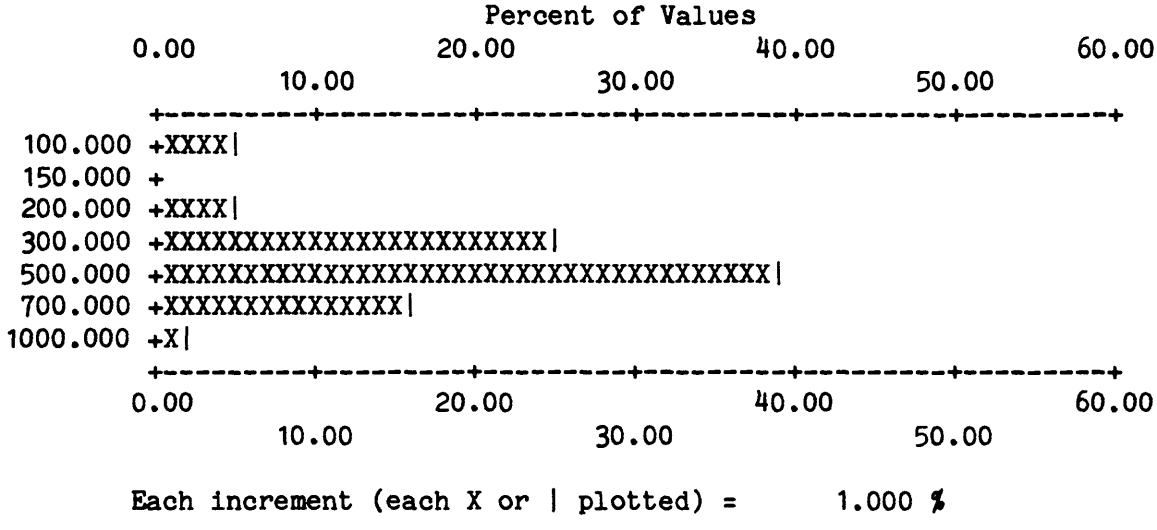
Table 10. Frequency tables and histograms for rock samples - (continued)

S-Sr

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	100.000	2	4.55	2	4.5	86.4	6	13.6	86.4
2	200.000	2	4.55	4	9.1	81.8	8	18.2	81.8
3	300.000	11	25.00	15	34.1	56.8	19	43.2	56.8
4	500.000	17	38.64	32	72.7	18.2	36	81.8	18.2
5	700.000	7	15.91	39	88.6	2.3	43	97.7	2.3
6	1000.000	1	2.27	40	90.9	0.0	44	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	4	0	0	0	40	44	44	VALUES
0.0	0.0	0.0	9.1	0.0	0.0	0.0	90.9			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
100.000	1000.00	457.500	189.31	413.251	1.64	40



Each increment (each X or | plotted) = 1.000 %

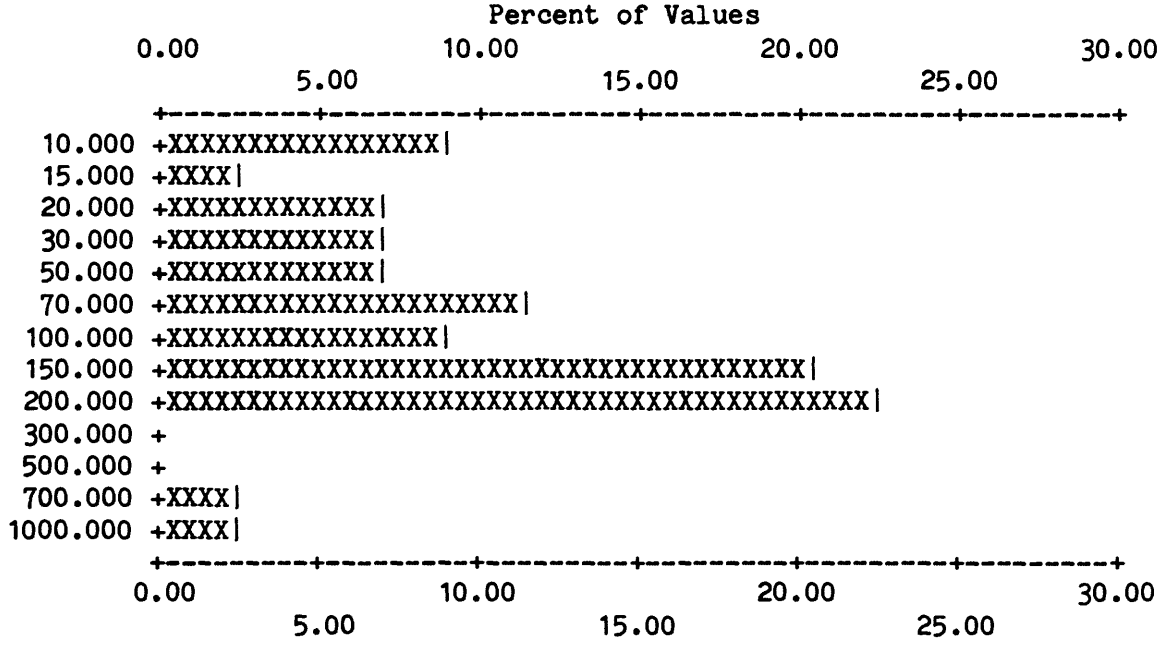
Table 10. Frequency tables and histograms for rock samples - (continued)

S-V

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	10.000	4	9.09	4	9.1	90.9	4	9.1	90.9
2	15.000	1	2.27	5	11.4	88.6	5	11.4	88.6
3	20.000	3	6.82	8	18.2	81.8	8	18.2	81.8
4	30.000	3	6.82	11	25.0	75.0	11	25.0	75.0
5	50.000	3	6.82	14	31.8	68.2	14	31.8	68.2
6	70.000	5	11.36	19	43.2	56.8	19	43.2	56.8
7	100.000	4	9.09	23	52.3	47.7	23	52.3	47.7
8	150.000	9	20.45	32	72.7	27.3	32	72.7	27.3
9	200.000	10	22.73	42	95.5	4.5	42	95.5	4.5
10	700.000	1	2.27	43	97.7	2.3	43	97.7	2.3
11	1000.000	1	2.27	44	100.0	0.0	44	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	0	0	0	0	44	44	44	VALUES
0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
10.000	1000.00	139.886	174.41	82.281	3.03	44



Each increment (each X or | plotted) = 0.500 %

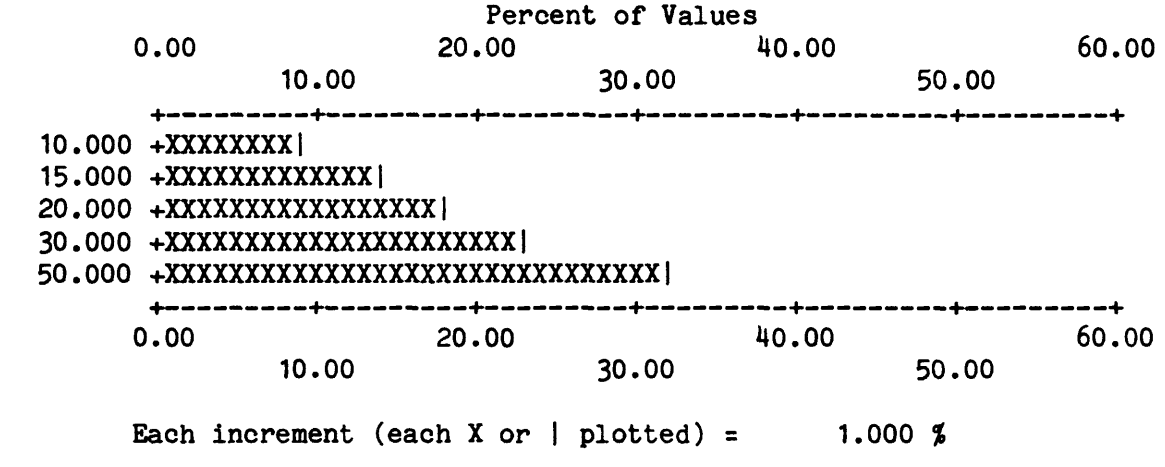
Table 10. Frequency tables and histograms for rock samples - (continued)

S-Y

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	10.000	4	9.09	4	9.1	86.4	6	13.6	86.4
2	15.000	6	13.64	10	22.7	72.7	12	27.3	72.7
3	20.000	8	18.18	18	40.9	54.5	20	45.5	54.5
4	30.000	10	22.73	28	63.6	31.8	30	68.2	31.8
5	50.000	14	31.82	42	95.5	0.0	44	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	2	0	0	0	42	44	44	VALUES
0.0	0.0	0.0	4.5	0.0	0.0	0.0	95.5			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
10.000	50.00	30.714	15.08	26.859	1.72	42



Each increment (each X or | plotted) = 1.000 %

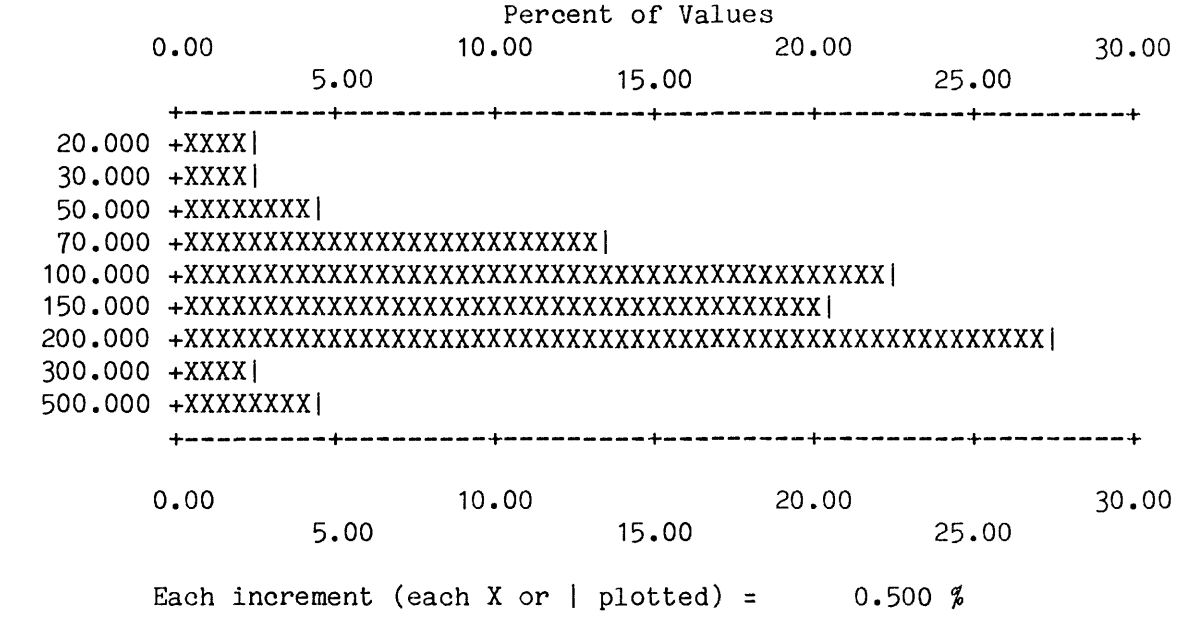
Table 10. Frequency tables and histograms for rock samples - (continued)

S-Zr

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	20.000	1	2.27	1	2.3	97.7	1	2.3	97.7
2	30.000	1	2.27	2	4.5	95.5	2	4.5	95.5
3	50.000	2	4.55	4	9.1	90.9	4	9.1	90.9
4	70.000	6	13.64	10	22.7	77.3	10	22.7	77.3
5	100.000	10	22.73	20	45.5	54.5	20	45.5	54.5
6	150.000	9	20.45	29	65.9	34.1	29	65.9	34.1
7	200.000	12	27.27	41	93.2	6.8	41	93.2	6.8
8	300.000	1	2.27	42	95.5	4.5	42	95.5	4.5
9	500.000	2	4.55	44	100.0	0.0	44	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	0	0	0	0	44	44	44	VALUES
0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
20.000	500.00	150.455	97.91	125.360	1.88	44



Each increment (each X or | plotted) = 0.500 %

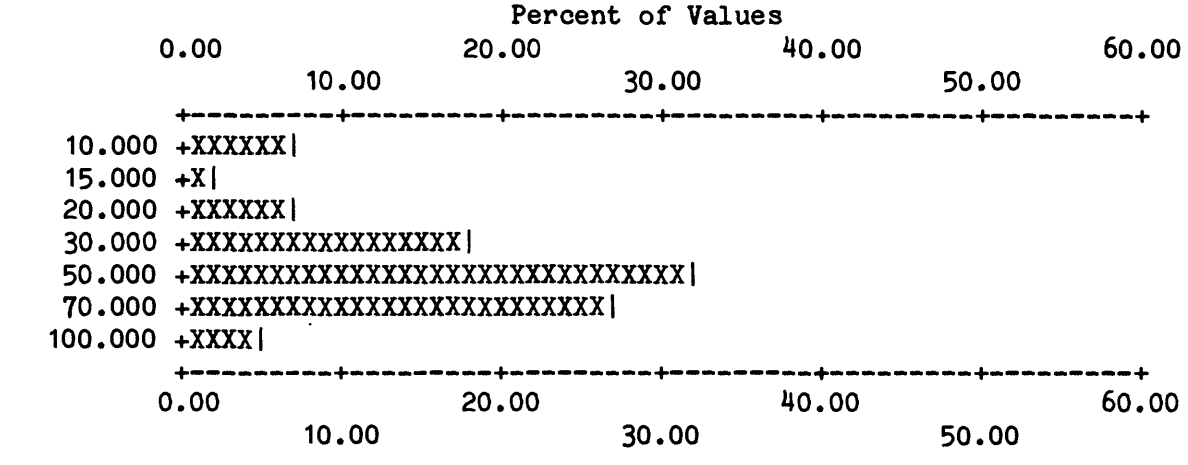
Table 10. Frequency tables and histograms for rock samples - (continued)

AA-Zn

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	10.000	3	6.82	3	6.8	90.9	4	9.1	90.9
2	15.000	1	2.27	4	9.1	88.6	5	11.4	88.6
3	20.000	3	6.82	7	15.9	81.8	8	18.2	81.8
4	30.000	8	18.18	15	34.1	63.6	16	36.4	63.6
5	50.000	14	31.82	29	65.9	31.8	30	68.2	31.8
6	70.000	12	27.27	41	93.2	4.5	42	95.5	4.5
7	100.000	2	4.55	43	97.7	0.0	44	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	1	0	0	0	43	44	44	VALUES
0.0	0.0	0.0	2.3	0.0	0.0	0.0	97.7			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
10.000	100.00	48.488	22.69	42.052	1.81	43



Each increment (each X or | plotted) = 1.000 %

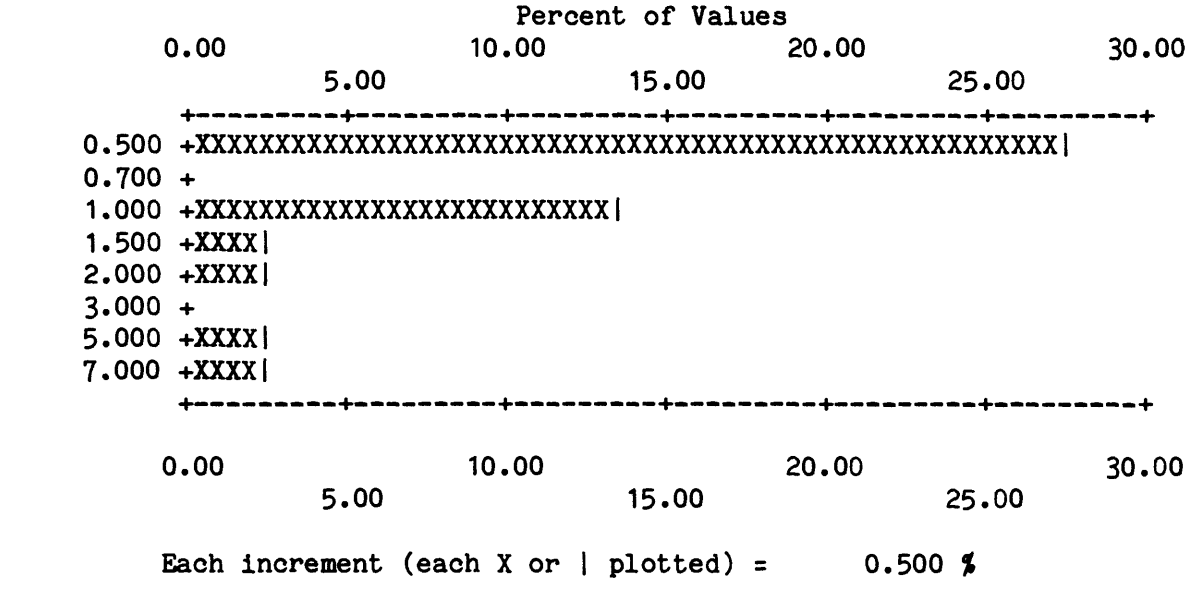
Table 10. Frequency tables and histograms for rock samples - (continued)

CM-W

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	0.500	12	27.27	12	27.3	22.7	34	77.3	22.7
2	1.000	6	13.64	18	40.9	9.1	40	90.9	9.1
3	1.500	1	2.27	19	43.2	6.8	41	93.2	6.8
4	2.000	1	2.27	20	45.5	4.5	42	95.5	4.5
5	5.000	1	2.27	21	47.7	2.3	43	97.7	2.3
6	7.000	1	2.27	22	50.0	0.0	44	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	22	0	0	0	22	44	44	VALUES
0.0	0.0	0.0	50.0	0.0	0.0	0.0	50.0			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
0.500	7.00	1.250	1.62	0.847	2.14	22



Each increment (each X or | plotted) = 0.500 %

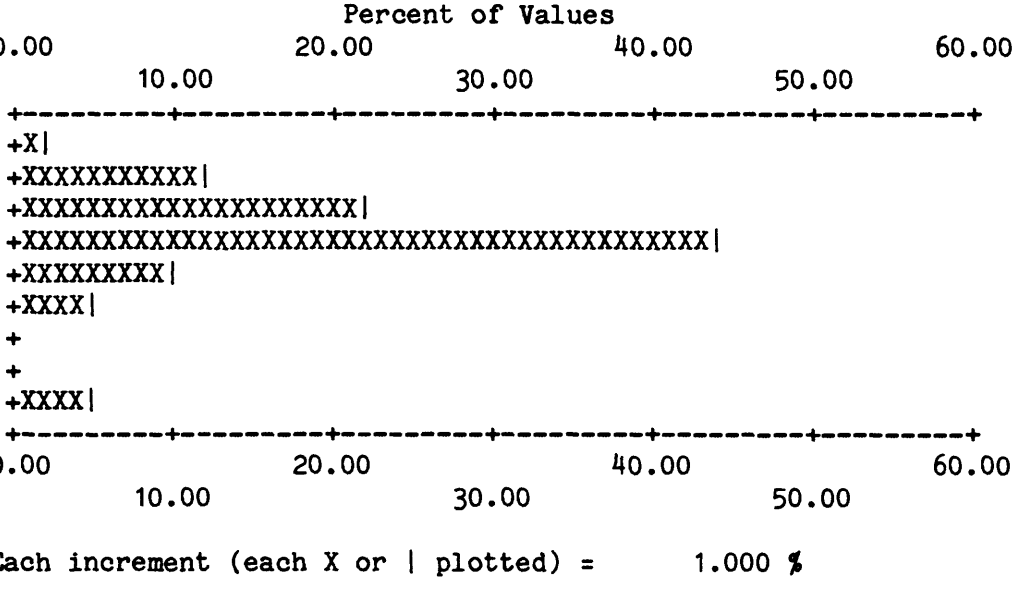
Table 11. Frequency tables and histograms for stream-sediment samples

S-Ca %

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	0.700	1	1.69	1	1.7	98.3	1	1.7	98.3
2	1.000	7	11.86	8	13.6	86.4	8	13.6	86.4
3	1.500	13	22.03	21	35.6	64.4	21	35.6	64.4
4	2.000	26	44.07	47	79.7	20.3	47	79.7	20.3
5	3.000	6	10.17	53	89.8	10.2	53	89.8	10.2
6	5.000	3	5.08	56	94.9	5.1	56	94.9	5.1
7	15.000	3	5.08	59	100.0	0.0	59	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	0	0	0	0	59	59	59	VALUES
0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
0.700	15.00	2.664	3.01	2.054	1.83	59



Each increment (each X or | plotted) = 1.000 %

Table 11. Frequency tables and histograms for stream-sediment samples - (continued)

S-Fe %

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	2.000	1	1.69	1	1.7	86.4	1	1.7	98.3
2	3.000	2	3.39	3	5.1	83.1	3	5.1	94.9
3	5.000	5	8.47	8	13.6	74.6	8	13.6	86.4
4	7.000	7	11.86	15	25.4	62.7	15	25.4	74.6
5	10.000	26	44.07	41	69.5	18.6	41	69.5	30.5
6	15.000	6	10.17	47	79.7	8.5	47	79.7	20.3
7	20.000	5	8.47	52	88.1	0.0	52	88.1	11.9

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	0	0	7	0	52	59	59	VALUES
0.0	0.0	0.0	0.0	0.0	11.9	0.0	88.1			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
2.000	20.00	10.231	4.42	9.245	1.62	52

```
                         Percent of Values
         0.00                20.00               40.00               60.00
                   10.00               30.00               50.00
         +---------+---------+---------+---------+---------+---------+
  2.000  +X|
  3.000  +XX|
  5.000  +XXXXXXX|
  7.000  +XXXXXXXXXXX|
 10.000  +XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX|
 15.000  +XXXXXXXXX|
 20.000  +XXXXXXX|
         +---------+---------+---------+---------+---------+---------+
         0.00                20.00               40.00               60.00
                   10.00               30.00               50.00
```

Each increment (each X or | plotted) = 1.000 %

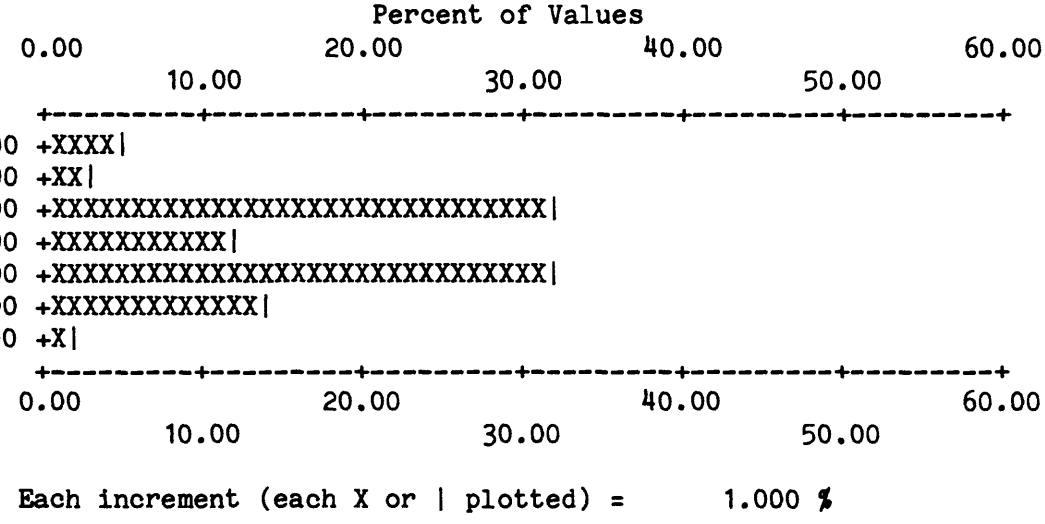
Table 11. Frequency tables and histograms for stream-sediment samples - (continued)

S-Mg %

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	0.500	3	5.08	3	5.1	94.9	3	5.1	94.9
2	0.700	2	3.39	5	8.5	91.5	5	8.5	91.5
3	1.000	19	32.20	24	40.7	59.3	24	40.7	59.3
4	1.500	7	11.86	31	52.5	47.5	31	52.5	47.5
5	2.000	19	32.20	50	84.7	15.3	50	84.7	15.3
6	3.000	8	13.56	58	98.3	1.7	58	98.3	1.7
7	5.000	1	1.69	59	100.0	0.0	59	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	0	0	0	0	59	59	59	VALUES
0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
0.500	5.00	1.685	0.85	1.492	1.66	59



Each increment (each X or | plotted) = 1.000 %

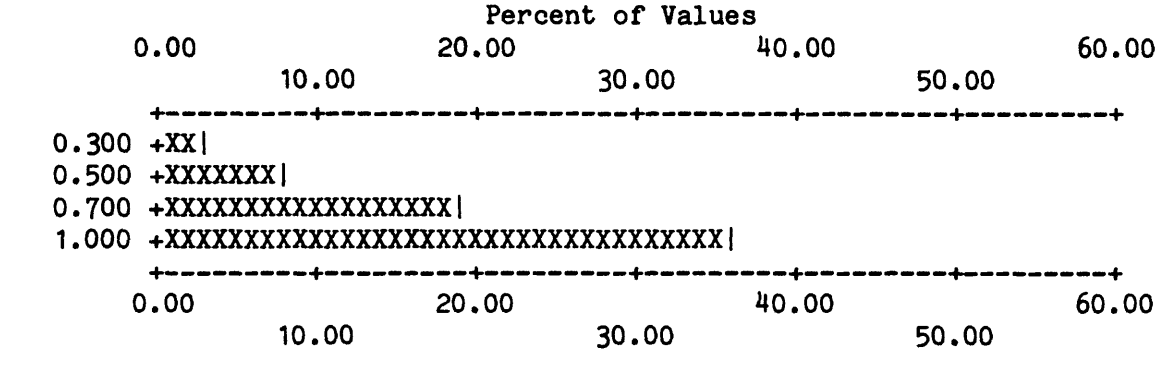
Table 11. Frequency tables and histograms for stream-sediment samples - (continued)

S-Ti %

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	0.300	2	3.39	2	3.4	62.7	2	3.4	96.6
2	0.500	5	8.47	7	11.9	54.2	7	11.9	88.1
3	0.700	11	18.64	18	30.5	35.6	18	30.5	69.5
4	1.000	21	35.59	39	66.1	0.0	39	66.1	33.9

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	0	0	20	0	39	59	59	VALUES
0.0	0.0	0.0	0.0	0.0	33.9	0.0	66.1			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
0.300	1.00	0.815	0.22	0.778	1.40	39



Each increment (each X or | plotted) = 1.000 %

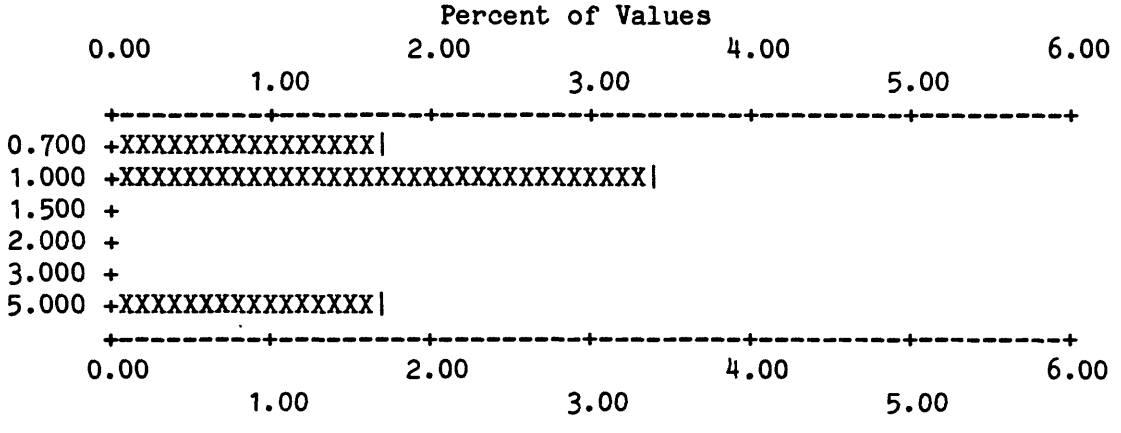
Table 11. Frequency tables and histograms for stream-sediment samples - (continued)

S-Ag

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	0.700	1	1.69	1	1.7	5.1	56	94.9	5.1
2	1.000	2	3.39	3	5.1	1.7	58	98.3	1.7
3	5.000	1	1.69	4	6.8	0.0	59	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	52	3	0	0	4	59	59	VALUES
0.0	0.0	0.0	88.1	5.1	0.0	0.0	6.8			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
0.700	5.00	1.925	2.05	1.368	2.41	4



Each increment (each X or | plotted) = 0.100 %

Table 11. Frequency tables and histograms for stream-sediment samples - (continued)

S-Au

	VALUE	NO.	%	CUM.	CUM. %	TOT CUM	TOT CUM %
1	20.000	1	1.69	1	1.7	0.0 59	100.0 0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	58	0	0	0	1	59	59	VALUES
0.0	0.0	0.0	98.3	0.0	0.0	0.0	1.7			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
20.000	20.00	20.000	0.00	20.000	********	1

Percent of Values

```
          0.00                2.00                4.00                6.00
                    1.00                3.00                5.00
           +---------+---------+---------+---------+---------+---------+
20.000     +XXXXXXXXXXXXXXXX|
           +---------+---------+---------+---------+---------+---------+
          0.00                2.00                4.00                6.00
                    1.00                3.00                5.00
```

Each increment (each X or | plotted) = 0.100 %

Table 11. Frequency tables and histograms for stream-sediment samples - (continued)

S-B

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	10.000	25	42.37	25	42.4	57.6	25	42.4	57.6
2	15.000	17	28.81	42	71.2	28.8	42	71.2	28.8
3	20.000	11	18.64	53	89.8	10.2	53	89.8	10.2
4	30.000	5	8.47	58	98.3	1.7	58	98.3	1.7
5	50.000	1	1.69	59	100.0	0.0	59	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	0	0	0	0	59	59	59	VALUES
0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
10.000	50.00	15.678	7.45	14.426	1.48	59

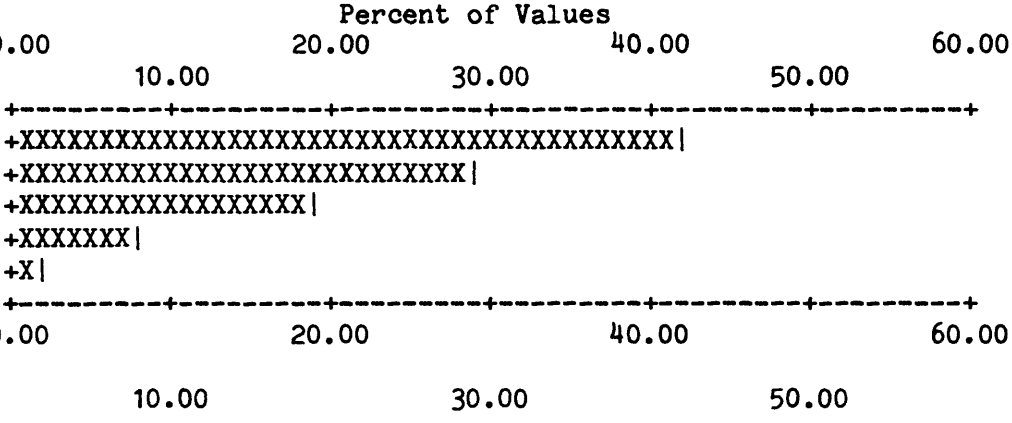


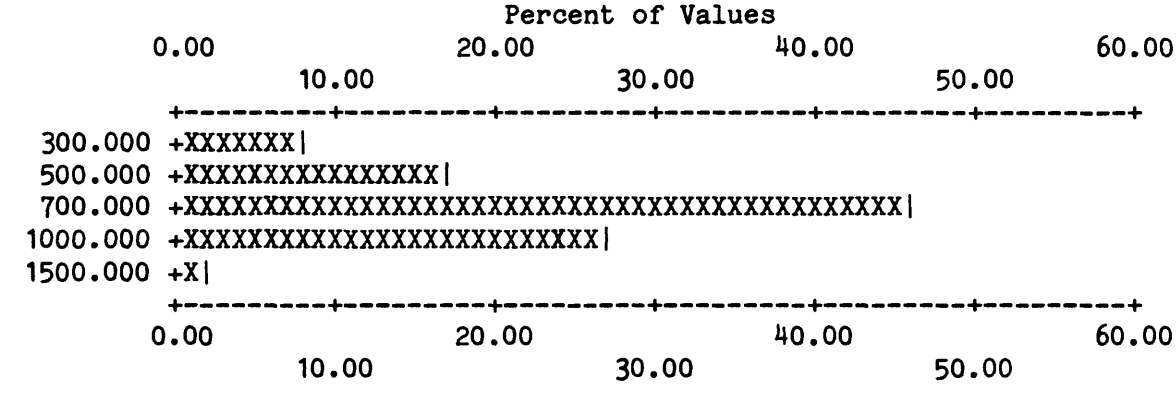
Table 11. Frequency tables and histograms for stream-sediment samples - (continued)

S-Ba

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	300.000	5	8.47	5	8.5	91.5	5	8.5	91.5
2	500.000	10	16.95	15	25.4	74.6	15	25.4	74.6
3	700.000	27	45.76	42	71.2	28.8	42	71.2	28.8
4	1000.000	16	27.12	58	98.3	1.7	58	98.3	1.7
5	1500.000	1	1.69	59	100.0	0.0	59	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	0	0	0	0	59	59	59	VALUES
0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
300.000	1500.00	727.119	236.23	686.694	1.43	59



Each increment (each X or | plotted) = 1.000 %

Table 11. Frequency tables and histograms for stream-sediment samples - (continued)

S-Be

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	1.000	21	35.59	21	35.6	52.5	28	47.5	52.5
2	1.500	19	32.20	40	67.8	20.3	47	79.7	20.3
3	2.000	11	18.64	51	86.4	1.7	58	98.3	1.7
4	3.000	1	1.69	52	88.1	0.0	59	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	0	7	0	0	52	59	59	VALUES
0.0	0.0	0.0	0.0	11.9	0.0	0.0	88.1			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
1.000	3.00	1.433	0.44	1.372	1.34	52

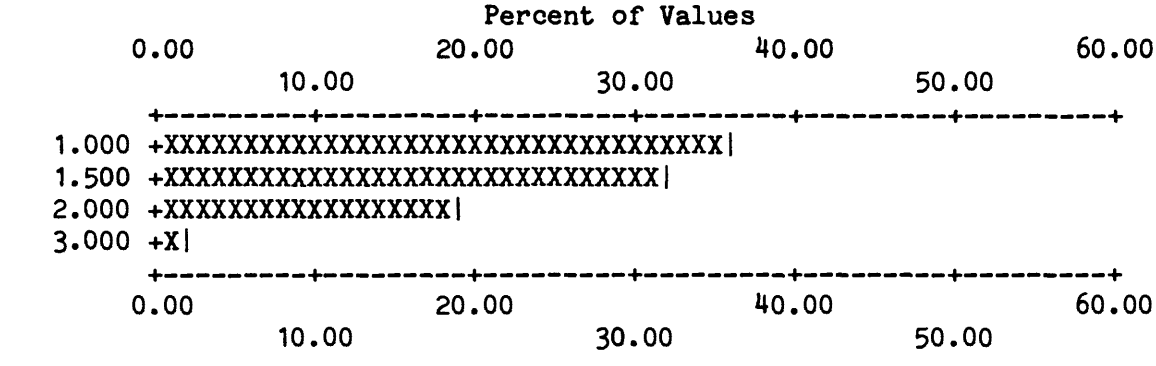


Table 11. Frequency tables and histograms for stream-sediment samples - (continued)

S-Co

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	7.000	3	5.08	3	5.1	94.9	3	5.1	94.9
2	10.000	9	15.25	12	20.3	79.7	12	20.3	79.7
3	15.000	7	11.86	19	32.2	67.8	19	32.2	67.8
4	20.000	21	35.59	40	67.8	32.2	40	67.8	32.2
5	30.000	15	25.42	55	93.2	6.8	55	93.2	6.8
6	50.000	4	6.78	59	100.0	0.0	59	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	0	0	0	0	59	59	59	VALUES
0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
7.0						
00 50.00	21.797	10.58	19.447	1.63	59	

Percent of Values

```
          0.00        10.00        20.00        30.00        40.00        50.00        60.00
           +---------+---------+---------+---------+---------+---------+
 7.000 +XXXX|
10.000 +XXXXXXXXXXXXXX|
15.000 +XXXXXXXXXXX|
20.000 +XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX|
30.000 +XXXXXXXXXXXXXXXXXXXXXXX|
50.000 +XXXXXX|
           +---------+---------+---------+---------+---------+---------+
          0.00        10.00        20.00        30.00        40.00        50.00        60.00
```

Each increment (each X or | plotted) = 1.000 %

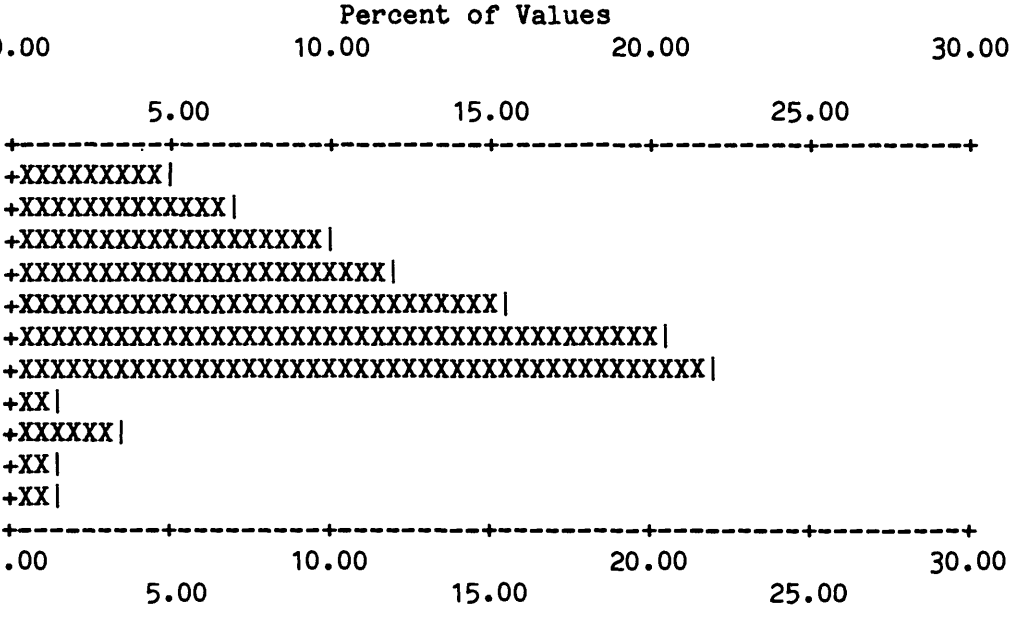
Table 11. Frequency tables and histograms for stream-sediment samples - (continued)

S-Cr

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	10.000	3	5.08	3	5.1	94.9	3	5.1	94.9
2	15.000	4	6.78	7	11.9	88.1	7	11.9	88.1
3	20.000	6	10.17	13	22.0	78.0	13	22.0	78.0
4	30.000	7	11.86	20	33.9	66.1	20	33.9	66.1
5	50.000	9	15.25	29	49.2	50.8	29	49.2	50.8
6	70.000	12	20.34	41	69.5	30.5	41	69.5	30.5
7	100.000	13	22.03	54	91.5	8.5	54	91.5	8.5
8	150.000	1	1.69	55	93.2	6.8	55	93.2	6.8
9	200.000	2	3.39	57	96.6	3.4	57	96.6	3.4
10	300.000	1	1.69	58	98.3	1.7	58	98.3	1.7
11	500.000	1	1.69	59	100.0	0.0	59	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	0	0	0	0	59	59	59	VALUES
0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
10.000	500.00	73.898	76.73	51.984	2.33	59



Each increment (each X or | plotted) = 0.500 %

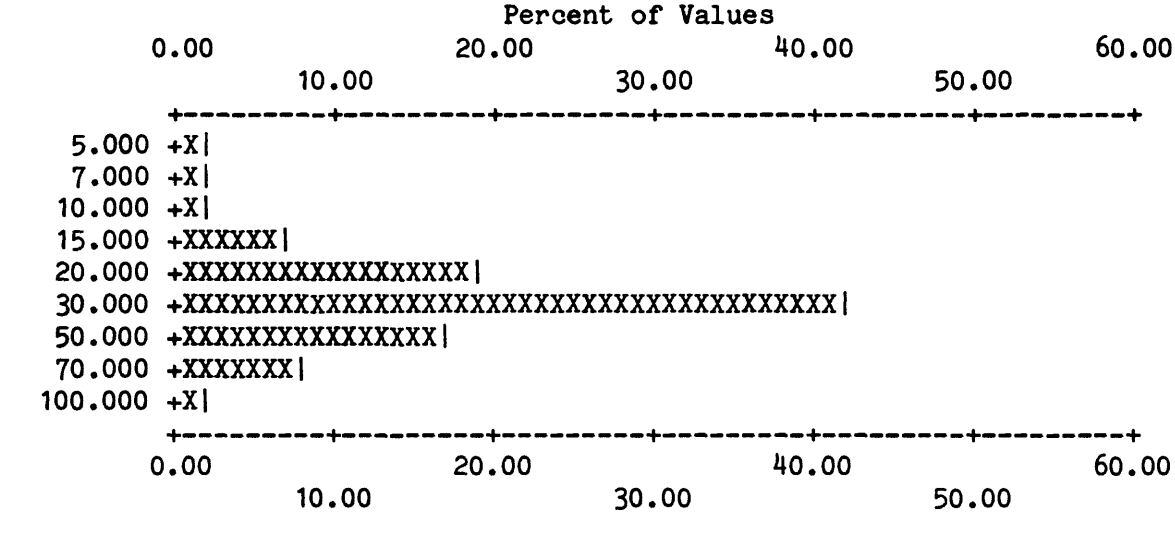
Table 11. Frequency tables and histograms for stream-sediment samples - (continued)

S-Cu

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	5.000	1	1.69	1	1.7	98.3	1	1.7	98.3
2	7.000	1	1.69	2	3.4	96.6	2	3.4	96.6
3	10.000	1	1.69	3	5.1	94.9	3	5.1	94.9
4	15.000	4	6.78	7	11.9	88.1	7	11.9	88.1
5	20.000	11	18.64	18	30.5	69.5	18	30.5	69.5
6	30.000	25	42.37	43	72.9	27.1	43	72.9	27.1
7	50.000	10	16.95	53	89.8	10.2	53	89.8	10.2
8	70.000	5	8.47	58	98.3	1.7	58	98.3	1.7
9	100.000	1	1.69	59	100.0	0.0	59	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	0	0	0	0	59	59	59	VALUES
0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
5.000	100.00	33.932	18.36	29.481	1.74	59



Each increment (each X or | plotted) = 1.000 %

Table 11. Frequency tables and histograms for stream-sediment samples - (continued)

S-La

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	20.000	2	3.39	2	3.4	96.6	2	3.4	96.6
2	30.000	6	10.17	8	13.6	86.4	8	13.6	86.4
3	50.000	31	52.54	39	66.1	33.9	39	66.1	33.9
4	70.000	7	11.86	46	78.0	22.0	46	78.0	22.0
5	100.000	9	15.25	55	93.2	6.8	55	93.2	6.8
6	150.000	3	5.08	58	98.3	1.7	58	98.3	1.7
7	200.000	1	1.69	59	100.0	0.0	59	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	0	0	0	0	59	59	59	VALUES
0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
20.000	200.00	64.576	34.61	57.629	1.60	59

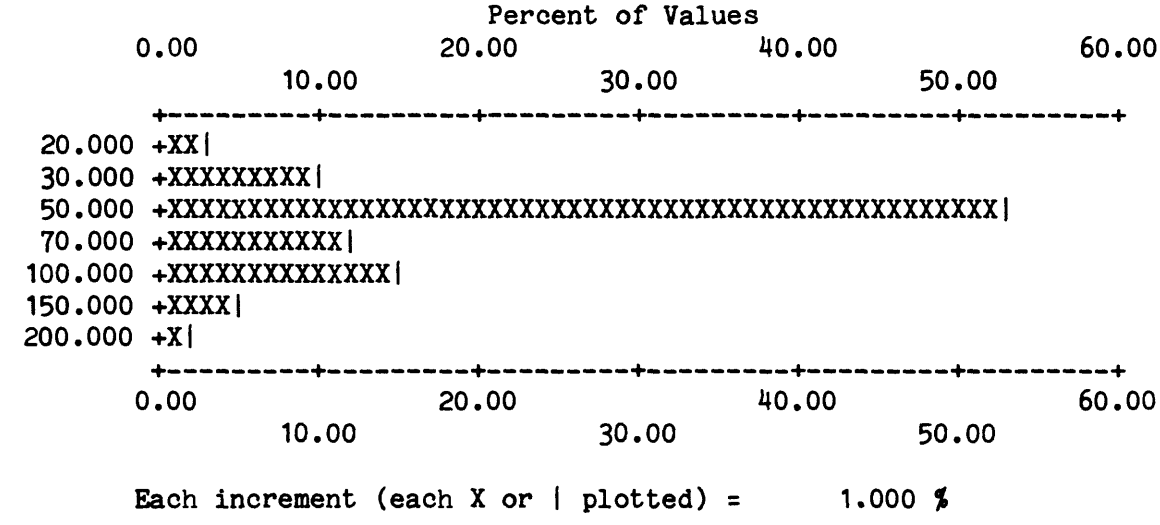


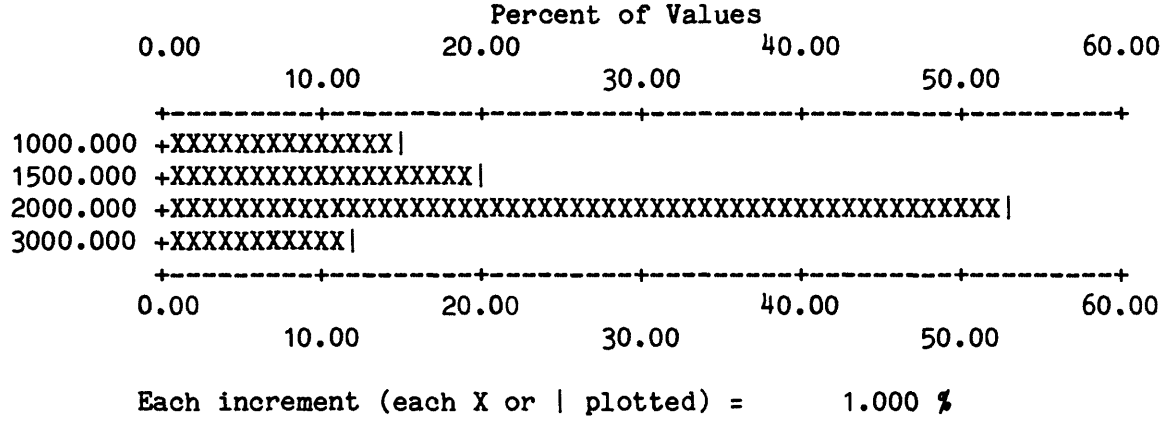
Table 11. Frequency tables and histograms
for stream-sediment samples - (continued)

S-Mn

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	1000.000	9	15.25	9	15.3	84.7	9	15.3	84.7
2	1500.000	12	20.34	21	35.6	64.4	21	35.6	64.4
3	2000.000	31	52.54	52	88.1	11.9	52	88.1	11.9
4	3000.000	7	11.86	59	100.0	0.0	59	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	0	0	0	0	59	59	59	VALUES
0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
1000.000	3000.00	1864.407	555.77	1780.702	1.37	59



Each increment (each X or | plotted) = 1.000 %

Table 11. Frequency tables and histograms for stream-sediment samples - (continued)

S-Mo

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	5.000	1	1.69	1	1.7	15.3	50	84.7	15.3
2	7.000	3	5.08	4	6.8	10.2	53	89.8	10.2
3	10.000	3	5.08	7	11.9	5.1	56	94.9	5.1
4	15.000	2	3.39	9	15.3	1.7	58	98.3	1.7
5	20.000	1	1.69	10	16.9	0.0	59	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	46	3	0	0	10	59	59	VALUES
0.0	0.0	0.0	78.0	5.1	0.0	0.0	16.9			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
5.000	20.00	10.600	4.70	9.744	1.54	10

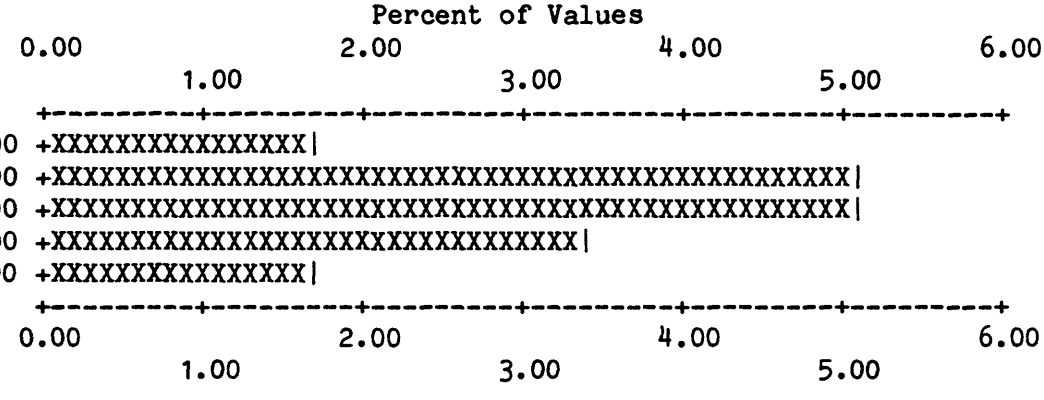


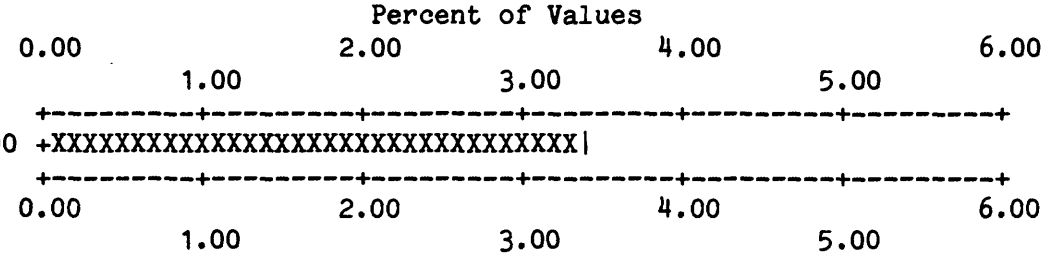
Table 11. Frequency tables and histograms for stream-sediment samples - (continued)

S-Nb

	VALUE	NO.	%	CUM.	CUM. %	TOT CUM	TOT CUM %
1	20.000	2	3.39	2	3.4	0.0 59	100.0 0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	48	9	0	0	2	59	59	VALUES
0.0	0.0	0.0	81.4	15.3	0.0	0.0	3.4			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
20.000	20.00	20.000	0.00	20.000	********	2



Each increment (each X or | plotted) = 0.100 %

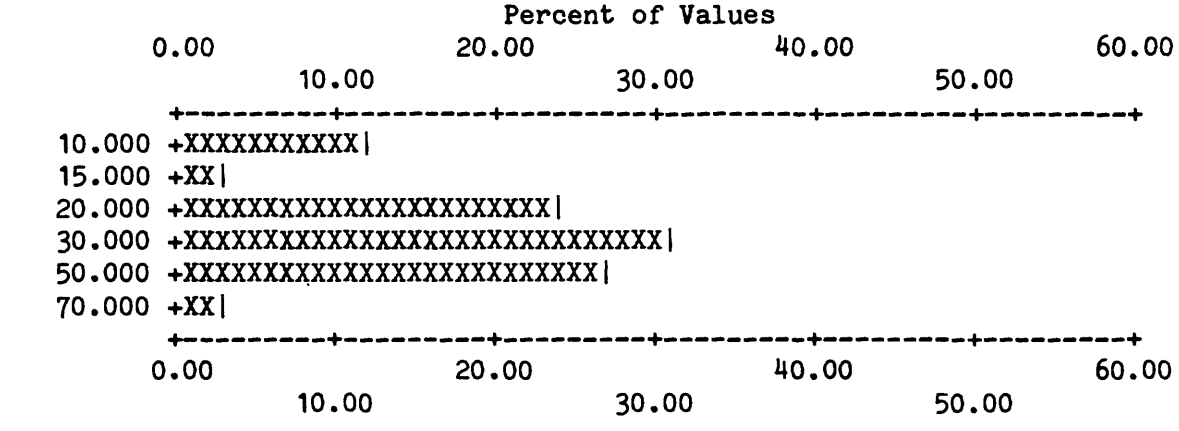
Table 11. Frequency tables and histograms for stream-sediment samples - (continued)

S-Ni

NO.	VALUE	%	CUM.	CUM. %	TOT CUM	TOT CUM %			
1	10.000	7	11.86	7	11.9	88.1	7	11.9	88.1
2	15.000	2	3.39	9	15.3	84.7	9	15.3	84.7
3	20.000	14	23.73	23	39.0	61.0	23	39.0	61.0
4	30.000	18	30.51	41	69.5	30.5	41	69.5	30.5
5	50.000	16	27.12	57	96.6	3.4	57	96.6	3.4
6	70.000	2	3.39	59	100.0	0.0	59	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	0	0	0	0	59	59	59	VALUES
0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
10.000	70.00	31.525	15.60	27.616	1.72	59



Each increment (each X or | plotted) = 1.000 %

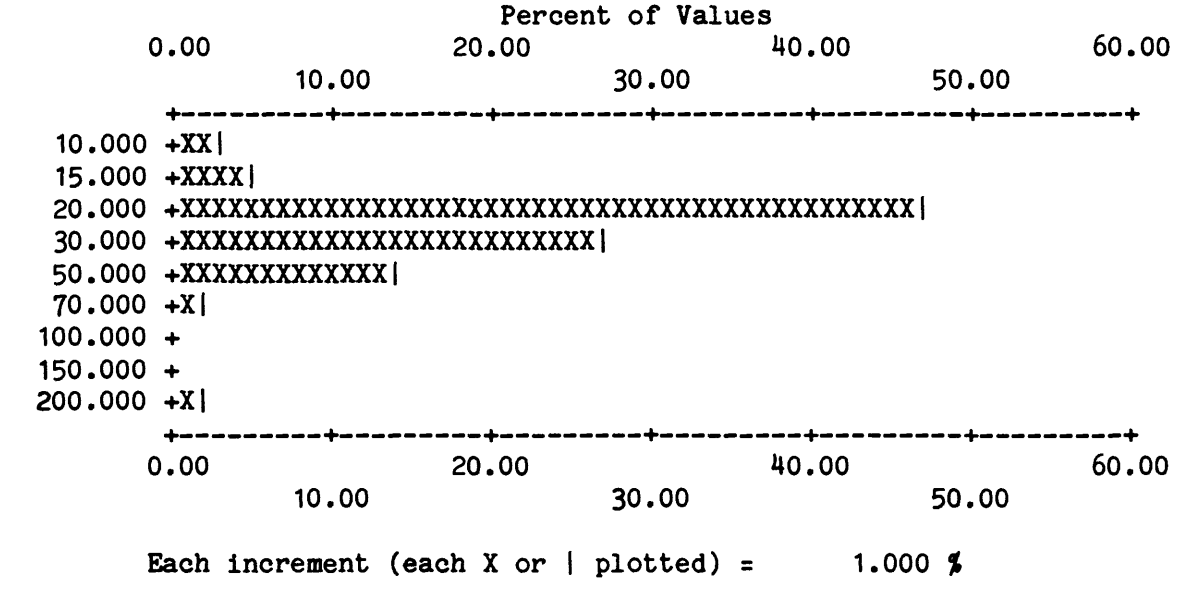
Table 11. Frequency tables and histograms for stream-sediment samples - (continued)

S-Pb

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	10.000	2	3.39	2	3.4	96.6	2	3.4	96.6
2	15.000	3	5.08	5	8.5	91.5	5	8.5	91.5
3	20.000	28	47.46	33	55.9	44.1	33	55.9	44.1
4	30.000	16	27.12	49	83.1	16.9	49	83.1	16.9
5	50.000	8	13.56	57	96.6	3.4	57	96.6	3.4
6	70.000	1	1.69	58	98.3	1.7	58	98.3	1.7
7	200.000	1	1.69	59	100.0	0.0	59	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	0	0	0	0	59	59	59	VALUES
0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
10.000	200.00	30.085	25.59	25.844	1.62	59



Each increment (each X or | plotted) = 1.000 %

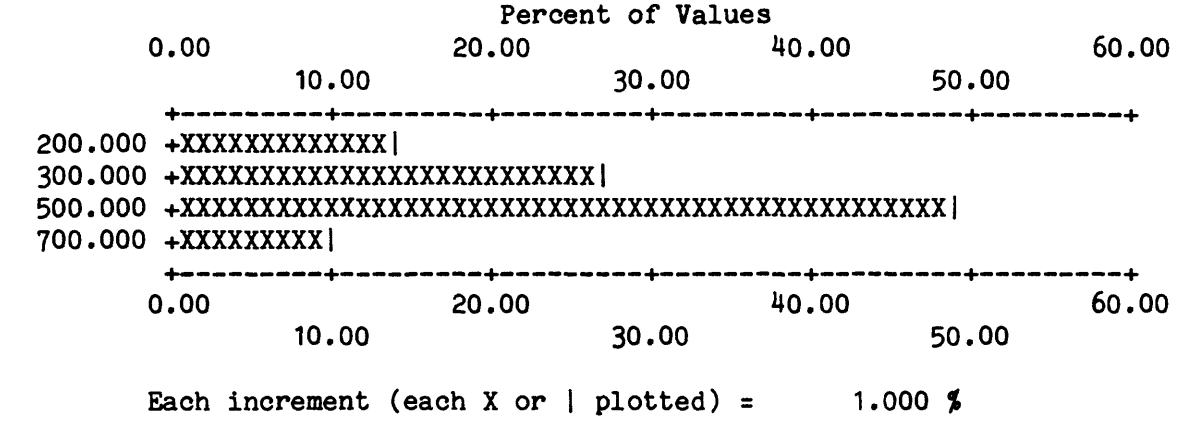
Table 11. Frequency tables and histograms for stream-sediment samples - (continued)

S-Sr

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	200.000	8	13.56	8	13.6	86.4	8	13.6	86.4
2	300.000	16	27.12	24	40.7	59.3	24	40.7	59.3
3	500.000	29	49.15	53	89.8	10.2	53	89.8	10.2
4	700.000	6	10.17	59	100.0	0.0	59	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	0	0	0	0	59	59	59	VALUES
0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
200.000	700.00	425.424	148.08	397.842	1	
.47	59					



Each increment (each X or | plotted) = 1.000 %

Table 11. Frequency tables and histograms for stream-sediment samples - (continued)

S-Th

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	300.000	1	1.69	1	1.7	0.0	59	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	57	1	0	0	1	59	59	VALUES
0.0	0.0	0.0	96.6	1.7	0.0	0.0	1.7			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
300.000	300.00	300.000	0.00	300.000	********	1

Percent of Values

```
        0.00                10.00                20.00                30.00
                  5.00                15.00                25.00
         +---------+---------+---------+---------+---------+---------+
300.000 +XX|
         +---------+---------+---------+---------+---------+---------+
        0.00                10.00                20.00                30.00
                  5.00                15.00                25.00
```

Each increment (each X or | plotted) = 0.500 %

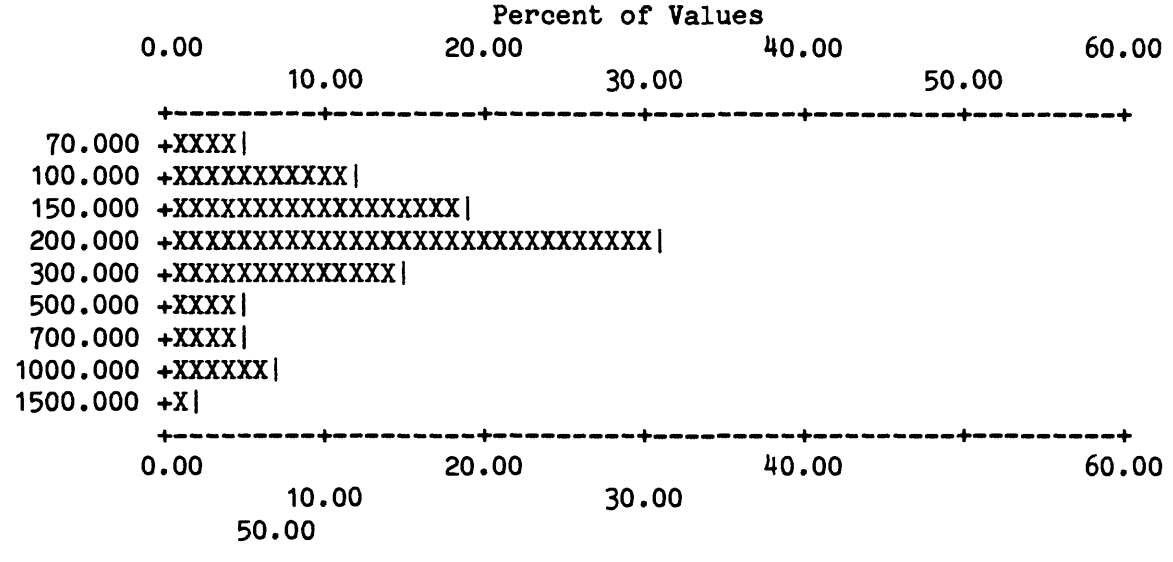
Table 11. Frequency tables and histograms for stream-sediment samples - (continued)

S-V

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	70.000	3	5.08	3	5.1	94.9	3	5.1	94.9
2	100.000	7	11.86	10	16.9	83.1	10	16.9	83.1
3	150.000	11	18.64	21	35.6	64.4	21	35.6	64.4
4	200.000	18	30.51	39	66.1	33.9	39	66.1	33.9
5	300.000	9	15.25	48	81.4	18.6	48	81.4	18.6
6	500.000	3	5.08	51	86.4	13.6	51	86.4	13.6
7	700.000	3	5.08	54	91.5	8.5	54	91.5	8.5
8	1000.000	4	6.78	58	98.3	1.7	58	98.3	1.7
9	1500.000	1	1.69	59	100.0	0.0	59	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	0	0	0	0	59	59	59	VALUES
0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
70.000	1500.00	304.407	289.62	226.891	2.05	59



Each increment (each X or | plotted) = 1.000 %

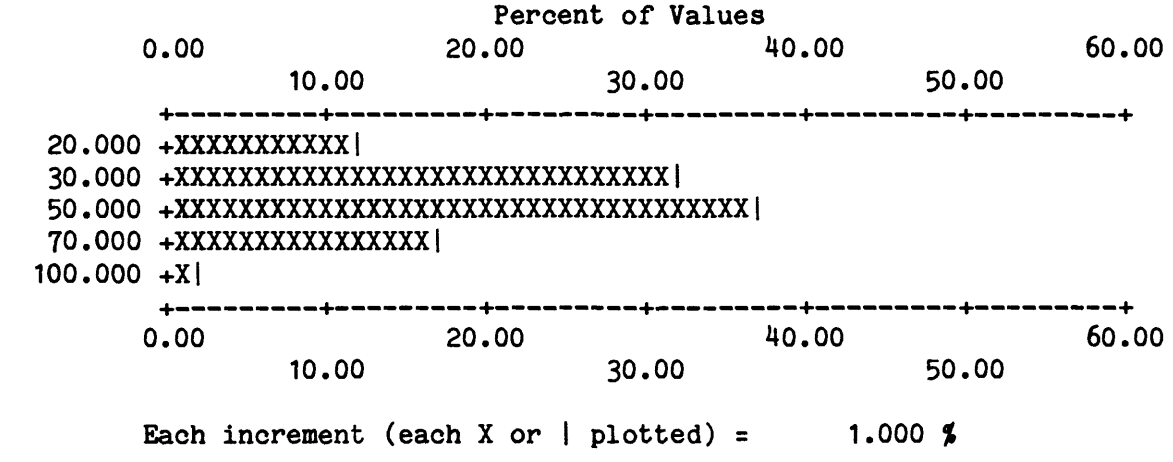
Table 11. Frequency tables and histograms for stream-sediment samples - (continued)

S-Y

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	20.000	7	11.86	7	11.9	88.1	7	11.9	88.1
2	30.000	19	32.20	26	44.1	55.9	26	44.1	55.9
3	50.000	22	37.29	48	81.4	18.6	48	81.4	18.6
4	70.000	10	16.95	58	98.3	1.7	58	98.3	1.7
5	100.000	1	1.69	59	100.0	0.0	59	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	0	0	0	0	59	59	59	VALUES
0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
20.000	100.00	44.237	17.83	40.755	1.51	59



Each increment (each X or | plotted) = 1.000 %

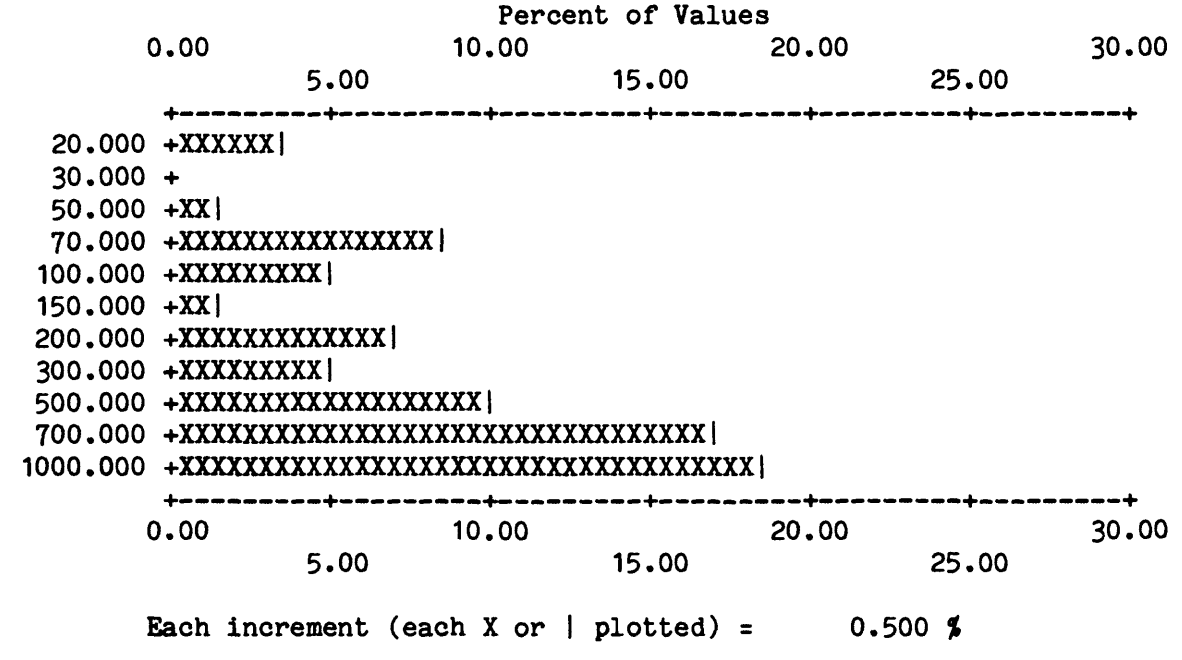
Table 11. Frequency tables and histograms for stream-sediment samples - (continued)

S-Zr

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	20.000	2	3.39	2	3.4	74.6	2	3.4	96.6
2	50.000	1	1.69	3	5.1	72.9	3	5.1	94.9
3	70.000	5	8.47	8	13.6	64.4	8	13.6	86.4
4	100.000	3	5.08	11	18.6	59.3	11	18.6	81.4
5	150.000	1	1.69	12	20.3	57.6	12	20.3	79.7
6	200.000	4	6.78	16	27.1	50.8	16	27.1	72.9
7	300.000	3	5.08	19	32.2	45.8	19	32.2	67.8
8	500.000	6	10.17	25	42.4	35.6	25	42.4	57.6
9	700.000	10	16.95	35	59.3	18.6	35	59.3	40.7
10	1000.000	11	18.64	46	78.0	0.0	46	78.0	22.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	0	0	13	0	46	59	59	VALUES
0.0	0.0	0.0	0.0	0.0	22.0	0.0	78.0			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
20.000	1000.00	512.826	359.40	332.175	3.09	46



Each increment (each X or | plotted) = 0.500 %

Table 11. Frequency tables and histograms for stream-sediment samples - (continued)

AA-As

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	10.000	1	1.69	1	1.7	1.7	58	98.3	1.7
2	100.000	1	1.69	2	3.4	0.0	59	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	47	10	0	0	2	59	59	VALUES
0.0	0.0	0.0	79.7	16.9	0.0	0.0	3.4			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
10.000	100.00	55.000	63.64	31.623	5.09	2

Percent of Values

```
          0.00
                2.00                4.00                6.00
                   1.00                3.00                5.00
           +---------+---------+---------+---------+---------+---------+
 10.000 +XXXXXXXXXXXXXXXX|
 15.000 +
 20.000 +
 30.000 +
 50.000 +
 70.000 +
100.000 +XXXXXXXXXXXXXXXX|
           +---------+---------+---------+---------+---------+---------+
          0.00                2.00                4.00                6.00
                   1.00                3.00                5.00
```

Each increment (each X or | plotted) = 0.100 %

Table 11. Frequency tables and histograms for stream-sediment samples - (continued)

AA-Au

	VALUE	NO.	%	CUM.	CUM. %	TOT CUM	TOT CUM %
1	10.000	59	100.00	59	100.0	59	100.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	0	0	0	0	59	59	59	VALUES
0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
10.000	10.00	10.000	0.00	10.000	1.00	59

Percent of Values

```
          0.00          16.67          33.33          50.00          66.67          83.33          100.00
           +--------------+--------------+--------------+--------------+--------------+--------------+
10.000     +XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX|
           +--------------+--------------+--------------+--------------+--------------+--------------+
          0.00          16.67          33.33          50.00          66.67          83.33          100.00
```

Each increment (each X or | plotted) = 1.667 %

Table 11. Frequency tables and histograms for stream-sediment samples - (continued)

AA-Zn

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	20.000	1	1.69	1	1.7	98.3	1	1.7	98.3
2	30.000	2	3.39	3	5.1	94.9	3	5.1	94.9
3	50.000	25	42.37	28	47.5	52.5	28	47.5	52.5
4	70.000	26	44.07	54	91.5	8.5	54	91.5	8.5
5	100.000	5	8.47	59	100.0	0.0	59	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	0	0	0	0	59	59	59	VALUES
0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
20.000	100.00	61.864	16.76	59.513	1.34	59

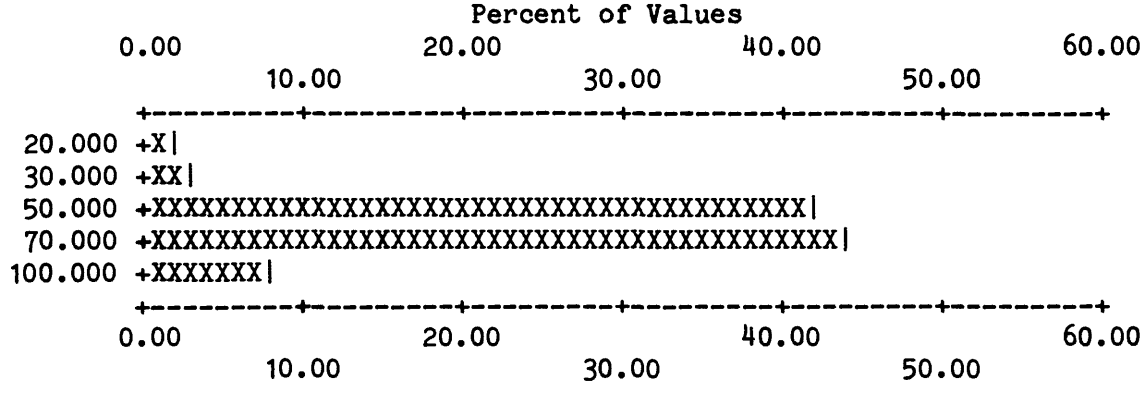


Table 11. Frequency tables and histograms for stream-sediment samples - (continued)

CM-W

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	0.500	8	13.56	8	13.6	86.4	8	13.6	86.4
2	1.000	6	10.17	14	23.7	76.3	14	23.7	76.3
3	1.500	10	16.95	24	40.7	59.3	24	40.7	59.3
4	2.000	15	25.42	39	66.1	33.9	39	66.1	33.9
5	3.000	7	11.86	46	78.0	22.0	46	78.0	22.0
6	5.000	9	15.25	55	93.2	6.8	55	93.2	6.8
7	7.000	1	1.69	56	94.9	5.1	56	94.9	5.1
8	15.000	2	3.39	58	98.3	1.7	58	98.3	1.7
9	30.000	1	1.69	59	100.0	0.0	59	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	0	0	0	0	59	59	59	VALUES
0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
0.500	30.00	3.186	4.51	2.032	2.41	59

```
                              Percent of Values
       0.00               10.00               20.00               30.00
                 5.00               15.00               25.00
        +---------+---------+---------+---------+---------+---------+
  0.500 +XXXXXXXXXXXXXXXXXXXXXXXXXX|
  0.700 +
  1.000 +XXXXXXXXXXXXXXXXXXX|
  1.500 +XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX|
  2.000 +XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX|
  3.000 +XXXXXXXXXXXXXXXXXXXXXXX|
  5.000 +XXXXXXXXXXXXXXXXXXXXXXXXXXXXX|
  7.000 +XX|
 10.000 +
 15.000 +XXXXXX|
 20.000 +
 30.000 +XX|
        +---------+---------+---------+---------+---------+---------+
       0.00               10.00               20.00               30.00
                 5.00               15.00               25.00
```

Each increment (each X or | plotted) = 0.500 %

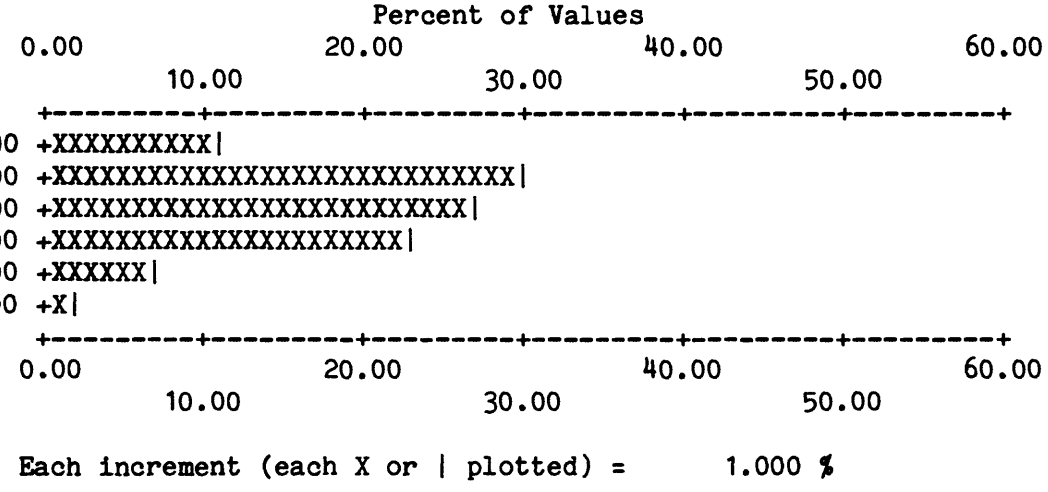
Table 12. Frequency tables and histograms for nonmagnetic heavy-mineral concentrate samples

S-Ca %

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	3.000	6	10.71	6	10.7	89.3	6	10.7	89.3
2	5.000	17	30.36	23	41.1	58.9	23	41.1	58.9
3	7.000	15	26.79	38	67.9	32.1	38	67.9	32.1
4	10.000	13	23.21	51	91.1	8.9	51	91.1	8.9
5	15.000	4	7.14	55	98.2	1.8	55	98.2	1.8
6	20.000	1	1.79	56	100.0	0.0	56	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	0	0	0	0	56	56	56	VALUES
0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
3.000	20.00	7.464	3.55	6.746	1.57	56



Each increment (each X or | plotted) = 1.000 %

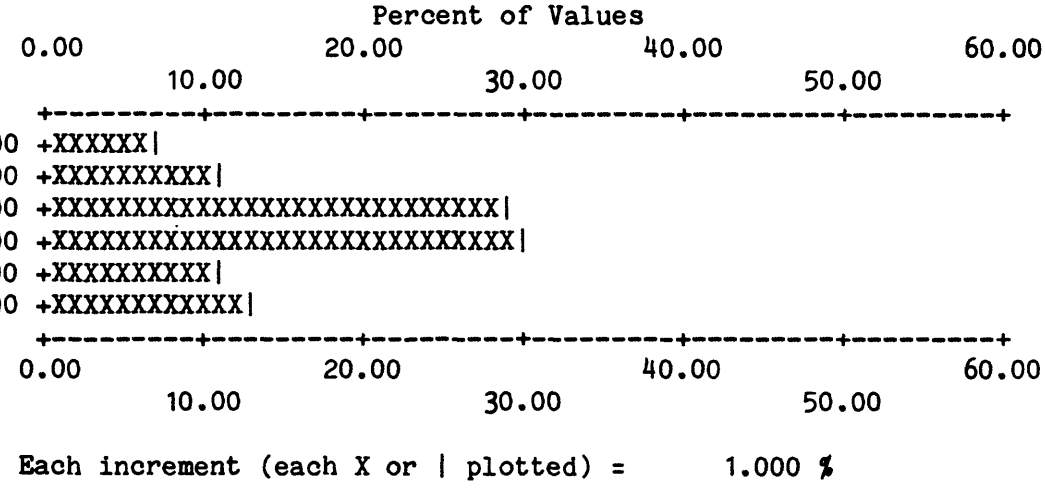
Table 12. Frequency tables and histograms for nonmagnetic heavy-mineral-concentrate samples - (continued)

S-Fe %

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	0.300	4	7.14	4	7.1	92.9	4	7.1	92.9
2	0.500	6	10.71	10	17.9	82.1	10	17.9	82.1
3	0.700	16	28.57	26	46.4	53.6	26	46.4	53.6
4	1.000	17	30.36	43	76.8	23.2	43	76.8	23.2
5	1.500	6	10.71	49	87.5	12.5	49	87.5	12.5
6	2.000	7	12.50	56	100.0	0.0	56	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	0	0	0	0	56	56	56	VALUES
0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
0.300	2.00	0.989	0.49	0.876	1.66	56



Each increment (each X or | plotted) = 1.000 %

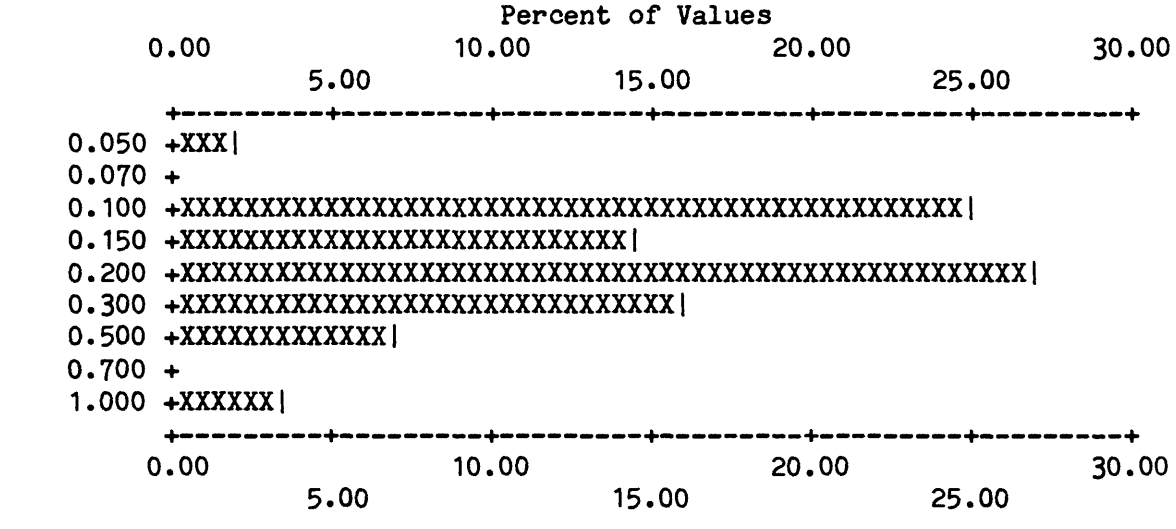
Table 12. Frequency tables and histograms for nonmagnetic heavy-mineral-concentrate samples - (continued)

S-Mg %

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	0.050	1	1.79	1	1.8	92.9	4	7.1	92.9
2	0.100	14	25.00	15	26.8	67.9	18	32.1	67.9
3	0.150	8	14.29	23	41.1	53.6	26	46.4	53.6
4	0.200	15	26.79	38	67.9	26.8	41	73.2	26.8
5	0.300	9	16.07	47	83.9	10.7	50	89.3	10.7
6	0.500	4	7.14	51	91.1	3.6	54	96.4	3.6
7	1.000	2	3.57	53	94.6	0.0	56	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	0	3	0	0	53	56	56	VALUES
0.0	0.0	0.0	0.0	5.4	0.0	0.0	94.6			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
0.050	1.00	0.233	0.19	0.189	1.84	53



Each increment (each X or | plotted) = 0.500 %

Table 12. Frequency tables and histograms for nonmagnetic heavy-mineral-concentrate samples - (continued)

S-B

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	20.000	32	57.14	32	57.1	26.8	41	73.2	26.8
2	30.000	8	14.29	40	71.4	12.5	49	87.5	12.5
3	50.000	3	5.36	43	76.8	7.1	52	92.9	7.1
4	200.000	2	3.57	45	80.4	3.6	54	96.4	3.6
5	700.000	1	1.79	46	82.1	1.8	55	98.2	1.8
6	1000.000	1	1.79	47	83.9	0.0	56	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	0	9	0	0	47	56	56	VALUES
0.0	0.0	0.0	0.0	16.1	0.0	0.0	83.9			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
20.000	1000.00	66.596	173.77	29.374	2.41	47

```
                         Percent of Values
         0.00              20.00              40.00              60.00
                  10.00              30.00              50.00
          +---------+---------+---------+---------+---------+---------+
  20.000 +XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX|
  30.000 +XXXXXXXXXXXXX|
  50.000 +XXXX|
  70.000 +
 100.000 +
 150.000 +
 200.000 +XXX|
 300.000 +
 500.000 +
 700.000 +X|
1000.000 +X|
          +---------+---------+---------+---------+---------+---------+
         0.00              20.00              40.00              60.00
                  10.00              30.00              50.00

         Each increment (each X or | plotted) =       1.000 %
```

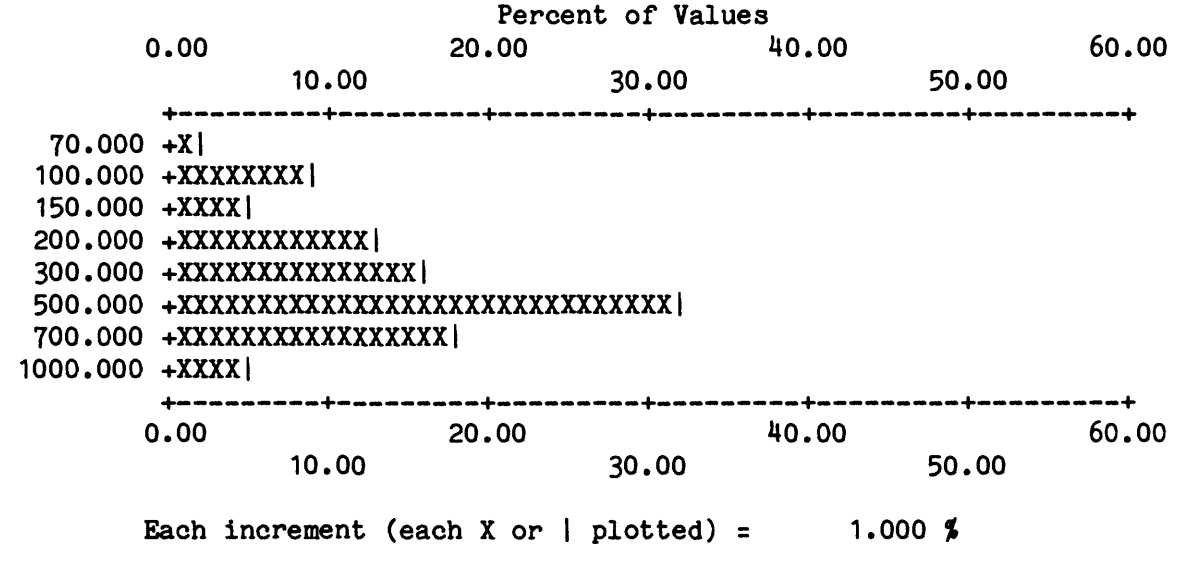
Table 12. Frequency tables and histograms for nonmagnetic heavy-mineral-concentrate samples - (continued)

S-Ba

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	70.000	1	1.79	1	1.8	98.2	1	1.8	98.2
2	100.000	5	8.93	6	10.7	89.3	6	10.7	89.3
3	150.000	3	5.36	9	16.1	83.9	9	16.1	83.9
4	200.000	7	12.50	16	28.6	71.4	16	28.6	71.4
5	300.000	9	16.07	25	44.6	55.4	25	44.6	55.4
6	500.000	18	32.14	43	76.8	23.2	43	76.8	23.2
7	700.000	10	17.86	53	94.6	5.4	53	94.6	5.4
8	1000.000	3	5.36	56	100.0	0.0	56	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	0	0	0	0	56	56	56	VALUES
0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
70.000	1000.00	430.714	242.10	354.917	1.97	56



Each increment (each X or | plotted) = 1.000 %

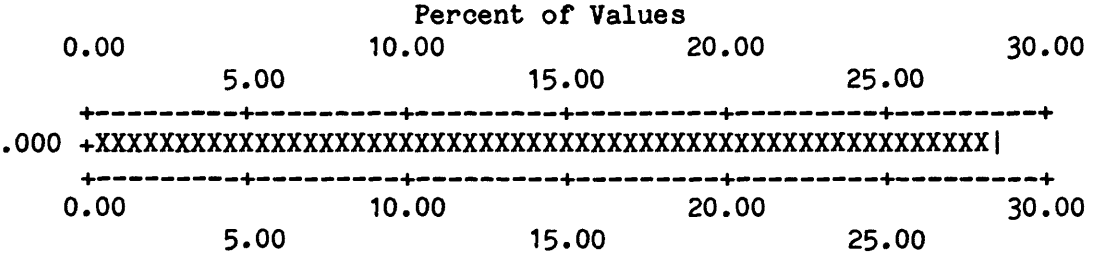
Table 12. Frequency tables and histograms for nonmagnetic heavy-mineral-concentrate samples - (continued)

S-Be

	VALUE	NO.	%	CUM.	CUM. %	TOT CUM	TOT CUM %
1	2.000	16	28.57	16	28.6	56	100.0
					0.0		0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	4	36	0	0	16	56	56	VALUES
0.0	0.0	0.0	7.1	64.3	0.0	0.0	28.6			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
2.000	2.00	2.000	0.00	2.000	1.00	16



Each increment (each X or | plotted) = 0.500 %

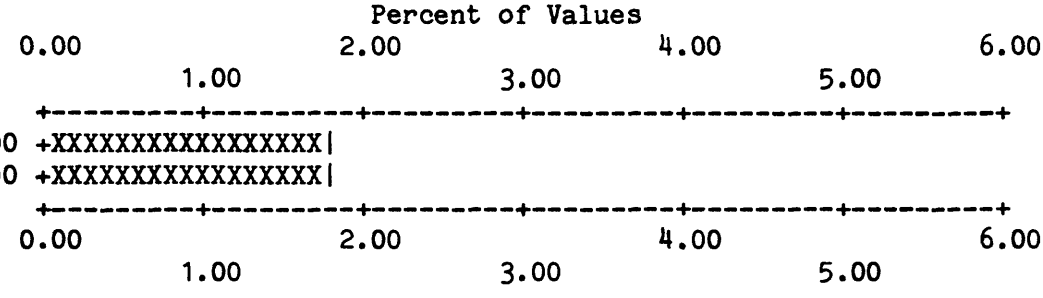
Table 12. Frequency tables and histograms for nonmagnetic heavy-mineral-concentrate samples - (continued)

S-Bi

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	70.000	1	1.79	1	1.8	1.8	55	98.2	1.8
2	100.000	1	1.79	2	3.6	0.0	56	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	54	0	0	0	2	56	56	VALUES
0.0	0.0	0.0	96.4	0.0	0.0	0.0	3.6			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
70.000	100.00	85.000	21.21	83.666	1.29	2



Each increment (each X or | plotted) = 0.100 %

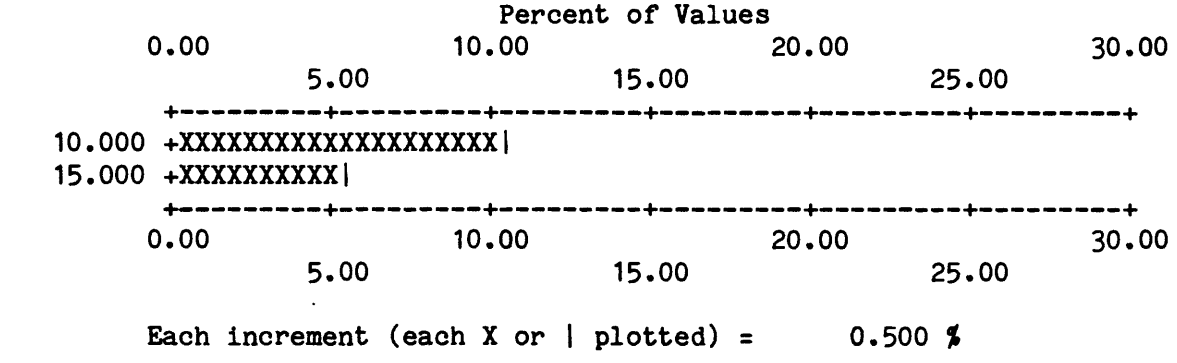
Table 12. Frequency tables and histograms for nonmagnetic heavy-mineral-concentrate samples - (continued)

S-Co

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	10.000	6	10.71	6	10.7	5.4	53	94.6	5.4
2	15.000	3	5.36	9	16.1	0.0	56	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	47	0	0	0	9	56	56	VALUES
0.0	0.0	0.0	83.9	0.0	0.0	0.0	16.1			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
10.000	15.00	11.667	2.50	11.447	1.22	9



Each increment (each X or | plotted) = 0.500 %

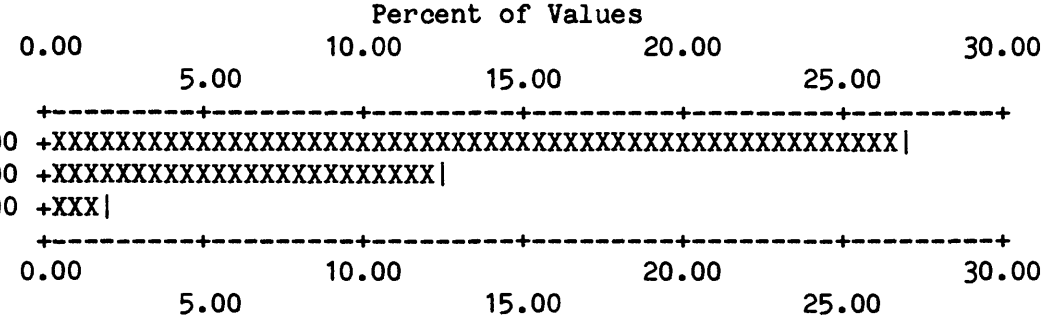
Table 12. Frequency tables and histograms for nonmagnetic heavy-mineral-concentrate samples - (continued)

S-Cr

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	20.000	15	26.79	15	26.8	14.3	48	85.7	14.3
2	30.000	7	12.50	22	39.3	1.8	55	98.2	1.8
3	50.000	1	1.79	23	41.1	0.0	56	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	3	30	0	0	23	56	56	VALUES
0.0	0.0	0.0	5.4	53.6	0.0	0.0	41.1			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
20.000	50.00	24.348	7.28	23.546	1.28	23



Each increment (each X or | plotted) = 0.500 %

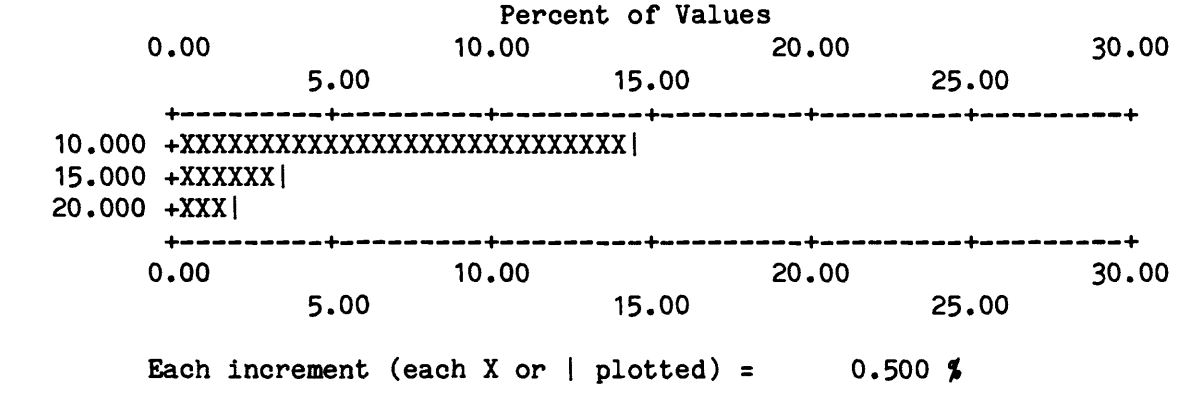
Table 12. Frequency tables and histograms for nonmagnetic heavy-mineral-concentrate samples - (continued)

S-Cu

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	10.000	8	14.29	8	14.3	5.4	53	94.6	5.4
2	15.000	2	3.57	10	17.9	1.8	55	98.2	1.8
3	20.000	1	1.79	11	19.6	0.0	56	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	30	15	0	0	11	56	56	VALUES
0.0	0.0	0.0	53.6	26.8	0.0	0.0	19.6			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
10.000	20.00	11.818	3.37	11.465	1.28	11



Each increment (each X or | plotted) = 0.500 %

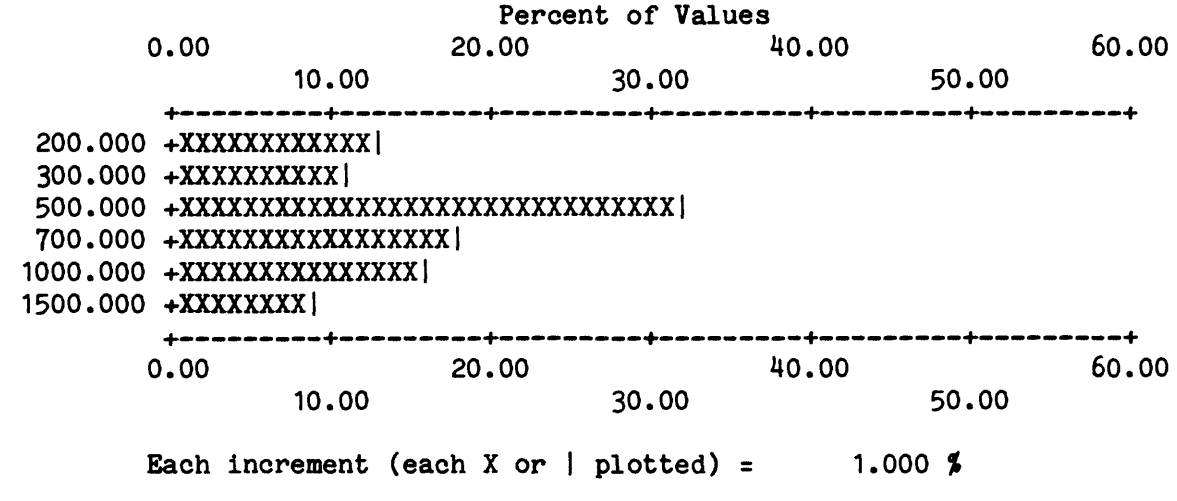
Table 12. Frequency tables and histograms for nonmagnetic heavy-mineral-concentrate samples - (continued)

S-La

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	200.000	7	12.50	7	12.5	85.7	7	12.5	87.5
2	300.000	6	10.71	13	23.2	75.0	13	23.2	76.8
3	500.000	18	32.14	31	55.4	42.9	31	55.4	44.6
4	700.000	10	17.86	41	73.2	25.0	41	73.2	26.8
5	1000.000	9	16.07	50	89.3	8.9	50	89.3	10.7
6	1500.000	5	8.93	55	98.2	0.0	55	98.2	1.8

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	0	0	1	0	55	56	56	VALUES
0.0	0.0	0.0	0.0	0.0	1.8	0.0	98.2			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
200.000	1500.00	649.091	367.61	553.763	1.79	55



Each increment (each X or | plotted) = 1.000 %

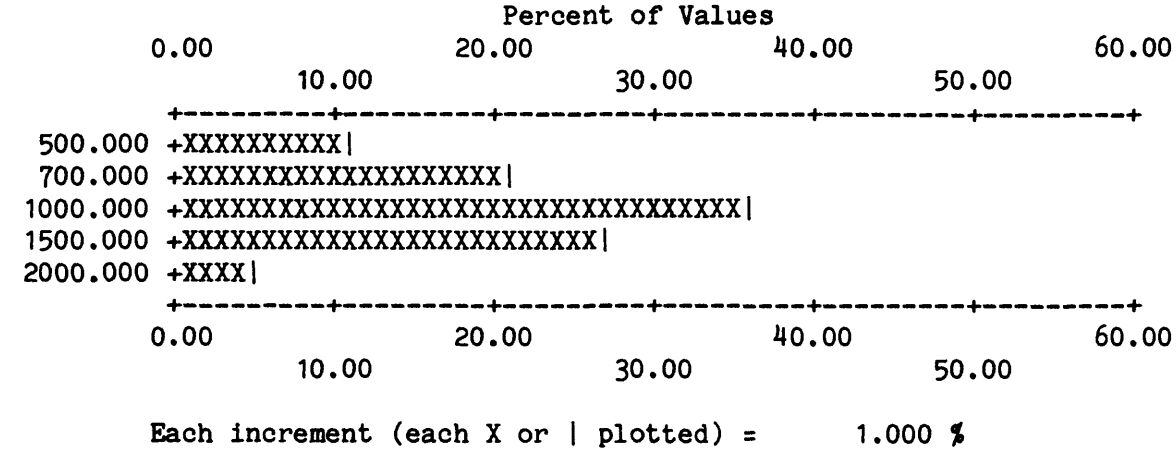
Table 12. Frequency tables and histograms for nonmagnetic heavy-mineral-concentrate samples - (continued)

S-Mn

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	500.000	6	10.71	6	10.7	89.3	6	10.7	89.3
2	700.000	12	21.43	18	32.1	67.9	18	32.1	67.9
3	1000.000	20	35.71	38	67.9	32.1	38	67.9	32.1
4	1500.000	15	26.79	53	94.6	5.4	53	94.6	5.4
5	2000.000	3	5.36	56	100.0	0.0	56	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	0	0	0	0	56	56	56	VALUES
0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
500.000	2000.00	1069.643	405.83	995.056	1.48	56



Each increment (each X or | plotted) = 1.000 %

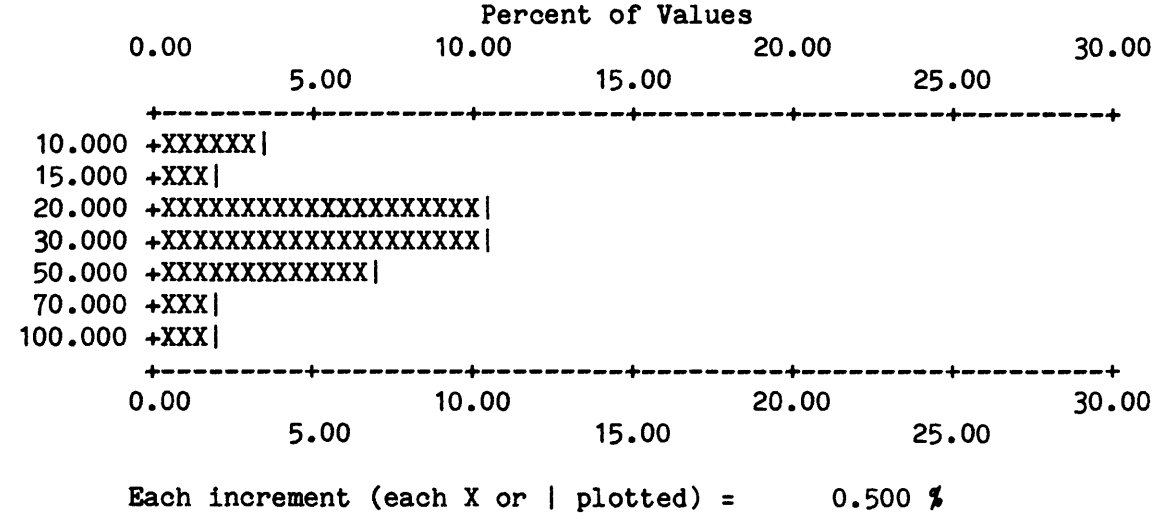
Table 12. Frequency tables and histograms for nonmagnetic heavy-mineral-concentrate samples - (continued)

S-Mo

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	10.000	2	3.57	2	3.6	33.9	37	66.1	33.9
2	15.000	1	1.79	3	5.4	32.1	38	67.9	32.1
3	20.000	6	10.71	9	16.1	21.4	44	78.6	21.4
4	30.000	6	10.71	15	26.8	10.7	50	89.3	10.7
5	50.000	4	7.14	19	33.9	3.6	54	96.4	3.6
6	70.000	1	1.79	20	35.7	1.8	55	98.2	1.8
7	100.000	1	1.79	21	37.5	0.0	56	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	34	1	0	0	21	56	56	VALUES
0.0	0.0	0.0	60.7	1.8	0.0	0.0	37.5			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
10.000	100.00	33.571	21.75	28.295	1.81	21



Each increment (each X or | plotted) = 0.500 %

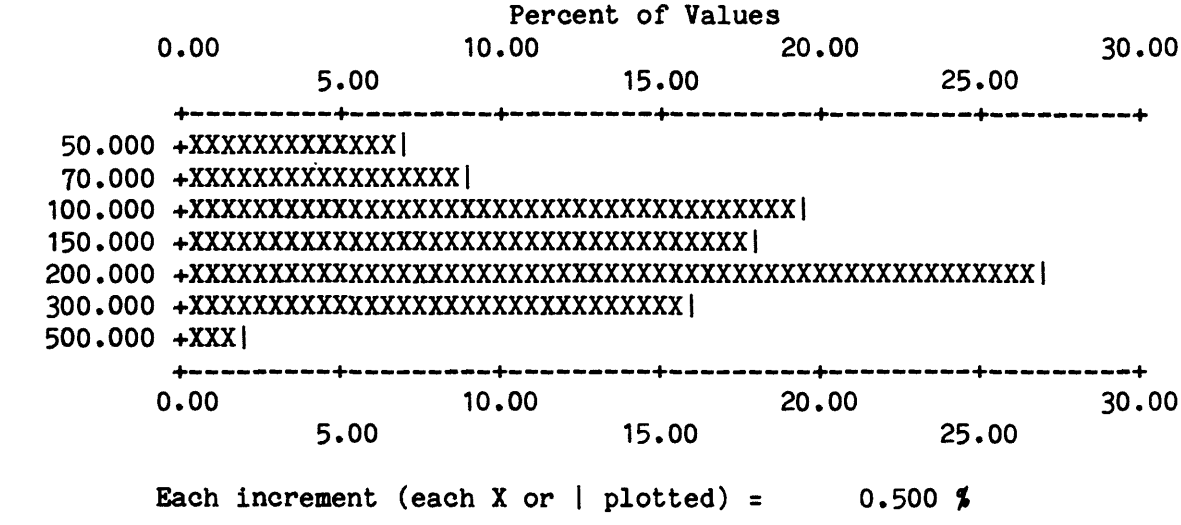
Table 12. Frequency tables and histograms for nonmagnetic heavy-mineral-concentrate samples - (continued)

S-Nb

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	50.000	4	7.14	4	7.1	91.1	5	8.9	91.1
2	70.000	5	8.93	9	16.1	82.1	10	17.9	82.1
3	100.000	11	19.64	20	35.7	62.5	21	37.5	62.5
4	150.000	10	17.86	30	53.6	44.6	31	55.4	44.6
5	200.000	15	26.79	45	80.4	17.9	46	82.1	17.9
6	300.000	9	16.07	54	96.4	1.8	55	98.2	1.8
7	500.000	1	1.79	55	98.2	0.0	56	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	0	1	0	0	55	56	56	VALUES
0.0	0.0	0.0	0.0	1.8	0.0	0.0	98.2			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
50.000	500.00	170.000	90.27	147.545	1.74	55



Each increment (each X or | plotted) = 0.500 %

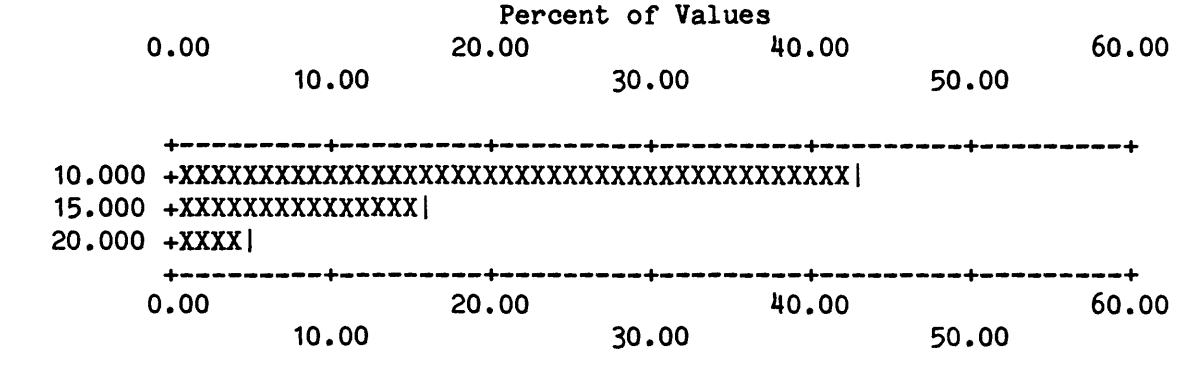
Table 12. Frequency tables and histograms for nonmagnetic heavy-mineral-concentrate samples - (continued)

S-Ni

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	10.000	24	42.86	24	42.9	21.4	44	78.6	21.4
2	15.000	9	16.07	33	58.9	5.4	53	94.6	5.4
3	20.000	3	5.36	36	64.3	0.0	56	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	20	0	0	0	36	56	56	VALUES
0.0	0.0	0.0	35.7	0.0	0.0	0.0	64.3			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
10.000	20.00	12.083	3.25	11.725	1.27	36



Each increment (each X or | plotted) = 1.000 %

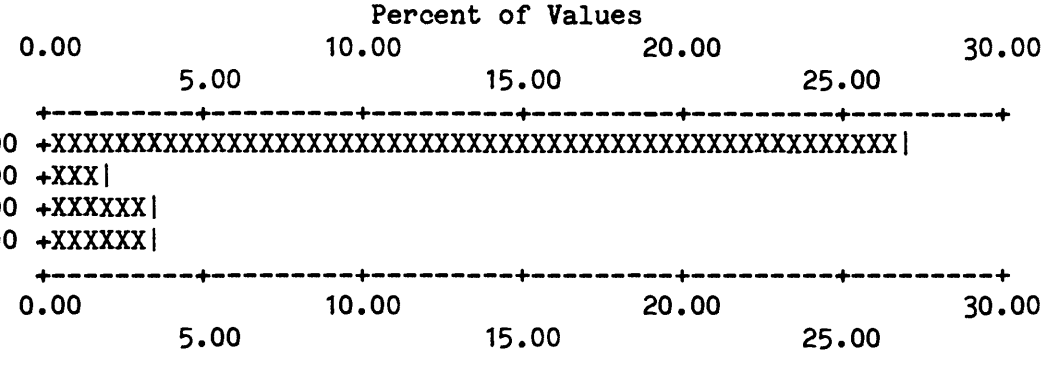
Table 12. Frequency tables and histograms for nonmagnetic heavy-mineral-concentrate samples - (continued)

S-Pb

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	20.000	15	26.79	15	26.8	8.9	51	91.1	8.9
2	30.000	1	1.79	16	28.6	7.1	52	92.9	7.1
3	50.000	2	3.57	18	32.1	3.6	54	96.4	3.6
4	70.000	2	3.57	20	35.7	0.0	56	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	36	0	0	0	20	56	56	VALUES
0.0	0.0	0.0	64.3	0.0	0.0	0.0	35.7			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
20.000	70.00	28.500	16.94	25.353	1.57	20



Each increment (each X or | plotted) = 0.500 %

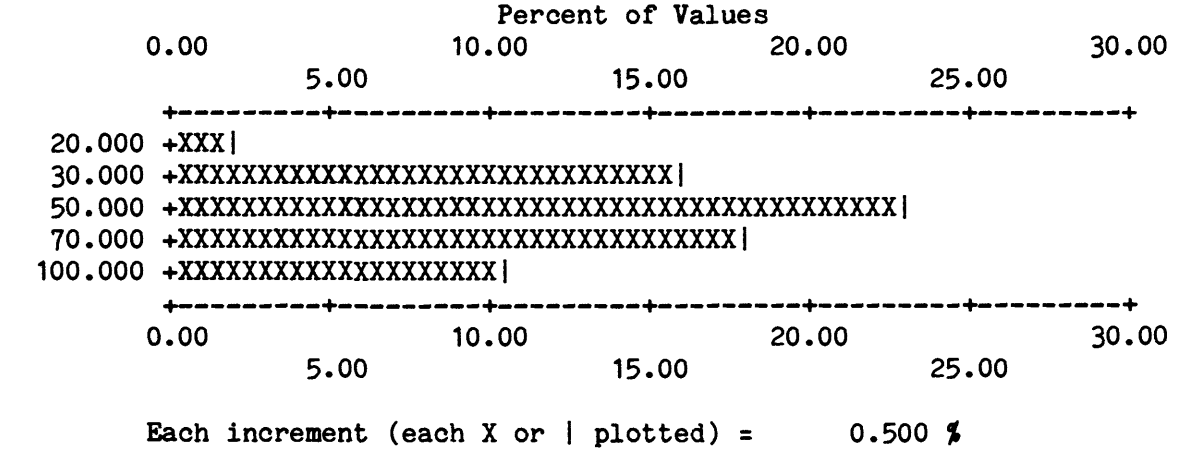
Table 12. Frequency tables and histograms for nonmagnetic heavy-mineral-concentrate samples - (continued)

S-Sn

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	20.000	1	1.79	1	1.8	67.9	18	32.1	67.9
2	30.000	9	16.07	10	17.9	51.8	27	48.2	51.8
3	50.000	13	23.21	23	41.1	28.6	40	71.4	28.6
4	70.000	10	17.86	33	58.9	10.7	50	89.3	10.7
5	100.000	6	10.71	39	69.6	0.0	56	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	17	0	0	0	39	56	56	VALUES
0.0	0.0	0.0	30.4	0.0	0.0	0.0	69.6			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
20.000	100.00	57.436	23.70	52.644	1.54	39



Each increment (each X or | plotted) = 0.500 %

Table 12. Frequency tables and histograms for nonmagnetic heavy-mineral-concentrate samples - (continued)

S-Sr

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	200.000	12	21.43	12	21.4	58.9	23	41.1	58.9
2	300.000	5	8.93	17	30.4	50.0	28	50.0	50.0
3	500.000	15	26.79	32	57.1	23.2	43	76.8	23.2
4	700.000	6	10.71	38	67.9	12.5	49	87.5	12.5
5	1000.000	4	7.14	42	75.0	5.4	53	94.6	5.4
6	1500.000	3	5.36	45	80.4	0.0	56	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	11	0	0	0	45	56	56	VALUES
0.0	0.0	0.0	19.6	0.0	0.0	0.0	80.4			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
200.000	1500.00	535.556	352.37	442.846	1.86	45

```
                          Percent of Values
         0.00               10.00               20.00               30.00
                   5.00               15.00               25.00
         +---------+---------+---------+---------+---------+---------+
 200.000 +XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX|
 300.000 +XXXXXXXXXXXXXXXXX|
 500.000 +XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX|
 700.000 +XXXXXXXXXXXXXXXXXXXX|
1000.000 +XXXXXXXXXXXXX|
1500.000 +XXXXXXXXXX|
         +---------+---------+---------+---------+---------+---------+
         0.00               10.00               20.00               30.00
                   5.00               15.00               25.00

         Each increment (each X or | plotted) =      0.500 %
```

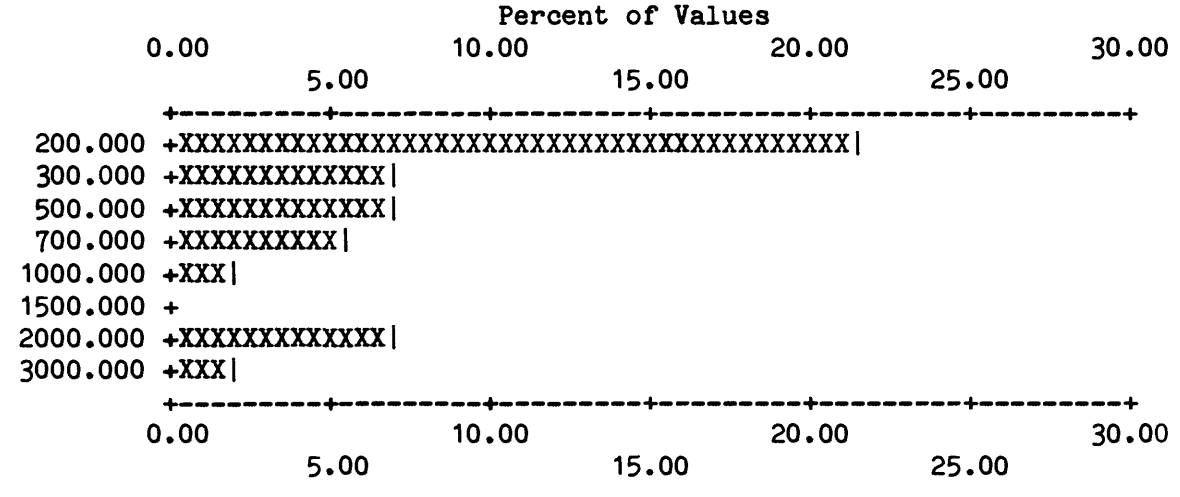
Table 12. Frequency tables and histograms for nonmagnetic heavy-mineral-concentrate samples - (continued)

S-Th

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	200.000	12	21.43	12	21.4	30.4	39	69.6	30.4
2	300.000	4	7.14	16	28.6	23.2	43	76.8	23.2
3	500.000	4	7.14	20	35.7	16.1	47	83.9	16.1
4	700.000	3	5.36	23	41.1	10.7	50	89.3	10.7
5	1000.000	1	1.79	24	42.9	8.9	51	91.1	8.9
6	2000.000	4	7.14	28	50.0	1.8	55	98.2	1.8
7	3000.000	1	1.79	29	51.8	0.0	56	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	19	8	0	0	29	56	56	VALUES
0.0	0.0	0.0	33.9	14.3	0.0	0.0	51.8			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
200.000	3000.00	679.310	754.22	435.590	2.44	29



Each increment (each X or | plotted) = 0.500 %

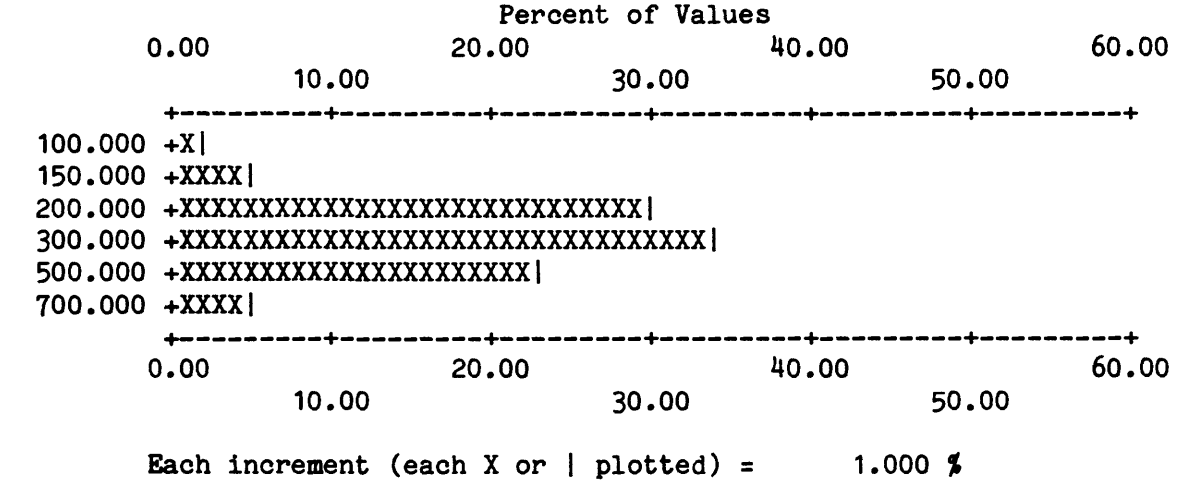
Table 12. Frequency tables and histograms for nonmagnetic heavy-mineral-concentrate samples - (continued)

S-V

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	100.000	1	1.79	1	1.8	98.2	1	1.8	98.2
2	150.000	3	5.36	4	7.1	92.9	4	7.1	92.9
3	200.000	17	30.36	21	37.5	62.5	21	37.5	62.5
4	300.000	19	33.93	40	71.4	28.6	40	71.4	28.6
5	500.000	13	23.21	53	94.6	5.4	53	94.6	5.4
6	700.000	3	5.36	56	100.0	0.0	56	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	0	0	0	0	56	56	56	VALUES
0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
100.000	700.00	325.893	150.15	295.279	1.56	56



Each increment (each X or | plotted) = 1.000 %

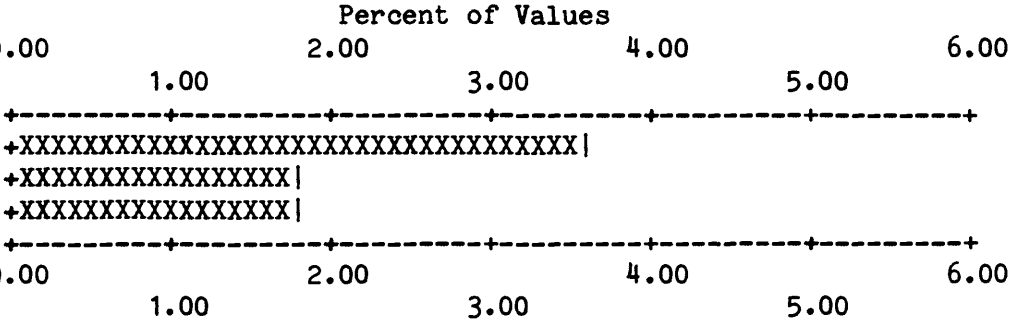
Table 12. Frequency tables and histograms for nonmagnetic heavy-mineral-concentrate samples - (continued)

S-W

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	100.000	2	3.57	2	3.6	3.6	54	96.4	3.6
2	150.000	1	1.79	3	5.4	1.8	55	98.2	1.8
3	200.000	1	1.79	4	7.1	0.0	56	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	50	2	0	0	4	56	56	VALUES
0.0	0.0	0.0	89.3	3.6	0.0	0.0	7.1			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
100.000	200.00	137.500	47.87	131.607	1.40	4



Each increment (each X or | plotted) = 0.100 %

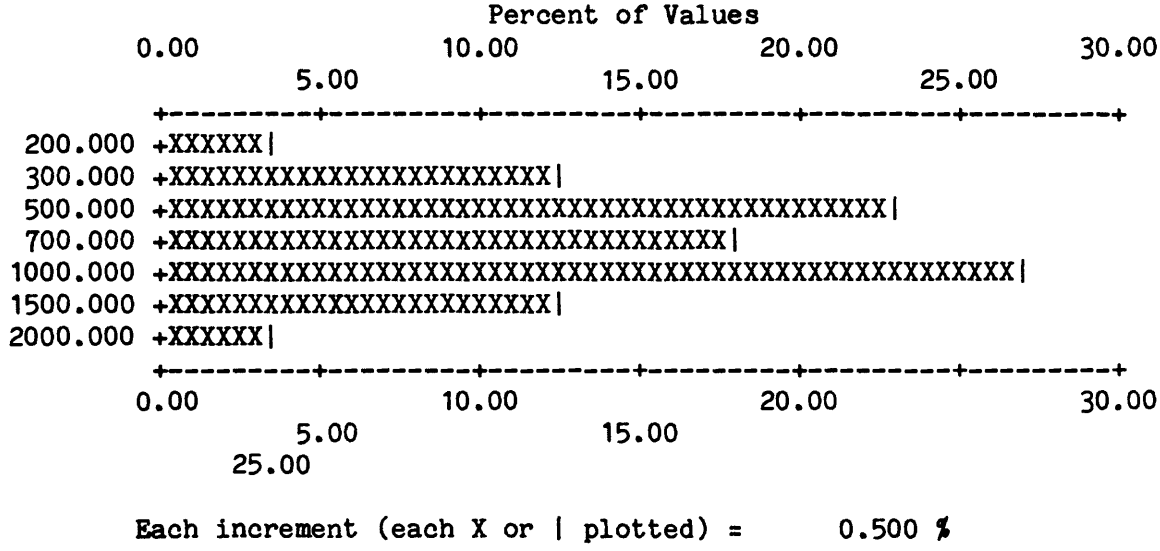
Table 12. Frequency tables and histograms for nonmagnetic heavy-mineral-concentrate samples - (continued)

S-Y

	VALUE	NO.	%	CUM.	CUM. %		TOT CUM	TOT CUM %	
1	200.000	2	3.57	2	3.6	96.4	2	3.6	96.4
2	300.000	7	12.50	9	16.1	83.9	9	16.1	83.9
3	500.000	13	23.21	22	39.3	60.7	22	39.3	60.7
4	700.000	10	17.86	32	57.1	42.9	32	57.1	42.9
5	1000.000	15	26.79	47	83.9	16.1	47	83.9	16.1
6	1500.000	7	12.50	54	96.4	3.6	54	96.4	3.6
7	2000.000	2	3.57	56	100.0	0.0	56	100.0	0.0

B	T	H	N	L	G	OTHER	UNQUAL	ANAL	READ	
0	0	0	0	0	0	0	56	56	56	VALUES
0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0			PERCENT

MIN	MAX	AMEAN	SD	GMEAN	GD	VALUES
200.000	2000.00	812.500	439.86	699.675	1.77	56



Each increment (each X or | plotted) = 0.500 %